



**CASE REPORT**

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**Peritoneal dialysis–related peritonitis with an unexpected micro-organism:  
enterococcus hirae**

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**Abstract**

Enterococcus Hirae is a gram-positive, facultative, anaerobic bacterium which is usually a zoonotic pathogen rarely isolated from human infections. There are no published reports describing continuous ambulatory peritoneal dialysis (CAPD) related- peritonitis with Enterococcus Hirae in the literature. With the following report, we describe the case of peritoneal dialysis (PD)-related peritonitis due to Enterococcus Hirae.

**Keywords:** Enterococcus hirae, peritonitis, peritoneal dialysis

**Introduction**

Infections with Enterococcus species including Enterococcus Hirae is known to cause infections in animals but they are uncommonly encountered in clinical isolates from humans. The human infections with Enterococcus Hirae have been increasingly identified as important causes of severe infections with septicemia in humans.

We herein describe a case of Enterococcus Hirae which was isolated as the etiologic agent of a CAPD-related peritonitis.

**Case Report**

A 70 - year old female with end stage renal failure due to unknown etiology had been on continuous ambulatory peritoneal dialysis (CAPD) for 8 years. She was admitted to the outpatient clinic with abdominal pain and cloudy dialysate. On physical examination blood pressure was 120/80 mm/Hg, body temperature was 36,8 C°. Abdominal examination revealed diffuse tenderness with rebounding. The dialysis effluent was turbid. The white cell count of dialysate was above 10,000/μL. Laboratory data showed mild leukocytosis (12.800/μL) with 84% of polymorphonuclear cells, high CRP [102 mg/L (N: 0-5)] and procalcitonin [8.5 ng/mL (N: 0-0.5)] levels. Blood and peritoneal fluid cultures were obtained. Empirical antibiotic treatment with intraperitoneal cefuroxime axetil and oral ciprofloxacin was started. However, the patient didn't respond to therapy and abdominal pain continued while the dialysate white cell count was still above 10,000/μL. Peritoneal fluid culture revealed Enterococcus Hirae which was sensitive to vancomycin. After 3 weeks of vancomycin therapy her peritonitis

completely resolved. One month later the patient was again admitted to the hospital with peritonitis and empirical antibiotic treatment with intraperitoneal vancomycin was started. Peritoneal fluid culture revealed Enterococcus Hirae, the same micro-organism, sensitive to vancomycin. Due to relapsing peritonitis vancomycin was continued according to the antibiogram. After 3 weeks of therapy there was no relapse of peritonitis upon follow-up.

**Discussion**

Enterococci can uncommonly cause dialysis-associated peritonitis. [1]. Enterococci are gram-positive, catalase-negative, non-spore-forming, facultative anaerobic bacteria, which usually inhabit the alimentary tract of humans in addition to being isolated from environmental and animal sources [2].

Enterococcus Hirae is a zoonotic pathogen rarely isolated from human infections. Gilad et al. reviewed the literature and found that only 36 (1.29%) of 2793 enterococcal isolates from various anatomical sites were Enterococcus Hirae [3]. The first human infection caused by Enterococcus Hirae has been reported in 1998 by Gilad et al in a septicemic 49-year-old patient with end stage renal disease undergoing hemodialysis. [3] Here we report the first case of Enterococcus Hirae related peritonitis in a CAPD patient. End stage renal failure may be a factor rendering patients susceptible to Enterococcus Hirae infections.

Human infections with Enterococcus Hirae can clearly cause serious and often life-threatening disease and specific therapies are associated with improved outcomes. All reported cases to date describe bacteremia due to endocarditis, acute pyelonephritis, acute cholangitis, spondylodiscitis, spontaneous bacterial peritonitis in liver cirrhosis and acute pancreatitis with

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septic shock. Although the infection in our patient was not life-threatening, it nevertheless caused relapsing peritonitis.

Optimal antimicrobial therapy for *Enterococcus Hirae* is not known. Regarding to antimicrobial susceptibility of *Enterococcus Hirae*, emergence of ampicillin resistance and high level resistance to gentamycin has been reported, though there is little data in the literature [4]. In a study regarding antimicrobial susceptibility, all 29 isolates were sensitive to vancomycin and teicoplanin [5]. Our patient, initially unresponsive to cefuroxime axetil and ciprofloxacin, also responded to vancomycin therapy.

*Enterococcus Hirae* is an important albeit rare cause of CAPD related-peritonitis. We should keep this organism in mind when treating peritoneal dialysis patients.

#### **Disclosure**

The authors declare there are no conflicts of interest.

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