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MORPHOLOGICAL DISORDERS OF THE LIVER DEPENDING ON THE BILIRUBIN COUNT IN PATIENTS WITH OBSTRUCTIVE JAUNDICE

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Annotation. 30 obstructive jaundice (OJ) patients were subdivided into three groups. Group I included patients with a bilirubin count less than 100 μmol/l, Group II consisted of patients with hyperbilirubinemia from 100 to 200 μmol/l, and Group III included patients with a bilirubin count over 200 μmol/l. Morphological disorders of the liver in OJ patients with a bilirubin count less than 100 μmol/l were reversed. In OJ

patients with hyperbilirubinemia from 100 to 200 μmol/l, structural disorders in the liver had both a reversible and an irreversible course. Morphological hepatic disorders in OJ patients with a bilirubin count over 200 μmol/l was observed the irreversible course.

Key words: obstructive jaundice, liver biopsy, morphological study of the liver.

Introduction. According to WHO, OJ is observed in 10-15% of the world's population [1, 2]. The choice of bile duct decompression technique and timing depends not only on the duration of OJ and also on the bilirubin count in the blood [3]. The most reliable method of diagnosing structural changes in the liver is histological examination, which allows to ensure timely and comprehensive treatment [4]. The study of morphological disorders of the liver in cases of various bilirubin count in patients with OJ, will prevent post-decompression liver dysfunction and the development of biliary cirrhosis.

The aim and objectives of the research: to study morphological disorders of the liver depending on the bilirubin count in patients with OJ.

Results and discussion. We performed morphological and morphometric studies of 30 liver biopsy specimens with OJ. Biopsy material was collected intraoperatively by microresection of the liver and puncture biopsy. The material was fixed in 10% neutral formalin solution (pH - 7.4) for 48 hours, followed by treatment with alcohol of increasing concentration and poured into paraffin. Resulted paraffin blocks were cut into serial semi-thin 5 μm slides, which were stained with Van Gieson`s picrofuchsin. The microscopic structure of the liver parenchyma was studied using a light microscope OLIMPUS BX41 at 100x and 200x magnification. Morphometric parameters of structural changes were determined using a computer software (Quick Foto Micro 2.3).

30 OJ patients were subdivided into three groups. Group I (n = 10) included patients with a bilirubin count less than 100 μmol/l, Group II (n = 10) consisted of patients with hyperbilirubinemia from 100 to 200 μmol/l, and Group III (n = 10) included patients with a bilirubin count over 200 μmol/l.

The obtained data were statistically processed using descriptive statistic methods involving Microsoft Office Excel 2010 spreadsheet. As quantitative indicators, we calculated sample mean, standard deviation, and mean error. In case of normal distribution of quantitative indicators, we used Student's t-test for their comparison. The difference between the analyzed indicators was considered statistically significant at a significance level of 0.05 (error probability 5% ($p < 0.05$).

In the Group I patients, morphological disorders in the liver consisted in: centrilobular cholestasis, moderate inflammatory infiltration of the stroma by neutrophils (Fig. 1). Morphologically, relative volume of hepatocytes filled with bilirubin was 42.18 ± 1.92 %. The relative volume of connective tissue was 5.32 ± 1.12%, vascular volume – 23.08 ± 1.43%, the stromal-parenchymal index – 0.35 ± 0.08. The relative volume of bile ducts and cholangioles was 6.36 ± 1.05% (Table I).

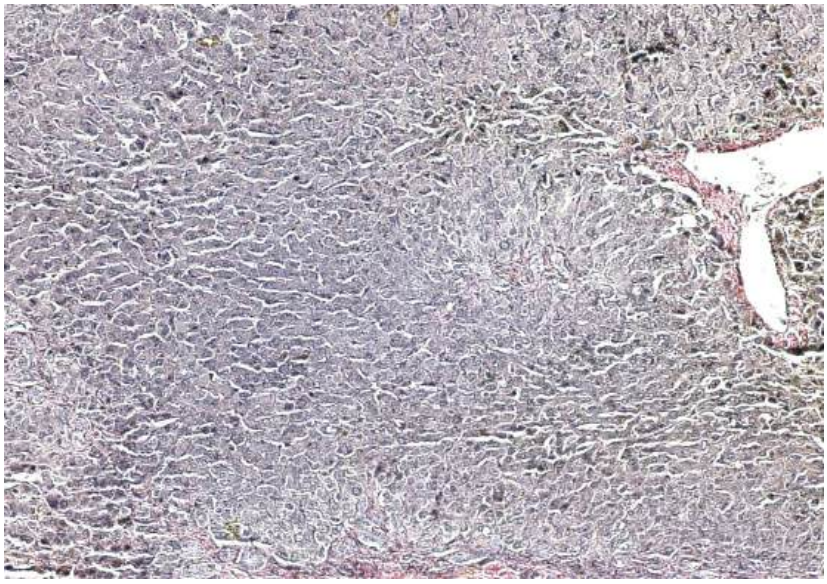

Fig. 1. Group I. Liver tissue with a bilirubin count less than 100 μmol/l.
Van Gieson`s staining, x 200

In patients of the Group II, structural disorders in the liver were associated with the development of: centrilobular cholestasis, cholestatic hepatitis, dystrophy and small focal necrosis of hepatocytes, initial fibrosis (Fig. 2). Morphologically, the relative volume of hepatocytes filled with bilirubin was 56.42 ± 2.16 %, relative volume of connective tissue – 13.50 ± 1.25 %, stromal-parenchymal index – 1.28 ± 0.03, which statistically significantly exceeded the corresponding figure of the study Group I ($p < 0.05$). Morphologically, the relative volume of bile ducts was 7.96 ± 1.26 %, vascular volume – 21.15 ± 1.45 %, which did not significantly differ from the corresponding readings of the study Group I ($p > 0.05$) (Table I).

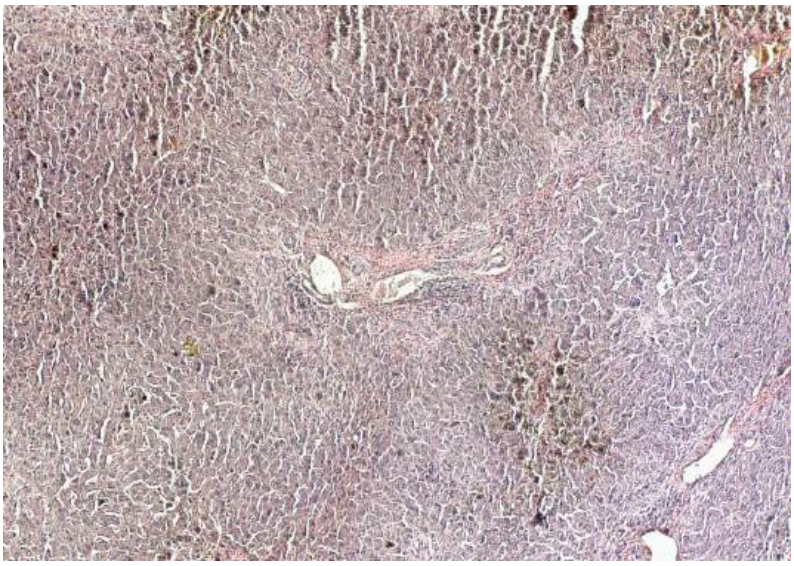

Fig. 2. Group II. Liver tissue with hyperbilirubinemia from 100 to 200 μmol/l.
Van Gieson`s staining, x 100

In the Group III patients, morphological disorders in the liver consisted in: severe centrilobular cholestasis with the formation of bile clots, severe dystrophy of hepatocytes, large focal necrosis of hepatocytes, development of severe fibrosis and formation of liver cirrhosis (Fig. 3).

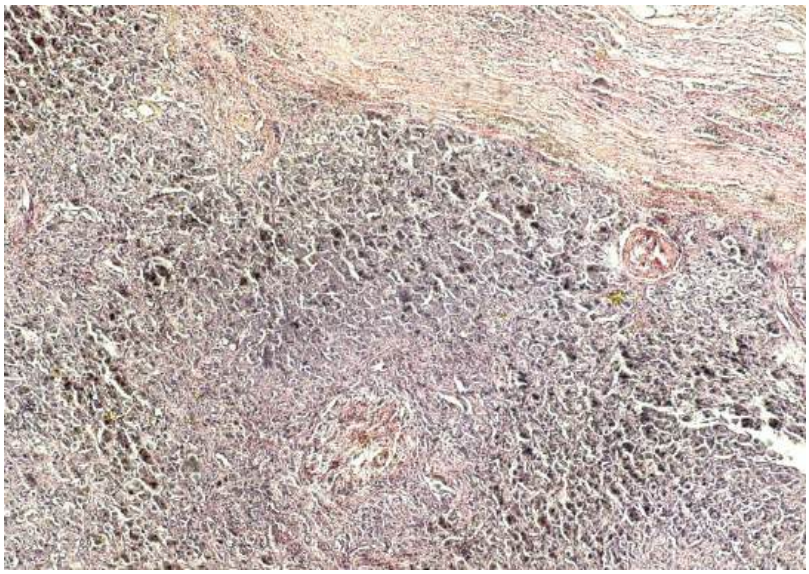

Fig. 3. Group II. Liver tissue with a bilirubin count over 200 μmol/l.
Van Gieson`s staining, x 200

Morphologically, the relative volume of hepatocytes filled with bilirubin was 68.28 ± 2.21 %, connective tissue – 22.12 ± 1.42 %, vascular volume – 16.54 ± 1.26 %, stromal-parenchymal index – 2.28 ± 0.01, relative volume of bile ducts and cholangioles – 10.38 ± 1.43 %. These indicators statistically significantly exceeded the corresponding readings of the study Group I ($p < 0.05$) (Table I).

Table I. The relative volumes of structural components of the liver (M ± m)

Structural components	Bilirubin count less than 100 μmol/l	Bilirubin count from 100 to 200 μmol/l	Bilirubin count over 200 μmol/l
Hepatocytes filled with bilirubin, %	42.18 ± 1.92	56.42 ± 2.16*	68.28 ± 2/21*
Bile ducts and cholangioles, %	6.36 ± 1.05	7.96 ± 1.26	10.38 ± 1.43*
Connective tissue, %	5.32 ± 1.12	13.50 ± 1.25*	22.12 ± 1.42*
Vasculars, %	23.08 ± 1.43	21.15 ± 1.45	16.54 ± 1.26*
Stromal-parenchymal index	0.35 ± 0.08	1.28 ± 0.03*	2.28 ± 0.01*

Note: * – $p < 0.05$ – statistically significant difference in relation to the data of the Group I (bilirubin count less than 100 μmol/l)

Conclusions: Morphological disorders of the liver in OJ patients with a bilirubin count less than 100 μmol/l were reversed. In OJ patients with hyperbilirubinemia from 100 to 200 μmol/l, structural disorders in the liver had both a reversible and an irreversible course. Morphological hepatic disorders in OJ patients with a bilirubin count over 200 μmol/l was observed the irreversible course.

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THE USE OF FORTIFIED LYSOZYME FORMULATIONS FOR THE TREATMENT OF CHRONIC RECURRENT APHTHOUS STOMATITIS IN PATIENTS WITH PEPTIC ULCER DISEASE

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Introduction. The oral cavity, as the initial anatomical and functional segment of the digestive system, exhibits high sensitivity to pathological processes occurring within the gastrointestinal tract. Regardless of the etiology and pathogenetic mechanisms of gastrointestinal diseases, the tissues of the oral cavity predominantly develop typical inflammatory-dystrophic lesions. One of the frequent clinical manifestations of such disorders is the development of chronic recurrent aphthous stomatitis in patients with peptic ulcer disease.

Aim of the study. The purpose of this study is to evaluate the therapeutic and prophylactic effects of fortified lysozyme formulations on the condition of the oral mucosa, considering lysozyme as an important component of the antimicrobial defense