CASE REPORT

PERITONITIS CAUSED BY ALCALIGENES XYLOSOXIDANS SP. XYLOSOXIDANS IN A CONTINUOUS AMBULATORY PERITONEAL DIALYSIS PATIENT

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ABSTRACT

Alcaligenes xylosoxidans sp. Xylosoxidans that may rarely cause peritonitis in CAPD patients and that have to be considered in cases of pseudomonas peritonitis with delayed treatment response and from whom we had to remove the Tenckhoff catheter. Peritonitis caused by A. Xylosoxidans usually carries a poor prognosis because if the pathogen’s virulence and universal resistance to most antimicrobial agents. We report a patient with CAPD-associated peritonitis due to A. Xylosoxidans sp. Xylosoxidans.

Keywords: Peritonitis, Continuous ambulatory peritoneal dialysis, Alcaligenes xylosoxidans, Peritoneal dialysis, Tenckhoff catheter

INTRODUCTION

Although the incidence of peritonitis decreased in continuous ambulatory peritoneal dialysis (CAPD) patients it remains to be a problem that leads to increased mortality and morbidity1. Causes of peritonitis are mostly the gram-positive or gram-negative organisms. The rate of culture negative peritonitis cases has been reported as 0-30 % 1,2. Rare organisms such as anaerobic bacteria, fungi and mycobacteria have been isolated from the cultures with a rate below 10 per cent 3,4. In the present paper, we present a patient who had peritonitis due to Alcaligenes xylosoxidans sp. xylosoxidans that may rarely cause peritonitis in CAPD patients and that have to be considered in cases of pseudomonas peritonitis with delayed treatment response, and from whom we had to remove the Tenckhoff catheter.

CASE REPORT

The patient was a 21- year old lady who works as an officer in a hospital. She has a chronic renal disease due to vesicular-urethral reflux known for 5 years. After receiving a 3-year hemodialysis treatment she has been on the standard CAPD treatment with four 2-L exchange of 1.36% Dianeal (Baxter). While the treatment coursed without any problem, 4 months ago she began to experience frequently recurred peritonitis attacks and applied to our clinic. The fist peritonitis attack she experienced was due to gram-positive bacteria (Staphylococcus aureus) and she responded the treatment of cefazolin 1g/day, ceftazidime 1g/day. One month later she presented with another peritonitis attack characterized by abdominal pain, and bilinen çoku antibiyotiği dirençlidir. Biz CAPD tedavisi gören bir hastada Xylosoxidans sp. Xylosoxidans’a bağlı gelişen peritonit vakası sunuyoruz.

Anahtar Kelimeler: Peritonit, Alcaligenes xylosoxidans, Tenckhoff kateter

ÖZET

Alcaligenes xylosoxidans sp. Xylosoxidans CAPD hastalarında nadir görülen bir peritonit sebebidir. Pseudomonas peritoniti ile ilgili peritonit genellikle kötü prognoz taşır ve bilinen çoku antibiyotiği dirençlidir. Biz CAPD tedavisi gören bir hastada Xylosoxidans sp. Xylosoxidans’a bağlı gelişen peritonit vakası sunuyoruz.

Anahtar Kelimeler: Peritonit, Alcaligenes xylosoxidans, Tenckhoff kateter
nausea, vomiting, malaise, increased body temperature (38°C-38.5°C), turbid dialysate and increased level of polymorphonuclear leukocytes (PNL) in the dialysate. Her Tenckhoff catheter exit site was found to be clean. Dialysate analysis revealed a white blood cell count of 61 per mm$^3$ with 83% PMN, 10% lymphocytes, 5% monocytes, and 2% eosinophils. Laboratory finding were WBC of 9.7/mm$^3$ with 80% neurophilis, Hct 29.2%, Hgb 7.4g/dl, and platelet count 398,000/mm$^3$. The BUN was 80 mg/dl, albumin 2.7 g/dl, alkaline phosphatase 198 IU/l and liver functions were normal. In the subsequent dialysate cultures Alcaligenes xylosoxidans sp xylosoxidans was identified. Based on her culture antibiogram she was started treatment with gentamicin 40 mg/day and ceftazidime 2g/day.

Since it was hydrophilic bacterium adherent to plastic material and which cause difficulties in the treatment$^{10-13}$. Tenckhoff catheter was removed. Hemodialysis treatment was started. At the 3rd day of the treatment the patient demonstrated clinical improvement. Body temperature recovered back to its normal value with no complaints related to nausea and vomiting. Considering the opportunistic and hydrophilic nature of the bacteria it was decided CAPD treatment should not be continued in order to avoid recurrent infections that may increase morbidity and mortality in this patient who was at high risk of exposure to this bacteria due to her job environment of hospital, and for whom the intervening conditions affecting her immune system were still present.

DISCUSSION

These organisms of the Alcaligenes genus are another group of nonfermenting gram-negative bacilli. They can also be recovered from the human respiratory tract and gastrointestinal tract in hospitalized patients. Infection results when they are introduced into wounds or colonize those with compromised host defenses. Identification of Alcaligenes spp. is made by recovery of oxidase-positive, catalase-positive, indole-negative, and urease-negative organisms. The organism grows well at 35°C on MacConkey's agar. Distinguishing the organisms and confirming identification is made difficult by their lack of reactivity in many biochemical or assimilation tests$^9$.

Literature on this subject was restricted$^{10-12}$. Most of the cases that have been reported demonstrated antibiotic resistance and called for the removal of the peritoneal catheter. Patients were continued their subsequent treatments by hemodialysis. Usually, strains of A. xylosoxidans subsp. xylosoxidans are susceptible to trimethoprim-sulfamethoxazole, ureidopenicillins, imipenem, ceftazidime, cefoperazone, and β-lactamase inhibitor combinations$^{13}$. Generally, they are resistant to narrow-spectrum penicillins, other cephalosporins (including cefotaxime and ceftriaxone), aztreonam, and aminoglycosides$^{13,14}$. Susceptibility to the fluoroquinolones is variable. Hyperproduction of β-lactamases has been implicated in resistance$^{14}$.

In conclusion, resistance to antibiotic treatment in cases of peritonitis due to gram-negative and non-fermentative bacteria pseudomonas, possible presence of A. xylosoxidans should be suspected and investigated through culturing into a dialysate appropriate broth. If the bacteria were identified Tenckhoff catheter should be removed early and the duration of treatment should be maintained long to allow a treatment response and avoid systemic infections. Decision of turning back to CAPD treatment is a very challenging process that requires careful evaluation of the patient’s hygienic status and exchange technique.

REFERENCES


