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A case of severe mitral annular calcification treated with ultrasonic aspiration and mitral valve replacement through minimally invasive access

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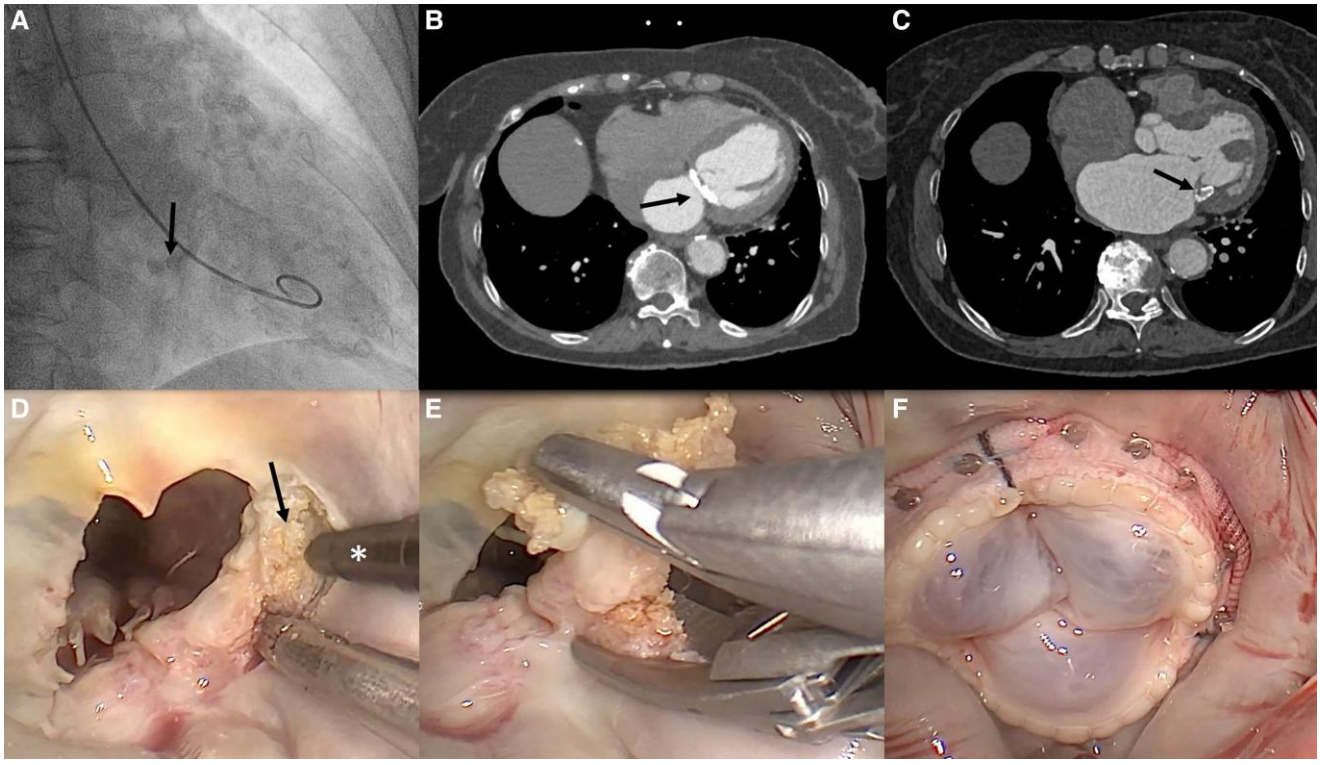

Figure 1 (*A*) Angiography. Arrow denotes MAC. (*B*, *C*) Computed tomography. Arrow denotes calcification of the posterior annulus. (*D*) Intraoperative debulking of posterior annulus (arrow) with ultrasonic aspirator (asterisk). (*E*) Removal of calcified tissue. (*F*) Implanted bioprosthesis.

The surgical and interventional possibilities in treatment of patients with mitral annular calcification (MAC) and mitral valve dysfunction are limited and bear a high risk for complications such as atrioventricular grove rupture or severe paravalvular leakage. Interventional treatments are seldomly feasible in MAC, and surgery has a high risk of mortality.[1] Ultrasonic aspiration has been proposed

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as a possible way to enable mitral valve replacement (MVR) but was only reported in open surgical setting until now. We present the case of an 80-year-old female patient with severe mitral regurgitation and MAC (*Figure 1A–C*, supplementary material: *Video* Pre OP). We performed minimally invasive surgery via anterolateral minithoracotomy with full endoscopic 3D visualization and implementation of cardiopulmonary bypass through the femoral vessels. We used the ultrasonic aspirator (Sonopet iQ, Stryker Osteonics SA, Biberist, Swiss) for decalcification of the posterior annulus annulus (*Figure 1D* and *E*). After cautious debulking of enough calcified tissue to place the annular stitches, a 31 mm EPIC (Abbott) bioprosthesis could be implanted easily (*Figure 1F*). In transoesophageal echocardiography, there was no sign of paravalvular leakage (supplementary material: *Video* Post OP). Postoperatively apart from mild postoperative delirium, the patient had no signs of neurological complication such as stroke or seizure and made a full recovery.

Patients with MAC and indication for MVR are challenging to both surgeons and interventionalists. We were able to present a case with successful decalcification of the mitral annulus via ultrasonic aspiration and MVR through minimally invasive surgery, which could be a promising treatment option for this patient population.

Supplementary material

Supplementary material is available at *European Heart Journal – Case Reports*.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

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Data availability

No new data were generated or analysed in support of this research.

Reference

1. Jeong M, Roberts WC. Mitral valve replacement for mitral stenosis secondary to massive mitral annular calcium. *Am J Cardiol* 2023;**189**:131–136.