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МОРФОЛОГИЧЕСКАЯ И МОРФОМЕТРИЧЕСКАЯ ХАРАКТЕРИСТИКА МЫШЕЧНОГО СЛОЯ ИЗГИБА ДВЕНАДЦАТИПЕРСТНОЙ КИШКИ ПРИ ХРОНИЧЕСКОМ ОТРАВЛЕНИИ ЭТИЛОВЫМ СПИРТОМ У КРЫС РАЗНОГО ВОЗРАСТА

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Ильясов Азиз Саидмуратович
д.б.н., доцент
Навоийский инновационный университет, Узбекистан
Тўраев Фазлиддин Садриддинович
Бухарское районное медицинское объединение, Узбекистан
Автор, ответственный за переписку: *Тўраев Ф.С.*
fazliddin875050@gmail.com

АННОТАЦИЯ

При хроническом отравлении крыс этиловым спиртом при микроскопическом исследовании изгиба двенадцатиперстной кишки высота мышечного слоя больше всего уменьшалась в области нижнего изгиба у 6-месячных крыс - на 27,7%, а у 12-месячных - крысы на 24,5%. Также пучки коллагеновых волокон подслизистого слоя сократились на 40,1% и в подпеченочной складке на 33,5%. Также пучки коллагеновых волокон подслизистого слоя сократились на 40,1% и в подпеченочной изгиба на 33,5%. Такие же результаты были получены для общей толщины слизистого слоя, циркулярно-мышечного слоя, продольно-мышечного слоя и общей толщины стенки двенадцатиперстной кишки.

Ключевые слова: двенадцатиперстная кишка, сфинктер, мышечный джем, коллагеновые волокна, изгиб, круговая мышца, продольная мышца, этиловый спирт.

TURLI YOSHDAGI KALAMUSHLARNI SURUNKALI ETIL SPIRTI BILAN ZAXARLAGANDA O`N IKKI BARMOQ ICHAK BUKILMA SOHASIDAGI MUSHAK QAVATINING MORFOLOGIK VA MORFOMETRIK XUSUSIYATLARI

Ilyasov Aziz Saidmuratovich
biologiya fanlari doktori, dotsent
Navoiy innovatsiyalar universiteti, O'zbekiston

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To'rayev Fazliddin Sadriddinovich
Buxoro tuman tibbiyot birlashmasi, O‘zbekiston

ANNOTATSIYA

Asosnoma

Kalamushlarni surunkali etil spirti bilan zaxarlaganda o`n ikki barmoq ichak bukilma sohalarini mikroskopik tekshirganimizda mushak qavati balandligi pastki bukilma sohasida eng ko`p jumladan 6 oylik kalamushlarda, 27,7%ga, 12 oylik kalamushlarda 24,5%ga kichraygan. Shuningdek, shilliq osti qavat kollagen tola tutamlari jigar osti bukilmasida eng ko`p 40,1% va 33,5% ga kichraygan. Shilliq qavatning umumiy qalinligi, sirkulyar-mushak qavat, bo'ylama-mushak qavat va o`n ikki barmoq ichak devori umumiy qalinligi bo'yicha ham xuddi shunday natijalar olingan.

Kalit so'zlar

o`n ikki barmoq ichak, bukilma, mushakli jom, kollagen tola, etil spirti.

MORPHOLOGICAL AND MORPHOMETRIC CHARACTERISTICS OF THE MUSCULAR LAYER OF THE FLEXURUS OF THE DUODENUM DURING CHRONIC ETHYL ALCOHOL POISONING IN RATS OF DIFFERENT AGES

Ilyasov Aziz Saidmuratovich
Doctor of Biological Sciences, Associate Professor
Navoi Innovation University, Uzbekistan
Turaev Fazliddin Sadriddinovich
Bukhara District Medical Association, Uzbekistan

ABSTRACT

In chronic poisoning of rats with ethyl alcohol, upon microscopic examination of the duodenal flexure, the height of the muscle layer decreased most in the area of the lower flexure in 6-month-old rats - by 27.7%, and in 12-month-old rats by 24.5%. Also, bundles of collagen fibers in the submucosal layer decreased by 40.1% and in the subhepatic fold by 33.5%. Also, bundles of collagen fibers in the submucosal layer decreased by 40.1% and in the subhepatic flexure by 33.5%. The same results were obtained for the total thickness of the mucous layer, the circular muscular layer, the longitudinal muscular layer and the total thickness of the duodenal wall.

Key words

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duodenum, sphincter, muscle jam, collagen fibers, flexure, orbicularis muscle, longitudinal muscle, ethyl alcohol.

Relevance of the topic: Doctors have repeatedly noted the peculiarities of the course of diseases of the gastroduodenal zone in alcoholic diseases, their resistance to traditional methods of treatment, the frequent development of gastrointestinal bleeding and other complications leading to the death of the patient [3].

Clinical signs of damage to the gastroduodenal zone in patients with stage II alcoholic disease are determined mainly by the degree of involvement of the liver in the pathological process and are characterized by the presence of an atypical pain syndrome, as well as spontaneous vomiting without previous nausea and anorexia. In alcoholic steatohepatitis, the endoscopic picture of the gastroduodenal zone is characterized by a predominance of atrophic changes in the gastric mucosa, against which chronic erosions form or peptic ulcers without perifocal inflammation are observed. [4].

Ethanol first affects the body through the gastrointestinal tract. When alcohol is consumed orally, it undergoes initial metabolism in the stomach. Therefore, it should be noted that not all ethanol entering the body enters the vascular system [8].

Exposure of the duodenal mucosa to slightly higher concentrations of ethanol (wine) increases duodenal bicarbonate secretion. [7].

Ethanol undergoes primary metabolism in the stomach, but most of the ethanol ingested is passively absorbed in the duodenum, the upper part of the small intestine. The rate of ethanol absorption into enterocytes is also determined by many factors, including ethanol concentration, rate of gastric emptying, food intake, dose, blood flow, intestinal motility, and intestinal wall permeability [8]. However, passive diffusion of ethanol occurs quickly. Ethanol quickly interacts with cell membranes within nanoseconds. Ethanol, which causes some changes in the cell membrane, has the ability to quickly penetrate the vascular system and spread to the rest of the body after passing through the cell membrane. Unlike fats, ethanol is evenly distributed in body tissues in proportion to water content [8].

Ethanol affects the basolateral membrane (BLM) of enterocytes due to rapid absorption into the vascular system of the duodenum, jejunum and ileum.

It should be noted that data from some studies confirm the effect of alcohol on the motor-evacuatory function of the intestines. [1].

In recent years, considerable attention has been paid to the significant changes that occur in the intestinal tract during long-term alcohol consumption. [2].

It has been established that drinking alcohol for 2 months causes apoptosis of epithelial cells in the middle sections of the villi of the duodenum, as well as

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dystrophic changes with hypersecretion in the epithelium [4]. Microcirculation in the intestinal wall is disrupted[2].

It has been proven that the introduction of ethanol solutions of varying concentrations from 5% to 50% into the small intestine of rats causes bleeding of the mucous membrane and a decrease in enzyme activity. Acetaldehyde is a strong risk factor for upper gastrointestinal cancer and a somewhat weaker risk factor for colon cancer. According to recent data, even with moderate doses of ethanol (10-40 g per day), the risk of developing gastrointestinal cancer remains, especially in patients with risk factors [10].

Long-term alcohol intoxication is accompanied by a violation of the combined effect of serotonin-catecholamines on the enterometasympathetic regulatory system of the intestine. The implementation of this reaction is accompanied by a decrease in the absorption capacity of the intestine [9].

There is a growing need to elucidate new mechanisms of alcohol-related organ damage, as well as the mechanisms by which the gut contributes to various alcohol-related pathologies, to provide new opportunities for therapeutic options [6].

Alcohol can cause metabolic and functional changes in the epithelial cells of the gastrointestinal tract, which contributes to the breakdown of the mucosal barrier function.

The purpose of the work: to study and compare the morphological and morphometric changes of the muscle layer in the area of the duodenal fold when rats of different ages were poisoned with ethyl alcohol for 90 days.

Materials and research methods: The study was conducted in standard vivarium conditions on 45 white rats of different ages. Experimental animals were divided into 2 groups: I-group - control group (n=24) 3 and 9-month-old rats were injected with 2.0 ml of distilled water into the stomach with a metal probe for 90 days; Group II - experimental group (n=21) 3- and 9-month-old rats were injected with 7g/kg of ethyl alcohol into their stomachs using a metal probe for 90 days;

Slaughter of the experimental animals of the appropriate period was carried out by routine decapitation in the morning on an empty stomach under the influence of ether narcosis. For the morphological and morphometric study of the structure of the wall of the duodenum, a micropreparation was prepared. Sections were subjected to comparative morphological and morphometric analysis using a DN-107T/ Model NLCD-307B (Roman, China) ocular micrometer.

General morphological changes in the studied parts of the duodenum were studied using hematoxylin-eosin staining.

Personal inspection results: The average thickness of the wall of the duodenum in the area of the subhepatic fold in the six-month period of rats in the control group is 781.3±5.7 μm. In rats poisoned with chronic ethyl alcohol, this

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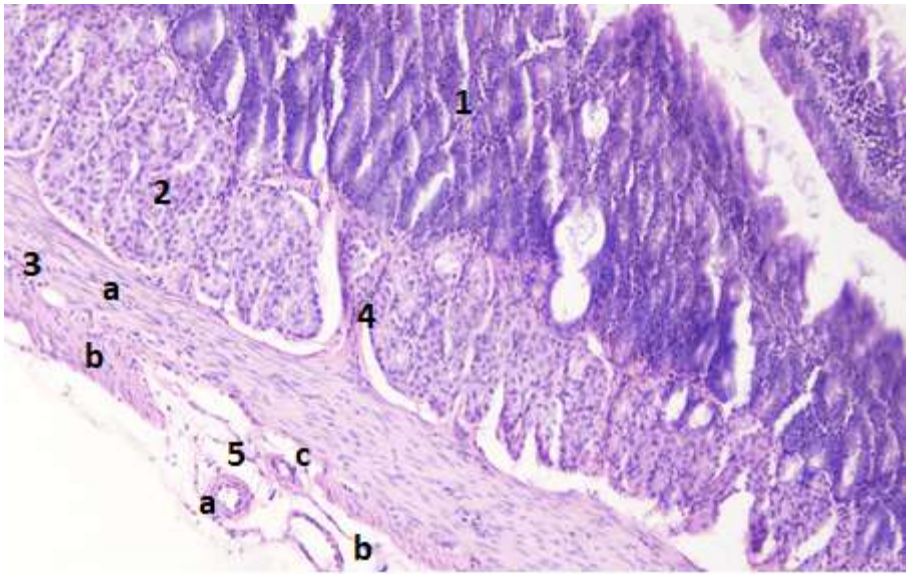
indicator is equal to 700.8±7.4 µm. In the control group, the thickness of the inner circular muscle layer in the area of the subhepatic fold is 175.6±1.3µm, and the thickness of the outer longitudinal muscle is 85.4±0.6µm. In the experimental group, these indicators are smaller, that is, the average thickness of the annular muscle layer is 144.2±1.5 µm, and the average thickness of the outer longitudinal muscles is 61.8±0.7 µm.

The thickness of the wall of the duodenum in the area of the superior fold is 821.3±6.6 microns in the control group, and 682.3±7.4 microns in the experimental group. The thickness of the internal circular and external longitudinal muscle layers in the control group is 174.6±1.4µm and 74.8±0.6µm, respectively. In the experimental group, the average thickness of the inner circular muscle layer is 140.4±1.5 µm, and the average thickness of the outer longitudinal muscles is 60.2±0.7 µm.

The average thickness of the wall of the duodenum in the area of the lower fold for the control group is 945.0±16.4 µm (P**icture** 1). After drinking ethyl alcohol for three months, it thinned on average to 705.4±9.0µm.



1 picture. Histological structure of the inferior flexural area of the duodenum of six-month-old rats in the control group. 1. mucous membrane. 2. submucosa. 3. muscle layer: a. Internal circular, p. External longitudinal. 4. Muscle pack. 5. Micro blood vessels: a. Arteriole, p. Venulla, c. Capillary. Hemotoxylin and eosin stain. Ok. 10 x ob.20.

The average thickness of the internal circular muscle layer for the control group is 186.6±3.2µm, the average thickness of the external longitudinal muscle is 100.5±1.7µm, the average thickness of the internal circular muscle layer is 145.2±1.9µm in the experimental group The thickness of the outer longitudinal

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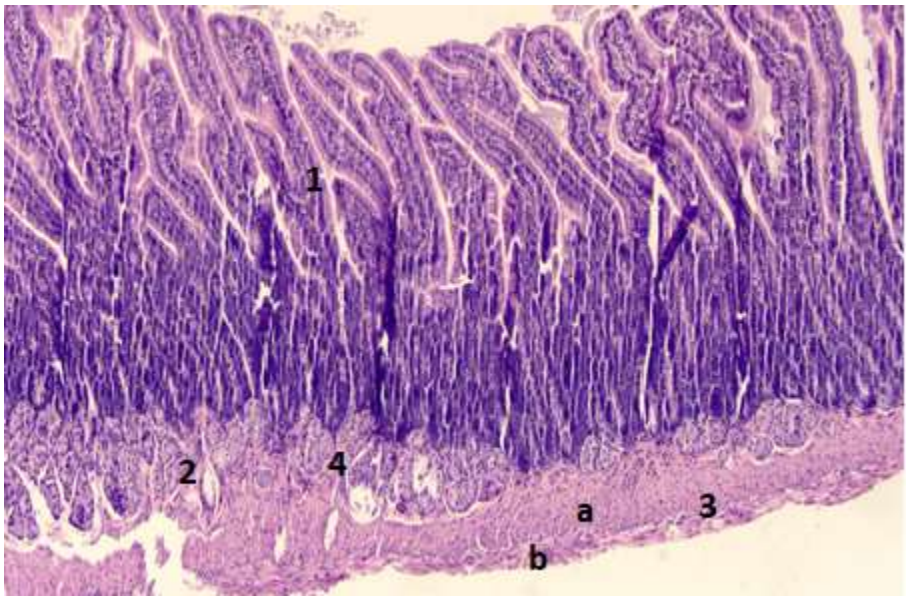
muscle layer is 62.2±0.8μm on average (P**icture**. 2).



2 pictures. The structure of the duodenal wall of a six-month-old rat that drank ethyl alcohol for three months. 1. mucous membrane. 2. submucosa. 3. muscle layer: a. internal circular, p. external longitudinal. Hemotoxylin and eosin dye. Ok. 10 x ob.10.

Rats duodenum duodenum-jejunum flexure is the dividing line between duodenum and jejunum. That is why the wall of this area has its own morphological and morphometric characteristics. The thickness of the wall of the duodenum in the area of the duodenum-jejunum fold is 853.8±13.1μm on average for the control group. In the experimental group, this indicator is on average - 808.5±9.8μm. In the control group, the average thickness of the internal circular muscle layer in the flexion area was 144.3±2.2μm, and the average thickness of the external longitudinal muscles was 64.8±1.0μm, while in the experimental group, the average thickness of the internal circular muscle layer in the flexion area was 137.9±1 ,7μm, and the thickness of external longitudinal muscles is on average - 59.4±0.7μm.

The average thickness of the wall of the duodenum in the area of the subhepatic fold in the control group is 820.0±8.2 μm during the twelve-month period of the rats. In rats poisoned with chronic ethyl alcohol, this indicator is equal to 730.0±8.2 μm. In the control group, the thickness of the inner circular muscle layer in the area of the subhepatic fold is 176.0±1.8μm, and the thickness of the outer longitudinal muscle is 91.6±0.9μm. In the experimental group, these indicators are smaller, that is, the average thickness of the circular muscle layer is 150.2±1.7μm, and the average thickness of the external longitudinal muscles is 64.4±0.7μm.

The thickness of the wall of the duodenum in the area of the upper fold is 821.3±6.6 microns on average in the control group, and 745.0±13.1 microns on

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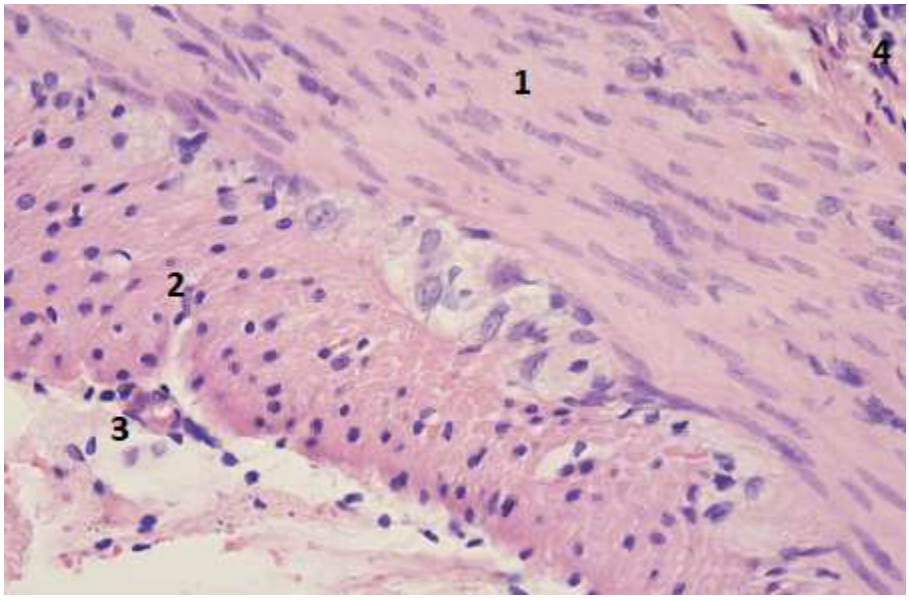
average in the experimental group. The thickness of the internal circular and external longitudinal muscle layers in the control group is on average 187.7±2.1μm and 88.3±1.0μm, respectively. In the experimental group, the average thickness of the inner circular muscle layer is 153.3±2.7μm, and the average thickness of the outer longitudinal muscles is 65.7±1.2μm.

The thickness of the wall of the duodenum in the area of the lower fold is 993.8 ± 14.8 μm on average for the control group. After drinking ethyl alcohol for three months, it thinned on average to 799.2±8.2μm (Picture 3).



3 pictures. The structure of the duodenal wall of a twelve-month-old rat that drank ethyl alcohol for three months. 1. Internal circular muscle layer. 2. External transverse muscle layer. 3. Capillary. 4. Submucosal layer. Hemotoxylin and eosin dye. Ok. 10 x ob.40.

The average thickness of the internal circular muscle layer for the control group is 215.0±3.2μm, the average thickness of the external longitudinal muscle is 96.6±1.4μm, the average thickness of the internal circular muscle layer is 164.5±1.7μm in the experimental group The thickness of the outer longitudinal muscle layer is 70.5±0.7μm on average.

Rat duodenum duodenum - jejunum flexure zone thickness averaged for the control group - 920.0±9.8μm. In the experimental group, this indicator is on average - 870.0±15.6μm. In the control group, the average thickness of the internal circular muscle layer in the flexion area is 151.5±1.6μm, and the average thickness of the external longitudinal muscles is 64.9±0.7μm, while in the experimental group, the average thickness of the internal circular muscle layer in the flexion area is 127.9±2,3μm, the thickness of external longitudinal muscles is 58.8±1.1μm on average.

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Since more variation was in the lower flexure area, information was obtained for other floors in this area as follows (Table 1).

Table 1

Comparison of the parameters of the lower flexure area of the duodenal wall after three months of ethanol consumption in nine-month-old rats.

Floors / Groups	total thickness	mucosa				submucosa		muscle layer	
		Common floor	Epithelial height	Private plate	Muscle plate	General submucosa	A bundle of collagen	Internal ring muscle	External longitudinal muscle
Control group	993,8	596,3	32,2	510,4	47,7	87,5	60,3	215,0	96,6
Experimental group	799,2	479,5	21,1	436,3	25,1	79,9	55,9	164,5	70,5
The difference in indicators is in %	19,6	19,6	34,4	14,5	**47,4**	8,7	**7,3**	23,5	27,0

Conclusions: When rats of different ages are poisoned with chronic ethyl alcohol, the muscle layer in the area of all bends of the duodenum shrinks, that is, it undergoes hypotrophy. Among them, the area that underwent the most changes was the lower convolution area, the total thickness of which was reduced by 25.4% for six-month-old rats and 19.6% for twelve-month-old rats. All layers of the subfold area are thinner than other fold areas. In our opinion, this is explained by the length of the duration of the effect as a result of relatively long storage of chyme in the descending part of the duodenum.

The least changed part was the duodenum, which was 5.3% thinner for six-month-old rats and 5.4% for twelve-month-old rats. Almost all layers of the duodenum - jejunum fold area are less thinned than other fold areas. This is explained by the very short duration of the effect due to the fact that chyme is not preserved in the area of the duodenum-jejunal fold.

When the duodenal wall of six-month-old rats poisoned with chronic ethyl alcohol was compared with the control group under a microscope, all layers of the intestinal wall were reduced. It was found that the submucosa decreased by 17.2%, and the epithelium of the mucous membrane decreased by 43.4%.

Twelve-month-old rats poisoned with chronic ethyl alcohol showed a reduction in all layers of the duodenal wall when compared with the control group under the microscope. It was found that the collagen fiber bundles of the submucosa decreased by 7.3%, and the muscle plate of the mucous membrane decreased by 47.4%.

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Информация об авторах:
Ильясов Азиз Саидмуратович
д.б.н., доцент Навоийский инновационный университет, Узбекистан
https://orcid.org/0009-0008-2332-7862
Тўраев Фазлиддин Садриддинович

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Свободный соискатель. Бухарский государственный медицинский институт, Узбекистан
https://orcid.org/0009-0002-2202-3177

Ильясов Азиз Саидмуратович - идеологическая концепция работы, написание текста; редактирование статьи;

Тўраев Фазлиддин Садриддинович- сбор и анализ источников литературы, написание текста.

Information about the authors:

Ilyasov Aziz Saidmuratovich
Doctor of Biological Sciences, Associate Professor. Navoi Innovation University, Uzbekistan
https://orcid.org/0009-0008-2332-7862
Turaev Fazliddin Sadriddinovich
A free applicant. Bukhara State Medical Institute, Uzbekistan
https://orcid.org/0009-0002-2202-3177

Ilyasov Aziz Saidmuratovich - ideological concept of the work, writing the text; editing the article;

Turaev Fazliddin Sadriddinovich collection and analysis of literature sources, writing the text

Mualliflar haqida ma'lumot:

Ilyasov Aziz Saidmuratovich
biologiya fanlari doktori, dotsent Navoiy innovatsiyalar universiteti, O'zbekiston https://orcid.org/0009-0008-2332-7862
Turaev Fazliddin Sadriddinovich
Mustaqil izlanuvchi. Buxoro davlat tibbiyot instituti

Ilyasov Aziz Saidmuratovich -ishning kontseptsiyasi, matn yozish; maqolani tahrirlash;

Turaev Fazliddin Sadriddinovich -adabiyot manbalarini to'plash va tahlil qilish, matn yozish