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ЗБІРКА ТЕЗ ТА СТАТТЕЙ

науково-практичної інтернет-конференції
з міжнародною участю

СУЧАСНІ ПРОБЛЕМИ ВИВЧЕННЯ МЕДИКО-ЕКОЛОГІЧНИХ АСПЕКТІВ ЗДОРОВ'Я ЛЮДИНИ

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Матеріали науково-практичної інтернет-конференції з міжнародною участю «СУЧАСНІ ПРОБЛЕМИ ВИВЧЕННЯ МЕДИКО-ЕКОЛОГІЧНИХ АСПЕКТІВ ЗДОРОВ'Я ЛЮДИНИ». – Полтава: ТОВ НВП «Укрпромторгсервіс», 2023. – 207 с.

complications. One of the most common natural suture materials, consisting mainly of collagen fibers of the submucosa of the small intestine of sheep, is still catgut.

Purpose. To investigate the microscopic structure and tinctorial properties of catgut thread.

Materials and methods. The material was a standardized catgut implant made of sterile 2/0 catgut thread 17 cm long, which was twisted into flat compact balls occupying an area of approximately 1 cm^2. Some catgut glomeruli were subjected to total staining with a hematoxylin-eosin solution and subsequent embedding of this glomerulus in a paraffin block and making appropriate sections from it. Other catgut balls were subjected to epoxy plastination without staining and with staining with a 1% solution of methylene blue in a 1% solution of borax.

Results. After the total staining of the catgut glomerulus with a hematoxylin-eosin solution, a clear acidophilic reaction was revealed, which was manifested in the color of the thread in an intense pink color. As a result of the production of an epoxy sections with staining with a 1% solution of methylene blue on a 1% solution of borax, an intense basophilic color was obtained on the end surface of the epoxy sections, arbitrarily located, certain loops of catgut thread with a different cross-sectional profile. However, the intensity of basophilic staining of some loops of catgut thread, on epoxy sections, turns out to be excessively intense, which greatly complicates the study of its internal structure. Therefore, we used uncolored epoxy sections, which clearly show that the catgut thread has a heterogeneous fibrous structure, in which dark streaks stand out, dividing it into a number of longitudinal, lighter, layered bundles, which consist of a dense collection of thin fibrillary elements. It can be assumed that these fibrillary elements are orderly bundles of collagen fibers, while the dark streaks are layers of loose fibrous connective tissue.

Conclusion. Therefore, after the histological examination of the catgut thread, the obtained results significantly supplement its instructive characteristics and can be used in experimental medicine as morphological criteria in the process of studying the peculiarities of its biodegradation in the macroorganism during the simulation of aseptic inflammation of the peritoneum.

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STRUCTURAL ORGANISATION OF THE RATS' ILEUM

Relevance. The small intestine, particularly the ileum, is often negatively affected by endogenous or exogenous factors. Not the least important among the factors of exogenous origin belongs to food additives, which are widely used in the

food industry not only to extend the shelf life but also to improve the organoleptic properties of food. Therefore, in our opinion, establishing the morphological structure of the normal ileum of rats will be the basis for further work to assess changes in this part of the small intestine under the influence of a complex of food additives.

The aim of the study. To determine the peculiarities of the structural ileum organisation in the control group rats.

Materials and methods. The study was performed on ten sexually mature white rats weighing (180-202) grams, which were kept in standard conditions of the PSMU vivarium. The experimental animals were withdrawn from the experiment by overdose of ether anaesthesia. Biopsies of the ileum were removed and embedded in paraffin according to conventional methods. The next step was histological and morphological examination. Semi-thin sections made from paraffin blocks were stained with haematoxylin and eosin and examined using a light microscope with a digital microphotographic attachment (Olympus C 3040-ADU) with programs adapted for these types of studies (Olympus DP-Soft, licence No. VJ285302, VT310403, 1AV4U13B26802) and Vorex 3 (serial number 5604). The results were statistically evaluated on a computer using the InStat software package.

Results. It was found that the small intestine of rats is located caudal to the stomach, consists of a significant number of loops and ends at the point where its terminal section passes into the cecum. The ileum is 6-8 cm long and is the final short section without loops, which is hung on its own mesentery. The ileum is 6-8 cm long and is the final short section without loops, which hangs on its own mesentery.

The histological examination revealed that the wall of the rat ileum consists of four membranes: serous, muscular, submucosa and mucosa. The serous membrane is represented by mesentelic cells. Its average thickness was (11.7±0.32) μm. The muscular membrane consists of two layers. The outer layer has a longitudinal direction of muscle fibres, and the inner layer has a circular direction. The average thickness of the muscle membrane is (29.42±0.65) μm. The submucosa is represented by loose connective tissue containing blood vessels and the submucosal nerve plexus. The average thickness of this layer is (10.2±0.03) μm. The mucous membrane has the greatest average thickness - (342.98±6.04) μm. It is represented by intestinal villi and crypts. The epithelial layer cells include epithelial cells, goblet cells, exocrinocytes and endocrinocytes.

Conclusions. We have established that the anatomical and morphological structure of the rat ileum does not differ significantly from that of humans. Thus, white rats can be used in an anatomical and experimental study to identify morphological and functional changes in the ileum resulting from using a complex of food additives.