Hepatocellular Carcinoma

By Sushila Ladumor, MD [2]

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Findings: Liver shows cirrhotic profile with low density area in precontrast phase. In arterial phase there is multifocal diffuse enhancement and wash out in portal phase seen involving both the lobe of liver consistent with multifocal hepatocellular carcinoma (HCC), portal vein thrombosis (tumor thrombus), splenomegaly, collaterals at splenic hilum, ascites

Hepatocellular carcinoma (HCC), which is the sixth most common malignancy worldwide, usually develops in patients with liver cirrhosis. HCC is the most common primary hepatic tumor, and is a primary malignancy of hepatocellular origin. Hepatocellular carcinoma frequently arises in the setting of cirrhosis, appearing 20 to 30 years following the initial insult to the liver. However, 25 percent of patients have no history or risk factors for the development of cirrhosis. The extent of hepatic dysfunction limits treatment options, and as many patients die of liver failure as from tumor progression. Tumors are multifocal within the liver 75 percent of the time. Late in the disease, metastases may develop in the lung, portal vein, periportal nodes, bone, or brain.

Patients generally present with symptoms of advancing cirrhosis.
Pruritus
Jaundice
Splenomegaly
Variceal bleeding
Cachexia
Increasing abdominal girth (portal vein occlusion by thrombus with rapid development of ascites)
Hepatic encephalopathy
Right upper quadrant pain (uncommon)

Preferred examination: Cross-sectional imaging with computed tomography scanning and magnetic resonance imaging (MRI) is most commonly used to detect hepatocellular carcinoma. CT is frequently the first examination; however, MRI has superior contrast resolution and may better detect lesions less than 1 cm in diameter. Ultrasonography can be sensitive in detecting HCC and, depending on the operator, can detect small lesions. US can evaluate for vascular invasion of the portal and hepatic veins through color Doppler imaging. Nuclear medicine imaging, angiography, and plain films are less useful.

Limitations of techniques: Plain films are nonspecific but may show a mass in the upper abdomen if the HCC is large. Nuclear medicine provides relatively nonspecific findings. The HCC may present as a "cold" defect on a sulfur-colloid study or may demonstrate uptake of radiopharmaceuticals if the mass produces bile. Gallium uptake is seen in 90 percent of HCCs.

The US appearance of HCC varies; it may be hyperechoic or hypoechoic. A small hyperechoic HCC may be confused with hemangioma. Perform CT scanning in hepatic arterial, portal venous, and delayed phases. Similarly, if MRI is used, precontrast, arterial, venous, and delayed phases are essential. Enhancement patterns of regenerative, dysplastic, and HCC nodules overlap; therefore, nodules of cirrhosis may not be differentiated from small HCCs. Angiography study may show increased vascularity of other hepatic tumors, including benign masses.

References:
http://emedicine.medscape.com/article/282814-clinical
http://emedicine.medscape.com/article/369226-overview#a20
http://radiology.rsna.org/content/263/2/590.full
http://radiology.rsna.org/content/219/2/445.full

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Disclosures:

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