

Liver tuberculosis mistaken for malignancy The role of needle biopsy

S. Landen¹, T. Ballet², P. Bollars¹, B. Badic¹, D. Herman³, V. Delugeau⁴

(1) Department of Surgery, St Elisabeth Hospital, Brussels, Belgium ; (2) Department of Surgery, Institut Edith Cavell, Brussels, Belgium ; (3) Department of Surgery, Centre Hospitalier des Ardennes, Libramont, Belgium ; (4) Clinique La Ramée, Brussels, Belgium.

Abstract

Despite advances in imaging techniques rare or atypical liver lesions still pose a diagnostic challenge. In many centres percutaneous fine needle aspiration cytology or biopsy is routinely performed in order to obtain a definitive diagnosis. However because of the risk of tumour seeding along the needle tract this attitude may jeopardize the patient's chances for cure in case of malignancy. The role of percutaneous liver biopsy is reappraised in the light of an observation in which major hepatectomy was performed for suspected neoplasia only to discover at pathology that the lesion was a benign tuberculosis pseudotumour. (*Acta gastroenterol. belg.*, 2010, 73, 278-279).

Key words : liver lesion, liver biopsy, tuberculosis, liver, liver resection, hepatectomy, tumor seeding.

Introduction

In developed countries liver tuberculosis remains extremely rare, particularly the macronodular form. The diagnosis is often made only after hepatectomy for suspected malignancy. In patients with neoplasia, the rising use of potent anticancer chemotherapy may lead to the reactivation of quiescent tuberculosis, posing a difficult differential diagnosis with liver metastases.

Case report

A 41 year-old woman with a history of T1N0 breast cancer treated by tumorectomy, radiotherapy and hormone therapy 1½ years previously, complained of right upper quadrant pain, weight loss and fatigue. On blood analysis liver tests, inflammatory parameters, tumor markers and serology for viral hepatitis were normal. Chest X ray was unremarkable. Ultrasound revealed a 13 mm hypoechoic liver lesion in the right lateral segment of the liver. The lesion had not been observed on follow-up ultrasound done 4 months previously. On computerized tomography the lesion was hypodense and showed mild contrast enhancement. Positron emission tomography showed marked uptake by the lesion. Diagnostic laparoscopy failed to show peritoneal involvement or other liver lesions. It was decided to proceed directly to liver resection without performing fine needle biopsy because of the high degree of suspicion of liver metastasis and the potential risk of tumor seeding along the needle tract. A right hepatectomy was

performed and the patient recovered uneventfully. Pathological examination revealed caseating liver necrosis and granulomatous inflammation with epithelioid and Langhans cells, typical of tuberculosis. Postoperatively the patient received a 6 month course of chemotherapy with isoniazid, ethambutol and rifampicin. She remains free of tuberculosis and cancer at 18 months follow-up.

Discussion

An important issue highlighted by the present observation is the role that fine needle biopsy may play in avoiding situations in which needless major surgery might otherwise be performed for benign disease. Percutaneous needle biopsy is capable of providing pathological confirmation of malignancy in focal liver lesions (1). This is of course reassuring before embarking on major liver surgery that carries a mortality rate of approximately 3%. However reports have shown that 98% accuracy in establishing a diagnosis for focal liver lesions could be obtained with a protocol that comprised clinical history, serum tumor markers, ultrasonography, spiral computerized tomography, and magnetic resonance, but did not include needle biopsy (2). Furthermore, using modern diagnostic techniques the rate of inappropriate liver resection of benign disease for suspected malignancy has been reported to be only 2 of 159 cases, or 1.9% (3). It is therefore questionable whether needle biopsy is necessary for establishing an accurate diagnosis of focal liver lesions.

Undoubtedly the patient reported herein was highly likely of having a liver metastasis (history of breast carcinoma removed 18 months previously, recent appearance of the liver lesion on routine ultrasound follow-up, intense uptake on positron emission tomography scan). The chances of an isolated focal liver lesion being tuberculosis in a patient born and residing in Western Europe and having no risk factors for tuberculosis, are remote. Specifically in the case of liver tuberculosis, histology on

Correspondence to : S. Landen, M.D., Department of Surgery, St Elisabeth Hospital, Avenue De Fré 206, 1180 Brussels, Belgium. E-mail : serge.landen@skynet.be

Submission date : 07/06/2009

Acceptance date : 13/10/2009

percutaneous needle biopsy can be expected to correct the diagnosis to benign disease and more precisely to granulomatous liver disease in approximately one third of patients only (4). Hence false negative results in the remaining two thirds of the patients displaying no granulomas or acid fast bacilli on smears will possibly lead to tuberculosis not being diagnosed and properly treated. In the absence of treatment liver tuberculosis carries a mortality rate of up to 42% (5,6). More recently, amplification of mycobacterium deoxyribonucleic acid by polymerase chain reaction has proven to be the most accurate technique for detection of Mycobacterium tuberculosis with an 88% overall positivity rate, making it a rapid and reliable diagnostic tool. However in most hospitals this test is not readily available.

More importantly percutaneous needle biopsy carries a risk of tumor dissemination for all hepatic malignancies that is estimated at 3% and specifically for colorectal metastases at 10% (5/51 cases) (7,8). This could jeopardize the chances of cure, possibly as high as 40%, in the most favorable case of a single liver metastasis occurring more than two years following the diagnosis of colorectal cancer (9). Careful consideration should therefore be given before embarking on percutaneous liver biopsy of focal liver lesions. In our view multidisciplinary consultation involving radiologists, pathologists, gastroenterologists and surgeons is necessary before taking such a decision. A high degree of suspicion of benign pathology or non-curable liver malignancy should be entertained before resorting to percutaneous needle biopsy. Furthermore it should be kept in mind that with modern imaging techniques an accurate diagnosis is very often possible without the need for needle biopsy. Needle biopsy has a significant false negative rate (7-10%) and encompasses a significant risk of tumor dissemination that has been shown to compromise the patient's chances of cure (7,10). An acceptably low rate

(< 2%) of inappropriate liver resection for benign lesions and the low mortality (< 3%) associated with such liver resections appears to be an acceptable price to pay in order to avoid the possible dire consequences of percutaneous needle biopsy.

References

1. DE PAUW F.F., FRANCKE S.M., BOGERS J.P., DUYSBURGH I.K., PELCKMANS P.A., VAN MARCK E.A., MICHELSEN P.P. Fine needle trucut biopsy in focal liver lesions : a reliable and safe method in identifying the malignant nature of liver lesions. *Acta Gastroenterol. Belg.*, 2007, **70** : 1-5.
2. TORZILLI G., MINAGAWA M., TAKAYAMA T., INOUE K., HUI A.M., KUBOTA K., OHTOMO K., MAKUUCHI M. Accurate preoperative evaluation of liver mass lesions without fine-needle biopsy. *Hepatology*, 1999, **30** : 889-893.
3. CLAYTON R.A.E., CLARKE D.L., CURRIE E.J., MADHAVAN K.K., PARKS R.W., GARDEN O.J. Incidence of benign pathology in patients undergoing hepatic resection for suspected malignancy. *Surgeon*, 2003, **1** : 32-38.
4. ALCANTARA-PAYAWAL D.E., MATSUMURA M., SHIRATORI Y., OKUDAIRA T., GONZALEZ R., LOPEZ R.A., SOLLANO J.D., OMATA M. Direct detection of Mycobacterium tuberculosis using polymerase chain reaction assay among patients with hepatic granuloma. *J. Hepatol.*, 1997, **27** : 620-627.
5. ALVAREZ S.Z., CARPIO R. Hepatobiliary tuberculosis. *Gastrointest. Endosc.*, 1998, **47** : 100-103.
6. ESSOP A.R., POSEN J.A., HODKINSON J.H., SEGAL I. Tuberculosis hepatitis : A clinical review of 96 cases. *Q. J. Med.*, 1984, **212** : 465-477.
7. METCALFE M.S., BRIDGEWATER F.H.G., MULLIN E.J., MADDERN G.J. Useless and dangerous-fine needle aspiration of hepatic colorectal metastases. *BMJ*, 2004, **328** : 507-508.
8. OHLSSON B., NILSSON J., STENRAM U., AKERMAN M., TRANBERG K.G. Percutaneous fine-needle aspiration cytology in the diagnosis and management of liver tumors. *Br. J. Surg.*, 2002, **89** : 757-762.
9. IWATSUKI S., DVORCHIK I., MADARIAGA J.R., MARSH J.W., DODSON F., BONHAM A.C., GELLER D.A., GAYOWSKI T.J., FUNG J.J., STARZL T.E. Hepatic resection for metastatic colorectal adenocarcinoma : A proposal of a prognostic scoring system. *J. Am. Coll. Surg.*, 1999, **189** : 291-299.
10. JONES O.M., REES M., JOHN T.G., BYGRAVE S., PLANT G. Biopsy of resectable colorectal liver metastases causes tumour dissemination and adversely affects survival after liver resection. *Br. J. Surg.*, 2005, **92** : 1165-1168.