

Melody Valve in Mitral Position: Complete Fracture Causing Acute Mitral Stenosis in a Child

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We present a case of a 7 year-old boy with a history of multiple mitral valve interventions and subsequent Melody valve placement in the mitral position, who presented with acute mitral stenosis due to complete fracture of the Melody stent. He was born at 33 weeks gestation with hydrops and severe mitral and tricuspid insufficiency due to valvular dysplasia. He had mitral and tricuspid valve repair at 3 months of age. He needed early mitral valve replacements at ages 5 months (severe regurgitation), 7 months (mechanical valve thrombosis), and 19 months (mechanical valve thrombosis), ending up with a 21 mm St. Jude Epic bioprosthetic valve. He did well until age 6, when he developed mixed stenosis and regurgitation. Due to his history and to avoid another sternotomy, valve-in-valve therapy with off-label use of a 20 mm Melody valve was done with hybrid procedure via trans-apical approach. The valve initially functioned well, however 8 months later he presented with acute shortness of breath and fatigue. Echocardiography showed acutely worsened mitral stenosis (mean gradient 20 mmHg), systemic RVSP, severe tricuspid regurgitation, and a mobile segment of the proximal Melody stent. Fluoroscopic evaluation confirmed complete fracture of a portion of the stent creating a flap causing mitral inflow obstruction. He was taken to the OR the same day for mitral valve re-replacement with a 23 mm On-X mechanical prosthesis without complication. While the safety and efficacy of the Melody valve has been well established especially in the pulmonary position, stent fracture is a known and potentially serious complication. To our knowledge, Melody stent fracture in the mitral position has yet to be reported. As with any novel valve therapy, close follow-up and frequent imaging may be warranted to watch for loss of stent integrity, particularly if clinical symptoms of valve dysfunction occur.

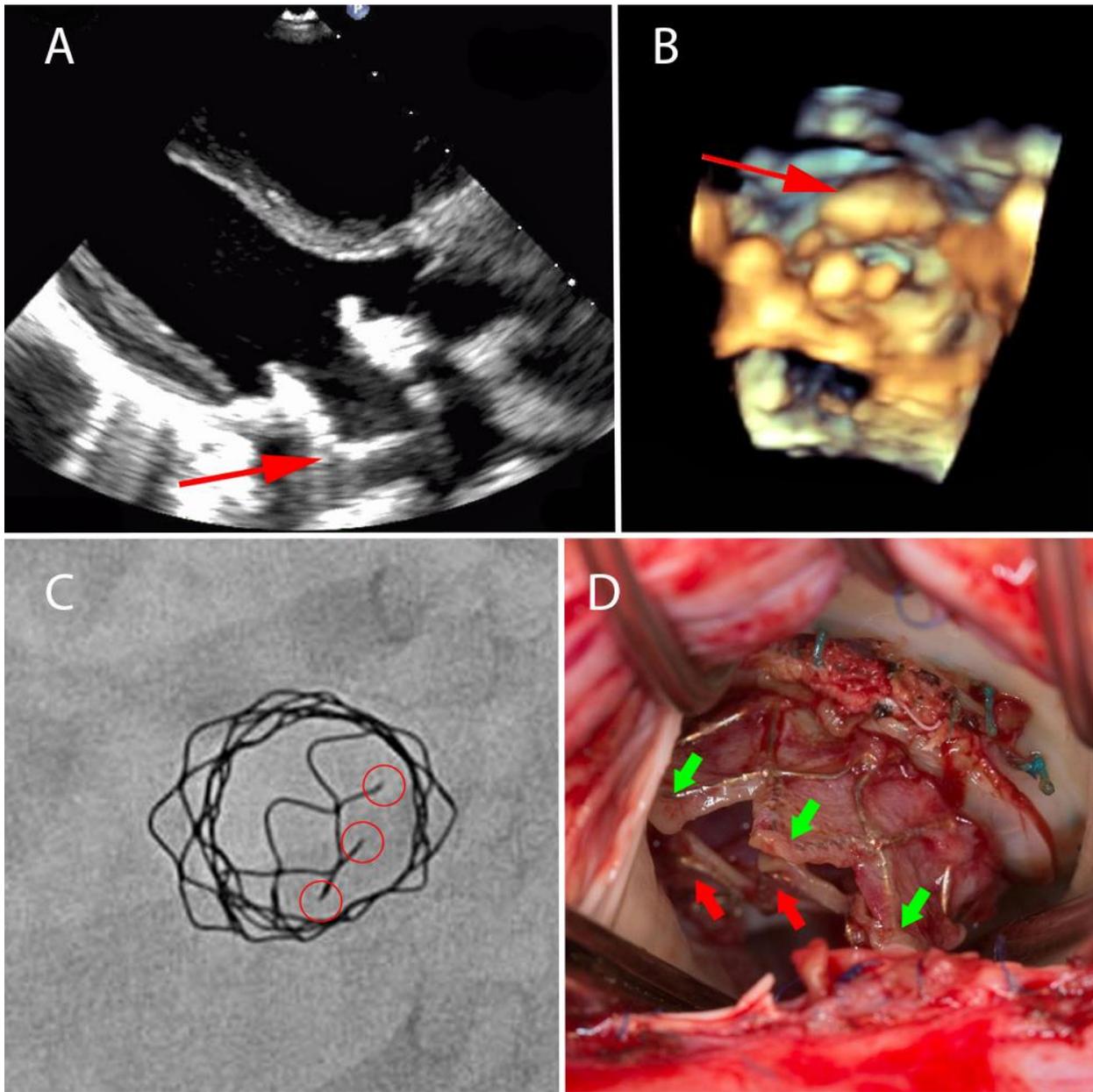


Figure 1: Multiple different views and modalities demonstrate the fractured stent of the Melody valve. By echocardiography in parasternal long axis view (A) and by 3D looking from the left atrium (B) the fractured flap is identified by the red arrows. The points of stent fracture are clearly seen by fluoroscopy (C), delineated by the red circles. Intraoperative view displays the fractured portion of the stent folding into the mitral annulus toward the viewer (D); the green arrows point toward the intact part of the stent, and the red arrows point toward the fractured area.