EACA & 20
ISCAA 23

CLINICAL AND APPLIED ANATOMY

EACA ISCAA 2023 PRAGUE

17th Congress of European Association of Clinical Anatomy

14th Congress of International Symposium of Clinical and Applied Anatomy

Face-to-face again!

SEPTEMBER 14TH-17TH, 2023

PRAGUE

ABSTRACT BOOK

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Conference Chairs

Conference President:

Prof. Vaclav Baca, MD., PhD., Honorary President of EACA, Member of ISCAA Board

Conference Co-President:

Prof. David Kachlik, MD., PhD., Secretary of ISCAA Board

About the Joint Congress of the EACA and ISCAA

The Joint Congress 2023 in Prague aims to exchange knowledge among educators, scientists, clinicians, and industry regarding the latest developments and innovations in the morphological sciences, both research and education. The EACA/ISCAA 2023 Prague 2023 will include plenary sessions, oral and poster presentations, as well as many special social events with lots of networking opportunities.

Previous EACA Congresses

1st	1991 BRUSSELS, BELGIUM
2nd	1993 MUNICH, GERMANY
3rd	1995 INNSBRUCK, AUSTRIA
4th	1997 LILLE, FRANCE
5th	1999 CONSTANTA, ROMANIA
6th	2001 MONTPELLIER, FRANCE
7th	2003 GRAZ, AUSTRIA
8th	2005 PALERMO, ITALY
9th	2007 PRAGUE, CZECH REPUBLIC
10th	2009 ISTANBUL, TURKEY
11th	2011 PADOVA, ITALY
12th	2013 LISBON, PORTUGAL
13th	2015 ROUEN, FRANCE
14th	2017 WARWICK, GREAT BRITAIN
15th	2019 MADRID, SPAIN
16th	2021 PADOVA, ITALY I on-line

Previous ISCAA Symposia

1st	2009 NOVI SAD, SERBIA
2nd	2010 PRAGUE, CZECH REPUBLIC
3rd	2011 MARIBOR, SLOVENIA
4th	2012 ANKARA, TURKEY
5th	2013 GRAZ, AUSTRIA
6th	2014 RIJEKA, CROATIA
7th	2015 BRATISLAVA, SLOVAKIA
8th	2016 BUDAPEST, HUNGARY
9th	2017 INNSBRUCK, AUSTRIA
10th	2018 MOSCOW, RUSSIA
11th	2019 MADRID, SPAIN
12th	2021 PADOVA, ITALY I on-line
13th	2022 VILAMOURA, PORTUGAL

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PRAGUE

FINAL PROGRAMME AT A GLANCE

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Final Programme at a Glance

Thursday, 14th September

18:00 *Opening Ceremony – Aula Magna Karolini, Ovocný trh 5, Prague 1*

Friday, 15th September

Time	Jonáš´s hall	Burian´s hall	Syllaba´s hall
8:30-8:45	-	-	Opening speeches Baca (EACA), Kachlik (ISCAA)
			O1 - Opening lecture
8:45-9:45	-	-	Kebrle - Clinical Anatomy of the Tendons Trauma in Sportsmen - Return to the Top.
			S1 - Invited lecture
			Benninger
9:45-10:15			S2 - Invited lecture
			Tonar
10:15-10:45			S3 - Invited lecture
			Abdel Meguid
10:45-11:15	*Coffee break, poster viewing*		
11:15-13:15	S4 - Development Chairs: Akita, Tonar	S5 - Lower and Upper Extremity Chairs: Fogg, González-Arnay	S6 - Terminology, Nomenclature Chairs: Kachlik, Musil
	Quinones	Mirjalili	Hage
	Savasan	Al-Redouan	Russell
	Quinones	McCluskey	Cavdar Yilmaz
	Štoković	Olewnik	Kachlík
	Štoković	Panaitescu	Musil
	Ruzik	Benninger	Russell
	Zielinska	Fogg	Stiles
	x	x	x
13:15-13:30			Sponsorship lecture
13:30:-14:30	*Lunch, poster viewing*		
14:00			*Board of EACA*
14:30-16:30	S7 - Variations, Vascular system Chairs: Apaydin, Haviarová	S8 - Abdomen Chairs: Fortelny, Muro	S9 - Radiology, Imaging Chairs: HJ Kim, Benninger
	Narutyte	Fortelny	Cömert
	Navakauskaite	O'Hagan	Lucas-Neto
	Rusu	O'Hagan	Benes
	Apaydin	Pastor	Bilisli
	Balci	Sugiyama	Štoković
	Hur	Tharnmanularp	Benninger
	O'Hagan	Muro	Feigl
	x	x	x
16:30 - 17:00	Poster session		
17:00			*Board of ISCAA*
19:00-21:00	*Social Get Together Networking*		
	Valdstein Garden		

Saturday, 16th September

Time	Jonáš´s hall	Burian´s hall	Syllaba´s hall
8:15-9:00			S10 - Invited lecture
			Totlis
9:00-10:45	S11 - History, Trauma I	S12 - Brain, Nervous system,	S13 - Education in Anatomy I
	Chairs: Lucas-Neto, Macchi	Chairs: Sanudo, Hirtler	Chairs: Totlis, Chung
	Macchi	Muhtaroğlu	Al-Redouan
	Puskas	Batu Öztürk	Chung
	Lucas-Neto	Khadanovich	Mátyás
	Hudák	Çelik	Sánchez-Zuriaga
	Olson	Oliva-Martín	Tekin
	Porzionato		
	x	x	x
10:45-11:00			Sponsorship lecture
11:00-11:15	*Coffee break, poster viewing*		
11:15-13:15	S14 - Plastic, Recon	S15 - Head, Neck,	S16 - Education in Anatomy II
	Chairs: Eric, Konschake	Chairs: Paulsen, Bedi	Chairs: Varga, Biasutto
	Eric	Miller	Antipova
	Ismailoglu	Davenport	Gálfiová
	Park	Miller	O'Hagan
	Balcerzak	Samaraz Olgun	Biasutto
	Aydin	Triantafyllou	Tsiaoussis
	Aydin	Maranillo	Ciucias
	Batu Öztürk	Bedi	Hudák
	x	x	x
13:15	Congress photo		
13:30-14:30	*Lunch, poster viewing*		
15.			EACA General Assembley
14:30-16:30	S17 - Pathology	S18- Spine,	S19 - Education in Anatomy III
	Chairs: Cömert, Pasricha	Chairs: Polguj, Kazoka	Chairs: Bezdickova, Stefan
	Park	İzci	Aydin
	Sharif	Sac	Gielecki
	Tutkuviene	Kazoka	Maslarski
	Yavuz		Niedermair
	Park		Stefan
	Torun		Vieno
	Sánchez-Zuriaga		
	x	x	x
16:30 - 17:00	Poster session		
18:30-22:00	*Social Evening Networking*		
	Aureole Skyscraper		

Sunday, 17th September

Time	Jonáš´s hall	Burian´s hall	Syllaba´s hall
8:00-10:00			S20 - Trauma II, Varia
			Chairs: Baca, Horak
			Horák
			Báča
			Džupa
	x	x	x
10:00			*Closing ceremony*
			Congress Venue

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PRAGUE

PODIUM/ORAL SESSION

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Extended Final Program

THURSDAY, SEPTEMBER 14TH

18:00 ***Opening Ceremony – Aula Magna Karolini, Ovocný trh 5, Prague 1***

FRIDAY, SEPTEMBER 15TH

8:30-8:45 **Opening speeches, Syllaba´s Hall**

Vaclav Baca, Honorary President of European Association of Clinical Anatomy (EACA)

David Kachlik, Secretary of International Symposium of Clinical and Applied Anatomy

8:45-9:15 **O1 Opening Lecture, Syllaba´s Hall**

Radek Kebrle, Czech Republic

CLINICAL ANATOMY OF THE TENDONS TRAUMA IN SPORTSMEN - RETURN TO THE TOP

9:15-9:45 **S2 Invited Lecture, Syllaba´s Hall**

Brion Benninger, USA

A NOVEL PREPARATION OF CADAVER, INNOVATIVE VASCULAR AND NERVE CONTRASTS

9:45-10:15 **S2 Invited Lecture, Syllaba´s Hall**

Zbyněk Tonar, Czech Republic

HISTOLOGICAL MAPPING OF HEALING OF THE SMALL AND LARGE INTESTINE IN THE PORCINE MODEL - IS THERE HOPE FOR EXPERIMENTAL REINFORCEMENT OF INTESTINAL ANASTOMOSES WITH NANOFIBROUS MATERIALS?

10:15-10:45 **S3 Invited Lecture, Syllaba´s Hall**

Eiman Abdel Meguid

ZERO-PROFILE DEVICES VERSUS STAND-ALONE CAGES IN ANTERIOR CERVICAL DISCECTOMY AND FUSION: A RETROSPECTIVE REVIEW

10:45-11:15 Coffee break, Refreshment Area

Poster viewing, Jelinek´s Hall, 3rd floor

11:15-13:15 S4 Development, Jonas´s Hall

Chairs: Keiichi Akita, Zbynek Tonar

Quinones S., Padules C., Maranillo E., Sanudo JR., Cuesta MA.

MESOESOPHAGUS: AN EMBRYOLOGICAL DESCRIPTION OF A QUESTIONED S TRUCTURE AND ITS STRONG RELATIONSHIP WITH THE VAGUS NERVE.

Savasan C., Can M., Uckaris M., Keskinöz EN., Aktekin M.

EXPLORATION OF THE INTRA-ORBITAL PATTERN OF CRANIAL NERVES IN THE SECOND TRIMESTER OF FETUSES

Quinones S., Puelles E., Viejo-Tirado F., Adrados I., Sanudo JR., Maranillo E.

THE FACIAL NERVE: A PRELIMINARY IMMUNOHISTOCHEMICAL ANALYSIS OF ITS DEVELOPMENT IN HUMAN.

Štoković N., Ivanjko N., Vukić M., Čemerin M., Rosandić T., Vukić J., Bojanić K.

POSTNATAL DEVELOPMENT OF TEMPORAL BONE

Štoković N., Bojanić K., Čemerin M., Vukić KJ., Vukić M., Rosandić T., Ivanjko N.

POSTNATAL DEVELOPMENT OF NASAL CAVITY

Ruzik K., Gonera B., Balcerzak A., Zielinska N., Borowski A., Olewnik L.

COMPARISON OF CALCANEOFIBULAR LIGAMENT MORPHOLOGY BETWEEN ADULT CADAVERS AND HUMAN FETUSES.

Zielinska N., Ruzik K., Podgórski M., Koptas K., Moryś J., Paulsen F.

COMPARATIVE STUDY OF MORPHOLOGICAL VARIABILITY OF THE PECTORALIS MAJOR MUSCLE IN HUMAN FETUSES AND ADULTS.

11:15-13:15 S5 Lower and Upper Extremity, Burian´s Hall

Chairs: Quentin Fogg, Emilio González-Arnay

Cronje JY., Mirjalili A., Agur AMR., Tran J.

NEONATAL GASTROCNEMIUS ARCHITECTURE – PRELIMINARY DATA FOR A 3D VOLUMETRIC STUDY

Al-Redouan A., Sadat SM., Theodorakioglou A., Shailesh D., Hofmann I., Kachlik D.

ENHANCING ULTRASOUND VISIBILITY OF THE SUPRASCAPULAR NOTCH AS A DIAGNOSTIC ALGORITHM FOR SUPRASCAPULAR NOTCH STENOSIS

McCluskey J., Benninger B.

PEARLS TO DISSECT THE MEDIAL KNEE LAYERING TECHNIQUE

Olewnik L., Zielinska N., Ruzik K.

QUADRICEPS OR MULTICEPS FEMORIS? – CADAVERIC STUDY

Panaitescu Ch., Djemil R., Olson C., Benninger B.

GREAT SAPHENOUS VEIN CUT DOWN, CONSISTENT NEW DISTAL LANDMARK TERMINOLOGY WITH CRURAL FASCIA REINFORCEMENT?

Benninger B.

NEWLY TERMED TIBIAL-SOLEAL GROOVE (TSG) PROVIDES IMPORTANT LANDMARK FOR GREAT SAPHENOUS VEIN/NERVE

Fogg Q.

SCAPHOID SLINGS AND SWINGS: PALMAR AND DORSAL MECHANISMS FOR TYPED CARPAL MOTION PATTERNS.

11:15-13:15 S6 - Terminology, Nomenclature, Syllaba´s Hall

Chairs: David Kachlik, Vladimir Musil

Hage R.

TO HEAR ONE'S BREATH; UNVEILING THE EPONYMOUS QUARTET, A HISTORICAL EXPLORATION OF THE EUSTACHIAN TUBE

Russell S.
WHY DO CLINICIANS GET TO HAVE ALL THE FUN? THE CASE FOR INVENTING LATIN ANATOMICAL NAMES.

Cavdar Yilmaz NP., Cömert A., Kachlik D., Acar HI.
CONTRIBUTION TO THE ANATOMICAL NOMENCLATURE CONCERNING ANTEROLATERAL KNEE ANATOMY

Kachlík D., Baud R., ten Donkelaar HJ.
TAH – A NEW VERSION OF ANATOMICAL NOMENCLATURE

Musil V., Modrý M., Stingl J., Kachlík D.
HISTORICAL FRAGMENTS TO CZECH ANATOMICAL TERMINOLOGY

Russell S.
A SOLUTION IN SEARCH OF A PROBLEM: THE DILEMMA OF OS – AN ORAL HISTORY

Stiles L.
PARTES ATYPICAE: TOWARDS A SYSTEMATIC NOMENCLATURE FOR VASCUL ANATOMICAL VARIANTS

13:15-13:30 Sponsorship lecture, Syllaba´s Hall
Siemens HealthCare

13:30:-14:30 Lunch, Refreshment Area
Poster viewing, Jelinek´s Hall 3rd floor

14:00 Board of EACA

14:30-16:30 S7 - Variations, Vascular system, Jonas´s Hall
Chairs: Nihal Apaydin, Zora Haviarová

Narutyte R., Navakauskaite A., Brazaitis A., Barkus A., Tutkuviene J.
DIFFERENCES IN PORTAL VEIN VARIATIONS USING DIFFERENT CLASSIFICATIONS FOR CHARACTERIZATION OF BRANCHING PATTERNS

Navakauskaite A., Narutyte R., Brazaitis A., Barkus A., Tutkuviene J.
ANATOMICAL VARIABILITY OF THE PORTAL VEIN IN PATIENTS CT IMAGES AND CORROSIVE LIVER SPECIMENS FROM AN ANATOMICAL COLLECTION: SIMILARITIES AND DIFFERENCES

Rusu M.
UNEXPECTED ANATOMICAL VARIANTS OF THE CAROTID ARTERIES OCCUR CONSTANTLY AND DO NOT FIT THE CLASSICAL DESCRIPTIONS

Apaydin N., Balci A., Kendir S., Karahan T.
COMPARISON OF THE CONTRAST MEDIUMS FOR EVALUATION FOR INTRAOSSEOUS AND EXTRAOSSEOUS VASCULAR ANATOMY

Balci A., Apaydın N., Yıldıran G., Güvener O., Kendir S., Sanal HT., Akdağ O., Karahan ST.
3-DIMENSIONAL INVESTIGATION OF THE VASCULAR ANATOMY OF THE TRIQUETRUM WITH MICRO-COMPUTED TOMOGRAPHY

Hur MS., Park HJ., Oh CS.
BILATERAL HAND OLIGODACTYLY: ANATOMICAL STUDY

O'Hagan L., Moazzam S., Mirjalili A.
ANATOMY OF THE CISTERNA CHYLI: A SYSTEMATIC REVIEW

14:30-16:30 S8 – Abdomen, Burian´s Hall
Chairs: Rene Fortelny, Satoru Muro

Fortelny R., Konschake M.
UMBILLICUS – THE NATURAL ORIFICE FOR SURGICAL ACCESS

O'Hagan L., Clarke A., Phillips A., Windsor J. Mirjalili A.
DYNAMIC STUDIES OF THE HUMAN THORACIC DUCT AND LYMPHOVENOUS JUNCTION USING HEAVILY WEIGHTED T2 MAGNETIC RESONANCE IMAGING: A PILOT STUDY

O'Hagan L., Yassaie S., Mirjalili A.
ANATOMY OF THE SURGICAL PNEUMOPERITONEUM USING COMPUTED TOMOGRAPHY

Pastor J., Kachlík D.
THE ANATOMY OF ABDOMINAL FUSION FASCIAS AND THEIR SIGNIFICANCE FOR ONCOLOGICAL SURGERY

Sugiyama Y., Muro S., Ban D., Akita K.
THE FUSION FASCIA AFFECTS THE COURSE OF THE NERVES TO THE PANCREAS

Tharnmanularp S., Muro S., Nimura A., Akita K.
INSIGHTS INTO THE APONEUROTIC ATTACHMENT OF ABDOMINAL-THIGH ADDUCTOR MUSCELS TO PUBIS AND MRI DIAGNOSIS FOR GROIN PAIN

Muro S., Tharnmanularp S., Tsukada Y., Ito M., Akita K.
ANALYSIS OF SMOOTH MUSCLE FIBER DENSITY IN ANTERIOR TO MALE RECTUM

14:30-16:30 **S9 - Radiology, Imaging, Syllaba´s Hall**
Chairs: , Brion Benninger

Cömert A., Cömert E.
SURGICAL NEUROANATOMY AND RADIOLOGICAL EVALUATION OF 3D RECONSTRUCTED SEMICIRCULAR CANALS, VESTIBULE, COCHLEA, AND THEIR RELATIONSHIP WITH NEIGHBORING STRUCTURES IN TEMPORAL BONE

Lucas-Neto L., Correia MA.
IS THERE BRAIN ATROPHY? VOLUME ASSESSMENT IN MRI - NEURORADIOLOGISTS VS ARTIFICIAL INTELLIGENCE

Benes M., Fulin P., Kachlik D., Al-Redouan A., Tomaides J., Kysilko M., Salavova S., Kunc V.
PHYSIOLOGICAL THINNING OF THE GLENOID ARTICULAR CARTILAGE WITH EMPHASIS ON THE UNDERLAYING OSSEOUS MORPHOLOGY

Bilisli E., Sehirli US., Ekinci G., Ulug A., Fırat Z.
INVESTIGATION OF STRUCTURAL AND FUNCTIONAL CHANGES OF EPILEPTOGENIC FOCI ON MAGNETIC RESONANCE IMAGING DATA IN PATIENTS WITH TEMPORAL LOBE EPILEPSY

Štoković N., Ivanjko N.
APPLICATION OF MICROCT TECHNOLOGY IN ANATOMICAL STUDIES

Benninger B., Echols S.
NOVEL INNOVATIVE NERVE ENHANCING STAIN REVEALS PERIPHERAL NERVES FROM CROSS SECTIONAL IMAGING

Feigl G., Jaeger D., Baumgartner Ch., Hinrichs E.
TEACHING AND TESTING ANATOMY OF BIOMEDICAL ENGINEERING STUDENTS: EXPERIENCES PRIOR, DURING AND POST COVID-PANDEMIC

16:30 - 17:00 Poster session, Jelinek´s Hall 3rd floor

17:00 Board of ISCAA, Syllaba´s Hall

19:00-21:00 Social Get Together Networking, *Valdstein Garden*

SATURDAY, SEPTEMBER 16TH

8:15-9:00 S10 Invited lecture

Trifon Totlis, Greece

ANATOMY TEACHING IN THE ERA OF ARTIFICIAL INTELLIGENCE

9:00-10:45 S11 History, Trauma I, Jonas´s Hall
Chairs: Lia Lucas-Neto, Veronica Macchi

Macchi V., Gabriele V., Stecco C., Boscolo-Berto R., Porzionato A., De Caro R.
THE STAIRS OF LIFE OF THE PADUAN SCHOOL OF ANATOMY

Puskas N., Simic JJ.
INSTITUTE OF HISTOLOGY AND EMBRYOLOGY IN THE BUILDING WHICH WAS THE PRIDE OF THE FACULTY OF MEDICINE IN THE INTERWAR PERIOD

Lucas-Neto L., Sousa M., Teixeira C., Mendes A., Oliveira P.
BEYOND TEACHING ANATOMY: THE ROLE OF AN ANATOMY PROFESSOR PROMOTING THE HISTORY AND SPOLIA OF THEIR DEPARTMENT

Hudák R.
THE MOST COMMON ANATOMICAL LOCATIONS OF TRAMPOLINE INJURIES

Olson C., Kachlík D., Al-Redouan A.
3D PRINTED INTERNAL FIXATION PLATES FROM COMPUTERIZED TOMOGRAPHY DATA OF ACROMION FRACTURES IN CADAVERS

Porzionato A., Stocco E., Barbon S., ConfalonieriM., Petrelli L., Ceroni L., Contran M., Pavan PG., Todros S., Tiengo C., Menna E., Macchi V., De Caro R.
FABRICATION AND CHARACTERIZATION OF NEW CONDUCTIVE NERVE CONDUITS FOR SEVERE PERIPHERAL NERVE INJURY RECOVERY: A COMPARATIVE STUDY IN ANIMAL MODEL OF DISEASE

9:00-10:45 **S12 Brain, Nervous system, Burian´s Hall**
Chairs: Jose Sanudo, Lena Hirtler

Muhtaroğlu M.
THE INCIDENCE AND ANATOMIC PATTERN OF ISOLATED PONS INFARCT IN NORTHERN CYPRUS: A SINGLE-CENTERED RETROSPECTIVE STUDY

Batu Öztürk A., Koç T., Kozhakhan A., Öztürk NC.
GOLGI-COX IMPREGNATION COUPLED WITH IMMUNOLABELING OF EPIGENETIC MARKERS IN THE MOUSE BRAIN

Khadanovich A., Beneš M., Kaiser R., Herma T., Kachlík D.
CLINICAL ANATOMY OF THE LATERAL ANTEBRACHIAL CUTANEOUS NERVE: IS THERE ANY SAFE ZONE FOR INTERVENTIONAL APPROACH

Çelik E., Yılmaz M., Kendir S., Apaydın N.
MUSCULAR BRANCH PATTERN OF DEEP FIBULAR NERVE

Oliva-Martín M., González-Arnay E., Real-Yanes L.
QUANTITATIVE STUDY OF PERIPHERAL NOCICEPTIVE NEURONS ALONG THE LIFESPAN; MURINE VS HUMAN MODELS

Khasawneh R., Abu-El-Rub E., Al-Soudi H., Almahasneh F.
ANATOMICAL ANALYSIS OF THALAMUS IN MULTIPLE SCLEROSIS AND THE EFFECT OF INTERFERON BETA-1 TREATMENT IN MODULATING THE STRUCTURE OF THALAMUS

9:00-10:45 **S13 Education in Anatomy I, Syllaba´s Hall**
Chairs: Trifon Totlis, Min Suk Chung

Al-Redouan A., Kachlik D.
HOW VISIBLE HUMAN PROJECT BASED APPLICATIONS CAN PROMPT INTEGRATING CROSS-SECTIONAL ANATOMY INTO THE MEDICAL SCHOOL CURRICULUM

Chung MS.
EFFECTS OF AN EASY NEUROANATOMY BOOK WITH SCHEMATICS ON STUDENT LEARNING

Mátyás A.
THE USE OF „CADAVER ANATOMY", A CADAVER-BASED 3D ANATOMY ATLAS

Sánchez-Zuriaga D., Zaragozá-Colom R., Gimeno-Monrós A., Alberola-Zorrilla P.
DO OUR STUDENTS PREFER A ONE-WAY WEBSITE OR A PARTICIPATIVE INSTAGRAM PROFILE? THE USE OF INSTAGRAM METRICS AND WEB ANALYTICS IN HUMAN ANATOMY EDUCATIONAL RESEARCH

Tekin B., İzci M., Pelin C., Ateş EG.
THE EFFECT OF THE VOCATIONAL TRAINING PROCESS ON HAND STRUCTURE AND FUNCTIONALITY IN DENTAL STUDENTS

10:45-11:00 **Sponsorship lecture Elsevier**

11:00-11:15 Coffee break, Refreshment Area
Poster viewing, Jelinek´s Hall 3rd floor

11:15-13:15 S14 Plastic, Reconstruction, Jonas´s Hall
Chairs: Mirela Eric, Marko Konschake

Eric M.
ANATOMICAL BASES OF VASCULAR COMPLICATIONS OF FACIAL HYALURONIC FILLERS INJECTION

Ismailoglu P., Ismailoglu AV., Aktekin M.
MAPPING THE VASCULAR AND MUSCULAR TOPOGRAPHY OF THE GLABELLAR REGION: IMPLICATION FOR IMPROVING THE SAFETY AND EFFICACY OF THE GLABELLAR INJECTIONS

Park HJ., Hur MS.
THE TRAJECTORY OF THE CORRUGATOR SUPERCILII IN THE UPPER AND MIDFACE FOR AESTHETIC PROCEDURES

Balcerzak A., Gonera B., Olewnik L.
OPTIMIZING ITB GRAFT HARVESTING: MORPHOLOGICAL INSIGHTS FROM A PILOT STUDY

Aydin M., Bal HS., Balci A., Kuru CA., Kuru I., Acar HI.
PEDICLED VASCULARIZED BONE GRAFT FROM SECOND METACARPAL HEAD FOR RECONSTRUCTION OF SCAPHOID PROXIMAL POLE WITH SCAPHOLUNATE DORSAL LIGAMENT

Aydin M., Alpat SE., Kaya B., Acar HI.
CAN WE RAISE A STERNOCHONDRAL JOINT FREE FLAP BASED ON INTERNAL THORACIC VESSELS?: A PRELIMINARY CADAVERIC STUDY

Batu Öztürk A., Yılmaz BC., Yılmaz EB., Us SB., Yetkin D., Öztürk NC.
REPAIRING THE NEURAL CELL DAMAGE INDUCED BY IONIZING RADIATION VIA IMMUNE RESPONSE

11:15-13:15 S15 Head, Neck, Burian´s Hall
Chairs: Friedrich Paulsen, Ravinder Singh Bedi

Miller N., Benninger B.
RELATIVE ANCHORS OR RETAINING LIGAMENTS OF THE PLATYSMA FROM THE TRUNK, NECK, FACE, AND HEAD ASSOCIATED WITH RHYTIDECTOMIES FROM NOVEL GAX-SPECIMENS, FRESH-FROZEN AND FORMALIN-FIXED CADAVERS

Davenport C., Cariello Ch., Garman A., Benninger B.
CONDUCTING THYROID GLAND POCUS FROM NOVEL PREPARED IMAGED SPECIMENS VERSUS FRESH FROZEN AND FORMALIN FIXED CADAVERS WITH DISSECTION

Miller N., Williams J., Benninger B.
PAROTID GLAND FASCIA DEMONSTRATED BY NOVEL PREPARED GAX-SPECIMENS WITH INNOVATIVE CONTRAST IMAGING AND FRESH FROZEN CADAVERS SUPPORTING REVISED MORPHOLOGY

Samaraz Olgun P., Acar HI., Balcı A.
IMPORTANCE OF AN UNCLEAR FASCIAL LAYER, STYLOPHARYNGEAL FASCIA: AN ANATOMICAL STUDY

Triantafyllou G., Piagkou M., Fiska A., Tsakotos G., Politis C., Koutserimpas Ch., Skrzat J., Olewnik L., Zielinska N., Totlis T., Karampelias V., Natsis K.
THE OSSIFICATION PATTERN OF THE SPHENOID BONE LIGAMENTS: A MORPHOLOGICAL STUDY ON DRIED ADULT SKULLS

Maranillo E., González-Gala L., Pérez-Lloret P., Verdú E., Hernández-Fernández LM., Quinones S., Sanudo JR., Vázquez MT.
ANATOMICAL AND FUNCTIONAL STUDY OF THE LARYNGEAL NERVES IN MINIPIGS

Bedi RS.
A RADIOLOGICAL STUDY OF MANDIBULAR CANAL ANATOMY AND ITS VARIATIONS

11:15-13:15 S16 Education in Anatomy II, Syllaba´s Hall
Chairs: Ivan Varga, Susana Biasutto

Antipova V., Siwetz M., Engelhardt M., Fellner FA., Manhal S., Niedermair JF., Ondruschka B., Pietras SM., Poilliot AJ., Pretterklieber ML., Wimmer-Röll M., Wree A., Hammer N.
UNDERGRADUATE MEDICAL STUDENT LEARNING GAIN RELATED TO 1- VERSUS 3-MONTH REGIONAL ANATOMY DISSECTION COURSE

Gálfiová P., Lorencová M., Kosnáč D., Bábelová M., Juríková M., Varga I., Polák Š.
THE ULTRASTRUCTURE OF GIT ORGANS USING SEM IN EDUCATION OF THEIR MIKROSCOPIC STRUCTURE

O'Hagan L., Yassaie S., Mirjalili A.
3D ANATOMY OF THE PERITONEAL CAVITY

Biasutto S.
CREATE AND DISSEMINATE A BODY DONATION PROGRAM IN THE XXI CENTURY

Tsiaoussis J., Koliarakis I., Tsitsipanis Ch., Ageridis S., Fousteri I.
STUDENTS' OPINIONS ON THE INTEGRATION OF NOVEL EDUCATIONAL TOOLS IN THE LABORATORY EXERCISES OF ANATOMY

Ciucias M., Gielecki J.
AN INTERACTIVE WEB APPLICATION FOR DELIVERING PHOTOGRAMMETRY MODELS IN ANATOMY EDUCATION

Hudák R., Kachlík D.
3D ATLAS ANATOMYKA AND ANATOMAGE VIRTUAL TABLE TRANSFORMS HOW STUDENTS LEARN ANATOMY – THREE-YEAR QUESTIONNAIRE COMPARISON

13:15 ***Congress photo***

13:30-14:30 **Lunch, Refreshment Area**
Poster viewing, Jelinek´s Hall 3rd floor

14:00 **EACA General Assembley**

14:30-16:30 **S17 Pathology, Jonas´s Hall**
Chairs: Ayhan Cömert, Navbir Pasricha

Park JS., Kim CY., Choi J.
REAL COLOR SECTIONED IMAGES AND THREE-DIMENSIONAL MODELS OF PANCREATIC CANCER AND ITS LYMPH NODE METASTASES

Sharif M., Polivka J., Treskova I., Houfkova K., Knizkova T., Woznica V., Fikrle T., Pivovarcikova K., Svaton M., Shetti D., Negi R., Pesta M.
PREOPERATIVE PLASMA MIRNA LEVELS PREDICT PROGNOSIS IN EARLY-STAGE MALIGNANT MELANOMA

Tutkuviene J., Gervickaite S.
WORLDWIDE VARIATION IN THE AGE AT MENOPAUSE BY GEOGRAPHIC REGIONS, SOCIOECONOMIC FACTORS, AND FOOD CONSUMPTION

Yavuz A., Cetinkaya E., Erdem TI., Cemil G., Buket Y.
PREOPERATIVE MORPHOLOGIC AND QUANTITATIVE ASSESSMENT OF SKULL BASE DEFECTS IN INVASIVE CHOLESTEATOMA: 3D VOLUME-RENDERING (VR) CT EVALUATION

Park HJ., Hur MS., Park YH., Oh CS.
HISTOPATHOLOGY IN AN ANATOMY LABORATORY

Torun BI., Balaban M., Hatipoglu SC.
RELATIONSHIP OF STRUCTURAL AND DEGENERATIVE DEFORMITIES OF THE FOOT AND PES PLANUS

Alberola-Zorrilla P., Sánchez-Zuriaga D.
RECTUS AND BICEPS FEMORIS LIGAMENTO-MUSCULAR REFLEX ON HEMOPHILIC ARTHROPATHY

14:30-16:30 S18 Spine, Burian´s Hall
Chairs: Michal Polguj, Dzintra Kazoka

İzci M., Akınoğlu B., Yosmaoğlu HB., İncekaş C., Pelin C.
THE RELATIONSHIP OF DYNAMIC AND STATIC Q-ANGLE WITH KINETIC, KINEMATIC AND ANTHROPOMETRIC CHARACTERISTICS OF THE LOWER LIMB

Sac A., Sencan S., Biyikli E., Gunduz OH., Sehirli S.
THE EFFECT OF SUBCUTANEOUS FAT TISSUE THICKNESS ON LUMBAR TRANSFORAMINAL EPIDURAL STEROID INJECTION TREATMENT SUCCESS - PRELIMINARY RESULTS

Kazoka D., Pilmane M.
ANALYSIS OF THE ANATOMICAL AND ANTHROPOMETRICAL DIFFERENCES IN SACRAL BONES: SAMPLES FROM VIRTUAL DISSECTION TABLE

14:30-16:30 S19 Education in Anatomy III, Syllaba´s Hall
Chairs: Marcela Bezdickova, Cristian Stefan

Aydin M., Comert A., Coruh S., Aydin BN., Cakir RM., Akbuga I., Acar H.
A CROSS-SECTIONAL SURVEY ON UNIVERSITY STUDENTS' KNOWLEDGE, ATTITUDES AND BEHAVIORS REGARDING ORGAN, TISSUE, AND BODY DONATION

Gielecki J.
A MULTILEVEL, MULTIMODAL, AND INDIVIDUALIZED APPROACH AS A NEW STRATEGY IN TEACHING 3D ANATOMY: A GLIMPSE INTO THE HISTORY OF ANATOMICAL SPATIAL VISUALIZATION

Maslarski I., Mitev A., Stoykov V., Spiriev T., Dimitrov N., Nakov V.
PHOTOGRAMMETRY APPLIED TO ANATOMICAL TEACHING. CREATING A THREE-DIMENSIONAL PHOTOREALISTIC ANATOMICAL DATABASE FOR MEDICAL EDUCATION

Niedermair JF., Antipova V., Manhal S., Siwetz M., Wimmer-Röll M., Hammer N., Fellner FA.
ON THE ADDED BENEFIT OF VIRTUAL ANATOMY FOR DISSECTION-BASED SKILLS

Stefan C.
AN INNOVATIVE APPROACH THAT COMBINES PROCESSING OF INFORMATION, APPLICATION OF KNOWLEDGE AND CRITICAL THINKING IN EXPECTED AND UNEXPECTED CONTEXTS

Vieno K., Campbell N., Pecyna A., Rogers K.
ANATOMICAL VARIATIONS IN GROSS ANATOMY EDUCATION: A SCOPING REVIEW

16:30 - 17:00 Poster session, Jelinek´s Hall 3rd floor

18:30-22:00 Social Evening Networking, *Aureole Skyscraper*

SUNDAY SEPTEMBER 17TH

8:00-10:00 **S20 Trauma II, Varia, Syllaba´s Hall**
Chairs: Vaclav Baca, Zdenek Horak

Horák Z., Báča V., Vilimek M., Salášek M., Mazura M., Kachlík D., Grill R., Džupa V.
LOADING AND STRUCTURE OF THE SYMPHYSIS DURING STANCE PHASE WALKING ON ONE LIMB: A FINITE ELEMENT MODEL

Báča V., Džupa V., Grill R., Otčenášek M., Dvořáková V., Vilímek M., Báčová T., Horák Z.
A COMPREHENSIVE MULTIDISCIPLINARY VIEW OF PELVIC TRAUMA THROUGH THE EYE OF A MORPHOLOGIST

Džupa V., Marvan J., Macák D., Dupal T., Báča V.
WHAT IS THE MORPHOLOGICAL BASIS OF POST-RADIATION PELVIC FRACTURES?

10:00 **Closing Ceremony, *Congress Venue***

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POSTER SESSIONS

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Poster Sessions

FRIDAY SEPTEMBER 15TH

POSTER SESSION 1, Jelínek ´s Hall 3rd floor

8:00-17:00

1 Bae JS., Kim GY., Youn KH., Choi NR., Kim HJ., Gil YC.
A STUDY ON THE CREATION AND UTILIZATION OF BASIC IMAGES FREQUENTLY USED IN ANATOMY EDUCATION

2 Davey R.
IMPLICATIONS ON LEARNERS OF A NEAR-PEER INTERDISCIPLINARY APPROACH TO UNDERGRADUATE HUMAN ANATOMY EDUCATION

3 Garman A., Cariello Ch.,
DEMONSTRATING AN INNOVATIVE MODIFIED CLAMSHELL TECHNIQUE FOR EITHER SINGLE OR 2-PERSON USERS ON NOVEL EMBALMED IMAGED CADAVERS TRAINING NON-CARDIOTHORACIC SURGEONS TO SUCCESSFULLY PERFORM EMERGENCY THORACOTOMY FOR REALISTIC LIFE-SAVING SKILLS.

4 Garman A., Benninger B.
USING NOVEL GAX CADAVERS WITH INNOVATIVE CONTRAST AND SUBSEQUENT IMAGING VERSUS TRADITIONAL EMBALMED CADAVERS CREATING A MENTAL TEMPLATE OF LIFELIKE MORPHOLOGY FOR LEARNING AND TRAINING BILIARY/GALLBLADDER ASSOCIATED ANATOMY WHILE PROVIDING ACCURATE DEFIN

5 Gray Ch., Larrinua O.
DANGER ZONE TEACHING CONCEPT OF THE CUBITAL FOSSA HIGHLIGHTED BY NOVEL GAX SPECIMEN DISSECTIONS

6 John S., Davey R., Bezdickova M., Cotton G., Keogh K.
CANDID (COLLABORATIVE ANATOMY NEAR-PEER DEMONSTRATOR-LED INTER-DISCIPLINARY EDUCATION TRIAL)

7 Kazoka D., Pilmane M.
TENDENCIES AND USAGE OF THE RECORDED ANATOMY DEMO CLASS MATERIALS FOR STUDENTS' SELF-LEARNING

8 Kim SK., Hur MS., Kim CY., Park JS.
THE UPPER LIMB ATLAS OF ULTRASOUND IMAGES AND SECTIONED IMAGES

9 Lee KL., Jeong DH., Lee DR., Sung JY.
ANALYSIS OF THE EFFECT OF FUNCTIONAL MOVEMENT ACCORDING TO BODY BALANCE ON GRAVITATIONAL ACCELERATION-BASED PHYSICAL ACTIVITY

10 Łopińska M., Polak-Boroń K., Ciucias M., Gielecki J.
REMOTE ANATOMY EDUCATION DURING THE COVID-19 PANDEMIC: MEDICAL STUDENTS' PERCEPTIONS

11 Gálfiová P., Polakovičová S., Mikušová R., Juríková M., Klein M., Csöbönyeiová M., Varga I.
TEACHING HUMAN EMBRYOLOGY NOWADAYS: ARE THE SPECIMENS OF HUMAN EMBRYO STILL USEFUL ENOUGH?

12 Polak-Boroń K., Łopińska M., Ciucias M., Gielecki J.
EXPLORING TWO NEW INNOVATIVE TEACHING FORMATS IN ANATOMY EDUCATION

13 Rebacz P., Ehlers J., Reiss G.
MEDIA USE BETWEEN STUDENTS AND LECTURES

14 Webster S., Summers Ch., Bezdickova M.
WHY DO PEOPLE WATCH ANATOMY VIDEOS ON YOUTUBE?

15 Webster S., Summers Ch., Bezdickova M., Graham-Woollard D.
AN EDUCATIONAL 3D PRINTED KNEE LIGAMENT MODEL

16 Williams J., ogan A., Cariello Ch., Benninger B.
INVENTING, CONDUCTING, AND TEACHING AN INNOVATIVE B-3 TECHNIQUE FOR A TRANSFORMATIVE CHEST DRAIN REACTOR INSTRUMENT IMPROVING THE CURRENT STATUS QUO PROCEDURE WITH NOVEL GAX-SPECIMENS.

17 Witkowska-Zimny M.
THE USE OF DIGITAL TOOLS IN TEACHING ANATOMY TO NURSING STUDENTS - OWN EXPERIENCE

18 Abdel Meguid E., Sommerville A.
MAIN PERIPHERAL NERVE INJURIES INVOLVING THE UPPER LIMB AND THE FACTORS THAT IMPACT THE SUCCESS RATE OF RECOVERY.

19 Benninger B.
STEREOSTRUCTURAL ANATOMY: POSTERIOR AND ANTERIOR ARM BOTH HAVE TRICEPS MUSCLE REPRESENTATION

20 Bettencourt-Pires M., Silva-Junior EX., Casanova-Martinez D., Olewnik LH., Coluna GF., Casal D., Pais D.
A VERY RARE ANATOMICAL VARIATION OF THE BRACHIORADIALIS MUSCLE CAUSING RADIAL NERVE COMPRESSION: THE “WARTENBERG SYNDROME”

21 Bruechert G., Barton-Smith R., Fogg Q.
EXPLORING THE COMPLEXITIES OF THE BRACHIAL PLEXUS: DOCUMENTING VARIABLE PATTERNS AND SURROUNDING TISSUE RELATIONS

22 Fiska A., Malkidou N., Syggelos S.
FISHTAIL AND VARUS DIAPHYSEAL DEFORMITY IN A CADAVERIC HUMERUS

23 González-Arnay E., Pérez-Santos I.
MEASUREMENTS OF THE GLENOHUMERAL LIGAMENTS ACCORDING TO THEIR PATTERN OF DISTRIBUTION: A DESCRIPTIVE STUDY IN SOFT EMBALMED SHOULDERS

24 Hur MS., Choi SK., Seu Y., Park HJ., Park JS., Kim H.
ATTACHMENTS OF THE DISTAL OBLIQUE MEMBRANE AND DISTAL OBLIQUE BUNDLE TO THE DISTAL RADIOULNAR JOINT CAPSULE, ARTICULAR DISC, AND SEPTUM OF EXTENSOR TENDON SHEATH

25 Lee J.
THE ANATOMICAL STUDY IN THE TRIANGULAR SPACE OF THE UPPER EXTREMITY

26 Lee HY., Jung S., KIM S.
TOPOGRAPHIC ANATOMY OF THE RADIAL ARTERY IN THE ANATOMICAL SNUFFBOX

27 McCluskey J., Arsenault L., Olden A., Benninger B.
IMPROVED DISTAL UCL ATTACHMENT OF THE ELBOW WITH POCUS, INNOVATIVE CONTRAST CT WITH NOVEL GAX-SPECIMENS AND FORMALIN FIXED CADAVERS

28 Pasiphol K., Agthong S., Thamrongskulsiri N., Dokthien S., Huanmanop T., Chentanez V.
STRUCTURAL INSIGHTS INTO THE FIRST EXTENSOR COMPARTMENT AND SUPERFICIAL RADIAL NERVE: IMPLICATIONS FOR DE QUERVAIN TENOSYNOVITIS TREATMENT

29 Pérez-Santos I., González-Arnay E., Oliva-Martín M.
THE FASCICLES OF THE CORACOHUMERAL LIGAMENT: A CADAVERIC STUDY IN SOFT-EMBALMED SHOULDERS.

30 Vrzgula M., Hodorova I., Hudak V., Firment J., Lovasova K., Mihalik J.
THE SIGNIFICANCE OF ULTRASOUND IMAGING FOR SUPRACLAVICULAR BRACHIAL PLEXUS BLOCK IN CLINICAL PRACTICE

31 Arsenault L., McCLUSKEY J., Benninger B.
IMAGING AND DISSECTING HOFFA (INFRAPATELLAR) FAT PAD AND INFRAPATELLAR PLICAE (LIGAMETUM MUCOSUM) WITH POCUS, MRI, INNOVATIVE CONTRAST CT OF THE KNEE JOINT FROM NOVEL GAX-SPECIMENS AND FORMALIN-FIXED CADAVERS

32 Benes M., Kunc V., Nanka O., Kachlik D., Bartak V.
DOES THE MORPHOLOGY OF THE PROXIMAL FEMUR AFFECT THE SIZE OF THE ILIOPSOAS NOTCH?

33 Djemil R., Olden A., Benninger B.
BIFURCATE LIGAMENT OF CHOPART IS FAR MORE INJURED THAN REPORTED?

34 González-Arnay E., Pérez-Santos I.
DORSAL RETINACULA OF THE FOOT: A MORPHOMETRIC STUDY IN SOFT-EMBALMED CADAVERS.

35 Hirtler L., Bussek V., Kleinberger M., Willegger M.
SAFE ZONES TO AVOID SUBCUTANEOUS NERVE INJURY IN SUBTALAR ARTHROSCOPY

36 Hur MS., Park HJ., Choi SK., Park JS., Kim H.
EXTENSION OF THE ILIOTIBIAL TRACT TO THE KNEE JOINT CAPSULE : STABILIZING THE KNEE JOINT

37 Lee J., Yoon N.,
NERVE INNERVATIONS AND BLOOD SUPPLY OF POPLITEUS: ANATOMICAL STUDY

38 Lovasova K., Mihalik J., Vrzgula M., Hudak V., Firment J., Hodorova I.
ULTRASOUND-GUIDED MAPPING OF PERIPHERAL NERVES -THE LOWER LIMB NERVE BLOCKS FROM ANATOMICAL POINT OF VIEW

39 Olden A., Nyugen D., Benninger B.
MEDIAL LONGITUDINAL ARCH HOUSES THE PES ANSERINUS OF THE FOOT REVEALED BY NOVEL GAX-SPECIMENS WITH CT/MRI AND FORMALIN FIXED CADAVERS

40 Plutte T., Shibley-Styer W., Benninger B.
FEMORAL NERVE MORPHOLOGY WITH NOVEL PREPARED GAX-SPECIMENS INCLUDING INNOVATIVE CONTRAST IMAGING OF FEMORAL VESSELS AND ULTRASOUND.

41 Shibley-Styer W., Plutte T., Benninger B.
TRAINING SURGICAL SKILLS AND LEARNING LIFELIKE ORIENTATION FEMORAL TRIANGLE ANATOMY WITH INNOVATIVE CONTRAST IMAGING OF NOVEL PREPARED GAX-SPECIMENS.

42 Simshauser A., Benninger B.
DISTAL SEMIMEMBRANOSUS ATTACHMENT INTO THE POSTERIOR HORN OF THE MEDIAL MENISCUS USING NOVEL GAX PREPARED SPECIMENS WITH INNOVATIVE CONTRAST AND FORMALIN-FIXED CADAVERS

43 Thorpe Lowis C., Fogg Q., Edwards W.
A LAB-BASED APPROACH TO DISTAL SOFT TISSUE RELEASE FOR IMPROVED FUNCTIONAL OUTCOMES POST-HALLUX VALGUS CORRECTION SURGERY

44 Yildirim UC., Bulut BS., Yilmaz NPC., Yilmaz M., Comert A.
MORPHOLOGICAL AND MORPHOMETRICAL CHARACTERISTICS OF ATFL AND CFL, AND THEIR RELATION WITH ANKLE DIMENSIONS

45 Macchi V., Stocco E., Contran M., Fontanella ChG., Petrelli L., Toniolo I., Emmi A., Romanato F., Porzionato A., De Caro R.
SUPRAPATELLAR FAT PAD HISTOTOPOGRAPHY: A COMPARATIVE MORPHOMETRIC STUDY

SATURDAY SEPTEMBER 16TH

POSTER SESSION 2, Jelínek ´s Hall 3rd floor

8:00-17:00

1 Bojadzieva Stojanoska B., Zhivadinovik J., Matveeva N., Zafirova B., Chadikovska E., Trpkovska B., Dodevski A., Paunkovska AM.
IMPACT OF SOCIOECONOMIC FACTORS ON SOMATOTYPE COMPONENTS IN ADOLESCENT POPULATION

2 Bhatnagar R., Pasricha N.
MORPHOMETRIC ANALYSIS OF AGE AND GENDER RELATED VARIATIONS OF PITUITARY GLAND BY USING MRI- A CROSS-SECTIONAL STUDY

3 Chentanez V., Thintharual P.
PREVALENCE OF POSTERIOR CONDYLAR CANAL AND THE DISTANCE BETWEEN THE DIGASTRIC POINT AND POSTERIOR EDGE OF OCCIPITAL CONDYLE

4 Choi SJ., Kim MJ., Lee WJ., Lee UY., Kim ZS.
MORPHOMETRIC ANALYSIS OF THE HARD PALATE IN SEX ESTIMATION FROM KOREANS BASED ON 3-DIMENSIONAL COMPUTED TOMOGRAPHY

5 Dodevski A., Zhivadinovik J., Matveeva N., Zafirova B., Chadikovska E., Bojadzieva Stojanoska B., Trpkovska B., Paunkovska AM., Aliji V.
BASILAR ARTERY ANATOMY EXAMINED WITH CTA

6 Dokthien S., Chentanez V., Agthong S., Huanmanop T., Tabtieang T.
LOCALIZATION OF ASTERION AND ITS RELATIONSHIP TO THE TRANSVERSE AND SIGMOID VENOUS SINUSES

7 Hirtler L., Kandathil SA., Dengler LS.
PERFORASOMES OF THE OCCIPITAL ARTERY

8 Kiciński P., PodgórskiM., Grzelak P., Szymański J., Polguj M.
DEVELOPMENT OF THE FRONTAL SINUS DEPENDING ON AGE IN COMPUTED TOMOGRAPHY IN CHILDREN

9 Kinoshita Y., Fukino K., Matsumoto Y., Iwanaga J., Ono T., Akita K.
STRUCTURE OF THE MUSCLE LAYERS AND DIRECTION OF THE MUSCLE BUNDLES IN THE SOFT PALATE FOR CLARIFICATION OF THE VELOPHARYNGEAL CLOSURE

10 Łapok M., Szymański J., Polguj M., Kozakiewicz M.
DEVELOPMENT OF THE HUMAN TEMPOROMANDIBULAR JOINT AND DESCRIPTION OF DIFFERENT STRUCTURAL TYPES OF THE MANDIBULAR CONDYLAR PROCESS.

11 Malkidou N., Tsoucalas G., Fiska A.
THE ANATOMY OF SYNDROMIC CRANIOSYNOSTOSIS

12 Malkidou N., Filippou D., Fiska A.
THE INCIDENCE OF THE “PARACLIVAL FORAMEN” IN THE CAROTID SULCUS

13 Pasricha N., Bhatnagar R., Omar V., Sthapak E.
A MRI STUDY TO DETERMINE THE LEVEL OF THECAL SAC TERMINATION IN NORTH INDIAN POPULATION

14 Shin KJ., Han JE., Joo HJ.
TOPOGRAPHY OF THE INFERIOR TEMPORAL SEPTUM AND THE TEMPORAL BRANCH OF THE FACIAL NERVE FOR CLINICAL APPLICATION

15 Veljanovska D., Čulev B., Arbanas J., Brumini I., Lekić A., Vlahović H.
STUDY OF THE SUPRAORBITAL FORAMEN AND NOTCH IN CROATIAN POPULATION USING THREE–DIMENSIONAL COMPUTER TOMOGRAPHY

16 Yarkan IS., Kutoğlu T., Özdoğmuş NO.
THE DETERMINATION OF THE POSITION OF THE MENTAL FORAMEN BASED ON THE ERUPTION OF THE THIRD MOLAR TOOTH

17 Benninger B., Miller N.
STERNOCLEIDOMASTOID MUSCLE DESERVES FORMAL TRIANGLE RECOGNITION WITH INTERNAL JUGULAR VEIN

18 Miller N., Benninger B.
PLATYSMA MUSCLE DESERVES ACCURACY WITH APPROPRIATE TERMINOLOGY AS PART OF AN ELABORATE NECK-FACIAL SYSTEM AND NOT A DISTINCT NECK STRUCTURE DEMONSTRATED BY NOVEL PREPARED SPECIMENS WITH INNOVATIVE CONTRAST IMAGING SUPPORTING ITS REVISED MORPHOLOGY

19 Muhtaroğlu M., Selçuk F., Akpınar SH.
A SUCCESSFUL TREATMENT OF HEMIFACIAL SPASM AFTER FLOW DIVERTER STEND PLACEMENT FOR IPSILATERAL INTERNAL CAROTIS ARTERY SACCULER ANEURYSM. A CASE REPORT

20 Park YS., Kim S., Hong YS.
SUPRAHYOID MUSCLES REVISTED: SPECIALLY FOSCUSD ON DYSPHAGIA

21 Poshi K., Haxhiraj A., Hoxha V., Agolli K., Bushati S.
AGENESIS OF SUPERIOR VENA CAVA IN AN ELDERLY PATIENT WITH RECENT ONSET SYMPTOMS – A CASE REPORT

22 Totlis T., Natsis K., Karageorgos F., Achlatis V., Pettas T., Emfietzis P., Triantafyllou G., Piagkou M.
THYROIDEA IMA ARTERY MULTIPLE BRANCHING PATTERN OVER THE TRACHEA

23 Totlis T., Sammer A., Emfietzis P., Karageorgos F., Piagkou M., Tsakotos G., Natsis K., Feigl G.
VARIABILITY IN THE PROJECTION LEVEL OF THE VERTEBRA PROMINENS: A CADAVERIC STUDY

24 Triantafyllou G., Melissanidis S., Natsis K., Tsakotos G., Totlis T., Karageorgos F., Kostares M., Karampelias V., Piagkou M.
ORIGIN AND COURSE OF THE VERTEBRAL ARTERY: A CT STUDY

25 Tudose RC., Rusu MC.
OVERLAID THYROID CARTILAGE BY AN ATAVISTIC HYOID BONE

26 Hage R.
VALVULAR PREVALENCE AND MORPHOLOGY IN THE AZYGOS VEIN: AN ANATOMICAL STUDY

27 Maranillo E., García-Villanueva M., Jiawei HC., Mora-Bonillo N., Adrados I., Quinones S., Sanudo JR.
A CADAVERIC STUDY OF THE MORPHOLOGY OF MYOCARDIAL BRIDGES

28 Scholz M., Necker F., Paulsen F.
HIGH RESOLUTION VISUALIZATION OF A HUMAN HEART BY USING HIERARCHICAL PHASE-CONTRAST TOMOGRAPHY (HIP-CT) AND CINEMATIC RENDERING (CR)

29 Triantafyllou G., Plakias Ch., Natsis K., Tsakotos G., Totlis T., Kostares M., Karampelias V., Piagkou M.
AORTIC ARCH VARIANTS IN A COMPUTED TOMOGRAPHY SCANNING OF 1000 PATIENTS

30 Jakubczyk E., Podgórski M., Polguj M.
COEXISTENCE OF THE "BOVINE AORTIC ARCH", INDEPENDENT ORIGIN OF THE LEFT GASTRIC ARTERY FROM THE ABDOMINAL AORTA AND THE STERNAL FORAMEN - DESCRIPTION OF ANATOMICAL VARIATIONS BASE ON RADIOLOGICAL INVESTIGATION

31 Haviarová Z., Kuruc R., Matejčík V.
VARIATIONS IN THE CELIAC PLEXUS STRUCTURE AND FORMATION.

32 Korim F., Kuricová M., Eberlová L.
A RARE OCCURRENCE OF THE DUPLICATED CAUDAL VENA CAVA IN CAT

33 Csöbönyeiová M., Klein M., Gálfiová P., Varga I.
MORPHOLOGICAL STUDY OF THE LYMPHATIC LACUNAE INSIDE THE UTERINE TUBE MUCOSAL FOLDS AND THEIR POSSIBLE ROLE IN REPRODUCTION

34 Park HJ., Seu Y., Park JS., Hur MS.
BIFID URETERS: ARISING DIRECTLY FROM THE SEPARATE CALYCES AND RENAL PELVIS OF THE KIDNEY: A CASE REPORT

35 Mehdar K.
AGMATINE PROTECTIVE OUTCOMES ON BEOMYCIN INDUCED RATS PULMONARY FIBROSIS

36 Porzionato A., Emmi A., Tushevski A., Sandre M., Antonini A., Macchi V., De Caro R.
EXPRESSION AND TOPOGRAPHY OF A-SYNUCLEIN STRAINS IN THE NORMAL HUMAN BRAINSTEM

37 Varga I., Gálfiová P., Csöbönyeiová M., Klein M.
IMMUNOHISTOCHEMICAL STUDY OF UTERINE NATURAL KILLER (UNK) CELLS AND THEIR ROLE DURING IMPLANTATION

38 Yakushko O., Cendelín J., Kolinko Y.
QUANTITATIVE ANALYSIS OF RETINA IN SCA1 MICE

39 Paulsen F., Liu Y., Garreis F., Butovich I., Gaffling S., Jabari S., Bräuer L., Zahn I., Dietrich J.
COMPARATIVE ANALYSIS OF HUMAN MEIBOMIAN GLANDS WITH OTHER FREE AND HAIR-ASSOCIATED SEBACEOUS GLANDS IN TERMS OF BIOMARKER EXPRESSION AND LIPID COMPOSITION

40 Bräuer L., Wille T., Schicht M., Garreis F., Paulsen F.
DETECTION OF THE GLYCOPROTEIN FCGBP (IGG FC BINDING PROTEIN) AT THE OCULAR SURFACE

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ABSTRACTS

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POSTER PRESENTATION

MAIN PERIPHERAL NERVE INJURIES INVOLVING THE UPPER LIMB AND THE FACTORS THAT IMPACT THE SUCCESS RATE OF RECOVERY.

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Peripheral nerves are delicate and easily damaged which frequently leads to motor and sensory functioning deficits. The aim of this project was to review the main peripheral nervous system injuries (median, ulnar and radial nerves) involving the upper limb and the factors which impact the success rate of recovery. Methods used was a search of the databases Medline (Ovid), PubMed and Embase. After screening, 40 articles qualified for inclusion in this project. Results revealed that males have a longer recovery period for motor functional recovery ($p=0.03$) and that radial nerve damage recovery surpasses that of median and ulnar nerves (78.3%: motor; 78.2%: sensory for radial compared with 46.7%: motor; 51.3%: sensory for ulnar, with both p-values being statistically significant <0.05). The findings from this project indicated that the optimum satisfactory recovery was within the 24-to-36-month window. 68.4% of patients reported satisfactory motor functionality and 74.1% reported satisfactory sensory functionality compared to 58.3% and 24.5% respectively when assessed before 12 months. This report indicated that there can be an underestimation in reporting satisfactory outcomes as many patients may not remain on review or follow up schedules for an adequate or optimum recovery outcome assessment period. This may have contributed to the lack of significance in reported satisfactory function repair ($p=0.73$ motor; $p=0.81$ sensory). Conclusion revealed that the recovery outcomes based on demographic and clinical factors significantly contribute to a realistic expectation for surgeons regarding patient's outcomes. This will aid appropriate rehabilitation and will provides evidence of a suitable timeframe for the assessment of satisfactory recovery.

POSTER PRESENTATION

ANATOMICAL CONCEPTUALIZATION OF THE FOREHEAD-TEMPLE AUGMENTATION PROCEDURE USING ONE ENTRY POINT BASED ON CLINICAL EXPERIENCES

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Aim: The depressed volume of the forehead and temple is resolved by filler injection. However, the current injection method has the potential to cause pain and side effects in patients, depending on the skill of the clinician. Therefore, this study proposes a new method for safer and simpler injection using only one injection entry point. Methods: Using the novel single injection entry point method, the filler was injected into the forehead and temple regions in two unembalmed cadavers. The filler location was identified using ultrasonography and dissection. Results: Ultrasonographic images and dissection results showed that the filler injected into the cadavers was in the target layer. The filler was located on the same layer as the supraperiosteal layer on the forehead and the supra deep temporal fascia layer in the temple. Conclusions: This method can reduce pain and minimize externally visible wounds caused by injections. The injected filler was naturally connected from the forehead to the temple and maintained for 12 weeks after injection. Additionally, it is possible to inject fillers into the forehead and temple at a constant and safe depth without requiring specific skills. It is anticipated that this method will become a universal method because it minimizes the burden on both patients and clinicians.

ORAL PRESENTATION

HOW VISIBLE HUMAN PROJECT BASED APPLICATIONS CAN PROMPT INTEGRATING CROSS-SECTIONAL ANATOMY INTO THE MEDICAL SCHOOL CURRICULUM

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Aim Cross-sectional anatomy is known to be one of the most challenging skills medical students face and yet is a vital foundation to clinical practice. International and local medical students at the Second Faculty of Medicine of Charles University in Prague, Czech Republic joined optional courses, tutoring and appended sessions during the academic years of 2018/2019 to 2022/2023 specifically to learn cross-sectional anatomy to better correlate what have been observed in the basic and systemic anatomy on imaging methods (X-ray, CT, MRI, ultrasound). Methods Virtual dissection table (Anatomage) was utilized for demonstrating the cross-sectional anatomy interactively for the whole body “head-to-toe” navigating forth and back in the three standard anatomical planes. Results The virtual dissecting feature built in Anatomage table was not of any cadaveric dissection substitute, but it has been an efficient medium for cross-sectional anatomy training. Recognizing anatomical structures and topographical spaces on cross-sectional images via CT/MRI DICOM viewer and real-time ultrasound is an essential practical skill that is better equipped when trained from an early stage of the medical curriculum. Conclusions Cross-sectional anatomy is an essential component of the medical curriculum and this can be efficiently approached by a combined form of modalities composed of a Visible Human Project based virtual table, CT/MRI in DICOM viewer, and practical training on ultrasound. Inevitably, cadaveric dissection and prosection remain the cornerstone of gross anatomy education. Ultrasound is the ultimate real-time practical anatomical skill that is better equipped and managed when trained from an early stage of the medical curriculum.

ORAL PRESENTATION

ENHANCING ULTRASOUND VISIBILITY OF THE SUPRASCAPULAR NOTCH AS A DIAGNOSTIC ALGORITHM FOR SUPRASCAPULAR NOTCH STENOSIS

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Aim To provide a morphometric algorithm composed of depth, upper width, and middle-width assessment to detect suprascapular notch stenosis on ultrasound and 3D-CT reconstruction. Methods The morphometric system classifies the suprascapular notch into five types: Type-I (depth > upper width), Type-II (depth = width, ±1 mm), Type-III (depth < upper width), Type-IV (foramen), and Type-V (discrete). Results The suprascapular notch shape is heterogeneous and highly asymmetrical. Consequently, its radiological visualization challenging leading to potential misdiagnosis. MRI is a useful modality for screening the surrounding tissues of the suprascapular canal for pathologies, while ultrasound has a greater potential for navigating suprascapular canal intervals because an observer can manipulate the transducer orientation. Dimensioned width indicates suprascapular notch stenosis with risk of potentially compressing the suprascapular nerve between bone margins, while dimensioned height indicates suprascapular notch stenosis with risk of potentially suprascapular ligament impinging on the suprascapular nerve. Conclusions We provide an algorithm to assess the suprascapular notch stenosis in cases of suspected suprascapular nerve entrapment. This is done by assessing the suprascapular notch space capacity by measuring its three space determining parameters (depth, upper width, and middle-width) in reference to the diameter of the residing suprascapular nerve.

ORAL PRESENTATION

RECTUS AND BICEPS FEMORIS LIGAMENTO-MUSCULAR REFLEX ON HEMOPHILIC ARTHROPATHY

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Alterations in balance and neuromuscular control have been observed in hemophilic arthropathy, and have been linked to joint proprioception deficits However, such deficits have not been studied in isolation. The main aim of this project is to analyze local knee proprioception studying rectus and biceps femoris reflex latencies in healthy subjects and patients with hemophilic arthropathy. Methods: Electromyographic activity of the biceps and rectus femoris was recorded during a sudden loading stimulus. Within-day and inter-observer reliability were calculated. Analyzed variables were 1) latency from the onset of the mechanical stimulus to the onset of reflex activation; 2) latency to the peak reflex activation; 3) intensity of this peak activation. Mann-Whitney U tests were used for group comparisons. Results: 11 subjects with hemophilia and 11 healthy subjects participated in the study. Inter-observer reliability was excellent for all variables (ICC>0.9). Within-day reliability was good for the onset latencies, and poor for the peak values. No statistically significant differences were found between the two groups in any of the variables studied. Conclusions: The preservation of onset latencies after a sudden stimulus suggests that joint proprioception in subjects with knee hemophilic arthropathy may be preserved. The deficits observed by previous studies may be due to other components of muscular synergies during less specific maneuvers such as gait or balance tests.

ORAL PRESENTATION

UNDERGRADUATE MEDICAL STUDENT LEARNING GAIN RELATED TO 1- VERSUS 3-MONTH REGIONAL ANATOMY DISSECTION COURSE

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Owing an increase in teaching and learning contents throughout the medical curriculum in recent years, contact hours and overall course durations in anatomy are under critical review worldwide. In the present study we tested if the learning gain and the ability to identify anatomical structures is positively or negatively influenced by shortening the term for providing the course contents. Included were undergraduate medical students of the Johannes Kepler University Linz (JKU; n=310) and of the Medical University of Graz (MUG; n=156) participating in regional anatomy courses. Over a duration of one or three months, whole body regional anatomy courses were delivered, including hands-on dissection and accompanying lectures. Both course content and examination mode were kept consistent. For both course durations, identical OSPE were carried out on prosections for the neck, thorax and abdomen. Significantly higher OSPE scores in the 3-month course were found for the neck (49 vs. 37%), thorax (64 vs. 54%) and abdomen (65 vs. 45%). Comparison between the 1- and 3-month groups on the utility of different embalming methods revealed significant difference for the Thiel-embalmed neck (34 vs. 48%), thorax (52 vs.62%) and abdomen (43 vs. 61%) regions. Score comparison based on ethanol-glycerin tissues yielded significant difference for the thorax (56 vs. 70%) and abdomen (49 vs. 68) but not for the neck (40 vs. 49%) region. 3-month dissection course offers advantages in recognizing visceral structures when compared to the 1-month course. The benefit of longer course durations appears largely uninfluenced by the choice of the embalming.

ORAL PRESENTATION

COMPARISON OF THE CONTRAST MEDIUMS FOR EVALUATION FOR INTRAOSSEOUS AND EXTRAOSSEOUS VASCULAR ANATOMY

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Aim: Detailed knowledge of vascularization is essential for many tissues and is a main requisite for various tissue reconstructing and engineering strategies. Recent advances in three-dimensional imaging modalities offer the ability to image the entire vascular network in entire organs and bones. Methods: We tested the most popular contrast agents and selected the optimal mixture composition based on their availability and ease of use to develop a simple and effective injection protocol for imaging cadaveric intraosseous and extraosseous vascular anatomy. Fresh and formaldehyde embalmed cadavers were injected by barium-based, lead-based, iodine-based and polymer-based contrast media. X-ray graphies and CT images were obtained immediately after and 24 hours after injection to observe the distribution of the contrast media in extraosseous tissues. Micro-CT images were taken to observe the intraosseous vascular anatomy. Results: Water-soluble iodinated substances used in clinical practice provided good visualization immediately after injection in fresh specimens but observed to be transferred from the vascular lumen to the surrounding tissues and dissipate after 24 hours. Barium-based contrast media provided good visualization for extraosseous tissues however, were unable to pass intraosseous small diameter capillary vessels. Polymer-based lead containing media provided superior visualization of the extraosseous and intraosseous vascularization but showed evidence of vascular distension or rupture. Conclusion: The effectiveness of the contrast agent depends on the type of fluid and its physical properties. Polymer-based lead containing media injected under a standard perfusion pressure seems to be the gold standard for visualization of intraosseous and extraosseous vascular anatomy in cadavers under most novel standard and micro imaging techniques.

POSTER PRESENTATION

IMAGING AND DISSECTING HOFFA (INFRAPATELLAR) FAT PAD AND INFRAPATELLAR PLICAE (LIGAMETUM MUCOSUM) WITH POCUS, MRI, INNOVATIVE CONTRAST CT OF THE KNEE JOINT FROM NOVEL GAX-SPECIMENS AND FORMALIN-FIXED CADAVERS

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AIM. Knee joint pathology is extremely common and debilitating. Knee has a known structure of fat named ‘Hoffa’s fat pad which has a non-characteristic shape and has been found to be associated with pain and knee deterioration which can result in osteoarthritis. Hoffa's knee disease/syndrome is a common condition and severe pathology of the knee. POCUS ultrasound can be a convenient method for primary diagnosis of this pathology. Single study provided analysis of the characteristic ultrasound image of Hoffa’s disease/syndrome regarding pathognomonic symptoms. Study objective was to identify Hoffa's fat pad with POCUS ultrasound and cross-sectional imaging comparing and assessing cadaver dissections of the fat pad. METHODS. Literature search revealed no known cadaver studies regarding ultrasound and cross-sectional imaging of fat pad. Exclusion criteria included knee replacement and/or knee surgeries. Novel GAX-specimens(n=6:12 knees:Male-3:Female-3) and formalin-fixed cadavers-FFC (n=15:26-sides:M=9:F=6) were scanned with MRI/CT and handheld GE Vscan Air probes, followed by dissection. FFC-4sides excluded n=38-knees. RESULTS. POCUS ultrasound identification of fat pad confirmed on all knees with FFC knees having range of poor image quality. 12 GAX-specimen knees had superior quality image acquisition versus FFC-38 knees. GAX-specimens revealed lifelike dermis during palpation and range-of-motion, fat pads were realistic regarding texture, tissue dissection resistance, hydration and appearance. FFC knees had hardened waxy dermis, no range-of-motion, poor palpation, fat pads and associated structures were very firm and less compliant, increased tissue resistance, dehydrated and dull in color. CONCLUSIONS. Based on the two types of cadaver preparations, imaging and dissection included in this study, GAX-specimens versus FFC demonstrated superior POCUS acquisition and dissection of Hoffa’s fat pad suggesting a fertile training medium integrating ultrasound with dissection.

ORAL PRESENTATION

CAN WE RAISE A STERNOCHONDRAL JOINT FREE FLAP BASED ON INTERNAL THORACIC VESSELS?: A PRELIMINARY CADAVERIC STUDY

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Aim: Mandibular defects can be caused by traumas, benign or malignant tumors, dysplastic pathologies, osteoradionecrosis, and atrophy. The aim of this anatomical study is to develop a novel reconstruction technique for temporomandibular joint (TMJ) and condylar defects of the mandible. Methods: Four fixed cadavers were dissected in this study to assess the suitability of the fourth rib for the planned surgical procedure. The fourth rib was exposed via a horizontally oriented skin incision followed by similar ıntramuscular dissection. The internal thoracic artery and its branches were meticulously identified around the sternochondral joint. Following that, the sternochondral joint flap was harvested, focusing on the cartilaginous section of the rib involved in order to have the joint surface and adjacent vascular systems as pristine as possible. After being contoured to match the intended TMJ and condylar deformity, the flap was precisely positioned and fixed. Compatibility was observed. Results: The compatibility of the fourth sternochondral flap to the intended mandibular defect was evaluated. Pedicle positioning, pedicle length, vascular size match at the anastomosis site were demonstrated. As shown in the cadaveric measurements, the anatomical feasibility of this cartilaginous flap taken from the fourth rib is proven to be effective for TMJ and condylar reconstruction. Conclusion: Numerous treatment modalities for TMJ and condylar reconstruction have been utilized in the past with limited success due to chondral graft resorption or three-dimensional size mismatch. In contrast, this study demonstrates that the fourth sternocondral joint flap is a promising free flap technique for reconstructing this inherently and surgically challenging TMJ region.

ORAL PRESENTATION

A CROSS-SECTIONAL SURVEY ON UNIVERSITY STUDENTS' KNOWLEDGE, ATTITUDES AND BEHAVIORS REGARDING ORGAN, TISSUE, AND BODY DONATION

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Aim: Over the years, the need for tissue, organ, and body donations has been increasing. However, despite this high demand, a sufficient increase has not been observed. This study aims to measure and evaluate the knowledge levels and attitudes of students studying at Ankara University School of Medicine and Law regarding tissue, organ, and body donation. Methods: This study was conducted cross-sectionally, and a total of 696 individuals who were selected through simple sampling and agreed to participate were included. Data was collected using a 29-item questionnaire form that assessed knowledge and attitudes about tissue, organ, and body donation, which was developed based on relevant literature. Results: It has been found that as the grade level of medical faculty students increases, their level of knowledge about the subject also increases. However, there was no significant difference in the knowledge level between medical faculty students and law faculty students. While 61.7% of the students expressed their willingness to donate their organs, 29.5% expressed their willingness to donate their bodies, but only 5.3% had an organ donation card. Those who had someone around them who had donated organs were more willing to donate. Conclucion: Due to the increasing need for tissue, organ, and body donation, awareness campaigns and educational efforts on this subject should be intensified. There is a need for further research on addressing concerns and identifying necessary actions regarding donations.

ORAL PRESENTATION

PEDICLED VASCULARIZED BONE GRAFT FROM SECOND METACARPAL HEAD FOR RECONSTRUCTION OF SCAPHOID PROXIMAL POLE WITH SCAPHOLUNATE DORSAL LIGAMENT

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Aim: Treatment of scaphoid proximal pole fractures is complicated, as it can occur with complications such as avascular necrosis, nonunion, and malunion, due to the retrograde nutritional pattern of the bone. Vascularized graft from various near bones have been described for scaphoid avascular necrosis before. The aim of this study is to demonstrate the anatomical feasibility of using the proximal end of the second metacarpal head with its chondral surfaces and capsuloligamentous structures as a vascularized graft in scaphoid proximal pole avascular necrosis. Methods: The scaphoid and second metacarpal bones of four fixed and three fresh frozen cadavers were examined. The relationship between bones and their nutritional patterns were revealed using dissection methods. Additionally, the arteries were filled with colored latex and radiopaque material, and more detailed examination was conducted using radiological imaging. The compatibility of using a graft taken from the second metacarpal head and capsule for proximal defects with scapholunate ligament insufficiency of the scaphoid bone was demonstrated. Results: The compliance of the flap taken from the proximal end of the second metacarpal bone and attached capsule was observed with radiologic imaging. It was found that the vascularized graft taken from the second metacarpal head had a similar morphology to proximal pole of the scaphoid bone, and it was proven to be anatomically applicable in cadavers. Conclusion: The anatomical feasibility of flap was demonstrated through radiographic imaging of the wrist after reconstruction. The applicability of this flap in hand surgery practice was confirmed and demonstrated in cadavers.

ORAL PRESENTATION

A COMPREHENSIVE MULTIDISCIPLINARY VIEW OF PELVIC TRAUMA THROUGH THE EYE OF A MORPHOLOGIST

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Pelvic injuries are among the very complex high-energy injuries that are not limited to the fracture of the bones of the pelvic ring, but also include injuries to the soft tissues of the organ systems located in the pelvis. In particular, it is a combination of fractures and injury to the muscle-fibrous apparatus of the pelvic and urogenital floor, vessels and various organs (Urinary bladder, uretra, etc.). Solving such complex injuries requires multidisciplinary collaboration, which involves, in addition to clinical specialists, experts from the fields of morphology and biomechanics. By mathematical modeling of the accident process, it is possible to find an explanation for seemingly unrelated clinical symptoms. The presentation shows selected options related not only to external trauma, but also to the physiological process of delivering the human fetus through the natural birth canal. Understanding the multidisciplinary approach in the treatment of injuries to the pelvis and related soft tissues will lead to a personalized approach to the patient, to a more accurate diagnostic procedure, to an increase in the adequacy of the chosen therapeutic procedure, and thus to a shorter treatment time and an improvement in the final result.

ORAL PRESENTATION

BIOMECHANICS ANALYSIS OF THE EYE UNDER IMPACT LOADING

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Aim: The project's goal is a detailed analysis of the anatomical structures of the eye in response to dynamic loading due to the impact of a rigid body. This pilot part of the project aims to verify and validate the functionality of the numerical eye model. Methods: The analyses were realized as numerical simulations using the Abaqus calculation program's finite element method (FEM). A detailed model of the physiological eye was created for the simulations, including all relevant anatomical structures to analyze their response to the load. The impact of a rigid body with an eye model would be simulated when the speed of the body's movement is 50,000 m/s, corresponding to a baseball's ball flight speed at bat. Results: The output of realized numerical analyses was the distribution and magnitude of stress and strains of partial anatomical structures. The results show that although the cornea is maximally loaded at the first moment of impact, this load is not limiting. The risk factor of eye tissue damage is the compression of the vitreous, which distributes the load to the internal structures of the eye. The sclera is the most loaded during impact, with the highest risk of injury. Conclusions: The results of the realized numerical simulations confirmed the full functionality of the created physiological eye model, which can be used for simulations of high-energy impacts with rigid objects. This model can be used for further simulations to analyze surgical procedures' influence on the risk of injury during dynamic eye loading.

POSTER PRESENTATION

A STUDY ON THE CREATION AND UTILIZATION OF BASIC IMAGES FREQUENTLY USED IN ANATOMY EDUCATION

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Medical illustration is an effective educational method for conveying complex anatomical information. It plays a vital role in bridging the gap between researchers and the general public by visually representing scientific concepts. The demand for copyright-free personalized medical illustrations has increased, particularly for use in research papers and articles. In this study, we aim to design a flexible anatomical image source that researchers can edit easily, reflecting their intentions and meeting copyright requirements. This source will serve as valuable educational and research material. The anatomical educational images have been categorized by selecting basic skeletal structures, individual organs, and histological features explained through differentiated cells and epithelium, which are essential for fundamental anatomy lectures. The final anatomical image source was extracted as a background-free PNG files and we are developing a website to provide convenient access to these images for various educational purposes. The category-based medical image sources from this study can be utilized in graphical abstracts, research papers, and anatomical educational materials. Additionally, they are expected to be useful in disseminating medical information to a wider audience, including secondary education curricula and the general public. This research has presented a method that can be utilized in response to the changing demands of the educational environment, as part of the fusion of anatomical and artistic knowledge in interdisciplinary research between anatomy and art.

ORAL PRESENTATION

OPTIMIZING ITB GRAFT HARVESTING: MORPHOLOGICAL INSIGHTS FROM A PILOT STUDY

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Introduction: Complications resulting from reduced knee joint stabilization by the iliotibial band (ITB) are known, but optimal guidelines for ITB graft harvesting are lacking. Aim: Characterize the morphological aspects of the ITB, which is at risk during graft harvesting and investigate features enabling optimization using ultrasound examination. Materials and methods: Anatomical dissection of twenty human cadavers was performed according to a standardized protocol. Morphometric measurements were obtained twice by two researchers. Bilateral lower limb ultrasound examination in ten healthy volunteers was conducted. Results: Mean femur length was 404.83 mm (F = 397.29 mm, M = 409.85 mm) with SD 24.44 mm (F = 23.75 mm, M = 24.07 mm). Average ITB length was 318.89 mm (F = 309.42 mm, M = 325.20 mm) with SD 31.40 mm (F = 25.72 mm, M = 33.71 mm). ITB length in women was longer in the right lower limb, opposite to femur length, and in men in the left lower limb, consistent with femur length. Ultrasound examinations facilitated determination of transition points and relevant morphological measurements. Conclusions: The morphological features of the ITB exhibit significant variability, observable through ultrasound examination. This may aid in selecting optimal graft harvesting sites, reducing complications associated with reduced knee stabilization by the ITB. The introduction of a new ITB/femur length ratio offers a potential strategy for optimizing graft selection.

ORAL PRESENTATION

3-DIMENSIONAL INVESTIGATION OF THE VASCULAR ANATOMY OF THE TRIQUETRUM WITH MICRO-COMPUTED TOMOGRAPHY

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Aim: This study aims to identify the intraosseous vascularization pattern of triquetrum for to determine which part of the bone has more nutrient vessels. Thus, the most susceptible part of the bone to avascular necrosis will be detected. Documenting the vascular pattern of the bone is also important to comment on fracture patterns and to describe safe surgical approaches on triquetrum. Materials and Methods: Ulnar and radial artery of 7 fresh frozen cadavers were filled with Microfil. The triquetrum was removed from the wrist and examined under Micro-CT. The 3D constructed images were divided into quadrants and the difference between the nutrition patterns of these regions was defined. Based on the bone tunnel and screwing procedures applied to the bone, 3 axes were determined in the bone and the vessel volumes in these axes were calculated. Results: The vessel volume in the dorsal region was significantly higher than in the palmar region. There was anastomosis between intraosseous vessels in 43% of the bones. In all of the bones, vessels were detected at the attachment point of the lunotriquetral ligament. Conclusion: The dorsal part of the bone had better blood supply, which explains the good response to conservative treatment after the most common dorsal fractures and the low incidence of complications such as avascular necrosis and nonunion. According to the planned bone tunnels, since the dorsal axis contains fewer intraosseous vessels, it is the most appropriate axis to be applied in these operations.

ORAL PRESENTATION

REPAIRING THE NEURAL CELL DAMAGE INDUCED BY IONIZING RADIATION VIA IMMUNE RESPONSE

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Aim: The aim of this dissertation was to examine the effect of radiotherapy in-vitro using HT22 cells obtained from adult mouse hippocampus and to repair the aversive effects of irradiation by using an immune-response approach using the conditioned media (CM) of RAW 264.7 macrophages. Methods: We used HT22 mouse hippocampal neuronal and mouse RAW 264.7 macrophage cell lines. We irradiated HT22 cells with 2-8 Gy of ionizing irradiation. To observe cellular responses of irradiated hippocampal cells to CM of macrophages, we used a battery of methods including ultra-structural assessment, immune-fluorescent labeling, colony survival assay, real-time cell growth examination by xCELLigence system and gene expression analysis via quantitative-Real Time-PCR. Results: We showed that 2 Gy and 8 Gy doses of ionizing radiation to HT22 cells caused substantial cellular loss, permanent morphological alterations and an increase in the expression of genes that are functional in the anti-inflammatory responses. Based on the surviving colony numbers, real-time cell analysis and apoptosis, the most efficient treatment groups among the others were designated as the group that was treated with CM of macrophages both 24hr before and after irradiation. We detected that the treatment group led to a substantial decrease in the number of viable cell colonies and apoptosis rate in response to 8 Gy irradiation damage. Conclusion: We evaluated the effects of irradiation on HT22 cells in detail, and provided promising preliminary results that immunotherapy approaches could be protective against irradiation damage. Future studies are anticipated to implement the methodology on in-vivo settings.

ORAL PRESENTATION

GOLGI-COX IMPREGNATION COUPLED WITH IMMUNOLABELING OF EPIGENETIC MARKERS IN THE MOUSE BRAIN

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Aim: Golgi-Cox impregnation is a broadly used technique to expose detailed features of neurons. Combining immunohistochemistry with Golgi-Cox enables to co-localize the antigen of interest with the Golgi-Cox labeled neurons. Despite there are decent examples of co-localizing cytoplasmic or membrane labeled antigens with Golgi-Cox impregnated neurons, immunolabeling of markers, exclusively found in the nucleus requiring HCl DNA denaturation such as detecting 5-methylcytosine (5mC) or 5-hydroxymethycytosine (5hmC) in nuclear DNA is largely underrepresented. In this study, we aimed to optimize the combined labeling of Golgi-Cox impregnated neurons with epigenetic markers that requiring nuclear DNA denaturation step, broadly used in neuroepigenetic studies. Methods: We designed a variety of groups composed of adult paraformaldehyde fixed mouse brain hemispheres that were already subjected to a previously published Golgi-Cox protocol. We obtained 50, 100 and 200 µm thick coronal vibratome sections out of the gelatin embedded hemispheres. We employed each thickness of sections with our previously published 5mC, 5hmC protocols with slight modifications and along with multiple necessary controls e.g. devoid of immunolabeling with Golgi-Cox, devoid of Golgi-Cox with immunolabeling, immunolabeling of nuclear epigenetic markers (MeCP2 and H3K9) that do not require DNA denaturation step with each thickness of sections. Results: We showed that specific 5mC and 5hmC nuclear detection that requires HCL DNA denaturation on Golgi-Cox impregnated neurons is feasible with a simple protocol concordant with previously published protocols. Conclusion: We present both pro and cons of pre-designed empiric data that maybe used depending on the need of neuroepigenetic staining. Funding This research was carried out at the Neuroanatomy and Experimental Research Laboratory at the Department of Anatomy, which was established with the infrastructure grant support of the Research Projects Unit of Mersin University (Project No. 2018-1-AP5-2895 and 2020-1-AP5-4104). Research consumables necessary for this study were obtained via Research Projects Unit of Mersin University (Project No. 2015-AP4-1386). Acknowledgement We would like to thank to Prof. Zeliha Kurtoğlu Olgunus (former Head of Anatomy Department) for the supports (Project No. 2018-1-AP5-2895) in the development of Neuroanatomy and Experimental Research Laboratory at Mersin University, Faculty of Medicine.

ORAL PRESENTATION

A RADIOLOGICAL STUDY OF MANDIBULAR CANAL ANATOMY AND ITS VARIATIONS

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INTRODUCTION The mandibular canal extends from the mandibular foramen to the mental foramen bilaterally, carrying the inferior alveolar nerve, artery and vein. Variations in its course and number of canals like presence of second or even a third accessory canal have been reported. Procedures like lower third molar extractions, placement of dental implants, orthognathic surgery and mandibular fracture fixation and all other surgical procedure in mandible require prior knowledge of exact 3-dimensional anatomy as can be seen with Cone based beam computed tomography (CBCT). The aim of the study was to evaluate course of mandibular canal (MC), its length, diameter, relationship with mandibular roots and any variations like bifid/ trifid canals. MATERIAL AND METHODS A prospective randomized study was conducted on a total of 100 subjects, with age 17 years and above after ethical approval and informed consent. CBCT of mandible was performed using i-CAT CB 500 (GENDEX) cone beam 3D imaging system, to document Diameter, length, location of MC in horizontal and vertical plane. relationship of mandibular roots to inferior alveolar canal and length of anterior loop of mental nerve (ALMN) were also observed. RESULTS Out of a total of 100 patients, 47 were female with mean age 41.85±14.36 and 53 males with mean age 40.96±14.77. The mean vertical and horizontal diameter of MC was found to be 2.32mm and 2.13mm respectively on right side and 2.28 and 2.12 mm on left side. MC was found to be in closest relationship with roots of 3rd molar, followed by 2nd premolar, 2nd molar and first molar. One case of bifid MC was documented. ALMN was seen in 20% cases with length ranging between 2-9mm CONCLUSION Detection of bifid MC or ALMN signifies need for prior radiological examination to avoid complications like ineffective mandibular block or injury to nerve and vessels.

POSTER PRESENTATION

DOES THE MORPHOLOGY OF THE PROXIMAL FEMUR AFFECT THE SIZE OF THE ILIOPSOAS NOTCH?

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Aim: To investigate whether the extent of the iliopsoas notch (IN) is dependent on the morphological appearance of the proximal femur, and to observe the anatomy of the IN in a Central-European sample. Methods: We examined 40 matched pairs of dry hip bones with corresponding femora from an osteological collection. All bones were available along with demographic data of the individuals. Depth and width of the IN were measured and correlated with anthropometric measurements of the proximal femur, such as femoral neck version (FNV), lesser trochanteric version (LTV) and angle between the femoral neck and the lesser trochanter (FN-LT angle). Results: According to previously proposed classification system, the IN was categorized as curved (61.3%), angular (16.2%), irregular (16.2%), and straight (6.3%). The IN was significantly larger in males, but was not influenced by the height of the individuals or side. The dimensions of the IN were not dependent on the FNV, the LTV, or the FN-LT angle. Conclusion: A well-developed IN may predispose to acetabular cup overhang after total hip arthroplasty. Male specimens were found to have significantly larger IN compared to females. Based on our findings, the aforementioned anthropometric measurements cannot be used for perioperative estimation of the IN size. Funding: This study was supported by the Charles University Grant Agency (GAUK, No. 174523).

ORAL PRESENTATION

PHYSIOLOGICAL THINNING OF THE GLENOID ARTICULAR CARTILAGE WITH EMPHASIS ON THE UNDERLAYING OSSEOUS MORPHOLOGY

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Aim: To observe the osseous variations involving the glenoid fossa which are responsible for macroscopic articular cartilage thinning. Methods: A total of 360 dry scapulae (300 adult, 30 children, 30 fetal) were initially examined for presence of variations inside the glenoid fossa. The obtained data were correlated with 300 CTs and 300 MRIs, and with findings in 20 shoulder arthroscopies. Moreover, a panel of experts in orthopaedics, anatomy and radiology were invited to contribute to the creation of new terms to name the structures detected in the previous parts of the study. Results: The tubercle of Assaky was identified in 140 (46.7%) adult scapulae, and an innominate osseous depression was found in 27 (9.0%) adult scapulae. Furthermore, the tubercle of Assaky was present in 128 (42.7%) CTs and 118 (39.3%) MRIs, and the osseous depression was found in 12 (4.0%) CTs and 14 (4.7%) MRIs. Importantly, the articular cartilage was apparently thinner above the aforementioned variations, and the cartilage was completely absent above the osseous depression in teenagers. Visual cartilage thinning was found in 11 (55.0%) arthroscopies. Based on these findings, the terms intraglenoid tubercle, glenoid fovea, bare area of glenoid, and gray area of glenoid were proposed. Conclusion: Glenoid articular cartilage is physiologically thinned above the intraglenoid tubercle or the glenoid fovea. Special attention requires interpretation of osteochondral defects in pediatric population because the cartilage above the glenoid fovea may be completely absent. The proposed terms should increase the accuracy of descriptions of physiological processes concerning the glenohumeral joint.

ORAL PRESENTATION

NEWLY TERMED TIBIAL-SOLEAL GROOVE (TSG) PROVIDES IMPORTANT LANDMARK FOR GREAT SAPHENOUS VEIN/NERVE

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AIM. Great saphenous vein (GSV) has 3 clinical surgical associations (grafts, varicosities, cutdowns). In 1967 it became a life extending structure when Dr. Favaloro described an autologous vein graft for arterial bypass. High tie varicose vein procedures and injections of GSV have helped sufferers for decades. Cutdowns for intravenous access are lifesaving. GSV is a consistent superficial vein with a dependable landmark which deserves further scrutiny regarding additional anatomical sites. Study objective is to analyze GSV from novel imaged prepared GAX-specimens (GAX) and formalin-fixed cadavers (F-FC) describing new terminology satisfying surgeons and anatomists. METHODS. Literature search of GSV anatomy was conducted. CT/MRI/ultrasound imaging and dissection of 6 GAX donors, 12 lower limbs (LL) and dissection of 33 F-FC (62 LL) was conducted and observed. RESULTS. GSV analysis from atlasses, imaging and dissections revealed a consistent pattern of an undescribed unnamed specific location of the GSV. Dissection of 69 LL from 74 LL demonstrated 93% GSV's were within 3mm on either side of the intersection between the medial tibial bone and soleus muscle. Below knee, GSV ascends lying in the tibial-soleal groove (TSG) from the medial mid-tibial level up to the tibial tuberosity (approximately 10cm) formed between the anteromedial tibia and anterior medial soleus muscle. The author has provided a term for this consistent GSV location below the knee as the TSG. CONCLUSIONS. This study revealed GSV has a consistent superficial anatomical location below the knee newly termed the tibial-soleal groove (TSG) which could contribute to anatomy and surgical descriptions.

POSTER PRESENTATION

STERNOCLEIDOMASTOID MUSCLE DESERVES FORMAL TRIANGLE RECOGNITION WITH INTERNAL JUGULAR VEIN

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AIM. Academically, the neck is divided into classic anterior and posterior triangles by an iconic landmark, the sternocleidomastoid muscle. Clinically, there are additional important triangles identified within these paired triangles which are not typically taught to medical students. However, there is an intermediate triangle (IT) lying within this landmark formed from the distal sternocleidomastoid. Internal jugular vein (IJV) is identified within IT and canulated for central lines more than 5 million times annually. Anatomy atlasses/texts do not highlight nor discuss IT or (Sedillot's). Study objective is to conduct dissections to identify IT and IJV on novel imaged GAX-specimens, fresh frozen cadavers (FFC) and formalin-fixed cadavers (F-FC). METHODS. Palpation and dissection were conducted on GAX-specimens (n=6:12 sides), FFC (n=18:36 sides) and F-FC (n=15:30 sides) with MRI and innovative contrast-CT scanning of GAX-specimens. RESULTS. Literature search revealed majority of texts/atlases do not acknowledge/discuss the IT with IJV. All specimen mediums (78-sides) dissected IT and IJV successfully. GAX-specimens provided lifelike palpation, mobility, imaging, and dissection. FFC sides were palpable, lifelike, less mobile, had 48-hour window. F-FC were poorly palpable, immobile with dissection resistance. Only GAX-specimens with contrast had patent full IJV's which were relatively superficial within IT available for realistic cannulation. CONCLUSIONS. Based on 3 dissection mediums, this study consistently demonstrated the IJV within the IT. GAX-specimens can be a realistic lifelike skill teaching medium. Finally, dissections demonstrated the IT or (Sedillots) should be formally recognized in texts, atlases for training healthcare professionals.

ORAL PRESENTATION

NOVEL INNOVATIVE NERVE ENHANCING STAIN REVEALS PERIPHERAL NERVES FROM CROSS SECTIONAL IMAGING

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AIM. Medical radiology has revealed moderate to large sized nerves of human peripheral nerves (PNs) with cross-sectional imaging. Anesthesiologists and pain specialists identify moderate to large PNs prior to anesthetic blocks with high-frequency linear ultrasound probes. Histology stains reveal nervous tissue microscopically. Objective of this study was to identify, administer vascularly and assess a general tissue stain (GTS) with nerve enhancing properties from a donor cadaver demonstrating nervous tissue with cross-sectional imaging. METHOD. Literature search was conducted regarding GTS with nerve enhancing properties administered to cadavers with cross-sectional imaging revealing PNs. Novel innovative GTS with nerve enhancing properties identified from Scarlet Imaging for a pilot study with unembalmed cadavers. CT/MRI imaging was performed post administration of GTS with nerve enhancing properties via common carotid artery. RESULTS: No known studies regarding nerve tissue staining properties with cadavers and cross-sectional imaging demonstrating peripheral nerves. Within 24 hours of administering a GST, CT imaging highlighted PNs viewed bilaterally especially from thigh regions. There is a great need for acquiring detailed behavior of small to medium caliber peripheral nerves and their branches. This allows medical artists, clinicians, and anatomists to work with medical technology to accurately segment peripheral nerves to standards not seen previously. It improves high fidelity simulation providing lifelike procedural experiences for healthcare trainees. CONCLUSION. This pilot study was the first to administer GTS with nerve enhancing properties which revealed medium to small PNs from CT scanning. Authors are conducting studies with humans/animals revealing 3D improved PN anatomy of humans and animals.

POSTER PRESENTATION

STEREOSTRUCTURAL ANATOMY: POSTERIOR AND ANTERIOR ARM BOTH HAVE TRICEPS MUSCLE REPRESENTATION

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AIM. Posterior arm compartment has a well-recognized 3-headed muscle, posterior triceps brachii (PTB). PTB is a powerful extensor consisting of medial, lateral, and long (crosses 2 joints) heads with dominant innervation by the radial nerve. PTB tendon assess an extensor reflex representing C-7,8 nerve roots. Anterior arm compartment observation also has 3 muscles which fuse forming medial, lateral and long (crosses 2 joints) heads, thus anterior triceps brachii (ATB), yet they have separate names of biceps brachii (BB) and coracobrachialis (CB). They are powerful flexors and supinators with dominant innervation by musculocutaneous nerve (MCN). Its tendon assesses a flexor reflex representing C-5,6 nerve roots. The study objective is to dissect arms of novel imaged GAX-specimens and formalin-fixed cadavers (FFC) demonstarting a consistent ATB muscle mirroring in orientation PTB. METHODS. CT/MRI imaging of GAX-specimens (n=6:12 arms) and FFC (n=31:62 arms) were dissected. RESULTS. GAX-specimens-(12:12-100%) and FFC-(60:62-96.8%) revealed CB muscle fibers interdigitating with short head of biceps brachii-(SHB) and fibers were torn between CB and SHB attempting to separate them (2:62-3.2% arms demonstrated CB variant attaching directly into humerus). The MCN split through CB muscle (71:74arms-95.9%). CB represents medial head of posterior compartment counterpart, short-head of biceps represents lateral head of posterior counterpart and long head of biceps represents long head of PTB. CONCLUSION. Based on this study, the arm has both PTB and ATB muscles with CB equivalent to medial head, SHB equivalent to lateral head and long head crossing 2 joints as PTB, revealing duplication or stereostructural anatomy.

POSTER PRESENTATION

A VERY RARE ANATOMICAL VARIATION OF THE BRACHIORADIALIS MUSCLE CAUSING RADIAL NERVE COMPRESSION: THE “WARTENBERG SYNDROME”.

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AIM - A rare anatomical variation of the Brachioradialis muscle, with duplicated distal tendinous attachment, may cause compression of the anterior sensorial branch of the radial nerve as it emerges to the superficial aspects of the forearm. The very rare, well-documented cases of this tendinous variation correspond to clinical cases of radial nerve compression, in which the surgical release of the superficial branch of the nerve successfully resolved the compressive signs of the Wartenberg syndrome. MATERIALS & METHODS - In the context of this syndrome, with an incidence of less than 0.003% of cases, we review and classify the main compressive sites and anatomical variations of the radial nerve, based on human dissections performed at the Nova Medical School of Lisbon (Portugal), in Pernambuco (Brazil), Santiago de Chile, and in Lotz (Poland). RESULTS - The comprehensive review of the clinical anatomy of the radial nerve includes an update of the main compressive syndromes in the arm, forearm, and wrist. The radial nerve is often affected by diaphyseal fractures of the Humerus, or by its orthopaedic management; At the forearm level, the posterior interosseous branch may be compressed by the arcade of Frohse (Supinator syndrome); At the forearm and wrist, compression of the anterior superficial branch of the radial nerve will produce sensorial symptoms in the corresponding areas of the dorsal and lateral regions of the wrist and fingers. (Wartenberg Syndrome). The clinical anatomy of the radial nerve is reviewed and illustrated with a good collection of colourful anatomical dissection works.

POSTER PRESENTATION

MORPHOMETRIC ANALYSIS OF AGE AND GENDER RELATED VARIATIONS OF PITUITARY GLAND BY USING MRI- A CROSS-SECTIONAL STUDY

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Title: Morphometric Analysis of Age and Gender Related Variations of Pituitary Gland by Using MRI- A Cross-Sectional Study Bhatnagar R, Pasricha N, Nigam S, Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow, India rajanbhatnagarafmc@gmail.com Poster Presentation Introduction. Morphometry of pituitary gland, particularly its height and volume varies according to age, gender, physiological conditions and race of an individual. The assessment of normal dimensions helps in delineating abnormalities of the gland. Objectives. 1. To evaluate size, shape and volume of pituitary gland in different age groups using MRI. 2. To establish sexual dimorphism for size and shape of gland. Materials and methods A cross-sectional study was conducted on 504 MR images obtained from the PACS system of the institute and divided into two groups for both genders. Each group was subdivided in different age groups of 10 years each. Height and anteroposterior dimensions were measured using mid-sagittal section and width on the coronal section. Intragroup comparisons were done using ANOVA followed by Post hoc Bonferroni tests. Intergroup comparisons between genders were done using student T test. Results Height, anteroposterior length, width and volume showed statistically significant difference between age groups, for both males and females. Height increased gradually from birth to third decade of life for males and till second decade for females and decreased thereafter. The most common shape of superior surface was convex followed by concave and then flat in subjects from birth to third decade. Dimensions of gland were generally more in females than males but significant difference was not seen in all age groups using student T-test. Conclusion To conclude, size and shape of pituitary gland varied with age and sexual dimorphism was evident in certain age groups. Pituitary height showed a definite pattern, which justifies its use as a measurement marker for detecting abnormalities of the gland. Key words: Pituitary diseases, Sex characteristics, Cross sectional studies, Magnetic resonance Imaging

ORAL PRESENTATION

CREATE AND DISSEMINATE A BODY DONATION PROGRAM IN THE XXI CENTURY

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Creating a Body Donation Program in the 21st century is certainly different from most European programs that developed during the 20th century or earlier. Our aim is to share the characteristics, difficulties and facilities of our experience in a country where this topic is absolutely unknown. We considered the time invested in organization and dissemination stages, the people who expressed their willingness to donate and those who have formally completed the donation. The Program was created in 2021 (still in times of pandemic) as the only one in Argentina. The first year was invested in organizing the legal and functional aspects that would ensure proper functioning, and its knowledge by health personnel. The second year was dedicated to mass dissemination. We received 48 formal expressions of willingness to donate, 13 materialized and 1 body was received by this way. The age of donors ranges from 21 to 85 years (62% over 60 and 23% over 80) and only 8% are male. They knew about the program through: 38% by Faculty emails, 29% by posters placed in hospitals, 19% by the website on own initiative and 14% by mass media. Everybody visited the website before the donation. Main facilities are: a) Variety of media and b) Willingness of the population to donate. Difficulties are: a) The subject is completely unknown to the majority of our population. In conclusion, we need to increase the diffusion of the program, but it must be the working group who informs to maintain the positive attitude.

ORAL PRESENTATION

INVESTIGATION OF STRUCTURAL AND FUNCTIONAL CHANGES OF EPILEPTOGENIC FOCI ON MAGNETIC RESONANCE IMAGING DATA IN PATIENTS WITH TEMPORAL LOBE EPILEPSY

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Aim: Our purpose is to obtain quantitative data of epileptogenic focus using both conventional magnetic resonance (MRI) and diffusion tensor imaging (DTI) methods in patients diagnosed with temporal lobe epilepsy (TLE). Methods: A total of 49 patients clinically diagnosed with focal epilepsy and 15 healthy control (HC) cases presented with headache who underwent cranial MRI between 01.06.2017 and 14.03.2021 were included in the study and analyzed retrospectively. 16 patients with hippocampal sclerosis on cranial MRI and 33 patients with normal MRI were divided into two subgroups as MRI(+) and MRI(-) TLE, respectively. In addition to volumetric data from MRI, with Neuroquant software DTI data were obtained from the cortical and white matter structures. The relationship between whole-brain fractional anistropy (FA), mean diffusivity (MD) and volume changes were compared between the groups. Results: We investigated the changes of volumes and diffusion patterns among the subjects with different neuroimaging methods. Compared to the HCs, MRI(+) group showed volume reduction in whole brain and also in Hippocampus, Thalamus, Cerebellum, Cingulate gyrus. We revealed reduction in caudal aspect of the anterior cingulate cortex volume in MRI(-) group ($p<0,05$). Furthermore remarkable changes in DTI metrics across widespread regions including Hippocampus, Corpus Callosum, Caudal Anterior Cingulate Cortex, Thalamus were revealed in MRI(+) group and in frontal corticostriatal projections in MRI(-) group ($p<0,05$). Conclusion: The significant results provided new informations about clinical appearance and pathogenesis of the TLE. Over and above, in addition to EEG and MRI outputs, DTI has a potential in detecting the epileptogenic foci in TLE patients and may also contribute to conventional methods in the diagnosis of MRI(-) patients.

POSTER PRESENTATION

IMPACT OF SOCIOECONOMIC FACTORS ON SOMATOTYPE COMPONENTS IN ADOLESCENT POPULATION

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Aim. The aim of the study was to assess the impact of socioeconomic factors on somatotype components in Macedonian adolescents at the age 11 to 18 years. Methods. The study included 2388 adolescents from four urban cities in R. North Macedonia, 1236 males and 1152 females. Participants were measured with standard equipment and measurement technique according to the International Biological Program. Ten anthropometric parameters were measured to assess the somatotype according to Heat–Carter somatotyping method. The examinees filled out the questionnaire with the data on socioeconomic status, parent's education and employment. Results. There were significant differences for endomorph component in male adolescents between those with parents with high and low level of education. There were significant differences for mesomorph component in males related to parents educational level ($p<0.05$). Ectomorph component had a higher value in male adolescents when mother is with low educational level and when mother and father are unemployed. There were significant differences for endomorph component in female adolescents in relation to all socioeconomic factors except for employment status of the father; mesomorph and ectomorph component in females were related to parents educational level ($p<0,05$). Conclusion. Our study has shown that socioeconomic factors are related to somatotype components. Although genetic factor is the key factor for body constitution, when determining somatotype socioeconomic inequalities and sex should be considered.

POSTER PRESENTATION

DETECTION OF THE GLYCOPROTEIN FCGBP (IGG FC BINDING PROTEIN) AT THE OCULAR SURFACE

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Aim Human tear-fluid is a mixture of different proteins that supports rheological properties, wound healing, and act as antimicrobial barrier. We have shown that trefoil factor family (TFF) peptides (mostly FFP3) are secreted by tissues of the ocular surface and are components of tears. The glycoprotein FCGBP (IgG-Fc binding protein) and TFF3-FCGBP seem to play a key role in the innate immune defence of mucosal epithelia. The objective of the present study was to detect FCGBP in tears, in tissues of the lacrimal apparatus, and in ocular surface cell lines. Furthermore, the expression pattern of the protein in dry eye disease (DED) was investigated. Methods Tissues of the ocular surface as well as human corneal epithelial (HCE), conjunctival epithelial (HCjE) and meibomian gland cell lines (HMGEC) were analysed for FCGBP expression by RT-PCR, Western blot and immunohistochemistry. ELISA was performed to quantify FCGBP in tears from DED patients and healthy volunteers. Results Expression of FCGBP was detected in all examined tissue and cells. Immunolocalization revealed presence of FCGBP in the epithelia of the ocular surface, but not in cultured HCE, HCjE, and HMGEC. ELISA showed significantly higher concentrations of FCGBP in samples of DED patients compared to healthy ones. Conclusions FCGBP is a component of the ocular surface and the lacrimal apparatus. The protein is secreted into the tear film and raised in the context of DED. FCGBP may have structural and immunological functions to protect the ocular surface and play an important pathophysiological role in the context of DED.

POSTER PRESENTATION

EXPLORING THE COMPLEXITIES OF THE BRACHIAL PLEXUS: DOCUMENTING VARIABLE PATTERNS AND SURROUNDING TISSUE RELATIONS.

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Aim: The brachial plexus is complex and has numerous variations. The literature is lacking a consistent and clear protocol of documenting these, and typically fails to consider the surrounding tissues that may influence the variable patterns. Further limiting this, most are documented as simplistic descriptions and/or diagrams. The aim of this study was to document the variable patterns of the brachial plexus and its relations with surrounding tissues, utilising high resolution digital photographs. Methods: The brachial plexus was examined within fifty (n=50) embalmed Body Donors (mean age = 87.7 ± 7.4; F= 29; M= 21; L = 27; R = 23). This study primarily focused on documenting the patterns and relations of the medial and lateral cords, and their primary terminal nerves within the arm. Results: There were nine different groups of the brachial plexus identified. These were separated according to differing branching patterns, and variations with the spatial relationships with the vasculature and musculature. These were successfully documented with high resolution digital photographs, clear descriptions, and schematic diagrams. Conclusion: Vascular and muscular relations commonly influenced the branching patterns of the brachial plexus, suggesting the intimate interactions between these structures should be more carefully considered. This study further suggests that the typical ‘template’ used to describe the brachial plexus is outdated. Further work needs to be considered to determine clear assessment of plexus variation, both in educational and clinical contexts. This may influence clinical observation (e.g., surgery, ultrasound), and improve accurate identification of variants in a clinical setting.

ORAL PRESENTATION

CONTRIBUTION TO THE ANATOMICAL NOMENCLATURE CONCERNING ANTEROLATERAL KNEE ANATOMY

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Aim: Purpose of present paper is not only represent the structures which have known for the decades on the anterolateral area of knee but also propose them to be written in Terminologia anatomica (TA). Authors feel the essentialness to suggest a new nomenclature and classification addition to TA and discuss them in a wider community. Methods: Anterolateral complex (ALC) and its components have searched. Then the sections of TA and TA2 were examined. Absent structures's proposed nomenclature were listed both in Latin and English. Cadaveric dissection's photographes and figure of related structures were added. Terms also presented as a list. Results: 12 terms have been proposed. The terms are both head structures and their classifications. That structures are; Ligamentum anterolaterale(Anterolateral ligament), Lamina superficialis tractus iliotibialis(Superficial layer of iliotibial tract), Lamina media tractus iliotibialis(Middle (intermediate) layer of iliotibial tract), Lamina profunda tractus iliotibialis(Deep layer of iliotibial tract), Lamina capsuloossea tractus iliotibialis(Capsulo-osseos layer of iliotibial tract), Fibrae profundae tractus iliotibialis(Deep fibres of iliotibial tract (Fibres of Kaplan), Fibrae profundae supracondylares tractus iliotibialis – Supracondylar deep fibres of ilitobial tract), Fibrae profundae supracondylares proximales tractus iliotibialis(Proximal supracondylar deep fibres of ilitobial tract), Fibrae profundae supracondylares distales tractus iliotibialis(Distal supracondylar deep fibres of ilitobial tract), Fibrae profunda condylares(Condylar deep fibres of iliotibial tract), Iliotibial aponeurosis(Iliopatellar band), Ligamentum patellofemorale laterale(Lateral patellofemoral ligament). Those terms were also written with their definitions and explanations. Conclusion: Due to their cilinical importance and increasing literatures, proposed terms have to be discussed for adding the next addition of the TA.

ORAL PRESENTATION

MUSCULAR BRANCH PATTERN OF DEEP FIBULAR NERVE

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Aim: Foot drop is a significant morbidity due to injury to the deep fibular nerve (DFN) resulting in tibialis anterior muscle paralysis. Recent studies showed feasibility of transferring soleus muscular branch of tibial nerve to the DFN providing partial motor function restoration. This study aims to quantitative the muscular branches and localize the motor nerve points of the DFN in the anterior compartment of the leg and show the relationship between the muscular branches of the DFN and the tibial nerve, especially the ones which innervate the soleus and tibialis anterior muscle. Methods: Dissections were performed in 5 cadavers. The range for the number and length of branches of the DFN and the terminal motor points of each muscle in the anterior compartment of the leg were identified. The relation of these branches with the anterior intermuscular septum and with the soleus muscular branch of the tibial nerve was documented. The distances were measured with a digital caliper by taking an imaginary line connecting the lateral ridge of the fibular head and the lateral malleolus as reference. Results: DFN had 3 main branches. The muscular branches pierced the anterior intermuscular septum from proximal one-third of the leg and distributed to muscles of the anterior compartment of the leg in proximal half of the leg. The mean length of the tibialis anterior branch was 58.64 mm whereas the soleus branch of tibial nerve was 69.78 mm. Conclusion: This study provided a detailed anatomical description of the DFN branches in the anterior compartment of the leg and confirmed the anatomical feasibility of direct nerve transfer using soleus muscular branch to tibialis anterior as a treatment option to restore ankle dorsiflexion in cases of DFN injury.

POSTER PRESENTATION

PREVALENCE OF POSTERIOR CONDYLAR CANAL AND THE DISTANCE BETWEEN THE DIGASTRIC POINT AND POSTERIOR EDGE OF OCCIPITAL CONDYLE

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Aims: The surface landmarks are widely used for surgical planning. Extracranial estimation of intracranial venous sinuses and the posterior condylar emissary veins (PCEVs) is essential for neurosurgeons to avoid venous sinus injury. The relationship of the digastric point (DP) with the sigmoid sinus (SS) can be used as a lateral limit on the suboccipital access. This study aims to investigate the prevalence of posterior condylar canal (PCC) and the distance between the DP and posterior edge of occipital condyle (DP-OCPE) for determining the lateral limit of suboccipital craniotomy. Methods: One hundred adult dry skulls (50 males and 50 females) were examined. The prevalence of PCC was determined and defined as bilateral, unilateral (right or left) and absent. The distance between the DP and posterior tip of occipital condyle was measured. Results: Bilateral PCC was found in 57%, unilateral in 34% (right 21%, left 13%) and 9% absent. There was no statistically significant difference in the presence of PCC in sex. The mean distance of DP-OCPE was 37.3±3.6 (27.0-45.7) in male and 36.2±4.5 (25.6-46.6) in female. There was no statistically significant difference of the DP-OCPE distance between sex and sides. Conclusions: Knowledge of the prevalence of PCC and the distance between DP and OCPE are essential during suboccipital craniotomy to avoid complications, particularly venous bleeding of the SS and PCEVs.

POSTER PRESENTATION

MORPHOMETRIC ANALYSIS OF THE HARD PALATE IN SEX ESTIMATION FROM KOREANS BASED ON 3-DIMENSIONAL COMPUTED TOMOGRAPHY

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Accurate sex estimation is crucial when conducting a comprehensive analysis of the biological profile for unidentified human skeletal remains. While sex estimation can be achieved through both metric and non-metric methods, metric methods prove particularly valuable in forensic and archaeological fields characterized by the prevalence of fragmented or incomplete bones. In these situations, conducting metric studies on various bone segments becomes necessary, with a notable lack of available research specifically addressing morphometrics for the hard palate. The aim of this study was to derive discriminant equations from the hard palate and assess their applicability for sexing partial skeletal remains from a contemporary Korean population. Statistical analyses were performed on 19 measurements derived from 3D models of the hard palate, created using CBCT scans of 251 individuals (111 males, 140 females). Descriptive statistics revealed significant sexual dimorphism in the mean comparison of hard palatal size between Korean males and females, with males exhibiting larger palates across all measurements ($p < 0.05$). Discriminant function score equations were generated to aid in sex determination. Univariate analysis yielded an accuracy range of 57.4% to 71.7%, while the stepwise method achieved an accuracy of 75.3% with three selected variables: outer palatal breadth, distance between greater palatine foramina, and distance from the incisive foramen to the alveolon. The results of this metric analysis demonstrate the usefulness of the hard palate for sex estimation in the contemporary Korean population. These findings have potential implications for forensic investigations, archaeological studies, and population-specific anatomical research. This work was supported by National Forensic Service (NFS2023MED09), Ministry of the Interior and Safety, Republic of Korea

ORAL PRESENTATION

EFFECTS OF AN EASY NEUROANATOMY BOOK WITH SCHEMATICS ON STUDENT LEARNING

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Plenty of students perceive neuroanatomy as a terrifying subject due to its overwhelming amount and difficulty. Therefore, a neuroanatomy book that concentrated on easy-to-read stories with schematics rather than exhaustive details have been written by the author and published by the Elsevier. The purpose of this study was to evaluate the effect of the new neuroanatomy book's trial on students' learning. From the neuroanatomy book, a printout on the brainstem and cranial nerve was extracted. The medical students, who read the printout, relatively well answered the examination questions and were more interested in neuroanatomy. The neuroanatomy book seemed to enhance the knowledge and concentration of the students. After grasping fundamental information in the neuroanatomy book, the students are expected to learn the advanced one comfortably and confidently. In addition, the book with concise and easy contents is fit not only to the short duration of neuroanatomy course and but also to the self-learning and flipped learning of neuroanatomy. The presented neuroanatomy book is accompanied by the preexisting regional anatomy book and systemic anatomy book, and the upcoming histology book and embryology book. These books will interact to make synergic effect because the books are written by the same author to keep the similar pattern. Other anatomists are suggested to make their own books with unique style to enrich the students' learning.

ORAL PRESENTATION

AN INTERACTIVE WEB APPLICATION FOR DELIVERING PHOTOGRAMMETRY MODELS IN ANATOMY EDUCATION

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Anatomy education often faces challenges due to constraints associated with cadaveric dissections. Supplementary pedagogical tools, such as three-dimensional (3D) models obtained from photogrammetry, along with broad access to web technologies offer a promising solution to democratize access to anatomical specimens. This study outlines a web application developed at the Department of Anatomy, Collegium Medicum, University of Warmia and Mazury in Olsztyn, Poland, enabling students to interact with photogrammetry-derived models of prosected specimens. Photogrammetry setup and workflow is also discussed. Developed using HTML/CSS, JavaScript with Three.js and Verge3D, and PHP + MySQL for backend operations, this application can display virtual specimens on the majority of modern devices, both mobile and stationary, using responsive design principles. It also enables display on a vast array of modern devices and supports augmented reality (AR) and virtual reality (VR) environments. Users can manipulate models by scaling, rotating, and translating, with a labeling system for in-depth anatomical learning. The models, captured directly in the Department with a photogrammetry setup comprising regular digital cameras, rotary table, studio lighting, and software workflow, mirror specimens used in regular laboratory classes, thereby extending student interaction beyond the physical lab. This application stands to boost the teaching and learning process in anatomy and potentially, in other disciplines, e. g. biology and histology. By delivering a customizable and extendable repository of 3D models accessible on any device, the democratization of anatomy education can possibly be improved.

ORAL PRESENTATION

SURGICAL NEUROANATOMY AND RADIOLOGICAL EVALUATION OF 3D RECONSTRUCTED SEMICIRCULAR CANALS, VESTIBULE, COCHLEA, AND THEIR RELATIONSHIP WITH NEIGHBORING STRUCTURES IN TEMPORAL BONE

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Aim Anatomical knowledge of the relationship between the cochlea and the petrous ICA is useful for safely locating the petrous ICA while avoiding injury to critical neurotologic structures during temporal bone drilling in skull base surgery. The aim of the study was to evaluate the surgical anatomy of the semicircular canals, cochlea, and related structures in cadavers and their radiological confirmation. Methods: Important morphological parameters were evaluated on 10 cadaver heads. For radiological assessment, 3D reconstructions were performed on selected 10 CT scans with the help of imaging software OsiriX-v.3.7.1. 3D-reconstructed colored images of the cochlea, semicircular canals, and internal acoustic canal were created. Results: In the temporal region of the cadavers, these structures were dissected, and their 3D course was exposed and evaluated. The mean minimum distance between the JB and ICA was 8.23 mm (± 3.08). Satisfactory radiological confirmation was performed in the 3D reconstruction which gave an opportunity to observe the reconstructed structures at various angles and to show anatomical structures embedded within the bone. A step-by-step representation of the corresponding structure was obtained. Conclusion: A precise understanding of the complex relation of the osseous labyrinth with the carotid canal and this novel combination allows us to correlate and confirm the neuroanatomical structures during surgical planning. This combination model can be a useful tool for postgraduate education. This model helps for safe surgeries and to provide surgeons to be navigated and understand complicated anatomy.

ORAL PRESENTATION

NEONATAL GASTROCNEMIUS ARCHITECTURE – PRELIMINARY DATA FOR A 3D VOLUMETRIC STUDY

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AIM Studies on the gastrocnemius muscle have mainly focused on adult populations and muscle architectural data of the gastrocnemius in a neonatal sample where weight-bearing has not yet affected muscle development does not presently exist. The present study aims to document 3D architectural parameters of normal gastrocnemius muscles in a neonatal population. METHODS In 2 neonatal cadaveric specimens (1F:1M) gastrocnemius was dissected and digitized (MicroScribe™ i model, Revware Inc., Raleigh, NC 27675-0786, United States, 2018) at the fiber bundle level as in situ. The 3D digitized data were analyzed using custom software to quantify architectural parameters, including mean fiber bundle length (FBL), mean pennation angle (PA), muscle volume (MV), and physiological cross-sectional area (PSCA). RESULTS (PRELIMINARY) The two specimens digitized had differences in architectural parameters. The right male gastrocnemius had mean FBL of 5.49 +/- 1.45 mm, mean PA of 26.88 +/- 13.92 degrees, MV of 749.89 mm3, and PCSA of 110.68 mm2. The left female gastrocnemius had mean FBL of 9.89 +/- 2.55 mm, mean PA of 11.20 +/- 5.20 degrees, MV of 593.94 mm3, and PCSA of 56.2 mm2. CONCLUSION Differences in architectural parameters of the gastrocnemius between neonate specimens can be quantified using a dissection and digitization methodology. Further investigation with larger sample size is required to document the normal range of architectural parameters of the gastrocnemius in a neonatal sample. The normal range provides the basis to potentially quantify and diagnose pathological states related to the gastrocnemius.

POSTER PRESENTATION

MORPHOLOGICAL STUDY OF THE LYMPHATIC LACUNAE INSIDE THE UTERINE TUBE MUCOSAL FOLDS AND THEIR POSSIBLE ROLE IN REPRODUCTION

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Aim: Mucosal folds of the uterine tube (UT) contain wide spaces described more than 120 years ago as lymphatic lacunae but later were forgotten entirely. They were not further researched, and they have also been ignored in most histology textbooks. The main aim of the present study was to morphologically confirm their identity as lymphatic spaces with possible clinical implications. Methods: The present study used immunohistochemistry and scanning electron microscopy (SEM) to confirm their identity. UT biopsies from ampulla and infundibulum with fimbriae were performed in 25 premenopausal ((mean age 48.3 years, σ=3.56) and 25 postmenopausal women (mean age 57.8 years, σ=7.79). The harvested samples were further processed for SEM and immunohistochemistry, using antibodies against markers of lymphatic endothelial cells, namely podoplanin (clone D2-40) and VEGFR3, to confirm the identity of the wide spaces within the UT mucosal folds. Results: Specimens from premenopausal and postmenopausal women contained wide lymphatic lacunae positive for podoplanin (clone D2-40) and VEGFR3. SEM examination further enabled us to observe these wide lacunae in more detail. The authors hypothesized that they play a role in oocyte pick-up upon ovulation, tubal fluid maintenance, and recirculation. These results suggest that lymphatic lacunae are probably essential for normal reproduction since it was demonstrated before that tubal fluid dynamics is necessary for proper UT function. Conclusion: Lymphatic spaces are vital for normal UT to perform reproduction-associated tasks. Further in-depth understanding of these structures will help refine the methods of reproductive medicine, leading to better in vitro fertilization outcomes. Funding: This study was supported by a grant from the Slovak Research and Development Agency, number APVV-18-0499. This publication was also supported by the Operational Program Integrated Infrastructure for the project: Increasing the capacities and competences of the Comenius University in Research, Development, and Innovation 313021BUZ3, co-financed from the resources of the European Regional Development Fund.

ORAL PRESENTATION

CONDUCTING THYROID GLAND POCUS FROM NOVEL PREPARED IMAGED SPECIMENS VERSUS FRESH FROZEN AND FORMALIN FIXED CADAVERS WITH DISSECTION

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AIM. Ultrasound is often the first option of imaging regarding the thyroid gland. Family practitioners are often first line providers examining patients with thyroid conditions and generally not comfortable performing ultrasonography. There is strong momentum in this community to be further trained with ultrasound. Surgical and internal medicine interns should have been exposed to thyroid ultrasound prior to residency. Many medical schools teach ultrasound in their curriculum but not during an anatomy lab course when they are learning surface and dissection anatomy. There is value linking ultrasound with anatomy lab cadavers and dissection. The study objective is to perform physical examinination, POCUS ultrasound, dissect novel preserved imaged specimens (GAX), fresh frozen cadavers (FFC) and formalin-fixed cadavers (F-FC) and analyze cross-sectional imaging (XSI). METHODS. Literature search revealed one medical school simultaneously integrating anatomy dissection lab with ultrasound. Palpation, ultrasound, and dissection were conducted on GAX-specimens (n=6:12 sides with XSI post innovative contrast), FFC (n=18:36 sides) and F-FC (n=15:30 sides). RESULTS. All cadaver mediums (78-sides) demonstrated thyroid ultrasound with different image qualities and varied lifelike dissections. GAX-specimens with full vessel contrast provided lifelike palpation, mobility, imaging, and dissection. FFC had lifelike palpation and dissection but were less mobile and had 48-hour window. F-FC were poorly palpable, immobile with dissection resistance. Only GAX-specimens with novel contrast had patent full vessels revealing realistic orientation. CONCLUSIONS. All 3 dissection mediums demonstrated thyroid POCUS could be acquired with varying image qualities and lifelike dissection. GAX-specimens were most lifelike regarding palpation, physical examination, mobility, POCUS and dissection.

POSTER PRESENTATION

IMPLICATIONS ON LEARNERS OF A NEAR-PEER INTERDISCIPLINARY APPROACH TO UNDERGRADUATE HUMAN ANATOMY EDUCATION

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AIM: To investigate perceptions of learners when delivering higher education human anatomy workshops led by interdisciplinary near-peer educators. METHODS: Early-year Swansea University Graduate Entry Medicine students led 20 small workshops over a semester. First-year undergraduate students anonymously responded to a survey before and after attending module workshops and data were processed in Microsoft Excel. A 5-point Likert scale (1=not confident, 5=very confident) was used to highlight trends in learner confidence as a proxy indicator of educator quality. Statistical analysis of confidence ratings was undertaken. Two open-ended questions asked learners to identify areas of praise and critical appraisal for every session. Thematic analysis extrapolated themes from all comments (n=480). RESULTS: A significant improvement in learner confidence scores was identified post workshop attendance. Mean scores pre-workshop = 2.45/5, post-workshop = 4.13/5 (n=240, $p<0.001$, paired t-test). Learners described enhanced understanding as a consequence of high calibre educator knowledge/engagement and spoke favourably of resources created to facilitate teaching. Most did not identify any scope for improvement (n=126, 52.5% of question respondents). Time constraints of sessions alongside inconsistent approaches to group interactions were the most prevalent topics of critical educator feedback. CONCLUSION: Undergraduate feedback comments display overwhelmingly positive perceptions of medical students as interdisciplinary near-peer anatomy educators. Learners noted some scope for improvement around group engagement strategies and educator pacing. Increased learner confidence with content, whilst anticipated, implied the educators possessed sufficient abilities to deliver sessions learners deemed helpful. These observations advocate the inclusion of interdisciplinary near-peer teaching initiatives in higher education anatomy curricula.

POSTER PRESENTATION

BIFURCATE LIGAMENT OF CHOPART IS FAR MORE INJURED THAN REPORTED?

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Excessive plantar flexion with inversion of the foot/ankle complex describes the common every day sprained ankle (ATFL culprit). Interestingly, the same mechanism of injury can also injure the Y-shaped bifurcate ligament (BL) of Chopart responsible for stabilizing the calcaneocuboid (CC), calcaneonavicular (CN) and midtarsal joints. For this, the BL has been considered the cornerstone of the transverse tarsal joint. Authors believe those who have an ATFL injury may also have a subsequent BL injury which can be identified with ultrasound. Study objective is to conduct BL ultrasound, cross-sectional imaging and dissect with novel GAX-specimens and formalin-fixed cadavers (FFC). METHODS. Literature search was conducted regarding BL ultrasound and cross-sectional from GAX-specimens and FFC studies. Novel GAX-specimens (n=6:3-female:3-male,12 sides) with innovative contrast CT and MRI imaging and FFC (n=17,34 sides). CN/CL ligaments will be identified via ultrasound and dissection. RESULTS. CNL dissected in 46:46 sides-100%. CCL dissected in 11:12 GAX-specimens-91.67% and 32:34 FFC-94.1%. Ultrasound revealed acceptable images from all GAX-specimens but was marginal with FFC-9:34 26.47%. GAX-specimens CT/MRI with contrast provided impressive images. BL is demonstrated in anatomy atlases, but little is discussed in contemporary anatomy texts. François Chopart recognised the significance of stability the BL provides the transverse tarsal joint. Lateral ankle sprains are extremely common and very widely with degree of injury. The authors believe a relationship between the severity of an ATFL injury is accompanied with a concomitant BL injury. CONCLUSION. This study revealed GAX-specimens allowed BL examination due to tissue compliance and joint mobility. Ultrasound and cross-sections were a better quality versus FFC suggesting a better medium for surgical/radiological skills training and anatomy dissection.

POSTER PRESENTATION

BASILAR ARTERY ANATOMY EXAMINED WITH CTA

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Introduction: The posterior circulation of the brain constitutes the vertebrobasilar system and its branches, which are responsible for about 30% of the brain blood supply. The aim of this study was to describe the morphological characteristics of the basilar artery. Materials and methods: We examined radiographs of 103 patients who had CT angiography undertaken for a variety of clinical reasons, performed as a part of their medical treatment at the University Institute for Radiology in Skopje, Macedonia. The study population included 103 patients, 58 male and 45 females, age range from 25 - 82, mean age 58.4 years. Results: The mean length of the basilar artery was 31.60 ± 5.1 mm (from 21.4 mm to 44.1 mm). The mean diameter of the basilar artery was 3.27 ± 0.52 mm (from 2.22 to 4.87 mm). In 52.42% of the patients the basilar artery was straight, in 26.21% it was convex to right, while in 14.56% of the patients it was convex to left. In 6.79% of the patients, the basilar artery was of the “S” shape. Most of the SCA arise from the basilar artery as a single vessel. The most common variations of the SCA were duplication (frequency 1.94% on right and 0.97% on left) and origin from PCA (frequency 1.94% bilateral). In three patients (2.91%) we found fenestrations of the basilar artery. In one patient persistent trigeminal artery was found. Conclusion: A sound knowledge of basilar artery anatomy and variations is important during diagnostic, endovascular and surgical procedures.

POSTER PRESENTATION

LOCALIZATION OF ASTERION AND ITS RELATIONSHIP TO THE TRANSVERSE AND SIGMOID VENOUS SINUSES

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Introduction: Accurate asterion localization is crucial for safe burr hole placement. This study aims to localize the asterion by referencing the intersection of the Frankfurt Horizontal Plane (FHP) and a vertical line from the mastoid tip, and to determine its relationship with the transverse and sigmoid sinuses. Methods: Distances from the asterion to both the FHP and the vertical line were measured on 200 dry skulls (100 males and 100 females). Additionally, 48 cadavers (24 males and 24 females) underwent asterion drilling perpendicular to the skull surface, and the relationship with the transverse and sigmoid sinuses was recorded. Results: In most dry skulls, the asterion was positioned above the FHP, with average distances of 0.5 ± 0.3 cm for both sides. Distances to the vertical line measured 3.7 ± 0.4 cm for the left side and 3.9 ± 0.4 cm for the right side. These distances showed statistically significant differences between sides but not between sexes. The asterion was more commonly located at the transverse-sigmoid sinus junction (54%) compared to the transverse sinus (42%). The accuracy of a predictive method was evaluated using 10 embalmed cadavers. Most predicted asterions were located anterosuperior to the exact asterion, with distances ranging from 0 to 1.3 cm in the horizontal plane (mean 0.4 ± 0.4 cm) and 0 to 0.7 cm in the vertical plane (mean 0.3 ± 0.2 cm). Conclusion: This study's alternative method for asterion localization offers a valuable tool in clinical setting, contributing to enhanced patient safety and surgical precision.

ORAL PRESENTATION

WHAT IS THE MORPHOLOGICAL BASIS OF POST-RADIATION PELVIC FRACTURES?

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Postradiation pelvic fractures have a clinical presentation similar to low-energy fractures in patients with osteoporosis. Like osteoporotic fractures, they are referred to by the terms "insufficiency" or "stress". This variety of nomenclature confirms the fact that the etiology of postradiation pelvic fractures is currently unclear. Postradiation changes in the skeleton of the pelvis after complex treatment of tumors in this area (most often cervical cancer and prostate cancer) contribute to the etiology, which can have the character of localized osteoporosis, but also bone necrosis. Other etiological factors are the development of senile osteoporosis over a longer period of time after tumor treatment in older patients, and probably also disorders of bone metabolism in connection with other components of complex oncology therapy (chemotherapy, biological treatment). All this makes it difficult to decide on therapy for these conditions. Postradiation fractures in the pelvic area are located mainly in the lateral (extraforaminal) part of the sacrum and usually ipsilaterally in the middle part of both rami of the pubic bone. This localization is probably related to the thin cortical bone layer and sparse cancellous bone in the mentioned areas. Clinically, postradiation fractures in the pelvic region are manifested by increasing pain, especially in the sacral region, after a minimal traumatic event or after simply being overloaded by prolonged walking. Initially, the X-ray examination is negative and the fracture can only be identified early by CT or MRI. In the further course, these fractures have a tendency to non-healing and development of the non-union. Orthopedic treatment, as in the case of osteoporotic fractures, is surgical in indicated cases, but the subsequent complex therapy currently does not have precisely defined rules.

ORAL PRESENTATION

ANATOMICAL BASES OF VASCULAR COMPLICATIONS OF FACIAL HYALURONIC FILLERS INJECTION

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The weakness or absence of regulation in aesthetic practice worldwide has resulted in increasing levels of inexperience and incompetence in relation to hyaluronic filler application and adverse events diagnosing and its treatment. The knowledge of facial anatomy, especially blood vessels is of crucial importance in minimizing risk of vascular occlusion after hyaluronic filler injection. The reasons of vascular occlusion are direct injection of hyaluronic filler in artery or vein, but because of hygroscopic nature of the hyaluronic acid it can produce compression of blood vessel from outside. The adverse event could be present locally at the place of injection or distantly along the tract of the injected blood vessel and communicating vessels, as the filler can travel through the lumen. According to the risk level of vascular occlusion the face is divided in four areas where glabella, nose and forehead represent very high risk zone, while jawline, chin, preauricular and lateral cheek represent low risk zone. No one zone should be considered as safe, especially if we take in account the possible variations of blood vessels. Although veins in the face mostly accompany the homonymous arteries, there are some exceptions to the rule like inferior ophthalmic and retromandibular vein. Introducing stricter regulations in aesthetic practice, giving more importance to the knowledge of anatomy, and application of a safer technique of injection are necessary to reduce both, the frequency and extent of a vascular occlusion and adverse event of hyaluronic filler injection in general.

ORAL PRESENTATION

SKIN INNERVATION OF THE LIMBS- DO WE REALLY TEACH CORRECTLY?

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Anatomical textbooks and atlases describe or illustrate the skin innervation by allocating nerves to certain areas. Consecutively, anatomical teaching follows these descriptions and students learn and study this provided knowledge. Anyway, regarding some illustrations or descriptions and include clinical publications, the strict allocation to nerves innervating the skin, might not be correct. Regarding pain therapy or regional anesthetic block techniques, selective blocks of main branches, which assumable innervate the skin, resulted in not anesthetized areas. This concludes that other nerves are providing the skin innervation. However, due to these results, we must think about the knowledge, which we provide to our students and clinicians. In addition, we must go back to the embryology and development of the limbs. The development of the limbs plays a crucial role in the skin innervation. This is explained by some examples based on anatomical literature and clinical-anatomical publications.

ORAL PRESENTATION

TEACHING AND TESTING ANATOMY OF BIOMEDICAL ENGINEERING STUDENTS: EXPERIENCES PRIOR, DURING AND POST COVID-PANDEMIC

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Aim: Teaching and testing biomedical engineering students of the Technical University in Anatomy prior, during and post COVID pandemic had to be adapted. Method: The 30 hours of lecture were performed in the lecture hall live using a blackboard or visualizer for the drawings and no powerpoints during the lectures prior the pandemic. During pandemic, the lecture was recorded using a visualizer and blackboard for the drawings and writings provided to students on Intranet where they could watch the lecture anytime they liked to. After pandemic, the lecture was performed online using a visualizer. Students had permission to make screenshots of the drawings. All students were examined by oral exam. Prior to pandemic on small casks with anatomical specimens, during and post pandemic, the oral exams were performed online, using anatomical images on 90 powerpoints slides, which were provided to the students priorily for preparing as well as other supporting powerpoints (total anatomy; 440 slides). Test results were compared prior, during and post pandemic. Teaching and testing was performed by the same person. Results: Students grades were clearly best during pandemic, where students could study with the recorded lecture provided. Worst results were observed prior pandemic. Conclusion: When there is a very strict limit of teaching hours but a large amount of knowledge to be taught, recorded lectures with additional learning documents can lead to satisfying results in oral exams.

POSTER PRESENTATION

FISHTAIL AND VARUS DIAPHYSEAL DEFORMITY IN A CADAVERIC HUMERUS

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Aim: Fishtail deformity describes a late anatomic deformity of the distal humerus which commonly results to osteonecrosis of the humeral trochlea. Impaired blood supply of the trochlea may be idiopathic (Hegemann disease) or follow the fracture of the distal humerus in children. The deformity is usually presented in plain radiographs and the examination of the elbow reveals clinical findings analogue to the severity of the distortion. We present a rare case of fishtail deformity combined to a proximal diaphyseal varus angulation in a cadaveric humerus, used in the Department of Anatomy of our University, for teaching purposes. Methods: The bone presented with an unusual anatomic disfigurement of its distal end combined with a proximal diaphyseal varus angulation. Photographs and x-rays were taken and compared to respective images of normal bone. We performed a literature review, regarding the pathogenic mechanisms of the trochlear osteonecrosis and the normal blood supply of the distal humerus in children. Results: According to Tonolio's classification the humerus we describe had a type A (AVN of the lateral ossification center) osteonecrosis of trochlea, where the medial crista or the apex of the trochlea is involved. The varus deformity of proximal diaphysis may result to plastic deformation or fracture (combined with the distal fracture or not), or it may not be implicated in the fishtail deformity pathogenesis. Conclusion: To our knowledge, this combination of deformities is very rare and depicted only in imaging reports; to describe it in a cadaveric humerus is exceptional.

ORAL PRESENTATION

SCAPHOID SLINGS AND SWINGS: PALMAR AND DORSAL MECHANISMS FOR TYPED CARPAL MOTION PATTERNS.

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AIM. The scaphoid is central to wrist function and discussion of typed carpal motion. Previous attempts at clinically meaningful wrist typing focused on the distal lunate, but failed to translate into consistent and reliable practice. Recent work has defined dorsal ligamentous typing of the scaphoid that aligns with skeletal features and theories of motion patterns. This study aims to determine if these features are consistently associated with palmar structures, therefore unifying a concept of scaphoids that slide between ligamentous “slings”, and scaphoids that flex and extend on ligamentous “swings” or hinges. METHODS. Body Donor wrists (18 embalmed, 6 unembalmed) were dissected and analysed. CT data was available for 20 of the dissected wrists. Segmented scan models were combined with microscribe-derived 3D models to map soft tissue attachments. Four specimens were macro-sectioned to simultaneously visualise palmar and dorsal relations. RESULTS. Type 1 wrists (36%) demonstrated slings created dorsally by the dorsal intercarpal ligament (DICL) attached to the trapezium and palmarly by the radiocapitate ligament (RCL). Type two wrists (64%) demonstrated potential pivot points with the DICL attached to the scaphoid and the RCL having a distinct scaphoid component, hence termed a radioscaphocapitate ligament. CONCLUSIONS. These data present, for the first time, typed palmar and dorsal ligamentous arrangements for varied scaphoid movement and demonstrate that a single model of wrist motion cannot work. These observations support distinct motion patterns and therefore may require distinct treatment pathways. Further study will determine if these features can be observed radiologically for effective clinical integration.

ORAL PRESENTATION

UMBILLICUS – THE NATURAL ORIFICE FOR SURGICAL ACCESS

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BACKGROUND With the introduction of laparoscopy in visceral surgery to reduce access trauma by means of the minimally invasive approach, a significant decrease in pain has been achieved. In the majority of surgical procedures, the first trocar is placed in the umbilical region to insert the camera. The presence of an umbilical gap, which can be used for this purpose, is the background of this study in body donors, which aims to determine the size of the natural opening and the influence on gender. METHODS A macroscopic dissection was performed in 48 body donors at the Institute of Clinical Functional Anatomy in Innsbruck. The diameter of the fascial defect was measured with a digital caliper. To ensure the accuracy of the four-eye principle was applied to ensure the accuracy of the measurements. RESULTS In 100 per cent of the dissected body donors provided to science, a small fascial defect was found just beyond the umbilicus. The calculated total average diameter of all male body donors to science was 7.0 mm and 6.25 mm in female donors. CONCLUSIONS A natural orifice was present in 100 per cent of the donated bodies that met the inclusion criteria. These results are an important finding for all laparoscopic visceral procedures performed through an umbilical approach, which can avoid the complication of a blind placement of the camera trocar and reduce the incidence of incisional hernias.

POSTER PRESENTATION

TEACHING HUMAN EMBRYOLOGY NOWADAYS: ARE THE SPECIMENS OF HUMAN EMBRYO STILL USEFUL ENOUGH?

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The project highlights the importance of preserving histological specimens of human embryos and fetuses in modern teaching of human development despite their intensive replacement by virtual animations. Standard paraffin sections are of unquestionable value in perceiving the reference morphology of a developing organ and its relationship to surrounding developing structures at a given time period, and training the perception of their correlation to CT or USG images. Serial paraffin sections of human embryos and fetuses (6.-12.week IUL) stained with HE from the archival collection of our institute were arranged chronologically, with a focus on the endocrine glands development. Developmental stages of the primordia were demonstrated, showing their relationship to surrounding developing structures, using a scale. Micrographs display the morphology of the primordia of the human pituitary gland, adrenal gland, and thyroid gland in chronological order, showing their affinity to essential dyes, their relationship to the surrounding organs during the development, the relative sizes of the structures and their position within the embryo/fetus. The morphology of the preparations in HE is of reference value for diagnosis in teratology. For comparison, images from virtual animations of available sources are inserted. Since obtaining the suitable intact samples of human embryos is extremely difficult and in many countries even legally impossible, we plan to digitally map the serial sections in their 2D output to preserve their value for educational or diagnostic purposes. The project is supported by the grant of Ministry of Education, Science, Research and Sport of the Slovak Republic, No KEGA 081UK-4.

ORAL PRESENTATION

THE ULTRASTRUCTURE OF GIT ORGANS USING SEM IN EDUCATION OF THEIR MIKROSCOPIC STRUCTURE

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Scanning electron microscopy (SEM) provides visual and spatial representation of the microscopic structure of human organs, which are below the resolving power of the light microscope (LM). The project presents micrographs of samples from gastro-intestinal tract (GIT), which demonstrate their ultrastructure for didactic and diagnostic purposes. Samples of referential human organs of the GIT (stomach, small and large intestine, gall bladder and liver) collected perioperatively or with a short autolysis period (collections approved by the Ethics Committee of the Faculty of Medicine of the Comenius University and the University Old Town Hospital, approval number EK 109/2020 and EK 62/2019) were chemically processed for evaluation in SEM EVO LS 15 (Zeiss) and images selectively colorized with Photoshop CS6. Micrographs demonstrate the detailed ultrastructure of the luminal surface of segments of the small and large intestine with different relative representation of goblet cells in the epithelium. Moreover, the correlative images to paraffin sections by freeze-fracture technique allows to observe the course of the finest bile canaliculi between hepatocytes or the surface of the gallbladder and stomach lining. Viewing samples in SEM brings the benefit of spatial perception of the structure, resolution of details of individual microvilli of cells, preservation of mucus content, and a visual demonstration of goblet cells or the tortuous course of bile canaliculi in comparison to the limited resolution of LM capacity, 2D sample effect, and dissolution of mucus in the paraffin method. Supported by the project No KEGA 081UK-4.

POSTER PRESENTATION

DEMONSTRATING AN INNOVATIVE MODIFIED CLAMSHELL TECHNIQUE FOR EITHER SINGLE OR 2-PERSON USERS ON NOVEL EMBALMED IMAGED CADAVERS TRAINING NON-CARDIOTHORACIC SURGEONS TO SUCCESSFULLY PERFORM EMERGENCY THORACOTOMY FOR REALISTIC LIFE-SAVING SKILLS.

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AIM. Emergency thoracotomy conducted in emergency/trauma departments has notoriously been associated with poor outcomes. Trauma experts claim timing of decision and procedural difficulty leads to poor outcomes. Conventional thoracotomy for non-cardiothoracic surgeons is left anterolateral approach. Study objective was to provide modified clamshell technique revealing critical anatomy enabling non-cardiothoracic surgeons to conduct life-saving thoracotomy for cardiac tamponade and cross-clamping descending thoracic aorta. METHOD. Novel GAX-specimens (n=6) and traditional embalmed (n=33) cadavers (total n=39), had modified clamshell approach conducted for ease of procedure (required tools, skill of tool use and degradation of technique), rapid efficient access, and working visibility. Required tools were scalpel, trauma scissors and Finochietto retractor for single user. RESULTS. With assistant, scalpel and trauma scissors enabled modified clamshell thoracotomy approach. Maintaining 5th intercostal space resulted in consistent optimal exposure of thoracic structures for emergency procedures. GAX-specimens possessed superior lifelike tissue compliance vs traditional embalmed. This technique allowed ideal anatomy exposure conducting a vertical incision of pericardial sac anterior to the phrenic nerve evacuating pericardial effusions and more easily enabled cross clamping of the descending thoracic aorta for non-cardiothoracic surgeons while avoiding the oesaphagus. Procedure affords satisfactory suture closing technique, avoiding higher infection rates associated with midline sternotomy procedures. CONCLUSIONS. Modified clamshell technique is not sophisticated, easily and rapidly performed, provides optimal anatomy exposure, and can be closed satisfactorily. The technique can be done as a single user with 3 tools or 2 users with 2 tools which can be taught in anatomy labs prior to chest dissection.

POSTER PRESENTATION

USING NOVEL GAX CADAVERS WITH INNOVATIVE CONTRAST AND SUBSEQUENT IMAGING VERSUS TRADITIONAL EMBALMED CADAVERS CREATING A MENTAL TEMPLATE OF LIFELIKE MORPHOLOGY FOR LEARNING AND TRAINING BILIARY/GALLBLADDER ASSOCIATED ANATOMY WHILE PROVIDING ACCURATE DEFIN

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AIM. Standard or common biliary/gallbladder anatomy is truly misleading. Structures with multiple vectors lying within multiple planes which vary every one in five gallbladder surgeries partly accounts for lack of improving bile duct injury incidence the past 2 decades. Inaccurate depiction of Calot’s triangle, lack of Hepatocystic Quadrangle anatomy, simplified inaccurate anatomy software, poor medical school dissection standards hardly create a useful mental template of the gauntlet biliary/gallbladder anatomy facing todays training surgeon. The study objective was to improve pre-or early residency training, using a novel prepared cadaver (GAX) where open/closed procedures are lifelike. METHODS. GAX-specimens (n=6) and 30 formalin-fixed cadavers-FFC (n=30) were scanned (MRI/CT/handheld ultrasound) and dissected as open procedure. RESULTS. All 6 GAX bodies were uncanny regarding lifelike palpation and responsiveness to surgical tools, dissectible cystic plate, structure texture, consistency, and appearance. All 30 FFC had thick waxy dermis, less responsive to surgical tools, fixed gallbladder-cystic plate complex, dense and dryer structures, but palpably more definitive. Surgical planes were extremely compliant with GAX-specimens but challenging with FFC. Open cholecystectomy dissection with GAX-specimens during medical school and/or internship training provides mental template biliary/gallbladder anatomy enabling a trainee to become familiar with multiple planes and vectors this variable anatomical region provides when laparoscopic training commences. CONCLUSIONS. Student or trainee exposed to accurate lifelike biliary/gallbladder anatomy from GAX-specimens provides realistic first impressions and the dynamic anatomy realities to expect during cholecystectomies (open/closed) thus priming the learning pump enabling laparoscopic simulation training to be more profound leading to fewer structural injuries.

POSTER PRESENTATION

INVENTING, CONDUCTING, AND TEACHING AN INNOVATIVE B-3 TECHNIQUE FOR A TRANSFORMATIVE CHEST DRAIN REACTOR INSTRUMENT IMPROVING THE CURRENT STATUS QUO PROCEDURE WITH NOVEL GAX CADAVER.

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AIM. Thoracostomy or chest tube placement is described to take between 15-45minutes (perhaps half the time is suturing etc...) and less if an adhesive is applied securing the chest drain. Complications reported up to 30% arent surprising considering the large trocar introduced into the chest. Despite medical technology the primitive technique to perform thoracostomy hasn't changed for 50 years. Study objective was to identify a technique using Reactor technology to insert a chest drain consistently, efficiently and safely into a novel GAX cadaver. METHODS. Literature search revealed no studies using novel GAX cadavers. Reactor instrument is an innovative design incorporating Seldinger technology applied to a simple handheld safe blunt-ended instrument with a hidden 2mm blade which rotates as a single strike initiated by hand squeezing before retracting rapidly behind the blunt end. Benninger invented a 3-pull rapid succession technique with mild constant pressure using the Reactor technology to enter the chest cavity. YouTube video demonstrated the technique. RESULTS. Novice 1st, 2nd and 3rd year medical students successfully placed chest drains into novel GAX cadavers requiring adhesive tape securing drains less than 1-minute post live or YouTube demonstration. Rather than a sharp tipped trocar advanced with all tissues in harm's way, Reactor's tapered oval blunt-ended plastic rod enters the cavity protecting tissue it meets. CONCLUSIONS. This study suggests students conduct their first thoracostomy during anatomy labs using the Reactor technology and subsequently with other simulation mediums using Benninger 3-Pull or B-3 technique to lower incidence of injuries.

ORAL PRESENTATION

A MULTILEVEL, MULTIMODAL, AND INDIVIDUALIZED APPROACH AS A NEW STRATEGY IN TEACHING 3D ANATOMY: A GLIMPSE INTO THE HISTORY OF ANATOMICAL SPATIAL VISUALIZATION

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The potential of 3D anatomy in medical education is visible as a short pathway from the 19th-century innovations of Charles Wheatstone to current immersive 3D visualization tools. The birth of 3D photography and Wheatstone’s stereoscope in the 1830s opened possibilities for producing precise 3D images, ushering in a learning revolution. A comprehensive understanding of the anatomical spatial organization of the human body is crucial in medical education. Innovative tools like glasses-free 3D tablets and surgical robots bring a multilevel, multimodal, individualized approach to 3D anatomy teaching. Recognizing the variety in medical students' spatial abilities, we proposed to assess these new 3D technologies' effectiveness and future promise. 3D anatomy's significant contribution towards enhancing visualization, interaction, and understanding of cross-sectional anatomy and the Human Body Universe should be recognized. Notably, 3D anatomy offers an incredible solution to current educational challenges, including a scarcity of skilled anatomy educators and a continuing reduction in anatomy teaching hours. Looking towards the future, we explore the ongoing development of integrated 3D anatomy, illustrating its potential for multisource, real-time, interactive instruction in anatomy. The potential of mixed reality intertwined with 3D technology in enhancing the teaching of human anatomy is also discussed. The presentation aims to initiate a dialogue on the transformative role of 3D visualization in anatomy education, bridging the gap between historical heritage and present-day innovations. Discussing and evaluating new didactic formats of 3D anatomical education scenarios will be very important in time 3D digital visualization era.

POSTER PRESENTATION

DORSAL RETINACULA OF THE FOOT: A MORPHOMETRIC STUDY IN SOFT-EMBALMED CADAVERS.

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Introduction, aims and methods: Dorsal retinacula of the foot (DFR) are complementary to the extensor retinacula; they generate entrapment syndromes of difficult diagnosis and are affected in traumatic injuries, leading to tendon excursion and gliding. This is a descriptive study of DFR and their insertion in 10 Thiel-embalmed cadavers. Results: Superficial DRF includes a medio-proximal compartment (MP), a medio-distal compartment (MD), and distal and proximal midfoot retinaculum (dMR, pMR). The MP inserts in the medial and dorsal aspects of the first cuneiform and the proximal epiphysis (PE) of the first metatarsal bone (1,5-2,2 cm.). The MD includes two sets of insertions (1,1 cm- 3,7 cm) in the PE and the shaft of the first metacarpal; forming channels for the distal EHL tendon in its medial compartment and the EHB tendon in its lateral compartment. The pMR serves the EHL and includes a compartment for the tendon of the second finger, a common compartment for the tendons of third and four fingers and a lateral compartment including both peroneus brevis and longus; the MR arises from the cuboid and the EHB fascia with high variability (0,63 to 3,37 cm.) The dMR maintains the same organization but includes both brevis and longus tendons (1,1-1,8 cm). Deep DRF form independent channels for the proximal half of the tendons of the EHB. Conclusions: This is the first morphometric study of the DRF, where independent superficial and deep channel for extensor tendons are described, along a set of fascial insertions that were previously unrecognized.

POSTER PRESENTATION

MEASUREMENTS OF THE GLENOHUMERAL LIGAMENTS ACCORDING TO THEIR PATTERN OF DISTRIBUTION: A DESCRIPTIVE STUDY IN SOFT EMBALMED SHOULDERS

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Introduction, aims and methods: The glenohumeral ligaments are key stabilizers of the glenohumeral joint. Three distinct fascicles are usually described from the anterior surface of the shoulder joint: a superior glenohumeral ligament (SGHL); a MGHL and anteroinferior glenohumeral ligament (AIGHL). A remarkable interindividual variation has been reported and there is a lack of consensus regarding terminology and quantitative measures of ligament attachments. A recent study provided a much-needed insight about quantitative details of the glenohumeral ligament insertions. However, there is a lack of studies describing linear measurements (closer to real-life surgical anatomy) of glenohumeral ligamentous insertions according to their pattern. Hereby, we present a Thiel-based anatomical study describing proximal (glenoid) insertions of glenohumeral ligaments in 38 specimens. Results: Only 29% of cases showed a canonical pattern of SGHL, MGHL and AIGHL, with scapular insertions ranging from 0,4 to 1,3 cm for SGHL, 0,5-1,6 cm for MGHL and 0,9-1.3 cm for AIGHL, frequently mixed between the labrum and the bony edge of the glenoid surface. Most of the cases (47%) showed a single glenohumeral ligament inserted usually in the labrum (1,6-3,6 cm). Around 23% of cases showed a mixed pattern. Moreover, the presence of Weitbrecht and Rouviére foramina was recorded in 34% of shoulders. Conclusions: The morphometric study of the glenohumeral ligaments should consider their pattern of distribution. Also, insertions vary between the labrum and the scapular bony articular surface.

POSTER PRESENTATION

DANGER ZONE TEACHING CONCEPT OF THE CUBITAL FOSSA HIGHLIGHTED BY NOVEL GAX SPECIMEN DISSECTIONS

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AIM. The cubital fossa (CF) is an important anatomical region for routine clinical skills practiced 24 hours per day. Baccalaureate anatomy programs teach significant numbers of allied health professionals who withdraw blood from the CF, conduct blood pressure recordings etc… CF has an iconic midline landmark, the distal biceps tendon (DBT). This important clinical landmark provides the teaching concept of the CF termed the Danger Zone. Medial half of the CF from DBT houses important neurovascular structures such as brachial artery and vein, median nerve and branches thereof. Lateral side of the CF is the safe zone. Study objective was to assess if anatomy departments during baccalaureate, masters and medical school courses teach the danger zone concept while dissecting on novel GAX-specimens. METHODS. Literature search revealed no danger zone concept teaching of the CF and dissection with novel GAX-specimens. Anatomy programs (2-baccalaureate which support nursing degrees, 1-Master's and 5 medical school sites with anatomy dissection labs, 3-USA, 1-British, and 1 European) were asked if they teach the danger zone concept with CF dissection. RESULTS. Baccalaureate, Master's and all five medical sites responded they don't teach the danger zone concept. Students from each institution were asked if they knew about the danger zone concept and all replied no. Once described, students said they would remember the danger zone concept GAX-specimen dissections were lifelike regarding movement, palpation, tissue colour, resistance and structure orientation. CONCLUSION. This study suggests CF danger zone teaching concept should be emphasised in contemporary anatomy texts and atlases used in healthcare clinical anatomy courses.

POSTER PRESENTATION

VALVULAR PREVALENCE AND MORPHOLOGY IN THE AZYGOS VEIN: AN ANATOMICAL STUDY

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Aim The azygos vein is a large vessel draining part of the abdomen, posterior wall of the thorax, and viscera within the mediastinum into the superior vena cava (SVC). Despite clinical observations of valves within the azygos vein near its SVC drainage site, there is a lack of descriptive information regarding their presence and morphology in anatomical texts. This study aims to anatomically demonstrate the prevalence of valves in the arch of the azygos vein, ultimately matching or surpassing clinical studies and consequently updating anatomical and medical education literature. Methods Human cadaveric donors were utilized for this research, which was exempted by the IRB under #06014. Azygos veins were dissected from the diaphragmatic level to the SVC, allowing for the observation and determination of valve types, and subsequent measurements. Results Among the 47 cadaveric azygos veins collected and analyzed, valves were found in 90% of the specimen. This prevalence correlates positively with existing literature derived from CT and MRI studies. The valves are predominantly bicuspid and located between the right superior intercostal vein and the outflow into the SVC. Other observations included unicuspid, tricuspid, and valves found in multiple locations. Conclusion The high prevalence of valves within the arch of the azygos vein, along with valve morphologies observed, emphasizes the importance of updating anatomical and medical education literature.

ORAL PRESENTATION

TO HEAR ONE'S BREATH; UNVEILING THE EPONYMOUS QUARTET, A HISTORICAL EXPLORATION OF THE EUSTACHIAN TUBE

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Aim This study was initiated based on the experience of one of the authors with the effects of a patulous Eustachian tube (ET). As a result, four lesser-known eponyms associated with ET were discovered. The objective of this research is to provide a historical account of these eponymous structures acknowledging the contributions of these individuals to anatomy and otology. Methods A comprehensive literature review was conducted using "patulous Eustachian tube" as the search term. A total of 278 articles were retrieved from PubMed, while 2600 articles were found on Google Scholar. Results The study identified four eponymous structures related to a patulous ET: Ostmann fat pad, Ruedinger safety space/canal, Von Troeltsch fascia, and Weber-Liel fascia. All four researchers were German physicians. The historical background of these individuals is presented, offering an insight into the era of the late nineteenth century. Among the eponymous structures, Ostmann fat pad is the most frequently referenced. While easily recognizable on histological slides, it is seldom mentioned in textbooks. Ruedinger safety canal ranked second in terms of references. Von Troeltsch is linked to the salpingopharyngeal fascia, while Weber-Liel, is associated with the lateral fascia of the tensor veli palatini muscle. Conclusion This study highlights four eponymous structures associated with a patulous ET, providing their names, anatomical descriptions, and functions. Furthermore, it acknowledges the historical significance of the researchers involved, honoring their valuable research contributions to the field of anatomy and otology.

POSTER PRESENTATION

VARIATIONS IN THE CELIAC PLEXUS STRUCTURE AND FORMATION.

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Aim. The celiac plexus is often approached due to the diagnosis and treatment of the intractable pain associated with cancerous or non-cancerous pathology of the pancreas or neighbouring organs. Various methods of celiac plexus blocks are used and the variations in its structure are causes of the failures of such procedures. Material and methods. 20 human cadavers (17 male, 3 females, age range 30-86 yrs, without any abdominal pathology) were dissected in the supine position. The abdominal autonomics was studied bilaterally after the incision of the abdominal wall and the peritoneal sac was cut and the abdominal organs were removed. The celiac plexus becomes well visible after the hepatogastric and hepatoduodenal ligaments removal and pulling the stomach to the left and the pancreas downward. Results. The largest celiac ganglion was 45mm on the right side, 25mm on the left side. The average distance of the ganglia from the celiac trunks was 0.6-0.9 cm from the right and left. The size of celiac ganglia varies from 0.5-4.5cm and their number from 2-12. Ganglia can be segmentally or concentrically organized. The celiac plexus almost always receives the branches from the greater splanchnic and vagus nerves. Sometimes the contributions from the lesser splanchnic nerve, phrenic nerve, and accessory phrenic nerve (60%) were observed. Very rarely are missing both phrenic nerves. Conclusion. Sympathectomy (splanchnicectomy), as well as the celiac blocks (under US, CT control or laparotomic) aimed at pain relief usually by pancreatic cancer, should take into account these possible variabilities.

POSTER PRESENTATION

PERFORASOMES OF THE OCCIPITAL ARTERY

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Background: The use of flaps in plastic and reconstructive surgery gained importance over the last decades as well as the blood supply of such flaps. The aim of this study was to examine the perforators of the occipital artery (OA) and their respective perforasomes. Methods: This study was performed on 40 (20 right, 20 left) occipital arteries of 20 fresh human head specimens. The occipital artery and its perforators were identified, and each perforator was injected with dye to mark the perfused areas on the skin. The perforators and corresponding perforasomes were documented in a standardized fashion. Location and size of the perforasomes were determined as well as the point of the perforator's origin. Those parameters were used to find spots and anatomical landmarks on the skin of the nuchal and occipital area, which were frequently supplied by the occipital artery. Results: In total, 39 occipital arteries have been dissected. In one specimen, only one OA was identified. The OA arised from the external carotid artery at a mean distance to the bifurcation of 159 mm. In total, 190 occipital artery perforators were identified The mean diameter of the vessels was 0.08cm. The mean area of the perforasomes was 12.76cm2. They were localized over the whole nuchal and occipital area. Conclusion: This study showed the arterial supply of big portions of the occipital and nuchal area by the OA. Of note, perforators, which were already described in the literature, this study showed additional perforators at the dorsal aspect of the sternocleidomastoid muscle.

POSTER PRESENTATION

SAFE ZONES TO AVOID SUBCUTANEOUS NERVE INJURY IN SUBTALAR ARTHROSCOPY

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Background: Injury to the superficial peroneal nerve or the sural nerve is a common complication in subtalar arthroscopy. A frequency of up to 6.8% is reported in literature. The aim of this study was to evaluate the distance of standard portals in subtalar arthroscopy to the respective nearest subcutaneous nerves. Methods: 40 paired fresh-frozen foot and ankle specimens were used. Subtalar arthroscopy using a 3-portal technique (anterolateral (AL), posterolateral (PL) and accessory anterolateral (AAL) portal) was performed. After completion of subtalar arthroscopy, the portals were marked with pins and all surrounding subcutaneous nerves, i.e. the branches of the superficial peroneal nerve and the sural nerve, were dissected. The distance of the nearest nerve at the level of the respective portal was measured. Results: The nearest nerve at the level of the AL portal was the intermediate dorsal cutaneous nerve at a mean of 15.40□5.09mm medial to the portal. The nearest nerve at the level of the AAL was the lateral dorsal cutaneous nerve at a mean of 17.74□4.84mm being lateral to the portal. The nearest nerve at the level of the posterolateral portal was the sural nerve at a mean of 6.73□4.72mm anterior to the portal. Based on the measurements, safety zones were defined. Conclusion: Placement of the AL and AAL portals in subtalar arthroscopy is save using standard anatomical landmarks and a thorough surgical technique. The nearest subcutaneous nerve branch of the superficial peroneal nerve was at least 1cm distant to the portal. At the level of the PL portal the sural nerve is the most endangered structure in subtalar arthroscopy.

ORAL PRESENTATION

LOADING AND STRUCTURE OF THE SYMPHYSIS DURING STANCE PHASE WALKING ON ONE LIMB: A FINITE ELEMENT MODEL

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The aim of the study was to determine the external load during the standing phase on one limb during walking, based on the finite element method (FEM). It is important for the development and implantation of fixation implants in the case of injury to the anterior segment of the pelvis and also for determining the load during healing. We compared the obtained findings with the images obtained during MRI. The results showed that the greatest stress in the area of the symphysis is at the edge of the lower (arch) pubic ligament. The greatest deformation of the symphysis was localized in the lower part, where the primary cavity of the symphysis is visible on MRI, which arises in early childhood, probably at the time of the transition to bipedal walking. The analysis of the result in accordance with the clinical experience proved that the fixation bridging the symphysis is an obstacle to the normal function of the symphysis, therefore it is advisable to remove this implant in young people after the healing of the pelvic fracture.

ORAL PRESENTATION

3D ATLAS ANATOMYKA AND ANATOMAGE VIRTUAL TABLE TRANSFORMS HOW STUDENTS LEARN ANATOMY – THREE-YEAR QUESTIONNAIRE COMPARISON

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At our Department of Anatomy, we try to combine traditional anatomy teaching with modern technologies. According to staffing and capacity, we try to spend as much of the teaching as possible in the dissection room with specimens from human donors. However, we also offer students instruction on the Anatomage virtual dissection table and study on the Anatomyka 3D anatomical atlas. Anatomyka is an app that students can download to their mobile phones and computers, so they are not limited by the need to be present at the faculty. Over the past three academic years, we have created questionnaires for general medicine and physiotherapy students asking about the benefits of modern technology in the study of anatomy. 97.2% of students rated the Anatomyka app as beneficial, and 91.4% rated the Anatomage table as beneficial. We found that the Anatomage table was used by an average student for only 3.2 hours per semester, whereas the Anatomyka app was used by students for an average of 5.7 hours per week, similar to the time students spent in anatomy lectures and practicals. Another goal of the questionnaires was to determine which body parts are most important to students in the apps, which features they value most, and what they expect from the apps to help them understand anatomy as much as possible.

ORAL PRESENTATION

THE MOST COMMON ANATOMICAL LOCATIONS OF TRAMPOLINE INJURIES

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In the last 10 years, trampolines have experienced a huge surge in popularity worldwide. Children and parents alike find them to be great fun, which is certainly safe as they are bounced on a soft surface. Unfortunately, the opposite is true. The increasing number of home trampolines and jump arenas is reflected in the number of injuries. In our hospital emergency room, we treated 320 trampoline injuries in children in 2022. 21% of injuries were contusions, 23% were sprains, and up to 48% were fractures. This is because trampolining is a high-energy sport in which the force from the springs is transferred to the bones and soft tissues of the body on impact, easily causing damage. This is important especially for kids under 6 years of age, who accounted for up to 40% of the injured children, and in 15 cases the proximal metaphysis of the tibia was fractured, which is a typical trampoline fracture. The next most common fracture sites were lateral malleolus fracture, supracondylar humerus fracture, distal radius fracture, and diaphyseal fracture of the forearm. Overall, lower extremity injuries accounted for 49% of fractures, upper extremity injuries accounted for 44%, and spine injuries accounted for 7%. Understanding the anatomy, biomechanics, and growth changes of pediatric bones may contribute to the development of guidelines and recommendations that could reduce other trampoline injuries.

ORAL PRESENTATION

BILATERAL HAND OLIGODACTYLY: ANATOMICAL STUDY

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Hand oligodactyly refers to a hand having fewer than 5 digits. A comprehension of the structural variation of the anomaly necessitates an anatomical study, which has rarely been reported. The present case report describes the detailed variations of anatomical structures of bilateral hand oligodactyly, thereby providing helpful information for any possible correction of the anomaly. Bilateral hand oligodactyly that had four fingers on each hand was found in a donated cadaver (77 years, female) at the Sungkyunkwan University School of Medicine. The bones, muscles, tendons, nerves, arteries, the attachments of the muscle and tendon, and their topographical relationships were bilaterally investigated in the hands and forearms of the cadaver. Diverve variations were observed in most of the structures including the palmar aponeurosis, tendons of the flexor digitorum superficialis, the flexor digitorum profundus, and flexor pollicis longus, lumbricals, interossei, and metacarpals. Even connections of the tendons between the flexor and extensor were found, and each variation was different between two hands.

POSTER PRESENTATION

POSITIONAL RELATIONSHIP OF ORIGIN AND COURSE OF THE ZYGOMATICUS MAJOR WITH THE NASAL ALA, TRAGUS, PHILTRUM, AND LATERAL CANTHUS FOR AESTHETIC TREATMENTS AND SURGERIES

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For aesthetic treatments, it is required to predict the target structures underlying the facial skin. The location of the zygomaticus major muscle (Zmj) is important to achieve safer and more effective treatment. The aim of this study examined the origin and course of the Zmj with its topographic relationship with the nasal ala, tragus, philtrum, and lateral canthus. Zmjs were examined in 44 specimens of embalmed adult Korean cadavers. The Zmj origin was located at the horizontal level of the nasal ala in all specimens (100%). The positional relationship of the Zmj origin with the nasal ala and the tragus was classified into three categories. The horizontal level of center of the Zmj origin and the nasal ala passed through the following: the tragus in 40.9%, the intertragic notch in 38.6%, and the site above the tragus in 20.5% of the specimens. The positional relationship of the Zmj with the philtrum and lateral canthus was classified into three categories. At the site where the horizontal level of the middle of the philtrum crossed a perpendicular level of the lateral canthus, the lower third of the Zmj was located in 77.3% of the specimens. Combined approaches of dissection, sectioned images, and ultrasound images for the origin and course of the Zmj provided positional information to easily predict the site of the origin and course of the Zmj with its related structures underlying the skin when performing aesthetic treatments.

POSTER PRESENTATION

EXTENSION OF THE ILIOTIBIAL TRACT TO THE KNEE JOINT CAPSULE : STABILIZING THE KNEE JOINT

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The aim of this study was to clarify extension of the iliotibial tract to the knee joint capsule. Knee joint area was examined in 26 specimens of 14 embalmed Korean adult cadavers. Approximately a medial half or medial two thirds of the iliotibial tract obliquely descended toward the anterior joint capsule and it almost coursed transversely to cover the patella as well as the area just below the patella in all specimens (100%). The rest portion descended to attach to the anterolateral aspect of the lateral condyle of the tibia in all specimens (100%). The amount of the iliotibial tract that covered the patella varied. The iliotibial tract covered approximately lower third including the apex of the patella (50%), lower two thirds of the patella (36.4%), lower half (13.6%), and. In all specimens, some medial portion of the iliotibial tract that coursed transversely along the apex of the patella. Thus, the iliotibial tract is thought to reinforce the anterior joint capsule, supporting the patella like a sling. The gluteus maximus and the tensor fascia latae through the iliotibial tract keep the extended knee joint firm. Since the iliotibial tract is broadly attached to the ilium and tibia and covers the lateral thigh, its contribution to the anterior joint capsule related to the patella can connect the movements of the hip, leg and knee joint.

POSTER PRESENTATION

ATTACHMENTS OF THE DISTAL OBLIQUE MEMBRANE AND DISTAL OBLIQUE BUNDLE TO THE DISTAL RADIOULNAR JOINT CAPSULE, ARTICULAR DISC, AND SEPTUM OF EXTENSOR TENDON SHEATH

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The aim of this study was to clarify the attachments of the distal oblique membrane (DOM) and distal oblique bundle (DOB) of the interosseous membrane of the forearm to the distal radioulnar joint capsule and articular disc. The interosseous membrane of the forearm was investigated in the 26 specimens of 13 Korean cadavers. The DOB was found in 13 of 26 specimens (50%). The DOB was formed as a thickened portion at the ulnar border of the DOM. Regardless the presence of the DOB, the DOB and DOM were attached to the distal radioulnar joint capsule on the palmar side and the septum between the tendons of the extensor digiti minimi and extensor carpi ulnaris as well as the radius and ulna on the dorsal side. The DOM or DOB was attached to the articular disc at the distal radioulnar joint in 13 of 18 specimens (72.2%). The distance between the ulnar head and the level of proximal site of the DOB or DOM attaching to the joint capsule was 28.9 ± 7.1 mm (mean ± SD). The attachments of the DOM and DOB to the distal radioulnar joint capsule and articular disc may contribute to the stabilization of the distal radioulnar joint during supination and pronation.

ORAL PRESENTATION

MAPPING THE VASCULAR AND MUSCULAR TOPOGRAPHY OF THE GLABELLAR REGION: IMPLICATION FOR IMPROVING THE SAFETY AND EFFICACY OF THE GLABELLAR INJECTIONS

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Abstract (Oral Presentation) Ismailoglu Abdul Veli1, Ismailoglu Pelin2, Aktekin Mustafa3 1. Marmara University School of Medicine Istanbul, Turkey veli.ismailoglu@marmara.edu.tr 2. Fenerbahce University Faculty of Health Sciences Istanbul, Turkey pelin.ismailoglu@fbu.edu.tr 3. Acibadem University School of Medicine Istanbul, Turkey mustafa.aktekin@acibadem.edu.tr Presenter: Pelin Ismailoglu Aim: We aimed to improve the safety and efficacy of the glabellar injections by mapping the glabellar muscles and overlying vasculature in relation to the medial canthus and the defined reference lines. Methods: Meticulous dissection was performed to reveal glabellar muscles and arteries using micro dissector in red-dyed latex injected 16 hemifaces. Location of the angular artery (AA) with its branches noted in relation to glabellar muscles. Results: The AA was located superficial to the levator labii superioris alaeque nasi (LLSAN), and then coursed towards the medial canthus to anastomose with supratrochlear artery deep to the origin of the depressor supercili (DS). The AA had subcutaneously located central and paracentral branches coursing close to the mid-face line (14/16). Variative muscular connections were present between the LLSAN, the DS and the procerus (P). There was no any arterial vessel at the base of the medial eyebrow to which the DS, the P, and the frontalis (F) inserted. Conclusion: This study provides a map showing the glabellar vascular anatomy with including muscles to define the safe injection sites of the glabella which can improve the safety and efficacy of the filler and BoNT injections.

ORAL PRESENTATION

THE RELATIONSHIP OF DYNAMIC AND STATIC Q-ANGLE WITH KINETIC, KINEMATIC AND ANTHROPOMETRIC CHARACTERISTICS OF THE LOWER LIMB

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INTRODUCTION: Q-angle, which is one of the most frequently used parameters when evaluating the changes in axial loading of the lower extremity, is associated not only with the knee joint but also with the hip and foot mechanics. There are few studies comparing static and dynamic measurements of the Q-angle and comprehensively evaluating the impact of this angle from the hip joint to the foot. Therefore, our aim is to evaluate the relationship between dynamic and static measurements of the Q-angle and their relationship with lower extremity anthropometric characteristics, foot pressure, gait kinematics and knee muscle strength as a whole. MATERIALS AND METHODS: The study was conducted on 41 male subjects (mean age 21.93±2.54). Static measurements of the Q-angle were measured using a universal goniometer. Gait analysis were conducted with the Diers 4d motion device. Anthropometric features were taken using Martin type anthropometry and a digital caliper. Knee isokinetic flexion / extension muscle torque were measured with the IsoMed 2000 device. RESULTS: A negative correlation between isokinetic strength measurements and static Q-angle measurements on the dominant side ($p<0.05$; $0.20<r<0.39$), and a moderate consistency between static active and static passive Q-angle on both the dominant (ICC=0.83) and non-dominant (ICC=0.89) sides was observed. No correlation was found between dynamic and static Q-angle measurements ($p>0.05$). CONCLUSION: The results of the study reveals that dynamic Q-angle measurements are not related to static Q-angle measurements, therefore static and dynamic Q-angle measurements should not be used interchangeably.

POSTER PRESENTATION

COEXISTENCE OF THE "BOVINE AORTIC ARCH", INDEPENDENT ORIGIN OF THE LEFT GASTRIC ARTERY FROM THE ABDOMINAL AORTA AND THE STERNAL FORAMEN - DESCRIPTION OF ANATOMICAL VARIATIONS BASE ON RADIOLOGICAL INVESTIGATION

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Introduction: Variations of the origin of the aorta branches are common but extremely important to recognize in the diagnosis and treatment of patients suffering vascular and non-vascular disease. Aim: The aim of the study was detailed description of coexistence three anatomical variations, two vascular and one skeletal. Materials and Methods: The description was performed based on retrospective analysis of scans from computed tomography angiography. Radiological investigation was carried out on computed tomography (256-row Revolution Apex computed scanner, GE Medical System). Results: A 61-year-old female was admitted to the hospital for assessment of the ascending aorta and aortic valve, suspicion of aortic dilatation. In computed tomography angiography two vascular variations were found: first as only two branches of aortic arch usually so called as "bovine aortic arch" and second as independent origin of the left gastric artery from the abdominal aorta. The dimension of common trunk that was place of origin of brachiocephalic trunk and left common carotid artery was 24 mm. The dimension of the left gastric artery was 3 mm. During the radiological analysis in inferior part of sternal body the sternal foramen was found (width 8 mm, height 13 mm). Conclusions: Understanding the variations of the vascular and skeletal system is important for diagnosis and treatment, especially in endovascular intervention, and surgery. * corresponding author : Ewa Jakubczyk (MD), (ewa.jakubczyk.umed.lodz.pl), Department of Normal and Clinical Anatomy, Chair of Anatomy and Histology, Medical University of Lodz, Poland

POSTER PRESENTATION

CANDID (COLLABORATIVE ANATOMY NEAR-PEER DEMONSTRATOR-LED INTER-DISCIPLINARY EDUCATION TRIAL)

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AIM: To assess differential attainment in anatomical knowledge among Swansea University Graduate Entry Medicine students who led near-peer teaching workshops for an undergraduate human anatomy module and those who did not. METHODS: This controlled trial enrolled 120 first and second-year medical students as control and intervention (teaching assistant) cohorts to simultaneously take three virtual “spotter”-type examinations over the duration of one term. Spotter exams tested undergraduate module learning objectives which mirrored learning outcomes necessary for progression into the third year of medical study. Workshops started after the intervention cohort sat their first spotter and finished before their final spotter. 56 students engaged with the study sufficiently to extrapolate results for analysis (intervention n=40, control n=16). Data generated was processed in Microsoft Excel and analysed using SPSS. RESULTS: Intervention cohorts demonstrated statistically significant improvement in scores between their first and final spotter (Y1 $p<0.05$, paired T-test; Y2 $p<0.001$, paired T-test). Control groups displayed no statistically significant change between their first and final spotter scores. When compared to respective control cohorts, there was significant difference between the changes in spotter scores for both intervention groups ($p<0.05$, equal variance T-test & Mann-Whitney-U). CONCLUSION: Medical students involved in the interdisciplinary near-peer anatomy teaching programme out-performed their peers. The authors surmise that participation as a near-peer educator, which encouraged greater extracurricular study and communication of anatomical theory, yielded a positive impact on retained knowledge. The observations lead the authors to recommend the inclusion of interdisciplinary near-peer anatomy teaching models for anatomical study in medical curricula.

ORAL PRESENTATION

ANALYSIS OF THE ANATOMICAL AND ANTHROPOMETRICAL DIFFERENCES IN SACRAL BONES: SAMPLES FROM VIRTUAL DISSECTION TABLE

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The present study aimed to analyze digital sacral bones, detecting their anatomical differences and anthropometrical measurements, using the Anatomage Table. Methods. Firstly, at the Department of Morphology of Rīga Stradiņš University, there were examined the sacral bones of four digitalized whole human bodies (1st sample: an Asian woman and man; a Caucasian woman and man) that were reconstructed from frozen cadavers and loaded on the Anatomage Table (Anatomage Inc., San Jose, CA, USA; version 6.0.3.). Secondly, four isolated sacral bones (sample 2) from regional scans of the pelvis and abdomen also were included in the analysis. Six direct measurements (real height (RH), anterior length (AL), superior anterior breadth (ASB), mid-ventral breadth (MB), anterior-posterior diameter of the base (APDB), maximum transverse diameter of the base (TDB)) were chosen and detected with a digital distance measurement tool in anterior, posterior and superior view. The sacral bones' 48 metric parameters were measured after several practices and accuracy. The differences and values were compared in the samples and between them. Results. It was determined that all examined sacrums had four pairs of sacral foramina. The most frequent shapes of the sacral hiatus apex among were inverted V and irregular. Sacral skewness was detected in three sacrums. Both samples presented RH, AL, and ASB greater in males. TDB value was higher in two of all measured sacrums, whereas the APDB value was more excellent only in one sacrum. Conclusion. Detected anatomical variations and anthropometrical measurements could be helpful in medical specialists related to the sacrum.

POSTER PRESENTATION

TENDENCIES AND USAGE OF THE RECORDED ANATOMY DEMO CLASS MATERIALS FOR STUDENTS' SELF-LEARNING

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The study aimed to investigate the tendencies and usage of the recorded anatomy materials for students' self-learning using Panopto analytics data. Methods. 2364 medical students were involved in Human Anatomy courses I and II in the academic year 2022 - 2023 at the Department of Morphology of Rīga Stradiņš University. All regular 126 Demo class sessions were designed, recorded, and uploaded in Panopto by tutors and shared with students via the links in Moodle (e-studies) within the course. The Panopto sessions analytics dashboard was opened, and any time range of every Demo class record was selected for the report. Descriptive statistics were used to analyze only the information about students' a total number of views and downloads of Demo classes records, as well as the maximal number of their individual views and downloads, including frequency and percentage. Results. Students preferred mostly to view and download several times the records about bones of the spine, the topography of the skull, joints of the foot, the topography of the neck, upper and lower extremities, structures and composition of the brainstem, organs of the digestive and urinary system, carotid arteries, veins of the head and spinal nerves. In addition, the maximal amount of the record's individual views and downloads ranged from 1 to 43. Records of the last Demo classes students used with lesser intensity. Conclusion. This study provided valuable tendencies and insights into how students interacted with the recorded sessions and helpful information about tutors-prepared learning materials that students used for self-learning.

ORAL PRESENTATION

CLINICAL ANATOMY OF THE LATERAL ANTEBRACHIAL CUTANEOUS NERVE: IS THERE ANY SAFE ZONE FOR INTERVENTIONAL APPROACH

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Objectives The proximity of the lateral antebrachial cutaneous nerve (LACN) to the cephalic vein (CV) puts the LACN at risk of damage during venepuncture or cannulation, which can be associated with neuropathic symptoms. Damage to the LACN can also occur during elbow approaches and procedures conducted on the superficial branch of the radial nerve, where connections between the nerves can be injured. The study aimed to reveal the relationship of the LACN to surrounding structures following risky procedures and to predict a safe zone for the CV cannulation. Methods Thirty-eight forearms from nineteen cadavers with no visible traces of past traumas, embalmed with the classical formaldehyde method, were dissected. Neural and vascular structures were measured with a digital calliper, photographed and schematically redrawn on paper. Results The LACN common trunk divided into two trunks (anterior and posterior) in thirty-three forearms and continued as a single trunk in five forearms. The anterior trunk was not associated with the CV in 36 cases and the posterior trunk was associated with the vein in all cases. The LACN lay more intimal to the brachioradialis muscle in the proximal forearm. Conclusion The knowledge of the LACN anatomy is crucial to avoid its iatrogenic injury causing neuropathic pain and sensory deficit. We consider that cannulation of the CV in the cubital fossa appears to be safe in comparison with the more distal portion due to the deeper position of the nerve (despite its intimate relationship to the vein) and larger widths of the CV.

POSTER PRESENTATION

DEVELOPMENT OF THE FRONTAL SINUS DEPENDING ON AGE IN COMPUTED TOMOGRAPHY IN CHILDREN

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Introduction: The frontal sinuses develop – as the last – after birth. The available scientific literature shows differences in the time of the frontal sinuses' formation. Aim: The aim of the study was to assess the frontal sinus development according to age. Materials and Methods: The study was retrospective and was carried out based on the results of computed tomography of the head (256-row Philips Brilliance computed CAT scanner) in children aged from birth to 18 years old. Results: The study group comprised 180 girls and 180 boys; their number was 10 in each age range. The mean age of patients in the study group was 9.00±5.20 years: 9.01±5.21 for girls and 8.99±5.20 for boys, respectively (p=0.97). The youngest girl was 1 year and 9 months old and had the left frontal sinus observed while the youngest boy was 1 year and 11 months old and had the right and left frontal sinuses found. The presence of the frontal sinus on at least one side in early childhood (1 to 3 years of age) was observed in 15.0% of the children (10.0% right, 13.3% left). In the preschool period (from 4 to 7 years of age) in 81.2% (70.0% and 72.5%). In the early school period (from 8 to 11 years of age) in 98.7% (93.7% and 93.7%). In the school period (from 12 to 15 years of age) in 100% (98.7% and 98.7%). In the youth (from 16 to 18 years of age) in 100% (100% right and left). When analysing the development of frontal sinuses in the early childhood and preschool periods year to year, no frontal sinus was found in any child in the first year of life; at 2 years of age it was observed in 10% (5% right; 10% left), at 3 years of age in 35% (25%; 30%), at 4 years of age in 65% (40%; 55%), at 5 years of age in 75% (65%; 65%), at 6 years of age in 85% (80%; 75%) and at 7 years of age in all children on at least one side (95%; 95%). Conclusions: The study found that the frontal sinuses began to develop in the second half of the 2nd year of life. At 3 years of age they occurred in 35% and at 4 years of age the frontal sinus was found on at least one side in 65% of the children.

POSTER PRESENTATION

THE UPPER LIMB ATLAS OF ULTRASOUND IMAGES AND SECTIONED IMAGES

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Ultrasound imaging is commonly used for diagnosis of joint disease in the upper limb thanks to its noninvasiveness and low cost. However, it is challenging to be adept to interpret structures in ultrasound images, because of low resolution and grayscale color of the ultrasound images. Also, existing textbooks for ultrasound images were not enough to describe anatomy because they described only major structures using simple schematics. To solve these difficulties and to help understand ultrasound anatomy better, we produced the upper limb atlas of ultrasound images and sectioned images. Ultrasound images of the left upper limb were scanned according to diagnostic criteria of textbook. Among true color (48 bits color) and high resolution (8,688 x 5,792) sectioned images of a male whole body, the images of the left upper limb were selected. From the sectioned images, volume models were reconstructed to compare to ultrasound images. The sectioned images in the same perspective of ultrasound images were reproduced from volume models. 49 structures were labeled in ultrasound images and the sectioned images, and compiled in a portable document format (PDF) file to make the atlas. In 30 sets of ultrasound images and sectioned images of left upper limb of the PDF atlas, 49 structures could be observed with their names easily and accurately. This atlas enabled to observe real shape and location of the structures in both ultrasound images and sectioned images, which can be references for ultrasound image education.

POSTER PRESENTATION

COMPARISON BETWEEN BOTULINUM TOXIN TYPE A INJECTION ON MASSETER MUSCLE ONLY AND ADDITIONAL INJECTION ON ANTERIOR BELLY OF DIGASTRCI MUSCLE IN SLEEP BRUXISM PATIENTS: A CLINICAL TRIAL

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Aim: This study was to verify the effectiveness of botulinum toxin type A (BoNT-A) injection method for patients with sleep bruxism (SB) by comparing injection only on masseter and additional injection on anterior belly of digastric muscle (ABDM) in addition to masseter in a clinical trial. Methods: Using US-guided injection technique, twenty-four SB subjects completed this study. Twelve subjects received BoNT-A injection into the masseter only (Group A), and the left twelve subjects received the injection into the masseter and ABDM (Group B). Bite force and muscle thickness were measured before injection and 1 and 2 months after injection. Result: The reduction in the bite force of groups A and B were different significantly at before injection and 1 and 2 months after injection ($p < 0.05$), but there was no significant difference between the two groups ($p > 0.05$, repeated measure ANOVA). The masseter thickness of groups A and B were 15.1±1.8 mm (mean ± SD) and 15.7±2.3 mm before injection and 12.7±1.8 mm and 13.2±1.9 mm 2 months after injection, respectively, and there was no significant difference between the two groups ($p > 0.05$, paired t-test). The injection into the ABDM cannot reduce the bite force. However, 19 subjects self-reported reduction of tooth grinding after injection. Conclusion: Additional injection on ABDM is not an effective method for treating SB. To confirm the effect of the ABDM in the treatment of SB with BoNT-A, it is thought that a polysomnography or electromyography will be needed in the future.

POSTER PRESENTATION

STRUCTURE OF THE MUSCLE LAYERS AND DIRECTION OF THE MUSCLE BUNDLES IN THE SOFT PALATE FOR CLARIFICATION OF THE VELOPHARYNGEAL CLOSURE

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[AIM] The levator veli palatini (LVP), one of the muscles of the soft palate, plays an important role in velopharyngeal closure. Our previous study revealed the palatopharyngeus (PP) and the superior pharyngeal constrictor (SPC) attached to the LVP. However, three-dimensional relationship among these muscles is still unclear. In the present study, we aimed to clarify the structure of the muscle layers and direction of the muscle bundles in the soft palate and to discuss the function of the velopharyngeal closure. [METHODS] Three Japanese cadaveric heads (mean age: 77.3 years) were macroscopically and histologically analyzed. [RESULTS] The most superior part of SPC originated from the most lateral part of the soft palate. PP consisted of muscle bundles originating from the superior and inferior to the LVP in the soft palate. The superior PP ran orthogonal to the LVP in the medial part of the soft palate. The inferior PP ran parallel to the LVP in the lateral part of the soft palate. Two parts of the PP descended radially in the pharyngeal wall with no clear border. The most superior part of SPC and inferior PP ran in parallel between LVP and tensor veli palatini (TVP). PP and SPC sandwiched LVP with various muscle bundle directions, and these muscle bundles were intermingled in the soft palate. [CONCLUSION] The overlapped muscle bundles of LVP, TVP, SPC and PP in various directions in the soft palate might produce a diverse function in the velopharyngeal closure. (242/250 words)

POSTER PRESENTATION

A RARE OCCURRENCE OF THE DUPLICATED CAUDAL VENA CAVA IN CAT

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Precise knowledge of species-/breed-specific anatomy is important for accurate diagnostics, and translational research. Mapping of morphological variants and their co-incidences can also valuably contribute to understanding developmental specificities. Based on the vascular corrosion cast, the complete duplication of the caudal vena cava (dCVC) was accidentally found in a 10-year-old male cat. The two separate symmetric veins corresponding to the two CVC (i.e. the inferior vena cava in humans) directed cranially on both sides of the aorta; their first tributaries were the duplicated right and left deep circumflex iliac veins, and the median sacral vein ended in the right common iliac vein. At the L4 vertebra, the left CVC crossed the aorta ventrally. It united with the right CVC immediately above the renal veins at the level of the cranial mesenteric artery (L2–L3). The variability of the caudal vena cava in mammals and the inferior vena cava (IVC) in humans is quite high. Concerning duplication, the dC-/IVC prevalence ranged between 3–27% in domestic mammals and 0.2–3.0% in humans. In domestic mammals, the dCVC often occurred with an atypically coursed ureter, while in humans the dIVC increased the risk of bilateral deep venous thrombosis in young adults. Our literature review of embryologic knowledge revealed four controversial views of the C-/IVC development in the pre- (infra-) hepatic segment. Considering the robustness of the latest embryo 3D reconstruction studies and their persuading results, the theory of exclusive development of this segment from the right caudal cardinal vein should be reconsidered.

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POSTER PRESENTATION

THE ANATOMICAL STUDY IN THE TRIANGULAR SPACE OF THE UPPER EXTREMITY

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The aim of this study was to investigate the neuromuscular distribution after passing through the triangular space of the shoulder. Thirty-five specimens from 18 adult Korean cadavers (12 males and 6 females, age Ranging from 42-102 years) were used in the study. This study analyzed the order in which the artery entered the muscle from that point the artery passed through the triangular space. The incidence of the first branch of the circumflex scapular artery was 11.4% for infraspinatus, 5.7% for teres major, 25.7% for teres minor, 20.1% for long head of biceps brachii, 25.7% for subscapularis, and 11.4% for subcutaneous tissue. This study investigated the incidence of lack of blood supply from the artery in the triangular space. This incidence was 27.8% for infraspinatus, 13.0% for teres major, 5.6% for teres minor, 38.8% for long head of triceps brachii, and 14.8% for subscapularis. Four specimens showed arterial distribution in all surrounding muscles. One specimen identified the nerve branch to innervate teres minor of triangular space of shoulder. The results of this study will be helpful in clinical practice

POSTER PRESENTATION

NERVE INNERVATIONS AND BLOOD SUPPLY OF POPLITEUS: ANATOMICAL STUDY

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Introduction: The aim of this study was investigate the nerve and arterial relationship and the medial attachment region with the popliteus (PT) using anatomical methods. Methods: Twenty-eight non-embalmed extremities were dissected for this study. To measure attachment area of the PT, the most prominent point of the medial epicondyle of the femur (MEF) and the most prominent point of the medial malleolus of the tibia (MPM) were identified before dissection. A line connecting the MEF and the MPM was used as the reference line using the MEF as the starting point. And also this study investigated the origin and the entry point of the nerve with the artery when the PT muscle was divided into 3 equal parts in the coronal plane Results: The mean distance of the reference line was 34.8 ± 2.2 cm. The PT was attached from 16.6% to 35.3% on the bone. In 90% of the cases, the PT was innervated by the tibial nerve only, and in 10% of the cases, the PT was innervated by the tibial nerve and the sciatic nerve. In 90.0% of the cases, the inferior medial genicular artery was involved in the blood supply to the PT. Discussion: The anatomical investigation of the PT in this study will help identify patients with clinically relevant syndromes

POSTER PRESENTATION

TOPOGRAPHIC ANATOMY OF THE RADIAL ARTERY IN THE ANATOMICAL SNUFFBOX

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Recent trends in coronary angiography favor the use of the radial artery instead of the femoral artery for stent insertion, increasing interest in the clinical significance of the radial artery within the anatomical snuffbox. The research involved 32 frozen cadavers and 22 fixed cadavers. Additionally, a sonographic study involving 20 young volunteers was conducted. The research examined four aspects: 1) the size of the anatomical snuffbox, 2) classification of the radial artery path based on its course, 3) measurement of the height and length of the radial artery within the anatomical snuffbox, and 4) Using sonography, the probe is adjusted to visualize the 1st metacarpal bone and radial artery, determining the optimal axis for observing the radial artery, followed by measuring its length. The size of the anatomical snuffbox was relatively larger in the frozen cadavers compared to the fixed cadavers. The position of the radial artery within the anatomical snuffbox was classified into four types based on entry and exit points. The classification was based on the scaphoid, trapezium, and 1st metacarpal bone. Type C was common in both samples, with Type A only in frozen cadavers and Type D only in fixed cadavers. When measuring the length of the radial artery using sonography, the observed lengths ranged from 0.24mm to 1.93mm, which were shorter than the actual observations. These findings enhance our understanding of the radial artery within the snuffbox and its clinical importance, impacting procedures involving radial artery access.

POSTER PRESENTATION

ANALYSIS OF THE EFFECT OF FUNCTIONAL MOVEMENT ACCORDING TO BODY BALANCE ON GRAVITATIONAL ACCELERATION-BASED PHYSICAL ACTIVITY

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Aim: Morphological symmetry and movement patterns are important for those who perform physical activities at the level of athletes, and they have a significant effect on injuries. Pilots are a special group that is frequently exposed to high loads and high-intensity physical activities. The purpose of this study is to analyze the relationship between imbalance characteristics and physical abilities of air force cadets and to provide data that can promote injury mitigation and ability improvement of those who engage in high-intensity physical activities. Methods: A total of 363 male cadets from the Korean Air Force Academy were subjected to functional movement screen tests, anatomical structure measurements, G-test, and body composition and physical fitness tests were administered, respectively. Results: The G-test pass group showed a significant difference in a bilateral imbalance in active straight leg raise (P<.05), and the G-test fail group showed a significant difference in a deep squat (P<.05), shoulder mobility (P <.01), rotary stability (P<.05), and functional leg length (P<.05). Leg length showed a significant correlation with hurdle step (P<.01), Inline lunge (P<.01), and active straight leg raise (P<.01). And the functional leg length on both sides and structural leg length also showed a significant correlation. Conclusions: According to the results of this study, high left-right balance can positively affect exercise performance. This indicates that functional movement and physical imbalance of athletes can affect their performance not only in pilots but also in sports events that are affected by gravity acceleration, such as sledding events.

POSTER PRESENTATION

ULTRASOUND-GUIDED MAPPING OF PERIPHERAL NERVES -THE LOWER LIMB NERVE BLOCKS FROM ANATOMICAL POINT OF VIEW

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To eliminate pain, various diagnostic and therapeutic blocks of peripheral nerves are usually performed under ultrasound navigation. Ultrasound-guided mapping of peripheral nerves is a technique using ultrasound guidance during injecting local anaesthetic near a peripheral nerve without the use of general or spinal anaesthesia. Ultrasound imaging is relatively easy to learn, less expensive and possesses no radiation. However, more trial and error during the location of the target peripheral nerve can be painful or lead to iatrogenic injury, especially in patients with anatomical variations, or tissues altered by trauma or surgery. Therefore, a well-founded knowledge of regional anatomy and topography also on the dissected material is an indispensable prerequisite for the sonographic assessment of peripheral nerves. On the lower limb, out of plane, or in plane approach of nerve blocks are performed practically in the entire area of the anterior femoral region, regarding the distance branching of the lateral femoral cutaneous n., femoral n., and obturator n. The most common regional blocks also include the proximal adductor canal nerve block, distal adductor canal block and suprapatellar block. Using ultrasound-guided mapping, all peripheral nerves were correctly identified via a direct comparison on dissected material. The new textbook of peripheral nerve and vessels ultrasound will be designed to meet the daily needs of both radiologists and clinicians by allowing rapid review of typical anatomical features, knowledge of which is important for successful diagnosis and intervention. This is also a reason to integrate the ultrasound effectively in anatomy courses of pre-graduate and young post-graduate students. This work was supported by the grant KEGA 018UPJŠ-4/2021.

ORAL PRESENTATION

IS THERE BRAIN ATROPHY? VOLUME ASSESSMENT IN MRI - NEURORADIOLOGISTS VS ARTIFICIAL INTELLIGENCE

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Background and aims: Qualitative and semi-quantitative scales are commonly used for the evaluation of brain atrophy in MRI. These scales allow neuroradiologists to visually assess and categorize the degree of atrophy, contributing for the diagnosis of different types of dementias. Although widely used in clinical practice, the application of scales has limitations, including inter-observer variability and subjectivity. Recently, artificial intelligence (AI) programs have shown to offer advantages over human observation in terms of efficiency and consistency in several medical conditions. This study aims to present our preliminary results comparing MRI brain volume assessment obtained through observation Vs an AI program. Methods: Thirteen patients with various neurological conditions were included. Brain MRI scans were acquired and analyzed by two neuroradiologists and an AI program. For qualitative/semi-quantitative analysis different scales were applied (Scheltens, Fazekas, Pasquier and Koedam). The AI program (Icobrain) uses deep learning algorithms trained on large datasets to automatically segment/measure brain volumes. The time taken for interpretation/measurements was recorded for both methods. Results: The AI program significantly reduced the measurement time compared to human observation. The inter-observer agreement among neuroradiologists showed a good correlation coefficient. Comparing to the AI program, human observation tended to overestimate the atrophy grade across all scales. Conclusions: AI programs offer advantages over human observation evaluating brain volumes, in terms of efficiency and consistency. The reduced measurement time can enhance workflow in clinical practice. Its high consistency also reduces inter-observer variability. However, human observation offers the advantage of clinical context understanding and anatomical expertise. Therefore, a combined approach, where AI algorithms aid human observers in data processing and provide initial measurements for validation, is the promising direction for future research in this field.

ORAL PRESENTATION

BEYOND TEACHING ANATOMY: THE ROLE OF AN ANATOMY PROFESSOR PROMOTING THE HISTORY AND SPOLIA OF THEIR DEPARTMENT

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Background and aims: Departments of anatomy not only serve as pillars of scientific education but often possess a rich historical and cultural heritage that can greatly enhance the learning experience of students as well as external visitors. This work aims to highlight the importance of an anatomy professor in uncovering the historical context of their institute, preserving espolia, and utilizing this knowledge to enhance the educational experience and promote social accountability. Methods: The main extracurricular activities that are ongoing in our department such as archival investigations, preservation of spolia, creation of anatomical models and collaboration projects with other institutions were reviewed and the role of the anatomy professor highlighted. Results and Conclusions: The anatomy professor fosters a multidimensional learning experience, connecting present-day students and the general community with the legacy of the school. The presence of spolia enriches the learning environment and through research, publications, and collaborations with other universities, the department's cultural heritage and reputation is enhanced, extending the role of an anatomy professor far beyond the classroom.

POSTER PRESENTATION

DEVELOPMENT OF THE HUMAN TEMPOROMANDIBULAR JOINT AND DESCRIPTION OF DIFFERENT STRUCTURAL TYPES OF THE MANDIBULAR CONDYLAR PROCESS.

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AIM: Description of the embryology of the osseous and cartilaginous components of the temporomandibular joint and the importance of the shape of the mandibular head for maxillofacial surgical procedures. METHODS: A systemic review of the scientific literature on the embryonic development of the temporomandibular joint. Review of current scientific literature on the types of mandibular condylar process, with particular emphasis on mandibular heads. RESULTS: A review of information on the embryonic development of the temporomandibular joint, including a detailed analysis of condylar processes and mandibular heads, useful in the modern clinical practice of maxillofacial surgery. CONCLUSIONS: The temporomandibular joint is unique in its structure and plays a significant role in everyday life. It is involved in both physiological activities (including eating and drinking) and pathological ones, such as regurgitation accompanied by vomiting. It also allows for expression of emotional states. Its development is very complicated and dependent on many factors occurring in prenatal and postnatal life. From the clinical point of view important are the dimensions and shapes of mandibular heads, including condylar processes. These characteristics are useful in the case of surgical interventions performed in this anatomical space.

POSTER PRESENTATION

REMOTE ANATOMY EDUCATION DURING THE COVID-19 PANDEMIC: MEDICAL STUDENTS' PERCEPTIONS

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Introduction: The Covid-19 pandemic has had a significant impact on higher education. Most universities have quickly replaced face-to-face learning with remote learning, but the closure of higher education institutions, travel bans, and social isolation have drastically impacted students. Aim: In this study, the student perceptions of remote anatomy course were evaluated. Methods: To assess the students' attitudes towards mid-year shifting from in-person to remote learning a survey was distributed to the first-year medical students in both Polish (PD) and English (ED) divisions at the University of Warmia and Mazury in Olsztyn, Poland. The survey questionnaire investigated the prevalent type of learning resources, preferences for practical classes and examinations, and time spent on online learning of gross anatomy. Results: A total of 91 questionnaires were received from the August-September 2020 academic period after completing the anatomy course. The respondents indicated that the time spent on learning anatomy increased during Covid-19 (94.4% PD, 89.2% ED) and the lack of personal interaction with cadaver specimens (100% PD, 89.2% ED) had a negative impact on the practical examination results. The students indicated that health concerns and anxiety about postponing examination dates or extending the academic year probably had a significant impact on the failure of the final anatomy examinations. Conclusion: Self-teaching, time management, and self-discipline translated into the results achieved by medical students in anatomy.

ORAL PRESENTATION

THE STAIRS OF LIFE OF THE PADUAN SCHOOL OF ANATOMY

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In 2022 the University of Padua marked 800 years since its foundation and a century of construction of the Anatomical Institutes of the University (1922-2022). To celebrate Padua's historic anatomical tradition the University of Padova decorated monumental staircase of the Institute of Human Anatomy with an artistic work. The choice fell to Master Milo Manara to tell the story devised by contemporary anatomists of a conceptual continuity between Body Donation, Dissection and the most advanced Morphological Science, between Art and Science. Three walls and the ceiling were decorated through technique decorative TattooWall® for a total of about 225m2. With the work of Manara, the mere succession of steps becomes a connecting element between the anatomical dissecting rooms in the basement, the classrooms on the ground floor, to the research laboratories on the first floor. The Stairs of Life of the Paduan School of Anatomy represents the way of the Authors to see Anatomy with the practical translational Anatomical-Clinical implications with the centrality of dissection and aware of the history and art of Anatomy especially in Padua. The mural narrative of the Paduan School of Anatomy represents the way of the authors to see anatomy with the practical translational anatomical-clinical implications with the centrality of dissection and aware of the history and art of Anatomy especially in Padua, with the aim of giving vitality to a structure that in the collective imagination is a place of death according to the enthusiasm of an esthetic message of life.

POSTER PRESENTATION

SUPRAPATELLAR FAT PAD HISTOTOPOGRAPHY: A COMPARATIVE MORPHOMETRIC STUDY

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The suprapatellar fat pad (SFP) is the smallest anterior knee fat pad with a possible role in osteoarthritis (OA). Thus, the SFP morpho-structural characteristics were here outlined versus the infrapatellar fat pad (IFP) through a histotopographic study, in absence of OA. SFP and IFP tissues underwent to microscopy/immunohistochemistry and transmission microscopy (TEM) analysis allowing to describe vessels/nerve endings/lobuli/adipocytes features/septa/extracellular matrix. Collagen fibers orientation was also focused by second harmonic generation (SHG) microscopy. Study results excluded inflammatory signs within the cohort, showing a comparable number of vessels/nerve endings. Both the tissues consist in white adipose tissue with lobuli and septa characterized by comparable diameter and thickness, respectively. Semithin sections and TEM analysis confirmed these evidences. SFP adipocytes displayed a smaller area/perimeter/major axis versus the IFP; the collagen fibers surrounding them showed significantly higher values in collagen type III for the IFP group than SFP. Regarding septa, elastic fibers were more represented in the SFP than IFP, but no statistically significant difference was detected. Total collagen was significantly higher in the IFP than SFP; specifically, collagen type I and type III were similarly represented in the whole cohort, despite higher levels of collagen type I in the IFP than in the SFP, and vice-versa for collagen type III. According to SHG microscopy and coherency calculation, septa collagen fibers displayed an anisotropic distribution. Considering tissues mechanical behaviour, major stiffness was associated with the IFP. This study is the first SFP topographic description versus the IFP; different anatomical location influences the specific tissues characteristics.

POSTER PRESENTATION

THE ANATOMY OF SYNDROMIC CRANIOSYNOSTOSIS

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Aim: Syndromic Craniosynostosis (SC) is characterized by the premature fusion of multiple cranial sutures. Yet there are several reports of clinical and imaging analysis of SC, we aim to provide a comprehensive unique anatomic description of a dry skull with SC. Case presentation: We examined the presence and pattern of each suture of a 6-year-old skull. All the major sutures were fused (coronal, sagittal and lambdoid). As for the cranial landmarks, only the pterion remained intact, while the nasion transformed into a perforated groove. Other notable deformities of the skull were tall, flattened forehead, beaked nose, and prognathism. We additionally identified other skull deformities, that were never previously associated with SC, such as marked hypoplasia of the greater wing of the sphenoid bone and of the zygomatic process, and tympanic bone hyperostosis. The increased sagittal diameter and temporal bulging of the skull resulted in a milder form of the 'cloverleaf' deformity, which evidently was not fatal within the first year of life. Conclusion: Our findings suggest that the examined skull belongs to a 6-year-old child with Crouzon Syndrome. As this is the first report of a dry skull with SC, the additional skull deformities we uncovered offer new, important insights into the atypical skull growth patterns of this complex, multifaceted syndrome.

POSTER PRESENTATION

THE INCIDENCE OF THE “PARACLIVAL FORAMEN” IN THE CAROTID SULCUS

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Aim: We introduce the "paraclival foramen", an anatomical structure, formed by the elongated lingual process of the sphenoid bone (LPSB), the ossification of the petrolingual ligament (PLL), and the carotid sulcus. Methods: We examined 115 dry skulls, comprising both left and right sides. We identified the incidence of three specific structures: the carotid sulcus (non-elongated lingual process and non-ossified petrolingual ligament), the paraclival semi-foramen (elongated lingual process or petrolingual ligament ossification), and the paraclival foramen (formed by both an elongated lingual process and an ossified petrolingual ligament). Results: The incidence on the 230 (left and right) sides was: free carotid sulcus 43%, paraclival semi-foramen 29% paraclival foramen 28%. Notably, we did not observe any instances where the ossification of the petrolingual ligament alone resulted in the formation of a paraclival semi-foramen. An additional important finding is that in 70% of the dry skulls the structure was bilateral. Conclusion: Petrolingual ligament (PLL) ossification, when combined with an elongated lingual process of the sphenoid bone, forms a foramen for the paraclival segment of the internal carotid artery and this is not a rare phenomenon. This bony restriction on the artery can cause severe complications. The PLL is a vital landmark during endonasal approaches to the cavernous sinus since it defines its boundary and separates it from Meckel's cave. It also separates the gasserian ganglion from the internal carotid artery. Thus, assessing the presence of the paraclival foramen must be a part of diagnostic skull imaging and precede any skull base procedure.

ORAL PRESENTATION

ANATOMICAL AND FUNCTIONAL STUDY OF THE LARYNGEAL NERVES IN MINIPIGS

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Last studies in microdissection of the larynx have demonstrated the existence of a high number of connections between the three laryngeal nerves but an exhaustive description or their functional role have not been yet deeply studied. Our aim is to characterize the laryngeal innervation patterns, nerves and connections in the minipig, who is the preferred animal model used in laryngeal reinnervation studies. Material and Methods: A total of 18 adult minipigs were studied. The procedures were carried out at the Gregorio Marañón Experimental Medicine Centre. We have analyzed the electromyographical (EMG) response of three of the intrinsic laryngeal muscles (cricothyroid, tiroarytenoid and posterior cricoarytenoid muscles) after a selective left side stimulation of the internal (ILN), external (ELN) and recurrent (RLN) laryngeal nerves. Posteriorly the larynges nerves were dissected. The laryngeal function (opening and closing of the vocal folds) was evaluated by means of laryngoscopy pre and post intervention. Results: Our results show that after selective stimulation of each laryngeal nerve were evoked in a variable way activity in muscles did not expected to be contract. After dissection we have found until four different connections between the Laryngeal nerves located ipsi and contralaterally. The laryngeal muscles of minipigs received more than one nerve branch. Conclusions: These findings suggest that the neuroanatomy of the minipig is more similar to the humans. Therefore, the minipig is an excellent model for studies of the laryngeal regeneration and reinnervation.

POSTER PRESENTATION

A CADAVERIC STUDY OF THE MORPHOLOGY OF MYOCARDIAL BRIDGES

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Myocardial bridges are congenital anomalies where a band of muscular cardiac fibres covers the coronary arteries in a limited segment. In most patients, they are benign, however, in some cases it can lead to myocardial ischemia, due to the compression of the artery during systolic contraction. The ischemia can cause ventricular dysfunction, arrhythmias and sudden death. Therefore, the aim of this study is to determinate the localization and characteristics of the myocardial bridges. A total of 54 human hearts, from cadavers, were microdisected. Measurements were taken of the length and diameter of the artery and length and thickness of the bridge, with a digital calliper. The myocardial bridges were present in 60% of the hearts. A total of 44 bridges were found, being the most of cases short and thin (less than 2 mm). Their main localization was in the anterior interventricular artery (65.9%). Nonetheless, we also found myocardial bridges in the left circumflex artery (27.6%), right marginal artery (2.1%) and posterior interventricular artery (4.2%). The 75% of hearts had a single bridge, while the remaining 25% had from two to six of them. Regarding the thickness of the bridges, 86.4% were superficial and 13.6% were deep; on the other hand, 72.7% were short while 27.3% were long. In conclusion, the artery most often affected by the myocardial bridges is the anterior interventricular artery, being the majority short and thin. These last characteristics mentioned could explain the difference in the prevalence between the radiological (0.5%-12%) and cadaveric studies (5-86%).

ORAL PRESENTATION

PHOTOGRAMMETRY APPLIED TO ANATOMICAL TEACHING. CREATING A THREE-DIMENSIONAL PHOTOREALISTIC ANATOMICAL DATABASE FOR MEDICAL EDUCATION

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Aim Anatomical teaching has always relied on dissection practice which is the best way to understand the individual structures of interest and the layered organization of the anatomical topographical region. However, in recent days dissections are becoming more and more difficult to organize due to lack of donors, ethical issues, and the cost of maintaining dedicated facilities. Contemporary technology of photographic surface scanning (photogrammetry) allows the 3D photorealistic digitalization of anatomical specimens that can be used to teach and study anatomy. Methods We used photogrammetry protocol to create a 3D database of individual organs and in situ presentation of anatomical regions and used this data for augmented (AR) and virtual reality (VR) teaching. Results The photogrammetry protocol allowed gradual build-up of a large database of neuroanatomy, internal organs and topographic anatomy photorealistic 3D models. The layered type of dissections transfer to photorealistic 3D models allowed full exploration of the region of interest and the exploration up of individual structures (nerves, vessels and organs) in their entire length and in three dimensions. The data permitted VR anatomical classes and AR aided dissection practice. This teaching curriculum received very high positive feedback from the medical students and allowed teaching anatomy in the settings of limited specimens available. Conclusion Photogrammetry applied to anatomical science is a promising new algorithm that can be used to successfully supplement teaching. It does not replace dissection practice but can be of aid with high satisfaction rate among students.

ORAL PRESENTATION

THE USE OF „CADAVR ANATOMY”, A CADAVER-BASED 3D ANATOMY ATLAS

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A. Mátyás* * in collaborative work with the members of the Department of Anatomy and the Mozaik Education Ltd. Aim: To develop a new, custom-made and designed 3D anatomy atlas based on real cadaver specimens and the special collection of the Albert Gellért Museum. Method: Only freshly dissected formalin-fixed cadavers and wet and paraffin-embedded preparations of the special collection of the departmental anatomy museum were used. The specimens were photographed and the set of images underwent 3D reconstruction. The final 3D images were then provided with subtitles, summaries and quizzes with answers. Result: We have managed to combine the advantages of the traditional dissection room education with the modern digital technology and have created an extensive collection of 3D anatomy models. This system has revitalised the preparations and adapted to the modern requirements of anatomy teaching. There are three main categories of the 3D anatomy atlas: Head and neck, Limbs and Trunk. We have divided the material into a number of scenes within each chapter. The subtitles can be displayed together or individually but can also be hidden. The user can rotate and zoom in the images and it is also possible to place your own markings. This atlas is available in Hungarian with Latin subtitles and in English with official terms on multiple devices. The VR version of the program makes the experience even more professional. Conclusion: Cadaver-based 3D anatomy atlases represent a new alternative in general medical education and clinical practice. This program is able to give back the reality of the dissecting room experience and provides eye-catching presentations for the practical and lectures, too.

POSTER PRESENTATION

IMPROVED DISTAL UCL ATTACHMENT OF THE ELBOW WITH POCUS, INNOVATIVE CONTRAST CT WITH NOVEL GAX-SPECIMENS AND FORMALIN FIXED CADAVERS

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AIM. The elbow joint lies between the shoulder and wrist integrating the fine-tuning movements the hand exhibits and provides anchoring and leverage for heavy work, allowing the shoulder girdle to complete the ingenious upper limb. Has 3 articulations and communicates with proximal radioulnar joint in contrast to the wrist which does not communicate with the distal radioulnar joint. The dominant stabilizing ligament is the ulnar collateral ligament (UCL) which has 3 sections, of which anterior band is under the greatest tension and most commonly injured. Chronic repetitive microtrauma may lead to injury or rupture of the anterior band of UCL. The study objective was to identify and palpate surface anatomy landmarks of the distal UCL, conduct POCUS image acquisition and assess innovative contrast CT/MRI from GAX-specimens. METHODS. GAX-specimens(n=6:12-elbows) and formalin fixed cadavers-FFC (n=31:62-elbows) were MRI/CT scanned along with GE Vscan Air probes, then identified distal UCL attachment to sublime tubercle (ST) and distance along ulna crest (UC). RESULTS. POCUS ultrasound identification of the UCL was confirmed on GAX-specimen elbows (12:12), in contrast all FFC elbows were poor image quality (0:62). GAX-specimen distal attachment, 12:12-ST:3-UC<5mm (Rt-1:Lt-2) 25% : 9-UC>5mm (Rt-5:Lt-4) 75%, FFC 62:62-ST: 20-UC<5mm (Rt-9:Lt-11) 32%, 42-UC>5mm (Rt-22:Lt-20) 68%. CONCLUSION. Based on 2 types of donor preparations, imaging and distal UCL assessment from GAX-specimens versus FFC demonstrated superior POCUS identification using GE Vscan Air and dissection of UCL suggesting a fertile training medium integrating ultrasound with dissection. Contemporary anatomy texts do not describe distal UCL attachment to sublime tubercle of ulna and further distally along the UC which is significant regarding accuracy, biomechanics and simulation construction.

ORAL PRESENTATION

PEARLS TO DISSECT THE MEDIAL KNEE LAYERING TECHNIQUE

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AIM. Knee injuries are common and general/family practitioners, musculoskeletal (MSK), and sports medicine providers must receive above average understanding of knee anatomy regions. Especially as MSK ultrasound is gaining momentum and expectations for general practitioner use is increasing. Overwhelming proportion of medical students (MS) from dissection labs do not dissect medial knee region as a separate objective consisting of distal pes anserinus (DPA), DPA bursa, medial collateral ligament-components (MCL), medial horn of meniscus (MHM) with anterior tendon of distal semimembranosus (ATdSM) deep to MCL. Many anatomical associations are setting up opportunities to train-the-trainers, meaning junior anatomy faculty with/without terminal anatomy degree lack regional dissection skills. This educational study objective was to dissect the medial knee, revealing layers from dermis, superficial fascia, deep fascia, retinacular fibers, DPA, MCL-components, ATdSM from novel GAX-specimens and formalin-fixed cadavers (FFC). METHODS. Literature search and personal contact conducted of MS anatomy dissecting programs. Chronological medial knee layering dissection technique using toothed forceps, surgical scissors, scalpel, and osteotome/chisel. GAX-specimens-(n=6:12-sides) and FFC-(n=33:66-sides). RESULTS. Majority of MS anatomy labs, dissect quadriceps tendon, patellar tendon, ACL/PCL/menisci viewed from above downwards. GAX-specimens-(n=6:12-sides:100%) and FFC-(n=33:66-sides:100%) successfully revealed layer-by-layer DPA-complex, DPA bursa, distal MCL with structures intimate with MHM, ATdSM, and ATdSM connection into MHM within 45 minutes by novice’s post dermis/superficial fascia removal. This three-layer technique designed by Benninger is comprehensive increasing acumen of physical diagnosis and critical thinking regarding differential diagnosis. CONCLUSION. This study demonstrated a relatively comprehensive medial knee dissection with clinical relevance can be completed within 1 hour.

POSTER PRESENTATION

AGMATINE PROTECTIVE OUTCOMES ON BEOMYCIN INDUCED RATS PULMONARY FIBROSIS

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Abstract: The causes of pulmonary fibrosis (PF) are still unrecognized. Few valid therapies have been identified for this condition. It is believed that PF is caused by the formation of a huge amount of extracellular matrix (ECM) because of unrestrained generation of pulmonary. Consequently, the progression of fibrosis would be reduced by inhibition of ECM accumulation. Thus we aimed to investigate the potential protective effect of Agmatine, alone or in pulmonary fibrosis (BLM) in a rat model. Methods: Thirty male albino rat rats 6–8 weeks old, weighing 200 ± 25 g were distributed into five groups: (i)control, (ii) bleomycin (BLM) group, (iii)BLM+ Pirfenidone (PFD), (vi)BLM+ Agmatine and (v)BLM+ PFD+ Agmatine groups. 28 days later rats were sacrificed. Samples from the lung were collected for immunohistochemical, and biochemical studies. Results: Histologically, the lungs BLM-treated there were thickening in alveolar septa, and cellular infiltration enhanced angiogenesis with areas of hemorrhage and occlusion and reduced ventilation. Also, reductions in levels of SOD, GSH, and HGMB-1 and increasing in MDA were observed Conclusion: Agmatine, combined with PFD, was shown to reduce the severity of BLM-induced histological and biochemical alterations in rat lungs without completely reversing them. Possible explanations include the ability of Agmatine in inflammation reduction, it acts as an antioxidant, and free radicals eliminations. These findings can be of value for future clinical applications.

POSTER PRESENTATION

PLATYSMA MUSCLE DESERVES ACCURACY WITH APPROPRIATE TERMINOLOGY AS PART OF AN ELABORATE NECK-FACIAL SYSTEM AND NOT A DISTINCT NECK STRUCTURE DEMONSTRATED BY NOVEL PREPARED SPECIMENS WITH INNOVATIVE CONTRAST IMAGING SUPPORTING ITS REVISED MORPHOLOGY

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INTRODUCTION. Platysma muscle is traditionally recognized as a distinct structure of the neck by anatomy/surgical texts and atlases. Facial SMAS is also recognized as a distinct facial structure by specialized surgical texts and rarely by anatomy texts/atlases. Benninger teaches the platysma as one of a two-part integrated platysma-SMAS structural system sharing the same anatomical/surgical plane from neck to face. It's paramount for medical communication regarding education, surgery and research to have accurate terminology. The objective of this study is to dissect, image and assess the platysma and SMAS regions from novel GAX-specimens with innovative contrast and fresh frozen cadavers (FFC). METHODS. GAX-specimens (n=6,12-sides) were MRI, CT-contrast and ultrasound scanned (GE Vscan Air) and dissected. FFC (n=18,36-sides) were dissected. RESULTS. Literature search revealed majority of texts depicting proximal platysma attachment just above inferior mandible border (IMB). GAX and FFC specimens provided superior quality tissue versus traditional embalmed cadavers enabling delicate detailed dissections. Combined GAX-specimens and FFC sides (n=48) revealed proximal platysma attachment ascending to modiolus, and frequently zygomaticus minor/major and at times orbicularis oculi extending posteriorly towards parotid gland fascia where it integrated with SMAS as a unit or system with nerve variations. Small percentage of fibers inserted into the mandible. Rhytidectomy or face lift and several other surgeries require a subplatysmal lift and issues have been noted with the platysma post operatively. CONCLUSIONS. Based on novel GAX and FFC dissections, this study demonstrated a platysma-SMAS system which suggests terminology reflect a greater proximal platysma attachment and function deserving further studies.

ORAL PRESENTATION

PAROTID GLAND FASCIA DEMONSTRATED BY NOVEL PREPARED GAX-SPECIMENS WITH INNOVATIVE CONTRAST IMAGING AND FRESH FROZEN CADAVERS SUPPORTING REVISED MORPHOLOGY

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AIM. The parotid gland (PG) is the largest slavery gland of the head and neck which is triangular shaped due to an inferior tail region. PG lies within 3D quadrangular parotid space sandwiched posterolaterally between the external and internal sides of the mandibular ramus creating a superficial and deep lobe connected by an isthmus. Contemporary anatomy texts/atlases consistently describe the investing layer of deep fascia forming the parotid fascia/capsule. Surgical literature provides controversy regarding the morphology of the parotid gland fascia (PGF). Study objective was to dissect, image and assess the PGF from novel GAX-specimens with innovative contrast and fresh frozen cadavers (FFC). METHOD. GAX-specimens (n=6,12-sides) were MRI, CT-contrast and ultrasound scanned (GE Vscan Air) and dissected. FFC (n=18,36-sides) were dissected to reveal PGF. RESULTS. Combined GAX-specimens and FFC sides (n=48) revealed anterolateral PGF as an extension of SMAS. The SMAS tissue was intimate with the anterolateral PG capsule. Facial surgeons often consider SMAS of facial subregions interconnected. The authors have conducted platysma dissection research recognizing a platysma-SMAS system within a common plane. Facial SMAS protected arteries and nerves creating grooves or partial tunnels and fused into nearby facial subregions. CONCLUSION. GAX-specimens demonstrated lifelike texture, colour, planes, orientation and decreased surgical dissection resistance of neck and facial structures with free movement for several months versus formalin-fixed cadavers. FFC provided similar experience with very limited ideal dissection time (days). This study suggests GAX-specimens provide lifelike dissection revealing SMAS being intimate with anterolateral PG capsule. Further GAX-specimen studies may improve PGF-capsule knowledge.

ORAL PRESENTATION

RELATIVE ANCHORS OR RETAINING LIGAMENTS OF THE PLATYSMA FROM THE TRUNK, NECK, FACE, AND HEAD ASSOCIATED WITH RHYTIDECTOMIES FROM NOVEL GAX-SPECIMENS, FRESH-FROZEN AND FORMALIN-FIXED CADAVERS

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AIM. The neck separates the head from the trunk as a cylinder with specialized tubes, glands and connective tissue layers of varying compliance, forming compartments, enabling degrees of movement within the neck and overall mobility of the head as well. Platysma is a transitional structure extending from the trunk to the head with relatively static anchors from deltopectoral fascia, superficial fascia of the sternocleidomastoid muscle (SCM), connective tissue from the mandible, merging into SMAS of the face, modiolus/zygomaticus medially, parotid gland facia laterally and zygomaticus bone/periorbital region superiorly. Anterior bony landmarks are clavicle, mandible and zygomatic arch. Experts admittedly state confusing terminology. Platysma is a bidirectional muscle pulling the modiolus downward while simultaneously pulling the deltopectoral tissue upward. The study objective was to identify relative anchors of tissue of platysma from GAX-specimens, fresh frozen (FFzC) and formalin-fixed cadavers (FFC) rather than provide previous terminology. METHOD. Literature search and hemiface dissections of GAX-specimens-(n=6:12), FFzC-(n=12:22-2-hemifaces excluded with damaged clavicles) and FFC (n=15:27-3 had surgeries). RESULTS. No GAX-specimen studies and minimal FFzC and FFC. Anchors from clavicle GS-(11/12-91.7%), FFzC-(21/22-95.4%), FFC-(25/27-92.6). GS/FFzC/FFC-!00% had increased resistance dissecting posterior 1/3 SCM border. Near mental foramen mandibular anchor identified GS-(10/12-83.3%), FFzC-(20/22-90.9%), FFC-(23/27-85.2%. Anchors into modiolus, parotid fascia and masseter GAX-specimens-(12/12-100%), FFzC-(24/24-100%), FFC-(27/27-100%). Anchors from zygomatic arch GS-(9/12-75%), FFzC-(19/22-86.4%), FFC-(22/27-81.5%). Anchors from soft tissue appeared more common than bone. CONCLUSION. This study demonstrated platysma anchors from facia and bones between deltopectoral and facial regions supporting aging medicine and surgical procedures. Contemporary anatomy atlas/texts should reveal and describe them.

ORAL PRESENTATION

THE INCIDENCE AND ANATOMIC PATTERN OF ISOLATED PONS INFARCT IN NORTHERN CYPRUS: A SINGLE-CENTERED RETROSPECTIVE STUDY

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OBJECTİVE: Isolated pontine infarction (IPI) is a common stroke localization in which other brain regions are not involved. we aimed to determine the frequency of isolated pons infarcts in our stroke patient population and their topographic localization regions. MATERİALS AND METHODS: The data were retrospectively analyzed in patients hospitalized in the Neurology Clinic of Dr. Burhan Nalbantoğlu State Hospital between January 2021 and August 2022. Depending on the feeding areas of the pons arteries, pons infarcts are classified into 5 subtypes: anteromedial, anterolateral, tegmental, bilateral and unilateral multiple pons infarcts. Pons infarcts were further divided into segmental localization, such as upper, middle or lower part. All demographic characteristics of the patients were recorded. RESULTS: Out of the 356 stroke patients who were retrospectively examined, a total of 69 patients who met the criteria were included in the study. The frequency of Pons infarcts accounted for 19.38% of all ischemic strokes. The mean age of the patients was 68.4± 14.0 (min: 28 max: 100). The mean National Institutes of Health Stroke Scale (NIHSS) was 4.75±0.56 and 66.7% of the patients (n=46) were male.When risk factors were evaluated, the highest rate was hypertension at 52.2%. Infarcts according to the location of the infarct; 44 patients - anteromedial (63.8%), 2 patients - anterolateral (2.9%), 11 patients - lateral (15.9%), 4 patients – unilateral multiple (5.8%) and 6 patients - bilateral (8.7%). The most common segmental localization of the infarct was found in the middle pons (73.9%) in 51 patients. CONCLUSİON: In our study, isolated pons infarcts divided according to 5 different anatomical regions were most often detected in the anteromedial region (63.8%) and the most common accompanying vascular risk factors were hypertension (HT) and diabetes mellitus (DM), coronary artery disease, recurrent ischemic stroke and atrial fibrillation, respectively. Key words: Stroke, Pons infarction, Localization

POSTER PRESENTATION

A SUCCESSFUL TREATMENT OF HEMIFACIAL SPASM AFTER FLOW DIVERTER STEND PLACEMENT FOR IPSILATERAL INTERNAL CAROTIS ARTERY SACCULER ANEURYSM. A CASE REPORT

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INTRODUCTION: Hemifacial spasm (HFS) is a neurological disorder characterized by intermittent, paroxysmal, and involuntary contractions of unilateral facial muscles. The most commonly identified etiology is tortuous loops or ectatic vessels. However, arteriovenous malformations, tumors, and aneurysms are also can be cause of this disorder. In this case we report a successful treatment of hemifacial spasm with stent replacement coil embolization of an unruptured internal carotid artery (ICA) sacculer aneurysm. CASE REPORT:A 56 year old female patient admitted to neurology service due to involuntary intermittent spasm of her right eyelid initially, which gradually spread to other facial muscles ipsilaterally. CT anjıography (CTA) showed a right ICA cavernous-ophthalmic segment saccular aneursym with inferomedial projection. Digital substraction angiography (DSA) imaging were compatible with CTA findings. She underwent flow diverter stend placement aneurysm treatment. On following days the symptom of facial spasm was totally releave without any neurological deficits. DISCUSSION: There have been only 22 reported cases of HFS caused by intracranial aneurysms in the literature. There are several treatment methods for HFS caused by aneursym. In this case we used flow diverter stend placement treatment. This is the first report of successful treatment of HFS due to saccular aneurysm of internal carotis artery in Northern Cyprus.

ORAL PRESENTATION

ANALYSIS OF SMOOTH MUSCLE FIBER DENSITY IN ANTERIOR TO MALE RECTUM

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AIM: In order to perform surgery for lower rectal cancer with a heightened level of precision, it is important to understand the anatomy of the muscles surrounding the rectum. The smooth muscles of the rectal wall not only constitute the rectal enclosure, but also extend to the surrounding area, especially anterior to the rectum. The aim of this study is to clarify the histological properties and spatial extent of smooth muscle anterior to the male rectum, focusing on the density of smooth muscle fibers. METHODS: Eight male cadavers were used for wide-range serial sectioning, immunohistological analysis, measurement of smooth muscle fiber density (area fraction), and three-dimensional reconstruction. RESULTS: The smooth muscle structure anterior to the rectum was loose in the superior portion and dense in the inferior portion, with area fractions of smooth muscle fibers of 19.8 ± 4.9 % and 44.0 ± 15.9 %, respectively. The superior loose smooth muscle tissue extended above the levator ani and was attached to the levator ani. The inferior dense smooth muscle tissue extended inferiorly to the levator ani. CONCLUSION: The difference in fiber density between the superior loose and inferior dense portions of the smooth muscle anterior to the rectum in males provides important information in determining the optimal resection line in rectal surgery.

ORAL PRESENTATION

HISTORICAL FRAGMENTS TO CZECH ANATOMICAL TERMINOLOGY

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Latin anatomical terminology has been codified since 1895. However, the situation is different for national anatomical terminologies. There are countries that have standardized anatomical nomenclature in their language, e.g. Poland, Slovenia, Japan, Spain, Hungary, others, such as the Czech Republic or Slovakia, are still lacking their own standardized and official nomenclature. In the Bohemian Lands, the first terms describing parts of the human body appeared as early as the 9th century in works written in Cyrillic script. The first comprehensive references to Czech anatomical terminology appeared in the 14th century. From the Baroque period, anatomical terms were preserved in the educational works of the Teacher of Nations Jan Amos Comenius' Janua linguarum reserata and Orbis sensualium pictus. Many of these terms have remained almost unchanged to this day, but some of them have acquired a pejorative meaning over time. We present here an overview of the history and examples of these terms describing parts of the human body. The work was supported by the project COOP 33 . email: vladimir.,musil@lf3.cuni.cz modry26@seznam.cz josef.stingl@lf3.cuni.cz david.kachlik@lfmotol.cuni.cz

ORAL PRESENTATION

DIFFERENCES IN PORTAL VEIN VARIATIONS USING DIFFERENT CLASSIFICATIONS FOR CHARACTERIZATION OF BRANCHING PATTERNS

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Aim: The aim of present study was to investigate how the branching patterns of the hepatic portal veins differ depending on the different classifications in order to characterize the branching pattern. Material and Methods: In total, in 2022-2023 period, CT images of 172 patients with relatively healthy livers were selected and analysed from radiographic data archives. Standard HPV branching pattern, as in most literature, was considered when there was a HPV bifurcation. A review of the literature on HPV branching variations was performed. The most commonly used classification of HPV branching was self-developed (which only considers HPV trifurcation, quadrifurcation, and right posterior portal vein from HPV as deviations from standard branching). The CT images of present study were reclassified according to Covey et al., 2004. Frequencies of HPV standard branching patterns were compared between CT data and frequencies found in the literature. Results: In reclassified CT images according to Covey et al. (2004), there was a significantly lower frequency of standard branching ($p<0.05$) than using self-developed classification (68.6% versus 86%, respectively). Overall, comparing standard branching rates between publications using different classifications there was no significant difference in standard branching found except for studies using the classification by Nakamura et al. (2002) which tend to report significantly higher rates of standard branching than publications using self-developed and Covey et al. (2004) classifications (90.05%, 78.78% and 76.65% respectively). Conclusions: Standard branching frequencies vary between studies, but this phenomenon may also be related to different classifications for the characterization of branching patterns.

ORAL PRESENTATION

ANATOMICAL VARIABILITY OF THE PORTAL VEIN IN PATIENTS CT IMAGES AND CORROSIVE LIVER SPECIMENS FROM AN ANATOMICAL COLLECTION: SIMILARITIES AND DIFFERENCES

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Aim: The aim of this study was to examine the intrahepatic branching of the hepatic portal vein (HPV) in corrosive specimens prepared approximately 50 years ago and to compare with recently collected imaging data from patients. Material and Methods: In total, in 2022-2023 period, computed tomography (CT) images of 172 patients with relatively healthy livers were analysed from radiographic data archives, and 105 corrosive liver specimens (form 1960-1980 period) were also examined by CT. Frequencies of HPV variations were compared between recent images and data from approximately 50 years ago. In addition, a literature review was performed to identify potential secular trends in variations of the HPV. Results: Standard HPV ramification pattern was detected in 85.7% cases in corrosive samples and 86.1% in patient liver images. Variations related to the main branches were as follows: HPV trifurcation – 7.6%/5.23%, right posterior portal vein branching from HPV – 5.7%/8.1%, HPV quadrifurcation 1%/0.6% in corrosive sample and patient images (respectively). The frequency of the main variation type did not depend on the reseach period ($p>0.05$). The frequency of segmental variations was significantly higher in samples from 50 years ago ($p<0.05$). Analysis of the literature did not show an obvious relationship between the study period and the frequency of the HPV branching. Conclusions: No significant epochal trend was observed in the frequencies of the main branching patterns of HPV. However, segmental differences were significantly higher in corrosive samples, which may be explained by better visualization of segmental branches in CT images of corrosive liver specimens.

ORAL PRESENTATION

ON THE ADDED BENEFIT OF VIRTUAL ANATOMY FOR DISSECTION-BASED SKILLS

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AIM Technological approaches deploying three-dimensional visualization to integrate virtual anatomy are increasingly used to provide medical students with state-of-the-art teaching. It is unclear to date to which extent virtual anatomy may help replace the dissection course. Medical students at the Johannes Kepler University attend both a dissection and a virtual anatomy course. This virtual anatomy course is based on Cinematic Rendering postprocessed radiological imaging and teaches anatomy and patho-anatomy. This study aims to substantiate student benefits achieved from this merged teaching approach. METHODS Following their dissection course, 120 second year students took part in objective structured practical examinations (OSPE) conducted on human specimens prior to and following a course on Cinematic Rendering-aided virtual anatomy. Likert-based and open ended surveys were conducted to evaluate student perceptions of both courses and their utility. RESULTS Virtual anatomy teaching was found to be unrelated to improvements in students' ability to identify anatomical structures in anatomical prosections, yielding only a 1.5% increase in the OSPE score. While the students rated the dissection course as being more important and impactful, the virtual anatomy course helped them display the learning content in a more comprehensible and clinically applicable way. CONCLUSION It is likely that Cinematic Rendering-aided virtual anatomy affects knowledge gain in domains other than the recognition of anatomical structures in anatomical prosections. These findings underline students' preference for the pedagogic strategy of the dissection course and for blending this classical approach with novel developments like Cinematic Rendering, thus preparing future doctors for their clinical work.

ORAL PRESENTATION

ANATOMY OF THE CISTERNA CHYLI: A SYSTEMATIC REVIEW

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AIM: The cisterna chyli is a lymphatic structure found at the caudal end of the thoracic duct that receives lymph draining from the abdominal and pelvic viscera and lower limbs. In addition to being an important landmark in retroperitoneal surgery, it is the key gateway for interventional radiology procedures targeting the thoracic duct. A detailed understanding of its anatomy is required to facilitate more accurate intervention, but an exhaustive summary is lacking. METHODS: A systematic review was conducted, and 49 published human studies met the inclusion criteria. Studies included both healthy volunteers and patients and were not restricted by language or date. RESULTS: The detectability of the cisterna chyli is highly variable, ranging from 1.7 to 98%, depending on the study method and criteria used. Its anatomy is variable in terms of location (vertebral level of T10 to L3), size (ranging 2–32 mm in maximum diameter and 13–80 mm in maximum length), morphology, and tributaries. The size of the cisterna chyli increases in some disease states, though its utility as a marker of disease is uncertain. CONCLUSION: The anatomy of the cisterna chyli is highly variable, and it appears to increase in size in some disease states. The lack of well-defined criteria for the structure and the wide variation in reported detection rates prevent accurate estimation of its natural prevalence in humans.

ORAL PRESENTATION

ANATOMY OF THE SURGICAL PNEUMOPERITONEUM USING COMPUTED TOMOGRAPHY

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AIM: To investigate the anatomy of the surgical pneumoperitoneum in terms of shape and volume, across different intra-abdominal pressures, in slim and obese cadavers. METHODS: The intraperitoneal cavities of two cadavers (slim and obese) were insufflated with air and serial abdominal CT scans taken at increasing intraperitoneal pressures. CT data was analysed with image segmentation software (3D Slicer) to produce three-dimensional models of the pneumoperitoneum and to calculate its volume and surface area. RESULTS: 3D reconstructions of the surgical pneumoperitoneum were produced across slim and obese individuals. A linear increase in pneumoperitoneum volume and surface area was seen for each increase in intraperitoneal pressure in both the slim and obese cadaver. CONCLUSION: These findings have applications in medical education, laparoscopic surgery and the development of medical devices.

ORAL PRESENTATION

DYNAMIC STUDIES OF THE HUMAN THORACIC DUCT AND LYMPHOVENOUS JUNCTION USING HEAVILY WEIGHTED T2 MAGNETIC RESONANCE IMAGING: A PILOT STUDY

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AIM: To pilot the use of non-contrast heavily-weighted T2 MRI at visualising the anatomy of the central lymphatic system, including the thoracic duct, cisterna chyli and lymphovenous junction, and its potential to calculate dynamic physiological quantities such as thoracic duct lymph flow. METHODS: Magnetic resonance imaging was used to visualize major lymphatic vessels and the blood vessels in vivo in two human torsos. All scanning was conducted on a 3T GE Medical Systems MRI scanner. Heavily weighted T2 imaging was conducted to highlight the slow-moving fluid within the major draining lymphatic vessels in a region of interest that covers the torso. Phase contrast flow imaging was conducted in the same regions of interest, with the same image resolution as anatomic images to enable quantification of volumetric lymph flow in the major lymphatics. RESULTS: The central lymphatic system (thoracic duct, cisterna chyli and major lymphatic tributaries) were successfully demonstrated. Venous structures were also visualized as dark pixel intensities. A set of axial cross-sectional images with resolution 0.6x0.6x1.6mm, and 600-700 slices per participant were produced. CONCLUSION: Non-contrast heavily weighted T2 MRI can be used to characterize the structural and functional anatomy of the thoracic duct.

ORAL PRESENTATION

3D ANATOMY OF THE PERITONEAL CAVITY

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AIM: The peritoneal cavity is a complex area of human anatomy. Although the spaces within the cavity have been well described in the literature, no studies have investigated the overall shape of the cavity and how this varies between individuals. This study aims to create a 3D model of the peritoneal cavity and perform a principal component analysis to determine its average shape and how this varies between individuals. METHODS: Thirty archival CT scans were used to create 3D models of the peritoneal cavity in fresh cadavers. A principal component analysis was performed to determine areas of variation. RESULTS: We found a high degree of intra and inter-observer reliability. An average 3D model of the peritoneal cavity was created. The main area of variation between individuals was a change in the width in the coronal plane and thickness in the sagittal plane. We also investigated the differences between males and females, and high vs low BMI individuals. CONCLUSION: This is the first study to perform 3D reconstructions of the peritoneal cavity and determine how this varies between individuals. We have determined that the main area of variation is in the coronal width and sagittal thickness of the peritoneal cavity, which is likely influenced by an individual’s weight. Interestingly, the height of the cavity was not a significant area of variation. These findings have applications in medical education, laparoscopic surgery and the development of medical devices.

POSTER PRESENTATION

MEDIAL LONGITUDINAL ARCH HOUSES THE PES ANSERINUS OF THE FOOT REVEALED BY NOVEL GAX-SPECIMENS WITH CT/MRI AND FORMALIN FIXED CADAVERS

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AIM. The medial longitudinal arch of the foot is formed from the masonry of bones created to provide a natural framework of integrity representing the hind, mid and forefoot regions. The cables augmenting this architectural marvel create the ‘pes anserinus’ of the foot. It has an equal well-known structure from the anteromedial aspect of the knee. Three structures, each from separate leg compartments with different nerve innervation, share a significant attachment on the medial cuneiform (anterior tibialis-AT/posterior tibialis-PT/fibularis longus-FL). Human body generally repeats successful morphological patterns which suggests the medial aspect of the foot should have a pes anserinus concept equally admired for design and clinical relevance. Study objective is to identify pes anserinus of medial longitudinal arch from dissecting novel GAX-specimens with innovative contrast imaging and formalin-fixed cadavers (FFC). METHODS. Innovative CT/MRI imaging of GAX-specimens(n=6:12 sides) and FFC(n=29:58 sides) were dissected. RESULTS. All dissections demonstrated pes anserinus concept AT-PT-FL with significant attachments to medial cuneiform. FL from FFC had 4:58sides-6.89% attach predominsntly to first metatarsal base. AT/PT had other bony attachments, but had significant attachment to medial cuneiform. This could be a useful concept for students/trainees regarding stability of the foot especially the medial longitudinal arch which has significant pathologies associated with it. GAX-specimens demonstrated lifelike dissection allowing anatomy learning, mimicking clinical skills and radiology assessments. CONCLUSIONS. This study highlighted conceptual knee anatomy of pes anserinus to medial longitudinal arch of the foot improving the why’s and how’s of biomechanics and pathologies leading to better understanding of the results from positive provacative physical examination signs and imaging assessment.

ORAL PRESENTATION

QUADRICEPS OR MULTICEPS FEMORIS?—CADAVERIC STUDY

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Intoduction: The quadriceps femoris consist of four muscles: the rectus femoris, vastus medialis, vastus lateralis, and vastus intermedius. The tendons of all of those parts join together into a single tendon that attaches to the patella. There is no information about the possibility of other heads and tendons ant there is no classiciafication of the proximal and distal attachment. Methods: One hundred and twenty-eight lower limbs fixed in 10% formalin were examined. Results: Accessory heads of the quadriceps femoris were present in 64.1 %. Proximal attachment: Three main types were indentified and included subtypes. The most common type of proximal attachment esd Type I. This type was divided into two subtypes (A-B) depending on its location relativeto the vastus intermediate. The second most common type was Type II which originated from the other muscles. The second most common type was Type II (30.8%), which originated from other muscles: IIA from the vastus lateralis; IIB from the vastus intermediate, and IIC from the gluteus minimus. In addition, Type III (25%) was characterized by multiple heads: IIIA—two heads with a single common tendon; IIIB—two heads with two separate tendons; IIIC—three heads (lateral, intermediate, medial), and IIID—four heads (bifurcated lateral and bifurcated medial). Distal attachment: Type 1 (four heads) – 55.5 % –it consisted of four layers (the first layer (superficial) was formed by the rectus femoris tendon and fascia, the second (middle) was composed by the vastus medialis and superficial part of the vastus lateralis muscle. The third layer (middle-deep) was composed by the intermediate part of the vastus lateralis muscle. The last – fourth layer (the deep) was composed by the vastus intermedius. Type 2 (27.4%) - the first four layers were the same as type 1, but the accessory tendon of the fifth head of the quadriceps femoris muscle had the deepest attachments. Type 3 (10.9%) - this type included 6 heads of quadriceps femoris. It consisted of five layers. Type 4 (3.1%)- this type included 7 quadriceps femoris heads. This type consisted of only four layers. Type 5 (3.1%) – this type included 8 heads of the quadriceps femoris heads. This type consist of 5 layers. Conclusion: The findings of this study provide a detailed anatomy of the quadriceps tendon including the accessory tendons of the accessory heads of the quadriceps tendon.

ORAL PRESENTATION

QUANTITATIVE STUDY OF PERIPHERAL NOCICEPTIVE NEURONS ALONG THE LIFESPAN; MURINE VS HUMAN MODELS.

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Introduction: Chronic pain affects 20% of the adult population, particularly the elderly, and worsens cognitive impairment. The relationship between the nervous and immune systems, with the possible interaction between them, could underlie this age-related phenomenon. Aim and methods: The present work is a pilot study in which the counting of nociceptive neurons in the lumbar dorsal root ganglia (DRG) of aged C57BL/6 and APP/PS1 mice versus younger ones in performed. Furthermore, DRG of four human cadavers form adults (60, 70 years old) and elderly (84, 85 years old) were analyzed. Our hypothesis is the possible existence of differences in nociceptive peptide expression (or their receptors) that are accentuated with aging. Immunohistochemical staining was performed against NK1R (SP receptor), RAMP1 (co-receptor of CGRP), CGRP, Substance P and NPY. Results were quantified using QuPath, ImageJ. Results: A trend towards an increase in the number of DRG cells expressing NK1R was found in APP/PS1 mice. This increase is concentrated older mice andreplicated in C57BL/6 mice. Conversely, it was not possible to detect differences between age groups, controls or APP/PS1, in reference to the expression of RAMP1.In human DRG, both RAMP1+ and NK1R+ appeared to be increased and the global number showed an almost significative correlation with age (ρ=0,529, sig.=0,008 and ρ=0,427, sig.<0,038). Conclusion: This study exhibits an increase in NK1R, RAMP1+ cells as the neuropathological basis for potential pain hypersensitivity in the elderly. Therefore, an excess of peripheral nociception may produce a proinflammatory status that would contribute to the exacerbation of cognitive impairment.

ORAL PRESENTATION

3D PRINTED INTERNAL FIXATION PLATES FROM COMPUTERIZED TOMOGRAPHY DATA OF ACROMION FRACTURES IN CADAVERS

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Introduction: With the paradigm of tailored medicine on the horizon, physicians are ever increasingly in need to find individualized solutions for their patients. As such, the methods and materials with which surgeons repair damage must also be dynamic. Aims: Our goal was to develop a method for designing custom surgical fixation plates from CT scan data of acromion fractures for 3D printing applications. Methods: In order to design custom fixation plates, 2 cadaver upper limbs—1 right, 1 left—were procured from the Dept Anat, 2LF, Charles University. The limbs were then taken to Motol University Hospital, Prague, to undergo CT scans. The first pass was performed on intact limbs to establish a relative anatomical baseline. Following the first scan, fractures were induced in the acromions. The fractured limbs were subsequently imaged again. CT data were analyzed and 3D models were reconstructed using 3D Slicer. Single plane images from Slicer were then imported into FIJI (ImageJ) for morphometric analysis. These parameters were then applied as boundaries for a surgical plate in FreeCAD, with the designed models printed on a Prusa SL1S 3D printer. Plates were attached to the cadaver scapulae with screws and a third CT scan was taken to assess anatomical position. Results: Both acromions returned to pre-fracture anatomical positions within 5% deviation of baseline curvature and scalar dimensions. From CT scan to finished print: 24 hours. Conclusion: Custom fixation plate design from CT data can be a way to noninvasively plan and solve fitment issues in bone fractures. In the case of acromion fractures, having the ability to both create 3D models of the fractured bone and leveraging software to extract vital curvature information, a scaffold for a custom plate is easy to design and each instance is uniquely tailored to a specific patient. Funding: Grant Agency of Charles University: GAUK No 2120319.

ORAL PRESENTATION

GREAT SAPHENOUS VEIN CUT DOWN, CONSISTENT NEW DISTAL LANDMARK TERMINOLOGY WITH CRURAL FASCIA REINFORCEMENT?

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AIM. Venous access (VA) is paramount during resuscitation of traumatic, surgical and medically compromised patients. Successful VA enables fluid repletion, drugs administration, blood monitoring and transfusions. Traditional VA can fail in conditions causing hypovolemia, thready or nonpalpable veins in paediatric patients and obese conditions, variable anatomy etc… Venous cutdown exposing the great saphenous vein (GSV) is an important skill set for todays healthcare provider. GSV forms from the confluence of the dorsal vein of the first digit and dorsal venous arch of the foot and ascends anterior to the medial malleolus in the distal tibial-soleal groove. The study objective was to dissect and analyze GSV from novel GAX-specimens with MRI and innovative contrast CT imaging versus formalin-fixed cadavers (FFC). METHODS. Literature search was conducted regarding GSV cutdowns. Novel GAX-specimens (n=6,12sides) with innovative contrast CT/MRI imaging and FFC (n=31:58sides) were dissected and analysed. RESULTS. Literature search revealed no known GAX-specimen studies. Contemporary anatomy texts describe the ascending GSV within the ankle/leg region using anterior and medial which is vague with invasive procedures. GAX-specimens (12:12 sides) and FFC (58:62-4 sides had procedures) revealed GSV lying in a groove termed the distal tibial-soleil groove (DTSG). FFC revealed GSV lying within 2mm of the DTSG with dehydarted crural fascia. GAX-specimens (12:12) demonstrated crural fascia ‘tents’ acting protective and functional. CONCLUSIONS. This study revealed a consistent landmark during venous cutdowns of GSV termed the distal tibial-soleil groove-DTSG which would help clinicians palpate and conduct more successful cut downs. It also demonstrated crural fascia GSV support morphology.

POSTER PRESENTATION

SUPRAHYOID MUSCLES REVISTED: SPECIALLY FOSCUSD ON DYSPHAGIA

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Aim: The aim of this study is to review and reevaluate the existing literature on the four muscle groups grouped under suprahyoid muscles, and to present the latest insights into the significance of these muscles in the pathogenesis and treatment of dysphagia. Methods: In this study, a Pubmed search was conducted using basic keywords such as suprahyoid muscle, digastric, stylohyoid, mylohyoid, geniohyoid, dysphagia, etc. The selected papers were confirmed manually for their relevance. Results: A total of over 400 papers were collected on these muscles, allowing for the investigation and analysis of their anatomical and physiological characteristics. In particular, in-depth analysis was conducted on papers related to dysphagia. However, at present, although some studies have been conducted, there is a somewhat limited number of studies for statistically significant analyses such as meta-analysis. Conclusion: This study reaffirms the existing research on suprahyoid muscles and provides a foundational analysis of papers specifically related to dysphagia.

ORAL PRESENTATION

HISTOPATHOLOGY IN AN ANATOMY LABORATORY

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Diverse pathological findings were frequently observed in the cadavers of anatomy laboratories. Yet, it is difficult for students to study these findings presumably due to the prior focus of gross anatomy on anatomical findings, thereby missing the opportunity to broaden the scope of their learning. The current study is performed to introduce the histopathological modality into anatomy laboratory, with helping students study the anatomical and histopathological subjects and comprehend the scientific essence through the subjects. Biopsy punches with diameter 5mm were used to take samples from the identical sites of lung, liver, pancreas, and kidney of each cadaver. The samples were processed for histological slides, the images of which were then digitalized. A digital plate of cross grids of appropriate size and density was created and overlaid on the images to calculate the presence frequency of target structures of each organ (alveoli, central vein, Islets of Langerhans, glomeruli) intersected by the grids. Identical sequence and numbers of slides were analyzed for comparison between normal and pathologic findings of tumor, inflammation, and diabetes mellitus. The frequency of target structures was reduced depending on the pathologic lesions, which also showed specific findings. Students are expected to more actively participate in this histopathological project by using their own tablets or smartphones for observing the images and calculating the targets at their convenience in the space and time.

ORAL PRESENTATION

REAL COLOR SECTIONED IMAGES AND THREE-DIMENSIONAL MODELS OF PANCREATIC CANCER AND ITS LYMPH NODE METASTASES

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Surgeons need to understand the anatomy of pancreatic and its lymph nodes for pancreatic cancer surgery. However, the anatomy and radiology of pancreatic and its lymph nodes are difficult in both patients and cadavers because of their location in the abdomen and the gray color in radiologic images. This aimed to enhance knowledge of the clinical anatomy of pancreatic cancer and lymph node metastases by female sectioned images with real color and high resolution. From a female cadaver, died of pancreatic cancer, the sectioned images of the whole body were produced, and images of the abdomen were selected (intervals, 1.0 mm; pixel size, 0.05 mm x 0.05 mm; color depths, 48 bits). In the selected sectioned images, pancreas, cancer tissue, and lymph node metastases were distinguished in detail. Based on the sectioned images and three dimensional (3D) models were produced. In the sectioned images and 3D models, pancreas, cancer tissue, and lymph nodes around normal abdominal organs were confirmed. Among 28 types of lymph node stations, 21 were identified by color and size, two around the splenic artery could not be separated from cancer tissue, and the remaining five were not identified. Through the results of this study, the clinically anatomical understanding of pancreatic cancer and lymph node metastasis will be enhanced. This study was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (NRF-021R1F1A1063044).

POSTER PRESENTATION

BIFID URETERS: ARISING DIRECTLY FROM THE SEPARATE CALYCES AND RENAL PELVIS OF THE KIDNEY: A CASE REPORT

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The present case report describes bifid ureters arising directly from the separate calyces and renal pelvis of the kidney. It was a single common ureter leading away from the bladder, which was separated into incompletely duplicated ureters near the level of the anterior superior iliac supine. These two branches then entered the left kidney through their own courses. Each ureter traveled anterior and posterior to the renal vein, respectively. These two ureters formed a Y-shaped pattern. One ureter coursed anterior to the renal vein with shorter length, and it terminated at the renal pelvis that was divided into major calices in approximately lower two thirds of the kidney. The other ureter coursed posterior to the renal vein with longer length, terminating at approximately the upper third of the kidney. The renal calices in the upper third of the kidney were directly connected to the posterior ureter, whereas the other major calices in the lower two thirds of the kidney formed the renal pelvis connecting to the anterior ureter. Thus, convergence of the major calices was separated according to the terminations of two ureters. These anomalous ureters were traced to the calices of the kidney, thereby providing a reference of a rare variation of the ureter. The bifid ureters arising from the separate calyces and renal pelvis should be considered by radiologists when evaluating images and diagnosing possible complications of these anomalies.

ORAL PRESENTATION

THE TRAJECTORY OF THE CORRUGATOR SUPERCILII IN THE UPPER AND MIDFACE FOR AESTHETIC PROCEDURES

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The trajectory of the corrugator supercilii (CS) in the upper and midfaces has not yet been examined. The aim of this study was to clarify the configuration of the CS and its arrangement in relation with the frontalis and orbicularis oculi muscle. CSs was examined in 36 hemifaces from Korean embalmed cadavers. The anatomic relationships of the CS were classified into the following 2 categories according to their connection. (1) The CS entirely interdigitated or blended with the frontalis (53.3%). (2) Approximately the upper two-thirds or upper three-fourths of the CS interdigitated or blended with the frontalis, while approximately its lower third or the lower fourth extended to the orbicularis oculi muscle (46.7%). The CS extended to the upper, lateral, or inferior fibers of the orbicularis oculi muscle, coursing along the margin of the orbicularis oculi. The new anatomical data regarding the CS could provide an advanced understanding of movements of the eyebrows, forehead, and midfacial region, which will be helpful when designing botulinum toxin type A therapies and performing facial surgeries such as direct browplasty.

POSTER PRESENTATION

STRUCTURAL INSIGHTS INTO THE FIRST EXTENSOR COMPARTMENT AND SUPERFICIAL RADIAL NERVE: IMPLICATIONS FOR DE QUERVAIN TENOSYNOVITIS TREATMENT

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Aim: This study aims to describe anatomy of the first extensor compartment (1st EC), its contents and relation to the superficial radial nerve (SRN) to improve the treatment of De Quervain tenosynovitis. Methods: We dissected 87 upper extremities from 22 male and 22 female embalmed cadavers to determine the relationship between the SRN and 1st EC. We analyzed morphometries and contents of the 1st EC. The tendons distal to the compartment were also examined. Results: SRN was found over the 1st EC in 59.5% of the specimens. The radial branch (SR1) of SRN was the closest nerve to the 1st EC in most cases (61.9%). The distances from proximal and distal borders of the 1st EC to radial styloid process (RSP) were 19.7±4.1 mm and 7.6±1.8 mm, respectively. The proximal distance was greater in males. Within the 1st EC, 40.23% had no septum, 17.24% had a complete septum and 42.53% had an incomplete septum. There were variations in the number and insertion of tendons. Fused tendon of extensor pollicis brevis (EPB) and longus (EPL) were more frequently observed in males than in females. EPB tendons were thicker on the left extremities. Additionally, we discovered some unusual variations of the tendons and nerves. Conclusion: Understanding of the SRN, 1st EC and its content is crucial for the treatment of De Quervain tenosynovitis. The variations in certain structures may also play significant roles in the development of the disease.

POSTER PRESENTATION

A MRI STUDY TO DETERMINE THE LEVEL OF THECAL SAC TERMINATION IN NORTH INDIAN POPULATION

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Introduction Thecal sac is a membranous sac possessing spinal cord, cauda equina and cerebrospinal fluid, and traditionally quoted to terminate at the level of 2nd sacral vertebra. Literature shows significant variation in the dural sac termination (DST) ranging from L5 –S1 intervertebral disc. DST level has been studied mainly in cadaveric studies, with few studies with small sample size in studies done using MRI. Knowledge of exact DST is important during procedures like caudal block and craniospinal irradiation. Aim of the study was to record range of DST, co-related with gender and age, using MRI. Material and Methods A retrospective study was undertaken on 250 MRI Scans retrieved from the PACS system of our tertiary care hospital catering to a large North Indian population, after approval by Institutional ethics committee. Midsagittal T1 weighted images and MR myelogram was used for determination of endpoint of thecal sac with level of termination ascribed to corresponding 1/3rd of vertebral body. Results Study group comprised of 52% females, 46.8% males and 1.2% transgender. DST was observed in upper 1/3rd of S2 vertebral level in maximum percentage of cases (28.4%). The next most common level of DST was at middle 1/3rd of S2 vertebra. One case each documented at level of upper1/3rd, middle 1/3rd & lower1/3rd of L5 vertebra. No significant variation with gender was noted. Conclusion Present study documented DST level between middle 1/3rd of L5 and upper 1/3rd of S3 vertebra. Knowledge of this variation is particularly important to anesthetists and spine surgeons. Attention is needed in cases having higher position of DST, as recorded in our study, as lumbar puncture at L2-3 interspace would seem unsuitable in these patients.

ORAL PRESENTATION

THE ANATOMY OF ABDOMINAL FUSION FASCIAS AND THEIR SIGNIFICANCE FOR ONCOLOGICAL SURGERY

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The development of minimally invasive (laparoscopic and robotic) surgery led surgeons to an increased interest in avascular embryonic interlayers enabling precise, safe, and above all oncologically radical dissection. In his lecture, the author - as an anatomist and colorectal surgeon - gives an anatomical description of these embryonic interlayers - historically referred to as fusion (coalescent) fascias (Toldt's, Fredet's, and Treitz's fascia), reflects on their nomenclature and states their significance for the most modern oncosurgical procedures - so-called mesenteric based surgery. For this field of surgery, the most important thing is the correct mobilization of the organ (colon or rectum) with its mesentery without breaking the peritoneal covering, thereby preserving the oncologically significant compartment (fat-lymphatic tissue with vessels and lymph nodes). These procedures are referred to as TME - total mesorectal excision and CME - complete mesocolic excision. Thanks to TME/CME is possible to achieve the maximum number of removed nodes, to perform a central ligation of the supplying vessels, and above all to significantly reduce the percentage of locoregional tumor recurrences. Good anatomical knowledge of these anatomical structures and embryonic interlayers is therefore essential for the modern visceral surgeon.

POSTER PRESENTATION

COMPARATIVE ANALYSIS OF HUMAN MEIBOMIAN GLANDS WITH OTHER FREE AND HAIR-ASSOCIATED SEBACEOUS GLANDS IN TERMS OF BIOMARKER EXPRESSION AND LIPID COMPOSITION

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Aim Meibomian gland dysfunction is the main cause of dry eye disease. To better understand the physiological function of human meibomian glands (MG), the present study compared MG with other free sebaceous glands (SG) and with hair-associated SG. Methods Eyelids with MG, nostrils, lips and external auditory canals with free SG, and scalp with hair-associated SG of body donors were probed with antibodies against 12 biomarkers. Oil Red O staining (ORO) was performed in cryosections. Secretions of the different glands were collected from healthy volunteers, analyzed by LCMS. Serial sections of MG, free SG, and hair-associated SG were 3D reconstructed and compared. Results Cytokeratins (CK)1 was expressed differently in hair-associated SG than in MG and other free SG. The expression of CK8, CK10, and CK14 in MG was different from that in hair-associated SG and other free SG. KRT15 was expressed differently in hair-associated SG, whereas N-cadherin was expressed equally in all gland types. ORO staining showed that lipids in MG were more highly distributed and had larger lipid droplets. Hair-associated SG had a smaller number of lipid droplets. LCMS revealed the distribution of meibum levels far from the sebum levels of other locations. The 3D reconstructions of the different glands revealed different morphology. Conclusions In humans, MG differ in their morphological and secretory composition and show significant differences from other free and hair-associated SG. The composition of meibum differs significantly from that of sebum from free SGs and from hair-associated SG. Therefore, MG can be considered as a highly specialized type of SG.

POSTER PRESENTATION

THE FASCICLES OF THE CORACOHUMERAL LIGAMENT: A CADAVERIC STUDY IN SOFT-EMBALMED SHOULDERS.

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Introduction, aims and methods: The coracohumeral ligament is essential for the stability of the shoulder, and its branching occupies the roof of the rotator interval and contributes to the rotator cable. Chronic shoulder pain and the surgery of the rotator interval involve the coracohumeral ligament but are poorly studied in a fascicle-wise manner. In this work we studied 42 Thiel-embalmed shoulders from patients with no history of painful shoulder pathology to differentiate its fascicles and their insertions Results: The coracohumeral ligament includes two fascicles converging near the tip of the coracoid process in a tent-like manner, the anteromedial (CHAL-am)and posteromedial (CHAL-pm). CHL-am has two fascicles: a superficial one inserted in the caudal surface of the coracoid process that fuses with the fascial tissue overlying the subscapularis tendon; the deep fascicle (38/42, 90%) is only revealed after careful removal of the superficial fascicle, and adjoints the capsule beneath the insertion of the subscapularis tendon. The CHL-pm is inserted proximally in the posterior edge of the coracoid process and laterally fuses with the capsule: its most lateral fibers are directed to the rotator interval, where they cover superficially the lateral area of the supraspinatus tendon, its posterior fibers are directed deeper. An auxiliary fascicle that appears in 14% (6/42) of cases is inserted proximally in the coracoid base and fuses with the capsule underneath the SSpM tendon. Conclusion: The CHL is not a single fascicle with osseous insertions but at least four that contribute to the shoulder joint capsule.

POSTER PRESENTATION

FEMORAL NERVE MORPHOLOGY WITH NOVEL PREPARED GAX-SPECIMENS INCLUDING INNOVATIVE CONTRAST IMAGING OF FEMORAL VESSELS AND ULTRASOUND.

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AIM. Femoral nerve blocks (FNB) are being used in many conditions and increasing especially in Emergency departments and situations for patients struggling with a substance use. FNB often used for patients presenting with injuries requiring surgery or admission to hospital. Conditions include hip and knee fractures as well as significant burns and lacerations. Ultimately it eliminates severe pain while waiting for surgery or being transported within hospital. Circumflex artery level is considered a landmark demarcating where the femoral nerve (FN) splits into anterior and posterior divisions. Can be necessary to anesthetize both motor and sensory nerves as an element of pain is created from muscle spasm following fractures. The study objective is to dissect the femoral triangle, assessing and analysing FN of novel GAX-specimens post imaging with innovative contrast. METHODS. Literature search regarding FN analysis from GAX-specimens. GAX-specimens (n=6:3-Male:3-Female:12-sides) were MRI, CT scanned with innovative contrast and ultrasound (GE Vscan Air). FN measurements from inguinal ligament to arborization. RESULTS. No known previous GAX-specimen studies. FN-(3-males:6-sides:average 2.2cm;range:1.8-2.9) and (3-females:6-sides;average 0.65cm:range:0.3-1.1). The difference between FN trunk length from the inguinal ligament of males versus females is consistent with larger studies by Benninger with formalin-fixed cadavers (FFC). Ultrasound image quality was significantly better with GAX-specimens versus FFC. GAX-specimens with large BMI were significantly easier to palpate, dissect and image versus equal FFC. CONCLUSION. This study suggests GAX-specimens would provide ideal opportunities for ultrasound imaging with FNB. Shorter FN trunks distal to the inguinal ligament suggests FNB needles should place anaesthetic close to inguinal ligament.

POSTER PRESENTATION

EXPLORING TWO NEW INNOVATIVE TEACHING FORMATS IN ANATOMY EDUCATION

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Introduction: Innovations in anatomy education play a crucial role in the medical curriculum. Medical educators continuously seek innovative teaching formats to optimize student learning outcomes. The Department of Anatomy at the Faculty of Medicine, University of Warmia and Mazury, focuses on improving anatomy teaching by integrating mobile devices and flipped learning models. Methods and results: The first format introduces the Tablet-Assisted Objective Structured Spotter Practical Examination (TOSSPE), a tablet application that simplifies the educational process and creates a rich learning environment for students. TOSSPE combines traditional cadaver stations with pin spotters in a tablet application, providing instant feedback and unbiased evaluation. A study involving 608 first-year medical students revealed that implementing TOSSPE significantly increased examination scores compared to other teaching methods. The second format examines the effectiveness of the Flipped Spotters Learning Model, a learner-centered approach where students independently label anatomical structures on specimens. A study involving 1214 medical students, divided into control and treatment groups, demonstrated that students using the Flipped Spotters Learning Model achieved higher scores in practical examinations compared to the control group. Conclusion: Both formats highlight the advantages of innovative teaching methods in gross anatomy education. By integrating mobile technology and flipped learning models, educators create engaging and interactive learning experiences that enhance student understanding and retention of anatomical knowledge. These findings contribute to the ongoing development of effective teaching methodologies in medical education, benefiting undergraduate students and better preparing them to become future healthcare professionals.

ORAL PRESENTATION

FABRICATION AND CHARACTERIZATION OF NEW CONDUCTIVE NERVE CONDUITS FOR SEVERE PERIPHERAL NERVE INJURY RECOVERY: A COMPARATIVE STUDY IN ANIMAL MODEL OF DISEASE

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Severe peripheral nerve injuries are a challenge in clinical practice as no commercial device is better than autografts. Currently, intense research is devoted towards nerve conduits (NC) improvement and introduction of electrical cues seems to be extremely appealing: as the nervous system is highly influenced by the electrical stimuli, establishing an electrical environment within conduits may be engaging in terms of morpho-functional outcomes. In the light of that, this work analyzes, through in vitro and preclinical studies, the effectiveness of new nanocomposite conductive NC based on the new polymer oxidized polyvinyl alcohol (OxPVA) and multiwalled carbon nanotubes (CNT). The OxPVA+CNT hydrogel was prepared and preliminarily characterized for ultrastructure/in vitro electroconductivity/bioactivity/cytotoxicity/in vivo biocompatibility. Then, derived OxPVA+CNT conduits were investigated for ultrastructure and mechanical behaviour prior to be implanted in animal model of disease (Sprague Dawley rat; sciatic nerve, gap: 5 mm). Four experimental groups were assayed (reverse autograft/Reaxon/OxPVA/OxPVA+CNT) and NC effectiveness was verified after 6 weeks by histological/immunohistochemical analyses/morphometric studies. Results highlighted that hybridization with CNTs conferred to OxPVA a certain porosity and an increased superficial electroconductivity, while excluding CNT-related toxicity; subcutaneous implants analyses suggested the composite biocompatibility. Nerve regeneration was sustained by all the devices (S100/β-tubulin) without severe inflammatory reactions (CD3/F4/80). Morphometric studies showed higher cross-section area and fasci area for RA˃OxPVA+CNT˃Reaxon˃OxPVA; epineurium thickness was higher for RA˃OxPVA˃Reaxon˃OxPVA+CNT; density of myelinated axons was higher for OxPVA+CNT˃OxPVA˃RA˃Reaxon; myelinated axons total number was prevalent in RA˃OxPVA+CNT˃Reaxon˃OxPVA. Incorporation of CNT may be an appealing strategy to improve OxPVA NC outcomes.

POSTER PRESENTATION

EXPRESSION AND TOPOGRAPHY OF A-SYNUCLEIN STRAINS IN THE NORMAL HUMAN BRAINSTEM

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AIM: a-synuclein is a neuronal synaptic protein known to regulate neurotransmitter release and vescicle trafficking. In synucleinopathies, such as Parkinson's Disease, insoluble forms of a-synuclein are known to accumulate in neurons and glial cells leading to Lewy Body Pathology. While a-synuclein in synucleinopathies has been widely studied, very little is known regarding its subcellular, cellular and topographic expression in the normal human brain. Furthermore, synucleinopathies present specific anatomical vulnerability patterns, so that distinct neuronal populations appear to be particularly susceptible to a-synuclein pathology. Yet, the morphological and biochemical causes of this vulnerability are unknown. Here we investigate the expression of monomeric strands of a-synuclein in the normal human medulla, a region particularly susceptible to synucleinopathies and implicated in the first stages of the disease. To evaluate the specific populations of neurons expressing monomeric strands of a-synuclein, we investigate the co-expression of main Calcium Binding Proteins (CBPs) (Calbindin, Calretinin and Parvalbumin), which are known to serve a neuroprotective role and are downregulated in neurodegenerative diseases. METHODS: The brains of 10 neurologically healthy body donors of the Body Donation Program of the University of Padova underwent double label immunohistochemistry to determine Calbindin, Calretinin, Parvalbumin, and monomeric a-synuclein expression within standardized sections of the medulla. Semi-quantitative morphometrical assessment was performed to compare protein expression within the structure. RESULTS AND DISCUSSION: a-synuclein was found to be predominantly expressed in the reticular formation, tegmental nuclei and olivary nuclei. CBPs appear to have a distinctive pattern of expression throughout the brainstem, with Calbindin having marked reactivity within neurons involved in motor control, respiration and autonomic functions, while Calretinin expression was limited to mostly reticular formation nuclei. Colocalization analysis was performed to assess co-expression of a-synuclein and CBPs. CONCLUSONS: This study helps better understand the localization and interplay between different groups of CBPs and a-synuclein within the human brainstem advancing the understanding of patterns of anatomical vulnerability in neurodegenerative diseases.

POSTER PRESENTATION

AGENESIS OF SUPERIOR VENA CAVA IN AN ELDERLY PATIENT WITH RECENT ONSET SYMPTOMS – A CASE REPORT

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Introduction: Agenesis of Superior Vena Cava (SVC) is a very rare congenital anomaly. It is usually associated with SVC syndrome or conductance abnormalities. There are few cases when this malformation is discovered without any particular symptoms or latter on in life. We report a case of SVC agenesis with only recent symptoms. Case description: The patient, female of 69 years of age, came to the emergency room with complaints of peripheral edema, headache and various episodes of high blood pressure. She was being treated for arterial hypertension and hypothyroidism, both chronic diagnoses. Although she took the medication regularly, she experienced the symptoms described above, from time to time. The edema of the neck and face were just recently present. She was admitted to the hospital for further investigations. Her blood test, cortisol levels, thyroid hormone levels were within normal range. Her electrocardiogram did not show any conductance abnormalities. Heart ultrasound appeared normal. To more accurately explore the origin of here edema, a CT scan were ordered. From the images of it, it was reported, agenesis of superior vena cava with a web of collateral veins of the chest and abdomen. Left collateral thoracic veins drained in the inferior vena cava. Abdominal veins collaterally drained in the left femoral vein. No edema was present in the abdomen but there were minimal pleural effusion. Conclusion: Congenital absence of SVC is a rare cause of SVC syndrome. Most patients complain of various symptoms and signs. The severity of the SVC syndrome depends on the rapidity of SVC occlusion and the development of collateral vessels. In our case, the anomaly appeared to have developed slowly because of the age of the patient and her symptoms occurring only recently. In case of symptoms of peripheral edema, headache and high blood pressure, SVC syndrome should be suspected in any time and agenesis of SVC should not be excluded without proper evaluation.

ORAL PRESENTATION

INSTITUTE OF HISTOLOGY AND EMBRYOLOGY IN THE BUILDING WHICH WAS THE PRIDE OF THE FACULTY OF MEDICINE IN THE INTERWAR PERIOD

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Professors Aleksandar Kostić and Richard Burian, directors and founders of the Institute of Histology and the Institute of Physiology, collaborated with the architect Svetozar Jovanović in planning their institute building and throughout the building process. The building was U-shaped, with a shared lecture hall in the center, while the institutes occupied a wing, each. This was a monumental edifice, built in a style reflecting the academic spirit, predominant in the architecture of public buildings of that time. The ventilation, heating and water distilling systems, gas equipment, telephone switchboard, electrical collectors, and other equipment were stored in the basement of the central part. The lecture hall had a lass skylight, over which a horizontal blind could be drawn to block the light. Behind the lectern was a set of glass boards and projection screens, powered by electromotors. For experiment demonstrations, projections of lab animal vivisections, and films, special equipment was used. The Institute of Histology in its wing had a classroom for practical work, research areas, rooms for experimental animals, a library, and living quarters for the Director and staff. Within the Institute, professor Kostić founded a Terminology Seminar and Photography Department, where photographs were developed for the entire University. The central part of the building was destroyed in the 1941 German air raid. After WWII, the central part was reconstructed and new wings were built, according to the plans of architect Milan Sekulić. The simplicity of the new building’s architecture was more in keeping with the taste of modern times.

ORAL PRESENTATION

THE FACIAL NERVE: A PRELIMINARY IMMUNOHISTOCHEMICAL ANALYSIS OF ITS DEVELOPMENT IN HUMAN.

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Aim There are few descriptive studies of the facial nerve development in human embryos and fetuses. None of them evaluate the immunohistochemical pattern for labelling their neuron and tracts in humans. Methods The Javier Puerta Collection (Madrid, Spain) is an old compilation with a total of 35 human embryos and 32 fetuses (between 26 days and 18 weeks). These specimens are conserved in paraffin and serially sectioned on slides. Although some of the slides are stained, many others are reserved for immunohistochemical analysis. We have done a preliminary study to assess the possibility of performing immunohistochemistry in these preserved embryos of the collection which are, at least, 20 to 30 years old. For that purpose, we selected the F9 specimen (10th week) and applied the immunohistochemical protocol to detect ChAT and Islet1. Results The regular sections with haematoxylin-eosin staining show the facial course, distribution, vascularization, connections, and relationships at the first development stages. In terms of immunohistochemistry, motor nerves (facial, abducens) are positive for ChaT and Islet1 in F9 specimen (10th week). Conclusion These preliminary results show that the technique is appropriated despite the time that has passed since they were fixed with formalin, embedded in paraffin, and sectioned. This result opens the door to relevant further studies, not only to find the origin, relationships, and track of the 7th cranial nerve, but later on, to continue investigating the origin´s nucleus of all cranial nerves. It could be useful for clinicians in cases of brainstem dysgenesis or congenital facial palsies.

ORAL PRESENTATION

MESOESOPHAGUS: AN EMBRYOLOGICAL DESCRIPTION OF A QUESTIONED STRUCTURE AND ITS STRONG RELATIONSHIP WITH THE VAGUS NERVE.

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Aim The aim of this study was to analyse the anatomy of the mediastinum in human embryos and fetuses, emphasizing the concept “mesoesophagus”. This structure has been denied for many researchers and reconsidered for some surgeons in recent times. Methods A total sample of 4 human embryos and 2 fetuses (4 ½ , 5 ½ ,7, 9 and 12 weeks) from the Javier Puerta Collection were studied. They were serially sectioned in different planes and stained with different histological techniques. Results A clear development of mediastinum occurs between 4 ½ and 9 weeks, from initial to almost mature state. At these stages, a visible structure appears throughout all mediastinum, in the upper part to the dorsal aortas and in the lower to the descending aorta. This structure is associated with the vagus nerve during its course. Conclusion The mesoesophagus is a real embryonary and fetal structure visible throughout the mediastinum associated to the dorsal and descending aortas. It was associated to the course of the vagus nerve and both of them could be relevant landmarks during the esophagectomies. This knowledge could help surgeons to perform a more radical esophagectomy through embryological planes, offering more secure procedures in cancer resections.

POSTER PRESENTATION

MEDIA USE BETWEEN STUDENTS AND LECTURES

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Background: Electronic learning tools are used at universities for learning. Aim: The objective of the present study is to explore the use of media for learning and whether there are differences between students from various semesters and between students and lectures at the Faculty of Health. Methods: During the 2022/23 winter term a survey was conducted at the Witten/Herdecke University, in which a total of 208 medical students (response rate: 62 %) and 15 lectures (response rate: 100%) from the first four semesters participated voluntarily. The questionnaire included 23 questions (Likert-scale: 1=Use never / 4=Use very often). The questionnaire was distributed and anonymously completed during in-class courses. Results: All students agreed to use electronic devices for learning, with tablets(mean=3,3) and laptops(3,18) being the most common ones. The use of laptops increased over the 4 Semesters(From 2,87 to 3,86). They preferred digital educational material(3,41) over printed material(2,67). The students used apps (3,21) and books(2,95) more often than videos(2,56), the lectures estimated the contrary. Besides the use of electronic learning tools, attended classes like lectures(3,44), histology classes(3,4) and POL-tutorials(3,68) were the most frequent used methods for learning. Conclusion: The results show that almost all students use electronic learning tools and prefer digital over printed material, although the preferred formats are different than assumed by the lectures. Besides the increasing use of digital devices the attended classes are the most used learning methods. Universities should therefore pay attention to students user patterns and the learning environment.

ORAL PRESENTATION

WHY DO CLINICIANS GET TO HAVE ALL THE FUN? THE CASE FOR INVENTING LATIN ANATOMICAL NAMES.

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The argument for inventing Latin anatomical names describing non-existent (or even imaginary) body parts is twofold. More proximately, the increasing recognition of variant anatomy allows everyone involved in nomenclature – from anatomists themselves to those of us who teach the language of anatomy – to recognize that there is an ever-expanding need for more names for the parts of the body, which means that we don't need to limit our corpus of terms, and our imaginations, to the fixed number of phrases currently listed in the TA. More fundamentally, allowing ourselves the freedom to concoct new Latin terms without the burden of, as it were, sticking to reality, helps all of us appreciate the systematic and formulaic way that these Latin terms are constructed; the resulting understanding of the underlying system can only benefit all people who use Latin anatomic nomenclature, whether we are trying to invent new terms in variant anatomy or to develop a greater appreciation of how these terms function in the real world. This paper explores the pedagogical advantages of creating fictitious but plausible terms – and shows how such an approach will not only prepare us for when we do need to create new real words, but will also help everyone who uses the currently existing Latin nomenclatures.

ORAL PRESENTATION

A SOLUTION IN SEARCH OF A PROBLEM: THE DILEMMA OF OS – AN ORAL HISTORY

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Anatomical Latin does not exist in a vacuum. Words that are confusing in isolation become straightforward when we see them in the real world, in contextualizing phrases, with endings and/or modifying adjectives attached. For example, the Latin word os appears problematic and potentially confusing at first glance, because it is the nominative singular form of two different words, “mouth” (os, oris), and “bone” (os, ossis). Both are neuter, so even an accompanying adjective might not seem to help: is os faciale “a facial bone” or “a facial mouth”? But when common sense is applied, it becomes clear that “anatomical distribution” guarantees that there is no problem at all. Our terminology students would reason that, because the human body has only the one mouth, its name will never need a specifying adjective (other, “mouth-like,” body-part names being found under the head noun ostium, regularly used in the metaphorical rather than the literal sense). But each of the ossa facialia (in addition to requiring further specifying adjectives for each bone), is being differentiated here from all the other bones of the body and head. Much more problematic are terms that appear to denote the same object, but actually name two distinct body parts. For example, nervus hypoglossus and nervus sublingualis both reliably mean “the nerve below the tongue” – that one uses Greek roots while the other is Latin-based makes no difference to the meaning, but the nerves so named are distinct. The paper discusses TA pairs of both types, proposing pragmatic solutions

ORAL PRESENTATION

UNEXPECTED ANATOMICAL VARIANTS OF THE CAROTID ARTERIES OCCUR CONSTANTLY AND DO NOT FIT THE CLASSICAL DESCRIPTIONS

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Background: According to common anatomical descriptions, the common carotid artery (CCA) divides at the level of the upper border of thyroid cartilage into the external (ECA) and internal (ICA) carotid arteries. The height of the carotid bifurcation (CB) could vary. The research aimed to document on computed tomography angiograms different peculiar morphologies of carotid arteries and classify these within a pictorial review. Methods: One hundred forty-seven CT files were documented for this pictorial review. Results: Different variants of carotid arteries were found uni- or bilateral. They usually occurred in random combinations. These were organized: (a) loops and/or kinks of any carotid artery; twisted CBs with “8”-shaped courses of ECA and ICA, concentric ECA and ICA loops - “carotid labyrinths”, as well as retropharyngeal “kissing carotids” are presented; (b) coiled CCAs and ICAs; (c) retrotracheal and lateroesophageal CCA, retropharyngeal CCAs, CBs, and ICAs; (d) lateroverteb ral CCAs, CBs, and/or ICAs; (e) lateralized ECAs; (f) ECAs crossing posteriorly long styloid processes; (g) lateroverteb ral CCAs, CBs and ICAs; (h) variable height of CBs: from C2 to the intervertebral C5/C6 disc, from gonion to the level of cricoid cartilage; (i) variable axial spin of the CB: in the coronal or sagittal planes, or oblique. In any of the documented cases at least one of the carotid arteries had an anatomical deviation from the conventional description. Conclusion: In teaching carotid arteries' anatomy, cautioning that only a general morphological model is presented would be preferable. Deviations from this pattern are the rule rather than the exception.

ORAL PRESENTATION

COMPARISON OF CALCANEOFIBULAR LIGAMENT MORPHOLOGY BETWEEN ADULT CADAVERS AND HUMAN FETUSES.

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Aim; Ligaments anatomy often show a huge anatomy variations between species and individuals. The purpose of this study was to describe CFL morphology in adult human cadavers and human fetuses. Methods; We investigated twenty five spontaneously-aborted human fetuses aged 18–38weeks of gestation at death and fifty adult human cadavers. In total one hundred and fifty lower limbs fixed in 10% formalin solution were examined. Morphology was carefully assessed, and morphometric measurements were performed. Results; A four-fold classification was noted. Type I, the most common, was characterized by a band-like morphology. Type II was characterized by a Y-shaped band, and Type III (21.7%) by a V- shaped band. Type IV was characterized by the presence of two or three bands. Types distinguished in the adult and fetal population were similar to each other. Conclusion; The calcaneofibular ligament is characterized by high anatomical variability.

ORAL PRESENTATION

THE EFFECT OF SUBCUTANEOUS FAT TISSUE THICKNESS ON LUMBAR TRANSFORAMINAL EPIDURAL STEROID INJECTION TREATMENT SUCCESS - PRELIMINARY RESULTS

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Author: A. Sac 1 Co-authors: S. Sencan 2, E. Biyikli 3, O.H. Gunduz 2, U.S. Sehirli 1 1 Marmara University, Faculty of Medicine, Department of Anatomy, Istanbul, Turkey 2 Marmara University, Faculty of Medicine, Department of Physical Therapy and Rehabilitation, Algology, Istanbul, Turkey 3 Marmara University, Faculty of Medicine, Department of Radiology, Istanbul, Turkey Author's E-mail: sacahmet@gmail.com AIM In the treatment of the lumbosacral radicular pain, transforaminal epidural steroid injections(TFESI) can be performed. The effect of obesity has been found positively correlated with low back pain and is an independent risk factor for lumbar disc herniation, but, no significant effect on treatment success has been demonstrated. Body mass index(BMI) lead to an incomplete assessment, because, it does not provide information about body composition ratios. Studies have shown that there is a high correlation between the lumbar region subcutaneous fat tissue thickness(SFTT) (especially L1-L2 level, subcutaneous fat index<SFI>) and the degree of intervertebral disc degeneration and vertebral-surface changes. We aim to study, SFI whether be or be not correlated with treatment effectiveness in patients who received transforaminal epidural steroid injection(TFESI). METHODS Our study design is prospective clinical trial, with 2 groups according to SFI values. Before and after TFESI, clinical status of the patients for 3 months was followed-up with Oswestry Disability Index(ODI) and Numeric Rating Scale(NRS). RESULTS According to the preliminary data of the first 26 patients, in both groups ODI and NRS decreased significantly, but, there was no significant correlation with SFI, in predicting treatment efficacy. CONCLUSION When all patients' follow-ups are completed, treatment efficacy may differ significantly between groups, since sample group will have grown and so more data will included. Otherwise, if we obtain similar results with preliminary data, we will show that all patients, regardless of SFI, can benefit from the treatment effectively and SFI has no effect on prediction of treatment efficacy.

ORAL PRESENTATION

IMPORTANCE OF AN UNCLEAR FASCIAL LAYER, STYLOPHARYNGEAL FASCIA: AN ANATOMICAL STUDY

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Aim: Stylopharyngeal fascia is an important anatomical structure; however, its exact location and relationships have not been clearly demonstrated. Therefore, our aim is to reveal stylopharyngeal fascia to demonstrate its course and neurovascular relations. Methods: Ten sides of fresh frozen cadaveric necks were dissected. Afterwards, the stylopharyngeal fascia was revealed in these cadavers via trans nasal endoscopic approach, advancing into the anatomical plan located between levator veli palatini and salpingopharyngeus muscles. Results: Stylopharyngeal fascia was mostly found on the lateral aspect of internal carotid artery and ascending pharyngeal artery, and showed an extension into the space between styloid muscle group. Glossopharyngeal nerve was found to lie on the lateral aspect of this fascia, as an important anatomical landmark. We demonstrated that stylopharyngeal fascia could be found by advancing into the plan between digastricus and stylohyoid muscles. In this area, we could access glossopharyngeal nerve easily on the lateral aspect of the fascia. This fascia extended into the skullbase; therefore, it could be reached via the trans nasal endoscopic approach. Conclusion: Although stylopharingeal fascia was previously shown in relation to other neurovascular structures, its anatomical course and histology are still unclear. Moreover, stylopharingeal fascia was defined with different nomenclatures in different studies. In this study, stylofaringeal fascia was shown to be an important anatomical landmark for glossopharyngeal nerve and for internal carotid artery. To sum up further studies investigating its histological structure and defining its proper nomenclature are needed.

ORAL PRESENTATION

DO OUR STUDENTS PREFER A ONE-WAY WEBSITE OR A PARTICIPATIVE INSTAGRAM PROFILE? THE USE OF INSTAGRAM METRICS AND WEB ANALYTICS IN HUMAN ANATOMY EDUCATIONAL RESEARCH

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Aim: Although Human Anatomy traditionally follows a face-to-face teaching model based on cadaver dissection, new methodologies based on virtual platforms are important to facilitate autonomous learning. However, we do not know what type of online tools students prefer. This study compares the success of two types of teaching tools: 1) online lessons made using eXeLearning that included the contents of the human anatomy subjects, and 2) an Instagram profile with interactive quizzes. Methods: Images were generated by taking photographs of detailed dissections, and creating new anatomical illustrations. They were used to upload online lessons and an Instagram profile, @eldeanato. The Instagram profile included a series of questionnaires, using the Instagram quiz sticker. The satisfaction with the tools was assessed in the traditional way, by means of online surveys, and also using objective measures of web analysis: percentages of interaction with the questionnaires on Instagram, and adding Google Analytics tools to the online lessons website code. Results: The degree of student satisfaction with both types of material was high, but interactive material had a significantly higher number of visits and percentage of use. The Instagram profile quizzes allowed continuous interaction with the students, with a growing number of followers and a mean interaction with the quizzes of 42%. Conclusions: Our results show that it is important to add interactivity and use the most popular social networks, such as Instagram, even though this is a field that could be seen as estranged from academic teaching.

ORAL PRESENTATION

EXPLORATION OF THE INTRA-ORBITAL PATTERN OF CRANIAL NERVES IN THE SECOND TRIMESTER OF FETUSES

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AIMS: To evaluate the cranial nerves in fetal orbit regarding their course and innervation pattern. METHODS: Six fetuses, with gestational ages of 18-23 weeks, were dissected under a surgical microscope. After exploring the cavernous sinus and detecting the exit of cranial nerves, we removed the bony orbital roof and then the periosteum. We traced the course of each cranial nerve in the orbit till their entrance to muscles and neighboring structures. Relationships of them with surrounding structures were noted. RESULTS: Intra-orbital course of the oculomotor, trochlear, ophthalmic and abducent nerves and their branches were determined. Course and innervation patterns of these nerves were noted. The lacrimal gland's location was recorded. The ciliary ganglion was located on the lateral and inferior sides of the optic nerve. The oculomotor nerve's divisions and the connection of the lower division with the ciliary ganglion were recorded. The trochlear nerve was detected very close to the common tendinous ring and it was entering through the proximal portion of the superior oblique muscle. CONCLUSION: This study provided the detailed anatomy of intra-orbital cranial nerves, extraocular muscles and the lacrimal gland in fetuses of 18-23 weeks gestational age.

POSTER PRESENTATION

HIGH RESOLUTION VISUALIZATION OF A HUMAN HEART BY USING HIERARCHICAL PHASE-CONTRAST TOMOGRAPHY (HIP-CT) AND CINEMATIC RENDERING (CR)

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One of the most promising approaches in biomedical imaging is the recently developed hierarchical phase-contrast tomography (HIP-CT), which is an X-ray phase propagation technique based at the European Synchrotron Radiation Facility (ESRF-EBS) in Grenoble, France. After a specific sample preparation, it is possible to gain 3D scans of fixated organs with a hierarchically increasing resolution down to the cellular level at any spot within the whole organ. Here we present first data of a fixated human heart using Cinematic Rendering Technology (CR) to visualize highlighted structures of the heart (myocardium, semilunar valves, coronary vessel course) und to show the strong potential of the combination of CT and HIP-CT for future approaches in anatomical research.

ORAL PRESENTATION

TRANSHEPATIC VENOUS ACCESS FOR END-STAGE RENAL DISEASE PATIENTS

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The patients with end-stage renal disease poses a challenge for obtaining venous access required for invasive procedures due to thrombotic complications or placement of multiple catheters and/or arteriovenous fistulas for hemodialysis access. In this study, we presented 6 person with end-stage renal disease in whom the hepatic vein was the only available access to implant a hemodialysis catheter. The patients, who refused peritoneal dialysis but continued on hemodialysis, was admitted with complaints of fever, nausea and vomiting for a week. Imaging studies revealed all conventional access routes have become occluded. Hemodialysis catheters were inserted through the middle hepatic vein in all patients. The day after insertion, in 1 patient hemodialysis catheter was replaced with a new one due to obstruction. In other patients, the catheter was used until the blood creatinine values returned to normal.

ORAL PRESENTATION

PREOPERATIVE PLASMA MIRNA LEVELS PREDICT PROGNOSIS IN EARLY-STAGE MALIGNANT MELANOMA

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Introduction: Non-invasive circulating tumor biomarkers in liquid biopsy, such as microRNAs (miRNA), provide for better personalization of treatment strategies. The aim of our study was to assess the prognosis of patients with melanoma undergoing tumor resection with curative intent based on analysis of selected circulating miRNAs. Methods: A total of 22 patients with stage I to III melanoma were enrolled into this prospective study. Plasma samples were obtained pre-surgery and early postsurgery from peripheral blood draws. A panel of 23 candidate miRNAs was designed and expression of miRNAs were analyzed by reverse transcription-quantitative polymerase chain reaction with exogenous reference control cel-miR-39-3p. Results: Higher preoperative expression levels of miR-99a (p=0.008), miR-320 (p=0.009), miR-1908 (p=0.001), miR-494 (p=0.018) and miR-4487 (p=0.048) were associated with a shorter disease-free interval. Similarly, higher preoperative plasma levels of miR-99a (p=0.017), miR-221 (p=0.026), miR-320 (p=0.016), miR-494 (p=0.009), miR-1260 (p=0.026) and miR-1908 (p=0.024) were associated with worse overall survival. No significant differences between pre- and postoperative plasma miRNA levels were observed. Conclusion: Liquid biopsy is a minimally-invasive approach which can lead to a better understanding of cancer behavior and offers the possibility of precise patient prognosis, allowing selection of the most appropriate treatment. Our study showed that preoperative plasma levels of miR-99a, miR-221, miR-320, miR-494, miR-1908 and miR-4487 were associated with disease-free interval and overall survival of patients with early-stage melanoma. This approach may help in decision-making about the appropriateness of modern adjuvant treatment administration in patients with resectable melanoma.

POSTER PRESENTATION

TRAINING SURGICAL SKILLS AND LEARNING LIFELIKE ORIENTATION FEMORAL TRIANGLE ANATOMY WITH INNOVATIVE CONTRAST IMAGING OF NOVEL PREPARED GAX-SPECIMENS.

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AIM. Donor cadaver dissection is an honor and a priviledge and there is an obligation to recognize common patterns, variations and rarities from those who graciously donate. There are several different embalming solutions which can help with the quality and experience of the structures dissected. Trained/untrained surgeons who require operative and/or invasive procedural skills training can explore and expand the realistic anatomy associated with translational learning experiences. Study objective is to dissect novel GAX-specimens with innovative contrast imaging versus formalin-fixed cadavers (FFC) to identify morphology and demonstrate common inaccuracies of the femoral triangle (FT). METHODS. GAX-specimens (n=6;3-Male,3-Female;12-sides) were MRI, CT-innovative contrast and ultrasound scanned (GE Vscan Air) and dissected. FFC (n=18;11-Male;7-Female;36-sides) were dissected. RESULTS. Literature search revealed no GAX-specimen versus FFC studies for student/resident surgical training. GAX-specimens provided superior quality tissue and exceptional imaging versus FFC enabling detailed lifelike dissections. GAX-specimens revealed palpable dermis and associated structures realistic regarding texture, responsiveness to surgical tools, hydration and appearance. FFC femoral triangle revealed hardened waxy dermis with poor palpation and associated structures were unnaturally firm and less compliant with decreased responsivenes to surgical tools, dehydrated tissue and dull in colour. Surgical areas/structures of clinical note were femoral nerve arborization and attitude, great saphenous vein and tributaries, iliofemoral canal, femoral artery/vein, sub-sartorial and adductor canals. CONCLUSION. GAX-specimen bodies demonstrated lifelike structures providing perhaps the best actual in situ training medium and radiology currently available for surgical skills training and anatomy orientation. This study also suggests GAX-specimens may minimize injuries associated with procedures.

POSTER PRESENTATION

TOPOGRAPHY OF THE INFERIOR TEMPORAL SEPTUM AND THE TEMPORAL BRANCH OF THE FACIAL NERVE FOR CLINICAL APPLICATION

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Aim: The aim of the present study was to demonstrate topography of the inferior temporal septum and the temporal branch of the facial nerve(TBFN) for avoiding nerve injury during temple interventions. Methods: Forty-three sides of the temporal regions were dissected from 33 fixed cadavers. The inferior temporal septum, adhesion area between the superficial and deep temporal fasciae, was identified through blunt dissection. The topography of the inferior temporal septum and TBFN were investigated with reference to several facial landmarks. Regional relationships with the inferior temporal septum and TBFN within the temporal fascial layers were histologically defined from five specimens. Results: At the inferior orbital margin level, the mean distances from the lateral canthus to the anterior and posterior branches of the TBFN were 5.0 and 6.2 cm, respectively. At the lateral canthus level, the mean distance from the lateral canthus to the posterior branch of the TBFN was similar to that to the inferior temporal septum, at 5.5 cm. At the superior orbital margin level, the posterior branch of the TBFN ran cranial to the inferior temporal septum adjacent to the frontotemporal region. The nerve fibers of the TBFN located cranially, and within the inferior temporal septum meshwork in the upper temporal compartment. Conclusions: The area of caution during superficial temporal fascia interventions related to the TBFN was clearly identified in the upper temporal compartment. The findings of the present study will help surgeons to avoid the nerve injury.

POSTER PRESENTATION

DISTAL SEMIMEMBRANOSUS ATTACHMENT INTO THE POSTERIOR HORN OF THE MEDIAL MENISCUS USING NOVEL GAX PREPARED SPECIMENS WITH INNOVATIVE CONTRAST AND FORMALIN-FIXED CADAVERS.

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AIM. Detailed descriptions of distal semimembranosus tendon (DST) bony attachments include 3-5 separate dominant arms which impressively attach to the posterior, medial and anterior aspects of the knee region. Contemporary anatomy texts do not emphasize the impressive arsenal of attachments, however, atlases are significantly better. DST attachment into the posterior horn of the medial meniscus (PHMM) is not represented in atlases. DST may be poorly appreciated regarding knee stability. The study objective was to dissect and analyze DST attachments into the PHMM from novel GAX-specimens with MRI and innovative contrast CT imaging versus formalin-fixed cadavers (FFC). METHODS. Literature search was conducted regarding DST attachments into the PHMM from GAX-specimen and FFC studies. Novel GAX-specimens (n=6,12 sides) with innovative contrast CT and MRI imaging and FFC (n=15,26 sides) with knee replacement exclusion criteria were dissected. RESULTS. Literature search revealed no known GAX-specimen studies. GAX-specimens allowed full range-of-motion of the knee joint unlike FFC. DST attachments could be analyzed during movement before, during and post dissection. Contrast CT and MRI revealed detailed vessels and associated soft tissue structures. Gax-specimen tissues were notably compliant and lifelike vs FFC. GAX-specimens (12/12 sides) and FFC(22/26 sides) revealed DST PHMM attachments. FFC(4/26 sides) were difficult to dissect and analyze due to dehydated tissue and diminished size. Interestingly, GAX-specimens also demonstrated DST attachment into posterior horn of lateral meniscus. CONCLUSIONS. This study revealed GAX-specimen knee tissues are lifelike, provide full range-of-motion and demonstrating consistent attachment into the PHMM. This may improve biomechanics knowledge of the meniscus

ORAL PRESENTATION

AN INNOVATIVE APPROACH THAT COMBINES PROCESSING OF INFORMATION, APPLICATION OF KNOWLEDGE AND CRITICAL THINKING IN EXPECTED AND UNEXPECTED CONTEXTS

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The process of designing creative pedagogical exercises centered on active and experiential learning encompasses various formats. This oral presentation takes the example of a song in order to illustrate an additional, less formal and at the same time useful methodology to identify, review, reinforce and discuss within context a variety of concepts in Neuroscience and other basic and clinical sciences. The goals are to facilitate critical thinking and reflection while triggering intellectual curiosity, emotional intelligence, imagination and empathy. No matter if you know or not this particular song, we will move together ahead, step by step, to demonstrate the potential of such exercises to strengthen observational skills and increase the ability to filter and prioritize information, analyze it from multiple perspectives and then organize it in a manner that is conductive to adequate problem solving. The focus moves away from the recollection of rather compartmented pieces of knowledge that were supposed to be retained from previous learning activities. Instead, the knowledge is reactivated in a new context and examined from new angles, correlated with other available data, interpreted, integrated and appropriately applied to a certain situation, be it either expected or unexpected. Hypothesis are elaborated and considered. The entire process has the potential to augment self-awareness with respect to level of preparation, perception, judgement and decision-making, and also to serve as an exercise for communication with others in the professional and social environment.

ORAL PRESENTATION

PARTES ATYPICAE: TOWARDS A SYSTEMATIC NOMENCLATURE FOR VASCULAR ANATOMICAL VARIANTS

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As David Kachlik and colleagues pointed out (in a 2020 Medicina article (”Variant Anatomy & Its Terminology,” Medicina 57; p. 5), "a systemic variant anatomical nomenclature does not exist, and establishing it is a task for future anatomists and the International Federation of Association[s] of Anatomists (IFFA)." This paper takes up the challenge, and exemplifies the belief held by some of us Medical Terminology teachers, that “a few good Latinists” might also be helpful. “Future anatomists” can describe and catalogue variant structures systemically (by anatomical system). We Classical Philologists can help now by suggesting systematic ways of naming these variants, and developing principles which (mutatis mutandis) can serve as a guide for naming analogous variations across all body systems. For example, “supernumerary” structures occur in (minimally) the cardiovascular, muscular, and skeletal systems. A terminology systematically naming these extra vessels, muscles, and bones by means of parallel or analogous combining forms, words, and combinatorial grammar should prove useful, especially because (as Kachlik et al. put it, p. 9), "a full inventory…will never be complete …. [because] previously undescribed variants will continue turning up…." That is, a systematic nomenclature will also ensure that newly discovered variants will receive “standardized,” easily-comprehensible names. This paper identifies and categorizes semantic patterns observable in the cited article’s Table S1 (listing “variant anatomy terms [already] included in the TA”), and suggests new formulaic phrases for precisely naming vascular anatomical variants in a concise, consistent, and predictable way.

ORAL PRESENTATION

POSTNATAL DEVELOPMENT OF NASAL CAVITY

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AIM: The development of the nasal cavity is determined by the complex development of bones forming its boundaries. This study aimed to elucidate this process on specimens from the unique Zagreb Skull Collection. METHODS: We have selected 20 representative dimensions on bones forming the nasal cavity (ethmoid bone, vomer, inferior nasal concha, palatine, and lacrimal bone) and measured it on 153 sets of bones (age:0-30y) with a Vernier scale/caliper. Additionally, bones were weighted using a laboratory scale. The growth index (GI) was defined as a ratio between adult and perinatal size. The findings of this study were retrospectively compared with our previous results on skull development. RESULTS: This research revealed that during postnatal development the relative increase in the size of nasal cavity vertical dimensions (GI in the range 2,51-3,16) was significantly higher than horizontal and sagittal dimensions (GI in the range 1,8-2,33). However, all dimensions of the nasal cavity were steadily increasing during the first decade of life and reached adult values significantly later than calvaria and the skull base which almost reached adult dimensions during the first few years of life. The weight of bones forming the nasal cavity increased steadily in time during postnatal development and eventually increased 8-16 times to perinatal values. CONCLUSION: In this study, we have elucidated the postnatal development of the nasal cavity and described in detail both the absolute and relative growth of bones forming a nasal cavity. The findings of this study are clinically important in ENT and maxillofacial surgery.

ORAL PRESENTATION

APPLICATION OF MICROCT TECHNOLOGY IN ANATOMICAL STUDIES

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AIM: Micro computed tomography (microCT) is a powerful tool for the visualization of bone microstructure primarily developed for and used in the field of bone biology. This study aims to explore the potential application of microCT technology in anatomical studies. METHODS: We have scanned various anatomical specimens including human fetuses (Crown-Heel Length – CHL between 80 and 200 mm) from the anatomical museum and different separated fetal and postnatal cranial bones at 9, 18, or 36 µm scanning resolution using microCT device (1076 SkyScan). Reconstruction of acquired images was conducted using NRecon software. The study was approved by Ethics Committee at the University of Zagreb School of Medicine. RESULTS: The application of microCT technology allowed a detailed insight into the early ossification of the skull and skeleton occurring in fetuses with CHL <200 mm. Moreover, the anatomical features and internal structure of all fetal and most of the postnatal cranial bones might be observed on reconstructed microCT scans. Importantly, microCT technology provided detailed insight into the anatomy of the bony labyrinth of the temporal bone. However, scanning of fetuses with CHL >200 mm and some larger postnatal cranial bones (frontal, parietal, occipital, temporal and sphenoid bones) was limited by the size of the scanning field. CONCLUSION: MicroCT technology has great potential in selected anatomical research on small bone specimens providing insight into both macro-anatomy and micro-anatomy of the skeleton.

ORAL PRESENTATION

POSTNATAL DEVELOPMENT OF TEMPORAL BONE

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AIM: Temporal bone development reflects its complex structure and function. This research aimed to elucidate the dynamics of temporal bone postnatal development. METHODS: Eight dimensions reflecting the development of different parts of temporal bone were measured using the Vernier scale/caliper on 246 specimens (age: 0-30y) from the Zagreb Skull Collection. All bones were weighted using a laboratory scale. The growth index was calculated as a ratio between size at adult age and size after birth. RESULTS: After birth, the size of the dimensions of the petrous and squamous part was 51-58% of the adult size. Their dimensions significantly increased in size during the first years of life and they reached 71-82% of the adult size in the age group of 1-2 years and 84-91% in the group of 3-6 years. Moreover, the bony part of the external auditory canal extensively increased in length during 1st year. However, the dimensions of the zygomatic and mastoid processes reached the adult values more slowly. The growth indexes of the dimensions of the petrous part were between 1.7 and 1.93, the squamous part between 1.89 and 1.95, while growth indexes of zygomatic and mastoid processes were 2.31 and 1.99, respectively. The average mass of the temporal bone after birth was about 4 grams, and during postnatal development it increased about 10 times, reaching about 39 grams in adulthood. CONCLUSION: Dynamics of postnatal development differed among different parts of the temporal bone. The findings of this study might be significant in pediatric ENT and neurosurgery.

ORAL PRESENTATION

THE FUSION FASCIA AFFECTS THE COURSE OF THE NERVES TO THE PANCREAS

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The pancreas is covered with the peritoneum. The celiac plexus is located dorsal to the parietal peritoneum, and nerves originating from the plexus runs to the pancreas, so the nerves connect the retroperitoneal space and peritoneal cavity. We aimed to clarify how the peritoneum makes the pathway of the nerves. The macroscopic examination was performed on five cadavers. Three cadavers were utilized for histological analysis of transverse sections serially sliced into 8μm sections at 250μm intervals. Section sequences from two of them were reconstructed using TRI/3D-SRFII. Macroscopic examination revealed that the membrane covered the dorsal surface of the pancreas and nerves. The nerves from the celiac plexus converged around the roots of the celiac trunk (CeT) and superior mesenteric artery (SMA), which the membrane did not cover. Histologically, several layers of collagen fibers arranged in a specific orientation were observed dorsal to the pancreas. These collagen fibers were continuous with the peritoneum, composed of simple squamous epithelium, and were identified as the fusion fasciae of Treitz (right) and Toldt (left). No nerves were found to penetrate these fusion fasciae. The three-dimensional image revealed that the pathway connecting the retroperitoneal space and peritoneal cavity was surrounded by the fusion fasciae around the roots of CeT and SMA. The medial border of the peritoneum and fusion fasciae surrounds the narrow pathway between the retroperitoneal space to the peritoneal cavity. Nerves originating from the celiac plexus are converged to run through the pathway surrounded by the fusion fasciae before spreading to the pancreas.

ORAL PRESENTATION

THE EFFECT OF THE VOCATIONAL TRAINING PROCESS ON HAND STRUCTURE AND FUNCTIONALITY IN DENTAL STUDENTS

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INTRODUCTION: The human hand is a sensory manipulative organ that allows fine manual behaviours thanks to its special neural control mechanism and its touch and proprioceptive modalities. Manual dexterity, which is effective in determining the skill levels of individuals in recreational and professional life activities, is important in minimizing tissue damage and increasing patient safety in the surgery and dentistry branches. In this direction, we planned our study to observe the effect of the vocational training process on the structure and functionality of the hand in dental students who use their hands very functionally. MATERIALS AND METHODS: The study was conducted on Term 1 (n=36) and Term 5 (n=34) students studying at Baskent University Faculty of Dentistry. Anthropometric, flexibility, and strength measurements were taken, and hand functionality was evaluated by the Jebsen Taylor Hand Function Test. RESULTS: When Term 1 and Term 5 students were compared in terms of measurement parameters, wrist extension angle was found to be higher in Term 1 students (dominant; p=0,034; nondominant; p=0,046), and forearm supination angle was found to be higher in Term 5 students (dominant; p=0,003; nondominant; p=0,002). CONCLUSION: This study revealed that the structural and functional status of the hand in dental students did not show a significant change at the end of the vocational training process.

ORAL PRESENTATION

INSIGHTS INTO THE APONEUROTIC ATTACHMENT OF ABDOMINAL-THIGH ADDUCTOR MUSCELS TO PUBIS AND MRI DIAGNOSIS FOR GROIN PAIN

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Understanding the attachment and relationship between abdominal and thigh adductor muscles is essential for effectively managing athletic groin pain. However, previous reports provide inconclusive findings. To investigate the musculoaponeurotic attachments on the anteroinferior aspect of pubis and the relationship among intermuscular aponeuroses, macroscopic and histological analyses were performed in 10 and 2 pelvic halves, respectively. Using micro-computed tomography (micro-CT), the bone morphology of pubis was analyzed in 2 pelvic halves. Macroscopically, external oblique (EO) aponeurosis was distally continued to adductor longus (AL) aponeurosis and attached to a small impression distal to pubic crest. Gracilis (Gr) aponeurosis was medially merged to adductor brevis (AB) aponeurosis and attached to the proximal part of inferior pubic ramus. Rectus abdominis and pyramidalis (RA-Py) aponeuroses were attached to pubic crest, and extended distally to intermingle with Gr-AB aponeurosis. Bilateral conjoined RA-Py-Gr-AB were fused in middle and firmly attached to a broad area covering the anterior surface of pubic symphysis. Average length of EO-AL attachment was 13.6 ± 3.0 mm, while that of RA-Py-Gr-AB was 48.5 ± 3.7 mm, respectively. Histologically, both conjoined EO-AL and RA-Py-Gr-AB were attached to pubis via fibrocartilage enthesis. Micro-CT imaging revealed a small impression and the elongated osseous prominence on anterior aspect of pubis. Our findings demonstrated two district areas of EO-AL and RA-Py-Gr-AB common attachments on the anteroinferior aspect of pubis, corresponding with MRI-diagnosed microtear locations in groin pain. The investigations of these aponeurotic complexes would aid in diagnostic and surgical approaches for athletic groin pain.

POSTER PRESENTATION

A LAB-BASED APPROACH TO DISTAL SOFT TISSUE RELEASE FOR IMPROVED FUNCTIONAL OUTCOMES POST-HALLUX VALGUS CORRECTION SURGERY.

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Aim: Hallux valgus (HV) affects 20% of the population. Distal soft tissue release (DSTR) is amongst the most common surgical treatments, but poor outcomes, including hallux varus, may be caused by inadvertent sectioning of other tissues. Through advancing anatomical understanding of the soft tissue supports of the hallucal sesamoids (HS), this study aims to propose a new approach to DSTR. Methods: Anatomical descriptions of Body Donor first rays (n =40) were investigated and informed the development of a DSTR technique. This was subsequently conducted on additional feet (n=5) and described in detail. Results: A 10mm incision was made dorsally on the leading edge of the first webspace, using blunt dissection plantar proximally towards the lateral proximal border of the proximal phalanx, making a slight incision across the leading curved edge of the dorsal deep transverse metatarsal ligament (DTMTL) to reach the common adductor hallucis tendon. The common adductor hallucis tendon was effectively targeted at the attachment point to the lateral edge of the proximal phalanx (n=100%) as it sat in close association between the dorsal DTMTL superiorly (n=100%) and the plantar DTMTL inferiorly (n=100%). Conclusion: The HS are foci of attachment with over 15 active and passive stabilising elements. Both parts of the DTMTL are crucial in this and help prevent further HV deformity. Targeting the common adductor hallucis tendon can be achieved whilst sparing these structures. Alongside further anatomical knowledge of these stabilising elements, this procedure can create opportunities for future developments in techniques for improved functional HV correction.

ORAL PRESENTATION

RELATIONSHIP OF STRUCTURAL AND DEGENERATIVE DEFORMITIES OF THE FOOT AND PES PLANUS

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Aim: Pes planus is a foot deformity with different etiologies and treatment planned according to the situation. In this study, we aimed to investigate the relationship between various structural and degenerative deformities of the foot and pes planus. Methods: Foot radiographies of 117 patients (68 women, 49 men), aged 18-65 years were evaluated. Presence of pes planus (PP), hallux valgus (HV), epin calcanei (EC), os trigonum (OT), and presence, number and the kind of tarsal coalition (TC) were recorded for each patient. Statistical analysis was then performed to evaluate the relationship between structural or degenerative deformities for each foot. Results: The prevalence of PP, HV, TC and OT did not differ between genders (p=0.551, p=0.863, p=0.616, p=0.072, respectively), EC was twice as common in women as in men (p=0.002). Presence of PP, HV, EC or TC did not affect the presence of one another, but PP was 3 times more common in those with OT. The presence of OT did not affect the presence of TC, but if TC was present in those with OT, it was more common in osseous type. Presence of PP did not affect the presence of EC, but calcaneal inclination angle was lower (p=0.002) in those with EC. Presence of EC increased the probability of TC more than 2 times (p=0.025). Conclusion: Structural deformities of the foot can affect the development of degenerative foot deformities. Investigation of genetic and biochemical causes in the presence of accompanying structural deformities will be useful in elucidating the etiology of foot deformities.

POSTER PRESENTATION

THYROIDEA IMA ARTERY MULTIPLE BRANCHING PATTERN OVER THE TRACHEA

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Thyroidea ima artery multiple branching pattern over the trachea T. Totlis1, K. Natsis1, F. Karageorgos1, V. Achlatis1, T. Pettas1, P. Emfietzis1, G. Triantafyllou2, M. Piagkou2 1 Department of Anatomy and Surgical Anatomy, School of Medicine, Faculty of Health Sciences, Aristotle University of Thessaloniki, Greece 2 Department of Anatomy, School of Medicine, Faculty of Health Sciences, National and Kapodistrian University of Athens, Greece Corresponding author: Trifon Totlis - trifontotlis@gmail.com Abstract Purpose The current cadaveric report describes a rare case of a thyroidea ima artery (TIA) with multiple branching pattern over the trachea. Methods A cadaver dissection of the neck and thorax region of a formalin-embalmed 90-year-old male cadaver of a body donor took place. The body donation was made after a signed informed consent. Results The TIA variant originated from the brachiocephalic artery before its bifurcation into the right common carotid artery (CCA) and right subclavian artery (SCA). TIA further divided into three anterior and two posterior branches, with subsequent multiple division into smaller branches. All branches were located anterior and right side to the trachea. The anterior branches supplied the infrahyoid muscles and the posterior ones supplied the thyroid gland inferior lobes and the inferior parathyroid glands. The TIA coexisted with a brachiocephalico-carotid trunk, derived after the left CCA and left SCA fusion. Conclusion The presence of multiple arterial branches over the trachea creates a high risk for excessive bleeding during tracheotomy or cricothyroidotomy. Keywords: thyroidea ima artery, variation, thyroid gland, branch, origin

POSTER PRESENTATION

VARIABILITY IN THE PROJECTION LEVEL OF THE VERTEBRA PROMINENS: A CADAVERIC STUDY

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Abstract Purpose: The seventh cervical vertebra (C7) is described as the “vertebra prominens” or “vertebra prominent” (VP) in classical anatomy textbooks. The VP is one of the most important landmarks of the neck, both for clinical examination, and therapeutic intervention. The present study identifies the VP’s projection level in a cadaveric cohort. Materials and methods: Thirty-nine (23 female and 16 male) cadavers of a mean age of 77.5 years were investigated in a prone position and in a certain cervical kyphotic bending by using a roller under the upper chest area. The most prominent spinous process of the VP at the base of the neck was palpated and marked with a wedging nail into its spinous process. The cervical region was dissected, and a blind investigator examined whether the nail was placed into the C7 spinous process or into another cervical or thoracic vertebra spinous process. Results: The VP was recorded in 39 cadavers. In 19 out of 39 cadavers (48.7%), the C7 was identified as the VP (typical anatomy), followed by the C6 in 14 cadavers (35.9%), by the C5 in 4 cadavers (10.3%), and by T1 in 2 cadavers (5.1%). Conclusion: Although C7 is traditionally described as the VP, in the present study the C7 spinous process was the most prominent in less than 50%. The high variability of the projection level of the most prominent spinous process is of immense importance for physicians during clinical examination of the spine, neck surgery, and spinal anesthesia.

ORAL PRESENTATION

THE OSSIFICATION PATTERN OF THE SPHENOID BONE LIGAMENTS: A MORPHOLOGICAL STUDY ON DRIED ADULT SKULLS

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Aim: The sphenoid bone extracranial and intracranial ligaments may partially or completely ossify, unilaterally, or bilaterally. The current study highlights the incidence of the exact location of the extracranial and intracranial ligaments ossification (bars), their type (partial, or complete), taking into consideration laterality, gender, age, and their simultaneous presence. Methods: One hundred and fifty-six Greek adult dried skulls of both genders were investigated. Results: Ossified bars were identified in 57.05%, predominantly extracranially (42.31%, P=0.003) than intracranially (25.64%). A combined ossification was identified in 10.9%. Extracranial bars were predominantly identified unilaterally (30.13%, P<0.001) than bilaterally (12.18%). A right-side predominance (11.85%, P=0.035) was identified in interclinoid bars' existence, compared to the left-side (8.97%). The higher number of the intracranial bars was predominantly identified in male (31.1%, P=0.048), compared to female skulls (15.7%). The majority of the extracranial bars (52.8%, P=0.028) was predominantly identified at the age of 60 years and above. The most ossified ligament was the pterygoalar (32.69%), followed by the caroticoclinoid (24.36%), the pterygospinous (16.03%), the posterior interclinoid (6.41%) and the anterior interclinoid (4.49%). Conclusions: Detailed knowledge of the typical and variant morphology of the sphenoid bone, in the lateral pterygoid plate and the sphenoidal wings, and their ossification extent is essential to improve the technique of percutaneous approach to the foramen ovale, as well as several sellar approaches, in selection to the lesion, to avoid complications. Detailed area imaging may improve the accuracy and safety of manipulations to minimize complications.

POSTER PRESENTATION

AORTIC ARCH VARIANTS IN A COMPUTED TOMOGRAPHY SCANNING OF 1000 PATIENTS

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Aim: The current retrospective imaging study investigates the prevalence of the aortic arch (AA) typical anatomy and its variants, by using multidetector computed tomography scan (MDCT). Materials and Methods: The study’s sample consisted of 1000 (549 male and 451 female) patients who underwent CT angiography during the timeframe of May 2000 until March 2022. The volume rendering technique was used for the reconstruction. Results: Typical branching pattern of the AA was identified in 84.7% (847 patients), whereas in 15.3% (153 cases) congenital variants were observed. The commonest variant was the common origin of the left common carotid artery (LCCA) and brachiocephalic artery by a common trunk (the brachiocephalico-carotid trunk) in 9.7% (97 cases). In 3.8% (38 patients), the left vertebral artery (VA) originated directly from the AA, instead of the left subclavian artery. In 0.6% (6 patients) a combination of a common trunk of the LCCA and the BCA and an origin of the VA, directly from the AA were recorded. An aberrant right subclavian artery was found in 0.5%, and a right-sided AA in 0.3% (3 patients). Conclusion: The AA congenital variants are important to recognize and depict, as they may be associated with the presence of vascular rings, congenital heart disease, and chromosomal anomalies, although they are usually clinically silent. Hence, recognition of the AA variants is of paramount importance due to the possible occurrence of tracheoesophageal compression symptoms or complications during surgical intervention of the thorax region.

POSTER PRESENTATION

ORIGIN AND COURSE OF THE VERTEBRAL ARTERY: A CT STUDY

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Aim: The current imaging study investigates the vertebral artery (VA) typical anatomy and morphological variants of the VA intracranial and extracranial part in a Greek adult population, highlighting the VA's possible asymmetry and lateralization. Furthermore, the cases of the brachiocephalic artery high topography, the aortic arch variants, and the VA variant origin were recorded. Materials and Methods: A total sample of 200 patients underwent an arch-to-vertex (computed tomography angiography- CTA carotids protocol) angiogram on a 128-slice multi-slice CT scanner. Results: The VA fourth segment was hypoplastic at 6% and symmetry was recorded. The third segment was characterized as a high-riding vessel at 19.5%. The commonest variant of the VA second segment was the level of its entry in the transverse foramen. A VA typical entry was identified at the 6th cervical vertebra level in 92.5%, and a variant entry at the C5 level was identified in 4%. A VA origin from the aortic arch was identified in 13.04% (for the left-sided VAs). Typical left-sided aortic arches were identified in 77%. A high-riding brachiocephalic artery was found in 29.5% and among them, 10.5% of the cases were characterized as high-risk for iatrogenic injury in certain surgical approaches of the neck. Conclusions: The VA morphological variants of its intracranial and extracranial parts occur frequently and show remarkable diversity. Understanding their anatomy using three-dimensional (3D) multidetector computed tomography/angiography (3D-MDCTA) with the images' reconstruction may facilitate the understanding of the vascular disease of the posterior cerebral circulation and prevent intraoperative complications in the cervical spine and head and neck region.

ORAL PRESENTATION

STUDENTS' OPINIONS ON THE INTEGRATION OF NOVEL EDUCATIONAL TOOLS IN THE LABORATORY EXERCISES OF ANATOMY

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The study of human anatomy is fundamental in current medical education, being essential for the development of a solid knowledge background for medical students. However, there is still controversy regarding the optimal method of anatomical teaching. The aim of this study was to investigate whether there is any difference with the integration of the virtual dissection table (VDT) and near-peer teaching (NPT) in the laboratory anatomy teaching process, as assessed by the students' perceptions. Overall, 106 undergraduate medical students participated in the study. Students were assigned into four groups. Group 1M and Group 1F attended anatomy laboratory exercises concerning the anatomy of male and female reproductive system, respectively, with the integration of VDT (n=24 each). Group2H and Group2M attended laboratory exercises regarding anatomy of the heart and mediastinum, respectively, with the integration of NPT (n=27 and n=31, respectively). Students' perceptions were investigated via anonymous 5-point Likert-scale questionnaires. The usage of VDT significantly improved the anatomical understanding ($p<0.001$ in both groups). However, the association with the curriculum and the experience regarding the educational environment reached statistical significance only in Group 1F ($p=0.004$ and $p<0.001$ respectively). The usage of NPT significantly improved the anatomical understanding ($p<0.001$ in both groups), the association with the curriculum ($p=0.004$ and $p=0.007$ respectively) and the experience regarding the educational environment ($p<0.001$ in both groups). The findings suggest that the proper integration of such modalities could greatly enhance the anatomy education especially regarding their perceived impact on the laboratory anatomy sessions.

POSTER PRESENTATION

OVERLAID THYROID CARTILAGE BY AN ATAVISTIC HYOID BONE

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Aim: The ventral enclosure of the thyroid cartilage by a collapsed hyoid bone (CHB) is poorly encountered in previous research. It was intended to determine whether or not these malformations could be identified and anatomically described in a lot of computed tomography (CT) files. Methods: To precisely investigate the CHB anatomical variation, two hundred archived CT angiograms were examined. Results: Different possibilities of CHB were found in 6 out of 200 cases, 5 males and 1 female. A symmetrical overlap of the thyroid cartilage by the hyoid body was found in one male case. In three different cases, 2 males and 1 female, there was an uneven overlapping due to tilted hyoid bones. In one male patient with such an asymmetrical CHB, the superior horns of the thyroid cartilage reached lateral to an ossified anterior longitudinal ligament, indicating a retropharyngeal position. In an additional male case, the superior horn of the thyroid cartilage and the greater horn were fused together, and an interposed, ossified triticeal cartilage was observed. In the last male case, the right greater horn collapsed laterally to an ossified triticeal cartilage, fused with the superior horn of the thyroid cartilage. Conclusions: The CHB is an undeniable anatomical possibility of an atavism that alters conventional anatomical and surgical landmarks. Different components of the hyoid bone can descend uni- or bilaterally.

ORAL PRESENTATION

WORLDWIDE VARIATION IN THE AGE AT MENOPAUSE BY GEOGRAPHIC REGIONS, SOCIOECONOMIC FACTORS, AND FOOD CONSUMPTION

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Background and the Aim: Human reproductive period varies due to many factors (lifestyle, stressful environment, poor nutrition, endocrine disrupting chemicals, etc.). Both early and late menopause may be associated with different health risks. The aim of this study was to analyze the global variation in menopausal age by geographic region, socioeconomic factors, and food consumption. Material and Methods: Age at menopause was analyzed in 37 countries. In addition, in 2019-2022, the menopausal age of Lithuanian women (a total of 855 women aged 40 to 60) was studied using Status Quo (Probit analysis) and retrospective methods. Geographic, socioeconomic and food consumption indicators for those countries were taken from officially available statistical data websites. A principal component analysis was applied to reveal factors that may influence age at menopause. Results: The average age of menopause varied widely in the analyzed countries (min=45.59 years; max=53.16 years), being on average 49.79 (SD±1.99) years; in Lithuania, it as was 49.58 (SD±4.4) and 51.20 (SD±3.9) years determined by Status Quo and retrospective methods (respectively). Principal component analysis showed that age at menopause over the last few decades was mostly associated with countries' geographic and general indicators of well-being (life expectancy, GDP, etc.), high consumption of fish, meat, and eggs. Conclusions: The earliest menopause was found in sunny and low-rainfall countries. On the other hand, these countries are less advanced economically, so it is difficult to distinguish between climatic and country’s welfare factors in this case (more research should be done in the future).

POSTER PRESENTATION

IMMUNOHISTOCHEMICAL STUDY OF UTERINE NATURAL KILLER (UNK) CELLS AND THEIR ROLE DURING IMPLANTATION

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Aim: Despite the successes of in vitro fertilization as a reproductive medicine technique, the implantation rates are relatively low. For the hemiallogenic embryo to be accepted by the maternal immune system, tight regulation has to occur. Unfortunately, the exact mechanisms of these intricate immune system adaptations are not clear. Possible key players and the most numerous cells at the maternal-fetal interface are uterine Natural Killer (uNK) cells which were studied immunohistochemically as the principal aim of the present study. Methods: Endometrial specimens were harvested from 256 patients diagnosed with recurrent implantation failure (RIF), habitual abortion (HA), or idiopathic sterility (IS). Pipelle endometrial sampling was used for the sample collection during the 19th and 21st days of the endometrial cycle. The samples were processed for immunohistochemistry using anti-CD56 to detect CD56-positive uNK cells. Positive cells in the samples were counted, which were categorized as having low, normal, or elevated uNK cell count. Spearman correlation analysis found a significant correlation between low uNK cell count and prior miscarriage. Patients with higher uNK cell count were also more likely to have endometriosis. The results confirmed that uNK cell count is correlated with the incidence of RIF, HA, and IS. Conclusion: uNK cells possibly play a vital role during implantation by providing a hospitable environment for the implanting embryo. However, the exact clinical utility of uNK cell count examination needs further investigation to confirm its predictive value regarding fertility outcomes. Funding: This study was supported by a grant from the Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (VEGA), number 1/0625/23.

POSTER PRESENTATION

STUDY OF THE SUPRAORBITAL FORAMEN AND NOTCH IN CROATIAN POPULATION USING THREE–DIMENSIONAL COMPUTER TOMOGRAPHY

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Aim: The supraorbital foramen (SOF) and notch (SON) are located above the supraorbital rim. They are important openings in the upper part of the front of the skull. The supraorbital nerve is a key cutaneous nerve that passes through them and innervates the forehead area. As such, they play an essential role in maxillofacial surgical approaches. The purpose of the paper was to investigate the variations of SOF and SON in the Croatian population. Methods: The research included the processing of CT scans of 100 subjects (50 women and 50 men). The respondents were divided into 4 groups according to age and gender. The parameters were compared with the relation between the left and right sides. Results: The most frequent form of the supraorbital passage was SON which corresponds to the results from other studies. Our study showed differences in percentages of SON and SOF between the left and right sides in both genders. However, males have a higher percentage of SON on the right side, while in females are the opposite. Both genders on the right side have a higher percentage of SOF. A considerably high percentage of an absence of SON and SOF was found in the youngs. Only in one young male on both sides, double SOF was found. Conclusion: There are differences in the distribution of SON and SOF according to age, gender, and side of the body. The understanding of SOF/SON is crucial to avoid injuring the neurovascular bundle passing through them during anesthetic or surgical procedures.

ORAL PRESENTATION

ANATOMICAL VARIATIONS IN GROSS ANATOMY EDUCATION: A SCOPING REVIEW

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Aim: The aim of this scoping review was to explore approaches for, and outcomes of, including anatomical variations in anatomy education. Introduction: Anatomy education provides learners with a comprehensive understanding of the human body, which is typically based on the “standard human body” and does not include anatomical variations. However, a study found that 86% of experienced clinicians encounter anatomical variations at least monthly, highlighting their prevalence and importance for students in their future careers . Methods: Six databases were searched: MEDLINE, Embase, Education Resources Information Center, Scopus, Education Database, and Web of Science. Studies about pedagogical approaches or educational resources designed to include anatomical variations, or in which anatomical variations were an outcome, were included in the study. Study selection, data extraction, and analysis were completed in accordance with the JBI Manual for Evidence Synthesis. Results: One hundred studies from the primary search fulfilled the inclusion criteria. The most frequently reported approaches for including anatomical variations were cadaveric dissection (27%), physical models (15%), and digital resources (15%). Increased exposure to (30%), appreciation of (20%), or understanding of (18%) anatomical variations were the most common student outcomes. Conclusions: The consensus across the literature was that exposure to variations occurs during cadaveric dissection. However, beyond the outcomes of exposure, appreciation, and understanding, which reflect lower order thinking, the impact of including variations in anatomy courses was lacking. Other approaches such as physical models and digital resources can be designed to teach anatomical variations outside of, or in conjunction with, the dissection laboratory.

POSTER PRESENTATION

THE SIGNIFICANCE OF ULTRASOUND IMAGING FOR SUPRACLAVICULAR BRACHIAL PLEXUS BLOCK IN CLINICAL PRACTICE

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The supraclavicular block of the brachial plexus is a procedure where a local anesthetic is applied in the area located just above the clavicle. Blockade of the brachial plexus can be reliably achieved using only a minimal amount of anesthesia because its components are consistently positioned very close to each other in this region. A supraclavicular block is recommended for interventions involving the entire upper limb. However, it is important to note that this technique carries a high risk of serious complications, such as hematoma, hemothorax or pneumothorax. The safety of the supraclavicular block can be improved by direct ultrasonographic visualization of the brachial plexus. It is crucial to have a thorough understanding of the topographic anatomy for the accurate interpretation of ultrasound images. During the brachial plexus imaging, the linear transducer array is placed parallel to the clavicle, specifically immediately superior to its middle third. Typically, the first structure that can be easily identified is the anechoic subclavian artery. Below it, a visible hyperechoic line represents the upper border of the first rib. The brachial plexus is located laterally to the artery and appears as three or more hypoechoic nodules corresponding to nerve fibers, surrounded by thin hyperechoic lines representing the perineurium. Shifting the probe upwards enables the visualization of the anterior branches of cervical spinal nerves C5-C7. In clinical practice, ultrasound imaging of the supraclavicular part of the brachial plexus significantly assists in the precise administration of regional anesthesia during upper limb surgery. The study was supported by the KEGA 018UPJŠ-4/2021

POSTER PRESENTATION

WHY DO PEOPLE WATCH ANATOMY VIDEOS ON YOUTUBE?

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Aim Education through online video resources has become a core method of learning for many people and anatomy topic videos are not only viewed by students of anatomy. The objectives of this research were to better understand why people watch anatomy videos and why they use video for learning in place of or in addition to other learning resources. Methods A short video asking viewers “Why do you watch anatomy videos?” was published on a YouTube channel that regularly produces educational anatomy videos (youtube.com/c/samwebster). 406 comments from viewers were collected after the video had been viewed 12,782 times and inductive thematic analysis was applied. Results Themes important to viewers identified during analysis included the visual and three-dimensional approaches to teaching, and viewers felt they understood anatomy more easily, more quickly and remembered more effectively than other study methods. The delivery style and personality of the presenter was important, and they found this method of learning fun and convenient. Viewers were studying clinical subjects, their own illness or injury, had a non-clinical interest in anatomy, sport, fitness, art, or were educating children. Teachers used videos to help prepare for teaching and videos were watched in class. Videos were used to improve English language skills, learn pronunciation, for passive learning and multitasking, because they were freely available, and the pace could be adjusted. Conclusion There is a wide public appetite for anatomical knowledge that can be met through the educational online video format.

POSTER PRESENTATION

AN EDUCATIONAL 3D PRINTED KNEE LIGAMENT MODEL

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Aim To improve understanding of the roles and functions of each ligament of the knee joint during movement we created a physical 3D printed model. A cord for each ligament maintains stability of the joint through flexion and extension, and the tension in each cord ligament can be released to demonstrate the type of joint laxity that would result from injury to that ligament. Methods Using data from magnetic resonance imaging (MRI) a software model of the distal femur, proximal tibia and proximal fibula with menisci was created. Tunnels within the model were designed to position nylon cord at the anatomical attachment sites of the anterior cruciate, posterior cruciate, lateral collateral and medial collateral ligaments. Copies of the model were 3D printed and cord attached with releasable plastic clips. These models were used in knee anatomy teaching sessions with year 1 medical students and free text feedback was collected. Results Student feedback was strongly positive. The major theme within comments was that the models aided the understanding of how each ligament aids stability of the knee joint and how clinical examination identifies injuries. Student feedback and teacher reflection gave four points for improvement for future sessions, including making each cord a different colour for clarity and strengthening the model. Conclusion A 3D printed model of a knee joint using releasable cord to simulate knee ligament biomechanics is an effective enhancement to clinical anatomy teaching. The software model can be shared easily for use by other educators.

POSTER PRESENTATION

INVENTING, CONDUCTING, AND TEACHING AN INNOVATIVE B-3 TECHNIQUE FOR A TRANSFORMATIVE CHEST DRAIN REACTOR INSTRUMENT IMPROVING THE CURRENT STATUS QUO PROCEDURE WITH NOVEL GAX-SPECIMENS.

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AIM. Thoracostomy or chest tube placement is described to take between 15-45 minutes (more than half the time is suturing etc⋯) and less if an adhesive is applied securing the chest drain. Complications reported up to 30% aren't surprising considering the large trocar introduced into the chest. Despite medical technology the primitive technique to perform thoracostomy hasn’t changed for 50 years. Study objective was to identify a technique using Reactor technology to insert a chest drain consistently, efficiently and safely into a novel GAX-specimens. Methods. Literature search revealed no studies using novel GAX-specimens. Reactor instrument is an innovative design incorporating Seldinger technology applied to a simple handheld safe blunt-ended instrument with a hidden 2mm length blade which rotates as a single strike initiated by hand squeezing before retracting rapidly behind the blunt end. Benninger invented a 3-pull trigger technique termed B-3 which is a rapid succession technique with mild constant pressure using the Reactor technology to enter the chest cavity. YouTube video demonstrated the technique. Results. Novice 1st, 2nd and 3rd year medical students successfully placed chest drains into novel GAX-specimens requiring adhesive tape securing drains less than 1-minute post live or YouTube demonstration. Rather than a sharp-tipped trocar advanced with all tissues in harm’s way, Reactor’s tapered oval blunt-ended plastic rod enters the cavity protecting tissue it meets. Conclusion: This study suggests students/trainees conduct their first thoracostomy during anatomy labs using the Reactor technology and subsequently with other simulation mediums using Benninger 3-Pull or B-3 technique to lower incidence of injuries.

POSTER PRESENTATION

THE USE OF DIGITAL TOOLS IN TEACHING ANATOMY TO NURSING STUDENTS - OWN EXPERIENCE

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Background: Student engagement is a measure of educational success. Key factors influencing student motivation include: good pacing of classes (a factor generating student energy), the information gap (a factor raising student curiosity), shared responsibility for the educational process, and gamification. The traditional model of teaching anatomy at medical faculties uses pre-learning (flipped classroom) followed by the verification of knowledge and acquisition of practical skills during classes. The majority of universities in Poland but also worldwide, do not offer dissection anatomy classes to nursing students, which affects the course of practical classes in this field of study. AIM: Investigating nursing students' acceptance of bring your own device (BYOD) model implementation in anatomy education. Methods: The study group comprised first-year, undergraduate nursing students of the Faculty of Health Sciences of the Medical University of Warsaw, Poland. The research tools involved direct participating observation and a focus group. In order to increase student motivation and engagement, as well as course attractiveness, the process of teaching anatomy to nursing students was enhanced, apart from a digital anatomy table, by implementing the BYOD (Bring Your Own Device) model. Using their own electronic devices, the students performed a series of tasks involving mobile applications such as Kahoot and Mentimeter. Results and Conclusion: The study demonstrated numerous advantages of the use of applications in the BYOD model, including greater student engagement, more personalized learning, not being stigmatized for incorrect answers, the possibility for the teacher to comment on and correct all answers given, the use of videos and images in the posted content, immediate feedback for the student and the teacher. Students emphasized their openness for the use of new technologies, gamification, and introduction of competitive activities in the learning process. The main advantage of using digital tools is the engagement of all students participating in the course, as well as ensuring the anonymity of the answers given, which results in greater student co-responsibility for the educational process. Lack of or refusal to use one's own mobile device and WIFI access constitute a limitation to the BYOD model.

POSTER PRESENTATION

QUANTITATIVE ANALYSIS OF RETINA IN SCA1 MICE

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Spinocerebellar ataxia type 1 (SCA 1) is an autosomal dominant disorder characterized by degeneration of cerebellar Purkinje cells, spinocerebellar tracts, hippocampus, and selective brainstem structures. Clinically, this is manifested by disturbed coordination of movements, cerebellar oculomotor disorders, and cognitive impairment. Along with well-described cerebellar symptoms, some groups of patients showed ophthalmic disorders, especially of the retina and optic nerve. Ophthalmic manifestation of SCA 1 need further study. That is why, we aimed to study the morphology of retina in mice with spinocerebellar ataxia type 1 in this work. We used method of unbiased stereology for quantitative histological analysis of the retina in 28 samples of eyes (14 from SCA1 mice and 14 from wild-type mice). The retina volume, the volume and number of cells in the outer and inner nuclear, ganglionic layers were determined on paraffin sections stained with hematoxylin and eosin. Preliminary quantitative data showed that the retina volume in SCA 1 mice was smaller compared to the wild-type mice. The wild-type mice had larger volume fraction of outer and inner nuclear layers and the same volume fraction of ganglionic layer compared to retina of SCA 1 mice. The number of cell nuclei in the outer nuclear layer of the SCA1 mice retina was less than in the wild-type mice retina. Our preliminary data suggest that SCA1 mice have morphological changes in the retina that need to be investigated further. This study was supported by EMBO, grant number SLG 5433 and by the Cooperatio Program, research area MED/DIAG.

POSTER PRESENTATION

THE DETERMINATION OF THE POSITION OF THE MENTAL FORAMEN BASED ON THE ERUPTION OF THE THIRD MOLAR TOOTH

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The location of Foramen mentale(FM), which is an important anatomical structure especially in dental procedures, is defined by its relationship with teeth. However, teeth are dynamic structures. The process of permanent dentition involves both the wear and movement of teeth due to the chewing surfaces and interdental relationships. The primary aim of this study is to investigate whether the third molar(M3), which is an important factor in the movement of the teeth, have an effect on the localization of FM. In this study, there are 16 different mandible available such that every sample has very high-resolution (4608 × 3456) images. Each image is examined and measured under the following: (A) post second molar space, (B) foramen mentale location in the vertical plane, (C) presence of M3. In (A), a digital measurement on the image is taken with the aid of an image analysis tool. In (B), there are three sub-categories: (I) “between 1st PM and 2nd PM,” (II) “in the line of 2nd PM,” and (III) “between 2nd PM and 1st M.” In (C), presence or absence of M3 evaluated. For category (B) it is clear that when only the lateral plane is considered (all sub-categories), statistically left side is almost indistinguishable from right side.When category (C) is investigated, clearly, presence of M3 is almost an obligation when sub-categories progress. For the initial measurements, sub-category (I) gives almost no information regarding the presence of M3. We believe that not overlooking the impact of the M3 would lead to more efficient results.

ORAL PRESENTATION

PREOPERATIVE MORPHOLOGIC AND QUANTITATIVE ASSESSMENT OF SKULL BASE DEFECTS IN INVASIVE CHOLESTEATOMA: 3D VOLUME-RENDERING (VR) CT EVALUATION

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Aim: This study aimed to examine skull base defects associated with invasive cholesteatoma using Three-Dimensional (3D) Shaded-Surface Volume-Rendering (VR) CT technique. The significance lies in predicting dural exposure risk during cholesteatoma surgery and ensuring appropriate surgical preparations. Methods: CT scans of 11 patients with invasive cholesteatoma were reviewed, specifically focusing on mastoid bone and middle/inner ear structures. Skull base defects were classified as anterior, superior, or posterior, indicating their location on the respective aspects of the petrous bone. Areas of bone defects were calculated, and advanced imaging techniques were used for better visualization. Results: The study included 11 patients (6 males, 5 females) with invasive cholesteatoma, mean age 39 ± 27.5 years. Among them, 8 patients had one skull base defect, 2 had two defects, and 1 had three defects (total of 15 defects, 7 on right, 4 on left). The distribution was 7 in the anterior aspect, 4 in the posterior aspect, and 4 in the superior aspect of the petrous bone margin. The mean area of skull defects was 26.26 mm2 ± 20.04 mm2, with the largest defect measuring 50 mm2 and the smallest measuring 6 mm2. Three-Dimensional (3D) Shaded-Surface Volume-Rendering (VR) CT images provided enhanced visualization for surgeons. Conclusion: Advanced CT techniques play a crucial role in identifying bony defects associated with cholesteatoma, enabling precise morphological and quantitative assessments. These techniques are instrumental in ensuring the success of cholesteatoma surgery and achieving reliable long-term outcomes.

POSTER PRESENTATION

MORPHOLOGICAL AND MORPHOMETRICAL CHARACTERISTICS OF ATFL AND CFL, AND THEIR RELATION WITH ANKLE DIMENSIONS

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Aim: Anterior talofibular ligament (ATFL) and calcaneofibular ligament (CFL) are important structures in the ankle joint, which provide stability and support during weight-bearing activities. They are prone to injuries, particularly in excessive ankle inversion. The aim of this study was to evaluate the morphology of these ligaments, their relations to each other and to nearby structures and additionally to investigate their correlations with ankle dimensions. Methods: The study was performed on 30 formalin fixed cadaveric ankles. The courses and attachment points of each ligament were observed. The length, width and thickness of each ligament; the number of the ATFL bands; the angles between the two ligaments and between each ligament and the axis of the fibula were measured. Additionally, anteroposterior diameter of the lateral malleolus, intermalleolar distance and the length of the fibula was measured and was evaluated for correlation. Results: Eight (%26.67) specimens had single-bundle ATFL, while 22 (73.33%) had double-bundle patterns. The mean intermalleolar distance was 67.69±4.04 mm, the mean anteroposterior diameter of the lateral malleolus was 27.94±2.04 mm and the mean length of the fibula was 349.03±26.41 mm. The mean angle between ATFL and CFL was 127±13.17°. There was a significant correlation between the intermalleolar distance and the mean length of the ATFL (r=0.002) and CFL (r=0.014). Conclusion: By calculated correlations, ankle morphometry was reappraised in addition to the previous measurements in the literature by evaluating ankle dimensions. This study could provide a relevant data to prevent graft mismatch and instability regarding the treatment of ankle injury.

ORAL PRESENTATION

COMPARATIVE STUDY OF MORPHOLOGICAL VARIABILITY OF THE PECTORALIS MAJOR MUSCLE IN HUMAN FETUSES AND ADULTS.

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AIM: The aim of this study is to demonstrate and classify the morphological variability of the pectoralis major muscles in both human fetuses and adults. MATERIAL AND METHODS: Classical anatomical dissection was performed on 35 human fetuses aged 18–38 weeks of gestation at death (17 female, and 18 male, 70 sides; fixed in 10% formalin solution) and 35 adults (18 female and 17 male, 70 sides, fixed in 10 % formalin solution) were examined. Upon dissection, the following morphological features of the pectoralis major were assessed: its morphology, the possible occurrence of accessory heads, the possible absence of some head, and morphometric measurements of each head. RESULTS: Five types of morphology were observed in the fetuses. Type I characterized by a single claviculosternal belly (10%). Type II comprised the clavicular and sternal heads (37.1%). Type III comprised three clavicular, sternal and abdominal heads (31.4%). Type IV (17.2%) was characterized by four muscle bellies and was divided into four subtypes. Type V (4.3%), represented by five parts, and was divided into two subtypes. On the other hand, for adults, we have classified 3 main types. Type I characterized by three isolated heads: clavicular, sternal and abdominal (68%). Type II comprised two heads: claviculo-sternal and abdominal heads (22%). Type III – rarest comprised of two heads without abdominal part (1-%). CONCLUSION: Due to its embryological development, the PM demonstrates great variability in the numbers of its parts in both human fetuses and adults.

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