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THE EFFECTIVENESS OF ULTRASOUND IN THE DIAGNOSIS OF CHOLECYSTITIS

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ABSTRACT

The use of ultrasound for cholecystitis makes it possible to make a correct diagnosis in the shortest possible time, determine subsequent treatment tactics, and promptly begin conservative or surgical treatment. Timely diagnosis of damage to the gallbladder and bile ducts, congestion of the extrahepatic and intrahepatic bile ducts. The creation of laboratory panels to assess the severity and severity of the pathological process during exacerbation of chronic or latent forms of this disease is important. Acute cholecystitis is one of the most significant acute diseases of the abdominal organs.

Key words: ultrasound, cholecystitis, morphological changes, gallbladder.

INTRODUCTION

Currently, acute cholecystitis is one of the most common acute surgical diseases of the abdominal organs [1, 2, 5]. Gallbladder disease is a major cause of morbidity and mortality around the world. Many risk factors for gallbladder disease have been identified, namely: ethnicity, genetics, age, gender, female sex hormones, oral contraceptive use, obesity, rapid weight loss, diets high in cholesterol, fatty acids and carbohydrates, diabetes mellitus, hyperinsulinemia, sickle cell anemia, metabolic syndrome and others. Diseases of the gallbladder usually manifest as gallstones, cholecystitis or cancer [15, 16]. It is important to create laboratory panels to assess the severity and severity of the pathological process during exacerbation of chronic or latent forms of this disease. ne of the

most common causes of patients present- ing to the emergency department with complaint of abdominal pain is acute cholecystitis. Acute cholecystitis, which is an inflammatory disease of the gallbladder, is mostly due to presence of a stone, ischemia, movement disorders in gallbladder and biliary tracts, and obstruction of the tracts by a tumor. Statistics have indicated that 3% to 10% of the patients presenting to emergency department with complaint of abdominal pain are affected with acute cholecystitis [17]. Along with physical examination and laboratory evaluation, ultrasonography is usually considered the first diagnostic step for patients with suspected acute cholecystitis in the emergency department. Acute cholecystitis is one of the most significant acute diseases of the abdominal organs. Over the past decades, many countries around the world have seen a significant increase in the incidence of both acute and chronic forms of cholelithiasis (GSD). There is a tendency towards an increase in the development of latent purulent-destructive forms of acute cholecystitis with scanty symptoms, which may be due to powerful antibacterial and multi-purpose infusion therapy, which significantly change the clinical picture of the disease, neutralize the acute manifestations of destructive cholecystitis, including clinical and laboratory signs of endogenous intoxication, creating false impression about the regressive course of the disease [9-11]. This leads to a lengthening of the preoperative period, complicates the consequences of surgery, increasing the likelihood of both intraoperative and postoperative complications [17, 18]. Studying the clinical and morphological features of oligosymptomatic forms of cholecystitis can help in understanding the mechanisms of their development, which will be useful for identifying risk groups for the development of oligosymptomatic forms of acute destructive cholecystitis and optimizing the management tactics of such patients.

Purpose of the study. Study of morphological changes gallbladder walls for various forms of cholecystitis using ultrasound and histochemical analyses.

Materials and methods of research. Materials collected from the medical history of patients of the surgical department of the Republican Research Center for Emergency Medicine, BF with a diagnosis of acute cholelithiasis, static treatments and reliability criterion for the difference in indicators. Ultrasound machines Mindray 6600, Esaote My lab X6, Esaote My lab 40.

Research results. In the gallbladder (GB) and duct system, anomalies are observed quite often. A rare anomaly is the presence of 2 gallbladders, developing identically or differently and located in very different ways [5,12]. There are about 70 similar observations described in the literature. Abdominal pain is one of the most common symptoms prompting patients to visit hospitals. Among such individuals,

a number of patients have serious diseases and require subsequent hospitalization or surgery. Diagnosis may consist of acute appendicitis, intestinal obstruction and other serious conditions such as bowel necrosis and intestinal volvulus. Correct and prompt diagnosis is essential for the appropriate management of patients. Diagnosis of patients with abdominal pain is primarily determined by imaging techniques, such as radiography, abdominal ultrasonography (US), computed tomography (CT) and magnetic resonance imaging (MRI) [7-8]. On average, the occurrence of this anomaly is estimated as 1 in 3–4 thousand people [9, 11]. This anomaly may not be accompanied by disorders or may be combined with various forms of disorders. Both gallbladders can have the usual shape with their own ducts, separately flowing into the hepaticocholedochus, and their own cystic arteries. Less commonly, the cystic ducts merge and flow into one trunk. The gallbladder may also be of different shapes and sizes. For example, one may be a diverticulum-like sac located on the cystic duct of a normal-looking bladder. Moreover, in the case of the development of cholelithiasis, one bladder may contain stones, an echo suspension, its wall may be changed, thickened, while the other may be normal. In other cases, as a rule, pathological changes affect both gallbladders [19].

Abdominal US is indispensable for the diagnosis of diseases in the abdominal cavity in patients with abdominal symptoms. In addition, abdominal US is also useful for the diagnosis of solid organ conditions, including acute cholangitis, acute cholecystitis and acute pancreatitis. Abdominal US is also useful in the diagnosis of bowel disease based on pathological findings. Diagnostic criteria with abdominal US have been established for acute appendicitis and colonic diverticulitis and colorectal cancer may be diagnosed with abdominal US. In numerous cases, patients are diagnosed by a combination of laboratory data and diagnostic imaging findings based on symptoms and physical examination.

Consequently, the function of the organs of the biliary system of dogs is ensured by both humoral and neural pathways. The reflex that occurs when external analyzers are irritated, as well as internal receptors of the digestive tract, is the basis for the activity of innervation mechanisms that affect the function of the liver, gallbladder and main bile ducts. As for the peripheral reflex, it joins the nervous regulation system, headed by the central nervous system. A disorder of cortical regulatory mechanisms causes an increase or decrease in efferent impulses, which generally causes an increase or decrease in the function of the organs of the hepatic ductal system, with a partial disorder of motility and activity of the sphincters of the gallbladder and ducts, as well as a disorder of bile secretion, which is constantly observed with cholecystitis [6, 13, 14]. Due to these changes,

feedback also changes. An increase or suppression of afferent impulses, often having a distorted nature of information, supports the brain centers, deepens, in turn, and maintains the pathological state of organs, including the organs of the hepatic ductal system.

On ultrasound, gallstones are visualized as echogenic areas with an acoustic shadow: the echogenic line of the anterior wall of the gallbladder; an anechoic stripe representing bile; hyperechoic line formed by the anterior wall of the stones; rear acoustic shading; rear acoustic shading. Acoustic shadowing may be absent if the stones are of non-diagnosable sizes. There are many common gallbladder imaging variations and abnormalities that may show up on a scan. A pathology worth mentioning is bile sediment. The sediment is detected as a layer on the lower wall of the gallbladder with varying echogenicity and the absence of an acoustic shadow. It often occurs in conditions associated with bile stagnation, such as fasting. It is also known to cause bile duct obstruction and cholecystitis. The results of observations of radiation diagnostics convince the need for further search for new non- or minimally invasive methods of using ultrasound in the prevention and correction of emerging gallstone pathologies with damage to the biliary tract [3, 4]

CONCLUSIONS. The cause of latent forms of acute destructive cholecystitis is previous chronic inflammation gallbladder, leading to sclerosis and restructuring of its wall, atrophy of the epithelium, a decrease in the number of nerve fibers and their distance from the inflammatory infiltrate. The development of purulent-destructive forms of acute cholecystitis with a pronounced inflammatory peri-process and scant clinical and laboratory symptoms is caused by prolongation of the terms of conservative treatment of patients with this pathology. The main criteria for differentiating a latent destructive process in the gallbladder from chronic inflammation are anamnesis, increased levels of transaminases and urea, and dynamic sonography data. The studied ultrasound signs of the gallbladder and in its wall, such as the length of the gallbladder, its area and volume, indicate the possibility of their use in the differential diagnosis of chronic and acute calculous cholecystitis, as well as biliary tract obstruction. With the development of a pathological process in the gallbladder (cholecystitis), corresponding morphofunctional changes occur in the liver and main bile ducts. Insufficient number of patients previously treated surgically prevented an assessment of the relationship between peritoneal adhesions and risk of conversion during cholecystectomy, which was reported by some authors Knowledge of the capabilities of radiation diagnostic methods and their rational use make it possible to minimize the time of patient examination, choose the optimal treatment method

and determine the outcome of the disease. In modern conditions of a multidisciplinary clinic, optimizing the choice of diagnostic methods in favor of more accessible ones (both technically and materially) also has economic feasibility. Ultrasound can be used in the diagnosis of cholecystitis as a first-line method; the next diagnostic step depends on its results.

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