CASE REPORT

Aortic ring abscess caused by *Streptococcus pluranimalium*: A case report

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ABSTRACT

A 69-year-old male presented with complaints of high-grade intermittent fever for 1 week. The patient is a known case of coronary artery disease. Seven blood samples were sent for culture, and all the samples grew beta haemolytic colonies, which were identified as *Streptococcus pluranimalium*. The transoesophageal echo finding of the patient was suggestive of aortic ring abscess. Since the patient was not willing for invasive measures, he was conservatively treated with appropriate antibiotics, to which he responded symptomatically.

Key words: Aortic ring abscess, infective endocarditis, *Streptococcus pluranimalium*

INTRODUCTION

The infection of the aortic valve leads to damage and perforation of the leaflets. Ring abscess is frequently noted in the patients with prosthetic aortic valve. Early recognition of these subaortic structural complications in patients with aortic valve endocarditis and the infectious agent causing it is important for patient management.

CASE REPORT

A 69-year-old male admitted to the hospital on 2 April 2015 with complaints of high-grade intermittent fever for 1 week duration. He gave a history of breathlessness for the past 2-3 days, nausea, loss of appetite, loss of weight, and loss of taste sensation for the past 2 months. There was no history of chest pain, palpitation, or syncope. The patient was a known case of type II diabetes, hypertension, chronic obstructive pulmonary disease, and coronary artery disease. The patient gave a history of angioplasty done 2 years back. The patient was a metal merchant by occupation and was physically active before the onset of the illness. He had a history of contact with chicken being reared in his backyard. His personal history was as follows: He was not an alcoholic or smoker, but he gave a history of betel nut chewing. He was admitted at a local private hospital in his native place with this illness on 21 January 2015 and was treated symptomatically. On 3 March 2015, he was started on antibiotics by another private general practitioner.

On examination, he appeared moderately built, moderately nourished, and mildly dehydrated. His blood pressure was 130/80 mmHg, heart rate was 86/min, respiratory rate was 26/min, and body temperature 98.4°F. Systemic examination [(CVS, RS abdominal)] and CNS was normal.

Investigations

The laboratory data were significant for leucocytosis: Haemoglobin (Hb) level was reduced, which was suggestive of moderate anaemia and the level of C-reactive protein was raised.

Electrocardiogram (ECG)

The electrocardiogram (ECG) findings were as follows: Normal sinus rhythm, heart rate: 75 beats/min, nonspecific ST-T changes.

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Seven samples of blood were sent for culture. All the blood cultures were inoculated on blood agar and grew tiny transparent colonies with beta-haemolysis. Gram-stain showed Gram-positive cocci in short chains. It was identified as *Streptococcus pluranimalium* by VITEK®2 (bioMérieux, France) bacterial identification system. It was sensitive to Ampicillin, Penicillin, Cefotaxime, Cephalexin, Ceftriaxone, Co-trimoxazole, Ciprofloxacin, Gentamicin, Vancomycin, and Linezolid.

Transthoracic echo

The transthoracic echo was normal. It did not reveal any vegetation [Figure 1].

Transoesophageal echo

The cystic cavity seen in aortic annulus of left coronary cusp and cyst measuring 1.9 cm × 0.8 cm was probably aortic ring abscess. Grade II aortic regurgitation was noted [Figure 2].

Treatment

The patient was not willing for any surgical intervention, hence he was treated with parenteral Penicillin and Gentamicin. The patient's general condition improved, his fever subsided, and the total leukocyte count was reduced. As the patient was not willing for further hospital stay, he was discharged with advice to continue the medication and review at cardiology op with repeat transoesophageal echo and repeat blood culture. On review at the cardiology OP after 2 weeks, he was asymptomatic. The transoesophageal echo test was repeated which showed regression of the abscess and blood culture showed no growth.

DISCUSSION

On searching literature, *S. pluranimalium* has been documented to cause infection in humans in three articles. It causes primary infection in bovine and avian species.

S. pluranimalium is one of the newer strains of *Streptococcus*. It was first identified by Devriese *et al*. in 1999. The term 'pluranimalium' meaning 'from many animals' ('pluris' means many and 'animalium' means 'from animals') was used as this particular species was isolated from various animal hosts.[1] There have been reports on the association between this organism as a causative pathogen in septicaemia and valvular endocarditis in broiler chicken,[2] subclinical mastitis in dairy cows,[1] and purulent meningo-ventriculitis in calf.[3] This strain of *Streptococcus* has been isolated from bovine reproductive diseases such as abortion, still birth, vulvitis, vaginitis, and metritis.[4,5] *S. pluranimalium* was isolated in humans in two other cases where. The authors of the first paper describe that the strain was grown on blood cultures taken during a febrile episode in a neutropaenic patient,[6] the second paper reported a case of a 53-year-old female who presented with septic arthritis and later died from septic shock where *S. pluranimalium* was grown on blood culture and the pus aspirated from her infected joint.[7]

Myocardial abscess or perivalvular cavities form when annular infections break through and spread into adjacent tissue. In native aortic valve infective endocarditis, infection generally occurs in the weakest part of the annulus which is near the membranous septum and atrioventricular (AV) node.[8] The anatomic vulnerability of this area explains why an abscess occurs in this location and why heart block is a frequent sequel. Periannular extension occurs in 10-40% native valve endocarditis and complicates aortic endocarditis more commonly than mitral or tricuspid infective endocarditis.

Clinical parameters for diagnosis of perivalvular extension of infective endocarditis are inadequate. On ECG, new AV block indicates 88% positive predictive value for abscess formation. Transoesophageal echo has been demonstrated to be superior to transthoracic echo in visualization of

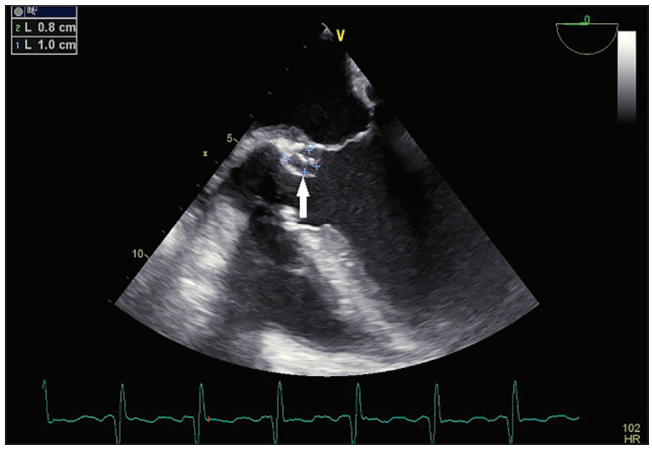

Figure 1: Left coronary cusp showing vegetation attached to aortic aspect of cusp measuring 0.8 mm × 1 mm

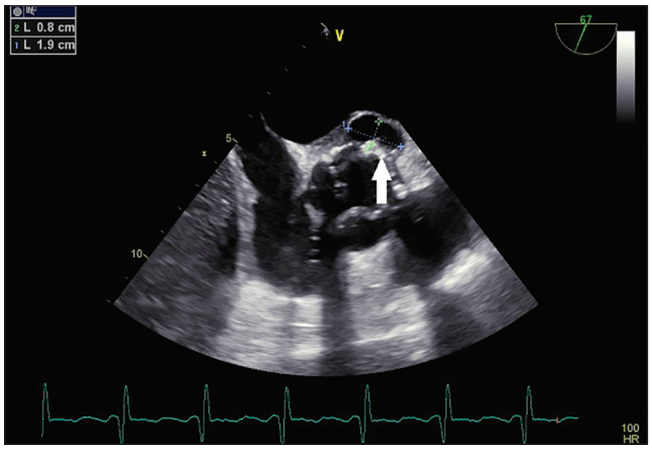

Figure 2: Cystic cavity seen in Aortic annulus abetting left coronary cusp and cyst measuring 19 cm × 8 cm probably — aortic ring abscess

vegetation and abscess associated with endocarditis.[8] Ring abscess and perivalvular regurgitation frequently noted in patients in prosthetic valve than native valve. The haemodynamic deterioration in aortic valve endocarditis is generally a result of severe aortic regurgitation and left ventricular failure.

A small number of patients with periannular extension of infections may be treated successfully without surgical intervention; these patients include those who do not have heart block, echo evidence of progression of abscess during the therapy, valvular dehiscence, or insufficiency. Such patients should be monitored closely with serial transoesophageal echo.[9]

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Conflicts of interest
There are no conflicts of interest.

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