Liver/spleen scintigraphy for diagnosis of splenic infarction in cirrhotic patients

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Summary: Splenic infarction is rare in cirrhotic patients. The diagnosis of the condition is based on clinical findings and splenic imaging. In recent years, ultrasonography and computed tomographic scan have gained popularity over the more classical scintigraphy as the preferred investigations for the diagnosis of splenic infarction. We report three cases of splenic infarction in patients with cirrhosis and portal hypertension. Computed tomographic scan, angiography and ultrasonography failed to identify the lesions and the diagnoses were finally made with the aid of liver—spleen scintigraphy. We suggest that scintigraphy is the investigation of choice if splenic infarction is suspected in patients with congestive splenomegaly secondary to liver cirrhosis.

Introduction

Congestive splenomegaly is a frequent finding in patients with portal hypertension, but infarction of the spleen is uncommon.¹ Diagnosis of splenic infarction is based on the clinical presentation and confirmed by splenic imaging. The most common clinical symptom is left upper quadrant abdominal pain, often radiating to the left shoulder and abdominal guarding. Occasionally, a friction rub is audible over the spleen. Techniques for splenic imaging include ultrasonography, angiography, liver—spleen scintigraphy, and computed tomographic (CT) scan. Over the last decade, ultrasonography² and CT scan³ have gained popularity over the more classical scintigraphy as the preferred investigations for the diagnosis of splenic infarction.

We would like to report three cases of infarction of the spleen, in association with congestive splenomegaly. CT scan, angiography and ultrasonography failed to identify the splenic infarcts, and the diagnoses were finally made with the use of liver—spleen scintigraphy.

Case reports

Case 1

A 22 year old patient with cirrhosis secondary to primary sclerosing cholangitis presented with a 2 week history of intermittent left upper quadrant pain. This became worse on the day of admission. Examination revealed hepatosplenomegaly with tenderness and a rub, audible on auscultation, over the splenic area.

Ultrasonography of the abdomen showed splenomegaly with no focal lesion in the spleen. CT scan (with contrast enhancement, Figure 1) showed the spleen to be enlarged and non-homogeneous, but there was no evidence of splenic infarction. However, scintigraphy, especially on sagittal section with tomography (Figure 2), showed a clear-cut defect in the upper third of the spleen, compatible with the diagnosis of splenic infarction. The patient's condition settled with analgesia, and

Figure 1 Abdominal CT (with contrast enhancement) showing an enlarged, non-homogeneous spleen, with normal contours, and no suggestion of infarction.
she had no recurrence of her symptom. An orthotopic liver transplantation was performed 3 months later for her underlying liver disease.

Case 2

A 23 year old female with cirrhosis due to autoimmune chronic active hepatitis was admitted with a 2 day history of sharp severe left upper quadrant pain. On examination she had hepatosplenomegaly with tenderness and guarding over the splenic area.

CT scan with contrast showed splenomegaly with even enhancement, and no evidence of infarction or rupture. An angiogram revealed a tortuous and aneurysmal splenic artery, splenomegaly, but no evidence of infarction. Liver–spleen scintigraphy showed a small but definite defect of the tracer uptake in the upper surface of the spleen, compatible with an infarction in the upper pole. The pain resolved slowly over a period of 4 weeks.

Case 3

A 24 year old patient who was found to have cirrhosis secondary to Wilson’s disease was admitted with a few months history of left upper quadrant pain, which had got worse over the last 2 days. This was accompanied by nausea and heart burn. Examination revealed hepatomegaly with a tender, massively enlarged spleen. A soft rub was audible on auscultation over the splenic area.

An upper gastrointestinal endoscopy showed mild oesophagitis. A CT scan (with contrast enhancement) of her abdomen revealed massive splenomegaly with collaterals and varices (Figure 3). Although the spleen had areas of heterogeneous attenuation there was no definite evidence of splenic infarction. Ultrasonography and angiography confirmed the above findings. Technetium scintigraphy with tomography showed the presence of a wedge-shaped defect laterally in the mid-portion, consistent with a splenic infarction (Figure 4).

The patient’s initial symptom settled with conservative management. However, she continued to have similar intermittent left upper quadrant pain for about 7 months after the initial episode. A repeat scintiscan 6 months after the first presentation showed a similar defect in the mid-portion of the spleen, although not as prominent as on the first scan.
Splenectomy is a common procedure performed for various indications. In the context of this discussion, we will focus on the use of splenic scintigraphy, a diagnostic imaging technique that helps in evaluating the spleen's function and integrity. This technique involves the injection of a radioactive tracer into the bloodstream, which allows for imaging the spleen's activity. The radioactive tracer used is typically technetium-99m sulphur colloid, which is taken up by the spleen and other organs, providing valuable information about their perfusion and function.

The spleen plays a crucial role in the body's immune system, and any abnormality in its function can have significant clinical implications. Splenic scintigraphy can help identify conditions such as splenic infarction, splenomegaly, and splenic trauma. For instance, splenic infarction, which is a condition where the spleen becomes ischaemic due to a reduced blood flow, can be diagnosed using this technique. The absence or reduced uptake of the tracer in the spleen compared to other organs can indicate a splenic infarction.

Another application of splenic scintigraphy is in the evaluation of splenic trauma. This is particularly useful in cases of penetrating or blunt abdominal injuries, where the spleen might be damaged. The technique can help in identifying the extent of the injury and guiding the appropriate management, such as possible splenectomy.

In summary, splenic scintigraphy is a valuable diagnostic tool that aids in the management of various conditions involving the spleen. It provides crucial information that can influence treatment decisions and patient outcomes. Further research and clinical studies are needed to optimize the use of this technique and improve patient care.

References


