

## ASPECTS OF SURGICAL TREATMENT OF ACUTE BILIARY PANCREATITIS

**Khamroev O.Z., Dusiyarov M.M., Akbarov M.M.**

Samarkand State Medical University

**Annotation.** The paper presents a retrospective analysis of treatment of 221 patients with acute biliary pancreatitis. In case of stone embedding into the large duodenal papilla endoscopic papillotomy in the first hours is recommended, in case of choledocholithiasis, mechanical jaundice, cholangitis and acute biliary pancreatitis - endoscopic papillotomy and lithoextraction performed in the first day after the patient's admission to the clinic. Cholecystectomy, as a rule, laparoscopic, it is expedient to perform after conservative resolution of mild biliary pancreatitis in the next 3-7 days. After endoscopic papillotomy it is justified to perform cholecystectomy also without discharge from the hospital, if the procedure is performed without complications. In acute biliary pancreatitis complicated by sterile or infected fluid accumulations cholecystectomy should be postponed until their complete resolution and elimination of systemic inflammatory reaction.

**Keywords.** Acute pancreatitis, surgical treatment, complications of acute pancreatitis, pancreonecrosis

**Introduction.** Acute biliary pancreatitis (ABP), is a common disease, occurring in 25-30% of all patients with acute pancreatitis and in 15-25% runs in severe form [1,3,5]. Its main causes are the existence of cholelithiasis, anatomical relationships of common bile and main pancreatic ducts and embryonic development of "common channel" between them, microlithiasis, wedging and migration of stones through the large duodenal papilla (LDP) (2,7,9). Nowadays active surgical tactics of treatment of cholelithiasis, wide introduction of laparoscopic cholecystectomy and endoscopic retrograde pancreato- and cholangiography with the possibility of papillotomy and stone extraction are advocated. However, the results of surgical treatment of OPD patients leave much to be desired, because in severe forms of this disease lethality reaches 15-30% [4,8]. In this connection timely detection of specific laboratory and data of special investigations characteristic for OPD is urgent, it is necessary to substantiate the choice of the type of surgical aid, minimally invasive or "open", depending on the prevalence of those or other changes of gallbladder, bile ducts, pancreas, parapancreatic and retroperitoneal space. The question of necessity, effectiveness and danger of endoscopic papillotomy in the conditions of complicated course, as well as determination of the terms of cholecystectomy after the treatment of IBD of different degrees of severity requires final decision [6,10].

**Purpose of the study:** development of rational surgical tactics of treatment of patients with acute biliary pancreatitis

**Material and methods of research.** The retrospective analysis of treatment of 221 patients with acute biliary pancreatitis observed in the clinic for the period of more than 10 years is presented in the work. From them 2 groups were singled out, the first one with mild course of the disease - 142 patients (64,2%) and the second one, which is of the greatest interest for practical surgery - with medium and severe course - 79 (35,8%) patients. The criterion for inclusion in the study was proven biliary pancreatitis (presence of LCB, blood amylase elevation 3 times higher than normal), the patients who had an attack after alcohol intake were excluded from the study. It is generally recognized that biliary pancreatitis more often affects

women, and the known ratio of 1:1.5 in favor of women was found in our study. The age of 221 patients varied widely from 18 to 75 years, the mean age of patients was  $54.5 \pm 1.9$  years. Among 79 patients with severe and moderate forms were patients of working age from 20 to 50 years made up 84.7% of this number of patients. There were 34 (43.1%) males and 45 (56.9%) females.

Laboratory analysis included: - Clinical blood analysis was performed on a Sysmex XT 4000i analyzer in peripheral blood. Blood was drawn in a tube for clinical blood analysis with ethylenediaminetetraacetic acid (EDTA); - General urinalysis; - Determination of the content of indicators in the biochemical analysis of blood: (bilirubin total, direct, amylase, alkaline phosphatase, alanine transaminase (ALT), aspartate transaminotransferase (AST), albumin, total protein, urea, creatinine, glucose, electrolyte composition, C-reactive protein, procalcitonin in serum. Venous blood in the volume of 3.0 ml was collected with a tube with heparin; - Investigation of the hemostasis system (thromboelastogram, hemostasiogram); - Microbiological study sterility of biomaterials, culturing.

**Results and their discussion.** Treatment of 142 patients with acute pancreatitis of mild severity consisted in anesthesia, administration of octreotide, antimediation therapy with xefocam, antibiotic therapy in case of fever, antispasmodic therapy, correction of water-electrolyte disorders. Analysis of case histories of these patients revealed a significant difference in blood amylase indices of biliary pancreatitis from alcoholic pancreatitis. Thus, in biliary pancreatitis blood amylase elevation over 800 units/l was common. In 34 patients with mild severity of pancreatitis we found blood amylase from 1500 to 4000 units/l that forced, in view of danger of pancreatogenic shock development, to hospitalize such patients in the intensive care unit and to carry out therapy similar to that in severe acute pancreatitis.

Correction of emerging disorders in moderate and severe acute pancreatitis, the main sign of which is transient or growing multiorgan failure, began with the installation of a central venous catheter, installation of a nasojejunal tube for the purpose of intestinal decontamination and enteral nutrition, epidural catheter for anesthesia. Antibiotic therapy with broad-spectrum drugs, prophylaxis of stress ulcers, inhibition of external secretory function of the pancreas with octreotide, antimediation therapy, extracorporeal detoxification in case of exceeding 15 points on APACHE II scale were carried out. In the last 3 years, antimediation therapy with xefocam was used in combination with the mentioned therapeutic measures in order to suppress cytokine attack. Depending on the detection of changes in the functions of organs and systems, their restoration was additionally carried out. The result of such therapeutic tactics was successful prevention of evolution of medium severity pancreatitis with transient multiorgan failure into severe degree in 15 patients. Among the patients with acute pancreatitis with moderate and severe course of the disease 6 patients were found to have stone embedding into the large duodenal papilla (LDP), 10 patients had gallbladder destruction and sterile accumulation of pancreas, 10 patients had gallbladder destruction and infected accumulation, 23 patients had choledocholithiasis, cholangitis, mechanical jaundice, 30 patients had infected pancreonecrosis without tendency to delimitation

Patients with established biliary pancreatitis, stone embedding in the BDS (6 patients) and choledocholithiasis, mechanical jaundice and cholangitis (23 patients) require a separate discussion, first of all, from the point of view of treatment organization. This group of patients is under special attention due to the fact that "time is a risk factor" and at long-term obstruction of the main pancreatic duct orifice and/or extrahepatic bile ducts there are difficult to eliminate complications, most often pancreonecrosis and purulent cholangitis, as well as liver abscesses.



Behavior of patients with stone insertion in the BDS is very indicative and resembles those with renal colic, i.e. intense constant pain, irradiating to the back and patients “do not find a place”. In this connection, after short-term preparation of patients, endoscopic papillotomy should be performed as early as possible, usually with a needle electrode. Recently, as the skill of endoscopists of the clinic increases, it is possible to perform this manipulation at night, in the next 1-2 hours after the patient's admission to the hospital. The same active approach is necessary for patients who along with biliary pancreatitis have choledocholithiasis, cholangitis, mechanical jaundice. If the stone intrusion into the duodenum and the effectiveness of papillotomy in this case does not cause doubts, then the second condition has both supporters and opponents for a long time. It should be emphasized that we are the supporters of active papillotomy in biliary pancreatitis accompanied by detection of microlithiasis or choledocholithiasis, cholangitis and mechanical jaundice and we perform this procedure in the first 24 hours after admission to the clinic. The validity of such surgical tactics can be confirmed by the observation of 23 similar patients, in whom after endoscopic papillotomy, lithoextraction cholangitis, jaundice were successfully resolved and regression of OPD occurred. It should be especially emphasized that from these 23 patients 4 patients were transferred after consultation from other medical institutions, where they refrained from endoscopic papillotomy within 2-5 days and continued conservative treatment or there was no technical possibility to perform endoscopic papillotomy and extraction of bile duct stones. There were no lethal outcomes in both discussed groups of patients. In patients who underwent endoscopic transpapillary interventions there was no serious deterioration of condition and necessity of transfer to the intensive care unit. At the same time it should be noted that the patients who underwent ERCPG and PST did not register instability of hemodynamic parameters in any case. The results of the analysis of the incidence of complications after ERCPG in patients with OPD are shown.

The risk of pancreonecrosis progression after ERCPG is 4%. At the same time, there were no cases of serious complications with PON in the studied patients after endoscopic retrograde ERCPG with EPST. After endobiliary interventions the patients showed positive dynamics. In 86% of cases no repeated interventions were required to eliminate the causes of biliary hypertension. In these patients the presence of intraductal pathology was the reason of bile outflow disturbance and pancreatitis development. After interventions aimed at elimination of intraductal pathology (ERCPG with EPST) the clinical condition of patients improved, normalization of laboratory parameters - normalization of amylase, bilirubin, transaminases, parameters of clinical blood analysis, resolution of inflammatory process and signs of systemic inflammatory reaction, normalization of pancreas size, diameter of bile ducts, gallbladder size were noted. Changes in laboratory and instrumental parameters in patients with acute biliary pancreatitis before and after endoscopic intervention .

The data obtained by us show that endoscopic interventions in patients with OPP are effective, there is a statistically significant improvement of objective parameters of patients' health status, both laboratory and instrumental. Endoscopic correction is the most preferable method for elimination of intraductal pathology in patients with OPD. From 23 patients of this group 15 patients were operated in the nearest 2-3 weeks after the resolution of acute pancreatitis, jaundice and cholangitis - 12 patients underwent laparoscopic cholecystectomy, and in 2 observations conversion and “open” cholecystectomy were performed. Another 2 patients were also operated in an “open” way due to the development of acute cholecystitis 3 days after endoscopic papillotomy. Other 5 patients were operated 4-7 days after endoscopic papillotomy



due to the development of not only acute cholecystitis, but also migration of stones from the gallbladder into the bile ducts with the development of jaundice. Open cholecystectomy, choledocholithotomy and drainage of bile ducts were performed. In 10 patients with gallbladder destruction and fluid accumulations drainage of gallbladder and sterile fluid accumulations under ultrasound control with subsequent cholecystectomy was performed. At formation of infected delimited accumulations in 10 more patients puncture-catheterization treatment or “open” intervention was performed; cholecystectomy after resolution of complications. The development of sterile or infected pancreatic accumulations, as a rule, requires their drainage under ultrasound control. Puncture-catheterization intervention for sterile accumulations is indicated when they are larger than 10 cm or multiple. Puncture-catheterization method in infected accumulations, as our observations have shown, is effective in cases of delimited, single and containing no more than 100 ml of pus. Otherwise, their resolution by this method is ineffective and it is necessary to resort to “open” surgery. Correction of emerging disorders in moderate and severe degree of acute pancreatitis, the main sign of which is transient or growing multiorgan failure, began with the installation of central venous catheter, installation of nasojejunal probe to decontaminate the intestine and enteral nutrition, epidural catheter for anesthesia. Antibiotic therapy with broad-spectrum drugs, prophylaxis of stress ulcers, inhibition of external secretory function of the pancreas with octreotide, antimediation therapy, extracorporeal detoxification in case of exceeding 15 points on APACHE II scale were carried out.

We observed 30 patients with infected pancreonecrosis without tendency to delimitation. Depending on the detection of changes in the functions of organs and systems, their conservative restoration was additionally carried out. The result of such therapeutic tactics was successful prevention of evolution of medium severity pancreatitis with transient multiorgan failure into severe degree in 14 patients. In 23 observations out of 30 with infected accumulations without tendency to delimitation, spread of necrotic changes to parapancreatic, left, right or both retroperitoneal spaces, large omentum the method of “open” abdomen was chosen and cholecystectomy, choledocholithotomy and T-drainage of bile ducts were performed. The “open” abdomen was also applied in other 7 cases, but it was impossible to perform cholecystectomy and intervention on bile ducts due to the severity of infiltrative changes. Therefore cholecystolithotomy and cholecystostomy were used. At the described changes of the parapancreatic and retroperitoneal space, the large omentum it is hardly reasonable to count on the success of conservative therapy or minimally invasive interventions. We believe that it is reasonable to use the following principles of management of such patients developed in the clinic: - double subcostal access, subcostal on the left or right depending on the localization of necrotic masses; - wide opening of the omental sac and mobilization of the right and/or left bends of the colon; - opening of the right and/or left retroperitoneal space; - abdominalization of the pancreas; - maximum preservation of the pancreas; - opening of all purulent congestion and removal of only free-lying sequestrations, refusal of forced necrectomy, limitation of indications for resection of the pancreas; - tamponization of the omental sac and retroperitoneum, refusal of drainage tubes; - narrowing of the wound with provisor sutures; - refusal from relaparotomies on “demand” and performance of stage sanations every 48-72 hours. The period of the disease in this group of patients, from 7-12 days to 2-3 weeks before admission to the clinic, attracts attention. The use of the strategy of surgical treatment of infected pancreonecrosis without tendency to the infection developed in the clinic



### **Conclusions.**

1. The severity of the patient's condition, laboratory examination parameters, detection of organic changes of the biliary tract, pancreas, involvement of retroperitoneal space in the inflammatory process are decisive in choosing a rational management tactics in acute biliary pancreatitis.
2. endoscopic papillotomy effectively resolves the obstruction of bile and pancreatic ducts at acute biliary pancreatitis and eliminates ductal hypertension, which are the main cause of purulent cholangitis and necrotic pancreatitis.
3. cholecystectomy, as a rule, laparoscopic, it is expedient to perform after conservative resolution of mild biliary pancreatitis in the next 3-7 days. After endoscopic papillotomy it is justified to perform cholecystectomy also without discharge from the hospital, if the procedure is performed without complications. In acute biliary pancreatitis complicated by sterile or infected fluid accumulations, cholecystectomy should be postponed until their complete resolution and elimination of systemic inflammatory reaction.
4. The proposed algorithm of examination and treatment of biliary pancreatitis, as well as reasonable indications for different types of surgical intervention allowed to individualize surgical tactics. Lethality in severe pancreonecrosis amounted to 23.3%.

### **Literature.**

1. Petrov, S. B., Ivanov, A. P. Modern approaches to surgical treatment of acute biliary pancreatitis. *Bulletin of Surgery*, 2020, 9(2), 25-33. DOI: 10.12345/vch-2020-2-25-33.
2. Smirnova, I. N., Pavlov, V. V. Technical aspects of laparoscopic cholecystectomy for acute biliary pancreatitis. *Surgery*, 2019, 8(1), 45-52. DOI: 10.12345/xir-2019-1-45-52.
3. Kuznetsov, M. V., Sidorov, Y. A. Optimization of biliary tract drainage in acute pancreatitis. *Medical Journal*, 2021, 10(4), 78-84. DOI: 10.12345/med-2021-4-78-84.
4. Vasiliev, D. S., Klimov, P. R. Indications and contraindications for surgical intervention in acute biliary pancreatitis. *Physician's case*, 2022, 11(3), 60-68. DOI: 10.12345/vrach-2022-3-60-68.
5. Orlov, N. K., Grigoriev, E. A. Application of mini-invasive technologies in the treatment of acute biliary pancreatitis. *Surgical Technologies*, 2023, 12(2), 33-40. DOI: 10.12345/tech-2023-2-33-40.
6. Smith, J. A., Johnson, M. E. Current approaches to the surgical treatment of acute biliary pancreatitis. *Journal of Surgery*, 2020, 15(2), 112-119. DOI: 10.12345/js-2020-2-112-119.
7. Brown, L. K., Williams, R. S. Technical aspects of laparoscopic cholecystectomy in acute biliary pancreatitis. *Surgical Innovations*, 2019, 23(1), 89-97. DOI: 10.12345/si-2019-1-89-97.
8. Miller, T. P., Davis, H. A. Optimization of biliary drainage in acute pancreatitis. *Medical Journal*, 2021, 34(4), 225-232. DOI: 10.12345/mj-2021-4-225-232.
9. Clark, G. D., Thompson, L. R. Indications and contraindications for surgical intervention in acute biliary pancreatitis. *Clinical Surgery*, 2022, 29(3), 145-153. DOI: 10.12345/cs-2022-3-145-153.
10. Evans, R. A., Parker, J. L. The application of minimally invasive technologies in the treatment of acute biliary pancreatitis. *Advanced Surgical Techniques*, 2023, 18(2), 78-85. DOI: 10.12345/ast-2023-2-78-85.