

## Case Report

## Pelvic splenosis misdiagnosed as a uterine sarcoma

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## ARTICLE INFO

## Article history:

Received 16 November 2014

Accepted 11 January 2015

Available online 17 January 2015

## Keywords:

Splenosis

Sarcoma

Fibroids

Splenectomy

## Introduction

Splenosis is a rare complication of splenic trauma or splenectomy, whereby viable splenic tissue implants into heterotopic locations throughout the body. The underlying mechanism involves nodules of splenic pulp, dislodged by injury, spilling into and seeding adjacent anatomic cavities [Fremont and Rice, 2007](#). The literature provides cases of splenosis ranging from a single nodule to upwards of 400 nodules [Fremont and Rice, 2007](#). The nodules have a reddish-blue appearance and are generally less than 3 cm in diameter due to limited blood supply [Fleming et al., 1976](#). Although considered rare, abdominal or pelvic splenosis likely occurs in more than 65% of patients with splenic rupture [Huang and Shaffer, 2006](#).

Splenosis is a benign and generally asymptomatic condition. However, it is often found incidentally on imaging as radiographically it can mimic malignancy. It can create a complex diagnostic challenge [Fremont and Rice, 2007](#). Although visible on CT, MRI and ultrasound, splenosis of the pelvis has been mistakenly diagnosed as endometriosis, ovarian masses, uterine masses and cervical masses [Fleming et al., 1976](#). The most sensitive and specific diagnostic technique is nuclear scintigraphy using heat-damaged red blood cells tagged with technetium-99, due to high uptake of damaged erythrocytes by ectopic splenic tissue [Parnell et al., 2010](#).

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## Case

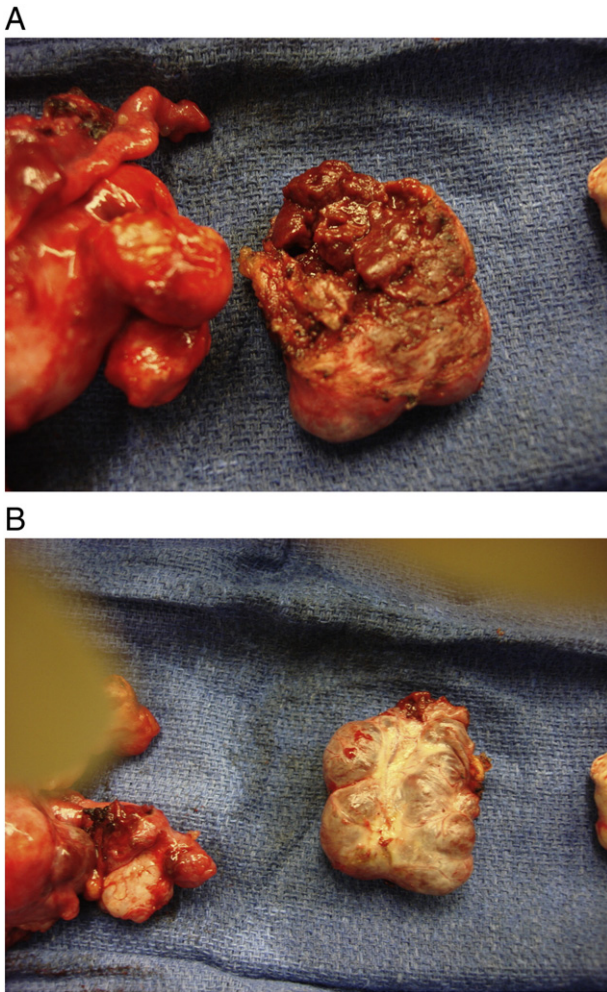
A 56-year-old nulligravid woman presented to her gynecologist for a routine exam. She had a history of menorrhagia secondary to multiple uterine fibroids and underwent uterine artery embolization at age 45. The fibroids were monitored with pelvic ultrasounds yearly. She completed menopause at age 48 and denied any current complaints including vaginal bleeding and pelvic pain. Her medical history was notable for splenic rupture after a motor vehicle accident at age 25 for which she underwent exploratory laparotomy and splenectomy.

On the pelvic exam at this visit a large posterior mass was palpated. Prior ultrasounds had demonstrated a pedunculated fibroid posterior to the cervix measuring approximately  $4.5 \times 2.8 \times 4.4$  cm. Due to the palpable mass on physical exam, the patient had a pelvic sonogram and MRI which revealed an interval decrease in size of multifocal smaller calcified uterine fibroids, but an interval increase in size of the posterior cervical fibroid, now measuring  $5.6 \times 3.5 \times 4.4$  cm. The interval growth of the mass raised the suspicion for uterine sarcoma. The patient also underwent a CT scan of which suggested splenosis of the upper abdomen with involvement of the omentum, peritoneum, and liver. Additionally, and inconsistent with the MRI and ultrasound, the CT demonstrated three masses in the pelvis with features also suggestive of splenic nodules; posterior to the cervix, on the left uterine fundus and adjacent to the left ovary.

Due to the conflicting interpretation of the posterior cervical mass on different imaging modalities, the patient elected to undergo exploratory laparotomy with excision of the abdominal and pelvic nodules. The patient underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, appendectomy, partial omentectomy and removal of rectal nodules. The operative findings upon entry were as follows: multiple blue-brown nodules throughout bowel and abdomen including a 4–5 cm blue mass on the posterior aspect of the cervix ([Fig. 1](#)). The final pathology for all nodules, including the posterior cervical nodule, revealed benign hematopoietic tissue consistent with splenosis. She has remained asymptomatic and in good health since the surgery.

## Discussion

Distinguishing splenosis from malignancy is of great importance because splenic nodules in asymptomatic implants do not require removal. Furthermore, splenic nodules are immunologically active, potentially providing benefit to the patient. Finally, removal of splenic implants can actually result in profound organ damage as the nodules parasitize the



**Fig. 1.** Blue-brown nodules from the A) abdomen B) posterior aspect of the cervix.

surrounding blood supply creating a rich vascular network [Parnell et al., 2010](#). Therefore the true morbidity from splenosis occurs when the condition is mistaken for and treated as a life-threatening condition.

For the patient presented in this case, the diagnosis of splenosis was not made until after completion of a surgical debulking procedure. The inability to arrive at a diagnosis was due to the large size of the cervical nodule (4 to 5 cm) compared to usual heterotopic splenic lesion and the presence of other soft tissue uterine tumors on imaging. As uterine sarcoma was a differential diagnosis and is a biologically aggressive disease with poor prognosis if not resected early, the patient was treated according to standard protocol for this gynecologic malignancy.

Nuclear scintigraphy using heat-damaged red blood cells tagged with technetium-99 is the preferred method for diagnosis of splenosis. There is high uptake of damaged erythrocytes in ectopic splenic tissue [Lake et al., 2012](#). Perhaps if technetium-99 imaging had been available and utilized the patient could have avoided the extensive surgery.

Alternatively, the patient could have undergone a minimally invasive surgery to arrive at a diagnosis, and exploratory laparotomy could have been preserved for a confirmed diagnosis of malignancy after frozen section. There have been reports of successful laparoscopic management of pelvic splenosis.

In conclusion, pelvic splenosis should be included in the differential diagnosis of patients who present with abdominal or pelvic nodules in the setting of prior splenic injury. The typical radiographic and macroscopic appearance should be recognized by all physicians to avoid misdiagnosis and concerns over malignancy.

#### Conflict of interest

This paper was supported in part by the Macy's Fund Cancer Research Program.

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