

Aerococcus viridans Bacteremia: A Rare Case Report from India

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ABSTRACT

Aerococci are fastidious, gram-positive *Streptococcus*-like organisms widely distributed in the hospital environment. *Aerococcus viridans* is primarily an opportunistic pathogen. Very few cases of *A. viridans* bacteremia have been reported so far probably because of its misidentification as streptococci. Here we report an interesting case of *A. viridans* bacteremia.

Keywords: *Aerococcus*, *Aerococcus viridans*, Bloodstream infection.

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INTRODUCTION

Aerococci are fastidious, gram-positive *Streptococcus*-like organisms widely distributed in the hospital environment.¹ The most common species of aerococci include *Aerococcus urinae*, *A. viridans*, and *A. sanguinicola*.² Of these, *A. viridans* is primarily an opportunistic pathogen causing bacteremia, endocarditis, or urinary tract infections. Often *A. viridans* is misidentified as viridians group of streptococci due to the similarities in producing α -hemolytic colonies on blood agar. We report this case in view of its rare presentation.

CASE DESCRIPTION

A 75-year-old hypertensive female with history of chronic kidney disease presented to the emergency room with altered sensorium for 20 days. She had history of deteriorating mental status and generalized weakness for the last 1 month. On examination, the patient was afebrile, drowsy, and responsive to painful stimuli. The patient was transferred to intensive care unit for further treatment, intubated in view of low Glasgow coma scale, and connected to mechanical ventilator. On the day of admission, laboratory tests revealed elevated blood glucose levels (224 mg/dL), high HbA1c (8%), elevated serum sodium levels (178 mmol/L), elevated chlorine levels (135 mmol/L), low potassium levels (3.3 mmol/L), and elevated creatinine (2.0 mg/dL) and blood urea (310 mg/dL). Arterial blood gas analysis showed the presence of metabolic acidosis. Erythrocyte sedimentation rate, procalcitonin, and D-dimer levels were normal. Peripheral smear showed leukocytosis with neutrophilic preponderance and thrombocytopenia. Ultrasonography of abdomen revealed bilateral grade I renal disease. Echocardiogram findings were not remarkable. Urine culture on CLED media showed no growth. Blood cultures obtained from two different sites were cultured on automated systems (BD BACTEC FX40). Both cultures showed growth within 20 hours. Direct smear from blood culture bottles showed the presence of gram-positive cocci. Automated identification system (VITEK 2[®] COMPACT) identified the organism

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from both cultures as *A. viridans* (93% probability). A set of antibiotics was chosen and antibiotic susceptibility done using the Kirby Bauer disk diffusion method. The isolate was sensitive to penicillin, linezolid, ampicillin, erythromycin, clindamycin, and levofloxacin and resistant to cotrimoxazole. The patient was treated empirically with ceftriaxone. Laboratory investigations done on consecutive days are shown in Table 1. Patient continued to have electrolyte disturbances despite the treatment. In spite of continuous electrolyte correction and antibiotic therapy, the patient succumbed to the illness probably due the existing comorbidities and old age.

Table 1: Laboratory reports on days 1, 4, and 7 of admission

Parameters	Day 1 (16/12/2020)	Day 4 (19/12/2020)	Day 7 (22/12/2020)
Total count (cells/mm ³)	11,000	19,600	800
Polymorphs (%)	77.1	93.1	75.7
Lymphocytes (%)	15.5	6.1	18.8
Platelet (1000/mm ³)	92	30	39

CONCLUSION

Aerococcus genus includes seven species of which, reports on *A. urinae* and *A. sanguinicola* species are freely available while very few cases of *A. viridans* bacteremia have been reported.³ Though rare, *A. viridans* is an emerging nosocomial pathogen. Scarcity of reports in the literature could be attributed to its close resemblance to *viridans* group of streptococci.⁴ Most clinical laboratory settings make use of conventional methods to identify organisms. Hence, *A. viridans* which is similar to streptococci in producing α -hemolytic colonies on blood agar, appears as gram-positive cocci on gram staining, and is mostly misidentified or reported as a contaminant.⁴ In this case, *A. viridans* produced β -hemolytic colonies on blood agar and appeared as gram-positive cocci in groups resembling micrococcaceae. Using automated systems in diagnosis brings to light these little known pathogens. Moreover, these bacteria are acquired from hospital environment, which makes it more prone for antimicrobial resistance. In this case, the isolate was susceptible to commonly used antibiotics. But emerging resistance to penicillin and vancomycin has been reported in previous studies. So it is vital to incorporate automated methods in detecting doubtful specimens and formulate guidelines for therapy so that future cases can be identified earlier and treated with appropriate antibiotics.

HIGHLIGHTS

A. viridans can resemble Micrococcaceae on culture, and Automated Identification systems play a key role in identifying these little known pathogens.

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