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CORRESPONDENCE

Microbacterium spp. as a cause of peritoneal-dialysis-related peritonitis in two patients

Dear Editor,

Microbacteria are coryneform Gram-positive rods widely found in the environment, for example, in soil.[1] Recently, they have been recognized as rare pathogens in humans.[1] We report two cases of peritonitis related to continuous cycling peritoneal dialysis (CCPD) caused by *Microbacterium* spp.

The first patient was an 80-year-old patient on CCPD admitted due to cloudy peritoneal fluid. Two weeks prior to admission, she had peritonitis caused by *Acinetobacter* spp. treated with empirical vancomycin and oral ciprofloxacin; vancomycin was discontinued after culture results and ciprofloxacin was discontinued prematurely by the patient because of digestive adverse effects. Cytology of the peritoneal fluid revealed 1070 leukocytes/mm^3 and a neutrophil count of 55%. Oral ciprofloxacin and intraperitoneal vancomycin were readministered. The aerobic culture grew two types of organisms. One was identified by matrix assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS, Bruker Daltonics, Billerica, MA) as *Acinetobacter* spp. and the other as *Microbacterium aurum* (identification score of 2.115 using Bruker BioTyper database, version 3.1.0). 16S rRNA gene sequencing performed by aligning multiple overlapping sequences using Lasergene 5 package (DNAStar, Madison, WI, USA) and compared using the Web-based BLAST 2 Sequences software tool (www.ncbi.nlm.nih.gov/blast/bl2seq/wblast2.cgi)[1] identified *M. aurum* with 99.51% base pair homology. Minimum inhibitory concentration (MIC) using Etest (bioMérieux, Marcy l'Etoile, France) of this isolate is shown in Table 1. *M. aurum* was again recovered in the peritoneal fluid on Day 1, Day 2 and Day 7 after the start of antibiotic treatment. Oral ciprofloxacin was continued for 3 weeks and led to <50 leukocytes/mm^3 at the end of treatment. However, an episode of repeat peritonitis occurred at 4 months follow-up.

The second patient was a 48-year-old woman on CCPD admitted with abdominal pain, cloudy effluent, and impaired drainage, with signs of peritonitis in the periumbilical region and redness around the exit site, with purulent secretion. Cytology of the peritoneal fluid revealed 767 leukocytes/mm^3 and neutrophil count of 64%. Empiric intraperitoneal aztreonam and vancomycin were given with favorable initial evolution. Three days later, antibiotics were switched to oral amoxicillin/clavulanic acid and intraperitoneal vancomycin based on isolation of *Staphylococcus aureus* and Gram-positive coryneform rods. MALDI-TOF MS could not identify the rods reliably (identification score of 1.849 for *Microbacterium lacticum*) but 16S rRNA gene sequences showed 99.93% similarity with *Microbacterium oxydans*. The MIC of this isolate is shown in Table 1. *Microbacterium* spp. was again isolated from three consecutive samples of peritoneal fluid within 1 week, and refractory peritonitis was treated by removal of the peritoneal catheter 15 days after initial presentation. After the present episode, she had episodes of peritonitis: one caused by coagulase-negative staphylococci, one by *Streptococcus mitis*, and three by *Corynebacterium amycolatum*.

This is believed to be the first case series of CCPD-related peritonitis caused by *Microbacterium* spp. Only three case reports have been published so far in which16S rRNA gene sequencing was applied and found *Microbacterium resistens*, *Microbacterium paraoxydans* and *Microbacterium* spp. in CCPD-related peritonitis.[2–4] The clinical relevance of these findings is that microbacteria should not be considered as contaminants when they are found in peritoneal fluid. When microbacteria are found, the history of environmental contact, for example with soil, should be obtained. Microbacteria in our case series were susceptible to penicillin and cephalosporin; these antibiotics could be used in treating CCPD-related peritonitis caused by microbacteria. Yet, they should be used

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Table 1 MIC of *Microbacterium aurum* and *Microbacterium oxydans* isolated in this case series

	MIC, mg/L (susceptibility according to EUCAST non-species related breakpoints)				
	Ampicillin	Amoxicillin/clavulanic acid	Cefuroxime	Ceftriaxone	Ciprofloxacin
M. aurum	0.75 (S)	0.75 (S)	1.5 (S)	0.38 (S)	1.0 (S)
M. oxydans	1.5 (S)	2.0 (S)	4.0 (S)	2.0 (S)	NP

EUCAST = European Committee on Antimicrobial Susceptibility Testing; MIC = minimum inhibitory concentration; NP = not performed; S = susceptible.

after determining MIC because MIC is possibly species dependent. The MIC of *M. oxydans* was consistently higher than that of *M. aurum* in our case series, which might explain the difficulties in treating the second patient. In one case report, *M. resistens* appeared to be resistant to ceftriaxone.[3]

Conflicts of interest

The authors declare that they do not have conflict of interest.

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Erlangga Yusuf*
Ingrid Wybo
Department of Medical Microbiology and Infection Control, Universitair Ziekenhuis Brussels, Belgium

Karlien François
Lissa Pipeleers
Department of Nephrology and Hypertension, Universitair Ziekenhuis Brussels, Belgium

Fedoua Echahidi
Lieve Covens
Denis Piérard
Department of Medical Microbiology and Infection Control, Universitair Ziekenhuis Brussels, Belgium

*Corresponding author. Department of Medical Microbiology and Infection Control, Universitair Ziekenhuis Brussels, Laarbeeklaan 101,1090 Brussels, Belgium.
E-mail address: erlangga.yusuf@uzbrussel.be (E. Yusuf)

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