Material and Methods. Study was performed on 43 cadavers within 24 hours after death (32 males, 11 females). Bodies were dissected in a prone position, with wide and long laminectomy revealing full spinal canal for bilateral examinations of each spinal nerve root from origin to its exit through intervertebral foramen or sacral hiatus. Uncommon extradural features in all spinal regions were followed and documented. Extradural roots anomalies were excised, proccessed with light microscopy method, stained with hematoxyllin-eosin, luxol blue and Holmes silver methods.

Results and Discussion. Totally 20 extradural root anomalies were observed (46.5%): including atypical spacings, 2 roots exiting 1 neuroforamen, extradural anastomoses, extradural missing a nerve root or aberrant root. Especially in cases of multiplied roots in 1 neuroforamen, root anastomoses and aberrant roots the tissue samples were compared with samples of apparently normal roots. In case of cervical and thoracic connecting branches (anastomoses) we failed to prove nervous tissue presence within the samples.

Conclusions. Not all the extradural communicating branches are real nervous connections, despite this any iatrogenic injury by various less invasive spinal surgical procedures must be avoided. Further histological and electrophysiologic investigations are probably need for elucidating their impact on classic image of segmental dermatome and myotome organization of human body.

AMINOLIPIN — A FIXATIVE TO OVERCOME THE BIOCIDE DILEMMA

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Key words: *aminolipin, anti-microbial effect, preservation*

Background. New guidelines for occupational safety concerning the embalming procedure are being enforced by the authorities worldwide. Therefore, anatomical teaching faces a compelling urge to invent and evaluate non-hazardous fixation methods to keep up the high quality of medical training. Aminolipin is a substance that just recently has been proposed as a fixative.

Aim. Here we describe its mode of action and usability.

Material and Methods. We used mass-spectrometry, gas-chromatography, and ^{1}H-NMR-spectrometry to analyse the chemical properties of aminolipin. We characterized its fixative activity by circular-dichroism-spectroscopy, ^{1}H-^{15}N-NMR-spectrometry, and FRET-based endopeptidase assays. Moreover, we evaluated the histology and gross tissue retention of aminolipin-embalmed human cadavers and quantified haptics and joint-mobility. Biological and occupational safety was evaluated by microbiological assays and ambient air analysis by HPLC.

Results and Discussion. We found that aminolipin exerts a potent denaturating effect on proteins, thereby unfolding tertiary and secondary structure and arresting enzymatic activity. Further, we present strong histological and gross-anatomical evidence that aminolipin is a useful fixative for the embalming of human cadavers. Due to the in vivo-like haptics and joint-flexibility, aminolipin fixed specimen can be used for students' education as well as for surgical training. We were not able to detect any volatile hydrocarbons as derivatives of aminolipin by HPLC evaporating from the fixed specimens. Aminolipin has a potent anti-microbial effect covering a wide spectrum of anaerob-aerob, gram-positive and gram-negative bacteria and, in contrast to formalin, even acts anti-mycotic.

Conclusions. Aminolipin is an alternative useful for the preservation of human cadavers, that has favorable properties in terms of biological and occupational safety.

ANATOMY OF THE THORACIC AND LUMBAR SPINE IN THE INTERMEDIATE FETAL PERIOD OF HUMAN ONTOGENY

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Key words: *human fetus, anatomy, spine*

Aim. To obtain data on the morphology of the thoracic and lumbar spine in the intermediate world of the fetus of human ontogeny.

Material and Methods. Torsos of 30 human fetuses of both sexes, aged 16 to 22 weeks, were used. Methods: macromicroscopic dissection; sawing of N. I. Pirogov; histotopographic method; descriptions of quantitative topography, variational-statistical analysis.

Results and Discussion. The character of changes in the thoracic and lumbar spine in the intermediate state of the fetus of human ontogenesis was first

established, the quantitatively described the dynamics of changes, the range of anatomical differences. size characteristics and arcs of vertebrae, vertebral canal, articular processes, upper and lower vertebral notches are limited was determined. Also, data on the features of the structure of intervertebral discs, the joints of the head of the rib, arched and rib-transverse joints were obtained.

Conclusions. Information on the anatomy of the thoracic and lumbar spine in the intermediate fetal state of human ontogenesis allows monitoring of fetal development at later stages of ontogenesis. Data on the quantitative morphometry of the vertebrae of the thoracic and lumbar parts of the spinal column at the 16–20th week of human ontogenesis allow us to orient the implementation diagnostic manipulations and constitute the anatomical foundation of developing fetal surgery.

THE CRANIOMETRIC PARAMETERS OF THE PYRAMID OF THE TEMPORAL BONE AND THE PETROCLIVAL REGION IN VARIOUS FORMS OF THE POSTERIOR CRANIAL FOSSA

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Key words: *pyramid, temporal bone, posterior cranial fossa*

Aim. The purpose of the study: was to study the craniometric parameters of the temporal bone pyramid and the petroclival region in various forms of the posterior cranial fossa (PCF) from spiral computed tomography (CT) data.

Material and Methods. The length of the upper edge of the pyramid of the temporal bone (LP), the distance between the apexes of the pyramids (DAP), the length of the clivus (LC), the angle of convergence of the pyramid axes (AA), the angle of inclination of the clivus from the plane of the skull base (AC) to 160 CT patients with different forms PCF without the pathology of the bones of the skull and brain. To analyze the data, the program Statisitika 10.

Results and Discussion. The length of the PCF depended on the LP ($R=0.97$, $p<0.05$). DAP predominated in wide fossa ($R=0.50$, $p<0.05$). The cranial clivus was significantly longer in the long form of PCF, compared with a short ($p<0.01$), greater was the magnitude AC ($p<0.01$). The size of the inner base of the posterior cranial fossa depended on the magnitude of the AA, which in the wide pit was an average of 5 more than the narrow one ($p<0.05$).

Conclusions. The new data on the variability of the craniometric parameters of the apex of the pyramid of the temporal bone and the petroclival region, their dependence on the forms of the PCF, served as an anatomical basis for individual planning of operative approach to tumors of this localization.

THE HIP ARTHROSCOPIC SURGERY TO MINIMIZE NEUROVASCULAR INJURY: AN ANATOMICAL STUDY

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Key words: *arthroscopic surgery, neurovascular injury, an anatomical study*

Aim. The purpose of this study was to investigate the safety zone without any neurovascular injury to the medial compartment of hip joint through an anatomical method and describe the relationship of the extra-articular anatomic structures from the surface of the hip joint.

Material and Methods. Thirty-two fresh specimens from 17 adult Korean cadavers (8 males and 9 females, age range 54–79 years at death) were used for this study. For the measurements, the most superolateral point of the pubic symphysis (PS) and prominent point of the anterior superior iliac spine (ASIS) were identified before dissection. The line connecting the PS and ASIS was defined as a reference line and the PS was a starting point for measurements. All 19 variables measured in this study were related to the femoral head, neck, and surrounding neurovascular structures. The variables were measured according to the x- and y-coordinates in relation to the reference line.

Results and Discussion. The femoral head was generally located 39.5 to 71.0 mm on the x-coordinate and located 33.5 to 34.6 mm on the y-coordinate. The junction of the femoral neck and body was located at 52.8 mm on the x-coordinate, and 65.3 mm on the y-coordinate. The junction of the femoral head and neck was located at 47.1 mm on the x-coordinate, and 51.4 mm on the y-coordinate.

Conclusions. The location of the medial compartment of the hip joint was located from 38.0% to 43.0% on the x-coordinate and located from 5.1 to 6.5 cm. These results of this study provide detailed anatomy for arthroscopic hip surgeons.