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Acquired double-orifice mitral valve with severe mitral regurgitation

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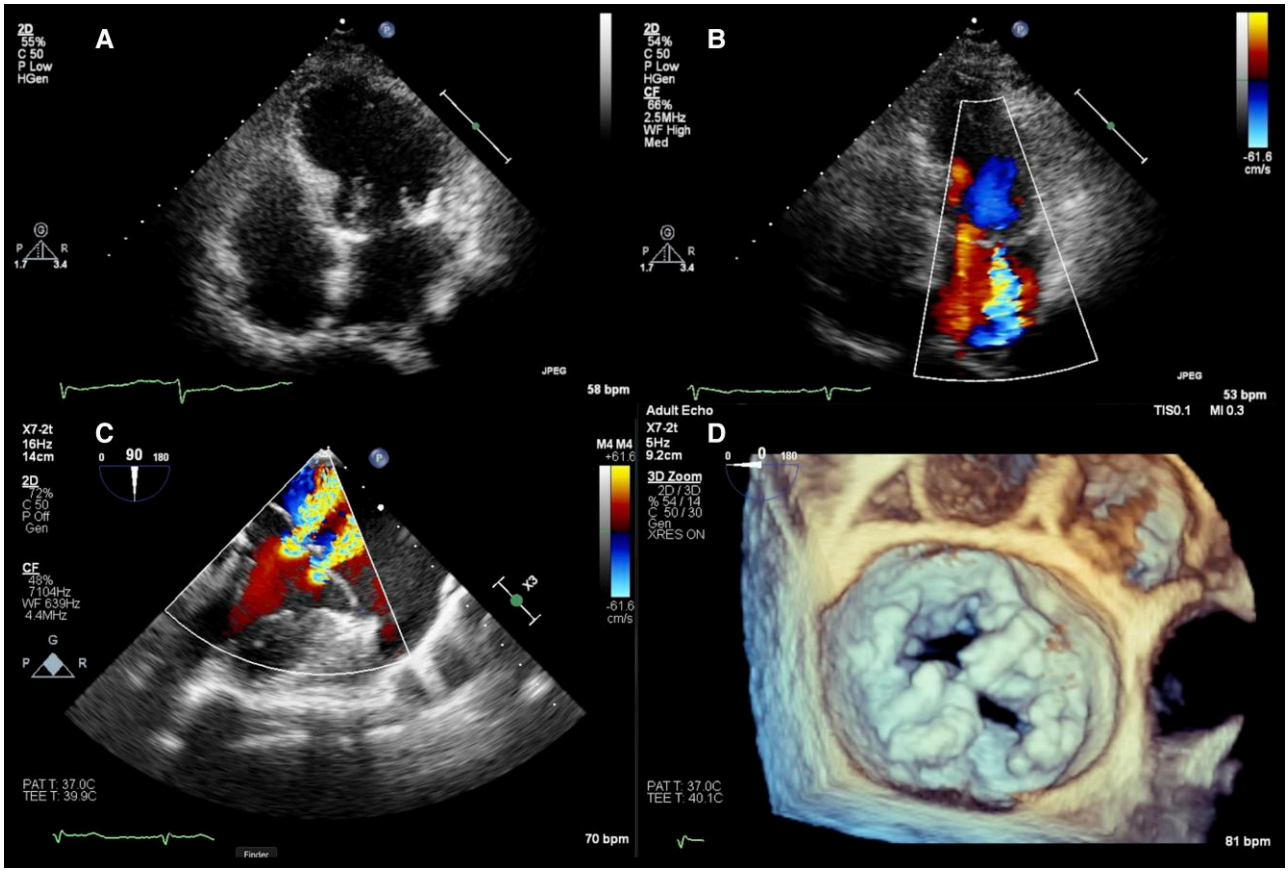

Figure 1 Transthoracic echocardiography performed 10 years ago, and transoesophageal echocardiography performed during the current admission. Transthoracic echocardiography via apical four-chamber view using (*A*) two-dimensional mode and (*B*) colour flow imaging demonstrate thickened, calcified, and prolapsed mitral valve leaflets with moderate mitral regurgitation. Recent transoesophageal echocardiography performed, at (*C*) mid-oesophageal level, two-chamber view with colour flow imaging, revealed extensive calcification of both leaflets and severe regurgitation jets through the mitral valve, via two separate orifices—highlighting likely progression of mitral valve degeneration. This is further confirmed with (*D*) three-dimensional reconstruction in the 'surgical view', revealing a 'double orifice' appearance of the mitral valve.

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A 71-year-old woman presented with a 6-month history of dyspnoea. She was known to have hypertension, degenerative mitral valve (DMV) disease, and left breast carcinoma for which she had undergone radical mastectomy and radiotherapy 5 years prior. A transthoracic echocardiogram (TTE), 10 years ago, revealed evidence of a highly calcified mitral valve, bileaflet prolapse and moderate mitral regurgitation (MR) (*Figure 1A* and *B* and Supplementary material online, *Videos S1–S3*). The patient was euvolaemic on presentation and examination revealed both mid-diastolic and pansystolic murmurs, linked to both mild mitral stenosis and severe MR, respectively, on transthoracic echocardiography. Transoesophageal echocardiogram was subsequently performed. The two-dimensional evaluation demonstrated calcification around the intervalvular fibrosa, and colour flow imaging (CFI) (*Figure 1C* and Supplementary material online, *Videos S4* and *S5*) revealed two severe regurgitation jets through the mitral valve. Three-dimensional reconstruction (*Figure 1D* and Supplementary material online, *Video S6*) showed extensive calcification around the annulus and leaflets with the presence of a central, calcified fusion between the anterior and posterior leaflets. This resulted in two orifices with separate regurgitation jets, demonstrated through CFI. Eventually, the patient had declined surgical management in view of the associated risk, opting for conservative management instead.

Although rheumatic disease remains the most common cause of mitral valve disease worldwide, DMV remains an important cause, especially in developed nations.[1] Extensive mitral annular calcification is classically associated with DMV, often with sparing of the valvular leaflets.[2] Conversely, radiation-associated mitral disease is associated with variable degrees of calcification, regularly involves calcification of the intervalvular fibrosa, and often manifest only after a decade following radiotherapy.[2,3] Our patient had exhibited combined features suggestive of both pathological processes, with the possible acceleration of DMV following irradiation. This case highlights a unique manifestation of combined mitral valve diseases, where central bridging between leaflets results in an acquired 'double orifice' appearance which has not been previously reported.

Supplementary material

Supplementary material is available at *European Heart Journal – Case Reports* online.

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Data availability

The data that support the findings of this study are available from UiTM Sungai Buloh and Institut Jantung Negara, but restrictions apply to the availability of these data, which were used under licence for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of UiTM Sungai Buloh and Institut Jantung Negara.

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