CASE REPORT

Primary/local hepatic tuberculosis without dissemination

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SUMMARY

We present a rare case of primary hepatic tuberculosis in a 50-year-old man who presented with pain at the right hypochondrium. The diagnosis was established by fine-needle aspiration cytology (FNAC) of the primary hepatic lesions in both lobes of the liver, which was further supported by histopathological examination and tissue PCR for *Mycobacterium tuberculosis* in the FNAC specimens.

BACKGROUND

Primary hepatic tuberculosis (TB) in the absence of miliary TB in an immunocompetent adult is an extremely rare entity^{1–3} and accounts for <0.5% of all forms of primary TB. To date, fewer than 30 cases of primary hepatic TB have been reported in the literature. Liver involvement secondary to lung and gastrointestinal tract TB is also less common. Hepatic TB mimics common liver disorders such as tumour and hepatic abscess.^{4 5} This report describes a rare case of multiple primary tubercular lesions mimicking metastasis in both lobes of the liver. Final diagnosis was established by fine-needle aspiration cytology (FNAC) of the liver lesions and subsequent histopathological examination (HPE) and tissue PCR for *Mycobacterium tuberculosis*.

CASE PRESENTATION

A 50-year-old man presented with a 2-month history of pain at the right hypochondrium along

with post prandial abdominal distension, dyspepsia and a feeling of tenesmus. On palpitation, mild hepatomegaly was noticed, which was non-tender and firm. Other general and physical examinations were unremarkable.

INVESTIGATIONS

Chest X-ray was within normal limits. Routine blood haemogram revealed no abnormality. Liver function tests were within normal limits. Tumour markers of liver cancer namely α -fetoprotein, carcinoembryonic antigen, carbohydrate antigen19-9 (CA19-9) and hepatitis viral markers were negative. Ultrasound of the abdomen revealed an enlarged liver showing a few rounded to oval hypoechoic lesions in both lobes, with the largest measuring 2.5×2 cm, in the right lobe of the liver (figure 1). A strong possibility of metastatic lesions in the liver was suspected and subsequent MRI was suggested for further evaluation.

MRI revealed an enlarged liver with multiple focal lesions of hyperintense signal intensity on T2-weighted short-tau inversion recovery images in both lobes; metastasis was suspected (figure 2). A subsequent FNAC/tissue biopsy was advised. Subsequently, an ultrasound-guided FNAC of both lobes was performed and cytopathological examination showed caseating granulomatous inflammation with little preservation of the liver architecture (figure 3). A subsequent tissue biopsy and tissue

Figure 1 Ultrasonography revealing round to oval hypoechoic lesions in both lobes of the liver.

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Figure 2 MRI revealing multiple focal lesions (arrow) mimicking metastases.

PCR for *M. tuberculosis* confirmed the diagnosis. Following histopathological and molecular confirmation of the disease, the patient was started on antitubercular drug therapy.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis of hepatic TB includes infectious conditions such as leprosy, sarcoidosis, Hodgkin's disease, brucellosis, inflammatory bowel disease and liver tumours.

TREATMENT

The patient was treated with antitubercular drug therapy with an intensive phase of four drugs: isoniazid (H), rifampicin (R), pyrazinamide (Z) and ethambutol (E) for 2 months followed by a continuation phase of three drugs (HRE) for 4 months.

OUTCOME AND FOLLOW-UP

The patient showed clinical improvement within 4 weeks of starting drug therapy and all the symptoms pertaining to the disease at the time of onset started resolving. Some weight gain was also observed. After completion of 2 months of intensive phase drug therapy a repeat ultrasound of the liver was performed, which showed complete resolution of the lesions from both lobes of the liver (figure 4).

Figure 3 Histopathological examination showing caseating granulomatous inflammation.

DISCUSSION

Involvement of the hepatobiliary tract by TB, with either no apparent involvement elsewhere or with only local lymph node and splenic involvement, has been termed as primary or local hepatic TB.⁶ The pathophysiology of localised hepatic TB is similar to other forms of extrapulmonary TB, and results from haematogenous spread; and implantation of tubercle bacilli from a primary pulmonary focus via hepatic artery from a tubercular focus in the lungs (which may be active or inactive) results in miliary TB.⁷ In some cases, however, infection could reach the liver via the lymphatic spread or due to rupture of the tubercular lymph node in the portal tract; this latter mode of spread can lead to localised hepatobiliary TB.⁷ There is a subsequent regression of the primary focus. Primary hepatic TB is probably rare because even if there is no clinical or radiological evidence of TB elsewhere, pulmonary TB is discovered at autopsy in those patients who die, even if it is inactive. Hepatic TB has been classified by Levine⁸ into (1) miliary TB, (2) pulmonary TB with secondary liver involvement and (3) primary (localised) hepatic TB. The miliary form, which is a part of generalised miliary TB, occurs in 50–80% cases and usually has no signs or symptoms relevant to the liver. Pulmonary TB with secondary liver involvement presents with unexplained fever, occasionally with mild jaundice, with or without hepatomegaly, and on liver biopsy shows caseating granuloma and improves with antitubercular therapy. Localised hepatic TB (with signs and symptoms relevant to the hepatobiliary tract): (1) without bile duct involvement leads to formation of solitary or multiple nodules, tuberculoma and tubercular hepatic abscess; and (2) with bile duct involvement, presents as obstructive jaundice, due either to enlarged lymph nodes surrounding the bile duct or actual tubercular process in ductal epithelium producing inflammatory strictures.

The diagnosis of extrapulmonary TB is challenging because extrapulmonary forms are usually paucibacillary and mostly at inaccessible sites, so obtaining a sample specimen to establish the diagnosis of TB is difficult from these sites. Diagnosis of hepatic TB is established mainly by a combination of clinical representation and radiological picture. Jaundice may or may not be present. Liver function tests and alkaline phosphatases may be abnormal. Anaemia and hypoalbuminaemia are less common findings. Recently, PCR assays have demonstrated to be useful in diagnosis of hepatic TB.⁹ Ultrasonography findings of hepatic TB reveal hypoechoic lesions¹⁰ whereas CT findings may confirm miliary, hypodense nodular or cystic lesions.¹¹ MRI reveals multiple focal lesions of hyperintense signal intensity. HPE of the hepatic lesions is needed to confirm the diagnosis of TB and to rule-out malignancy, which is one of the important differential diagnoses in this case. Ultrasound-guided biopsy or FNAC is usually preferred over a wedge liver biopsy taken during laparotomy. Biopsy specimen may be subjected to HPE, culture and PCR. It is wise to avoid laparotomy, which may be performed when the exact nature of the disease is uncertain after ultrasound-guided biopsy of the lesion.

Cumulative mortality for hepatic TB ranges between 15% and 42%.^{12 13} Concurrent steroid use, HIV and liver cirrhosis warrants poor prognosis. The treatment modality for hepatic TB comprises of combination therapy of HRZE for 2 months followed by HRE for 4 months. Good results have been obtained with a combination four drug regimen with complete cure of the disease. There is usually no risk of any added hepatotoxicity with this drug regimen. Improvement may be observed after 3–4 weeks of initiation of the four drug regimen as intensive phase of TB.

Figure 4 Ultrasound of the liver after completion of intensive phase showing resolution of lesions in both the lobes.

Learning points

- ▶ Isolated hepatic tuberculosis is rare and may also present without disseminated tuberculosis.
- ▶ Any solitary lesion of the liver should always undergo a fine-needle aspiration cytology (FNAC)/biopsy to get the confirmatory diagnosis.
- ▶ Before making a diagnosis of metastases or liver tumours, other infectious aetiologies should be excluded by performing an FNAC.

Competing interests None.

Patient consent Obtained.

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