

Case Report

Hepatic Actinomycosis Presenting as a Liver Tumour: Case Report and Literature Review

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Hepatic actinomycosis poses a difficult problem in both diagnosis and management. We report the management of a patient with isolated hepatic actinomycosis, and review the clinical features and management of patients with hepatic actinomycosis mimicking liver tumour. [*Asian J Surg* 2004;27(4):345-7]

Introduction

Actinomycosis is a chronic suppurative granulomatous bacterial infection marked by the formation of multiple abscesses, with a tendency to form sinus tracts that characteristically discharge sulfur granules. In abdominal actinomycosis, the ileocaecal region is involved most frequently. Involvement of other abdominal organs is rare. When the liver is infected, it poses a difficult problem in both diagnosis and management. Here, we report the management of a patient with isolated hepatic actinomycosis, and review the clinical features and management of patients with hepatic actinomycosis mimicking liver tumour.

Case report

A 64-year-old Chinese man, who had enjoyed good health, was admitted to our hospital with a 1-month history of epigastric pain, anorexia and subjective weight loss. There was no associated fever or chills. Bowel habit was normal with no blood or mucus in stools. He was a chronic smoker.

On examination, the patient was afebrile with no pallor, jaundice or lymphadenopathy. Abdominal examination showed an enlarged liver. He was anaemic, with a haemoglobin concentration of 11.2 g/dL, but his platelet count ($529 \times$

$10^9/L$) and serum bilirubin (18 $\mu\text{mol/L}$), aspartate aminotransferase (18 U/L), alanine aminotransferase (9 U/L) and creatinine (82 $\mu\text{mol/L}$) concentrations were normal. However, the white cell count was raised to $15.5 \times 10^9/L$ (normal, 4.0–11.0 $\times 10^9/L$). Blood serology for hepatitis B and C and HIV were negative. Serum alpha-fetoprotein concentration was 4 ng/mL (normal, < 20 ng/mL), and serum carcinoembryonic antigen concentration was 0.8 ng/mL (normal, < 5 ng/mL).

Ultrasonography of the abdomen showed a mass in the left lobe of the liver that measured about 6 cm. Computed tomography of the abdomen confirmed a hypodense mass measuring 6 cm in diameter in the left lateral segment of the liver (Figure 1). The tumour was relatively poorly enhanced. The surface of the left lobe was blurred, leading to suspicion of tumour infiltration to the surrounding tissue. No other abnormality was detected in the abdomen. Upper and lower gastrointestinal series were normal. Chest radiography was also normal. A hepatic tumour was suspected and surgical resection was scheduled.

Intraoperatively, a firm mass 6 cm in diameter at the base of segments II and III was found. The tumour adhered to the greater omentum, transverse colon, stomach and anterior abdominal wall. There were yellowish nodules with areas of cavitation and pus inside the mass. Multiple firm enlarged lymph nodes were felt at the porta and along the coeliac

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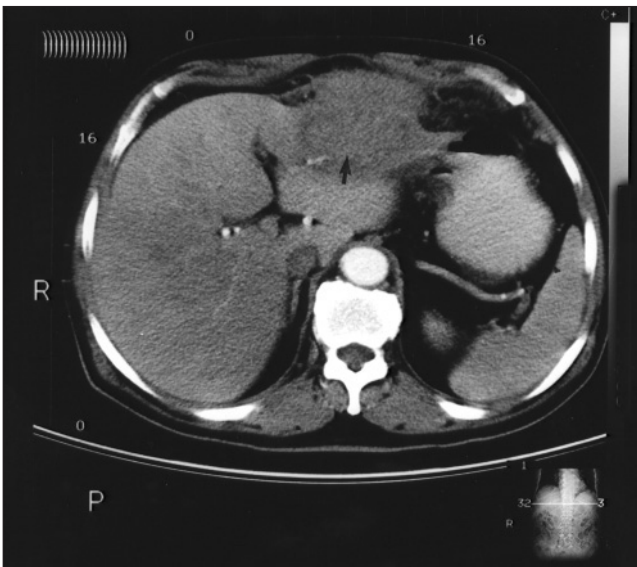


Figure 1. Computed tomography scan showing a “tumour” (arrowed) at the left lobe of the liver with infiltration to the surrounding tissue.

axis. Left lateral segmentectomy and distal gastrectomy were performed.

Bacterial culture taken from the liver mass only grew *Streptococcus milleri*. Pathologically, the resected liver showed a yellowish-white mass that contained frequent pus-like areas within, and several smaller nodules were present adjacent to the mass. Histopathological examination revealed an abscess containing multiple collections of heavy acute and chronic inflammatory infiltrates with florid fibrosis. Notably, a few clusters of filamentous microorganisms consistent with actinomyces colonies were present (Figure 2). They were positive with Gram and periodic acid-Schiff stains, but negative with Ziehl-Nielsen stain. No evidence of malignancy was present. The overall features were those of hepatic actinomycosis. The abscess had involved the stomach with extension to the gastric muscularis propria, resulting in focal fibrosis and inflammation.

The patient recovered uneventfully from the surgery and was discharged home 7 days after the operation. He was given a course of amoxicillin/clavulanic acid for 6 months. He remained well 6 months after surgery.

Discussion

We identified all relevant literature on hepatic actinomycosis using a MEDLINE search and reviewed the bibliographies of all these reports. Fifty-seven cases of hepatic actinomycosis were selected and reviewed. Most patients presented with fever, and the radiological examination showed the presence

of cystic lesions in the liver suggestive of an inflammatory process. Although the diagnosis of hepatic actinomycosis might not be suspected initially, it could easily be made with culture obtained from the drainage. However, 13 cases that showed a solid liver mass mimicking a hepatic neoplasm, either primary or metastatic, are further analysed below.¹⁻¹²

The mean age of patients was 43 years (range, 4-65 years). There was a male predominance accounting for two-thirds of reported cases. The most common presenting manifestations were fever (37.8-41°C), abdominal pain and weight loss. The onset of symptoms was typically subacute, ranging from 4 days to 18 months before presentation. Right upper quadrant tenderness with (38%) or without (62%) hepatomegaly was the most common physical finding. The leucocyte count was reported in nine cases and leucocytosis was found in eight of these, ranging from $10.7 \times 10^9/L$ to $37.8 \times 10^9/L$. Serum hepatic enzyme concentrations were reported in nine cases. The serum alkaline phosphatase concentration was increased in seven patients, but the transaminase concentration was only slightly increased in two cases.^{5,9} Elevated serum bilirubin concentration or jaundice was reported in only one case.⁹

Detailed radiological findings were described in eight cases, but the findings were usually non-specific. The “tumour mass” was single (3 cases) or multiple (10 cases), and in the right lobe (5 cases), left lobe (1 case) or bilobed (7 cases). Extension to one or more surrounding organs or tissues, including the abdominal wall, diaphragm, pleura, stomach/pancreas, gallbladder, common bile duct and the perinephric space, was also a common finding.^{2,5-8,10}

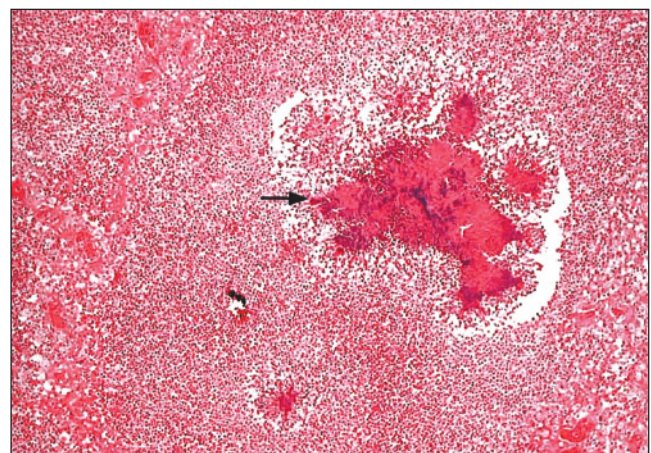


Figure 2. Histologically, the liver mass contains multiple collections of heavy acute and chronic inflammatory infiltrates with florid fibrosis. Notably, a few clusters of filamentous microorganisms consistent with actinomyces colonies are present (arrow).

The diagnosis was frequently delayed, probably because of the subacute presentation and the non-specific signs and symptoms. It was most often confirmed by histological examination of tissue samples either with fine needle aspiration,⁷ liver biopsy,¹⁰ liver resection^{2,4,5} or, rarely, post-mortem examination.³ Four cases were diagnosed by bacteriological culture of surgical samples.^{1,5,10,12} A positive blood culture was reported in one case only.⁹

Hepatic resection was performed in three patients and open surgical drainage in five, as the possibility of liver tumour could not be excluded before surgery. Antibiotics were used in all cases for a total duration of 1–6 months. The antibiotic was usually penicillin alone or in combination with clindamycin or ciprofloxacin. The response to therapy was generally excellent. There was only one reported death due to unrelated gastrointestinal bleeding.³

In summary, primary hepatic actinomycosis is a rare disease, but is an important differential diagnosis to hepatoma in endemic areas. Most affected patients are immunocompetent. There is a wide age distribution and a male predominance has been observed. The portal of entry is presumably haematogenous, but an association with biliary and pancreatic stenting has recently been reported.¹⁰ Direct extension from an adjacent focus such as the gallbladder or perforated ulcer may occur. The diagnosis must be considered in the differential diagnosis of hypo/hyperechoic images of the liver, especially when inflammatory indices are elevated. Direct surgical exploration may be necessary and may hasten resolution in some selected patients with hepatic actinomycosis. Histo-

logical section establishes the diagnosis but the intraoperative finding of pale yellow granules is highly suggestive.

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