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CASE REPORT

Primary Leiomyoma of the Liver
A Case Report and Review of the Literature

THOMAS E. REINERTSON, MD, JOHN B. FORTUNE, MD, JAMES C. PETERS, MD, INEZ PAGNOTTA, MD, and JOHN A. BALINT, MD

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Primary leiomyoma is a rare tumor of the liver (1). Only three cases have been reported previously in the medical literature (2–4). In none of these cases was the leiomyoma diagnosed prior to laparotomy. We describe the case of a patient with a large liver mass. Multiple imaging modalities were utilized, including magnetic resonance imaging (MRI). Despite this, surgical excision was still necessary to determine the ultimate diagnosis as well as to provide symptomatic relief.

CASE REPORT

An otherwise healthy 32-year-old white female was evaluated for right upper quadrant pain. Prior to referral to our medical center, an upper gastrointestinal series was normal and computed tomography showed a large, enhancing lesion in the left lobe of the liver.

She reported a five-year history of intermittent dull right upper quadrant pain sometimes associated with spicy foods. The pain worsened two months prior to evaluation to the point that narcotic analgesia was required. She became anorectic and no longer tolerated the heavy labor required by her job.

She had no history of prior liver disease, jaundice, intravenous drug use, transfusions, toxin exposure, or medication use. Ten years earlier she used birth control pills for a period of one year. Her last normal menstrual cycle began one week prior to the present evaluation.

Examination revealed a healthy, muscular woman with no stigmata of chronic liver disease. Height was 5'2", weight 115 pounds, pulse 72/min and regular, blood pressure 110/60 mm Hg, respirations 16/min. Breast, lung, heart, and pelvic examinations were normal. The abdomen was not distended or tender, and no bruit was present. Percussion showed a 10-cm liver span but palpation identified no mass, splenomegaly, or ascites.

Laboratory evaluation showed WBC 12,900/mm^3, Hct 39%, Hgb 14.1 g/dl, platelets 324,000/mm^3, AST 12 IU/liter (normal 5–45), alkaline phosphatase 71 IU/liter (normal 30–115), LDH 164 IU/liter (normal 90–225), GGT 17 IU/liter (normal 0–45), bilirubin 0.5 mg/dl (normal 0.1–1.2), albumin 4.7 g/dl (normal 3.5–5.2).

Ultrasound examination of the liver showed a large hypoechoic mass with internal echoes of a nonspecific pattern (Figure 1). Computerized tomography (Figure 2A and B) demonstrated a large, low-attenuation hepatic lesion with marked contrast enhancement, but no persistent contrast localization as would be expected from a cavernous hemangioma. Magnetic resonance imaging (Figure 3) showed the same hepatic mass, which was better defined as a 7-cm-diameter lesion in the anterior left lobe within the medial segment. T1-weighting (Figure 3A) showed the lesion to be low signal. T2-weighted images (Figure 3B) showed internal heterogeneity with scattered areas of increased signal, but relatively little overall accentuation of signal with delayed echoes, as would be expected with a typical cavernous hemangioma.

A selective angiogram (Figure 4) performed via the left hepatic artery showed abnormal mass effect and stretching of the feeding vessels. Scattered pooling was noted throughout the tumor, but overall the study was nondiagnostic.

As the lesion was painful, percutaneous liver biopsy was foregone in favor of an exploratory laparotomy. Examination of the liver revealed a firm, pale 10-cm mass that was easily palpable in the medial aspect of the left lobe. The rest of the liver appeared normal. Examination of the stomach, duodenum, small bowel, and uterus did not reveal any abnormalities. The liver mass was resected with adequate margins by a formal left lobectomy.

Microscopic histologic review showed extensive collagenization as well as smooth muscle cells with some hyaline degeneration on WVG staining. There was no atypia or mitotic activity noted (Figure 5). Immunoperoxidase staining was positive for vimentin and actin. Preparations for S100 protein and desmin were negative.

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From the Division of Gastroenterology, Department of Medicine, and Department of Surgery, Albany Medical College, Albany, New York; Department of Radiology, Albany Medical Center Hospital; and Community Health Plan, Latham, New York 12110.

Dr. Reinertson's current address: Wildwood Medical Center, 104-A 23rd Ave., S.E. (Ann Meridian), Puyallup, Washington 98372.

Address for reprint requests: Dr. J.A. Balint, Division of Gastroenterology A-153, Albany Medical College, 47 New Scotland Avenue, Albany, New York 12208.

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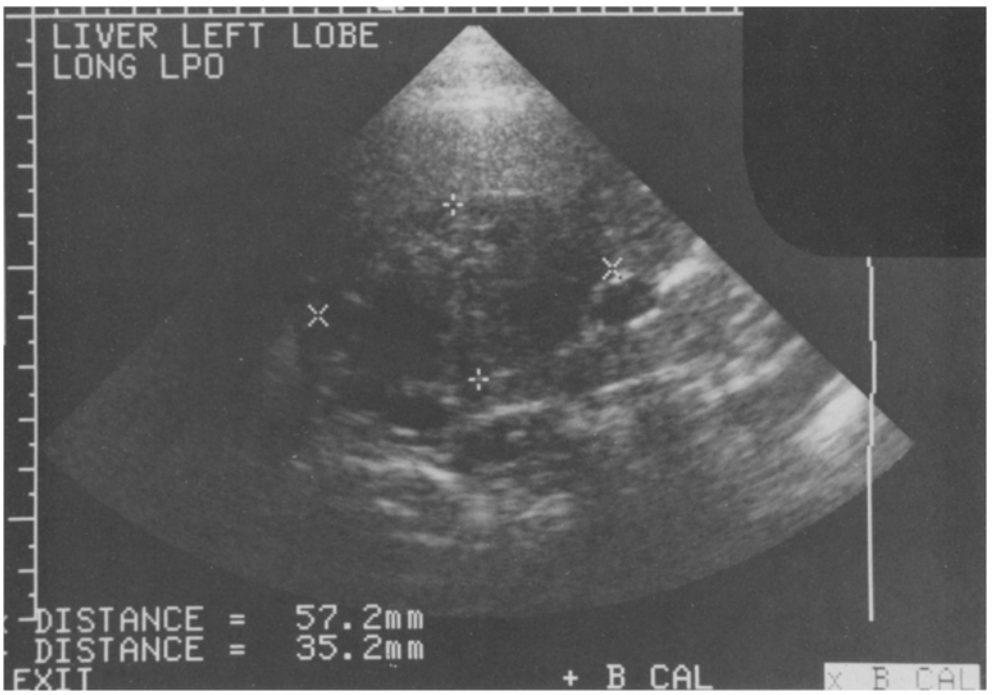

Fig 1. Ultrasound examination of hepatic mass shows a generally hypoechoic lesion with some scattered internal echoes.

The rest of the liver was normal. These studies confirmed that the mass was a benign leiomyoma.

Two years after resection, the patient is free of all discomfort, gainfully employed, and active in a rigorous exercise program.

DISCUSSION

Smooth-muscle tumors are common in the genitourinary and gastrointestinal tracts, but primary leiomyoma of the liver is extremely rare. Hawkins et al (2) proposed two criteria for making this diagnosis: (1) the tumor must be composed of leiomyocytes, and (2) a leiomyomatous tumor at some other site may not be present. There is no clear-cut distinction between benign and malignant smooth-muscle tumors in the gastrointestinal tract. Findings more typical of a leiomyosarcoma include dense cellularity, nuclear pleomorphism, degenerative changes, and large size of the tumor, as well as an increased mitotic rate (more than 1/10 high-powered fields). It is well known that benign-appearing leiomyomas can metastasize, generally from a pelvic source. Furthermore, cavernous hemangiomas may have a prominent smooth muscle component and mimic a primary leiomyoma (5). Hence, careful intraoperative palpation of intraabdominal organs and thorough review of the histological sections are imperative for correct diagnosis.

In this case the addition of magnetic resonance imaging was not able to suggest a tissue-specific diagnosis as it can for hemangioma or hepatoma (6). It did, however, define the tumor boundaries more precisely and showed the adjacent vascular anatomy, as did angiography, which was very useful for planning surgical resection.

As in the other reported cases, hepatic lobectomy is diagnostic and uniformly curative.

SUMMARY

The fourth known case of primary leiomyoma of the liver is described. This diagnosis depends on the exclusion of leiomyoma at other intraabdominal sites and careful histologic review to exclude malignant change. In the presented case, multiple noninvasive imaging modalities failed to allow a tissue specific diagnosis, although magnetic resonance imaging of the liver did add useful information. For this problem, hepatic lobectomy is both diagnostic and curative.

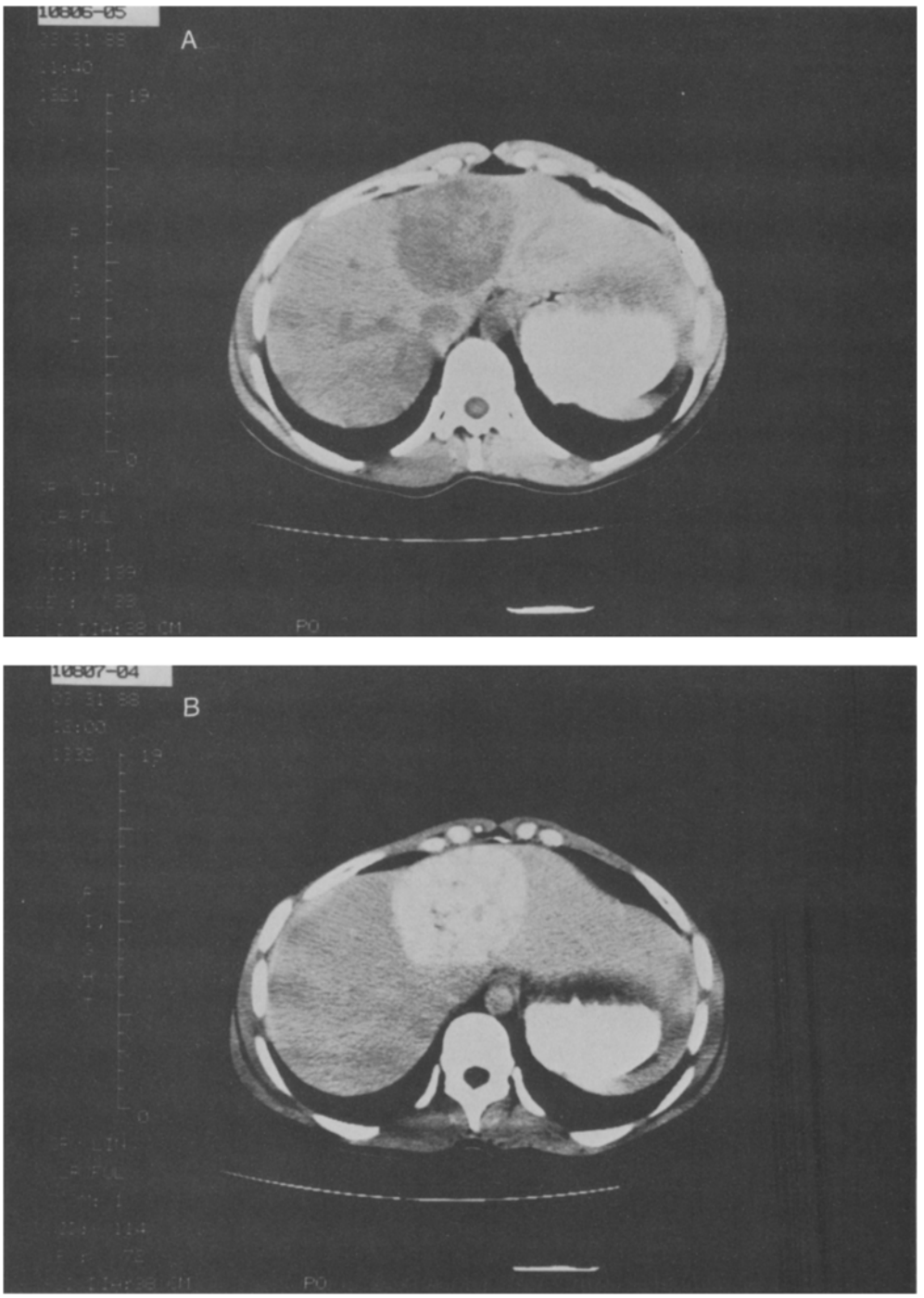

Fig 2. Computerized tomographic scan of liver: (A) without intravenous contrast shows low attenuation lesion; (B) with intravenous contrast shows marked enhancement suggesting a vascular lesion.

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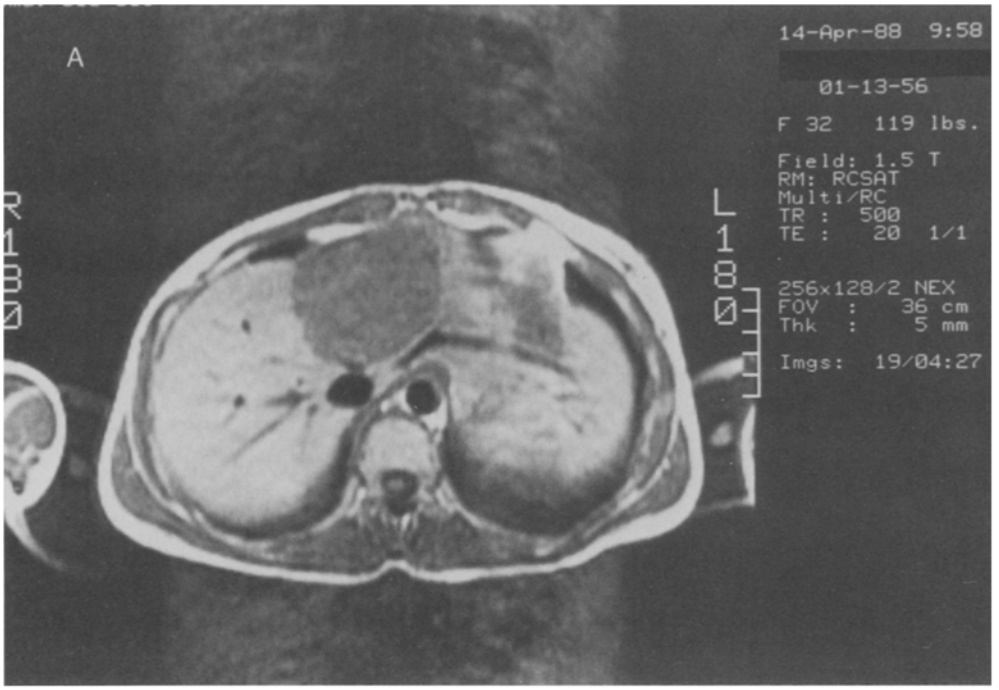

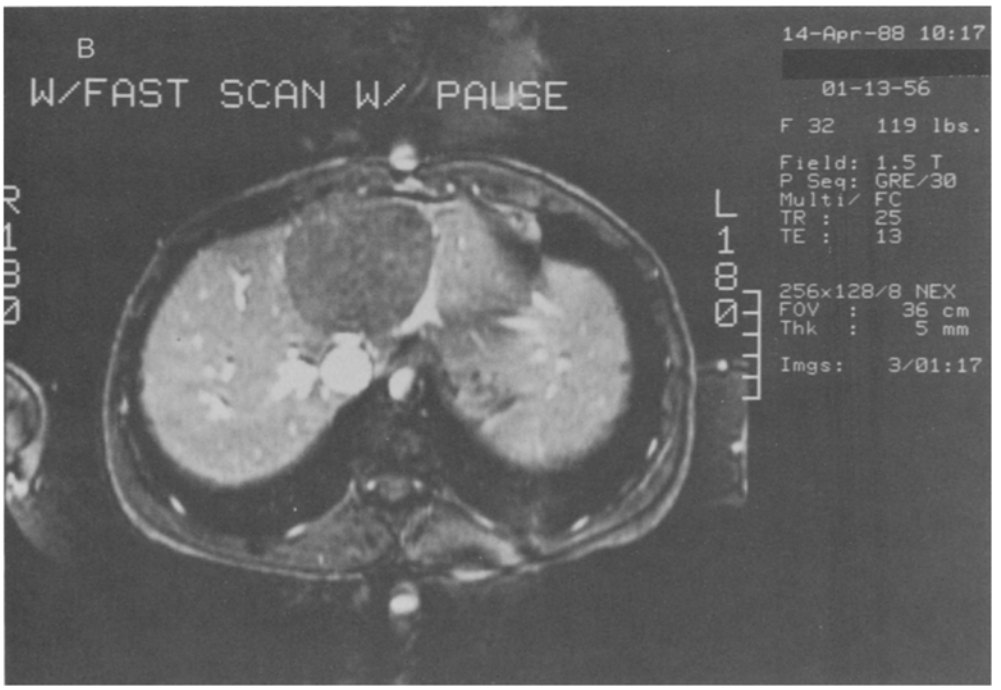

Fig 3. Magnetic resonance image of liver. (A) T1-weighted image; (B) T2-weighted imaging showing internal heterogeneity but no strong signal as expected from a cavernous hemangioma. Shows close proximity of left hepatic vein to the tumor.

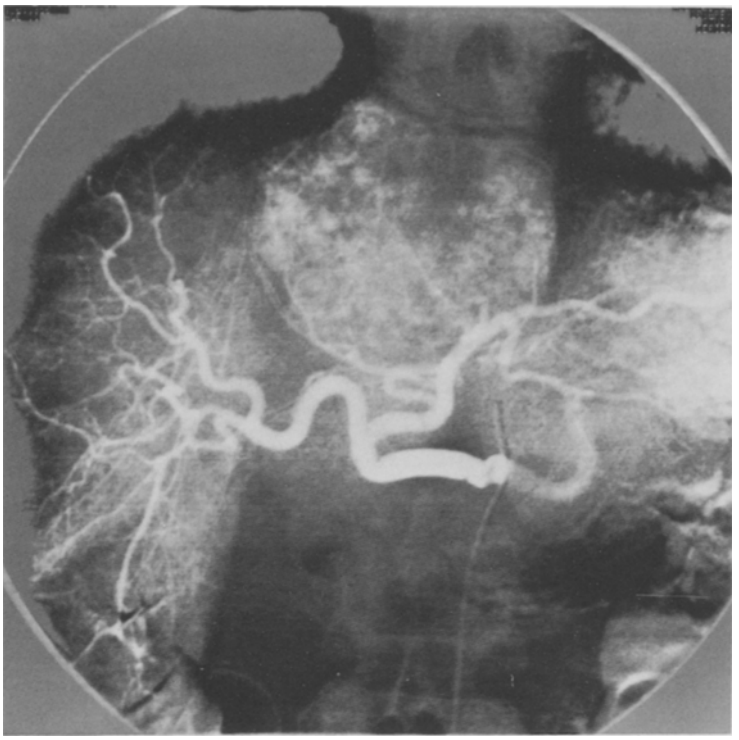

Fig 4. Angiography reveals a vascular lesion with displacement of branches of the left hepatic artery but no evidence of vessel encasement.

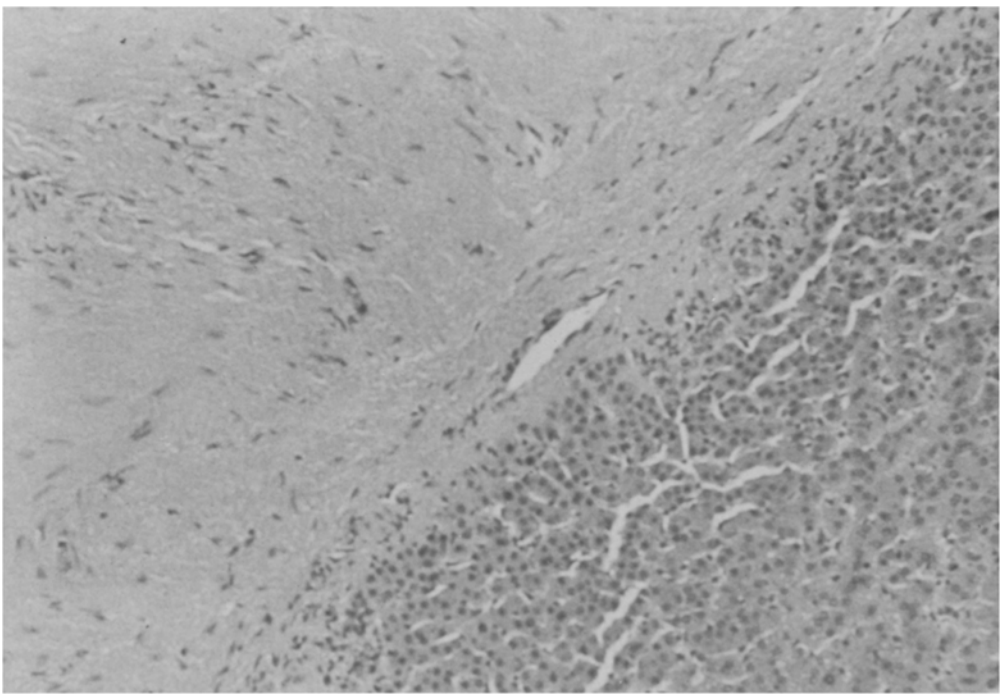

Fig 5. Hematoxylin and eosin-stained section of the leiomyoma removed from the left lobe of the liver (Ongard magnification 400×). The tumor is clearly differentiated from the adjacent normal liver.

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