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Clinical Challenges and Images in GI: Glowing In The Dark: Not Always A Bad Thing

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Question

A 55 year old male long distance runner of many years underwent evaluation for an unusual movement disorder of the right lower extremity. During the evaluation, a magnetic resonance angiogram of the abdomen, pelvis and lower extremities was performed to rule out intimal thickening and kinking of pelvic arteries that could have contributed to some of his symptoms. An incidental finding of a 1.7cm lesion on the right lobe of the liver was identified (Figure 1).

While undergoing hepatic evaluation, the patient denied any abdominal or associated symptomatology. Aside from his primary complaints, he did not have any significant medical history, and his only medication included daily aspirin intake. His physical exam and laboratory examination were unremarkable.

For better characterization of the unidentified mass, the patient underwent a triphasic computed tomography scan, which demonstrated a lesion that was hypodense on pre-contrast, hypervascular in the arterial phase, and isodense on delayed post-contrast images (Figure 2). As a definitive diagnosis had not been reached, he then underwent a ^{99m}Tc-sulfur-colloid liver-spleen scan, which clinched the diagnosis (Figure 3; Rotating image).

What is the diagnosis?

Answer

The diagnosis of focal nodular hyperplasia (FNH) was made based on the findings of the ^{99m}Tc-sulfur-colloid liver-spleen scan, which showed increased sulfur-colloid uptake in the region of the mass, occurring in the first 40 seconds of the study. FNH, the second most common benign tumor of the liver following hemangioma, consists of a proliferation of normal hepatocytes and Kupffer cells.^{1, 2} It has an incidence of 5–8% in the adult population, with a

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1:8 male to female ratio, and has been hypothesized to occur as a result of localized hepatocyte response to an underlying congenital or acquired defect of the arterial blood supply, leading to focal hyperperfusion of the hepatic parenchyma.^{1, 2}

The differential diagnosis of a liver mass is vast, and hepatic adenomas (HA) are often confused with FNH. It is important to correctly differentiate between the two as HA's must often be resected, whereas FNH's are typically observed.² Although radiologic approach consisting of CT or ultrasound, MRI, and scintigraphy has been advocated in differentiating FNH from HA, scintigraphy has been considered highly specific for FNH.^{2, 3} In a study by Herman et al, scintigraphy was found to have a sensitivity of 38.4% and specificity of 100%, and when this modality suggested the diagnosis, no future investigation was indicated.² The typical finding in scintigraphy in FNH is normal or increased uptake, as the Kupffer cells that are present accumulate the sulfur-colloid that is used.^{2, 3} Note should be made that hypervascular malignant masses in the liver, such as hepatoma or neuroendocrine tumors, might have similar CT features to those presented here, however these would show as a “cold” area on scintigraphy.

In the presented patient the diagnosis was suspected following the CT scan and then confirmed with scintigraphy, thus saving the patient from unnecessary further procedures.

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Figure 1. T2-weighted image from a MRA of the abdomen. Arrow points to the 1.7cm lesion in the right liver lobe that was incidentally noted.

Figure 2. Triphasic CT of the abdomen. The mass is demonstrated to be hypodense on pre-contrast (2a), hypervascular in the arterial phase (2b), and isodense on delayed post-contrast (2c).

Figure 3. ^{99m}Tc -sulfur-colloid liver-spleen scan. Arrow points to region of increased sulfur-colloid uptake.

Rotating Image.

99mTc-sulfur-colloid liver-spleen scan demonstrating mass in the right lobe of the liver