

AVASCULAR FOCAL NODULAR HYPERPLASIA OF THE LIVER. A CASE WITH ANGIOGRAPHY, ULTRASOUND AND RADIOISOTOPE SCANNING.

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SUMMARY

An unusual case of avascular FNH on hepatic angiography is shown simulating an avascular adenoma. The similarity in appearance of the avascular lesions excludes effective use of angiography for differentiation of these entities, and calls for a multidisciplinary approach.

RESUMO

Hiperplasia nodular focal avascular do fígado. Apresentação de um caso documentado por meio de angiografia, ultrasonografia e cintigrafia.

Apresenta-se um caso raro de hiperplasia focal nodular avascular do fígado, que é o 2.º da literatura médica.

INTRODUCTION

The unusual observation of an avascular focal nodular hyperplasia demonstrated by angiography, ultrasound and nuclear scanning prompts the report of this proven case.

CASE PRESENTATION

This is the case of a 27 year old black female, with a 3 day history of left upper quadrant pain and fever. The pain increased on deep inspiration and by changing position.

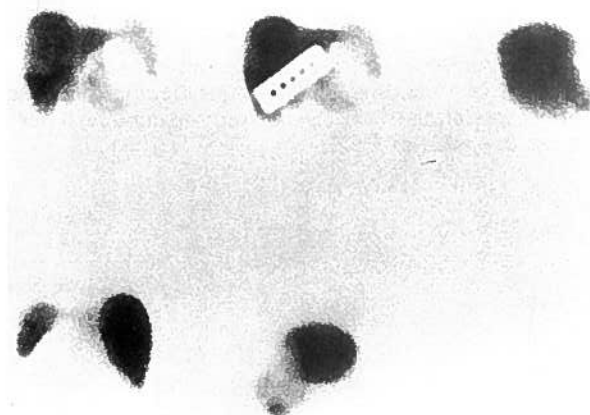


Figure 1: Nuclear Medicine Study

Number 1 is an anterior view of the liver after injection with technetium 99-M sulphur colloid. Number 2 is the same view with isotope markers for measurement purposes. Number 3 is a right lateral view. Number 4 is a posterior view, and Number 5 is a left lateral view. There is an extremely large mass present in the region of the left lobe of the liver with a central clear zone. The size of the zone, as well as the left lobe enlargement can be appreciated from the marked scan of portion 2.



Figure 2: Abdominal Ultrasound

This is a transverse abdominal ultrasound scan taken at 4.0 cm below the xyphoid with a 5 degree cephalic tilt. On this particular scan a large left lobe *complex mass* is identified having both cystic and solid characteristics. The dots seen running across the central portion of the picture are 1 cm markers which, when correlated to the mass, show the size of the mass. The mass is extremely close to the skin line which accounts for the fact that on physical examination it was easily palpable.



Figure 3: Ultrasound

This is an ultrasound sagittal scan taken 8.0 cm to the left of the midline with a 3.5 megahertz 13 mm diameter transducer. On this particular scan the mass has been dissected through its widest portion, and again, the complex nature of its solid and cystic characteristic can be seen. The dots running across the central portion of the scan are 1 cm markers.



Figure 4: Hepatic Angiogram

This is a hepatic angiogram with selective catheterization of the celiac axis. On this particular portion of the angiogram the dilated left hepatic artery can easily be appreciated. Displaced vessels are also easily identified surrounding an avascular mass occupying the left lobe of the liver.

On physical examination there was a temperature of 39 °C and left upper quadrant pain with guarding but no rebound. There was a fullness in the left upper quadrant.

The patient was admitted for observation and to further delineate the case of her abdominal pain. Over the following days, the possibility of the patient having a hepatic adenoma was entertained, since the patient had been on birth control pills for 7 years, up until one month prior to admission. An IVP and BE were obtained, and these two studies were negative.

The laboratory values initially were: WBC - 18,000/mm³, HCT - 32.5%, HG - 11.0 grams %, Alk Phos - 288 units, SGOT - 16 units, sickle cell - negative. Over the next 2 days the WBC count returned to normal, although temperature spikes continued. The hematocrit on the next 2 days fell from 32.5 to 27.7. A liverspleen scan (Fig. 1) showed an area of decreased uptake in the enlarged left lobe.

An ultrasound performed (Figs 2, 3) demonstrated a 12 cm lesion in the greatest dimension mostly solid with some cystic components, originating in the left of the liver.

A hepatic angiogram showed dilatation of the left hepatic artery with displacement of its branches by an avascular mass occupying most of an enlarged left hepatic lobe (Figs. 4, 5). No tumor vessels were visualized. On the late arteriographic phase films there was a well defined oval large lucent area about 13 × 10 cm in diameter without a peripheral rim in the left lobe of the liver. The right lobe of the liver on late films was normal.

The patient was explored, and a mass of 13 × 12 × 8 cm was found located in the left lobe of the liver, and extending from the falciform ligament to the edge of the lateral segment. A left lateral segmentectomy was performed. The weight of the dissected lateral segment of the left lobe was approximately 700 g. On sectioning, a great deal of clotted blood was obtained, and the cut section showed extensive areas of necrosis and hemorrhage along the borders (Fig. 6). There was no distinct capsule identified, and the lesion appeared to be rimmed by relatively normal appearing liver tissue. There was a small tail of uninvolved liver parenchyma on the lower end of the specimen.

The final pathological report was focal nodular hyperplasia with extensive hemorrhage and necrosis.

DISCUSSION

Focal nodular hyperplasia (FNH) is a richly vascular lesion with unusual, muscular thick-walled large veins and arteries, but not encapsulated.¹

The angiographic features are hypervascularity, increased parenchymal staining and sharp margination.¹ Peripheral arterial supply centrally penetrating can exist as in hepatic adenoma, although there is no tumor encapsulation in focal nodular hyperplasia.²

On the 27 reported cases of focal nodular hyperplasia, 21 had hepatic angiography and all but 1 showed hypervascular lesion with a dense capillary blush.^{1, 3, 4, 5} In a patient taking birth control pills a hypervascular hepatic lesion can either be adenoma or focal nodular hyperplasia.¹ If the lesion is avascular, it has been said that it is an adenoma; however, the case published by Whitley⁵ and our own show that FNH can be avascular. In the case published by Whitley there was strong echo production within the tumor mass,⁵ consequently, there was difficulty on distinguishing both lesions by angiography. Similar difficulty exists from a pathological point of view, and only duct proliferation and the lack of encapsulation of the lesion from surrounding tissues makes the diagnosis of FNH.



Figure 5: Hepatic Angiogram (late phase).

No parenchymal stain in the left lobe of the liver corresponding to the mass.



Figure 6: Pathological Specimen.

Gross pathological specimen of the removed tumor and left lobe of the liver. It can be seen on this particular photograph that there is quite a large amount of clot present. There is sharp margination between tumor and normal parenchyma.

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