Peritoneal dialysis related peritonitis due to Rhizobium radiobacter

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Introduction: Peritonitis is the most common cause of failure to continue peritoneal dialysis (PD) and mostly caused by gram positive or negative bacteria. Here we report a case of PD peritonitis caused by antimicrobial resistant Rhizobium radiobacter.

Case report: A 65-year-old man visited the emergency room with an abdominal pain for several days. He was on continuous cyclic PD since 5 years ago. The patient had tenderness in whole abdomen. Dialysate was serous, and purulent drainage or erythema of the skin at the catheter-epidermal interface were absent. On Dialysate analysis, white blood cell (WBC) count was 2000/μL (86.2% neutrophil, 2.4% lymphocyte). We diagnosed PD peritonitis and started intraperitoneal cefazolin and ceftazidime empirically. On initial dialysate culture, Rhizobium radiobacter was confirmed and antibiotics were changed to ceftazidime alone on day 8 of treatment course. Bacterial growth of dialysate was not detected on day 5, but the WBC counts in dialysate increased from 92/μL to 142/μL on day 9 and we changed ceftazidime to meropenem. On day 13, the patient's abdominal pain got worse and the WBC counts in dialysate increased to 1174/μL. Under suspicion of recurrence, we changed meropenem to cefepime. After changing the antibiotics, WBC counts in dialysate decreased to 12/μL. Though there seemed to be a treatment response of cefepime, the patient complained of difficulty maintaining the PD. Thus he underwent the removal of a PD catheter on day 21 and switched to hemodialysis.

Discussion: Rhizobium radiobacter is an aerobic gram negative bacilli that mainly exists in the soil as a plant pathogen and it rarely causes clinically significant human infections. Due to the lack of reported cases, standard treatment for Rhizobium radiobacter peritonitis has not been established. Most of the reported patients required catheter removal but also there were some patients responded to antibiotics and cured. As our case, when treating Rhizobium radiobacter peritonitis, antimicrobial resistance should be considered if the clinical course deteriorates with antibiotics and catheter removal is needed either in resistance to antibiotics or recurrence.

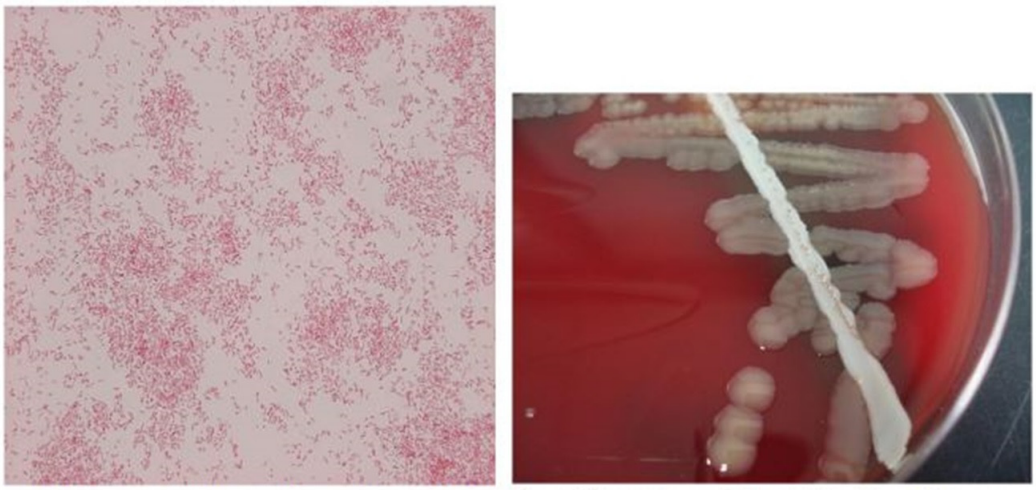

Figure 1-A. Microscopic examination of *Rhizobium radiobacter* shows Gram-negative rods.
Figure 1-B. Mucoid, gray colonies of *Rhizobium radiobacter* are cultured on a blood agar plate.

Jin-Woong Park, Hyung Soo Kim, Soon-Ho Park, Jaeseok Yang, Hyun Hee Lee, Yiel Hae Seo, and Sejoong Kim. A case of CAPD peritonitis due to *Rhizobium radiobacter* treated successfully on an outpatient basis. The Korean Journal of Medicine 2009;77:S399-S402.