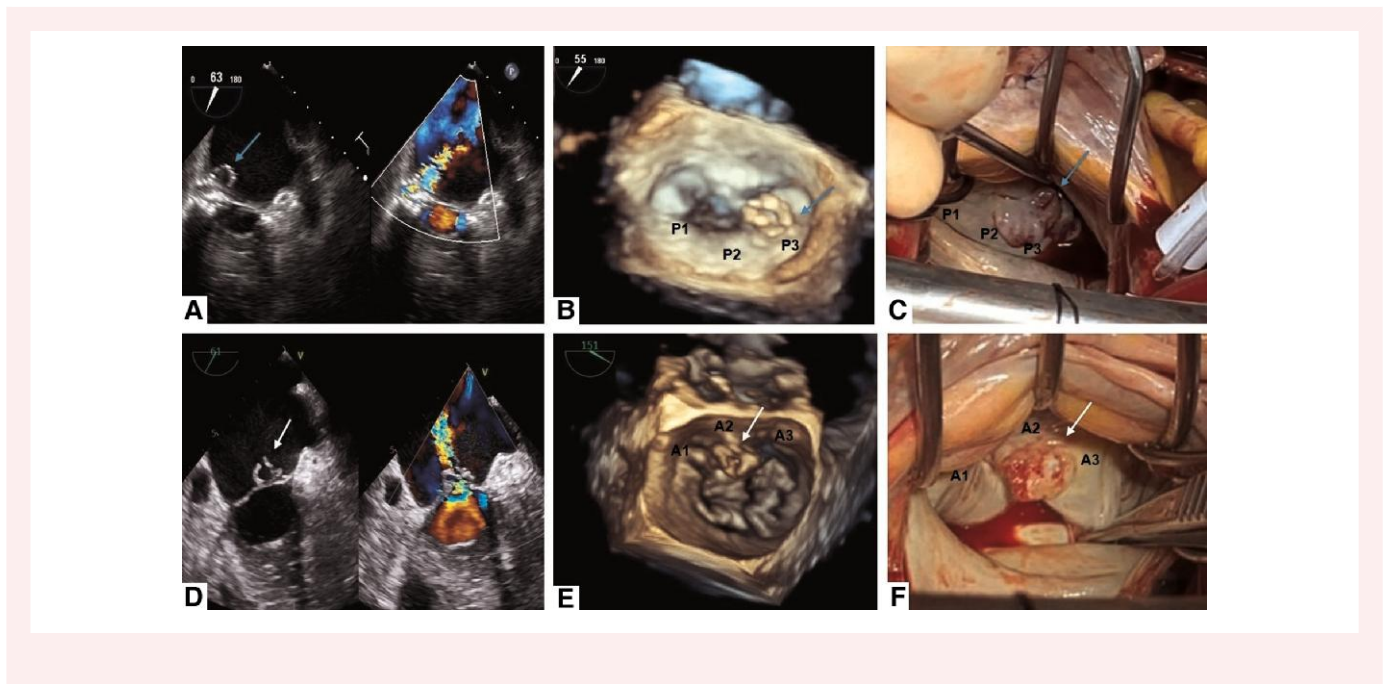


Perforated aneurysm of mitral leaflet: rare cases of early and late complication of endocarditis

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Transthoracic and transoesophageal echocardiogram (TTE, TOE) are central imaging techniques for the diagnosis of endocarditis and its complications. Mitral leaflet aneurysms and perforation are rare and usually late complications of endocarditis requiring surgery. However, when the endocarditic process is significant, complications may instead be precocious. We report here two cases of aneurysm and perforation of the mitral valve (MV) leaflets. These cases are examples of a late and an early complication of endocarditis respectively. The former is about a 78-year-old woman with previous infective endocarditis of the MV due to methicillin-resistant *Staphylococcus aureus* successfully

treated with antibiotic therapy, who presented after 5 months with acute pulmonary oedema. TTE and TOE showed aneurysm and perforation of the P3 leaflet with severe mitral regurgitation (MR). The patient underwent successful cardiac surgery for MV replacement with biological prosthesis (Panels A–C, [Supplementary material online, Videos S1 and S2](#)). Both blood cultures and microbiological tests on the valve resulted negative. The second case is related to a 76-year-old man presenting with lumbosciatica. MRI and CT showed spondylodiscitis with abscesses localized in the psoas and gluteus muscles and the brain. Blood cultures were positive for *Streptococcus anginosus*.

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TTE and TOE showed a large, perforated aneurysm of the MV (A2 scallop) causing a severe MR. In addition, a small vegetation was detected on MV and the non-coronary aortic cusp. The patient underwent successful surgical replacement of both the aortic and the MV with biological prosthesis (Panels D–F, [Supplementary material online](#), [Videos S3–S5](#)) due to multiple systemic abscesses. Both patients underwent cardiovascular rehabilitation with full recovery. The MV aneurysms usually occur in association with infective endocarditis of the aortic valve (AV). The suggested mechanism of involvement is either the direct extension of the infective process from the AV or the infected jet of aortic regurgitation striking the anterior leaflet of the MV, creating a secondary site of infection. Perforation of the aneurysm carries potentially catastrophic consequences leading to significant MR, pulmonary oedema, or embolism. Echocardiography reveals a mobile saccular bulge arising from mitral leaflets, protruding to the left atrium during systole and collapsing during diastole. The differential diagnosis includes congenital diverticulum, mitral prolapse, and blood cysts. Although a saccular shape and narrow neck are common features, the diverticulum bulges in the opposite direction into the left ventricle with the mouth facing the left atrium. Instead, neither mitral prolapse nor blood cysts

has an almost round structure and a distinct narrow neck. Mitral aneurysm can cause MR by malcoaptation of the mitral leaflets or due to its perforation (as in these two cases).

Supplementary material

[Supplementary material](#) is available at *European Heart Journal – Case Reports* online.

Consent: The authors confirm that written consent for submission and publication of these cases including images and associated text has been obtained from the patient in line with COPE guidance.

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Data availability

Anonymized patients' data are accessible and available for review (editor and/or reviewers) upon reasonable request.