Case 1348

Eurorad

A giant haemangioma: an incidental finding

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Section: Abdominal imaging
Imaging Technique: CT
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Imaging Technique: CT
Imaging Technique: MR
Case Type: Clinical Cases
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Patient: 46 years, male

Clinical History:

The patient was admitted to hospital following a road traffic accident. A giant haemangioma was found on ultrasound study. There was no medical history of symptoms of hypovolaemia, epigastralgia or any other conditions suggesting a problem.
Imaging Findings:

The patient was admitted to hospital following a road traffic accident. He was haemodynamically stable and abdominal ultrasonography (US) was carried out to exclude subclinical visceral injury. The US study revealed hepatomegaly, cholelithiasis and a giant haemangioma among others, smaller in calibre. There was no medical history of symptoms of hypovolaemia, epigastralgia or any other conditions suggesting a problem.
CT scanning depicted a giant thrombosed haemangioma (transverse diameter: 23cm, anterior-posterior diameter: 17cm and craniocaudal diameter: 20.4cm), with a central hypodense region, attributed to the site of thrombosis and accompanying fibrosis. The rest of the hepatic parenchyma was filled with multiple hypodense lesions of diameter ranging from 0.6cm to 4 cm. Following iv administration of contrast medium, on consecutive images, the giant haemangioma showed no enhacement, apart from peripheral uptake. The smaller lesions showed no uptake of contrast medium during the hepatic arterial phase, and the majority of them demonstrated no characteristics typical of a haemangioma at either the portal venous or the delayed (equilibrium) phase. In order to determine the malignant or benign nature of these entities, which were atypical in appearance and behaviour, an MRI study was suggested.

The MRI study confirmed a diagnosis of cavernous liver haemangioma and, three months later, the patient was treated with embolisation.

Discussion:

Haemangioma is the most common benign non-cystic tumour of the liver. Its prevalence in the adult population has been reported to range from 0.4% to 20%, with the incidence in females being about six times greater that that in males. Haemangiomas are usually asymptomatic and thus detected incidentally on imaging studies.

Hepatic haemangiomas are frequently seen in a sub-capsular location, more commonly in the right lobe. They are usually solitary, but are multiple in up to 50% of cases. Hepatic haemangiomas are typically <3cm in diameter. When larger than 10cm, they are classified as "giant or cavernous haemangiomas" and may replace an entire lobe. Diffuse hepatic haemangiomatosis without extra-hepatic lesions is extremely rare in adults.

An uncommon but life-threatening complication is the spontaneous or traumatic rupture of this entity, causing vast intraperitoneal haemorrhage. Embolisation represents a therapeutic alternative to surgery.

Many different techniques are available for the imaging of haemangiomas. On ultrasound examination they present as a circumscribed mass of very high echogenicity. They are almost always sub-capsular in location or closely related to the hepatic veins. The mass is lobulated and often contains large unechoic areas corresponding to venous lakes. Neither colour nor power Doppler imaging improves the capability of sonography for making a specific diagnosis of benign hepatic cavernous haemangioma.

Pre-contrast CT studies of haemangiomas show densities below that of normal liver. After iv contrastadministration, peripheral and nodular enhancement appear during the dynamic phase, with subsequent afferent diffusion of contrast into the centre of the lesion. This pattern of enhancement reflects the large vascular component but very slow blood flow typical of the lesion. Giant hepatic haemangiomas commonly have central areas of fibrosis, cystic change, or haemorrhage, which modify the CT appearance. Small haemangiomas frequently show atypical appearances on CT. Two-phase helical CT does not improve sensitivity but does improve specificity for differentiating haemangiomas from hypervascular malignant tumours, especially when globular enhancement is detected, with the appearances of enhanced areas being similar to those of the aorta at the arterial phase and to those of the blood pool at the portal venous phase.

Focal lesions such as haemangiomas may also be diagnosed with MRI. A typical haemangioma shows uniform low signal on T1-weighted images and uniform high signal on T2-weighted images. Dynamic imaging, after iv gadolinium, shows a dense peripheral nodular blush, which begins during the arterial phase of liver perfusion and continues afferently for several minutes so that images obtained after about 10 minutes often show diffuse hyperintensity of the lesion. Larger haemangiomas may contain a central core or irregular nodules of fibrous tissue that remains unenhanced even on delayed images.

Scintigraphy and 99mTc-labelled RBC radionuclide scanning with SPECT represent a new diagnostic modality for hepatic haemangiomas, with a specificity of nearly 100%.

Differential Diagnosis List: Cavernous liver haemangioma

Final Diagnosis: Cavernous liver haemangioma

References:

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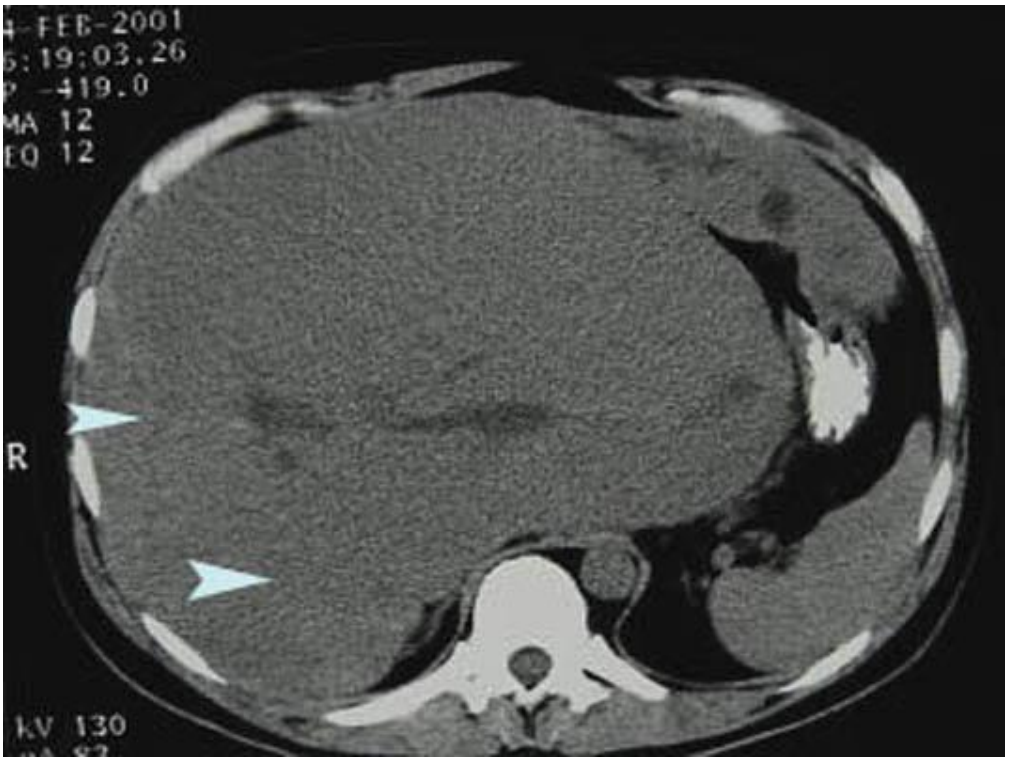
Figure 1

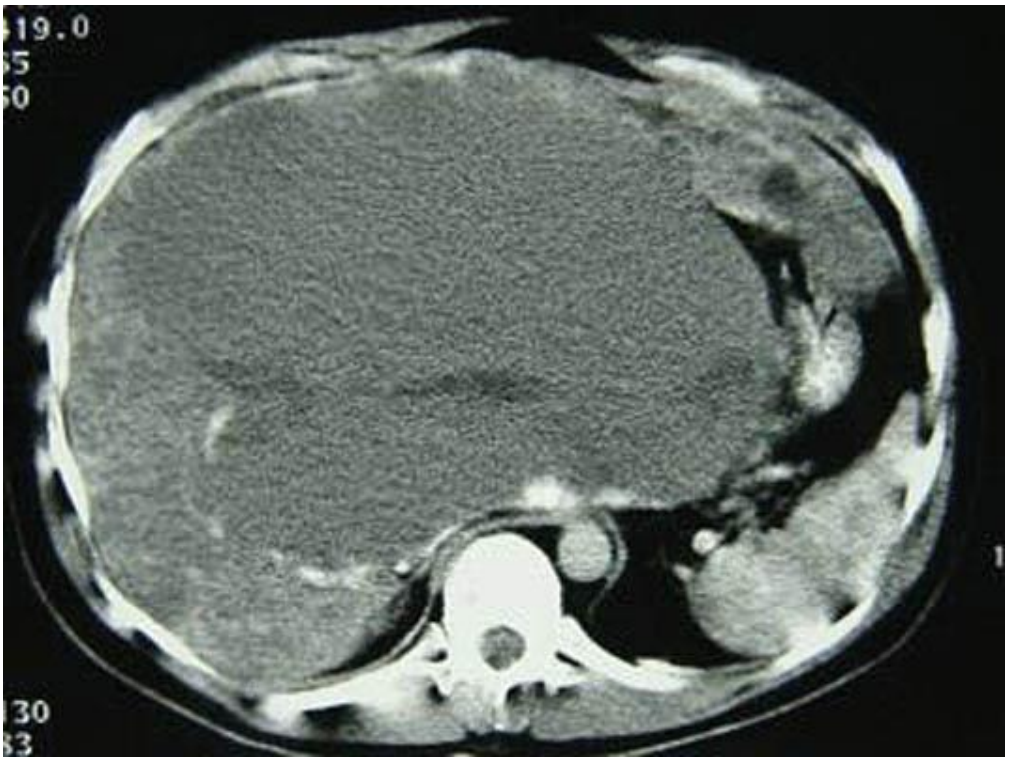
a



Description: A large, sharply demarcated, hypodense lesion with a centrally located more hypodense area is shown. Multiple small hypodense lesions are also demonstrated. **Origin:**

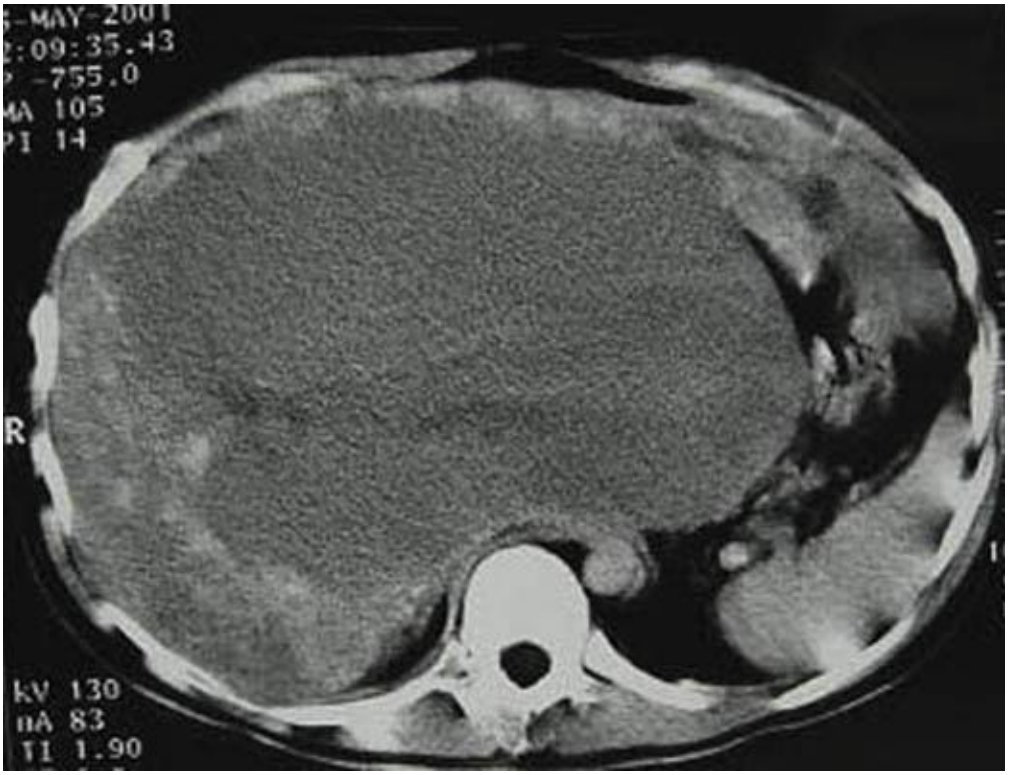
Figure 2

a



Description: During the enhanced CT, the large lesion exhibits small peripheral globular areas of hyperdensity. Some of the small lesions also show peripheral hyperdensity. **Origin:**

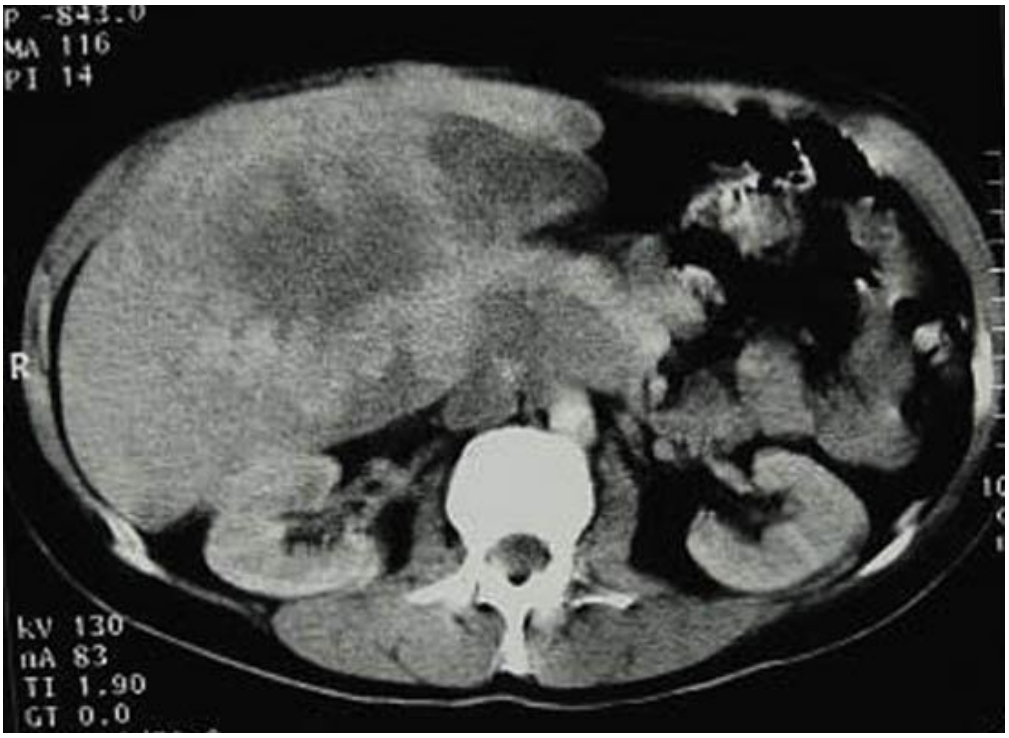
b



Description: During the late phase of enhanced CT, the large lesion remains hypodense with the centrally located areas of fibrosis, which remain unenhanced, appearing more hypodense.**Origin:**

Figure 3

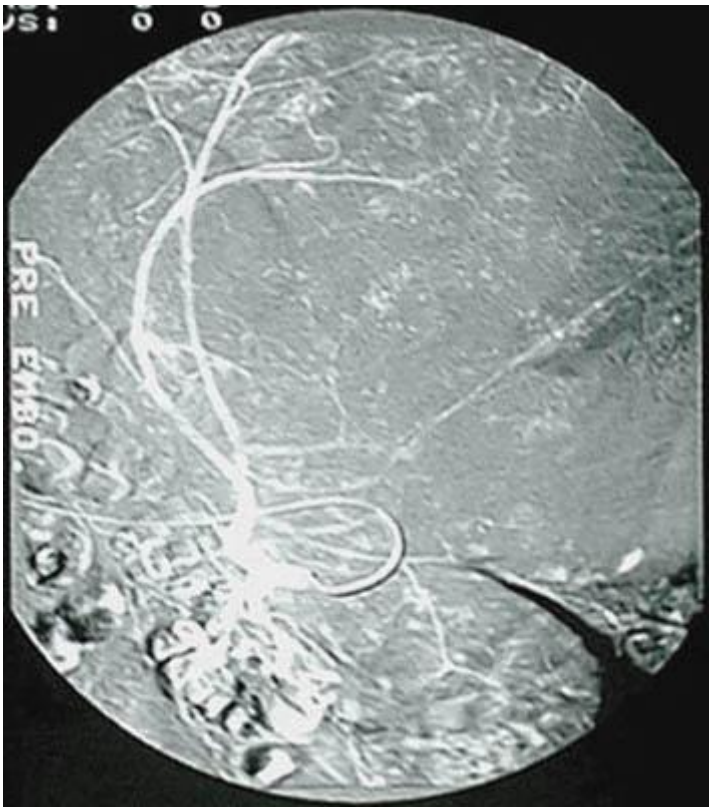
a



Description: Some of the small lesions show complete contrast medium filling, some show peripheral enhancement and some show no enhancement. **Origin:**

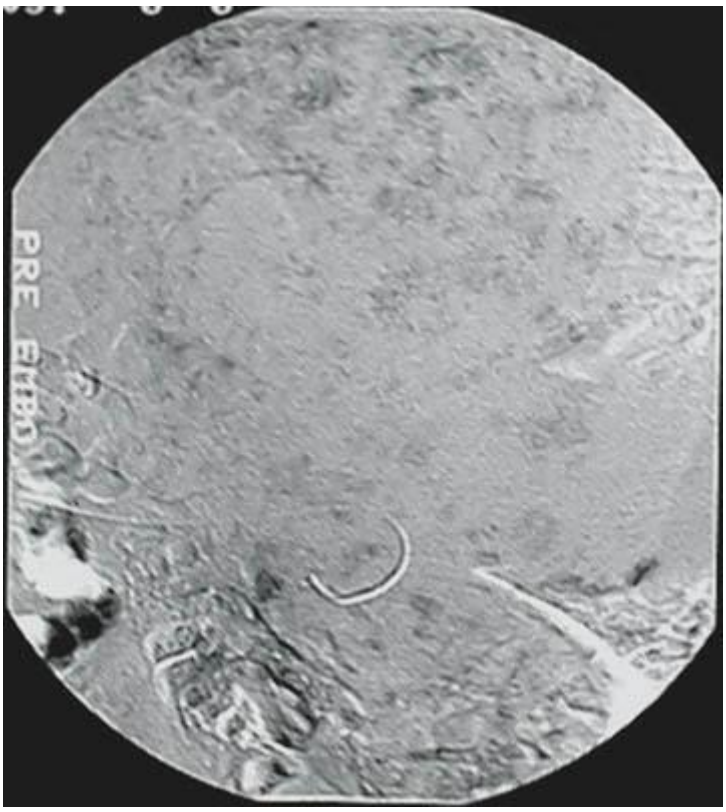
Figure 4

a



Description: Arterial phase of a DSA showing the hepatic artery and staining of the multiple lesions.
Origin:

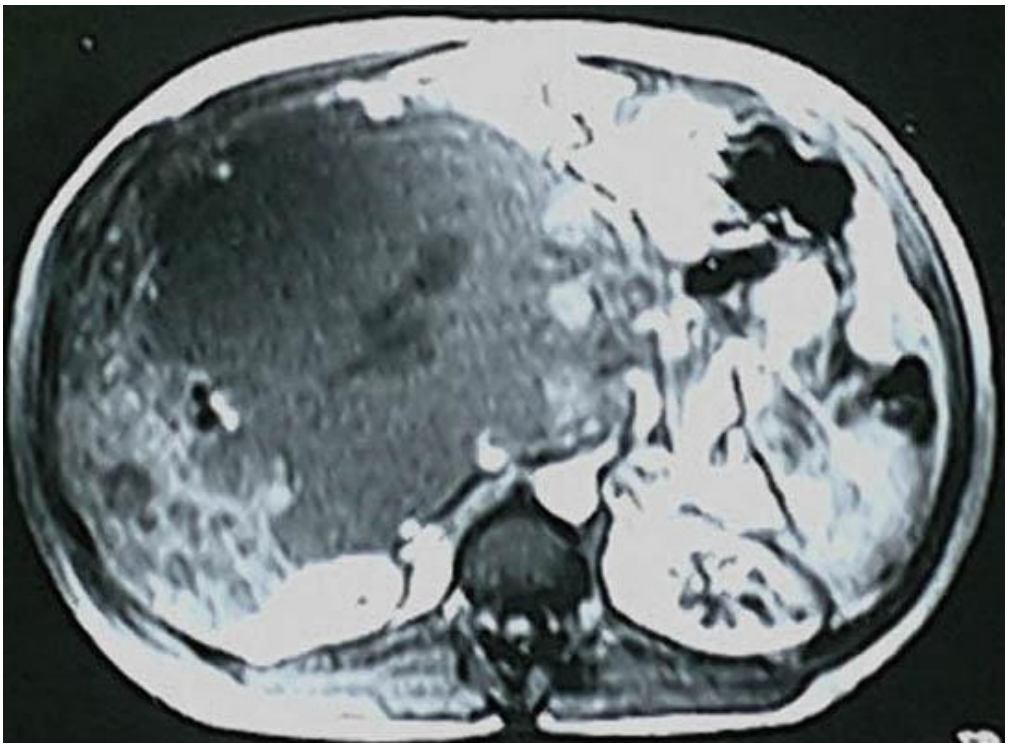
b



Description: Late phase of a DSA showing that the capillary stain persists late. **Origin:**

Figure 5

a



Description: Globular peripheral enhancement of the large lesion and peripheral enhancement of the smaller lesions is demonstrated. **Origin:**