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Case Report

Perforated gallbladder secondary to gallbladder tuberculosis: a case study

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ABSTRACT

Gallbladder tuberculosis is a rare form of abdominal tuberculosis accounting for 1% in all abdominal cases. The non-specific nature of clinical symptoms as well as radiological findings make gallbladder tuberculosis difficult to diagnose. Rare complications include gallbladder perforation which is explored further in our case summary, emphasises the importance of a thorough examination and the importance of clinical suspicion when in the presence of constitutional symptoms and right upper quadrant pain.

Keywords: Gallbladder tuberculosis, Abdominal, Perforation

INTRODUCTION

Extrapulmonary tuberculosis accounts for a significant proportion of tuberculosis cases, however, involvement of the hepatobiliary system, specifically gallbladder tuberculosis, is extremely rare.[1] This rarity is attributed to the gallbladder's inherent resistance to infection.[2] Consequently, gallbladder TB is often an incidental finding during cholecystectomy or is misdiagnosed as gallbladder carcinoma on imaging. Although uncommon, several complications of gallbladder TB can occur, with gallbladder perforation being among the rarest. This case study reports on a patient with complicated gallbladder tuberculosis and highlights the importance of early recognition and treatment.

CASE REPORT

A 31-year-old male, retroviral disease (RVD) reactive defaulted treatment in 2023, presented with a longstanding history of lower back pain with a two-week history of worsening right upper quadrant pain, fever, night sweats and loss of weight. Clinically the patient was cachexic with a distended abdomen and a tender right upper quadrant with no peritonitis. Bibasal crackles were present on respiratory examination. Admission bloods showed an elevated white cell count 11.7 cells/ul and C reactive protein (CRP) of 201 mg/l. Liver enzyme levels were within normal range, conjugated bilirubin of 8 umol/l, hypoalbuminemia of 26 g/l. Absolute CD4 count 47, cryptococcal antigen negative. Contrasted computed tomography (CT) of the abdomen showed gallbladder perforation with subhepatic collections 72×55×81 mm (AP×TRV×CC). Reactive colitis of the ascending colon near the hepatic flexure and mesenteric lymphadenopathy.

CT scan showed sagittal and coronal view demonstrating free air below the diaphragm, free fluid around the gallbladder with contrast leaking from the pylorus, dilated ascending colon. Pulmonary tuberculosis (TB) was confirmed on sputum genexpert, rifampin sensitive. An abdominal pigtail was inserted to drain the collections and abdominal fluid was sent for genexpert confirming abdominal TB. The patient completed five days of amoxicillin clavulanate and was initiated on TB treatment. Due to the patient's low CD count bactrim was started prior to discharge. After 5 days in hospital the patient was

discharged with pigtail in-situ, draining low volumes. The patient was discharged with a repeat CT booked to assess size of collection for drain removal, however, the patient was lost to follow up.

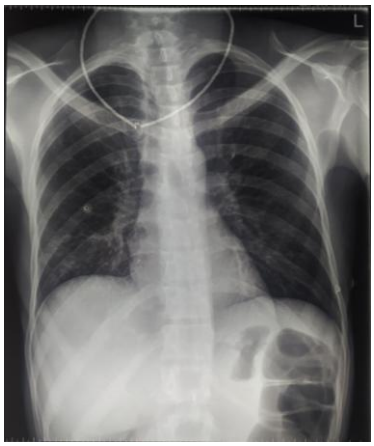

Figure 1: Chest radiograph demonstrating features of pulmonary tuberculosis- chest X-ray- PA view illustrates bilateral hilar infiltrates with cavitations in the upper zones.

Figure 2: Abdominal radiograph illustrating dilated loops of bowel erect abdominal X-ray- dilated bowel.

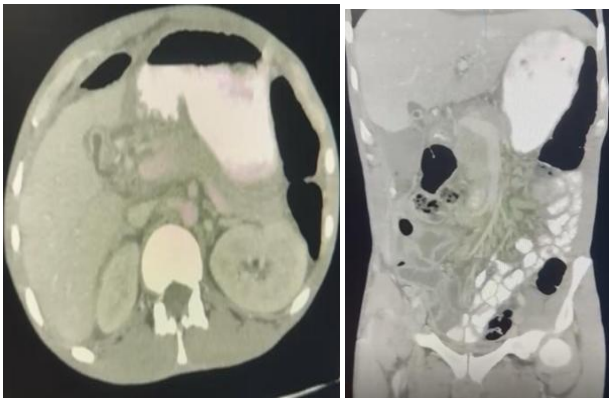

Figure 3: Computer tomography scan demonstrating pneumoperitoneum with features of gallbladder perforation on coronal and sagittal view.

DISCUSSION

Abdominal tuberculosis is uncommon accounting for 3.5% of extrapulmonary tuberculosis. Hepato - biliary tuberculosis accounts for 1% of abdominal tuberculosis cases.[1] The low incidence of gallbladder tuberculosis specifically is attributed to the alkalinity of gallbladder bile, which inhibits mycobacterium growth.[2] Previous literature has described 4 clinical manifestations of gallbladder tuberculosis namely as miliary tuberculosis, disseminated tuberculosis, isolated gallbladder tuberculosis and lastly as part of an immunocompromised state.[3,4] In the case described gallbladder tuberculosis is likely due to haemotogenous or lymphatic spread from a primary source - pulmonary TB to the gallbladder, the patient was more susceptible due to his immunocompromised state.

Clinical presentation of gallbladder tuberculosis is nonspecific. Patients may initially present complaining of a painful abdomen and constitutional symptoms such as fever, malaise and loss of weight.[5] Patients may also present with complications of gallbladder TB namely gallbladder perforation, umbilical discharge as a consequence of peritoneal seeding or obstructive jaundice[5]. Gallbladder tuberculosis is often misdiagnosed due to the nonspecific presentation mimicking that of cholecystitis or gallbladder malignancy.[6] In the case described the patient presented with a long-standing history of constitutional symptoms and painful abdomen.

Baseline blood investigations in gallbladder tuberculosis may be grossly normal, liver enzymes may be raised as a consequence of obstruction due to coexisting cholelithiasis or compressive lymphadenopathy. Similarly to the clinical features, ultrasonography features are nonspecific with the most common feature being gallbladder thickening.[7] Other features include the replacement of the gallbladder by a mass with cholelithiasis present.[7] Excluding differentials on ultrasonography is challenging, however, omental thickening and mesenteric lymphadenopathy is in keeping with gallbladder tuberculosis whilst liver infiltration is suggestive of gallbladder malignancy.[5] Most cases of gallbladder TB are diagnosed on histology of resected gallbladder specimen following suspicion for malignancy.[8] Other diagnostic methods include fine needle aspiration or in this case GXP and culture of intra-abdominal fluid.

Features suggestive of gallbladder tuberculosis on computed tomography include thickened gallbladder wall, micronodular lesions or a gallbladder mass.[9] This case showed a perforated gallbladder with a thickened wall, multiple collections and no cholelithiasis.

Initial management of gallbladder TB involves antituberculous medication specific to the cultured sensitivity of the mycobacterium. Cholecystectomy is recommended when there is a poor response to medical management, diagnosis uncertainty, suspicion of

concurrent malignancy, or biliary obstruction.[10] In the above case medical management was initiated with the intention of a repeat CT scan to assess response, unfortunately due to the patient's loss to follow up this was unable to be established.

CONCLUSION

The present case differs from those previously described in that it involves an immunocompromised patient with disseminated tuberculosis presenting with a rare complication of gallbladder tuberculosis, namely perforation. It is likely that the patient's immunocompromised state and the potential longevity of his untreated pulmonary tuberculosis led to the development of gallbladder tuberculosis and complication thereof. The case study emphasises the importance of early recognition and maintaining a high index of suspicion for gallbladder tuberculosis, particularly in immunocompromised patients in high burden TB regions, to prevent severe complications such as perforation.

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