

Laparoscopic resection of splenic artery aneurysm with preservation of splenic function

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ABSTRACT

We report a 59-year-old woman who had a successful laparoscopic resection of a splenic artery aneurysm. The common treatment for this condition is radiological embolisation or splenectomy. Laparoscopic resection of the splenic artery aneurysm with preservation of good splenic function over the long-term is presented.

Keywords: laparoscopic resection, splenic artery aneurysm, splenic function preservation

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INTRODUCTION

Splenic artery aneurysm has an incidence in the general population in an autopsy series of between 0.1% and 10.0%, and is the most common of visceral aneurysms.⁽¹⁾ The risk factors associated with splenic artery aneurysm includes portal hypertension, vasculitis, arteriosclerosis, arterial fibrodysplasia, and female gender. The importance of treating splenic artery aneurysm lies in the fact that when the transverse diameter of the aneurysm reaches 1.5–2 cm or more, the reported incidence of rupture ranges from 3.0% to 9.6%.⁽¹⁻³⁾

CASE REPORT

We report a 59-year-old woman with a past history of strangulated bowel in her childhood requiring a bowel resection. Her postoperative recovery was complicated by peritonitis and abdominal wall dehiscence. The other relevant medical history include an uncomplicated laparoscopic cholecystectomy for cholelithiasis, and a laparoscopic Nissen fundoplication for ulcerative reflux oesophagitis and hiatus hernia in 2004. Her symptoms of reflux resolved with the fundoplication. Later in 2004, she presented with stabbing pain in her left upper quadrant and shortness of breath. After excluding other lesions, a diagnosis of symptomatic splenic artery aneurysm was made, based on the clinical and radiological findings. Abdominal radiograph showed a 1.4-cm calcified ring shadow in the left upper quadrant. A follow-up spiral computed tomography demonstrated a rounded calcific density with central contrast enhancement correlating with a splenic artery aneurysm in the splenic hilum.

The patient was positioned supine with slight left-sided elevation. Four ports were inserted in the left upper quadrant, one 12-mm for the laparoscopic camera, one 5-mm and 12-mm each for operative manoeuvre and one 5-mm for retraction. The patient had multiple

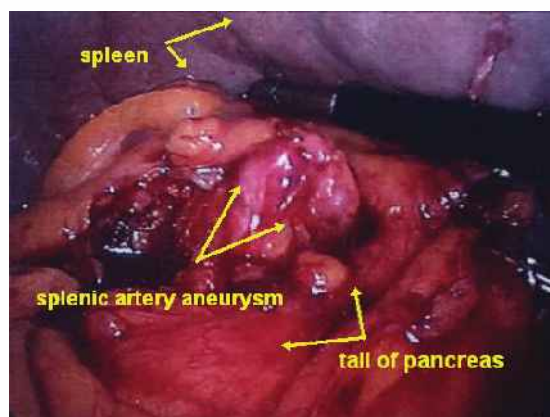


Fig. 1 Operative photograph shows the position of the splenic artery aneurysm with respect to the surrounding organs.

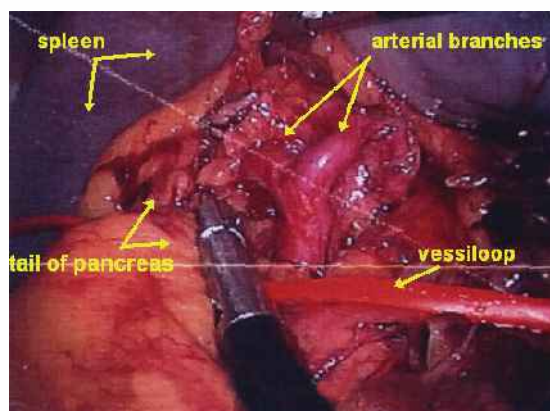


Fig. 2 Operative photograph shows the dissection of the splenic artery.

small bowel and omental adhesions from the previous abdominal surgery. After division of adhesions, the greater omentum and splenic flexure of the colon were mobilised, the splenic artery was exposed at the tail of the pancreas, and its branches were dissected and isolated with Silastic loops (Fig. 1). The aneurysm was identified and dissected off at the trifurcation of the splenic artery (Figs. 1–4). A vascular stapler was used proximal and distal to the aneurysmal part. The lower half of the spleen became dusky after resection. However, the upper half remained well perfused due to intact short gastric artery (Fig. 5). The abdominal cavity was irrigated with normal saline and a Jackson-Pratt drain was placed in the hilum of the spleen. There was no intraoperative or postoperative complication. She recovered well and was discharged the next day from the hospital. The patient remained well on follow-up. Her splenic function was maintained as there was sufficient viable splenic tissue to sustain normal functions and based on routine blood test and abdominal imaging over a two-year period.

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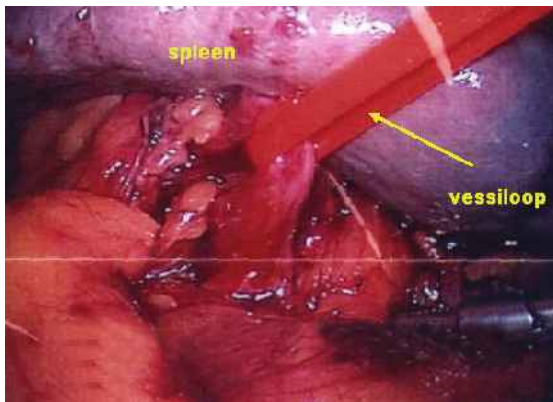


Fig. 3 Operative photograph shows the main arterial trunk and branches isolated by vessiloops.

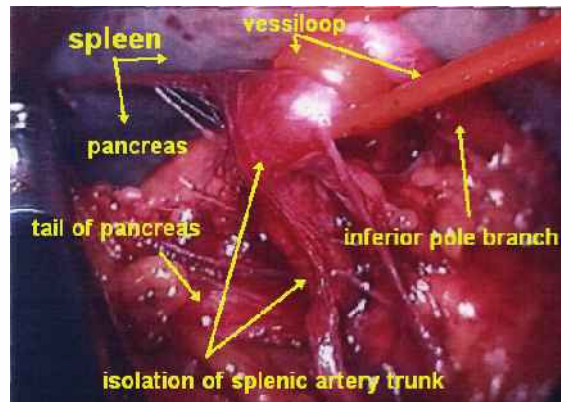


Fig. 4 Operative photograph shows further isolation of the splenic arterial trunk.

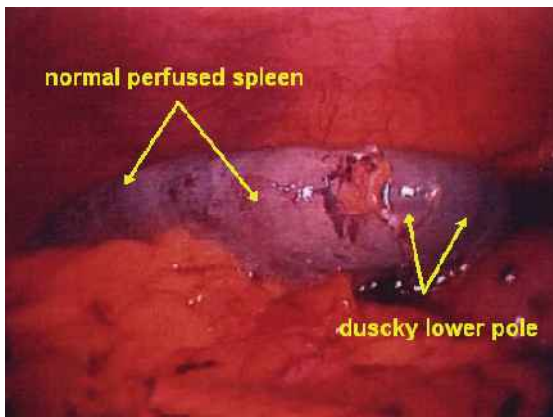


Fig. 5 Operative photograph shows the spleen after resection of the aneurysm.

DISCUSSION

Our literature search showed that this is the first described case of laparoscopic resection of a splenic artery aneurysm with long-term preservation of the splenic function. The laparoscopic technique offers all the advantages of minimally invasive surgery and the preservation of the spleen based on alternative blood supply prevents future complications associated with splenectomy. The management of splenic artery aneurysm remains controversial. Saltzberg et al (2005) reported their series of patients with visceral artery aneurysms from 1990 to 2003, of which 36.4% (four of 11 patients with splenic artery aneurysm) patients with distal splenic artery aneurysms treated with endovascular embolisation developed major complications.⁽⁴⁾ Based on their experience, they recommended traditional surgical treatment of splenic artery aneurysm with repair or ligation and concomitant splenectomy. Melissano and Chiesa reported two cases of open surgery after failure of percutaneous embolisation treatment.⁽⁵⁾

Other individual case reports have pointed to the success of stent-grafts⁽⁶⁾ with subsequent sequential embolisations.⁽⁶⁻⁹⁾ DeRoover and Sudan reported a patient with multiple aneurysms of the splenic artery after liver transplantation treated with percutaneous embolisation, followed by laparoscopic splenectomy.⁽¹⁰⁾ Csepel et al suggested laparoscopic exclusion of a splenic artery

aneurysm using a lateral approach in order to allow for preservation of splenic function.⁽¹¹⁾ In our patient, laparoscopic resection of the splenic artery aneurysm via the anterior approach allows for preservation of the splenic function as the short gastric artery was intact.

In conclusion, the management of splenic artery aneurysm continue to be controversial. We presented a feasible option of a successful laparoscopic resection of splenic artery aneurysm via the anterior transabdominal approach. The technique offers excellent intraoperative exposure, good postoperative recovery, and the good long-term outcome associated with preservation of splenic function.

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