Cryptococcal Choroiditis in a Patient with AIDS: Case Report and Review

We report an unusual case of cryptococcal infection involving the choroid in a patient with AIDS. In addition, we review five cases of cryptococcal choroiditis.

A 40-year-old homosexual man with AIDS and a CD4 cell count of 20/mm³ presented with fever, headache, and generalized weakness of 1 week’s duration. He had had a previous episode of pneumocystis pneumonia. He was receiving 1,000 mg of oral ganciclovir prophylactically three times a day; findings of an ophthalmologic examination had been normal when prophylaxis was begun.

Table 1. Diagnosis, treatment, and outcome in cases of AIDS and cryptococcal choroiditis.

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Diagnostic method</th>
<th>Cryptococcal meningitis</th>
<th>Treatment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 [1]</td>
<td>Clinical</td>
<td>Present</td>
<td>Amphotericin B, 5-fluorocytosine</td>
<td>Not reported</td>
</tr>
<tr>
<td>2 [2]</td>
<td>Clinical</td>
<td>Present</td>
<td>Itraconazole</td>
<td>Resolution of lesions</td>
</tr>
<tr>
<td>3 [3]</td>
<td>Clinical</td>
<td>Present</td>
<td>Amphotericin B, 5-fluorocytosine</td>
<td>Improvement</td>
</tr>
<tr>
<td>4 [3]</td>
<td>Clinical</td>
<td>Present</td>
<td>Amphotericin B</td>
<td>No improvement; died 1 month later</td>
</tr>
<tr>
<td>6 [PR]</td>
<td>Clinical</td>
<td>Present</td>
<td>Amphotericin B, flucytosine</td>
<td>Died</td>
</tr>
</tbody>
</table>

On admission to the hospital, he was noted to be lethargic. His temperature was 102°F. He had tender posterior cervical lymph nodes and splenomegaly but no neurological deficits. An ophthalmologic examination revealed retinal hemorrhages, cotton-wool spots, and multiple small white choroidal lesions in the posterior pole and retinal periphery. There was no vitritis. The WBC count was 14,800/mm³, with 48% segmented forms, 25% band forms, 10% lymphocytes, and 8% monocytes. The hemoglobin level was 12.3 g/dL, and the platelet count was 50 × 10⁵/L. The levels of serum electrolytes and the results of liver function tests were within normal limits. The level of lactate dehydrogenase was 1,332 U/L. A roentgenograph of the chest and a head CT scan with contrast were normal. Budding yeasts were seen on an India ink preparation of CSF, and the cryptococcal antigen titer was 1:8. Cryptococcus neoformans was recovered from cultures of spinal fluid and blood. Examination of a bone marrow biopsy specimen revealed extracellular budding yeasts in 30% of the marrow space. Despite treatment with amphotericin B and flucytosine, the patient’s condition deteriorated rapidly and he died after 2 days.

Choroidal infections by C. neoformans have been rarely reported in patients with AIDS [1-4] (table 1). As patients with AIDS survive for longer periods, the incidence may rise and cryptococcal choroiditis should be considered in the differential diagnosis of AIDS-related choroiditis. Signs and symptoms may include decreased visual acuity, presence of blind spots, and photophobia [1-4].

The first reported case of cryptococcal choroiditis was in a 43-year-old homosexual man with AIDS. He had a white chorioretinal lesion in the left inferotemporal fundus [1]. Other reports describe small white spherical lesions accompanied by retinal hemorrhage; pale, atrophic optic nerves without retinitis; and bilateral multifocal creamy choroidal infiltrates with peripheral retinal hemorrhages and cotton-wool spots [1-4].

Ocular findings in C. neoformans infection are commonly secondary to meningitis. Sudden visual loss may occur [3] because of destruction of the optic nerves or arachnoiditis [5]. Cranial nerve palsies and optic atrophy also occur. Papilledema was reported in about one-third of the cases [6]. This condition may resolve without loss of vision.

Findings highly suggestive of cryptococcal choroiditis include deterioration of vision, papilledema, an infiltrative process consistent with chorioretinitis, and neural atrophy. An increased awareness of this condition may lead to early diagnosis and treatment, which will prevent blindness. A choroidal biopsy may not be essential in making a definitive diagnosis.
Optimal treatment of cryptococcal choroiditis has not been established. Amphotericin B is presently the agent of choice but has poor intravitreal penetration. The role of flucytosine alone or in conjunction with amphotericin B is undefined. Liposomal amphotericin B may be effective in the treatment of cryptococcal choroiditis [7]. Itraconazole therapy resulted in complete resolution of ocular lesions in one case [2]. Fluconazole has been shown to be effective in the treatment of candidal endophthalmitis; however, its role in cryptococcal choroiditis has yet to be proven [8].

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References

Recurrent Multifocal Osteomyelitis Due to Mycobacterium avium Complex

Disseminated Mycobacterium avium complex (MAC) infection rarely occurs in immunocompetent adults or children [1]. We present a case of recurrent multifocal osteomyelitis due to MAC in a nonimmunocompromised adolescent and discuss the immunology of host defenses against MAC [2].

A 17-year-old female was admitted to our hospital for evaluation of pain in the central chest and left shoulder, erythema and swelling over the sternal area, malaise, and weight loss. Findings on a chest radiograph were normal; bone radiographs showed destructive changes and periosteal bone formation over the manubrium and the left humerus. A bone scan showed increased uptake in these two areas and in multiple other areas including the proximal left femur, bilateral parietal regions, several ribs, right ischium, and left greater trochanter. Examination of a biopsy specimen from the sternum showed a nonspecific inflammatory reaction without granulomas and local bone destruction. Culture of the biopsy specimen yielded MAC. The patient was given a regimen consisting of rifampin, ethambutol, amikacin, clarithromycin, and clofazimine.

Two months later, she returned to our hospital with complaints of abdominal pain, vomiting, and draining of the sternal biopsy site; MAC was isolated from another biopsy specimen from the draining area. Drug susceptibility testing showed that the organism was susceptible to ethambutol, clofazimine, and clarithromycin; moderately resistant to rifampin, amikacin, and streptomycin; and resistant to rifabutin and ciprofloxacin. A diagnosis of eosinophilic gastroenteritis was made based on the results of endoscopy, and steroid therapy was started. The patient was discharged and received intravenous rifampin and amikacin at home. Within 2 months, the steroid therapy was tapered, and she was able to tolerate oral rifampin and clarithromycin.

Her medical history included repeated admissions at another hospital at the ages of 15 months, 17 months, and 7 years for treatment of MAC osteomyelitis at multiple sites [3]. During those episodes, she had been treated with streptomycin,isoniazid, rifampin, ethambutol, and ethionamide for at least 4 months and subsequently remained without recurrences until the time of this presentation. Her family history was noncontributory. A test for antibodies to HIV was negative; a PPD test with positive tetanus and Candida controls was also negative. Immunoglobulin levels and results of lymphocyte phytohemagglutinin stimulation and the nitroblue tetrazolium test were repeatedly normal.

Flow cytometry showed the following values: total lymphocyte count, 2,256/mm$^3$; CD3$^+$ T cells, 38%; CD4$^+$ cells, 43%; CD4$^+$ CD8$^-$ cells, 42%; and CD19$^+$ B cells, 18%; CD8/HLA-DR$^+$, 31%; and CD16$^+$/CD56$^+$ natural killer (NK) cells, 3%. All of the above subsets were within the normal range for our laboratory, except for the percentage of NK cells, which was low (normal range, 10%-16%). Repeated measurement at the time of discharge from the hospital showed an NK cell percentage of 7%.

Multifocal osteomyelitis due to MAC is a distinct form of mycobacterial dissemination; it is characterized by osteolytic lesions that tend to form abscesses and fistulae [4, 5]. A review of the literature by Stone et al. [6] showed five cases of disseminated MAC osteomyelitis in children without stated immunological abnormalities. An older review by Lincoln and Gilbert [4] showed seven cases of disseminated osteomyelitis; five of the patients had relapses that ranged in duration from 3 to 17 years. All of these children survived, an outcome that distinguishes this form of the disease from disseminated disease in other organs; the latter form of MAC disease occurs in association with immunosuppressive states [4, 5, 7]. Familiar disseminated mycobacterial infection has been reported [4, 7]. It is widely recognized that nontuberculous