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GI IMAGE

Torsion of the Gallbladder

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Case Presentation

An 86-year-old woman with no medical history of interest was admitted in the emergency room for the second time in 24 hours, referring diffuse abdominal pain and fever for the last 48 hours.

In her first visit to the emergency room, computerized tomography showed only distension of the gallbladder with no visible thickening of the wall (Fig. 1a). In her second visit, during physical examination, the patient referred abdominal pain focused on the right upper quadrant with unclear Murphy's sign. Patient was apyretic, and the only alteration reflected in the blood tests was a slight leucocytosis (10.710/μl) with increased percentage of neutrophils (88.1 %).

Abdominal ultrasound showed a distension of the gallbladder, with a 7.6-mm thickening of its wall, absence of gallstones, and inconclusive sonographic Murphy's sign. Radiologic findings were compatible with acalculous cholecystitis (Fig. 1b).

Under general anesthesia, exploratory laparoscopy was performed. The gallbladder was distended, and extremely congestive, with a 360° mesentery torsion and presented minimal peritoneal attachment to the liver bed (Fig. 2). Detorsion of the gallbladder and cholecystectomy was performed without difficulty.

The patient had an uneventful postoperative period, and she received discharge 36 hours after surgery, and the pathology report of the surgical specimen was ischemic hemorrhagic necrosis of the totality of the gallbladder wall.

Discussion

Gallbladder torsion (GT) is an infrequent condition, with only 500 cases reported in the literature ever since first described by Wendel in 1898, and is more frequent in female patients (ratio 3:1) between the ages of 60–80 years (80 % occur within this age range).[1]

Several factors have been described in the etiopathogenesis of this pathology: a redundant gallbladder mesentery that allows it to spin on its own axis and low visceral fat. Another factor, visceroptosis, refers to the relaxation and atrophy of a previously normal mesentery, which can be physiological in elderly patients (as in this case). GT has also been correlated to an increased peristalsis in the stomach, duodenum, and colon. Krukenberg emphasizes the importance of the "wandering gallbladder," in which the gallbladder floats totally free, attached only to the bile duct by its mesentery, not presenting any other bond to the liver,

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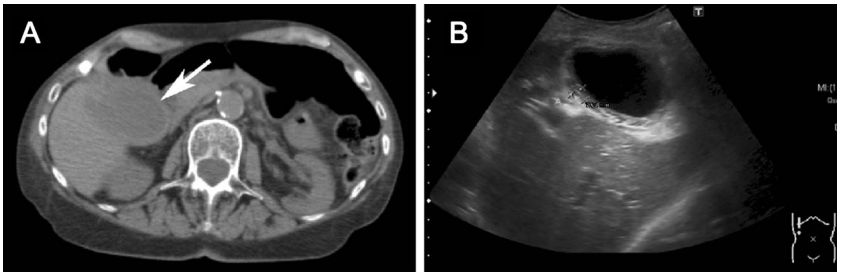

Fig. 1 **a** Computerized tomography showing distension of the gallbladder with no visible thickening of the wall (*arrow*). **b** Abdominal ultrasound showing a distension of the gallbladder, with a 7.6-mm thickening of its wall and absence of gallstones, compatible with acalculous cholecystitis

described as "fruit hanging from its branch." Lastly, GT has been related to kyphoscoliosis and cystic artery atherosclerosis. Gallstones do not seem to be a factor in its etiology, as only 24 % of reported cases presented gallstones in the bile ducts.

The final consequence of the torsion in the gallbladder pedicle is a decrease in blood perfusion which eventually leads to ischemia and gangrene.

Clinical history and physical examination cannot differentiate between cholecystitis and gallbladder ischemia, as there are no specific signs or symptoms. Lau[1] describes the triple triad of the GT based on the patient's characteristics, signs, and symptoms (Table 1).

Despite different imaging methods can suggest the existence of a pathologic gallbladder, an accurate diagnosis of GT is still extremely complex. Upon suspicion of acute cholecystitis, echography is usually the preferred diagnostic test, saving CT for cases in which bile duct or head of the pancreas pathology is suspected. In these cases, echography presents low sensitivity, making CT the preferred diagnostic test. Nevertheless, this test only confirms GT preoperatively in 10 % of reported cases. Merine et al. consider specifically the radiological finding of distended gallbladder, similar to a bowel loop with high attenuation, presenting a circular structure to the right of the gallbladder. Another theoretically valid test for the diagnosis of this condition is the doppler-color ultrasonography, as the presence of blood flow discards the diagnosis.[2]

The best therapeutic option is gallbladder detorsion and cholecystectomy. Several cases have been reported in which patients were misdiagnosed with acute cholecystitis and thus treated with conservative measures obtaining poor results. Invariably, these patients required surgical treatment for confirmation and resolution of the pathology.[2] Cholecystectomy in these cases is generally simple, due to anatomic characteristics, as the gallbladder is detached ("wandering gallbladder"), and/or with lax or absent mesentery. Radiologically guided gallbladder puncture may be a therapeutic option in patients with high surgical risk. Mortality of early cholecystectomy in GT cases is 3 %, whereas if treatment is delayed, the natural progression is to perforation and bile peritonitis, increasing mortality up to more than 5 %.[3]

Laparoscopic cholecystectomy is recommended against open cholecystectomy, due to its lower morbidity and overall shorter hospitalization period.

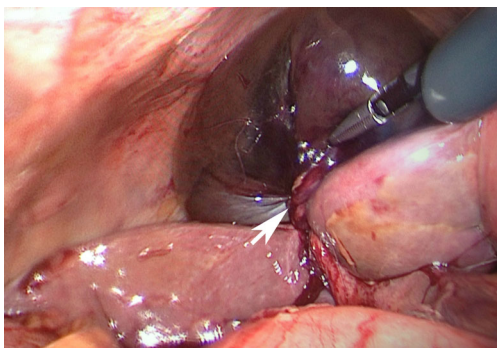

Fig. 2 Distended and ischemic gallbladder and 360° mesentery torsion (*arrow*)

Table 1 Triple triad used to recognize potential gallbladder volvulus

Appearance	Thin habitus	Elderly (usually female)	Spinal deformities
Symptom	Sudden onset	Right upper quadrant pain	Early emesis
Physical examination	Palpable right upper quadrant mass	Non toxic presentation	Pulse-temperature discrepancy

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