

## Real-world case study

# PASCAL Precision system: How safe optimisation of leaflet capture<sup>1</sup> may result in further regurgitation reduction<sup>2</sup>

One benefit that the PASCAL Precision system offers is atraumatic clasp and closure, which help preserve leaflet integrity.\* Safe optimisation of leaflet capture<sup>1</sup> may result in further regurgitation reduction.<sup>2</sup> Here, Professor Arzamendi from Hospital Sant Pau in Barcelona, Spain, describes a patient where the atraumatic clasp and closure of the PASCAL Precision system helped to safely optimise leaflet capture while preserving leaflet integrity, resulting in further mitral regurgitation (MR) reduction.



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Professor Dabit Arzamendi is an interventional cardiologist at the Hospital Sant Pau in Barcelona. His expertise includes percutaneous aortic, mitral and tricuspid valve treatments, along with intracardiac septal defect repair and complex coronary interventions. He has performed nearly 400 mitral transcatheter edge-to-edge repairs (TEERs), about 90 of which used the PASCAL repair system or PASCAL Precision system.

\*Performance and simulation data on file.

### The patient

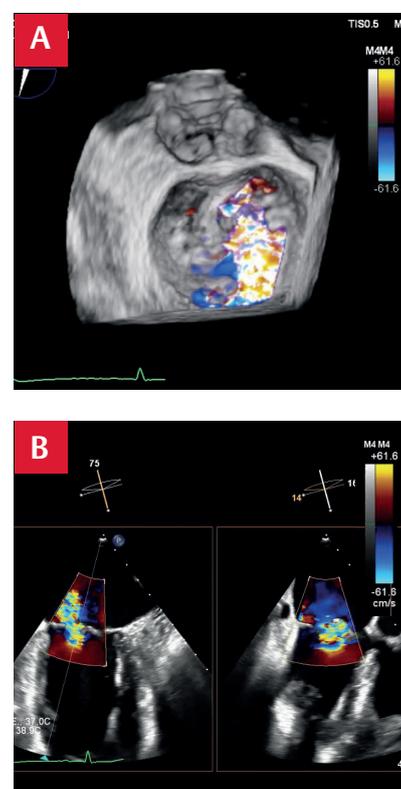
An 82-year-old female patient was referred to us with symptomatic degenerative grade 4 MR caused by a non-A2-P2 prolapse (Figure 1). Despite medical therapy, she continued to experience dyspnoea and malaise. The patient's age made her high risk, so the Heart Team decided to treat her with mitral TEER using the PASCAL Precision system.

### The challenge

A non-A2-P2 mitral valve prolapse can pose challenges in orientating the device to achieve optimal leaflet capture. In addition, this kind of pre-commissural prolapse also presents the risk of chordae entanglement with the TEER device.

### The strategy

We selected the PASCAL Ace implant, with its longer clasps to grasp the prolapsing tissue, and we aimed for a two-implant strategy. The atraumatic clasp and closure of the PASCAL Precision system help preserve leaflet integrity\* during optimisation of leaflet capture, giving me the confidence to keep adjusting until I have grasped the right amount of tissue to optimally



**Figure 1. 3D echocardiography (A) and TOE (B) of the mitral valve at baseline.**

TOE, transoesophageal echocardiography.

reduce the MR. Also, the ability to elongate the PASCAL and PASCAL Ace implants promotes safe subvalvular manoeuvring.

### The procedure

To address prolapses in this position, we first enter the ventricle with the PASCAL Ace implant, then pull back and advance again to ensure we do not miss the optimal angle to attempt leaflet grasping. Secondly, we use the clocking feature of the PASCAL Precision system to make small movements within the ventricle until completely axial to the prolapse. At this point, we attempt to grasp the whole prolapse with a single device;

if necessary, we will re-attempt leaflet capture to avoid leaving any residual prolapse, as this causes MR to return in future, in our experience.

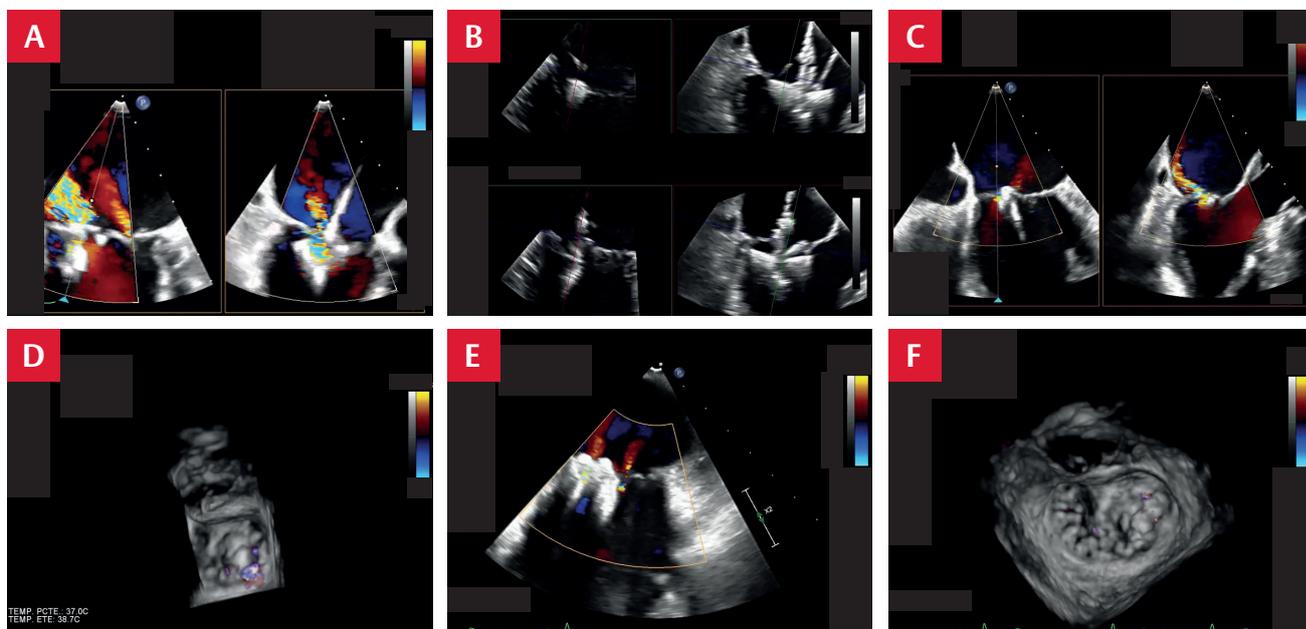
We carried out two grasping attempts with the first PASCAL Ace implant (Figure 2A: result after the first grasping attempt) then optimised leaflet capture on both the anterior and posterior leaflets (Figure 2B). After releasing the first implant, some medial residual jet was present due to remaining prolapse in that area (Figures 2C and 2D). Therefore, we used a second implant, which also required two grasping attempts to achieve a good result. Upon release of

the second implant, the MR was reduced from severe to trace (Figures 2E and 2F).

### Key tips

The key to a good result is analysing the case, selecting the right patients who will benefit from the procedure and exploiting the huge improvements in imaging quality that give us good views of the valve. The PASCAL Precision system gives me the confidence to optimise outcomes and enables the post-implant release predictability you expect.\*

\*Performance data on file.



**Figure 2.** TOE after first grasping attempt of the first PASCAL Ace implant (A); bilateral optimisation of the first PASCAL Ace implant (B); and result after the release of the first PASCAL Ace implant (C). 3D echocardiography post release of the first implant (D); TOE post release of the second implant (E); and 3D echocardiography post release of the second implant (F).

TOE, transoesophageal echocardiography.

### References

1. Performance, design and simulation data on file; experiments and analysis performed by CVPath Institute.
2. Hausleiter J, Stocker Thomas J, Adamo M *et al.* Mitral valve transcatheter edge-to-edge repair. *EuroIntervention*. 2023; **18**: 957–76.

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