

**MINIMALLY INVASIVE METHODS OF DIAGNOSIS AND TREATMENT
OF ACUTE PANCREATITIS**

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Relevance

Inflammatory diseases of the pancreas rank third among acute surgical diseases of the abdominal organs in terms of incidence, уступая only acute appendicitis and acute cholecystitis. At the same time, the number of cases of acute pancreatitis is steadily increasing, accompanied by a rise in the frequency of large-focal pancreatic necrosis, which is associated with high mortality reaching 60–80% (Bagnenko S.F. et al., 2006; Nathens A.B. et al., 2004).

Improvement of methods and tactics of surgical treatment of acute pancreatitis has made it possible to significantly reduce mortality in destructive forms of the disease (Shapkin Yu.G. et al., 2007; Alexakis N. et al., 2005). Modern trends in the treatment of patients with acute pancreatitis are increasingly focused on the preferential use of comprehensive conservative therapy in the first phase of the disease and the application of sparing minimally invasive interventions in the treatment of localized destructive forms (Ermolov A.S. et al., 2007).

The role and place of various tactical approaches in the surgical treatment of pancreatic necrosis remain the subject of serious debate. As several decades ago, various options of “closed,” “semi-open,” and “open” methods of retroperitoneal drainage for pancreatic necrosis and its complications are used. Some specialists consider “open” surgical methods unacceptable, while others limit intervention to tamponade and drainage of the omental bursa without opening the peritoneum over the pancreas (Clancy T.E. et al., 2005).

Supporters of so-called closed operations point out the negative effect of dissecting the pancreatic capsule and supplement the operation with peripancreatic novocaine blockade and omentopancreopexy (Mayerle J. et al., 2007). A number of authors have proposed closed methods combined with drainage of the main pancreatic duct, decompressive operations on the biliary tract, and papillosphincterotomy (Dumonceau J.M., 2006).

In this regard, we conducted a study aimed at determining the most effective diagnostic and therapeutic program for complicated acute pancreatitis.

Aim of the Study

To improve the outcomes of treatment in patients with acute pancreatitis based on comprehensive diagnostics and the use of minimally invasive interventions in destructive forms of the disease.

Materials and Methods

The study material included clinical data from 115 patients with acute pancreatitis treated in the surgical departments of the Republican Scientific Center of Emergency Medicine, Andijan branch, from 2012 to 2014. The control group consisted of 95 patients.

In the main group, the distribution according to the extent of pancreatic necrosis was as follows: diffuse small-focal form in 67 cases (58.26%), large-focal destructive form in 37 cases (32.17%), and subtotal pancreatic involvement in 11 cases (9.56%). Hemorrhagic pancreatic necrosis was observed in 26.96%, fatty necrosis in 48.69%, and mixed necrosis in 24.34% of cases. Hemorrhagic pancreatic necrosis predominated in subtotal pancreatic involvement.

No statistically significant differences were found between the main and control groups in terms of sex, age, time from disease onset to hospital admission, or the number of previous attacks of acute pancreatitis.

All patients received comprehensive treatment, including analgesic, antispasmodic, infusion-transfusion, plasma-substituting, and rational antibacterial therapy, as well as gastric decompression. In some patients, extracorporeal detoxification methods (hemisorption) were used. In 76.4% of cases, pathogenetic drugs (protease inhibitors or cytostatics) were included in the treatment.

Surgical treatment was performed in 69 patients (60%) of the main group and 34 patients (35.79%) of the control group.

Diagnostic Methods

When clinical manifestations of acute pancreatitis progressed, the following ultrasound diagnostic sequence was recommended:

B-mode ultrasound examination showing no changes in shape, size, contours, echogenicity, structure, ductal system, or peripancreatic tissues.

Positive ultrasound findings included decreased and heterogeneous echogenicity, smoothing or loss of parenchymal structure, moderate heterogeneity, enlargement of the gland, contour changes, impaired ductal system differentiation, and dilation of the main pancreatic duct.

Based on the analysis of clinical material, the following groups of MSCT signs characteristic of acute pancreatitis were identified:

1. **Signs characterizing the pancreas:** enlargement, smoothing or blurring of contours, diffuse or focal reduction in parenchymal density on non-contrast scans, and reduced contrast enhancement after intravenous contrast administration.
2. **Signs reflecting the condition of abdominal fat tissue:** infiltration of parapancreatic fat, fat infiltration along lateral canals, paranephric space, mesenteric root, splenic hilum, greater omentum, and around the left adrenal gland, heterogeneity of infiltration, and the presence of gas bubbles.
3. **Signs characterizing serous membranes:** thickening of peritoneal layers near the pancreas, thickening along lateral canals, renal fascia thickening, free abdominal fluid, fluid accumulation between peritoneal layers, and pleural effusion.

MSCT is a highly informative noninvasive diagnostic method that allows assessment of pancreatic condition, identification of acute pancreatitis, determination of its form and severity,

detection of purulent-necrotic complications, and accurate topographic-anatomical characterization of pathological changes.

Treatment Results

The number of laparotomies significantly decreased compared to the control group due to endoscopic decompression and sanitation of the biliary tract and a reduction in purulent complications. Navigation-guided drainage of the omental bursa, pancreatic abscesses, retroperitoneal and pelvic fluid collections was performed in 59 patients.

After puncture-drainage sanitation, 28 patients showed marked improvement. Complete resolution of fluid collections was observed in 24 patients within 7–9 days.

Comparative analysis demonstrated a reduction in open surgical interventions, systemic and late purulent complications, and overall mortality (17.8% in the main group vs. 23.5% in the control group).

Conclusions

1. In the early stages of destructive pancreatic changes and moderate inflammation, ultrasound fails to assess pancreatic tissue in 8.2% of cases.
2. MSCT with contrast is essential when ultrasound visualization is limited, although MRI and ultrasound are superior for monitoring structural changes.
3. Endoscopic catheterization of the main pancreatic duct and endoscopic papillosphincterotomy play a crucial diagnostic and therapeutic role in acute pancreatitis.
4. Percutaneous puncture and drainage of intra-abdominal fluid collections are effective, minimally traumatic, and accessible methods, achieving positive results in 82.7% of cases and reducing hospital stay by 1.6 times.
5. Comprehensive use of minimally invasive interventions reduces the need for laparotomy, lowers complication rates, and improves the quality and effectiveness of inpatient surgical care.

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