Peritonitis Due to Streptococcus Sanguinis in Automated Peritoneal Dialysis

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Dear Editor,

Peritonitis is a serious complication that causes mortality and morbidity in peritoneal dialysis(PD). We herein present a case of peritonitis caused by an unusual microorganism.

A 54-year-old woman, who has taken on APD therapy for approximately four years, had short-course diarrhea 2 days ago before admitting to the hospital with diffuse abdominal pain and cloudy dialysate. She was afebrile and normotensive, and there was no signs of infection observed at the catheter exit site or tunnel. She didn't smoke, and had good oropharyngeal/dental health. Her laboratory results are showed in Table.

She was diagnosed with PD-related peritonitis. Gram stain was negative in peritoneal fluid. Standard peritoneal effluent and blood culture technique were performed, following 1 g/d (intraperitoneal) ceftazidime and 3 × 2.25 g/d (intravenous) piperacillin-tazobactam were empirically initiated. On the third day of treatment, Streptococcus sanguinis(S. sanguinis) was identified in the peritoneal fluid culture, and antibiotic treatment was continued according to the sensitivity pattern. Combined piperacillin-tazobactam and ceftazidime treatment were continued for 14 days to cure peritonitis, and she was discharged without any problems. We treated the patient without necessary Tenckhoff catheter removal.

Streptococcus sanguinis is in general classified as a nonspore-forming, catalase-negative, non-beta-hemolytic, chain-forming coccus.[1] This microorganism is a member of the viridans group of streptococci that is usual inhabitant of the mouth, gastrointestinal, genitourinary, and respiratory tracts. Although this microorganism has been increasingly recognized as a pathogen of endocarditis, abscess and meningitis; it has not been documented as a cause of peritonitis in PD.[2-4] On the other hand, there is only one report in the literature about S. sanguinis infection in hemodialysis patients. H. Chmel reported a case about S. sanguinis infection including the site of artificial vascular access; the same microorganism was isolated from the patient's dog. Upon further questioning, it was learned that the dog had licked the patient's left arm on the vascular access area.[5] However, there was no history of contact with any dog or other pets in our case.

Exploiting the intake of dietary sugars, many oral streptococcus species have evolved glucosyltransferases (Gtfs) that hydrolyze sucrose and polymerize the glucose into glucans. S. sanguinis synthesizes as a Gtfs that mainly water-soluble α-1,6 linked glucans that branch at α-3,6-linked glucose residues. These, in turn; promote biofilm development.[6] Because of the tendency to biofilm formation by this organism and the high concentration of dextrose in PD fluid, there is some concern about relapse of peritonitis. However, recurrent peritonitis with the same microorganism was no seen in the follow-up of our patient.

In conclusion, the route of transmission of the agent is not clear in our patient. Probably short-term diarrhea in our patient may have caused by peritonitis with S. sanguinis found in the normal intestinal flora. To our knowledge, this is the first report of S. sanguinis–related peritonitis in PD patients, and this pathogen should be suspected in case of peritonitis with undefined streptococcus species. As aknowledgement, the authors were not

Laboratory Tests

Leukocytes	**7000 /mm^3 (82% neutrophils, 11% lymphocytes)**
Haemoglobin	10.4 g/dL
Erythrocyte Sedimentation rate	42 mm/h
C-reactive Protein	37 mg/L (normal < 5 mg/L)
BUN	51 mg/dL
Creatinine	10.6 mg/dL
Albumin	39 g/L
Dialysate Leukocyte Count	3930 /mm^3 (73% neutrophils)

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Mevlut Ceri,* Mehmet Mert, Belda Dursun

*Correspondence to:
Mevlut Ceri, MD
Pamukkale Universitesi Tıp Fakultesi, Nefroloji Klinigi, Denizli, Turkey
Tel: 0090 505 267 65 27
E-mail: mevlutceri@gmail.com

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