

# ANALYSIS OF THE RESULTS OF SURGICAL TACTICS AND TREATMENT IN PATIENTS WITH ACUTE NECROTIC PANCREATITIS

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**Abstract:** *Treatment of acute pancreatitis is a complex and far from final solution of the problem of emergency surgery of the abdominal cavity. First of all, this is due to the complexity of the pathogenesis and sometimes unpredictability of the course of the disease. Despite some success achieved in recent decades in conservative and surgical treatment, the mortality rate in acute pancreatitis is still quite high and, according to various authors, ranges from 5 to 74 %. Moreover, the share of purulent complications among the causes of death of patients accounts for 57-80 %. Postoperative mortality in acute aseptic necrotic pancreatitis is 21-25 %, in infected patients-35-40 %.*

*Acute necrotic pancreatitis is a dynamically developing inflammatory process characterized by two peaks of mortality, which clearly reflect, in fact, two different stages (phases) of the development of acute necrotic pancreatitis. The first peak is observed in the first 3-5 days from the onset of the disease. The most common cause of death is endotoxin shock and multiple organ failure syndrome, most often due to the development of subtotal-total necrotic pancreatitis. At the initial stage of the disease, the inflammatory process both in the gland itself and in the retroperitoneal tissue is aseptic. During this period (in the phase of aseptic inflammation), acute aseptic parapancreatic fluid accumulations occur in the omentum and/or retroperitoneal tissue, enzymatic peritonitis, pancreatic pseudocysts*

*begin to form, etc.as a response of the body to necrosis of the pancreas and retroperitoneal tissue. Thus, at this stage, acute aseptic necrotic pancreatitis develops.*

*Currently, for the treatment of acute necrotic pancreatitis, a fairly wide range of surgical interventions is used — cavity (laparotomy), extraperitoneal mini-access (lumbotomy), laparoscopic, endoscopic, puncture-draining interventions under ultrasound control. However, the choice of the method and scope of surgical intervention, the timing of its implementation, and the sequence of application of a particular operation at the stages of treatment remain debatable.*

*These data indicate the urgency of the problem and many unresolved issues, which strongly dictates the need for further search for new approaches to the treatment of such a serious and complex disease as acute pancreatitis.*

**Purpose of the research:** to improve indications for the choice of the method and volume of surgical intervention and the timing of its implementation in patients with acute necrotic pancreatitis.

**Materials and methods of the research:**

The results of treatment of 654 patients with acute pancreatitis aged 22 to 75 years who were treated at the Samarkand branch of the Republican emergency medical center from 2000 to 2020 were analyzed. There were 425 males (64.9%) and 229 females (35.1%). The duration of the disease up to 24 hours was observed in 189 (28.8 %) patients, from 25 to 72 hours – in 320(48.9%), more than 72 hours-in 145 (22.3 %). The most common causes of acute pancreatitis were: alcohol intake (alcohol excess) or its surrogates – in 237 (36.2%) patients, unilateral nutrition (excessive intake of mainly fatty foods) – in 149 (22.8%), idiopathic pancreatitis – in 100 (15.3%) and pathology of the terminal choledochus – in 168 (25.7%).

Acute edematous pancreatitis was observed in 511 (78.1%) patients, necrotic pancreatitis-in 143 (21.9 %). Non-severe pancreatitis was detected in 520 (79.5%) patients, there were no fatal outcomes in this group of patients. Severe pancreatitis was diagnosed in 123 (18.8%) patients, -61 died, and the mortality rate was 9.3 %. Extremely severe pancreatitis was detected in 11 (1.7 %) patients. All patients with extremely severe pancreatitis died. The duration of their stay in the clinic ranged from 1 hour to three days. The cause of death in this category of patients was endotoxin shock due to total or Subtotal pancreonecrosis. 541 (82.7 %) patients were treated conservatively, and 113 (17.3%) were operated on.

**Results of the research and their discussion:** Depending on the treatment strategy, all patients with acute pancreatitis were divided into 4 groups. First group (2000-2005) included 112 patients whose main surgical intervention was laparotomy, including early laparotomy, as well as with the development of purulent complications. Postoperative mortality was 41.2 %.

Second group (2006-2010) included 63 patients who refused to perform early interventions. Laparotomy was performed only when the development of purulent complications. Postoperative mortality was 30.2 %.

Third group (2011-2015) included 127 patients who were primarily treated with ultrasound-controlled puncture-drainage operations (US-PDO) and lumbotomy for purulent complications, as well as endoscopic surgical transpapillary interventions (ESTI) for biliary pancreatitis. Postoperative mortality was 11.7 %: in non-biliary pancreatitis – 18.4 %, in biliary-3.5%.

Analysis of the obtained data showed that, despite the decrease in indicators, postoperative mortality in acute pancreatitis remains at a fairly high level. In our opinion, this is due to the fact that most operations were performed with already developed purulent complications, which undoubtedly made the condition of patients more difficult and caused an insufficient reduction in mortality. In this regard, in the forth group (2016-2020), we followed the following treatment tactics.

In acute edematous pancreatitis, complex conservative therapy was performed, and surgical interventions were not performed. Even in the presence of acute aseptic parapancreatic fluid accumulations in the lesser sac (omentobursitis), which, however, are quite rare in edematous pancreatitis, they refrained from using even minimally invasive interventions. This is due to the fact that omentobursit in edematous pancreatitis, as a rule, undergoes reverse development.

In acute aseptic necrotic pancreatitis without parapancreatic fluid accumulations (including in the presence of parapancreatic infiltrate), as well as in the presence of acute aseptic parapancreatic fluid accumulations in the lesser sac (omentobursitis) with a volume of liquid formation, according to sonography, less than 50 ml, acute aseptic parapancreatic fluid accumulations in the retroperitoneal tissue with a volume of liquid formation, according to sonography, less than 100 ml, acute aseptic parapancreatic fluid accumulations in the retroperitoneal tissue in the form of limited infiltration of parapancreal and paracolic tissue (in the absence of infiltration and pain in the lumbar region, as well as under normal or subfebrile body temperature), complex conservative therapy was performed, including broad-spectrum antibiotics, etc., and sonographic monitoring was performed.

Depending on the time of completion, all surgical interventions for acute necrotic pancreatitis are divided into three groups: emergency, early delayed and late delayed operations.

Emergency surgical interventions are performed in the next 2-4 hours from the moment of hospitalization of the patient in a surgical hospital. An indication for them is spilled peritonitis-enzymatic or purulent. In case of enzymatic peritonitis, preference is given to laparoscopic drainage of the abdominal cavity or laparocentesis with mandatory determination of amylase activity in the inflammatory fluid, and bacterioscopic and bacteriological examination of the contents of the abdominal cavity. With enzymatic peritonitis, drains from the abdominal cavity are usually removed after 2-4 days. Longer standing can lead to infection and abscess formation in the abdominal cavity.

In cases of purulent peritonitis, the operation of choice is considered to be median laparotomy, sanitation, and adequate drainage of the abdominal cavity, including the lesser sac. As a rule, we do not perform any interventions on the pancreas. With obvious bile hypertension, it is advisable to apply an external cholecystostomy. With signs of high intestinal obstruction, in the presence of a pronounced parapancreatic infiltrate extending to

the mesentery of the colon, enterostomy or intubation of the intestine through a gastrostomy is indicated. The operation is completed by applying a laparostomy, and then we perform programmed sanitation of the abdominal cavity.

Early delayed surgical interventions are performed in the next 5-72 hours after the patient is admitted to the surgical Department, i.e. in the 1<sup>st</sup> phase of acute pancreatitis – the phase of aseptic inflammation. Indications for them are:

1. Biliary pancreatitis (concretion wedged into the ampoule of the large papilla of the duodenum, papillostenosis, etc.). The Operation of choice is endoscopic papillosphincterotomy, which is performed in the next 5-48 hours from the moment of admission of the patient.

2. Acute aseptic parapancreatic fluid accumulations in the lesser sac (omentobursitis) with a volume of liquid formation, according to sonography, more than 50 ml, acute aseptic parapancreatic fluid accumulations in the retroperitoneal tissue with a volume of liquid formation, according to sonography, more than 100 ml – shows the performance of puncture drainage operations under ultrasound control; acute aseptic parapancreatic fluid accumulations in the retroperitoneal tissue in the form of widespread infiltration of parapancreal and paracolic tissue (obvious infiltration and pain in the lumbar region, increased body temperature up to 38°C and more – the need for surgery may occur on the 4<sup>th</sup>-6<sup>th</sup> day of the disease) – shows the opening and drainage of the infiltrate by lumbar (extraperitoneal) access.

3. Intraabdominal hypertension syndrome (increased intra-abdominal pressure greater than 20 mm Hg) – the operation is performed immediately after the establishment of intraabdominal hypertension syndrome. This category of patients is shown to have open abdominal management (laparostomy).

Late delayed surgical interventions are performed 10-14 days after the onset of the disease, i.e. in the 2<sup>nd</sup> phase of acute pancreatitis-the phase of purulent complications. Indications for them are:

1. Postnecrotic infected pancreatic and / or parapancreatic fluid accumulations in the pancreas or omentum (abscess of the pancreas or omentum) and retroperitoneal tissue (phlegmon of the retroperitoneal tissue), as well as infected pancreatic pseudocysts. For an abscess of the pancreas or omentum, as well as for retroperitoneal phlegmon in the form of a liquid accumulation, we perform puncture and drainage of the abscess/phlegmon under ultrasound control. With phlegmon of the retroperitoneal tissue in the form of "purulent honeycombs", we consider opening and draining it by lumbar (extraperitoneal) access to be shown.

2. Delimited areas of necrotic pancreatic parenchyma (sequestrations). When delimited parts of the necrotic (infected) parenchyma of the pancreas (the sequestrum) is very large in the body and tail of the pancreas they removed from endoscopes, extraperitoneal (by lumbotomy), and with localization in the region of the pancreatic head, it is advisable to perform a laparotomy, necrosectomy, omentoplasty.

3. Acute pseudocyst of the pancreas. With a cyst diameter of 3 cm or more, its puncture and aspiration of the contents are shown under ultrasound control, followed by sonographic monitoring. If necessary, we perform repeated punctures of the cyst. With a smaller cyst

diameter, complex conservative therapy in combination with sonographic monitoring is indicated.

4. Biliary hypertension caused by compression of the intrapancreatic part of the common bile duct by an enlarged pancreas, acute enzymatic cholecystitis. In these patients, we perform percutaneous hepatic microcholecystostomy under ultrasound control or laparoscopic or open cholecystostomy in the next 5-48 hours after the patient's hospitalization.

This treatment strategy was applied in 302 patients. Postoperative mortality was 5%: in non-biliary pancreatitis — 6.4, in biliary-1.9%. The inclusion of broad-spectrum antibiotics, primarily meropenems, in complex intensive therapy for aseptic pancreonecrosis allowed 82.4% of patients to avoid the development of purulent complications: in the localization of acute aseptic fluid accumulations in the omentum-in 89.8% of patients, and in the retroperitoneal tissue – in 72.2%. Similar indicators for the use of 3<sup>rd</sup> generation cephalosporins (ceftriaxone, cefoperazone) and fluoroquinolones (moxifloxacin, gatifloxacin) were 86.2, 88 and 62.5%, respectively.

Moreover, with parapancreatic infiltrate, the inclusion of antibiotics from the meropenem group in complex conservative therapy allowed 31.8% of patients to avoid the formation of acute aseptic parapancreatic fluid accumulations, as well as surgical intervention. When using 3<sup>rd</sup> generation of cephalosporins and fluoroquinolones, this figure was only 11.4 %.

Thus, these data indicate that the decline in mortality in the fourth group primarily achieved through a differentiated approach to the choice of method and volume of surgical intervention, fewer patients with infected pancreatitis, wider application of low-invasive interventions, as well as direct surgical operations on the pancreas from endoscopes (extraperitoneal access).

## CONCLUSIONS

1. Indications for surgical intervention, the timing of its implementation, the choice of the method and scope of the operation, as well as the stages of their application should depend on the phase of the disease and the developed complications.

2. More active surgical tactics in patients with aseptic necrotic pancreatitis (US-POD, lumbotomy) in combination with complex intensive therapy, including broad-spectrum antibiotics, helps to reduce the number of infectious complications, primarily by eliminating the substrate for suppuration.

3. The drugs of choice for starting empirical antibacterial therapy in patients with both acute aseptic and infected necrotic pancreatitis are meropenems.

4. Improvement of treatment results in patients with infected necrotic pancreatitis is facilitated by the widespread use of programmed abdominal sanitation for widespread purulent peritonitis, US-POD – with abscesses of the pancreas or omentum and with retroperitoneal phlegmon in the form of a liquid accumulation, lumbotomy – with retroperitoneal phlegmon in the form of “purulent honeycombs”.

5. Performing cavity surgery performed as an emergency for enzymatic peritonitis (i.e., in the aseptic phase of pancreonecrosis), as well as for acute edematous pancreatitis, should be considered an unjustified therapeutic measure.

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