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Primary Leiomyoma of the Liver

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ABSTRACT

This case report describes a primary hepatic leiomyoma presenting as a mass lesion detected on ultrasonography of the abdomen in an asymptomatic hepatitis B carrier on routine surveillance. Primary leiomyomata of the liver are rare occurrences, with only 9 cases reported in the literature. The presenting features of primary hepatic leiomyomata and diagnostic approach towards such lesions are discussed. The significance of such tumours in the immunocompromised is also mentioned.

Keywords: primary, hepatic, leiomyoma, hepatitis B

INTRODUCTION

Primary leiomyomata of the liver are rare occurrences, with only 9 cases reported in the literature[1-5,7-11]. The first case was described in 1926 by Demel in a 42-year-old woman who presented with a right upper abdominal mass[1].

This report describes a hepatic leiomyoma in a 59-year-old man, and emphasizes the diagnostic approach to gastrointestinal leiomyomata.

CASE REPORT

THC is a 59-year-old asymptomatic Chinese man. He is a known hepatitis B carrier and on regular follow-up at our department since 1990. He was discovered to have a focal low echogenic 3.6 cm nodule in segment 5 of the liver on routine ultrasonography. His previous ultrasound scan done 6 months ago revealed no hepatic lesions. He was anicteric. Liver was palpable 1 cm below the costal margin, with a span of 10 cm at the mid-clavicular line. There was no splenomegaly or ascites. Stigmata of chronic liver disease were absent. The liver function tests, prothrombin time, alpha-fetoprotein and full blood counts were normal. Hepatitis B sAg and anti-Hepatitis B e were positive and Hepatitis B e Ag was negative. Anti-Hepatitis C IgG (EIA) and anti-Delta IgG were negative.

His absolute T cell CD4 and CD8 levels and CD4/CD8 ratio were normal. His HIV serology was non-reactive. A CT scan of the abdomen revealed a focal hypodense area with faint ring enhancement in segment 5 of the liver (Fig 1). Hepatic angiogram revealed a solitary lesion with tumour blush, but no lipidol uptake (Fig 2). Subsequently, patient had a segmentectomy (segment 5) to remove the tumour at laparotomy. The stomach, duodenum and intestines were examined and were normal. The wedge of liver tissue revealed a 2.8 cm oval circumscribed nodule. It had a solid white surface with whorled appearance.

Histological sections showed a well circumscribed nodule (Fig 3). It was made of fascicles of elongated cells with ovoid, blunt ended nuclei. There was a mild degree of nuclear pleomorphism, but mitotic figures were absent. There was no necrosis or haemorrhage within the tumour. A positive staining for smooth muscle actin was demonstrated. Focal positivity for desmin was seen on immunoperoxidase stains. This indicates a smooth muscle origin of the tumour cells (Fig 4). The rest of the liver section revealed fatty change and mild piecemeal necrosis. There was no cirrhosis.

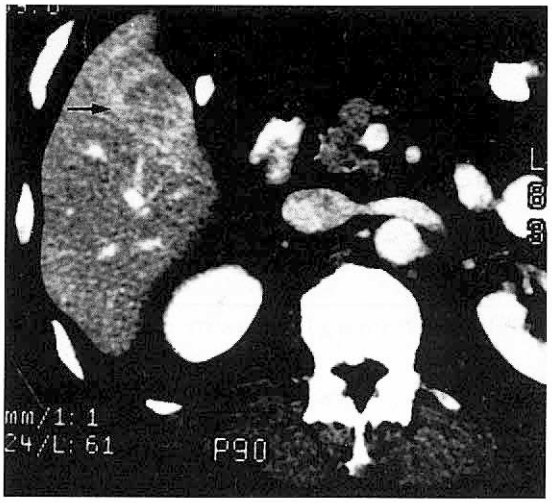

Fig 1 – CT scan of this patient revealed a focal hypodense area with faint ring enhancement in segment 5 of the liver.

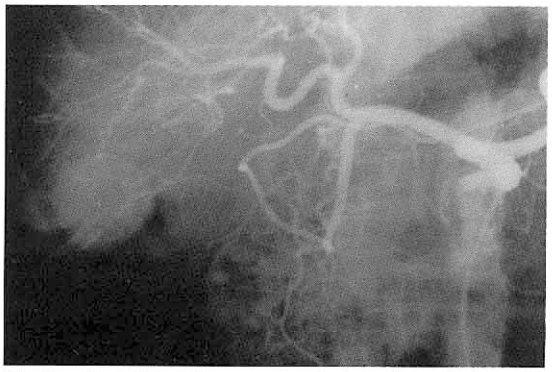

Fig 2 – Hepatic angiogram revealed a solitary lesion with tumour blush, but no lipidol uptake.

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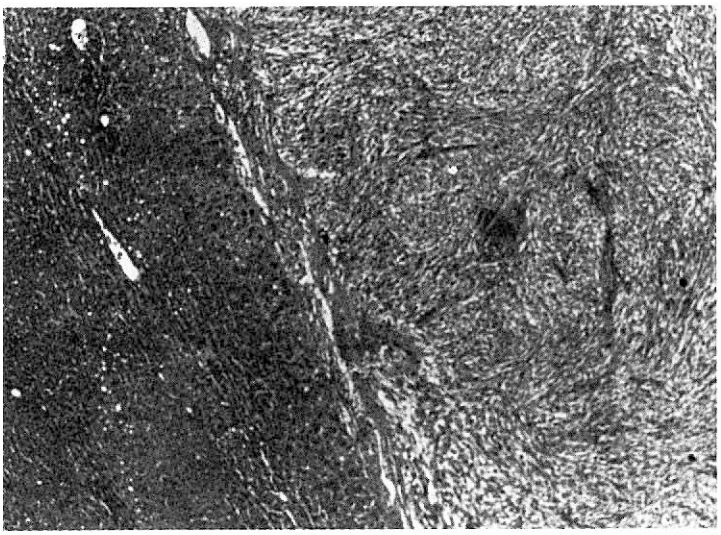

Fig 3 – Haematoxylin & Eosin (x20 magnification). Shows a well circumscribed nodule, with normal liver on the left and the leiomyoma on the right.

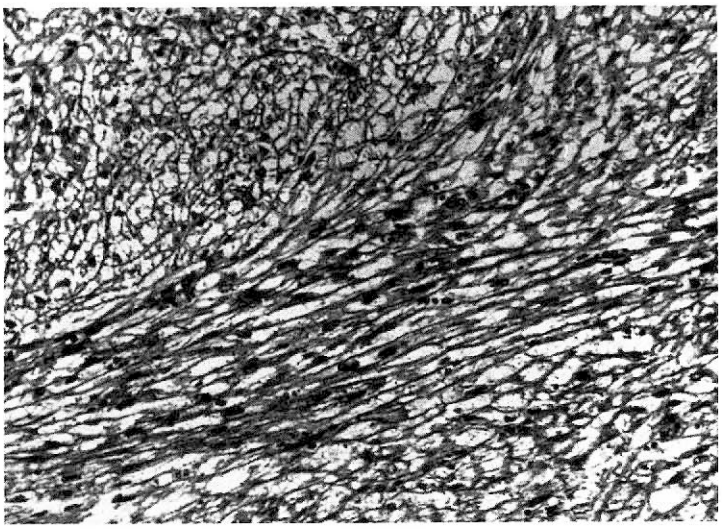

Fig 4 – Haematoxylin & Eosin (x100 magnification). Shows bundles of spindle shaped and elongated cells with ovoid nuclei. No mitotic figures or necrosis is seen. In areas, the cells appear epitheliod.

An oesophago-gastro-duodenoscopy was performed to exclude a possible source of the hepatic leiomyoma. It was normal. In addition Barium meal and follow-through and Barium enema were also normal. This patient is currently 3 years post-surgery and a repeat CT scan of the abdomen was normal.

DISCUSSION

Smooth muscle tumours are common in the gastrointestinal and genitourinary tracts. However, hepatic leiomyomas are rare. Criteria for the diagnosis of primary hepatic leiomyoma as proposed by Hawkins[2]: a) the tumour must be composed of leiomyocytes; b) absence of leiomyomatous tumour at other sites (namely in men, the gastrointestinal tract and in women, the gastrointestinal and genitourinary tract).

In our patient, the gastrointestinal tract was examined at laparotomy and it was normal. The tumour that was removed in our patient was benign.

The differentiation of benign from malignant smooth muscle neoplasms can be difficult. Dense cellularity, nuclear pleomorphism, degenerative changes, larger tumour size and increased mitotic rate all favour a leiomyosarcoma. However, metastatic spread is the only sure indication of malignancy, and the lack of recurrence in this patient after 3 years supports the benign nature of the tumour.

A review of 9 previously reported cases of hepatic leiomyomata including this present case report (Table I) revealed that the majority of the patients presented with right upper abdominal pain. This was probably due to a "mass effect" within the liver. It can also be asymptomatic as in our patient.

These hepatic leiomyomas appear to be slightly more common in women (6 females, 4 males), but such a conclusion is difficult to draw because of the small numbers on record.

Table I – Primary leiomyoma of the liver

Author	Year	Age/Sex	Size	Weight	Symptoms	Uterus	GIT
Demel (1)	1926	42/F	11 cm x 12 cm	NS	Right upper abdomen pain	Normal	Normal
Rio Daniez (5)	1965	87/F	NS	3750 g	Epigastric pain and haemetemesis	NS Normal	
Hawkins (2)	1980	66/M	13 cm x 9 cm	1070g	"lump" in belly	NA	Normal
Rummeny (8,9)	1989	46/F	NS	720 g	Right upper abdomen pain and pressure	NS	NS
Herzberg (7)	1990	30/F	19.5 cm x 2 cm	1920 g	Right sided abdomen fullness and pain	Normal	Normal
Bartoli (11)	1991	34/F	10 cm x 8 cm	NS	Asymptomatic	Normal	Normal
Reinertson (10)	1992	32/F	10 cm in diameter	NS	Right upper quadrant pain for 5 years	Normal	Normal
Haller (3)	1993	9/M	5.6 cm x 5.2 cm x 5.4 cm	NS	Incidental finding when investigating for transplant rejection	NA	NS
Prevot (4)	1994	36/M	8 cm in diameter	500 g	Diagnosed at autopsy	NA	Normal
Mesenas (current study)	1996	59/M	2.8 cm in diameter	NS	Incidental finding on routine ultrasound liver	NA	Normal

* NS: Not stated

Also of interest, is the fact that 2 patients[3,4] were immunocompromised, 1 with AIDS and the other a post-renal transplant candidate.

The role of immune surveillance and immune modification has been put forth as possible theories to explain the development of such tumours[3]. Some believe that immunocompromised hosts have impaired immune surveillance mechanisms which allow tumours to develop unchecked while others propose that a weak immune system predisposes one to various viral infections like the Epstein-Barr virus[4] which is associated with the pathogenesis of neoplasms. Our patient is a hepatitis B carrier.

Chadwick et al cites 7 cases of smooth muscle tumours, both malignant and benign in a population of 2000 paediatric AIDS patients. This far exceeds the accepted incidence of such tumours in the general population[6]. However, our patient has normal absolute CD4 and CD8 levels, a normal CD4/CD8 ratio and is HIV negative.

A pre-operative diagnosis of hepatic leiomyoma is not possible given the current modalities of assessment. The previous 9 cases were all diagnosed definitively at laparotomy and resection of the tumour[1-3,7-11], or at autopsy[4,5]. Only 2 of these patients had percutaneous liver biopsy prior to resection, of which only one specimen revealed fragments of benign muscle suggestive of leiomyoma[3]. This patient subsequently underwent surgical resection of the tumour which confirmed the diagnosis. The other patient's liver biopsy specimen failed to yield a definitive diagnosis[7].

There are no definite radiological features or laboratory tests to diagnose a hepatic leiomyoma. Four patients had ultrasonography and CT scans of the liver[3,7,10,11], 2 had hepatic angiograms[2,10] and 3 had MRI of the liver[3,8,9,10]. These radiological investigations failed to contribute to the preoperative diagnosis of a hepatic leiomyoma. Our patient was similarly subjected to the same barrage of radiological tests. CT abdomen showed a focal hypodense area with faint ring enhancement in segment 5 of the liver. This was confirmed with a hepatic angiogram which revealed a solitary lesion with tumour blush, but no lipidol uptake. There were no definitive features to make a diagnosis. A percutaneous liver biopsy in a hepatitis B carrier would be ill-advised because of the possibility of tumour deposition along the tract if the tumour proves to be a hepatocellular carcinoma. This rate could be as high as 10%.

Therefore, the final diagnosis was only made after resection of the tumour. It would seem prudent that any mass lesion in the liver, especially in hepatitis B carrier be resected when investigations fail to provide a diagnosis.

In conclusion this case report describes a primary hepatic leiomyoma presenting as a mass lesion detected on ultrasonography of the abdomen in an asymptomatic hepatitis B carrier on routine surveillance.

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