

Case Report

Volvulus of the gallbladder

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A case of gallbladder volvulus is presented. This is a rare entity that most frequently affects elderly females. It is associated with anatomical variations relating to abnormal fixation of the gallbladder to the liver bed. Diagnosis is usually at laparotomy and early surgical treatment is essential. Cholecystectomy may be performed laparoscopically or as an open procedure. Gallbladder volvulus should be suspected in elderly patients with symptoms of acute cholecystitis

CASE REPORT An 86-year-old-female presented with a sudden onset of right upper quadrant pain and vomiting. Abdominal examination revealed right upper quadrant tenderness and a palpable mass in the right hypochondrium. Preliminary haematological and biochemical tests were within normal limits. Chest and abdominal radiographs were also unremarkable.

Initially she was treated expectantly. However within 24 hours of admission she developed signs of sepsis, with an associated leucocytosis and pyrexia. An ultrasound scan of abdomen (Fig.)



Fig. Ultrasound of liver bed demonstrating gross gallbladder distension with gallstones and surrounding free fluid.

demonstrated a grossly distended, oedematous gallbladder with evidence of cholelithiasis and surrounding free fluid. The patient was prepared for surgery. This revealed a grossly enlarged, necrotic gallbladder resulting from a 360 degree torsion of a pedicle containing the cystic artery and duct. Following detorsion, cholecystectomy was performed in combination with intra-operative cholangiography. The patient made an uneventful post-operative recovery.

DISCUSSION

The first description of gallbladder volvulus was by Wendel in 1898.¹ Since then over 300 cases have been reported in the literature.^{1,2} The peak incidence of this condition is between 60 and 80 years^{2,3} with a 3:1 female predominance.³ Gallbladder volvulus has also been reported in children and young adults,² one patient being as young as two years of age.⁴

Normally the gallbladder is closely attached to the under-surface of the liver. For an organ to twist, it must have a mesentery with a relatively short base compared to its length.⁵ Two anatomical variants exist which allow gallbladder torsion; visceroptosis with mesenteric elongation and the "free-floating" gallbladder⁵ of which there are two types, one with a mesentery and one with a pedicle containing the cystic artery, vein and duct.⁶ Between 4 and 5% of the population have

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free-lying gallbladders^{2,6} and their existence is thought to be due to dyscoordination of embryological migration during development of the liver and biliary tract.²

Torsion may be incomplete (less than 180 degrees) or complete (270 to 360 degrees) and the volvulus can occur in either a clockwise or anti-clockwise direction.^{2,3} Incomplete torsion only obstructs bile flow whereas complete torsion leads also to vascular compromise resulting in haemorrhagic infarction.^{2,3,6} Perforation is however uncommon.^{6,7}

The mechanisms for creating a torsion are not exactly known although several predisposing factors have been suggested. These include; vigorous peristalsis both within neighbouring organs and the gallbladder itself, brisk movements, blunt trauma and weight loss,^{3-5,7} Kyphosis² has been observed in some cases but this is probably to be considered in the broader context of visceroptosis. Gallstones, though present in approximately 50% of patients, do not appear to play a role in the aetiology of volvulus.^{2,3} Symptoms depend on the type of torsion.² Incomplete torsion resembles biliary colic whilst complete torsion mimics acute cholecystitis.^{3,5} A mass may be palpable in the right hypochondrium^{2,3,5-7} and a paralytic ileus may also co-exist.²

Pre-operative ultrasound findings are usually non-specific⁶ and in the majority of cases the diagnosis is made at the time of surgery.^{1,3} Surgical treatment consists of detorsion and cholecystectomy.^{2,3,5} Detorsion is necessary to avoid bile duct injury.^{3,5,8} Laparoscopic cholecystectomy for gallbladder volvulus has been reported.^{4,8,9} Early treatment has a mortality of less than 5%.^{2,3,6} Without surgery, septic shock usually ensues with catastrophic complications.²

Importantly, changes in population demographics associated with an increase in life expectancy may lead to an increase in this condition.⁵ Therefore gallbladder volvulus should be considered in elderly patients, especially females, with symptoms of acute cholecystitis.

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