

# *Elizabethkingia meningosepticum* endocarditis: A rare case and special therapy

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## Introduction

Among the *Elizabethkingia* species, *E. meningosepticum* is the most pathogenic member of genus. As primarily opportunistic pathogens, they majorly cause meningitis in premature and newborn infants and rarely cause pneumonia, endocarditis, and meningitis in immunocompromised adults (1). Here we describe an adult patient with an *E. meningosepticum* endocarditis who had no underlying diseases. To the best of our knowledge, this is the first documented case of this type in China.

## Case Report

A 66-year-old man was admitted to the emergency department of our hospital with heart failure, respiratory failure, renal failure, and bilateral pleural effusion. He had been admitted in another hospital due to fever and chest pain 2 days before. The patient was referred to our hospital because he had chest distress, shortness of breath, and could not lie on his back. He had no history of hypertension or diabetes. At the time of admission, he had a temperature of 37.2°C, BP of 131/47 mm Hg, pulse of 105 beats/min, and respiratory rate of 36 breaths/min. Hemogram showed WBC count of  $18.9 \times 10^9$  cells/L with 83% neutrophils. The levels of TNT, blood urea, creatinine, LDH, CysC, ProBNP, and d-dimer were 0.175 ng/mL, 20.17 mmol/L, 159.0  $\mu$ mol/L, 378.0 U/L, 2.39 mg/L, 31386.7 pg/mL, and 0.6  $\mu$ g/mL, respectively. HIV, HBsAg, and HCV ELISA showed negative results. Echocardiography revealed left ventricular enlargement, decreased cardiac function, aortic valve prolapse, moderate aortic insufficiency, mild to moderate mitral regurgitation, and trace of pericardial effusion. He was administered symptomatic treatment and etapenem due to the probable lower respiratory tract infection.

The blood cultures grew Gram-negative bacilli after 28 of incubation at 37°C on the third day after admission. The Gram-negative rod was nonmotile and catalase- and oxidase-positive. Consequently, it was identified as *E. meningosepticum* using VITEK2 Gram-negative identification card (bioMerieux) because was sensitive to piperacillin-tazobactam, imipenem, meropenem, levofloxacin, minocycline, cefepime, piperacillin, ceoperazone-sulbactam, ticarcillin-clavulanic acid, vancomycin, teicoplanin, and rifampicin and resistant to aztreonam, ceftazidime, gentamicin, and amikacin. Vegetative culture was also positive for *E. meningosepticum*. It had the same resistance phenotype with that organism isolated from blood. The sputum culture showed normal flora.

The patient was treated on the lines of acute bacterial endocarditis with injections of Vancomycin 1 g/12 h intravenously initially; the dose was reduced to 0.5 g/week later as the patient became afebrile and his subsequent blood cultures were sterile. Aortic valve replacement and intracardiac aortic sinus aneurysm repair surgery was then performed. However, 11 days later he developed *Acinetobacter baumannii* septicemia and cardiac arrest and died despite resuscitative measures.

## Discussion

Staphylococci and streptococci are the main pathogens and Gram-negative bacilli are rare to cause infective endocarditis (2, 3). *E. meningosepticum* is a nonfermenting, nonmotile, Gram-negative aerobic rod and is not considered part of the normal human flora. It is a well-known pathogen causing meningitis in premature and newborn infants. Strains of this bacterium have infrequently been reported to cause infection among adults. In adults it can cause endocarditis, pneumonia, bacteremia, and keratitis (1, 4, 5). In the hospital environment, they exist in water systems and wet surfaces and serve as potential reservoirs of infection. Saline, lipid, and chlorhexidine gluconate solutions as well as contaminated sinks have been implicated as sources of infection (6). Contaminated surgically implanted devices, such as intravascular catheters and prosthetic valves, have also been reported to carry the bacteria (7).

The organism has a peculiar antibiotic profile and is usually resistant to most antibiotics commonly prescribed to treat Gram-negative bacteria (Aminoglycosides, beta-lactam agents, chloramphenicol, and carbapenems) but susceptible to agents used to treat Gram-positive bacteria (rifampicin, ciprofloxacin, vancomycin, and trimethoprim-sulfamethoxazole). Hence, selecting the appropriate antibiotic for the treatment is difficult. Some fluoroquinolones have shown favorable results (1, 8). Rifampicin is usually active *in vitro* and has been used as a part of combination therapy to clear persistent infections. Although vancomycin was used earlier to treat the patients, there are reports showing that vancomycin would not be effective against this organism (9). Thus, there is no optimal regimen for the treatment of *Elizabethkingia* spp. infections. More studies are required for the evaluation of these drugs. The doctor treated the patient with vancomycin and the patient responded well to vancomycin. His temperature turned normal and blood culture became negative. However, he died of *A. baumannii* bacteremia; this can be the limitation of the study for strongly proving vancomycin as good alternative to treat *E. meningosepticum* endocarditis.

## Conclusion

*E. meningosepticum* could be a rare pathogen in endocarditis patients. Selecting the appropriate antibiotic is crucial for its treatment and vancomycin may be a good choice.

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