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ABDOMINAL SPLENOSIS MASQUERADING AS PERITONEAL METASTASES FROM BREAST CANCER: A CASE REPORT

Radiology

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ABSTRACT

Splenosis is the heterotopic seeding of splenic tissue in other sites of the body, typically following splenic surgery or trauma. It usually presents as an incidental finding but is rarely symptomatic. Early diagnosis is essential, as it can be a benign differential for peritoneal metastases in patients with a history of malignancy. We hereby report a case of a 59-year-old female who presented with peritoneal nodules and had a previous history of breast cancer. Keeping in mind the strong possibility of metastases, she underwent a thorough imaging workup, but biopsy revealed splenosis.

KEYWORDS

Splenosis, Splenic surgery, Peritoneal nodules, Metastases.

INTRODUCTION

Splenosis is a benign acquired condition of heterotopic auto transplantation of splenic tissue in an anatomic compartment of the body, usually either traumatic or iatrogenic. [1] The abdominal and pelvic cavities are where it is most often found, although it has also been reported in other locations of the body. On imaging, splenosis can mimic various pathologies, of which the most significant are primary malignancy or metastatic disease. Here we report a case of a 59-year-old female with a past history of breast cancer, revealed multiple peritoneal nodules on imaging. She underwent an extensive workup for metastasis before commencing further treatment, and finally histopathology confirmed splenic tissue.

Case Report

A 59-year-old woman presented to our hospital with complaints of intermittent discomfort in her right flank and had lost 2 stone in weight in the past 6 months. She was a known case of moderately differentiated lobular carcinoma of the breast and had undergone a left radical mastectomy 12 years ago. She has type II diabetes mellitus, hypercholesterolemia, and a previous ischemic stroke that has left her with residual neurological deficit in her left arm and leg. Her routine blood tests demonstrated preserved renal and liver function.

Ultrasound of the abdomen revealed a well-defined round-oval lesion in Morrison's pouch measuring 2.5 x 3 cm, which was homogenously hypoechoic in comparison to the renal cortex. No colour flow could be detected within the lesion on doppler examination. The rest of the abdomen was unremarkable. A contrast-enhanced CT of the abdomen was performed, and two well-defined, homogenously enhancing nodules were noted in the right posterior subhepatic space and perisplenic space. This was followed by non-contrast MRI of the abdomen, where these nodules appeared homogenously hypointense to the liver and muscle on T1 and T2 weighted images with no restricted diffusion.

After an MDT review, taking into account the pathological grade of past invasive lobular breast carcinoma and considering metastatic dissemination as the first possibility in our case, PET-CT was done, which showed low-grade flouro-2-deoxyglucose (FDG) uptake, suggesting low metabolic activity [Figure 1].

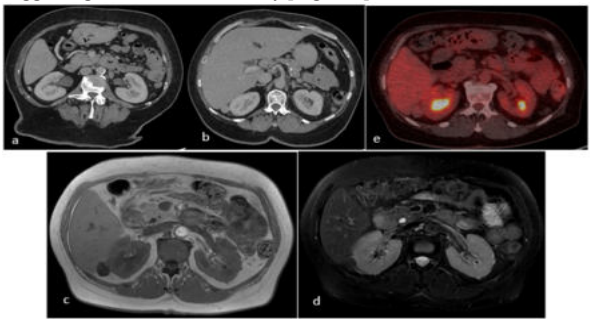

Figure 1: (a) & (b) Axial post-contrast CT in portal venous phase shows two well-defined, round to oval, homogenously enhancing intraperitoneal nodules in the right posterior subhepatic space and perisplenic space.

(c) & (d) Axial T1 and T2FS WI image shows homogenously low signal intensity nodule in the right posterior subhepatic space abutting segment VI of right lobe of liver.

(e) Axial positron emission tomography CT (PET-CT) image shows low grade metabolic activity within the 2.4 cm nodule in the right posterior subhepatic space.

Upon retrieving the patient's past imaging and a thorough medical and surgical history, it was also revealed that the patient had undergone splenectomy 11 years ago for a spontaneous splenic infarct [Figure 2]. Finally, an ultrasound-guided core needle biopsy was done of the nodule within the right posterior subhepatic space to reduce the patient's anxiety about potential malignancy [Figure 3]. The histopathological study revealed normal splenic tissue, consistent with the final diagnosis of splenosis rather than metastatic deposits.

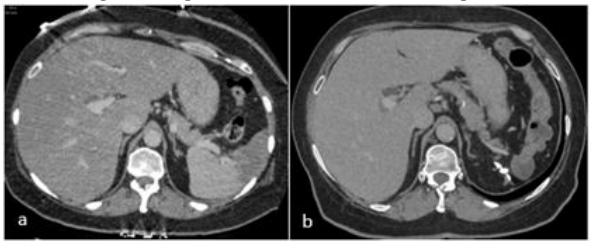

Figure 2: (a) Axial post-contrast CT in portal venous phase done 11 years ago shows wedge-shaped hypodensity involving the anterior pole of the spleen, consistent with a splenic infarct. (b) Follow-up axial post-contrast CT reveals post-splenectomy status with surgical clips seen

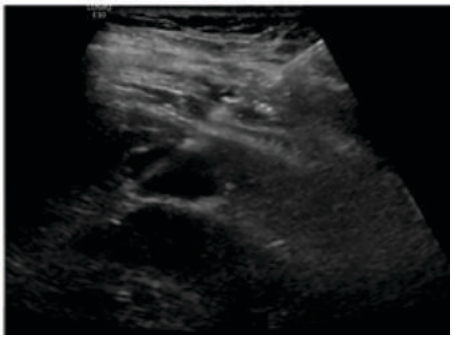

Figure 3: Axial view ultrasound image shows an ultrasound-guided core needle biopsy of a nodule in the right posterior subhepatic space using an 18-G needle, and its tip is seen within it. The histopathological evaluation revealed splenic tissue, supporting the diagnosis of splenosis rather than metastasis.

DISCUSSION

Splenosis is ectopic autotransplantation of splenic tissue and unlike accessory spleen or polyspenia, is always acquired and relatively rare. Accessory spleens are congenital, are supplied by the splenic artery and usually found near the splenopancreatic or gastrosplenic ligament. In splenosis, on the other hand, nodules can be found throughout the body, and they derive their blood supply from neighboring tissues. Splenosis is presumed to occur by direct seeding of splenic tissue in nearby body cavities following capsule rupture, while occurrence of the condition in more remote places raise the possibility of hematogenous dissemination as well.[1]

Splenosis is usually incidental and no therapy is required when asymptomatic. It becomes of clinical significance when there is bleeding, compression on adjacent structures or misdiagnosed as tumour.[2] The patient in our instance had a history of breast cancer 12 years back and imaging revealed multiple peritoneal nodules which were increasing in size thus raising serious concerns about the possibility of metastatic disease.

Splenosis can be easily confused with abdominal lymphoma, endometriosis, lymphadenopathy, primary peritoneal mesothelioma or peritoneal metastasis. Although the radiographic appearance of nodules can be nonspecific but in cases with no historical or physical evidence of other diagnosis, with a positive history of elective splenectomy or splenic trauma requiring splenectomy helps to direct the diagnosis towards splenosis. None the less, the diagnosis can be very misleading particularly in patients with past history of malignancy like in our case, where biopsy becomes crucial.

Imaging is a very useful tool to distinguish splenosis from its most common differentials. On CT and MRI, they appear as well-defined round nodules with attenuation and contrast enhancement similar to splenic tissue.[3] However, lesions can have uncommon imaging features and may grow in size, potentially mimicking malignancy.[4] Superparamagnetic iron oxide (SPIO) contrast agent was used for the diagnosis in the past because of tissue-specific biodistribution to phagocytic reticuloendothelial elements of liver and spleen, where a loss of signal is noted on heavily T2 weighted MR images.[5] Pathologic analysis is considered the gold standard for diagnosis of splenosis [6] but nowadays scintigraphy with Tc99m-labelled heat – denatured red blood cells is capable of specifically proving splenic tissue.[7]

Early consideration and diagnosis of this benign condition can prevent the use of invasive diagnostic procedures but sometimes biopsy is needed for complete diagnostic accuracy of splenosis particularly in patients with known primary malignancy as differentiating it from diffuse metastatic disease or recurrence will impact the staging and further treatment decision. The decision to perform biopsy in our case was based on comparison to old exams and noting that the nodules were increasing in size.

Although biopsy of the spleen proper is avoided due to high risk of bleeding, biopsy of ectopic splenic tissue is considered safe and there are no reports in the literature of significant complications from such biopsy as these ectopic rests derive their blood supply from penetrating vessels rather than splenic artery.[8]

It is noteworthy that the correct differential diagnosis was difficult in our case as previous history of breast cancer mislead us in the interpretation of radiological images. Taking into account the low sensitivity of 18F-FDG PET for evaluation of lobular carcinoma breast, this type of a presentation made the case highly suspicious for metastatic disease and finally a biopsy was done which revealed splenosis.[9]

As these implants are rarely clinically significant, it is important to collect pertinent patient history of trauma or splenectomy and prior exams for adequate interpretation of imaging findings.

CONCLUSION

It can be learned that splenosis should be considered an important differential of peritoneal nodules in patients with known primary malignancy, and careful correlation of the history of trauma or splenectomy with a thorough review of prior imaging is a must. The diagnostic algorithm should include scintigraphy with heat-damaged red blood cells, but a biopsy is additionally recommended to confirm the diagnosis when the decision can impact the course of therapy in the future.

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Declarations

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