***Sphingobium olei* Peritonitis: Peritoneal Dialysis in Turmoil?**

KEY WORDS: *Sphingobium olei*; oil-contaminated soil.

Editor:

Sphingobium olei is a yellow-pigmented gram-negative isolate from an oil-contaminated soil sample found near an oil refinery located in Kaohsiung County, Taiwan (2). Its taxonomic status was determined using a polyphasic taxonomic approach. In a comparative analysis of 16S rRNA, this novel isolate, DS20T, showed a distinct phylogenetic line within the genus *Sphingobium* (1,2). The organisms in this genus feature strictly aerobic, gram-negative, yellow-to-whitish-brown pigmented, chemo-organotrophic rods. Young *et al.* wrote about this species in 2007 (2), and no report since has noted its isolation from human material. Here, we report a case of peritonitis caused by *Sphingobium olei* in a patient receiving continuous ambulatory peritoneal dialysis.

CASE REPORT

A 62-year-old man with end-stage renal disease from immunoglobulin A nephropathy, treated with CAPD for 2 years, visited our nephrology department because of abdominal pain and cloudy dialysate. Leukocyte count

in the dialysate was elevated. He was suspected to have peritonitis, and intraperitoneal (IP) cefazolin 1000 mg and ceftazidime 1000 mg twice daily was prescribed on an outpatient basis. After 7 days, the cefazolin was replaced by IP tobramycin 40 mg.

Peritoneal effluent was cultivated on standard media. After 2 days, yellow-pigmented, strictly aerobic, gram-negative rods were isolated on blood agar. Identification of the strain was performed by partial 16S rRNA sequence analysis. BLAST software was used to compare the sequence with sequences present in applicable databases. The isolate was identified as *Sphingobium olei*.

The leukocyte count in effluent declined to $0.05 \times 10^9/L$, and ceftazidime and tobramycin were stopped after 15 days of treatment. The patient presented again 3 days later with abdominal pain and an increased leukocyte count ($3.95 \times 10^9/L$) in effluent. Intraperitoneal ceftazidime 1000 mg and tobramycin 40 mg were restarted. However, the leukocyte count in effluent did not decline the following day, and the abdominal pain intensified. *Sphingobium olei* was again isolated from an effluent sample. We decided to admit the patient to the nephrology ward.

On physical examination, the man did not appear sick (temperature, $37.1^\circ C$; blood pressure, 130/76 mmHg; heart rate, 67 bpm). His abdomen was diffusely tender, with normal bowel sounds and tenderness in the right upper quadrant. The peritoneal catheter exit site and tunnel tract showed no signs of infection. Laboratory work-up showed hemoglobin 7.1 mmol/L, hematocrit 34%, white blood cells $7.5 \times 10^9/L$, and C-reactive protein 52 mg/L. Leukocyte count in effluent was $5.79 \times 10^9/L$.

The tobramycin dose was increased to 60 mg per exchange, and one extra dose of tobramycin 240 mg was given intravenously. When the leukocyte count in effluent did not decline, we decided to remove the peritoneal catheter and switch the patient to intermittent hemodialysis. The tip of the catheter was cultured, but produced no growth. The abdominal pain disappeared after removal of the catheter. Ciprofloxacin 250 mg twice daily was continued for 2 weeks, and no relapse of peritonitis was observed thereafter.

DISCUSSION

As far as we are aware, this report is the first of a human infection and peritonitis caused by *Sphingobium olei*. Catheter tract infection, intra-abdominal abscess, biofilm colonization of the intra-abdominal part of the catheter, and recurrent touch contamination during

fluid exchanges are causes of persistent peritonitis and positive effluent cultures in patients on peritoneal dialysis. Biofilm formation seemed the most likely cause of persistent infection in our patient. Antibiotic treatment did not clear the infection, and the catheter had to be removed.

We questioned the patient about the possible source of bacterial contamination and subsequent peritoneal infection. He was a construction worker and had no direct contact with oil-contaminated soil. However, he reported that, while cleaning out his shed, he had recently disposed of some old cans of oil-based paint. We hypothesize that touch contamination occurred during that work.

We wonder whether infection with this micro-organism has ever been observed before and, if so, what treatment results were obtained, particularly in the context of peritoneal dialysis.

Hopefully, this first report of peritonitis with *Sphingobium olei* might be an invitation to learn more about the disease: existence, development, eradication, and prevention of infection.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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