

**DIAGNOSIS OF ACUTE DESTRUCTIVE CHOLECYSTITIS IN PATIENTS
UNDERGOING LAPAROSCOPIC SURGERY IN REGIONAL HOSPITALS**

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Abstract: Acute cholecystitis is one of the most common diseases of the abdominal cavity. Materials and methods. The study material was the medical records of 77 patients operated on in the Khankinsky district hospital in 2023 for acute cholecystitis within 72 hours of the onset of the disease. Results and discussion. Our univariate analysis of variance allowed us to establish that there is a significant difference in average values between the groups of patients with catarrhal and destructive acute cholecystitis according to a number of studied indicators, which allows them to be used as prognostic factors for the detection of acute destructive cholecystitis. Conclusion. In order to timely resolve the issue of urgent laparoscopic cholecystectomy in a regional hospital, the diagnosis of acute destructive cholecystitis with a high degree of reliability can be established by identifying a combination of clinical, ultrasound signs and changes in functional liver tests.

Keywords: acute destructive cholecystitis; laparoscopic surgery; cholecystectomy; functional liver tests.

Introduction. Acute cholecystitis is one of the most common diseases of the abdominal cavity. In the last two decades, significant progress has been made in the diagnosis and improvement of its treatment methods, which has significantly reduced the rates of postoperative complications and mortality in this pathology [1-6].

Cholecystectomy is a radical intervention leading to a complete recovery of the patient. Laparoscopic cholecystectomy is one of the minimally invasive and effective surgical interventions for acute destructive cholecystitis. Performing laparoscopic cholecystectomy at an early stage makes it a relatively safe and affordable intervention, which provides an additional advantage in the form of shorter hospital stays. To reduce the number of conversions, laparoscopic cholecystectomy is most appropriate within 72-96 hours of the onset of the attack [7-9]. However, early diagnosis of acute destructive cholecystitis often causes difficulties, because the available clinical, laboratory and instrumental data do not always allow us to exclude or confirm the presence of destructive changes in the gallbladder wall. Accordingly, the purpose of our study was to study the effectiveness of the main methods used in the diagnosis of acute cholecystitis in regional hospitals.

Materials and methods. The study material was the medical records of 77 patients operated on in the Khanka district hospital in 2023 for acute cholecystitis within 72 hours of the onset of the disease. All patients were divided into two groups: the first group with acute cholecystitis without signs of destruction – 35 people; the second with acute destructive cholecystitis – in the presence of phlegmonous and gangrenous changes according to the results of morphological examination of preparations of removed gallbladders - 42 people.

Medical history data, clinical examination results, general and biochemical blood tests, and ultrasound examinations were used.

Patients with ASA III or IV surgical risk, over the age of 70, with a history of upper abdominal surgery, and pregnant women were not included in the study. For quantitative normally distributed features, statistical reliability was assessed using the Student's criterion (t). Nonparametric criteria were used for a different distribution of features from the normal one. The differences were considered significant with an error probability of $P < 0.05$. One-factor analysis of variance was used to identify the significance of the established prognostic factors. To calculate the diagnostically significant levels, we used the definition of reference intervals using a central range covering 95% of the data values [10]. The obtained research results were processed using the STATISTICA 6.0 software package.

Results and discussion. Our univariate analysis of variance allowed us to establish that there is a significant difference in average values between the groups of patients with catarrhal and destructive acute cholecystitis according to a number of studied indicators, which allows them to be used as prognostic factors for the detection of acute destructive cholecystitis. For each of the identified prognostic factors of acute destructive cholecystitis, the following were calculated: the point of a diagnostically significant level (Cut-off point), sensitivity (Se), specificity (Sp), the prognostic value of a positive (+PV) and negative result (-PV), accuracy (diagnostic effectiveness). Traditionally, the diagnosis of acute destructive cholecystitis is made on the basis of a set of data from clinical, laboratory and instrumental research methods. The established prognostic factors were grouped, respectively, into the clinical diagnosis of acute destructive cholecystitis, ultrasound diagnosis of acute destructive cholecystitis, and functional liver test (Table 1).

Table 1

The number of patients with acute destructive cholecystitis identified by clinical, ultrasound and laboratory examination

Variable	Clinical diagnosis	Ultrasound diagnosis	Functional liver test
Diagnosis of acute destructive cholecystitis	27 (80,6%)	14 (38,7%)	22 (64,5%)
Diagnosis of acute destructive cholecystitis	24 (57,9%)	34 (84,2%)	30 (73,7%)
Diagnosis of acute destructive cholecystitis	8 (19,4%)	21 (61,3%)	13 (35,5%)
Diagnosis of acute destructive cholecystitis	18 (42,1%)	8 (15,8%)	12 (26,3%)

Clinically, the diagnosis of acute destructive cholecystitis was made in patients with pain in the right hypochondrium and epigastrium for more than 12 hours, palpable gallbladder or leukocytosis over 10700, with no positive Murphy's symptom, nausea, vomiting, and fever. The diagnosis of acute destructive cholecystitis based on ultrasonographic data was based on the detection of concretions in the lumen of the gallbladder with a possible insertion into the neck, accompanied by an increase in transverse size over 34.9 mm, wall thickness over 3.0

mm with no stratification of the gallbladder wall, and the presence of a perimesical accumulation of fluid. Additionally, in the diagnosis of acute destructive cholecystitis, a functional liver test was used, such as an increase in total bilirubin above 13.2 mmol/l. Sensitivity, specificity, prognostic value of positive and negative results, and accuracy of the methods used were established. (Table 2).

Table 2

Diagnostic effectiveness of clinical, instrumental and laboratory research methods

	Se	Sp	+PV	-PV	точность
Clinical diagnosis	80,6%	57,9%	53,2%	21,4%	68,1%
Ultrasound diagnosis	38,7%	84,2%	27,3%	37,3%	63,8%
Functional liver test	64,5%	75,7%	41,7%	28,2%	70,6%

A clinical examination revealed acute destructive cholecystitis in 35 out of 42 people, and acute cholecystitis in 26 out of 35 patients. Thus, the sensitivity of the clinical examination was 80.6%, and the specificity was 57.9%. Ultrasound of the abdominal organs revealed acute destructive cholecystitis in 15 patients, and acute cholecystitis in 34 patients. The sensitivity of this method was 38.7%, and the specificity was 84.2%. An increase in bilirubin levels was noted in 22 patients with acute destructive cholecystitis and remained within normal limits in 31 patients with acute cholecystitis.

Clinical data, ultrasound data and liver functional test corresponding to acute destructive cholecystitis were simultaneously detected in 6 patients; in all these patients, histological examination confirmed acute destructive cholecystitis. Thus, the positive prognostic value of simultaneous detection of all 3 groups of signs is 100%. On the other hand, all these signs were absent in 12 patients, and 10 of them had a catarrhal form of acute cholecystitis according to the results of a pathomorphological examination. Therefore, the absence of these signs provides a positive prognostic value of 90%.

Cholecystectomy in acute destructive cholecystitis can be performed videolaparoscopically or openly, without any significant differences in the levels of postoperative complications and mortality. It has been shown that performing surgery within 72 hours of the onset of an attack provides better results, especially when using laparoscopic techniques. In addition, performing urgent surgery requires time and preparation, and certain material costs. All this highlights the need to find accurate and timely methods for the detection of acute destructive cholecystitis.

Early detection of destructive forms of acute cholecystitis is often associated with significant difficulties. In the vast majority of cases, only such methods as medical history collection, clinical examination, general and biochemical blood tests, ultrasound of the abdominal organs are available in district hospitals. More expensive diagnostic tools and methods are usually unavailable. Currently, instrumental diagnostic methods are becoming increasingly important. The sensitivity of ultrasound in detecting cholelithiasis, according to the literature, exceeds 90-95%, at the same time, its sensitivity in detecting acute destructive cholecystitis is significantly lower. In this work, we have demonstrated that correct medical history

collection and clinical examination are simple, affordable, cost-effective methods that surpass ultrasound in the diagnosis of acute destructive cholecystitis. On the other hand, the high specificity of ultrasound makes it an extremely valuable method of excluding acute destructive cholecystitis, although clinical examination is more sensitive than ultrasound in detecting acute destructive cholecystitis, in practice they complement each other, and sufficient accuracy in the diagnosis of acute destructive cholecystitis can be achieved if the results of clinical examination, ultrasound and the results of functional liver tests coincide. Ultrasound examination is used to confirm the diagnosis of acute destructive cholecystitis in cases where it is suspected clinically. On the other hand, the diagnosis of acute destructive cholecystitis can be ruled out with a sufficient degree of certainty if all these tests are negative. These data suggest a fairly simple assessment of the patient's status, which makes it possible to select those patients who need urgent surgery, as opposed to those who can be operated on as planned.

Conclusion: Thus, in order to timely resolve the issue of urgent laparoscopic cholecystectomy in a regional hospital, the diagnosis of acute destructive cholecystitis with a high degree of reliability can be established by identifying a combination of clinical, ultrasound signs and changes in functional liver tests.

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