

## CASE NOTE

**Subtotal splenectomy for splenic abscess**

Rachid G. Nagem, MSc  
Andy Petroianu, PhD

From the Department of Surgery,  
Hospital dos Servidores do Estado de  
Minas Gerais, Belo Horizonte, Brazil

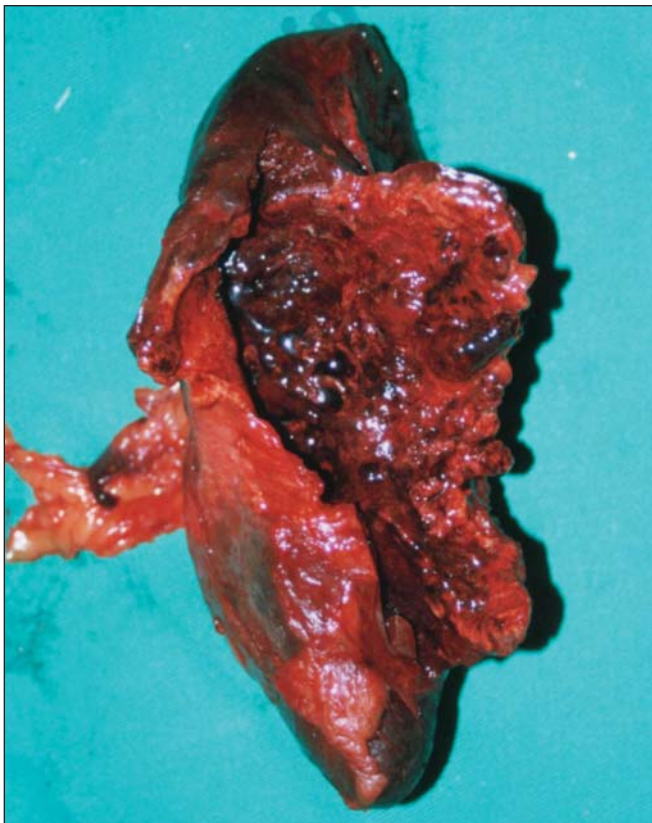
**Correspondence to:**

Dr. R.G. Nagem  
Rua Gonçalves Dias 332, Apto 1001  
Bairro Funcionários  
Belo Horizonte MG, CEP 30140090  
Brazil  
rgnagem@yahoo.com.br

**S**plenic abscess generally occurs in patients with neoplasia, immunodeficiency, hemoglobinopathies, trauma, metastatic infection, splenic infarct and diabetes.<sup>1</sup> This condition, although rare, has a high mortality rate. Despite the proven safety and efficacy of percutaneous drainage,<sup>2</sup> surgery remains the gold standard for treatment of splenic abscesses.<sup>3</sup> Total splenectomy was considered the best surgical procedure until recently. Today, susceptibility to infection and thromboembolic events after splenectomy have made more conservative procedures quite common. In subtotal splenectomy, the spleen is resected and its upper part is kept in place, with viability warranted by splenogastric vessels.

**CASE REPORT**

A 49-year-old man presented to the emergency department with retrosternal chest pain. An electrocardiogram and cardiac enzyme levels revealed acute myocardial infarction. Thrombolytic therapy produced satisfactory results. Two days later, he reported a sudden-onset pain in his upper left quadrant. Abdominal ultrasound and computed tomography (CT) scans showed a large collection inside the spleen. We diagnosed spontaneous intrasplenic hematoma secondary to a thrombolytic agent and treated the patient nonsurgically. The patient was doing well until 2 weeks later, when he presented with abdominal pain, fever with chills and leukocytosis. A CT scan showed a multiloculated splenic collection involving almost the entire organ, suggesting abscess. Ultrasound-guided needle aspiration confirmed the diagnosis. We carried out a supraumbilical laparotomy through a midline incision and performed a subtotal splenectomy (Fig. 1). We freed the organ from its attachments and brought it toward the anterior abdominal wall. We ligated all the splenic vessels except the splenogastric ones, divided the spleen using the ischemic transition area as a landmark and sutured the remnant with 2–0 chromic catgut stitches. Culture samples grew *Staphylococcus aureus*, so we administered venous antibiotic treatment for 30 days before discharging the patient. At 2.5 years' follow-up, he was asymptomatic and disease-free: his complete hemogram was normal, and a splenic cintigraphy scan with technetium-99m showed a functional splenic remnant (Fig. 2)



**Fig. 1.** Resected spleen showing the internal aspect of the abscess.

**DISCUSSION**

Splenic abscesses are rare, with autopsy studies suggesting

an incidence of 0.1%–0.7%<sup>3</sup> and reports citing mortality rates of 12%–47%.<sup>1–3</sup> Etiologic factors associated with splenic abscess include metastatic infection from other sites such as bacterial endocarditis, secondary infection of splenic infarction such as hemoglobinopathies, trauma to the spleen, immunodeficiency and contiguous infection by direct spread. Our patient was receiving multiple intravenous drugs, which caused transitory bacteremia<sup>4</sup> with posterior infection of the hematoma. The most common organisms obtained from cultures of splenic abscesses are aerobic microbes, in particular *staphylococci*, *streptococci*, *salmonella* and *Escherichia coli*.<sup>3</sup> It is less common to encounter anaerobic organisms, possibly owing to the difficulty in culturing these microbes; however, an increasing number of reports are citing findings of mycobacteria and fungi in immunosuppressed patients. Splenic abscesses are polymicrobial in 36% of cases.<sup>1</sup>

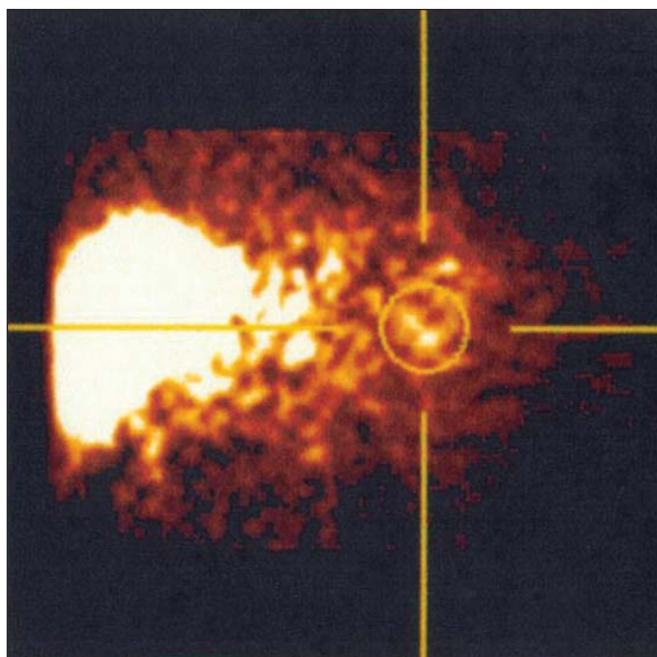
Establishing a diagnosis of splenic abscess on clinical grounds is difficult. Fever is present in 90% of patients, but only 66% present with the classical triad of fever, left upper quadrant pain and splenomegaly. The initial man-

agement of splenic abscess involves administering empiric vbroad-spectrum antibiotics that can later be changed according to culture results. A plain abdominal radiograph can show a soft-tissue mass in the left upper quadrant, displacement of the gastric bubble, elevation of the left hemidiaphragm or a left pleural effusion. Abdominal ultrasonography is cost-effective, noninvasive and very useful for percutaneous drainage. With a sensitivity of 96%, CT is presently the gold standard to establish a diagnosis of splenic abscess.<sup>1,2</sup> There are reports of patients considered to be unfit for surgical intervention receiving medical therapy with antibiotics alone, but these patients are the exception rather than the rule. Nonetheless, even surgery patients should receive at least a 2-week course of antibiotics. Surgical options include percutaneous aspiration, percutaneous catheter drainage, open drainage and splenectomy (partial or total, open or laparoscopic). Whereas in the past, surgical treatment for splenic abscess was splenotomy, current treatment places importance on preserving splenic function whenever possible. Percutaneous drainage is indicated for uniloculated or biloculated abscesses and for high-risk surgical patients.<sup>2</sup> Splenic resection is indicated for failed percutaneous drainage or multiloculated abscesses.<sup>3</sup> We have demonstrated that the upper part of the spleen, vascularized by splenogastric vessels, has satisfactory immune function.<sup>5</sup> In our patient's case, that was the only part of the organ free of abscess loci, therefore subtotal splenectomy was our only chance to preserve some splenic tissue. Once we established adequate antibiotic therapy (spectrum and length of use), our patient recovered uneventfully.

**Competing interests:** None declared.

## References

1. Ng KK, Lee TY, Wan YL. Splenic abscess: diagnosis and management. *Hepatogastroenterology* 2002;49:567-71.
2. Zerem E, Bergsland J. Ultrasound guided percutaneous treatment for splenic abscesses. *World J Gastroenterol* 2006;12:7341-5.
3. Chang KC, Chuah SK, Changchien CS, et al. Clinical characteristics and prognostic factors of splenic abscess: a review of 67 cases in a single medical center of Taiwan. *World J Gastroenterol* 2006;12:460-4.
4. Alterman P, Vigder C, Shabun A, et al. Splenic abscess in geriatric care. *J Am Geriatr Soc* 1998;46:1481-3.
5. Resende V, Petroianu A. Functions of the splenic remnant after subtotal splenectomy for treatment of severe splenic injuries. *Am J Surg* 2003;185:311-5.



**Fig. 2.** Hepatosplenic cintilography with technetium-99m (splenic remnant is indicated).