The Diagnostic Challenges and Management Strategies of Austrian Syndrome in the Context of Multisystem Failure

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INTRODUCTION

Austrian syndrome, also referred to as Osler's triad, is a rare but life-threatening condition characterized by the simultaneous development of pneumonia, endocarditis, and meningitis, typically caused by *Streptococcus pneumoniae*. The incidence of infections due to *S. pneumoniae* has dramatically decreased following the widespread use of beta-lactam antibiotics in the 1940s, with an additional decline after the introduction of the pneumococcal vaccine in 1977. However, when diagnosis or treatment is delayed, Austrian syndrome remains associated with significant mortality and morbidity. We present the case of a 70-year-old Asian female with multiple comorbidities, highlighting the critical importance of early recognition and aggressive, multidisciplinary intervention in managing this rare and complex syndrome, especially in vulnerable populations.

CASE PRESENTATION

A 70-year-old Asian female presented after being found unresponsive, following a 4-day history of malaise, cough, and decreased appetite. She had missed her diabetes medications for two days before admission. On arrival, she was in severe diabetic ketoacidosis (DKA) with acute hypoxic respiratory failure, requiring urgent intubation. Her condition worsened, leading to septic shock, necessitating aggressive fluid resuscitation and vasopressor support.

Initial imaging indicated multifocal pneumonia as the likely source of sepsis. Despite intensive care, the patient experienced pulseless electrical activity arrest and ventricular fibrillation on admission. Return of spontaneous circulation (ROSC) was achieved after five minutes of CPR, epinephrine, and defibrillation. She developed narrow complex supraventricular tachycardia, managed with an amiodarone drip.

Blood cultures revealed Streptococcus pneumoniae bacteremia. Due to worsening neurological status, meningitis was suspected but an LP was not performed due to severe thrombocytopenia. MRI revealed multiple embolic foci (Fig 1), suggesting embolic etiology, and TEE confirmed vegetations on the aortic and mitral valves (Fig 2), raising suspicion for Austrian syndrome.

As the patient's condition improved, she was transferred to a tertiary care facility. Her course was complicated by severe protein-calorie malnutrition, dysphagia, and dysphonia secondary to prolonged intubation. Conservative cardiac management was recommended due to her neurological condition.

IMAGES

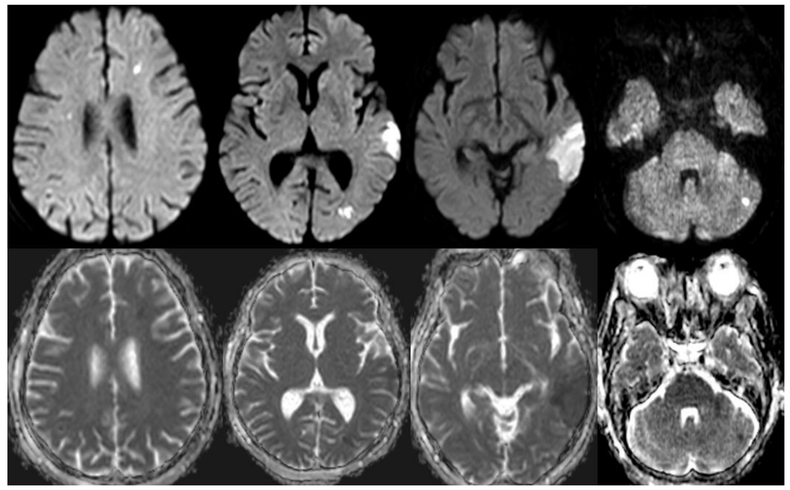

Fig 1: Acute infarcts with diffusion restriction in the bilateral frontal, temporal, parietooccipital lobes and left cerebellar hemispheres

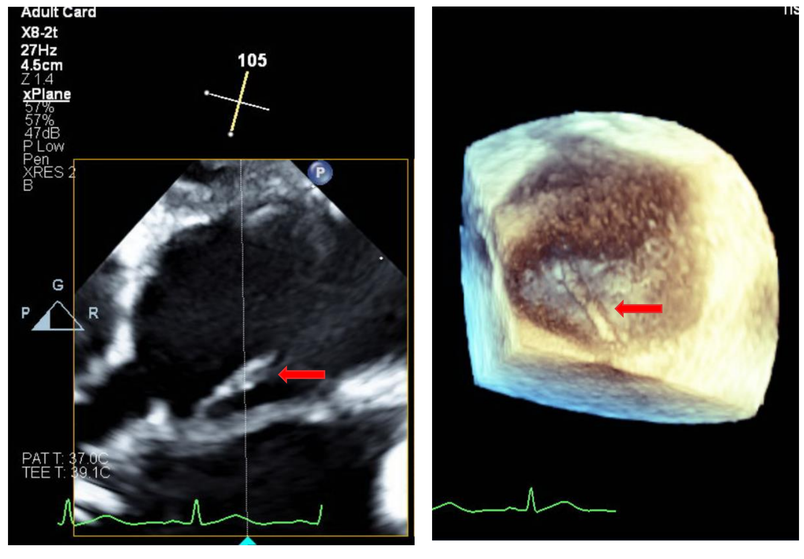

Fig 2: Transesophageal echocardiogram demonstrating vegetation attached to the mitral valve

DISCUSSION

Austrian syndrome is a rare and life-threatening condition that requires a high index of suspicion, especially in patients with comorbidities and multisystem involvement. In this case, the patient's critical presentation with septic shock, diabetic ketoacidosis, and pneumonia masked the underlying diagnosis of Austrian syndrome. Early identification of *Streptococcus pneumoniae* bacteremia led to the initiation of empirical treatment for meningitis, even though a lumbar puncture was contraindicated due to thrombocytopenia.

The neurological findings on MRI, in conjunction with echocardiographic evidence of valvular vegetations, confirmed the presence of embolic phenomena and endocarditis, solidifying the clinical suspicion of Austrian syndrome. The challenges in managing this case, including cardiac instability, neurological complications, and contraindications to certain diagnostic procedures, underscored the importance of a multidisciplinary approach involving critical care, neurology, cardiology, and infectious disease teams.

CONCLUSION

This case highlights the complexities involved in diagnosing and managing Austrian syndrome, particularly in the context of multisystem failure and septic shock. The presence of pneumonia, endocarditis, and potential meningitis in the setting of *Streptococcus pneumoniae* bacteremia should prompt clinicians to consider Austrian syndrome, even in the absence of definitive diagnostic testing for meningitis. Early and aggressive management, tailored to the patient's clinical stability and comorbid conditions, is essential to improve outcomes. The patient's recovery underscores the critical role of individualized, multidisciplinary care in managing life-threatening infections.

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