

SHORT REPORT

Right Hepatic Artery Pseudoaneurysm Thirteen Months Following Laparoscopic Cholecystectomy

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A Hepatic artery pseudoaneurysm is a rare vascular complication of laparoscopic cholecystectomy. We report a case that presented thirteen months following elective surgery and was treated successfully by endovascular coil embolisation. This case represents the latest presentation post surgery without the development of life threatening clinical rupture.

Keywords: Hepatic artery; Pseudoaneurysm; Laparoscopic cholecystectomy.

Introduction

Vascular injuries are thought to occur in up to 0.8% of laparoscopic cholecystectomy cases.¹ In the presence of a bile duct injury up to 25% will have a concomitant vascular injury.² The commonest vascular injuries are to the right hepatic artery and cystic artery stump. These are usually not recognised at the time of surgery and present later as a pseudoaneurysm. Review of the published literature suggests that 80% of right hepatic artery pseudoaneurysms present acutely within 4 weeks with haemobilia often necessitating emergency intervention.³ We present our case of a right hepatic artery pseudoaneurysm following laparoscopic cholecystectomy and believe it to be the longest documented post surgery without life threatening clinical rupture reported in the literature.

Report

A 67 year old woman underwent elective laparoscopic cholecystectomy following a single episode of gallstone pancreatitis. No difficulties were encountered

intraoperatively and she was discharged on the third postoperative day. She subsequently represented six days later with a three day history of persistent epigastric pain. Her liver function tests were mildly deranged. An ultrasound revealed a well defined fluid collection (~80 mls) with pockets in the pelvis with appearances suggestive of a partly organised haematoma. Her pain worsened and a fall of 2 g/dl was noted in her haemoglobin concentration. Urgent laparoscopy was performed where 300 mls of sero-sanguinous fluid was aspirated from the gallbladder and subhepatic bed but no active bleeding points were seen.

Following this intervention her pain settled and liver function tests returned to normal and she was discharged from follow up after three months. Eight months later she was noted to have iron deficiency anaemia with FOB positive stools but without a history of melaena. An upper GI endoscopy with views into the duodenum showed no abnormality with a colonoscopy revealing a large rectal polyp which on biopsy was confirmed as a villous adenoma.

Arrangements were made to resect this lesion endoscopically but she represented as an emergency within two weeks of colonoscopy with an acute worsening of a chronic pain in her right upper quadrant which had been present for the previous month. Admission tests showed abnormal liver function with a normal haemoglobin concentration. An ultrasound and

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Fig. 1. Angiogram demonstrating right hepatic artery pseudoaneurysm. Cystic artery clip visible in foreground.

subsequent contrast CT scan revealed a 7.1×5.2 cm pseudoaneurysm lying within the gallbladder bed.

Selective mesenteric angiography (Fig. 1) confirmed a large pseudoaneurysm on a segmentary branch of the right hepatic artery. This lay very close to the clips placed at cholecystectomy. Selective coil embolisation of the aneurysm was performed with complete cessation of abnormal flow confirmed post procedure Fig. 2. Her pain settled and her liver function tests returned to normal. She remains well six months since embolisation and remains under follow up.

Discussion

Bile duct injuries following cholecystectomy are commoner than vascular injury but vascular damage

is often intimately associated with biliary injuries and can be potentially life threatening. Quincke's classical triad of haemobilia (gastrointestinal bleeding, epigastric pain and jaundice) is only present in 40% of patients.⁴ Melaena occurs in 90% of patients, abdominal pain in 70% and jaundice in 60%. Presentations also include rupture into the peritoneal cavity and erosion into the duodenum.

The mechanism of injury to the hepatic artery is thought to be due to direct trauma or thermal injury.⁵ As in this case, the titanium clips are often immediately adjacent to the false aneurysm and continued contact with the right hepatic artery or its segmental branches may lead to erosion. In addition the use of diathermy may lead to direct trauma or accentuated conduction through the surgical clips leading to arterial injury.



Fig. 2. Coil embolisation of segmentary hepatic branch.

It is unusual for arterial injuries following laparoscopic cholecystectomy to present after such a long interval and this case represents the longest (13 months) without life threatening rupture.⁴ It is likely the initial postoperative haematoma represented an acute bleed from a segmental IV or V branch of the hepatic artery. However, laparoscopic drainage without further haemostatic measure led to a resolution of symptoms. The pseudoaneurysm cavity is likely to have developed during the intervening 13 months but was contained with no acute rupture. Another confounding factor was the iron deficiency anaemia for which a large rectal polyp was assumed to be causative.

This case represents a rare and late complication following routine laparoscopic cholecystectomy which was successfully managed by endovascular embolisation. Although a rare complication it suggests the need for thorough evaluation for patients who present with recurrent abdominal pain following routine laparoscopic cholecystectomy. General surgeons should be aware of this unusual complication in patients who have symptoms following surgery.

In addition vascular surgeons should be aware of potentially life threatening vascular complications that can present following common general surgical procedures.

References

- 1 FINLEY DS, HINOJOSA MW, PAYA M, IMAGAWA DK. Hepatic artery pseudoaneurysm: a report of seven cases and a review of the literature. *Surg Today* 2005;**35**:543–547.
- 2 YELLE JD, FAIRFULL-SMITH R, RASULI P, LORIMER JW. Hemobilia complicating elective laparoscopic cholecystectomy: A case report. *Can J Surg* 1996;**39**(3):240–242.
- 3 HEWES JC, BARONI ML, KRISAT J, BHATTACHARYA S. An unusual presentation of hepatic aneurysm as a complication of laparoscopic cholecystectomy. *Eur J Surg* 2002;**168**:566–568.
- 4 RIBIERO A, WILLIAMS H, MAY G, FULMER JT, SPIVEY JR. Hemobilia due to hepatic artery pseudoaneurysm thirteen months after laparoscopic cholecystectomy. *J Clin Gastroenterol* 1998;**26**(1):50–53.
- 5 HEWES JC, BARONI ML, KRISAT J, BHATTACHARYA S. An unusual presentation of hepatic artery aneurysm as a complication of laparoscopic cholecystectomy. *Eur J Surg* 2002;**168**(10):566–568.

Accepted 17 September 2006