Introduction

Gallbladder (GB) volvulus is an uncommon phenomenon, most frequently encountered in elderly people. The presence of a redundant mesentery (floating gallbladder) is a prerequisite for volvulus. The pre-operative diagnosis of GB volvulus has been considered difficult. What is certain is that prompt surgical intervention is imperative with this condition to avoid the potential risk of necrosis and perforation. In emergency, the treatment of choice is a cholecystectomy.

We present two cases of volvulus of the GB in elderly women patients with a diagnosis of acute cholecystisis.

Case 1

An 86-year-old woman was admitted to our hospital complaining of right upper quadrant pain, nausea and vomiting. There was no history of fever, chills, diarrhea or constipation. Physical examination revealed a temperature of 36.6°C, blood pressure of 230/100 mmHg and a pulse rate of 70 beats/min. The abdomen was soft and mildly distended; Murphy’s sign was detected at the abdominal examination.

In the blood count, the patient had a leukocyte count of 4000/mm³ and C-reactive protein inferior to 0.1 mg/dL. Serum total bilirubin was 1.2 mg/dL, direct bilirubin 0.3 mg/dL, SGOT 20 U/L, SGTP 15 U/L, alkaline phosphatase 268 U/L, amylase 129 U/L and lipase 26 U/L.

Abdominal ultrasound demonstrated a distended GB with a thickened wall; no stone was present.

A computed tomography examination of the abdomen was obtained and demonstrated a “floating GB” with no gallstone, but with dilation of the GB intrahepatic biliary ducts. No stone was identified.

Echo endoscopy did not reveal any stone in the biliary tract nor the presence of ascite. The pancreatic head was normal, and the thickened wall of the GB, suggesting cholecystitis.

At operation, a very large distended and gangrenous GB was found. The GB had rotated 180° counter clockwise. We performed a distortion and cholecystectomy.

The pathologic specimen showed transmural necrosis and haemorrhage of the GB without evidence of lithiasis (Fig. 1). Four days after the operation the patient was discharged with no complications.

Case 2

An 80-year-old woman was admitted to the emergency room with a one-day history of abdominal pain. She had a medical history of hypertension, myocardial infarction in 1997, unstable angina pectoris treated in 1998 by coronary stent placement, aspirin and hypotensive agents.

The abdominal pain had started as epigastric discomfort, which increased in intensity and then became more localised to the right lower quadrant. She had no nausea, no fever, no vomiting.

Physical examination revealed a thin woman, with no temperature, blood pressure 180/80 mmHg, and a pulse rate of 86 beats/min. The abdomen was mildly distended with a palpable mass and diffuse tenderness in the right lower quadrant. She presented with dextroconvex scoliosis. Haemoglobin was 15.2 g/dL, white blood cell count 14 290/mm³, C-reactive protein 1.9 mg/dL and there was no alteration of hepatic tests.
Computed tomography of the abdomen demonstrated a massive distension and a thickened GB wall containing only one stone. The examination of hepatic ducts was normal (Fig. 2). The diagnosis was acute cholecystitis and medical treatment was started with intravenous fluid, broad spectrum antibiotics and analgesics.

Progressively, we saw an aggravation of the clinical signs with pain in the right upper quadrant and muscle guarding, despite the analgesics and antibiotics.

White cell count was 13,000/mm³, C-reactive protein 28.8 mg/dl, serum total bilirubin 0.5 mg/dl, direct bilirubin 0.2 mg/dl, SGOT 146 IU/L, SGPT 80 IU/L, and alkaline phosphatase (ALP) 274 IU/L.

At laparoscopic procedure a volvulus of the GB was found with distension and gangrene (Figs. 3 & 4).

A distortion and cholecystectomy was performed. Postoperative pleural effusion was treated by aerosols and respiratory physical therapy.

**Discussion**

First reported by Wendel in 1898 (1), volvulus of the GB is a relatively uncommon phenomenon, with no more than 400 cases reported in the literature.

Eighty-five percent of GB volvulus cases occur between the ages of 60 and 80 years with a female-to-male ratio of 3:1 (2).

Volvulus is defined as a rotation of the GB on its mesentery along the axis of the cystic duct and cystic artery.
There are two types of anatomic anomaly to explain the volvulus.

The first may be related to congenital anomalies: abnormal migration with an absence of GB mesentery creating a free-floating GB.

The second is related to generalized visceroptosis (3), atrophy of the liver, loss of visceral fat and of elasticity with aging and weight loss. Spinal deformities constitute a predisposition to the torsion. Violent movements and intense peristalsis of the colon, duodenum and stomach can also induce torsion.

The importance of gallstones is unknown: approximately 70-80% of patients with torsion had no gallstones (5). Volvulus interferes with blood supply and bile flow. Consequently, GB wall thickens, then hydrops and finally gangrene develop.

Ultrasound studies often reveal a large floating GB without gallstones and thickened GB wall. Specific ultrasound signs seen with GB torsion include the presence of the GB outside its normal anatomic fossa, inferior to the liver or in a transverse orientation with an echogenic conical structure (6).

Computed tomographic scan provides similar diagnostic clues as ultrasonography: the presence of GB outside its fossa and inferior to the liver, pericholecystic fluid, and a massively distended GB with wall thickening (3-7).

Magnetic resonance imaging (MRI) findings include (on T1) high signal intensity in the GB wall, suggesting necrosis and haemorrhage.

Matsushashi et al have reported that magnetic resonance cholangio-pancreatography (MRCP) demonstrated a dilatation of the GB but detected no neck of the GB (8).

When torsion of the GB is suspected, an emergency laparoscopic cholecystectomy should be performed. Cholecystectomy is recommended for treating torsion of the GB. As the GB is minimally adhering to the liver bed, cholecystectomy can be performed easily (9).

Conclusion

GB torsion remains a benign pathology if diagnosed rapidly and treated appropriately. It is a surgical emergency. The principal differential diagnosis is cholecystitis. A pre-operative CT SCAN and MRCP can provide an important diagnostic clue. Using laparoscopy as diagnosis and treatment is better than open exploration.

References


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