

the separation of tentorium cerebelli from the occipital bone.

Results and Discussion. The brain extracted by this method contains a neurosecretory complex of the diencephalon and two patches of the dura mater: one — with the hypophysis and cavernous parts of the internal carotid arteries with the preserved pituitary stalk, the other — with a tentorium cerebelli with a direct venous sinus and an epiphysis. The brain drug extracted by this method preserves the natural relationship between the hypophysis, the hypothalamus, the thalamus, the epiphysis and the main sources of blood supply — the cavernous and supraclinoid segment of the internal carotid arteries, the basilar arteries, the anterior, middle and posterior medullary arteries, the anterior and posterior connective arteries.

Conclusions. Such a preparation can be used as a neurosecretory transplant.

CLINICAL MORPHOLOGY OF THE ASCENDING AORTA

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Key words: ascending aorta, fat pad, postoperative atrial fibrillation, hemorrhage, glomus

Aim. The current investigation was initiated to meet the modern demands of cardiovascular surgery and advanced angiology, to contribute to the use of less traumatic treatment approaches.

Material and Methods. Three hundred fifty-six ascending aortas taken from the human corpses, aged from 16-week fetuses to 96 years, were studied. Histological methods, interstitial injection, Schiff reagent staining, and immune histological detection of lymphatic endothelium were applied.

Results and Discussion. It was found that in blood supply of the ascending aorta the vasa vasorum internae take part, along with coronary, bronchial, mediastinal arteries, and the artery accompanying the right vagus nerve. The intramural blood vessels topography correlates directly with the ascending aorta fat pad localization. These vessels originate on the concave side of the ascending aorta, in proximity with the arch of aorta, above the fat pad. The arteries, 1 to 7 in number make their way inferiorly to the right reaching the fat body of the ascending aorta where they form anastomoses with other vascular sources. In all the cases the route of these vessels passes through the glomus located inside the aortic fat pad ensuring their rich vascularization. The AAs glomus characteristics are similar to the carotid ones: their location is closely allied to arterial, venous and

lymphatic vessels. There were recorded dispersed forms of the respective structures. We have found glomus structures in all cases, and at various ages. There should be noted some age changes regarding their structure. It is manifested by a decrease of the basic cells and an increase of supporting ones. It is not clear why they are found in absolutely healthy and younger people, whereas in presenile and senile-aged persons they often show no changes, although persons died of cardiovascular diseases. We established the fat pad of the ascending aorta to contain the lymph vessels, sometimes nodes. In most cases it is crossed by the lymph collector from the region of the sinus node. The correlation of the trajectory of a given collector to a fat pad was studied for its different localization. Affecting the fold integrity in its location on the anterior surface of the AAs is sure to lead to lymph stasis in the sinus node area and to give rise to atrial fibrillations.

Conclusions. 1) A series of macro- and micro-structural features of the ascending aorta were revealed, particularly those relating to its blood supply, nerve supply, and lymphatic drainage. 2) The functional role of Rindfleisch fat body was also stressed. 3) The obtained evidence explain the enigma of postoperative atrial fibrillation and abundant haemorrhage, occurring more frequently in surgical interventions on the ascending aortic segment. 4) Recording of data on the histotopography of the nervous, blood and lymphatic structures of the ascending aorta in cardiac and aortic surgery is a reliable way to prevent postoperative complications.

MICROSCOPIC CHARACTERISTICS OF EXTRADURAL NERVE ROOTS ANOMALIES

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Key words: extradural, microscopic feature, spinal root, anomaly

Background. Raising number of unsuccessful disc hernia operations highlighted the importance of knowledge of different types of nerve roots anomalies. Various anatomical studies aimed on elucidating them were performed worldwide.

Aim. Our cadaverous study has focused on microscopic features of found extradural nerve root anomalies.

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, processed with light microscopy method, stained with hematoxylin-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 BIOCIDIC 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 ¹H-NMR-spectrometry to analyse the chemical properties

of aminolipin. We characterized its fixative activity by circular-dichroism-spectroscopy, ¹H-¹⁵N-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 denaturing 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