Xanthogranulomatous cholecystitis masquerading as colon cancer: A case report

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Abstract[‡]

Significance: Xanthogranulomatous cholecystitis (XGC) is a rare form of chronic cholecystitis commonly mistaken for gallbladder cancer. We present a case of XGC that masqueraded as colon cancer. There has been no report to date where XGC propounded as such. Familiarity of this presentation may contribute to prompt diagnosis and adequate treatment. **Case Presentation:** A 59-year-old male with remote history of choledocholithiasis removed by endoscopic retrograde cholangiopancreatography presented with anorexia, weight loss, chronic right upper quadrant pain and a palpable mass. **Management:** Abdominal CT revealed an ill-defined hepatic flexure mass intimately related to the gallbladder, with loss of delineation of the gallbladder from the liver bed. Colonoscopy was done revealing a nodular, ill-defined mass at the hepatic flexure. Biopsies of this lesion revealed chronic active colitis with reactive epithelial changes, and an ulcer with granulation tissue. A multidisciplinary team was convened to manage the case. The patient successfully underwent laparotomy, extended right hemicolectomy, and en bloc cholecystectomy with liver resection. Gross examination of the specimen showed a cholecystocolic fistula. Final histopathologic examination, however, revealed xanthogranulomatous cholecystitis with adenomyomatosis, without evidence of malignancy. **Recommendation:** This report shows that XGC can potentially masquerade as colon cancer. A high index of suspicion and a multidisciplinary approach are critical in the proper management of perplexing yet challenging cases such as this one. Extensive surgery may be reasonable where there is suspicion for malignancy and/or multiorgan involvement.

Keywords: xanthogranulomatous cholecystitis, colon cancer, case report

Xanthogranulomatous cholecystitis (XGC) is an unusual form of chronic cholecystitis, with an estimated incidence of 1.3% to 5.3% of all resected gallbladder specimens.[1] It is characterized by a focal or diffuse destructive inflammatory process followed by marked proliferative fibrosis along with infiltration of macrophages and foamy cells. The inflammation can be extensive, spreading to nearby organs such as the liver, omentum, colon, stomach, and the bowels.[2,3] Because of its potentially invasive nature, it can easily mimic malignancy, most commonly gallbladder cancer.[4] To the best of our knowledge, there has been no report on XGC resembling a colonic neoplasm. There are reports of XGC with involvement of the adjacent colon, but with the

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main lesion on imaging confined to the gallbladder.[5,6] We herein present a case of XGC that masqueraded as colon cancer with extracolonic invasion. Familiarity of this presentation may contribute to prompt diagnosis and proper treatment.

Patient Information and Clinical Findings

A 59-year-old male had a one-month history of intermittent vague epigastric pain complicated by jaundice and acholic stools. He had magnetic resonance cholangiopancreatography which showed mild hepatobiliary ectasia secondary to an obstructing choledocholithiasis measuring 1.2 x 0.8 cm. He successfully underwent endoscopic retrograde cholangiopancreatography and balloon extraction of stone. Cholecystectomy was recommended but postponed due to financial constraints. On follow-up more than a month later, his jaundice had subsided. Abdominal pain recurred, now localized at the right upper quadrant (RUQ), and was unrelated to meals or fasting. He also noticed a palpable RUQ mass, along with asthenia, anorexia, and unquantified weight loss. He had no fever, night sweats, changes in bowel habits, or overt gastrointestinal bleeding. He is a known hypertensive, well-controlled on medication. He had no strong history of cancer in the family. Physical examination revealed a firm, nontender, irregular RUQ mass. Bowel sounds were normoactive. He had no pallor, signs of jaundice and palpable lymphadenopathies and masses elsewhere.

Diagnostic Assessment

Initial laboratory investigations showed normal liver enzymes, bilirubin, and leukocyte count. Contrast-enhanced computer tomography (CT) scan of the abdomen revealed an ill-defined mass at the hepatic flexure which was intimately related to the gallbladder, with markedly irregularly thickened walls and with internal pockets of air and small hyperdensities **(Figure 1).** A presumptive diagnosis of colon cancer with extracolonic invasion was made.

Tumor markers such as carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA 19-9) were requested but were both within normal range. Colonoscopy was done revealing a nodular, ill-defined mass at the hepatic flexure. Representative biopsies were taken which subsequently revealed chronic active colitis with reactive epithelial changes, and ulcer with granulation tissue. An underlying primary colonic malignancy still could not be discounted despite the biopsy result because of the extent of invasion of the lesion.

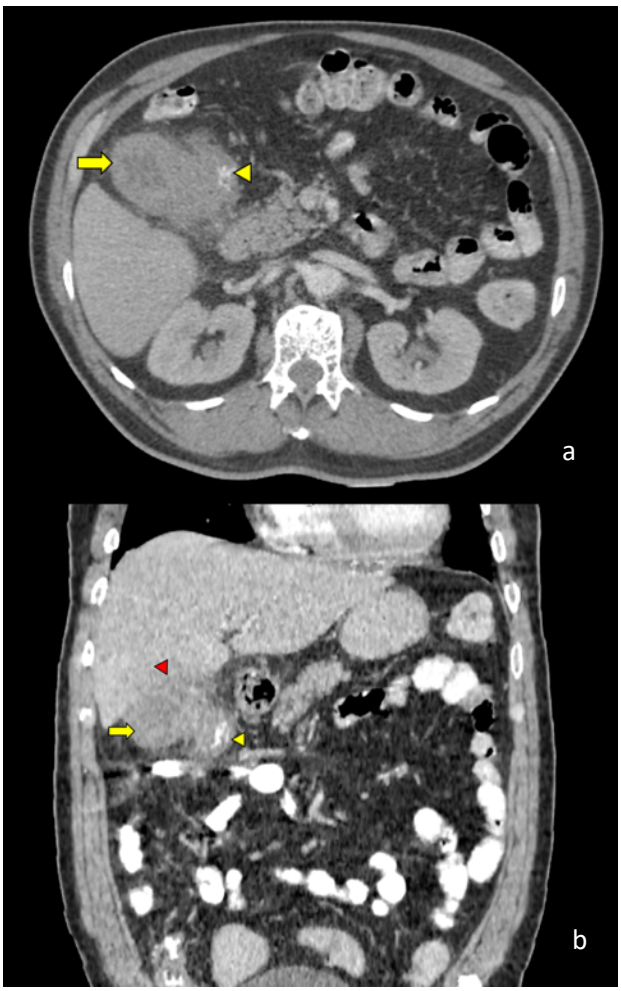

Figure 1. Axial **(a)** and coronal **(b)** CT images of the abdomen demonstrating an ill-defined mass at the hepatic flexure (yellow arrowhead) intimately related to the gallbladder with markedly irregularly thickened walls (yellow arrow), with loss of delineation of the gallbladder from the liver bed (red arrowhead).

Therapeutic Intervention

A multidisciplinary team of experts from the departments of gastroenterology, colorectal surgery, and hepatobiliary surgery, was convened to manage the case. Under the impression of a malignancy, the patient underwent laparotomy, extended right hemicolectomy and en bloc cholecystectomy with liver resection.

Follow-up and Outcomes

On gross examination of the specimen, a fistulous communication between the gallbladder and resected segment of the colon was seen. The gallbladder had circumferentially thickened walls, converted into a firm, cream to white, ill-defined fibrotic tissue with attachment to the resected liver segment and the colon at the hepatic flexure. The hematoxylin and eosin (H&E)-stained section of the gallbladder showed bile-filled cystic spaces, epithelial proliferation and muscular hypertrophy of the gallbladder wall **(Figure 2).**

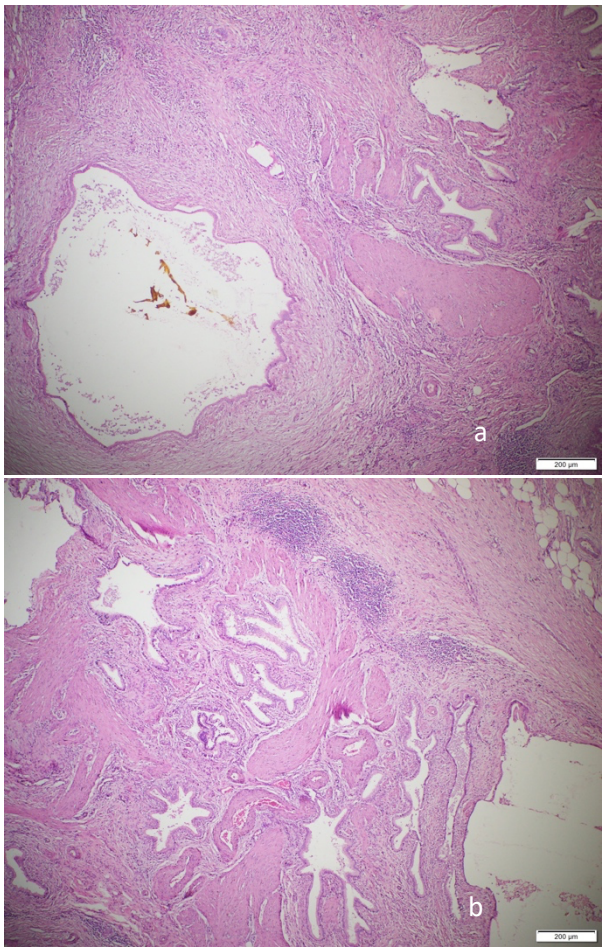

Figure 2. H&E stain of gallbladder wall showing (**a**) bile-filled cystic spaces, and (**b**) epithelial proliferation and muscular hypertrophy, consistent with pathologic diagnosis of adenomyomatosis.

Cholesterol clefts, inflammatory cells, multinucleated giant cells and foamy histiocytes were seen on further magnification **(Figure 3).** No evidence of malignancy was detected. These findings were consistent with the pathologic diagnosis of xanthogranulomatous cholecystitis with adenomyomatosis with liver and colonic involvement.

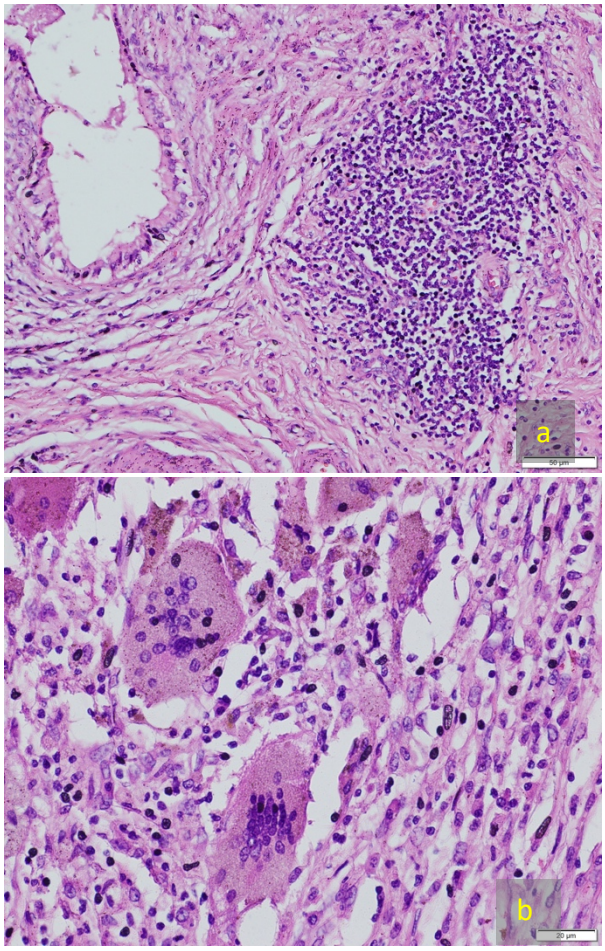

Figure 3. H&E stain of gallbladder showing (**a**) multiple cholesterol clefts, inflammatory cells, multinucleated giant cells and (**b**) foamy histiocytes characteristic of XGC.

The post-operative phase was complicated by prolonged ileus, but the patient eventually improved and was discharged twelve days after surgery. He is on follow-up with his attending gastroenterologist and is free of abdominal pain.

Discussion

XGC is a rare inflammatory disease of the gallbladder. The mechanism leading to this condition is unclear. It is thought, however, that similar to xanthogranulomatous pyelonephritis, the presence of calculi or biliary tree

obstruction provides a favorable condition for extravasation of bile into the gallbladder wall and Rokitansky-Aschoff sinuses, or extravasation through mucosal ulceration.[7-9] Gallstone disease is, in fact, frequently associated with XGC.[1,4,10-12] This then incites an inflammatory cascade where histiocytes accumulate in an effort to phagocytose the insoluble cholesterol and other bile lipids, leading to the formation of intramural abscesses or xanthogranulomas.[7] XGC, albeit a benign pathologic process, behaves aggressively, which can cause significant morbidity. In this case, the inflammation extended to the liver and colon, forming a cholecystocolonic fistula (CCF).

XGC appears to have a male preponderance, with late onset of age presentation (32-91 years).[1,4] Symptoms are nonspecific and mimic other inflammatory conditions of the gallbladder. The most frequent clinical presentation is abdominal pain (58.1-79%).[1,4,10] Finding a palpable mass is less commonly seen (4-14%).[4,10] Testing for CEA and CA 19-9 is of little utility because both can be elevated in XGC, and hence are not conclusive of malignancy.[10]

Internal biliary-enteric fistulas (IBFs) are uncommon, found incidentally in 0.14% of cholecystectomy cases. IBFs are often caused by, and occur mainly, as late complications of inflammatory conditions, including XGC.[9,13] When complicated by CCF, diarrhea is the most common symptom.[9] Evasion of bile acids from the enterohepatic circulation, as bile acids bypass the terminal ileum via the fistula draining into the colon, produces bile acid diarrhea, steatorrhea and malabsorption of fat-soluble vitamins. Hence, a diagnostic triad of pneumobilia, chronic diarrhea and vitamin K malabsorption for CCF has been proposed.[14] This, however, was not evident in our case.

Surgery remains to be the definitive management of XGC, usually in the form of cholecystectomy. When the possibility of malignancy cannot be excluded, most recommend a more radical surgery despite the potential for overtreatment and greater morbidity and mortality.[12] As seen in this case, an extensive surgery was planned due to suspicion of a malignancy and could be justified given the extent of involvement of the adjacent colon and liver found intraoperatively.

Conclusion

XGC is a benign but invasive pathology which has the potential to be mistaken for malignancy. Apart from GBC, it can also masquerade as colon cancer, as was seen in this case. When diagnosis is in doubt, it is best to conduct a multidisciplinary approach to management. Extensive surgery may be justifiable where there is suspicion for malignancy and/or multi-organ involvement.

Conflicts of Interest

The authors declare no conflicts of interest.

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