

disinfection wipes were not distributed because of the risk of patients cutting themselves with the sharp edges of the packaging. In the end, the nursing staff had to supervise the individual use of alcohol-based hand rub.

The nature of the ward (closed unit) certainly facilitated an early diagnosis of the outbreak and also played a positive role in preventing spread to other wards. Faster detection of the outbreak compared with that in other studies^{2,3} might have had an influence on the relatively fast resolution of the outbreak. Although new cases kept appearing after the adoption of control measures, this may be attributable to the long infectious and incubation period of EKC.

Preventive measures like hand hygiene and disinfection remain the mainstay of the management of EKC due to its high infectivity and lack of specific treatment. Although Gottsch et al⁴ proposed EKC infection control guidelines for ophthalmology clinics, no guidelines have been developed for other healthcare facilities.

Nosocomial infection outbreaks carry important economic costs. Piednoir et al⁵ estimated the cost of a nosocomial EKC case in a long-term care unit to €830 per patient; however, an increase in the length of hospital stay was not applicable in his case, so the real costs may be even higher. Closing a ward can be a very expensive infection control measure and should be applied with caution, as the cost of lost productivity is among the greatest expenses.

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Catheter-Related Bacteremia Caused by *Aeromonas hydrophila* in a Hemodialysis Patient

To the Editor—The central venous catheter is an essential device and is widely used in the treatment of complex medical conditions, such as hemodialysis, chemotherapy, and parenteral nutrition. *Aeromonas hydrophila* has become an increasingly important pathogen in humans.¹ We describe a case of catheter-related bacteremia (CRB) due to this pathogen in a hemodialysis patient.

An 81-year-old man with diabetic nephropathy presented with a complaint of dyspnea and declined urine output. His vital signs upon examination were as follows: blood pressure, 157/89 mm Hg; heart rate, 67 beats per minute; respiratory rate, 22 breaths per minute; and body temperature, 36.1°C. He had orthopnea, and mild edema of both lower extremities was noted. Laboratory tests disclosed a hemoglobin level of 7.2 g/dL and a serum creatinine level of 10.15 mg/dL. A nontunneled catheter was inserted in the right internal jugular vein for acute hemodialysis.

Sixteen days after catheterization, this patient developed fever and chills during dialysis (at 1 PM). The dialysis session was discontinued, and blood samples from the catheter and peripheral vein were obtained. At 3 PM, he was attacked by sudden onset of respiratory distress; at 10 PM, his blood pressure dropped to an alarmingly low level. The catheter was removed, and the distal part was cut off with sterile scissors and sent in aseptic condition for culture. At 3 AM, respiratory distress was aggravated, and a breathing machine was used; continuous renal replacement therapy (CRRT) was applied through a new catheter inserted in the right femoral vein.

Abnormal laboratory findings were as follows: white blood cell count, 1,300 cells/mm³ (91% neutrophils); aspartate aminotransferase, 242 IU/L; alanine aminotransferase, 213 IU/L; and γ -glutamyl transpeptidase, 340.7 IU/L. Bedside chest X-ray and sputum and urine cultures showed unremarkable

results. *A. hydrophila* was isolated from both catheter and peripheral blood cultures. No other source of infection was found in this symptomatic patient; a diagnosis of CRB was made and was confirmed later when the culture of the distal part of the catheter yielded *A. hydrophila*. Sensitivity results showed susceptibility to ceftazidime, piperacillin-tazobactam, cefoperazone-sulbactam, imipenem, meropenem, amikacin, and levofloxacin. The patient was treated with cefoperazone-sulbactam and meropenem followed by piperacillin-tazobactam for a total of 21 days. He became afebrile on the fourth day of treatment, and repeated blood cultures were negative. He was finally discharged without sequelae.

The catheter is generally regarded as undesirable for long-term hemodialysis access; however, its use is essential for patients without a functional fistula. CRB is the most significant complication, with a rate varying from 4.2 to 27.1 events per 100 patient-months.² The most common organisms identified are coagulase-negative *Staphylococcus*, followed by *Staphylococcus aureus* and *Enterococcus*.² Gram-negative pathogens are responsible for 21%–30% of bloodstream infections in hemodialysis patients.^{3,4}

A. hydrophila is a gram-negative bacillus of the Vibrionaceae family. Infection caused by this organism generally develops in the gastrointestinal tract, wounds, and soft tissue.¹ Infection involving intra-abdominal organs and the respiratory and urogenital tracts has also been reported.¹ It has rarely been identified as the causative organism of sepsis in hemodialysis patients.^{5,6} Edema, hemorrhage, and neutrophil infiltration of the lungs and focal necrosis of the liver have been observed in animal models and during autopsy,^{7,8} which could explain the respiratory distress and elevated liver enzymes in our case. Carbapenems, cephalosporins (extended spectrum and fourth generation), penicillins (extended spectrum), aminoglycosides, and quinolones are reasonable choices.¹ *A. hydrophila* infection is generally fatal; our successful treatment may be attributed to CRRT, which plays an important role in the treatment of severe sepsis.

In our case, the catheter was inserted by senior personnel with duplex ultrasound guidance in a clean room. The process of catheterization was unremarkable. The catheter was used for dialysis only. We did not use antibiotic ointment at the insertion site; no antibiotic lock was given for prophylaxis. Exit-site infection was absent, and the catheter was kept in situ without any mechanical or thrombotic problems. The dialyzers the patient used were disposable, and no manifestation of infection was observed among other patients during the same period. Given that *A. hydrophila* is widely distributed in natural water, we suspected that our dialysis system may have been contaminated. We sampled water used to produce dialysate and water from the pipe between the treatment plant and the dialysis machines. Samples of dialysate, saline, and

heparin currently in use were collected as well. However, microbial culture results and endotoxin assays were negative. Despite these findings, we could not exclude the possibility of iatrogenic infection. Poor hand hygiene, contaminated heparin locks, or saline solutions may have been the culprit.

In conclusion, waterborne pathogens such as *A. hydrophila* are uncommon in cases of catheter-related bloodstream infection. When this diagnosis is made, the possibility of external contamination should be investigated thoroughly.

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