

Mitral kissing lesion with anterior mitral leaflet aneurysm in a child

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ABSTRACT

Aortic valve endocarditis can lead to secondary involvement of aorto mitral curtain and the adjacent anterior mitral leaflet (AML). The secondary damage to AML is often caused by the infected diastolic jet of aortic regurgitation hitting the ventricular surface of the anterior mitral leaflet, or by the pronounced bacterial vegetation that prolapses from the aortic valve into the left ventricular outflow tract. This is called "kissing lesion". We describe a case of infective endocarditis of aortic valve in a 13-year-old child causing secondary mitral valve involvement with AML perforation and aneurysm formation.

Keywords: Anterior mitral leaflet aneurysm, infective endocarditis, kissing lesion

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Submitted: 29-Aug-2019 **Revised:** 28-Oct-2019 **Accepted:** 08-Jan-2020 **Published:** 22-Jan-2021

INTRODUCTION

Infective endocarditis (IE) of the aortic valve may lead to secondary involvement of the anterior leaflet of the mitral valve (AML).^[1,2] This is known as the 'kissing lesion'. Mitral valve aneurysm formation following aortic valve endocarditis is a rare complication.^[3] In this case report, we describe a child with aortic valve endocarditis that progressed to involve the mitral valve causing AML perforation and aneurysm formation.

CASE REPORT

A 13-year-old male child presented with complaints of a symptom of breathlessness of grade III for the past 3 weeks. There was a history of dental extraction done one month back following which he developed a fever on

and off which was of high grade and associated with chills and myalgia. On examination, the child was afebrile with a heart rate of 120/min, blood pressure of 130/52 mmHg, respiratory rate of 24/min. On auscultation, Early diastolic murmur of grade 3/4 heard at the aortic area and pansystolic murmur of grade 3/6 heard at the mitral area. Initial transthoracic echocardiography showed severe aortic regurgitation with vegetation attached to the noncoronary cusp of the aortic valve, moderate mitral regurgitation with prolapse of AML with LVEF of 65%. Blood culture was positive for *Streptococcus viridans*. Antibiotics were started based on the sensitivity and were administered for six weeks following which the symptoms resolved. He was kept on medical followup as per his parental wish. After six months, the child presented with signs of right heart failure. Repeat Echocardiography showed severe aortic regurgitation with vegetations and perforation

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10.4103/aca.ACA_123_19

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How to cite this article: Raja J, Ponnuru S, Dharan BS, Suneel PR. Mitral kissing lesion with anterior mitral leaflet aneurysm in a child. *Ann Card Anaesth* 2021;24:108-10.

on the noncoronary cusp, severe mitral regurgitation with perforation of AML with aneurysm formation [Figures 1 and 2], severe tricuspid regurgitation, severe PAH with RVSP of 75 + RAP, LVEF of 40-45%. Aortic annulus measured was 17 mm. Therefore, the patient was planned for Aortic root replacement/Ross procedure with mitral and tricuspid valve repair. After induction, Transesophageal echocardiography also confirmed the preoperative transthoracic echocardiographic findings [Videos 1 and 2]. Intraoperatively there was vegetation attached to the noncoronary cusp of the aortic valve with perforation and destruction of the noncoronary and right coronary cusp and an aneurysm of size 1 × 1 cm was seen arising from AML with a perforation at its summit. The tricuspid annulus was dilated but leaflets appeared normal. Pulmonary annulus was dilated with mild to moderate pulmonary regurgitation and due to the young age of the child, aortic root replacement was done with 19 mm Aortic Homograft along with bovine pericardial patch repair of AML aneurysm and De Vegas repair of tricuspid valve were performed [Video 3 showing mitral valve and aortic valve after repair]. Post repair transesophageal echocardiography showed no aortic regurgitation, mild mitral regurgitation [Video 4] and trivial tricuspid regurgitation with LVEF of 40%. The child underwent tracheal extubation on day 2 and was discharged on day 10 and is on regular follow-up.

DISCUSSION

Infective endocarditis (IE) is an established cause of valvular heart disease and carries a high risk of morbidity and mortality. Because of the anatomic continuity between the aortic and mitral valves, aortic valve endocarditis can lead to concomitant mitral valve endocarditis. The spread of the infectious process to the mitral valve can

be attributed to two different mechanisms. First, an aortic root abscess can extend to the intervalvular fibrous body and from there to the mitral annulus. Subsequent infection can spread to the AML, which may lead to its partial/complete detachment from the annulus. Secondly, the diastolic jet of aortic regurgitation due to the primary aortic endocarditis can produce a secondary lesion on the ventricular surface of the AML, which can be vegetation, leaflet abscess, and/or leaflet perforation. Hence it is called “kissing lesion”.^[1,2]

Mitral valve aneurysm is a rare complication of aortic valve endocarditis with an incidence of 0.2% to 0.3% on the echocardiographic examination.^[3,4] It was first reported in 1972.^[4] Of the several causative mechanisms described for MV aneurysm (among them connective-tissue disorders, pseudoxanthoma elasticum, and myxomatous valve degeneration), IE is the most prevalent.^[3-5] Echocardiography, both Transthoracic and transesophageal will reveal mobile saccular bulge arising from mitral leaflets, protruding to the left atrium during systole and collapsing during diastole^[6] [Video 1].

The timing of surgery for IE is a matter of debate. The absolute indications for urgent surgical intervention are large vegetations (size >10 mm), signs of heart failure and signs of uncontrolled infection.^[7] There is little consensus on a preferred course of therapy in MV aneurysm without the above-mentioned indications. Ruparelia and associates^[5] suggested for urgent surgery once this abnormality is detected, to prevent rupture of the aneurysm, development of severe mitral regurgitation and embolization. On the contrary, Vilacosta and co-authors^[3] suggested the possibility of conservative management, with surgical intervention only if there is cardiac deterioration. Our

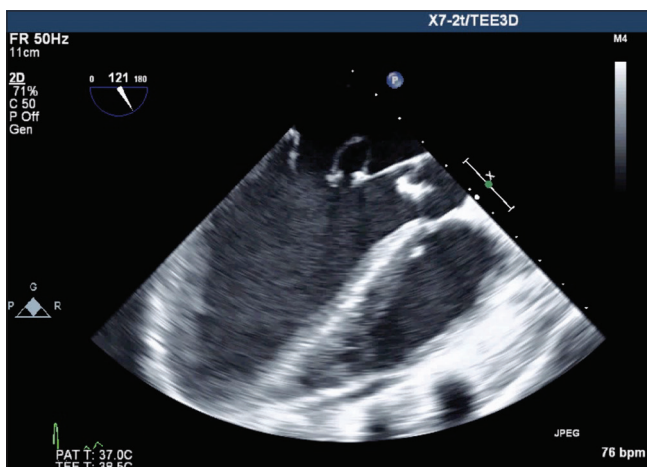


Figure 1: Midesophageal long-axis view showing anterior mitral leaflet aneurysm and healed vegetation on the Aortic valve

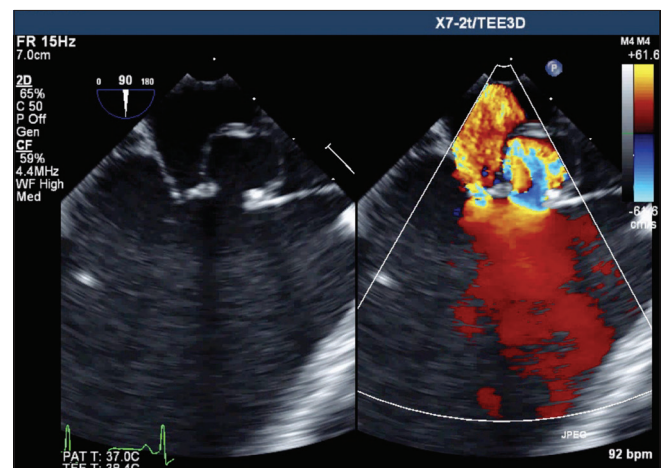


Figure 2: Midesophageal two-chamber view showing anterior mitral leaflet aneurysm that expands during systole with severe mitral regurgitation

patient presented with heart failure and was operated early after a brief period of medical stabilization in the same sitting.

Conservative mitral valve surgery for aneurysm correction is not always possible, it is related to the degree of valve destruction and to the anatomic disorder. However, in our patient, we excised the aneurysm and repaired the perforation with the bovine pericardial patch like the rest of the leaflet was salvageable and there was no aortic root abscess.

To conclude, in patients diagnosed with infective endocarditis of aortic valve, delay in diagnosis as well as intervention can lead to mitral kissing lesion thereby increasing the morbidity for the patient.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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