Portal Hypertension as Portrayed by Marked Hepatosplenomegaly: Case Report

Robin A. Greene

Yale University Medical Center/Yale New Haven Hospital, New Haven, Connecticut

The liver is vulnerable to a host of disease processes, including portal hypertension. This is a severe hepatic condition in which the liver is subject to numerous imbalances: increased hepatic blood flow, increased portal vein pressure due to extrahepatic portal vein obstruction, and/or increases in hepatic blood flow resistance (I). Although many disease states may be responsible for the development of portal hypertension, it is most commonly associated with moderately severe or advanced cirrhosis (2). Advanced, untreated portal hypertension may cause additional complications such as hepatosplenomegaly, gastrointestinal bleeding, and ascites (I).

CASE REPORT

The patient was a 22-yr-old man with a long history of sarcoidosis, a chronic granulomatous disease process of unknown etiology. Sarcoidosis is characterized by the formation of tubercle-like lesions in affected organs, usually the skin, lymph nodes, lungs, and bone marrow (3). This patient had confirmed pulmonary, eye, and dermatologic involvement. Because of persistent elevation in liver function tests, the clinicians believed that sarcoid involvement of the liver was present as well. An abdominal exam revealed possible hepatosplenomegaly, and a liver/spleen scan was requested.

After the intravenous administration of 6 mCi (222 MBq of technetium-99m (99mTc) sulfur colloid, multiple planar images of the liver and spleen were obtained with a scintillation camera. The images were collected for 750,000 counts each, employing a 20% window that was centered on the 140 keV photopeak of 99mTc. High resolution collimation was used.

Image evaluation (Fig. 1) revealed that both the liver and spleen were enlarged (the spleen measured 23 cm in its longest dimension). No focal defects were apparent in the images. There was minimal shift of radiocolloid from the liver to the spleen.

The patient did not agree to a liver biopsy so there was no confirmed diagnosis, although infectious hepatitis was suspected based on all of the other tests performed.

DISCUSSION

In normal persons, the distribution ratio of 99mTc radiocolloid between the liver and spleen is about 5.5:1. In the presence of portal hypertension this ratio decreases or may

For reprints contact: Robin A. Greene, Yale University School of Medicine, TIMI Core Lab, Fitkin 2, Room 206, 333 Cedar Street, New Haven, CT 06504.

be reversed in more severe cases (2). This individual's 99mTc sulfur colloid images demonstrated the combination of an enlarged liver and spleen, with homogeneous distribution of radiocolloid. A slight shift in activity to the spleen was also noted. The clinician's diagnosis based on these findings suggested diffuse hepatocellular disease. The confirmation of this diagnosis will require subsequent testing for other processes such as infectious hepatitis, which has been found to produce

TABLE 1. Causes of Hepatosplenomegaly

Wilson's disease

Gaucher's disease

Actinomycosis

Weil's disease

Proxysmal nocturnal

hemoglobinuria

Hydatid cyst

Common Rare (continued) Metastatic tumors Fatty infiltration

Hepatitis Mucopolysaccharidosis Cirrhosis Niemann-Pick disease Congestive heart failure Gangliosidosis Abscess Alpha 1-antitrypsin deficiency Leukemia Hepatic porphyrias Cystic fibrosis Lymphoma Normal variants-Reidel's lobe Histiocytosis X Galactosemia Acromegaly Uncommon Polycystic disease Infection Inflammatory noninfective **Tuberculosis** disorders Infectious mononucleosis Sarcoidosis Hemochromatosis Granulomatous hepatitis Chronic passive congestion Juvenile rheumatoid arthritis Trauma Kwashiorkor Hemolysis **Biliary obstruction** Erythroblastosis fetalis Amyloidosis Chronic hemolytic anemia Vascular disorders Drugs Hereditary hemorrhagic Phenobarbital telangiectasia Diphenylhydantoin Multinodular Sulfonamides hemangiomatosis Acetominophen Cavernous hemangiomas Tetracvcline Budd-Chiari syndrome Corticosteroids Jamaican vomiting disease Methotrexate Infection Androgens Congenital or postnatal Primary tumors syphilis Cysts (hydatid) Schistosomiasis Amebiasis

Rare

Inherited metabolic disorders with hepatic involvement Wolman's disease Glycogen storage disease

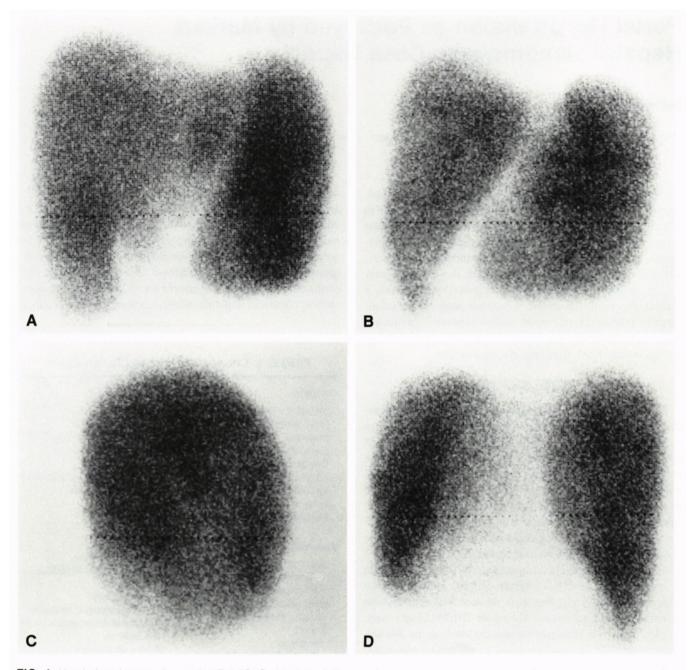


FIG. 1. Liver/spleen images. A, anterior; B, LAO; C, right lateral; D, posterior.

similar scintigraphic appearances. Infiltrative processes such as sarcoidosis, leukemia, or intrahepatic lymphoma (4) may demonstrate hepatosplenomegaly, but there is less intense uptake of the colloid in the spleen.

Additional testing to aid in differential diagnosis may include abdominal radiographic evaluation in an attempt to visualize calcification of the portal vein to confirm or evaluate the extent of the hepatosplenomegaly (1). Computed tomography and ultrasound scanning may also be employed. Clinicians should use a combined approach in the diagnosis and management of these patient because of the many disease states in which hepatosplenomegaly may be present (Table 1) (4). Patients with portal hypertension are hospitalized and monitored for some of the complications that may accompany the disease state. Should the patient present with acute upper gastrointestinal bleeding, blood transfusions may be clinically indicated. A hospitalized patient may receive the specialized management available for the various complications that may accompany portal hypertension.

Accurate diagnosis is essential to provide the clinician with appropriate methods in managing the patient's disease and complications that may stem from the primary disease. Liver/ spleen scintigraphic imaging can play a vital role in helping to piece together the sometimes complicated puzzle of portal hypertension. Subtle characteristics of the images may be all it takes to help the clinician better pinpoint the problem so that he/she can insure proper management instructions.

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