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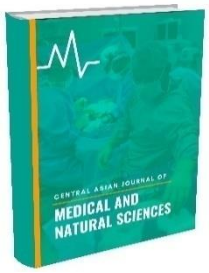

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The Structure of the Intramural Nervous Apparatus of the Esophagus in a Rabbit

1. Khamraev A. X.

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[1] Samarkand State Medical University, Republic of Uzbekistan

Abstract: The morphology of the intramural nervous apparatus of the rabbit esophagus has been studied by neurohistological methods. It was found that in the wall of the esophagus, the submucosal and intermuscular nerve plexuses are well distinguished, which consist of nerve nodes located at the intersection of bundles of nerve fibers. The nodes of the submucosal nerve plexus are located less frequently, and the nodes of the intermuscular plexus are smaller in size, but located more densely. Intermuscular plexus nodes contain more long-axon neurocytes, which are impregnated more intensively than other neurons in the node.

Key words: rabbit, intramural nervous apparatus of the esophagus.

Relevance of the topic. It is clear to everyone that in the implementation of the functional and adaptive processes of the organism, they are the autonomy of the importance of the nervous apparatus. In addition, the intramural nervous apparatus is of great importance in the implementation of the proportionality of the activity of each organ part, their functional relationship with other organs and systems of the body. Also, the activity of muscle tissues of each organ is controlled by the nervous apparatus. It would be wrong from this point of view to imagine that the esophagus is only a passive flute that transfers the bite to the stomach. It is one of the starting parts of the digestive tube, and in its proximal part it is replaced by smooth muscle tissue in the direction of the distal part of the transverse muscle. Their nervous supply varies to some extent. These cases, in turn, predict the relevance of the question of studying the morphology of the intramural nervous apparatus. Even in the Twenty-First Century, studies devoted to the study of this problem are important (1,3,4,5). Some work is devoted to the innervation of blood vessels in the esophagus (2). All this confirms that the study of the morphology of the intramural nervous apparatus of esophageal rabbits, one of the most used laboratory animals in scientific experiments, is one of the pressing issues of today's morphology.

Material and research methods. As a material for research, 10 mature-aged rabbits were used as an esophagus. The euthanasia of experimental animals was carried out under etaminal sodium narcosis with strict adherence to the rules of bioethics. The esophagus, isolated from the surrounding tissue, was pulled into a special penoplast plate and fixed in a 12% neutralized formalin with the edges fixed with wooden needles. Formalin was neutralized with a saturated solution of sodium tetraborate salt. In the process of fixation, its reaction was checked using an RKS indicator, and from the time the acidification of the formalin environment began to shift towards acidity, frozen cuts were taken from

the material in cryostats, which were impregnated with silver nitrate salt in the Bilshovsky – Gross and Campos style.

Research results. The cuyones intramural nerve apparatus of the esophagus is mainly made up of two nerve tangles: the mucosal (Meissner) nerve tangle and the intercostal (Auerbax) nerve tangle located between the lining of the muscle membrane. These nerve tangles are made up of tufts of nerve fibers of different caliber and located in different directions, and nerve nodes (ganglia) located at their intersection. The mucosal nerve tangled nodes consist of many intramural nerve nodes and the tufts of nerve fibers that "connect" them among themselves. The nodes contain nerve cells, nerve fibers and gliocytes (Figure 1). The Shape of nerve cells is different. Their core is well painted and clearly visible with Carmine paint.

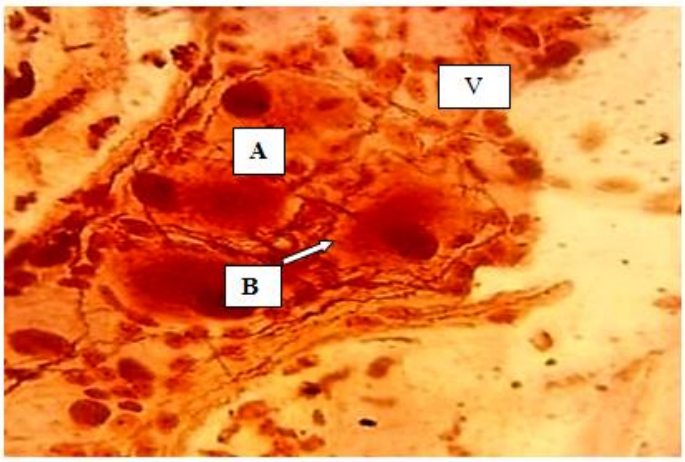

Figure 1. Rabbit esophageal mucosal nerve tangled intramural nerve node. A-nerve cells; B-nerve fiber; V-nucleus of neuroglia cells. Bilshovsky-Gross style. ob. 20, OK. 10. Extra painted with Carmine paint.

Among the nerve cells are the nuclei of many gliocytes and connective tissue cells. The Shape of the nerve nodes and the number of nerve cells in them depends to some extent on the thickness of the micropreparation. Also morphometric indicators of nerve nodes are directly related to their localization, the calibre of the nerve fibers that intersect in the area of them.

The dimensions of the inter – muscular nerve nodes and the number of neurons in them are varied, with a higher relative scattering density indicator compared to that of the sub-mucous nerve nodes (Figure 2).

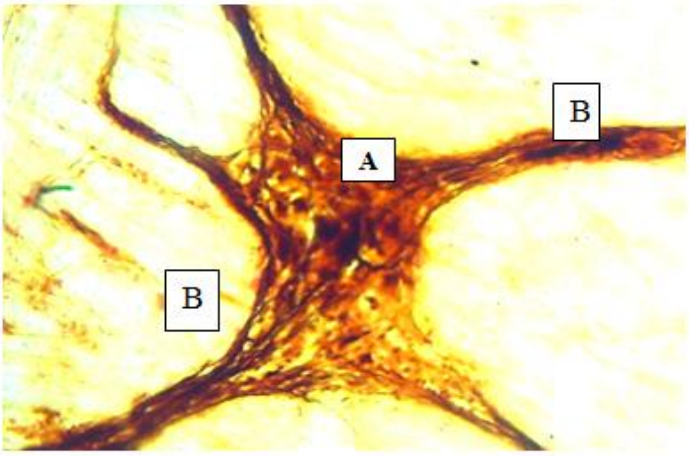

Figure 2. Rabbit esophagus is the node of the inter-muscular nerve tangle (A) and the tufts of nerve fibers (B). Bilshovsky-Gross style. ob. 20, OK. 10.

In the structure of both of these nerve nodes, it is possible to distinguish between the long axonal and equal axial nerve cells of the Dogel from the third type nerve cells in fewer cases. But in all cases, long-Axon neurosites are relatively common in intermuscular nerve tangled nodes. The cause of this condition becomes clear if we assume that long Axon neurosites are the characteristic nerve cell of the vegetative nervous system. The degree of impregnation of all neurons of the node will not be the same as seen in the pictures. Because their ingestion of silver salts is inextricably linked with the functional state of each neuron at the time of its ingestion into the drug.

The caliber of nerve fiber Tufts varies according to the amount of nerve fibers in them. The appearance of nerve fibers is also different in relation to the dense or to some extent scattered arrangement of fibers in the tuft. While nerve fibers are seen in separate cells in Sox where smoke is spread, in Sox where smoke is concentrated, they cannot be separated, and the whole smoke appears dense in a dark color. It is necessary to note that, in all cases, long-Axon neurosites are more intensively impregnated compared to other nerve cells (Figure 3). Again, it should be noted that since nerve cells are large cells in size in the body, they cannot be seen in a single optical cross section of a microscope with all their tumors. For this reason, their drawing is made using special equipment (the RA-1 apparatus), which makes it possible to draw along with all their tumors, and depending on these drawings, it is determined which type of nerve cells they belong to.

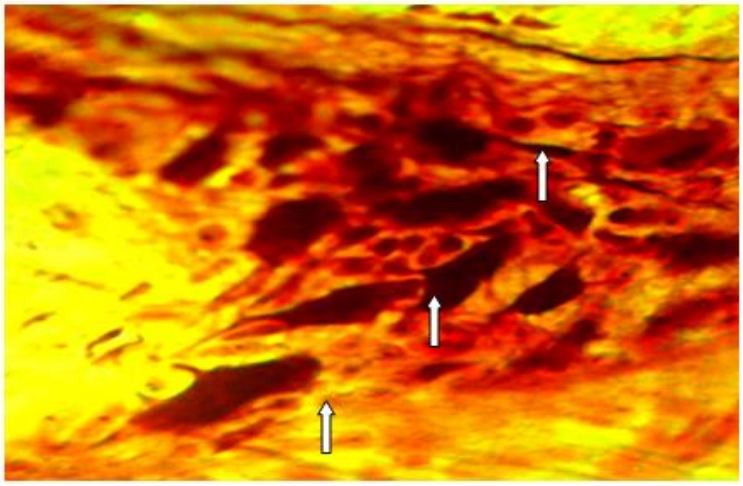

Figure 3. Intramural nerve located at the border of the rabbit esophageal muscle and mucous membranes tuguni.To ' long axonal nerve cells (indicated by arrows) impregnated in q color.Impregnation in Campos style. ob. 40, OK. 10.

Thus, rabbits have well-expressed mucosal (Meissner) and intermuscular (Auerbach) nerve tangles on the wall of the esophagus.Although the principles of their structure are the same, the dimensions of the intramural nerve nodes differ in different ways.In Auerbach nerve tangled nodes, the cells of the irritating (long Axon) nerve are relatively abundant.

Used literature

1. Vavilova I.I., Andreeva N.I., Romanova I.E. Effektornaya innervasia vnutriorgannix arteriol nijnego otdela pitshevoda / / Tikhookeansky medisinsky Journal 2009.-№ 1.- S. 37-39.
2. Lichkova A. E. Nervnaya regulation motornoy aktivnosti in pitshevo. Gastroenterology № 6 /2013 S. 52-58 st.
3. Goyal RK, Chaudhury A. Physiology of normal esophageal motility. J Clin Gastroenterol. 2008 May-June;42 (5): R. 610-9.

4. Neuhuber WL, Wl J. Enteric co-innervation of striated muscle in the esophagus: still enigmatic? Histochem Cell Biol. 2016 Dec; 146 (6): R. 721-735.
5. Storm, Geisler F, Neuhuber WL, Schusdziarra V, Allescher HD. Characterization of vagal input to the rat esophageal muscle. Auton Neurosci. 2001 Aug 13; 91 (1-2): R. 1-9.