Abstract

Introduction

Hepatobiliary tuberculosis is rare but biliary stricture due to tuberculosis is extremely rare. Only a few cases have been reported in the literature. Most of the cases presented with obstructive jaundice and mimicked neoplasm. Diagnosis of tuberculosis was made on postoperative histopathology. With the advent of image-guided fine needle aspiration cytology, endoscopic brush cytology and PCR testing of bile diagnosis of hepatobiliary tuberculosis can be made without the need of laparotomy. This report discusses tuberculosis of the biliary tract.

Case report

We report a case of a 65-year-old woman with tubercular common bile duct stricture. Diagnosis of tuberculosis was made on PCR testing of bile. Patient was started on antitubercular treatment and she responded well.

Conclusion

We have presented a rare case of common bile duct stricture due to biliary tuberculosis. This is an important condition to diagnose because early recognition with prompt treatment results in complete resolution without surgery.

Introduction

Tuberculosis of the hepatobiliary system is not an uncommon finding but it is an extremely rare cause of biliary stricture. Only 18 cases of tubercular biliary stricture have been reported in the English literature\(^1\)\(^-\)\(^13\), and only one case from the Middle East. The more common benign causes of biliary stenosis are postoperative cicatrical stenosis and complications of chronic pancreatitis, duodenal papillitis and congenital biliary dilatation. The main symptoms of tuberculosis biliary stricture including jaundice and weight loss are usually indistinguishable from those of other diseases such as cholangiocarcinoma. Although the presence of past history or chest X-ray changes of tuberculosis may raise the suspicion of this aetiology, most of the reported cases are diagnosed based on surgical pathology. We report a rare cause of common bile duct (CBD) stricture in tuberculosis of the biliary tract.

Case report

A 65-year-old woman was presented to the surgical emergency with complaints of pain in the abdomen and vomiting for the last 4 months. She also had complaints of weight loss (undocumented) and loss of appetite. The patient had a history of jaundice 5 years back and no history of tuberculosis in the past. There was no history of haematemesis and melena. There was no history of tuberculosis or such similar complaints in the family. On examination, she was malnourished with body weight of 30 kg, pale, anicteric and had multiple lymph nodes palpable in bilateral axilla with the largest measuring 2.5 cm in diameter. Her blood pressure was 100/60 mmHg and pulse rate was 86/minute. On abdominal examination there was no organomegaly, no ascites. Lab investigations revealed Hb of 7.2% with TLC of 8300 with elevated lymphocyte count of 40%, total bilirubin 1.0 mg/dl, alkaline phosphatase 160. Viral markers for hepatitis were nonreactive. Mantoux test was positive. Serology for HIV was nonreactive. Ultrasonography of abdomen showed distended gall bladder with focal thickening of the posterior wall and body of gall bladder (11.1 mm), moderate IHBRD, CBD (16 mm diameter) and MPD (3.2 mm) dilated, suspicion of periampullary carcinoma (IHBR-Intrahepatic biliary radical, MRCP-Magnetic Resonance cholangiopancreatography, USG-Ultrasoundography, ERCP-Endoscopic Retrograde Pancreatography, CHD-Common hepatic duct, MPD-Main pancreatic duct). Contrast enhanced computed tomography of the abdomen (Figures 1) revealed circumferential thickening with narrowing at terminal end of CBD with dilated proximal CBD, hypo dense lesions in spleen, enlarged periportal, mesenteric and aortocaval lymph nodes, granulomas in liver (calcified) with differential diagnosis of (a) tubercular stricture CBD with granulomas spleen, (b) cholangiocarcinoma with metastasis spleen. Side viewing endoscopy showed no ulceration/growth. PCR testing of bile detected Mycobacterium tuberculosis. Fine needle aspiration cytology of the axillary nodes showed tubercular lymphaenitis. The patient was started on antitubercular treatment from the DOTS centre. On follow-up at 3 months the patient was asymptomatic and had regained 3 kg in weight.

Discussion

Benign biliary strictures fall into two aetiological groups: traumatic

Tuberculosis of biliary tract: a rare cause of common bile duct stricture

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Figure 1: Circumferential thickening with narrowing at terminal end of CBD with dilated proximal CBD, hypo dense lesions in spleen, enlarged periportal, mesenteric and aortocaval lymph nodes, granulomas in liver (calcified) (Figure 1a-c).

Hepatobiliary tuberculosis may be caused by three ways: spread of caseous material from the portal tracts into the bile ducts (most often), secondary inflammation-related tuberculous periportal adenitis and spread of caseous material through the ampulla of Vater and ascending along the CBD. Hepatobiliary tuberculosis can be classified into three types: miliary hepatic tuberculosis, hepatic tuberculoma and biliary tuberculosis. The majority are the miliary tuberculosis type.

The clinical and cholangiographic features of tuberculous biliary stricture are usually not helpful in differentiating tuberculosis from other common causes of endoluminal biliary stricture such as primary sclerosing cholangitis or cholangiocarcinoma. Alvarez and Sollano have proposed the characteristic cholangiographic patterns of hepatobiliary tuberculosis, including a tight hilar stricture with dilated intrahepatic ducts, a long smooth stricture involving the distal bile duct, pruning of the distal intrahepatic ducts and sclerosing cholangitis-like changes.

Most of the reported cases of tuberculous biliary stricture are diagnosed until laparotomy is performed. The histopathological findings of tuberculosis include caseating granulomatous inflammation and Langhans giant cells. However, in some cases the diagnosis is achieved by detection of acid fast bacilli (AFB) after staining or culture in the biliary fluid aspirate during ERCP, but the yield of these tests is low. The detection rate through culture is 0%-10%. PCR technique for M. tuberculosis from biliary fluid may be helpful. In our case the diagnosis was made by PCR technique. Prasad and Pandey reported that AFB staining of the aspirated bile can diagnose tuberculous biliary stricture.

In our case diagnosis was difficult because of clinical presentations mimicking other common aetiology, lack of constitutional symptoms of tuberculosis such as fever and night sweats, absence of past history of tuberculosis, lack of past of strong evidence of old or active tuberculosis. However, the presence of lymphadenopathy raises the possibility of diseases such as tuberculosis, lymphoma or sarcoidosis. Therefore fine needle aspiration cytology of the lymph nodes is essential for confirming the diagnosis of tuberculosis as the likely cause of biliary stricture and excluding other possibilities.

The challenge in the management is the high risk of antituberculosis hepatotoxicity, especially in the setting of liver cirrhosis and the uncertainty of the diagnosis. The possibility of cholangiocarcinoma or lymphoma can be completely ruled out based on the dramatic clinical, biochemical and radiological responses to antituberculosis drugs as well as the positive tuberculosis culture.

In most of the reported cases, the biliary stricture does not resolve with medical therapy alone and requires surgical intervention and biliary metallic stent placement. Our patient responded well to antitubercular drugs and is under follow-up. Long-term follow-up is required since there is risk of posttreatment cicatricial stenosis.

A Pub Med search of papers published after 1985 has yielded 18 reported cases of biliary tuberculosis. In each case, irregular stenosis of one or more bile ducts was seen on ERC. Differentiation from malignant neoplasia was often extremely
A 36-year-old woman presented with painless progressive jaundice and gallbladder with abscess formation:

**Table 1** Other cases of tubercular biliary stricture report

| Ray et al.17 | A 55-year-old male presented with painless progressive jaundice USG revealed dilated CBD with dilated IHBR and soft tissue shadow in lower end of CBD; MRCP revealed soft tissue lesion in terminal end of CBD suggestive of cholangiocarcinoma; Pylorus-preserving pancreatectoduodenectomy done; Histopathology revealed granulomatous inflammation at lower end of CBD with granulomatous lymphadenitis consistent with tuberculosis. |
| Sachdev et al.18 | A 35-year-old male presented pain in abdomen with significant weight loss; Imaging studies revealed mass in the head of pancreas with dilated intrahepatic biliary radicles; Diagnosis of pancreaticobiliary tuberculosis was confirmed on ERCP with biliary brushing; Caseating granulomas along with AFB seen on biliary brushing. |
| Iwai et al.12 | A 36-year-old woman presented with painless progressive jaundice; CT of abdomen revealed dilated IHDR and multiple hypo dense lesions in liver; ERCP confirmed dilated IHBR and showed stricture of CHD at liver hilum; Histopathological examination of biopsy from bile duct revealed epithelioid cell granulomas and caseous necrosis; Tubercle bacilli were detected on PCR testing of the bile. |
| Ratanarapee et al.1 | A 38-year-old male presented with painless progressive jaundice USG revealed dilatation of IHBR; Laparotomy revealed irregularity of CBD and enlarged adjacent lymph nodes; Histopathology of CBD revealed tubercules composed of epithelioid cells and Langhans giant cells; AFB were identified on Fite’s stain. |

**Conclusion**

We have presented a rare case of CBD stricture due to biliary tuberculosis. This is an important condition to diagnose because early recognition with prompt treatment results in complete resolution without surgery. As the incidence of extra pulmonary tuberculosis rises, physicians can expect that biliary tuberculosis, sometimes associated with bile duct obstruction, may well become a more common entity. A high index of suspicion must be kept in mind especially in areas where tuberculosis is relatively common. ERCP with brush cytology, PCR testing of bile can be used to make the diagnosis and prevent unnecessary laparotomies.

**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.

**References**

13. Leader SA. Tuberculosis of the liver and gall-bladder with abscess formation.

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