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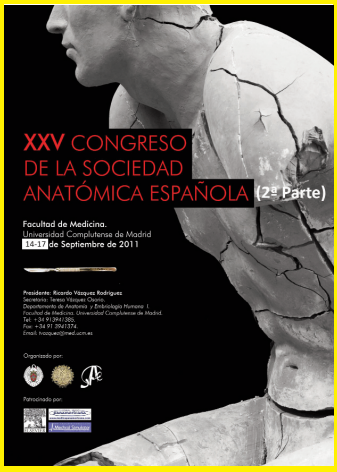
XXV CONGRESS OF THE SPANISH SOCIETY OF ANATOMY

ABSTRACTS



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Madrid, 14-17 September, 2011

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SCIENTIFIC PROGRAM

Wednesday, 14th SEPTEMBER 2011 PRE-CONGRESS SYMPOSIA

9:00-12:30: SECTIONAL RADIOLOGIC ANATOMY AND ANGIOTAC

- T. Sempere and D. Villa (H. Juan XXIII. y U de Reus. Tarragona)
- VENUE: Dissection Room.
- Department of Human Anatomy and Embryology I. Pavilion 5
- School of Medicine. Complutense University of Madrid

12:30-14:00: DISSECTION OF THE TEMPORAL BONE AND POSTERIOR SKULL FOSSA. Part I

- M. Arístegui and F. Ruíz Juretschke. (H Gregorio Marañon. Madrid)
- VENUE: Dissection Room.
- Department of Human Anatomy and Embryology I. Pavilion 5
- School of Medicine. Complutense University of Madrid

14:00-15:30: LUNCH

15:30-17:30: DISSECTION OF THE TEMPORAL BONE AND POSTERIOR SKULL FOSSA. Part 2

- M. Arístegui and F. Ruíz Juretschke. (H Gregorio Marañon. Madrid)
- VENUE: Dissection Room.
- Department of Human Anatomy and Embryology I. Pavilion 5
- School of Medicine. Complutense University of Madrid

17:30-19:30: ENDOSCOPIC ANATOMY OF THE NASAL FOSSA AND MIDDLE SKULL BASE

- C. Ramírez, F. Ruíz Juretschke. (H. del Henares y H Gregorio Marañon. Madrid)
- VENUE: Dissection Room.
- Department of Human Anatomy and Embryology I. Pavilion 5
- School of Medicine. Complutense University of Madrid

Thursday, 15th SEPTEMBER 2011

- Venue: Botella Hall. First floor, School of Medicine. Complutense University of Madrid

8:00-9:30: Registration

9:30-10:00: OPENING CEREMONY

10:00-11:30: ANATOMY IN NURSING DEGREE

- Speakers: L. Fernández Carmena (UCM) and A. Laguna (UCM)
- Oral communications: Enfermeria
- Chairman: E. Pacheco (UCM)

O1. HUMAN ANATOMY IN NURSING DEGREE.

- Reiriz J, Alvarez T, Domingo T, Grande AM, Macia I, Rivas F
- Universidad de Barcelona

O2. TEACHING ANATOMY IN THE NURSING DEGREE IN A MULTI-INSULAR UNIVERSITY MODEL

- Gamundí A, Nicolau MC, Gené Ll, Rial RV
- Universitat de les Illes Balears

11:30-12:00: COFFEE BREAK

12:00-13:00: RECENT HISTORY OF SPANISH ANATOMY. THE XX CENTURY

- R. Vázquez

13:00-14:00: INAUGURAL CONFERENCE

"ANATOMY ON THE MOVE": How Smartphones,tablets, iPads and iPods bring Clinical Anatomy to the Cutting Edge of Education

- Peter Abrahams

14:00-15:30:LUNCH

15:30-17:00: Oral Communications SESSION 1: LOCOMOTOR SYSTEM

- Chairmen: J.M. Riesco and J.R. Mérida

O3. MORPHOMETRY OF THE SUPRASCAPULAR NERVE IN THE SUPRASPINOUS FOSSA

- Pérez A, Navas I, Herencias A, Valderrama FJ, Maranillo E, Sañudo JR, Vázquez T
- Universidad Complutense de Madrid. España

O4. ULTRASOUND ANATOMY OF THE SHOULDER. UTILITY OF ANATOMICAL FACTOR IN THE DETECTION AND LOCALIZATION OF LESIONS OF THE ROTATOR CUFF.

- Cabañas Armesilla MD, Vega González ML
- Universidad Complutense de Madrid

O5. RECTUS CAPITIS POSTERIOR MINOR MUSCLE. CLINICAL IMPLICATIONS

- Palomeque del Cerro L, Fernández de las Peñas C, Arráez-Aybar LA
- Universidad Rey Juan Carlos y Universidad Complutense de Madrid

O6. ANATOMICAL BASES OF REGIONAL ANAESTHETIC BLOCKADE: TECHNOLOGICAL PROCEDURE OF ULTRASOUND SIMULATION

- Juanes JA, Alonso P, Hernández F, Muriel C
- Universidad de Salamanca

O7. RELATION BETWEEN DIGITAL PATHOLOGIES AND DIGITAL FORMULA IN THE FOOT OF PATIENTS WITH CONTROLLED PSYCHIATRIC PATHOLOGIES

- Pérez Pico AM, Iglesias Sánchez MJ, Astasio Picado A, Mayordomo Acevedo
- Universidad de Extremadura. Plasencia, Cáceres

O8. ANALYSIS OF PREVALENCE OF OS PERONEUM BY RADIOGRAPHIC EVIDENCE VERSUS OTHER SESAMOID BONES IN FOOT AND ITS CLINICAL IMPLICATIONS

- Astasio Picado A, Pérez-Pico AM, Iglesias Sánchez, MJ, Espejo Antúnez L, Mayordomo R
- Universidad de Extremadura. Plasencia, Cáceres

O9. ASIC MECHANOSENSORY AND CHEMOSENSORY PROTEINS IN THE HUMAN INTERVERTEBRAL DISC

- del Valle ME, López Muñiz A, Cobo JL, Cosamalón JG, Cuesta A, Vega JA
- Universidad de Oviedo y Complejo Hospitalario de León.

17:00-17:30: COFFEE BREAK

17:30-18:30: Oral Communications SESSION 2: NEUROANATOMY 1

- Chairmen: F. Doñate and E. Blanco

O10. IMMUNOHISTOCHEMICAL EXPRESSION OF AQUAPORIN IN RAT WITH INDUCED AND SPONTANEOUSLY HYDROCEPHALUS, IN THE CIRCUMVENTRICULAR ORGANS.

- Carmona-Calero EM, Gonzalez-Toledo JM, González-Marrero I, De Paz-Carmona H, Castañeyra-Ruiz L, Hernandez-Garde I, Castañeyra-Ruiz A, Redondo A, Soto M, Castañeyra-Perdomo A
- Universidad de La Laguna, Tenerife y Instituto de Investigación y Ciencias de Puerto del Rosario, Fuerteventura

O11. CHANGES IN THE DISTRIBUTION OF THE AMBIGUUS NEURONS AFTER RECURRENT LARYNGEAL NERVE INJURY AND RECOVERY

- Hernández Morato I, Pascual-Font A, Matarranz Echeverria J, Berdugo Vega G, Arias Gil G, Vázquez Osorio T, Sañudo Tejero JR, Valderrama Canales FJ
- Universidad Complutense de Madrid

O12. HIGH BLOOD PRESSURE EFFECTS ON THE CEREBROSPINAL FLUID PRODUCTION AND ITS IMPLICATIONS IN THE DEVELOPMENT OF NEURODEGENERATIVE DISEASES

- Castañeyra-Perdomo A, González-Marrero I, González-Toledo JM, Castañeyra-Ruiz L, De Paz-Carmona H, Ruiz-Mayor ML, Curbelo-Ruiz S, Castañeyra-Ruiz A, Grandal B, Carmona-Calero EM
- Universidad de La Laguna, Tenerife y Instituto de Investigación y Ciencias de Puerto del Rosario, Fuerteventura

O13. MUSCULAR FIBER TYPES AND NEUROMUSCULAR JUNCTIONS IN RAT LARYNGEAL MUSCLES

- Matarranz Echevarría J, Pascual-Font A, Hernández-Morato I, Maranillo E, Vázquez T, Valderrama-Canales F, Sañudo JR.
- Universidad Complutense de Madrid.

O14. SENSORY INNERVATION OF THE HUMAN CONSTRICTOR PHARYNGEAL MUSCLES

- Vega JA, de Carlos F, García-Suárez O, Calavia MG, Alvarez-Suárez A, López-Muñiz A, Cobo J.
- Universidad de Oviedo e Instituto Asturiano de Odontología

18:30-19:30: THE RELEVANCE OF ANATOMY IN NEUROSURGERY

- F. Ruíz Juretschke (H Gregorio Marañon). Madrid)

Friday, 16th SEPTEMBER 2011

- Venue: Botella Hall. First floor, School of Medicine. Complutense University of Madrid

9:00-10:00: THE RELEVANCE OF ANATOYM IN CARDIOLOGY

- J. Goicolea (H Puerta de Hierro. Madrid)

10:00-11:30: ANATOMY IN PHYSIOTHERAPY DEGREE

- Speakers: M. Moreno (U Murcia) and J. Buffet (Rebook, Madrid)
- Chairman: J L Chicharro (UCM)

11:30-12:00: COFFEE BREAK

12:00-13:00: EDUCATIONAL MATERIAL: Commercial Presentation

- Elsevier 12:00-12:30
- Panamericana 12:30-12:45
- Medical Simulator 12:45-13:00

POSTERS EXHIBIT

13:00-14:00: Oral Communications SESSION 3: NEUROANATOMY 2, CARDIOVASCULAR, FORENSIC MEDICINE, COMPARATIVE ANATOMY, ANTHROPOLOGY, ART

- Chairmen: J Juanes and O. Gónzález-Sequeros

O15. LOCUS COERULEUS: DOPAMINERGIC NEURORECEPTORS MAPPING

- Regala J, Correia F, Gonçalves-Ferreira A
- Lisbon Faculty of Medicine, Portugal

O16. STEREOTAXY AND 3-D ANATOMY OF THE HUMAN NUCLEUS ACCUMBENS

- Neto L, Neto D, Mourato B, Martins H, Oliveira E, Correia F, Gonçalves-Ferreira A
- Lisbon Faculty of Medicine and University Hospital Santa Maria, Lisbon, Portugal

O17. SUBENDOCARDIAL ARCHITECTURE OF THE INFUNDIBULUM: IMPLICATION FOR ABLATION OF IDIOPATHIC INFUNDIBULAR TACHYCARDIAS

- Murillo M, Alama S, Sánchez-Quintana D
- Facultad de Medicina. Badajoz

O18. ANTHROPOLOGICAL STUDY OF THE MUMMIFIED REMAINS FOUND IN THE CHURCH OF SAN ESTEBAN DE CUELLAR (SEGOVIA)

- De Paz FJ, Pastor JF, Barbosa M, García N, Palomino A, Montes JM, Gamba C, Fernández E, Arroyo E
- Universidad de Valladolid y Universidad Complutense de Madrid

14:00-15:30: LUNCH

15:30-17:00: Oral Communications SESSION 4: DEVELOPMENT

- Chairmen: JF Rodríguez Vázquez and M. Rodriguez-Niedenführ

O19. CANDIDATE GENES FOR HEREDITARY CONGENITAL FACIAL PARESIS IDENTIFIED ON A GENOMIC AND ANATOMICAL BASIS

- Marin F, Tomas-Roca L, Puelles L
- Universidad de Murcia

O20. THE DEVELOPMENT OF THE HUMAN TENSOR VELI PALATINI

- De la Cuadra-Blanco C, Peces-Peña MD, Calvo-Herranz E, Tobío-Rivas JP, Mérida-Velasco JR
- Universidad Complutense de Madrid

O21. HISTOMORPHOMETRY USE OF EVALUATING THE EFFECT OF IMPLANTS OSTEOINDUCTIVE GROWTH FACTOR FOR REGENERATION OF BONE DEFECTS

- Hernández Díaz ER, Pérez González H, González Gómez M, Medina Bolivar C
- Universidad de La Laguna, Tenerife

O22. ORIGIN OF THE HYOID BONE. A NEW CONCEPT

- Rodriguez-Vazquez JF; Kim JI; Verdugo-López S; Murakami G
- Universidad Complutense de Madrid, Chonbuk National University Medical School, Korea y Iwamizawa Kojin-kai Hospital. Japón.

O23. FUNCTIONAL CONSIDERATIONS OF THE EXTRATYMPANIC PORTION OF THE DISCOMALLEAR LIGAMENT IN ADULT HUMANS

- Mérida Velasco JR, De la Cuadra Blanco C, Peces Peña MD, Pozo Kreilinger JJ, Mérida Velasco JA
- Universidad Complutense de Madrid y Universidad de Granada

O24. USE OF GEN KILLER "E" DERIVED FROM COLIPHAGE PHIX174 IN GENE THERAPY FOR THE TREATMENT OF MELANOMA

- Ortiz R, Melguizo C, Prados J, Alvarez P, Perazzoli G, Cabeza L, Caba O, Hita F, Rama AR, Velez C, Aránega A
- Universidad de Jaén y Universidad de Granada

17:00-17:30: COFFEE BREAK

17:30-18:30: THE RELEVANCE OF ANATOMY IN OPHTALMOLOGY

- R. Gómez de Liaño (H. Clínico San Carlos. Madrid)

18:30-19:30: GENERAL MEETING OF THE SAE

Saturday, 17th SEPTEMBER 2011

- Venue: Botella Hall. First floor, School of Medicine. Complutense University of Madrid

9:00-10:00: THE RELEVANCE OF ANATOMY IN UROLOGY

- J.M. Gil Vernet (Centro Médico Teknon. Barcelona)

10:00-11:30: ANATOMY IN PODIATRY DEGREE

- Speakers: R. Mayordomo (U Extremadura) and M. Losa (U Rey Juan Carlos I, Madrid)
- Chairmen: R. Becerro de Bengoa (UCM)

11:30-12:00: COFFEE BREAK

12:00-14:00: POSTERS´ DEFENSE: Oral session

- Chairmen: J. Carretero and T. Vázquez

14:00-15:30: LUNCH

15:30-17:00: Oral Communications SESSION 5: EDUCATION

- Chairmen: R. Vázquez and J.L. Bueno

O25. TEACHING ANATOMY IN ENGLISH LANGUAGE AT A SPANISH UNIVERSITY

- Bueno López JL
- Universidad del País Vasco

O26. USING OF PLASTICINE AS A TEACHING AND LEARNING TOOL IN ANATOMY

- Fábregas PJ, Gómez A, Aula A, Gallego S, Amores E, Cirera G
- Universitat Autònoma de Barcelona

O27. NEW TOOLS FOR LEARNING ANATOMY: BLOG EXPERIENCE

- González- Sequeros O, Bernal Galindo R
- Universidad de Murcia

O28. CONVENIENCE OF HUMAN ANATOMY STUDY BY ULTRASOUND DIAGNOSTIC AND SATISFACTION AMONG MEDICAL STUDENTS AT THE UNIVERSITY OF BARCELONA MEDICAL SCHOOL (CHS Bellvitge)

- Miguel-Perez M, Möller I, Bong D, Domingo T, Turmo-Garuz A, Valls C, Saenz I, Ramos R
- Universidad de Barcelona, Instituto Poal de Reumatología

O29. IMPORTANCE OF ANATOMY FOR UROGYNECOLOGIC SURGERY

- Lorente M, Escalona C, Girvent M, Perez A
- Universidad Internacional de Catalunya

O30. TEACHING INNOVATION IN ANATOMY LABS: PEER-TUTORING LEARNING

- Escalona C, Pérez A, Blasi M, Bardallo L, Lorente M
- Universitat Internacional de Catalunya

O31. 3D RECONSTRUCTION IN MULTISLICE CT FOR EVALUATION OF LUMBAR SPINE

- Herrasti Gallego A, Vega González M, De la Pedraja Gómez-Ceballos I, Cabañas Armesilla MD
- Hospital Clínico San Carlos y Universidad Complutense de Madrid

17:00-17:30: COFFEE BREAK

17:30-18:30: THE RELEVANCE OF ANATOMY IN OTORHINOLARYNGOLOGY

- Dr. M. Quer i Agustí (H. Sant Pau. Barcelona)

18:30-19:30: THE RELEVANCE OF ANATOMY IN ORTHOPAEDICS AND TRAUMATOLOGY

- F. Marco Martinez. (H. Clínico San Carlos. Madrid)

CLOSING CEREMONY

ORAL COMMUNICATIONS

O1. HUMAN ANATOMY IN NURSING DEGREE.

Reiriz J, Alvarez T, Domingo T, Grande AM, Macia I, Rivas F.

Fundamentals of and Medical-Surgical Nursing Department. School of Nursing. Barcelona University. Spain.

Human Anatomy is an essential learning for students in Nursing. Nurses continuosly interact with human bodies in their everyday work. Thus, the student will be challenged to create a three dimensional mental picture of each region and its component structures and their interrelationships. In summary, the objectives are: Describe the histological structure of epitelial, connective, muscular and nervous tissues. Describe the histology of skin. Describe the serous epithelial surfaces that line the pleural, pericardial, and abdominopelvic cavities. Describe the anatomical position. List the anatomical planes and the terms used to describe positional relationships in the body. Define terms of laterality and movement for the head and neck, thorax and limbs. Describe the fundamental characteristics of the musculoskeletal, nervous, cardiovascular, respiratory, digestive, endocrine and urogenital systems. Describe fertilization, implantation and germ layers. Describe extraembryonic membranes, placenta, placental hormone production and the placental barrier. Identify the origins of the major extraembryonic tissues. List representative derivatives of the three germ layers. Diagram the embryo at several days of age. Students will use information technology to manage information, access on-line anatomical information, and support their education in anatomical science. The methods of instruction and learning are: lectures, student self-assessing seminars by Moodle, audio-visual DVDs and laboratory sessions that involve identification of structures on the cadaver, specimens removed from the cadaver (e.g. an organ, a bone) and anatomical models. The assessment for the course is three thirty-minute tests, a laboratory exam that involve identification of structures on the cadaver and the self-assessing seminars.

Supported by Fundamentals of and Medical-Surgical Nursing Department. School of Nursing. Barcelona University. Spain.

O2. TEACHING ANATOMY IN THE NURSING DEGREE IN A MULTI-INSULAR UNIVERSITY MODEL

Gamundí A, Nicolau MC, Gené Ll, Rial RV.

Laboratorio de Neurofisiología, Universitat de les Illes Balears, España.

In the University of the Balearic Islands (UIB) the new Nursing bachelor's started in the academic year 2009-2010. In the bachelor's programme, the knowledge of Anatomy behaves in two subjects: Structure and Function of the Human Body I and II, both of the first courses. In the latter subject, 15 hours are dedicated to the study of the human musculoskeletal system and neuroanatomy and the rest of hours are indicated to the study of the general physiology, though to the beginning of every topic a brief mention is done to the anatomical aspects of every system and organ.

The staff uses the virtual environment (Moodle system) to put at the disposal of the students several educational materials. The live sessions are in groups of 25 students and previous experiences are use in education of surface anatomy for a better learning. A practical session is realized on anthropometry, which allows to the students to link knowledge of anatomy and physiology.

In the UIB exist some elements that determine the education of anatomy: 1) when studies of Medicine do not exist, is not feasible practical sessions with real models and, 2) Nursing bachelor's is given in three campus sites (Mallorca, Menorca and Eivissa) using videoconference, fact that implies an overstrain of the staff and students due to the technical limitations.

It is necessary to find a consensus for the minimal contents of Anatomy for the Nursing bachelor's, as well as to put at the disposal of the staff virtual tools in anatomical education.

O3. MORPHOMETRY OF THE SUPRASCAPULAR NERVE IN THE SUPRASPINOUS FOSSA

Pérez A[1], Navas I[1], Herencias A[1], Valderrama FJ, Maranillo E, Sañudo JR, Vázquez T.

Dpto. de Anatomía y Embriología Humana I. Facultad de Medicina. Universidad Complutense de Madrid. España.
[1]Estudiantes de la Facultad de Medicina. Universidad Complutense de Madrid. España.

Entrapments of the suprascapular nerve (SSN) can produce pain and/ or shoulder dysfunction. To release the nerve, endoscopic approaches are indicated and need an accurate knowledge of the precise location of the nerve. To establish bony landmarks which lend the supraescapular nerve localization, 40 human shoulders from cadavers belonging to the Human Anatomy and Embryology Department were studied. Folllowing observations were made; after leaving the suprascapular notch, the SSN courses posteriorly and laterally deep to the supraspinatus muscle to reach the base of the scapular spine. The distance from the supraglenoid tubercle to the notch ranged from 3 to 4,6cm (mean distance 3,65±0,2cm) and the distance to the base of the spine ranged from 1,9 to 4,4cm (mean distance 2,64±0,2cm). The distance from the midline of the posterior glenoid rim to the scapular base ranged from 1,5 to 3,2cm (mean distance 2,32±0,2cm). The total length of the nerve along the supraspinous fossa ranged from 3,4 to 5cm (mean distance 4,105±0,3cm).

This research was supported by funds obtained through postgraduate training courses by the UCM920547 Group.

O4. ULTRASOUND ANATOMY OF THE SHOULDER. UTILITY OF ANATOMICAL FACTOR IN THE DETECTION AND LOCALIZATION OF LESIONS OF THE ROTATOR CUFF

Cabañas Armesilla MD[1], Vega González ML[2].

[1]Dpto. Anatomía y Embriología Humana II. Facultad de Medicina. Universidad Complutense. Madrid. España.
[2]Dpto. Radiología. Hospital Clínico San Carlos. Universidad Complutense. Madrid. España.

Ultrasound has proven an effective technique for the visualization of the tendons. The technical requirements involve the same high frequency linear transducers, strictly perpendicular incidence of ultrasound beam and comparative study between both shoulders. Objectives: To describe the normal ecographic anatomy of the tendons of the rotator cuff following a protocol execution based on the proper previous anatomical knowledge of their location, and first cause based on their extension, positioning the arm in different positions to avoid anisotropy effect and get the proper visualization of characteristic echogenic fibrillar pattern Results: Exposure of images in longitudinal and transverse sections of the tendons of the supraspinatus muscle, subscapularis, biceps and infraspinatus, teres minor and subacromial bursa, describing the features and normal variants of the structures referred. Comparison with the image of the opposite homonym tendon and of this analysis are obtained semiological findings: normal versus tendon thickening, absence or interruption of the tendon, calcifications and location, fluid in the subacromial bursa, breaks and biceps sheath. Not only the detection but also the anatomical location of injury is a determining factor for the proper treatment. Illustrates some of these findings to justify and help the understanding of normal ecographic anatomy.

O5. RECTUS CAPITIS POSTERIOR MINOR MUSCLE. CLINICAL IMPLICATIONS

Palomeque del Cerro L[1], Fernández de las Peñas C[1], Arráez-Aybar LA.[2]

[1]Dpto de Fisioterapia, Terapia Ocupacional, Rehabilitación y Medicina Física. Facultad de Ciencias de la Salud. Universidad Rey Juan Carlos. Madrid (España).
[2]Dpto Anatomia y Embriologia Humana II. Facultad de Medicina. UCM. Madrid (España).

During the last years it has been determined that patients with chronic cervicalgia have more cervical somatic dysfunction, suboccipitalmuscle atrophy and higher imbalance in standing position than patients without chronic cervicalgia.

Recent studies reflect an outstanding anatomophysiological importance of both, the rectus capitis posterior minor muscle and the nuchal ligament, this data can play a significant role in cervical pain and cervicogenic headache coming from cervical issues, purpose of the literature review presented.

The connections between the nuchal ligament, the rectus capitis posterior minor muscle and the cervical spinal dura mater, occur between the first two cervical vertebrae, and between the occipital bone and atlas, respectively which can be identified by magnetic resonancia scans.

The rectus capitis posterior minor muscle has a "bridge of connective tissue" present in 74% of the samples, ie a direct anatomical connection with the connective tissue cervical spinal dura mater at the atlanto-occipital joint. Considering that this layer of deep tissue in the atlanto-occipital membrane is the spinal dura mater and that it continues with the inner layer of the dura mater or cranial meninged surrounding the brain, gives us clinical diagnosis, based on an anathomical study, about one of the problems that nowadays show higher prevalence, cervicogenic headache.

O6. ANATOMICAL BASES OF REGIONAL ANAESTHETIC BLOCKADE: TECHNOLOGICAL PROCEDURE OF ULTRASOUND SIMULATION

Juanes JA, Alonso P, Hernández F, Muriel C.

Dpto. de Anatomía Humana. Facultad de Medicina. Universidad de Salamanca. Servicio de Anestesiología, Reanimación y Terapia del Dolor. Hospital Universitario de Salamanca.

We report an informatics development for clinical simulation that allows an emulation of ultrasound exploration for regional anaesthetic blockades on the upper and lower limbs. The procedure involves an anatomical 3-D visor that allows the neuromuscular systems of the upper and lower limbs, dependent upon the brachial and lumbar plexuses, to be assessed. The application has been developed for Windows platforms and is programmed in Visual C++. The user interface is distributed in different parts: the positioning of the transducer on the patient, the visualization of the ultrasound image of the optimum point of blockade, with an anatomical description of the structures visible, correlation with a magnetic resonance section and an anatomic 2-D visor screen for interacting dynamically with the reconstructed models. The anatomical structures are organized according to a hierarchical tree, where it is possible to visualize the 3-D model selected independently. Our visor is a true dynamic and interactive atlas for the study of the different neuromuscular systems of the limbs. Additionally, it is very useful for understanding and interpreting the ultrasound images, thus facilitating an optimum result in a regional anaesthetic blockade. The use of simulations for the training of medical students in the various areas of the science has proved to be an efficient tool that helps to raise teaching quality..

Financed project by: Abbott Anestesia. Collaboration and participation in the generation and technical production of the application: Abadía Group. Madrid.

O7. RELATION BETWEEN DIGITAL PATHOLOGIES AND DIGITAL FORMULA IN THE FOOT OF PATIENTS WITH CONTROLLED PSYCHIATRIC PATHOLOGIES

Pérez Pico AM[1,2], Iglesias Sánchez MJ[2,3], Astasio Picado A[1,2], Mayordomo Acevedo.[1]

[1]Grado en Podología, Grupo de Investigación DEDAP, Centro Universitario de Plasencia, Universidad de Extremadura. Plasencia, Cáceres.
[2]Diplomados en Podología

Foot is a perfectly designed structure with a complex and a high component of strength, flexibility and coordinated movement. In summary the foot is probably the most develop

anatomical region in other to get the human biped locomotion. The morphology of the foot is an important factor in the development of deforming digital pathologies. Several studies show that the most frequent morphology in the population is the Egyptian foot with the first toe longest one and the rest is degreasing in length gradually followed by the Greek foot in which the second toe is the longest. Squared foot is also frequent, with a first and second toe of the same length. In the present study we have record the different morphologies of the foot of a population with psychiatric pathology. We have also observed a relation in between morphology and digital pathology in the 50 patients observed.

O8. ANALYSIS OF PREVALENCE OF OS PERONEUM BY RADIOGRAPHIC EVIDENCE VERSUS OTHER SESAMOID BONES IN FOOT AND ITS CLINICAL IMPLICATIONS

Astasio Picado A[1], Pérez-Pico AM[1], Iglesias Sánchez, MJ[1], Espejo Antúnez L[2], Mayordomo R.[1]

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The possible origin of sesamoid bones is still discussed. Its prevalence has been study through radiographic evidences in different populations, especially in those cases in which the evidence help to diagnosis of any painful previous pathology. There are few studies in the literature that include a high number of cases, usually in relation with other pathologies causing pain.

Our main propose is to know the incidence of accessory bones at foot of patients explored in Emergency room of Virgen del Puerto hospital (Plasencia) during 2009 y 2010 with a radiographic evidence in foot and ankle.

Revision and study of more than 800 patients during 2009 and 2010 shows the present os os peroneum in a high incidence (14,7%) as well as os naviculare with a percentage of 4,5%. We detected other sesamoid bones with a lower incidence like os trigonum, os intermetatarsum, os calcaneum, os interdigitalis and broken sesamoid bones (bipartite and tetrapartite).

The existence of sesamoid bones like os peroneum or os naviculare could be related with muscle-tendinopathologies or friction syndrome in which the mechanic traction of the muscle causes sesamoid breaking. Therefore it is important to get an idea of the incidence of this type of bone for the correct differential diagnosis.

O9. ASIC MECHANOSENSORY AND CHEMOSENSORY PROTEINS IN THE HUMAN INTERVERTEBRAL DISC

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The intervertebral disc is an avascular organ, in which the cells must be adjusted to extreme mechanical and pH conditions. ASIC (acid-sensing ion channels) proteins are ion channels involved in cellular homeostasis under mechanical or metabolic stress. It has recently detected the presence of ASIC3 in the intervertebral disc. The intervertebral disc cells are fibroblast-like in the more external rings of the anullus fibrosus and chondrocyte-like in the inner rings of the anullus fibrous and the nucleus pulposus. Within the anullus the cells form parallel rows while in the nucleus pulposus form rounded groups with a variable number of cells. Regardless of the location the cells are surrounded by an extracellular matrix of known characteristics. In the present study Westernblot, PCR and Immunohistochemistry were used to analyse the expression of ASIC1, ASIC2, ASIC3 and ASIC4 proteins in normal, degenerate and herniated human intervertebral discs. Furthermore an anti-protein S100 antibody was used to labell all the chondrocyte-like cells in the disc (considered to be 100 per cent). The results show expression of ASIC proteins in the human intervertebral disc in normal and pathological conditions. ASIC proteins are chemical and mechanical sensors and therefore are good candidates to explain the pathogenesis of the initial states of the pathological processes of the intervertebral disc.

O10. IMMUNOHISTOCHEMICAL EXPRESSION OF AQUAPORIN IN RAT WITH INDUCED AND SPONTANEOUSLY HYDROCEPHALUS, IN THE CIRCUMVENTRICULAR ORGANS

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Hydrocephalus is characterized by obstruction of cerebrospinal fluid (CSF) flow with consequent enlargement of brain ventricular cavities and progressive damage to surrounding tissue. In this disorder, the mechanism of brain tissue injury appears to be a combination of mechanical injury due to brain distortion, ischemic damage due to impaired blood flow, an accumulation of toxic waste products in the CSF due to impaired flushing of CSF from the ventricles (DelBigio1993).

Aquaporin is a membrane-bound water channel and highly related to the development and resolution of brain edema. Aquaporin-1 is highly expressed at the choroid plexus and is related to CSF production.

Brains from spontaneously hydrocephalic rats and kaolin induced hydrocephalus rats were used. The hydrocephalus was induced, at 10 weeks of life, injecting 6mg of kaolin in the cistern magna. The sections containing the circumventricu-

lar organs the SFO and SCO were processed by immunohistochemistry with anti-Aquaporin 1.

Variations of the AQP 1expression were observed in the SFO, SCO and choroid plexus. The rats spontaneously hydrocephalus showed an increase of AQP 1-ir in the SCO, SFO and plexus, while the expression of AQP1was decreased in the induced hydrocephalus.

Aquaporin-1 levels at the choroid plexus are decreased in most models of hydrocephalus. AQP1 probably facilitates water movement between blood and interstitium as one component of the normal fluxes that occur in these specialised sensory and secretory areas (Wilson, A J et al., 2010).

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O11. CHANGES IN THE DISTRIBUTION OF THE AMBIGUUS NEURONS AFTER RECURRENT LARYNGEAL NERVE INJURY AND RECOVERY

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Motoneurons innervating laryngeal muscles are located in the nucleus ambiguus (NA), but there is no general agreement on the somatotopic representation and still less is known on how an injury in the recurrent laryngeal nerve (RLN) affects that pattern. This study analyzes the normal somatotopy of those motoneurons and describes its changes along the time after the injury of the RLN.

In the control group, 6 rats, we injected the posterior cricoarytenoid (PCA) and thyroarytenoid (TA) muscles with cholera toxin-B. In the experimental groups the left RLN of each animal was crushed with a fine tip forceps and, after several survival periods (1, 2, 4, 8, 12 weeks; 6 rats per period), the PCA and TA muscles were injected as described above. After each surgery the functionality of vocal folds were evaluated.

Motoneurons are grouped per muscle in a rostrocaudal column within NA. The PCA is represented in the rostralmost position followed caudally by the TA. The somatotopy changes after the RLN injury 1 week later, being the labelled neurons distributed random-like. In addition, an area where the two populations are intermingled appears. In the rest of the survival periods, the intermingled area is larger, but the functionality of vocal folds tends to recover. After 12 weeks of survival, the disorganization within the NA is the largest, however the number of motoneurons is similar to control, and all animals recovered the movement of left vocal fold.

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O12. HIGH BLOOD PRESSURE EFFECTS ON THE CEREBROSPINAL FLUID PRODUCTION AND ITS IMPLICATIONS IN THE DEVELOPMENT OF NEURODEGENERATIVE DISEASES

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High blood pressure causes changes in the choroid plexus (CP), the brain barriers and CSF production. Aquaporin-1 (AQP-1 water channel) plays an important role in normal function of the CP and the production of cerebrospinal fluid. The β-amyloid (Aβ) is synthesized inside of the neurons and enters the blood through the brain barriers, alteration of its metabolism may be involved in the dysfunction of the blood-cerebrospinal fluid barrier (BCSFB). The purpose of this study is to determine the expression of AQP-1, Aβ in the choroid plexus during arterial hypertension and its relationship to aging.

We used control (WKY) and hypertensive (SHR) rats sacrificed at six and twelve months of age. CPs of both groups of rats were studied immunohistochemically using primary antibodies against: AQP-1 and Aβ.

The same amount of immunoreactive material (IRM) for aquaporin-1 was found at six months of age in the CPs of control and hypertensive rats, but at 12 months of age SHR rats show a great decrease of IRM. In hypertension, the β-amyloid increased in the perivascular space at 6 months of age and in the all choroid plexus structural components at 12 months of age. Hypertension for a year cause changes in CSF production, changes that are manifested by a decreased expression of AQP-1 and increased accumulation of Aβ in the CP.

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O13. MUSCULAR FIBER TYPES AND NEUROMUSCULAR JUNCTIONS IN RAT LARYNGEAL MUSCLES

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The knowledge of the anatomy of the rat larynx with particular attention to myology and neuromuscular structures has importance in order to further validate it as a model to evaluate morphologic and functional changes induced laryngeal nerve injury. Only two studies have focused on the distribution of motor endplates (MEPs) in laryngeal muscles, with no mention to the number. Moreover, there are no previous works on the muscular fiber types of all intrinsic laryngeal muscles.

The present study analyzes the morphology, distribution and number of MEPs in all the laryngeal muscles on the rat, as well as their type fibres. We use immunohistochemical analyses against synaptophysin, neurofilament and α-bun-

garotoxin to determine MEPs number and distribution and against various myosine heavy chains (MyHCs) to study muscle fiber types.

MEPs are concentrated in a transverse band located at the midbelly. The thyroarytenoid presents the bigger number of MEPs (325). Fast fibers were predominant in the rat laryngeal muscles, although muscle fiber-typing show differences between the laryngeal muscles. More results will be discussed.

This study provides a rat laryngeal model as a basis to assess the effects, at the peripheral level, of the laryngeal nerves injuries in order to be successful with the clinical techniques of functional reinnervation.

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O14. SENSORY INNERVATION OF THE HUMAN CONSTRICTOR PHARYNGEAL MUSCLES

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The information about muscle stretch from the cephalic muscles is of capital importance in regulating the masticatory force and oromotor behaviors, but also in the response of important reflexes related to speech and swallowing, but also cough, vomit or normal breathing. The constrictor pharyngeal muscles participate in most if not all the above mentioned functions. Therefore, the neural control and the coordinated action of these muscles, results in changes in upper airway size and resistance, alterations in the route of airflow, and increases in the ability of the airways to resist collapse. Nevertheless, the sensory innervation, especially the propioceptive one, of these muscles remains largely unknow. In fact, most of the authors consider the human constrictor pharyngeal muscles as free of muscle spindles (the classical muscle proprioceptors). Here we have analized the occurrence of sensory structures in the human constrictor pharingeal muscles using immunohistochemistry. Pacini-like corpuscles, and different morphotypes of nerve endings were found, but never muscle spindles. Interestingly, a spiroidal nerve structure was regularly observed which can serve as a mechanosensor for muscle contraction.

O15. LOCUS COERULEUS: DOPAMINERGIC NEURORECEPTORS MAPPING

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Background: The locus coeruleus (LC) is a brainstem human nucleus involved in multiple neurochemical circuits. It has been identified, primarily in animal studies, adrenergic, dopaminergic, serotonergic and other neuropeptides afferents, such as orexin and corticotropin releasing factor. These afferents are involved in regulating functions such as sleep-wake cycle, selective attention between many others. After it was established in our previous studies that human LC is a nucleus narrower and longer (± 14mm) than previously reported, the goal of this study is to study the distribution of D1 and D2 dopamine receptors, serotonin 5-HT2C and orexinergic OXR1 along the human LC.

Material: 6 LC obtained from 3 brainstems normal human adults collected in the first 48 hours post-mortem by autopsy.

Method: Fixation, dissection and paraffin embedding of the brainstems; serial cutting in a microtome perpendicularly to the midsagittal and the IV ventricle floor planes; slice staining with hematoxylin-eosin; imunocytochemical labelling with an adequate antibody for the 5-HT2C D1 and D2 and OXR1 receptors; observation of the cell labelling along the entire LC length.

Results and Conclusions: The D1 and D2 dopamine receptors have a heterogeneous diffuse distribution throughout the nucleus. None of receptor subtypes showed a specific distribution pattern along its length, but there is a clear predominance of D2 receptors. At intracellular level, there are cells with remarkable dominance of each receptor subtypes. It was observed that D2 receptors are present in rich-melanin cells, but are located in cytoplasmic sectors non-containing melanin granules. On the other hand, cells expressing D1 receptors, which are much sparser, are mainly present in cells poor in melanin. Some of these cells express simultaneously D2 receptors but others seem to contain only D1 receptors.

O16. STEREOTAXY AND 3-D ANATOMY OF THE HUMAN NUCLEUS ACCUMBENS

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Introduction: The Nucleus Accumbens (Acc) is a ventral striatum structure poorly identified in the human brain. It is known to act as a motor-limbic interface, being involved in several emotional and psychomotor functions, frequently disturbed in neuropsychiatric disorders such as Obsessive Compulsive Disorder and addiction behaviors. Most of the studies concerning the Acc were made in animals and those performed in humans are contradictory. Nevertheless it has recently become a target for stereotactic deep brain stimulation for some of those diseases when refractory to medical treatment. Previous studies performed by our group have established the stereotactic coordinates of the Human Acc, its precise limits and dimensions. Now it is our purpose to perform the Acc anatomical 3D reconstruction in order to clarify its shape and topography and to render this nucleus a safer target for stereotactic procedures.

Materials & Methods: Anatomical coronal serial slicing of 10 Acc from human brains, perpendicular to the AC-PC line and to the midline; tracing of the Acc contours and measure-

ment of its dimensions and 3D coordinates. Creation of a computerized 3D model.

Results: The human Acc was identified as a distinct structure, with clear-cut limits, only on its posterior half. Its mean stereotactic coordinates were determined and 3D reconstruction performed. The Acc lies parallel to the midline and descends caudally, progressing from a globose to a flattened and dorsolateral concave shape. Its main expression is subcomissural.

Conclusion: This study defined the 3D coordinates and 3D anatomy of the Human Nucleus Accumbens providing new tools for stereotactic neurosurgical procedures.

O17. SUBENDOCARDIAL ARCHITECTURE OF THE INFUNDIBULUM: IMPLICATION FOR ABLATION OF IDIOPATHIC INFUNDIBULAR TACHYCARDIAS

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Introduction: Most infundibular tachycardias originate in perivalvular region of the right ventricle (RV). The heterogeneity of the arrangement of the muscular fibers has not been previously described. The papillary muscle of the conus (PMC) could be one of the factors that anatomically predispose to this arrhytmia.

Methods: 35 human hearts without structural heart disease formalin fixed were analyzed (20 male; 49±5 years). The arrangement of the muscular fibers were studied by dissection techniques and histological sections, in the area bounded superiorly by the insertion of the leaflets of the pulmonary valve (PV) and inferiorly by the superior margin of the RV inflow.

Results: The PMC was situated in the 80% of the specimens near the supraventricular ridge. In the remaining 20% it was situated under the pulmonary infundibulum. An increase of fibres orientation changes was found in those hearts in which the PMC was present (26 hearts, 74%). In 18 hearts (51%) we observed an abrupt change of fiber orientation between the right and left leaflets of the PV. In 11% of the specimens (4 hearts, we found muscular fibers extending below the sinotubular junction of the VP.

Conclusions: The crossover of the subendocardial fibers in the infundibulum may provide structural heterogeneity and promote triggered activity and arrhythmogenesis.

O18. ATHROPOLOGICAL STUDY OF THE MUMMIFIED REMAINS FOUND IN THE CHURCH OF SAN ESTEBAN DE CUELLAR (SEGOVIA)

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During the archaeological excavations in the church of San Esteban de Cuéllar (Segovia) five bodies were found naturally partially mummified. The burials were dated from the 15th and 16th centuries. Tomb of Alfonso García de León: Man (30-40 years) with linen shroud, a epactal bone, Harris tibial lines, staghorn renal calculi and possible pericardial effusion. Elizabeth Zuazo´s sarcophagus: women (60-75 years) with generalized degenerative joint disease, bilateral parietal thinning and vertebral osteoporosis. With the TC, in his linen garments 48 papal bulls were located (the largest group found to date). Martín López de Córdoba Hinestrosa´s sarcophagus (ruler of the town of Cuellar): male (55-70 years) with franciscan habit (of wool) and girdle of rope, had a round osteolytic lesion parietal left, possibly caused by tuberculosis or syphilis. The hair had injuries consistent with ringworm. Beside the body was found the right horn of a bovid. In another sarcophagus were two infants of one and six months, covered with a linen shroud and soaked in lime stitching. In addition to the mummies found two bodies skeletonized. For the study we used optical microscopy and scanning electron multislice CT and 3D reconstructions, in addition to genetic study. Reconstructions from CT have proved very useful for the study of mummies, because it allows direct biopsies and locate precisely the bone disease and associated objects. The genetic profile confirmed family relationships between individuals mummified and skeletonized.

O19. CANDIDATE GENES FOR HEREDITARY CONGENITAL FACIAL PARESIS IDENTIFIED ON A GENOMIC AND ANATOMICAL BASIS

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Hereditary Congenital Facial Paresis (HCFP) consists of the paralysis or weakness of facial muscles caused by a maldevelopment of the facial motor nucleus and its nerve. Linkage analyses have related this disorder to two loci, placed respectively in human chromosomes 3 and 10, but the causative genes are still unknown. In this work we aimed to identify which genes from these loci are expressed in the developing hindbrain and particularly in the facial motor nucleus. To this end, we have extracted from genomic databases the inventory of the genes located within or close to these loci as well as their respective mouse orthologs. Subsequently we have datamined the available ISH (in situ hybridization) databases searching for their respective expression patterns in the embryonic mouse brain. As result of this analysis, we have found that some of these genes are indeed expressed in the developing facial motor nucleus and/or nearby structures, so that the concurrence of genomic position and neural expression pattern makes them suitable candidate genes for HCFP. Funding: contract 04548-560 GERM-06 from the Fundación Séneca of the Government of the Murcia Region and grant MICINN-BFU2008-04156 from the Spanish Ministry of Science and Innovation to L.P.

O20. THE DEVELOPMENT OF THE HUMAN TENSOR VELI PALATINI

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The present study seeks to determine the main events that occur in the development of the tensor veli palatini (TVP). The study was made with a light microscope on serial sections of 60 human specimens from the 6th to the 16th week of development. The TVP becomes visible in the 6th week, from a common blastema with the medial pterygoid muscle. In embryos of 7th week, the TVP is differentiated and relates to the anlage of the pterygoid hamulus. At the 8th week of development, when the palatal shelves become horizontal, the presence of the anlage of the palatine aponeurosis is distinguished and is reached by the TPV. In an embryo of 30 mm GL, the chondrification nucleus of the pterygoid hamulus and the synovial bursa of the TVP are identifiable. At the 9th week, the TVP is continuous with the palatine aponeurosis. At the 13th week, a connective tissue lamina appears between the TVP and the intramembranous ossification center for the anterior process of the malleus, the goniale, and that we interpret as the attachment of the muscle to the primary vertebrate jaw or incudomallear joint. The TVP from its origin, innervation and relation to the goniale appears to be a muscle of mastication that, at the end of the embryonic period, reaches the palatine aponeurosis anlage and the mesenchyme of the auditory tube and specializes in the movements of the soft palate and the auditory tube.

O21. HISTOMORPHOMETRY USE OF EVALUATING THE EFFECT OF IMPLANTS OSTEOINDUCTIVE GROWTH FACTOR FOR REGENERATION OF BONE DEFECTS

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Purpose: We used bone histomorphometry (bone study WITHOUT DECALCIFY), which provides direct information of mineralized and unmineralized bone or osteoid and bone cells, to understand what happens in the skeleton, to assess the effect of osteoinductive implants, and observe the induced regeneration of bone defects. Our goal was to see the results that occur as a result of the application in bone biomaterials, combined with cells or bioactive molecules, such as vehicle support and growth factors (GF), will cause a replacement or tissue regeneration where applicable such materials.

Material and methods: We used the femurs of 11 rabbits of 24 weeks of age were divided into 4 groups: I: low dose implants, II: high dose implants, III: White (blank implant); IV: Reference (only defect). It was a longitudinal section of the distal epiphysis of the femur, the implant site of entry and 2 samples were obtained. After that the processing, cutting, staining, mounting and observation of the samples.

Conclusions: Given that aggression is now increased bone activity, and also is favored by the different implants. We have observed in the samples without decalcify, a high remodeling in favor of bone formation, increased vascularity and fibrotic and inflammatory reaction in the implanted area.

O22. ORIGIN OF THE HYOID BONE. A NEW CONCEPT

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Classically, the hyoid bone has been considered that developed from the cartilages of the second and third branchial arches; the lesser horns and the cranial part of the hyoid body from the cartilage of the second branchial arch; while the inferior half of the hyoid body and the greater horns from the cartilage of the third arch (Hamilton and Mossman, 1975; Moore and Persaud 1999; Sadler, 2004; Carlson, 2009). Recently, however, Rodríguez-Vázquez et al (2011), noted that the body of the hyoid bone formed from a mesenchymal condensation of the hypobranchial eminence.

Fifteen human embryos at 5-7 weeks of gestation (11-21 mm CRL) were used in the study. The specimens came from the collection of the Embryology Institute at the University Complutense of Madrid. Approval for the study was granted by the University Ethics Committee.

The lesser hyoid horns formed from the caudal segment of Reichert's cartilage since this cartilage, as it was demonstrated by Rodríguez-Vázquez et al (2006), was not a continuous formation along the second branchial arch. The greater horns developed from the cartilage of the third branchial arch. The hyoid body, from a cartilage formed by a condensation of the hypobranchial eminence (Rodríguez-Vázquez et al., 2011); which appeared at 16mm CRL, and subsequently differentiate into cartilage; regardless of the cartilages of the second and third branchial arches. Therefore, the hyoid bone is formed from five independent anlagen, two pairs forming the lesser and greater horns and an odd, which constitutes the body.

O23. FUNCTIONAL CONSIDERATIONS OF THE EXTRATYMPANIC PORTION OF THE DISCOMALLEAR LIGAMENT IN ADULT HUMANS

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This study was carried out on histological and functional aspects of the extratympanic portion of the discomallear ligament (DL) in adult humans. The temporomandibular joint (TMJ) was dissected bilaterally in 15 cadavers, in all cases the articular disc (AD) and the retroarticular tissue were extirpated. The extratympanic portion of the DL had the shape of a base down triangle, which was in relation to the posterior band of the AD, and its upper vertex pointed toward the petrotympanic fissure. The upper portion of the DL is in relation to the entoglenoid process of the temporal bone and the spine of the sphenoid bone. The DL is an intrinsic ligament of the TMJ, composed of collagen fibres and abundant elastic fibres. In the adult, it has been conjectured that DL could limit the anterior movement of the AD in the opening of the mandible and begins the posterior movement of the AD in the closing of the mandible. Also, it has even been suggested that it could oppose the anteromedial movement of the AD. By contrast, other authors contend that the DL cannot pull effectively from the AD in the posterior direction for the retrusive movement. We propose that this ligament could act as a tensor of the sinovial membrane in movements of the TMJ.

O24. USE OF GEN KILLER "E" DERIVED FROM COLIPHAGE PHIX174 IN GENE THERAPY FOR THE TREATMENT OF MELANOMA

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Melanoma represents only 4% of all cancers skin, but almost 80% of all deaths from skin cancer on processes primarily because of metastatic spread. Apart from the surgery, treatment options for melanoma, melanoma metastatic in particular, are relatively limited and by stressed the need to develop effective new therapies. The killer genes gene therapy has been proposed as a strategy for treatment of intractable cancers, and has been tested in some trials clinical, alone or in combination with other therapies. In this context, E gene is a gene from the coliphage lithic single-stranded phiX174, which has the advantage over the phage DNA double chain, which takes 2 genes for the lytic process of lyse the host cell with a single lytic gene, the gene E

Methods: To assess whether the E gene has a cytotoxic effect on melanoma cells in vitro and in vivo, was selected as murine model line B16-F10 melanoma. To test the gene E, conducted a non-viral construction of constitutive expression (pcDNA3.1-E) and transfected cells using liposomes, and tumors in vivo by intratumoral injections of pcDNA3.1-E with liposomes. The effect and mechanism of action of E protein in vitro and in vivo studied by applying various techniques of feasibility cells, MTT assays, determination of apoptosis and diagnostic image.

Results: We found that the gene E has a strong effect antiproliferative B16-F10 cells in vitro, inducing decrease in tumor volume in vivo melanoma (90% in 15 days). Interestingly, the fusion protein GFP-E in melanoma cells located in mitochondria. Both in vitro and in vivo was demonstrated the E gene expression in melanoma and functional alterations induced mitochondrial morphological level, and also a significant increase of cytochrome c and caspase-3 and -9 active, which suggests that cell death is mediated by mitochondrial apoptotic pathway.

Conclusion: We have reported the ability of the E gene to induce death of melanoma cells in vitro and in vivo, taking these results to a possible successful use of this gene therapy systems cancer gene.

O25. TEACHING ANATOMY IN ENGLISH LANGUAGE AT A SPANISH UNIVERSITY

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I began teaching anatomy in English to a group of fourteen students of medicine degree. (Two First-Year subjects: Human Anatomy I and Human Anatomy II; 6 ECTS each; Embryology and Back / trunk walls / extremities, respectively). The small size of the group helped to overcome any language difficulty. Moreover, achieving the highest teaching/learning standards regarding contents, personal and cooperative work, skills and attitudes became for all of us a successful and rewarding experience. It helped that the teacher in charge was the same throughout the year. All but one student passed the courses with high ratings; all experienced great enthusiasm for anatomy. Students had detailed information about the content, objectives, methodology, activities, calendar and printed and electronic literature of the subjects. There were 3 partial evaluations (each with multiple-choice, viva-voce laboratory and seminar tests) per subject. Mandatory classroom activities were 21 lessons, 6 seminars and 33 laboratory hours per subject. Students could also use the laboratory voluntarily and without time limit. Lessons could be either introductory or explanatory. Seminars consisted of oral presentations made by students. Laboratory work included dissections done by students following prosections. All body parts present in the syllabuses were dissected that way. I conclude that learning the anatomical core can be performed with success in any of the Bologna Degrees, but that such an achievement would be difficult without (a) suitable resources and (b) proper understanding of the tutorial activity in the new "Estatuto del Profesorado".

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O26. USING OF PLASTICINE AS A TEACHING AND LEARNING TOOL IN ANATOMY

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Learning anatomy requires vision of space in three dimensions. Drawing is an excellent methodology; however the two dimensions of the paper let the third in the hands of the imagination of everyone. Plasticine can overcome this problem, offering a 3D world modeled by our own hands. Throughout a course we have developed a working group consisting of a teacher and five undergraduate students of medicine, in which we have investigated the various possibilities for the use of colored plasticine in the study of Anatomy and Embryology. Applications developed are summarized as follows: a) Modeling of structures (bones, organs ...) or anatomical regions. b) Overlay of plasticine forms over bones (representing mimetic muscles, for example), x-rays or photographs. c) To represent processes of embryonic development. In this case there is a fourth dimension, time, that we added by using the technique "clay motion" where plasticine figures are converted into frames of an animated film that can dynamically display any embryonic developmental process. We continue to work because we believe there are many more applications. Working with plasticine offers different levels of utility: student learning using plasticine, as a complementary method in the study, and the preparation of models or films for the use as teaching material by the professor. The additional advantage of plasticine modeling is that is also fun.

O27. NEW TOOLS FOR LEARNING ANATOMY: BLOG EXPERIENCE

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In teaching –learning process play a very important role technologies of information and comunication (TICS) because most of them allow how to analyze and evaluate new situations and to enhance new situations between teacher and students and what is most important, among students. The aim of our work was to assess the use of a blog in the first academic year of Anatomy in Medicine (100 students) as a quick and easy tool for increasing their self-learning and lifelong-learning skills, as well as colaborative learning, through identification and description, using anatomical lenguage, of images of dissections, radiographs, CT or MR images. Also, the blog is used as a content repository to increase knowledge in practical aspect of anatomy. We made two questionnaires, in the middle of academic year, asking some general questions about how the teaching of anatomy was developing, and the second at the end of academic year, asking gimilar questions, but with specific ones about the use of the blog and analyzing how the students interact among them. Results show the blog is a good tool for developing learning skills above mentioned, although students create a new ways of learning while using the blog and other social networking.

O28. CONVENIENCE OF HUMAN ANATOMY STUDY BY ULTRASOUND DIAGNOSTIC AND SATISFACTION AMONG MEDICAL STUDENTS AT THE UNIVERSITY OF BARCELONA MEDICAL SCHOOL (CHS BELLVITGE)

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Introduction: High resolution ultrasonography is an imaging modality that has wide application in medicine for the diagnosis and monitoring of pathological processes and the guidance of interventional procedures. The purpose of this study was to assess the usefulness and overall satisfaction among medical students that participated in two elective subjects that utilized ultrasound for the teaching of human anatomy. They were also asked to compare their experience with the routine anatomy curriculum.

Material and methods: Medical students participated in a recently introduced anatomy elective consisting of 1 hour of classroom instruction followed by 2 hours "hands-on" practice, during 12 weeks. Following the course, the students were given an anonymous questionnaire which asked them to rate their experience on a simple scale of below average, average and above average when compared to the routine curriculum with respect to its theoretical and practical components and, also, the extensive use, during the practical sessions, of non-anatomy department university and volunteer faculty representing a number specialties that utilize ultrasound including rheumatology, radiology, sports medicine and anaesthesiology.

Results: All of the medical students rated the theoretical and practical components of the elective as above average as well as the use of non-anatomy department faculty with expertise in this area.

Conclusion: High resolution ultrasonography is a well established adjunct to modern medical practice and has potential utility in teaching anatomy to medical students. Based on medical student satisfaction, the use of ultrasonography should be considered for use as an adjunct to the routine anatomy curriculum.

O29. IMPORTANCE OF ANATOMY FOR UROGYNECOLOGIC SURGERY

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Pelvic floor surgery has been a matter of controversy for the past few years due to the aging population and the increasing interest of enhancing quality of life in later years. Moreover, surgical techniques have increased their complexity in order to diminish adverse effects on patients. Nowadays an increasing number of genital prolapse cases are being considered for surgery with more specific techniques such as colposacropexy or uterosacropexy with laparoscopy. This technique fixes the vaginal cupola or the uterus to de promontorium sacrum with a mesh, by means of a laparoscopic entry point. It is a difficult technique, therefore we intend to assess the efficacy of using a PEEK (polyether ether ketone) harpoon, in order to improve the attachment point of the mesh to the promontorium. We use fresh cadaveric pelvic samples to dissect the promontorium sacrum area, in order to describe the anatomic relations, once the attachement of the harpoon to the promontorium has been performed. The efficacy of the fixation is measured using a dynamometer. We apply a 1N during 30 seconds and afterwards we pull to test all the elements (harpoon, net, sacrum). The measures taken verify the efficacy of this harpoon in order to attach the mesh to the promontorium as well as the safety of the anatomic region according to the surrounding structures. We conclude that PEEK harpoons give a good fixation of the polipropilene porous mesh to the promontorium sacrum. Financiado: NEOMEDIC.

O30. TEACHING INNOVATION IN ANATOMY LABS: PEER-TUTORING LEARNING

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Traditionally, dissection lab have been a fundamental part of anatomy subjects in medical degree. Usually, workshops are organized in groups of students with a "jefe de mesa" ("Chief Student", CS). The CS, always under supervision of a lecturer, helps the rest of the group to identify the anatomic structures on cadaveric samples. This had a distinct role, but in many cases lacked an evaluation in terms of knowledge, and especially in terms of competences.

The design of dissection labs lacked of enough structure to monitor the learning of CS, apart from the strictly cognitive competence on the matter. So, the teaching staff of the Department of Structure and Function of Human Body at UIC incorporate and evaluate a teaching innovation, the peer teaching from 2011-2012, to allow such monitoring and to optimize the learning of CS beyond the strictly theoretical concepts.

Peer teaching, properly structured and tested, can develop specific knowledge skills and other related skills, such as communication, autonomous learning, responsibility and commitment to others. Moreover, it improves the personal acquisition of knowledge about subject matter, since preparing contents in order to make them understandable to their peers is demonstrated to be an excellent way of learning.

The method selected was the Peer-tutoring, where a tutor (formerly CS) instructs his peers, following a structured teaching and learning pattern, led and evaluated by the lecturer. Results from preliminary study agree with references in terms of theoretical knowledge and various competences.

O31. 3D RECONSTRUCTION IN MULTISLICE CT FOR EVALUATION OF LUMBAR SPINE

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New multi-slice computed tomography equipment enables us to assess lumbar spine anatomy not only using sectional anatomical images but also with 3D reconstructions. 3D images allow us representing in one image the information that provides thousands of 2D axial images. We have now different types of 3D reconstructions, where the most used for evaluating lumbar spine are MIP reconstructions (maximum intensity projection) and VR (volume rendering).

The aim of this presentation is to provide a global view of the possibilities that reconstructions give us to evaluate the different anatomical structures of lumbar spine and its clinical applications including examples demonstrating the most common pathology. We will make a brief exhibition showing how we can make post processing of the images in the new workstations that we have available.

Development of new multi-slice CT allow us to make 3D reconstruction that shows closer and more accurately anatomy of lumbar spine. We need to know the possibilities of the new workstation reconstructions and its usefulness in clinical and teaching fields.

POSTERS

P1. LATERAL EPICONDYLITIS: VASCULAR COMPRESSION POINTS AND ANATOMIC RELATIONS

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The onset of lateral epicondylitis has long been discussed and several approaches have been considered. An important aspect that has been described is the poor microvascular supply for the lateral epicondyle and common extensor origin. Also poor vascularity has been related to bad tendon regeneration and therefore to tendinopathies. For these reasons we intend to describe the vascular system of the lateral epicondyle and forearm proximal extensor compartment. Our main aim is to demonstrate that during forearm pronation and hand extension (lesional mechanism described as onset for epicondylitis) the anterior recurrent radial artery (ARRA) and the recurrent posterior radial artery (RPRA) or interosseus recurrent artery are entrapped by the surrounding muscles which present an increase in diameter of muscle bellies and a change of disposition due to pronation. We use cadaveric elbow samples, previously injected with latex, to dissect its vascular system. We focus on the ARRA and the common interosseus trunk on its path through the interosseus membrane. A description of such arteries on a supine and prone position of the forearm, to find possible compression or impingement points, is performed. Anatomically, we confirm that during forearm pronation and hand extension the ARRA and the RPRA are compressed by the surrounding muscles. If the position mentioned is hold over time it could produce hypoxia and become or collaborate to the onset of lateral epicondylitis.

P2. MORPHOMETRIC STUDY OF THE VERTEBRAL PEDICLES

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The vertebral pedicles are the structures of union between the static portion (body) and the dynamic portion (arc) of the vertebrae. Its morphology is changes in their strength the same way as the vertebral bodies do, with the lowest larger in order to withstand the pressures and pulls.

Some of the treatments of vertebral crush fractures, vertebroplasty and kyphoplasty consist of expanding the vertebral bodies. These techniques require access to the vertebral body through the back of the pedicles, which are not the same caliber in all vertebrae. The most frequent pathologies which can alter the morphology of the pedicles are congenital malformations, tumors, trauma and osteodysplasia. Height and width of the vertebral pedicles of thoracic and lumbar areas from collection of 217 skeletons of known age and sex belonging to the Anatomical Museum at the University of Valladolid. Were measured the pedicle area is progressively greater from T1 to L5 and slightly higher in men than in women. No significant asymmetries were observed. The most commonly found variation was the spinal dysraphism. Knowledge of the dimensions of the pedicles in each sector facilitates use of the appropriate fasteners with minimal risk of eroding the pedicle cortex.

P3. THE POPLITEUS MUSCLE IN HIGH PRIMATES

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The morphology of the knee is a good indicator of the type of locomotion in primates. Most move on the ground supporting the 4 limbs and one gibbon has a real braquiadora locomotion. To facilitate the ability of the foot grasping the whole rear end is adapted to this function. The ability to twist the knee is limited and are preferably hamstrings are responsible for these movements. The popliteus muscle in man flexes and internally rotates the leg as well as having a stabilizing function of the knee because when you start bending, tightens the joint capsule. In all non-human primates the extended position of the knee fails to align the femur to the tibia, so there is always a push. We have studied the morphology of the popliteus muscle in the genera Hylobates, Pongo, Pan and Gorilla, watching the situation and direction of its fibers is similar in all species but the insertion is proximal to the external posterior joint capsule and lateral meniscus in Hylobates and Pongo, and Pan and Gorilla is in the proximal insertion is similar to humans, where the tendon inserts into the superior lateral condyle of the femur. Because hyperextension in primates is not common, perhaps the main function of this muscle in primates is not to facilitate bending, but the rotation and stabilization of the knee.

P4. REGIONAL DIFFERENCES IN TRABECULAR ARCHITECTURE BETWEEN THE LATERAL AND MEDIAL PARTS OF THE C4 CERVICAL ARTICULAR PROCESS

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The fourth cervical vertebra is considered to be the vertebra type of the middle cervical column. We have investigated the trabecular architecture of the C4 subchondral plate (SCP) in order to find their structural pattern, searching for differences between their medial to lateral halves, knowing its respective relationships to the costotransverse process and the pedicle respectively. In this study, eighteen AP (thirteen male, five female, 33-55 y) free of evident macroscopically signs of osteoarthritis were obtained from the dissection room of the Faculty of Medicine (U.M.H.). The specimens were analysed using a Scanco 80 mCT device with a pixel resolution of 34 mm. The images of each specimen were stored in 3D volumes. Each volume was virtually divided into two regions of interest, one medial and one lateral for morphometric analysis. Standard 3D-morphometry was carried using imageJ as well as customised software. The medial part of the SCP possesses higher BV/TV, Th and ConnD of the trabecular fraction and lower MV/TV, Tb.Sp and ConnD of marrow cavities with respect to the lateral one ($p<0.001$). SMI mean values indicated a stronger plate-like configuration in the medial part than the lateral one. Subregional analysis indicated that in both regions and from upper to lower levels, the BV/TV, SMI, and Th decreases progressively while the Tb.Sp and the ConnD of marrow holes increases progressively. The results indicated a clear difference in morphometrical indices between the medial and lateral regions of the C4 AP. Possible functional significance of the trabecular patterns are discussed.

P5. TORUS MANDIBULARIS AND ITS RELATIONSHIP WITH THE VERTICAL LOCATION OF THE MANDIBLE

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Torus mandibularis was defined as a benign hyperostosis located in the lingual aspect of mandible (Hrdlicka, 1940; Ossenberg, 1981). It is frequently observed in young adults and middle-aged persons (Haugen, 1992; Jainkittivong et al., 2007) and several factors have been proposed to explain its etiology: genetics (Suzuki and Sakai, 1960; Alvesalo and Kari, 1972), masticatory hyperfunction (Hrdlicka, 1940; Ossenberg, 1981) or an interplay of multifactorial genetic and environmental factors (Sellevold, 1980; Axelsson and Hedegard, 1981; Eggen and Natvig, 1991).

According to the masticatory hyperfunction, this bony formation was seen as a reaction to a continuous and long-time muscular stimulation (Hrdlicka, 1940; Ossenberg, 1981) and significant correlations did exist between the bite force and craniofacial variables (Raadsheer et al., 1999; Kovero et al., 2002).

We examined 112 lateral cephalograms of individuals between 18 to 25 years. They were divided into two groups: torus group (which presented bilateral torus mandibularis) and no torus group. The angle of mandible, the vertical relationship between the maxilla and the mandible and the vertical relationship between the base of the skull and the mandible were analyzed. There were no significant differences between groups in the chosen cephalometric measures (the angle of mandible, the lower facial height and the facial axis).

The appearance of torus mandibularis had no relationship with the vertical location of the mandible. Muscular strength, which influences the vertical facial skeleton, did not seem to be related to the etiology of torus mandibularis.

P6. THE SPINOUS FORAMEN REVISITED

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The knowledge of the irregularity of the Round Minor Hole (ARM) (Foramen Spinae) can contribute to the interpretation of different clinical manifestations of the vasculonervous package that crosses it. There were studied 58 adults hemicranias, of different age and sex, belonging to the geographical Iberian environment. The ARM had a Round morphology in 55,9% of the cases; nevertheless, it was Oval in 32,2%. The percentage with the Triangular form was 8,4%. The Scaphoid and Teardrop forms occurred in 1,6% each. Curiously, in the left side of one of the crania, there appeared two round orifices, corresponding to the ARM, with diameters of 1,5 mm and 1 mm; treating itself about a possible Double ARM.

P7. CALBINDIN AND CALRETININ IN THE DORSAL HORN OF THE SPINAL CORD OF THE RAT: ROLE IN THE ANALGESIC EFFECT OF THE PREGABALIN

Valverde Navarro AA; Taberner Cortés A; Ferrer Piquer S; Navalón Martínez H; Villanueva Pérez V; Cervera Ferri A; Teruel Martí V; Hernández Gil de Tejada T; Martínez Soriano F.

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The antiepileptic drug pregabalin (Lyrica) has been used successfully in the treatment of patients with several neuropathic pain conditions. Pregabalin is a 3-substituted γ-aminobutyric acid (GABA) derivative that shows specific binding affinity for the α2δ subunit of voltage-dependent calcium channels. Previous studies have focused on the spinal cord as the primary site of the analgesic effect of pregabalin. However, much more information will be required to reach a full and detailed understanding of the mechanisms respon-

sible for its analgesic effects. Our main objective was to analyze the effect of pregabalin on the activity of neurons in both calretinin- and calbindin-positive regions of the dorsal horn of the spinal cord of the rat, in an experimental neuropathic pain model, using the immunocytochemical detection of fos protein as a marker for the activity of these cells. We studied the changes that the administration of pregabalin (30 mg/kg i.p.), prior to the application of the neuropathic painful stimulus (sciatic nerve chronic constriction), produced in the pattern expression of proto-oncogene c-fos in the dorsal horn laminae of the lumbar spinal cord (L4/L5), and their relationship with the calretinin- and the calbindin-positive regions. The results showed that the most important changes in the pattern of activity of neurons in the dorsal horn of the spinal cord induced by pregabalin occurred in regions of higher immunoreactivity against calbindin and calretinin. Our results provide new data on the anatomical substrate underlying the mechanism of action of pregabalin.

P8. STEREOLOGICAL ANALYSIS OF NEURON, GLIAL AND ENDOTHELIAL CELL NUMBERS IN THE HUMAN AMYGDALOID COMPLEX. CHANGES DURING AGING

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Cell number alterations in the amygdaloid complex (AC) might coincide with neurological and psychiatric pathologies with anxiety imbalances as well as with changes in brain functionality during aging. This stereological study focused on estimating, in samples from 7 control individuals aged 20 to 75 years old, the number and density of neurons, glia and endothelial cells in the entire AC and in its 5 nuclear groups (including the basolateral (BL), corticomedial and central groups), 5 nuclei and 13 nuclear subdivisions. The volume and total cell number in each AC territory were determined on Nissl-stained sections with the Cavalieri principle and the optical fractionator. The AC mean volume was 956 mm3 and mean cell numbers (x106) were: 15.3 neurons, 60 glial cells and 16.8 endothelial cells. The numbers of endothelial cells and neurons were similar in each AC region and were one fourth the number of glial cells. Analysis of the influence of the individuals' age at death on volume, cell number and density in each of these 24 AC regions indicated that aging does not affect regional size or the amount of glial cells, but that neuron and endothelial cell numbers respectively decreased and increased significantly in territories such as AC or BL. These accurate stereological measures of volume and total cell numbers and densities in the AC of control individuals could serve as appropriate reference values to evaluate subtle alterations in this structure in pathological conditions.

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P9. NEURONAL PRIMARY CILIUM IN THE ENTERIC PLEXUS GANGLIA

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Introduction: The primary cilium is a non-motile cilium whose structure is 9+0. The presence of single cilia in the central nervous system (CNS) is well documented but the presence of primary cilia in the enteric nervous system (ENS) has not yet been described in mammals to the best of our knowledge. The functional and chemical diversity of enteric neurons reveals that the enteric nervous system closely resembles the CNS. This research work describes for the first time the ultrastructural characteristics of the single cilium in enteric neurons in the enteric plexus of the rat duodenum, and reviews the cilium function in the CNS in order to offer an explanation of the possible role of cilia in ENS cells.

Material and methods: The duodenum of four adult three-month-old Wistar rats (Rattus norvegicus) is analyzed by electron microscopy.

Results: In our study myenteric ganglion is located in the connective tissue between the circular and longitudinal muscle layers of the duodenum as expected. It shows a neuron and thick axonal trunks. A primary cilium is observed on the surface of the neuron and exhibits a 9+0 pattern. It has a length of about 2-3 µm. Synapses are recognized by electron dense reinforcements in the postsynaptic neuronal membrane, therefore the ciliated neuron is functionally active.

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P10. HYPOCRETINERGIC/OREXINERGIC PROJECTION TO THE VENTRAL ORAL PONTINE REM SLEEP GENERATION SITE. A QUANTITATIVE STUDY IN THE CAT

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Hypothalamic hypocretinergic/orexinergic (Hcrt/Orx) neurons occupy an outstanding place in the integration and stabilization of arousal networks as well as in the physiopathology of narcolepsy/cataplexy. The cat ventral oral pontine reticular nucleus (vRPO) is responsible for the generation and maintenance of rapid eye movement (REM) sleep. Low-volume and dose microinjections of hypocretin-1 in cat vRPO produced a specific and significant suppression of REM sleep. The aim of the present work is to map the local origin of the hypothalamic Hcrt/Orx neurons projecting to the vRPO suppressing REM sleep generation in the cat.

Following the European Community Council Directive for animal experimentation five animals received microinjections of a CTB solution in the vRPO. Brains were processed for both, CTB development and anti-hypocretin-1 immunocitochemistry. A noticeable number of double-labelled neurons intermingled with the single CTB-positive and single Orx-positive neurons were detected at ipsi and contralateral hypothalamic structures. Quantitative analysis indicates that percentage of double-labelled neurons referred to the total single Hcrt/Orx ones is 68.85%, averaged 18.75% in dorsal hypothalamic area, 17.85% in both, perifornical and anterior hypothalamic areas, 10.7% in lateral hypothalamic area, and 3.70% in posterior hypothalamic area. Our results suggest that Hcrt/Orx neuronal groups within distinct hypothalamic structures could physiologically inhibit REM sleep generation in vRPO; lack of Hcrt/Orx neurons in narcoleptic patients would be followed by a disinhibition of REM sleep generating vRPO neurons, giving an explanation of why these patients can fall directly into REM sleep from wakefulness.

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P11. STUDY OF THE BRANCHING PATTERN OF THE MEDIAN NERVE

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The aim of this study is to establish the branching patterns of the median nerve because of its clinical relevance in neuroprosthesis and microsurgical repair after injuries.

Eight median nerves from human cadavers belonging to our department were dissected (5 right & 3 left).

The median nerve, between the axilla and the metacarpal region, gives off 6 to 13 branches (9±0.6). The origin of the different twigs to the forearm flexor muscles and thenar muscles from the collateral median branches was variable. However, the number of twigs supplying each muscle was constant: almost all muscles received 1 or 2 twigs, except pronator teres, which received 2 to 4 twigs (2.63± 0.26), flexor digitorum profundus, 1 to 5 twigs (3.5± 0.5) and the flexor digitorum superficialis from 3 to 9 (5.4±0.7). In two specimens, the third lumbrical was also supplied by the median instead of by the ulnar nerve.

The variability observed in the pattern of origin of the twigs implies that a larger amount of arms is required to establish a general pattern.

This research was supported by funds obtained through postgraduate training courses by the UCM920547 group

P12. THIEL´S EMBALMED CADAVERS, AN ULTRASOUND PHANTOM TO DESCRIBE THE TRANSVERSUS ABDOMINIS PLANE (TAP) BLOCKADE

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Background: Ultrasound-guided transversus abdominis plane (TAP) blockade has been described, as a suitable analgesia after abdominal wall surgery. To realize a successful posterior TAP block, we have to inject local anesthetic in the TAP, in the lateral abdominal wall between the costal margin and the iliac crest. This block is useful for surgery below the umbilicus.

Objetive: The purpose of this report is to describe the anatomy of the lateral abdominal wall and the technique of the TAP block (single shot and continuous block). Thiel´s embalmed cadavers will help to the anesthetists to know the sonographic anatomy and to learn technical skills to realize this block.

Conclusions: Thiel´s embalmed cadavers - which color, consistency and transparency of the tissue are very well preserved- can be use as a phantom to familiarize with sonoanatomy of the lateral abdominal wall, in addition to learning the technique, needle placement and reliable method to detect the injectate spread of local anesthetic.

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P13. THE P73-DEFICIENT MOUSE: ANATOMICAL AND BEHAVIOURAL CORRELATIONS

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The transcription factor p73 is necessary for normal CNS development. The p73-deficient mouse has severe brain alterations, in particular hydrocephalus, congenital cortical hypoplasia, and a characteristic malformation of the hippocampus, which lead to early postnatal death. We achieved survival times of the mutant mice of more than 1 year, and carried out behavioural tests followed by examination of their brains.

The most striking and consistent features are the cortical hypoplasia, which is generalized but more severe in caudal areas, and the malformation of Ammon´s horn and dentate gyrus, accompanied by a defective formation of the hippocampal fissure.

These brain defects go hand in hand with a total learning inability of the mutant animals. Another feature of the mice is their almost austistic-like behaviour: they do not

interact with their littermates, nor do they display signs of aggression or fear, and they are sexually inactive. It is important to point out that the highest expression of p73 is in the vomeronasal organ; in the mutants, the accessory olfactory bulb is extremely reduced in size and lacks a glomerular layer, whereas the medial nucleus of the amygdala lacks a molecular layer. The hydrocephalus appears in the first postnatal days and may be attributed to a defect of the ependyma, another p73-positive structure, which leads to an ependymal denudation and loss of cilia in the ventricles. In the adult animals, there is a severe atrophy of deep nuclei, such as amygdala, septum and caudate. We conclude that the p73 protein is particularly important for those brain centres that regulate the social, sexual and intellectual aspects of life

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P14. ANATOMOPATHOLOGICAL CHANGES BASED ON OPTICAL COHERENCE TOMOGRAPHY (OCT) DURING DIABETIC MACULAR EDEMA TREATMENT WITH DOUBLE FREQUENCY NDYAG LASER

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Introduction: There are many epidemiologic studies of diabetic retinopathy; studies on patients with diabetic macular edema are less frequent, so prevalence and incidence values are usually included within diabetic retinopathy. At present worldwide macular edema prevalence is calculated between 7.5% and 15.2%.

Material and Methods: This is a prospective study including 80 eyes of diabetic patients of Ophthalmology with diagnosis of diabetic macular edema clinically significative treated with photocoagulation using double frequency NdYag laser. Including period was 2 years and follow-up 12 months.

Results: In 40 eyes with DME-1, 50% show a reduction or resolution of edema at 6 months with 1 or 2 treatment courses and 70% showed this results at 12 months with 1 to 4 treatment courses. In 24 eyes eighth DME-2 79.16% show a reduction or resolution of edema at 6 months with 1 or 2 treatment courses and 100% showed these results at 12 months with 1 to 4 treatment courses. In 16 eyes with DME-3 75% show a reduction or resolution of edema at 6 months with 1 or 2 treatment courses and 100% showed this results at 12 months with 1 to 4 treatment courses.

Conclusions: Optical Coherence Tomography (OCT) provides a better evaluation of edema in Diabetic macular edema after laser treatment. The results show that OCT is better than angiography in the diagnosis of this disease.

References: Ahmadi, M. Ahmir MD; Lim, Jennifer I. MD, Update on Laser Treatment of Diabetic Macular Edema, International Ophthalmology Clinics, Spring 2009 - Volume 49 - Issue 2 - pp 87-94

P15. BLOOD BARRIER IN THE OPTIC NERVE OF HYPERGLYCEMIC RATS

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The aim of this work was to describe the structure of the optic nerve blood- barrier vessels in control and in hyperglycemic animals. For that purpose, optic nerves from 2 months rats after 6 and 12 weeks citrated buffer or streptozotocin intraperitoneal inyected were studied by light and transmission electron microscopy. The intraneural vessels were counted, and the endothelial cell and basal lamina were measured. Vascular permeability and expression of major histocompability complex (MHC) class II molecules was explored by immunocytochemistry using antibodies against albumin and Ia OX6, respectively in both animal groups. Nerve optic vessels from hyperglycemic rats showed: i. endothelial cell and basal lamina thickening matched with the control group ii. Keeping pericytes, iii increasing of the endothelial cell transcytosis and iv. Increased number of perivascular macrophagic cells in the vascular wall. We could conclude that, the effects of hyperglycemia in the inner vessels of the optic nerve are more similar to those of the cerebral microcirculation than to those of retinal vessels in hyperglycemic animals.

P16. AGE-RELATED CHANGES IN HUMAN CORNEAL ENDOTHELIAL CELL DENSITY

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Specular microscopy makes it possible to study the human corneal endothelial cell density in vivo. We carried out a prospective study on 910 eyes of 455 subjects of an age that ranged from 20 to 79 years (mean ± SD, 49.52±15.81). We recorded the mean of three consecutive measurements of the endothelial cell density using the Topcon SP-2000P non-contact specular microscope (Topcon Corp., Tokyo, Japan). The mean endothelial cell density was 2723±327 cells/mm2. Lower corneal endothelial cell density values were found in older subjects ($p<0.001$). In sum, there is a reduction in corneal endothelial cell density with age.

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P17. AGE-DEPENDENT CHANGES IN THE EXPRESSION OF TRKB BY HUMAN MEISSNER CORPUSCLES

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Unlike other types of sensory corpuscles and nerve endings, which have very complex neuronal and growth factor dependence, the cutaneous Meissner corpuscles depend exclusively on the NT system TrkB/BDNF/NT-4. However, the pattern of expression of TrkB in human Meissner corpuscles in not known. The experiments in this study were designed to pursue further the findings that suggest that BDNF and NT4 have critical roles in the development and maintenance of Meissner corpuscles, by analyzing the pattern of expression of TrkB, their high-affinity receptor, in human glabrous skin at different ages from 8 weeks of life to old subjects. In developing Meissner corpuscles TrkB was expressed in the axon supplying the corpuscles (until 18 months of age). Thereafter there was a switch in the localization of TrkB which was restricted to the lamellar cells of Meissner corpuscles. Importantly that the number of Meissner corpuscles that express TrkB significantly decreases in subjects older than 50 years. All together these results lend support to the role of BDNF and NT4 in mechanoreception.

P18. MORPHOLOGICAL VARIATIONS OF LYMPHATIC VESSELS IN MEXICAN POPULATIONS. THEIR CLINICAL AND SURGICAL APPLICATION

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Objective: To demonstrate the clinical and surgical importance of the morphological variations of lymphatic vessels in Mexican populations.

Material and Methods: A total of 300 lower limbs lymphographies were carried out in patients of several diseases. The technique of John B. Kinmonth was performed; the patent blue V dye and the Lipiodol or Ethiodol contrast medium were used for the identification of lymphatics with a maximum of 12-14 ml. of total dose (Nº 30 catheters).

Results: 162 men (54%) and 138 women (46%) were studied. Anatomical changes related to age, gender, Caucasian or pathology were not observed. We believe that variations dependent of the embryological development of each case. The termination of the thoracic duct was considered normal in 274 cases (91.3%). In contrast 8.7% had some type of changes, being more frequent double termination of thoracic duct (30.7%). We also analyzed 3 cases ending in the internal jugular vein at the cervical 7 (11.5%). With regard to cysterna chyli, 294 cases that were considered normal, and variants in tits location was not found. The most common location of the cysterna chyli was in the thoracic vertebra 12 with a 2%.

Conclusions: We cant demonstrate the existence of a greater number of anatomical variations of the thoracic duct and the cysterna chyli, noting in a relevant way that there is some correlation between organic disease and alteration of the anatomy of the lymphatics.

P19. ARTERIA BRACHIALIS ACCESSORIA: CASE REPORTS

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Although the arterial variations of the superior extremity are not rare, some of them can be of high clinical relevance, both in diagnostic and treatment interventions - transradial catheterization used for coronary procedures, radial artery harvested for aortocoronary bypasses, surgical procedures. The arteria brachialis accessoria is a rather rare variation, its incidence is reported in less then 1% of cases. Its definition is derived from two points: firstly, it originates either from the arteria axillaris or the arteria brachialis, and secondly, it rejoins the arteria brachialis distally, in the fossa cubitalis or more proximally in the arm. Our cases were found during routine dissections in females bodies, both unilaterally. The arteria brachialis accessoria originated from the pars infrapectoralis arteriae axillaris and then descended distally along the medial side of the arm. It returned to the arteria brachialis and drained into it within the distal part of the arm, close to the musculus biceps brachii. The clinical relevance sticks in its narrower caliber than that of the arteria brachialis, which can be responsible for the failure of the transradial catheterization.

P20. SOMATOCHART, CARDIOVACULAR RISK FACTORS, QUALITY OF LIFE AND PHYSICAL ACTIVITY

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Introduction: Our aim is to find out if there is a relation between Human Anatomy and cardiovascular risk factors, quality of life and physical activity. We have made an

anthropometric study using the Heath-Carter method. After that we have built somatocharts to view the results.

Material and Method: We have studied 30 to 65 –year-old people, men and women, registered in a Health Centre. We arranged an appointment with each patient. Then, we did the patient's clinical history and took basic measurements following the ISAK's (International Society for Advancements in Kinanthropometry) protocol, restricted profile. Weight, height, girths (waist, hip, relaxed and tensed arm, calf and antero-posterior chest depth), breadths (humerus, femur, distal styloids) and skinfolds (biceps, triceps, subscapular, supraspinale, iliac crest, abdominal, front thight and medial calf). Furthermore, we made a double blood pressure measurement and each patient filled out two surveys about quality of life (Euroqol-5D) and physical activity (LTPA, Minnesota Time Physical Questionnaire – abbreviated version).

Results and Conclusions: In general, we observed that the higher the value for cardiovascular risk factors, the higher movement in the somatochart to the up-left corner (less X and higher Y). This happened for high levels of blood pressure, dislipemia, diabetes mellitus, alcoholic habit, SCORE scale and REGICOR scale (scales to measure cardiovascular risk). Patients with poor life quality and less physical activity are also reflected in this area.

Conclusion: Healthy patients are in the central area of the somatochart. Therefore, we must change our population´s diet and hygienic habits in order to modify their anthropometry and get them in the Realeaux triangle.

P21. EMPLOYMENT OF POLYPROPILENE, POLYDIOXANONE OR SILK AS SUTURE MATERIALS IN TERMINO-TERMINAL ANASTOMOSES IN MUSCULAR AND ELASTIC ARTERIES, AND VEINS

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Purpose of the Study and Methods: Currently, the effects of the employment of suture materials has been evaluated in muscular arteries, and between the most studied suture materials are: nylon, polyglactine, polypropilene and polydioxanone. There have been no studies about the response of these materials in the rest of the conduct types (elastic artery and veins). In this research, we characterized the effects of the suture materials in different types of blood vessels. We performed vascular termino-terminal micro-anastomoses in aorta arteries (elastic), femoral arteries (muscular) and cava veins of Wistar rats, using polydioxanone, polypropilene and silk as suture materials. We found out that elastic arteries go through a transitory enlargement of the tunica media using any suture material. In muscular arteries, we observed that same tunica media enlargement only when silk was used. There were no changes using any material in veins.

Contributions and Conclusions: The results of this research allow us to discard these suture materials as a factor involved in complications such as thrombosis, re-stenosis, and formation of atheromatose plaques. We infer that suture materials are not involved in these complications of revascularization surgery procedures, reason why we should study other factors that could explain the variations in the patients clinical course, such as pressure changes and micro-environmental changes.

P22. ANATOMICAL APROACH OF LEFT VENTRICLE POSTINFARCTION PSEUDOANEURYSM: PRESERVING THE VENTRICULAR GEOMETRY

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Introduction: Left ventricular pseudoaneurysm occurs in most cases as a result of transmural myocardial infarction. This fact could produce a free-wall rupture that in a few cases is contained by the adjacent pericardium.

We reviewed the anatomical characteristics of four patients diagnosed of postinfarction left ventricle pseudoaneurysm and the surgical technique performed. To illustrate the surgical features of these anatomic types, we described two cases well differenced.

Surgical Disclosure: We open longitudinally the pseudoaneurysm, avoiding the resection of its wall. Afterward we try to indentify the pseudoaneurysm neck. If it were a typical one, we would find a narrow neck. Sometimes the gateway edges are consistent enough, with optimal fibrous tissue, to support a directly repair based on a suture-line. Although it is possible, we suggest an approach directed to preserve the normal ventricular geometry, particularly in posterior-inferior pseudoaneurysm. The direct repair in this location could modify, by the suture traction, the appropriate position of the papillary muscles, what could generate or increase mitral regurgitation. Thus, we use a Dacron/PTFE wide patch in all cases, especially in pseudoaneurysms with bigger neck in which there are a lot of non-viable myocardial tissue, to ensure the optimal anatomic reconstruction.

Conclusion: The surgical goal is to preserve or to remodel the ventricular chamber anatomy. This fact normalizes the ventricular geometry, not only removing the wall discontinuity that generated the pseudoaneurysm. Final prognosis of these patients is conditioned by the underlying ischemic cardiomyopathy and mechanical complications, such us mitral regurgitation or ventricular septal defect.

P23. ANTHROPOLOGICAL STUDY OF THE SKELETAL REMAINS FOUND IN THE JEWISH NECROPOLIS OF RECOLETOS (VALLADOLID)

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The company FORAMEN Study of Archaeology, S.L., forwarded to the Department of Anatomy and Radiology, for anthropological study, the skeletal remains of 75 burials from the Jewish cemetery (XII-XIV) discovered during the refurbishment of the promenade Acera de Recoletos in Valladolid. We proceed to identify the remains and, in each case, the inventory of the bones, the estimate of the age, sex and height and the paleopathological diagnosis. The results set out the following conclusions:

-The good identification of the remains and the presence of numerous small bones and teeth indicate that they are primary burials.

-The remains of 39 individuals belonging to children, 4 adolescents, 23 adults (21 to 50 years) and 9 individuals over 50 years. They also appear remains of some artiodactyls.

-No significant difference in genus in adult, appearing 15 men (mean height 170 cm) and 18 women (mean height 162.5 cm). The rest are alofisos.

-The paleopathology found is low, there are 8 cases of osteoarthritis in the vertebral bodies, a clavicular fracture and a radio with formation of a pseudoarthrosis; an curved ulna and a shorted radius. The paleopathology reveals the presence of dental caries (13), scale (6), dental wear (5) and apical cysts (2).

-It is reported a high infant mortality, possibly due to epidemics of infectious diseases that rarely leave their mark on the skeleton. No signs of violence, injury or amputation are noticed. In some bones appear blackened areas due to the presence of fungi.

P24. MULTISLICE CT STUDY IN THE ANATOMICAL WAX MODELS

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The anatomical wax models had their time of splendor in centuries XVIII and XIX. The application of the Renaissance techniques of ceroplástica gave rise to the appearance of escultores specialized in the biological specimen reproduction like those of human anatomy, animal and botany. In 18 ** the Vasseur-Tramond House of Paris begins the commercialization of models anywhere in the world, in its majority for Universities and schools of medicine. In addition to the models of normal anatomy they mainly have reproductions of pathologies of dermatology and malformations. The Anatomical Museum of the University of Valladolid through Professor D. Salvino Sierra y Val acquired the complete collection of models in wax of the French house at the end of century XIX. At the moment 218 in different state from conservation are conserved. The manufacture of these models been always has surrounded by I pull ahead of mystery since each ceroplástico kept its way to make own like professional secret. In general, on a mold removed from a dissection made by anatomists, the wax colored by layers was applied. In many of them the use of natural skeletons assembled with wire is clear and metal bars. With the purpose of knowing the way better manufacture of these models, one of them by means of the accomplishment of a CT studied multicuts (64 detectors) and to reconstructions 3D. The images revealed the use of natural bone for the skull and it was verified like the different planes: skin, subcutaneous cellular weave and muscles had different densities, which makes think that they were applied by layers. The most revealing data was to verify than the system of the artery carotid that was in its cervical and face passage with branches of small caliber, presented/displayed a density metal in all its passage and of by this it could be isolated of surrounding weaves. The expicación to this single fact can have to the fact that the carotid glasses and their branches were injected in the corpse with some metallic compound (lead, mercury) and later to its solidification and corrosion they were transposed to the wax sculpture.

P25. ABERNETHY MALFORMATION ASSOCIATED TO UNUSUAL RENAL VASCULAR PATTERN IN THE CADAVER OF A WOMAN

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Students of the Faculty of Medicine, Universidad Complutense de Madrid, Department of Human Anatomy and Embryology II performed the dissection of 10 cadavers during students´dissection courses. During the course of these dissections was observed variation of the renal vessels in the body of a woman. This pattern of renal vasculature was different in right and left kidney, and differed from the standard pattern of the population. Furhermore inferior mesenteric vein drained into the left renal vein. With the macroscopic observations and based on the studies of Morgan and Superina the individuid had what is known as congenital extrahepatic porto-systemic shunt (CEPS). In this work it is analyze in detail the vascular pattern found in this cadaver. This knowledge may be important in clinical anatomy. Acknowledments This work would not have been possible without the cooperation of all personnel of the Department of Anatomy and Human Embryology II. Also to thank all the students in the class 2A second course of the degree in Medicine who participated in the dissections and Noemí Fernández Arriero.

P26. STUDY OF THE VERTEBRAL COLUMN MORPHOGENESIS OF HUMAN EMBRYO DURING PERIODS AND EARLY FETAL.

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We track the evolution of morphogenesis of the human vertebral column, studied: embryos, branchial periods (5 embryos) and post-branchial (7 embryos) and fetuses, whose lengths range from 35 to 250 mm. v.c. (13 fetuses), in order to establish the morphogenic the same time. At the end of embryonic period, human embryos 56 days old and 30 mm. length vc, vertebral column appear in the cartilaginous zones of apoptosis initially visible in the sheets and then into the vertebral bodies in a phase of development of the spine which has not yet completed the formation of cartilaginous mold spinal parts. These areas are considered, erroneously, as the onset of osteogenesis in the spine because, as we show, the real beginning of the ossification occurs at the end of week 12 or early 13 of morphogenesis, when buds invade vascular and destroy the previously formed areas of apoptosis. It confirms that the osteogenesis of the vertebral bodies of the dorsal region, lumbar and sacral precedes that of the vertebral arches, while the opposite is true cervical region. Ossification of the vertebral bodies progresses bidirectionally from dorsal region, where he started to crawl towards the cranial and caudal quickly. Whereas, the ossification of the vertebral arches are made slowly so craniocaudal.

P27. HIF1α IN THE DIFFERENTIATION PATHWAY OF LIMB MESODERM CONTROLLED BY TRANSFORMING GROWTH FACTOR β (TGFβ).

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The family of transforming growth factor β (TGFβ) has been proposed as key signals modulating connective tissue differentiation in embryonic and adult systems. We have recently shown that TGFβ modulates cartilage and tendon differentiation of embryonic limb mesenchyme by regulating the expression of Sox9 and Scleraxis, master transcription factors for chondrogenesis and tenogenesis respectively. Limb mesenchymal cells differentiate into fibrous or chondrogenic tissue, under the influence of TGFβ, in function of the presence or absence of some corregulators of this pathway. In this regard it is necessary to find new players able to interplay with TGFβ in the process of cartilage and tendon differentiation. In this work we have explored the expression and function in chicken limb mesenchyme of the basic helix-loop-helix transcription factor Hif1α (hypoxia-inducible factor 1, alpha subunit), whose expression is associated to these connective tissues during development. We show in the developing limbs that Hif1α is under the control of TGFβ signaling and is expressed in cartilage and tendons. Functional analyses indicate that Hif1α promotes chondrogenesis and inhibits fibrogenesis modulating the balance between key molecules which take part in the process of cartilage and tendon differentiation.

P28. DETERMINATION OF MGMT PROMOTER METHYLATION AS PROGNOSTIC FACTORS IN GLIOBLASTOMA PATIENTS TREATED WITH TEMOZOLOMIDE

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Glioblastoma (GMB), the most common primary brain tumor in adults, is a rapidly progressive and fatal disease with a median overall survival of less than 1 year. Assessment of promoter methylation of the O 6-methylguanine DNA methyltransferase (MGMT) gene has recently gained importance in molecular profiling of this pathology. Although epigenetic silencing of the MGMT gene promoter has been associated with prolonged survival in glioblastoma patients it is unclear if their determination will be an important prognostic marker and/or a predictive marker for response to temozolomide in patients with newly diagnosed glioblastoma. In order to help determine this possible connection we analyze MGMT promoter and survival in 79 patients with GMB. Samples were obtained from the Anatomopathological Service of Hospital Virgen de las Nieves from Granada (Spain) and Universitary Hospital of Sassari (Italy). All patiens were treated with TMZ followed with radiotherapy. Genomic DNA was isolated from paraffin embebed tissue samples. MGMT promoter methylation was determined by methylation-specific polymerase chain reaction after bisulfite treatment. Progression survival was calculated according to the Kaplan-Meier method. MGMT promoter was methylated in 34 patients (43%) and unmethylated in 45 patients (57%). Significant correlation was observed between MGMT promoter methylation and patients survival treated with TMZ ($P = 0.002$ by the log-rank test). The results suggest that the determination of MGMT promoter methylation status might be a predictive and prognostic biomarker in the treatment of patients with GBM and that the methods employed for its assessment could be used to therapeutic decision.

P29. STUDY OF THE GENE EXPRESSION PATTERS IN PERIPHERAL BLOOD IN PATIENTS WITH PANCREATIC ADENOCARCINOMA FOR EARLY DETECTION OF THE DISEASE

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Pancreatic cancer is among the five leading causes of cancer death in the developed world. 95% of malignant tumors of the pancreas are ductal adenocarcinoma. In most cases diagnosed at an advanced stage, so that patients with tumors localized resectable distant metastases. One of the problems to monitor gene expression changes in the patient is to obtain tumor tissue during treatment. However, the pattern of gene expression in peripheral blood mononuclear cells may reflect the tumor tissue, so their analysis is, ease of obtaining a proper way to conduct the study compared to the biopsy. The aim of this paper is to analyze the pattern of gene expression in peripheral blood of patients with adenocarcinoma of the pancreas before and after treatment to identify new biomarkers indicative of response. The determination of different marker molecules in cancer may lead to improved diagnosis of this condition and the ability to discriminate between the effectiveness of different types of treatment. In most cancers, and for most of the available treatment regimens, there is no predictive determination of the effectiveness of therapy to allow choosing the most effective treatment in an individual patient. In the case of pancreatic cancer, comparing the expression profile before and after the illness will allow us to identify changes in expression associated with it. Our preliminary results indicate the existence of genes with increased expression in patients with adenocarcinoma of the pancreas. In summary, we demonstrated differences in expression between patients with adenocarcinoma of the pancreas before and after illness. Although our results are preliminary, they point to the possibility of obtaining a peripheral blood biomarker that enables selection of patients with this cancer.

P30. INCREASE OF ADRIAMYCIN CITOTOXIC ACTIVITY BY ADRIAMYCIN-LOADING INTO NANOPARTICLES FOR BREAST CANCER

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Adriamycin (ADR) is an anticancer agent that has been demonstrated to be effective in the treatment of a wide variety of solid malignancies. This drug suffers from serious drawbacks, appearance of resistances in tumor cells, and a short plasma half-life thereby generating the need to use high doses, leading to severe dose-limiting side effects. The new strategies for cancer treatment has determined the development of biodegradable colloids for the selective delivery of chemotherapy agents to the tumor. The present study is focussed on the formulation of poly(butylcyanoacrylate) nanoparticles (PBCA) loaded with ADR, the amount of drug loaded to the polymer and its release profile and the anticancer activity of ADR-loaded PBCA in vitro. PBCA were synthesized by emulsion/polymerization in an aqueous solution. Mean particle sizes were determined and confirmed by photon correlation spectroscopy and high resolution transmission electron microscopy. Drug loading to the biodegradable colloid was investigated by dialysis method. In vitro assays were realized using the breast cancer cell line MCF-7. IC50 values for adriamycin nanoparticles and free adriamycin were determined by measuring the inhibition of cell growth using a MTT assay. Studies of incorporation into the cell of ADR were performed using flow cytometry. In vitro assays showed that adriamycin nanoparticles showed 5-fold lower IC50 values in MCF-7 than those of free adriamycin (1 M-0,2 M). Cytometry studies identified a greater incorporation of ADR. The remarkable anticancer activity of ADR-loaded PBCA comparatively to free drug, suggests that the PBCA are potential carriers for efficient delivery of ADR to cancers.

P31. ORIGIN AND DEVELOPMENT OF THE SO-CALLED CANAL OF THE DECIDUOUS DENTITION

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This study explains the formation of the canal of the deciduous dentition or Serres' canal, described by this author in 1817. Serres related this canal to the deciduous dentition and according to him contained arteries. Recently, Rodríguez-Vázquez et al. (2011) demonstrated that Serres' vein was formed by a confluence of a venous drainage from both areas of the endochondral ossification of Meckel's cartilage and the membranous ossification of the symphyseal region of the mandible.

At 8 weeks Pcd, no canal was detected in the body of mandible. At 9-10 weeks, the small vein ran at a wedged angle between the two laminae of membranous ossification when they converged. Thus, the vein was located caudally to the inferior alveolar nerve, artery, and vein. At 11 weeks Pcd, an incomplete bony canal (i.e. Serres' canal) appeared around the vein. At 12 weeks Pcd, Serres' canal was completely formed, caudally to the inferior alveolar nerve. At 13-

15 weeks Pcd, a bony canal for the vein (i.e. Serres' canal) was consistently visible in the medial aspect of the ramus. Serres' canal was located dorsally to the mandibular canal.

Serres' canal was not only a constant formation but also the first canal that constituted during the fetal period and according to Rodríguez-Vázquez et al. (2011), contained a vein (Serres' vein) that seemed to be a unique drainage route of the ossication, not for the tooth germ. Serres' canal or canal of the deciduous dentition not seemed to be related to the deciduous tooth germs.

P32. THE CHOICE OF THE TEACHING LEARNING CENTERED METHOD KEYSTONE IN A HUMAN ANATOMY COURSE

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Objective: The purpose of this investigation has been to evaluate the advantages of the constructivist learning-centered approach method opposed to the conference style teaching centered method during a Human Anatomy course.

Material and Method: 40 students were randomized between two methods. The learning and student satisfaction were explored, regarding the used method, by applying a pretest and a post-test, made specifically for this investigation.

Results: By the end of the course, the results showed that when the learning-centered approach method was used, students had better learning profit than when the teaching centered method was used ($p<0.01$). The level of learning profit of the students is in direct relation to education strategy used during the course. Also, the level of learning profit is in direct proportion to the student satisfaction. We also noticed that the acquired knowledge during the Human Anatomy Course was consistent because by applying the evaluation method ten months later we obtained similar results.

Conclusions: The learning-centered approach education strategy has more advantages than the teaching centered one; therefore the implementation of this strategy will leave a consistent education and an easier learning. In consequence, it is important to consider the learning centered strategies, allowing the student to build its own knowledge, with more dispositions towards learning, more occupied in the process than in the product; willing to make decisions and to choose his own learning and knowledge route.

P33. THE VALUE OF THE MENTORING BEGINNING TEACHERS IN THE SCHOOL OF MEDICINE

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All investigations agree on the importance for a beginning teacher the first years of teaching. It is essential to guide this group, development and evaluation of training programs that provide food for thought for teachers and thus improve their professional practice. The project has focused on the School of Medicine and has been developed from the accreditation obtained in the course of Teachers Advisors (over 10 years of experience) and Novice teachers (less than 5 years) doing the course on the teaching, organized by the Vicerrectorado for Quality Assurance. The actions taken are a program of help and support, both academic and educational for the young teacher. The experienced faculty has guided the teacher mentored in their first experiences as teaching professionals, facilitating their immersion in the professional and institutional culture. It held an initial interview planning, develop a timetable for developing the different activities (analysis of the literature, supervision sessions, class attendance, video-recordings, sharing and analysis of the different actions). Monitoring sessions have led to the diagnosis of identified needs and designing different activities and strategies for improvement. Monitoring sessions have formed the basis for establishing the elements of improvement and monitoring progress, to advise the beginner and reflect together (mentor and novice) on the role of teachers in higher education.

P34. STUDY OF HUMAN ANATOMY EXPECTATIONS IN FIRST YEAR STUDENTS OF MEDICINE

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Expectation is defined as the subjective assessment of the possibility of achieving a specific goal. Teachers have traditionally been considered as people who influence with their expectations in students. The opposite situation has barely been considered: the student influence on the teacher. To achieve the excellence at the University, it is necessary to consider what the student wants or expects in terms of training and the service that the University offers. Human Anatomy is a basic science and fundamental in the process of knowing the health status in humans. In this subject, it is taught the knowledge of the human body as well as skills

and attitudes needed in clinical practice. With this background, our goal is to establish the design of a standardized evaluation system that incorporates useful and reliable expectations and preferences of the learning-teaching methods and student assessment procedures and issues that contribute to improving teaching quality in the teaching of Human Anatomy. We present the results of a survey of students in first year of Medicine. Some of the options listed are: fenrolled in this course by vocation (19%). Knowing the human body is what we expect from the Human Anatomy course (59.8%). Problem based learning (47.1%) is preferred to lecture (20.7%). The theoretical exam (58.6%) is the preferred method of evaluation, followed by the practical exam on cadaver (23.6%)

P35. AN AUDIOVISUAL MATERIAL WITH ANXIOLYTIC PROPERTIES: INTRODUCTION TO HUMAN ANATOMY AND DISSECTION

Arráez-Aybar LA[1], Casado-Morales I[2], Castaño-Collado G[3], Mérida-Velasco JR[1], García-Gómez S[1], Conejo-Menor JL.[1]

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Anxiety is an emotional reaction shown by students when a human cadaver is being dissected (Eur.J.Anat (2007), 11(Supplement 1):67-71). The students' anxiety response is first determined by the situation itself and reactions depend on individual differences. Repeated or gradual exposure (detailed verbal information on the situation, visits to dissecting rooms when no cadaver is present, videos showing pictures of human dissections, etc.) before carrying out the first dissection reduce the students' anxiety response (Anat Rec (Part B: New Anat) (2004). 279B:16-23) This study presents the design, effect and utility of using audiovisual material containing real images of dissected human cadavers as an innovative educational strategy (IES) in the teaching of Human Anatomy (Reduca. Serie Medicina.-Anatomía humana-(2010),2(2):1-9). The study included 303 first-year Human Anatomy students, randomly assigned to two groups (Traditional and Educational Innovation). Their state of anxiety was measured using the State-Trait-Anxiety Inventory. Repeated measures ANOVA with between-subject factors was applied. These results provide an additional element of efficacy to the use of videos as an IES. That is, the use of video material as an introduction into an anxiety provoking situation which resembles real-life viewing and interaction with human cadavers for the first time significantly diminishes the anticipatory reaction of dread against which novel students have not had the opportunity to develop any cognitive strategy of emotional control (Adv in Health Sci Educ (2011) DOI 10.1007/s10459-011-9307-2).The video is available at: http://complumedia.ucm.es/buscar.php?txtbuscar=arraez

Study supported by Innovation Educative Project (PIE 2000/16) from Complutense University of Madrid.

P36. DIFFERENTIAL DISTRIBUTION OF ACID-SENSING ION CHANNELS AND TRP ION CHANNELS IN PERIPHERAL SENSORY ORGANS OF ADULT ZEBRAFISH

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The peripheral sensory system of teleosts consists of specialized sensory organs able to detect mechanical and chemical environmental stimuli. The mechanosensory cells are grouped into functional units called neuromasts that form the lateral line system. The chemosensory cells are grouped into taste buds and sparse in the lamellae of the olfactory epithelium. Moreover scattered solitary chemosensory cells are present in the skin. All these sensory cells contain ion channels that are at the basis of the organ-specific transduction that converts different types of stimuli into electric energy. Acid-sensing ion channels (ASIC) monitore acid sensing and mechanoreception, while transient receptor (TRP) ion channels are involved in sensing temperature, light, pressure, as well as in detecting several chemical stimuli. In this study we used PCR, Westernblot and immunohistochemistry to detect ASIC and some TRP proteins in the peripheral sensory organs of adult zebrafish. In neuromasts were detected TRPV4, ASIC2 and ASIC4; in the olfactory epithelim they were TRPV1, TRPV4, and all four ASIC proteins; finally, TRPV4, ASIC3 and ASIC4 were detected in traste buds. These results are of potential interest because mutations in different TRP and ASIC channels have been linked to a variety of diseases, and zebrafish is a common model used to investigate human diseases involving sensory organs.

P37. MEISSNER CORPUSCLES: MECHANORECEPTORS AND MUCH MORE. INITIAL GUIDELINES FOR CLINICAL APPLICATION

López-Muñiz A[1], Calavia MG[1], Cabo R[1], García-Suárez O[1], Viña E[1], Menéndez-González M[1,2], del Valle ME[1], Vega JA.[1,3]

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During the last decade skin biopsy has been confirmed as a tool for providing diagnostic information on some peripheral neuropathies. Most of the studies were focused on intraepithelial nerve fibers. Conversely, few studies have investigated large myelinated fibers or whether human Meissner corpuscles change or not quantitative or qualitati-

vely in pathologies of the peripheral or the central nervous system. The main aim of this presentation is to provide a comprehensive review on Meissner corpuscles including its distribution and structure, density and age-dependent changes; its development, neuronal dependence, proteins and physiology. We also remark their involvement in several pathologies; at the time we suggest including Meissner corpuscles in the routine study of skin biopsies. Finally we propose a protocol to study Meissner corpuscles in skin biopsies and give a vision on future perspectives for implementing their study in clinical practice.

Very recently another unexpected function for Meissner corpuscles has emerged. In the palatal Meissner-like sensory corpuscles of the mouse there are clusters of neurogenic cells. Here also present the preliminary studies of our group demonstrating the occurrence of nestin-positive cells in human cutaneous Meissner corpusles.

P38. HALLUX VALGUS. A PATHOLOGY THAT EXISTS SINCE MANY YEARS AGO

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Hallux valgus is a common disease, usually associated to the wearing of boots or shoes that constrict toes. Hallux valgus alters bone structure of the first metatarsal bone, the sesamoid apparatus and the proximal phalanx. These alterations are of paramount importance for archaeologists, since its finding in an ample population group may indicate the use of boots or shoes as described previously. Based on these facts we analysed the presence of hallux valgus following the criteria defined by Marfart and Mays, based on inspection of the articular surface of the first metatarsal bone. We found, on 77 individuals buried (towards the end of the 18th century) at the church La Concepción (Santa Cruz de Tenerife), that 33,33% showed lateral deviation of the metatarsophalangeal joint; 45,76% lateral subluxation of the sesamoid complex, and 29,52% erosions of the medial aspect of the head of the first metatarsal bone, and 39,05%, medial exostosis. There was an association between the site of inhumation and the presence of hallux valgus, suggesting a higher prevalence in relation with a higher social class. Given that the eroded area in the metatarsal bone head increases as the subluxation of the first phalanx evolves, a relationship between the angle of hallux valgus and the eroded area of the metatarsal head must exist. This is prospectively analysed here, using the corpses kept at the Dept. of Anatomy of the School of Medicine of the University of La Laguna.

P39. INDIVIDUALS DISCRIMINATION FROM HUMAN SKIN AND FAT BY LASER INDUCED BREAKDOWN SPECTROSCOPY AND NEURAL NETWORKS (LIBS-NNS)

Fernández García MG, Mérida JR, Campos JFS, Moncayo S, López N, Ugidos T, Izquierdo Hornillos R, Manuel de Villena FJ, Cáceres JO.

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Individuals Discrimination from Human Skin and fat by Laser Induced Breakdown Spectroscopy and Neural Networks (LIBS-NNs) M.G. Fernández García; J.R. Mérida; J.F. Departamento de Anatomía y Embriología Humana II, Facultad de Medicina U.C.M. S. Campos; S. Moncayo; N. López; T. Ugidos, R. Izquierdo Hornillos; F.J Manuel de Villena; J.O. Cáceres Departamento de Química Analítica. Facultad de Ciencias Químicas U.C.M. Abstract The aim of this work was carried out to study with identification purposes of skin and adipose human tissue, using Laser Induced Breakdown Spectroscopy technique and neural network (LIBS-NNs). In this study samples, come from 9 individuals, and was taken from two parts of each one (front and rear thigh). Using LIBS technique, we get a spectrum of atomic emission lines of Ca, Sr, Mg, Fe ions etc. which are part of the mineral composition of tissues under study. The use of this analytical technique is justified for several reasons. The first one, the sample preparation does not require a special treatment. The second one, the analysis can be carried out in any aggregation state and can be done using a tiny portion of tissue (micrograms). Moreover, the identification spectra of elements from the sample under analysis obtained can be considered as a fingerprint of each person. The results obtained shown 100% reliability in individual identification.

P40. ABNORMAL EXPRESSION OF AROMATASE P450 IS INVOLVED IN THE PATHOGENESIS OF SPONTANEOUS PROLACTINOMAS

Blanco E, Rubio M, Riesco JM, Carretero-Hernández M, García-Barrado MJ, Iglesias MC, Palomero J, Burks DJ, Carretero J.

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This study demonstrates, demonstrated by using western blotting, immunocytochemistry and in situ hybridization, the abnormal location and amount of Aromatase P450 in spontaneous prolactinomas obtained from rodents and human pituitary glands.

The abnormal expression of aromatase is accompanied by the increased expression of estrogenic receptor a, in tumoral cells. Like to occur in the estrogenic-dependent breast cancer, our human prolactinomas show high amounts of estrogenic coactivator AIB-1, which have an high mitogenic effect.

Aromatase metabolizes testosterone to 17-b estradiol in the pituitary gland. The estradiol is coupled to estrogenic receptor and by this way stimulates le existence and action of AIB-1. As consequence of these, the cellular proliferation is increased (labelled by means of PCNA marker) and the apoptosis is inhibited mediated by increases of anti-apoptotic protein Bcl-2 and the absence of active caspase 3.

These pathogenetic events could be related to an abnormal intracellular localization of two anti-tumoral proteins, both regulators of cellular cycle, p53 and p27 are retained in the cytoplasm of the cell; because they are not transported to the inside un the nuclei they are unable to develop their regulatory functions.

The abnormal expression of aromatase do not modify the presence of D2L isoform of dopaminergic receptor, this suggest that dopamine is able to act and develop their inhibitory role, and suggest that the pituitary production of estradiol by aromatase is very important in the pathogenesis of this pituitary adenoma.

P41. INTERACTIVE GUIDE OF SURGICAL ANATOMY OF FOOT AND ANKLE

Carretero J, Vázquez T, Rodríguez-Niedenführ M, Marco F, Carretero-Hernández MP, Carretero M, Carretero-Hernández M, Sañudo JR.

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An interactive software application containing the most important anatomic structures, their spatial relations and different dissection plains, which know is necessary for a right surgery of foot and ankle, is presented.

The application contains one video tape explaining the general guides for anatomical dissection, detailed explanation on standards for dissection of skin, fascias, vessels, nerves, and muscles.

More over it show 3 chapters on Anatomy and dissection of the ankle, the back of the foot and the sole of the foot; all them with submenus for every one.

During the days of the Congress, at coffee-break, the application will be to be looked and used by participants.

P42. STEROIDS MODULATE THE EXPRESSION OF AROMATASE P450 IN THE PITUITARY GLAND.

Riesco JM, Carretero-Hernández M, Blanco E, García-Barrado MJ, Iglesias MC, Rubio M, Palomero J, Burks DJ, Carretero J.

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Previous studies from our laboratory demonstrate that the expression of aromatase p450 in the rat pituitary gland and the number of positive pituitary cells to the enzyme in adult animals is higher in males than in females.

These findings suggest that steroids could be involved in the regulation of the pituitary expression of aromatase. To analyze these question, one morphological study (using immunocytochemsitry and wetern blotting) on castrated rats, with or whitout substitutive treatment, was carried out.

Because there are a gender-response of some pituitary cells (non ACTH-cells) to adrenalectomy, and because the adrenal cortex synthesizes and releases sexual steroids, the study was amplified to bilaterally adrenalectomized rats, with or whitout substitutive treatment with corticosterone; in a similar way that in castrated animals.

Results:

In the adult rat:

The estradiol inhibits the pituitary expression of Aromatase P450.

The testosterone stimulates the pituitary expression of Aromatase P450.

The corticosterone is an inhibitor of the pituitary expression of Aromatase P450 and their effects are similar in male than in female rats.

P43. SVARIATIONS OF THE HUMAN BRONCHIAL ARTERIES. A PRELIMINARY STUDY

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A precise anatomical knowledge of the bronchial arteries has lately become very important, especially due to its relation to surgery such as lung transplantation. This study is based on the dissection of human adult cadavers belonging to the Human Anatomy and Embryology I Department of the Complutense University of Madrid.

A total of 9 cadavers were studied, observing a total of 15 individual vessels or trunks originating in different locations. Six cases originated from the aortic arch, 8 cases from the thoracic aorta and 1 case from the subclavian artery.

From this 15 vessels or trunks, 9 were individual or terminal branches reaching the lungs, 2 were common left-right bronchial trunks dividing into 1 left and 1 right terminal branch, 3 were common trunks with the intercostal artery giving rise to 1 terminal branch and 1 intercostal artery, and finally, 1 was a triple trunk giving rise to two left and one right bronchial arteries. This terminal branching resulted in a total observation of 19 terminal bronchial arteries.

In relation to side, on the right side the most common origin was from the thoracic aorta while in the left side the most common origin was from the aortic arch.

Due to the sample size, a statistical study was not possible, but these preliminary results confirm the high variability in the origin of the bronchial arteries which has to be taken into account during related surgery.

This research was supported by funds obtained through postgraduate training courses by the UCM920547 group

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