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Ultrasound Study of Morphological and Histological Changes in the Gallbladder and Biliary Tract in Cholecystitis

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Relevance. According to a number of authors, cholecystitis is one of the most common diseases of the gallbladder and is characterized by inflammation of the walls of the gallbladder with the formation of gallstones in its lumen. According to modern epidemiological data, cholecystitis affects from 17 to 20% of the adult population of the planet, mainly women. The inflammation and destruction of the walls of the gallbladder observed against the background of cholecystitis leads to a gradual loss of the normal function of this organ and disruption of the digestive process [1]. Acute cholecystitis makes up a significant proportion of surgical diseases of the abdominal organs, second only to appendicitis in frequency. In elderly patients, destructive cholecystitis is the main disease in emergency abdominal surgery. Destructive forms of acute cholecystitis occur in 70% of cases. The prevalence of cholelithiasis (GSD) is steadily growing and occupies a leading position among pathologies requiring surgical treatment. Currently, due to the widespread introduction of the ultrasound research method into practical activities, new opportunities have emerged for objective assessment of the degree of inflammatory changes in the wall of the gallbladder and perivesical space. The use of ultrasound techniques should be carried out in all patients with suspected acute cholecystitis, regardless of the severity of clinical symptoms. Thus, in practical surgery there is an urgent need to study the issues of ultrasound diagnosis of acute calculous cholecystitis, develop echosemiotics of each of its forms, and determine the presence of purulent complications.

We conducted a clinical study, the purpose of which was to improve the effectiveness of modern ultrasound technologies in the diagnosis of acute calculous cholecystitis, and to develop rational diagnostic tactics for this disease.

Research methods. Gallbladder cholesterol is differentiated from gallstones and polyps. Traditional and endoscopic ultrasound examination of the gallbladder (GB). According to indications - endoscopic retrograde cholangiopancreatography (ERCP) and magnetic resonance imaging of the abdominal organs. In some children, the diagnosis is determined morphologically. Histochemical studies of the gallbladder were carried out to determine the degree of maturation of collagen fibers. For treatment with lectins, both cryostat sections and those obtained after placing the material on a solid medium were used. The biopsy material obtained during surgery is stained with 8 histochemical dyes.

Research results. Inflammatory diseases of the gallbladder, as a complication of cholelithiasis, continue to be the most common diseases in the world. In recent years, in many countries, the number of patients with acute cholecystitis has doubled [1]. According to domestic and foreign researchers, this is due to changes in living conditions, the nature of nutrition in various social groups, increased psycho-emotional stress, physical inactivity, as well as improved diagnosis of gallbladder diseases. The most characteristic symptom of chronic cholecystitis is diffuse thickening of the wall of the gallbladder (i.e., a thickness of 3 mm or more in the body area), usually combined with an increase in its echogenicity, which is possible when the gallbladder

shrinks. Wrinkling of the gallbladder occurs during a long-term course of chronic cholecystitis. Severe exacerbation of chronic cholecystitis (acute cholecystitis) can also lead to wall thickening. Uneven thickening of the gallbladder wall is possible in chronic cholecystitis. The same symptom is observed with cholesterosis. At the same time, with chronic cholecystitis (both calculous and acalculous) the wall of the gallbladder is often not thickened. In chronic cholecystitis, atrophy of the gallbladder wall is sometimes observed with its thinning to 0.5–1.0 mm. In such cases, the bladder wall may appear normal on ultrasound. At the level of macromicroscopic observations, changes in the topography of the gallbladder in its "cunning" form are determined. Unlike the control, with this topographic-anatomical variant of the organ, the usual arrangement of glands in the form of longitudinal rows is lost. In the presence of a mesentery, the gallbladder glands are located in groups of three glands; There are non-glandular areas of the mucous membrane ("non-glandular areas"). The appearance of such areas reflects atrophic processes occurring in the walls of this organ, the likelihood of which is indicated by clinicians [4]. Ultrasound examination (US) is the leading method for diagnosing the morphofunctional state of the gallbladder [6]. Ultrasound allows you to obtain real-time data on the size, shape, contents of the lumen, thickness and structure of the walls, and evaluate its contractile function [7]. A difficult diagnostic issue is to establish the causes of thickening of the gallbladder wall, which is often associated with structural changes caused by acute or chronic cholecystitis [10]. However, thickening of the gallbladder wall detected by echography is not specific and can be detected in various forms of pathology that are in no way related to the gallbladder [11, 13]. In this regard, it seems important to timely establish the causes of these changes to prevent possible complications that may arise as a result of erroneously administered treatment.

CONCLUSIONS. Thus, the described macro- and microscopic picture of the gallbladder and its wall in chronic calculous cholecystitis occurs when the cystic duct is obstructed with the accumulation of purulent or fibrinous-purulent exudate in the lumen of the bladder - empyema. As is known, late diagnosis leads to dysfunction and organic changes in the bile ducts, large duodenal papilla, pancreas, liver, intra and extrahepatic bile ducts. Early detection of the complicated course of chronic cholecystitis makes it possible to make a timely diagnosis and prescribe surgical treatment. The main criteria for differentiating a latent destructive process in the gallbladder from chronic inflammation are anamnesis, morphological changes, and dynamic sonography data.

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