Splenic SPECT Images Confirm Splenosis: A Case Report

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Objective: Although uncommon, accessory spleens may be visualized on the splenic images using ^{99m}Tc-sulfur colloid. Splenic trauma is relatively common in patients who have received trauma to the upper abdomen or the left lower rib cage (*1*). In such patients who experience severe trauma to the spleen, splenic tissue may spill into the peritoneal cavity and remain viable. This entity is called splenosis and is visualized as the viable splenic tissue retains its reticuloendothelial function (*2*).

Methods: We report on a female patient with prior splenic trauma and a history of breast cancer who was referred for a computed tomographic (CT) scan of the abdomen. Multiple abnormal masses were identified in the mesentery. The pathology of these masses was considered to be either splenic tissue or metastatic carcinoma.

Results: A sulfur colloid scan of the abdomen and SPECT images correlated to the CT scans confirmed reticuloendothelial function within these masses, thus splenosis.

Conclusions: Splenosis can be successfully identified using ^{99m}Tc-sulfur colloid due to the reticuloendothelial function of these tissues.

Key Words: Technetium-99m-sulfur colloid, splenosis.

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The spleen, although not essential for life, performs important functions. One of these functions is the removal of foreign particles from circulation by reticuloendothelial or phagocytic cells. Colloidal particles are removed by the Kupffer cells of the liver and spleen. Technetium-99m-sulfur colloid can be utilized to image splenic pathology. Approximately 70% of the injected colloidal particles accumulate in the liver, 20% in the spleen and the remainder in the bone marrow (*3*).

CASE STUDY

A 34-yr-old female with a history of breast cancer, prior splenic trauma, postsplenectomy and possible metastic lesions in the abdomen was referred for an abdominal CT scan.

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Consecutive transaxial scans of the abdomen were performed extending from the xiphoid process to the iliac crest using the acquisition parameters 140 keV and 170 MA with a 3-sec scan time in 1-cm intervals. Image processing was performed with a window of 350 and a level of 30 on laser print film. The examination was performed with oral (30 oz of Redicat barium sulfate suspension at 2%) and intravenous contrast (100 cc of Isoview at 250%).

Following CT scanning, a radionuclide spleen scan was performed on this patient. Technetium-99m-sulphur colloid (6.8 mCi) was intravenously administered. Planar anterior and posterior images of the lower chest and abdomen were obtained with a wide field of view camera. Next, SPECT images were obtained, using a 360-degree rotation with 64 projections at 20 sec per stop. Images were processed in a 64 × 64-word mode at 1.33 zoom resulting in serial tomographic images in the transaxial, coronal and sagittal planes.

DISCUSSION

The CT images demonstrate a number of unusual masses within the mesenteric fat in the upper central and left side from 1–2 mm in size to nearly 3 cm. Although there are many of these soft masses in the splenic fossa area, smaller lesions are scattered throughout the omental and mesenteric fat in the central abdomen (Fig. 1). Considering the history of the

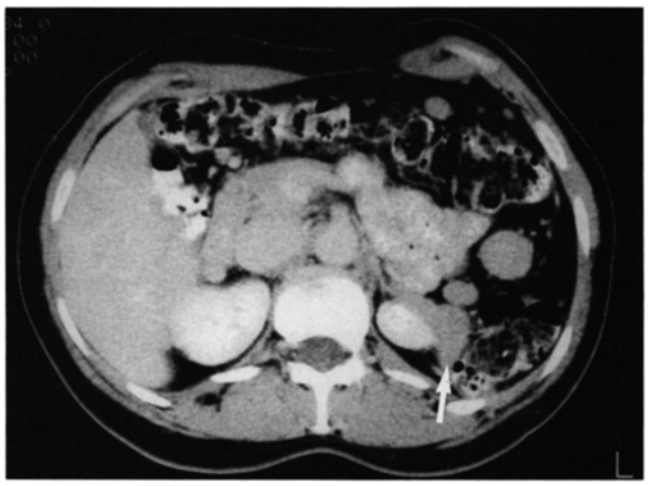

FIGURE 1. Axial CT of the splenic mass at the L1-L2 level.

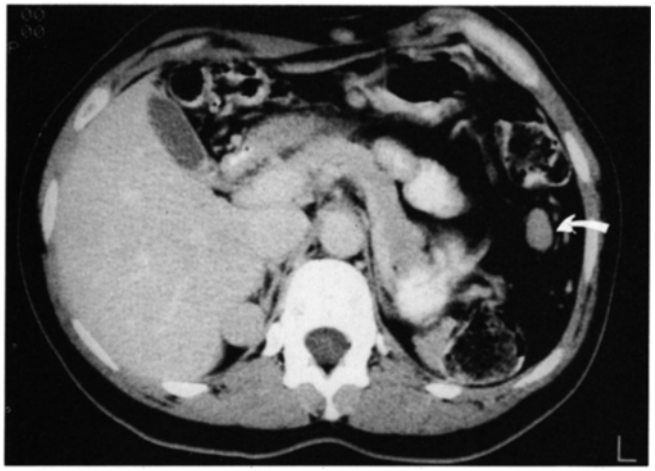

FIGURE 2. Axial CT of the splenic mass in the mesentery L2 level.

splenic trauma, this could represent numerous implants of splenic tissue in the mesentery (so-called splenosis), although the appearance is not specific (Fig. 2).

Considering these multiple abnormal masses in the mesentery, the radiologist requested a sulfur colloid spleen scan with increased dose and SPECT acquisition to ascertain if reticuloendothelial function was present in these masses.

The SPECT spleen images revealed that the liver was normal in position, overall size and configuration, and that there was no splenic activity per se, consistent with prior splenectomy. There are a number of small focal areas of radiopharmaceutical uptake in the left upper quadrant of the abdomen of somewhat variable size, with another lesion immediately below the right hepatic lobe.

The areas of increased radiopharmaceutical uptake seen on the SPECT images positively correlate to the masses

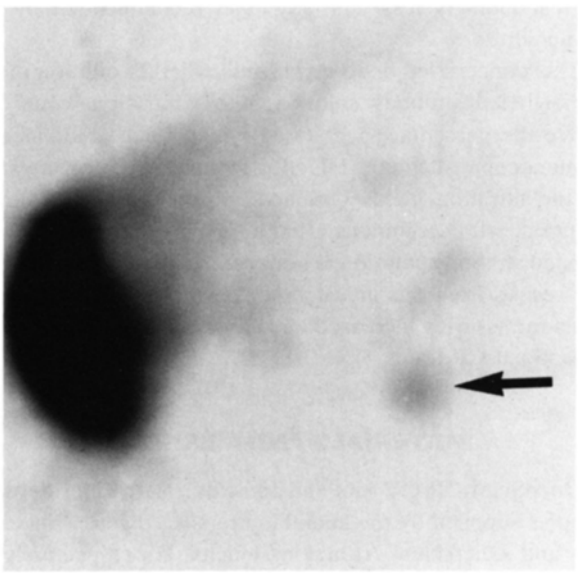

FIGURE 3. Axial SPECT image of the splenic mass.

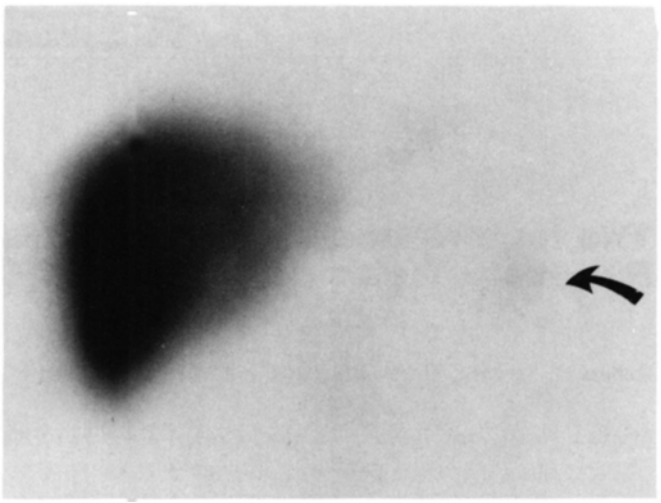

FIGURE 4. Coronal SPECT image depicting multiple splenic masses.

visualized on CT. The axial SPECT image (Fig. 3) correlates specifically to the masses identified on the CT image (Fig. 2, straight arrow). The multiple masses seen on the SPECT coronal image (Fig. 4) also help clarify the multiple masses seen on CT (Fig. 1).

These areas of activity corresponded to the variably sized mesenteric masses noted on the prior CT and there was no unusual hyperemia in the area on original flow images to indicate hypervascular lesions. Therefore, rather than blood pool activity, these areas demonstrated reticuloendothelial activity and confirmed the suspicion of splenosis, i.e., deposits of splenic tissue scattered in the mesentery included in the right suprarenal area.

CONCLUSION

Although uncommon, accessory splenic tissue (splenosis) can be identified using ^{99m}Tc-sulfur colloid due to the reticuloendothelial function of these tissues. In this case study, the SPECT images were crucial in identifying the splenic pathology of the unknown tissue masses demonstrated on the CT exam. The reliability and validity of the diagnosis increased when the SPECT images in the axial and coronal planes demonstrated increased radiopharmaceutical uptake in the exact location of the abnormal masses visualized on CT.

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