



Grasping the Pseudo-Cleft in the Case of a Small, Severely Tethered Posterior Mitral Leaflet

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A 78-year-old man presented with dyspnea and suffered from acute decompensated heart failure complicated by cardiogenic shock during intra-aortic balloon pump (IABP) support. He had a medical history of dilated cardiomyopathy with moderate systolic dysfunction (left ventricular ejection fraction 30%) and severe functional mitral regurgitation (MR). Three-dimensional transesophageal echocardiography elucidated MR jets coming from the cleft over the posterior mitral leaflet (PML) and central A2-P2 due to PML restriction (Fig. 1A, B; asterisk marks location of the cleft). Despite the fact that patients with mitral cleft are not classic candidates for MitraClip (Abbott Vascular, Santa Clara, CA, USA) and the surgical risk for mortality was prohibitive (EuroScore II=36.5%), the patient decided to receive a MitraClip. In this procedure, we intended to grasp his very small and severely tethered PML. We administered dopamine at a continuous infusion rate of 10 mcg/kg/min. When we tried to grasp the PML, a rhythmic in-and-out motion was observed from beat-to-beat as an IABP 2:1 augmentation. When we set the IABP to a 1:1 augmentation, the PML became more stable over the clip arm. A second clip was placed medially close to the first clip (Fig. 1C, D) to further reduce residual MR. A fluoroscopic view shows the second clip parallel to the first clip. The procedure resulted in mild MR (Fig. 1E, F). The patient was

weaned from the IABP and mechanical ventilation support afterward. In this case, we demonstrated that grasping a severely tethered PML became easier with proper IABP augmentation. We retrospectively measured the anterior-posterior annulus diameter at the end-diastolic phase. It shortened from 3.3 to 3.1 cm with proper IABP augmentation which facilitated grasping in this circumstance. Patzelt et al.¹⁾ demonstrated that anterior-posterior annulus diameter became shorter when positive end-expiratory pressure was increased during a MitraClip procedure. With proper IABP augmentation, we also observed a similar change in annulus diameter, which may have improved coaptation of the leaflet. This case demonstrated the feasibility of IABP for facilitating difficult grasping in severely restricted PML.

Reference

1. Patzelt J, Zhang Y, Seizer P, et al. Effects of mechanical ventilation on heart geometry and mitral valve leaflet coaptation during percutaneous edge-to-edge mitral valve repair. *JACC Cardiovasc Interv* 2016;9:151-9.

Received: December 13, 2016 / **Revision Received:** January 18, 2017 / **Accepted:** January 23, 2017

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• The authors have no financial conflicts of interest.

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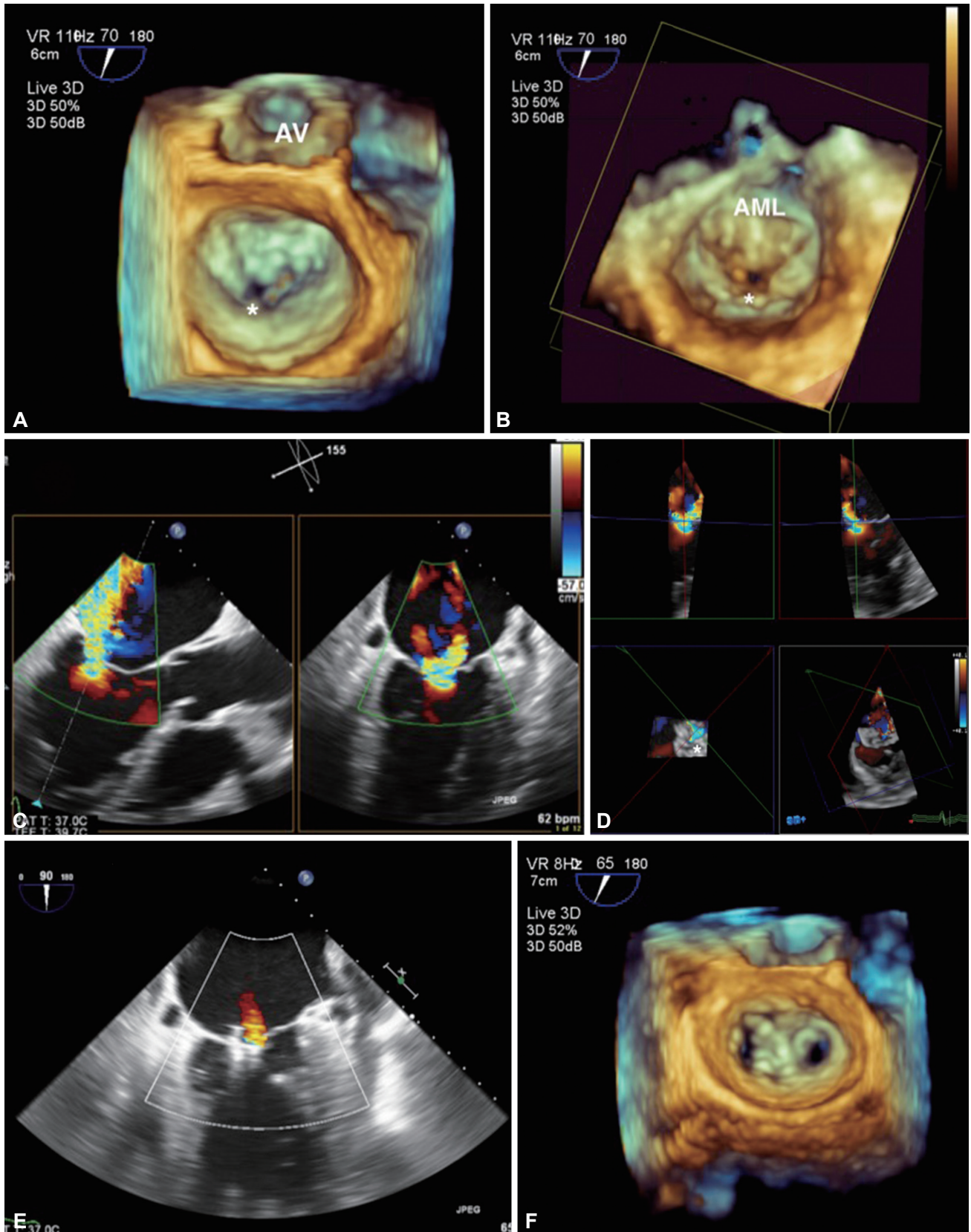


Fig. 1.