First report of bacteremia caused by *Elizabethkingia meningoseptica* in a dog

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Elizabethkingia meningoseptica is a Gram-negative bacillus that can be found in freshwater, saltwater, and soil (1). This bacillus can cause pneumonia, biliary tract infection, endocarditis, and bacteremia primarily in immunocompromised humans (2). Its inherent resistance to widely used antibiotics (aminoglycosides, beta-lactam antibiotics, tetracycline, and chloramphenicol) often leads to an inappropriate choice of empiric antibiotics (3). We report the first case, to our knowledge, of bacteremia due to *E. meningoseptica* in a dog.

A 2-year-old female chow-chow dog with a history of congenital cataracts and 6 puppies were admitted to the veterinary hospital for fatigue, anorexia, fever, and tachycardia. Laboratory studies revealed a normal leukogram and hemogram, elevated aspartate aminotransferase (65 U/L), gammaglutamyl transaminase (27 U/L), alkaline phosphatase (615 U/L) and sodium (267 mmol/L), and decreased amylase (7.6 U/L), calcium (2 mmol/L), and potassium (1.8 mmol/L).

Two samples of blood collected through a peripheral vein at the time of admission grew Gram-negative bacilli after 24 h of incubation. Colonies on blood agar were 1 to 2 mm, smooth, circular, greyish-white, and non-hemolytic. The isolates were catalase positive, oxidase positive, non-motile, non-fermenting, mannitol-negative, weakly indole-positive, TSI agar-K/K, and urease-negative. The organisms hydrolyzed esculin and gelatin, did not use citrate as the sole source of carbon and did not reduce nitrate. Isolates were identified using the IDGNB card on the Vitek 2 identification system (BioMérieux, Marcy-l'Étoile, France) and antimicrobial susceptibilities were determined by both disk diffusion and the AST card on the Vitek 2 system (BioMérieux).

The isolates were susceptible to piperacillin, piperacillin/tazobactam, vancomycin, trimethoprim-sulphamethoxazole, and rifampicin and were resistant to cefalexin, ceftazidime, cefotaxime, ceftriaxone, gentamicin, amikacin, tetracycline, colistin, and meropenem. They showed intermediate susceptibility to ciprofloxacin and amoxicillin/clavulanic acid. The dog was treated for 10 d with subcutaneous trimethoprim-sulfamethoxazole (Tribrissen; Virbac, La Seyne-sur-Mer, France), 50 mg/kg body weight (BW), q6h. Cooled fluid NaCl 0.9% (B Braun, Melsungen, Germany) at maintenance rate of 35 L/h for 8 h, meloxicam (Metacam; Boehringer Ingelheim, Ingelheim am Rhein, Germany), 0.2 mg /kg BW, SC, q24h, calcium carbonate + cholecalciferol (Calcitab; Italfamarco, Barcarena, Portugal), 40 mg, PO, q8h, and metergoline (Contralac; Virbac), 0.1 mg/kg BW, PO, q12h were also administered. On re-evaluation after 7 d, the patient was afebrile and blood cultures were negative.

Reported cases of *E. meningoseptica* infection are typically hospital-acquired and occur in immunodeficient patients. In this case ocular anomalies such as entropion and persistent pupillary membrane remnants caused by keratitis may have aided the entry of bacteria via the ocular route. Additionally, the dog's puerperal status may have led to an immunocompromised state, predisposing to *E. meningoseptica* infection.

Drugs such as minocycline, trimethoprim-sulphamethoxazole, and rifampicin may be good choices to treat patients (4). Validated susceptibility testing methods are not available and MIC breakpoints have not been established for *E. meningoseptica*. Recognition of *E. meningoseptica* is of critical importance for clinicians since conventional empirical treatment against Gram-negative bacteria may result in unfavorable outcome given its unique antimicrobial susceptible pattern.

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