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Case report

Isolated gallbladder tuberculosis in an 84-year old man: A rare case report

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ABSTRACT

Introduction: Isolated gallbladder tuberculosis is extremely rare even in endemic regions posing diagnostic challenges as the presentation mimics other gallbladder diseases such as cholecystitis and gallbladder carcinoma. Preoperative suspicion index is negligible with most cases being diagnosed postoperatively from resected specimen.

Case presentation: Herein, we report an elderly man who presented with jaundice, and was clinically diagnosed with gallbladder carcinoma.

Discussion: Histopathology of resected gallbladder revealed gallbladder tuberculosis. No features of tuberculous infection were found elsewhere.

Conclusion: Healthcare providers should have a high index of suspicion particularly for patients in endemic areas presenting with cholecystitis to obtain a pre-operative diagnosis.

1. Introduction

Over the last ten years the world has witnessed a trend towards increasing numbers of people who have been infected with tuberculous (TB) infection [1]. Majority of these cases are found in middle and low income countries like Tanzania. Extra-pulmonary tuberculosis (EPTB) accounts for roughly 15% of TB cases among immunocompetent hosts [2]. Some of the EPTB clinical variants include TB lymphadenitis, peritonitis, pericarditis, pleural TB, and Pott's disease. Gallbladder tuberculosis (GT) remains a well-recognized rare infectious disease since its first description in 1870 by Gaucher [3]. In endemic regions, tuberculosis often remains part of differential diagnosis in managing patients with disease of any organ system [4]. The gallbladder (GB) is relatively immune to tubercular infection possibly due to its thick wall and natural resistance conferred by bile [5]. The lack of pathognomonic presentation coupled with possibly a high incidence of TB in regions endemic for GB carcinoma makes preoperative diagnosis unlikely [6]. The diagnosis is often discovered after histological evaluation of GB resected for suspected malignancy [7]. By 2010 around 120 cases had been published [8]. Here, we report a case of an elderly man who presented with features of obstructive jaundice and GB perforation on CT scan, and intra-operative appearance of GB carcinoma in line with the SCARE 2020 criteria [9].

2. Case presentation

An 84-year-old man was referred to us from a regional hospital with two weeks' history of abdominal pain associated with non-projectile coffee ground vomiting, melena and weight loss. No history of abdominal distention or constipation. No history of fever was reported. At the regional hospital, an abdominal ultrasound was suggestive of intrahepatic mass. Serologies for hepatitis A, B and C, and HIV were negative. The patient was referred to us for endoscopy and CT scan of the abdomen. Initial examination at our centre revealed a weak and emaciated patient. He was pale, icteric and had bilateral lower limb edema. The patient admitted to moderately consume alcohol in the past. He was not addicted to any prescription or recreational drug. There is no history of TB infection or TB contact. There was no significant personal or family history of chronic diseases. The patient denied being on any medications. His vital signs were within normal range. The abdomen

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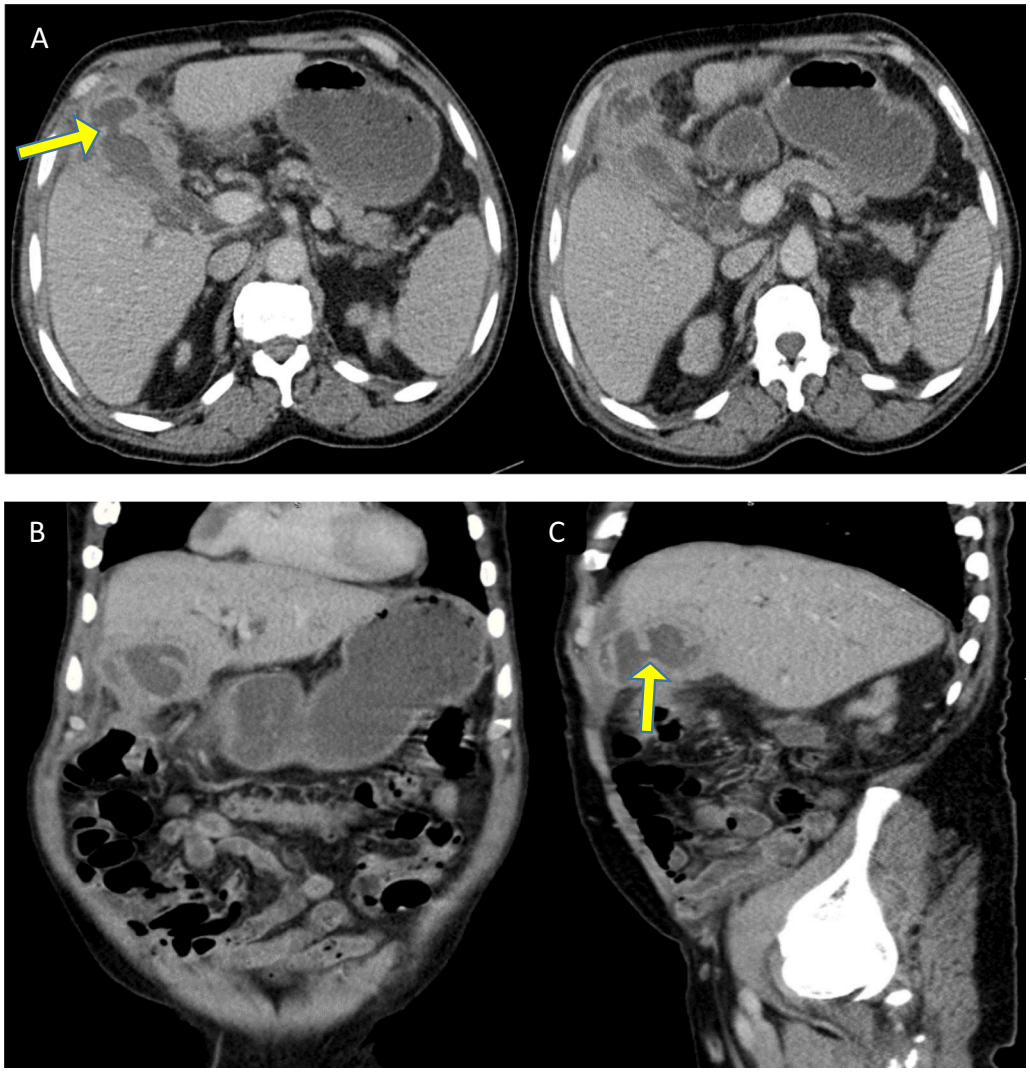

Fig. 1. Axial (A), coronal (B) and sagittal (C) CT images of the abdomen displaying asymmetrical thickening of the gallbladder with contained perforation along its anterior margins. Site of perforation demonstrated by arrow head.

was of normal contour, soft and tender at the right upper quadrant (RUQ). No enlarged liver or spleen was appreciated. Normal bowel sounds were heard. Other systems were essentially normal. The patient was admitted to the medical ward for evaluation, the working diagnosis being intrahepatic mass with obstructive component.

The patient basic blood work and serum chemistries were as follows: Erythrocyte Sedimentation Rate (ESR) of 110 mm/h, hemoglobin of 6.9 g/dL, direct and total bilirubin of 34.83 μmol/L and 108 μmol/L

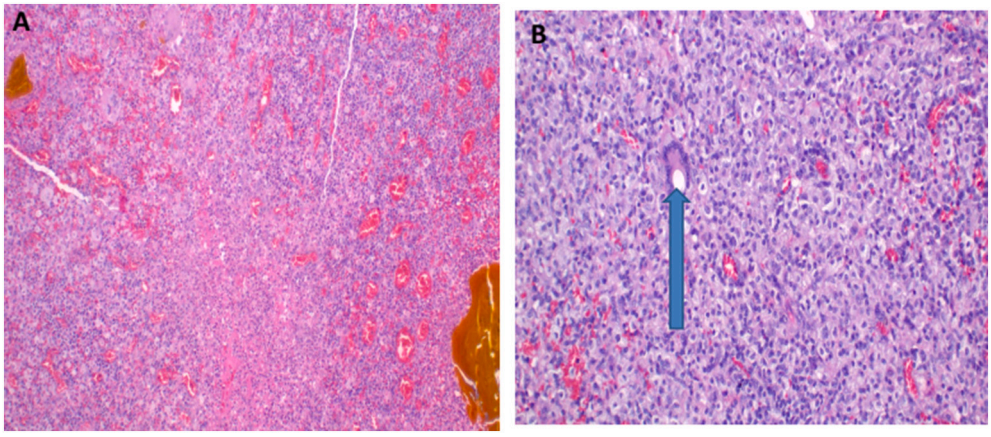

Fig. 2. Histopathology of the gallbladder specimen highlighting necrotizing inflammation with foamy histiocytes; H&E staining 40× original magnification (A); and presence of horse-shoe shaped multinucleated giant cells; H&E staining 100× original magnification (B).

respectively, alanine and aspartate aminotransferase (ALT and AST) were 44 I/U and 81 I/U respectively. CT scan abdomen (Fig. 1) showed mildly dilated intrahepatic biliary ducts, common hepatic duct (CHD) and common bile duct (CBD) measuring 1.3 cm in caliber with abrupt cut off at the ampulla of Vater suggestive of ampullary vs. peri-ampullary obstruction. A dilated GB with asymmetrical wall thickening and contained GB wall perforation was noted. No evidence of calculus. These findings were suggestive of mild biliary obstruction secondary to ampullary obstruction with contained perforated acalculus cholecystitis.

A presumptive diagnosis of GB/cholangio-carcinoma was rendered and the patient was transferred to the surgical unit and optimized for surgery. Intraoperatively, there was gross inflammation of the GB and surrounding areas in the RUQ. Necrotic GB fundus and body with gross edema of the walls, the neck, the cystic duct and rest of the biliary tree. No obvious mass was palpable at the head of pancreas. Liver, stomach and colon were grossly normal. A subtotal cholecystectomy sparring the neck of the GB was done. Lack of intraoperative cholangiogram and choledochoscopy necessitated insertion of smallest bougie in the CHD and CBD which was unsuccessful due to gross edema however, bile flow from within GB neck was noted. Reconstruction was done by Roux-en-Y cholecystojejunostomy. The excised GB tissue which was submitted for histological studies showed necrotizing inflammation with dense inflammatory cells infiltration including foamy histiocytes, plasma cells and Langerhans multinucleated giant cells (Fig. 2A). The Ziehl-Nelsen special stain for acid-fast bacillus was positive. This morphology favors TB infection (Fig. 2B).

In the post-operative period, the patient was initiated on isoniazid, rifampicin, pyrazinamide and ethambutol. The patient had caseous effluent per abdominal drain which decreased over time and eventually stopped after initiation of anti-TB drugs. The patient displayed significant recovery both from the surgery and the primary disease when reviewed six weeks after surgery.

3. Discussion

Hepatobiliary TB is a rare occurrence of abdominal TB accounting for about 1%. Even rarer, is the occurrence of isolated GT rendering it least susceptible to diagnosis.

While patients infected with GT may present with a combination of abdominal pain, jaundice, weight loss and vomiting - symptoms which overlap or may be clinically misinterpreted as cholecystitis, biliary obstruction or carcinomas; right hypochondriac pain and abdominal mass may stand out as key findings in a GT patient. In stark contrast to this case, around 70% of GT cases are accompanied by gallstones [10].

To add to the diagnostic dilemma, Xu et al. described micronodular lesion of the GB wall, a thickened wall and a GB mass as the commonest findings on CT scan in majority of GT cases [8] however, these radiological findings are not pathognomonic to GT and may also be seen in other chronic and malignant affections of the biliary tree. The diagnostic challenge to CT scan interpretation can be explained by the chronic inflammation that is common to all these disease entities.

The usually low suspicion index of GT in clinical settings renders the availability of specific tests for TB inutile to the accurate preoperative diagnosis. Our report highlights the multivariable and non-specific clinical presentations of GT. Healthcare providers should have a high index of suspicion particularly for patients in endemic areas presenting with cholecystitis to obtain a pre-operative diagnosis.

4. Conclusion

The final diagnosis of GT relies upon the histopathological examination of resected specimen. However, CT manifestation combined with clinical symptoms and TB endemicity, should prompt specific tests to facilitate early diagnosis of GT.

Abbreviations

CBD	common bile duct
CHD	common hepatic duct
EPTB	extra pulmonary tuberculosis
GB	gallbladder
GT	gallbladder tuberculosis
RUQ	right upper quadrant
TB	tuberculosis

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Ethical approval

Ethical approval not required.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Authors' contributions

MT and JP conceptualized and drafted the initial manuscript.
MT and DM were lead surgeons.
EM involved in initial patient care.
AM performed histopathological analysis.
MT, EM and AM were responsible for final manuscript version.
AS reviewed and reported the radiographs.
All authors have read and approved the final script.

Research registration

N/A.

Guarantor

Murad Tarmohamed (MT).

Declaration of competing interest

No conflict of interest.

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