

Gallbladder tuberculosis: A rare case report with review of literature

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ABSTRACT

Gallbladder tuberculosis (TB) is a rare disease, and it might be challenging to distinguish it from gallbladder cancer on clinical history and radiology. It frequently mimics carcinoma in patients who initially appear with a gallbladder mass. Gallbladder TB is only identified after histology of the resected specimen since radiography lacks pathognomonic characteristics. Here, we describe a unique case of gallbladder TB that was incidentally identified when a 49-year-old lady was being evaluated for suspected gallbladder cancer. Histology of the gallbladder exhibits necrotizing granulomatous inflammation with the presence of numerous pink-colored, curved, and beaded acid-fast bacilli that were recognized on the Ziehl-Neelsen stain.

Key words: Acid-fast bacilli, Gallbladder, Granulomatous inflammation, Tuberculosis, Ziehl-Neelsen stain

As reported by the National Tuberculosis (TB) Prevalence Survey 2019–2021, there are 312 cases of TB for every 100,000 people in India [1]. Extrapulmonary TB, which affects more than 10% of patients, has a significant form known as abdominal TB. There have been few cases of gallbladder TB recorded in the literature, making it an uncommon condition [2]. The most common clinical signs and symptoms are fever, anemia, anorexia, weight loss, and abdominal discomfort [3]. Gallstones, wall thickening, or a mass may be detected in the gallbladder with ultrasonography. To rule out malignancy and its spread in the presence of a gallbladder mass, an abdominal computed tomography is required. It can be challenging to distinguish gallbladder TB (GBTB) from other gallbladder lesions such as chronic cholecystitis, xanthogranulomatous cholecystitis, or carcinoma gallbladder before surgery because of the clinical presentation and potential radiological mimicry of gallbladder lesions. On rare occasions, gallbladder TB may incidentally detect on histopathology of the resected specimen.

In this rare case report, we described isolated GBTB that was mimicking gallbladder cancer clinically and radiologically.

CASE REPORT


A 49-year-old lady without any known comorbidities presented with a history of episodic dull aching pain in the right

hypochondrium with epigastric discomfort for 5 months, lack of appetite, and weight loss of 10 kg in the last 6 months, without any prior history of fever, night sweats, jaundice, or abdominal lump. There was no prior history of TB or intake of antitubercular drugs. On examination, hepatomegaly, ascites, or abdominal lump was not identified.

A thick, irregular, and edematous gallbladder wall was seen on abdominal ultrasonography. A computed tomography (CT) scan of the abdomen revealed several hyperdense calculi within the lumen and an ill-defined irregular thickening of the gallbladder wall with a maximal thickness of 15 mm. The liver segments IVB and V showed no distinct fat planes. The patient had a chest X-ray and a contrast-enhanced CT scan of the chest, neither of which showed any signs of interstitial lung disease or pulmonary TB. On the basis of clinical and radiological findings, a pre-operative provisional diagnosis of gallbladder carcinoma was made.

Hematological investigations showed normal hemoglobin and blood counts, serum creatinine, blood urea, and blood sugar. A liver function test revealed levels of gamma-glutamyl transferase of 134 IU/L, alanine transaminase - 32 U/L, aspartate transaminase - 41 U/L, alkaline phosphatase - 193 U/L, and total serum bilirubin of 0.7 mg/dl. Albumin and serum protein levels were 3.8 and 6.9 gm/dl, respectively. The sputum examination and cartridge-based nucleic acid amplification test were negative for mycobacterium TB.

The patient was planned for radical cholecystectomy, however, during the intraoperative procedure, no definite gallbladder

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growth was identified; hence, the procedure was turned into a simple cholecystectomy.

Histopathological examination of resected gallbladder specimen was ordered. The outer surface of the resected specimen showed areas of congestion at places. Cut surface displayed irregular and thickened gallbladder wall with partly atrophied mucosa. The results of the histopathology demonstrated the gallbladder mucosa with diffuse areas of denuded epithelium and underlying edematous muscularis propria displayed well-formed granuloma composed of epithelioid histiocytes, lymphocytes, and area of central necrosis. Ziehl-Neelsen stain for acid-fast bacilli was applied which displayed numerous pink-colored curved, beaded, and non-refractile acid-fast positive bacilli, indicating TB (Fig. 1).

Rifampicin, isoniazid, pyrazinamide, and ethambutol, the standard four-drug anti-tubercular therapy was started. After receiving therapy for 30 days, her abdomen discomfort considerably decreased. Following 3 months of treatment, the patient's right hypochondria discomfort completely disappeared, and their appetite and weight growth improved. The patient has been followed for 6 months and doing well.

DISCUSSION

In areas of widespread abdominal TB, approximately 10% of all TB cases in the developing world involve the abdomen, whereas, gallbladder involvement is extremely rare [4,5]. The normal gallbladder is thought to be very resistant to tuberculous infection as the presence of high bile alkalinity and bile acids prevent TB bacilli from growing. GBTB is thought to occur only in the context of gallbladder stones or cystic duct blockage [6].

The gallbladder may get infected with TB bacilli as a result of miliary TB (hematogenous spread), disseminated abdominal

TB (contiguous or lymphatic dissemination), or through the entero-hepatic pathway. The four kinds of GBTB that have been documented in the literature are miliary TB; severe abdominal TB; isolated GBTB, and gallbladder involvement in anergic or immunodeficient conditions such as cancer, or Human Immunodeficient Viral infection [7].

Clinical and radiological differential diagnosis of GBTB includes neoplastic lesions, chronic cholecystitis, xanthogranulomatous cholecystitis, obstructive jaundice, perforation, or gallbladder empyema [8-10]. Histopathological examination of the resected gallbladder specimen or ultrasound-guided fine-needle aspiration biopsy may provide a definitive diagnosis of GBTB. Radiology is a valuable technique for assessing gallbladder mass and the degree and extent of bile duct blockage [2]. However, there are no known radiologic pathognomonic characteristics that may accurately distinguish TB from gallbladder cancer. The histological analysis of the resected specimen, which is clinically suspected of having calculus cholecystitis, xanthogranulomatous cholecystitis, or gallbladder cancer, is used to confirm the diagnosis of TB [11].

CONCLUSION

Abdominal TB might manifest itself extremely rare in the form of gallbladder TB. Due to a lack of precise diagnostic tests, pre-operative diagnosis is not possible; thus, increased awareness and a high index of suspicion are needed. A diagnosis of gallbladder TB should be taken into consideration in individuals who have a gallbladder mass or irregular thickening of the gallbladder wall. All resected cholecystectomy specimens should be sent for histopathological analysis and a Ziehl-Neelsen stain must be applied if there is necrosis or granulomatous inflammation.

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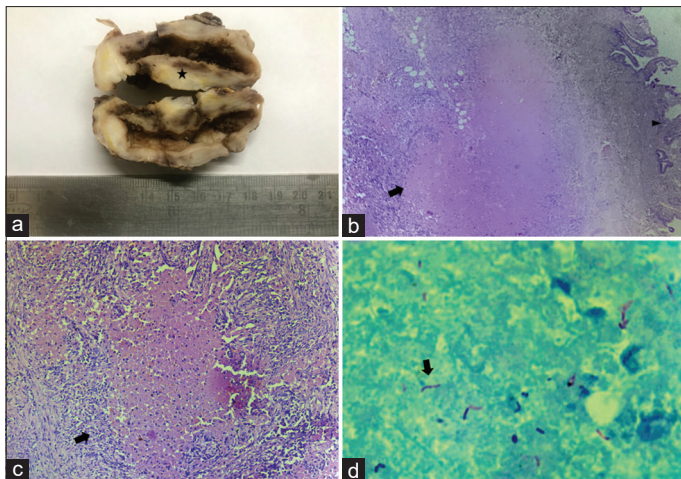


Figure 1: (a) Gross photograph of the post-cholecystectomy specimen displaying irregular thickened gallbladder wall (*). (b) Photomicrograph of the gallbladder showing denuded mucosal epithelium (arrowhead) and necrotizing granuloma (arrow) (Hematoxylin-eosin, ×4); (c) High power view of necrotizing granuloma composed of epithelioid histiocytes, lymphocytes and central area of necrosis (arrow) (Hematoxylin-eosin, ×40); (d) Oil immersion view showing numerous pink-colored curved beaded Acid-fast bacilli (Ziehl-Neelsen stain ×100)

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