

IMAGING GAMUT

Disseminated splenosis in a patient with mycosis fungoides

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Key words: Splenosis, ^{99m}Tc heat denatured erythrocytes, ^{18}F -FDG PET/CT

Background A 41-year-old woman with known mycosis fungoides was referred to our Institute for an ^{18}F -FDG PET/CT for staging. She had a history of splenectomy at the age of 6-year following a road traffic accident. The integration of patient's history and complementary nuclear imaging results led to the diagnosis of splenosis.

Procedure The patient's plasma glucose measured prior to the PET/CT was 4.9 mmol/L. A dose of 211 MBq (5.7 mCi) of ^{18}F -FDG was administered intravenously. After an initial uptake phase of 60 minutes, a non-contrast CT scan, free breathing at low mA level, was acquired for attenuation correction and localization of the emission data. Subsequently, whole-body PET-CT images was obtained. Subsequently, colloid liver-spleen scintigraphy was performed using 207 MBq (5.6 mCi) of ^{99m}Tc -Tin Colloid intravenously

with imaging performed 20 minutes later. This was followed by ^{99m}Tc heat denatured erythrocytes scintigraphy (dose 740 MBq) with planar and SPECT images acquired at 20 minutes postinjection.

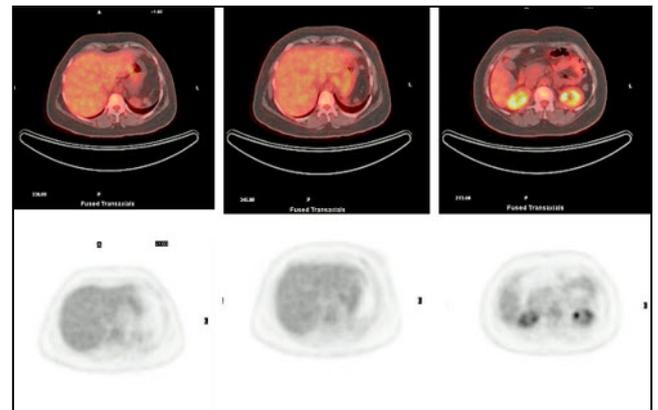


Figure 1 ^{18}F -FDG PET/CT scan showing multiple hypodense non-FDG avid lesions within the abdominal cavity

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Findings The PET-CT images demonstrated multiple bilateral cervical and inguinal lymph nodes. In addition, the fused PET-CT images showed multiple hypodense non-FDG avid lesions within the abdominal cavity (Figure 1). ^{99m}Tc -Tin colloid planar and SPECT images showed a small patch of functional parenchymal tissue in the splenic area (Figure 2). However, planar and SPECT images with

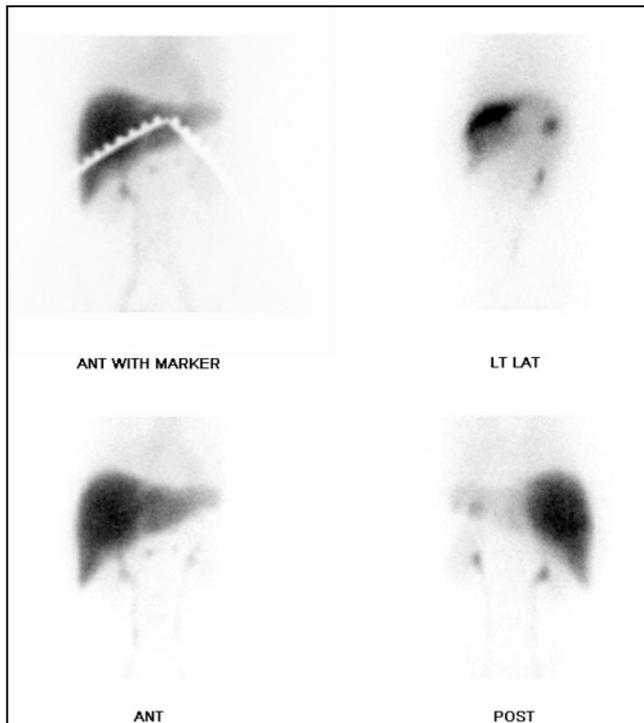


Figure 2 ^{99m}Tc Tin colloid liver-spleen reticuloendothelial imaging showing a small patch of functional parenchymal tissue in the splenic area

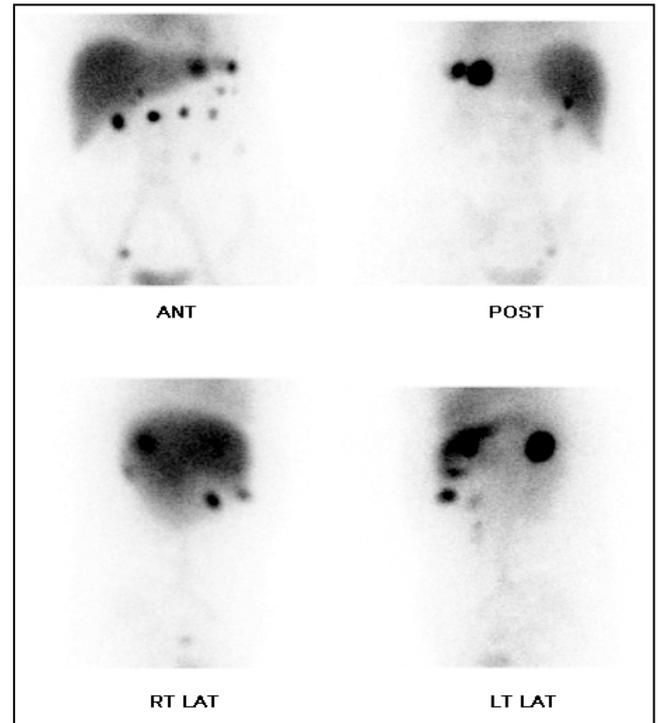


Figure 3 ^{99m}Tc denatured erythrocytes scan with multiple focal areas of increase tracer in the abdomen and in the right pelvic region and the anatomical splenic region

^{99m}Tc heat denatured erythrocytes study showed multiple focal areas of increase tracer in the abdomen and in the right pelvic region as well as in the anatomical splenic region (Figures 3 & 4).

Conclusion In view of the patient's history of trauma and subsequent splenectomy, given the above scan findings, a diagnosis of abdominal splenosis was made.

Comments Splenosis is defined as dissemination and autotransplantation of viable splenic tissue throughout different anatomic compartments of the body. It occurs following traumatic or iatrogenic rupture of the spleen. It is a rare finding and most cases occur in the abdominal and thoracic cavity [1, 2] It is presumed that spillage of the damaged splenic pulp into the adjacent cavities begins the seeding process [3]. The blood supply in splenosis is derived from the surrounding

tissues and vessels, without any association to the splenic artery [4]. The autotransplanted splenic tissue of splenosis, similar to accessory spleens, is thought to perform normal splenic function [5]. Histologically, splenosis differs from accessory spleens by the absence of elastic or smooth muscle fiber in the capsule. The average interval reported between trauma and abdominal or pelvic splenosis is 10 years with a range of 5 months to 32 years [6].

The condition is usually diagnosed incidentally. However, occasionally splenosis may pose a significant diagnostic dilemma, especially when the condition presents as a metastatic malignant disease on abdominal imaging. As in the present case, the patient was referred for staging for mycosis fungoides and multiple non-FDG avid lesions were seen in the abdominal cavity. These needed to be excluded for metastases. The ^{99m}Tc Tin colloid

study is used to diagnose splenosis due to the ability of the colloid to localize in the reticuloendothelial system [7]. However, scintigraphy using ^{99m}Tc heat denatured erythrocytes study is more sensitive and specific for splenic uptake, making it the current diagnostic test of choice [8]. Gunes and colleagues [9] demonstrated that the RBC scintigraphy had a 32% greater diagnostic yield compare with the colloid study. One reason for the better accuracy with heat denatured erythrocytes study may be that the spleen takes up only about 10% of the injected tin colloid versus greater than 90% uptake of damaged red blood cells. ^{99m}Tc heat denatured erythrocytes study has also been shown to be more sensitive in early splenosis, cases where minimal splenic tissue is present. This was aptly demonstrated in this case report.

In conclusion, splenosis should be included in the differential diagnosis in all patients with abdominal, pelvic, nodules with a history of splenic trauma or splenectomy. In majority of the cases the patients are asymptomatic and are incidentally diagnosed. On radiological imaging splenosis can mimic malignancy, so many of these patients undergo extensive workup. The diagnostic method of choice is nuclear scintigraphy, specifically, a heat-denatured red blood cell scintigraphy.

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