First Identification of *Gordonia sputi* in a Continuous Ambulatory Peritoneal Dialysis Patient with Peritonitis

KEY WORDS: *Corynebacterium*; *Gordonia sputi*; peritonitis.

Editor:

When patients with continuous ambulatory peritoneal dialysis (CAPD)-associated peritonitis do not respond promptly to adequate antibiotic therapy, unusual organisms should be considered. Further identification should be undertaken in patients with relapsing peritonitis. Here, we present the first case report of CAPD peritonitis attributable to *Gordonia sputi* identified by genomic sequencing.

A 69-year-old man with end-stage renal disease secondary to diabetic nephropathy had been on CAPD therapy since June 2008. He was admitted to hospital in August 2011 because of a first episode of peritonitis. Culture of the peritoneal effluent yielded gram-positive coryneform bacilli. The peritonitis was treated with intraperitoneal antibiotics (cefazolin and gentamicin) for 14 days.

One month later, peritonitis recurred. Culture of peritoneal effluent again yielded gram-positive coryneform bacteria, which were also sensitive to cefazolin and gentamicin. The bacteria showed no extensive branching and presented dry, raised, salmon-to-orange colonies without aerial hyphae; hence, to accurately identify the organism, two universal primers, 5F (5'-TGA AGA GTT TGA TCA TGG CTC AG-3') and 809R (5'-CGT GGA CTA CCA GGG TAT CTA A-3'), were used for the amplification to determine a partial 16S rRNA gene sequence (1). The sequence obtained matched with *G. sputi*.

Because of the relapsing peritonitis, computed tomography imaging of the entire abdomen was arranged; it showed mild thickening of the parietal peritoneum, mesenteric haziness, and increased stranding of peritoneal fat. After intraperitoneal cefazolin and gentamicin for 2 weeks, the dialysate white blood cell count declined to 2/mm³. However, a third episode of peritonitis occurred 1 month later. Culture of the peritoneal effluent was also positive for *G. sputi*. The broth microdilution method showed that the organism was sensitive to cefazolin and gentamicin, as before.

Despite 4 days of intraperitoneal cefazolin and gentamicin, the patient had persistent abdominal pain. Repeat computed tomography imaging showed progressive mesenteric haziness. Diagnostic laparoscopy was therefore proposed. Laparoscopic findings included extensive filmy adhesions of the bowel and an accumulation of dirty ascites, but without abscess formation. The ascites and peritoneal dialysis catheter were removed, and the patient was switched to hemodialysis. After a change in antibiotics to intravenous vancomycin and ceftazidime, the patient was discharged under oral ciprofloxacin treatment. In the following 2 months, no relapse of peritonitis occurred.

Members of the genus *Gordonia* belong to the suborder Corynebacterineae within the order Actinomycetales. The slow growth and difficult phenotype identification of *Gordonia* species means that isolates are usually incorrectly reported as *Rhodococcus* (2), *Corynebacterium* (3), or *Nocardia* (4) species. Such problems may have contributed to the organism initially being reported as coryneform during the first hospitalization in the current case, but then further identified as *G. sputi* by genomic sequencing at the second hospitalization for relapsing peritonitis. Because genomic sequencing is a common and inexpensive laboratory technique, and because the precise identification of *Gordonia* species requires genomic sequencing (5), we suggest that, for early diagnosis, genomic sequencing for *Gordonia* species should be used when CAPD patients present with gram-positive coryneform bacilli-related peritonitis. Because of the delayed diagnosis in this first reported case, the CAPD catheter had to be removed. Whether the present case suggests that future cases of *G. sputi* peritonitis would require CAPD catheter removal or a longer duration of antibiotics to prevent relapsing peritonitis may merit further investigation.

ACKNOWLEDGMENTS

We thank Chih-Cheng Lai for clinical assistance.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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doi:10.3747/pdi.2012.00030