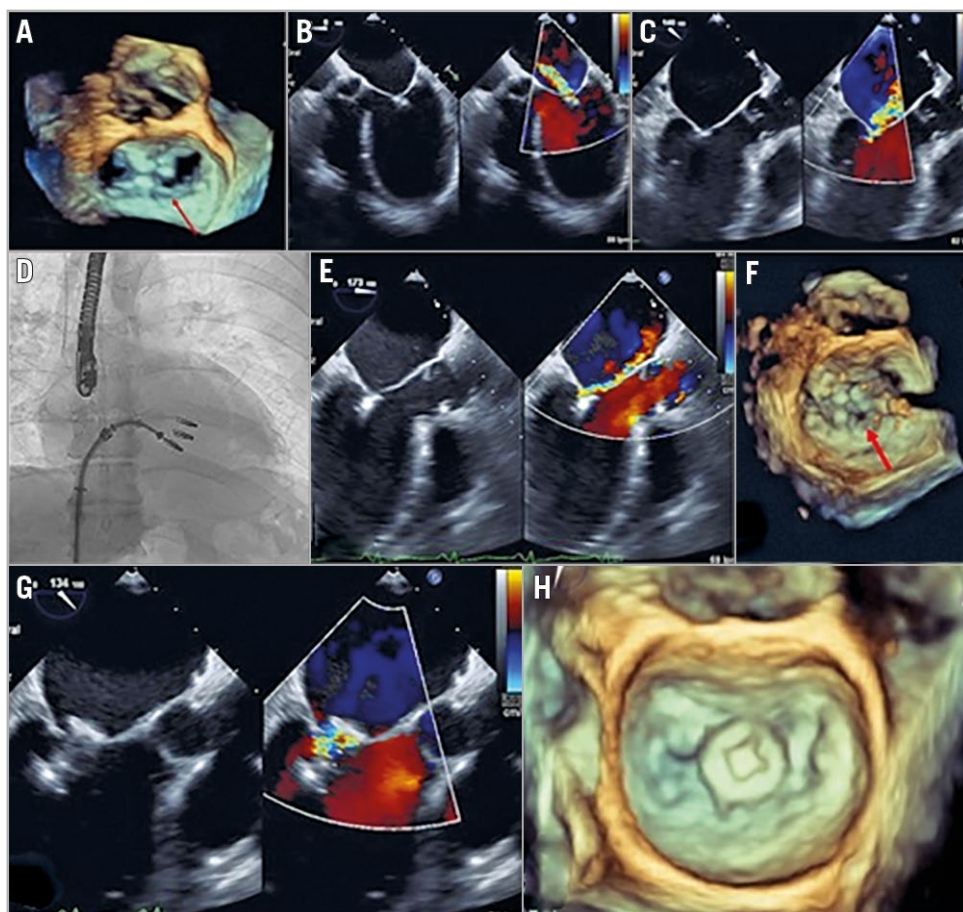


## Residual “inter-clip” regurgitation due to a partial detachment, treated with AMPLATZER Vascular Plug II implantation



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With proven safety and feasibility, percutaneous edge-to-edge mitral valve repair with the MitraClip System (Abbott Vascular, Santa Clara, CA, USA) is currently an option for patients with severe mitral regurgitation (MR) and at high surgical risk<sup>1</sup>. In about half of patients, more than one clip is needed to achieve a significant reduction of MR and, in up to 12.3% of patients, a regurgitant jet persists between or around the clips<sup>1</sup>. Implantation of additional clips to treat “inter-clip” regurgitation is not always feasible and, frequently, MR is left untreated, which is associated with poor clinical outcomes during follow-up<sup>1,2</sup>. Some reports of residual jet closure with the AMPLATZER™ Vascular Plug II (AVP II) device (St. Jude Medical, St. Paul, MN, USA) have shown reasonable results<sup>3,4</sup>. Herein, we present a case with partial detachment treated with this occluder.

**Editorial, see page 1735**

A 61-year-old man, with cardiovascular risk factors (active smoker and type 2 diabetes), was admitted in 2015 with an inferior STEMI undergoing primary PCI. After the procedure, he developed heart failure; inferolateral akinesia was shown on echocardiography, with LVEF 41% and severe functional mitral regurgitation with tenting of the posterior mitral leaflet. The EuroSCORE II estimated risk of operative mortality was 5%. After discussion in the Heart Team, a decision was made to proceed with percutaneous treatment. Mitral valve reparation was performed with implantation of two MitraClip devices in A2-P2 position, with significant improvement of mitral regurgitation. Two years later, the patient was readmitted for heart failure despite optimal medical therapy. Transoesophageal echocardiography revealed reduction of the ejection fraction (LVEF 33%) and a detachment of the posterior leaflet of the medial clip, causing severe mitral regurgitation (**Panel A-Panel C, Moving image 1, Moving image 2**). We proceeded to implant a third MitraClip device in a medial position (**Panel D**) but severe mitral regurgitation persisted through the orifice between the central clip (detached) and the posterior leaflet (**Panel E, Panel F, Moving image 3, Moving image 4**). Due to the impossibility of placing another clip in this position, we proceeded to implant an AVP II 12 mm occluder device (**Moving image 5**), achieving a significant reduction of mitral regurgitation without significant increase of transmitral gradient (**Panel G, Panel H, Moving image 6, Moving image 7**). The patient could be discharged seven days after the procedure and, at 30 days of follow-up, he remains in NYHA functional Class II, without new admissions.

## Conflict of interest statement

D. Arzamendi and C-H. Li are proctors for Abbott Vascular. The other authors have no conflicts of interest to declare.

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## Supplementary data

**Moving image 1.** Severe mitral regurgitation on transoesophageal echocardiography with colour Doppler.

**Moving image 2.** Severe mitral regurgitation on transoesophageal echocardiography 3D view.

**Moving image 3.** Persistence of severe mitral regurgitation after the third clip implantation.

**Moving image 4.** 3D view showing the regurgitant orifice between the central clip (detached) and the posterior leaflet.

**Moving image 5.** AVP II 12 mm occluder device deployment.

**Moving image 6.** Colour Doppler revealing significant reduction of mitral regurgitation.

**Moving image 7.** 3D view showing occlusion of the orifice.

The supplementary data are published online at:

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