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Surgical Treatment of Patients with Destructive Forms of Acute Pancreatitis

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Abstract: *One of the current hot topics in surgery is pancreatic diseases, namely acute pancreatitis. The aim of the study: to improve the results of treatment of patients with destructive forms of acute pancreatitis by means of early diagnostics, rehabilitation and minimally invasive surgery. Material and methods. The paper presents the results of treatment of 167 (100%) patients with destructive forms of acute pancreatitis. The patients were treated according to the developed method of conservative and improved method of surgical treatment. The method was based on longitudinal decapsulation of the pancreas, low-traumaticity, minilaparotomy, full visual control, one-stage sanation and drainage of the omental sac and abdominal cavity. The results were evaluated according to clinical parameters, omentobursostomy status and postoperative complications. Results. The analysis of clinical observations showed that good treatment results were achieved with full-fledged conservative treatment aimed at stabilising the condition and bringing the patient out of multi-organ failure. In the early postoperative period due to the danger of damage to the hollow organs we found another approach and did not perform severe ligations that could cause arterial bleeding, duodenal and colonic fistulas, but simply washed the omentobursostomy with furacilin solution under pressure and waited for independent rejection of sequestrations. In the immediate postoperative period complications occurred in 13 (7.8%) patients. The average bed-day was 10.8±0.4. The lethal outcome was in 5 cases. Conclusion. The study revealed that early diagnosis, timely surgical intervention according to improved surgical treatment tactics reduced complication rates, mortality and increased quality of life indicators.*

Keywords: *diagnosis, complications, minimally invasive, destructive forms, pancreonecrosis.*

I. INTRODUCTION

The relevance is due to unsatisfactory results of pancreonecrosis treatment. Pancreotology is considered to be one of the important and difficult divisions in abdominal surgery. One of the hot topics now and at all times, is, diseases of the pancreas. One of them is acute pancreatitis, namely destructive forms. The incidence of the disease worldwide varies from 4.9 to 73.4 per 100,000 [1-2]. During many years of experience in pancreatology many successes in improvement of diagnostics, conservative therapy, surgical methods of treatment with development of minimally invasive interventions have been achieved [3-4]. For the last years there is an increase in the number of patients with destructive forms of acute pancreatitis 14-55% [5]. Basically it is a category of people of working age, i.e. young and middle, the average value of age groups is from 30 to 50 years [6]. In 15-30% of patients with acute pancreatitis, it can be complicated by pancreonecrosis and 40-70% of patients more often there is infected

pancreonecrosis [7-8]. Total mortality over the last decades remains unchanged from 5-7%, and postoperative mortality in sterile pancreonecrosis from 21-25%, in infected pancreonecrosis mortality is high from 15 to 70% [9-11]. Total lethality, at non-differentiation of destructive forms of pancreatitis 23,6-26,0% [12], but still the lion's share remains for pancreonecrosis with purulent complications 50-80% [13-14]. Up to 85% of the causes of death in patients with acute destructive pancreatitis are due to infectious complications of the abdominal cavity and retroperitoneum, systemic infectious complications and multiorgan failure [15-16]. Consequences of treatment results of destructive forms of acute pancreatitis are high lethality in the acute period when accompanied by multiorgan failure due to late treatment in medical institutions and untimely treatment, transition to chronic course of the disease, in the distant postoperative period patients may have recurrence of chronic process in the pancreas, the emergence of secondary diabetes mellitus, pancreatic pseudocysts, endocrine insufficiency, disability of patients, the more with To improve the quality of diagnosis, prognosis of the disease, there is a need for laboratory and instrumental methods of examination. At the moment there is no unified approach, algorithm of differential diagnosis of sterile and infected pancreonecrosis, available for use in hospitals of different intensity and level (Dyuzheva T.G., 2013) [17]. With the introduction of laparoscopic technologies in this field of surgery for the treatment of infected pancreonecrosis, the number of endoscopic sequestrnecrectomies of the pancreas and cellular spaces has increased significantly, which led to a decrease in the number of purulent complications and lethality by 1.5-2 times, but it should be noted that not all countries can provide district hospitals and even large surgical centres with such equipment [18-19]. Despite all these achievements, there is still a high mortality rate. In this regard, the development of new methods of conservative and surgical treatment of destructive forms of pancreatitis, elimination of consequences and complications in the early and distant postoperative period of treatment seems to be very urgent.

In the world today there are opposing opinions about surgical tactics in sterile pancreonecrosis, whereas in infected forms of pancreonecrosis there is no doubt about the need to open and drain the purulent focus and all surgeons are unanimous in this matter. There are traditional and minimally invasive methods of treatment of sterile and infected pancreonecrosis [20]. As it is known, the most important component of complex treatment of sterile pancreonecrosis is to carry out massive antibacterial therapy to prevent infection, to drain the omental sac by laparosocopic way, and in case of infected pancreonecrosis is the opening of purulent foci and, if possible, removal of all non-viable tissues [21]. However, there are still controversial issues of choosing the most effective ways of sanitation of purulent-inflammatory process of the omental sac, contributing to the fastest cleansing of the inflammatory focus, as well as the management of abdominal sepsis. After all, one of the main causes of mortality is sepsis. According to different authors, in infected forms of pancreonecrosis, abdominal sepsis develops in 15-47% of cases, and unfavourable outcome in patients with pancreatogenic sepsis is 15-80% of cases [22]. This concerns the definition of indications for surgery, the timing of surgical intervention, the sequence of transcutaneous, laparoscopic and laparotomy techniques. One of the main reasons for this is underestimation of the nature of histological changes in the pancreas. The analysis of literature allows us to state that there are no unified approaches to the treatment of destructive forms of pancreatitis, and the necessity of application of these or those drugs and therapeutic technologies is still debatable.

In recent years, the treatment of acute pancreatitis has undergone multiple changes, has become more focused, collected, improved diagnosis and surgical interventions, but still remains a severe pathology and deserves special attention, as there is still a problem in emergency surgery and is a major challenge to solve the problem. Therefore, there is a need to improve the therapeutic and diagnostic tactics, differential diagnosis, change the timing of conservative therapy, indications for surgical intervention and improve surgical treatment tactics, to identify other ways of gentle ways of treatment, as the pathology itself is aggressive, so that in the distant postoperative period the patient does not feel pinched and vulnerable.

Objective: to improve the results of treatment of patients with destructive forms of acute pancreatitis by developing new diagnostic tactics, treatment and minimally invasive methods of surgical intervention.

Material and methods: the work includes the results of examination of conservative and surgical treatment of 167 patients with destructive forms of acute pancreatitis who were on inpatient treatment from 2007 to 2018 in the surgical department of the United Territorial Hospital of Zhayil district of Kara-Balta. The patients were treated according to the developed method of conservative treatment and the improved minimally invasive method of surgical treatment. Among our patients there were 97 men and 70 women. There was no statistical significance by sex ($p>0.05$). The age of patients ranged from 3 to 86 years. The mean age of patients in group I was 46.2±3.3 years (Student's criterion $p>0.05$). Most of the patients were between 31 and 50 years of age, the majority of patients the etiological factor was alimentary. Non-operated patients were more often admitted from 2 to 7 days from the moment of the disease, and operated patients were admitted later. The severity of the patients' condition on admission was assessed by SAPS scale, and the severity of the patients' condition was mainly assessed as severe.

Concomitant diseases had a negative influence on the course of the disease. Those comorbidities in each group that could have a significant influence on the course or outcome of the disease were studied as comorbidities. There were no statistically significant differences in comorbidities between the groups ($p>0.05$). This makes it possible that only the developed tactics of conservative and surgical treatment could influence the treatment results. In the immediate postoperative period in the first group complications occurred in 13 (7.8%) patients. The average bed-day in the first group was 10.8±0.4. Lethal outcome was observed in 5 cases, the causes were late presentation, total pancreonecrosis, spilt purulent peritonitis, alcoholic delirium, sepsis and multi-organ failure. To determine the risk of infected pancreonecrosis was divided into 3 grades: normal from 30%, elevated from 31 to 50% and high above 51%. Complications resulting from conservative treatment and postoperative complications (n=167). The following complications were observed: bleeding – 1, abscess of the head of the pancreas – 1, peritonitis – 1, bile leakage – 1, multiple organ failure – 3, infiltrate – 1, intestinal paresis – 1 and alcohol intoxication, delirium – 1.

Findings: treatment of patients with destructive forms of acute pancreatitis began with complex intensive conservative therapy. But since the study included patients who had undergone surgical interventions, conservative treatment actually had the character of preoperative preparation. The main goal of conservative therapy of destructive forms of acute pancreatitis is the prevention of systemic complications (sepsis, multiple organ failure, pancreatogenic shock), and the prevention of infection during the development of pancreatic necrosis.

Today, there is no unity in approaches to surgical treatment of pancreatic necrosis, so practicing surgeons have many methods of surgical treatment in their arsenal. The main questions that a surgeon faces after identifying infected pancreatic necrosis in a patient are when to operate? and what type of surgical intervention to choose?

According to the improved method surgical treatment was observed in 48 patients and all were successfully cured. The basis of the method is longitudinal decapsulation of the pancreas within the omental bursa, low trauma, mini-laparotomy, complete visual control, one-stage sanitization and drainage of the omental bursa and abdominal cavity (Fig. 1, 2). The technical innovation is that the access is mini-laparotomy, longitudinal decapsulation of the pancreas within the omental bursa, drainage of the omental bursa, abdominal cavity and small pelvis, as well as the installation of glove-tampon drainage with Vishnevsky ointment for 7 days.

Our observations have shown that the best results are achieved with full-fledged conservative treatment aimed at stabilizing the condition and bringing the patient out of multiple organ failure. Indications for early surgical treatment in the acute phase of the disease (up to 8 days from the start of therapy) may be only proven infection of necrosis of the pancreas and peripancreatic tissue and subtotal or total necrosis of the gland with a fulminant course. Delayed surgery is the method of choice in determining the

timing of intervention in all patients, with the exception of the above cases. A certain amount of time is needed to delimit necrosis in cases where it is impossible to determine it during morphological and clinical studies. On the other hand, the fact that the patient does not yet have sufficient objective indicators of the effectiveness of conservative therapy also plays in favor of a delayed operation. Determining the timing of surgical intervention in acute pancreatitis remains undoubtedly a controversial issue and is individual for each patient. In our studies, patients were most often taken for surgery on the first day from the moment of admission to the hospital, since patients were already admitted at a later stage, when there were already signs of peritonitis and infection. Due to the risk of damage to hollow organs, we found a different approach and did not perform harsh dressings, which can cause erosive bleeding, duodenal, colonic fistulas, but simply washed the omentobursostomy with a furacilin solution under pressure and waited for the sequesters to be rejected on their own (Fig. 3).

Fig. 1. The moment of installation of the rubber strip and drainage tube.

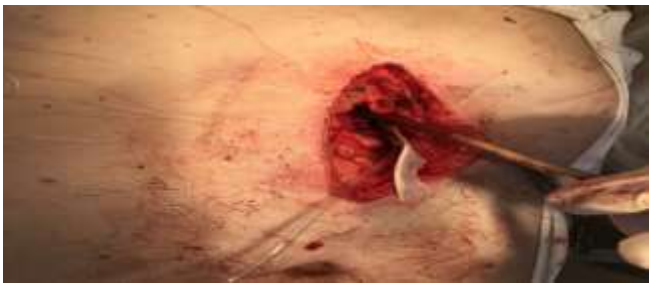

Fig. 2. The moment of omentobursostomy application.

Fig. 3. The state of the omentobursostomy and the presence of sequesters during ligation.

In the scientific work there was also sterile pancreatic necrosis in 10 observations, where, having treated conservatively, good results were obtained.

The effectiveness of our method is demonstrated by our following observations.

Clinical case. Patient S., 66 years old (case number 3360) was admitted with complaints of abdominal pain radiating to the back, nausea, and general weakness. According to the anamnesis, he had been ill for 2 weeks prior to admission after alcohol abuse. He took antispasmodics on his own with a

temporary effect. He independently sought an ultrasound examination, the data indicated acute pancreatitis. In this connection, the patient went to the surgery department. The patient was hospitalized in the surgery department, blood tests showed leukocytosis with a leukocyte shift to the left, blood amylase 158.5 g / lh. Ultrasound data for acute pancreatitis. Peritonitis. Fluid in the abdominal cavity. During observation, the patient's condition did not improve after infusion-spasmolytic therapy. The patient's condition worsened and urgently. The patient was taken for surgery.

The operation was performed using our improved technique. When the abdominal cavity was opened, a purulent effusion of more than 1 liter was found, the greater omentum was covered with steatonecrosis plaques. The omental bursa was opened, it contained purulent effusion, fibrin, the pancreas was enlarged and edematous along its entire length, the body and tail of the pancreas were necrotic. In the postoperative period, the patient spent the first day in the intensive care unit until her condition stabilized. On March 16, 2016, the patient was transferred to the surgery department for further treatment. In the surgery department, he received infusion, massive antibacterial, pathogenetic, and antispasmodic therapy. In the early postoperative period, the patient's condition worsened due to the presence of increased body temperature, intoxication, increased blood pressure, psychosis, toxic encephalopathy and paresis were observed. Dressings were changed daily, the glove-tampon drainage was removed on the 7th day after the operation and sequesters were isolated from the omentobursostomy.

The omental bursa wound was cleared of necrotic tissue and sequesters. After stabilization of the patient's condition, he was discharged from hospital treatment in a satisfactory condition on the 16th day (Fig. 3). This example shows that late treatment worsened the patient's condition in the postoperative period.

The improved method of surgical treatment of destructive forms of pancreatitis has proven itself well and has been used for a long time in the clinic. This method of surgical treatment is a simple, gentle and low-traumatic method for treating this category of patients.

Analyzing the treatment results, the best results were obtained in patients who underwent full conservative treatment, and the improved method of surgical treatment contributed to this, thus, the quality of life in the early and late postoperative period was good, the worst results were found in patients with a pronounced breakthrough of the purulent focus in the retroperitoneal space and its spread to the abdominal cavity, the presence of concomitant diseases, namely, with alcohol intoxication, delirium, the outcome of patients was severe and protracted, but I would also like to note that thanks to the use of the developed method, quite encouraging treatment results were achieved, that the quality of life indicators were within the acceptable norm. In the immediate postoperative period, complications occurred in 13 (7.8%) patients. The average bed-day was 10.8±0.4. There were fatal outcomes in 5 cases. It should also be noted that 10 patients with sterile pancreatic necrosis were treated conservatively.

The compiled algorithm of conservative treatment of sterile pancreatic necrosis consists of complete rest of the pancreas, infusion therapy, massive antibacterial therapy, pathogenetic therapy, the use of proton pump inhibitors, and parenteral nutrition. At the same time, we do not prescribe such drugs as Contrycal, Gordox, Sandostatin and it has been proven that there is no need to prescribe these drugs and we have achieved good results.

CONCLUSIONS

1. The analysis showed that good treatment results were achieved as a result of comprehensive conservative treatment aimed at stabilizing the condition and eliminating multiple organ failure. It is also necessary to conduct active dynamic monitoring and not resort to surgical intervention, since the mortality rate is high, and the worst results were in patients with late presentation.
2. The advantages of the improved method of surgical treatment in patients with pancreatic necrosis have been revealed, proving its effectiveness, a reduction in postoperative complications, hospital

days, and improvement in results in the early and late periods are noted.

3. The results of the improved method of treatment showed that it is accessible, simple, gentle and minimally invasive, and at the same time, complications such as bleeding, intestinal fistulas, interloop abscesses, eventration, and paresis in the early postoperative period were not observed.
4. In the late period after surgical treatment using the developed method, good treatment results were achieved, which improved the quality of life of patients.

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