***Trichosporon mucoides* Peritonitis in a Continuous Ambulatory Peritoneal Dialysis Patient**

Editor:

Peritonitis is the most frequent complication in patients with end-stage disease who are undergoing on continuous ambulatory peritoneal dialysis (CAPD). Most cases of CAPD peritonitis are caused by pathogenic bacteria; only a small number of cases are caused by fungi. Nonetheless, compared with bacterial peritonitis, fungal peritonitis can lead to higher rates of morbidity, mortality, and CAPD discontinuation. Fungi penetrate the peritoneal cavity through intraluminal contamination of the catheter or by direct extension of the infection from the catheter exit site. Fungal peritonitis is a well-recognized but uncommon complication of peritoneal dialysis (PD) (1). Here, we report a case of CAPD-related peritonitis caused by *Trichosporon mucoides*. To our knowledge, this report is the first of such a presentation in a patient on PD.

CASE DESCRIPTION

A 39-year-old woman with end-stage renal disease secondary to lupus nephritis had been receiving CAPD therapy since August 2007. She was admitted to our hospital in April 2012 because of diffuse abdominal cramping pain and fever, with a body temperature of up to 38.6°C that was accompanied by chills.

The white blood cell count of the patient's PD effluent was 1710/mm³, with 90% neutrophils. A peritoneal effluent culture was positive for *Enterococcus* and *T. mucoides*. The peritonitis was treated with intravenous vancomycin and oral fluconazole.

Two weeks later, similar symptoms and the peritonitis recurred. On physical examination, a general tenderness in the abdomen was noted. The laboratory findings revealed a peripheral white blood cell count of 10 800/mm³; hemoglobin 10.6 g/dL; platelets 176 000/mm³; albumin 2.9 g/dL; blood urea nitrogen 97 mg/dL; creatinine 12.22 mg/dL; sodium 128 mmol/L; potassium 4.5 mmol/L; calcium 10.6 mg/dL; inorganic phosphate 5.3 mg/dL; and C-reactive protein 6.76 mg/dL. A new culture of the PD effluent grew only *T. mucoides*.

Intravenous administration of fluconazole was initiated, but the patient continued to complain of abdominal pain. Computed tomography imaging of the whole abdomen was thus arranged after drainage of the dialysate, revealing thickening of the parietal peritoneum and increased stranding of peritoneal fat. Fluconazole was discontinued, and liposomal amphotericin B was administered. The Tenckhoff catheter was removed. The abdominal pain and fever subsided gradually. Liposomal amphotericin B was used for 14 days. Thereafter, the patient was discharged, and her dialysis modality was switched to hemodialysis.

DISCUSSION

Members of the genus *Trichosporon* belong to the family Trichosporonaceae within the order Tremellales. Several *Trichosporon* species—including *T. ovoides*, *T. inkin*, *T. asahii*, *T. mucoides*, *T. asteroides*, and *T. cutaneum*—occur naturally as part of the microbiota of the human skin and cause human infections (trichosporonosis). These species were formerly called *T. beigeli* (2).

Most *Trichosporon* species are found in nature and are ubiquitous in soil. Some may be part of the normal flora of human mucosal surfaces, skin, throat, stools, lower urinary tract, sputum, nails, and hair, and can act as opportunistic pathogens. These opportunistic infections have been reported in immunocompromised individuals such as those with hematologic malignancies (3), acquired immunodeficiency syndrome, and uremia *per se*, and in patients undergoing transplantation (4,5).

The peritoneal effluent culture from our patient identified the pathogen as *T. mucoides*. *T. mucoides* infections may start with colonization of skin surfaces and subsequently entrance into the peritoneal cavity through intraluminal or periluminal pathways. Prolonged antibiotic treatment may increase the incidence and extent of colonization and thus increase the risk of infection.

Predisposing risk factors for *T. mucooides* infection in our patient included the indwelling PD catheter, prolonged antibiotic treatment, and uremia *per se*.

Trichosporon species have been implicated as a cause of pneumonia, hypersensitivity pneumonitis, skin lesions, chronic urinary tract infection, endocarditis, endophthalmitis, fungemia, prosthetic valve endocarditis, brain abscess, hepatitis, and peritonitis. Three cases of peritonitis attributable to *T. inkin*; 2 cases, to *T. cutaneum* (6); and 1 case, to *T. asahii* (7) have been reported in the literature. Other cases were reported under the older taxonomic name of *T. beigelii*. To our knowledge, ours is the first reported case of *T. mucooides* infection in CAPD peritonitis.

The optimal therapy for trichosporonosis remains unclear. The outcome of *Trichosporon* infection depends largely on the immune status of the host and the extent of the infection. Several antifungal agents have been used either as monotherapy or in combination regimens for *Trichosporon* infection, including amphotericin B, flucytosine, miconazole, ketoconazole, and fluconazole (8). In previous studies, amphotericin B alone—or sometimes in combination with other antifungal agents—has successfully treated *Trichosporon* infection (9). The echinocandins lack both *in vitro* and *in vivo* activity against *Trichosporon* species (5). Some reports have indicated that *T. mucooides* may be resistant to fluconazole and itraconazole (9). Our patient developed relapsing CAPD peritonitis despite fluconazole treatments. The patient's peritonitis was eventually controlled by amphotericin B and removal of the CAPD catheter. We therefore suggest that fungal infections other than *Candida* species should be considered when CAPD peritonitis does not improve after prolonged treatment with fluconazole.

CONCLUSIONS

Trichosporonosis is a rare opportunistic infection that is occasionally found in immunocompromised patients. When fungal peritonitis is suspected, infections with species other than *Candida*, such as *Trichosporon*, must be considered in treatment-refractory cases. Although the optimal treatment for trichosporonosis is debatable, amphotericin B may be a suitable treatment. Because a biofilm in the PD catheter may be a major factor in the persistence of *Trichosporon* infection, the timing for removal of the PD catheter merits further investigation.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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doi:10.3747/pdi.2012.00146