WHEN AND HOW TO TREAT THE COMPLICATIONS IN INFECTED PANCREATIC NECROSIS

Quando e como tratar as complicações na necrose pancreática infectada

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ABSTRACT - Introduction - Acute pancreatitis is presented in its severe form between 10% and 15% of cases and is associated with high mortality. In the initial phase, evolution characterized by the onset of organ dysfunction and subsequently by the presence of pancreatic necrosis and its complications. Methods - It was performed a literature review with consultations in the following databases: PubMed, Scielo, Lilacs. Headings used were the following: acute pancreatitis, infection, pancreatic necrosis.

Conclusion - The treatment of pancreatic necrosis, despite the advent of modern methods and techniques, is still challenging. Because of the multiplicity of aspects that may take the examination of each case, in view of the extent, severity and location of facilities within a patient's care, the treatment should be individualized for each case.

INTRODUCTION

Acute pancreatitis is presented in its severe form in 10% to 15% of cases and is associated with high mortality rates. In the initial phase the evolution is characterized by the onset of organ dysfunction and subsequently by the presence of pancreatic necrosis and its complications.

The leading causes of death in the early days of evolution result from the multiple organ dysfunction caused by systemic inflammatory response syndrome (SIRS). In later stages, the majority of deaths are related to the infection of pancreatic necrosis. During this period, sepsis with consequent failure of multiple organs and systems (IMOS) is the leading cause of death, which occurs from the second and third weeks of onset.

About 20% to 40% of patients with pancreatic necrosis develop infection, and 24% after one week and 72% after three weeks, with mortality in these cases up to 50%.

The terms pancreatic abscess, pancreatic sepsis, pancreatic phlegmon and infected necrosis frequently overlap and are often used as synonyms. International Symposium in Atlanta in 1992 sought to unify these concepts, while modifications are still being proposed.

The differential diagnosis between aseptic and infected pancreatic necrosis is not always easy. The same difficulty is found in the characterization of the existence of sterile/infected fluid collection and abscess, and abscess...
with pseudocyst. The evolution of organ dysfunction or IMOS and a positive aspiration, provide grants to characterize the presence of infection, pancreatic necrosis, collection or presence of abscess16,25,59. Thus, it can be said that the main complications of pancreatic necrosis are the appearance of the collections, abscess and pancreatic pseudocyst. These complications may be associated or not to bleed, the appearance of fistulae and pancreatic ascites and will be the subject of this paper.

**METHOD**

Was performed a literature review with consultations in the following databases: PubMed, SciELO, Lilacs. Headings used were the following: acute pancreatitis, infection, pancreatic necrosis.

**Collections and pancreatic abscess**

Pancreatic or peri-pancreatic collections are generated by overflow of pancreatic secretion in acute inflammatory outbreak and is characterized by not being surrounded by a wall. Occur early during evolution and can be absorbed or be infected by bacteria from the gut through bacterial translocation, resulting in infected collections7,10.

The pancreatic abscess is defined as a collection of purulent material encapsulated by a fibrous wall located in the pancreas or in the retropancreatic region7,11,16. It occurs in 10% of cases of pancreatic necrosis and fine needle aspiration can reveal polymicrobial flora with intestinal bacteria Gram-negative and Gram-positive24,33.

The abscess is a condition different from infected pancreatic necrosis, because there is no encapsulation of this purulent material, and is retroperitoneal diffuse infection. Furthermore, the abscess appears later in evolution, usually after four to six weeks of onset and contains no pancreatic necrosis7,11,46.

Various types of surgical approach are proposed for the treatment of infected pancreatic necrosis with or without the presence of collections. Among them, debridement with external drainage, associated with postoperative peritoneal lavage and the program scheduled for reoperation, either closing the cavity or using the laparostomy7,9,10,11,17,31,51,52,54,57,60.

Treatment of an infected collection or pancreatic abscess involves its drainage. Surgical drainage, together with debridement and local cleaning has historically mortality and morbidity high, ranging from 10% to 59% and 60% to 93%, respectively16,59,66.

In fact, the variation in those rates reflect the different forms of the disease. Many cases classified as sterile necrosis associated with noninfected collections are actually cases of infected pancreatic necrosis with associated collections, or abscesses confused with pancreatic pseudocysts.

Since it is accepted correctly diagnosed, mortality for surgical drainage of an infected collection or a pancreatic abscess is from 5% to 10%7,10,11,33. More recently, minimally invasive treatment have been described. Thus, methods of percutaneous drainage guided by ultrasound or by CT have been used with satisfactory resolution rates and in a few days after surgery9,19,23,31,34,60.

Transluminal endoscopic drainage techniques and retroperitoneal debridement laparoscopy, or even the combination of two methods, have also been used5,22,27,30,32,43,53,65 and shown to be feasible, although requiring more significant sample sizes and longer postoperative follow-up for a better evaluation of results.

**Pancreatic pseudocyst**

It is the most common complication after an outbreak of acute pancreatitis, focusing on 2% to 8% of cases and is considered the most common cystic lesion of the pancreas39,41. It is defined as a collection of pancreatic juice enclosed by a fibrous wall not epithelized, what differentiates a true pancreatic cyst. It is a late complication in evolution, since it takes four to six weeks to occur encapsulation of the collection15.

The pseudocyst fluid is sterile and rich in pancreatic enzymes. They may have their contamination leading to the onset of infection, described in 10% to 15% of cases48,58. Manifestations of sepsis occurs when the differential diagnosis with pancreatic abscess should be done50,61.

The pseudocyst that persists after this period has an indication for surgical treatment. The open surgical procedures have lower rates of morbidity from 10% to 30% mortality of 1% to 5% and relapse rates of 5% to 20%40,58. The cistogastroanastomosis or cistojejunoanastomosis and loop exclusion, are the most common procedures35,56.

Percutaneous drainage of the pseudocyst and endoscopic internal drainage with placement of a pigtail, or even with endoscopic cistogastroanastomosis already been performed, but showed high recurrence rates due to small holes that were created, plus the occurrence of complications such as bleeding or drilling3,8,20,55,58.

With the introduction of laparoscopy in the surgical treatment of pancreatic diseases, procedures like laparoscopic cistogastroanastomosis or cistojejunoanastomosis, began to be realized. Sometimes the realization of cistogastroanastomosis can enlist the assistance of endoscopic ultrasonography and endoscopy in order to reduce the chance of bleeding6,26,29,58. Sometimes, the transgastric laparoscopic procedure can be used47,52,63.

Although minimally invasive procedures seek to bring benefits to the patient, among us are still expensive and restricted to selected cases.
External drainage of the pseudocyst can also be performed when the wall is still thin and gives risk of dehiscence, or when the surgeon suspects the existence of infection and are uncertain in the implementation of internal drainage. In such circumstances, the patient may develop a fistula with pancreatic duct if there is a nutrient that provides significant flow of pancreatic secretion.

Similarly and exceptionally, the operations of resection can also be performed. In general, when located in the tail of the pancreas, the surgeon can choose the body-tail pancreatectomy. It must be remembered that pseudocyst can also be involved with complications, such as gastrointestinal tract obstruction, rupture, bleeding.

The obstruction of the gastrointestinal tract by pseudocyst may occur due to the increase in the diameter and the point of obstruction depends on the location of growth. Are described obstruction of the esophagogastric junction, stomach, duodenum and small intestine. In such circumstances, internal drainage of the pseudocyst resolves the obstruction.

Spontaneous rupture of the pseudocyst also occurs. If goes to the peritoneal cavity can cause peritonitis and determine the performance of laparotomy for the cleaning of the cavity. If the break occurs inside an organ, usually to the stomach or duodenum and is not associated with bleeding, it may represent the solution to the problem.

The bleeding vessels by corrosion of the region - particularly the spleen - lead to grow the volume of the pseudocyst and drop on hematology tests. When operated at this stage the surgeon may have difficulty in controlling hemorrhage; is therefore prudent to carry out preoperative angiographic examination, besides being diagnostic it can also be therapeutic.

**Hemorrhage and pancreatic fistula**

During the development of infected pancreatic necrosis, whether operated or not, patients may develop these complications. Bleeding may result from corrosion of the wall of a vessel by the local inflammatory process rich in pancreatic enzymes, and pancreatic fistula by parenchymal destruction committing ducts.

Corrosion occurs when the wall of a vessel can bleed into the free cavity. Although rare, is a dreaded complication and the patient should immediately be subjected to examination and possible angiography treatment. Other possibilities are the formation of a pseudoaneurysm or formation of a retroperitoneal hematoma or mesentery.

The formation of pseudoaneurysms can cause bleeding being diagnosed at an early stage, or are detected late in the differential diagnosis of pseudocyst. The surgery can be performed by resection, or angiography. The involvement of the mesocolon vessels instead of determining bleeding can cause bowel ischemia and necrosis of the colon segment, and should be treated by laparotomy because it involves bowel resection.

Pancreatic fistulas in turn may determine the appearance of collections and pseudocysts, or more rarely, the formation of pancreatic ascites. Although the clinical treatment triggers the resolution rate in those cases when there is abdominal pain and signs of peritoneal irritation or failure of conservative treatment, is recommend washing and drainage of the cavity by laparoscopy that allows the cleaning of the retroperitoneum and allows the orientation of the fistula to the external environment.

Although the mortality of severe acute pancreatitis has decreased, it still represents a diagnostic and therapeutic challenge. The cases who develop pancreatic necrosis infection have high mortality and can present several complications, some of which could be treated by less invasive methods and other conventional surgical treatment.

**CONCLUSION**

The treatment of pancreatic necrosis, despite the advent of modern methods and techniques, is still a challenge. Due to the multiplicity of aspects in each case, in view of the extent, severity and local facilities within a patient’s care, the treatment must be always

**REFERENCES**