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Case Report: Xanthogranulomatous Cholelithiasis - Diagnostic Challenge with Significant Surgical Complexity

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ABSTRACT

Xanthogranulomatous cholecystitis (XGC) with cholelithiasis (gallstones) is a rare, benign, but aggressive form of chronic inflammation that often misdiagnosed as gallbladder cancer due to significant wall thickening that mimics malignancy on imaging (CT, MRI, Ultrasound). It often creates significant challenges in making an accurate diagnosis because its clinical features and imaging findings closely resemble those of gallbladder carcinoma. This case report of a lady in mid-eighties whose laparoscopic cholecystectomy was markedly complicated by dense adhesion and distorted anatomy. A definite diagnosis could only be made after a detailed histopathology examination that showed the typical characteristics of XGC. This case report emphasizes the diagnostic complexity, the essential role of histopathology, and the significant surgical challenges encountered during management.

Keywords: Xanthogranulomatous cholecystitis with cholelithiasis, laparoscopic cholecystectomy, histopathology, diagnostic complexity, surgical challenges.

INTRODUCTION

Xanthogranulomatous cholecystitis (XGC) with cholelithiasis is a rare but severe type of chronic gallbladder inflammation. It is characterized by yellow, fat-filled immune cells and fibrous tissue that thicken the gallbladder wall. Its clinical and radiological features closely resemble gallbladder cancer, it often leads to extensive gallbladder surgery. This also remains a risk factor for converting laparoscopic to open cholecystectomy. This is frequently misdiagnosed, and a definitive diagnosis can only be made through postoperative histopathological examination. Clinically, it presents like typical cholecystitis, with right upper abdominal pain and gallstones. Here we present a case report of a lady who operated in our hospital after the diagnosis of S/P Acute Cholecystitis later found to be Xanthogranulomatous cholecystitis (XGC) with cholelithiasis. The main aim of this case report is to emphasizes the diagnostic complexity, the essential role of histopathology, and the significant surgical challenges encountered during management.

CASE REPORT

A lady in her mid-eighties, presented with a history of right upper abdominal pain, vomiting, fever six months earlier. Initially showed at a local hospital, and underwent USG abdomen which was reported as Cholelithiasis and managed conservatively. Her symptoms had recurred intermittently hence prompting surgical referral for the definitive management. She has a medical history of Dementia. The general examination and her vital signs such as pulse rate, blood pressure and oxygen saturation levels were within normal limits. There is no sign of jaundice. Routine blood investigations were unremarkable, and Pre-Anesthetic Checkup clearance was obtained prior to surgery.

Operative Findings and Surgical Difficulties

She underwent Laparoscopic cholecystectomy under GA, the intraoperative and postoperative periods were uneventful. During procedure, dissection of Calot's triangle required meticulous and prolonged adhesiolysis using Ligasure and blunt dissection. Identification of the cystic duct and artery was arduous due to fibrosis and the distorted anatomy. After obtaining the critical view of safety, the cystic artery was coagulated and clipped, and the unusually wide cystic duct was secured with three large clips before division.

The gallbladder was eventually separated from its fossa and retrieved in an endobag. A drain was placed, and hemostasis secured. The operation was successfully completed laparoscopically without conversion, despite the extreme difficulty.

The surgery was significantly difficult due to:

Massive, dense adhesions between the omentum, liver, and entire gallbladder surface Severely distorted Calot's anatomy, complicating identification of key structures Markedly thickened gallbladder wall suggestive of chronic inflammatory pathology Abnormally wide and anatomically distorted cystic duct Persistent active inflammation and post-inflammatory adhesions Minimal visualization of the CBD on ICG imaging due to intense inflammatory signal interference Nassar Difficulty Grade 4, indicating severe operative complexity These features closely mirrored findings often seen in gallbladder malignancy, reinforcing the difficulty in establishing a definitive preoperative diagnosis.

Later on, the histopathological study of the excised specimen revealed the hallmark features of XGC with lithiasis: sections from gall bladder show mucosa lined by columnar epithelium with areas of erosion. Rokitansky Aschoff sinuses noted. Lamina propria shows inflammatory infiltrates composed of lymphocytes, plasma cells and occasional neutrophils. Numerous foamy macrophages infiltrating the muscularis layer congested and ectatic blood vessels, area of hemorrhage and hemosiderin laden macrophages also noted. Focal lymphoid aggregates and occasional multinucleated giant cells seen. This all confirming a rare pathological entity that corresponded precisely with the difficulty and the distorted intraoperative anatomy.

GROSSING

Figure 1 – Resected gallbladder specimen

MICROSCOPIC

Figure 2 – Hemocedral macrophages and foamy macrophages

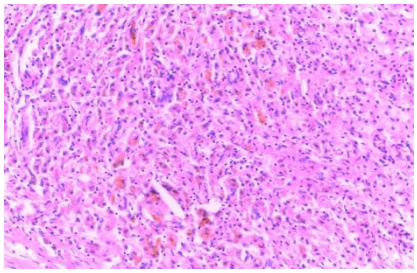


Figure 3 – Histocytes- giant cells

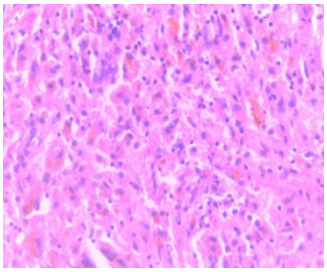


Figure 4 – Foamy macrophage collection

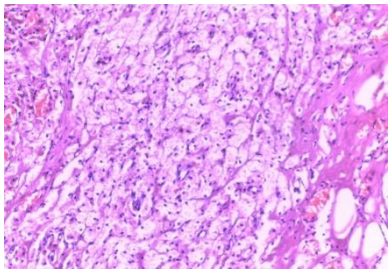
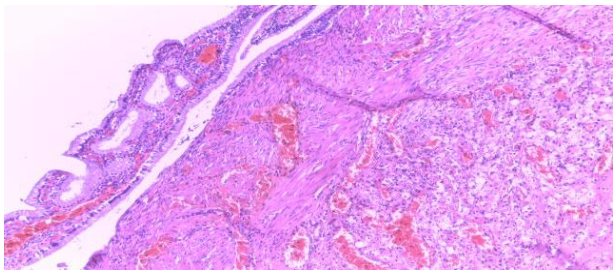


Figure 5 – Lining of mucosal gallbladder wall with congested vessels inflammatory cells



DISCUSSION:

Xanthogranulomatous cholecystitis with cholelithiasis is a rare form of chronic inflammation of the gallbladder. The gallbladder wall becomes thick due to increased fibrous tissue and the accumulation of fat filled immune cells. XGC is considered as a non-malignant condition even though it can extend into nearby organs and often closely resemble as gallbladder cancer on radiological imaging or during surgery making diagnosis difficult.

XGC creates major challenges in both surgery and diagnosis because its characteristics closely resembles with gallbladder carcinoma. Preoperative imaging frequently fails to differentiate between the two conditions, rendering intraoperative assessment and histopathological examination essential for

confirming the diagnosis The condition causes dense fibrosis, strong adhesions, and marked wall thickening, which complicate surgical dissection, increase the risk of bile duct injury, and prolong the surgery duration. In this case, identification of Calot's anatomy was significantly hindered, and only expert surgical technique enabled safe completion of the procedure.

A definite diagnosis of XGC with cholelithiasis is confirmed through microscopic examination, which shows foamy macrophages, granulomatous inflammation, and Rokitansky-Aschoff sinuses findings that help differentiate XGC from neoplastic pathology.

CONCLUSION:

This case report illustrates the diagnostic challenges and several surgical difficulties associated with Xanthogranulomatous cholecystitis with cholelithiasis The condition resembles malignancy and lead to distorted anatomy that complicates laparoscopic cholecystectomy. Histopathological evaluation remains the definitive method for diagnosis and should be considered indispensable in all challenging gallbladder surgeries.

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