**Culture-Negative *Aspergillus* Peritonitis
Diagnosed by Peritoneal Biopsy**

Editor:

A 52-year-old man, with long-standing diabetes and hypertension and on continuous ambulatory peritoneal

dialysis (PD) since 2001, presented in January 2012 with peritonitis 5 days after discontinuing antibiotics (intraperitoneal amikacin and ceftazidime, and oral fluconazole 150 mg once daily for fungal prophylaxis) for a previous episode of peritonitis in early December 2011. He had previously been adequately treated for pulmonary tuberculosis in 2004, and he had experienced 3 episodes of peritonitis in 2007 and 2010, for which he was successfully treated without catheter removal.

At presentation, the exit site was normal. Effluent cell count was 2900/mL, with 94% polymorphonuclear leukocytes and 4% lymphocytes. Gram stain of the effluent showed predominantly neutrophils, with no organisms. All cultures, and polymerase chain reaction analysis for *Mycobacterium tuberculosis*, were repeatedly negative. Meanwhile, the patient's abdominal pain persisted and his hemodynamics worsened, requiring maximal vasopressor support. Hence, the catheter was removed on day 6. Peritoneal biopsy showed fungal hyphae on histopathology (Figure 1), and a sample grew colonies of *Aspergillus niger*. The patient then had an acute myocardial infarction with cardiogenic shock and died the next day.

As seen in our patient, important risk factors for fungal peritonitis include recurrent peritonitis, prior antibiotic use, recent bacterial peritonitis, and neutropenia (1). Chemoprophylaxis with fluconazole was not effective because that agent has no activity against *Aspergillus*. Our case again makes us realize that a given empiric antifungal may not work in certain fungal infections.

Management of fungal infections without catheter removal is not recommended (2). The diagnosis in the present case remained elusive for 6 days despite repeated

efforts to isolate the organism from dialysis effluent. Only at peritoneal biopsy did histopathology and culture reveal the fungus. Peritoneal biopsy is not routine in PD patients.

Our experience should alert nephrologists in developing countries, in which the rate of culture-negative peritonitis is reported to be as high as 50% (3). Our patient was predisposed to locally invasive *Aspergillus* peritonitis because of disruption to the anatomic barrier on account of continuous ambulatory PD and because of impaired peritoneal defenses, including macrophage dysfunction and predisposition to atypical infections (4). In repeatedly culture-negative peritonitis, peritoneal biopsy should be considered; meanwhile, the catheter should be removed, and microbiologists and pathologists should be engaged in reaching the appropriate diagnosis and management.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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Figure 1 — Histopathology examination of peritoneal biopsy shows fungal hyphae.

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