REVIEW ARTICLE

INDEX COPERNICUS INTERNATIONAL

A comprehensive review on Primary gallbladder tuberculosis

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Article history: Received: 27.10.2017 Accepted: 19.02.2018 Published: 30.04.2018

ABSTRACT:

Tuberculosis (TB) is an infectious disease that can affect any organ system of the body. Abdominal TB can be gastrointestinal, lymph nodal, visceral or peritoneal. The gallbladder (GB) is rarely involved in abdominal TB as a primary organ. Extensive research literature on gallbladder TB is limited to case reports. There has been no review on this rare abdominal pathology. GB tuberculosis is a difficult diagnosis preoperatively. It is a rare differential among the more common gallbladder pathologies such as cholelithiasis, or a gallbladder malignancy. Typical histopathology of the resected specimen helps to establish this rare diagnosis. Subjecting every specimen to histopathological examination followed by medical treatment offers the chance of cure. Through this review, the authors attempt to provide an insight into this disease entity.

KEYWORDS: gallbladder, Tuberculosis, Antitubercular drugs

INTRODUCTION

According to a WHO report of 2015, tuberculosis is an infectious disease that affects nearly 13 million people worldwide [1]. Tuberculosis is the leading cause of mortality along with the human immunodeficiency virus (HIV) among infectious diseases. There has been an increase in the incidence of the infection in developed countries due to the coexisting HIV infection [2,3]. Pulmonary tuberculosis is the commonest form of tuberculosis. The abdominal TB can be peritoneal, gastrointestinal, lymphatic or visceral [4]. Concomitant abdominal and pulmonary tuberculosis is present in 15-25% of cases [5,6]. Hepato-biliary TB forms only 1% of the abdominal TB cases [7,8]. Liver involvement in visceral TB has been described but the primary biliary tuberculosis is a rare entity. The literature on primary gallbladder TB is limited to few case reports [9]. Gallbladder TB was first described by Gaucher in year 1870 [10]. Since then, various presentations have been reported through individual case reports. Till 2011, less than 120 cases have been reported in literature [8,11-13]. The aim of this manuscript is to provide an insight into epidemiology, pathophysiology, diagnosis and treatment of this rare pathology from the available literature.

EPIDEMIOLOGY AND PATHOPHYSIOLOGY

Primary hepatobiliary TB is a rare form of abdominal tuberculosis [7,8]. It is more common in males with a male to female ratio of 2:1. The age of patients varies between 11-50 years [14]. The gallbladder is affected by hematogenous, lymphatic routes. Direct involvement from a nearby viscera is also postulated [15]. The rarity of gallbladder TB is attributed to the alkaline nature of the bile.

The chronic impaction of the stone in the cystic duct leads to resorption of the bile salts, predisposing GB mucosa to infection. Chronic injury of the mucosa caused by the coexisting cholelithiasis seems to be a prerequisite for tubercular cholecystitis [16]. Four distinct varieties of gallbladder TB have been reported in literature i) as a component of miliary tuberculosis in children and adults ii) as a component of disseminated abdominal tuberculosis iii) as isolated gallbladder tuberculosis without any focus of infection anywhere else in the body iv) as involvement of the gallbladder in immunodeficiency states [13].

CLINICAL FEATURES

The presentation of GB tuberculosis is non-uniform. Most of these patients present pain abdomen. Varied presentations of primary gallbladder TB are reported. These include general features of malaise, weight loss and low grade fever [17], discharge from the umbilicus due to peritoneal seeding[18], gallbladder perforation and bilioma [19], obstructive jaundice, gallbladder perforation and formation of abscess and sinus in the anterior abdominal wall by Kumar P et al [20]. Gulati et al [21] have reported gallbladder cystic mass along with b/l adrenal enlargement. Gallstones and cystic duct (70%) stones are associated with the majority of tubercular cholecystitis [22]. Till this date, 3 cases of a calculus tubercular cholecystitis are reported in literature [16]. Multiple reports of TB mimicking gallbladder cancer are available in literature. The preoperative suspicion of tubercular GB is rare, as similar presentations are common in cholelithiasis, gallbladder cancer; xanthogranulomatous cholecystitis. The incidence of these differentials is much higher than gallbladder TB.

INVESTIGATIONS

Hematological investigation in a patient with gallbladder tuberculosis is essentially normal. Pre-operatively increased ESR and a positive tuberculin test may aid in highly suspicious cases. Liver enzymes may be raised in certain cases of hepatobiliary tuberculosis [23]. Serologic tests for the detection of antibodies, i.e. IgG, IgA and IgM have been described. The sensitivities of these tests are 62,52, and 11% whereas specificities are 100, 97 and 95% as described in a study by Raja and Kaustova et al [24,25]. Acid Fast Bacilli (AFB) is rarely identified in the bile aspirated by ERCP [12]. However, raised Adenosine Deaminase (ADA) levels have increased sensitivity [26].

In 1995, Jain et al [27] first described ultrasonographic (USG) findings of gallbladder TB. In ultrasonography, the gallbladder is replaced by a mass with stones embedded within it. It is difficult to distinguish between gallbladder cancer and primary gallbladder TB based on USG. The authors opined that the presence of mesenteric lymphadenopathy along with omental thickening was in favor of TB, whereas the presence of liver infiltration along with

DOI: 10.5604/01.3001.0011.7485

liver metastasis favored GB cancer. The presence of lymphadenopathy and ascites does not add anything to the available information, as these can be present in both conditions.

Three different findings are described based on Contrast-Enhanced Computed Tomography (CECT) by Xiu-Fang Xu et al [8]. These include a micronodular lesion of GB wall, a thickened wall and a gallbladder mass. Micronodular lesions may mimic polyps or a papillary GB tumor. The polyps and cancer are usually >1 cm in size, whereas the thickening in TB is small. Other two forms are indistinguishable from malignancy. The presence of other markers such as lymphadenopathy along with omental thickening with chest infiltrates may be a marker of tuberculosis. Thickened-wall type is the most common form of GB tuberculosis on CECT and hence, the differentiation from acute cholecystitis or cancer is often difficult.

Ramia et al [15] noted a false positive case of tuberculosis reported by a PET scan. In this report, the authors obtained a positive PET scan with a suspicion of GB cancer. On the contrary, histopathology indicated gallbladder tuberculosis. This was the first case report of false positive PET in GB tuberculosis. An 11C-choline tracer is more accurate than 18F-fluorodeoxyglucose for differentiating between TB or cancer [28].

HISTOPATHOLOGY

Typical histopathology of caseating granuloma along with the presence of Langhans giant cells helps to establish the diagnosis. Subjecting every specimen to histopathological examination postoperatively will help to differentiate this disease from other differentials. The typical granuloma of TB may be difficult to differentiate from other gallbladder granulomatous diseases. Xanthogranulomatous cholecystitis also shows granuloma in histopathology, though non-caseating granulomas and foam cells are a rule in it [29]. Crohns disease with non-caseating granulomas also involve the gallbladder as described by Andoh A et al [30]. Sharara et al [31] also reported a case of schistosomal gallbladder granulomatous infection. Around 10 cases of schistosomiasis of the gallbladder are reported in English literature [31]. However, rare tuberculosis needs to be ruled out to establish this diagnosis. The presence of parasites in the gallbladder wall will help differentiate this condition from TB. However, difficult histopathology is the final confirmation of GB tuberculosis.

TREATMENT

Antitubercular chemotherapy is the treatment of choice. The drugs include Rifampicin (10mg/kg), isoniazid (5mg/kg), pyrazinamide (25-30mg/kg) for 2 months followed by a continuation phase for 4 months in the form of rifampicin and isoniazid [32]. Tragically, surgery has become a cornerstone in the diagnosis of this ailment due to lack of preoperative markers. Sometimes surgery can be devastating for a disease that can be otherwise treated medically. The 0.2% [33] association of bile duct injury with this surgical procedure can pose a real risk to the life of the affected individual. In their study, Jain et al, have demonstrated an ultrasonic regression of gallbladder mass along with the regression of abdominal lymph nodes with antitubercular treatment.

CONCLUSION

Gallbladder tuberculosis is a rare diagnosis confirmed by histopathology. It poses a diagnostic challenge to the clinicians during preoperative evaluation. The tragedy of this disease is the requirement of a surgery to confirm the diagnosis despite the advances in diagnostic modalities. Gallbladder TB should always be a differential diagnosis for gallbladder mass. The index of suspicion should be high in an individual from endemic area or an immunocompromised patient. This article reiterates the value of histopathological examination of the resected specimen, that is still lacking in many developing countries.

REFERENCES:

1. World Health Organization. Global tuberculosis report 2015. World Health Organization; 2015.
2. Pop M, Pop C, Homorodean D, et al. Abdominal miliary tuberculosis in a patient with AIDS: a case report. Romanian journal of gastroenterology. 2003;12(3):231-4.
3. Albalak R, O'Brien RJ, Kammerer JS, et al. Trends in tuberculosis/human immunodeficiency virus comorbidity, United States, 1993- 2004. Archives of internal medicine. 2007;167(22):2443-52.
4. Debi U, Ravisankar V, Prasad KK, et al. Abdominal tuberculosis of the gastrointestinal tract: revisited. World J Gastroenterol. 2014;20(40):14831-40.
5. Horvath KD, Whelan RL. Intestinal tuberculosis: return of an old disease. The American journal of gastroenterology. 1998 ;93(5):692-6.
6. Akhan O, Pringot J. Imaging of abdominal tuberculosis. European radiology. 2002;12(2):312-23.
7. Kumar K, Ayub M, Kumar M, et al. Tuberculosis of the gallbladder. HPB Surgery. 2000;11(6):401-4.
8. Xu XF, Yu RS, Qiu LL,et al. Gallbladder tuberculosis: CT findings with histopathologic correlation. Korean journal of radiology. 2011;12(2):196-202.
9. Hossain MI, Khan AS. Isolated Tuberculosis of Gallbladder: A Case Report. Chattagram Maa-O-Shishu Hospital Medical College Journal. 2015 ;14(1):61-3.
10. Bendre M, Rane N, Narwade N. Isolated tuberculosis of gallbladder: A case report. Indian Journal of Applied Research. 2014; 4(4): 439-440.
11. bu-Zidan FM, Zayat I. Gallbladder tuberculosis (case report and review of the literature). Hepato-gastroenterology. 1998 ;46(29):2804-6.
12. Saluja SS, Ray S, Pal S, et al. Hepatobiliary and pancreatic tuberculosis: a two--decade experience. BMC surgery. 2007 ;7(1):1.
13. Kumar K, Ayub M, Kumar M, et al. Tuberculosis of the gallbladder. HPB Surgery. 2000;11(6):401-4.
14. Chaudhary P. Hepatobiliary tuberculosis. Annals of gastroenterology. 2014;27(3):207.
15. Ramia JM, Muffak K, Fernández A, et al. Gallbladder tuberculosis: false-positive PET diagnosis of gallbladder cancer. World journal of gastroenterology. 2006;12(40):6559-60.
16. Tanwani R, Sharma D, Chandrakar SK. Case report-tuberculosis of gallbladder without associated gall stones or cystic duct obstruction. Ind J Surg.2005;67:45-6.
17. Arlandis FF, Villalobos TJ, Mazure LR, et al. Tuberculosis of the biliary system: presentation of a case and review of the literature. Revista española de enfermedades digestivas: organo oficial de la Sociedad Española de Patología Digestiva. 1990;78(1):43.
18. Goyal SC, Goyal R, Malhotra V et al. Tuberculosis of the gallbladder. Indian J Gastroenterol 1998;17:108.
19. Abascal J, Martin F, Abreu L, et al. Atypical hepatic tuberculosis presenting as obstructive jaundice. Am J Gastroenterol 1988; 83: 1183-6.
20. Kumar P, Hazrah P, Taneja A, et al. Rare presentation of gallbladder tuberculosis in a non-immuno-compromised patient. Clinics and practice. 2015;5(2):754.
21. Gulati MS, Seith A, Paul SB. Gallbladder tuberculosis presenting as a multilocular

cystic mass on CT. Indian Journal of Radiology and Imaging. 2002 ;12(2):237.

22. Yu R, Liu Y. Gallbladder tuberculosis: case report. Chinese medical journal. 2002 ;115(8):1259-61.
23. Essop AR, Posen JA, Hodkinson JH, et al. Tuberculosis hepatitis: a clinical review of 96 cases. QJM. 1984;53(4):465-77.
24. Raja A, Uma Devi KR, Ramalingam B, et al. Immunoglobulin G, A, and M responses in serum and circulating immune complexes elicited by the 16-kilodalton antigen of Mycobacterium tuberculosis. Clinical and diagnostic laboratory immunology. 2002;9(2):308- 12.
25. Kaustova J. Serological IgG, IgM and IgA diagnosis and prognosis of mycobacterial diseases in routine practice. European journal of medical research. 1996;1(8):393-403.
26. Bhargava DK, Gupta M, Nijhawan S, et al. Adenosine deaminase (ADA) in peritoneal tuberculosis: diagnostic value in ascitic fluid and serum. Tubercle. 1990 ;71(2):121-6.
27. Jain R, Sawhney S, Bhargava D, et al. Gallbladder tuberculosis: sonographic appearance. Journal of clinical ultrasound. 1995 ;23(5):327-9.
28. Hara T, Kosaka N, Suzuki T, et al. Uptake rates of 18F-fluorodeoxyglucose and 11C-choline in lung cancer and pulmonary tuberculosis: a positron emission tomography study. CHEST Journal. 2003;124(3):893-901.
29. Jetley S, Rana S, Khan RN, et al. Xanthogranulomatous cholecystitis--a diagnostic challenge. Journal of the Indian Medical Association. 2012 ;110(11):833-7.
30. Andoh A, Endo Y, Kushima R, et al. A case of Crohn's disease involving the gallbladder. World journal of gastroenterology. 2006;12(6):977
31. Sharara AI, Abi-Saad G, Haddad M, et al. Acute granulomatous schistosomal cholecystitis. European journal of gastroenterology & hepatology. 2001;13(8):1001-3.
32. El Malki HO, Benkabbou A, Mohsine R, et al. [Gallbladder tuberculosis]. Canadian journal of surgery. Journal canadien de chirurgie. 2006;49(2):135-6.
33. Fletcher DR, Hobbs MS, Tan P, et al. Complications of cholecystectomy: risks of the laparoscopic approach and protective effects of operative cholangiography: a population-based study. Annals of surgery. 1999;229(4):449

Word count: 1250 Page count: 3 Tables: – Figures: – References: 33

DOI: 10.5604/01.3001.0011.7485 Table of content: https://ppch.pl/issue/10631

Competing interests: The authors declare that they have no competing interests.

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Cite this article as: Gupta A., Gupta A., Anjum R., Agrawal S., Mallik D.; A comprehensive review on Primary gallbladder tuberculosis; Pol Przegl Chir 2018: 90 (2): 30 - 32