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SHORT REPORT

Relapsing peritonitis caused by *Corynebacterium amycolatum* in a patient undergoing continuous ambulatory peritoneal dialysis: a case report

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Abstract

Peritonitis is a common clinical problem in patients treated by peritoneal dialysis. *Corynebacterium* species are an uncommon cause of continuous ambulatory peritoneal dialysis (CAPD) related peritonitis, and *Corynebacterium amycolatum (C. amycolatum)* is rarely described in the literature. In the present case, we report relapsing peritonitis caused by *C. amycolatum* in a 55-year-old Turkish woman with normal immune function undergoing CAPD. The pathological diagnosis was nephrotic syndrome. The patient was treated with intraperitoneal (IP) vancomycin. No bacterial growth was detected in conventional culture media, however, bacteria were isolated from the peritoneal fluid culture on second day by BACTEC (Becton Dickinson, USA) automated blood culture system. The organism was identified as *C. amycolatum* by Gram stain, colony morphology and numerous biochemical tests including API CORYNE kit (bioMerieux, France). To our knowledge, this is the first report of relapsing peritonitis caused by C. amycolatum in a patient undergoing CAPD. This bacterium should be kept in mind as a possible agent in CAPD patients with peritonitis.

Key words

Peritoneal dialysis, continuous ambulatory and adverse effects; Peritonitis and microbiology; *Corynebacterium*

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Introduction

Peritonitis is a serious complication of CAPD and probably the most common cause of technique failure in CAPD.[1-3] In the latest recommendations for the management of CAPD-related infections published by the International Society for Peritoneal Dialysis (ISPD) in 2005 two similar conditions, relapsing peritonitis and recurrent peritonitis, are defined.[4,5] In essence, peritonitis that is treated with appropriate antibiotic therapy, and appears to resolve but recurs with the same organism, or as sterile peritonitis within 4 weeks (relapsing peritonitis) is different from an episode of peritonitis that occurs within 4 weeks of a prior episode, but with a different organism (recurrent peritonitis).[5] Coryneform bacteria are commensals colonizing the skin and mucous membranes of humans and other animals. They are isolated frequently in clinical specimens, and are commonly considered as contaminants without clinical significance.[2] Infections due to *C. amycolatum* are rare. Only a single case of recurrent peritonitis caused by this organism has so far been reported.[3] Here we report the first case of relapsing peritonitis due to *C. amycolatum* in a woman undergoing CAPD.

Case Report

A 55-year-old Turkish woman who had been receiving CAPD therapy for approximately 2 years because of end-stage renal disease due to nephrotic syndrome presented with abdominal pain, fever nausea, vomiting, and cloudy dialysate for 2 days. She had had one episode of peritonitis two years previously. The tunnel and exit sites of the CAPD catheter were found to be normal. On admission, her temperature was 37.9ºC, blood pressure 180/80 mmHg, pulse rate 110 beats/min, and respiratory rate 22/min. Noteworthy findings on physical examination included abdominal tenderness and pretibial oedema. The white blood cell (WBC) count of the peritoneal effluent was 750/mm^3, with neutrophils predominantly. Gram stain of the peritoneal fluid did not show any micro-organisms. In the complete blood count, the WBC count, platelet count, and haemoglobin values were 21,200/mm3, 246,000/mm3, and 8.2 g/dL, respectively. Biochemical analysis showed blood urea nitrogen (BUN) of 110 mg/dL and creatinine level of 11 mg/dL; albumin level was 2.5 g/dL and C-reactive protein was 121 mg/dL. After peritoneal fluid and blood cultures were taken she was empirically given an antibiotic regimen consisting of IP cephazolin and gentamicin. No bacterial growth was detected in conventional culture media, however, bacteria were isolated from the peritoneal fluid culture on the second day by BACTEC (Becton Dickinson, USA) automated blood culture system. Gram staining of the positive bottle revealed gram-positive bacilli. The strain was identified as *C. amycolatum* by Gram stain, colony morphology and biochemical tests including API CORYNE kit (BioMérieux, France). On the basis of these culture results, the initial regimen was changed to vancomycin 15mg/kg/5 days IP. During her hospital stay, the patient's complaints and physical findings gradually lessened. Peritoneal effluent cell counts also decreased to 10 WBCs/mm^3. Therapy was continued for 14 days and she was discharged. The peritoneal catheter was not removed. Five days later however, at the first follow-up visit, the peritoneal dialysate was again turbid and the patient presented the same clinical findings and cell count revealed the presence of 300 leucocytes/mm^3. *C. amycolatum* was isolated again from the peritoneal fluid culture on third day by Bactec (Becton Dickinson, USA) automated blood culture system. At this time IP and intravenous vancomycin was administered, subsequent cultures were negative and the patient has remained in good clinical condition since then.

Discussion

Corynebacterium is a genus of gram-positive, facultatively anaerobic, non-motile, irregularly shaped rods that comprise part of the normal skin flora. They live in dynamic equilibrium with other resident gram-positive organisms such as *Staphylococcus* and *Micrococcus* spp.[6] Peritonitis is a serious complication of PD that causes substantial morbidity and mortality. The most recent update of the International Society of PD (ISPD) guidelines for PD-related infections, peritonitis occurring within 4 weeks of a prior episode was defined separately as either relapsed (if the dialysate culture yielded the same organism or was sterile) or recurrent peritonitis (if the dialysate culture yielded a organism different from that of the original episode). Peritonitis episodes occurring more than 30 days after a prior episode are considered to be episodes distinct from relapsed and recurrent peritonitis. Such episodes have been referred to as repeated peritonitis if the same organism is isolated from peritoneal

dialysate.[4,5,7] To our knowledge, a case of relapsing CAPD peritonitis caused *C. amycolatum* has not been reported previously. A similar patient who had CAPD peritonitis due to same organism but recurrent peritonitis is reported in the Medline database.[8] *C. amycolatum* is an uncommon but significant cause of PD-associated peritonitis. Complete cure with antibiotics alone is possible in the majority of patients, and rates of adverse outcomes are comparable to those seen with peritonitis due to other organisms. Use of vancomycin rather than cephazolin as empiric therapy does not change outcomes, and a 2-week course of antibiotic therapy appears sufficient.[9]

In conclusion, in patients undergoing CAPD, rare pathogens should be considered in case of peritonitis and peritoneal fluid samples should be examined.

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