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Correspondence to:

Vitorino Modesto dos Santos

Email: vitorinomodesto@gmail.com

ORCID: [0000-0002-7033-6074](https://orcid.org/0000-0002-7033-6074)

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Letter to the Editor

Xanthogranulomatous Cholecystitis: Diagnostic Challenges

Vitorino Modesto dos Santos¹, Kin Modesto Sugai²

1 Adjunct Professor of Internal Medicine, Armed Forces Hospital and Catholic University of Brasília-DF, Brazil

2 Postgraduate Course Management, Technology, and Information Security, University of Brasília-DF, Brazil

To the Editor,

Xanthogranulomatous cholecystitis (XGC) results from lipid-laden macrophages causing inflammation and fibrosis, and has an incidence rate of up to 8.8%; XGC constitutes a challenging entity due to the clinical and imaging overlap with some cancer features, but the involvement of adjacent organs is very rare, leading to complications like abscesses. [1-7] We read the case study of a 90-year-old man with abdominal pain and fever, high inflammatory markers, cholestasis, a thickened and distended gallbladder, hypoattenuating gallbladder nodules, and a large hepatic abscess, recently published in this Journal by Allagi and colleagues. [1] After the percutaneous drainage of the abscess, he underwent a laparoscopic cholecystectomy with success, confirming the XGC. The authors emphasized the findings that contribute to the clinical hypothesis of XGC (intramural hypoattenuating nodules, preserved mucosal line, diffuse thickening of gallbladder wall, and absence of overt mass or distant metastasis). [1] They also highlighted the awareness of this entity to avoid misdiagnoses and guide outcomes. In this setting, some additional comments based on new reference data seem opportune. [2-7] A 72-year-old woman with chronic episodes of abdominal pain and fever presented with a mass in the right upper abdomen, and imaging studies revealed inflammatory gallbladder dilation and wall thickening, cystic lesions, and local extensive exudation suggestive of the XGC. [2] Open cholecystectomy was necessary because of dense adhesions, followed by hepatic wedge resection, common bile duct exploration, and drainage; histopathology confirmed the XGC. The postoperative period was unremarkable, and she was symptom-free over 7 years of follow-up. The authors stressed that laparoscopic surgery is the choice in patients with minimal adhesions and inflammation, and open surgery reduces complications in cases with dense adhesions. [2] A retrospective study included 28 patients with image-guided percutaneous transhepatic core needle biopsy to clear radiologically indeterminate gallbladder lesions and liver infiltration. [3] The findings were classified as malignant, suspicious, or benign; surgical and pathological outcomes were reviewed, and the diagnostic performance as well as the concordance between serum tumor markers and frozen sections were evaluated. The histopathological results were benign in 24 cases (85.7%), malignant in 3, and suspicious in 1; the final analysis confirmed gallbladder benign disease in 24 (85.7%) and cancer in 4 cases (1 intraoperatively found). [3] Sensitivity, specificity, and diagnostic accuracy were 75.0%, 100.0%, and 96.4%, respectively; tumor marker levels did not differ between the groups; frozen sections were concordant with the final diagnosis (88.9%); and percutaneous biopsy was useful for differential diagnosis. [3] A 61-year-old man with intermittent abdominal pain radiating to the back, right hypochondrial tenderness, elevated inflammatory markers, and images of gallstones and gallbladder thickening had a biopsy diagnosis of XGC; he underwent a

successful laparoscopic cholecystectomy and an uneventful postoperative evolution, remaining asymptomatic at a 6-month follow-up. [4] The authors highlighted the inclusion of XGC in the diagnosis of gallbladder masses when images are suggestive of malignancy and the performance of preoperative biopsy to rule out cancer; minimally invasive laparoscopic surgery can be an option for selected cases. [4] The retrospective study from 2019 to 2025, including imaging, clinical, surgical, and pathological data of five women aged 49 to 84 years with XGC, revealed that four of them were hospitalized for recurrent abdominal pain, whereas one presented with limb weakness. [5] Worthy of note, the carbohydrate antigen 19-9 (CA19-9) levels were elevated in three of them; images showed an enlarged gallbladder in three cases and a reduced gallbladder in two; the wall was thickened diffusely in three cases and localized in two; intramural nodules and gallstones were found in three cases; enlarged abdominal or retroperitoneal lymph nodes were found in two cases. [5]

Considering the low accuracy of imaging and CA 19-9 in distinguishing XGC from cancer, the research can prioritize more advanced imaging tools; furthermore, radical cholecystectomy performed by an experienced surgeon will constitute the best strategy for suspected cases. [5]

Patients (n = 46) who had cholecystectomy and pathological diagnoses of XGC from 2018 to 2024 were categorized into two groups: (1) laparoscopic cholecystectomy, and (2) conversion to open surgery; the median age was 56 (29–80) years, and 23 of the patients were women. [6] Conversion rate from laparoscopy to open surgery was high in XGC and was needed in 18 cases; gallbladder thickness and enlarged common bile duct were related to more conversions. [6] Preoperative differentiation of XGC from cancer is a conundrum due to clinical and imaging overlap, and a multicenter retrospective study used a machine learning model with preoperative clinical, imaging, and laboratory data from 1246 cases (554 XGC, 692 cancer). [7] Compared to six radiologists, the machine improved sensitivity (1.2%–8.5%), specificity (0.0%–4.6%), and accuracy (1.8%–6.6%), with less average diagnostic time per patient (30.44–35.76 s); it is non-invasive and has high potential for clinical translation in preoperative diagnoses. [7] In conclusion, even reports of single case studies can play an important role by enhancing the general interest and awareness of healthcare workers about uncommon challenging conditions.

AUTHORS' CONTRIBUTION

All authors contributed to the completion of this work. The final manuscript was read and approved by all authors.

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CONFLICT OF INTEREST

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