bodies to *Aspergillus* species by use of ELISA revealed high titers (titer >1:1,250).

Treatment with voriconazole resulted in a rapid clinical response. The radiological abnormalities diminished within 2 weeks and disappeared within 3 months. After 9 months, findings on 111In-IgG scintigraphy had normalized, and therapy with voriconazole was discontinued. Prophylactic therapy with itraconazole (200 mg b.i.d.) was then started. The patient has remained free of symptoms for 3 years.

Invasive aspergillosis with a micronodular presentation on chest radiographs has been described rarely and only for patients with CGD [1, 2]. In a recent review, small granulomas in a miliary pattern were observed for 10% of patients with CGD and fungal pulmonary infections. If present, the fungi were sparse and confined to granulomas, and no angioinvasion was found [3]. The gradual clinical course of our patient was characteristic of invasive aspergillosis in CGD and contrasts with that of patients with secondary myelosuppression or immunosuppression [4].

Treatment of aspergillosis infections in patients with CGD is difficult, and the mortality is high, especially when the infection extends to the pleura or chest wall [4, 5]. Amphotericin B must be administered iv and has major side effects. This treatment is successful in only 50% of patients [5], and recurrences occur [4, 6]. Recent studies support the use of itraconazole as a prophylactic [7] and therapeutic agent for pulmonary aspergillosis in patients with CGD [6]. Side effects are minor, but the unpredictable absorption and pharmacokinetics often necessitate the monitoring of serum concentrations [5]. Voriconazole, a new broad-spectrum triazole, is well absorbed, has predictable pharmacokinetic properties [8], and has apparently good efficacy in patients with invasive aspergillosis [9]. However, data on the treatment of patients with CGD are lacking. Because of the possible advantages and our patient’s preexisting renal failure, we treated him with voriconazole for 9 months, with good success.

In conclusion, the findings in this case indicate that invasive pulmonary aspergillosis may present as a diffuse micronodular disease resembling miliary tuberculosis and that voriconazole is a promising alternative for the treatment of invasive aspergillosis in patients with CGD, the results of which are often disappointing.


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References

Adenovirus Cholecystitis in a Patient with AIDS

We describe, to our knowledge, the first reported case of adenovirus cholecystitis in association with adenovirus colitis. This case occurred in a patient with AIDS; the symptoms of colitis abated with cidofovir therapy.

A 40-year-old homosexual male with AIDS was hospitalized with intermittent right-upper-quadrant abdominal pain of 4 months’ duration that had become constant during the last 2 weeks. The pain was sharp and associated with nausea. The patient’s most recent CD4 cell count was 3/mm³, and his medical history included *Pneumocystis carinii* pneumonia and wasting syndrome with chronic diarrhea.

On physical examination, the patient was afebrile. Abdominal palpation revealed right-upper-quadrant tenderness; there was no peritonism. Laboratory evaluation included the following values: WBC count, 3,300/mm³; bilirubin level, 0.7 mg/dL (normal range, 0.1–1.1 mg/dL); aspartate aminotransferase level, 81 IU/L (normal range, 2–35 IU/L); alanine aminotransferase level, 126 IU/L (normal range, 0–45 IU/L); alkaline phosphatase level, 545 IU/L (normal range, 30–130 IU/L); amylase level, 197 IU/L (normal range, 30–100 IU/L); and lipase level, 43 IU/L (normal range, 4–24 IU/L). The gallbladder was not visualized on a HIDA scan.

Despite treatment with hydration, analgesics, and cefotetan, the patient’s abdominal pain worsened, and he developed a positive...
Murphy’s sign. Laparoscopic cholecystectomy was performed without complication. The patient had no further abdominal pain after surgery.

Histopathologic evaluation of the gallbladder wall revealed ulceration and smudge cells that contained adenovirus nuclear inclusion bodies (figure 1A). An immunoperoxidase stain (Chemicon; Temecula, CA) was positive for adenovirus (figure 1B). There was no histological evidence of cytomegalovirus, microsporidia, Cryptosporidium species, or mycobacteria. Cultures of gallbladder specimens were negative for bacteria, mycobacteria, and fungi. A stool culture was positive for adenovirus. Colonoscopy revealed diffuse mucosal inflammation; examination of colonic biopsy specimens showed adenovirus nuclear inclusions, and an immunoperoxidase stain was positive for adenovirus.

The patient was treated for adenovirus colitis with cidofovir (5 mg/[kg ⋅ d]). The frequency of his bowel movements quickly decreased from eight to one per day. However, therapy with cidofovir was discontinued after two doses because of renal toxicity, and his diarrhea subsequently recurred.

Adenoviruses, known to cause self-limited illnesses in immunocompetent hosts [1], are recognized increasingly as opportunists among patients with AIDS and have been associated with hepatitis, pneumonitis, nephritis, cystitis, colitis, meningoencephalitis, and parotitis [1, 2]. However, our review of the literature did not reveal a previous description of adenovirus infection causing gallbladder disease. There was no pathogen other than adenovirus isolated from the gallbladder of our patient, and histopathologic evaluation did not reveal findings characteristic of other pathogens. Classic adenovirus inclusion bodies were seen in the gallbladder wall in association with inflammation, and immunoperoxidase staining for adenovirus was positive.

The role that adenoviruses play in AIDS-associated diarrhea is controversial, given that asymptomatic patients may excrete adenoviruses and that these viruses are often isolated from the gastrointestinal tract in association with other pathogens [2, 3]. Some investigators have demonstrated an increased incidence of recovery of adenovirus from the stool or colonic specimens of patients with AIDS who have diarrhea vs. those without diarrhea [3], but other investigators have been unable to show a correlation between isolation of adenovirus from the gastrointestinal tract and the incidence of diarrhea among patients with AIDS [2, 4]. For the patient we describe herein, the appearance of the gallbladder and colon on histopathologic evaluation was suggestive of invasive adenovirus disease.

Reports regarding the treatment of adenovirus infection are anecdotal. There are no reports of prospective, controlled studies comparing therapies for adenovirus infection. Ribavirin [5], ganciclovir [6], immunoglobulin [7], and leukocyte infusion therapy [8] have all been used to treat adenovirus infection. Cidofovir has inhibitory activity against adenovirus in vitro [9, 10] and has efficacy against adenovirus keratoconjunctivitis in an animal model [10].

In conclusion, we report the first case of cholecystitis resulting from adenovirus infection and the first use of cidofovir therapy in the treatment of human adenovirus infection. This infection should be included in the differential diagnosis of biliary tract disease in patients with AIDS. Further clinical studies that investigate the utility of cidofovir in the treatment of serious adenovirus infection would be worthwhile.

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Successful Treatment of Trichosporon beigelii Pneumonia with Itraconazole

Among patients with neoplastic diseases who are undergoing myeloablation, a growing number of uncommon fungal pathogens (including Trichosporon beigelii) have been reported to cause infection [1, 2]. Amphotericin B has limited activity against T. beigelii [3]. On the basis of in vitro studies, some authors have suggested treatment with triazole compounds [4, 5]. We describe a patient with T. beigelii pneumonia whose condition responded to therapy with itraconazole.

A 42-year-old woman with inflammatory breast carcinoma and neutropenia after peripheral blood progenitor cell transplantation, had fever and chest pain without radiographic evidence of pneumonia 5 days after infusion. She was receiving ofloxacin (200 mg b.i.d.) and fluconazole (200 mg/d) as prophylaxis for infection, and empirical therapy with broad-spectrum antibiotics was started. Because of persistent fever, therapy with amphotericin B (1 mg/[kg·d]) was initiated 72 hours later. The patient remained febrile for 1 week, despite granulocyte engraftment on posttransplantation day 12. At this time a CT scan of the chest demonstrated patchy reticulonodular infiltrates (figure 1). Because of the persistent fever, itraconazole therapy (400 mg t.i.d.) was added to the therapy with amphotericin B. The patient became afebrile 2 days later, and itraconazole therapy was continued for 2 weeks. T. beigelii was isolated from sputum cultures performed 2 days before treatment with itraconazole was initiated. Because of the presence of thrombocytopenia, invasive diagnostic procedures such as bronchoscopy were not undertaken.

In immunocompromised patients, T. beigelii pneumonia appears as part of a systemic infection, and localized pneumonia without dissemination has been described in a few patients [5]. Diffuse alveolar infiltrate is the most common finding on chest radiographs. However, there are no distinctive radiographic features, with findings ranging from bronchopneumonia to lobar consolidation or patchy reticulonodular infiltrates [2, 5]. Therefore, the diagnosis of T. beigelii pneumonia is based on the clinical manifestations and on microbiological confirmation [5]. T. beigelii has been isolated from cultures of blood, sputum, and urine [2, 5, 6]. A positive sputum culture indicates colonization that may progress to trichosporonemia and invasive infection in neutropenic patients [2, 5]. However, a negative surveillance culture does not exclude a diagnosis of trichosporonosis [2].

References

Figure 1. CT scan of the chest showing large, nodular, rounded and reticulonodular infiltrates in the right and left lung suggestive of fungal infection in a 42-year-old patient with pneumonia due to Trichosporon beigelii.