First Reported Case of Dialysis-Related Peritonitis Due to

Escherichia vulneris

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Escherichia vulneris is a recently identified environmental organism that can colonize humans and animals. To date, very few infections with E. vulneris have been reported. This is the first reported case of peritonitis due to E. vulneris in the setting of peritoneal dialysis.

CASE REPORT

An 83-year-old female on continuous ambulatory peritoneal dialysis (CAPD) for chronic renal failure was admitted to the hospital. She described a 3-day history of feeling unwell with periumbilical abdominal pain, nausea, vomiting, and cough. Her dialysis bags had also become cloudy. Her CAPD had never been complicated by peritonitis after commencing dialysis about 18 months earlier. She was taking hydroxyurea for a myeloproliferative disorder.

Upon examination, she was afebrile but had diffuse abdominal tenderness with rebound. She had a peripheral blood neutrophilia and raised C-reactive protein level of 79 mg/liter. Empirical intraperitoneal vancomycin and gentamicin were commenced for presumed peritonitis after a sample of peritoneal dialysis fluid had been taken. Microscopy of the fluid showed a heavy neutrophilic infiltrate (6,570 × 10⁶ leukocytes/liter [100% polymorphonuclear cells] and 36 × 10⁶ erythrocytes/liter), and cultures grew a gram-negative bacillus identified as Escherichia vulneris (bionumber 6444710430) by Vitek 1 (bioMérieux). Susceptibility testing was performed according to the Clinical and Laboratory Standards Institute (CLSI) (formerly NCCLS) disk diffusion method. The organism was susceptible to ampicillin, cephazolin, ciprofloxacin, and gentamicin. Due to a penicillin allergy, the intraperitoneal gentamicin treatment continued. A computed tomography scan of the abdomen was performed, which did not demonstrate bowel perforations and showed only diverticular disease of the sigmoid and descending colon, cholecystitis, and free pelvic and pericholecystic fluid. The peritoneal fluid cleared by day 7 of treatment, upon which she ceased gentamicin treatment and commenced oral ciprofloxacin treatment. The peritoneal catheter was not replaced. She was discharged on day 8 of treatment, with almost complete resolution of the peritonitis; she continued the ciprofloxacin treatment for a further 6 days. When reviewed 1 week later, she was well, with no peritonitis and a resolving C-reactive protein level.

Escherichia vulneris was formerly known as enteric group 1. It is a gram-negative, oxidase-negative, indole-negative, fermentative, motile rod with the characteristics of the family Enterobacteriaceae. E. vulneris was recognized as a new species of the family Enterobacteriaceae only in 1982 (3). It has been isolated from animals, the environment, potable water, and humans (3, 5). In humans, E. vulneris can colonize the respiratory tract, female genital tract, urinary tract, and stool; however, its propensity for wounds led to it being named “vulneris” (Latin for “wound”) (3).

It was initially unclear whether E. vulneris was a colonizer of wounds or a true pathogen (8); however, E. vulneris has been identified as the sole pathogen in various infections. These infections include bacteremia from an infected intravenous catheter (9), osteomyelitis from a foreign body (6), urinary sepsis (2), and meningitis (7). To our knowledge, this is the first reported case of E. vulneris peritonitis complicating CAPD. A case of peritonitis has been reported previously, but this was secondary to aggressive abdominal surgery rather than CAPD, and E. vulneris was not the sole isolate found (1). In our case, the presence of a peritoneal catheter would have provided sufficient opportunity for an environmental organism such as E. vulneris to generate an infection.

This patient was immunosuppressed due to a myeloproliferative disorder and end-stage renal failure. It is unclear whether these conditions made her more susceptible to this infection, since there are too little data on E. vulneris infections in the setting of immunosuppression.

In this case, susceptibility testing was performed by disk diffusion methods using CLSI zone diameter interpretive standards for Enterobacteriaceae because E. vulneris is a recognized species of this family (4); however, E. vulneris is not noted specifically in the CLSI performance standards for antimicrobial susceptibility testing. A review of 23 E. vulneris strains found that they were not identical to Escherichia coli, being slightly more susceptible to aminoglycosides and slightly less susceptible to nitrofurantoin (10).

In conclusion, this is the first reported case of dialysis-re-
lated peritonitis due to *E. vulneris*. This further demonstrates the pathogenicity of the organism and its ability to cause a diverse range of infections.

All four authors have contributed to, approved, and seen the final version of the manuscript. None of the four authors have a conflict of interest to declare.

**REFERENCES**


