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PANCREATIC FISTULA FOLLOWING ABDOMINAL AORTIC SURGERY: CASE REPORT

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ABSTRACT. Acute pancreatitis and pancreatic fistula is a rare complication after aortic surgery and carries a high mortality. When these complications occur, treatment can be a clinical challenge. We are the first to report a case of pancreatic injury with pancreatic fistula developed 4 days after open surgical treatment of aortoiliac occlusive disease (Leriche sdr.)
KEYWORDS: aortoiliac occlusive disease, Leriche syndrome, pancreatitis, pancreatic fistula

INTRODUCTION

Incidence of gastrointestinal complications following aortic surgery ranges between 6.6-21% (Adenauer Marinho de Oliviera Goes Jr et al., 2008; Emmeline Nugent et al., 2011).These complications are associated with increased risk of morbidity and mortality and often include paralytic ileus, upper digestive haemorrhage and colon ischaemia. Pancreatic injury with consequent pancreatitis during abdominal aortic surgery is a rare, poorly studied complication in the literature. It may occur with a very wide range that varies from sub-clinical manifestations characterized by rising concentrations of serum amylase, lipase and isoamylase as far as acute necrotizing pancreatitis. Pancreatic ascites or internal pancreatic fistulae can occur in the clinical setting of pancreatic trauma. The diagnosis is usually confirmed with ascitic fluid assay that is high in protein and amylase. Most cases described in the literature include patients treated for aortic aneurysmal disease (N.Rawat et al., 2006; Hashimoto L et al., 1999; A. Freyrie et al., 1999; Vibert E et al., 2002; James A et al., 2008; Mccombs PR et al., 1991, Gruber HP et al., 1994). We are the first to report a case of a patient submitted to aorto-bifemoral bypass reconstruction for Leriche syndrome who developed a pancreatic complication 4 days after surgery.

CASE REPORT

A 61-year-old male patient presented to our clinic complaining of lower limb claudication for distances shorter than 50m, including hip muscles and erectile dysfunction. The patient reported history of smoking and alcohol consumption. He also reported a history of hypertension and ischemic cardiomiopathy. Femoral and distal pulses were not palpable on vascular examination. Digital angiography and angio-CT showed occlusion of the abdominal aorta immediately below the origin of the left renal artery with refilling of the femoral and popliteal arteries (Figure 1 a,b).

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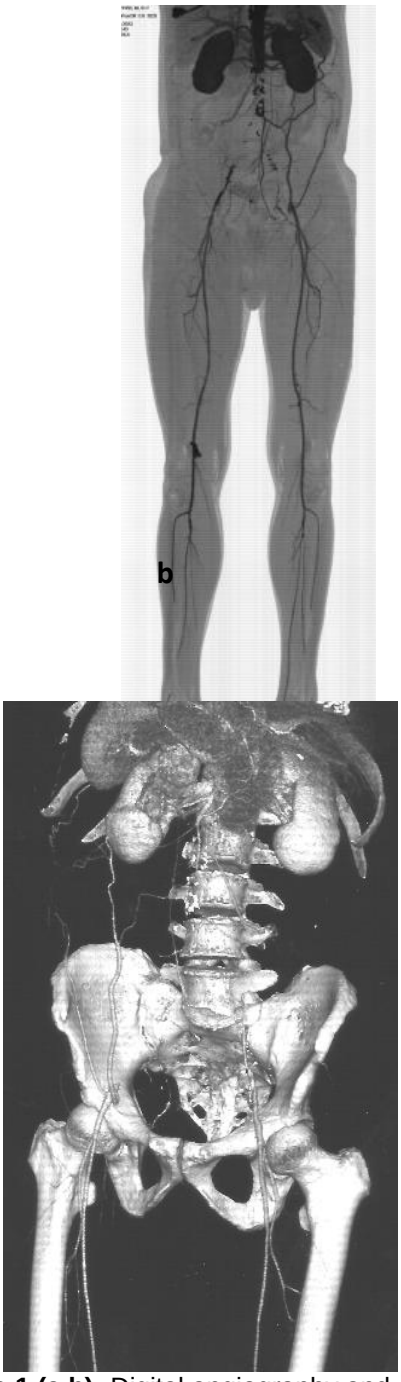

Figure 1 (a,b)- Digital angiography and angio-CT showing infrarenal aortic occlusion with refilling of the femoral and popliteal and distal calf arteries

The patient underwent an aorto-bifemoral bypass through transabdominal access, using an 18 x 9 mm Dacron graft with end-to-side proximal anastomosis. The abdominal aorta was intensively calcified "porcelain aorta" requiring a proximal dissection up to the level of the renal arteries and infrarenal cross-clamping. The early postoperative recovery was uneventful with bilaterally present femoral and distal pulses. On the 4-th postoperative day the patient complained of increasing abdominal pain and distension, with decreased frequency of defecation. On clinical examination he had a moderately distended abdomen with epigastrial and left flank pain on palpation. Surgical wounds remained in good condition, and distal pulses of the lower limbs were preserved. Diagnostic hypothesis were early adherences, mesenteric ischaemia, intracavitary abscess or haematoma. The laboratory tests showed a raised white cell count of 10.59 $*10^3/\mu L$ (neutrofilia), a slight HGB decrease and slightly elevated serum amylase and lipase levels. A naso-gastric probe was inserted and left open.

An emergent abdominal computed tomography (CT) scan was performed that revealed a significant peri-aortic fluid collection at the level of the proximal aortic anastomosis as well as free intra- and retroperitoneal fluid (**Figure 2**). There was no evidence of micro-emboli in the liver, spleen or kidneys and no evidence of colon ischaemia. As the abdominal distension and pain aggravated an emergent laparotomy was carried out. There was no blood and no signs of active bleeding intra- or retroperitonealy. About 1L of peri-hepatic and Douglas sac clear fluid was aspirated with slightly mobilised false membranes. A significant retro-pancreatic, peri-aortic abscess was found and cleared. At close inspection a superficial, minor laceration of the pancreas was observed, with no signs of main duct injury or necrosis. There was no visible sign of any other organ injury. The retroperitoneum was sealed with an omental patch for the protection of the aortic graft and prevention of aorto-enteric fistula. Retrohepatic, Douglas and abscess site drains were placed and the abdomen closed. Specimens were sent for culture, that subsequently proved sterile. Biochemistry revealed that the fluid was high in protein and amylase, suggestive for a pancreatic fistula.

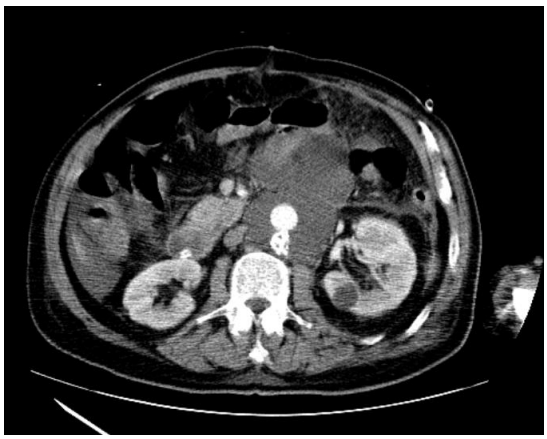

Figure 2 – Contrast enhanced CT image showing a significant peri-aortic fluid collection

The postoperatory (PO) recovery was uneventful. Bowel arrest with total parenteral nutrition was initiated and maintained for 2 days. Drains were removed on the 3-rd PO day. Thereafter the patient's complain was markedly reduced, and his serum amylase, white cell count returned to normal. The antibiotic therapy initiated preoperatively was continued and maintained for 7 days. A follow-up abdominal CT scan performed on the 10-th PO day showed a marked reduction of the peri-pancreatic fluid **(Figure 3**). There were no digestive complaints. On the 7-th PO day, after progression and diet acceptance, the patient was discharged.

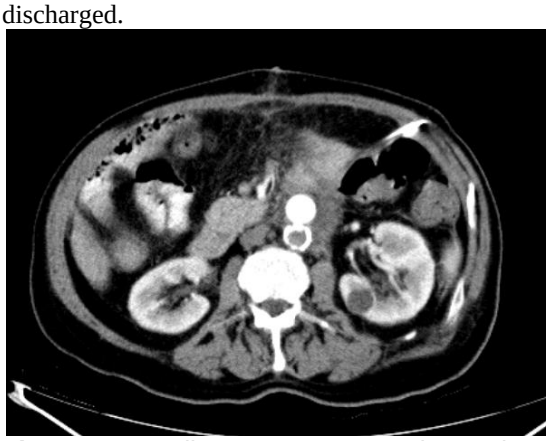

Figure 3 – Follow-up contrast enhanced CT image showing a significant reduction of the peri-aortic fluid (with a heavily calcified, occluded native aorta)

DISCUSSION

Although complications of abdominal aortic aneurysm (AAA) surgery are well described in the literature, there is a lack of reports related to aortoiliac occlusive disease. Graft occlusion and anastomotic pseudoaneurysms are the main complications responsible for the need of reintervention. Acute pancreatitis and pancreatic fistula is a rare complication of abdominal aortic surgery with a high mortality, described until present in the case of AAA open (1%) and endovascular repair (Emmeline Nugent et al., 2011; N.Rawat et al., 2006; A. Freyrie et al., 1999; Vibert E et al., 2002; James A et al., 2008; Mccombs PR et al., 1991, Gruber HP et al., 1994). Several hypotheses explaining the onset of pancreatitis after surgical treatment of AAA are reported in the literature: pancreatic ischemic damage may occur following perioperative visceral hypoperfusion, athero- or thromboembolism during aortic clamping. It can also be a result of direct trauma during the disection and mobilisation of pararenal aorta (A. Freyrie et al., 1999). Of these possible causes we ruled out the possibility of intraoperatory hypoperfusion (BP> 120 mmHg) and ischemic damage through athero- or thromboembolism given that there was no preoperative CT or intraoperative evidence of such complication. Considering this aspects, it would be logical to suspect that the injury occured sometime during aortic dissection, mobilisation and proximal clamping. The similarity of our case with AAA open surgery resides in the fact that the aortic atherosclerotic process was extensive, involving the entire length of the abdominal aorta requiring high, infrarenal dissection and proximal clamping, situation more than often encountered in AAA surgery.

Regarding the initial laboratory findings and the uncertain preoperative diagnosis it is generally reported that laboratory findings are relatively insensitive and non-specific in diagnosing pancreatic injury. Serum amylase evaluation can suggest pancreatic injury; however, amylase levels have failed to predict or correlate with the degree of injury or disclose potential ductal disruption, especially when obtained in the early post-trauma period (Simon et al., 1994). Serum lipase is often based clinically in the setting of acute pancreatitis, but after blunt trauma, elevated serum lipase levels may be nonspecific and a poor indication of injury. Because of their low sensitivity and specificity for pancreatic trauma, serum amylase and lipase have limited diagnostic value, but elevated levels may provide a clue to a severe injury requiring further investigation.

With regard to treatment, conservative management of pancreatic trauma in the absence of a ductal injury -grade I and II (Pancreatic injury severity scale- Moore et al. 1990)-is widely accepted as the majority of these resolve spontaneously after conservative treatment. External drainage alone has been proposed for grade I and II injuries, while surgical intervention, including distal pancreatectomy or pancreatico-jejunostomy is usually performed for grade III, IV and V injuries.

AUTHOR CONTRIBUTION

All authors have contributed equally to the present work.

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