infected patients. It is not surprising that *B. henselae* would be a common infection in Bahrain as cats are the most common household pets in this country; cats are risk factors for both cat-scratch disease and the more aggressive forms of *B. henselae* infection in immunocompromised hosts [2, 3].

**Peritonitis Due to a Ruptured Splenic Abscess**

Splenic abscess is a rare entity of which the incidence at autopsy is <0.7% [1]. However, recently it has been reported with much greater frequency, probably because of improved diagnostic techniques and an increase in the number of immunocompromised patients. Rupture into the peritoneal cavity is the most severe complication and is associated with mortality rates ranging from 50% to 100% [1,2]. We describe a case of generalized peritonitis due to a ruptured splenic abscess.

An 87-year-old woman was admitted to our facility because of a 2-day history of fever and abdominal pain. The most remarkable aspects of her medical history were diabetes mellitus, cholecystectomy, and left hemicolectomy for neoplasm 3 years previously.

Physical examination revealed a temperature of 38°C and mild left abdominal pain; other findings were unremarkable. Laboratory studies showed leukocytosis (leukocytes, 32.5 × 10^9/L), with 95% polymorphonuclear cells; the hematocrit was 35%, and the hemoglobin level was 10.5 g/L. Urinalysis showed numerous WBCs, and roentgenography of the chest revealed elevation of the left side of the diaphragm. Abdominal ultrasonography was negative.

The patient was treated with antibiotics for possible urinary sepsis. Her abdominal symptoms were attributed to the same condition. After 2 days the abdominal pain worsened, and the abdomen was rigid, silent, and tender. The hematocrit decreased to 23%, and a CT scan showed splenomegaly with a large single collection inside, as well as perisplenic and pelvic fluid (figure 1).

Laparotomy showed diffuse peritonitis caused by a freely ruptured splenic abscess, and a splenectomy was performed. Cultures of blood and of the peritoneal fluid yielded *Bacteroides fragilis*, which was susceptible to metronidazole. Histologic examination revealed normal parenchyma surrounding the abscess. Postoperative evolution was uncomplicated, and the patient was discharged on the fifteenth postoperative day.

Hematogenous bacterial seeding from a septic focus is the most frequent cause of splenic infection (75% of cases) [1, 3], and bacterial endocarditis is the most frequent source (10% to 20% of cases), followed by urinary tract infection [1, 4]. Splenic abscesses occurring after septic abortion, appendicitis, diverticulitis, pneumonia, and other conditions have also been reported [1] and are more frequent in immunocompromised patients, such as those with AIDS, with chronic illness, or undergoing chemotherapy. Recently, splenic abscesses have been recognized with greater frequency in IV drug abusers [2, 4, 5].

Abnormalities in splenic tissue—such as hematomas following trauma or infarcts that occur in certain hematologic diseases—may favor bacterial growth [1]. Contiguous spread of infection is a less frequent cause (10%) and usually is of pancreatic, colonic, or gastric origin [1, 5]. In our case, the cause of the abscess was the hematogenous spread of *B. fragilis*, but the septic focus remained unclear. The type of organism isolated suggested a colonic origin, but laparotomy did not show lesions in the large bowel.

For many years, aerobic gram-positive organisms (e.g., *Staphylococcus* and *Streptococcus* species) have been the commonest

---

**Figure 1.** CT scan of the abdomen of an 87-year-old woman with peritonitis shows considerable splenomegaly, a collection inside the spleen, and perisplenic fluid.
causes of splenic abscesses. However, recently the incidence of abscesses due to anaerobic organisms (e.g., Bacteroides species) and gram-negative aerobic organisms (e.g., Salmonella species, Escherichia coli, and Pseudomonas species) has increased, probably because of the use of wide-spectrum antibiotics [1, 4].

Clinical presentation of splenic abscesses is not very specific. Most patients (95%-100%) have fever. Other symptoms are left upper abdominal pain, chills, vomiting, and left shoulder pain. Splenomegaly appears in ~50% of patients [3]. Simple radiology shows nonspecific findings such as elevation of the left side of the diaphragm or pleural effusion, and CT scanning is the best diagnostic method [5].

In the absence of trauma, rupture of the spleen is an unusual complication of neoplasms and of hematologic, cardiovascular, and infectious diseases such as brucellosis [6], malaria [7], infectious mononucleosis, typhoid fever, viral hepatitis, legionellosis [8], and acute sepsis [9].

The term spontaneous has frequently been used to describe rupture of the spleen without evident trauma. However, Hyun et al. [6] suggest that for atraumatic rupture of a pathological spleen the term pathologic rupture should be used and that the term spontaneous should be reserved for rupture of a normal spleen without trauma.

The treatment of choice is splenectomy with antibiotic therapy [1]. Percutaneous drainage is an alternative in selected cases [10], but it is contraindicated in cases of ascitis, suspected abscess rupture, hemorrhagic diathesis, and abscesses including the hilum splenicum [5].

Chronic Subdural Empyema: A New Presentation of Neurobrucellosis

CNS manifestations of brucellosis are rare [1], but when they do occur they are varied [2, 3]. Neurobrucellosis presenting as a brain abscess is exceedingly rare [4-8]. We recently treated a child with a culture-proven subdural empyema due to Brucella melitensis. A review of the literature failed to identify a prior report in which neurobrucellosis presented as a brain abscess.

An 8-year-old girl was admitted to the hospital with a 2-week history of headache and vomiting. Fifteen months before admission she had had a short febrile illness after she ingested unpasteurized goat cheese. At that time the serum agglutination titer of antibodies to B. melitensis was 1:320. No treatment was administered. The patient had sustained minor head trauma around the time of the febrile episode.

Neurological examination disclosed florid papilledema. Laboratory studies revealed a WBC count of 11.6 × 10^9/L with 60% granulocytes and 32% lymphocytes. An enhanced CT of the brain showed a large subdural collection with a thick, intensely enhancing capsule and adjacent meningeal-pial enhancement (figure 1).

The best outcome of splenic abscess depends on early diagnosis, so it should always be suspected in a patient with sepsis and left upper abdominal pain.

**Miguel Pera, Manuel Pera, and Asunción Moreno**

Department of Surgery and Service of Infectious Diseases, Hospital Clinic, University of Barcelona Medical School, Barcelona, Spain

References


Findings on an abdominal ultrasonogram and a CT of the chest, abdomen, and pelvis were normal.

A large subdural empyema was drained during craniotomy. The cerebral cortex was covered with a thick layer of vascular granulation tissue. Antibiotic therapy with iv vancomycin, ceftazidime, and metronidazole was initiated. Antibody screening for Brucella species (antigen stained with rose bengal) was positive at an agglutination titer of 1:400 (Murex Diagnostics). The patient’s therapy was changed to doxycycline (100 mg twice daily for 8 weeks), rifampin (300 mg twice daily for 8 weeks), and gentamicin (5 mg/kg·d) for the first 2 weeks. Cultures of purulent material obtained during craniotomy yielded pure growth of B. melitensis after 14 days. The patient was discharged from the hospital and had no neurological deficits at a follow-up visit 1 month later. In addition, the papilledema completely resolved. A CT obtained 3 months after discharge showed complete resolution of the empyema with residual focal meningeal enhancement.

Brucellosis is a common endemic zoonosis in Israel. Most of the 228 cases of human brucellosis reported to the Israeli Health Ministry in 1994 were from the Jerusalem district [9]. More than 800 cases were reported to the Palestinian Health Department during that year, and this number is considered a gross underestimation of the actual number of brucellosis cases in the West Bank (A. Rimlawi, Palestinian Health Department; personal communication, 1995).

Brucellosis may be associated with suppurative complications as osteomyelitis, spondylitis, arthritis, endocarditis, myocarditis, or pancytopenia [5]. The diagnosis of this disease may be made on the basis of a history of contact with infected animals or consumption of contaminated dairy products made from unpasteurized milk [1].