Case 2814

Rapidly filling hemangioma in a cirrhotic patient
Published on 20.07.2005

DOI: 10.1594/EURORAD/CASE.2814
ISSN: 1563-4086
Section: Abdominal imaging
Imaging Technique: CT
Imaging Technique: CT
Imaging Technique: CT
Case Type: Clinical Cases
Authors: Iannaccone R, Marin D, Celestre M, Guerrisi A
Patient: 65 years, male

Clinical History:

This pertains to a newly discovered hepatic lesion on ultrasound examination in a patient with chronic liver disease.

Imaging Findings:

A patient was referred to our hospital following a newly discovered hepatic lesion on performing ultrasonography. He had a history of early stage chronic liver disease (hepatitis C virus infection). Laboratory studies done were found to be unremarkable. Alpha-FP serum plasmatic levels were within the normal range (20 ng/dL). The patient once again underwent an ultrasound examination which showed a 1 cm heterogeneous lesion at the VIII segment of the liver. On doing a color-Doppler examination, it was found that the lesion showed a strong hypervascularity. A 2.5 cm already diagnosed hepatic hemangioma was also identified at the V segment. A multidetector CT scan was performed. The CT protocol study included unenhanced and triple acquisition (arterial, portal venous, and delayed) and contrast enhanced acquisitions, after a rapid bolus injection of the iodinated contrast material (5 mL/s). On arterial phase images (25 s), the lesion at the VIII segment showed a rapid, homogeneous enhancement comparable to the attenuation value of the aorta. Contrast material retention has seen on portal venous (60 s) and delayed (180 s) scans allowed us to confidently rule out malignancy. A flash filling hemangioma was suspected. The patient has been followed up with a serial CT study (every six months), showing lesion-size stability over time.

Discussion:

A hemangioma is the most commonly occurring benign hepatic tumor with prevalence rates ranging from 12% to 20% in the general population. Diagnosis of this lesion based on imaging studies is very reliable, especially by using magnetic resonance (99% accuracy rate). However, differential diagnosis may prove to be challenging when lesions present atypical features, such as rapid filling enhancement, association with arterial-portal venous shunt, enlargement over time, lesion-related symptoms. Rapidly filling hemangiomas are not encountered very frequently (16% of all hemangiomas), but their prevalence significantly increases in smaller lesions (42% of <1 cm hemangiomas). CT and MR imaging findings include immediate homogeneous enhancement as seen on arterial phase images and contrast medium retention as seen on portal venous and delayed images. Generally, hemangiomas show a vascular enhancement closely equivalent to that in arterial (on early images: 25 s) or venous (on portal venous and delayed images: 70 and 180 s) vessels (blood pool sign). A high signal intensity on T2-w MR images is also helpful for establishing a diagnosis. Rapid filling hemangiomas have to be distinguished from all hepatic lesions that rapidly enhance on the arterial phase, including focal nodular hyperplasia, hepatocellular adenoma, hepatocellular carcinoma, and hypervascular metastases. A differential diagnosis is much harder to make in chronic liver disease, since any hypervascular lesion, in this setting, is highly suggestive of hepatocellular
carcinoma. Isoattenuation to aorta on arterial phase acquisition and contrast retention on portal venous and delayed images are the most important clues to differentiate benign hemangiomas from malignant hepatocellular carcinoma.

**Differential Diagnosis List:** Rapid filling hemangioma.

**Final Diagnosis:** Rapid filling hemangioma.

**References:**


Figure 1

Description: A small 1 cm hypodense lesion at the VIII liver segment. Origin:
**Figure 2**

*Description:* An arterial phase image (a) of a lesion showing a rapid homogeneous contrast filling (high velocity vascular in-flow). Portal venous (b) and delayed (c) images in which the lesion retains the contrast material and shows the same attenuation values as that of venous vessels (blood pool sign).

*Origin:*
Description: An arterial phase image (a) of a lesion showing a rapid homogeneous contrast filling (high velocity vascular in-flow). Portal venous (b) and delayed (c) images in which the lesion retains the contrast material and shows the same attenuation values as that of venous vessels (blood pool sign).

Origin:
Description: An arterial phase image (a) of a lesion showing a rapid homogeneous contrast filling (high velocity vascular in-flow). Portal venous (b) and delayed (c) images in which the lesion retains the contrast material and shows the same attenuation values as that of venous vessels (blood pool sign).

Origin:
Description: A second lesion is identified at the V liver segment. Imaging findings obtained after contrast medium administration (peripheral globular enhancement on arterial phase and centripetal filling on following acquisitions) are diagnostic for cavernous hemangioma. Origin:
Description: A second lesion is identified at the V liver segment. Imaging findings obtained after contrast medium administration (peripheral globular enhancement on arterial phase and centripetal filling on following acquisitions) are diagnostic for cavernous hemangioma.

Origin: