Rapid severe deterioration of mitral regurgitation in a patient on the waiting list for the MitraClip procedure

Authors: Emilia Szudejko, Jarosław Skowroński, Patrycjusz Stokłosa, Kacper Milczanowski, Jerzy Pręgowski, Adam Witkowski

Article type: Clinical vignette

Received: March 12, 2020.

Accepted: April 8, 2020.

Published online: April 15, 2020.

ISSN: 0022-9032

e-ISSN: 1897-4279

This is an Open Access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License (CC BY-NC-ND 4.0), allowing third parties to download articles and share them with others, provided the original work is properly cited, not changed in any way, distributed under the same license, and used for noncommercial purposes only. For commercial use, please contact the journal office at kardiologiapolska@ptkardio.pl.
Rapid severe deterioration of mitral regurgitation in a patient on the waiting list for the MitraClip procedure

Emilia Szudejko, Jarosław Skowroński, Patrycjusz Stokłosa, Kacper Milczanowski, Jerzy Pręgowski, Adam Witkowski

a Department of Interventional Cardiology and Angiology, Institute of Cardiology, Warsaw, Poland.

b Department of Acquired Cardiac Defects, Institute of Cardiology, Warsaw, Poland.

Short title: Deterioration of mitral regurgitation and the MitraClip procedure

Conflict of interest: none declared.

The authors declare no source of funding.

Corresponding author

Jerzy Pregowski, MD

Institute of Cardiology, Alpejska 42, 04-628 Warsaw, Poland

E-mail: jerzypregowski74@gmail.com
Phone number: +48 22 3434127, Fax number: +48 22 3434506
MitraClip procedure enables minimally invasive correction of severe mitral regurgitation in patients with prohibitive surgical risk.[1] Despite continuous improvement in the technology there are still anatomical contraindication to the procedure.

A 75-year-old man diagnosed with chronic heart failure in functional NYHA class III and severe mitral regurgitation was admitted for a qualification for mitral regurgitation treatment. Prior patient’s medical history included PCI of the right coronary artery and coronary artery bypass graft within one year before admission, prior myocardial infarction, permanent atrial fibrillation/flutter (AF/AFL), and tachycardia-bradycardia syndrome treated with DDD pacemaker implantation. Transthoracic echocardiography showed enlarged hypokinetic left ventricle (left ventricular end diastolic diameter [LVEDD] of 56 mm, left ventricular end diastolic volume index [LVEDVI] of 79.7 ml/m² and left ventricular ejection fraction [LVEF] of 45%) and severe functional mitral regurgitation with coaptation gap (gap width 1.0 mm and effective regurgitant orifice [ERO] estimated at 45mm²). The right ventricular dimensions and function were preserved and the right ventricular systolic pressure (RVSP) was estimated at 60mmHg. Patient was disqualified from the surgery due to the high procedural risk (EuroSCORE II of 9.34%) and cardiac resynchronization therapy (LVEF of 45%). Transesophageal echocardiography (TEE) confirmed anatomical suitability for the edge to edge procedure. Patient was discharged from the hospital and placed on the waiting list for MitraClip procedure. After two months the patient was urgently readmitted to the hospital due to the decompensation of heart failure with orthopnoe and severe pulmonary congestion. Repeated TTE showed reduced LVEF of 45%, signs of marked pulmonary arterial hypertension (PAH) – with mean pulmonary arterial pressure (mPAP) of 55 mmHg and RVSP was estimated at 72 mmHg and increased mitral regurgitation - effective regurgitant orifice was 50 mm². After typical medical therapy with iv. diuretics MitraClip procedure was attempted. The patient was put under general anesthesia and the TEE prior to
the procedure was performed. However, as compared to the prior TEE examination the valve anatomy dramatically changed. The leaflets became more restrictive and the coaptation gap increased from 1mm (Figure 1B) to 7 mm (Figure 1E). The MR increased from severe (Figure 1A) to the torrential (Figure 1D). The MitraClip procedure was aborted because the coaptation gap was too large and MR could not be treated even with XTR device. Following Heart Team re-evaluation and after thorough discussion with the patient the subject underwent successful minimally invasive mitral valve repair from right minithoracothomy approach. Recently published data on safety of this minimally invasive technique were reassuring and influenced our clinical decision.[2] Luckily there were no complications during and after the procedure. The main massage from the current case are as follow: 1. Functional MR is a very dynamic disease and its grade may change significantly within short periods. 2. The patients qualified for MitraClip procedure should be treated as soon as possible. 3. There is a large unmet need for percutaneous valve replacement. 4. Minimal invasive approach can be considered even in high risk patients with isolated tremendous mitral regurgitation.

References:


Figure 1.

Upper panel: Transesophageal echocardiographic (TEE) imaging performed 2 months prior to the planned MitraClip procedure – TEE systolic phase images showing severe MR with midesophageal intercommissural view, colour Doppler mode – A. The mitral valve in the midesophageal long axis view, the arrow points at the coaptation gap of 1mm – B. Three-dimensional (3D) presentation of mitral valve – “surgical” mitral view, the arrow points at the coaptation gap – C.

Lower panel: TEE Imaging performed immediately prior to the aborted MitraClip procedure - TEE systolic phase images showing torrential MR with midesophageal intercommissural view, colour Doppler mode – D. The mitral valve in the midesophageal long axis view, the arrow points at the huge coaptation gap of 7 mm - E. 3D presentation of mitral valve – “surgical” mitral view, the arrow points at the huge coaptation gap – F.