

IMAGING VIGNETTE

BEGINNER

CLINICAL VIGNETTE

Unruptured Pseudoaneurysm of the Mitral Aortic Intervalvular Fibrosa



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ABSTRACT

A 38-year-old female with a history of primary mitral regurgitation experienced shortness of breath even at rest 4 months previously. Cardiac computed tomography showed a large unruptured aneurysm arising from the mitral-aortic intervalvular fibrosa adjacent to the anterior mitral leaflet. The patient passed away because the pseudoaneurysm ruptured into the pericardium. (**Level of Difficulty: Beginner.**) (J Am Coll Cardiol Case Rep 2019;1:256-8)
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CASE REPORT

A 38-year-old female with a history of primary mitral regurgitation (MR) started feeling short of breath even at rest 4 months ago. She presented with New York Heart Association functional class III dyspnea 3 years previously, which progressed to functional class IV within 4 months. On physical examination, apical impulse was seen and apex beat was felt in the seventh intercostal space, 1 cm medial to the mid-clavicular line. Parasternal heave was also felt on cardiac examination. Furthermore, appreciable pansystolic murmur was heard on auscultation. Moreover, recent transthoracic echocardiographic results revealed severe MR, tricuspid regurgitation, and a pseudoaneurysm arising from near the left ventricular outflow tract ([Supplemental Figures 1A to 1C](#)). A chest radiograph showed increased cardiothoracic ratio of 0.7, straightening of the left heart border, and widening of the carina ([Supplemental Figure 2](#)). Furthermore, Cardiac computed tomography (CT) showed a large unruptured aneurysm arising from the mitral-aortic intervalvular fibrosa adjacent to the anterior mitral leaflet and the commissure of noncoronary and the left coronary cusps. The neck of the aneurysm measured approximately 16.9 mm in diameter. The aortic annular ring at the junction of the noncoronary and left coronary cusps appeared to be partly deficient, with dilation and mild posteroinferior prolapse of the noncoronary cusp noted. The ratio of the maximum diameter of the orifice of the aneurysm to the maximum internal diameter of the cavity was approximately 0.3, which increased suspicion that it was a pseudoaneurysm

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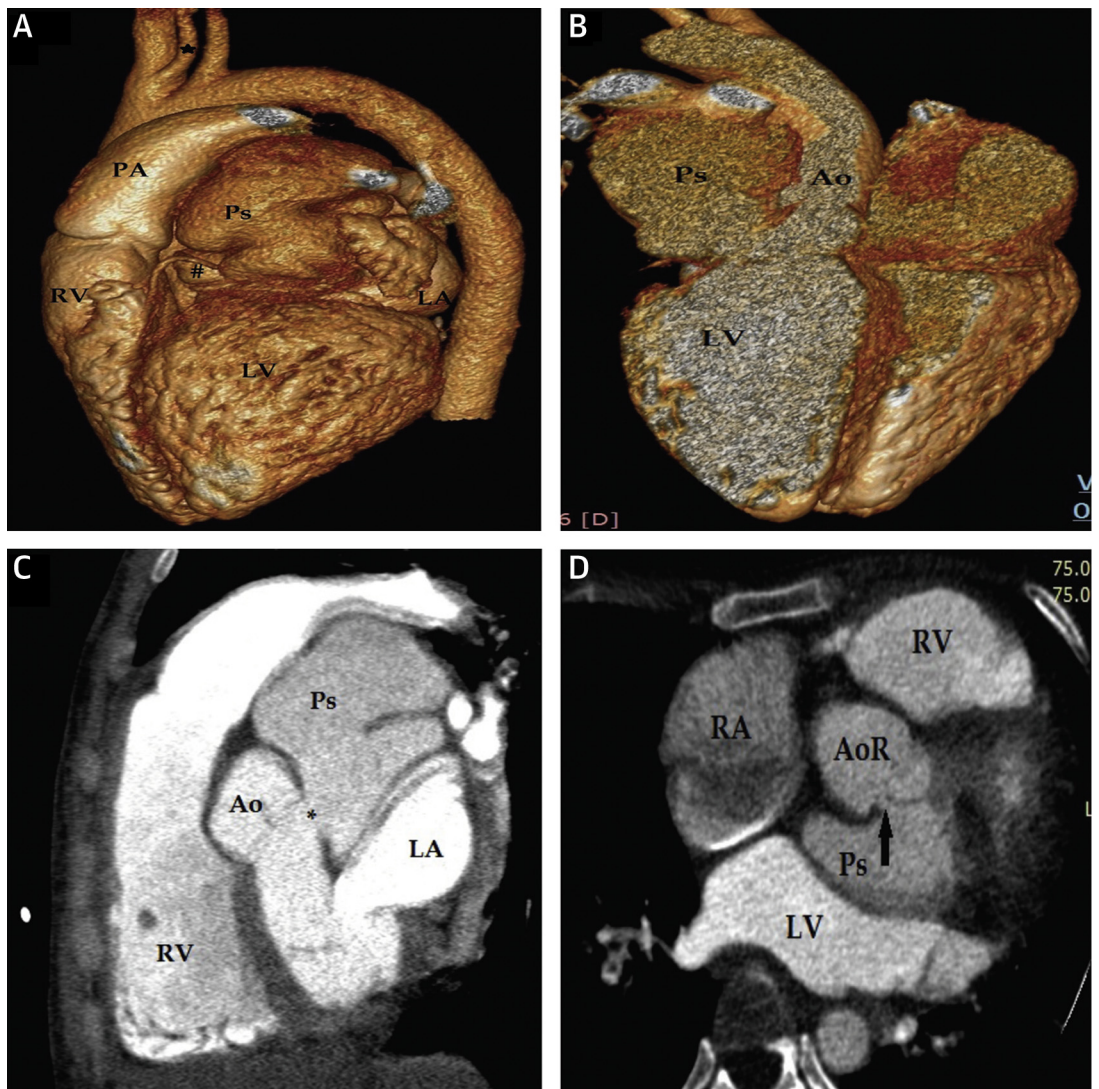
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(Figures 1A to 1D). The absence of spikes of fever, negative blood culture results, normal C-reactive protein levels, and negative anti-streptolysin O antibody test result ruled out infective endocarditis as a cause; however, a clinically unrecognized previous endocarditis history could not be ruled out. The patient was referred for surgery owing to the cardiac CT findings, but she refused surgery because she had previously undergone surgery for primary MR. Unfortunately, the patient passed away recently because of a rupture of the pseudoaneurysm into the pericardium.

**ABBREVIATIONS
AND ACRONYMS**

CT = computed tomography
MR = mitral regurgitation
NYHA = New York Heart Association
TTE = transthoracic echocardiogram

FIGURE 1 ECG-Gated 64-Slice Multidetector Cardiac CT With 3D-Reformatted Images Showing a Large Unruptured Pseudoaneurysm



(A, B) ECG-gated 64-slice multidetector cardiac CT with 3D-reformatted images showing a large unruptured pseudoaneurysm (Ps) arising from the mitral-aortic intervalvular fibrosa. *Left common carotid artery arising from the brachiocephalic trunk. #The root of the aorta. (C, D) ECG-gated 64 slice multidetector cardiac CT-reformatted images showing a large unruptured Ps arising from the mitral-aortic intervalvular fibrosa. *The neck of the pseudoaneurysm. The arrow indicates the deficiency in the aortic annular ring at the junction of the noncoronary and left coronary cusps leading to dilation of the noncoronary cusp (not seen in the images). 3D = 3 dimensional; Ao = aorta; AoR = root of aorta; CT = computed tomography; ECG = electrocardiogram; LA = left atrium; LV = left ventricle; PA = pulmonary artery; RA = right atrium; RV = right ventricle.

DISCUSSION

Pseudoaneurysm of the mitral aortic intervalvular fibrosa is a congenital subaortic aneurysm that has been reported 160 times since 2015 (1).

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KEY WORDS aortic, echocardiography, imaging, mitral regurgitation

APPENDIX For supplemental figures, please see the online version of this paper.