

Chirurgický management malého aortálního anulu a význam PPM: Implantujeme dostatečně velké chlopně? 😊

XXXIV. WS ČAIK, Praha

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FN Hradec Králové





Deklarace konfliktu zájmů

	Nemám konflikt zájmů	Mám konflikt zájmů	Specifikace konfliktu (vyjmenujte subjekty, firmy či instituce, se kterými Vaše spolupráce může vést ke konfliktu zájmů)
Zaměstnanecký poměr	X		
Vlastník / akcionář	X		
Konzultant	X		
Přednášková činnost	X		
Člen poradních sborů (advisory boards)	X		
Podpora výzkumu / granty	X		
Jiné honoráře (např. za klinické studie či registry)	X		

$$EOAi \geq 0,85\text{cm}^2/\text{m}^2$$

$$0,85\text{cm}^2/\text{m}^2 - 0,65\text{cm}^2/\text{m}^2$$

$$EOAi \leq 0,65\text{cm}^2/\text{m}^2$$

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

ATS 2018

STS ACD; $\approx 60\,000$ patients iAVR; 2004 - 2014

$EOAi \geq 0,85\text{cm}^2/\text{m}^2$

35%

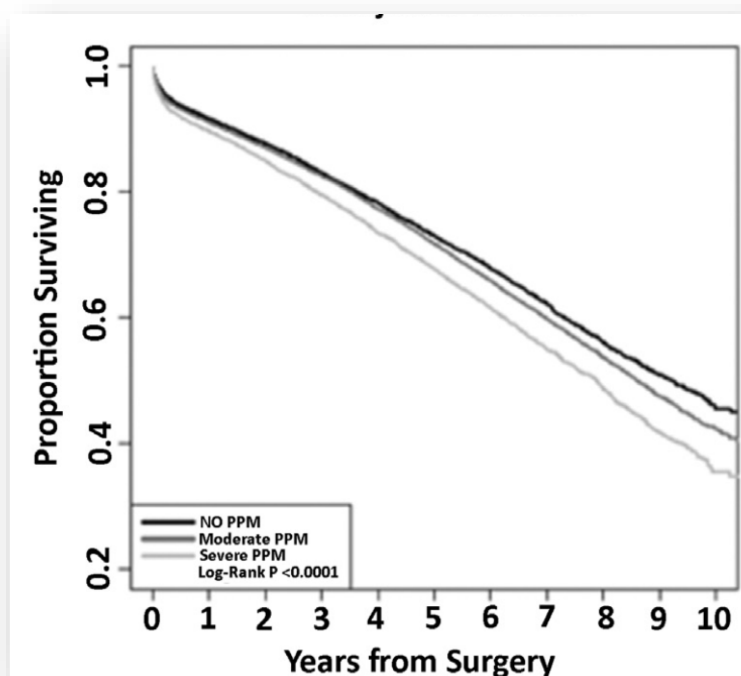
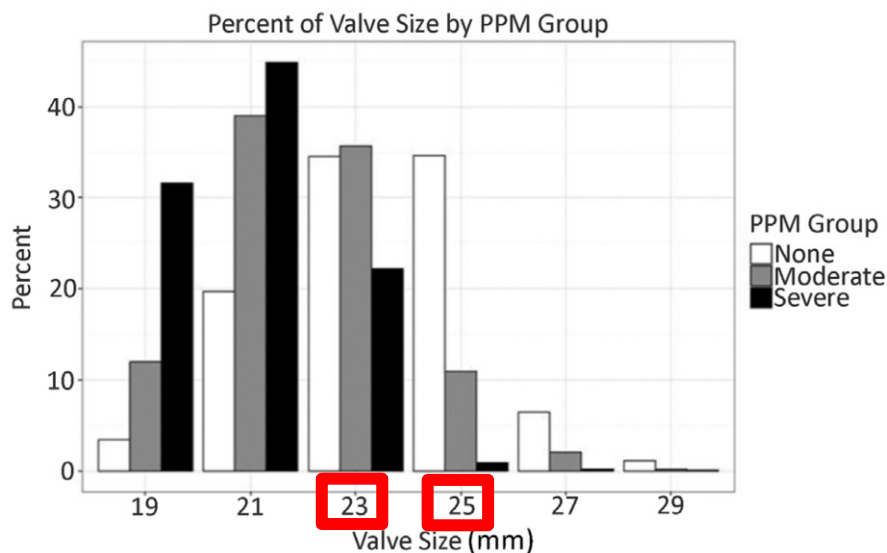
$0,85\text{cm}^2/\text{m}^2 - 0,65\text{cm}^2/\text{m}^2$

54%

$EOAi \leq 0,65\text{cm}^2/\text{m}^2$

11%

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



Transcatheter Versus Surgical Aortic Valve Replacement in Patients With Severe Aortic Valve Stenosis

1-Year Results From the All-Comers NOTION
Randomized Clinical Trial

Valve size implanted

19 mm	11/132 (8.3)
21 mm	42/132 (31.8)
23 mm	45/132 (34.1)
25 mm	32/132 (24.2)
27 mm	2/132 (1.5)

Proč je to problém?

> Ann Thorac Surg. 2018 Jul;106(1):14-22. doi: 10.1016/j.athoracsur.2018.01.090. Epub 2018 Apr 6.

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



STS National Database
Transcatheter Replaced Heart Valve

John M Fallon¹, Joseph P DeSimone², J Matthew Brennan³, Sean O'Brien⁴, Dylan P Thibault⁴, Anthony W DiScipio², Philippe Pibarot⁵, Jeffrey P Jacobs⁶, David J Malenka²

The impact of prosthesis-patient mismatch on long-term survival after aortic valve replacement: a systematic review and meta-analysis of 34 observational studies comprising 27 186 patients with 133 141 patient-years

Get access >

Stuart J. Head ✉, Mostafa M. Mokhlis, Philippe Pibarot, Michael J. Mack, Jeroen Bax, Arie Pieter Kappetein

European Heart Journal, Volume 33, 2012
<https://doi.org/10.1093/eurheartj/ehs001>

Observational Study > J Thorac Cardiovasc Surg. 2013 Nov;146(5):1098-104.

doi: 10.1016/j.jtcvs.2012.07.101. Epub 2012 Sep 7.

Effect of the prosthesis-patient mismatch on long-term clinical outcomes after isolated aortic valve replacement for aortic stenosis: a prospective observational study

Soonchang Hong¹, Gijong Yi, Young-Nam Youn, Sak Lee, Kyung-Jong Yoo, Byung-Chul Chang

Affiliations + expand

PMID: 22959323 DOI: 10.1016/j.jtcvs.2012.07.101

> Heart. 2008 May;94(5):637-41. doi: 10.1136/hrt.2007.116673. Epub 2007 Aug 8.

Impact of patient-prosthesis mismatch on exercise capacity in patients after bioprosthetic aortic valve replacement

S Bleiziffer¹, W B Eichinger, I Hettich, D Ruzicka, M Wottke, R Bauernschmitt, R Lange

Affiliations + expand

PMID: 17686803 DOI: 10.1136/hrt.2007.116673

Observational Study > J Am Coll Cardiol. 2023 Mar 14;81(10):964-975.

doi: 10.1016/j.jacc.2022.12.023.

Effect of Prosthesis-Patient Mismatch on Long-Term Clinical Outcomes After Bioprosthetic Aortic Valve Replacement

Michael Dismorr¹, Natalie Glaser², Anders Franco-Cereceda³, Ulrik Sartipy³



Randomized Controlled

doi: 10.1016/j.athoracsur.2024.01.023

Patient-Prosthesis Mismatch After Aortic Valve Replacement

Mod H Thourani¹, Amr E Abbas², Julien Ternacle³, Rebecca T Hahn⁴, Raj Makkar⁵, Sheel K Kodali⁶, Isaac George⁷, Samir Kapadia⁸, Lars G Svensson⁹, Wilson Y Szeto¹⁰, Edward C Herrmann¹¹, Gorav Ailawadi¹², Jonathon Leipsic¹³, Philipp Blanke¹³, John Webb¹³, Ariel A Jaber⁸, Mark Russo¹⁴, S Chris Malaisrie¹⁵, Pradeep Yadav¹⁶, Marie-Annick Clavel¹⁷, Omar K Khalique¹⁸, Neil J Weissman¹⁹, Pamela Douglas²⁰, Jeroen Bax²¹, Abdellaziz Dahou²², Xu²³, Vinayak Bapat²⁴, Maria C Alu⁴, Martin B Leon⁴, Michael J Mack²⁵, Philippe Pibarot¹⁷

Affiliations + expand

PMID: 38316377 DOI: 10.1016/j.athoracsur.2024.01.023

Proč je to problém?

Nižší dlouhodobé přežívání

Vyšší riziko rehospitalizací pro srdeční selhání

Perzistence klinických symptomů (zejména námahové dušnosti)

Objektivně nižší tolerance zátěže

Rychlejší degenerace bioprotézy?

Zpomalená regrese hypertrofie levé komory po AVR

U koho je
to
problém?

Vysoké BSA a BMI

Ženské pohlaví

Vyšší věk

Méně pravděpodobné u BAV!

Diabetes

Renální selhání

Arteriální hypertenze

Bioprotézy více než mechanické

Chirurgický management malého aortálního anulu

- Stentless chlopně
- Náhrada kořene aorty biokonduitem (FREESTYLE - Medtronic)
- Sutureless chlopně (RDV)
 - Perceval
 - Intuity
- **Chirurgické rozšíření anulu/kořene aorty**

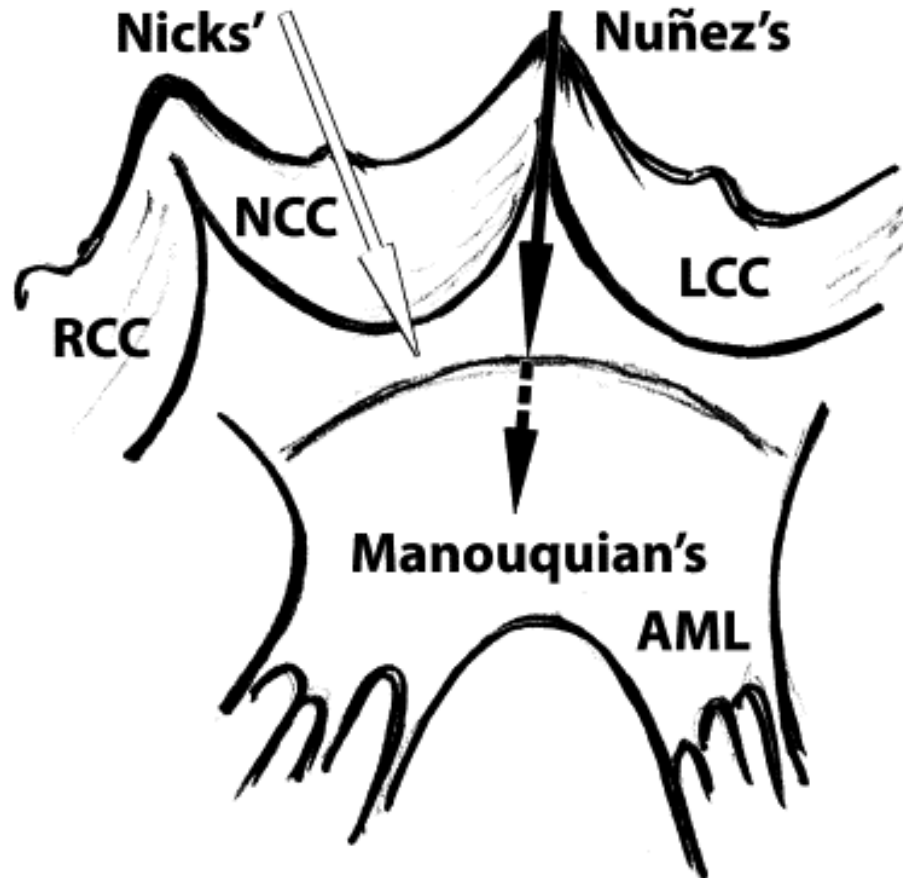


Kdy provést rozšiřující aortální anuloplastiku?

- Nedá se přesně říct ☺
- Bioprotézy 19 by se neměli používat vůbec, 21mm jenom u osob velmi malého vzrůstu
- Vždy, když je velké riziko rozvoje PPM.... individuálně
- U pacientů s velkým BSA a malým aortálním anulem
- Využití tabulek od výrobce
- Využití mobilních aplikací (Cardio Valve – jenom na iPhone)

Techniky rozšíření

POSTERIOR ANNULUS ENLARGEMENT



ADULT: AORTIC VALVE: SURGICAL TECHNIQUE

A novel simple technique to enlarge the aortic annulus by two valve sizes

Bo Yang, MD, PhD, Ann Arbor, Mich

From the Department of Cardiac Surgery, Michigan Medicine, Ann Arbor, Mich.

Dr Yang is supported by the National Heart, Lung, and Blood Institute of the National Institutes of Health K08HL130614, R01HL141891, and R01HL151776, Phil Jenkins and Darlene & Stephen J. Szatmari Funds.

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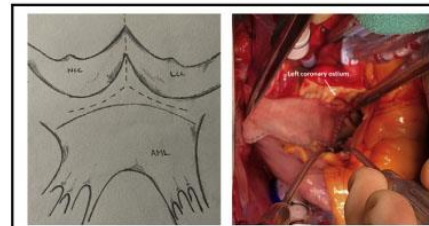
Address for reprints: Bo Yang, MD, PhD, 5155 Frankel Cardiovascular Center, 1500 East Medical Center Dr, Ann Arbor, MI 48109 (E-mail: boya@med.umich.edu).

JTCVS Techniques 2021;5:13-6

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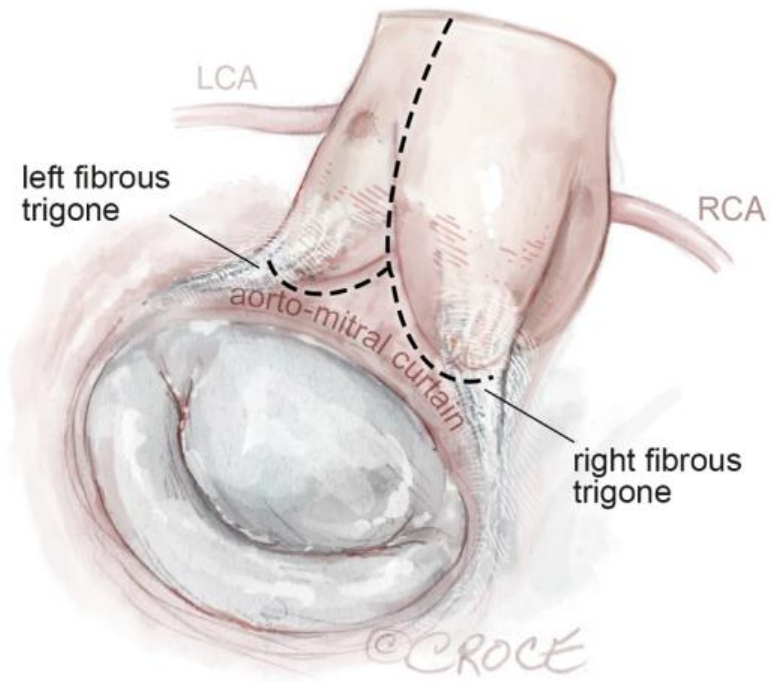
<https://doi.org/10.1016/j.xjtc.2020.10.038>



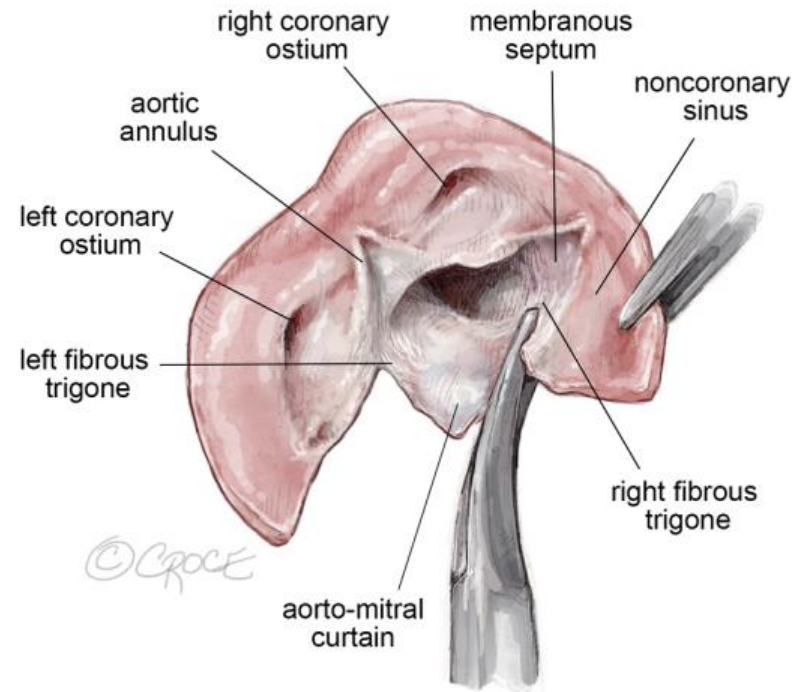
Y incision at aortomitral curtain (L) and rectangular patch to enlarge aortic root (R).

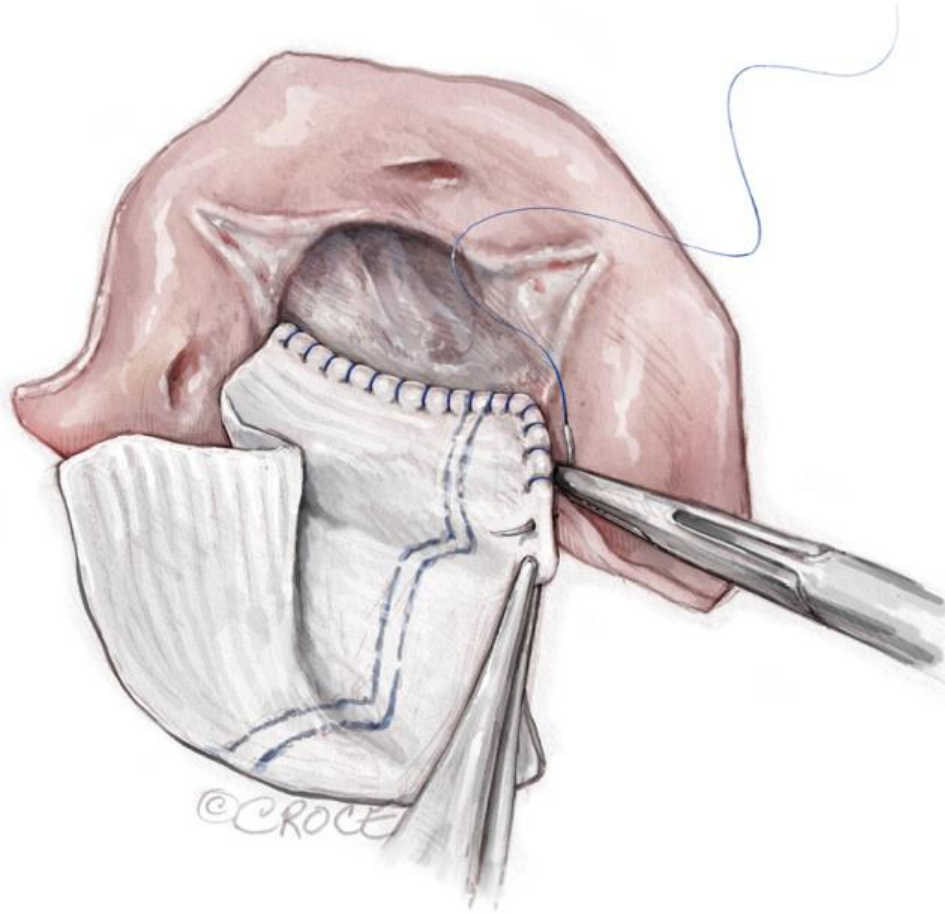


A

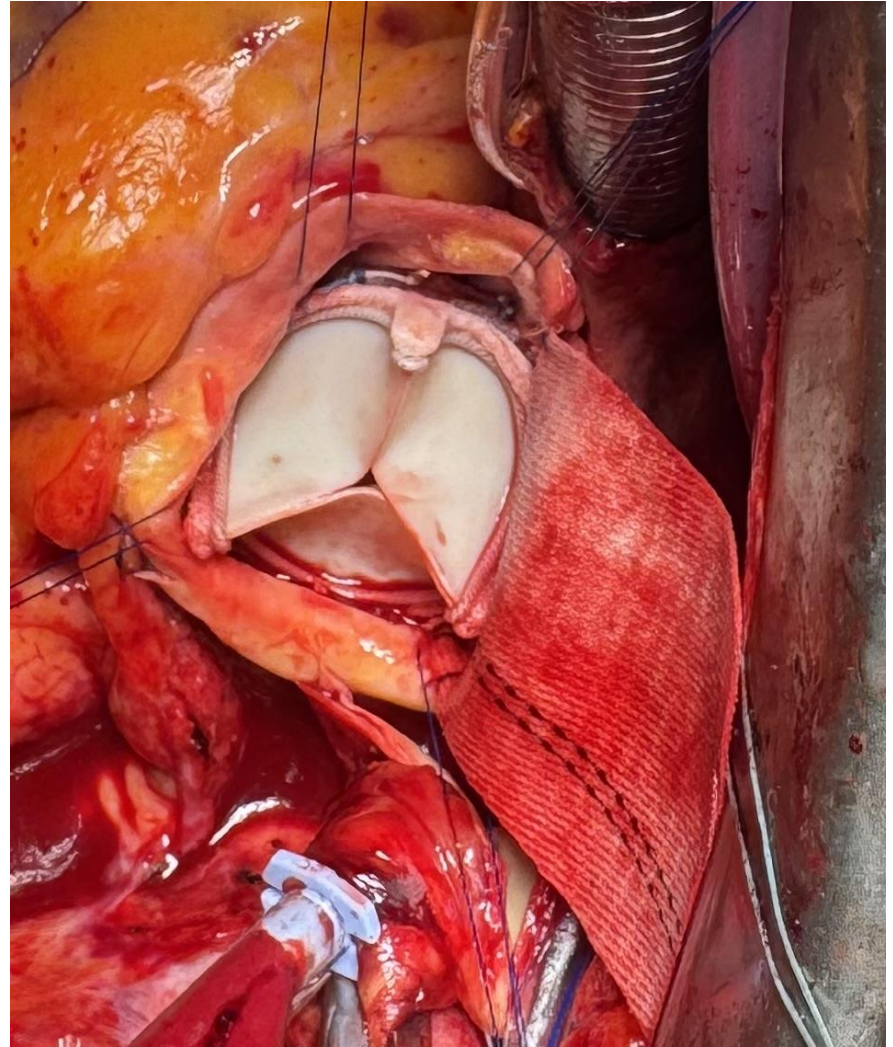
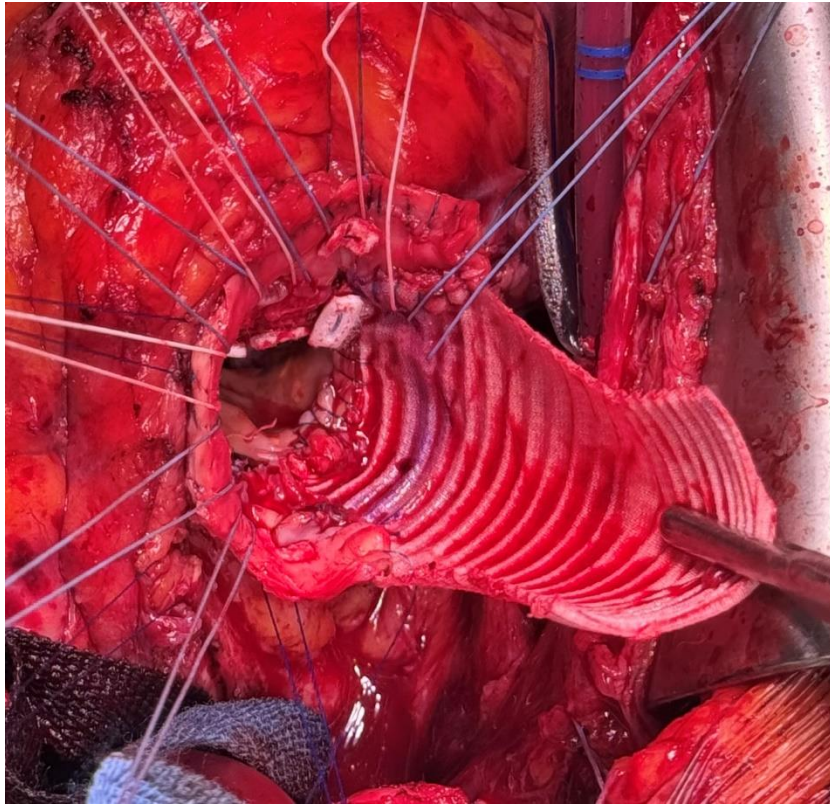


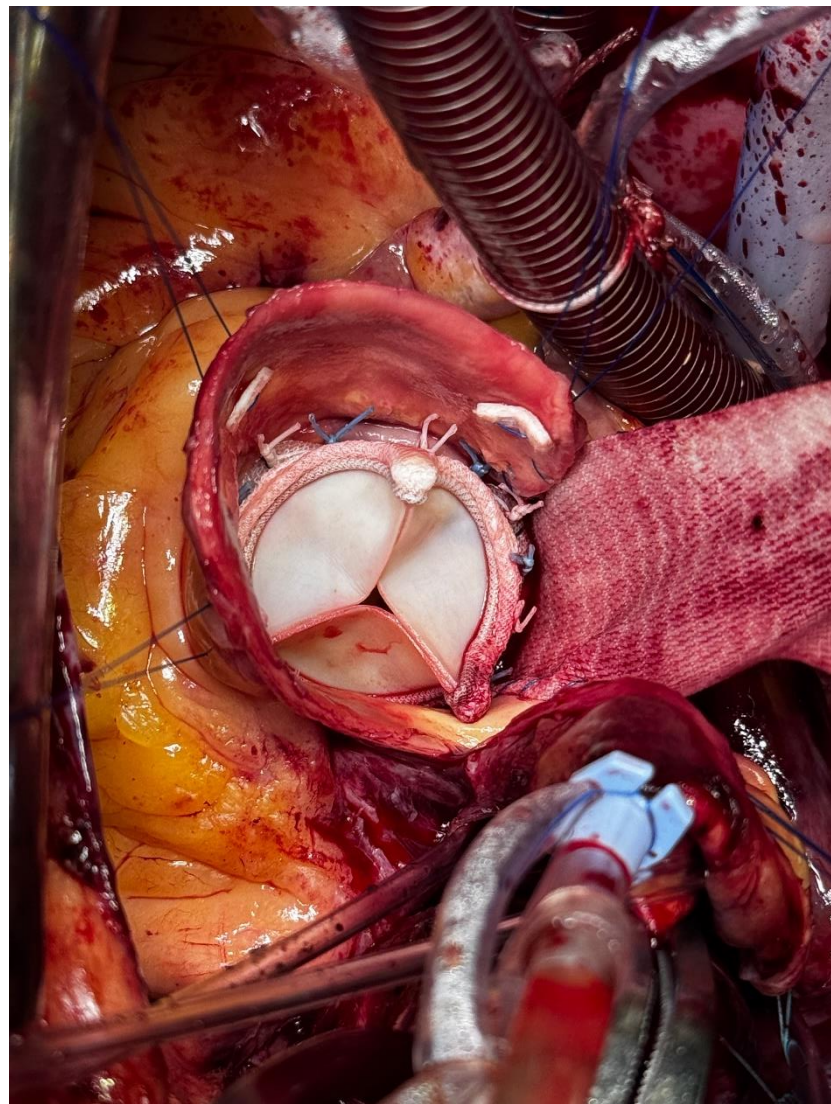
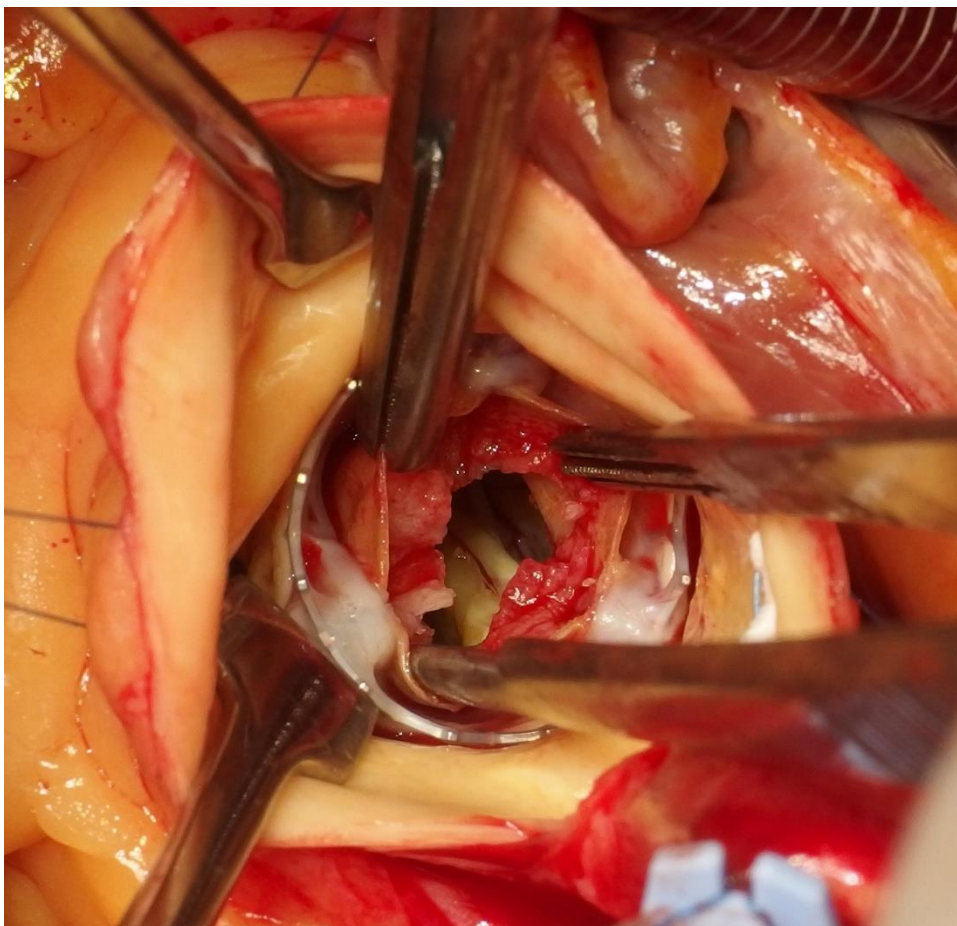
B





Plastiky/rozšíření aortálního anulu



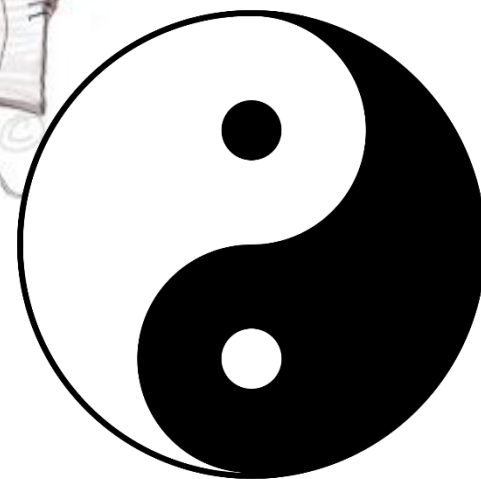
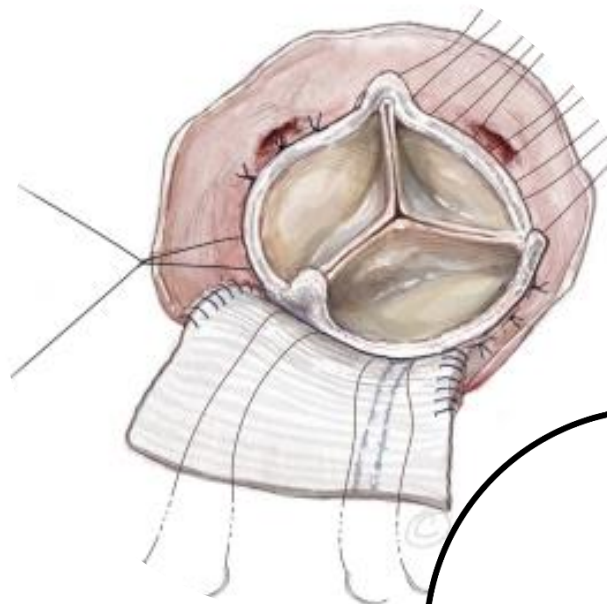


Rozšíření aortálního anulu dle Yanga při náhradě aortální chlopně

SENSITIVE HANDS ON WORKSHOP

Ján Gofus, Martin Voborník

Ve spolupráci se Surgeon Lab a
Edwards Lifesciences



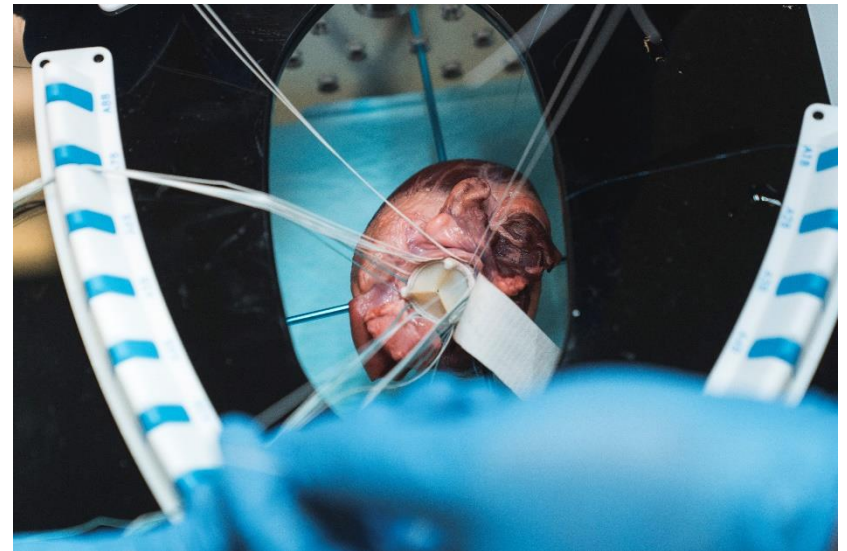
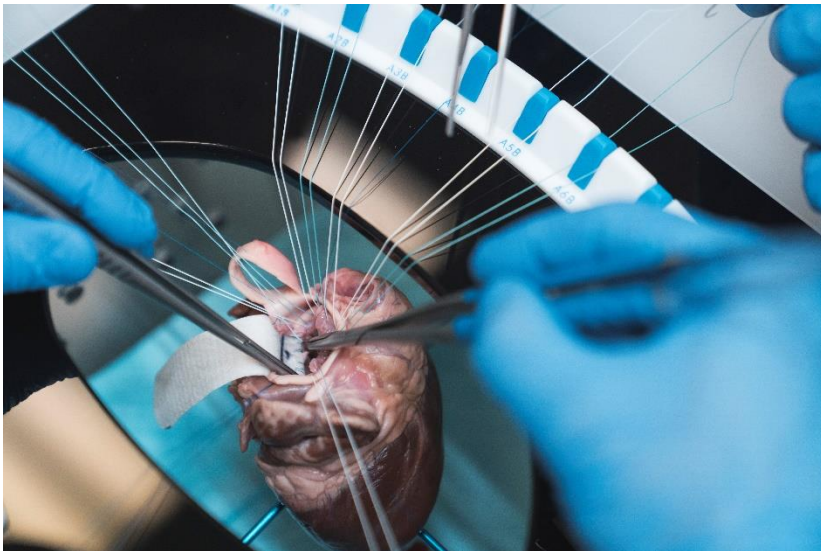
surgeon Lab



Edwards

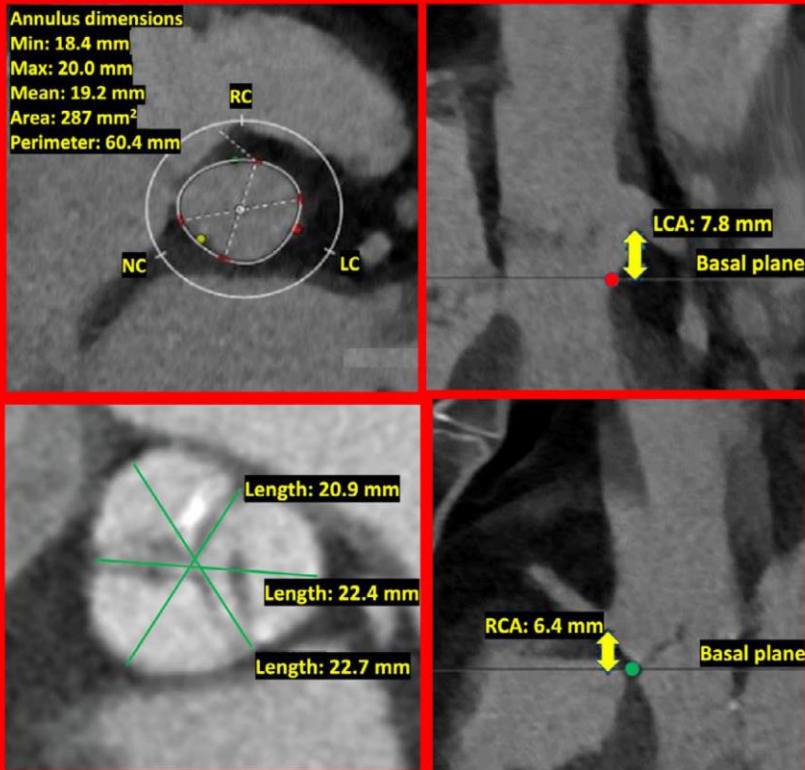


Aortic annulus enlargement - workshop



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).

