

# Usage of two systems of percutaneous MitraClip implantation

## CASE REPORT

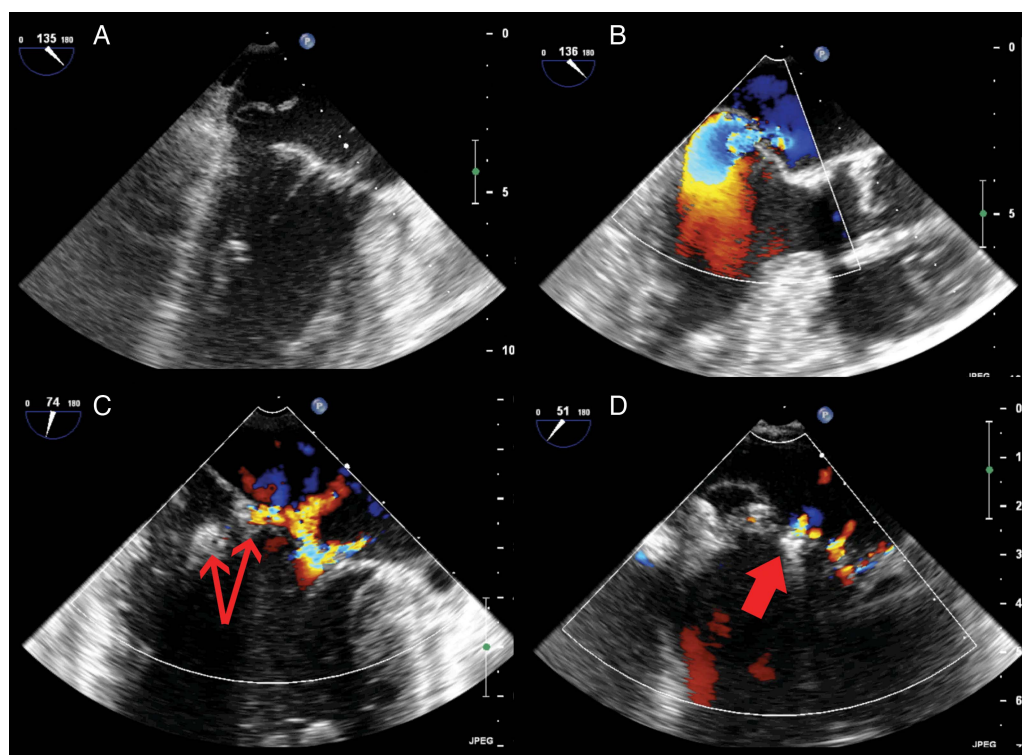
An 83-year-old man was referred to our clinic due to dyspnoea (NYHA Class III) and grade IV mitral regurgitation (MR) because of chordal rupture to P3 with flail leaflet (figure 1A; see online supplementary video 1). Due to high surgical risk, the heart team meeting recommended percutaneous mitral valve repair by using the MitraClip system.

The trans-septal puncture aimed at an inferior and posterior position, allowing the steerable guide to reach the lateral commissure. Because of no support from secondary chords and vigorous leaflet movements, the first clip could not have a secure leaflet grasp (figure 1B and 2A; see online supplementary video 2), with a following risk of clip detachment.

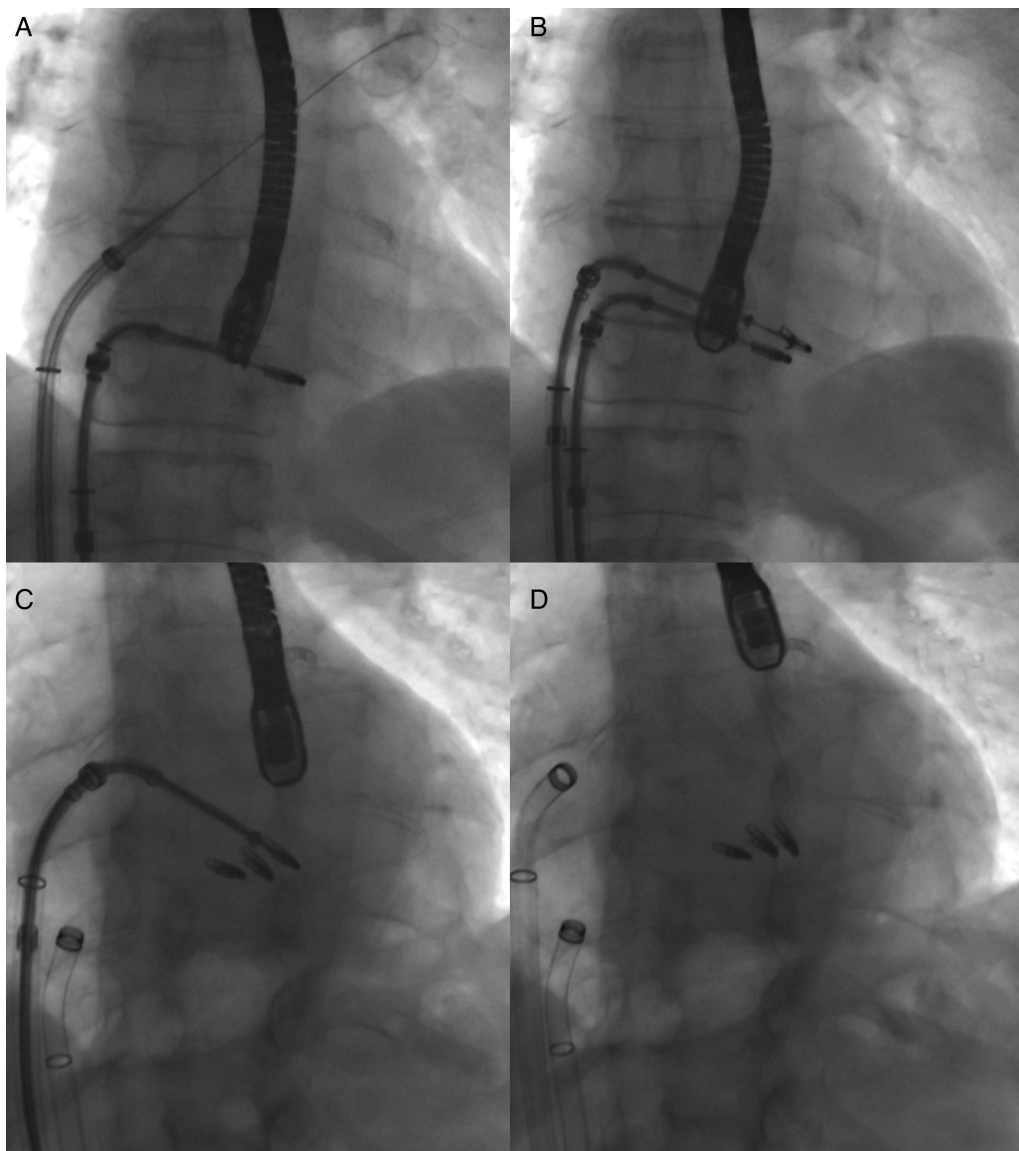
Therefore, also via the femoral vein, another trans-septal puncture was performed at a more superior and central

position, and another MitraClip system was inserted. With the help from the first clip attached to the catheter, the second clip could grasp both leaflets with adequate tissue at a more lateral position (figure 2B). The first clip could then regrasp the leaflets with more tissue, resulting grade II MR (figure 1C; see online supplementary video 3). The third clip (figure 2C,D) was deployed at a more lateral position resulting in trivial residual MR (figure 1D; see online supplementary video 4) with mean pressure gradient 2 mm Hg. The patient experienced reduced symptoms of dyspnoea and was discharged the next day.

To our knowledge, this is the first report of MitraClip implantation using two systems simultaneously. The method could be considered in cases when the leaflets are found to be very mobile and without adequate secondary support. This patient was without a surgical option due to estimated high surgical risk, and highly symptomatic without possibilities to further optimise the medical therapy. Even the valve morphology is outside the 'Everest-criteria', it is known that even such patients with highly degenerated valves can be treated with good result.<sup>1</sup> However, due to the complexity of the procedure, this method requires experience, and the risk of complications, like tearing of the atrial septum or getting entangled in chordae with the device, should be weighed against the patient's clinical benefit.



**Figure 1** (A) Transoesophageal echocardiogram showed flail posterior leaflet of mitral valve due to chordal rupture to P3. (B) Transoesophageal echocardiogram showed the first clip could not have good leaflets grasp due to lack of secondary support from ruptured chordae. (C) Transoesophageal echocardiogram showed the good leaflets grasp after using two MitraClips (thin arrows). (D) Transoesophageal echocardiogram showed satisfactory result with trivial mitral regurgitation after the third clip was deployed (thick arrow).



**Figure 2** (A) The first MitraClip was unable to grasp the leaflets adequately, as the leaflets were going up and down vigorously, so another guide catheter of MitraClip was advancing from the left groin, with trans-septal puncture at a more superior and central position. (B) The second clip could grasp both leaflets with adequate tissue at a more lateral position, while the first clip was still attached to the clip delivery system. (C) The third clip was implanted at a more lateral position. (D) Optimal position of three MitraClips with satisfactory result.

Gary Cheung,<sup>1,2</sup> Nikolaj Ihlemann,<sup>1</sup> Olaf Franzen<sup>1</sup>

<sup>1</sup>Department of Cardiology, University Heart Center, Copenhagen, Denmark

<sup>2</sup>Pamela Youde Nethersole Eastern Hospital, Chai Wan, Hong Kong

**Correspondence to** Dr Olaf Franzen, Rigshospitalet University Hospital; Blegdamsvej 9, Copenhagen 2100, Denmark; owfranz@gm.de

**Contributors** All three authors were involved in the procedure, and also contributed to the manuscript preparation.

**Competing interests**

**Patient consent** Obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

► Additional references are published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/heartasia-2013-010422>)



CrossMark

**To cite** Cheung G, Ihlemann N, Franzen O. *Heart Asia* 2013;**5**:250–251. doi:10.1136/heartasia-2013-010422

*Heart Asia* 2013;**5**:250–251. doi:10.1136/heartasia-2013-010422

## REFERENCE

- 1 Franzen O, Baldus S, Rudolph V, *et al.* Acute outcomes of MitraClip therapy for mitral regurgitation in high-surgical-risk patients: emphasis on adverse valve morphology and severe left ventricular dysfunction. *Eur Heart J* 2010;**31**:1373–81.