An Atypical Presentation of Isolated Eustachian Valve Endocarditis

Introduction:

Anatomically significant in fetal circulation, the Eustachian valve becomes a rudimentary structure in adults. Isolated Eustachian valve endocarditis (EVE) is a very rare phenomenon. We report a case of Methicillin Resistant Staphylococcus aureus (MRSA) isolated EVE in an African American male with history intravenous drug abuse (IVDA).

Case Description:

A 57-year-old African American male with past medical history of chronic hepatitis C, chronic obstructive pulmonary disease, type 2 diabetes mellitus, hypertension, and IVDA, presented with fever, severe headaches, photophobia, phonophobia, abdominal pain, and generalized body aches of 2 days duration. He denied recent travel, exposure to sick contacts, weakness, or numbness.

On presentation, the patient's blood pressure was 207/108 mmHg, pulse rate 112/minute, respiratory rate 28/minute, temperature 102.4°F, with oxygen saturation of 100% on 2 liters of oxygen via nasal cannula. Kering and Brudzinski signs were negative. Empiric antibiotics (Vancomycin, Ceftriaxone, and Ampicillin) were started soon after lumbar puncture was done and blood culture specimens were drawn. Antibiotics were tailored once cerebrospinal fluid analysis ruled out bacterial meningitis. Bacterial blood cultures grew MRSA. A 2-D transthoracic echocardiogram (TTE) showed an echodensity in the right atrium in addition to a prominent Chiari network. Transesophageal echocardiogram (TEE) revealed a mobile, linear, 2.7 cm echodensity attached to the eustachian valve consistent with vegetation (Figure 1). There was no echocardiographic evidence of tricuspid, mitral, pulmonic, or aortic valve involvement. Vancomycin was continued, and repeat blood cultures were negative. The patient responded well to treatment and was transferred to a long term care facility for continuation of the intravenous antibiotic for 6-8 weeks.
Discussion:

In fetal circulation, the Eustachian valve directs oxygenated blood from the inferior vena cava into the left atrium through the foramen ovale. Its role in adults, however, is not known (1). Endocarditis of the Eustachian valve is rare and often underdiagnosed (2). Although 3.3% of right sided infective endocarditis have concomitant Eustachian valve vegetation (4), only 21 cases of isolated Eustachian valve endocarditis have been reported (7). The first reported case of Eustachian Valve endocarditis was described in 1986, when the diagnosis was made on autopsy of a 44 year old male who died of sepsis secondary to Staphylococcus infection (3).

Eustachian valve endocarditis is characterized by clinical signs and symptoms of right-sided infective endocarditis (5). Transthoracic Echocardiogram is the standard noninvasive modality for initial investigation of EVE, however, a negative TTE does not exclude the diagnosis, as 88% of cases are diagnosed on TEE (6).

Risk factors for EVE include male gender, intravenous drug abuse, pacemaker wires and venous catheters (4). About 63% of EVE cases are caused by Staphylococcus aureus, and often respond well to conventional antibiotic therapy (5, 6). Surgical intervention is rarely needed.

Conclusion:

Isolated Eustachian valve endocarditis is exceedingly rare and often underdiagnosed. A high index of clinical suspicion is required, and a transesophageal echocardiogram should be performed for diagnosis in appropriate clinical settings. The outcome of treatment of MRSA Eustachian valve endocarditis is similar to uncomplicated right side infective endocarditis.
References


