

# XANTHOGRANULOMATOUS CHOLECYSTITIS: A DIAGNOSTIC DILEMMA

Summaya S<sup>1</sup>, Aun A<sup>2</sup>, Shamaila A<sup>2</sup>, Muhammad Rauf S<sup>1</sup>, Amjad Siraj M<sup>1</sup>

<sup>1</sup>Dow Medical College, Dow University of Health Sciences, Karachi, Pakistan

<sup>2</sup>United Medical and Dental College, Karachi, Pakistan

## Correspondence:

Summaya Saeed

Dow Medical College

Dow University of Health Sciences

Karachi Pakistan

Email: [summayasaeed@hotmail.com](mailto:summayasaeed@hotmail.com)

## Abstract

Xanthogranulomatous cholecystitis is a rare histopathological finding and accounts for 1.3% to 5.2% of cases. It closely resembles gallbladder cancer because of its extensive inflammation and involvement of the surrounding organs. We are reporting a case where it presents as an extensive inflammatory mass mimicking gallbladder cancer.

**Keywords:** Acute cholecystitis, Gallbladder mass, Xanthogranulomatous cholecystitis, Giant histiocytes

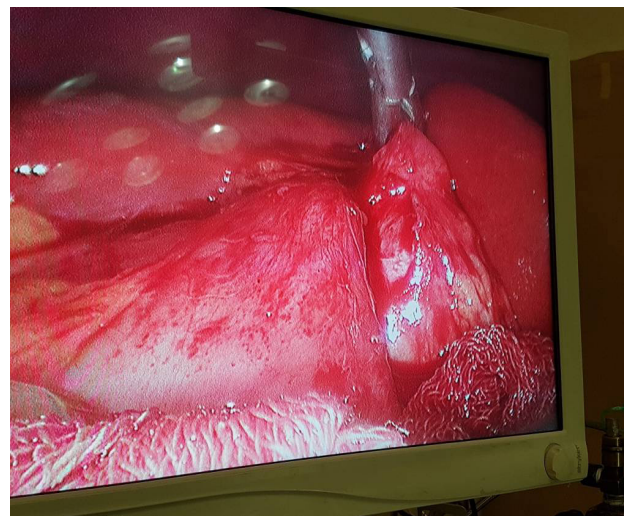
## Introduction

Xanthogranulomatous cholecystitis (XGC) is one of the rare variant of histopathological findings of surgically resected gallbladder specimen (1). It is thought to be caused by severe chronic inflammation due to extravasated bile from blocked or ruptured Rokitansky-Aschoff sinuses. Despite it being a benign disease, it may mimic gallbladder carcinoma as it can involve adjacent structures including ducts and viscera and often leads to radical surgery that could increase morbidity and mortality (2).

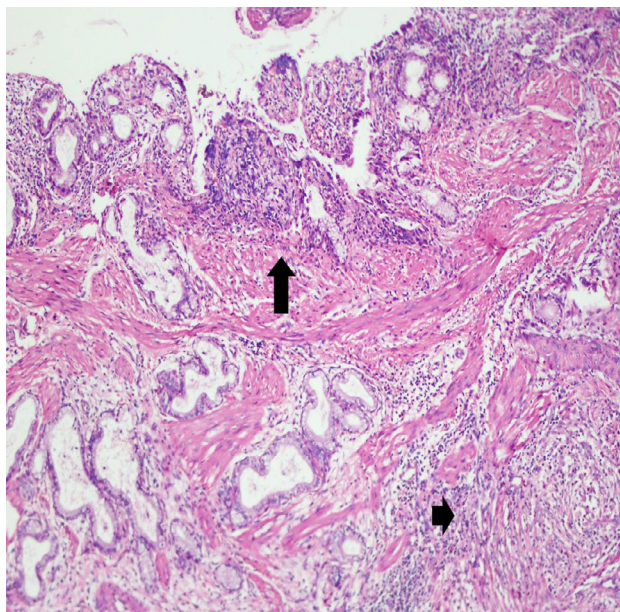
## Case Report

A 45-year-old otherwise healthy female presented with a 3-day history of pain at right upper abdomen, fever, anorexia, and a 2-kg weight loss. She denied any drug and tobacco use. Physical examination revealed scleral jaundice, and mild upper right abdominal tenderness. Laboratory investigations revealed aspartate aminotransferase (35 U/L), alanine aminotransferase (11 U/L), alkaline phosphatase (102 U/L), total bilirubin (1.05 U/L) and conjugated bilirubin (0.51 U/L). Abdominal ultrasound showed multiple calculi in the gallbladder and the largest measures 1.5 cm which was impacted in the gallbladder neck. Due to the atypical appearance of the mass and diagnostic uncertainty, an exploratory laparotomy was performed. Gallbladder wall seems to be thickened with appearance of a mass as shown in Figure

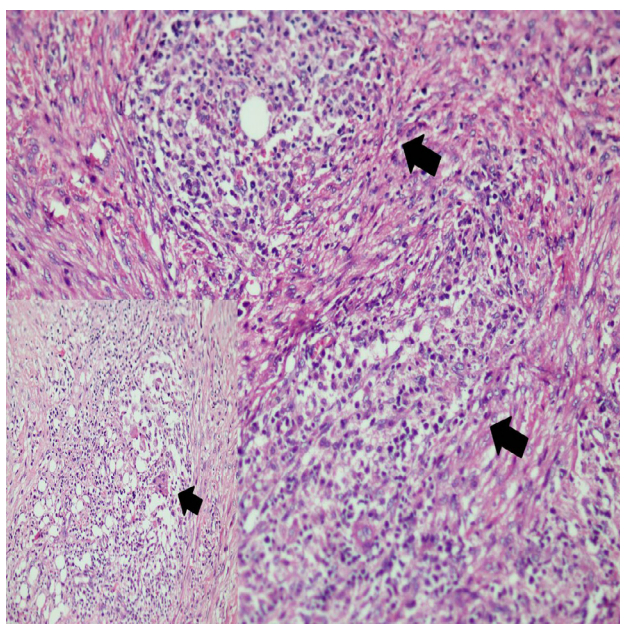
1. Intraoperative frozen section of the resected gallbladder and perihilar nodes revealed chronic inflammation and fibrosis without malignancy, and further resection was not performed. Final pathologic evaluation revealed a diffuse inflammatory infiltrate of giant histiocytes with clear, lipid containing cytoplasm (xanthoma cells) consistent with XGC as shown in Figures 2A and 2B.



**Figure 1:** Intra-Operative Gall Bladder Mass



**Figure 2A:** Diffuse Inflammatory Infiltrate of Giant Histiocytes. Arrows - for gall bladder and liver



**Figure 2B:** Giant Histiocytes With Clear Lipid Containing Cytoplasm (Xanthoma Cells)

**Discussion**

XGC is a rare variant of chronic inflammatory cholecystitis and its prevalence is around 1.3% to 5.2% of surgically resected gallbladder (1, 3). Characteristic macroscopic findings of XGC include thick walled gallbladder with nodules that are poorly demarcated, intramural and of various sizes (2, 4). It is associated with complications like gallbladder perforation, abscess, fistulous tracts with small

or large bowels and inflammatory process in the adjacent organs (5). Involvement of adjacent organs indicates that XGC is an aggressive disease and manifests as gallbladder cancer. So it is of prime importance to rule out malignancy at the initial stage to avoid unnecessary surgical procedures (2). Patients with XGC present with either acute or chronic cholecystitis. Chief symptoms include right hypochondriac pain (93.9%), radiating shoulder and back pain (42.4%), fever (24.2%), nausea (33.3%), and vomiting (24.2%) (2). Common findings on physical examination includes abdominal tenderness, jaundice, and fever. However, these findings are not helpful in differentiating XGC from gallbladder cancer (2, 6).

Pathogenesis of XGC is not well understood. Obstruction of the cystic duct leads to blockage that results in extravasation of bile with involvement of the Rokitansky-Aschoff sinuses (1, 7). This leads to formation of excessive granulation tissue that causes nodules formation. Because of the extensive nature of inflammation it may extend to adjacent organs, such as the liver, duodenum, and transverse colon (7, 8). Our case also presented with a densely adherent inflammatory mass involving duodenum and liver. On ultrasound, XGC manifests itself as thick walled gallbladder, presence of nodules and involvement of adjacent structures. Thus it is difficult to differentiate it from gallbladder cancer (9). Uchiyama et al (10) stated that presence of a continuous enhanced mucosal line favors diagnosis of XGC. Furthermore, presence of gall stones indicates a high likelihood of XGC though there have been debates over association of gall stones and gallbladder cancer (9). A study by Kim et al (11) stated the importance of diffuse thick wall gall bladder and intramural nodules in favor of XGC as compared to gallbladder malignancy. Frozen section is not always helpful in determining accurate diagnosis particularly in cases where there are extensive surrounding tissue involvement (12). Most concerned strategy is to rule out gallbladder malignancy. Radiological differentiation is difficult and the role of fine needle aspiration cytology is also questionable (13) as XGC and gallbladder cancer can coexist and up to 12% of cases have been reported (9). Histological examination is the only way to accurately diagnose XGC. Thorough and careful per-operative examination of gallbladder specimen and multiple frozen section can provide sufficient information to rule out gallbladder cancer and prevent overtreatment especially in cases of extensive surrounding tissue involvement (13).

XGC can create trouble for general surgeon especially in terms of surgical procedure. Despite advances in medical imaging it is difficult to differentiate XGC from gall bladder cancer. Even pre-operative differentiation also remains a challenge. Treatment of choice is cholecystectomy, but as malignancy of gallbladder cancer has been reported in patients with XGC, frozen section can guide the optimum resection.

## References

1. Robert KM, Parsons MA. xanthogranulomatous cholecystitis: Clinicopathological study of 13 cases. *J Clin Pathol.* 1987;40(4):412–7.
2. Yang T, Zhang BH, Zhang J, Zhang JY, Jiang XQ, Wu MC. Surgical treatment of xanthogranulomatous cholecystitis: Experience in 33 cases. *Hepatobiliary Pancreat Dis Int.* 2007;6(5):504–8. PMID: 17897914
3. Yoshida J, Chijiwa K, Shimura H, Yamaguchi K, Kinukawa N, Honda H, Tanaka M. xanthogranulomatous cholecystitis versus gallbladder cancer: clinical differentiating factors. *Am Surg.* 1997; 63: 367-71. PMID: 9124762
4. Spinelli A, Schumacher G, Pascher A, Lopez-Hanninen E, AlAbadi H, Benckert C, *et al.* Extended surgical resection for xanthogranulomatous cholecystitis mimicking advanced gallbladder carcinoma: A case report and review of literature. *World J Gastroenterol.* 2006; 12: 2293-6. PMID: 16610041
5. Lee KC, Yamazaki O, Horii K, Hamba H, Higaki I, Hirata S, Inoue T. Mirizzi syndrome caused by xanthogranulomatous cholecystitis: report of a case. *Surg Today.* 1997; 27: 757-61. PMID: 9306594
6. Chang BJ, Kim SH, Park HY, Lim SW, Kim J, Lee KH, *et al.* Distinguishing xanthogranulomatous cholecystitis from the wall-thickening type of early-stage gallbladder cancer. *Gut Liver.* 2010; 4: 518-23. PMID: 21253302 DOI: 10.5009/gnl.2010.4.4.518
7. Goodman ZD, Ishak KG. xanthogranulomatous cholecystitis. *Am Surg Pathol.* 1981; 5: 653-9. PMID: 7337158
8. Pinocy J, Lange A, König C, Kaiserling E, Becker HD, Kröber SM. xanthogranulomatous cholecystitis resembling carcinoma with extensive tumorous infiltration of the liver and colon. *Langenbecks Arch Surg.* 2003; 388: 48-51. PMID: 12690480 DOI: 10.1007/s00423-003-0362-x
9. Parra JA, Acinas O, Bueno J, Güzmes A, Fernández MA, Fariñas MC. xanthogranulomatous cholecystitis: clinical, sonographic, and CT findings in 26 patients. *AJR Am J Roentgenol.* 2000; 174: 979-83. PMID: 10749233 DOI: 10.2214/ajr.174.4.1740979
10. Uchiyama K, Ozawa S, Ueno M, Hayami S, Hirono S, Ina S, *et al.* xanthogranulomatous cholecystitis: the use of preoperative CT findings to differentiate it from gallbladder carcinoma. *J Hepatobiliary Pancreat Surg.* 2009; 16: 333-8. PMID: 19280109 DOI: 10.1007/s00534-009-0067-9
11. Kim PN, Ha HK, Kim YH, Lee MG, Kim MH, Auh YH. US findings of xanthogranulomatous cholecystitis. *Clin Radiol.* 1998; 53: 290-2. PMID: 9585046
12. Rastogi A, Singh DK, Sakhuja P, Gondal R. Florid xanthogranulomatous cholecystitis masquerading as invasive gallbladder cancer leading to extensive surgical resection. *Indian J Pathol Microbiol.* 2010; 53: 144-7. PMID: 20090248 DOI: 10.4103/0377-4929.59209
13. Krishnani N, Shukla S, Jain M, Pandey R, Gupta RK. Fine needle aspiration cytology in xanthogranulomatous cholecystitis, gallbladder adenocarcinoma and coexistent lesions. *Acta Cytol.* 2000; 44: 508-14. PMID: 10934941