CASE REPORT

Gallbladder torsion with acute cholecystitis and gross necrosis

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SUMMARY

A 92-year-old woman presented to the emergency department with a 2-week history of worsening right-sided abdominal pain. On examination she had right mid-abdominal tenderness. Laboratory studies demonstrated leukocytosis with normal liver function tests. A CT of the abdomen was remarkable for a large fluid collection in the right abdomen and no discernible gallbladder in the gallbladder fossa. An ultrasound confirmed the suspicion of a distended, floating gallbladder. The patient was taken to the operating room for laparoscopic cholecystectomy. The gallbladder was found to have volvulised in a counter-clockwise manner around its pedicle, with gross necrosis of the gallbladder. She underwent laparoscopic cholecystectomy. Pathological examination revealed acute necrotising calculus cholecystitis.

BACKGROUND

Gallbladder torsion is an extremely uncommon disease entity with a little over 300 cases described in the literature. This case has a rare combination of torsion, massive distention, gallstones, acute cholecystitis and necrosis.

CASE PRESENTATION

A 92-year-old woman presented to the emergency department with a 2-week history of right-sided abdominal pain which was associated with nausea, but with no vomiting or fever. She was treated by her primary care provider with oral antibiotics for presumed right-sided diverticulitis. However, she had worsening abdominal pain and leukocytosis

and in follow-up was sent to the emergency department for a CT scan and further work-up.

Her medical history was significant for atrial fibrillation, hypertension, hypothyroidism and chronic hyponatremia. Her surgical history was significant for a hysterectomy.

On examination she was afebrile with a temperature of 37.1°C, heart rate 90 beats per minute and blood pressure 117/59 mmHg. She had a soft abdomen with tenderness to palpation in the RUQ with a palpable mass.

Blood testing showed a white cell count of $17.1 \times 10^5/L$, haemoglobin 13 g/dL, normal bilirubin 0.6 mg/dL and normal liver function tests. Her partial thromboplastin time was 31.6 and International Normalised Ratio was 1.3.

INVESTIGATIONS

A CT of the abdomen showed a large 10.8×6.8 cm fluid filled collection in the right abdomen with three hyperdense masses within, likely representing a markedly distended gallbladder with stones (figure 1). An ultrasound of the right upper quadrant confirmed a distended gallbladder with three stones up to 2.4 cm in size, wall thickening up to 2 cm and a small amount of pericholecystic fluid (figure 2).

DIFFERENTIAL DIAGNOSIS

Acute cholecystitis
Biliary colic
Gallbladder torsion with necrosis
Pyelonephritis
Right-sided diverticulitis

Figure 1 CT of the abdomen showing massively distended gallbladder (arrows) with three stones (axial and coronal sections).

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Figure 2 Right upper quadrant ultrasound showing a distended gallbladder with three large stones (open arrows) up to 2.4 cm in size with wall thickening (filled arrow), (sagittal and transverse views).

TREATMENT

The patient was taken immediately to the operating room. At laparoscopy the gallbladder appeared grossly necrotic and adherent to the anterior abdominal wall and surrounding bowel. There was counter-clockwise torsion around its pedicle of the cystic duct and artery, with minimal attachments to the anterior gallbladder fossa. A laparoscopic cholecystectomy with an intraoperative cholangiogram was performed. The cholangiogram showed a long cystic duct, high bifurcation of the right and left hepatic systems and no filling defects (figure 3). The gallbladder was decompressed with a needle aspirator to facilitate its removal from the abdomen and this revealed bloody fluid (figure 4).

OUTCOME AND FOLLOW-UP

The patient tolerated the procedure without complications and had no further operations. Surgical histopathology showed acute necrotising calculus cholecystitis. She had preoperative hyponatremia that persisted in the postoperative period and was diagnosed with SIADH. She was treated with water restriction and salt tablets, and was discharged to an acute rehabilitation facility on postoperative day 12.

DISCUSSION

Gallbladder torsion is a rare entity that was first described by Wendel.¹ Since then, around 300 cases have been reported in the literature.²

Figure 3 Intraoperative cholangiogram showing no filling defects with proximal and distal filling.

Figure 4 Gallbladder appearance after extraction showing necrosis and gallstones.

Table 1 The triad of triads: clinical signs of gallbladder volvulus and torsion

Patient characteristics	Symptoms	Signs
Elderly	Sudden onset	Non-toxic
Thin	Right upper quadrant pain	Pulse-temperature discrepancy
Spine deformities	Emesis	Palpable mass in RUQ

Authors report a floating gallbladder with redundant mesenteric attachments as a predisposing factor for torsion.^{3 4} Boonstra *et al*⁵ suggested that torsion happens only in the absence of hepatic attachments and fixation to the liver.

Although it shares a similar presentation with acute cholecystitis, this disease entity has a different clinical course because of the significant risk of gallbladder necrosis and perforation.⁶

Elderly women have the highest risk of the disease, with a 4:1 female-to-male ratio and a median age of 77 years. The reported mortality in the literature is up to 6%.²

Learning points

- ▶ Gallbladder torsion is a rare surgical emergency that shares a similar presentation with acute cholecystitis.
- ▶ The population with the highest risk are thin elderly women.
- ▶ The disease carries a significant morbidity and mortality due to the risk of necrosis and perforation of the gallbladder.
- ▶ Early operative intervention is crucial in these cases.

The triad of triads described by Lau *et al*⁷ can be utilised to recognise potential gallbladder volvulus and torsion (table 1).

Our patient had the rare combination of gallbladder torsion, massive distention, gallstones, cholecystitis and necrosis. Early recognition of this rare surgical emergency requires a high index of suspicion and early operative intervention is the key to preventing morbidity and mortality.

Contributors EA collected the data, drafted and revised the paper and is the guarantor. KB drafted and revised the paper.

Competing interests None.

Patient consent Obtained.

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