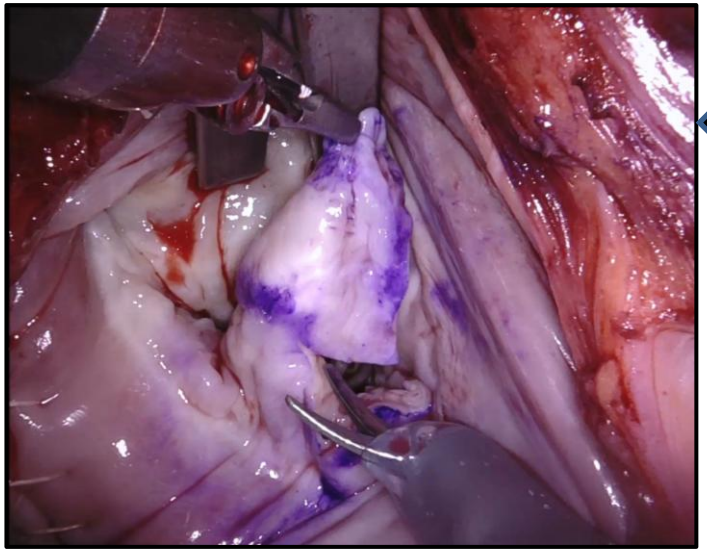
Novinky v chirurgii chlopenních vad

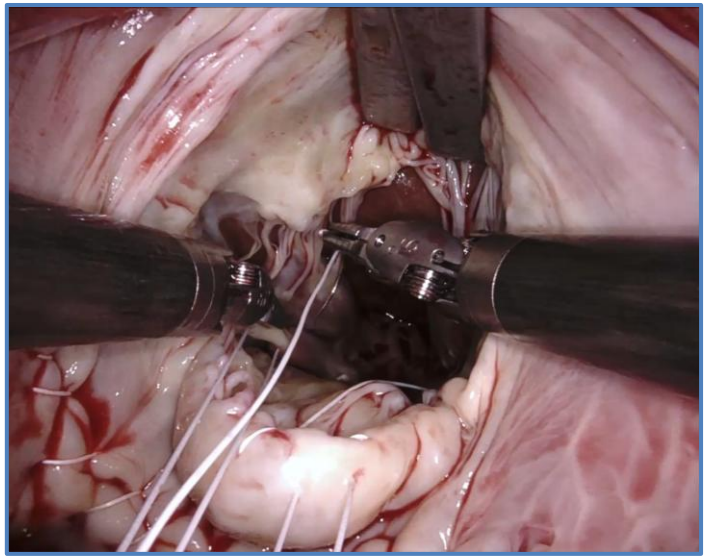
PS CHLOPENNÍ A VROZENÉ SRDEČNÍ VADY V DOSPĚLOSTI

Jan Vojáček
Kardiochirurgická klinika
FN Hradec Králové

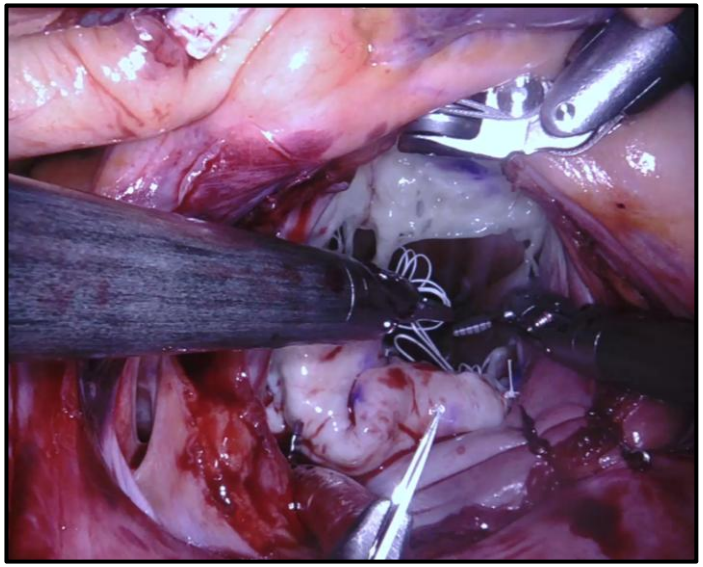
Robotic Mitral Valve Repair



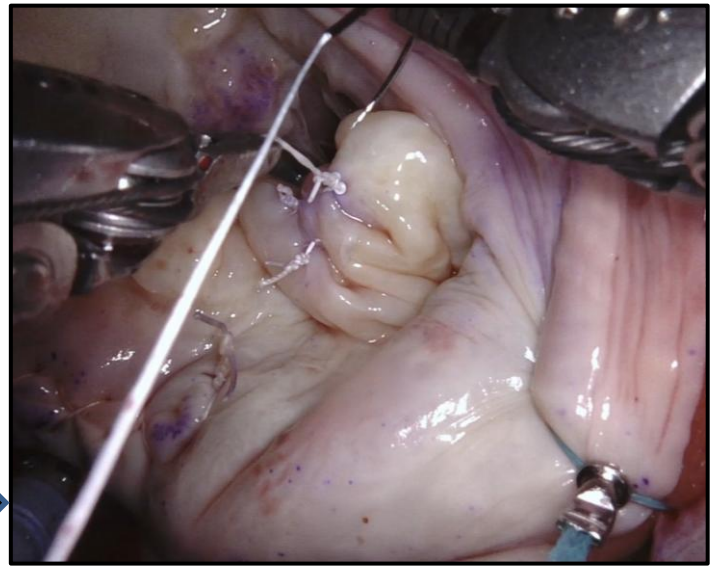
Triangular resection



Artificial Gore-Tex chordae- “David“



Artificial Gore-Tex chordae - „Mohr“



Complex reconstruction

Robotic MV Repair

The Evidence

Robotic Mitral Valve Repair for Degenerative Mitral Regurgitation

Makoto Mori, MD, PhD,[1] Niharika Parsons, MD, MHSI,[2] Markus Krane, MD,[1] T. Sloane Guy, MD, MBA,[3] Eugene A. Grossi, MD,[4] Joseph A. Dearani, MD,[5] Robert H. Habib, PhD,[2] Vinay Badhwar, MD,[6] and Arnar Geirsson, MD[1]

ABSTRACT

BACKGROUND Contemporary national utilization and comparative safety data of robotic mitral valve repair for degenerative mitral regurgitation compared with nonrobotic approaches are lacking. The study aimed to characterize national trends of utilization and outcomes of robotic mitral repair of degenerative mitral regurgitation compared with sternotomy and thoracotomy approaches.

METHODS Patients undergoing intended mitral repair of degenerative mitral regurgitation in The Society of Thoracic Surgeons Adult Cardiac Surgery Database between 2015 and 2021 were examined. Mitral repair was performed in 61,322 patients. Descriptive analyses characterized center-level volumes and outcomes. Propensity score matching separately identified 5540 pairs of robotic vs thoracotomy approaches and 6962 pairs of robotic vs sternotomy approaches. Outcomes were operative mortality, composite mortality and major morbidity, postoperative length of stay, and conversion to mitral replacement.

RESULTS Through the 7-year study period, 116 surgeons across 103 hospitals performed mitral repair robotically. The proportion of robotic cases increased from 10.9% (949 of 8712) in 2015 to 14.6% (1274 of 8730) in 2021. In both robotic-thoracotomy and robotic-sternotomy matched pairs, mortality and morbidity were not significantly different, whereas the robotic approach had lower conversion (1.2% vs 3.1% for robotic-thoracotomy and 1.0% vs 3.7% for robotic-sternotomy), shorter length of stay, and fewer 30-day readmissions. Mortality and morbidity were lower at higher-volume centers, crossing the national mean mortality and morbidity at a cumulative robotic mitral repair case of 40.

CONCLUSIONS Robotic mitral repair is a safe and effective approach and is associated with comparable mortality and morbidity, a lower conversion rate, a shorter length of stay, and fewer 30-day readmissions than thoracotomy or sternotomy approaches.

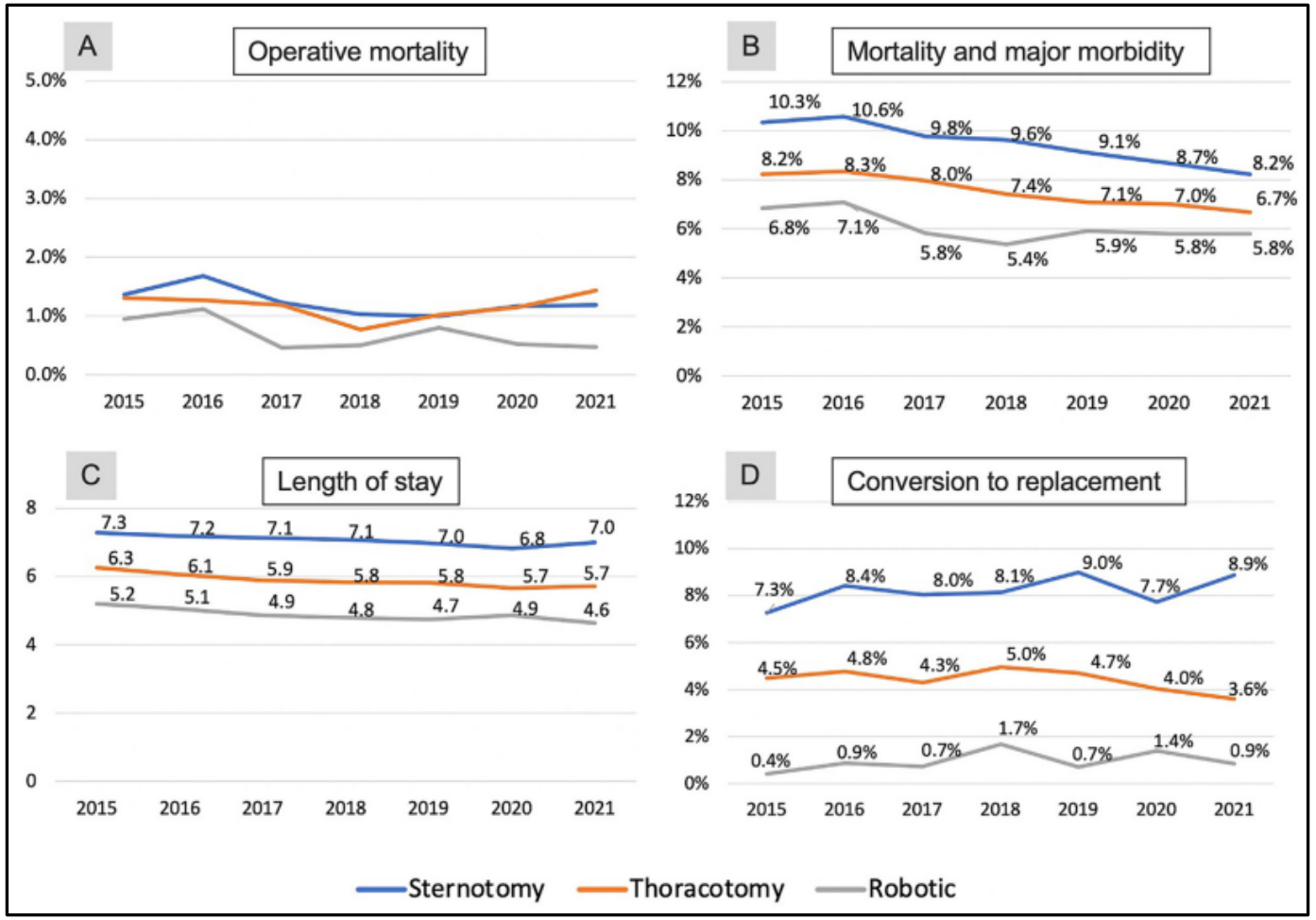
(Ann Thorac Surg 2023;■:■-■)
Published by Elsevier Inc. on behalf of The Society of Thoracic Surgeons

- **STS Adult Cardiac Surgical Database 2015 - 2021**
- **63,122 patients with MV repair for primary MR**
  - **7692 Robotic MV repairs**
  - **15,725 Thoracotomy MV repairs**
  - **39,705 Sternotomy MV repairs**
- **Propensity score matching**
  - **Robotic vs. Thoracotomy - 5540 patients**
  - **Robotic vs. Sternotomy – 6962 patients**
- **Mortality 1,1%**
- **Reeexploration 3,1%**
- **Permanent stroke 1,2%**

Mori M et al: Ann Thorac Surg 2024,117(1):96-104

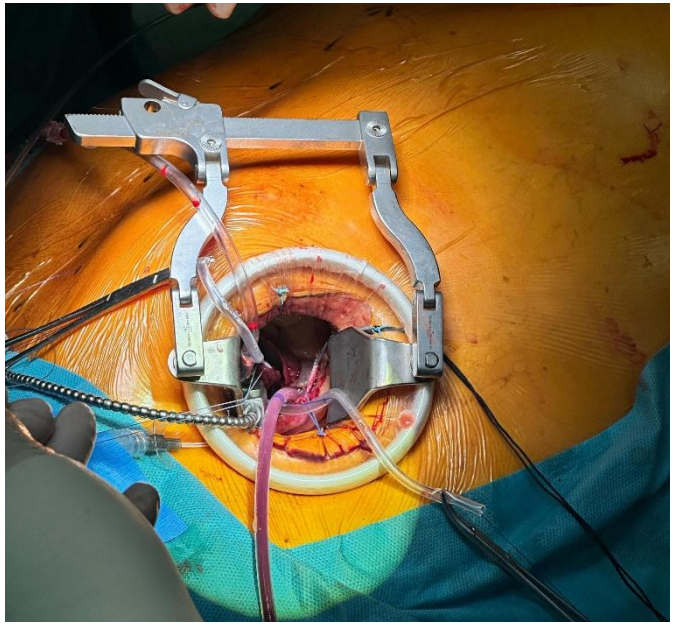
Robotic MV Repair

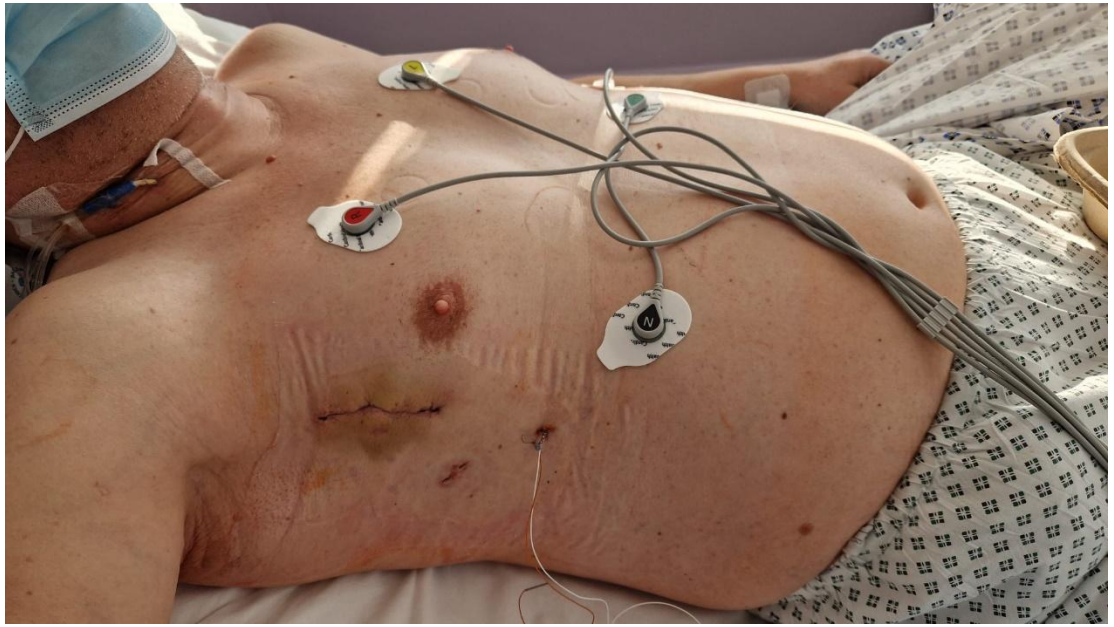
The Evidence



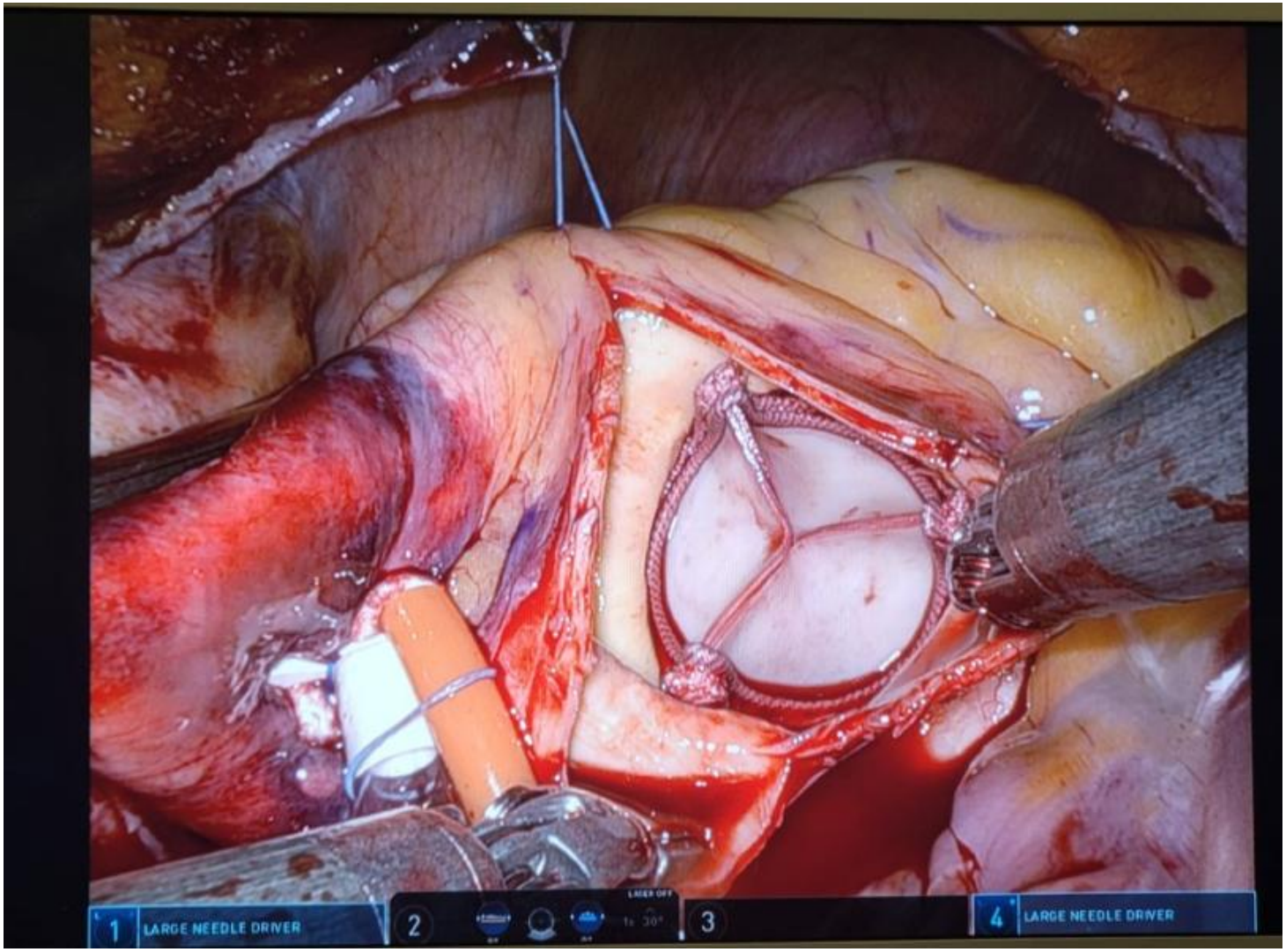
Mori M et al: Ann Thorac Surg 2024,117(1):96-104

Mini-invazivní AVR



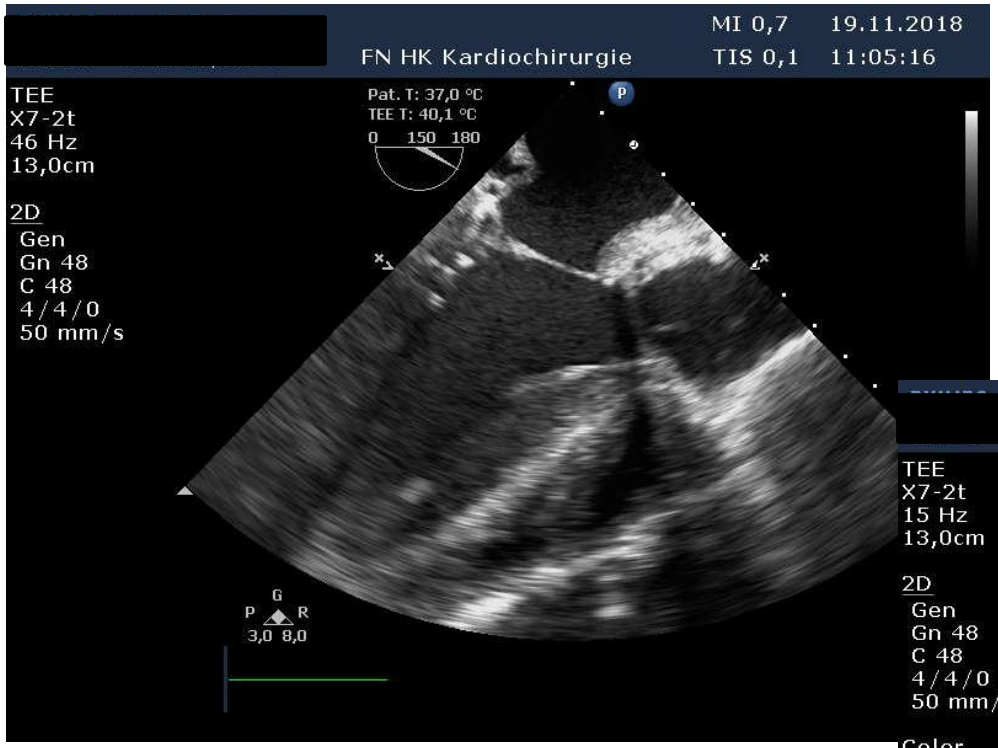


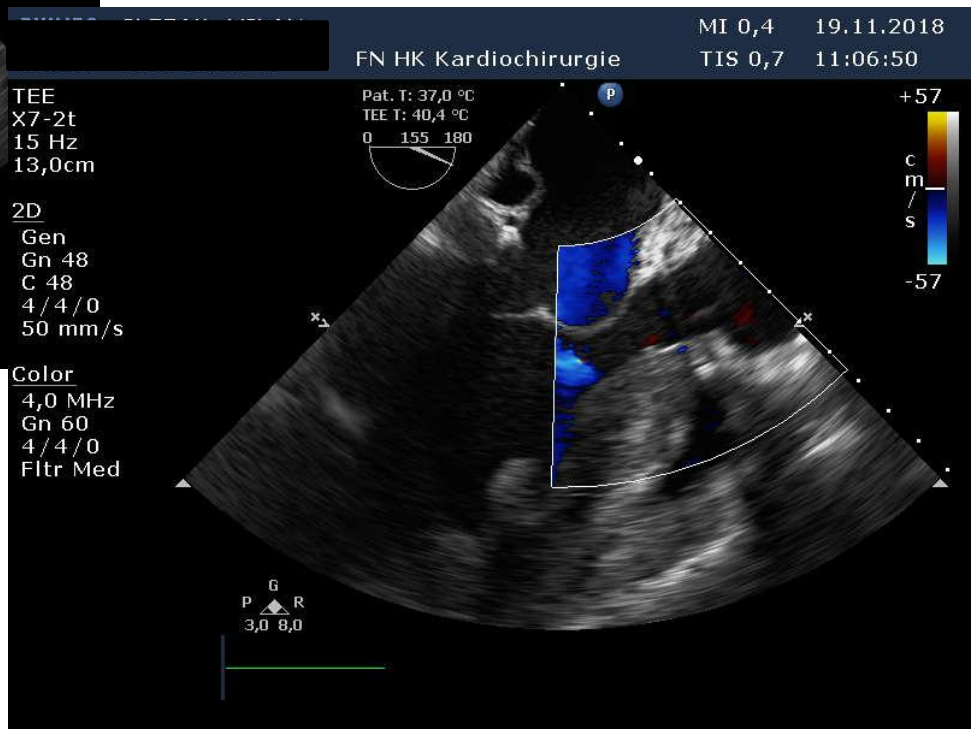
Roboticky asistovaná AVR

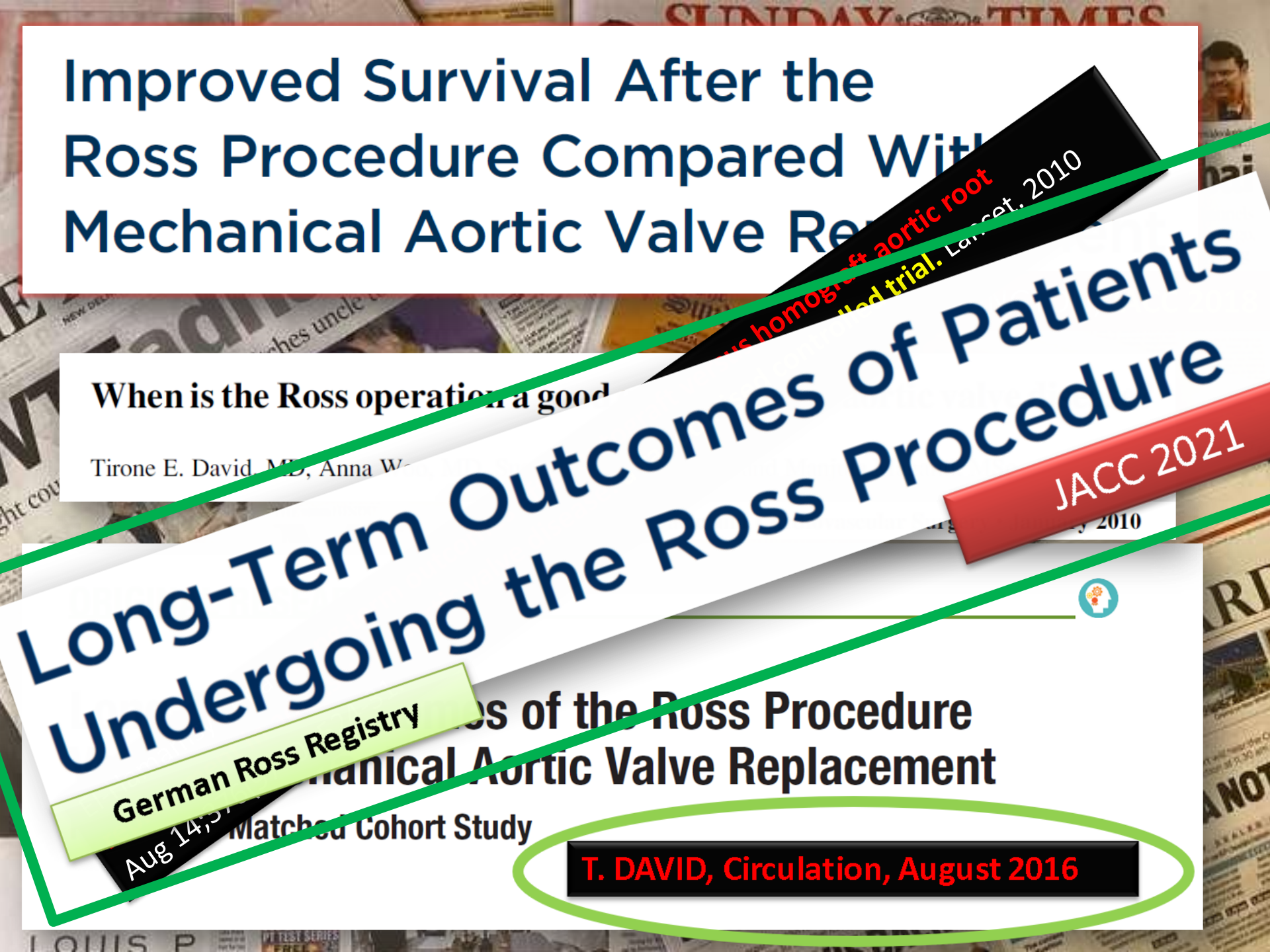


The Ross procedure

Perioperative TEE






Improved Survival After the
Ross Procedure Compared Wit
Mechanical Aortic Valve Re
When is the Ross operation a good
Tirone E. David, MD; Anna W
aortic root
trial. Lancet. 2010
Long-Term Outcomes of Patients
Undergoing the Ross Procedure
JACC 2021
German Ross Registry
Aug 14;
s of the Ross Procedure
anical Aortic Valve Replacement
Matched Cohort Study
T. DAVID, Circulation, August 2016

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
VOL. 79, NO. 8, 2022

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Propensity-Matched Comparison of the Ross Procedure and Prosthetic

CENTRAL ILLUSTRATION Long-Term Outcomes After the Ross Procedure vs Prosthetic Aortic Valve Replacement in Adults

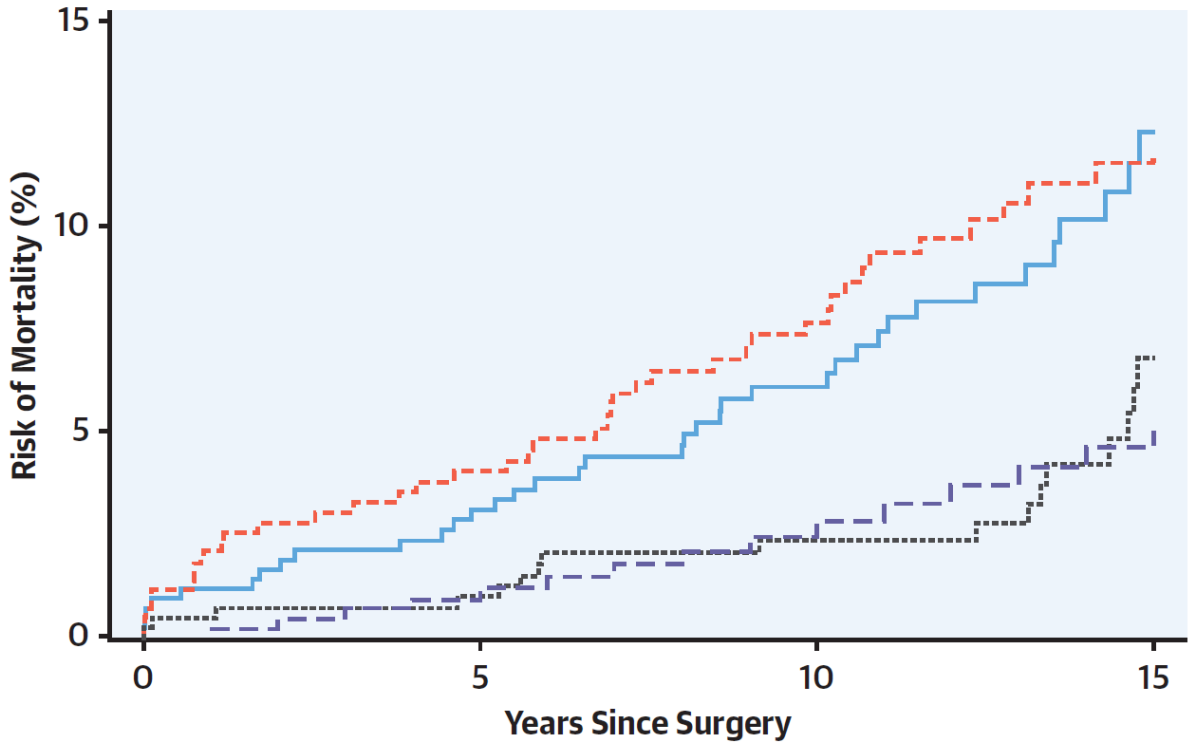
Ross vs Biological vs Mechanical AVR

- New York and California Statewide Data (1997-2014)
- Adults needing elective isolated AVR (18-50 years old)
- Exclusions: Concomitant procedures, reoperations, IV drug use, dialysis, endocarditis, history of cancer, connective tissue disorders
- 1:1:1 propensity matching (Ross: Biological: Mechanical)
- N = 434 patients per cohort
- Median follow-up: 12.5 years

El-Hamamsy: Propensity-Matched Comparison of the Ross Procedure and Prosthetic Aortic Valve Replacement in Adults

JACC 2022

Long-Term Cumulative Incidence of All Cause Mortality Compared with the Matched U.S. General Population



Number at Risk				
Bioprosthetic	434	386	290	113
Mechanical	434	369	287	131
Ross	434	376	298	129

Bioprosthetic Mechanical Ross General Population

EACTS position paper on the Ross procedure: Expert statements

1. The Ross procedure is associated with restoration of long-term life expectancy when compared to the age- and sex-matched general population

2. The Ross procedure provides superior hemodynamic performance compared to all prosthetic aortic valve replacement options

3. The Ross procedure should be considered in adult patients aged less than 60 years with minimal comorbidities, following a shared decision-making process.

4. There is a strong positive volume-outcome association for the Ross procedure at the surgeon- and center- level.

5. The Ross procedure should be offered at Ross Centers of Excellence defined by case volumes, operative mortality, early clinical and echocardiographic outcomes, and longitudinal follow-up.

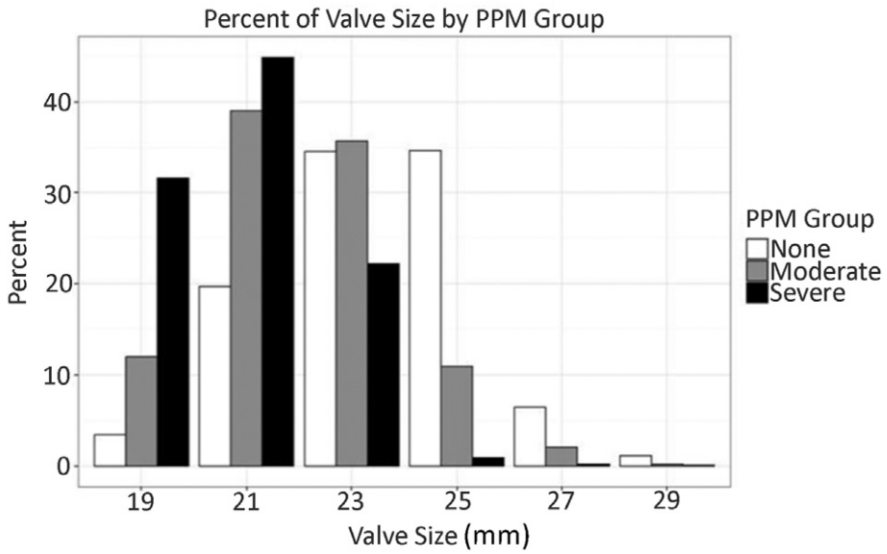
The Incidence and Consequence of Prosthesis-Patient Mismatch After Surgical Aortic Valve Replacement

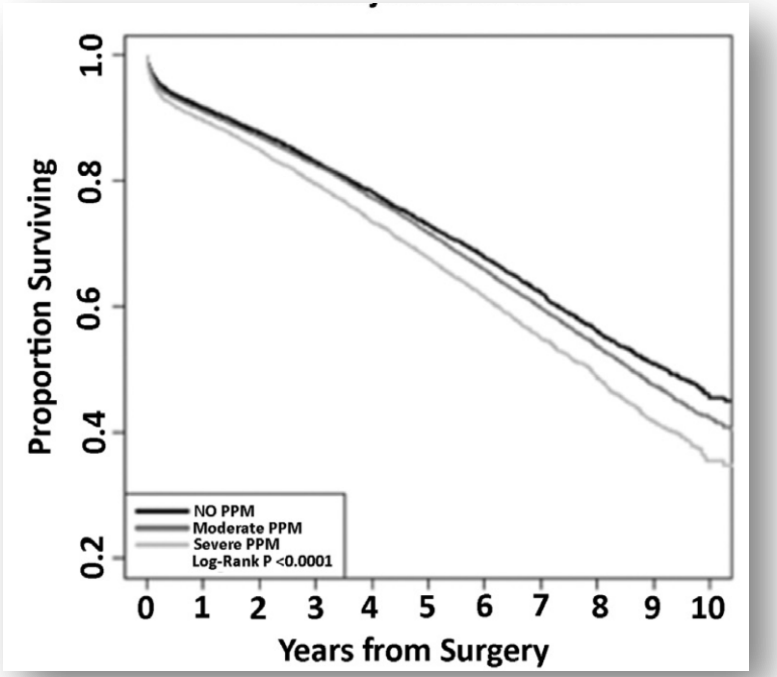
ATS 2018

STS ACD; ≈ 60 000 pacientů s iAVR; 2004 - 2014

EOAi ≥ 0,85cm²/m²	0,85cm²/m² – 0,65cm²/m²	EOAi ≤0,65cm²/m²
35%	54%	11%

21mm (33%); 23mm (34%)





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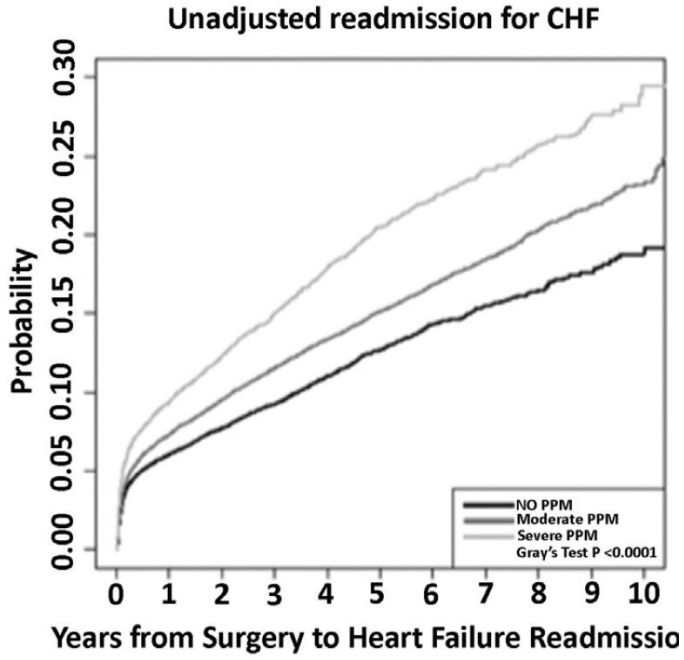
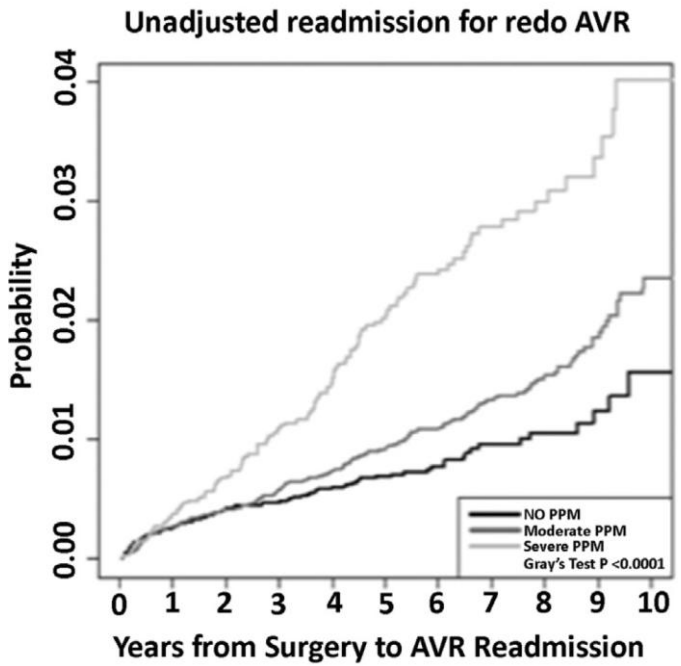
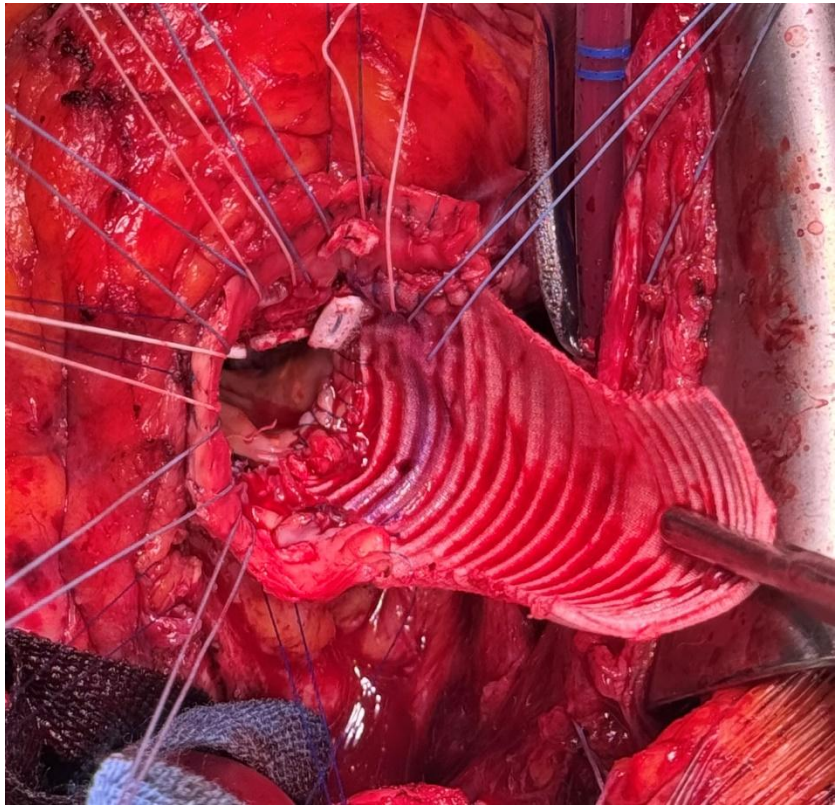
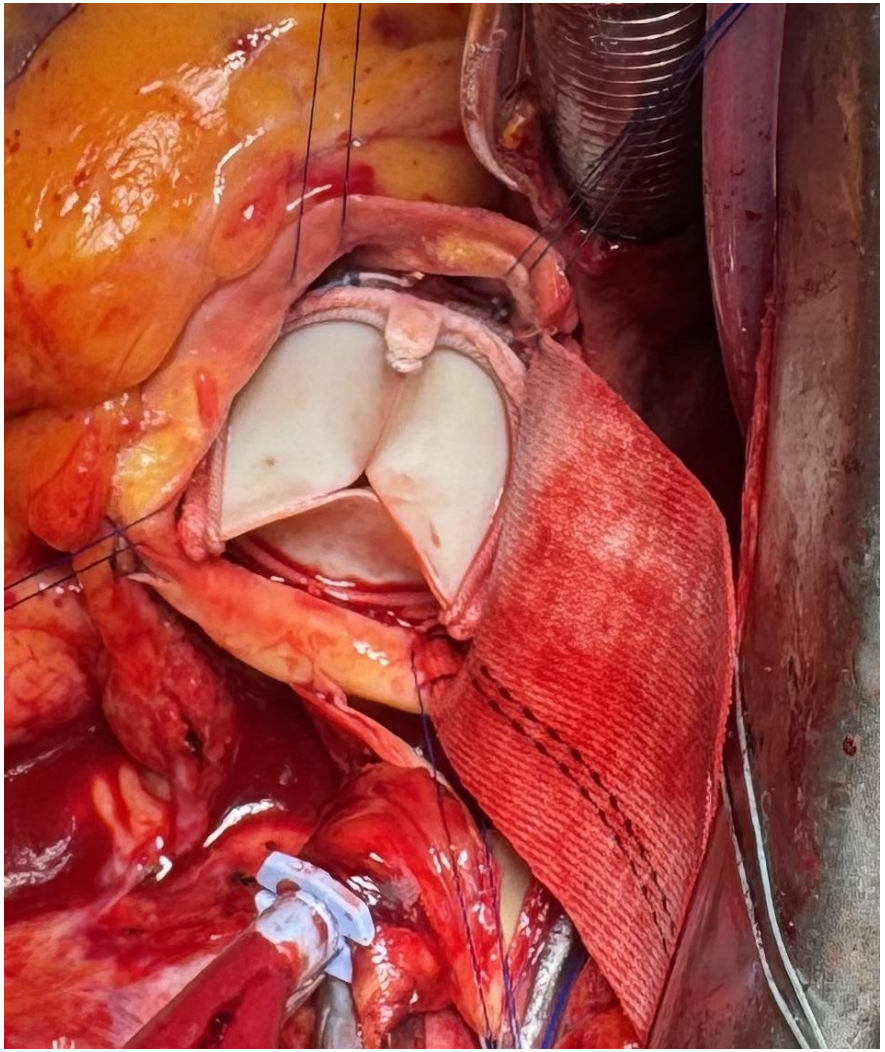
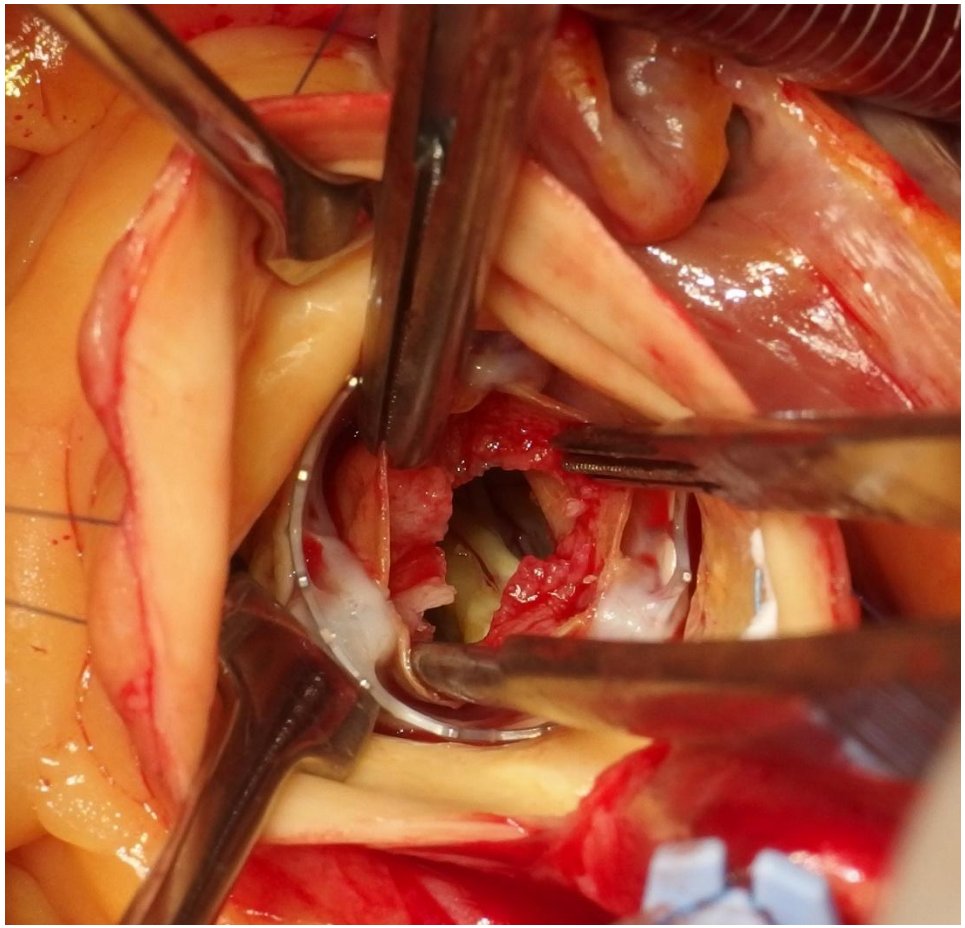


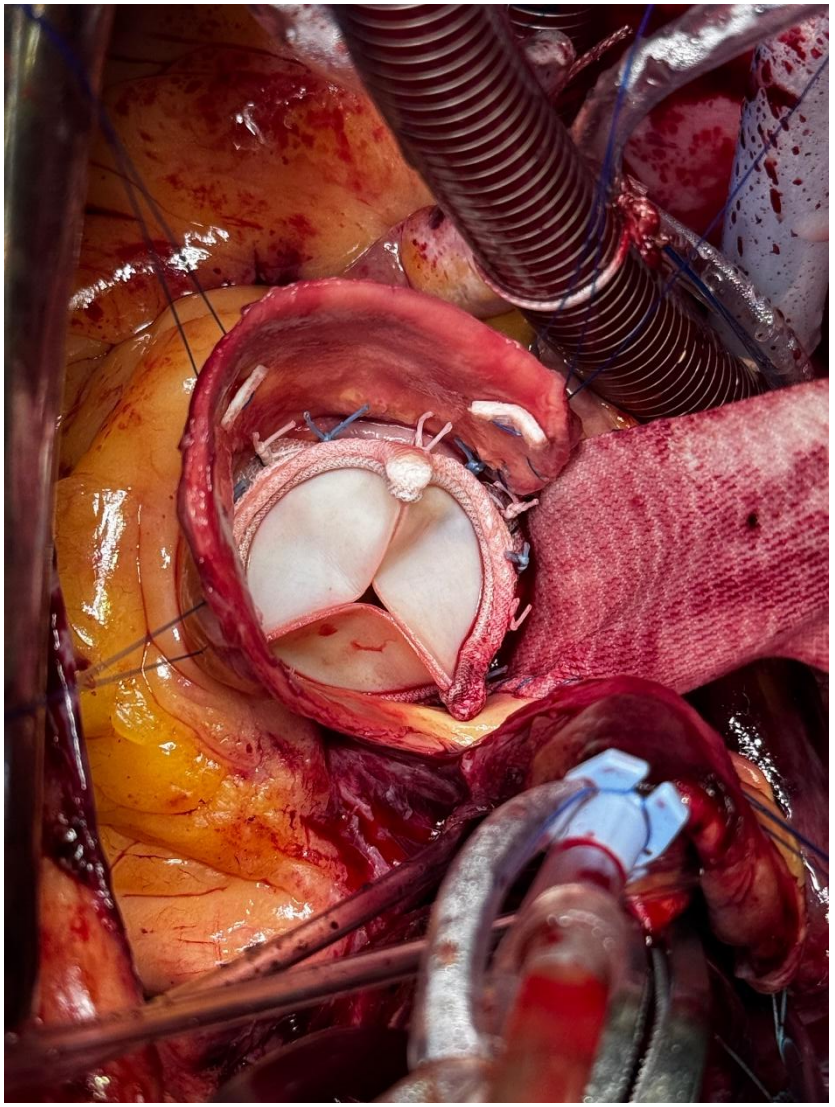


Plastiky/rozšíření aortálního anulu

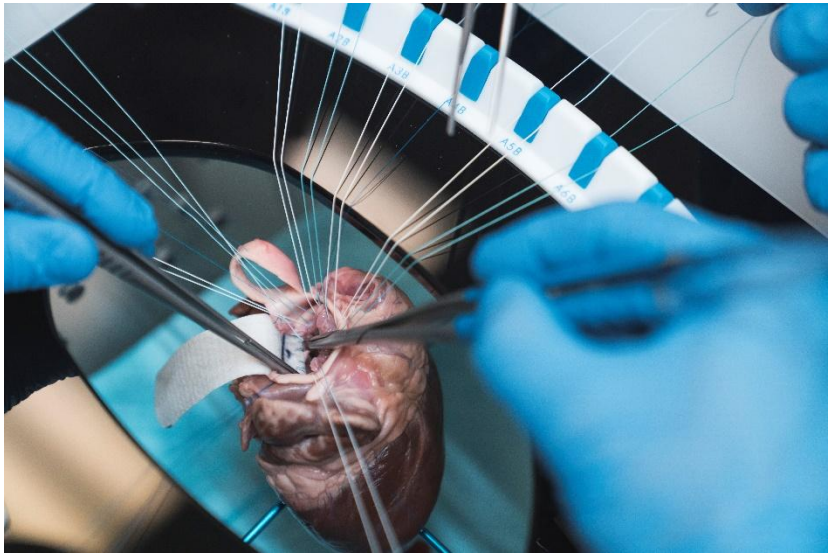


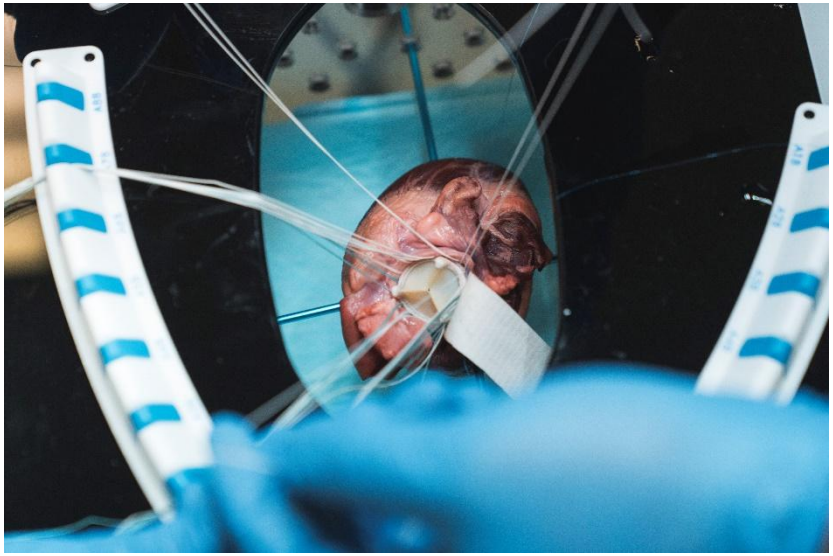






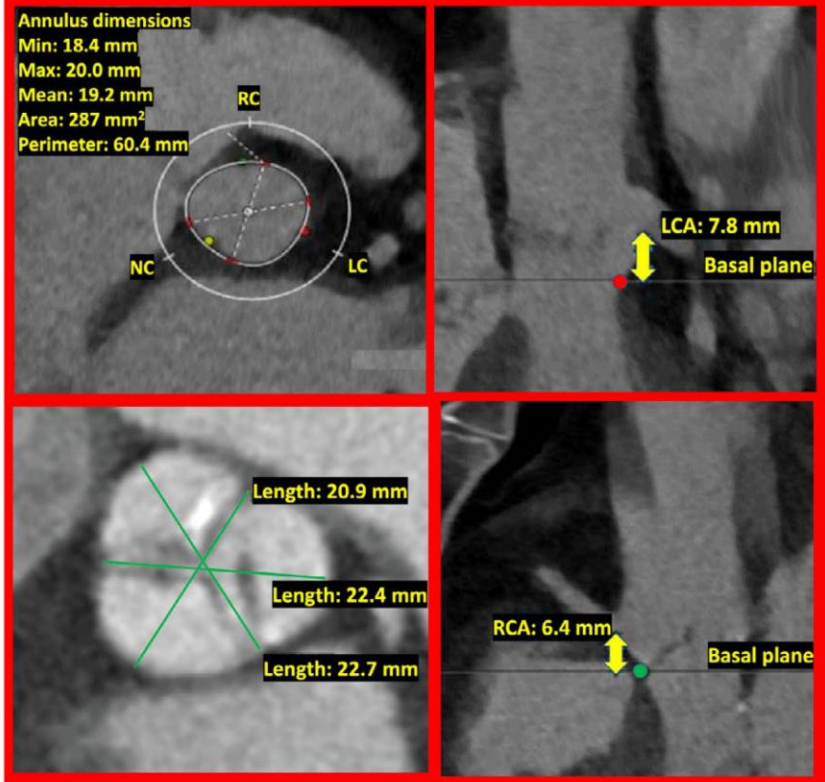
Aortic annulus enlargement - workshop





BIO4LIFE - SAVR Followed by Valve-in-Valve TAVR for Lifetime Management of Aortic Valve Disease: Panacea or Fairytale?

Structural Heart CT (pre-SAVR)



Small aortic annulus
(if the patient will not undergo an aortic ANNULUS enlargement at the index SAVR)

Small sinuses of Valsalva
(if the patient will not undergo an aortic ROOT enlargement at the index SAVR)

Low coronary heights

ViV-TAVR with higher risk of prosthesis-patient mismatch (PPM) and coronary obstruction

ViV-TAVR Outcomes

All-cause and cardiac mortality

Rehospitalization for heart failure

SAVR with bioprosthetic valves followed by ViV-TAVR as lifetime management of aortic valve disease is a valuable strategy; however, the eligibility of patients for this approach should be evaluated with structural heart imaging **before the index SAVR** (when patients should be informed about their anatomy).