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Diagnostic Dilema: Gall Bladder Carcinoma Mimicking Xanthogranulomatous Cholecystitis

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Abstract
This case series deals with patients who underwent surgery with diagnosis of cholecystitis or gall bladder carcinoma at a tertiary centre and were later confirmed to have xanthogranulomatous cholecystitis (XGC) based on histopathological examination.

Keywords: *gall bladder carcinoma, xanthogranulomatous cholecystitis, histopathological examination, cholecystectomy*

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I. Introduction

Xanthogranulomatous cholecystitis is a benign focal or diffuse inflammatory condition of the gall bladder characterized by irregular thickening of the gall bladder wall due to inflammatory infiltration and proliferative fibrosis[1]. It is a histopathological diagnosis which shows lipid-containing histiocytes infiltrating into the wall of the gall bladder and fibrosis due to extravasation of bile into the gall bladder wall[2] [3]. Local dense adhesions and gall bladder wall thickening can easily be mistaken for carcinoma of the gall bladder on presentation, radiological imaging, and intra-operatively. Xanthogranulomatous cholecystitis patients present with signs and symptoms similar to those of gallbladder carcinoma including vomiting, jaundice with positive Murphy's sign, and a palpable mass. Leukocytosis has been observed, though there is no specific biochemical marker for Xanthogranulomatous cholecystitis[1]. Complications include perforation of the gall bladder, abscess formation, fistulous tract to the duodenum or skin, and extension of the inflammatory process to the liver, colon, or to the surrounding soft tissue[2]. These patients often undergo radical resection considering the condition to be carcinoma of the gall bladder. Hence, histopathological examination is considered to be the gold standard for the diagnosis of Xanthogranulomatous cholecystitis[3].

II. Case Report:

Case 1

A 70 year old female, known diabetic was admitted in our surgical ward with complaints of pain in right hypochondrium and epigastric region, colicky in nature, gradually progressive, nausea and vomiting which would aggravate with food intake with no history of fever or jaundice. On examination, patient was hemodynamically stable. On per abdomen examination, right upper quadrant fullness was present. Ultrasonography of the whole abdomen showed cholelithiasis with Wall-echo-shadow complex with indistinct fat plane of gall bladder with liver with dilated CBD and neoplastic etiology couldn't be ruled out. CECT of the whole abdomen showed small ill defined hypodense lesion in segment 4b of liver with asymmetrical hypoenhancing thickening of fundus of GB of maximum ~9.6. mm thickness with loss of fat plane with the liver, suggestive of a neoplastic etiology. Anteriorly abutting the peritoneum of the abdominal wall in subhepatic region, inferiorly abutting the hepatic flexure of colon. Patient was taken up for radical cholecystectomy with a suspicion of carcinoma of the gall bladder. Post operative period was unevetful. Drain was removed on POD 4 and patient was discharged on the following day. Histopathological examination report was traced in the post operative period which confirmed the diagnosis of Xanthogranulomatous Cholecystitis.

Case 2

A 40 year old female admitted in our surgical ward with complaints of fullness in hypochondrium region, nausea and vomiting and jaundice with episodes of fever. Patient had no significant past history. Patient was vitally stable at the time of examination. On per abdomen examination, right upper quadrant fullness and tenderness was present. Ultrasonography of the whole abdomen showed cholelithiasis with GB wall thickening with indistinct fat plane of gall bladder with liver with suspicion of neoplastic etiology. CECT of the whole abdomen showed focal thickening of the anterior wall and fundus of the gall bladder with loss of fat plane with liver with possibility of neoplastic etiology. Patient was taken up for radical cholecystectomy with a suspicion of carcinoma of the gall bladder. Intraoperatively, omentum was seen adhered to the gall bladder and to the liver bed with lost fat plane between the gall bladder and the liver with thickened wall of gall bladder. Post-

operative period was uneventful and patient was discharged on post operative day 4. Histopathological examination report was traced in the post operative period which confirmed the diagnosis of Xanthogranulomatous Cholecystitis.

Case 3

A 52 year old female patient with no known comorbidities initially presented with complaints of discomfort in the epigastric region, associated with nausea, vomiting and high grade fever with history of Total Abdominal Hysterectomy five years back in view of uterine prolapse. On examination, patient was well oriented to time, place and person and was hemodynamically stable. On per abdomen examination, right upper quadrant fullness and tenderness was present with lower midline laparotomy scar.

Ultrasonography of the whole abdomen revealed sealed off perforated empyema of the gall bladder. CECT of the whole abdomen revealed irregular thickening in the wall of the gall bladder with a mass infiltrating the adjacent liver with focal loss of fat plane without any vascular involvement of adhesion with bowel. Patient was posted for surgery when diagnostic laparoscopy was performed followed by open subtotal cholecystectomy. Dense adhesion were present between the omentum and the gall bladder and frozen calot's was found. Post operative period was uneventful and patient was discharged on POD 5. Biopsy report was traced which was suggestive of Xanthogranulomatous Cholecystitis.

Case 4

A 35 year old female patient with no known comorbidities presented with complaints of sudden onset pain in right upper quadrant, non- migrating or non- radiating, associated with nausea. On examination, patient was vitally stable. On per abdomen examination, right upper quadrant tenderness was present.

Ultrasonography of the whole abdomen showed multiple calculi in gall bladder with average size of 4-5mm with echogenic GB sludge with GB mass near the fundus with focal thickening of GB wall with ill defined fat plane between the gall bladder and the liver bed . CECT of the whole abdomen revealed irregular thickening in the wall of the gall bladder with a possibilty of gall bladder carcinoma. Patient was taken up for open extended cholecystectomy. Dense adhesion were present between the omentum and the gall bladder and frozen calot's was found. Post operative period was uneventful and patient was discharged on POD 5. Biopsy report was traced which was suggestive of Xanthogranulomatous Cholecystitis.

Investigation: Initial radiological investigation done was ultrasonography of the hepatobilliary system followed by contrast enhanced commuted tomography of the whole abdomen which gives the suspicion of gall bladder carcinoma.

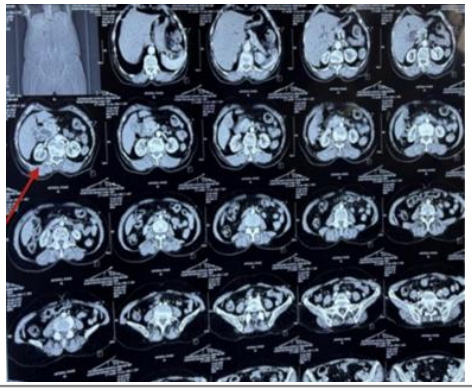

Figure 2 & 3: show histopathological slides of xanthogranuloma cholecystitis

III. Discussion:

The case series highlights the diagnostic challenge in distinguishing gallbladder carcinoma from xanthogranulomatous cholecystitis (XGC), as the patients were preoperatively suspected of malignancy due to overlapping clinical features like right upper quadrant palpable mass, nausea and vomiting. Radiological findings included wall thickening, loss of fat plane, and hepatic involvement. Despite advanced imaging, diagnosis remained equivocal and radical surgery was performed, while the final diagnosis is established only on histopathology. Similar diagnostic dilemmas have been reported in previous studies, with Rao et al. and Gosh et al. noting that up to 30–70% of XGC cases are misdiagnosed as carcinoma preoperatively due to comparable radiological and intraoperative findings. Hence, XGC should be considered in the differential diagnosis to avoid unnecessary extensive resections, reinforcing the need for improved preoperative diagnostic criteria and multidisciplinary evaluation.

IV. Conclusion:

The gold standard for diagnosis of Xanthogranuloma Cholecystitis remains histopathology, which reveals lipid-laden foamy macrophages and fibrosis unique to XGC. Awareness of this diagnostic dilemma is important and multidisciplinary evaluation with intraoperative assessment is recommended to reduce overtreatment while ensuring that underlying carcinoma is not missed.

Conflict of interest:
The authors declare no conflict of interest.

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