A 28-Year-Old Man with Neck Ache
(See pages 320–1 for the Photo Quiz)

Figure 1. MRI revealing an inflammatory mass (arrow) involving C1–C4 vertebrae

Diagnosis: cervical osteomyelitis with blastomycosis.

Biopsy specimens obtained from the cervical mass (figure 1) had negative Kinyoun acid-fast, Mucicarmine, and Gram stain results. Both Gomori methenamine silver and periodic acid–Schiff stains were significant for several thick-walled 12–15-μm round, refractile structures with single broad-based buds. On hematoxylin-eosin staining, there was evidence of chronic and granulomatous inflammation with yeast cells showing multiple nuclei (figure 2). Although fungal cultures showed no growth, the clinical and histopathologic features were thought to be most suggestive of blastomycosis.

Our patient later recalled being involved in tearing down an old, damp porch, with significant dust exposure. He also recalled being told of having a lung infiltrate visible on a chest CT scan several weeks after the dust exposure; this lung infiltrate was not seen on an additional CT scan obtained during the current illness. However, there was evidence of minimal left-sided pulmonary scarring.

Blastomycosis, first described in 1894 by Gilchrist [1], is a fungal infection caused by *Blastomyces dermatitidis*. The fungus exhibits thermal dimorphism. Microscopic features that differentiate it from other fungi include a diameter of 10–20 μm, thick refractile cell walls, and reproduction by means of a single broad-based bud. The portal of entry in almost all cases seems to be the respiratory tract. Disseminated disease can present in various locations, including the skin, bone, genitourinary system, and CNS [1, 2]. Blastomycosis presenting as a neck mass is a rare entity, with only 2 previous case reports in the recent literature [3, 4]. Diagnosis of blastomycosis requires a high index of suspicion in the immunocompetent host, because it can present like numerous other diseases. Histologic identification is a useful means of diagnosis. Serologic diagnosis is not very reliable, and cross-reactivity to antigens of various fungi, including *Histoplasma capsulatum*, limits its clinical utility [5].

The diagnosis of blastomycosis can be made by growth of the fungus in a culture of various body fluids or of tissue biopsy specimens. The organism can be cultured on brain-heart infusion and Sabouraud dextrose agar at room temperature. However, there have been reports of negative culture results for patients with blastomycosis, and in experienced hands, diagnosis of blastomycosis by visualization of the characteristic budding yeast formed in histopathologic section is adequate. Lemos et al. [6] have previously described cultures having positive results in only 64 % of all cases.

The treatment of blastomycosis with azoles, including itraconazole and fluconazole, has been recommended on the basis
of nonrandomized trials. There is consensus on the initial use of intravenous amphotericin B, with a maximum total dose of 1.5–2.5 g in immunocompromised patients with life-threatening blastomycoses. A total amphotericin dose of 2 g is recommended for CNS blastomycosis. Oral itraconazole administered at a dose of up to 400 mg per day is the mainstay of therapy for non–life-threatening forms of the infection [7].

Cultures of samples obtained from our patient may have shown no growth because of a course of prior oral fluconazole that the patient received for several days to treat severe intertrigo. He clinically responded remarkably well to 5 days of intravenous amphotericin deoxycholate therapy (administered at a dosage of 0.7 mg/kg per day), followed by oral itraconazole suspension (administered at a dosage of 200 mg twice per day and continued for a total of 6 months) and remains well at follow-up visits.

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Fida A. Khan and Arif R. Sarwari
West Virginia University Department of Internal Medicine,
Section of Infectious Diseases, Morgantown, West Virginia

References

Reprints or correspondence: Dr. Fida Khan, Section of Infectious Diseases, Ohio Valley Medical Center, Wheeling, WV 26003 (fidamd@gmail.com).

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