






## Images in Cardiology

# A Ring With Endocarditis: An Unfortunate Marriage

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A 79-year-old man was admitted to our centre with persistent fever, fatigue, and cough 6 months after mitral and tricuspid valve repairs with annuloplasties and ring implantations for myxomatous mitral and tricuspid valve disease with prolapse and severe regurgitation. The blood tests showed slightly elevated C-reactive protein (46.5 mg/L; upper limit of normal < 5 mg/L) without leukocytosis, and elevated D-dimer (1827 µg/L). Thoracic computed tomography excluded pulmonary embolism and disclosed pericardial and pleural effusions. Transthoracic echocardiography showed several highly mobile filamentous structures suggestive of vegetations attached to the ventricular aspect of mitral valve leaflets (Fig. 1A), as well as the tricuspid valve leaflets, and mitral ring rocking movement suggestive of significant mitral ring dehiscence (Fig. 1A; Videos 1 and 2 , view video online), with severe mitral regurgitation (Fig. 1B; Video 3 , view video online) and mild tricuspid regurgitation. A significant shunt between the left ventricle and left atrium at the mitral-aortic junction level was also apparent and suggestive of a fistula. Transesophageal echocardiography confirmed these findings, with a highly mobile mitral ring (dehiscence of > 80% of mitral ring) (Fig. 1, C and D; Videos 4-7 , view video online). Methicillin-resistant *Staphylococcus epidermidis* (MRSE) was identified in several blood cultures, confirming the diagnosis of mitral and tricuspid valve endocarditis. The patient was started on intravenous antibiotics (vancomycin, gentamycin, and rifampicin) and was submitted to emergency surgery, with

surgical macroscopic confirmation of mitral and tricuspid vegetations at the ventricular leaflet surface, and MRSE isolation in excised valve tissues. Both valves were replaced by biological prostheses (Epic 31 and Edwards 33, respectively). The postoperative period was uneventful. He was discharged with negative blood cultures 22 days after surgery and completed 6 weeks of antibiotics. Follow-up echocardiography demonstrated normally functioning bioprostheses. This case shows an atypical form of severe prosthetic ring dehiscence, highlighting the importance of transthoracic and transesophageal echocardiography in diagnosis and surgical planning, including search for concomitant vegetations at unusual locations that may also need to be approached.

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### Disclosures

The authors have no conflicts of interest to disclose.

### Supplementary Material

To access the supplementary material accompanying this article, visit the online version of the *Canadian Journal of Cardiology* at [www.onlinecjc.ca](http://www.onlinecjc.ca) and at <https://doi.org/10.1016/j.cjca.2022.12.013>.

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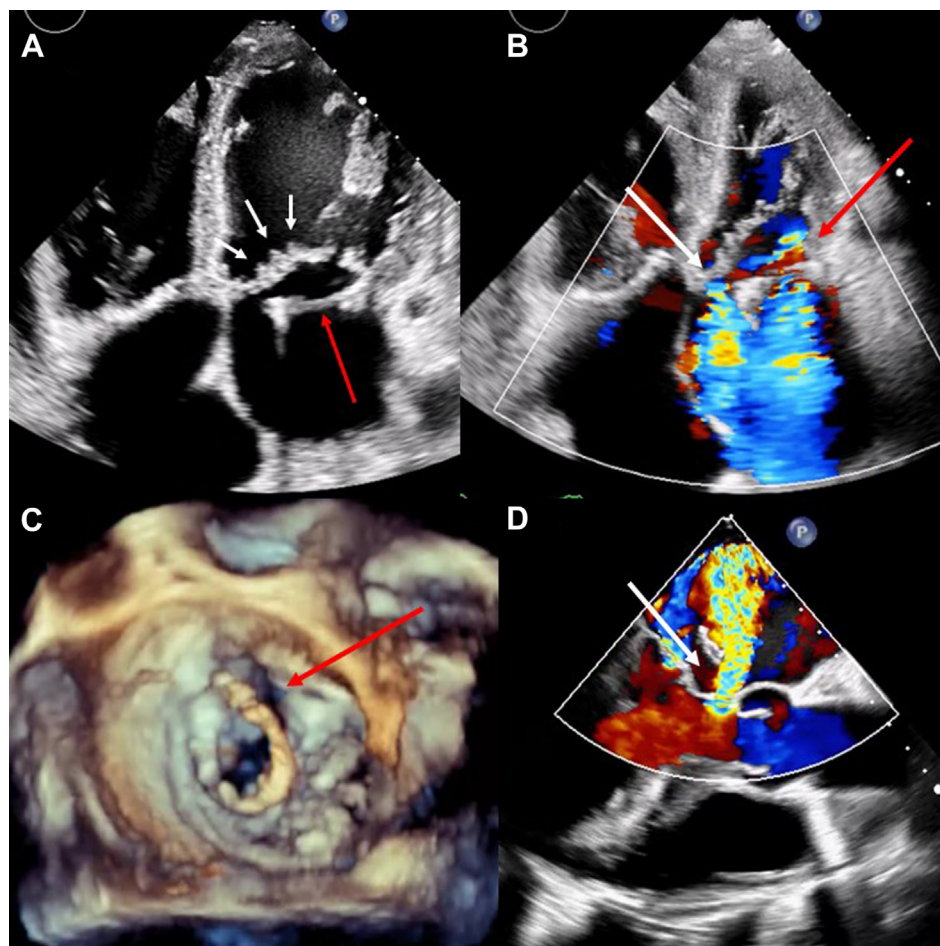
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**Figure 1.** Transthoracic and transesophageal echocardiography showing mitral endocarditis and its complications. **(A)** Transthoracic echocardiographic 4-chamber view showing mitral valve leaflet vegetations (**white arrows**) and ring dehiscence (**red arrow**). **(B)** Transthoracic echocardiographic 4-chamber view with colour Doppler showing severe mitral valve regurgitation (**red arrow**) and a fistula at the mitral-aortic junction (**white arrow**). **(C)** Transesophageal echocardiography with a 3-dimensional view of mitral ring dehiscence (**red arrow**). **(D)** Transesophageal echocardiography in 120° view showing a fistula between left ventricle and left atrium at the mitral-aortic junction (**white arrow**).