

Clinical-Medical Image

Xanthogranulomatous Cholecystitis: Role of High Resolution Ultrasound (HRUS) in the Diagnosis

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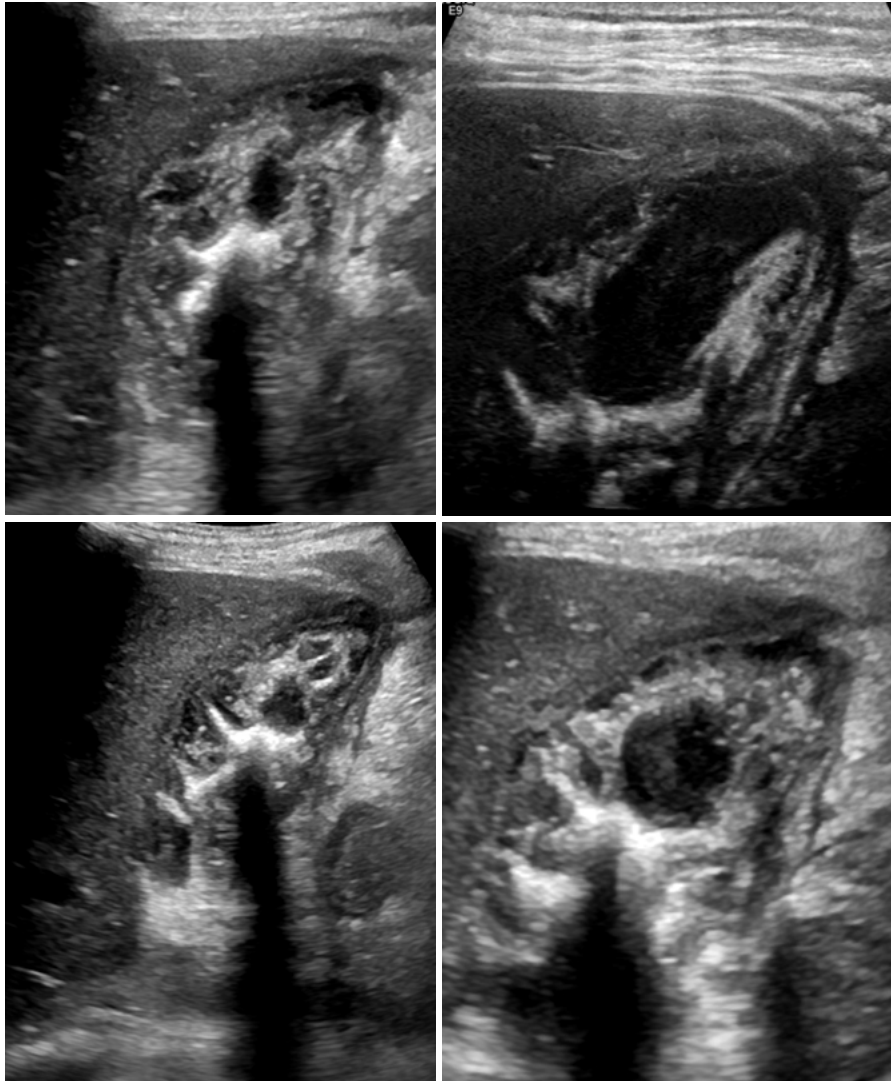


Figure 1: Ultrasound images of Xanthogranulomatous cholecystitis.

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Mr. MB is a 51-year-old male presenting upper right quadrant pain with mild sign of jaundice, fever, and a clinical picture suggestive of gallbladder disease. A blood panel revealed an elevation of white blood cell count (WBC) at 20,000 μ L. C-reactive protein was found to be 60

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mg/L. Liver function tests (LFTs) showed elevated alkaline phosphatase (ALP), gamma-glutamyl transferase (GGT) and total bilirubin, each respectively at: 152 U/L, 71 U/L and 1.8 mg/dl. An abdominal ultrasound was performed which showed that the margin between the gallbladder lumen and mucosa was underlined with hyperechoic foci with and without comet-tails. Additionally, there were irregular hypoechoic intramural nodules distributed in a parallel fashion inside the wall of the gallbladder separated by hyper-echoic lines also known in literature as the 'palisade presentation; a radiological hallmark of xanthogranulomatous cholecystitis. Multiple macro gallstones along with a 10 mm thick gallbladder wall were also observed among the lesions (the largest measuring 20 mm by 05 mm). A biopsy was performed to further confirm the diagnosis and which came back positive [1,2].

Xanthogranulomatous cholecystitis (XGC) is a scarce subtype of cholecystitis, distinguished by the accumulations of xanthogranulomas within the gallbladder wall thus responsible for its thickening and the destruction of its normal architecture [3]. It can lead to symptoms such as biliary colics, fever and jaundice. Due to the rarity of XGC and its ability to imitate other inflammatory infections of the gallbladder, it can be extremely difficult to diagnose. The diagnosis of XGC is usually confirmed through pathological findings. High resolution ultrasound (HRUS) has been the catalyst for detailed sonography images reflecting the micro-architecture of the soft tissues and structures within the body. The predictive accuracy of HRUS has been challenged in differentiating between gallbladder cancer and other inflammatory affluences of the gallbladder. First Kim and al in 2013 concluded that some ultrasonic characteristics of XGC can facilitate the differential diagnosis between XGC and GBC including smooth mucosa, small hypo-echoic nodules, hyper-echoic foci vs. an irregular mucosa, no inner wall nodules found in early stages of GBC before any malignant expansion at expense of the liver parenchyma [1,2]. Secondly Fan Zhang and al. in a 2019 found that based on all those features, now depicted thanks to HRUS, the positive predictive value in diagnosing XGC is around 75% with a 100% negative predictive value in radiologically setting apart XGC and GBC [1] (Figure 1).

The introduction of HRUS is a valuable tool in the diagnosis of XGC, and that by providing images with higher resolution and greater detail than traditional ultrasound. Therefore HRUS helps avoiding inappropriate management of the condition by decreasing the rate of unneeded cholecystectomies performed in patient with a false GBC diagnostic tag. Lastly, multiple AI models based on CT and MRI radiological features and diagnostic prediction of XGC showed good accuracy for the preoperative discrimination of XGC and GBC [4].

Keywords: Xanthogranulomatous cholecystitis; Ultrasound; HRUS

Conflict of Interest

None of the authors has any conflicts of interests to disclose.

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