LETTER /Digestive

Symptomatic diffuse adenomyomatosis of the gallbladder with subserosal inflammatory sclerolipomatosis: Imaging findings

Keywords Gallbladder adenomyomatosis; High-resolution ultrasound; Multidetector computed tomography

Dear Editor,

Symptomatic gallbladder adenomyomatosis (GA) rarely needs surgery. However, this condition may be associated with subserosal inflammation thus mimicking actual acute cholecystitis. We report herein a case that illustrates the role of high-resolution ultrasound and MDCT in the differential diagnosis.

A 58-year-old woman presented with recurrent epigastric pain and vomiting during the preceding 12 hours. Blood tests revealed a C-reactive protein serum level of 25 mg/L (normal < 5 mg/L). Abdominal ultrasound showed a diffuse circumferential thickening of the gallbladder with stratification (Fig. 1). The inner layer was made of multiple intramural cysts containing crystals or stones appearing as hyperechoic foci and responsible of typical shadowing and/or reverberation artifacts. A single stone was visible within the lumen. Diffuse adenomyomatosis was suspected

![Figure 1](image1.png)

**Figure 1.** Comparison of transverse sections through the gallbladder adenomyomatosis obtained during conventional ultrasound (a), high-resolution ultrasound (b and c), high-resolution contrast-enhanced MDCT (d), gross anatomy (e) and histology (f). The lumen is narrowed (white star). The thickened internal layer that shows enhancement on MDCT image (d) is constituted by multiple "cysts" (white arrows) intermixed with a thickened muscular layer. Fresh specimen is stained in green by bile (e). The typical anechoic (b and c) and hypo-attenuating cysts (d) contain concretions of cholesterol that appear as hyperechoic foci generating typical shadowing and/or reverberation artifacts on US (black arrows on a to c), very hypo-attenuating foci on MDCT (black arrows on d), as brown crystals on histologic views (black arrow on f). The external layer (black star on all views) is constituted by chronic inflammatory subserosal fibrolipomatous tissue.
but the presence of an external, hyperechoic layer justified complementary MDCT (Fig. 2). High-resolution MDCT images confirmed multiple wall cysts. Some of them contained markedly hypo-attenuating foci suggestive for stones or crystals of cholesterol. The peripheral layer mimicked inflammatory fat stranding. The association with symptoms and a mild biological inflammatory syndrome justified laparoscopic cholecystectomy. During laparoscopy, the external appearance of the gallbladder was normal (Fig. 3) but after resection fresh sections and histologic views showed a thickened gallbladder wall, which contained multiple circumferential ‘‘cysts’’. Some of them contained dark brown concretions of cholesterol. Histologically, the peripheral layer was made of chronic, subserosal inflammatory fibrolipomatosis.

GA is a common, benign, non-inflammatory hyperplastic disease of the gallbladder wall found in up to 8.7% of cholecystectomy specimens [1–3]. Most patients are asymptomatic although cholelithiasis (25–75%) and cholesterolosis (33%) frequently coexist with no proven causative relationships [4–6]. To date, GA has no potential for malignant transformation so that prophylactic surgery is controversial [2]. However, a few patients with GA may present with symptoms mimicking cholecystitis and thus undergo cholecystectomy [4]. GA has three variants. The diffuse variant with widespread gallbladder wall involvement is the rarest (2%). The segmental variant is the most common (63, 5%). The focal variant (34, 5%) shows a crescentic or rounded wall thickening usually always affecting the fundus. Massive, subserosal chronic inflammatory fibrolipomatosis as observed in our patient has been sporadically described in GA [3]. This condition mimics inflammatory fat stranding. However, most reports of GA did not specifically describe this abnormality of the external subserosal layer [5]. High-resolution ultrasound has undisputable advantages over MDCT and MR imaging for the detection of cholesterol crystals or stones [6]. They are classically not visible on MDCT because they do not contain calcification. Some of these crystals were nevertheless spontaneously visible in our patient.

Figure 2. MDCT image along the main axis of the gallbladder (a and b) and histopathological view of the resected gallbladder wall (c) from the mucosa (white star) to the subserosal fibrolipomatosis (black star). The ectasic mucosal ‘‘cysts’’ contain concretions of cholesterol (arrow on b), which appear as markedly hypo-attenuating spots (black arrows) on MDCT (arrows on a and b). The distal corpus of the gallbladder contains a nearly isoechic solitary stone (small black arrow on a) and the infundibulum is free from adenomyomatosis (white asterisk). The gallbladder is surrounded by a thick subserosal inflammatory fibrolipomatous layer (black star on c), which does not have the typical attenuation value of normal fat (black stars) and is therefore difficult to distinguish from inflammatory fat stranding.
Figure 3. a: laparoscopic view reveals a nearly normal appearance of the gallbladder (star); b: fresh section shows markedly thickened wall (black star) containing multiple circumferential “cysts” (white arrows). Some of these contain dark brown concretes of cholesterol (black arrow). Single gallbladder stone is confirmed (asterisk).

Disclosure of interest

The authors declare that they have no competing interest.

References


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