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A Very Uncommon Case of Infective Endocarditis

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Abstract Acinetobacter is a gram-negative coccobacillus associated with various hospital-acquired infections and community-acquired infections including pneumonia as well as urinary tract, skin, and soft tissue infections. Acinetobacter is a rare cause of infective endocarditis reported mainly in hospitalized patients with risk factors, and typically presents with severe disease.

Keywords: *Acinetobacter, infective, endocarditis*

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1. Introduction

Acinetobacter is a gram-negative coccobacillus with diverse mechanisms of resistance, leading to the emergence of strains resistant to all commercially available antibiotics. The epidemiology of Acinetobacter infections is broad and includes hospital-acquired infection, community-acquired infections in tropical environments, and infections that occur in the setting of wars and natural disasters. It is associated with various infections including pneumonia as well as urinary tract, skin, and soft tissue infections. Infective endocarditis (IE) due to Acinetobacter is a rare, severe pathology usually occurring in patients with comorbidities, resulting in high mortality [1]. The diagnosis of Acinetobacter infection is made by positive cultures in the setting of clinical findings that suggest an infection and is treated with antibiotics. Here, we report a patient with Acinetobacter endocarditis that presented as acute encephalopathy. To the best of our knowledge, acute encephalopathy related to Acinetobacter endocarditis has rarely been reported.

2. Case Presentation

Our patient is 71-year-old female nursing-home resident with a past-medical history of end-stage renal disease (on hemodialysis), diabetes, peripheral artery disease status-post bilateral above-knee amputation, and status-post diverting colostomy. She was admitted to our service with fever and altered mental status, after recent discharge from another hospital where she was managed for sepsis and treated with antibiotics.

On admission, she was febrile and hemodynamically unstable with a temperature, respiratory rate, and heart rate of 38.2°C, 38 breaths/minute, and 134 beats/min, respectively. The patient was disoriented with a Glasgow Coma Scale score of 3/15. Physical exam was significant for a non-infected decubitus ulcer and an apical systolic murmur.

Laboratory investigations revealed leukocytosis (19.0K/uL), lactic acidosis (5.7mmol/L), and elevated inflammatory markers (ESR 81mm/hr, CRP 60.7mg/L, ferritin 5378ng/mL). There were no electrolyte abnormalities. CT brain was non-significant. CT pelvis revealed sacral wound and chronic osteomyelitis of left ischial tuberosity.

Patient fulfilled the criteria of sepsis and was empirically started on vancomycin and piperacillin/tazobactam. Acinetobacter baumannii was isolated from wound and blood cultures, with decubitus ulcer as the most likely port of entry. Transthoracic echocardiogram was ordered and revealed mitral valve vegetation, confirmed by transesophageal echocardiogram. The vegetation was located on the posterior leaflet of the mitral valve and measured 1.5 x 1.5 cm. Diagnosis of Acinetobacter endocarditis was subsequently made based on Duke's criteria. Antibiotics were switched to IV gentamicin.

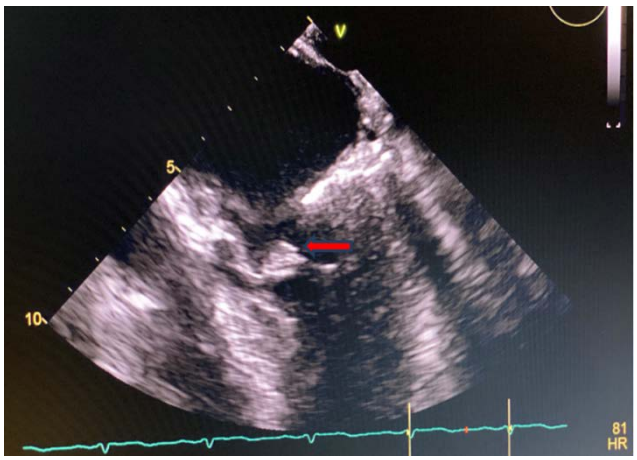

Figure 1. Echocardiography showing posterior leaflet mitral valve vegetation measuring 1.5 x 1.5 cm (arrow)

The patient was thus diagnosed with Acinetobacter endocarditis that presented as sepsis and acute encephalopathy. Her condition improved gradually back to baseline. She was discharged in a stable condition with IV antibiotics for 6 weeks.

3. Discussion

Acinetobacter is a gram-negative, catalase-positive, and oxidase-negative coccobacillus that has emerged from an organism of questionable pathogenicity to an infectious agent of importance to hospitals worldwide. Acinetobacter baumannii is the most resistant of the genospecies and has the greatest clinical importance. Acinetobacter is associated with various infections including pneumonia as well as urinary tract, skin, and soft tissue infections. It is also a rare cause of endocarditis with higher mortality in native valve endocarditis. Risk factors for Acinetobacter bacteremia include intensive care, mechanical ventilation, prior surgery, prior use of antibiotics, immunosuppression, mechanical ventilation, prior surgery, malignancy, central venous catheters, burns and invasive procedures [1].

Infective endocarditis refers to infection of the endocardial surface of the heart; it usually refers to infection of one or more heart valves or infection of an intracardiac device. The endothelial lining of the heart and its valves is normally resistant to infection with bacteria and fungi. The initial step in the establishment of a vegetation is endocardial injury, followed by focal adherence of platelets and fibrin. The initially sterile platelet-fibrin nidus becomes secondarily infected by microorganisms circulating in the blood, either from a distant source of focal infection or as a result of transient bacteremia from a mucosal or skin source. Diagnosis of infective endocarditis is based upon modified Duke criteria.

Treatment of Acinetobacter endocarditis consists of empiric management with broad-spectrum cephalosporin, beta-lactam/beta-lactamase inhibitor, or a carbapenem until full sensitivity results. Duration of antibiotic therapy is 6 weeks from the first day of negative blood cultures.

In our reported case, of the diagnosis of Acinetobacter endocarditis was based on the modified Duke's criteria, following blood culture growth of Acinetobacter Baumanii, and a transthoracic echocardiogram and transesophageal echocardiogram showing mitral valve vegetation. Our patient’s risk factors for Acinetobacter bacteremia included intensive care, prior antibiotic use, nursing home residence, and chronic hemodialysis. The mechanism of encephalopathy in our patient is thought to be associated with the cytokine surge secondary to sepsis. Fortunately, our reported case had a favorable outcome after prompt diagnosis and targeted antibiotics. Her general condition significantly improved and returned to her baseline mental status shortly after admission. We report this case in order to emphasize the importance of early diagnosis and treatment of a rare and potentially fatal disease.

4. Conclusion

Acinetobacter is a rare cause of endocarditis, which might present with atypical features. Physicians should have a high index of suspicion in critically ill patients as early diagnosis and management is crucial given the natural history of this highly resistant organism and its poor prognosis. Our reported case was of particular interest due to the causative organism, atypical presentation with acute encephalopathy, and a rapid recovery.

Acknowledgments

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