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Resume

The research was conducted among 20 newborns and 18 white rats that were one month old. Under ether anesthesia, the rats held a decapitation, he opened the abdominal cavity and studied microanatomy, sellotape and syntopia stomach.

In the period of the first month, there is an increase in the stomach in the cardiac Department 3 times, and in the pyloric Department only 1.3 times, which means that in this period the stomach performs a function,mainly as a reservoir.

Thus, our study shows that by the monthly period in white rats, the mucous and submucosal basis of the stomach wall is well developed, which indicates that they have switched to a mixed diet.

Keywords: stomach, morphometric parameters, postnatal period, white rats

МОРФОМЕТРИЧЕСКИЕ ПАРАМЕТРЫ ЖЕЛУДКА БЕЛОЙ КРЫСЫ В РАННЕМ ПОСЛЕРОДОВОМ ПЕРИОДЕ

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Резюме

Исследование проводилось среди 20 новорожденных и 18 белых крыс в возрасте одного месяца. Под эфирным наркозом крысу провели обезглавливание, вскрыли брюшную полость и изучили микроанатомию, и синтопию желудка.

В период первого месяца наблюдается увеличение желудка в сердечном отделе в 3 раза, а в пилорическом отделе всего в 1,3 раза, а это значит, что в этот период желудок выполняет функцию, в основном, как резервуар.

Таким образом, наше исследование показывает, что к месячному периоду у белых крыс слизистая и подслизистая основа стенки желудка хорошо развита, что свидетельствует о том, что они перешли на смешанное питание.

Ключевые слова: желудок, морфометрические параметры, послеродовой период, белые крысы.

TUG'ILGANDAN KEYINGI ERTA DAVRDA OQ KALAMUSHINING OSHQOZON-ICHAK TRAKTINING MORFOMETRIK PARAMETRLARI

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Buxoro davlat tibbiyot instituti

Rezyume

Tadqiqot bir oylik yoshida 20 yangi tug'ilgan chaqaloq va 18 oq kalamushda o'tkazildi. Eterli behushlik ostida kalamushning boshi kesilgan, qorin bo'shlig'i ochilgan va oshqozon mikroanatomiyasi va sintopsi o'rganilgan. Birinchi oy davomida oshqozon bo'limida oshqozon 3 marta, pilorik qismida esa faqat 1,3 marta ko'payishi kuzatiladi, ya'ni bu davrda oshqozon asosan suv ombori vazifasini bajaradi. Shunday qilib, bizning tadqiqotlarimiz shuni ko'rsatadiki, oq kalamushlarda oshqozon devorining shilliq va submukozasi oylik davrda yaxshi rivojlangan, bu ularning aralash ovqatlanishga o'tganligini ko'rsatadi.

Kalit so'zlar: oshqozon, morfometrik parametrlar, tug'ruqdan keyingi davr, oq kalamushlar.

Introduction

It is important not only to study the biological structure of cells, tissues, organs and the human body, which is inextricably linked with modern morphological-practical health, but also to solve problems in clinical medicine [4,6].

Food entering the stomach produces not only mechanical digestion, but also the absorption of a certain amount of decomposed substances, as well as many secretions that are very important for the digestive process [2,3,5, 9,13,17].

The mucous layer of the digestive system, on the one hand, is a barrier that prevents the entry of various substances of the external environment into the body, on the other hand, actively participates in metabolic processes between the external and internal environment of the organism. Due to its direct contact with crushed and partially crushed food entering the stomach, the gastric mucosa is constantly exposed to "normal" and potentially dangerous antigens [4,17].

A distinctive feature of the epithelium of the gastric mucosa is its glandular nature, which, like all the covering epithelial cells, secretes a mucous secretion on a permanent basis. The product of the lining epithelium of the stomach forms a mucous membrane on the mucous membrane, which protects it from the effects of gastric juice and damage to rough food particles [16].

In many experiments with white rats, drugs have been studied by injecting them directly into the stomach, but the changes have taken place in the anatomomorphological structure of the stomach, which is a central member of the digestive system of rats has not been fully studied [12].

Nowadays, the consumption of various solid and dry foods is increasing among the population, which indicates the need to study the effect on the stomach, its mucous membrane, subcutaneous base, muscle layer.

Gastrointestinal diseases are among the most common diseases and have seen several increases in the last decade. Despite the fact that in recent years, various studies have been conducted on the diagnosis and treatment of this disease, the topic of gastrointestinal pathology remains relevant [1,7,8].

The discovery of modern aspects of gastroenterology, immunology, and lymphology requires an in-depth study of the macro and microscopic anatomy of the gastrointestinal system in various conditions [10,11,14,15].

Purpose of the study: to study the morphometric parameters of the stomach of the white rat in the early sequential period

Materials and methods

The studies were performed on 20 newborns and 18 one-month-old white rats. The rats were decapitated under ether anesthesia, the abdominal cavity was opened, and macroanatomy, scletotopy, and syntopy of the stomach were studied. After macroanatomy, the stomach was isolated for further examination. The anatomical features of the isolated stomach were measured using a caliper. The process of experiments on laboratory animals was carried out in accordance with the Declaration of the International Medical Association, adopted in Helsinki in 1964 and completed in 1975, 1983, 1989, 1996, 2000, 2002, 2004, 2008, 2013.

The isolated stomach was fixed in Buen's solution. It was passed through alcohol batteries and poured into paraffin. Incisions at 6–7 μm were then prepared and stained by hematoxylin-eosin and Van-gizon methods. Morphometric examinations and measurements were performed under the NLCD-307B microscope.

Mathematical processing was performed in Excel 7.0 and representative error rates were determined.

Research results and discussion

In the studied on white rats, the upper (upper posterior) wall of the stomach touches the right and lateral intestinal loops on the right, and the left adrenal gland and left kidney on the left. The stomach covers the upper 2/3 of the lower surface of the left adrenal gland and the upper end (anterior end) of the left kidney. The left half of the stomach is round, located mainly under the diaphragm, touching the spleen from the left. The right half of the stomach narrows, from which the 12-fingered intestine begins. The right half of the stomach is touched on the outside by the 12-fingered intestine, the rest lies beneath the visceral surface of the liver and extends to the right border of the hepatic portal.

The small curvature of the stomach is transverse in front of it, and the organ is tilted when it is full. In the small curvature of the stomach there is a joint with the esophagus, which connects with the stomach in a topographically anatomically clear area, i.e. the small curvature of the stomach in the middle.

The large curvature of the abdomen is located at the back of the organ, and in most cases is transverse.

The following lengths are drawn from the abdominal organs to the stomach: gastro-spleen length: - from the spleen to the large curvature of the stomach; diaphragm-stomach length: -from the diaphragm to the left of the large curvature of the stomach; liver-stomach length: -from the hepatic portal to the small curvature of the stomach; gastric or peptic ulcer: - from the large curvature of the stomach to the transverse colon.

The analysis of the layered structure of the gastric wall in white rats up to one month of age is as follows: there are three rows of cells in the esophageal part of the gastric mucosa that form a multilayered keratinous epithelium. The cells in the basal row are oval in shape, smaller in size than the middle and upper layer cells, and the nucleus is located in the center of the cell. The cells in the middle and upper rows are eccentric, unlike the basal row cells, where more cells are located on the lateral side. In the apical part of the cells are secretory granules. The cells in the top row are lined with cuticles.

In 30-day-old white rats, the esophagus of the gastric mucosa has three rows of cells that form a stratified keratinized epithelium. The cells of the basal row are oval in shape, smaller in size than the cells of the middle and upper layers, and the nucleus is located in the center of the cell. The cells of the middle and upper rows, in contrast to the cells of the basal row, have eccentric nuclei, with a greater number of cells located on the lateral side. In the apical part of the cell, there are secretory granules. The cells of the upper row are covered with a cuticle (Fig. 1).

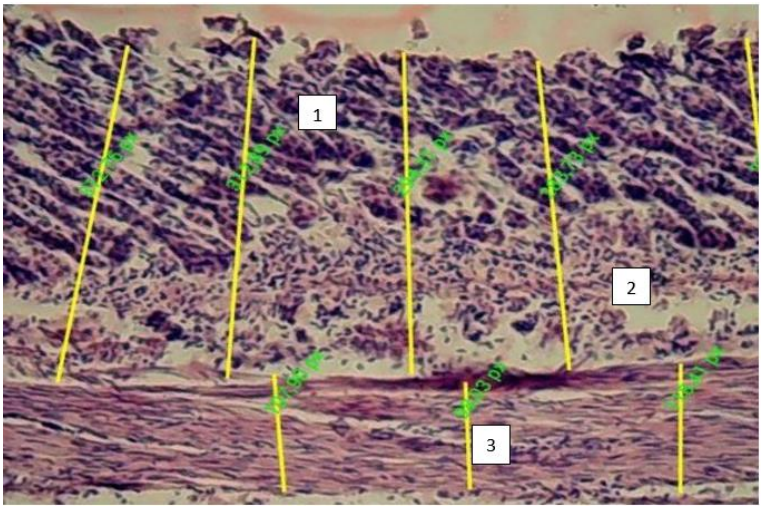

Fig .1. The structure of the esophageal stomach of 30-day-old white rats. 1st mucous layer, 2nd submucosal layer, 3rd muscle layer. Coloring: H-E. SW: about 10, ob. 20. Coloring: HE(hematoxylin-eosin). SW: eyepiece 10, ob. 20.

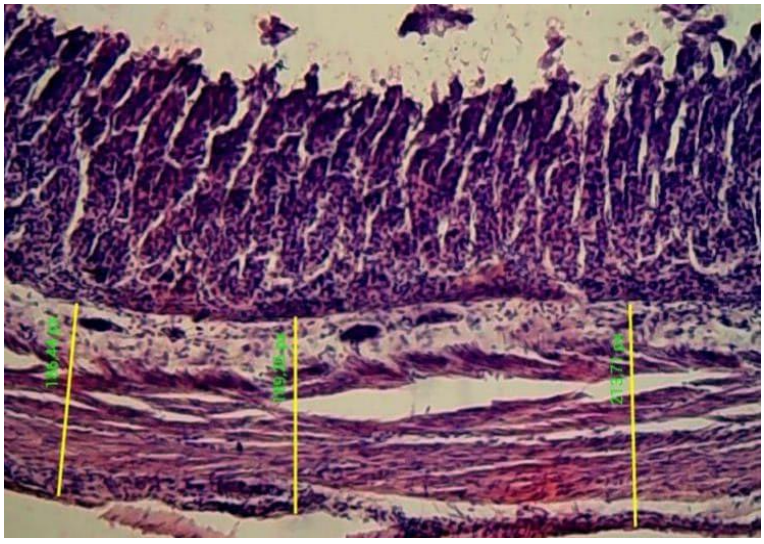

Fig 2. The structure of the 12-fold stomach of 30-day-old white rats. 1st mucous layer, second submucosal layer, third muscle layer. Coloring: H-E. SW: about 10, ob. 20. Coloring: HE(hematoxylin-eosin). SW: eyepiece 10, ob. 20.

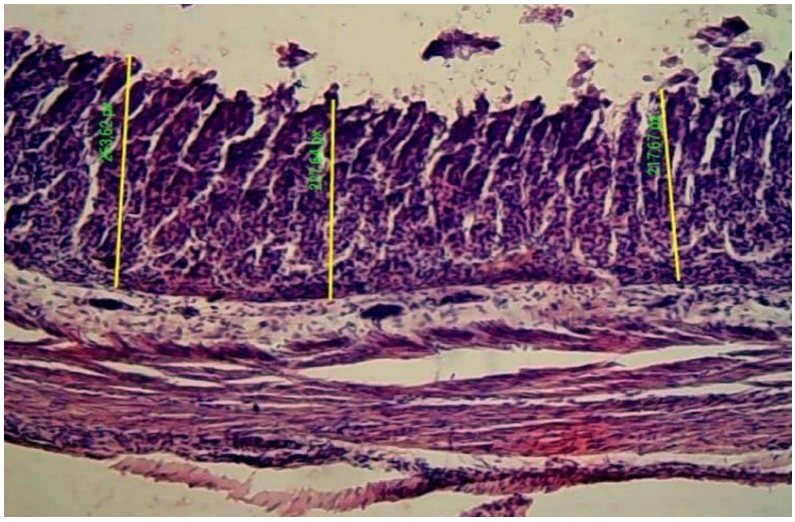

Fig 3. The structure of the 12-fold stomach of 30-day-old white rats. 1st mucous layer, second submucosal layer, third muscle layer. Coloring: H-E. SW: about 10, ob. 20. Coloring: HE(hematoxylin-eosin). SW: eyepiece 10, ob. 20.

The gastric wall morphometric parameters of white rats are given in the table below.

Table 1. Newborn concentrationmorphometric indicators of the stomach wall of 30 days old white rats and the layers that make up the wall

Components of the stomach wall	Newborn white rats		Thirty days old white rats	
	Esophageal section of the stomach	12-fingered intestinal section of the stomach	Esophageal section of the stomach	12-fingered intestinal section of the stomach
The total thickness of the stomach wall	80.0-205.0 135.2±5.2	260.0-334.8 276.6±6.2	393,3-522,1 475.8±5.2	278.9-570.3 488.9±6.2
Muscle layer	42.3-87.1 72.5±2.3	60.2-172.5 101.3±3.1 *	186.4-258.5 207.1±2.8	95.5-180.6 134.8±3.2 *

Circulating muscle layer	16.4-32.8 31.6±1.5	24.6-41.0 35.6±1.3	31.0-103.0 73.7±1.5	31.0-85.8 50.3±1.2
Longitudinal muscle layer	24.6-49.2 40.9±1.8	24.5-114.2 65.7±3.6 *	45.6-224.2 133.4±1.3	32.8-128.3 84.5±2.8 *
The thickness of the mucous membrane	34.6-41.0 40.3±1.2	106.6-233.7 158.5±3.1	206.9-243.6 215.4±1.2	212.9-439.7 331.6±3.5
Under the mucus basis	12.1-24.6 22.3±1.2	12.3-24.6 16.8±1.2	20.5-90.2 53.3±1.2	12.3-69.7 22.5±1.3

The difference in the degree of reliability with the * - sign is obtained in relation to the esophageal part of the stomach (R ≥0.05).

In the table above, it can be determined that the total thickness of the stomach wall of newborns and thirty-day-old white rats at the site of transition from the esophagus to the stomach (cardiac section) - 3.5 times, the muscle layer - 2, The thickness of the mucous membrane increased by 9 times, the thickness of the mucous membrane - by 5.3 times, and the submucosal base - by 2.4 times. In its outlet (intestinal section) the total thickness of the stomach wall increased by 1.8 times, the muscular layer - by 1.3 times, the thickness of the mucous membrane - by 2.1 times, and the submucosal base - by 1.3 times (Tab.1).

Newborn white rats have special glands in the gastric mucosa that are simple, branched. The glandular apparatus is mainly located in the small and large curves and pyloric part of the stomach.

The glands are located on a special plate of the mucous membrane and they are separated from each other by a thin membrane of connective tissue. In the glands, the main part (bottom and body) and discharge tubes (neck) are distinguished. The lower diameter of the glands located in the large curvature of the stomach varies from 18.6 to 23.1 μm, and the lower diameter of the glands in the pyloric canal varies from 22.2

to 23.9 μm. In a one-month period, the lower diameter of the glands increases by 2.3-3 times.

The base and body of the glands are made up of head and parietal cells, while the neck area is made up of parietal and mucus-producing cells. The stem cells are round in shape and the nuclei are located in the center of the cell. The stem cells are smaller than the parietal cells. Parietal cells are often oval in shape and have 1 or 2 nuclei in the center. Mucus-producing cells are elongated and retain an oval or triangular nucleus in the center of the cell.

The submucosal base is composed of fibrous connective tissue, the collagen fibers located in the esophageal part of the stomach are thinner and sparse, and in the intestinal tract of the stomach are thickly arranged, forming different tufts.

The muscular layer of the stomach consists of circular and longitudinal layers, and the longitudinal layer is thicker than the circular layer.

During the one-month period, the stomach increases 3 times in the esophageal section and only 1.3 times in the 12-fingered section, indicating that the stomach is still mainly serving as a reservoir during this period.

Conclusion

In our study of newborns and thirty-day-old white rats, white rats increased the total thickness of the gastric wall in cardiac and pyloric proportions. By the one-month period of white rats, the mucous and submucosal base of the stomach wall is well developed, indicating that they have switched to a mixed diet.

Analysis of the morphometric parameters obtained shows that the stomach of one-month-old white rats is not yet fully formed. Changes in the stomach wall are explained by the transition of rats from feeding through breast milk to differential feeding.

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