Blastomycosis presenting as multiple splenic abscesses: Case report and review of the literature

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A 31-year-old Canadian Aboriginal man from northwestern Ontario presented with left upper quadrant pain and a tender left upper quadrant mass. Evaluation with a computed tomography scan showed multiple lesions within the spleen, a collection between the splenic tip and splenic flexure of the colon, and several small adrenal lesions. Computed tomographic-guided needle biopsy showed necrotizing granulomatous inflammation and multinucleated giant cells. Gomori's methenamine silver stain showed broad-based budding yeast consistent with Blastomyces dermatitidis. Abdominal symptoms resolved after two months of oral itraconazole. Multiple splenic abscesses are a rare presentation of blastomycosis and should be considered in the differential diagnosis of left upper quadrant abdominal pain in a patient with a history of travel or residence in a region endemic for B dermatitidis.

Key Words: Abdominal pain; Blastomyces dermatitidis; Fungus; Spleen

CASE PRESENTATION

A 31-year-old Canadian Aboriginal man from northwestern Ontario presented with a two-month history of left upper quadrant pain beginning in early spring. He denied cough, fever, chills and weight loss. His medical history was negative for diabetes or immune system disorders. There was a history of alcohol abuse until six years before presentation. The patient worked as a carpenter in the winter and forest firefighter from May through September. Physical examination revealed a tender left upper quadrant mass. Chest radiography was normal. A computed tomographic (CT) scan showed multiple low-attenuation lesions within the spleen, a collection between the splenic tip and splenic flexure of the colon, and several small adrenal lesions. There were no signs or symptoms of adrenal insufficiency.

A tentative diagnosis of lymphoma was considered and the patient was referred to a surgeon, but he chose not to present for his evaluation for the next five months. He presented to the surgeon because the left upper quadrant pain had become severe during the two weeks before surgical evaluation and was associated with nausea and vomiting. Weight loss (18 kg) was noted, but there were no constitutional symptoms, respiratory...
complaints or night sweats. The patient also noted a 2.5 cm palpable mass in the midline of the neck, present for the previous two weeks. The patient reported that a chest radiograph two months earlier was normal.

Although a repeat CT scan was requested, the patient did not attend for the study until four months later. At this time, the CT scan revealed persistence of the splenic and adrenal lesions. A percutaneous needle biopsy of the spleen showed necrotizing granulomatous inflammation and multinucleated giant cells. Gomori’s methenamine silver stain showed broad-based budding yeast consistent with *B. dermatitidis* (Figure 3). It was presumed that the neck mass was also due to blastomycosis.

The patient was treated with oral itraconazole (200 mg twice daily). He did not return for follow-up evaluation, but was successfully contacted six months after the biopsy. He stated that after two months of itraconazole, the left upper quadrant pain and the neck mass had completely resolved. He had independently discontinued the itraconazole after two months and did not return for further evaluation because of loss of insurance coverage as a result of marital separation. Further attempts to contact the patient were unsuccessful.

**DISCUSSION**

The current patient’s presentation, with abdominal pain and splenic lesions, is an infrequently described manifestation of blastomycosis. He responded well to oral antifungal chemotherapy and did not require splenectomy.

All of the reported patients with splenic abscesses resulting from *B. dermatitidis* had contact with geographical regions endemic for *B. dermatitidis* (Table 1). The diagnosis of splenic abscess resulting from *B. dermatitidis* in previously reported cases involved varied radiographic investigations, including radionuclide investigations (Table 1). More recently, CT has led to a decreased need for radionuclide studies, and CT-guided splenic aspiration has facilitated biopsy, as in the present case, obviating the need for surgical intervention.

Several conditions, such as sickle cell hemoglobinopathy, nonpenetrating abdominal trauma, gastrointestinal malignancy, infectious endocarditis and injection drug use may predispose to splenic abscesses (18-26). Circulating microorganisms may be filtered by the spleen, resulting in solitary and multiple abscesses. The spectrum of microorganisms recovered from chronic splenic abscesses is broad, including *Staphylococcus aureus*, *streptococci*, *Enterobacteriaceae* including *Salmonella* species, organisms of chronic infection such as *Brucella* species (27), *anaerobes* (*Clostridium perfringens* and *Clostridium difficile*), and other Gram-negative bacteria such as *Bacteroides pseudomallei* (28-31). The microbiology of splenic abscesses compiled from case series before 1986 noted the following breakdown of pathogens recovered from splenic abscesses: sterile 28%, coliforms 23%, streptococci 22%, *anaerobes* 20%, *Salmonella* species 11%, anaerobic bacteria 5% and fungi 1% (14).

In early reports, chronic abscesses were reported to be either sterile or caused exclusively by aerobic bacteria, but the spectrum of microorganisms reported from chronic abscesses has changed, likely as a consequence of improved microbiological techniques for the recovery of anaerobes and fungi and a heightened awareness that parasites may be responsible for
splenic abscesses (18-32). The apparent increase in reports of fungi, mainly \textit{Candida} species isolated from splenic abscesses, may be a result of intensified chemotherapy and corticosteroid regimens for patients with neoplasms and inflammatory conditions requiring immunosuppression. Abscesses from parasites and other unusual microorganisms such as \textit{Nocardia} species and mycobacteria have also been reported, attributed to immunosuppression, injection drug use and HIV infection (23).

The patient presented in the spring after having reported two months of symptoms. The time of presentation and clinical manifestations are compatible with previous studies reporting a seasonal variation of blastomycosis (33). Localized pneumonias typically present one to six months after initial exposure, with the presumed exposure occurring in the summer months. Four to nine months after the primary exposure, reactivation or slow progression of asymptomatic infection resulting in isolated extrapulmonary or disseminated hematogenous disease is observed. Our patient’s presentation is compatible with these time lines (33).

Although rare, splenic abscess caused by \textit{B. dermatitidis} should be considered in an individual with left upper quadrant abdominal pain who has a history of travel or residence in a region endemic for \textit{B. dermatitidis}. With CT scanning, CT-guided biopsy, ultrasonography and antifungal chemotherapy, splenectomy may be avoided in some cases (14-15).

The present patient was lost to follow-up, but if possible, patients should be followed because of the potential for chronicity or recurrence.

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**REFERENCES**
