



Abdominopelvic Splenosis: Case Report and Literature Review

Esplenosis abdominopélvica: Presentación de un caso y revisión de la literatura



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Key words (MeSH)

Splenosis
Splenectomy
Magnetic resonance imaging



Palabras clave (DeCS)

Esplenosis
Esplenectomía
Imagen por resonancia magnética

Summary

Abdominal splenosis is the autotransplant of splenic tissue in the peritoneal cavity in patients with history of traumatic splenic injury and/or splenectomy. It is an asymptomatic and benign condition that is incidentally diagnosed in imaging studies or surgery. Imaging manifestations of this entity are generally misinterpreted as secondary neoplasia. We present a patient with multiple nodules in computed tomography (CT) of the abdomen, secondary to abdominopelvic splenosis.

Resumen

La esplenosis abdominal es el autotrasplante de tejido esplénico en la cavidad peritoneal en pacientes con antecedente de lesión traumática esplénica o esplenectomía. Es una condición asintomática y benigna que se diagnostica de forma incidental en estudios de imágenes o en cirugía. Las manifestaciones imaginológicas de la entidad generalmente se interpretan de manera equivocada como neoplasia secundaria. Presentamos un paciente con múltiples nódulos intraabdominales en tomografía computarizada (TC) de abdomen, secundarios a esplenosis abdominopélvica.

Presentation of the case

A 57-year-old female patient with a clinical picture of 2 years of evolution consisting of pelvic pain associated with low urinary symptoms, of recent appearance, with positive urine culture for *Escherichia coli* and extra-institutional pelvic ultrasound; prior to admission, it was interpreted as “right adnexal mass of 54 × 56 × 57 mm, volume of 89 cm³, homogenous echogenicity, without septa in its interior”. With suspected ovarian neoplasia, computed tomography (CT) of the abdomen showed multiple nodular lesions in the abdominal cavity, solid, with enhancement and without spleen (figures 1, 2, 3, 4). With suspicion of splenosis, the patient was re-interrogated who reported a history of closed abdominal trauma at 5 years, with splenic rupture and splenectomy. Hepatosplenic scintigraphy with colloidal sulfur confirmed the diagnosis of abdominopelvic splenosis (figure 5).

Discussion

Splenosis is an acquired condition secondary to splenic traumatic injury and / or splenectomy (regardless of

its indication). It consists of the autotransplantation of viable splenic tissue in different compartments of the body (mainly the intraperitoneal cavity) (1). The most affected areas in the abdominal splenosis are: small bowel serosa, parietal peritoneum, serosa of the large intestine, mesentery and diaphragm (2).

The term splenosis was coined in 1939 by Buchbinder and Lipkoff (3). There is no information in the literature about the prevalence of splenosis in the general population. The occurrence of this entity in patients with splenic trauma is variable, with a range of 16-67% (3). Most cases are secondary to splenectomy due to trauma (93%), a more frequent event in young patients (adolescents) (2). The average time between the trauma and the diagnosis of splenosis is 10 years (4).

Splenic trauma and splenectomy favor the dispersion by contiguity and implantation of the splenic pulp in serous surfaces of the peritoneal cavity (5). Splenic implants are viable tissue that is nourished by adjacent vessels (2). They can be single or multiple (6). The degree of maturation of the implants is variable and in some cases, they can completely replace the activity of the spleen.

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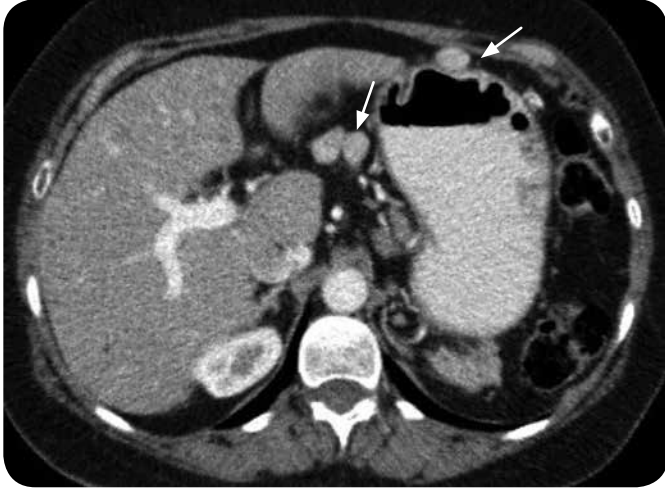


Figure 1. CT scan of the abdomen and pelvis. Axial slice. Nodular lesions of round morphology, with soft tissue density and enhancement with the contrast medium, adjacent to the greater gastric curvature and in the gastrohepatic ligament.



Figure 2. CT scan of the abdomen and pelvis. Axial slice. Nodular lesions of round morphology, with soft tissue densities and enhancement with the contrast medium, located on the left flank.



Figure 3. CT scan of the abdomen and pelvis. Axial slice. Mass in the posterior cul-de-sac, with well-defined lobular contours, which enhances with the contrast medium (behavior similar to the lesions described in the peritoneal cavity).



Figure 4. CT scan of the abdomen and pelvis. Coronal reconstruction. Nodular lesion in the abdominal cavity and pelvic mass (described in axial sections).

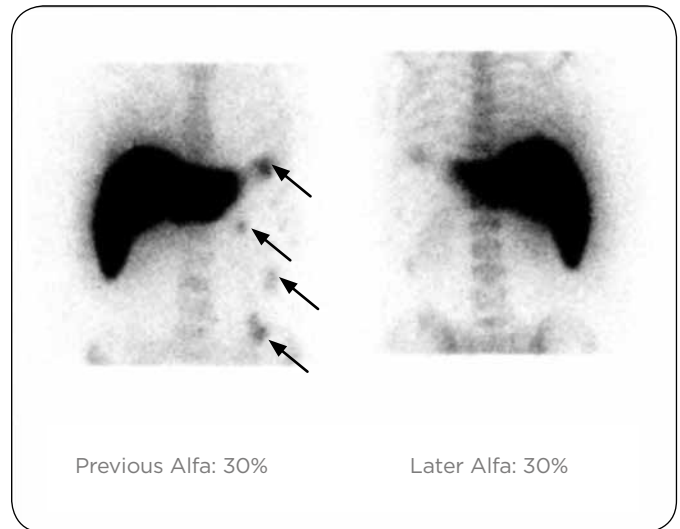


Figure 5. Hepatosplenic scintigraphy. Radiotracer uptake foci corresponding to the nodular lesions visible on CT.

Less frequently, hematogenous dissemination of splenic pulp or splenic erythropoietic progenitors may occur. This mechanism explains the finding of hepatic and intracranial splenosis foci (5).

The majority of patients with splenosis are asymptomatic. In symptomatic cases, abdominal pain is the most frequent manifestation, secondary to infarction and / or bleeding of the implants, peritoneal adhesions and intestinal obstruction (5). The specific locations of the implants can generate less frequent symptoms. For example, gastrointestinal tract hemorrhage has been reported by foci in the gastrointestinal tract and hydronephrosis due to extrinsic compression of the ureters (2). In patients splenectomi-

zed due to haematological diseases or hypersplenism, recurrence of the underlying disease has been described due to the activity of ectopic splenic foci (7).

Splenic implants generally have diameters smaller than 3 cms and their morphology is varied (oval, round, pedunculated). Unlike accessory spleens, which receive their irrigation from branches of the splenic artery, the centers of splenosis have no central artery and receive irrigation from surrounding blood vessels that penetrate the capsule in its non-muscular portion (2). In most cases, a dysmorphic architecture is demonstrated due to the absence of hilum, presence of a fibrotic capsule and poor formation of germinal centers and trabecular system (1,8). However, in the literature, splenic implants with normal appearance architecture have been reported (9).

The diagnosis of the entity in general is incidental and is related to evidence of splenic implants in imaging studies or during surgical procedures (1). Ultrasound showed nodules or round abdominal masses, with well-defined contours and solid appearance, hypoechoic in the center, with hyperechoic ridge and posterior acoustic reinforcement (2,8). In cases where the location of splenosis allows Doppler use, the absence of a central artery and the presence of vessels penetrating the capsule are observed, a finding that favors differentiation with accessory spleens (8). The CT allows the precise definition of the number, size and morphology of the implants, which show density and enhancement similar to the spleen (2). In hepatic splenosis, the masses are low signal after administration of contrast medium, high signal in arterial phase, medium signal in portal phase and low signal in equilibrium phase (5). Magnetic resonance imaging (MRI) foci show high signal with information in T1 and high signal with information in T2, sometimes with heterogeneous enhancement after administration of the contrast medium and a pseudocapsule with fat signal (3). Superparamagnetic iron oxide is a specific contrast medium for the reticuloendothelial system and decrease in signal intensity is observed in all pulse sequences after administration. Its use increases the specificity of MRI (5). Traditionally, the method of choice for diagnostic confirmation is gammagraphy, either with ^{99m}Tc-colloidal sulphide, ^{99m}Tc-heat-disturbed erythrocytes or platelets labeled with In111, in which radiotracer uptake is demonstrated by ectopic foci of splenic tissue. In imaging studies (ultrasound, CT and MRI with conventional contrast medium), implants can be confused with metastasis, endometriosis and lymphoma, among other entities (5,8).

Splenosis is benign and does not require treatment. Surgery is indicated in symptomatic patients or patients with complications, in recurrent haematological diseases post-splenectomy, or when the diagnosis is uncertain (2).

It is interesting the initial clinical approach of our patient, with adnexal mass in ultrasound and suspicion of ovarian neoplasm that was studied with abdominal CT. The absence of spleen and the characteristics of the abdominal masses motivated the search for the traumatic antecedent previously not documented in the clinical history. With the antecedent, the diagnostic impression of splenosis was established and subsequently confirmed by scintigraphy.

References

1. Vercher JL, Bello P, Pelegrí L, Hervás I, Loaiza JL, Falgas M, et al. Abdominal splenosis: An often underdiagnosed entity. *Rev Esp Med Nucl*. 2011;30(2):97-100.
2. Ksiadzyna D, Salvador A. Abdominal splenosis. *Rev Esp Enferm Dig*. 2011;103(8):421-6.

3. Lin WCh, Lee RCh, Chiang JH, Wei ChJ, Chu LSh, Liu RSh, et al. MR Features of abdominal splenosis. *AJR*. 2003;180(2):493-6.
4. Lake ST, Johnson PT, Kawamoto S, Hruban RH, Fishman EK. CT of splenosis: Patterns and pitfalls. *AJR*. 2012;199(6):686-93.
5. Tsitouridis I, Michaelides M, Sotiriadis C, Arvaniti M. CT and MRI of intraperitoneal splenosis. *Diagn Interv Radiol*. 2010;16(2):145-9.
6. Imbriaco M, Camera L, Manciuira A, Salvatore M. A case of multiple intra-abdominal splenosis with computed tomography and magnetic resonance imaging correlative findings. *World J Gastroenterol*. 2008;14(9):1453-5.
7. Yildiz AE, Ariyurek MO, Karcaaltincaba M. Splenic anomalies of shape, size, and location: Pictorial essay. *Scient World J*. 2013:1-9.
8. Lui EHY, Lau KKP. Intra-abdominal splenosis: How clinical history and imaging features averted an invasive procedure for tissue diagnosis. *Australasian Radiology*. 2005;49(4):342-4.
9. Carr N, Turk E. The histological features of splenosis. *Histopathology*. 1992;21(6):549-53.

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Received for evaluation: December 13, 2016

Accepted for publication: April 1, 2017