Pseudoaneurysm in pancreatitis
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Section: Abdominal imaging
Imaging Technique: CT
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Case Type: Clinical Cases
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Patient: 50 years, male

Clinical History:
Post traumatic pancreatitis. Serial post contrast CT scans of the abdomen were obtained to assess the severity and progress of the disease.

Imaging Findings:
Post traumatic pancreatitis. Post contrast CT scan of the abdomen to assess severity of pancreatitis.

Discussion:
Pseudoaneurysms are a recognised complication of pancreatitis. Necrotising vasculitis with resultant aneurysmal changes in peri-pancreatic vessels is more recognised in chronic pancreatitis. Similar pseudoaneurysms have been described in association with acute pancreatitis, but only occur in approximately 10% of cases. The damage in pancreatitis is caused by released and activated pancreatic enzymes. Necrotizing vasculitis and erosion of vessel walls results in aneurysmal changes in peripancreatic vessels. The vessels of the coeliac trunk are the most commonly affected. Haemorrhage from arterial pseudoaneurysm rupture is potentially fatal. In most cases, massive gastrointestinal bleeding is typical at onset and prognosis of these cases is usually poor. Early diagnosis and treatment of this complication is therefore important. It is well recognised and documented that radiology has a major role in diagnosis and management. Ultrasound may be useful in diagnosing pseudoaneurysm complicating acute pancreatitis. Colour Doppler ultrasound will exhibit the "to and fro" sign. Spectral Doppler will demonstrate evidence of bidirectional flow at the neck of the pseudoaneurysm. These two signs are diagnostic. However, thrombus within a pseudoaneurysm may result in poor flow and these signs may not be present. Therefore, negative ultrasound findings should not preclude post-contrast CT and selective angiography. CT of the abdomen is used to investigate the pancreatic abdomen, either to diagnose pancreatitis in the first instance or to assess its progress. Pseudoaneurysms may appear on non-contrast CT scans as spheric, soft-tissue structures, which may mimic a haemorrhagic pancreatic pseudocyst. Contrast CT scans can demonstrate pseudoaneurysms. They usually demonstrate homogenous enhancement, with maximal intensity during the arterial phase of a post-contrast CT scan. The anatomical location of the mass may also increase the index of suspicion. Homogenous enhancement of a structure within or adjacent to a pancreatic pseudocyst, or contiguous with a vascular structure should be considered highly suspicious for an associated pseudoaneurysm. Selective arteriography is superior to CT in demonstrating pseudoaneurysms. Apart from being the gold standard in demonstrating pseudoaneurysms, angiography is also an important step in the management algorithm. Embolism of the pseudoaneurysm proximally and distally prevents arterial anterograde and retrograde flow. This should be the initial treatment of choice in these patients. Embolization may provide effective and definitive treatment. If surgical intervention is required, transcatheter embolization has a role in controlling haemorrhage and improving the haemodynamic status of the
patient before surgery.

**Differential Diagnosis List:** pseudoaneurysm in acute pancreatitis

**Final Diagnosis:** pseudoaneurysm in acute pancreatitis

**References:**


Description: Signs of acute pancreatitis are present in this post-contrast scan of the abdomen. The pancreas is swollen with indistinct margins and there is infiltration of the mesentery. The superior mesenteric artery is seen enhancing anterior to the left renal vein, with the superior mesenteric vein lying to its right. Origin:
Description: This is another image from the same study. The superior mesenteric artery and vein are clearly identifiable anterior to the duodenum. Origin:
Description: There has been significant deterioration in appearance since the previous study. The pancreatic head is swollen and formless, with indistinct margins. There is free fluid in the abdomen, around the liver and this extends into the left paracolic gutter. There are also inflammatory changes and a large amount of fluid within the mesentery. The superior mesenteric artery is demonstrated, with the superior mesenteric vein lying to its right. Origin:
Description: An inferior image from the same study demonstrates an abnormal, enhancing vascular lesion, to the right of the superior mesenteric artery and vein. This pseudoaneurysm is also demonstrated in image 2c. **Origin:**

Description: Another inferior slice from the same study, further demonstrating the pseudoaneurysm, complicating acute pancreatitis. **Origin:**