CASE PRESENTATION

A 50-year-old obese woman was evaluated for episodic pain in the right hypochondrium. Physical examination of the patient was unremarkable. Ultrasonography (US) (Fig. 1) and computed tomography (CT) (Fig. 2) were performed during the initial evaluation. Magnetic resonance (MR) imaging (Fig. 3) was subsequently performed. What do the US, CT and MR imaging show? What is the diagnosis?
adenomyomatosis not associated with cholelithiasis cause right upper quadrant pain. Adenomyomatosis consists of three types: focal, segmental and diffuse. Segmental adenomyomatosis has a higher risk of developing into gallbladder carcinoma, especially in the fundal region of elderly patients. Nabatame et al reported a higher incidence of epithelial metaplasia in the fundal mucosa of segmental adenomyomatosis than in the neck mucosa. This finding explains the risk of increased carcinogenesis in the fundal mucosa of segmental adenomyomatosis.

US is a sensitive modality for the diagnosis of gallbladder adenomyomatosis, but this method has a high interobserver variability because of its dependence on the operator’s skill. On US, adenomyomatosis is seen as a diffuse or segmental thickening of the gallbladder wall with reverberation artifacts (comet tails). Reverberation artifacts are produced when the sound reverberating within each fluid space (Rokitansky-Aschoff sinuses) echo repeatedly off the gallbladder wall. The use of CT and MR imaging for the diagnosis of gallbladder adenomyomatosis has also been described. On CT, a thickened gallbladder wall is observed, along with intramural fluid attenuation and non-enhancing areas suggestive of Rokitansky-Aschoff sinuses within the wall. MR imaging not only helps in definitive diagnosis of adenomyomatosis by confirming the presence of Rokitansky-Aschoff sinuses, but also differentiates it from gallbladder carcinoma. On MR imaging, diffuse adenomyomatosis displays features of the “pearl necklace sign”. The original description of the visualisation of the “pearl necklace sign” was made on MR cholangiopancreatography, and was described by Haradome et al. The sign is described as small, rounded, high signal intensity foci representing Rokitansky-Aschoff sinuses within the thickened wall of gallbladder. This sign is highly specific for adenomyomatosis.

Abdominal pain is a condition benign hyperplasia of unknown aetiology, characterised by local thickening of the muscular layer, intramural fluid attenuation and non-enhancing areas suggestive of Rokitansky-Aschoff sinuses. Magnetic resonance imaging features are specific and help in the definitive diagnosis of this condition. A 50-year-old obese woman presented with episodic pain in the right hypochondrium. Ultrasonography, computed tomography and magnetic resonance imaging showed typical features of adenomyomatosis, which
was subsequently confirmed by laparoscopic cholecystectomy.

**Keywords:** adenomyomatosis, gallbladder, Rokitansky-Aschoff sinuses

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**REFERENCES**


Multiple Choice Questions (Code SMJ 20083B)

Question 1. Adenomyomatosis:
(a) Is a benign condition. 
(b) Is mostly observed in children. 
(c) May be seen in up to 50% of cholecystectomy specimens. 
(d) Is symptomatic in the majority of patients.

Question 2. Regarding the diagnosis of adenomyomatosis:
(a) Ultrasonography is a sensitive modality. 
(b) Ultrasonography has a high interobserver variability. 
(c) Comet tail artifacts are typically seen on ultrasound. 
(d) MR imaging helps in differentiation from gallbladder carcinoma.

Question 3. The “pearl necklace sign”:
(a) Is observed on ultrasonography. 
(b) Represents Rokitansky-Aschoff sinuses. 
(c) Is highly specific for adenomyomatosis. 
(d) Has been described on computed tomography.

Question 4. Regarding adenomyomatosis:
(a) It is a congenital condition. 
(b) Three subtypes have been described. 
(c) Diffuse variety has a higher risk of malignancy. 
(d) Malignancy is commonly observed in young patients.

Question 5. Rokitansky-Aschoff sinuses:
(a) Represent mucosal proliferation with invagination into the thickened muscular layer. 
(b) Are seen as intramural fluid attenuation areas on computed tomography. 
(c) Are observed on MR imaging as small, rounded, low signal intensity foci in the gallbladder wall. 
(d) Are more prominent on MR imaging done in the fasting state.

Doctor’s particulars:
Name in full: ____________________________ Specialty: ____________________________
MCR number: ____________________________ Email address: ____________________________

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(1) Log on at the SMI website: http://www.sma.org.sg/cme/smj and select the appropriate set of questions. (2) Select your answers and provide your name, email address and MCR number. Click on “Submit answers” to submit.

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