Giant Gall Bladder Stone Mimicking as a Gall Bladder Mass: A Diagnostic Challenge Between Gall Bladder Carcinoma and Xanthogranulomatous Cholecystitis

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ABSTRACT

Giant gallstones, although a rare phenomenon, pose significant diagnostic challenges, particularly when they mimic gall bladder carcinoma (GBC). Gallstones larger than 5 cm or weighing over 70 g are categorized as giant gallstones and are often associated with increased risk for conditions such as GBC, Mirizzi's syndrome, and xanthogranulomatous cholecystitis (XGC). This case report presents a woman in her mid-40s with symptomatic gallstone disease, where preoperative imaging and elevated serum CA 19-9 levels raised suspicion of GBC. However, intraoperative findings revealed a giant gallstone mimicking a gallbladder mass, with subsequent histopathology confirming XGC. This case highlights the complexities in distinguishing between GBC and XGC due to their overlapping clinical presentations and imaging findings. It underscores the importance of thorough radiological evaluation and high clinical vigilance in managing such cases, as early and accurate diagnosis is crucial for determining the appropriate surgical approach and optimizing patient outcomes.

Keywords: Giant gallstones, Xanthogranulomatous cholecystitis, Gall bladder cancer.

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INTRODUCTION

Gallstone disease (GSD) is the most common pathology of the gall bladder. Not infrequently, one may encounter abnormal wall thickening or a mass lesion in the gall bladder during imaging that may or may not be associated with stones. Gallbladder stones that are more than 5 cm in their largest dimension or weigh 70 g or above are considered to be giant gallstones.[1] The size of gallstones is an important consideration in terms of the management of cholecystolithiasis and its complications or associated conditions. Stone sizes more than 3 cm carry a higher risk for gall bladder cancer (GBC), Mirrizi's syndrome, xanthogranulomatous cholecystitis (XGC) and gallstone ileus.[2]

Such gallbladders with large stones should be operated even if asymptomatic and surgeons must be aware of the associated conditions with such giant/large gall stones.

Here, we present a case of a woman in her mid-40s who clinically appeared to be symptomatic gallstone disease. The radiological appearance in CT scan and raised serum CA 19-9 suggested a GB mass, raising suspicion of GBC. However, intraoperatively, it was a Giant GB stone that mimicked a GB mass. Histopathology suggested XGC.

Case Report

A woman in her mid-40s presented to us as a complained of dull, aching pain in the right hypochondrium for last 6 months without any associated fever or jaundice. She also complained of unintentional weight loss of 7 kg in the last 1.5 months. She was a hypertensive lad with no other known comorbidities.

On examination, she was of average build and hemodynamically stable, with unremarkable general and systemic examinations. The abdomen was soft and non-tender. No hepatomegaly or any GB lump could be appreciated.

Her blood laboratory reports included Hb of 10 g/dl, TLC of 6000/mm^3, total serum bilirubin of 0.8 mg/dl, ALT of 35U/L, ALP of 110U/L, serum creatinine of 0.59 mg/dl, serum albumin of 2.8 g/dl Serum CA 19.9 of 188.89 U/mL.

Ultrasonography abdomen suggested a contracted gall bladder studded with multiple stones with irregular thickened GB walls up to 4 mm.

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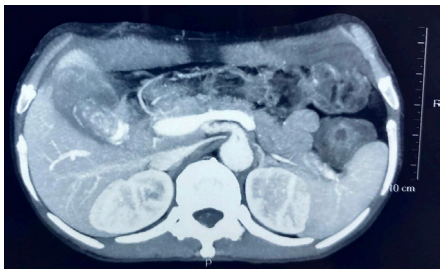

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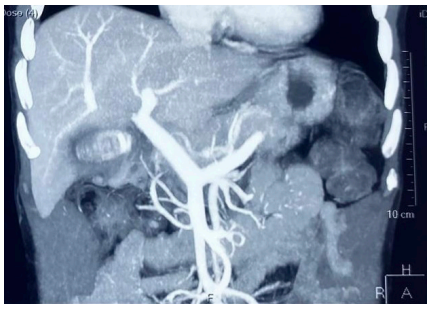

B

Figure 1: CECT triple phase

CECT triple phase (Figures 1 A and B) was suggestive of multiple gall bladder stones largest being 40 × 27 mm with asymmetrically thickened gall bladder wall maximum upto 6 mm with multiple breaches at GB fundus region with intact adventitia, ill-defined fat planes of GB with duodenum and hepatic flexure of the colon. There were few sub-centimetric periportal lymph nodes. Liver parenchyma was normal with normal porta hepatis.

A preoperative diagnosis of resectable GBC with cholelithiasis was made and the patient was planned for radical cholecystectomy. Intraoperatively, we found a large single stone of size 5 x 6 cm occupying the entire lumen of the gallbladder, giving the appearance of a mass with apparently normal mucosa with uniform wall thickening of GB. The liver was grossly normal. Dense adhesions were present with duodenum and omentum which were taken care of with sharp dissection. A simple cholecystectomy was done and the gallbladder was sent for a frozen section, which was negative for malignancy.

The retrieved gallstone measured 5×2.5×3 cm and weighed 50 g (Figure 2).

Her intraoperative and post-operative periods were uneventful.

She was discharged on POD 7 with a healthy stitch line and full recovery.

Final histopathological analysis of the gall bladder specimen revealed chronic cholecystitis with areas of xanthogranulomatous inflammation and the absence of any atypia or malignancy (Figures 3-5).

DISCUSSION

Although GSD is the most common pathology of gall bladder,[3] giant gallstone is a very rare occurrence and there is a paucity of literature about it.[1]

Figure 2: Retrieved gallstone

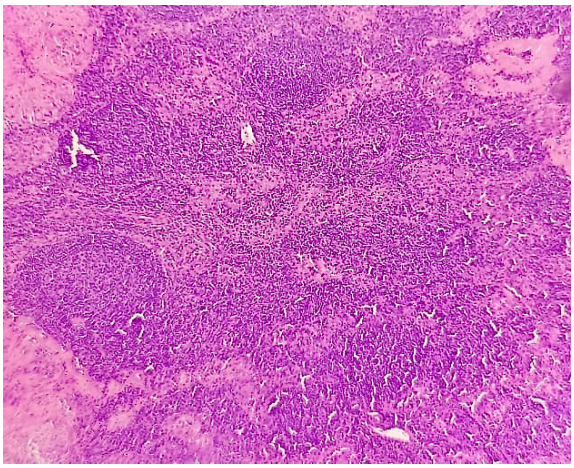

Figure 3: Proliferative fibrosis in the background of chronic active inflammation)

Stones that are greater than 5 cm in their widest diameter or weigh more than 70 g are categorized as giant gallstones.[4]

As far as presentation to the clinic is concerned, 60 to 80% of gallstones are found incidentally on routine abdominal ultrasound and are asymptomatic.[5] Symptomatic gallstone disease may present as cholecystitis, biliary duct obstruction, acute pancreatitis, or gallstone ileus, depending upon their location.[6] Giant gallstones can also be associated with Mirrizi's syndrome, XGC and GBC. Each entity of this wide spectrum of presentation of GSD has different management protocols.

Radiology plays an important role in diagnosing and planning the management of this wide disease spectrum.

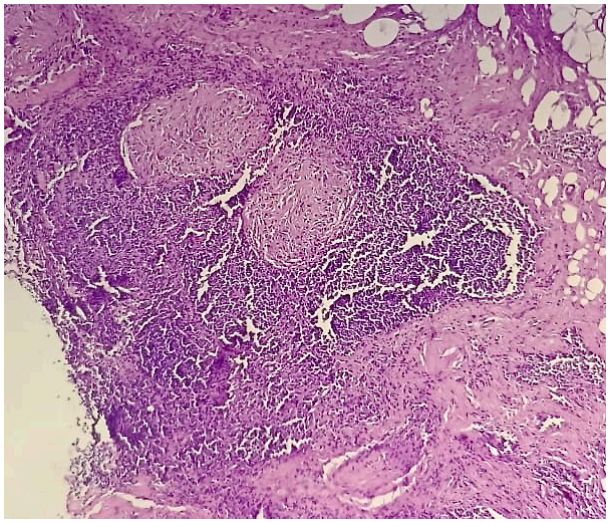

Figure 4: Transmural inflammation

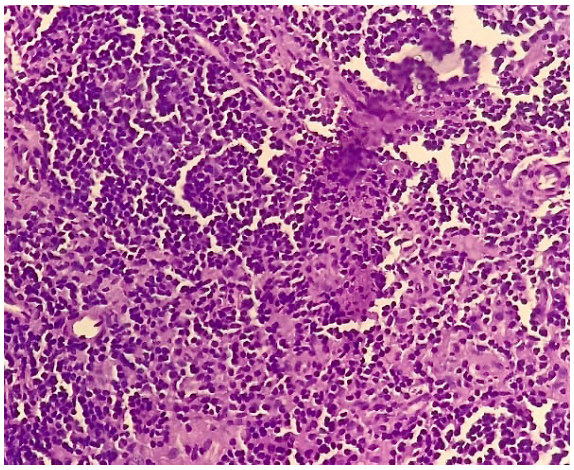

Figure 5: CI cells comprising plasma cells, lymphocytes along with a few neutrophils, eosinophils and foamy histiocytes

Ultrasonography has a sensitivity of 90 to 95% in detecting and assessing stone burden, GB wall thickness, CBD status and any other associated complication.[7] Contrast-enhanced CT scans and MRCP, though not routinely performed in stone disease, are helpful in assessing and ruling out conditions like choledocholithiasis, pancreatitis, Mirizzi's syndrome, XGC and GBC that may be suggested during US.[7]

In our case, there was suspicion of GBC because of the demographics, recurrent history of cholecystitis, large stone size, the raised value of serum CA 19-9, endemicity of the disease and features of impending rupture of GB in CT scan and hence proceeded with a plan of radical cholecystectomy. Intraoperatively on palpating the GB mass, it was a giant gallstone with no signs of wall rupture. The cut section showed uniform wall thickening with no obvious growth.

XGC is one of the GBC mimics owing to confusing diagnosis. Hence, the consulting surgeon must be aware of the various differentials of such lesions while managing such patients.

The differential diagnosis of xanthogranulomatous cholecystitis (XGC) and gallbladder cancer (GBC) can be challenging due to their shared clinical and demographic features. Both conditions predominantly affect women in their sixth and seventh decades and are associated with gallstones and chronic inflammation. The presentation of both XGC and GBC can be nonspecific, with symptoms such as biliary colic, acute and chronic cholecystitis, and jaundice, although the latter is often a harbinger of a poorer prognosis in GBC. The similarity in presentation highlights the need for rigorous diagnostic evaluation to accurately distinguish between these two entities."[8]

The incidence of XGC ranges from 0.7 to 13.2% of all cholecystitis cases.[9] It is a rare condition that involves focal or diffuse destruction of GB wall due to penetration of bile through the ruptured Rokitansky-Aschoff sinuses or mucosal ulcerations.[10] This bile infiltration incites an acute inflammation that results in an intense granulomatous response.[10]

It creates macroscopic thickening of the gallbladder wall that closely resembles carcinoma formation and causes a fibrous reaction and scar formation, which is responsible for the gross adhesions to surrounding tissues, thus closely resembling GBC on imaging and also rendering surgical dissection to be significantly difficult.[11]

In our case, it was the giant gall bladder stone that gave the appearance of GB mass in imaging and the intense inflammatory process of XGC resulted in the formation of dense adhesions to the duodenum and hepatic flexure of the colon.

Depending upon the variety of the lesion, the treatment strategy changes significantly ranging from simple cholecystectomy in benign lesions to radical resections in GBC. Early diagnosis of the GBC is important for curative treatment, considering its poor prognosis at advanced stages.

CONCLUSION

This case underscores the complexity of diagnosing and managing gallbladder pathologies, particularly when distinguishing between xanthogranulomatous cholecystitis (XGC) and gallbladder cancer (GBC). The presence of a giant gallstone, although rare, can further complicate the clinical picture, mimicking malignancy and leading to extensive surgical procedures. The significant overlap in clinical presentation and imaging findings between XGC and GBC necessitates careful evaluation and a high index of suspicion to avoid misdiagnosis. Radiological imaging, particularly ultrasonography, CT scan, and MRCP, plays a crucial role in guiding the management approach. Awareness of the differential diagnoses and their respective management protocols is essential for optimizing patient outcomes, especially in regions with a high prevalence of gallbladder disease. Early and accurate diagnosis remains paramount, as it directly influences the treatment strategy and prognosis, particularly in cases suspected of malignancy.

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