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Laparoscopic Splenectomy for Atraumatic Splenic Rupture

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Atraumatic splenic rupture (ASR) is a rare clinical entity. Several underlying benign and malignant conditions have been described as a leading cause. We report on a case of ASR in a 41-year-old man treated with laparoscopic splenectomy. Considering ASR as a life-threatening condition, a prompt diagnosis can be life saving.

Key words: Atraumatic splenic rupture (ASR) – Cavernous hemangioma – Laparoscopic splenectomy

Atraumatic splenic rupture (ASR) is a rare condition, representing about 10% of all splenic ruptures. As a leading cause, hemangioma of the spleen (HS) has been rarely reported and only described in case reports or in a few series. Laparoscopic splenectomy should be considered for benign and malignant conditions, especially in hemodynamically stable patients.

Patient and Methods

A 41-year-old white man was referred to the emergency department for acute pain in the left hypochondrium, radiating to the left rib cage after a whooping cough.

Results

The anamnesis showed hypertension, a past diagnosis of Löffler syndrome, a family history of bullous emphysema, and 2 episodes of spontaneous pneumothorax in the past 10 years. Chest X-ray findings included diffuse bronchial wall thickening and apical bullae of emphysema. An abdominal ultrasound documented a polar rupture of the spleen, subsequently confirmed on chest and abdomen computed tomography scan, which showed a well-defined 4 × 4.8 cm hypodense high polar round lesion of the spleen, surrounded by an 8-cm corpuscolated fluid collection (Fig. 1). In addition, multiple hepatic cysts, a mildly elevated left hemidiaphragm, and bilaterally

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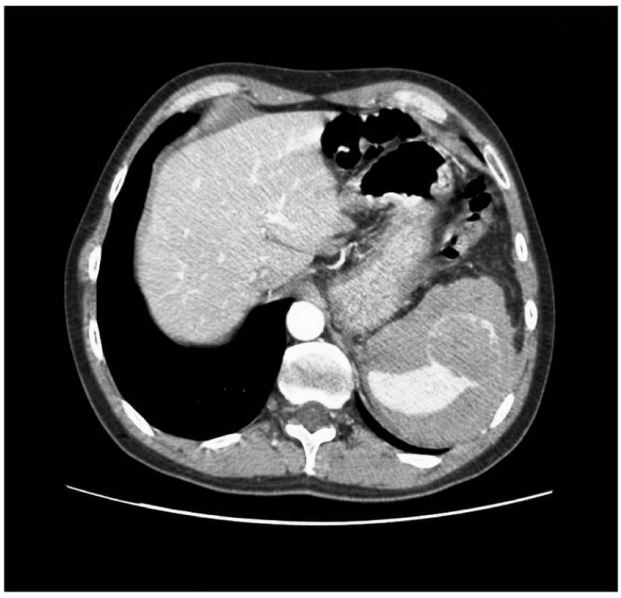

Fig. 1 Computed tomography abdominal scan showing a dishomogeneously hyperdense and corpuscolated fluid collection surrounding the spleen.

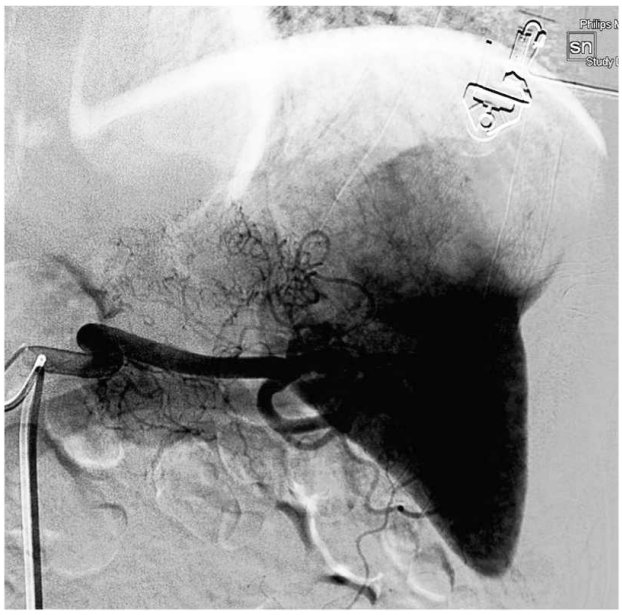

Fig. 2 A partially avascular, nonbleeding high polar lesion is detected on the splenic arteriogram.

marked signs of paraseptal lung emphysema were documented. The patient underwent selective splenic arteriogram showing a partially avascular, nonbleeding high polar lesion (Fig. 2). Serum levels of alfa-1 antitrypsin, perinuclear anti-neutrophil cytoplasmic antibodies (p-ANCA), and cytoplasmic anti-neutrophil cytoplasmic antibodies (c-ANCA) were normal. Epstein-Barr and cytomegalovirus serology did not prove any ongoing infection and lymphohematologic disorders were ruled out by clinical evaluation. The patient underwent laparoscopic splenectomy. A blood fluid collection in the left hypochondrium was confirmed intraoperatively. The full organ was removed from the abdominal cavity using endobag extraction, as well by performing a 5-cm Pfannenstiel suprapubic incision. The operative time was 100 minutes. The postoperative course was uneventful and the patient was discharged on postoperative day 6. Histopathologic analysis of the spleen (dimensions, 11 $\times$ 8 $\times$ 4.5 cm; weight, 240 g) showed a 4-cm high polar hemorrhagic nodule surrounded by splenic parenchyma with blood spillage. A pattern of residual angiomatic vessels edged this necrotic hemorrhagic collection, thus identifying the lesion as a splenic cavernous hemangioma.

Discussion

Up to 90% of splenic ruptures are due to incidental or iatrogenic trauma.[1] Atraumatic splenic rupture is a rare entity and was first reported by Atkinson in 1874.[2] From the literature review, ASR has been described only in case reports or in a few series. In the largest systematic analysis of 845 cases reported to date, 926 etiologic factors of ASR have been identified. In atraumatic idiopathic rupture, a normal spleen was observed in only 7% of cases. Ninety-three percent of patients showed an atraumatic pathologic spleen rupture. Primary neoplastic disorders account for 8.1% of ASR and HS has been reported in only 0.76% of cases. It generally occurs in adults, ranging from 30 to 50 years, and mostly appears as a small congenital lesion showing a slow growth. HS are generally asymptomatic, although presenting as a palpable solid mass in the upper left quadrant. Because the mortality rate may reach 13%, ASR should be considered a life-threatening condition. Splenomegaly, age more than 40 years, and neoplastic disorders are major risk factors of ASR-related mortality.[3] Splenectomy is the preferred choice of treatment in about 85% of patients, whereas nonoperative treatment and organ-preserving surgery are usually unsuccessful. Furthermore, the pathologic alterations of the spleen result in functional hyposplenism in most cases. The value of transcatheter arterial embolization remains unclear, because of the lack of reliable data. The laparoscopic approach is technically safe and feasible and has been adopted for benign and malignant conditions since the first description in 1991.[4] The advantages

include less intraoperative blood loss, quicker postoperative recovery, as well as lower morbidity rates. In a recent study comparing the functional outcomes between open and laparoscopic splenectomy, the postoperative hospital stay was significantly longer in the open group; scores from the modified hospital experience, body image, and photo series questionnaires were more favorable in the laparoscopic group.[5] ASR has been related to a significant number of neoplastic diseases such as angiosarcoma and hematologic disorders.[6] Therefore, retrieval of the spleen *in toto*, avoiding morcellation, should be preferred to obtain a better histologic examination. To our knowledge, this is the first report of ASR treated with a laparoscopic approach.

In conclusion, ASR should be considered in patients with acute abdominal pain without a history of trauma. As to treatment of HS, we highlight the several benefits of approaching this lesion laparoscopically.

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