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CORRESPONDENCE

A Rare and Under-recognized Pathogen in Peritoneal Dialysis Peritonitis: *Corynebacterium jeikeium*

Editor:

An 84-year-old woman with a history of hypertension, bladder and left kidney urothelial carcinoma with left nephrectomy, and diabetes mellitus–related end-stage renal disease presented with abdominal pain of 1 day's duration, accompanied by turbid dialysate. She had undergone continuous ambulatory peritoneal dialysis (PD) for 4 years without past episodes of peritonitis. Blood tests 1 month before the current visit showed albumin 2.8 g/dL, C-reactive protein 1.97 mg/dL, hemoglobin 10.3 g/dL, and creatinine 4.6 mg/dL.

On this current presentation, she had no fever, nausea, or vomiting, but her caregiver had noticed a tiny leak of fluid from the tubing connections between the mini-transfer set and the twin-bag of dialysate. In the emergency room, blood tests yielded blood leukocytes 11 920/μL and C-reactive protein 6.14 mg/dL. Effluent white blood cell analysis revealed 800 cells/μL, with 96% neutrophils.

Empiric antibiotics consisting of intraperitoneal ceftazidime and cefazolin were administered. The patient's abdominal pain improved, and her effluent seemed clearer initially; however, the dialysate turned more turbid 2 days later. A follow-up white blood cell count in effluent showed 500 cells/μL, with 100% neutrophils. The effluent culture collected at the initial emergency room visit finally grew *Corynebacterium jeikeium,* which was resistant to penicillin, quinolone, gentamicin, and tetracycline, being susceptible to vancomycin only. Antibiotics were switched to intraperitoneal vancomycin, but the effluent was persistently turbid. The Tenckhoff catheter was removed after 1 week of poor response to vancomycin. The patient was subsequently permanently transferred to hemodialysis because of a worsening general condition and poor self-care ability.

Corynebacterium species—also known as "gram-positive rods," "diphtheroids," or "coryneform bacteria" by microbiologists—have long been considered harmless normal cutaneous flora (1,2). With growing numbers of immunocompromised hosts, *Corynebacterium* is now recognized as never being as benign as formerly presumed.

Corynebacterium species can be subdivided into lipophilic and non-lipophilic groups, depending on the presence of lipid-induced growth enhancement (3). Currently, *C. jeikeium,* formerly known as *Corynebacterium* CDC group JK, is the most well-known species within the lipophilic group.

C. jeikeium was first recognized as a distinct species in 1976 and was given its present name in 1987 (4). With its ability to survive on skin and in hospital environments, *C. jeikeium* is most well known as the causative pathogen for bacterial endocarditis after cardiac surgery and for mechanical valvular infections (5,6). In rare instances, it can act as an opportunistic pathogen in immunocompromised hosts, causing severe infection (1,7).

In patients with end-stage renal disease, *C. jeikeium* is commonly associated with infections of hemodialysis catheters, and estimates suggest that one fifth to one fourth of *C. jeikeium* endocarditis cases occur in hemodialysis patients (6). In PD patients, exit-site infection caused by *C. jeikeium* has been reported, but the organism has never been reported to cause PD peritonitis (8). Theoretically, PD patients are at risk of *C. jeikeium* infection because of the potential for introducing the bacteria during dialysate exchanges.

In our patient, who had diabetes and was receiving PD, dialysate leakage was the probable port of entry for *C. jeikeium* on skin. This case might be the first of *C. jeikeium* PD peritonitis and serves to remind physicians that, during interpretation of culture results, isolates of *Corynebacterium* from effluent are still potentially pathogenic rather than simply being contamination (9).

C. jeikeium is notable for its high rates of antibiotic resistance, with most isolates being resistant to penicillin and showing variable resistance to macrolides, tetracycline, rifampin, and quinolones (1,8,10), as in our patient. Typically, *C. jeikeium* is susceptible to vancomycin and linezolid. Given those findings, it should be borne in mind that empiric treatment with penicillin or quinolone for gram-positive rods in effluent might be ineffective, and a switch to glycopeptide should take place when the observed treatment response is suboptimal.

Outcomes of *C. jeikeium* infections are often poor. Based on the literature, the overall mortality of patients with *C. jeikeium* infections is 33% even after treatment with appropriate antibiotics, and the rate rises further (to 41%) if endocarditis is also found (6). This high risk of an adverse outcome might stem from the severity of host immune suppression and the sites of bacterial residence (prostheses or cardiac valves) (6,7). Earlier treatment with an effective antibiotic is of paramount importance in *C. jeikeium* peritonitis so as to preserve the peritoneum and prevent technique failure.

DISCLOSURES

The authors have no financial conflicts of interest.

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