Splenic Hemangioma Presenting as a "Hot Spot" on Radiocolloid Scintigraphy

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The appearance of a splenic hemangioma on radiocolloid scintigraphy has been reported to be that of a focal photon deficient lesion. We report a case of a patient who presented with the opposite appearance—that of a splenic "hot spot." We postulate that this appearance results from increased local blood flow presenting a greater proportion of colloid to the reticuloendothelial cells surrounding the hemangioma.

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Splenic hemangiomas may be solitary or occur in conjunction with the presence of multiple disseminated hemangiomata (*1–5*). They may be asymptomatic or result in the presence of a mass or gastrointestinal symptoms (*1*). Complications include splenic rupture, hypersplenism, consumption coagulopathy, and malignant degeneration (*1*). The incidence of the tumor varies from 0.03% to 14% in reported autopsy studies (*6–9*). Because the incidence of splenic hemangioma in the general population is not well established, it is difficult to determine the complication rate.

In view of the seriousness of potential complications, accurate diagnosis is important. The appearance of splenic hemangiomata on scintigrams obtained using radiocolloids has been reported to be that of a focal photon deficient area (*5,10*). We report here the case of a patient who presented in the opposite appearance—that of a splenic "hot spot."

CASE REPORT

A 30-yr-old male presented with a 2-yr history of fatigue and gradual weight loss. Over this period of time, he had lost 9 kg. Further questioning revealed complaints of dyspepsia and intermittent diarrhea. On physical examination, a left upper quadrant mass was felt at the costal margin.

An abdominal ultrasound demonstrated a circular, well-defined solid abnormality within the upper pole of the spleen which was more echogenic than surrounding splenic tissue.

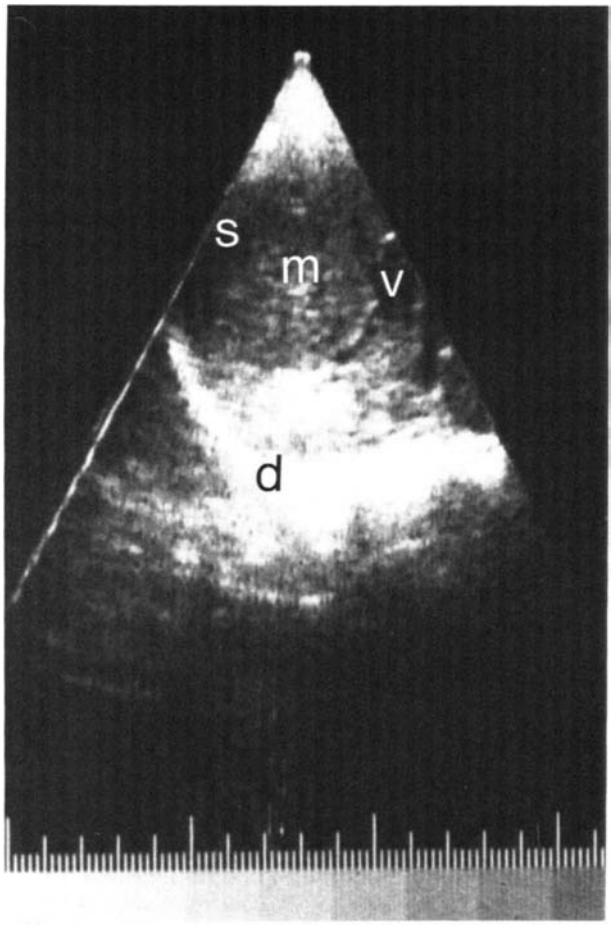

FIGURE 1
Ultrasound of spleen demonstrating solid abnormality within upper pole of spleen more echogenic than surrounding tissue with displacement of vascular channels posteriorly (d: Diaphragm; s: Normal spleen; m: Mass, v: Vascular channels)

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Displacement of some vascular channels posteriorly was noted (Fig. 1). A computed tomographic examination of the abdomen utilizing contrast infusion failed to demonstrate the splenic abnormality.

Liver/spleen imaging was performed using 4 mCi (150 MBq) of technetium-99m sulfur colloid. Both dynamic and static images were obtained. The abdominal dynamic images demonstrated increased flow in the upper left quadrant at a site corresponding to the area of increased activity seen on static images at the upper pole of the spleen. This was believed to represent a splenic hemangioma or other vascular tumor (Figs. 2 and 3). A second, less well-defined area of increased activity was noted inferior to the upper pole abnormality. It was initially felt that this might represent a second, smaller hemangioma.

Abdominal angiography confirmed the presence of a hypervascular 8-cm mass in the upper pole of the spleen (Fig. 4). No evidence of a second hemangioma was noted.

Coagulation studies did not indicate the presence of coagulopathy and a splenectomy was performed. Following splenectomy, the remainder of the abdominal cavity was explored for other vascular malformations and none were found.

On gross pathologic examination a bulging mass was noted at the hilum of the spleen extending up into the upper pole. The remainder of the spleen was normal. The spleen weighed 350 g and, at its greatest dimensions, measured 14 cm × 10 cm × 6 cm.

On cut surface, the spleen had a normal red to brown color outside the area of the mass. The mass was spherical and 6 cm in diameter. The cut surface of the mass showed multiple vascular spaces. The mass was well demarcated from the rest of the spleen although there was no true capsule.

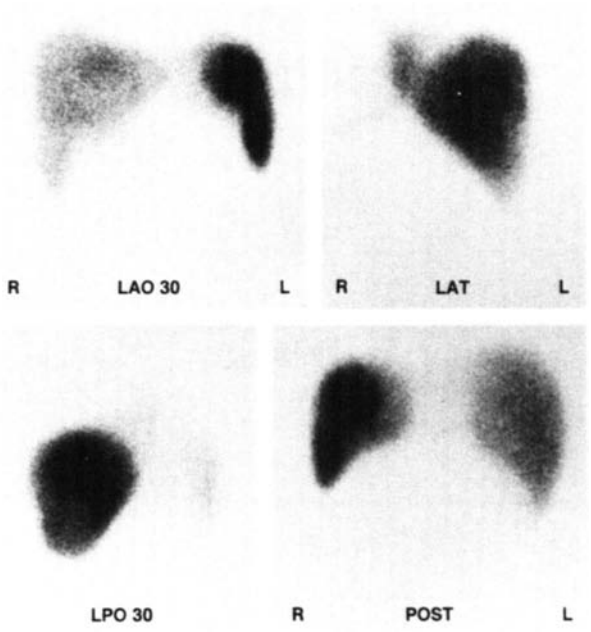

FIGURE 3
Radiocolloid images of liver and spleen showing focal area of increased activity in upper pole of spleen

Microscopic sections from the spleen were normal. Sections from the mass showed prominent dilated vessels, although the parenchyma surrounding the vessels was normal. The elastic lamina and musculature were absent from the abnormal vessels which showed only a scant amount of fibrous tissue in

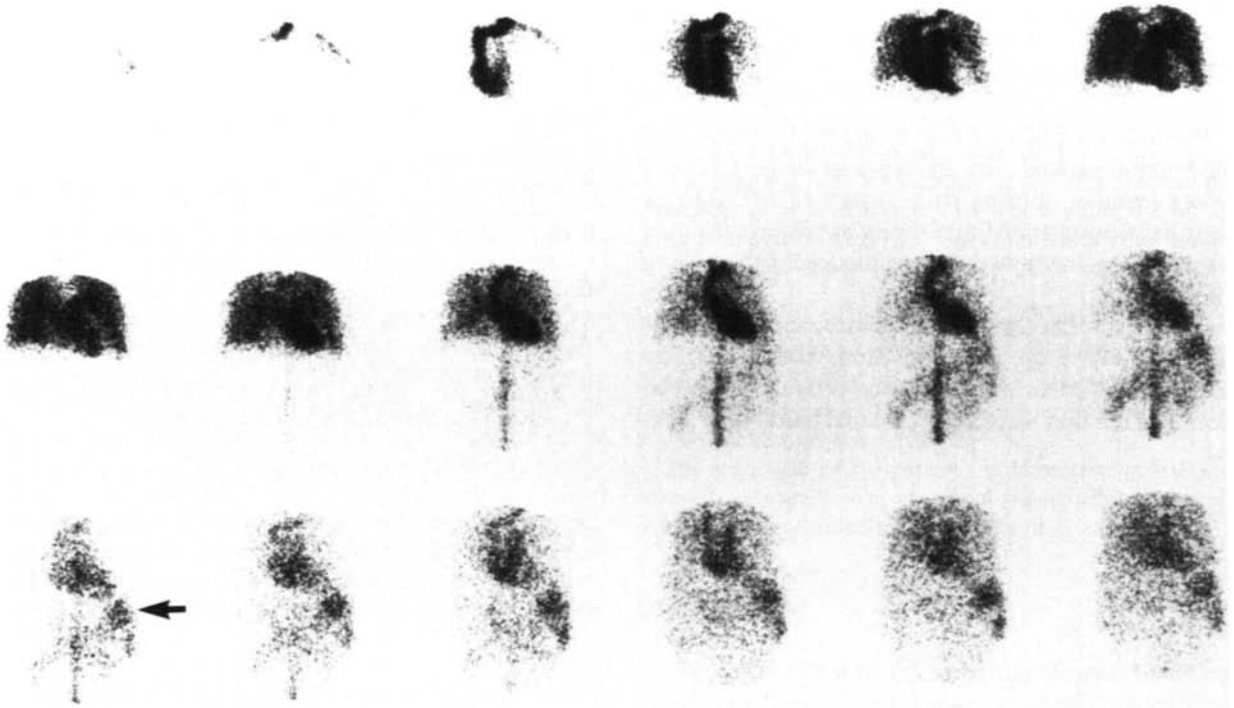

FIGURE 2
Radionuclide abdominal angiogram demonstrating focal area (arrow) of increased flow in left upper quadrant

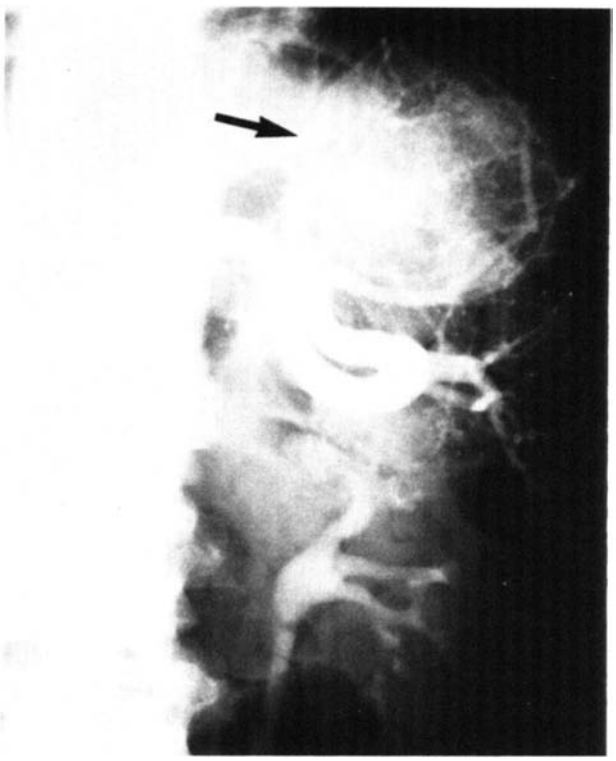

FIGURE 4
Selective splenic arteriogram demonstrating hypervascular mass in upper pole of spleen (arrow)

their walls. The pathologic diagnosis was a splenic hemangioma. The patient made an uneventful recovery and has had no further symptoms.

DISCUSSION

Previously reported cases of splenic hemangiomas have demonstrated photon deficient areas on liver/spleen imaging utilizing radiocolloids (*5,10*). Our patient has demonstrated that this is not always the case; a splenic hemangioma may be associated with a splenic "hot spot."

The hepatic "hot spot" is a well-described abnormality (*11*). The most common cause is a blood flow abnormality, particularly superior vena cava obstruction. It is felt that increased abnormal blood flow localized to a specific area within the liver presents the reticuloendothelial cells with a greater portion of colloid for phagocytosis, compared to the remainder of the recticuloendothelial cells of the liver.

We would postulate that the increased blood flow to the splenic hemangioma demonstrated on radionuclide and contrast angiograms resulted in a greater proportion of colloid being presented to the reticuloendothelial cells surrounding the hemangioma and creating the "hot spot."

Only one other report of a splenic "hot spot" could be found in the literature. This was a spurious finding, as the localized area of increased activity did not persist on all views and was felt to be secondary to redundant splenic tissue at the lower pole of the spleen (*12*).

The discovery of a splenic "hot spot" on radiocolloid imaging should lead to further investigation for a vascular splenic tumor, in particular a splenic hemangioma.

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