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Tuberculous Liver Abscess with Pleural Rupture- A Case Report

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Abstract **Case Report**

The manifestations of tuberculosis are varied. We present here a case report of an eleven years old child who presented with ruptured liver abscess into the pleural cavity. The reason for presenting this is to highlight the wide degree of suspicion one should have in dealing with these non-responding cases.
Key words: Childhood Tuberculosis; Liver Abscess; Pleural Rupture; Ultrasound guided Aspiration.

INTRODUCTION

Tuberculosis, as a disease has numerous manifestations. In a country like India, where it is so common, it is not unusual to have patients presenting with different manifestations of the same disease. Tubercular Liver Abscess is considered one of the rarest presentations of tuberculosis. Further, these liver abscess patients are difficult to be diagnosed as their presentations mimic the more common etiologies of liver abscess [1, 2]. The following case report discusses a child presenting with tubercular liver abscess, having no other detectable primaries anywhere else in the body.

CASE REPORT

An eleven years old boy attended the Pediatric Surgery OPD with complaints of pain right abdomen. The patient had been under treatment of a pediatrician. On evaluation, the child was pale, sick looking with a protuberant abdomen more on the right side. The abdomen was very tender, tense and distended. Hepatomegaly could be appreciated 6 cm along the right MCL. Bowel sounds were present.

The patient was admitted in Emergency. He had hemoglobin of 8gms and total counts close to 23000. Chest X ray was normal. The Ultrasonography Abdomen was indicative of a large well defined hypodense lesion suggesting liver abscess with volume of 190ml. The patient was started on conservative management. The following day, the patient was taken up for an USG guided aspiration. Close to 40ml pus could be aspirated. Around 12 hours after aspiration, the patient started having respiratory distress. The protuberance on the right abdomen wall also looked decreased. Immediate chest xray was done which showed Right sided pleural effusion. Since, this was indicative of rupture of the abscess into the pleural cavity, decision was taken to insert a chest drain with under water seal. The patient was kept on oxygen inhalation.

The following day, the chest drain had an output of around 100ml, largely purulent. The respiratory distress was considerably decreased. The patient was maintained on antibiotics and analgesics for the next four days.

On the fifth day, the patient again underwent another USG guided aspiration. Close to 40ml pus was again aspirated out. The rest of the abscess cavity was necrotic and non aspirable. The general condition of the patient has considerably improved by that time. The chest drain was removed after five days. The patient was sent home on the eighth day on antibiotics. Two samples were sent from the chest drain aspirate and the liver. Both for culture sensitivity and TB PCR. The sample from the pleural fluid showed a positive detection of Mycobacterium Tuberculosis. The patient was counselled and referred back to Pediatrics. Anti-tubercular therapy was started as per guidelines.

Follow up USG studies at one and three months have not shown any aspirable content from the necrotic cavity in the liver.

DISCUSSION

Liver abscess in children are almost universally pyogenic or amoebic in nature. The patients generally present with fever and pain abdomen. Tuberculosis as an etiology is frequently missed out due to absence of suspicion [1, 2]. In the absence of focus elsewhere in the body, having a child with primary tubercular abscess in the liver is unusually rare. Generally the affection of the liver is secondary to the involvement of the lung or the gastro intestinal tract. The source of spread is accepted to be hematogenous. Clinical manifestations of tubercular liver abcess are nonspecific including anorexia, fever, and right upper quadrant pain. Hepatomegaly is common on presentation but jaundice due to extra or intrahepatic obstruction is rare [1,3,4].

Further more, rupture of the tubercular liver abscess in to the chest, which too in pediatric age group has hardly been reported. A similar case of ruptured liver abscess has been reported by Agarwal *et al*. where the seeding was in the peritoneum. However in the said case, the child was thalassemic, hence immunocompromised [3].

Reed *et al.* [4] described three morphological pattern of hepatic TB: diffuse involvement of liver with miliary or pulmonary TB; diffuse parenchymal involvement without any evidence of existing TB anywhere (primary miliary TB of liver); and focal lesion in the liver, multiple or solitary, presenting as nodule or abscess. Out of these patterns, isolated tubercular liver abscess is the rarest [4, 5, 7].

The child generally presents with fever, pain abdomen and toxic appearance. A typical complaint is non resolution of symptoms, even on antibiotics. Jaundice is rare, as there is no tract obstruction [6]. Most patients undergo ultrasonography leading to suspicion of liver abscess. The differentials include amoebic abscess, pyogenic abscess or hepatoma in childhood age group. CECT abdomen may be done for exact localization. The general management starts with an image guided aspiration of the pus followed by analysis [7, 8].

The blood investigations in these patients are largely cryptic. Apart from a high normal to raised counts, rest values are nonspecific. Liver function tests may not be significant but should be done before intervention. Abnormalities of the liver function tests cannot be relied upon for a diagnosis of hepatic TB [8, 9].

Chest radiograph varies in picture. In unruptured, primary hepatic TB abscess, the chest radiograph is normal. Rupture into the pleural cavity as well as its resolution with intercostal drainage can be appreciated by serial chest radiographs and/or ultrasound chest [10].

AFB smear and cultures are widely used for the diagnosis of tuberculosis. However, the yield and time of the above methods are relatively low. TB PCR is a method proposed to increase the yield of diagnosis and to provide expedited results. The commonest technique is the DNA amplification by PCR [7]. Alcantara-Payawal *et al*.[11] reported almost 88% positivity with PCR assay in patients with definitive diagnoses of TB. This was favorably higher when compared with conventional method like AFB and culture, yielding less than 12% [7,11].

The patient is treated with an image guided aspiration followed by analysis. If there is rupture into pleural cavity, intercostal drainage is necessary. Very rarely, open laparotomy may be needed for peritoneal rupture with peritonitis. In confirmed tubercular liver abscess cases, anti-tubercular therapy should be instituted and continued for a period of at least one year [4, 8]. Repeated episodes of percutaneous aspiration might be sometimes necessary.

CONCLUSION

Our case report highlights the fact that other etiologies must be kept in mind when dealing with a case of diagnosed liver abscess. In a country with a high prevalence of tuberculosis like ours, it is not uncommon to find a non-resolving liver abscess getting healed by anti-tubercular therapy. A high index of suspicion, along with specific directed investigations will secure the proper etiology and guide the pediatrician to a proper management.

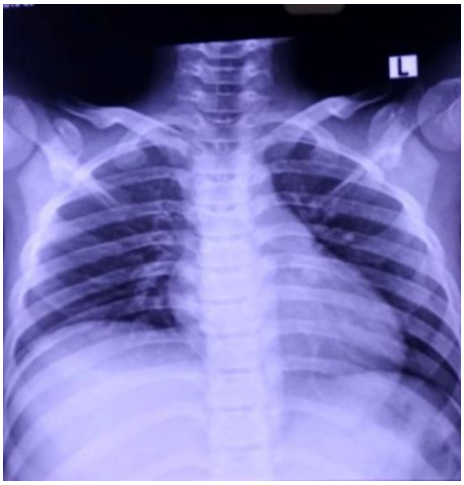

Fig-1: Chest Xray at admission

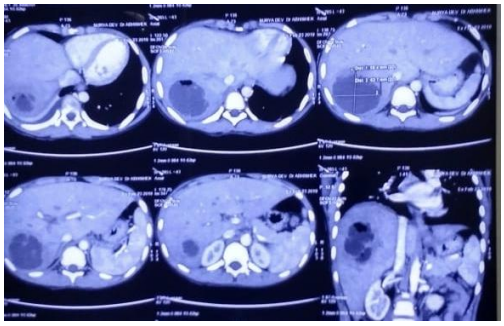

Fig-2: CT Abdomen at admission showing liver abscess

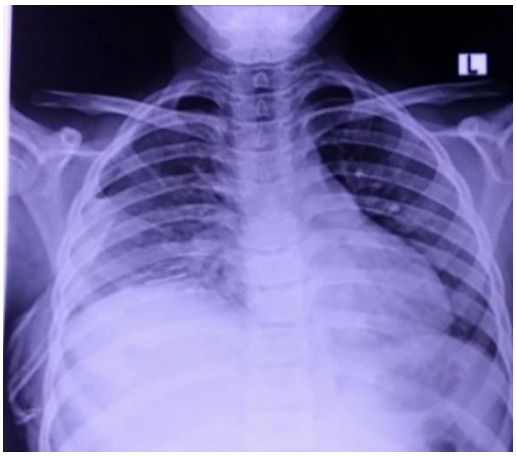

Fig-3: Chest Xray after pleural rupture

MOLECULAR DIAGNOSTICS

Test Name (Methodology)	Result	UOM
AFB/TB - Mycobacterium Tuberculosis DNA PCR		
Mycobacterium tuberculosis complex (MTB)	Detected	
Non tuberculosis mycobacteria (MOTT)	Not Detected	
Specimen Source	PLEURAL FLUID	
Test Observations:		

Methodology:
MTB/NTM detection is based on amplification of region upstream of the 65kDa hsp gene by primer and probes specific for mycobacterium genus. *M.tuberculosis* complex detection is based on primer and probes targeting IS6110 and MPB64 gene.
In this there are three independent reactions running in parallel in each tube; the first detects Mycobacterium tuberculosis complex (HEX/VIC channel), second detects all mycobacterium by genus specific probe (FAM channel) and the third detects internal control (IC) DNA (Tex Red channel) which allows excluding unreliable results.

Clinical Significance:
Tuberculosis, or TB, is an infectious bacterial disease caused by Mycobacterium tuberculosis, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease.
The classic symptoms of active TB infection are a chronic cough with blood-tinged sputum, fever, night sweats, and weight loss. Infection of other organs causes a wide range of symptoms.

Recommendations:
Positive PCR results should always be correlated with clinical status and history of the patient. A positive PCR finding in a symptomatic patient, irrespective of the findings on smear and/or culture, warrants active treatment for the Mycobacterium tuberculosis infection. This treatment should be instituted for the recommended length of time and should not be interrupted or discontinued before the entire period has been covered, in spite of symptomatic recovery being achieved partly early in the course of therapy.

Performed on: ABI 7500 Fast Dx Real Time PCR.

Fig-4: TB PCR report

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