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Case Report

Idiopathic pancreatitis with splenic artery pseudoaneurysm in a child: a rare presentation

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ABSTRACT

Splenic artery pseudoaneurysms are a rare complication of pancreatitis and abdominal trauma in children. We report a case of splenic artery pseudoaneurysm complicating pancreatitis (idiopathic) that was managed by transcatheter angioembolization.

Keywords: Pancreatitis, Splenic artery pseudoaneurysm, Angioembolization

INTRODUCTION

Splenic artery pseudoaneurysm is a rare complication of pancreatitis. The risk of rupture can be as high as 37%, with a high mortality rate when untreated. Early diagnosis and treatment is imperative. Angiography, computed tomography and magnetic resonance Imaging all offer a definitive diagnosis. Treatment options include transcatheter embolization, splenectomy with or without distal pancreatectomy, or splenic artery ligation alone.

CASE REPORT

A 6 year old girl presented with complaints of abdominal pain. She had history of acute abdomen 20 days back for which she was explored at other centre - drainage of approximately 1.5 to 2 litres of haemoperitoneum was done. Pancreas was bulky. There was no other organ injury. She had persistent upper abdominal pain after surgery.

On examination, she had pallor. Abdomen was soft with minimal tenderness in epigastrium. Blood investigations revealed anaemia and leucocytosis. USG showed multiple small pseudocysts in the body of pancreas with surrounding haematoma. CT scan revealed multiple small pseudocysts in the body of pancreas, pseudoaneurysm of splenic artery with multiple collaterals and partial thrombosis of portal vein (Figure 1). CT Angiography was done which was suggestive of a pseudoaneurysm in the splenic artery (Figure 2).

Patient was started on pancreatic supplements and analgesics. Digital Subtraction Angiography (DSA) and Splenic artery pseudoaneurysm coiling was done using 35-3-3, 18-3-3 (2) and 18-4-6 (2) coils through 6 French right transfemoral access (Figure 3: Pre-procedure and Figure 4: Post-procedure). She had relief from pain after the procedure and is doing well on follow-up since last 1 year. No blood transfusion was given to the patient at any point of time. USG after 3 months was suggestive of features of chronic pancreatitis with dilated main pancreatic duct. There was no evidence of any haematoma or dilated vessels. Spleen was normal and well perfused.

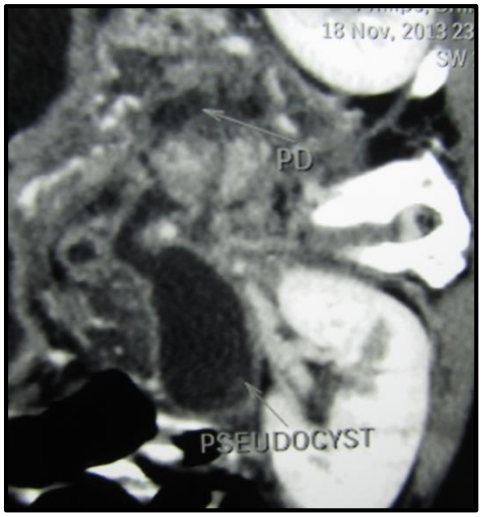

Figure 1: CT scan: Small atrophic pancreas with dilated pancreatic duct. Multiple small intrapancreatic & peripancreatic pseudocysts.

Figure 2: CT angiography: s/o pseudoaneurysm in splenic artery.

Figure 3: Digital subtraction angiography: Pre-procedure.

Figure 4: Digital subtraction angiography: post-procedure.

DISCUSSION

Pancreatic pseudoaneurysm is a rare, but life-threatening complication caused by erosion of the pancreatic or peripancreatic artery into a pseudocyst. Its most common cause is pancreatitis with secondary pseudocyst formation.

The splenic artery is the most common site, followed by the hepatic artery.[1] These aneurysms, although uncommon, are frequently the cause of life-threatening complications like rupture and bleeding and carry a high mortality rate and are almost fatal if untreated**.** Because of its unique anatomical location, a pseudoaneurysm can erode and bleed into the bowel, biliary tree, retroperitoneum or peritoneal cavity**.** Arteriovenous fistula formation and extrahepatic biliary tract obstruction are infrequent complications.

It is quite difficult to differentiate a pseudoaneurysm from a bleeding pseudocyst.[2] The pancreatic pseudoaneurysm should also be differentiated from primary peripancreatic vessel aneurysm, which occurs more commonly in women and tends to rupture during pregnancy manifesting as massive intraperitoneal bleeding with haemodynamic instability.

The major cause of pseudoaneurysm formation is moderate to severe pancreatitis with or without pseudocyst or abscess. They also develop as a sequalae to blunt and penetrating abdominal trauma,[3] biliopancreatic resection for cancer with anastomotic leak and intra-abdominal abscess and pancreatic transplantation.[4] The enzyme-rich peripancreatic fluid from a pseudocyst leads to autodigestion and weakening of the walls of the adjacent arteries, which then undergo aneurysmal dilatation; these aneurysms rupture into the pseudocyst

and convert into a pseudoaneurysm (defined as extravascular haematoma communicating with the intravascular space).

Most patients of pseudoaneurysms are asymptomatic. Symptomatic patients present with fatigue, nausea, vomiting, weight loss, chest, back, flank and abdominal pain, unexplained anaemia, recurrent or intermittent haematemesis or haematochezia, rapid enlargement of a pseudocyst, haemosuccus pancreaticus (bleeding from the ampulla of Vater, colicky pain and jaundice).[5] Patients with pancreatitis may present with persistent or abrupt increase in abdominal pain and decreasing haematocit values and/or haemodynamic instability and/or unexplained gastrointestinal bleeding. Pseudoaneurysm should be considered as a diagnosis in any patient with a pseudocyst and a significant abdominal bruit.

Digital subtraction angiography aids in diagnosis in pseudoaneurysms.[6] It very well defines the lesion and may also serve as a guide for therapeutic planning and to gain temporary control over the vessel by transcatheter embolization.[7] Computed Tomography (CT) angiography and Magnetic Resonance Angiography (MRA) are other modalities of diagnosis.

The natural history of these pseudoaneurysms is largely unknown and the current consensus is to treat all these patients to prevent the complication of bleeding. Endovascular coil embolization, covered stent placement,[8] percutaneous, ultrasonographically guided thrombin injection and open surgical repair are the various available options.

Transarterial catheter angioembolization with or without endoscopic stent placement is being used extensively (as in our patient) and is less invasive,[1,2] comfortable, can be done quickly and has a success rate of 67 to 100%.[2] Rebleeding, arterial perforation by the catheter, intestinal necrosis and aortic thrombosis are its complications.

Thrombin injection has been used successfully to treat pseudoaneurysms.[9] Balloon inflation across the neck of the pseudoaneurysm has also been advocated,[10] but its significance, safety and efficacy are yet to be seen.

Haemodynamic instability and failure of endovascular techniques to control active haemorrhage are the absolute indications for emergency exploratory laparotomy. Basic surgical procedures include arterial ligation on both sides of bleeding sites, pancreatic resection and multiple intracystic and extracystic ligatures.

Patients managed conservatively (without any intervention, either surgical or radiological) have a mortality rate of 90%. The mortality rate following surgical treatment ranges from 28-56% and depends on the anatomic location of the pseudoaneurysm and not on the surgical method. Embolization has a high initial success rate of 90 to 100% (as was the case with our patient).

CONCLUSION

Although splenic pseudoaneurysms are rare, better outcome requires accurate, timely and appropriate diagnosis and medical and/or surgical intervention. Endovascular management is the treatment of choice at present when feasible.

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