Isolated Tuberculous Liver Abscess in an Immunocompetent Patient

Al Soub H.
Infectious Diseases Section, Department of Medicine, Hamad Medical Corporation
Doha, Qatar

Abstract:
Tuberculous liver abscesses are rare and are usually associated with disease involving other organs. In 1952 Leader made an extensive review of the world literature and documented 80 cases of hepatic tuberculosis with large abscesses or nodules\(^1\). In most of these cases tuberculosis was present elsewhere in the body. An isolated tuberculous liver abscess is very rare and only 20 cases have been reported in the English language literature to date\(^2\)\(^-\)\(^7\). Diagnosis is often delayed or missed because of non-specific symptomatology and the rare occurrence. We describe a case of an isolated tuberculous liver abscess in an immunocompetent patient.

Key words: Tuberculosis, liver, hepatic abscess

Case report:
In October 1994 a 42-year-old male was admitted to Hamad General Hospital complaining of right upper quadrant abdominal pain of 20 days duration. The pain was increased on taking a deep breath. There was no associated fever, cough or shortness of breath. His past history was unremarkable except for urinary bilharziasis during childhood.

On initial physical examination his temperature was 37°C, blood pressure 110/70 mm Hg, pulse rate 88/minute; there was decreased air entry into the right lung base and tenderness in the right lower intercostal spaces and right upper abdominal quadrant. Laboratory investigations reported haemoglobin 13.7 gm/dL, white blood cell count 11,700 /mm\(^3\), platelets 435,000/mm\(^3\), erythrocyte sedimentation rate 3 mm/hour, aspartate transaminase 31 IU/L, alanine transaminase 46 IU/L, alkaline phosphatase 131 IU/L and total bilirubin 12 umol/L. Blood culture was negative.

A chest radiograph showed elevation of the right copula of the diaphragm and right basal atelectasis. A tuberculin skin test was strongly positive. Sputum culture for Mycobacterium tuberculosis was negative. An amoeba antibody test was positive with a titre of 1:1024. Ultrasound of the abdomen showed a 4cm x 4cm solitary abscess in the right lobe of the liver (Figure 1). An ultrasound-guided aspiration of the abscess yielded 20 ml of thick pus that was negative for Entamoeba histolytica, negative on routine cultures and negative when stained for acid-fast bacilli although culture of the pus produced a growth of Mycobacterium tuberculosis.

A chest radiograph showed elevation of the right copula of the diaphragm and right basal atelectasis. A tuberculin skin test was strongly positive. Sputum culture for Mycobacterium tuberculosis was negative. An amoeba antibody test was positive with a titre of 1:1024. Ultrasound of the abdomen showed a 4cm x 4cm solitary abscess in the right lobe of the liver (Figure 1). An ultrasound-guided aspiration of the abscess yielded 20 ml of thick pus that was negative for Entamoeba histolytica, negative on routine cultures and negative when stained for acid-fast bacilli although culture of the pus produced a growth of Mycobacterium tuberculosis.

Figure 1: An ultrasound of the liver showing a solitary abscess in the right lobe measuring 4 x 4cm in diameter.

Initially he was treated with metronidazole for amoebic liver abscess but when M. tuberculosis was identified he was given isoniazid, rifampin, and pyrazinamide.

Discussion:
Hepatic tuberculosis occurs in several forms\(^2\), the most common being diffuse infiltration associated with miliary or pulmonary tuberculosis. The second form is a diffuse parenchymal involvement without any evidence of existing tuberculosis elsewhere, often referred to as 'primary miliary tuberculosis of the liver'. A third form, of focal or nodular lesions in the liver that may be multiple or solitary and present as tuberculoma or abscesses, is rare and usually exists in association with
pulmonary or gastrointestinal involvement\(^1\). *Mycobacterium tuberculosis* reaches the liver via the hepatic artery during systemic mycobacteremia from the lung, or via the portal lymphatics from the bowel\(^2\). Tuberculous liver abscesses were first described in 1858 when Bristowe found cavitary hepatic tuberculosis in 12 of 167 autopsies on patients with tuberculous ulcerations of the intestine\(^8\). Leader et al collected 80 cases of liver abscesses up to 1952\(^1\). Isolated tuberculous liver abscess is very rare, and only 20 patients have been reported in the English language literature\(^2-7\). Immunodeficiency from any cause is an important risk factor for the development of tuberculous liver abscess and several cases have been reported in association with human immunodeficiency virus infection\(^7,9\). The disease has been described in all races but appears to be more common in countries where tuberculosis is endemic. It is important to recognise that tuberculosis can present with liver diseases. In such patients, hepatic features are more pronounced functionally, clinically, and pathologically, and may overshadow respiratory signs and symptoms\(^9\). Our patient demonstrates the difficulty in differentiating tuberculous liver abscess from abscesses due to other causes depending on the clinical and radiological findings. The clinical features of fever, right upper quadrant pain, weight loss and hepatomegaly have low specificity, and do not help to differentiate between various causes of liver abscesses\(^2\). The radiological features are also variable\(^2\). Accordingly diagnosis prior to laparotomy or needle aspiration of the lesion is rare. The ultimate diagnostic confirmation depends upon the demonstration of the acid-fast bacilli in aspirated pus on smear or culture\(^2\). When this is not successful histological examination of the abscess wall may be required for confirmation.

The management of tuberculous liver abscess has evolved with time. Earlier reports stressed the need for surgical exploration and drainage\(^11\) but more recent reports have stressed the usefulness of radiological studies in the management of these patients by providing specimens for diagnosis, and facilitating drainage of the abscesses\(^12\). Medical treatment of tuberculous liver abscess is open to debate. Although cure has been reported with antituberculous drugs alone, most authorities in this field believe that drainage is also necessary\(^13\). Mustard et al have recommended local infusion of isoniazid and rifampin every six hours through an indwelling catheter to overcome the problem of poor penetration of antituberculous drugs through the thick fibrous tissues around the abscess\(^14\). The drain should be removed either when the abscess has disappeared or when it ceases to function. Antituberculous drugs should be given for a total of six months.

**Conclusion:**

Tuberculous liver abscess is very rare but, because it is difficult to differentiate from other types of liver abscesses on the basis of clinical and radiologic features, keeping a high index of suspicion especially in patients from endemic areas will allow early diagnosis. A combination of antituberculous drugs and drainage is essential for cure.

---

**References:**


