

Rupture of an inferior pancreaticoduodenal artery aneurysm

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Introduction

Visceral artery aneurysms (VAAs) and visceral artery pseudo-aneurysms are rare with a reported incidence of 0.01 to 0.2% at autopsy [1]. Rupture of such aneurysms is potentially lethal as the diagnosis is often delayed. Although recently developed imaging technology has been able to identify these aneurysms effectively, late diagnosis and inappropriate interventions can lead to disastrous consequences. Of all VAAs, aneurysms of the pancreatico-duodenal artery (PDA) are rare, accounting for less than 2% of all VAAs [2]. We report a case of a ruptured PDA aneurysm which presented as an 'acute abdomen'.

Case

A 52 year old previously healthy female was admitted to the casualty surgical unit with sudden onset severe epigastric pain associated with sweating and feeling faint. On examination, she was pale, and in shock associated with generalized abdominal tenderness and guarding. Her haemoglobin value was 6.3g/dl. An urgent electrocardiogram showed minor ischaemic changes, probably attributable to anaemia and tachycardia. She was resuscitated with intravenous crystalloids and blood transfusions to stabilize her haemodynamic status. A focused abdominal sonogram revealed fluid in the peritoneum. At emergency laparotomy, a retroperitoneal haematoma at the peripancreatic area was found. The stabilized clot was not disturbed; the abdomen was re-sutured. Subsequent contrast enhanced computed tomography of the abdomen demonstrated a ruptured VAA (Figure 1), and selective angiography revealed a pseudo-aneurysm

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arising from the inferior PDA which was embolized successfully (Figure 2,3).

A post procedure angiogram showed complete sealing of the aneurysmal inferior PDA resulting in uneventful recovery.

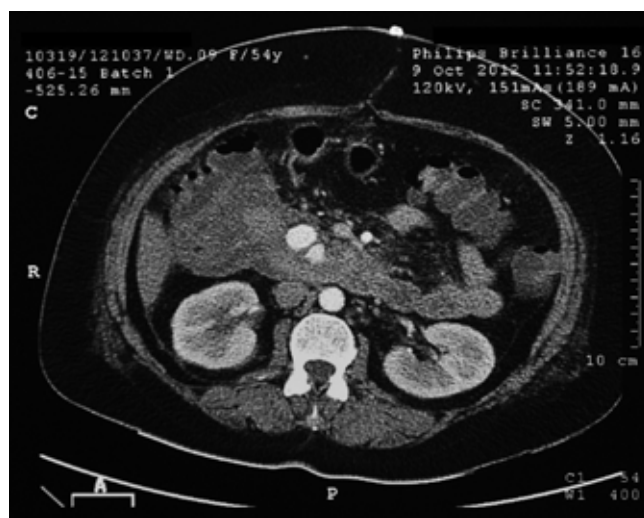


Figure 1. Possible ruptured and /or leaking aneurysm (1.5 x 1.8cm) posterior and inferior to the head of the pancreas with possible dissection and thrombus formation.



Figure 2. Selective angiogram demonstrating the visceral artery aneurysm.



Figure 3. Another view of the selective angiogram demonstrating the inferior pancreaticoduodenal artery prior to embolization.

Discussion

Of VAAs, aneurysms of the pancreaticoduodenal arteries (PDA) are most rare. These aneurysms are associated with a mortality of 70%. While 22% of visceral artery aneurysms present as emergencies, 8.5% result in death [1,2]. PDAs are often associated with pancreatitis, trauma, cholecystitis, and post-Whipple operation. Rarely, these aneurysms are a sequel of vasculitis. Such aneurysms are often pseudo-aneurysms secondary to inflammation, infection, or trauma. True aneurysms of the pancreaticoduodenal arcades are rare, and may be congenital or acquired secondary to fibromuscular dysplasia or atherosclerosis. The most common clinical presentation of a non-ruptured aneurysm is vague abdominal pain [3]. This may be related to extrinsic compression on the duodenum or pancreatic and biliary ducts. Patients may present with gastrointestinal bleeding, probably secondary to rupture of the aneurysms into the duodenum and / or the pancreatic duct. A few patients may present with acute abdominal pain and shock following rupture [4], which was the presentation of our patient. Symptomatic aneurysmal rupture is an indication for urgent intervention.

Trans-catheter embolization has been the preferred method of intervention over surgical resection or ligation of the aneurysm. Depending on the location of the VAA, a surgical approach may prove to be difficult

[5,6]. Furthermore, endovascular coil embolization has been shown to have excellent long-term outcomes in the treatment of these aneurysms [7].

Conclusion

For ruptured PDA aneurysms, surgery is associated with high mortality since the point of bleeding is usually not identified at operation. Hence, during laparotomy when a haematoma in close relation to a ruptured visceral artery in an unfavourable location is found, it is best to treat it with interventional radiological procedures.

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Key points:

- Ruptured visceral artery aneurysm needs to be suspected in a patient presenting with haemorrhagic shock, when an obvious cause is not found.
- It needs prompt investigation even if the patient subsequently becomes clinically stable after a state of shock.
- Regaining haemodynamic stability provides a window of opportunity which should be used effectively.
- Relatively less invasive trans-arterial embolization gives easier access to surgically inaccessible sites with aneurysmal bleeds, and it needs to be arranged urgently, as rebleeding is associated with a poor prognosis.