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Case Report

Nodular Hepatic Tuberculosis about a Case: An Underestimated Diagnosis

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Abstract

Tuberculosis is a chronic infectious disease that affects millions of people. The system most affected is the respiratory system. Nodular hepatic TB without involvement of other organs is not common. Its clinical manifestations are not specific. The differential diagnosis includes primary and metastatic malignancies of the liver. We report a case of nodular hepatic TB revealed by molecular biology in a 69-year-old diabetic patient without any sign of TB impregnation and highlighting the contribution of molecular biology in the diagnosis and rapid management of this rare entity.

Keywords: Hepatic tuberculosis; Nodular; Molecular biology

Introduction

Tuberculosis (TB) is a growing problem worldwide; therefore, it is essential to recognize the more unusual presentations of this disease [1]. Intra-abdominal TB has a high mortality, but it is a difficult diagnosis to make, often requiring laparotomy. Nodular hepatic TB in particular is rare, with less than 100 cases reported in the literature, most of which are secondary and associated with miliary TB [1]. The symptomatology of nodular hepatic TB is nonspecific, and palpation of an abdominal mass may erroneously point to a malignant tumor pathology, furthermore as the symptomatology evolves in a context of altered general condition. This diagnosis, which is difficult and often unrecognized, must be evoked, especially if the epidemiological context lends itself to it in the presence of a concomitant pulmonary disease or a history of TB [2].

The diagnosis of nodular hepatic TB is difficult due to the variability of clinical presentations, non-specific biological data and the difficulty of access to certain sampling sites, resulting in pauci-bacillary specimens that reduce the sensitivity of conventional diagnostic tests. The advent of molecular tests seems to bring a considerable gain in the diagnosis of extra pulmonary TB, especially in pauci-bacillary specimens [2]. We report a case of nodular hepatic TB revealed by molecular biology in a 69-year-old diabetic patient without any sign of TB impregnation, emphasizing the contribution of molecular biology in the diagnosis and the rapid and efficient management of this rare pathology.

Case Presentation

O.H is a 67-year-old man with type 2 diabetes on oral antidiabetics with poor compliance. He had a history of thrombophlebitis of the right lower extremity 2 years ago. In addition, he had no history of TB or contact with other TB patient.

10 days before his hospitalization, the patient presented a pain in the right hypochondrium, associated with frontal headaches, without digestive, urinary or respiratory symptoms (no cough, no hemoptysis), all evolving in a context of fever at 39°c, night sweats, asthenia, and a weight loss (not quantified).

The clinical examination found a febrile patient at 38.5°c, normotensive, eupneic, with normo-colored conjunctiva.

Palpation revealed tenderness of the right hypochondrium without hepatomegaly or splenomegaly. The lymph nodes were free and the rest of the somatic examination was unremarkable.

Biochemical blood analysis showed A raised C-Reactive protein (CRP) at 364mg/l, a hyperleukocytosis at 15300/ml with a predominance of PNN (93%), a thrombocytopenia at 91000/ml, a disturbance of the hepatic balance with GGT (Gamma glutamyl transferase) at 113 UI/l (VN : 25- 50 IU/l), PAL (Alkaline phosphatases) at 105 IU/l (VN: 32- 91 IU/l) a normal bilirubinemia, ALAT (Alanine amino transferase) at 56 IU/l (VN: 15- 35IU/l) and ASAT (Aspartateamino transferase) at 58 IU/l (VN: 20- 45IU/l), The prothrombin time was at 67%. Procalcitonin was positive at 35ng/ml and blood cultures were positive for Klebsiella pneumoniae. Viral serologies B, C and HIV were negative. Chest X-ray, abdominal ultrasound, trans-thoracic and trans-esophageal echocardiography were unremarkable. The patient was initially put on antibiotic therapy but without clinical and biological improvement after 8 days

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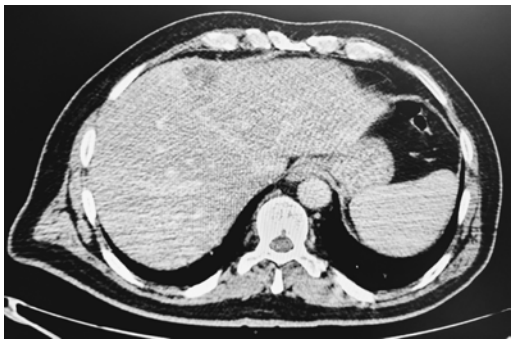

Figure 1: Axial CT image showing hypodense lesion of the hepatic dome with peripheral enhancement measuring 28mm x 21mm.

of treatment (persistence of fever and the inflammatory syndrome with a CRP at 185mg/l).

Subsequently, a thoracic-abdominal-pelvic CT scan showed scattered bilateral subpleural nodules, some of which were calcified, with mediastinal adenopathy, the largest of which was located at the 4L chain and measured 10 mm in minor axis. In the abdominal and pelvic region, the liver was steatotic, normal in size and regular in outline, with a round hypodense lesion of the hepatic dome with peripheral enhancement measuring 28 mm x 21 mm, and two well-limited hypodense lesions of segments IV and V measuring 10 mm and 12 mm in diameter respectively (Figure 1).

Scanno-guided liver biopsy directed on the macro nodule showed an acute suppurative inflammatory process compatible with an abscess with the absence of tuberculoid granuloma.

At our bacteriology laboratory, the biopsy, after crushing and sonication, was searched for the Mycobacterium TB complex by both molecular biology and conventional methods. Molecular research by GeneXpert MTB/RIF (Cepheid, Sunnyvale, CA, USA) using the automated real-time PCR technique, revealed the presence of the Mycobacterium TB complex without detection of rifampicin resistance.

The direct examination after special Ziehl-Nielsen staining was positive and the cultures on Lowenstein-Jensen® solid medium (LJ) and Mycobacteria Growth Indicator Tube (MGIT®) liquid medium were positive after two and three weeks, confirming the molecular diagnosis.

Within the scope of additional assessment, the bacteriological study of sputum looking for Mycobacterium TB complex for 3 consecutive days by conventional and molecular methods using the same kit was negative.

According to the clinical symtoms, the Imaging and the result of the molecular biology; the diagnosis of multifocal TB was retained and the patient was placed on curative TB treatment based on R: Rifampicin; H: Isoniazid; Z: Pyrazinamide and E: Ethambutol (2RHZE/4RH) with a favorable clinical-biological evolution.

Discussion

TB can affect the liver in several ways. Hepatic TB has been classified as miliary, local, and biliary in the literature. The miliary form of spread is the most common and is thought to involve hematogenous dissemination via the hepatic artery [3,4]. In 1973, Gelb et al reported 30 patients who died of miliary TB; 27 had liver involvement at autopsy [5]. 12 Some believe that hepatic TB is present in all cases of miliary TB [6-8]. Active pulmonary TB may or may not be present. Because of the low oxygen tension in the liver [9-14], which is unfavorable for mycobacterial growth [15], the local form of hepatic TB without extrapulmonary clinical manifestations is relatively rare. It is often found in the portal areas and may reach the liver through the portal vein [2]. It may involve the liver diffusely or focally as space-occupying nodular lesions. Terry and Gunnar reported 12 cases of diffuse liver involvement without evidence of tubercles elsewhere [16]. The biliary form, characterized by obstructive jaundice due to enlarged lymph nodes compressing the bile duct, is the least common [15,17]. Unlike the obstructive jaundice of the biliary form, the clinical presentation of local hepatic TB has no pathognomonic features. Abdominal pain, fever, and loss of body weight are most common [2,8,18]. The clinical sign is also inconsistent. Hepatomegaly is frequently found our patient had neither hepatomegaly nor splenomegaly but suffered from right hypochondrial pain associated with fever and intense headache. Biochemical studies reveal no consistent findings, although an elevated ALP concentration is the most frequently observed abnormality [2,19-21]. Our patient also had a very high ALP rate. Other biochemical findings include varying degrees of anemia, hypoalbuminemia, and hyponatremia. Our patient was suffering from thrombocytopenia with normal natremia.

Imaging studies frequently present a diagnostic challenge, particularly in the nodular form. The CT appearance varies from a hypodense mass, with or without edge enhancement after contrast, to a heterogeneous density of the necrotic center of bull's-eye calcification. In our case, the abdominal-pelvic CT scan showed a steatotic liver, of normal size, with regular contours, containing a rounded lesion of the hepatic dome, hypodense and raised in peripheral lumps measuring 28mm x 21mm, and two well-limited hypodense lesions of segments IV and V measuring respectively 10mm and 12mm in diameter.

Liver involvement may be primary by direct ingestion of Mycobacterium or secondary to highly bacilliferous lung lesions via the hematogenous or lymphatic route [8]. The bacterial agent is furthermore the bovine or human Kokh bacillus, exceptionally atypical mycobacteria.

Atypical mycobacteria are often found in immunocompromised subjects [8]. This affects young adults between 20 and 40 years of age [9]. A female predominance is found in abdominal localizations [10].

Diagnosis of hepatic TB due to Mycobacterium TB complex species remains difficult due to the small amount of mycobacteria present in clinical specimens compared to that observed in pulmonary infections and the ineffectiveness of conventional methods reported in various studies [3]. The anatomopatho logical study, although very specific, was not concordant in our patient. This can be explained by the fact that the liver is a bleeding organ and not easily accessible, and by the formation of caseous necrosis at an advanced stage of the disease. On the other hand, nucleic acid amplification by PCR of M. TB in biopsy samples can facilitate diagnosis due to higher sensitivity and specificity than culture, and results can be obtained in 48 hours instead of 6-8 weeks [12]. This molecular test can also identify

potential drug resistance, such as to rifampicin or to isoniazid [12]. This molecular diagnostic tool allowed us to confirm the presence of the Mycobacterium TB complex in this paucibacillary sample. It also enabled us to eliminate the essential differential diagnosis of primary or metastatic carcinoma of the liver, which is a disease with different therapeutic management that can complicate and compromise the functional or even vital prognosis.

Conclusion

Nodular hepatic TB is rare, even in endemic countries, but it is a diagnosis that should be considered, especially in immunocompromised patients. This case also illustrates the contribution of PCR in the diagnosis and rapid and effective management of this rare disease.

Author Contributions

BE, EY, RA, OS have been involved in drafting in the manuscript; BF, JS, MA, BL, EK have revising the manuscript and ELM have given final approval of the version to be published.

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