Title: First Reported Case of Dialysis-Related Peritonitis Due To *Escherichia vulneris*

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**Abstract**

*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 lady on Continuous Ambulatory Peritoneal Dialysis (CAPD) for chronic renal failure was admitted to hospital. She described a 3-day history of feeling unwell with peri-umbilical 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.

On examination, she was afebrile but had diffuse abdominal tenderness with rebound. She had a peripheral blood neutrophilia and raised C-reactive protein (CRP) of 79mg/L. Empiric 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 (6570 x 10⁶/L leucocytes [100% polymorphonuclear cells], 36 x 10⁶/L erythrocytes) and cultures grew a Gram-negative bacillus identified as *Escherichia vulneris* (bionumber 6444710430) by Vitek 1 (bioMerieux). Susceptibility testing was performed by Clinical and Laboratory Standards Institute (CLSI) (National Committee for Clinical Laboratory Standards) disc diffusion method. The organism was susceptible to ampicillin, cephazolin, ciprofloxacin and gentamicin. Due to a penicillin allergy, the intraperitoneal gentamicin continued. A CT abdomen was performed, which did not demonstrate bowel perforations, only diverticular disease of the sigmoid and descending colon.
cholelithiasis and free pelvic and pericholecystic fluid. The peritoneal fluid cleared by Day 7 of treatment, on which she ceased gentamicin and commenced oral ciprofloxacin. 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 for a further 6 days. When reviewed one week later, she was well with no peritonitis and a resolving CRP.

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 (1). It has been isolated from animals, the environment, potable water and humans (1,2). 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”) (1).

It was initially unclear whether E. vulneris was a colonizer of wounds or a true pathogen (3); however, E. vulneris has been identified as the sole pathogen in various infections. These include bacteraemia from an infected intravenous catheter (4), osteomyelitis from a foreign body (5), urinary sepsis (6) 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 (8). 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 from a myeloproliferative disorder and end-stage renal failure. It is unclear whether these 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 disc diffusion methods using CLSI Zone Diameter Interpretive Standards for *Enterobacteriaceae* because *E. vulneris* is a recognized species of this family (9); 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 *E. coli*, being slightly more susceptible to aminoglycosides and slightly less susceptible to nitrofurantoin (10).

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

**REFERENCES**


