Case report

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Isolated Pancreatic Injury Diagnosed Seven Months after Thoracoabdominal Trauma

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ABSTRACT We present a case of a closed thoracoabdominal trauma with pancreatic rupture. Closed abdominal trauma is one of the main causes for urgent hospitalization and emergency surgery. Injury of pancreatic ductal system is noted for the most severe course because of complications caused by outflow of the pancreatic juice into the retroperitoneal fat and the free abdominal cavity. One of the main factors affecting the efficacy of treatment is the time gap between a traumatic incident and hospitalization with subsequent surgical treatment. We report the results of management of a 53-year-old patient with closed thoracoabdominal injury and incomplete rupture of the pancreas, diagnosed 6 months after the "steering wheel" trauma. The injury was diagnosed with radiation techniques. Surgery included laparotomy, corporocaudal resection of the pancreas with splenectomy. The incidence of pancreatic traumatic injuries and the results of treatment are the matters for discussion.

Keywords: closed abdominal trauma, pancreatic rupture, late diagnosis, intraabdominal bleeding, corporocaudal resection

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RTA – road traffic accident
Ps – pancreas

INTRODUCTION

In 1827 B. Travers first described the transverse rupture of the pancreas (Ps). Until the middle of the 20th century, such publications were rare. The increase in injuries led to a noticeable increase in patients with pancreatic injury [1].

According to A. Papalampros, pancreatic injuries with penetrating abdominal injuries occurred in 7%, with closed injury – in 5% of cases. [2]. Based on the analysis of literature data, C. Iacono concludes that damage to the pancreas was observed in 0.2% of cases of closed abdominal trauma and in 1–12% – penetrating one [3]. G.N. Tsybulyak emphasizes that the pancreas is rarely damaged in abdominal trauma (1–2%). Mortality reaches 25% with stab wounds and 50% with gunshot and closed injuries [4]. On the contrary, according to K.V. Gorbenko, pancreatic injuries account for 45–54% in the structure of polytrauma with a mortality rate of 9–34%, and as a result of pancreatic injury – 2–17% [5]. According to E.G. Grigoriev et al., the proportion of pancreatic injuries in the cities of Irkutsk and Ulan-Ude was 4.50 ± 1.11%. Isolated pancreatic injury occurred in 31.2% of cases, in combination with other abdominal organs – in 68.8%. The most frequently body of the pancreas was damaged (68.8%), less often – the head (22.1%) and tail (9.1%). Class I damage occurred in 4.3%, II - in 57.9%, III - in 34.6%, IV - in 2.6% and V - in 0.6% of cases. Fatal outcome in 23.5% of cases was associated with multiple organ failure against the background of necrotizing pancreatitis, peritonitis and retroperitoneal suppuration [6].

Late diagnosis leads to an increased risk of complications and poor outcome [1]. According to M.M. Abakumov, postoperative complications in polytrauma with pancreatic injury occur in 30–40% of patients. The most dangerous is arrosive bleeding from the branches of the splenic artery. In case of damage to the duct system of the pancreas and untimely surgical treatment, the evasion of enzymes into the abdominal cavity leads to the development of peritonitis, infection of the retroperitoneal tissue, and the formation of postnecrotic cysts [1, 4, 5, 7, 8].

Clinical observation

A 53-year-old patient independently went to the hospital surgical clinic on December 7, 2019 with complaints of epigastric pain, abdominal enlargement, weight loss, general weakness, rare urination. In May 2019, after a car injury (the driver was wearing a seat belt), he went to the trauma center, where he was diagnosed with a fracture of the IX rib on the left along the posterior axillary line. He did not associate his illness with a road traffic accident (RTA), he was repeatedly examined in a polyclinic at his place of residence, in other medical institutions of the city. Prescribed treatment for chronic gastritis was ineffective.

General condition of moderate severity. Consciousness is clear, the position of the patient is active. Height 191 cm, weight 90 kg, body mass index - 24.6, subcutaneous fatty tissue is overdeveloped. The skin is swarthy. Respiration rate 18 per minute. The chest is painless on palpation, vesicular breathing, weakened in the posterior regions. Blood pressure - 106/70 mm Hg. art., heart rate - 103 per minute. The abdomen is enlarged, the abdominal wall is soft on palpation, slightly painful in the epigastrium, the liver is not enlarged, free fluid in the abdominal cavity is determined. No peritoneal symptoms.

In the general analysis of blood: leukocytes - 14.01 109, erythrocytes - 4.79 1012, platelets - 973 109. Biochemical blood test: glucose 7.2 mmol / L, total bilirubin 10.9 μmol / L, amylase 877 IU / L, urea 7.99 mmol / L, creatinine 0.096 mmol / L, aspartate aminotransferase 6.10 IU / L, alanine aminotransferase 11.0 IU / L, total protein 51.1 g / L.

Preliminary diagnosis: "Liver cirrhosis of unspecified etiology, ascites, secondary thrombocytosis." Hospitalized in the Department of Therapeutic Gastroenterology. 12.12.2019 videoesophagogastroduodenoscopy was performed, cardia insufficiency, superficial antral gastritis were revealed. Colon pathology was not detected during video colonoscopy. Duplex scanning of the vessels of the hepatobiliary zone excluded the pathology of the portal vein and its tributaries. Ultrasound examination of the abdomen revealed a large amount of free fluid.

Multispiral computed tomography of the chest and abdominal cavity was performed on December 24, 2019: free fluid in the abdominal cavity, fatty degeneration of the liver. Ps rupture in a typical place (isthmus) (Fig. 1). Consolidated fracture of the anterior segment of the III rib, fracture of the IX rib. On December 27, 2019, magnetic resonance imaging, cholangiopancreatography were performed, rupture of the pancreas body and damage to the main pancreatic duct were confirmed.

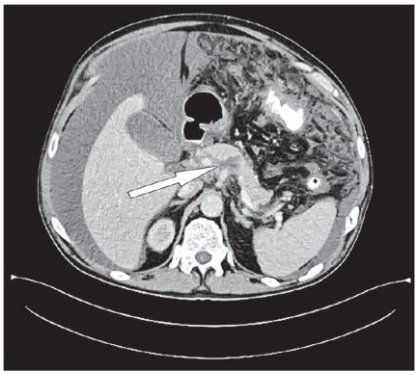

Fig. 1. Multispiral computed tomography of the abdominal cavity. Typical rupture of the pancreas (arrow)

On December 25, 2019, laparocentesis was performed, a straw-colored liquid was obtained, in the study of which the amylase content was 18,000 U. The patient was transferred to the surgical department, antibacterial, antisecretory therapy was prescribed. 01/07/2020 - blood flow through drainage. A laparotomy was performed. In the abdominal cavity up to 3 liters of serous-hemorrhagic contents. Adhesive process, loose fibrin. In the subhepatic space, a blood clot up to 200 ml. In the upper floor of the abdominal cavity - infiltration. The gastrocolic ligament was dissected. The body of the pancreas was isolated, a rupture of the isthmus, a post-traumatic cyst of the omental bursa were found. There was no ongoing bleeding. The body and tail of the pancreas were mobilized to the level of damage in a single block with the spleen (there was a dense infiltrate at the gate). Diffuse bleeding. The splenic vein was ligated. The splenic artery was poorly differentiated in infiltrated tissues, dilated to 2.0 cm (aneurysm?), it was isolated to the celiac trunk, ligated and transected. Corporocaudal pancreatic resection with splenectomy was performed (Fig. 2). The abdominal cavity was sanitized. Hemostatic tampons, drains were inserted. Relaparotomy was scheduled 48 hours later.

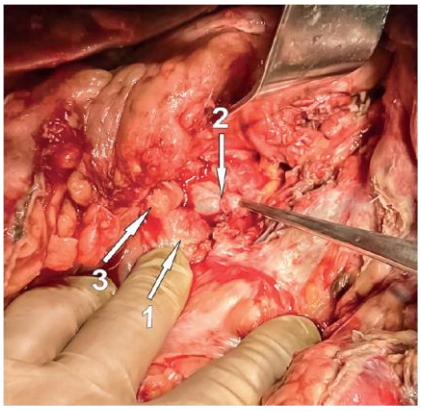

Fig. 2. Intraoperative photo. 1 — the stump of the pancreas; 2 — stump of the dilated splenic artery; 3 — stump of the splenic vein

Reoperation was performed on 01/09/2020, 9 hemostatic swabs were removed from the bed of the resected pancreas and from the subphrenic space. Argon plasma coagulation of the gland stump and the cavity of the pseudocyst was performed. Tubular aspirator to the gland stump and drainage under the diaphragm on the left. The abdominal cavity was sanitized.

The histological conclusion: a removed fragment of the pancreas 10x4.5x4 cm with a spleen 13x6x8 cm with a total weight of 370 g. Along the edge of the pancreas resection there are hemorrhages, in the parapancreatic tissue – single steatonecroses, in the area of the spleen gate – hemorrhages. Histologically, hemorrhages along the edge of the pancreas, uneven leukocyte infiltration, pancreatic tissue with periductal, perilobular sclerosis with uneven lymphoid infiltration, focal hemorrhages in the spleen.

The postoperative period was satisfactory. Within 6 weeks on drainage from the left subphrenic space – up to 200 ml of serous fluid during the day. Abdominal wound healing by primary intention. The patient was discharged on February 14, 2020 in satisfactory condition. Diagnosis: Closed thoracoabdominal trauma; rupture of the pancreas; post-traumatic sterile pancreatic necrosis; enzymatic ascites-peritonitis; arrosive intra-abdominal bleeding".

The patient was questioned 6 months after discharge: general condition was satisfactory, no abdominal pain, temperature was within normal limits. The patient did not control blood sugar, but strictly adhered to a hypoglycemic diet. The stool was regular. Body weight 81 kg, height 191, BMI – 22.2.

DISCUSSION

For 6 months, the patient was observed on an outpatient basis and in hospitals, where he was unsuccessfully treated for chronic gastritis, ascites of unknown origin. A rupture of the Ps was established after MSCT and with a purposeful collection of anamnesis, the cause of the disease was revealed – damage to the Ps as a result of an accident ("steering injury"). Interestingly, with a rupture of the pancreas, damage to the duct system and prolonged evasion of enzymes into the retroperitoneal tissue and abdominal cavity, the course of post-traumatic sterile pancreatic necrosis was not manifested, was not complicated by retroperitoneal phlegmon and peritonitis. Subsequently, local suppuration within the parapancreatic tissue in the area of damage was realized in a post-traumatic cyst, pseudo-aneurysm of the splenic artery, arosive bleeding, which was the basis for an emergency surgery.

CONCLUSIONS

1. During the first and subsequent contacts of the patient with doctors of different profiles, a history of thoracoabdominal trauma was not taken into account as a possible cause of the disease in a practically healthy person before the road traffic accident.

2. As before, the "gold standard" of radiation diagnostics of abdominal injuries, in particular the pancreas, is multispiral computed tomography.

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