

Surgical Gastroenterology

Left gastric artery pseudoaneurysm following traumatic pancreatic transection

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ABSTRACT

A 24-year-old man presented to us 10 days after suffering blunt trauma to the abdomen. He was diagnosed with pancreatic transection and underwent distal pancreatectomy and splenectomy. Two weeks after the operation, he developed intra-abdominal haemorrhage. Selective visceral angiogram revealed left gastric artery pseudoaneurysm, which had embolised. His recovery was uneventful. To our knowledge, ruptured left gastric artery pseudoaneurysm following pancreatic trauma, has not been reported before. In this article, we discuss some vascular complications of pancreatic trauma.

Key words: Pancreatic trauma, pseudoaneurysm

INTRODUCTION

Bleeding from visceral artery pseudoaneurysm is a rare complication of pancreatitis. The most common arteries involved are the splenic artery followed by the gastroduodenal, pancreaticoduodenal, hepatic, left gastric and intra-pancreatic arteries.¹⁻³ Our patient developed intra-abdominal haemorrhage secondary to ruptured pseudoaneurysm of the left gastric artery following traumatic pancreatic transection.

CASE REPORT

A 24-year-old man presented to the Accident & Emergency Department 10 days after blunt injury to the abdomen. His symptoms were abdominal pain and a progressively increasing swelling in the epigastric region. Before presenting to us he had been admitted to another hospital where he had undergone needle aspiration of the swelling which had revealed clear fluid. As his condition had deteriorated, he was referred to our hospital.

On examination, he was febrile and had tachycardia. Other vital signs and general examination were unremarkable. Abdominal

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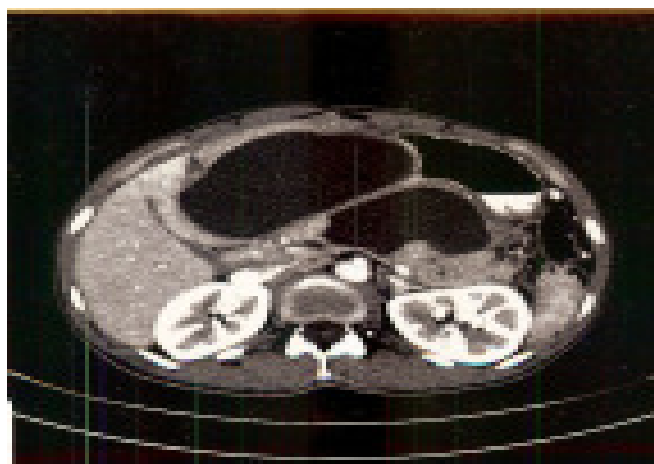


Fig. 1: Contrast enhanced CT scan of the abdomen showing pancreatic transection and acute fluid collection.

examination revealed a 12 x 10 cm tender epigastric mass. No other mass was palpable. There was no free fluid in the abdomen.

His white blood cell count was 31,700/cu.mm with marked left shift. His serum amylase was 927 IU/l (normal < 200 IU/l); serum lipase was 721 IU/l (normal < 190 U/L). Contrast enhanced CT scan of the abdomen revealed near total transection of the body of the pancreas with a 15 x 12 x 8 cm thin-walled fluid collection (figure 1). The fluid collection communicated with the main pancreatic duct and extended antero-superiorly via the lesser sac into the left lobe of the liver (segments III/IV).

He underwent drainage of the fluid collection, distal pancreatectomy (with splenectomy) and feeding jejunostomy. The post-operative period was complicated by post-splenectomy thrombocytosis for which hydroxyurea was prescribed. He also developed generalised tonic-clonic convulsions. CT scan of the brain was done to exclude cortical venous thrombosis.

On the 14th post-operative day, he started bleeding massively through the abdominal drain. Emergency CECT scan revealed a haematoma inferior to the liver. Digital subtraction selective visceral angiogram depicted a 2.5 cm pseudoaneurysm arising from the terminal end of the descending branch of the left gastric artery (figure 2). The left gastric artery trunk was embolised with coils and poly vinyl acrylate particles. Post procedure angiogram showed no opacification of the pseudoaneurysm and no flow in the left gastric artery distal to the mid segment. His subsequent recovery was uneventful.

DISCUSSION

Injury to the pancreas is rare, occurring in 2–4% of patients sustaining blunt abdominal trauma.⁴ Early complications include pancreatic fistula, pancreatitis, and intra-abdominal abscess. Delayed complications include pancreatitis, pancreatic pseudocysts, peripancreatic arterial pseudoaneurysms, endocrine or exocrine insufficiency. Digestion and erosion of the arterial wall by a pseudocyst have been suggested as causes of these pseudoaneurysms. Bleeding pseudoaneurysms are associated with high mortality (12–57%).⁵

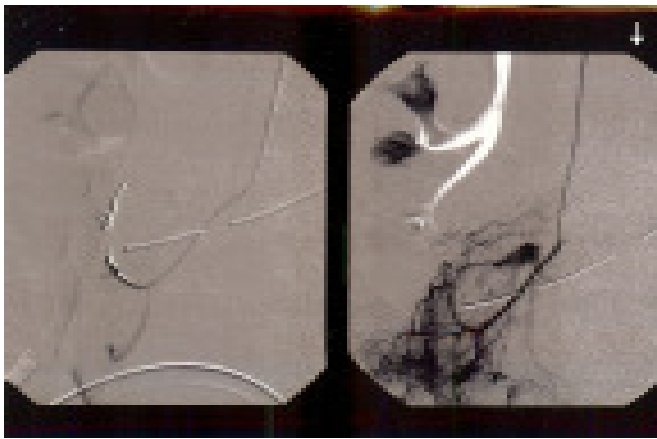


Fig. 2: Digital subtraction angiogram with selective cannulation of the left gastric artery showing a pseudoaneurysm in the terminal segment of the descending branch.

It may not be possible to differentiate a pseudoaneurysm from a haemorrhagic pseudocyst on CT scan without intravenous contrast. During the arterial phase the pseudoaneurysm displays homogenous enhancement. The 'to-and-fro' sign and bidirectional flow at the neck of the aneurysm on colour Doppler ultrasound are diagnostic but may not be seen if there is a thrombus in the pseudoaneurysm. Angiography is the gold standard for diagnosis.² Angio-embolisation gives good results in 67–100% of cases.^{6,7,8} Indications for operative management include: failed embolisation, recurrent bleeding following embolisation (perhaps caused by continued vascular erosion 17–37%), haemodynamic instability or lack of facilities for radiological intervention.^{2,9,10} Laparoscopic ligation of the left gastric artery has been described,¹¹ but may be difficult in the acute setting.

CONCLUSION

Visceral pseudoaneurysms can occur as a complication to traumatic pancreatic transection. Intra-abdominal haemorrhage must be accurately evaluated using a selective visceral angiogram. Prompt diagnosis with embolisation is usually curative.

REFERENCES

1. Negi SS, Sachdev AK, Bhojwani R, Singh S, Kumar N. Experience of surgical management of pseudoaneurysms of branches of the coeliac axis in a North Indian hospital. *Trop Gastroenterol.* 2002; 23:97–100.
2. Kapoor S, Rao P, Pal S, Chattopadhyay TK. Hemosuccus pancreaticus: an uncommon cause of gastrointestinal hemorrhage. A case report. *JOP.* 2004;5:373–6.
3. Smith RE, Fontanez-Garcia D, Plavsic BM. Gastrointestinal case of the day. Pseudoaneurysm of the left gastric artery as a complication of acute pancreatitis. *Radiographics.* 1999;19:1390–2.
4. Oláh A, Issekutz A, Haulik L, Makay R. Pancreatic Transection from Blunt Abdominal Trauma. Early versus Delayed Diagnosis and Surgical Management. *Dig Surg.* 2003;20:408–14
5. Bender JS, Bouwman DL, Levison MA, Weaver DW. Pseudocysts and pseudoaneurysms: surgical strategy. *Pancreas.* 1995;10:143–7.
6. Mandel SR, Jaques PF, Sanofsky S, Mauro MA. Nonoperative management of peripancreatic arterial aneurysms: a ten year experience. *Ann Surg.* 1987; 205:126–8.
7. Gambiez LP, Ernst OJ, Merlier OA, Porte HL, Chambon JP, Quandalle PA. Arterial embolization for bleeding pseudocysts complicating chronic pancreatitis. *Arch Surg.* 1997;132:1016–21.
8. Gabelmann A, Gorich J, Merkle EM. Endovascular treatment of visceral artery aneurysms. *J Endovasc Ther.* 2002;9:38–47.
9. Boudghene F, L'Hermine C, Bigot JM. Arterial complications of pancreatitis: diagnostic and therapeutic aspects in 104 cases. *J Vasc Interv Radiol.* 1993;4:551–8.
10. Rasmussen IB, Carter DC. Treatment of rare complications of acute pancreatitis. In: Howard JM, Idezuk Y, Ihse I, Prinz RA, eds. *Surgical diseases of the pancreas.* Baltimore, Md: Williams & Wilkins; 1998. p. 311–7.
11. Sasaki A, Bandoh T, Shiraishi N, Adachi Y, Kitano S, Kaketani K. Laparoscopic ligation of an aneurysm of the left gastric artery. *Surg Laparosc Endosc Percutan Tech.* 2001;11:225–7.