

Severe and rapid progression of mitral regurgitation in a patient awaiting the MitraClip procedure

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The MitraClip procedure enables minimally invasive correction of severe mitral regurgitation (MR) in patients with prohibitive surgical risk.¹ Despite continuous progress in technology, anatomical contraindications to the procedure still exist.

A 75-year-old man with chronic heart failure (New York Heart Association functional class III) and severe MR was admitted for MR evaluation and treatment qualification. He had a history of percutaneous coronary intervention of the right coronary artery and coronary artery bypass grafting within 1 year before admission, myocardial infarction, permanent atrial fibrillation / flutter, and tachycardia–bradycardia syndrome treated with dual-chamber pacemaker implantation. Transthoracic echocardiography (TTE) showed left ventricular enlargement and hypokinesia (left ventricular end-diastolic diameter, 56 mm; left ventricular end-diastolic volume index, 79.7 ml/m²; and left ventricular ejection fraction [LVEF], 45%) and severe functional MR with a coaptation gap (gap width of 1 mm and effective regurgitant orifice estimated at 45 mm²). Right ventricular dimensions and function were preserved, and right ventricular systolic pressure was 60 mm Hg. The patient was considered ineligible for surgery because of a high operative risk (EuroSCORE II, 9.34%) and cardiac resynchronization therapy (LVEF, 45%). Transesophageal echocardiography (TEE) confirmed anatomical suitability for the edge-to-edge procedure. He was discharged from the hospital and put on the waiting list for the MitraClip procedure.

After 2 months, the patient was urgently readmitted to the hospital due to decompensated

heart failure with orthopnea and severe pulmonary congestion. Repeat TTE showed a reduced LVEF of 45%, signs of marked pulmonary arterial hypertension (mean pulmonary arterial pressure of 55 mm Hg and right ventricular systolic pressure of 72 mm Hg), and increased MR (effective regurgitant orifice area of 50 mm²). After standard medical therapy with intravenous diuretics, the MitraClip procedure was attempted. The patient was put under general anesthesia and TEE was performed prior to the procedure. However, it revealed that the valve anatomy dramatically changed in comparison with the previous examination (FIGURE 1A–1C). The leaflets became more restrictive and the coaptation gap increased from 1 mm (FIGURE 1B) to 7 mm (FIGURE 1E). The degree of MR increased from severe (FIGURE 1A) to torrential (FIGURE 1D). The MitraClip procedure was aborted because the coaptation gap was too wide and MR could not be treated even with the MitraClip XTR device. Following re-evaluation by the Heart Team and after a thorough discussion with the patient, a successful minimally invasive mitral valve repair using the right minithoracotomy approach was performed. The decision was guided by recent data on the safety of this technique.² No complications during and after the procedure were reported.

The main take-home messages from this case are as follows: 1) functional MR is a very dynamic disease and its severity may change significantly within a short period; 2) patients referred for the MitraClip procedure should be treated as soon as possible; 3) there is a large unmet need for percutaneous valve replacement; and 4) minimally invasive approach can be considered even in high-risk patients with isolated torrential MR.

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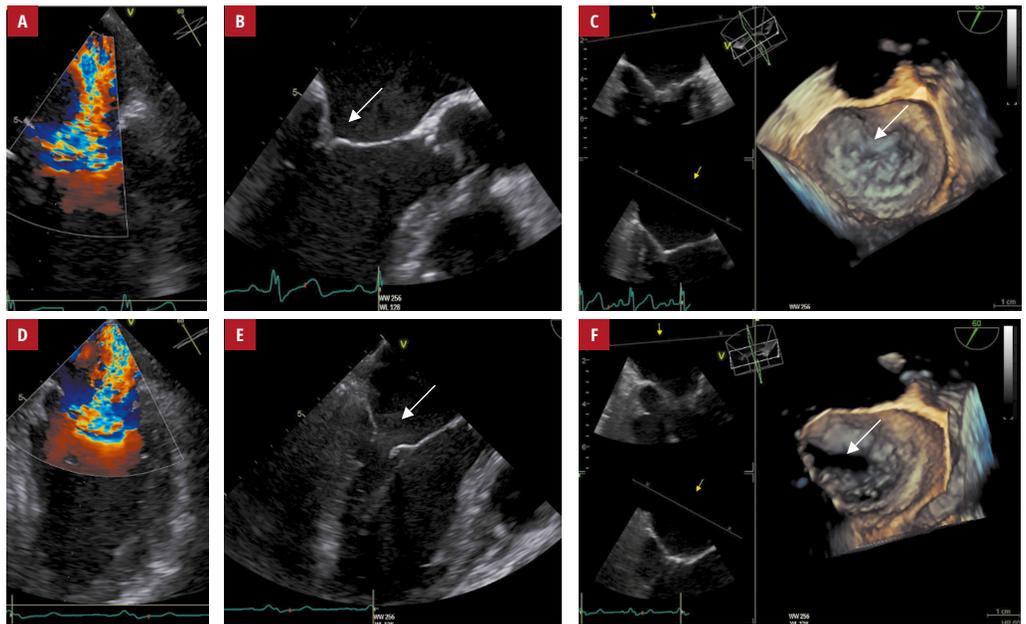


FIGURE 1 **A-C** – transesophageal echocardiography (TEE) performed 2 months prior to the planned MitraClip procedure: **A** – systolic-phase images showing severe mitral regurgitation (MR) in the midesophageal intercommissural view, color Doppler mode; **B** – the mitral valve in the midesophageal long-axis view; the arrow indicates the coaptation gap of 1 mm; **C** – 3-dimensional presentation of the mitral valve: “surgical” mitral view; the arrow indicates the coaptation gap. **D-F** – TEE performed immediately prior to the aborted MitraClip procedure: **D** – systolic-phase images showing torrential MR in the midesophageal intercommissural view, color Doppler mode; **E** – the mitral valve in the midesophageal long-axis view; the arrow indicates the coaptation gap of 7 mm; **F** – 3-dimensional presentation of the mitral valve: “surgical” mitral view; the arrow indicates the coaptation gap of 7 mm

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

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REFERENCES

- 1 Stone GW, Lindenfeld J, Abraham WT, et al. Transcatheter mitral-valve repair in patients with heart failure. *N Engl J Med.* 2018; 379: 2307-2318.
- 2 Gerber W, Sanetra K, Drzewiecka-Gerber A, et al. Echocardiographic evaluation of the results of minimally invasive repair of asymptomatic mitral regurgitation. *Kardiol Pol.* 2019; 77: 56-58.