

Uncommon cause of acute abdomen: volvulus of gallbladder with necrosis.

Case report and review of literature



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Gallbladder volvulus is a rare condition which can mimic an acute cholecystitis. This condition is characterized from a rotation of the gallbladder on its mesentery along the axis of the cystic duct and cystic artery. Preoperative diagnosis is difficult.

This is an acute surgical emergency that must be treated with immediate detorsion and cholecystectomy.

We report a case of acute gallbladder torsion in an elderly man and review the clinical aspects of the disease in the context of the available literature.

KEY WORDS: Acute abdomen, Gallbladder, Torsion, Surgery, Vulvulus.

Introduction

Volvulus of gallbladder is an uncommon cause of acute abdomen that is usually found at the time of exploration for an acute abdomen. It results from congenital or acquired anatomical abnormality of gallbladder in which the organ twists partially or thoroughly on its long axis with impairment of vascular supply^{1,2}. Preoperative diagnosis is always difficult³.

Gallbladder volvulus may occur in any age group, however the incidence is higher in elderly woman and appears most often with acute symptoms that may mimic an acute cholecystitis.

We report a case of acute gallbladder torsion in an elderly man and review the clinical aspects of the disease in the context of the available literature.

Case report

An 85 Years old man was transferred from a peripheral hospital to our Emergency Department with a two day history of colicky abdominal pain at the right upper quadrant, with localized peritonism and vomiting. He described a similar episode of this pain during the preceding month treated with non-steroidal anti-inflammatory (NSAIDs) and antibiotics. The past medical history was for aneurysmectomy for AAA, aortocoronary by-pass, myocardial infarction, atrial fibrillation, COPD, hypertension and a recent intervention for small-bowel adhesive obstruction and a median incisional hernia that was repaired with the insertion of a *Dual-mesh*.

On physical examination there were following vital signs: HR 110 b/min; BP 120/60; T 37,6; oxygen saturation 92% on air. The WBC was 16.620, LDH 260 U/L, Glucose 110; liver function tests were normal. Physical examination reveals gauntness, a palpable mass and tenderness in the right upper quadrant area with localized peritonism. Murphy sign was positive. Chest X Ray was unremarkable; abdominal X Ray showed right sided colonic faecal loading and excluded a perforation of hollow viscus. Abdominal US examination showed a distended gallbladder with thickened wall and fluid col-

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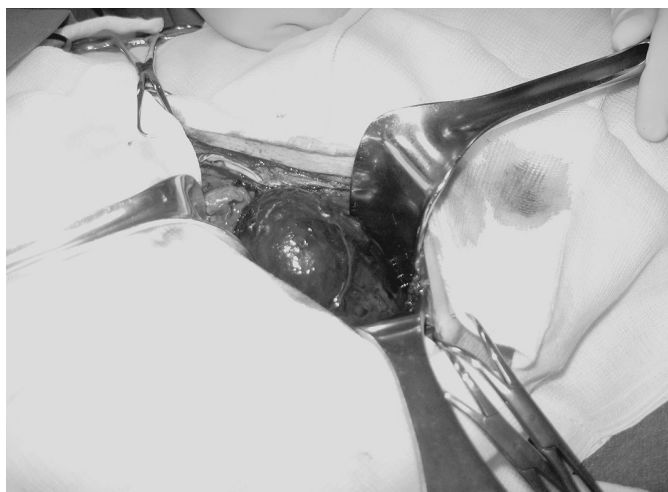


Fig. 1: Gallbladder Volvulus.

lection around the gallbladder. No stones were detected at US.

The patient underwent an urgent laparotomy, with preoperative diagnosis of acalculous cholecystitis with possible gangrene and perforation. We found the Kocher (right subcostal) incision because the patient had a median dual mesh for a previous incisional hernia. At laparotomy the gallbladder was distended and necrotic. It was completely rotated clockwise around its mesentery and there were no gallstones in gallbladder. Cholecystectomy was performed.

Histopathology was: "gallbladder completely disepitelized with hemorrhagic necrosis of the wall (A1-A2).

The patient was discharged on the fifth post-operative day.

Discussion

Gallbladder volvulus was recognized for the first time in 1898 when Wendell described a case in a 25 years old pregnant patient⁴. Since than more than 300 cases have been described in literature. True incidence is unknown: 85% of cases occur between the age of 60 and 80 years, with a female to male ratio of 3:1 in adults and of 1:4 in paediatric age group⁵⁻⁷.

The aetiology of gallbladder volvulus is unknown but many factors are important in pathogenesis. Exist two anatomic variants of the gallbladder anatomy that might undergo torsion: in one type there is a long mesentery that is prone to torsion; in the other type the mesentery supports only the cystic duct allowing motility of the gallbladder along its vertical axis. This condition may be congenital or acquired. There are many factors that contribute to non fixation of gallbladder to the inferior margin of the liver like the loss of fat and the atrophy of the tissues that may occur with advancing age that leaving the gallbladder hanging freely. Other precipitat-

ing factors for the torsion include increased or intense peristalsis of the neighboring organs (stomach, duodenum, colon) kyphoscoliosis of the spine, visceroptosis, atherosclerosis of the cystic artery^{5,8,9,10}.

The role of gallstones is debatable and approximately 20-33% of the patients with gallbladder volvulus have gallstones¹¹. Torsion of the gallbladder can be complete (>180°) with compromise of the blood supply to the organ, or incomplete (< 180°) that causes intermittent symptoms of biliary colic. The direction of the torsion may be clockwise or anticlockwise. Intense peristalsis of stomach or duodenum has been implicated in clockwise rotation, while peristalsis of transverse colon is implicated in anticlockwise rotation¹².

Preoperative diagnosis of gallbladder torsion is difficult because this condition can mimic an acute cholecystitis. Lau et al¹³ proposed a triple triads for a clinical diagnosis of a gallbladder torsion which includes patient's physical characteristic (elderly, thin, and deformed spine), symptoms (right upper quadrant abdominal pain, early onset of vomiting and a short history of symptoms) and physical signs (abdominal mass, a lack of toxaemia or jaundice and a discrepancy in the pulse and temperature).

Although patients typically present with acute onset of abdominal pain and have right upper quadrant tenderness. A palpable mass may be present in only 20 to 50% of patients and gallstones are found in only 20-33% of cases¹⁴. Differential diagnosis is with acute cholecystitis, but low frequency of fever and jaundice, absence of toxaemia and poor response to antibiotic therapy can help to differentiate¹⁵. Volvulus interferes with blood supply and bile flow. Therefore gallbladder wall thickening, hydrops and finally gangrene develop.

Instrumental studies may contribute to the diagnosis but are often non specific. An elevated white blood cells (WBC) count is a frequent finding; liver function tests are commonly normal¹⁶. US and CT studies often reveal a large floating gallbladder without gallstones and a thickened wall. Specific signs are the presence of the gallbladder outside its normal anatomic fossa, inferior to the liver or in a transverse orientation, a conical appearance of the neck with discontinuity of the lumen¹⁷⁻¹⁹. Wang²⁰ described a "bull's eye" image of gallbladder volvulus from the accumulation of radioactivity in the gallbladder on the hepatobiliary nuclear scan²⁰. MR Imaging findings include a high signal intensity within the gallbladder wall on T1 weighted images suggesting hemorrhagic infarction and necrosis²¹.

The presence of a large floating gallbladder away from normal anatomical location with gross wall thickening and without gallstones in an elderly woman with kyphosis, can be suggestive of gallbladder volvulus.

Early diagnosis prevents perforation of a gangrenous gallbladder and should result in a surgical mortality of less than 5%¹⁴. Although detorsion and pexis have been described, the surgical treatment is cholecystectomy²². Evacuation of gallbladder may be necessary to allow

grasping with instruments. Detorsion of the gallbladder must be precocious to prevent injury to the bile duct. Laparoscopic cholecystectomy is now recommended at the first choice: it has the benefit of confirming diagnosis and early postoperative recovery²³. Furthermore the presence of a long mesentery and the separation of the gallbladder from its liver bed, usually makes laparoscopic approach much easier than in the case with the ordinary cholecystectomy. Our patient had an open surgery because his clinical condition were seriously compromised and a laparoscopic approach was dissuaded. Prognosis for the gallbladder volvulus is in function of the general condition and the rapidity of operation. It is currently generally good²⁴.

Conclusions

Gallbladder Volvulus is a rare cause of acute abdomen that mimics cholecystitis with fails to improve by conservative treatment. The torsion can alter the blood supply to the gallbladder, induces necrosis and can complicate with perforation and peritonitis. The surgeon should have high index of suspicion for volvulus of gallbladder in elderly patient with signs of acalculous acute cholecystitis and proceed with prompt surgical treatment. Cholecystectomy in emergency is recommended and prevents complications.

Riassunto

Il Volvolo della Colecisti è una condizione piuttosto rara che può simulare, nella sua manifestazione clinica, una colecistite acuta. Tale patologia è caratterizzata da una rotazione della colecisti attorno al proprio asse rappresentato dal dotto cistico e dall'arteria cistica. La diagnosi preoperatoria è piuttosto difficoltosa. Si tratta comunque di una patologia che richiede un trattamento chirurgico d'urgenza, mediante derotazione e colecistectomia, dal momento che comporta la sofferenza vascolare del viscere ed il rischio di una peritonite.

Abbiamo riportato il caso di un uomo di 85 anni, giunto alla nostra osservazione in urgenza da un ospedale di periferia, con diagnosi di addome acuto destro, che è stato sottoposto ad intervento chirurgico urgenza nel sospetto, agli accertamenti preoperatori ed in base alla clinica, di una colecistite acuta alitiasica. Il paziente presentava in realtà un volvolo della colecisti, ed è stato sottoposto ad intervento di colecistectomia.

La colecistectomia rappresenta il trattamento di scelta in caso di un volvolo della colecisti.

Esistono alcuni segni clinici ed agli esami strumentali che possono indirizzare il chirurgo ad effettuare una corretta diagnosi preoperatoria, ma non sempre ciò è possibile come anche dimostrato da una revisione della letteratura disponibile.

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