MICROANATOMY OF TENDONS OF UPPER AND LOWER EXTREMITIES MUSCLES IN APPLIED RELEVANCE OF MICROSURGICAL TENDON SUTURE

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Key words: *microsurgical anatomy, tendon, suture, extremities*

Aim. To obtain a set of new data on the microsurgical anatomy of the extremities tendon.

Material and Methods. We examined 80 tendons of the upper and lower extremities amputated for medical reasons and severed at the time of injury. Each tendon was examined together with the surrounding fascia and fatty tissue. We used a histotopographic method with the staining of sections with hematoxylin and eosin and picrofuxin according to Van Gieson. In total, 160 histotopograms were prepared.

Results and Discussion. The microanatomical interaction between intramuscular and tendon parts is complex, multi-plane, characterized by the presence of common sources of blood supply with its individual variability. The tendon sheaths (paratendinium, epitendinium, peritendinium) intercommunicate with each other. Peritendinium has the largest thickness — 0.1 mm. In the transverse section, peritendinium is represented in the central part of the tendon in various forms. The most common are T- and S-forms. Radiarily located spurs of peritendinium determine the presence of a vessel in the center of the confluence of these spurs. Endotendinium is represented in the form of a complex geometric structure, regardless of the topical position in the tendon. The construction of the tendon internal structure does not change along its length.

Conclusions. When performing a microsurgical suture, it is necessary to take into account the thickness and shape of peritendinium due to its topical and radial location.

TOPOGRAPHY OF THE FETAL PONS IN WEEKS 16–22 OF PRENATAL ONTOGENESIS

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Key words: *pons, neuroanatomy, macromicroscopic preparation, relationship*

Background. The fetal brain attracts considerable and constant interest from the point of view of its neuroanatomy and physiology. The hindbrain and its departments in the prenatal period are most created.

Aim. Obtaining new data about topography of the brain pons and its relationship with structures of a skull became the purpose of the real research.

Material and Methods. The research is executed on material of 40 fetus of 16–22 weeks of development without congenital malformations of a brain. Material has been investigated by method of macromicroscopic preparation and a method of gistotopographical cuts in three mutually perpendicular planes. Cuts were coloured according to Van Gieson and subjected microscopy.

Results and Discussion. Results of a research have shown that the most informative for studying of this department of a brain are horizontal cuts. On horizontal cuts at the level of a middle part of the pons (external reference points — the middle of a frontal sinus and the upper border of the auricle) the distance from the brain pons to a frontal bone has made 33.69±0.5 mm on the left side and 33.92±0.5 mm on the right. The distance to the temporal bone was equal to 18.67±0.5 mm at the left and 18.73±0.5 mm on the right, to the occipital bone of 24.1±0.5 mm and 24.33±0.5 mm respectively. Sagittal and frontal cuts allow to receive a number of additional data on pons neuroanatomy.

MODERN TECHNOLOGIES OF EXTRACTION OF THE NEUROSECRETORY COMPLEX OF THE HUMAN DIENCEPHALON

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Key words: *arteries, brain, diencephalon, pituitary gland, hypophysis, epiphysis*

Aim. When transplanting the neurosecretory complex of the human's diencephalon, the preservation of blood vessels that supply this area is a prerequisite.

Material and Methods. Methods of brain extraction, which are used in pathoanatomical practice, do not provide this, since they lead to rupture of arteries of the hypothalamic-hypophyseal region, vessels of the epiphysis (G. V. Shor, 1925, A. I. Abrikosov, 1948, I. I. Medvedev, 1969). Methods of human brain extraction developed by V. D. Gvozdevich (patents № 548263, № 919663) are innovative methods. This method consists of several stages and involves the detachment of the dura mater from the base of the skull, the separation of the anterior inclined processes and the back of sella turcica from the sphenoid bone,

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 microstructural 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 peformed worldwide.

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