



The National Institute of
Cardiovascular Diseases
Bratislava, Slovakia



Dysfunction of transcatheter mitral valve prosthesis. Early valve degeneration or thrombosis - that is the question.

Böhm A., Hricak V., Tomasovic B., Bena M., Postulka J.

The National Institute of Cardiovascular Diseases,
Department of acute cardiology



80 – year old female was admitted with acute dyspnea and chest pain

Medical history:

- Metabolic syndrome, CKD
- CABG LIMA to RIA and VSM to RCA, RMS + mitral annuloplasty due to MR (2009)
- Simultaneous transapical aortic valve replacement with Edwards Sapien 3 and mitral valve in ring implantation with Edwards Sapien XT for aortic stenosis and recurrent mitral reg. (7 months ago)



80 – year old female was admitted with acute dyspnea and chest pain

ABP: 160/90 HR: 105/min. SaO₂: 91%

- Orthopnea and chest pain at rest
- Bilateral pulmonary crackles
- Interstitial pulmonary edema on chest X-ray
- Sinus tachycardia with chronic complete RBBB and no new ischemic changes on the ECG
- She stopped warfarin 3 weeks ago



80 – year old female was admitted with acute dyspnea and chest pain

Transthoracic ECHO:

- LVEF: 55% with no wall motion abnormalities
- Correct function of the aortic bioprosthesis
- Pulmonary hypertension (sPAP: 75mmHg)
- Dilated left atrium (52mm)
- Severe stenosis of mitral bioprosthesis (MVA: 1cm², MPG: 19mmHg.....15mmHg in normal heart rate)



80 – year old female was admitted with acute dyspnea and chest pain

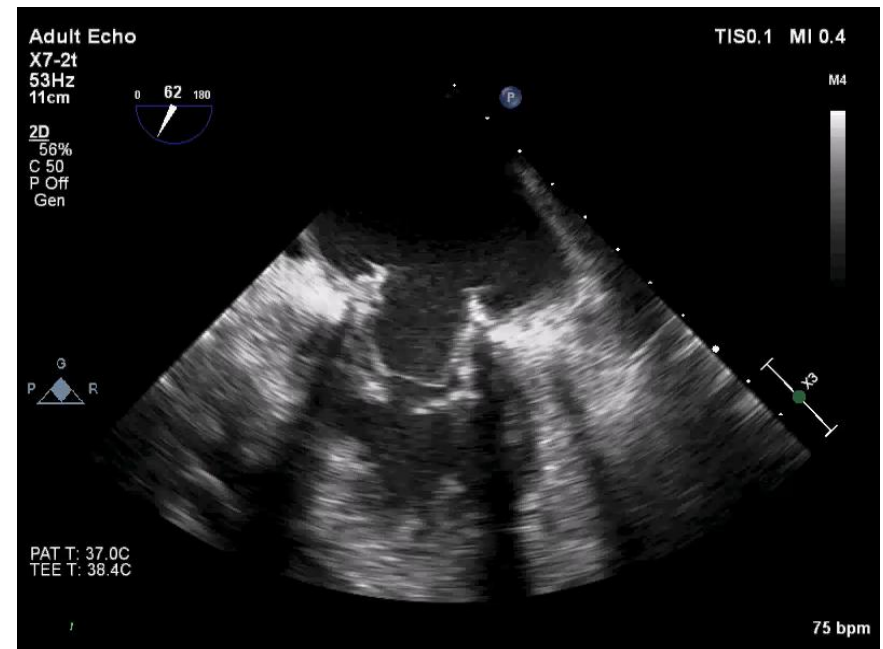
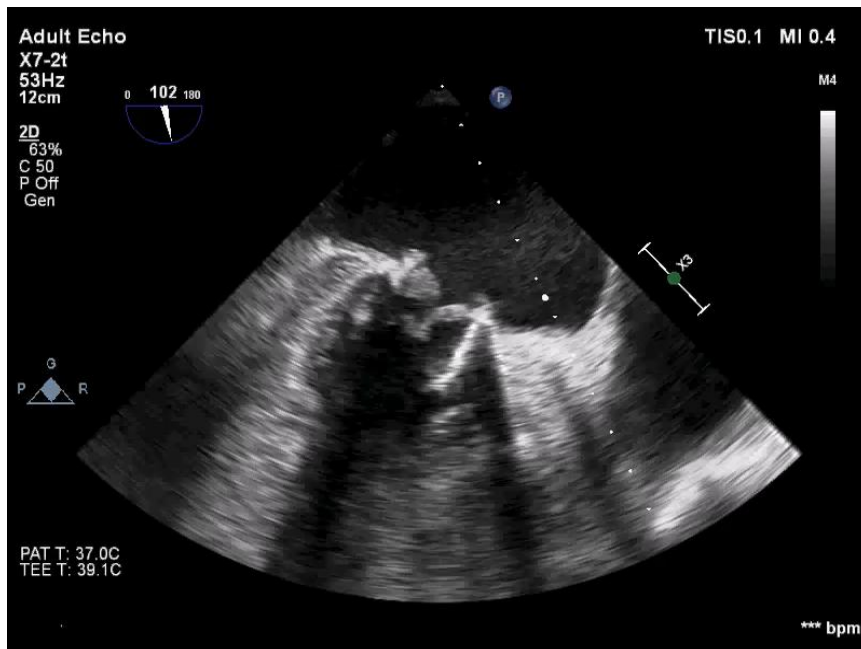
Diagnosis:

Acute heart failure warm-wet form with predominant congestion¹

- Acute coronary syndrome was excluded
- The most likely cause was severe stenosis of mitral bioprosthesis
- Treatment with i.v. loop diuretics was commenced with good clinical effect



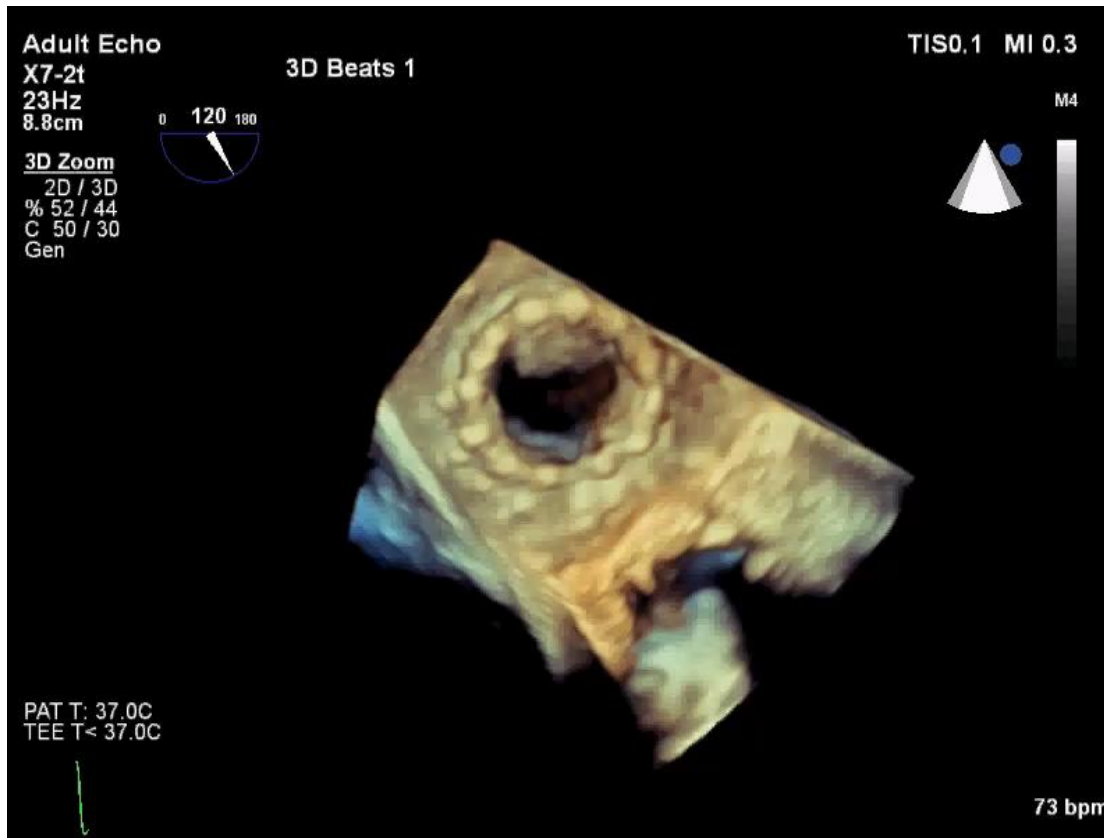
Transesophageal echocardiography (TEE) after patient stabilization



- Oval formation 11x10mm in the lateral side of the mitral prosthesis



3D TEE after patient stabilization



➤ Rigid motion of the sole thickened cusp



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What is the oval structure?



Endocarditic vegetation?

Major and minor Duke criteria¹

- | | |
|-------------------------------------|-----|
| ➤ Positive imaging test | ? |
| ➤ Positive blood cultures | NO |
| ➤ Predisposition (prosthetic valve) | YES |
| ➤ Fever | NO |
| ➤ Vascular phenomena | NO |
| ➤ Immunological phenomena | NO |
| ➤ Microbiological evidence | NO |

= Low suspicion of infective endocarditis

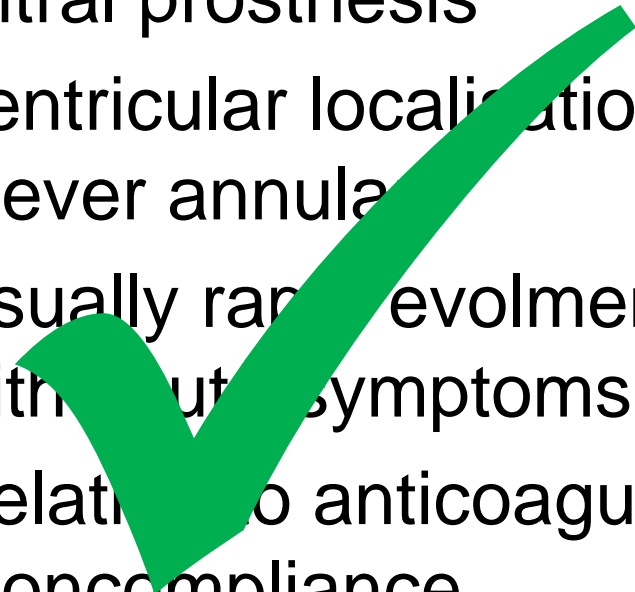


***Pannus ingrowth*^{1,2}**

- Aortic prosthesis
- Annular and atrial localisation
- Slow evolment with chronic symptoms

***Thrombus*^{1,2}**

- Mitral prosthesis
- Ventricular localisation (never annular)
- Usually rapid evolment without symptoms
- Relative to anticoagulants (noncompliance, withholding due to other reasons...)



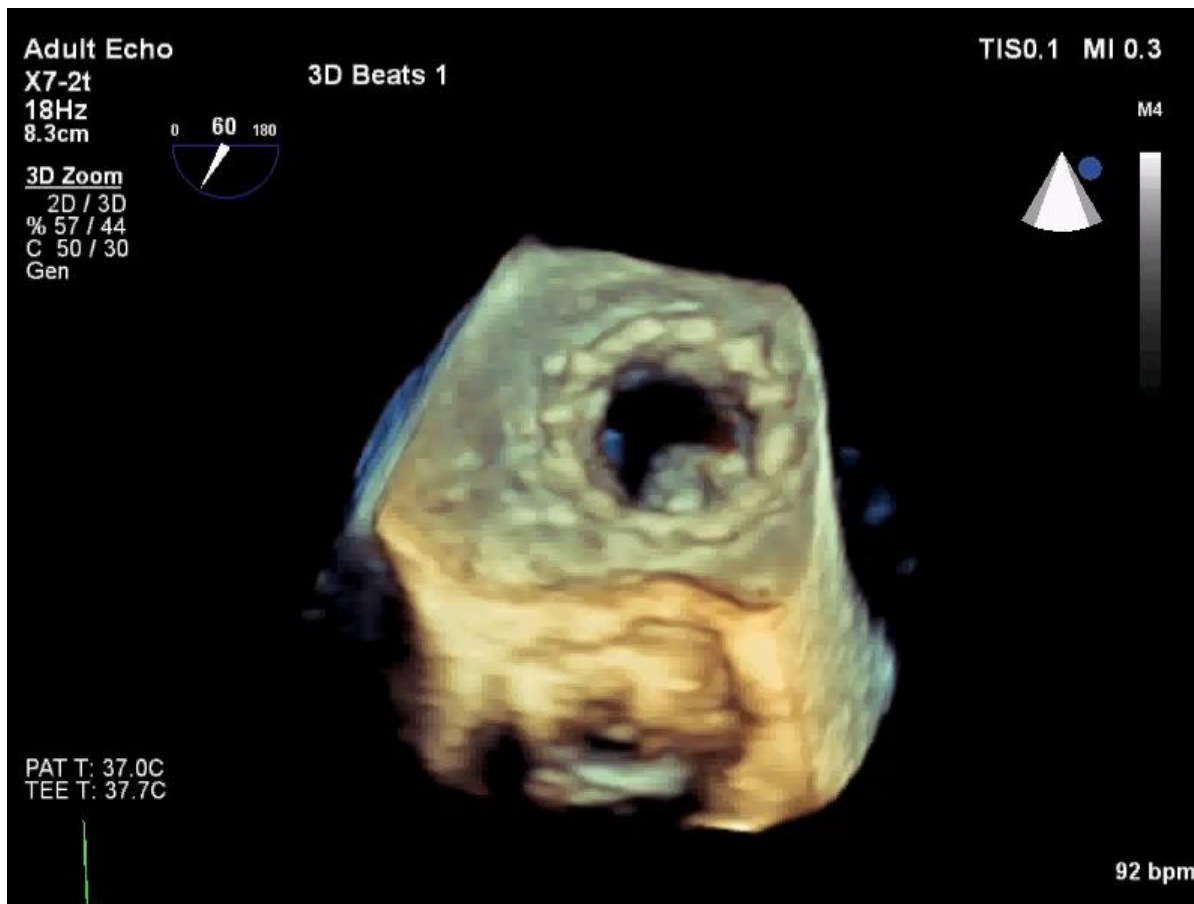


Effect of the therapy...

- Continual i.v. unfractionated heparin was administered
- After 3 days warfarin was started and heparin continued until target INR 3-3,5
- One week later the patient was discharged symptomless with mitral MPG of 8mmHg



Control 3D TEE after 3 weeks





Appropriate duration of anticoagulation after transcatheter mitral valve replacement (TMVR)?

- Lack of data (one small registry and case reports)¹
- Most common practice = anticoagulation for 6 months
BUT
- slow flow in mitral position
- Edwards Fortis (for native mitral valve) trial is halted because of thrombotic complications
- Several case reports of TMVR thrombosis^{1,2,3}
- Our experience...

1: Jean-Michel Paradis, Transcatheter Valve-in-Valve and Valve-in-Ring..., JACC. 2015

2: Wilbring M. et al, J Thorac Cardiovasc Surg. 2014

3: Giuliana Capretti, Valve Thrombosis After Transcatheter Mitral Valve Replacement. 2016



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Life-long warfarin might be recommended in
patients undergoing TMVI

