

## Pseudo-tumoral hepatic tuberculosis discovered after surgical resection

Miloudi Nizar, Mzoughi Zeineb,  
Ben Abid Sadri, Sabbagh Safa,  
Marsaoui Lobna, Arfa Nafaa,  
Gharbi Lassaad,  
Khalfallah Mohamed Taher

Department of Surgery and Liver  
Transplantation, Mongi Slim Hospital,  
Tunis, Tunisia

### Abstract

Pseudo-tumoral hepatic tuberculosis is rare. It is characterized by non-specific symptoms and radiological polymorphism. Diagnosis is problematic. This article presents three cases, each clinically different from each other, that illustrate how difficult diagnosis can be. The definitive diagnosis of pseudo-tumoral hepatic tuberculosis was reached on the basis of histological examination of surgical samples. Treatment of the disease based on appropriate anti-tubercular therapy generally gives a positive outcome.

### Introduction

The pseudo-tumoral (macro nodular) form of hepatic tuberculosis, characterized by clinical and radiological polymorphism, is rare. The difficulty of making a proper diagnosis may lead to surgical intervention, although once histological proof is obtained, treatment is based on anti-tubercular therapy. In most cases, treatment of the disease provides a positive outcome. This article presents three cases of pseudo-tumoral hepatic tuberculosis that were difficult to diagnose. In all three cases, definitive diagnosis was made after surgery.

### Case Report

#### Case #1

A 46-year-old man complained about 6-month right abdominal quadrant pain with no fever or jaundice. Physical examination did not reveal anything of interest and biological test results were normal. Abdominal ultrasound showed a hypo-echoic mass with peripheral vascularization, located in segment V of the liver and measuring 25×21 mm. Abdominal computed tomography confirmed the presence

of a hypodense mass indicating metastasis. Various examinations (endoscopy, tumor markers) undertaken to find a primitive neoplasm were negative and thus it was decided to operate. During surgical exploration, a tumor measuring 3 cm was discovered in segment V (Figure 1). Since the tumor was located near the gallbladder, five segmentectomy with cholecystectomy were conducted. Histological examination confirmed the diagnosis of hepatic tuberculosis. Further examinations gave no indication of the presence of tuberculosis elsewhere. Antibacillary antibiotics were prescribed for a period of six months. The patient was faring well at the one-year check up.

#### Case #2

A 49-year-old man underwent an operation for right colon cancer with synchronous metastasis of segment VII of the liver. The right colon, as well as metastasis, were removed. The results of histological examination led to a diagnosis of T3N1M1 carcinoma of the right colon. Adjuvant chemotherapy (FOLFOX) was prescribed. After six months, thoraco abdominal tomography was carried out, showing a hypodense mass measuring 2 cm located on segment VII. The carcinoembryonic antigen level was normal. The patient underwent surgery on the basis of a diagnosis of hepatic metastasis. Histological examination led to a diagnosis of hepatic tuberculosis. The patient received anti-bacillary antibiotics and the clinical and radiological outcomes were expected to be good.

#### Case #3

A 36-year-old woman with a history of hydatid cyst complained about abdominal quadrant pain with fever, night sweats and chills. Physical examination did not find any jaundice or fever. Biological tests were normal. Abdominal ultrasound showed a hypo-echoic mass in segment VII of the liver. This mass measured 4×3 cm and abdominal computed tomography confirmed the presence of a hypodense mass with a peripheral enhancement of segment VII segment of the liver. Hydatid serology was negative. Upper gastrointestinal endoscopy, colonoscopy, thoraco-abdominal computed tomography scan and pelvic examination did not show anything of interest. Percutaneous ultrasound guided biopsy was negative. No anaphylactic reaction occurred during the biopsy. The decision was made to operate. As a liver abscessed tumor was discovered per-operatively, in contact with the diaphragm, a resection of the mass was conducted. Histological examination led to a diagnosis of hepatic tuberculosis. The patient received anti-bacillary antibiotics and the clinical and radiological outcomes were expected to be positive.

Correspondence: Zeineb Mzoughi, Department of Surgery and Liver Transplantation, Mongi Slim Hospital, 2046 Sidi-Daoued La Marsa, Tunis, Tunisia. Tel: +216.20136718.  
E-mail: mzeineb@yahoo.com

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### Discussion

The first localization of abdominal tuberculosis is in the peritoneum and the digestive tract.<sup>1</sup> Primary hepatic tuberculosis is relatively rare depending on the epidemiologic situation (non-endemic area).<sup>2,3</sup> It represents 0.5-1.2% of intra-abdominal localizations.<sup>3</sup> In most cases, hepatic tuberculosis is of a micro-nodular form (less than 2 mm).<sup>4</sup> The macro-nodular or pseudotumoral form, also called tuberculoma, is rare.<sup>5</sup> It can be single or multiple, composed of nodes measuring more than 2 cm.<sup>5</sup>

Tuberculoma's formation physiopathology remains unclear. From a microscopic or small tubercular focus in the bowel or in the lung, *Mycobacterium tuberculosis* reaches the intestinal tract through the portal vein.<sup>1</sup> The healing of the primary focus leaves no traces when the liver is involved.<sup>6</sup> Tuberculoma could result from agglutination of several hepatic granulomas.<sup>7</sup> Clinical signs of the pseudo-tumoral form of liver tuberculosis are non-specific and often misleading.<sup>8</sup> Common signs are abdominal pain, nausea and vomiting.<sup>9</sup> There is impaired general condition in 60% of cases and fever in 70%.<sup>8</sup> Two of the three cited cases presented right upper abdominal pain. Generally, physical examination is poor. Sometimes, hepatomegaly, jaundice or ascitis can be found.<sup>8-10</sup>

A history of tuberculosis or active tuberculosis, immunosuppression, or living in an endemic zone may be helpful in diagnosing hepatic tuberculosis.<sup>9</sup> A personal history of a cancer, as was the case for one of our patients,

may lead to an error in diagnosis. Laboratory data could indicate a cholestasis, an inflammatory syndrome or high level liver enzymes.<sup>11</sup>

Difficulties in diagnosing this form of hepatic tuberculosis are due to clinical and biological polymorphism. Radiological findings play a major role in an approach based on diagnosis. Abdominal ultrasound shows tuberculomas as hypoechoic nodes without posterior enhancement, sometimes with calcification.<sup>12</sup> Appearance of tuberculomas in computed tomography varies with the stage of evolution of the disease.<sup>13</sup> They are isodense in the first stage. Tuberculomas then become hypodense due to caseating necrosis. Here a differential diagnosis is difficult with primary or secondary liver tumors. In the cases presented, tuberculomas were hypodense, indicating liver neoplasm in all three cases.

In a late or sequelae stage, tuberculomas become rich in calcification,<sup>4,14</sup> which should be highly suggestive for diagnostic purposes.<sup>12</sup>

Annular enhancement is observed after injection of contrast products.<sup>4</sup> Abcédation of the granuloma occurs when there is significant caseating necrosis. Computed tomography in this case indicates a polylobular cyst with or without moderate peripheral enhancement.<sup>4</sup> There are difficulties in differential diagnoses with pyogenic abscesses.<sup>15</sup> Hepatic masses were hypodense in all three cases with annular enhancement in one case. Calcification was absent in all three cases.

In magnetic resonance imaging (MRI), lesions may have a different presentation, depending on their histological stage.<sup>13</sup> The most typical aspect is peripheral hyper intense lesion, with less intensity in the center of the lesion in T2 sequence with peripheral enhancement after gadolinium injection.<sup>8</sup> None of the three patients presented in this paper underwent an MRI exam.

In fact, polymorphism is not only clinical and biological, but also radiological. This made diagnosis more difficult. In our report, in all three cases, tubercular origin was not suspected pre-operatively.

Percutaneous biopsy may be helpful in

establishing the diagnosis, using bacteriological tests and PCR. The Ziehl Neelson stain and Lowenstein culture are positive in 50% of cases.<sup>16</sup> PCR is a high-performance, quick test that is 86% sensitive and 100% specific. PCR positive has a predictive value of 100% and a negative predictive value of 90%.<sup>17,18</sup> For some authors, percutaneous biopsy risks are represented by hypothetical neoplastic cell spread and a high false negative rate.<sup>19</sup> In one of our patients, percutaneous biopsy was negative and did not contribute to the diagnosis.

Misleading clinical features, poor physical examinations, non-specific radiological signs and a high false negative rate for percutaneous biopsy make the diagnosis of pseudotumoral primary liver tuberculosis difficult. Primary or secondary neoplasm remains a major concern for the surgeon and serves to justify surgical intervention even if doubt is minimal.

Macroscopically, tuberculomas are white with a fibrous capsule and a caseating necrosis central zone.<sup>1</sup> Histological examination shows granulomas with caseating necrosis in most cases.<sup>20</sup> In all three of our cases, histological examination of excised matter leads to a diagnosis of liver tuberculosis, by showing the caseating necrosis. However, diagnosis is difficult pre-operatively, no matter how many tests are run.

Medical treatment is based on antitubercular therapy. Isoniazid and rifampicin are taken once a day for six months.<sup>21</sup> The two first months, therapy also includes pyrazinamid and ethambutol.<sup>21</sup> The outcome is generally positive, with fading of lesions in 6-18 months.<sup>9</sup>

## Conclusions

Primary pseudo-tumoral hepatic tuberculosis is rare. Patient history and various tests (especially percutaneous biopsy) may lead to a pre-operative diagnosis. However, a definitive diagnosis can generally be made only on the basis of surgical evidence.

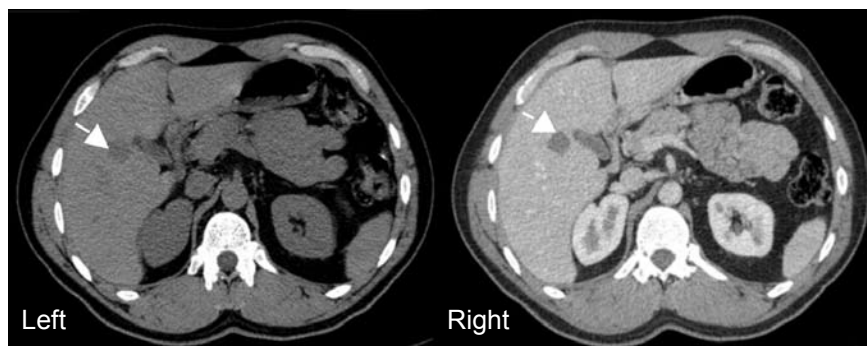


Figure 1. Computed tomography scan showing a segment V liver hypodense mass before (left) and after (right) contrast injection.

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