to realize whether specific muscle bundles have specific functions during nasopharyngeal closure.

Material and Methods. Forty halves of 21 heads from Japanese cadavers (average 83.9 years) were used (37 halves of 19 heads for macroscopic examinations, and three halves of two heads for histological examinations).

Results and Discussion. The most superior muscle bundle of the superior constrictor (SC) and most lateral muscle bundle of PP originated from the superior surface of the palatine aponeurosis, initially ran in parallel, and subsequently ran superoposteriorward and inferoposteriorward, respectively. PP spread radially on the internal surfaces of the pharyngeal muscles as a single continuous sheet. A fold of the sheet continuing to the median portion of the palatal muscles roughly established the palatopharyngeal arch, and the stylopharyngeus (StP) attached to the base of the arch.

Conclusions. PP as a whole muscle sheet could show various functions: as a sphincter along with SC in some cases and as an elevator along with StP. In addition, PP could also show the function of the medial protrusion by forming the thick palatopharyngeal arch along with StP and SC. It is considered that PP could play a most important role in nasopharyngeal closure.

THE TEACHING OF ANATOMY IN THE DIGITAL ERA. WHERE DO WE STAND?

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Key words: *3D, digital anatomy, plastination, cadaveric dissection*

Background. In a time of innovation and change it is important to rethink and redirect the teaching of Anatomy according to the new reality.

Aim. In an analysis of teaching and learning, it is necessary to examine, the curriculum, the mode of teaching, the quality of how it is delivered and the infrastructure within which it is delivered (Papa and Vaccarezza-2013).

Material and Methods. The authors reports the options of teaching Anatomy, made by the Institute of Anatomy of the Faculty of Medicine of Lisbon, arising from curricular integration of the Anatomy subjects in modules of the Morphological Sciences Group.

Results and Discussion. Implementation of prossection workshops outside the regular school year, to compensate the reduction of the gross anatomy teaching hours. Involving students in their learning and curricular integration, with options of laboratorial stages, participation in investigation microprojects and tutorial credited experience. In Clinical Anatomy, were used problem-based learning (PBL) and case-based learning (CBL) allowing to horizontal and vertical integration. Implementation of Imaging Workshops with interactive participation of students in anatomic diagnosis. Option for student-centred teaching was made. Modified Thiel embalmed method is practiced. Plastination and 3D printing models were produced for students. It is exploited the excellence of facilities and resources for Anatomy of Cadaveric Dissection.

Conclusions. Anatomic dissection and prossection continues to be the best and most real 3D experience; Digital Anatomy must be a complementary or alternative method for the absence of the resource of anatomical dissection or prosecution, allowing maximization of teaching activity and learning performance.

QUANTIFICATION OF NORMAL MAGNETIC RESONANCE INTERVERTEBRAL SPACE RELATIONSHIPS IN THE SUBAXIAL CERVICAL SPINE: INTRODUCING THE A FACTOR

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Key words: *intervertebral disc height, cervical spine, adjacent spinal level*

Aim. This is a study of normal magnetic resonance anatomy of the subaxial cervical spine and aims at creating database values of each normal intervertebral space. When surgically restoring a degenerated disc, it is difficult to estimate the exact amount of perioperative distraction needed. This study proposes that restoration of a collapsed disc could be based on individual measurements of its adjacent, healthier disc with the aid of baseline values.

Material and Methods. We retrospectively reviewed cervical MRIs of 29 asymptomatic subjects (11 men, 18 women, mean age 28,2 years, range 19–40). All intervertebral discs in every subject were grade I or II according to Pfirrmann classification. We measured anterior, middle and posterior disc and vertebral height and disc diameter, and consequently calculated mean disc height, disc convexity index and disc height index (DHI). Inter- and intra-observer agreement has been previously proven to be excellent. Each intervertebral disc height was expressed as a fixed percentage of its adjacent one, the a factor. The height of a collapsed $C_{4–5}$ could be calculated by the simple equation $C_{4–5}=C_{3–4}/a_{3–4}$.

Results and Discussion. Mean disc height- and DHI was significantly different at every spinal level and increasing from $C_{3–4}$ to $C_{6–7}$, anddecreasing from $C_{6–7}$ to C_7–T_1 ($p<0.01$). Similarly, disc diameter

increased from $C_{3–4}$ to $C_{6–7}$ and then a slight decrease was observed ($p<0.05$) from $C_{6–7}$ to $C_7–T_1$. Disc was less convex from $C_{3–4}$ to $C_{5–6}$, while disc convexity index increased from $C_{6–7}$ to $C_7–T_1$ ($p<0.05$). We quantified normal relationships of adjacent intervertebral spaces with the use of established radiological indices.

Conclusions. We documented the α factor for anterior, posterior and mean height on normal subjects as baseline values for future reference.

FUNCTIONAL AND ANATOMICAL CONDITIONS FOR THE PORTO-SYSTEMIC SHUNT IN PATIENTS WITH ASCITES

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Key words: *porto-systemic shunt, ascites, cirrhosis*

Aim. The aim of the study was to identify functional and anatomical conditions for the portosystemic shunt surgery in patients with ascites.

Material and Methods. 14 patients with liver cirrhosis and refractory ascites underwent a porto-systemic bypass surgery. Quality of life was assessed by SF-36 at admission and after 1 and 3 years of surgical treatment. There were 2 groups of patients: 7 with absolutely refractory ascites (no effect of 400 mg of spironolactone and 160 mg of furosemide); and 7 with relatively refractory ascites (prescription of the maximum doses of diuretic drugs was restricted by side effects (encephalopathy, exacerbation of gout, collapse, etc.).

Results and Discussion. Patients with absolutely refractory ascites showed improvement of life quality after 1 year but significant decrease in 3 years: in 70% of cases ($p<0.002$) liver transplantation was required. Patients with relatively refractory as cites needed transplantation in 10% of cases, the quality of life significantly improved after 1 and 3 years ($p<0.0001$). In one year after surgery patients with relative refractory as cites changed the severity of cirrhosis with Child-Pugh score to B and A ($p<0.001$). The values of SF improved.

Conclusions. Venous system of liver gives anatomical possibilities for the surgical treatment in people with decompensates cirrhosis. According to the obtained data 90% of patients with relatively refractory ascites can delay liver transplantation for 3 years after porto-systemic shunt surgery.

TOPOGRAPHY AND ANATOMY OF THE LYMPH NODES OF THE ABDOMINAL CAVITY IN THE INTERMEDIATE FETAL PERIOD OF HUMAN ONTOGENY

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Key words: *human fetus, topography and anatomy, lymph nodes*

Aim. Identify the patterns of the formation of topography and anatomy of the lymph nodes of the abdominal cavity in the intermediate fetal period of human ontogeny.

Material and Methods. Torsos of 100 human fetuses of both sexes, aged 16 to 22 weeks, were used. Methods: macromicroscopic dissection; cuts to N. I. Pirogov; histotopographic; study of projection anatomy of the lymph nodes of the abdominal cavity; description of quantitative topography, variational-statistical analysis.

Results and Discussion. The features of parietal and visceral lymph nodes of the abdominal cavity of the fetus at 16–22 weeks of ontogenesis are shown, variants and frequency of their occurrence are described. The character of changes in the holotopic projections of lymph nodes was first established, the dynamics of changes quantitatively described, the range of anatomical differences in skeletal projection was determined, and details of their relationships with surrounding structures were described.

Conclusions. Obtained data on topography and anatomy of the lymph nodes of the abdominal cavity in the fetal period can serve as a basis for the analysis of monitoring of fetal development in later stages of ontogenesis. The suggested skeleototypic levels of the best visualization of the lymph nodes should be used in clinical practice as informative standards for the accurate verification of the findings. Information on quantitative holotopia and projection anatomy of the lymph nodes of the abdominal cavity allows optimizing the performance of diagnostic and therapeutic manipulations in deeply premature newborns and constitute the anatomical basis of developing fetal surgery.

ANATOMICAL PATTERNS OF THE ARTERIO-VENOUS TRIANGLE (BROCQ–MOUCHET) IN THE ADULT HUMAN HEART

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Key words: *coronary arteries, great cardiac vein, arterio-venous triangle*

Aim. The purpose of this study was to describe the relationship between the branches of the left coronary artery with the great cardiac vein (GCV).