

## Tuberculous Liver Abscess with Right Sided Pleural Effusion

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Received: 11 January 2015      Initial Review: 28 January 2015      Accepted: 24 April 2015      Published Online: 30 May 2015

### ABSTRACT

Tuberculosis is a rare cause of liver abscess even in countries where the tuberculosis is prevalent, liver may be involved as a part of miliary tuberculosis or as local tuberculosis. We present a case of tuberculous liver abscess in patient with smear positive pulmonary tuberculosis and right pleural effusion. A positive BACTEC culture and Polymerase chain reaction (PCR) for Acid Fast Bacilli (AFB) in the pus aspirated from abscess confirmed the diagnosis of tuberculous liver abscess.

**Keywords:** Liver Abscess, Pleural Effusion, Tuberculosis

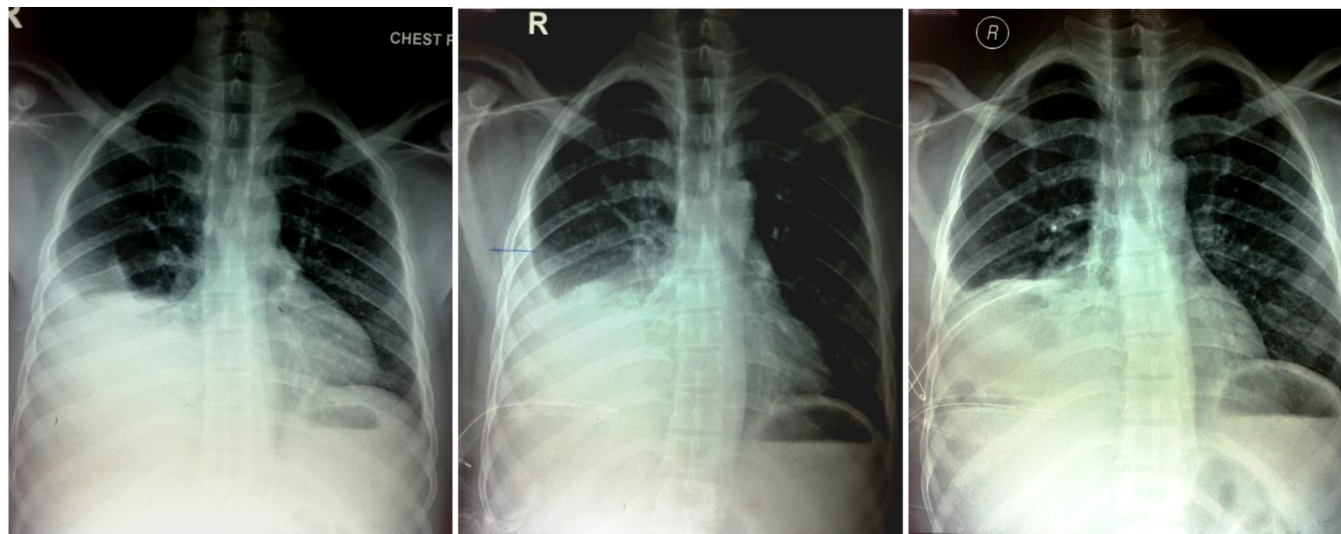
Liver involvement has been reported in 10-15% of patients with pulmonary tuberculosis and it is a common finding in patients with disseminated tuberculosis [1]. Hepatic involvement has been described in 90% of miliary tuberculosis, 75% of extra hepatic tuberculosis and 25% of pulmonary tuberculosis [2]. The clinical and radiological features of tuberculous liver abscess (TLA) may mimic amoebic or pyogenic liver abscess and diagnosis can only be established on the presence of caseating granulomatous lesion on histopathology of liver biopsy and/or presence of AFB. Hence, high index of suspicion is required to diagnose tuberculosis liver abscess especially in immune-competent adults

### CASE REPORT

A 40 years male presented with low grade fever and cough with expectoration of 2 month duration. He also complained of breathlessness on exertion for 20 days and chest pain on right side for 20 days. He also had episodes of high grade fever with chills started five days before admission. He was an alcoholic and chronic smoker for last 10 years. There was no history of any chronic illness

like diabetes mellitus, hypertension, or asthma. There was no history of contact with tubercular patients or antitubercular drugs intake in the past. There was no history of blood transfusion, loss of weight, history of illicit drug intake, foreign travel or extra marital sexual relationships.

On examination, he was afebrile, conscious, and oriented. His pulse rate was 100/min, respiratory rate was 20/min, blood pressure 130/80 mm-Hg and oxygen saturation was 93% on room air. There was no pallor, jaundice, oedema, clubbing or lymphadenopathy. Ophthalmoscopic examination revealed no abnormality including choroid tubercle. He was thin built with body mass index of 18.75 kg/m<sup>2</sup>. Respiratory system examination revealed decreased movement on right infrascapular, axillary and mammary region, and stony dull percussion note and absent breath sounds on right side of the chest suggestive of right sided pleural effusion. On abdominal examination, tenderness was present on right hypochondrium and liver was palpable 4 cm below right mid-clavicular line, firm in consistency. There was no splenomegaly and cardiovascular and nervous system examination was within normal limits.



**Figure 1 showing Right Sided Pleural Effusion. Figure 2 showing liver abscess drain. Figure 3 showing intercostal chest drain and liver abscess drain.**

Laboratory investigation showed haemoglobin 11 g/dL, white blood cells count  $21000/\text{mm}^3$  (Polymorph 89%, Lymphocytes 11%) and platelets 2.5 lacks/ $\text{mm}^3$ . His liver function and renal function tests were normal and Hepatitis B surface antigen, VDRL and HIV antibodies were negative. ECG showed no abnormalities. Sputum for acid fast bacilli (AFB) was ++ for AFB and X-ray chest showed right side pleural effusion (Fig. 1). Intercostal drainage tube was inserted in right 5<sup>th</sup> intercostal space and about 1100 ml straw coloured fluid of exudative characteristics came out. Pleural fluid investigation showed total protein 6.2 gm/dl, sugar 35 mg/dl, LDH 393 U/L and leukocyte count was  $1400 \text{ cells}/\text{mm}^3$  (polymorph 20%, and lymphocyte 80%). Gram staining and AFB staining of pleural fluid was negative and culture was sterile.

In view of tenderness in right hypochondrium with enlarged liver, ultrasonography (USG) of whole abdomen was done which showed large (14.6x12x7 cm, volume 2500cc) heterogenous hypoechoic lesion with lobulated outline suggestive of abscess in right lobe of liver. Moderate right pleural collection with thin septation with underlying consolidation and atelectasis was also seen. Intra- hepatic biliary channels were not dilated and there was no free fluid in the peritoneal cavity.

USG guided percutaneous drain was put in the liver abscess (fig. 2 and 3) and about 2100 ml pus was drained out. No pathogenic organism could be detected by Gram staining or Ziehl-Neelsen staining. However, AFB culture

by BACTEC method and PCR were positive. Patient was treated with injection ceftriaxone 1gm twice and metronidazole 400 mg thrice daily for 3 weeks and antitubercular therapy under category I DOTS was started. Patient responded well to treatment and follow up ultrasonography showed significant resolution of liver abscess with volume of approximately 15cc.

## DISCUSSION

In extra pulmonary tuberculosis, hepatic tuberculosis has been regarded as a rare form of TB [3]. A study from South Africa showed that liver tuberculosis accounted for only 1.2% of all cases of tuberculosis diagnosed at a general hospital [4]. Although the prevalence of tuberculosis is high in India, the occurrence of hepatic TB is rare. Primary involvement of the liver in tuberculosis is rare due to the low tissue oxygen level which makes liver inhospitable for the bacilli. Most of the TLA described usually occurred in association with miliary tuberculosis, mainly through hematogenous dissemination. The respiratory and gastrointestinal tracts were the major sources of infection and bacilli travelled via hepatic artery or portal vein [5].

Symptoms of the disease are usually non-specific and include fever, vague abdominal pain, and anorexia and weight loss [6]. Hepatomegaly is a common physical finding but jaundice is a rare manifestation and may be caused by extra- or intrahepatic obstruction [6]. The

clinical and radiological features of TLA may mimic amoebic or pyogenic liver abscess or tuberculous pseudo-tumor [7]. Therefore, diagnosis depends on the presence of caseating granulomatous lesion on histopathology of liver biopsy and/or presence of AFB [8-9]. Imaging studies such as USG, CT, MRI, and PET scan are often of little help in diagnosis, since in most cases, they deal with small granulomatous lesion of about 2mm in size [10].

Recently, PCR has been found to be a useful diagnostic tool for hepatic tuberculosis [11] as it enables rapid identification of Mycobacterium tuberculosis and expedites treatment decision. PCR was positive in about 57% of tuberculous hepatic granulomas as compared to other conventional diagnostic methods [12]. In this case, tuberculous liver abscess along with pleural effusion developed due to hematogenous spread of bacilli from primary site (lung) because sputum is also positive for acid fast bacilli. The prognosis of hepatic tuberculosis is good if diagnosed early and effective treatment is administered.

### Conclusion

Tuberculous etiology should be thought of in any case of liver abscess in a country like India where prevalence of tuberculosis and AIDS is high, especially if tuberculosis is present at any other site. Awareness of this rare clinical entity prevents needless surgical interventions.

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*Funding: None; Conflict of Interest: None Stated*

**How to cite this article:** Yadav P, Punera DC, Nautiyal R, Kumar A. Tuberculous Liver Abscess with Right Sided Pleural Effusion. Indian J Case Reports. 2015; 1(2): 35-37.