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# Surgical Intervention for Biliary Peritonitis, Which Developed as a Complication Of Acute Destructive Cholecystitis

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**Abstract:** *Biliary peritonitis as a complication of acute destructive cholecystitis accounted for 7.1% and most often (35.2%) developed in elderly patients. According to the mechanism of development, 67.1% had perspiring biliary peritonitis with no pathognomonic signs of catastrophe in the abdominal cavity. Optimization of the tactical and technical aspects of surgical treatment of patients with biliary peritonitis using puncture diapeutics, laparoscopy, and transduodenal endoscopic interventions improved the results of treatment in the main study group, where complications in the immediate postoperative period accounted for 16.3% and mortality 4.1% (in the comparison group-33.3% and 6.1%, respectively).*

*Biliary peritonitis is one of the most severe and prognostically unfavorable diseases of the abdominal cavity [1, 5]. The incidence of biliary peritonitis only in acute calculous cholecystitis, according to the authors, ranges from 2.2 to 8.4 % [3,6,9]. Postoperative mortality ranges from 17.4 to 28% [4.11]. The main problem of biliary peritonitis is associated with a latent course at the initial stages of its development and late diagnosis. This makes it necessary to study the causes, improve diagnostic methods and surgical treatment of patients with this pathology. Based on the causes of bile leakage into the abdominal cavity, biliary peritonitis can be divided into perforated and perspiring, destruction and perforation of the gallbladder wall in the first case and perspiration in the second [5,7]. The frequency of relaparotomies after operations ranges from 5.6 to 17 %, and the most common cause of relaparotomies after these operations is ongoing and progressive biliary peritonitis [2,10].*

**Keywords**: *Improving the results of surgical treatment of biliary peritonitis in patients with cholelithiasis.*

## Introduction

Over the past 20 years3, 5849 patients with cholelithiasis were operated on in the surgical departments of the 1st clinic of Samarkand State Medical University3 г.г. прооперировано 5849 больных с холелитиазом, including 1167 (19.9%) with acute destructive cholecystitis. We noted a significant increase (1.9 times) in the number of patients operated on with cholelithiasis (3GI) in the period3 г.г2013-2023 (the number of operations was 3801), compared to the period since 2000(the number of operations was 2048). At the same time, the incidence of acute destructive cholecystitis in the analyzed time intervals was 19.2% out of the total number of operated patients with cholelithiasis (394 patients – 2003-202-2023 years) and 20.3% (773 patients – 2013-202-2023 years), i.e. approximately equal. At the same time, the frequency of operated patients with peritonitis significantly decreased by 8.4% (33) and 6.3% (49), as complications of acute destructive cholecystitis - a total of 82 (7.1%) patients.

Among the patients with peritonitis there were 29.7% men and 70.3% women, the gender ratio was 1: 2.5. The same ratio among all operated patients with GI was 1: 6, which confirms the literature data on a more complex course of cholelithiasis in males. Patients aged 60-74 years – 35.2% and 45-59 years – 28.2% prevailed. 8.3% of patients were aged over 75 years, 22.1% - 30-44 years and 6.1% - under 29 years. The mean age of the patients was 55.2±1.3 years.

Biliary peritonitis most often developed in elderly and senile patients, which was due to an increase in their destructive forms of acute cholecystitis, which occurred with erased symptoms of the disease. Elderly people, as a rule, had a long history of GI and were carriers of dormant infection, significant morphological changes not only in the gallbladder, but also in the liver and pancreas. In addition, these patients had severe concomitant diseases, which to a certain extent required careful preparation of such patients for performing surgical interventions. Concomitant diseases were present in 82 (62.6%) patients. Cholangitis, as a complication of the main pathological process, was detected in 67 patients(51.1%).

Taking into account current trends in the development of surgery, the исследованияpatients were divided into two groups to solve research problems aimed at developing new treatment and diagnostic tactics for biliary peritonitis. Group I (comparison group) included 33 patients with peritonitis as a complication of acute destructive cholecystitis operated on in the period 2001-2010, in the complex treatment of which standard conventional approaches were used. The second group (the main group) included 49 patients operated on in the period 2011-2020, whose algorithm for conducting medical and diagnostic measures was based on the principles of the FTS program of accelerated recovery (PUV) and mini – invasive surgical interventions were used as priority methods миниинвазивныеof surgical treatment. Theapproach was based on the recommendations of the Society of Surgery for Accelerated Recovery – Era LABS (Enhanced Recovery After Surgery).

The clinical form of peritonitis was determined according to the classification of V. D. Fedorov etal. (2000).

**Results and their discussion.** According to the mechanism of bile flow into the abdominal cavity as a complication of acute destructive cholecystitis, we observed two forms of bile peritonitis: perforated and perspiring. Punctured biliary peritonitis occurred in 27 (32.9%) patients (12-gr. comparison, 15-maingr.), which was manifested by a picture of an acute catastrophe in the abdominal cavity against the background of destruction of the gallbladder wall. Sweating bile peritonitis developed against the background of destructive cholecystitis, and since there was a gradual sweating of bile into the free abdominal cavity, peritonitis proceeded with subtle symptoms. Only with a significant accumulation of bile in the abdominal cavity, the characteristic signs of peritonitis were manifested, which was the reason for their delivery to a surgical hospital. According to our observations, propotny peritonitis occurred in

55 (67.1%) patients (21-gr. comp., 34-osn. gr.). Thus, there is a significant prevalence of perspiring biliary peritonitis

In the development of biliary peritonitis, according to Academician F. G. Nazirov (5), the nature, quantity and rate of bile outpouring are fundamental. The reaction of the peritoneum and the body differ with a massive simultaneous outpouring of bile, slow expiration or its sweating. In the first case, abdominal shock will develop, and when bile is sweated, this clinically occurs unnoticed (in our observations, out of 27 patients with bile perforation peritonitis, 3 were admitted to the clinic in a state of shock). The quality of bile also affected the development of the pathological process caused by bile. With empyema of the gallbladder, perforation of the wall is not accompanied by shock (in our observations, there were 10 such patients). The spread of bile throughout the abdominal cavity was accompanied by a severe shock reaction. With the outpouring and accumulation of bile in the delimited space, there is no clear picture of the manifestation of peritonitis.

Thus, in our observations among 82 patients with destructive cholecystitis complicated by biliary peritonitis, according to the nature of the pathological process, propotny was observed in 55 (67.1%) patients, of which spilled – in 9 (16.4%) and delimited – in 46 (83.6%). Punctured biliary peritonitis was present in 27 (32.9%) patients, including diffuse biliary peritonitis in 10 (37.1%) and delineated biliary peritonitis in 17 (62.9%) patients.

У пациентом с прободным и пропотнымAcute onset of the disease was observed in 57 (69.5%) patients with punctured and perspiring biliary peritonitis and gradual increase in 25 (30.5%) patients upon admission to the hospital.

During hospitalization, a relatively satisfactory general condition was observed in 17 (20.7%) patients, moderate severity – in 31 (37.8%), severe – in 24 (29.3%) and extremely severe – in 10 (12.2%) patients. On the first day of the disease, 31 (37.8%) patients were admitted, on the second day – 22 (26.8%), on the third – 18 (21.9%), from four to seven days-6 (7.3%) and over seven days-5 (6.1%). Thus, we can note a significant percentage of late hospitalization of patients, which is explained by their late access to medical care as a result of inadequate assessment of their condition.

Based on the criteria for the diagnosis of sepsis, systemic inflammatory response syndrome (SIRS) was observed in 114 (87 %) patients, 10 of them were in a septic state.

Patients with biliary peritonitis needed хирургическом лечении emergency surgical treatment, and the presence of bile in the abdominal cavity required its immediate removal and elimination of the source. At the same time, most patients were elderly, with severe concomitant pathology, which required a differentiated approach to the timing and scope of surgical intervention. In these cases, there was a need for intensive infusion detoxification therapy, correction of the water-electrolyte balance, and replenishment of the protein composition in the body. However, it was impossible to normalize these disorders without surgical intervention, so it was necessary to be guided by the relative indicators of improvement and stabilization of the patient's condition.

Of the 82 patients admitted to the hospital with biliary peritonitis, 31 (37.8 %) underwent surgery within the first 6 hours. This group of patients was admitted in a relatively stable condition, when diagnostic measures and preoperative preparation were required. 43 (52.4%) patients underwent surgery within 6 to 24 hours, i.e. 1 day. Later than a day after admission to the clinic, surgery was performed in 8 (9.8%) patients.

In patients of the comparison group, depending on the volume, the operations performed were divided into 3 types: – cholecystectomy (CE) and drainage of the subhepatic space was performed in 19 patients; – CE and drainage of the abdominal cavity (right lateral canal and small pelvis) was performed in 9 patients; – CE, choledocholithotomy and drainage of the subhepatic space was performed in 5 patients. In all cases, the upper - middle approach was used.

In the main group of patients, the following types of operations were performed:
- laparoscopic cholecystectomy (LCE) and drainage of the subhepatic space was performed 9 – - LCE and drainage of the abdominal cavity (right lateral canal and small pelvis) 4; LCE and drainage of the subhepatic space, EPST 3; - Microcholecystostomy and bilom punctures 11; - CE from minilaparotomy access and choledocholithotomy, drainage of the choledochus and subhepatic space 6; - CE and drainage of the abdominal cavity from open laparotomy access in 16 patients (Table 1).
In 11 patients of the main study group with acute destructive cholecystitis and bile accumulationжелчи произведена, decompression of the gallbladder was performed by percutaneous-transhepatic microcholecystostomy (CHMHS) and biloma puncture биломыunder ultrasound control. Drainage of the gallbladder was performed through a section of the liver parenchyma in order to seal the canal and prevent bile leakage. Drainage in all cases was performed with an umbrella stiletto catheter with a basket at the end, with a catheter diameter of 4F and 9F. After performing microcholecystostomy, these patients required bile punctures under ultrasound control in order to evacuate the limited accumulation of fluid in the abdominal cavity. The contents of the gallbladder and biloma were completely evacuated, the cavity was washed with saline solution to a clean discharge, and the drainage was extended. The drainage discharge was evaluated visually and sent for bacteriological examination. The completeness of gallbladder emptying was monitored echographically.
Laparoscopic cholecystectomy was completed by sanation and drainage of the subhepatic space in 9 patients with acute destructive cholecystitis and local peritonitis. In patients with diffuse biliary peritonitis, LHE was supplemented with abdominal sanitation with mandatory additional drainage of the right lateral canal and pelvic cavity in 4 patients. 3 patients with combined choledocholithiasis after LCE underwent EPST, 6 patients with CE and холедохолитотомияcholedocholitotomy were performed from an openmini-access. At the same time, 16 patients with spilled bile-purulent peritonitis underwent HE and abdominal sanitation from a wide laparotomy approach.
Thus, according to the principles of minimally invasive interventions, 33 patients (67.3%) with acute destructive cholecystitis complicated by various forms of biliary peritonitis were operated on in the main study group.
The most serious complication in the control group of patients was abdominal sepsis, which was the cause of fatal outcomes in 2 patients, the mortality rate was 8.2%.
At the same time, 2 out of 49 patients operated on also died in the main group, the mortality rate was 2.1%. The unfavorable outcome was caused by acute pancreatitis as a complication of transduodenal endoscopic intervention in 1 patient and ongoing peritonitis in 1 follow-up..
Various purulent-septic complications were observed in 11 patients of the comparison group, which was 33.3%. At the same time, 2 (6.1%) patients developed bilomas in the subhepatic region, which were drained by recanalization of contrapertures. 2 (6.1%) patients had prolonged bile discharge from the drainage tubes installed in the subhepatic space, 4 (12.1%) patients underwent repeated operations for ongoing peritonitis, 1–opening and drainage подпеченочных и of subhepatic and subphragmatic abscesses. Also, 1 patient was re-operated for cholemic intra-abdominal bleeding. Postoperative wound suppuration was observed in 9 (27.3%) patients.
In the main study group, postoperative complications developed in 8 patients, which was 16.3%. At the same time, bilomas of the subhepatic region were re-formed in 2 (4.1%) patients who were successfully sanitized by ultrasound-guided punctures. In 1 patient, cholemic bleeding from the liver was observed from the area of transhepatic puncture of the gallbladder. External bile flow was also observed in 1 patient - relaparoscopy revealed the failure of the stump of the cystic duct, which was repeatedly clipped. Duodenal bleeding was observed in 1 patient after EPST, the bleeding was stopped. 1 patient developed a subphragmatic abscess sanitized by repeated punctures under ultrasound control. Relaparotomy was

performed in 1 patient with ongoing peritonitis, and postoperative wound suppuration was performed in 5 patients.

**Conclusions.**

1. Biliary peritonitis as a complication of acute destructive cholecystitis accounted for 7.1% and most often (35.2%) developed in elderly patients. According to the mechanism of development, 67.1% had perspiring biliary peritonitis with no pathognomonic signs of catastrophe in the abdominal cavity.
2. Optimization of the tactical and technical aspects of surgical treatment of patients with biliary peritonitis using puncture diapeutical methods, laparoscopy and transduodenal endoscopic interventions improved the results of treatment in the main group of the study, where complications in the immediate postoperative period amounted to 16.3%, mortality 4.1% (in the comparison group-33.3% and 6.1%, respectively).

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