

Uncommon Pathogen in an Unexpected Host: A Case of *Rothia Mucilaginosa* Endocarditis in an Immunocompetent Patient without Underlying Valvular Disease

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INTRODUCTION:

Rothia mucilaginosa, formally known as *Stomatococcus mucilaginosus*, is a gram-positive coccus that is found as a commensal in the oral cavity and upper respiratory tract. It is an infrequent opportunistic pathogen with very rare infection rates, mostly affecting immunocompromised patients such as patients with severe neutropenia, HIV infection, malignancy, diabetes mellitus, and liver cirrhosis. Infections in immunocompetent individuals are extremely rare, and usually related to pre-existing valvular heart disease, prosthetic valves and indwelling vascular catheters. Other risk factors for *Rothia* bacteremia include: intravenous drug use (IVDU). We report the first case – to our knowledge – of *Rothia* endocarditis in an immunocompetent patient without an underlying valve disease.

CASE PRESENTATION:

A 46-year-old male with past medical history of remote IVDU and treated HCV, presented with shortness of breath, fatigue, and intermittent low grade fever for 1 month. He denied any recent headache, cough, or diarrhea. He also denied any recent IVDU. On presentation, he had tachycardia 112 bpm. Cardiovascular examination revealed a holosystolic murmur at the apex. Laboratory work-up was remarkable for leukocytosis 34.7 thou/mm³ with 89% neutrophils. Liver and kidney function tests were normal. HIV screening test was negative. Right upper quadrant ultrasound was negative for cirrhosis. Alfa-fetoprotein was negative. Due to high suspicion of infective endocarditis, the patient was started empirically on intravenous vancomycin. Echocardiogram showed mitral valve vegetation with regurgitation. Blood culture grew *Rothia mucilaginosa*. The patient was discharged to a subacute care facility with 6 weeks of intravenous vancomycin.

DISCUSSION:

Rothia mucilaginosa is an emerging opportunistic pathogen associated with prosthetic device infections. *Rothia* infections include: bacteremia,

endocarditis, meningitis, pneumonia, bone and joint infection, and cellulitis. Endocarditis is by far the most commonly reported infection [1].

Upon literature review [2], there was 11 reported cases of *Rothia* endocarditis, 5/11 were IVDU that had prosthetic valve endocarditis, 3/11 had underlying mitral valve prolapse and developed native valve endocarditis, 2/11 had acute lymphocytic leukemia with neutropenia and developed intraventricular catheter-related ventriculitis and native valve infective endocarditis respectively, and 1/11 had rheumatic heart disease and developed native valve endocarditis.

Remarkably, this organism's prominent adherence properties by producing a biofilm is believed to be a key pathogenic mechanism that increase the risk of catheters and prosthetic cardiac valves colonization in patients with bacteremia. This biofilm is thought to cause disruption of prosthetic valves rendering antibiotics therapy alone ineffective without device removal.

Rothia is generally susceptible to penicillin, ampicillin, cefotaxime, imipenem, and vancomycin. However, partial resistance to penicillin has been reported. Therefore, empirical vancomycin is the drug of choice while awaiting susceptibility testing. A combination of antibiotic therapy and prompt infected device removal is usually necessary for successful treatment. Raising the awareness among physicians of this organism's potential virulence is needed for better outcomes.

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