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Case Report

Abdominal splenosis mimicking peritoneal carcinomatosis of ovarian cancer ☆

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ABSTRACT

We present the clinical case of a 53-year-old woman referred for suspicion of recurrence of a mesonephric-like adenocarcinoma of the ovary. Abdominal and pelvic CT revealed multiple round/oval solid nodules with similar density scattered throughout the abdomen and pelvis, the biggest ones appearing in the left hypochondrium; no normal-appearing spleen or ascites were observed. These radiological findings and the absence of significant elevation of CA 125 levels made the radiologists hypothesize that these aspects were related to abdominal splenosis. They asked the patient about previous medical history of splenic injury, which she confirmed, referring it was a consequence of a remote major trauma. A ^{99m}Tc-labeled heat-denatured erythrocytes (^{99m}Tc-DRBC) scintigraphy/ hybrid SPECT/CT was then performed for definitive diagnosis; it showed spleen remnants as foci of increased radiopharmaceutical uptake in the same locations as the nodules appearing in the CT. This diagnostic work-up was consistent with abdominal splenosis, mimicking peritoneal carcinomatosis of ovarian cancer.

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Introduction

Peritoneal carcinomatosis refers to diffuse involvement of the peritoneum with metastatic disease; common primary tumors include ovarian cancer [1].

Radiological features of peritoneal carcinomatosis frequently include the presence of multiple, small, well-circumscribed, solid nodules scattered throughout the abdomen and pelvis [2–4].

Despite the strong association between these radiological findings and peritoneal carcinomatosis, alternative diagnostic hypotheses should not be disregarded, even in the context of oncologic disease.

Clinical case

We present the clinical case of a 53-year-old woman referred to our institution for suspicion of recurrence of a mesonephric-like adenocarcinoma of the ovary.

The diagnosis of ovarian cancer was primarily established in 2021 in another institution, where the patient was submitted to surgery with total hysterectomy and bilateral salpingo-oophorectomy, including surgical staging with inferior omentectomy and peritoneal biopsies. The pathologic evaluation of the surgical specimen settled final staging as IC1 (there was surgical spillage due to rupture of the ovarian capsule during surgery).

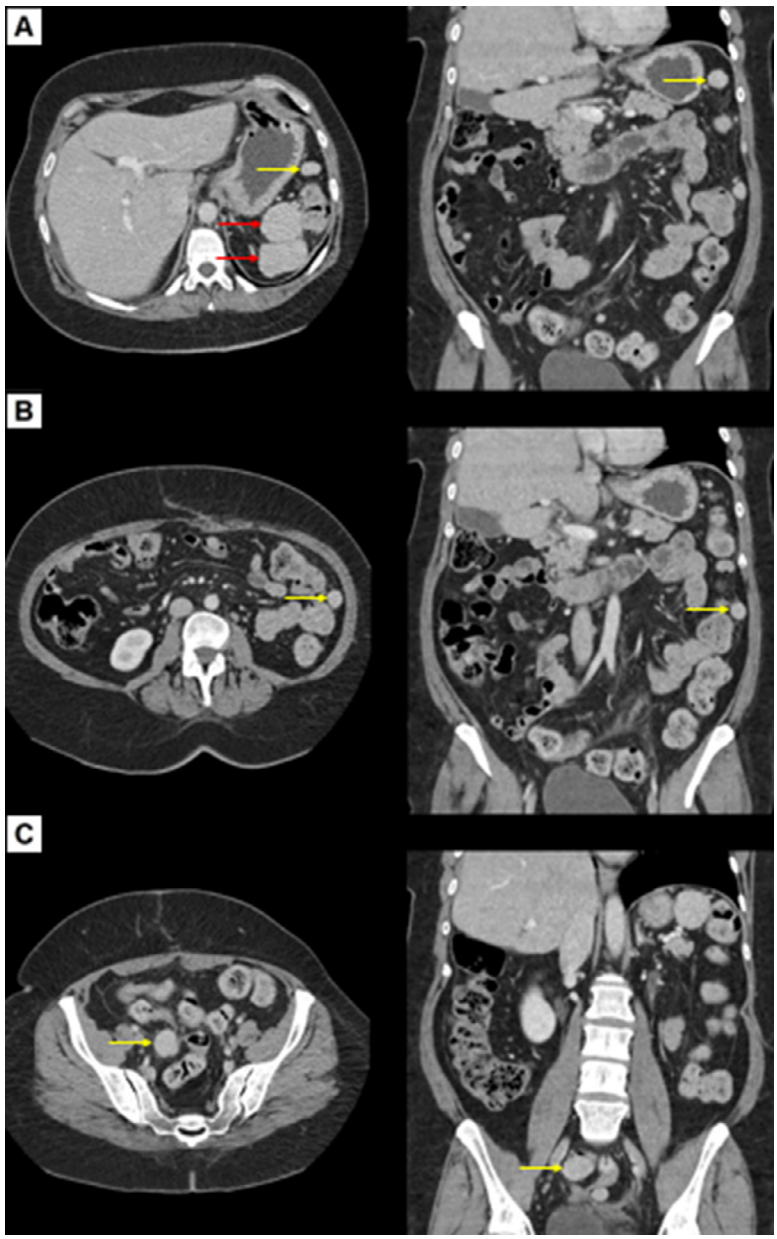

Fig. 1 – Abdominal and pelvic CT: Superior (A), intermedium (B), and inferior (C) axial slices and corresponding coronal views revealing multiple well-circumscribed solid nodules scattered throughout the abdomen and pelvis (yellow arrows), with equal density compared to that of the bigger nodules in the left hypochondrium (red arrows).

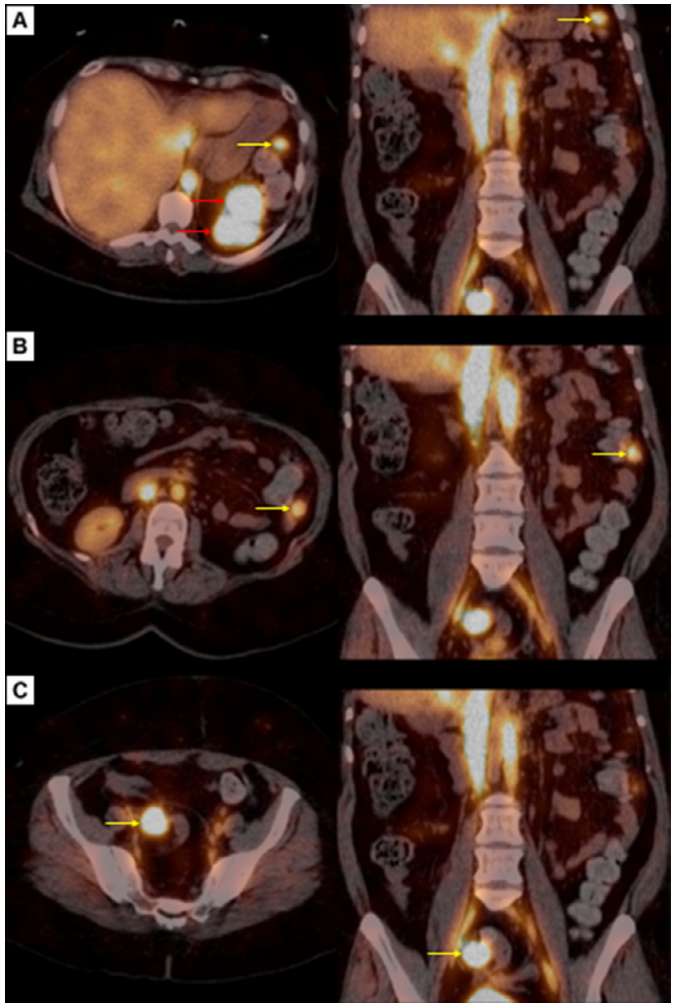

Fig. 2 – ^{99m}Tc-DRBC scan: Superior (A), intermedium (B), and inferior (C) axial slices and corresponding coronal views demonstrating spleen remnants shown as foci of increased radiopharmaceutical uptake in the same locations as the nodules appearing in the abdominal and pelvic CT (yellow and red arrows); labeled erythrocyte accumulation in liver, kidneys, and vessels is considered physiological.

Seven months after surgery, the patient was consulted by her referring general gynecologist complaining of extreme fatigue and pain in the left lower quadrant of the abdomen. Blood test levels of CA 125 were not significantly elevated. Despite that, the gynecologist, suspecting recurrence of the ovarian cancer, ordered an abdominal and pelvic CT, which was reported as revealing signs of recurrence with multiple peritoneal nodules interpreted as peritoneal carcinomatosis.

The patient was then referred to our institution for a specialized oncological approach. At our institution, the gynecologic radiology group performed a second opinion report of the abovementioned CT; they did not have access to previous CT scans to perform a comparative study. The radiologists found multiple round/oval solid nodules with similar density scattered throughout the abdomen and pelvis, such as in the left hypochondrium (the ones with the greatest size), left paracolic gutter and hypogastrium; they found no normal-appearing spleen or ascites (Fig. 1). Considering these radiological findings and the absence of significant elevation of CA 125 levels, the radiologists hypothesized that these aspects were related to abdominal splenosis. They contacted the patient to ask for previous medical history of splenic injury, which she confirmed, referring it was a consequence of a remote major trauma, happening more than 30 years ago. For a definitive diagnosis, the radiologists suggested ^{99m}Tc-labeled heat-denatured erythrocytes (^{99m}Tc-DRBC) scintigraphy/ hybrid SPECT/CT. This exam demonstrated spleen remnants shown as foci of increased radiopharmaceutical uptake in the same locations as the nodules appearing in the CT (Fig. 2).

The set of previously described imaging findings was consistent with abdominal splenosis, mimicking peritoneal carcinomatosis of ovarian cancer.

Discussion

Splenosis is a benign acquired condition defined by heterotopic implantation of splenic tissue—most frequently in the

abdomen and pelvis—resulting from injury to the spleen (usually traumatic or iatrogenic) [5]. The average time interval between the injury and the emergence of abdominal/pelvic splenosis is approximately 10 years [6,7].

It is usually found incidentally, as patients are frequently asymptomatic. Unless patients are symptomatic (eg, some patients may present with intestinal obstruction, bleeding or intussusception), further work-up and/or treatment are not indicated [5].

Splenosis differs from accessory spleens and polysplenia: accessory spleens are congenital, fewer, and classically found near the spleen in the left hypochondrium; polysplenia is classically accompanied by other findings of left-sided isomerism [8].

Radiologically, splenosis typically appears as multiple, small, well-circumscribed, solid nodules scattered throughout the abdomen and pelvis, potentially mimicking peritoneal carcinomatosis, especially if the patient has a medical history of oncologic disease (as in the presented case). The main radiological clue to clinch the diagnosis refers to the identical echogenicity/ density/ signal intensity of the nodules compared to that of the remaining spleen [2–4].

Based on the phagocytic ability of splenic tissue, ^{99m}Tc-DRBC scan allows the definitive diagnosis of splenosis, avoiding the potential risk of complications of invasive procedures required for pathologic evaluation [9]. Given its great sensitivity and specificity, ^{99m}Tc-DRBC scan should be considered in the diagnostic work-up of patients with suspected splenosis.

With this case, we emphasize three important lessons:

1. Radiologists should be provided with relevant information from the patient's clinical history, because it may be the key for successful diagnostic approach;
2. When facing a tendentious clinical scenario, radiologists must consider alternative diagnostic hypotheses and look for radiological features that may clinch the correct diagnosis;
3. Radiologists should not disregard the added diagnostic value of Nuclear Medicine diagnostic techniques.

Patient consent

Written informed patient consent for publication has been obtained.

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