

Case Report

<https://doi.org/10.23934/2223-9022-2023-12-1-170-175>

A Rare Observation of Endoscopic Transluminal Drainage of Pancreatogenic Destruction Areas in Infected Necrotizing Pancreatitis

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ABSTRACT Necrotizing forms of acute pancreatitis, as the most severe in terms of prognosis, occur in 25–30% of cases with a mortality rate of 27–32%, while in most cases these are adults of working age, which emphasizes the social significance of this problem. This article presents a rare observation of endoscopic intraluminal drainage of zones of pancreatogenic destruction in severe necrotizing pancreatitis. The multidisciplinary individual approach we have chosen makes it possible to treat this group of patients most effectively, which confirms the presented clinical observation.

Keywords: necrotizing pancreatitis, pancreatic necrosis, endoscopic drainage of pancreatogenic destruction area, endoscopic gastrocystostomy, endoscopic duodenocystostomy

For citation Askerov ACh, Kulikov YuD, Teterin YuS, Agakhanova KT, Yeletskaia ES, Yartsev PA. A Rare Observation of Endoscopic Transluminal Drainage of Pancreatogenic Destruction Areas in Infected Necrotizing Pancreatitis. *Russian Sklifosovsky Journal of Emergency Medical Care*. 2023;12(1):170–175. <https://doi.org/10.23934/2223-9022-2023-12-1-170-175> (in Russ.)

Conflict of interest Authors declare lack of the conflicts of interests

Acknowledgments, sponsorship The study had no sponsorship

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AP – acute pancreatitis

CT – computed tomography

EGDS – esophagogastroduodenoscopy

EUS – endoultrasonography

INTRODUCTION

In the structure of acute surgical diseases of the abdominal organs, acute pancreatitis (AP) occupies the 3rd place and occurs in 36–40 cases per 100,000 population. The most severe prognostic necrotizing forms of AP occur in 25–30% of cases. The mortality in this group of patients reaches 27–32%, while in most cases these are people of working age, which emphasizes the social significance of this issue [1].

At the same time, delayed drainage (recommended periods from 12 to 30 days) followed by sequestrectomy is preferable, as it allows the area of necrosis to be limited, thereby reducing the risk of unintentional excision of viable pancreatic tissues and reducing the likelihood of long-term complications, such as diabetes mellitus and exocrine pancreatitis insufficiency [2, 3].

Surgical methods of treatment are accompanied by high postoperative mortality (27–32%) and a long rehabilitation period. In turn, minimally invasive methods of treatment are less traumatic and lead to a significant decrease in mortality in this group of patients [11]. However, today there is no consensus on the optimal access and timing of endoscopic drainage of pancreatogenic destruction areas.

This article is devoted to the description of a clinical observation demonstrating the possibilities of endoscopic intraluminal drainage in infected necrotizing pancreatitis.

Patient T., aged 52, was admitted to the emergency department of the N.V. Sklifosovsky Research Institute for Emergency Medicine with complaints of pain in the epigastric region, right and left hypochondrium, nausea, vomiting. From the anamnesis it is known that 3 months before hospitalization, the patient was hospitalized for 14 days with a diagnosis of acute severe pancreatitis, total pancreatic necrosis. She was discharged in a satisfactory condition for further observation in the clinic at the place of residence.

Concomitant: type 2 diabetes mellitus, atherosclerosis of the aorta, coronary and cerebral arteries, arterial hypertension of the 3rd degree, risk 4, bronchial asthma; The patient had previously undergone cholecystectomy for cholelithiasis.

An objective examination revealed moderate pain in the epigastric region, subfebrile temperature (up to 37.5°C), symptoms of peritoneal irritation were negative. Blood test: moderate anemia up to 87 g/L, neutrophilia up to 75%, lymphocytopenia up to 14%, hypoproteinemia up to 53.79 g/L, hypoalbuminemia up to 29.35 g/L, decrease in the concentration of alpha-amylase in the blood up to 18.9 U/L and increasing it in the urine to 889 U/L.

Ultrasound examination of the abdominal organs in the projection of the head and body of the pancreas locates an inhomogeneous fluid collection measuring 14.3 × 7.2 × 9.1 cm, extending to the iliac crest and adjacent to the wall of the stomach (Fig. 1).

During esophagogastroduodenoscopy (EGDS), a moderate deformation of the duodenum is noted due to its displacement by an infiltrate from the outside (Fig. 2).

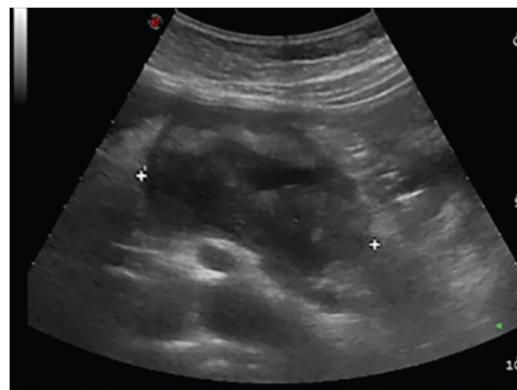


Fig. 1. Abdominal ultrasonography (external compression)

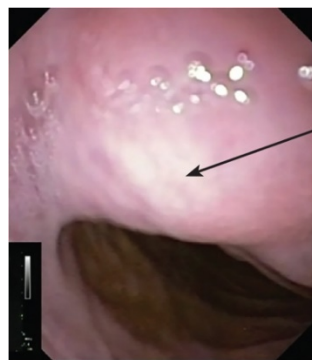


Fig. 2. Esophagogastroduodenoscopy (deformation due to

According to the results of laboratory and instrumental studies and in accordance with the prognostic criteria for the severity of AP according to the *Ranson scale*, the diagnosis was made: "Mild necrotizing pancreatitis, parapancreatitis, omentobursitis." The patient was admitted to the surgical department.

At the department the treatment was prescribed, including infusion therapy with the predominant use of isotonic electrolyte solutions with electrolyte concentrations adapted to the concentration of electrolytes in blood plasma, 500 ml x 2 times a day for 3 days. To stop the pain syndrome, the opioid analgesic Tramadol 100 mg or the narcotic analgesic Trimeperidine 10 mg intramuscularly was used.

On the 2nd day after admission, the patient underwent endoultrasoundography (EUS) of the pancreatobiliary zone, where an anechoic formation with hyperechoic inclusions of 6.0 × 4.0 cm was detected from the vertical portion of the duodenum in the projection of the pancreatic head, adjacent to the wall of the duodenum (Fig. 3).

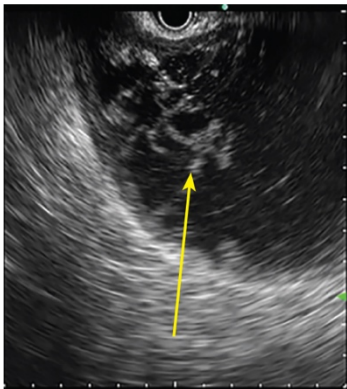


Fig. 3. Endoultrasoundography of pancreatobiliary area

Also on the 2nd day, computed tomography (CT) of the abdominal organs with intravenous bolus contrast was performed, according to the results of which delimited fluid formation were determined around the head, along the anterior surface of the body and around the tail of the pancreas, extending into the pelvic cavity and to the hilum of the spleen with a total volume of 479 cm³. The structure of the parenchyma is diffusely heterogeneous due to the presence of areas of low density, irregularly rounded, with fuzzy contours, up to 15 mm in size in the region of the head, which do not accumulate a contrast agent. The density of parapancreatic tissue is diffusely increased to liquid values, against which focal and linear areas of soft tissue density can be traced (Fig. 4).

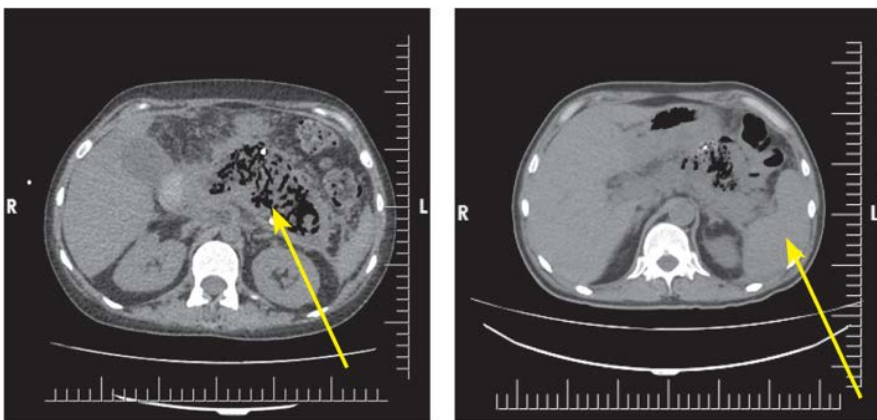


Fig. 4. Computed tomography of the abdominal organs

These alterations correspond to stage E of acute inflammation and diffuse necrosis according to *Balthazar CT* criteria [12].

The presence in the patient of adjacent inhomogeneous peripancreatic delimited fluid collection, localized paraduodenal with spread into the pelvic cavity and to the hilum of the spleen, was an indication for drainage of the destruction zone followed by sequestrectomy. On the 4th day, it was decided to perform intraluminal drainage of the necrosis zones under EUS guidance. When EUS-scanning from the vertical portion of the duodenum, the avascular zone was selected along its posterolateral wall and the puncture trajectory was determined. Then, using a cystotome in the *Endocut* I effect 2 mode, an anastomosis was formed between the duodenal cavity and the zone of pancreatogenic destruction (Fig. 5).

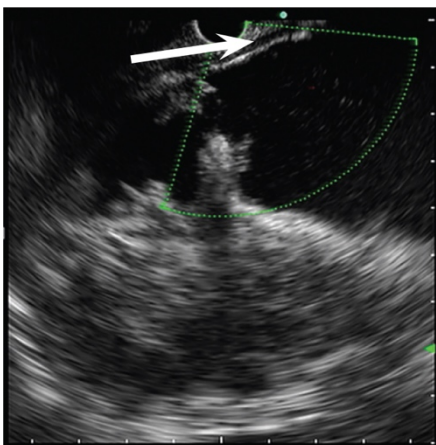


Fig. 5. Endoultrasoundography (revealing avascular area)

The the fluid was taken through the channel of the cystotome for inoculation of the contents on the microflora and sensitivity to antibiotics. The cavity was contrasted with a water-soluble contrast agent at a dilution of 1:2 to determine the true dimensions of the cavity, its connection with the pancreatic duct, and the presence of fistulas (Fig. 6).

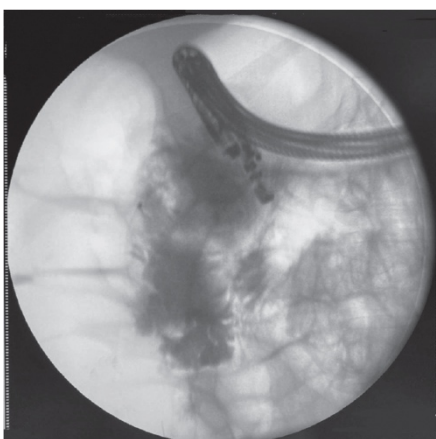


Fig. 6. Fistulography

When the catheter was inserted through the formed anastomosis and contrasting, an irregularly shaped cavity was found, located on the right at the level of Th12-L1-L2, measuring 7.0 × 10.0 cm with uneven fuzzy contours and an inhomogeneous shadow due to fuzzy small filling defects of irregular shape (pus?). A small branch up to 2.0 cm long and up to 1.0 cm in diameter extends from the upper pole of the cavity. Also, a small branch measuring 1.0 × 1.0 cm with uneven fuzzy contours extends downward from the lower pole of the cavity. There was no communication of the cavity with the lumen of the colon.

After that, a fully covered metal self-expanding stent with a diameter of 1.4 cm and a length of 2.0 cm was installed along the conductor string inserted into the cavity through the cystotome (Fig. 7).

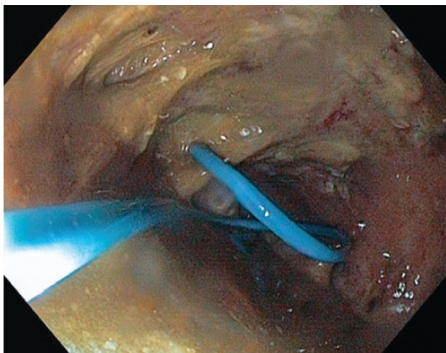


Fig. 7. Drainage in the lumen of the cavity of pancreatogenic destruction

In order to prevent venous thromboembolic complications in the postoperative period, a direct-acting anticoagulant, Enoxaparin, 20 mg x once daily for 7 days, was prescribed. To reduce the risk of developing erosive and ulcerative lesions of the mucous membrane of the upper gastrointestinal tract, the proton pump inhibitor Omeprazole was used at a dose of 20 mg BID for 7 days intravenously. According to the results of a microbiological study, the patient showed the growth of *Pseudomonas aeruginosa*, which is sensitive to the IV generation cephalosporin antibiotic for parenteral use, Cefepime. In this connection, in the postoperative period, the patient received Cefepime at a dose of 1 gram BID as an antibacterial therapy and an antiprotozoal and antimicrobial drug Metronidazole 500 mg BID for 7 days intravenously. To prevent fungal infections, oral antifungal therapy with Fluconazole 100 mg once. To prevent spasm of the smooth muscles of the internal organs, antispasmodic therapy was performed, which included Drotaverine 40 mg BID intramuscularly for 7 days.

On the 8th day, EUS scanning of the pancreatobiliary zone from the body of the stomach in the region of the omental sac revealed a second inhomogeneous hypoechoic zone with fuzzy contours and hyperechoic inclusions 8.0 cm in diameter, as closely as possible adjacent to the posterior wall of the lower third of the body of the stomach. Performed cystogastrostomy under EUS guidance with the installation of a fully covered metal self-expanding stent with a diameter of 1.2 cm, a length of 4.0 cm according to the above method.

On the 13th day after the operation, during the next sanitation of the zone of pancreatogenic destruction with sequestrectomy, an internal fistula was found between the zone of destruction and the lumen of the stomach along the posterior wall of the cardiac part of the stomach (Fig. 8).

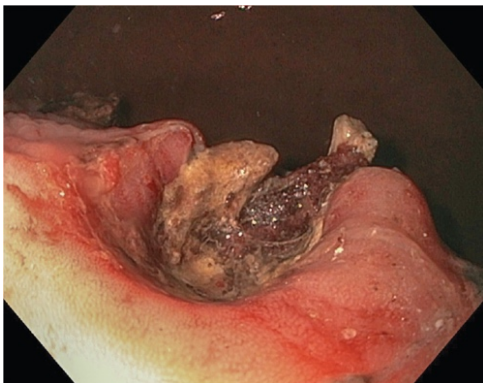


Fig. 8. Internal fistula between the area of destruction and the gastric

For what reason, it was drained with the installation of a fully coated metal self-expanding stent with a diameter of 1.2 cm, a length of 4.0 cm according to the above method.

Thus, the patient has 3 fistulas formed at the same time.

Subsequently, every 2 days for 60 days, program endoscopic sanitation of all three necrosis cavities was performed with the removal of sequesters and washing the cavity with sterile saline and 0.05% aqueous solution of Chlorhexidine up to 500 ml (adverse events were not observed).

Against the background of conservative treatment (antibacterial, infusion, antispasmodic therapy), the patient's condition improved.

On the 52nd day, the control CT scan of the abdominal cavity and retroperitoneal space with intravenous bolus contrasting showed positive dynamics in the form of a decrease in the volume of the fluid collection and infiltrative changes in the pancreatic parenchyma (Fig. 9).

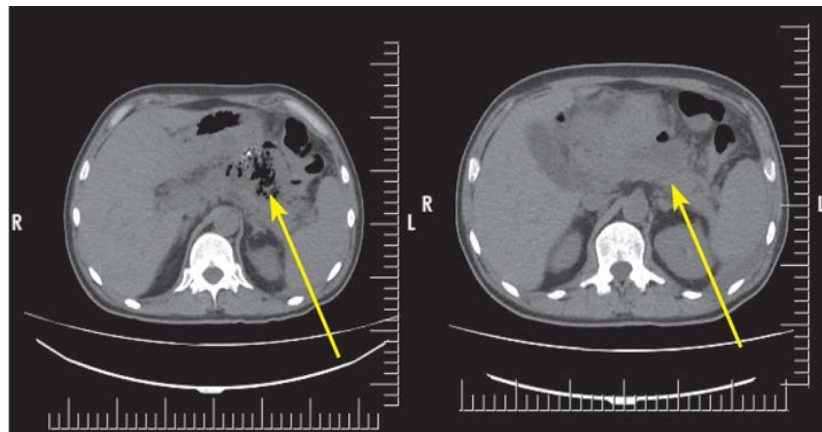


Fig. 9. Computed tomography before and after treatment

Body temperature returned to normal on the 56th day, the main laboratory parameters became normal on the 54th day (Fig. 10).

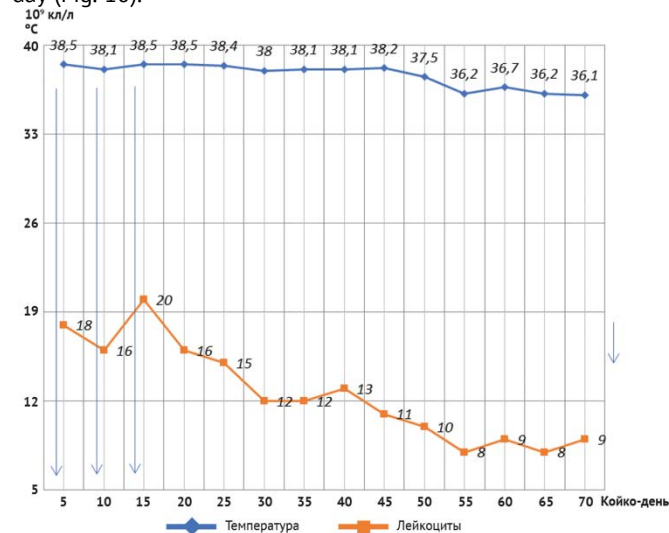


Fig. 10. The body temperature curve and WBC level

On the 71st day after admission, the patient was discharged in a satisfactory condition under the supervision of a gastroenterologist, an endocrinologist at the place of residence.

CONCLUSION

Thus, this clinical observation demonstrates the possibility of successful use of endoscopic transluminal drainage of pancreatogenic destruction zones as part of the complex treatment of patients with infected necrotizing pancreatitis.

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Received on 06/24/2021

Review completed on 29.10.2021

Accepted on 27.12.2022