Splenic Rupture During Routine Colonoscopy

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For this patient, an injury that occurred during colonoscopy revealed sarcoidosis that was isolated to the spleen—an extremely rare circumstance of the condition.

Splenic injury during colonoscopy may be due to direct trauma to the spleen, excessive traction of the splenocolic ligament, or decreased mobility between the spleen and colon secondary to adhesions. Splenomegaly and underlying splenic pathology are other predisposing factors.[1–5]

This report relates a case of splenic rupture that occurred during a routine colonoscopy due to isolated sarcoidosis. It then reviews the complications of colonoscopy and the diagnosis and management of sarcoidosis.

INITIAL EXAM

A 62-year-old man with a history of chronic pancreatitis presented to the emergency department with left flank abdominal discomfort. He reported that he had undergone esophagogastro-duodenoscopy and colonoscopy earlier in the day.

Upon examination in the emergency department, he was found to be hypotensive and poorly responsive. An urgent computed tomography (CT) scan revealed a large amount of free blood around the spleen. His blood pressure was 97/34 mm Hg, his pulse rate was 114 beats/min, and tachycardia was present. Bowel sounds were absent, and the abdomen was minimally tender. Blood tests revealed a white blood cell count of 21 x 10^3 cells/µL with left shift (reference range, 4 to 11 x 10^3 cells/µL) and 91% neutrophils (reference range, 37% to 80%), a hemoglobin level of 8.8 g/dL (reference range, 13.8 to 17.2 g/dL), and a hematocrit of 16.2%.

TREATMENT COURSE

With a clinical diagnosis of splenic rupture, the patient underwent an uneventful, emergent splenectomy.

The spleen weighed 98 g, measured 11.5 cm x 7 cm x 3 cm, was covered with streaks and strands of fresh blood clot, and exhibited a lacerated surface and irregular rupture (Figure 1). The cut surfaces also showed numerous, grey-tan, fairly demarcated and circumscribed, granular lesions (Figure 2). These lesions were determined to be microscopically sarcoid granulomata and composed predominantly of epithelioid cells, eosinophils, plasma cells, and lymphocytes (Figure 3). Caseation necrosis was absent. Giant cells were few and more binucleated than multinucleated. No lacunar cells, Reed-Sternberg cells, or other cells of this like were seen. The granulomas involved the white pulps, red pulps, and blood vessels of the spleen. Fite-Farraco acid fast and periodic acid-Schiff stains tested negative for microorganisms.

Follow-up correlation with clinical data, subsequent radiographic images, laboratory results, and pulmonary consultative evaluation confirmed the diagnosis of isolated splenic sarcoidosis.

ABOUT THE CONDITION

Splenic injury during colonoscopy

Colonoscopy on rare occasions can be complicated with pneumothorax, pneumoperitoneum, emphysema of the retroperitoneum or of the subcutis, septicemia, or injuries to the visceral organs—especially the spleen. About 30 instances of splenic injuries during colonoscopy have been described in the medical literature. Any cause of increased splenocolic adhesions—as in chronic inflammatory bowel disease, pancreatitis, or previous abdominal trauma or abdominal surgery—may serve as a risk factor for splenic injury during colonoscopy. Other contributing factors are techniques that result in strong torsion of the splenocolic ligament.[1–5]

Splenic injury should be suspected in any patient who presents with left shoulder and abdominal pain, hypotension, and a drop in hemoglobin levels without rectal bleeding after colonoscopy. The diagnosis sometimes can be delayed—up to 10 days

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after the procedure—in order for imaging results to be available. CT scan of the abdomen can demonstrate reliably well contained splenic laceration and subcapsular hematoma, and it can aid in differentiating these splenic complications from perisplenic clot and hemoperitoneum. CT results also can help clinicians decide whether surgical or nonsurgical management is appropriate.[1–5] Nonsurgical management includes the use of broad spectrum antibiotics and intravenous fluids, blood transfusion, and close monitoring.

If abdominal pain persists after colonoscopy, the course of action depends on the patient's hemodynamic stability, the absence or presence of clinical features of acute abdomen, and the absence or presence of leukocytosis or acute anemia. An emergent abdominal CT scan is the modality of choice to evaluate these clinical features, but intestinal perforation and external bleeding must be excluded first.[1–5]

Extrapulmonary sarcoidosis

At the time sarcoidosis is diagnosed, over 90% of patients manifest pulmonary findings. Extrapulmonary lesions are not uncommon and may involve the liver, eyes, central nervous system, lymph nodes, and joints. While isolated extrapulmonary manifestations of sarcoidosis occur in 10% of patients, an isolated disease confined to the spleen is extremely rare. Published data document only two earlier cases of sarcoidosis manifesting with isolated splenic lesions and one presenting with spontaneous rupture.[6–8]

In the case of sarcoidosis, the clinical history, physical findings, and laboratory data are nonspecific. Abdominal ultrasound may show multiple splenic lesions, which can be confirmed through CT as multiple hypodense lesions within the organ.

Figure 1. Subcapsular, irregular blood clot, showing laceration and rupture of the spleen.

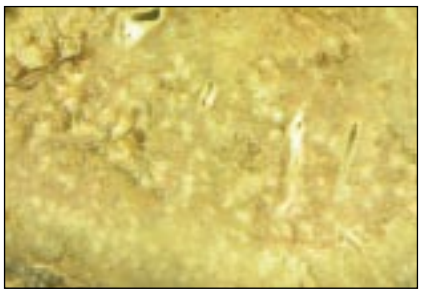

Figure 2. Cut sections of the spleen, revealing grey-tan, discrete, confluent nodules of sarcoid granulomata.

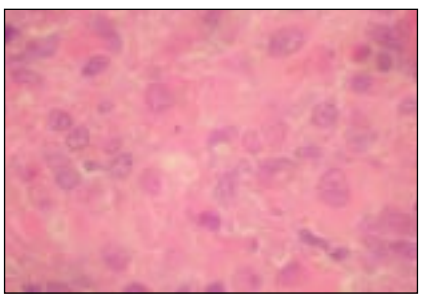

Figure 3. The splenic parenchyma, effaced by noncaseous, epithelioid granulomata (hematoxylin-eosin stain, magnified 400 times).

The differential diagnosis includes neoplasm, infection, and autoimmune disorders.[6–9]

Treatment of splenic enlargement due to sarcoidosis consists primarily of medical therapy with prednisone, methotrexate, or antimalarial drugs. While splenectomy is considered a last resort in patients at high risk for surgical complications, it may be indicated in cases of massive splenomegaly or severe hypersplenism, if there is a need to exclude lymphoma or malignancy, or as a precaution against splenic rupture. Patients require ongoing follow-up for systemic manifestations and associated complications of sarcoidosis.[6–9]

Author disclosures

The author reports no actual or potential conflict of interest with regard to this article.

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