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MORPHOLOGY AND HISTOCHEMISTRY OF ACUTE FATTY LIVER OF PREGNANCY DYSTROPHY

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ABSTRACT

Morphology and histochemistry of acute fatty liver of pregnancy dystrophy (AFLPD), which is a rare, fatal liver damage, is a completely unexplored disease of etiology and pathogenesis. In this study, liver morphology and histochemistry have been studied in the case of HCV-infected patients in 2001-2020 years. In total, in 7 cases, the diagnosis of this disease is confirmed on the basis of specific clinical and morphological symptoms, some clinical symptoms are based on the results of a morphological examination of the liver.

Key words: pregnancy, liver, fatty dystrophy, HELLP-syndrome, Sudan, morphology, histochemistry.

INTRODUCTION

Relevance of the topic. Morphology and histochemistry of acute fatty liver of pregnancy dystrophy, which is a rare, fatal liver damage, the etiology and pathogenesis of which has not been fully studied. Its incidence rate is 7000:1 – 16000:1-per unit. In most cases, AFLPD develops in 32-36 weeks of pregnancy. Despite the development of modern medicine, the mortality rate from it reaches up to 23% (1,2). Precipitation in liver cells is the presence of a state of liver failure caused by the multiple penetration of free fatty acids (FFA), their β-oxidation

slows down, FFA is absorbed in the intestine, violation of lipoproteins synthesis and other diseases. In liver tissue, in norm there is up to 5% of precipitation, in acute hepatic dystrophy of the liver in pregnant women (AFLPD) it increases up to 19%. For pregnant women, AFLPD is not an absolute specific disease, according to many scientists it is a manifestation of fatty dystrophy of the liver and the causes that cause it can be the following: toxic substances and drugs, metabolic disorders, endocrine diseases, including diabetes and other diseases. Clinically, liver damage can be of the following manifestations: excessive vomiting of the pregnant, hepatic cholestasis, acute fatty dystrophy of the liver, preeclampsia and HELLP-syndrome. According to WHO of ICD-10, O26. 6 pregnancy, maternity and postpartum period liver diseases. K71 is a toxic lesion of the liver. K72-no other rubrics, liver failure. In AFLPD the liver is slightly enlarged macroscopically, light yellow in color. In microscopy, hepatocytes are enlarged with swelling, in the cytoplasm, tiny and large flatteners are detected, in which the cell nucleus is located in the center. Liver architectonics are intact. Morphologically specificity of this disease is the absence of foci of necrosis and inflammation in the tissue of the liver and differs from viral hepatitis by these symptoms (5,6).

Aim: to clarify the morphological and histochemical changes in the liver in acute fatty dystrophy of pregnant female.

Material and methods. In 2001-2020 years in the practice of the Republican Center of Pathological Morphology, the dead with AFLPD infection were studied by macroscopic, microscopic and histochemical methods. Clinical-anamnetic data were studied as a result of the analysis of the history of the disease and the autopsy record. Histological cuts were made from the paraffin fragments of the liver, which were removed during the autopsy, and they were treated with hematoxylin-eosin paint. In recent years, fragments from the liver of those who were autopsied were frozen, histological cuts were made in the cryomicrotum and with Sudan stain-III. Histological drugs were studied on a microscope of binocular light and microfotos were taken from their required places.

Results of the study and their discussion. Diagnosis in pregnant women with AFLPD, which we studied morphologically, is confirmed by the norms of "Swansea" in the clinic. On this system, the following signs are provided, of which 6-th and more signs are put on the diagnosis of AFLPD. 1.vomiting, 2-pain in the abdomen, 3-polydipsia and polyuria, 4-encephalopathy, 5-transaminase increase, 6-bilirubin increase, 7-hypoglycemia, 8-uric acid increase, 9-liver dysfunction, 10-ammonia increase, 11-leukocytosis, 12-coagulopathy, 13-assit, 14-microvascular steatosis in biopsy. It is confirmed that in patients with 7 AFLPD diagnoses there are signs from 6 to 11 on the Swansea system.1-example: Patient S, 26 years old,

gave birth to a girl child with Caesarian section method in May 12,2018. 3 days after childbirth, the following clinical symptoms were disturbed: dyspnea, pain in the lower abdomen, nausea, vomiting, jaundice, encephalopathy were observed, hyperblirubinemia, hypoglycemia, leukocytosis Disseminated intravascular coagulation DIC syndrome, thrombocytopenia were observed. On the basis of these signs, a AFLPD diagnosised. In the autopsy examination, it was found that the liver was slightly enlarged macroscopically, entered a light yellow color. In histology, the hepatocytes are enlarged, in the cytoplasm there are small and large fat deposits, the core of all hepatocytes is located in the center. Liver architectonics are intact. In the liver parenchyma, necrosis and necrobiosis processes, as well as the absence of inflammatory infiltration in the intermediate tissue, are detected. On the basis of these morphological specific changes, the diagnosis of AFLPD is confirmed. Pregnant women who died of acute fatty dystrophy of jigari were found to have been stained liver with Sudan-III, the histtopographic architectonics of the liver have not been compromised. In liver tissue, the vessels of the central vein and portal triad are well identified, they consist of connective tissue cells and fibers that make up the usual vascular wall and surrounding stroma. In them, inflammation-specific signs, that is, lympho-histiocytic cells, are not detected. Only slightly thickened due to the fact that the structures of the vascular wall are involved in edema and dystrophy. The liver parenchyma is slightly crumbled on account of swelling, sinusoids and Disse cavity enlarged. The main changes, that is, the liver cells, which are positively stained with Sudan, are better identified in the centralobular area, mainly in the 3-morphofunctional area of the fragments (Figure 1). When studying on a large lens of a microscope, it is determined that the cytoplasm of liver cells is filled with a substance of Sudan, which is painted yellow (Figure 2). But, if the cytoplasm parenchyma is exposed to fatty dystrophy, it is determined that the nuclei of the hepatocytes are located in the center of the cell, and this sign is a characteristic sign of acute fatty hepatosis of the liver. In addition, the absence of inflammatory symptoms in the tissue of the liver, that is, the content of stroma-blood vessels, also confirms the disease of acute fatty dystrophy.

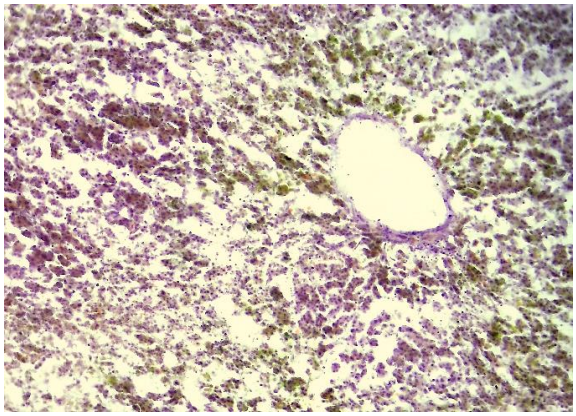

Figure 1. AFLPD, parenchymal fatty dystrophy of the 3rd morphofunctional area of the liver. Satin: Sudan-III. X: 10x10.

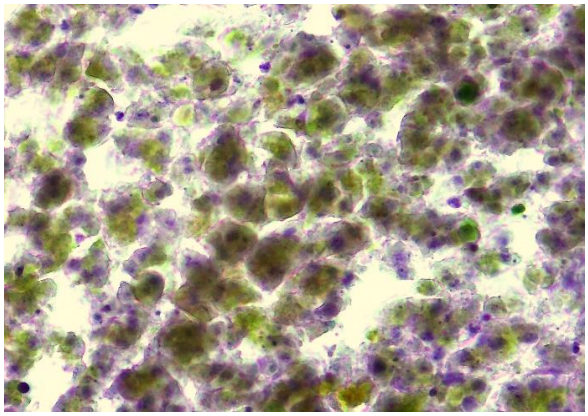

Figure 2. AFLPD, the cytoplasm of hepatocytes stained yellow with sudan stained. Stain: Sudan-III. X: 10x40.

2-example: patient N, 32 years old, gave birth to a son by Caesarian section method in October 24, 2019. Immediately after delivery, the following clinical symptoms began to bother. The presence of signs of preeclampsia, that is, hypertension, headache, visual impairment, pain in the epigastrium, nausea, vomiting, jaundice, hemolysis of blood, thrombocytopenia, DIC syndrome was observed. On the basis of these clinical signs, the following diagnosis is made: HELLP-syndrome, acute fatty dystrophy of the liver. Morphologically, the liver is enlarged, light yellow in color, the edges are blunt. In histology, hepatocytes vacuoled swollen, in cytoplasm, fatty dystrophy with a slight drop was detected. In the liver tissue there are foci of massive and massive blood transfusion with a fine needle. On the basis of these morphological specific changes, the diagnosis of HELLP-syndrome and AFLPD is confirmed. The results of microscopic examination of the liver showed that when HELLP-syndrome and the addition of AFLPD, the main changes were observed in the development of blood vessels and intermediate tissues. Here central vena and sinusoids are sharp, full, the wall of most of them is cracked, blood is poured around them. That is, when the liver is seen under a microscope, it is determined that as a result of massive blood clots in the center of the fragments, erythrocyte lakes appear (Figure 3). As a result, it is observed that the liver tissue is interstitial, swelling, plasma and erythrocytes appear in its composition. On the periphery of the fragments, that is, in the periportal area, the liver columns are deformed, some are fragmented, and their flatteners are determined in the cytoplasm of the hepatocytes. When viewed in a large lens of a microscope, it is observed that the columns of liver cells are broken down, the hepatocytes are located separately. This morphological sign is considered to be histological changes that develop in the state of shock in the larynx, and is also called shock larynx. Here hepatocytes break off their mutual

desmasoma bonds, each of which is located separately, and necrobiotic changes develop in the cytoplasm. With the addition of HELLP-syndrome and AFLPD, it is determined that in the liver parenchyma, that is, in the cytoplasm of hepatocytes, which are in a state of shock, there are fatty acids that are painted yellow with Sudan stain (Figure 4). It is found that here ostriches fully occupy the cytoplasm of some hepatocytes, and in other hepatocytes are located in one part of the cytoplasm. The nuclei of hepatocytes are located in the center of the cell, and most of them are torn and suffer from hyperchromasia.

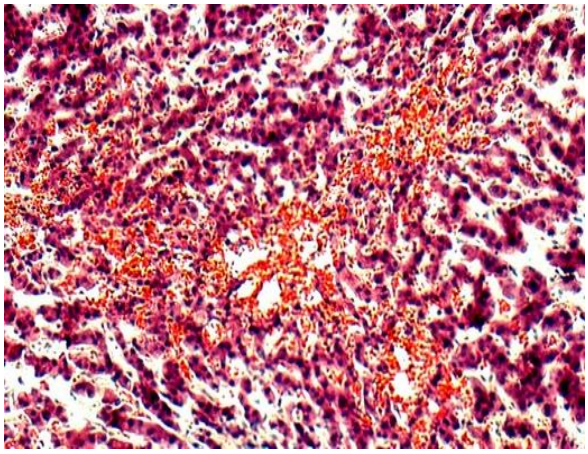

Figure 3. A condition in which HELLP-syndrome and AFLPD are combined. There is a massive hemorrhage in the center of the liver fragments. Stain: G-E. X: 10x10.

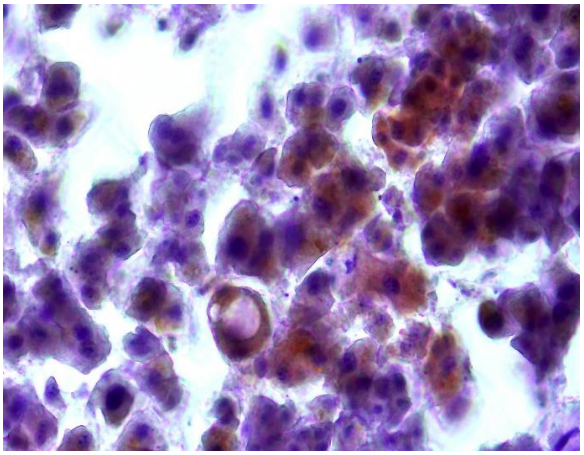

Figure 4. A condition in which HELLP-syndrome and AFLPD are combined. In the cytoplasm of hepatocytes, fat droplets are stained yellow with water. Stain: Sudan-III. X: 10x40.

Conclusion

In the data of medical documents of pregnant women who died of liver failure, the disease of pregnants' acute fatty liver dystrophy was confirmed in the presence of 6-th and more of the clinical signs indicated in the system "Swansea". If the liver is slightly enlarged macroscopically, light yellow in color, in microscopy the hepatitis swelling is increased, in the cytoplasm there are small and large fat burners, the core of the hepatitis is located in the center, the liver architectonic is intact, if there are no foci of inflammation in the necrosis and stroma is considered a disease of the AFLPD.

Histochemically, the fat drops in the cytoplasm of hepatocytes are painted yellow, the nucleus is placed in the center, this confirms the disease once again.

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