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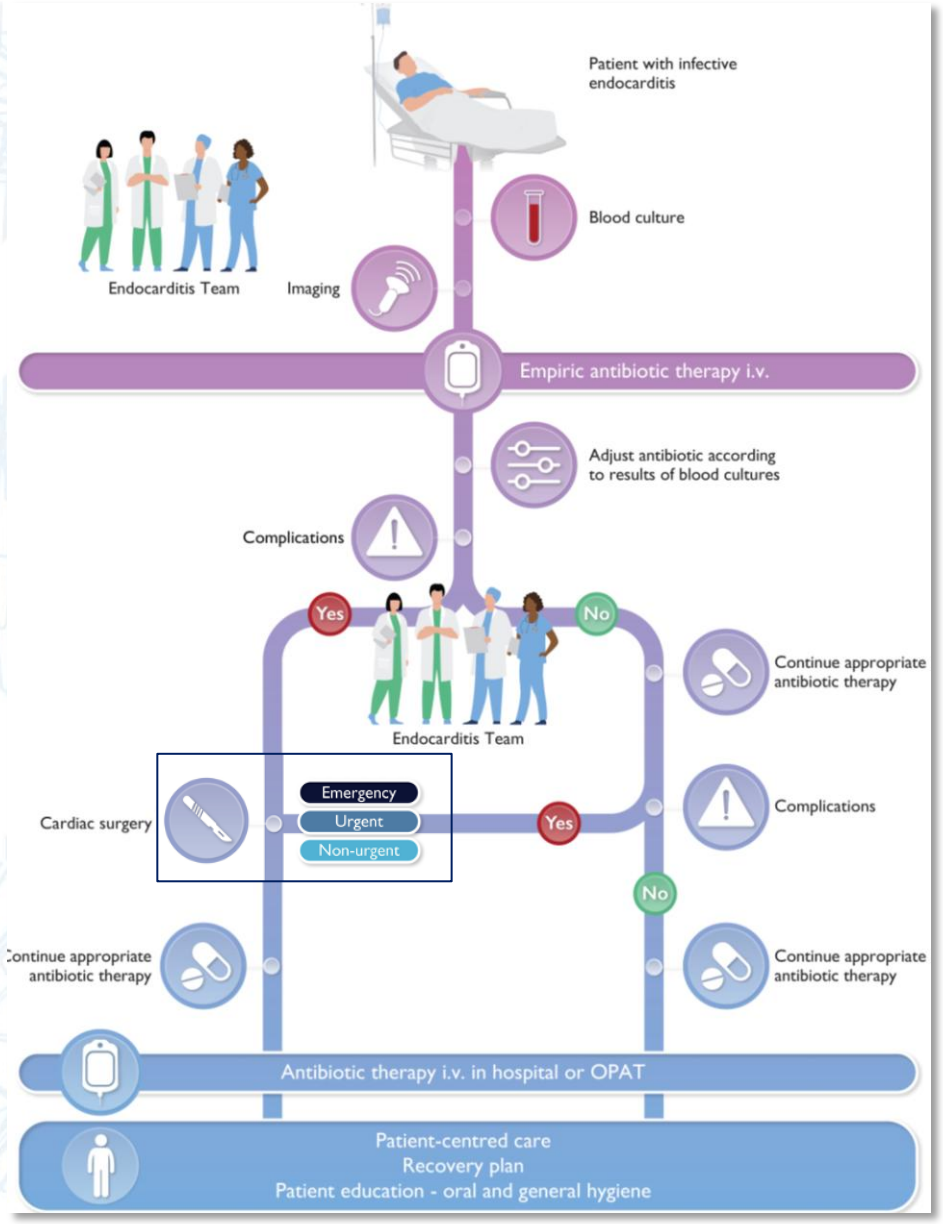
Centrum kardiovaskulární a transplantační chirurgie

INFEKČNÍ ENDOKARDITIDA – FOCUSED UPDATE 2023

... kardiochirurgické řešení

Petr Fila

Infekční endokarditida – role chirurgie



Delgado V, 2023 ESC Guidelines for the management of endokarditis, European Heart Journal, 44 (39), 3948–4042,

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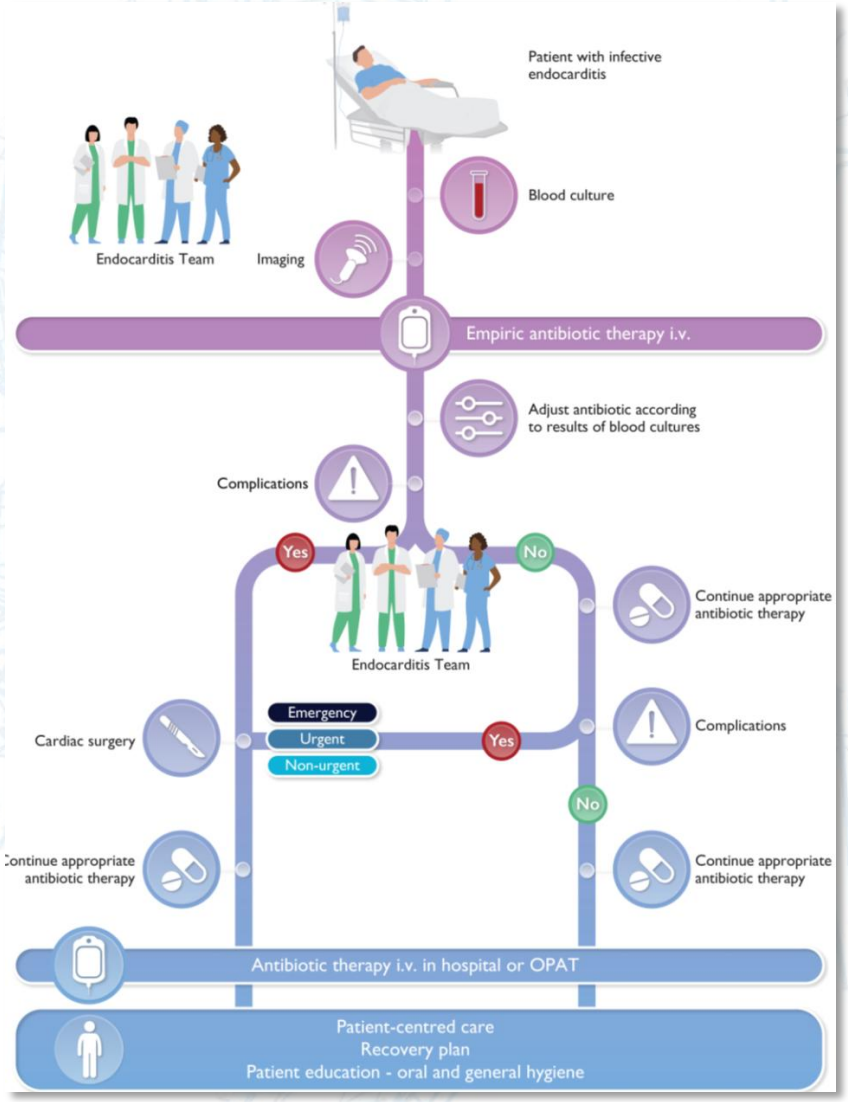
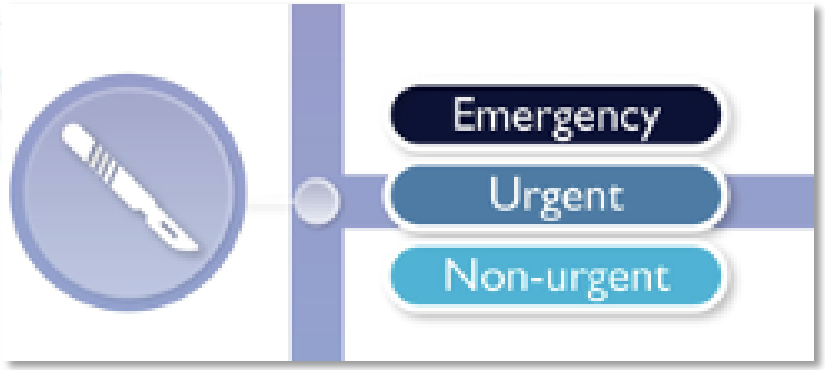
Infekční endokarditida – role chirurgie





-> 24 hodin

-> 3-5dnů

-> stejná hospitalizace

~~AEPEI~~

~~STS IE score,~~

~~PALSUSE (prosthetic valve, age ≥70, large intracardiac destruction, *Staphylococcus* spp., urgent surgery, sex~~

~~EuroSCORE ≥10 score,~~

~~de Feo score,~~

~~ANCLA (anaemia, NYHA class IV, critical state, large intracardiac destruction, surgery of thoracic aorta)~~

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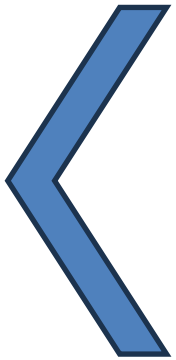
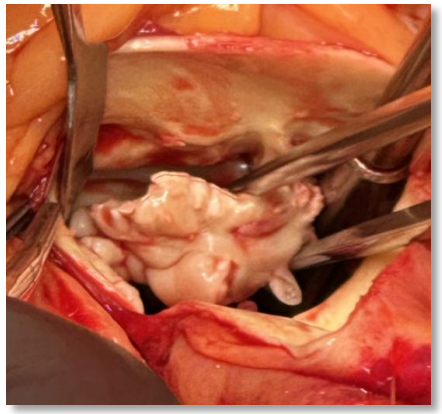
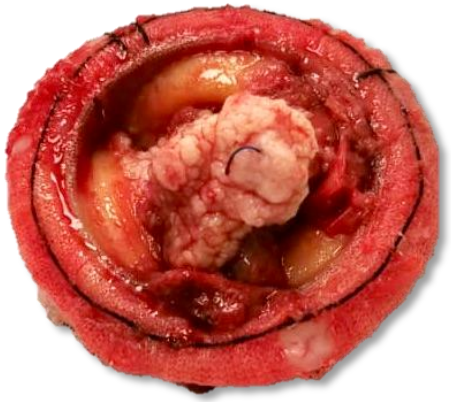
Infekční endokarditida - důvody pro chirurgické řešení

- srdečního selhání
- nekontrolovaná infekce
- prevence embolizace



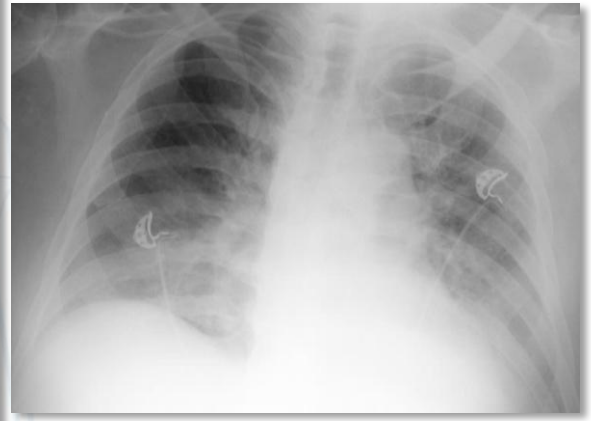
- nativní IE
- prostetická IE

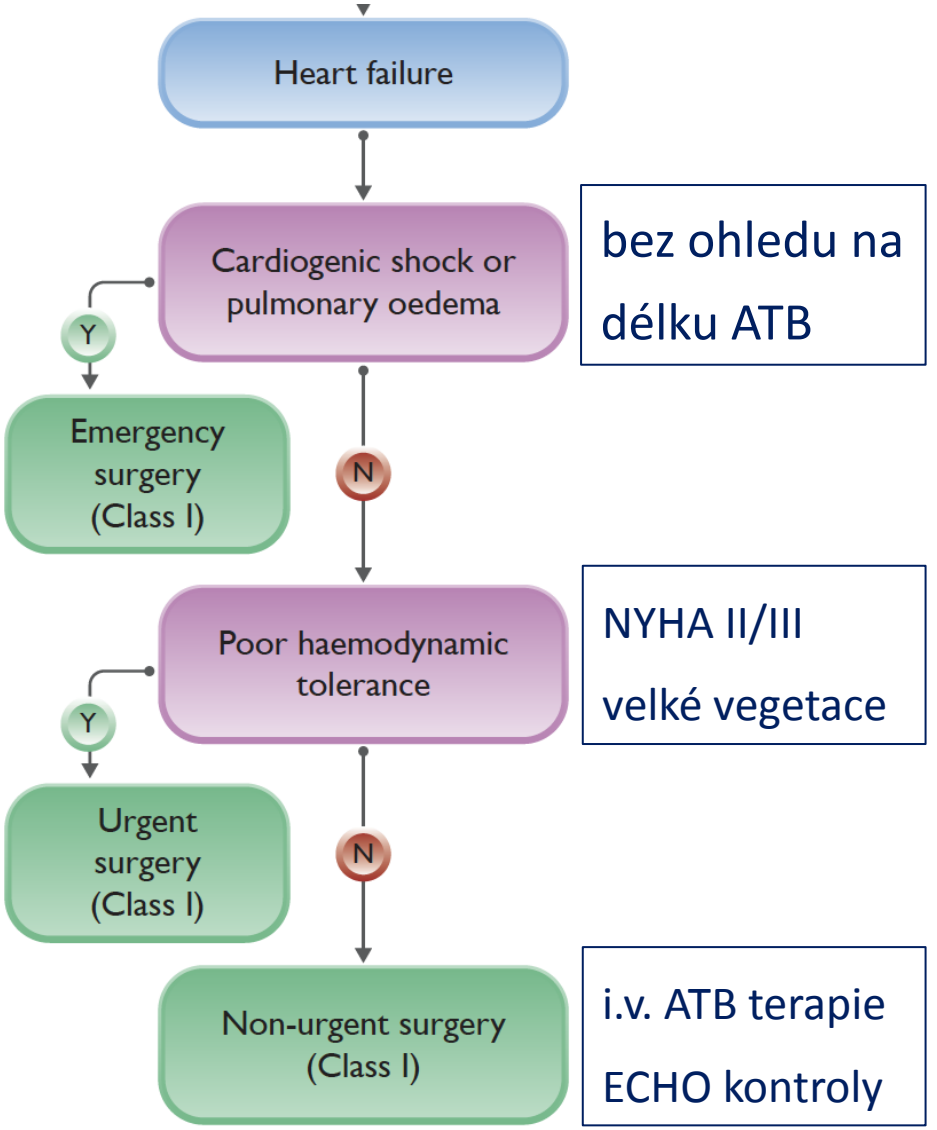




Indikace - srdeční selhání

Emergency[d] surgery is recommended in aortic or mitral NVE or PVE with severe acute regurgitation, obstruction, or fistula causing refractory pulmonary oedema or cardiogenic shock.[420,423,424,429,476,477]	I	B
Urgent[d] surgery is recommended in aortic or mitral NVE or PVE with severe acute regurgitation or obstruction causing symptoms of HF or echocardiographic signs of poor haemodynamic tolerance.[5,420–422,429]	I	B





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Indikace - nekontrolovaná infekce

(ii) Uncontrolled infection		
Urgent[d] surgery is recommended in locally uncontrolled infection (abscess, false aneurysm, fistula, enlarging vegetation, prosthetic dehiscence, new AVB).[5,420,421,429,445]	I	B
Urgent[d] or non-urgent surgery is recommended in IE caused by fungi or multiresistant organisms according to the haemodynamic condition of the patient.[420]	I	C
Urgent[d] surgery should be considered in IE with persistently positive blood cultures >1 week or persistent sepsis despite appropriate antibiotic therapy and adequate control of metastatic foci.[436,437]	IIa	B
Urgent[d] surgery should be considered in PVE caused by *S. aureus* or non-HACEK Gram-negative bacteria[5,385,449]	IIa	C

navzdory ATB terapii

- persistující infekce/sepse
- progrese lokální infekce navzdory ATB (zvětšovaní vegetace, absces, PSA, fistula, AVB...) – více u prostetické IE
- infekce rezistentními/velmi virulentními organismy *(MRSA, VRE, non-HACEK G-, Staphyl. aureus)*

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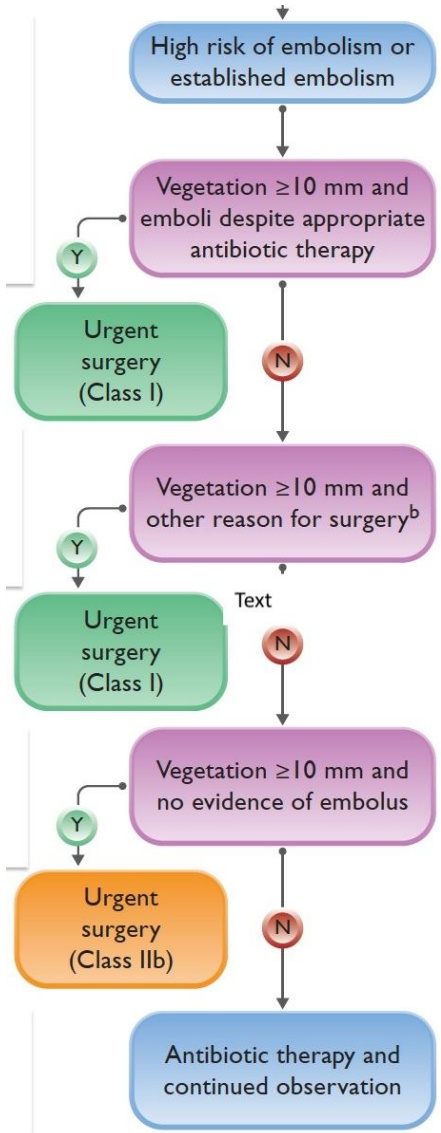
Indikace - prevence embolizace

(iii) Prevention of embolism		
Urgent[d] surgery is recommended in aortic or mitral NVE or PVE with persistent vegetations ≥10 mm after one or more embolic episodes despite appropriate antibiotic therapy.[451,455,457,471,478]	I	B
Urgent[d] surgery is recommended in IE with vegetation ≥10 mm and other indications for surgery.[5,460,465,466,471,478]	I	C
Urgent[d] surgery may be considered in aortic or mitral IE with vegetation ≥10 mm and without severe valve dysfunction or without clinical evidence of embolism and low surgical risk.[460,463,465,473,478]	IIb	B



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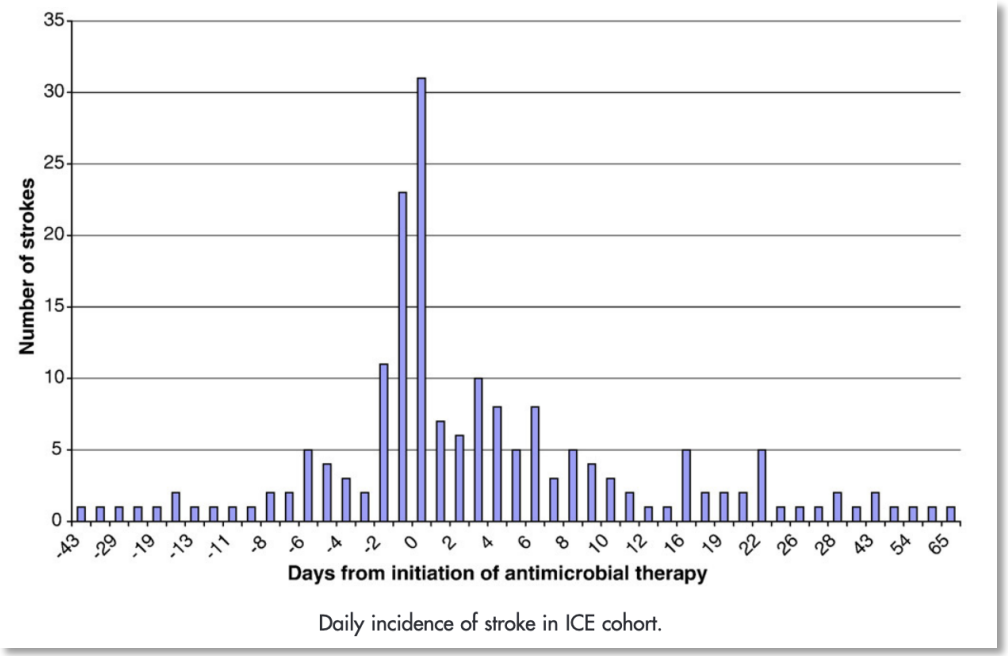
Indikace - prevence embolizace

- **benefit chirurgického výkonu** (prevence embolizace)
  hlavně v počátečních fázích (2 týdny)



Daily incidence of stroke in ICE cohort.

- **predikce rizika**
  velikost a mobilita
  Staphyl. aureus - nárůst incidence
  lokalizace
  změna velikosti (navzdory ATB léčbě)
  předchozí embolizace...

Delgado V, 2023 ESC Guidelines for the management of endokarditis, European Heart Journal, 44 (39), 3948–4042
Dickerman, The relationship between the initiation of antimicrobial therapy and the incidence of stroke in infective endocarditis. AHJ, 2007, 154.6: 1086-1094.

Operace po mozkové příhodě

- ischemická

After a transient ischaemic attack, cardiac surgery, if indicated, is recommended without delay.[454,468]	I	B
After a stroke, surgery is recommended without any delay in the presence of HF, uncontrolled infection, abscess, or persistent high embolic risk, as long as coma is absent and the presence of cerebral haemorrhage has been excluded by cranial CT or MRI.[451,468,473,567,568,570–578]	I	B

- hemoragická

Following intracranial haemorrhage, delaying cardiac surgery >1 month, if possible, with frequent re-assessment of the patient's clinical condition and imaging should be considered.[571]	IIa	C
In patients with intracranial haemorrhage and unstable clinical status due to HF, uncontrolled infection or persistent high embolic risk, urgent or emergency surgery should be considered weighing the likelihood of a meaningful neurological outcome.[199,581–584]	IIa	C

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IE na pravostranných oddílech

Recommendations	Class[a]	Level[b]
Surgery is recommended in patients with right-sided IE who are receiving appropriate antibiotic therapy for the following scenarios:		
Right ventricular dysfunction secondary to acute severe tricuspid regurgitation non-responsive to diuretics.[479]	I	B
Persistent vegetation with respiratory insufficiency requiring ventilatory support after recurrent pulmonary emboli.[479,755]	I	B
Large residual tricuspid vegetations (>20 mm) after recurrent septic pulmonary emboli.[145,471]	I	C
Patients with simultaneous involvement of left-heart structures.[749]	I	C
Tricuspid valve repair should be considered instead of valve replacement, when possible.[479]	IIa	B
Surgery should be considered in patients with right-sided IE who are receiving appropriate antibiotic therapy and present persistent bacteraemia/sepsis after at least 1 week of appropriate antibiotic therapy.[436,755]	IIa	C
Prophylactic placement of an epicardial pacing lead should be considered at the time of tricuspid valve surgical procedures.[733]	IIa	C
Debulking of right intra-atrial septic masses by aspiration may be considered in selected patients who are high risk for surgery.[753]	IIb	C

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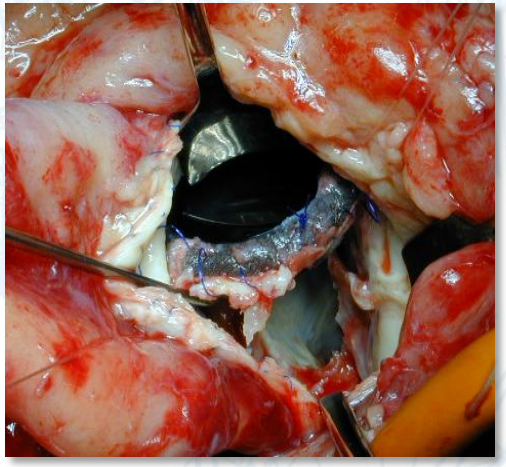
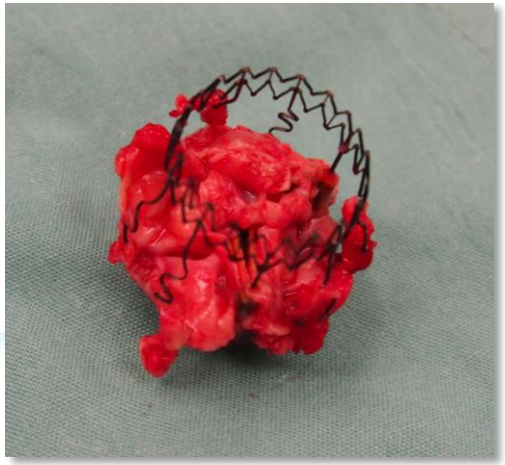
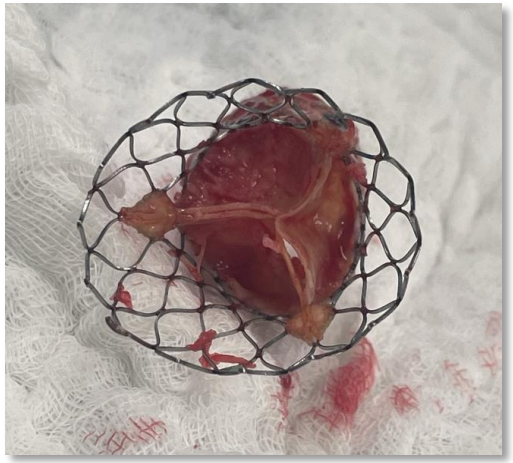
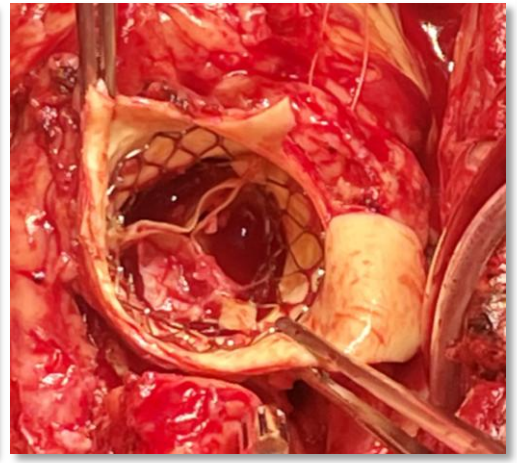
Starck CT, The AngioVac system as a

Prostetická infekční endokarditida

- 20-30% všech IE a narůstá
- vysoká mortalita

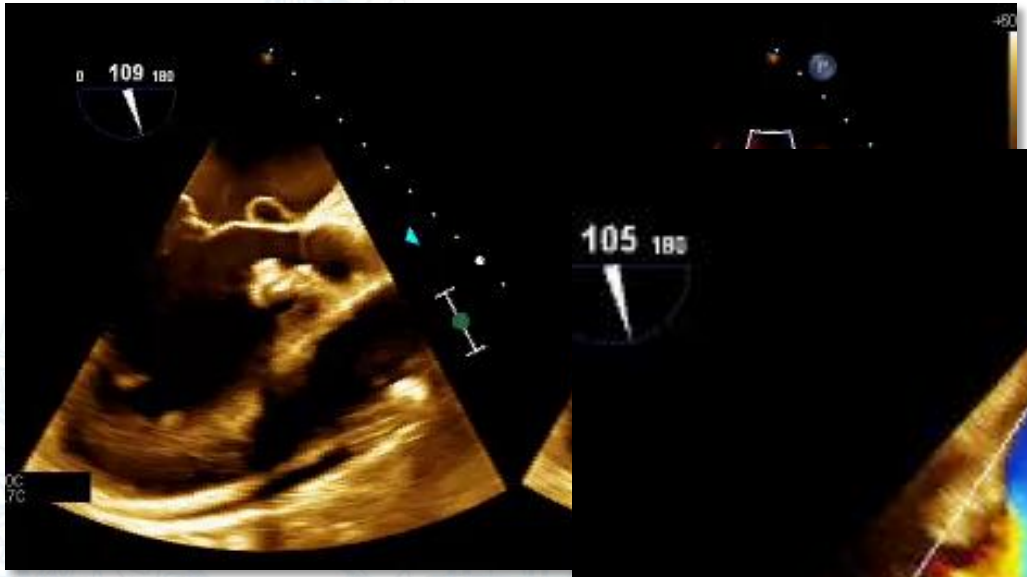
Recommendations	Class[a]	Level[b]
Surgery is recommended for early PVE (within 6 months of valve surgery) with new valve replacement and complete debridement. [621,635]	I	C

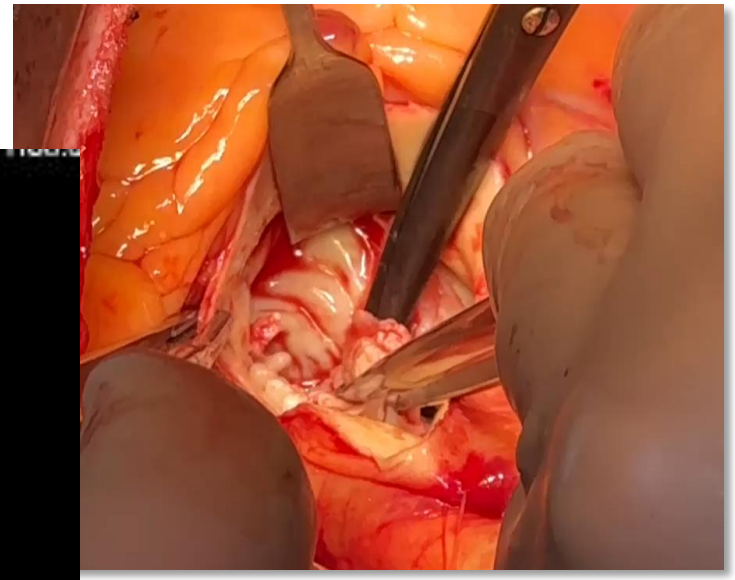


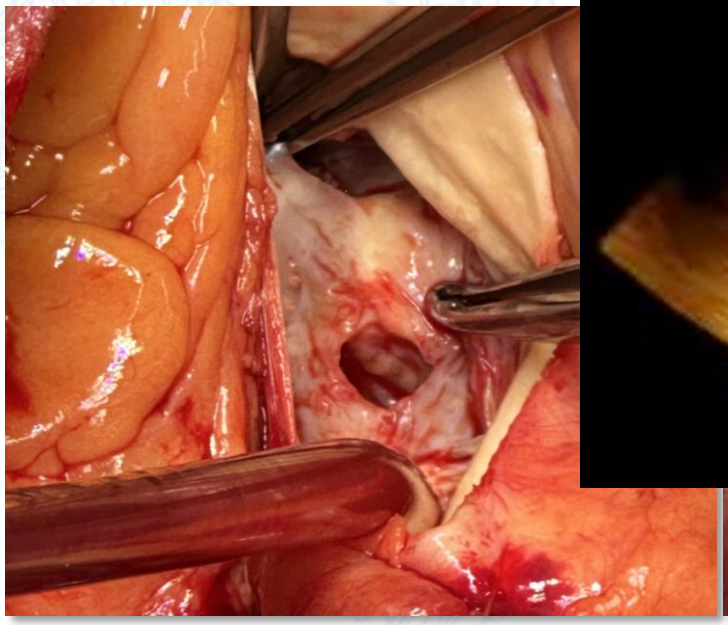




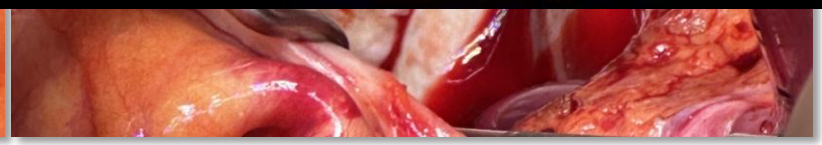
Delgado V, 2023 ESC Guidelines for the management of endokarditis, European Heart Journal, 44 (39), 3948–4042,
Habib G, Clinical presentation, aetiology and outcome of infective endocarditis. Results of the ESC-EORP EURO-ENDO (European infective endocarditis) registry. Eur Heart J 2019;40:3222–3232

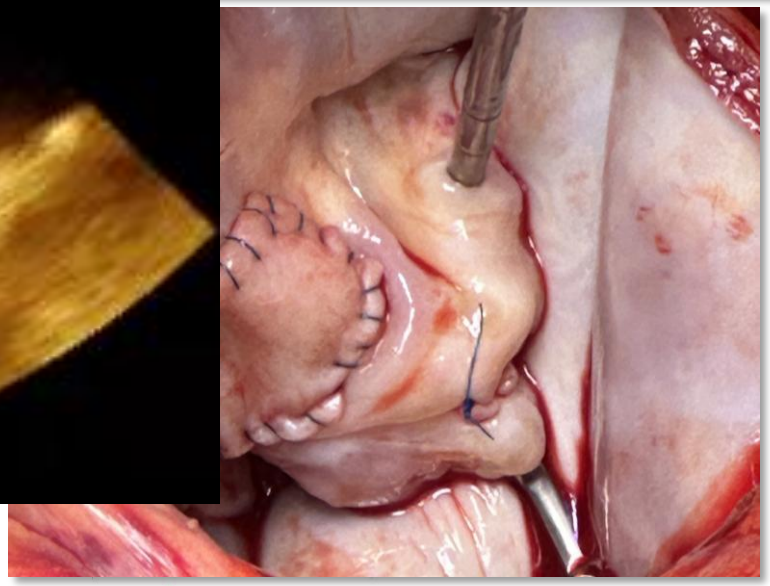
Rekonstrukce chlopní











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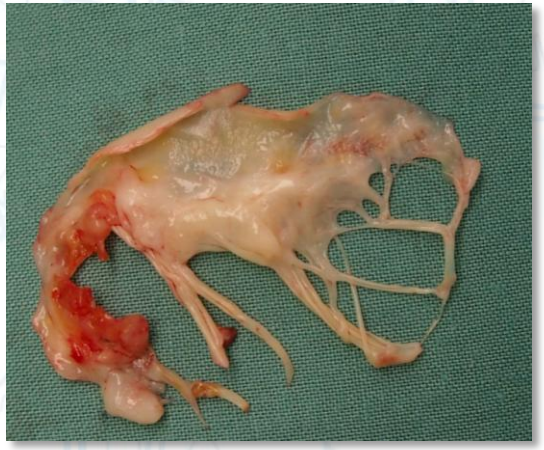
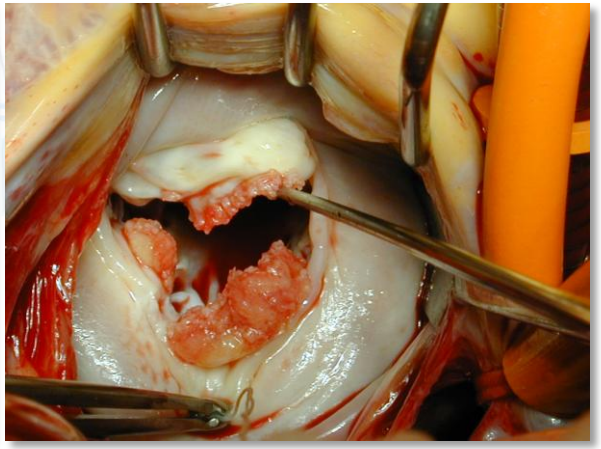
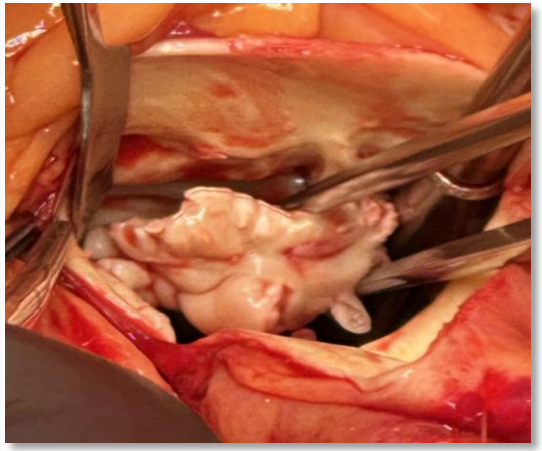
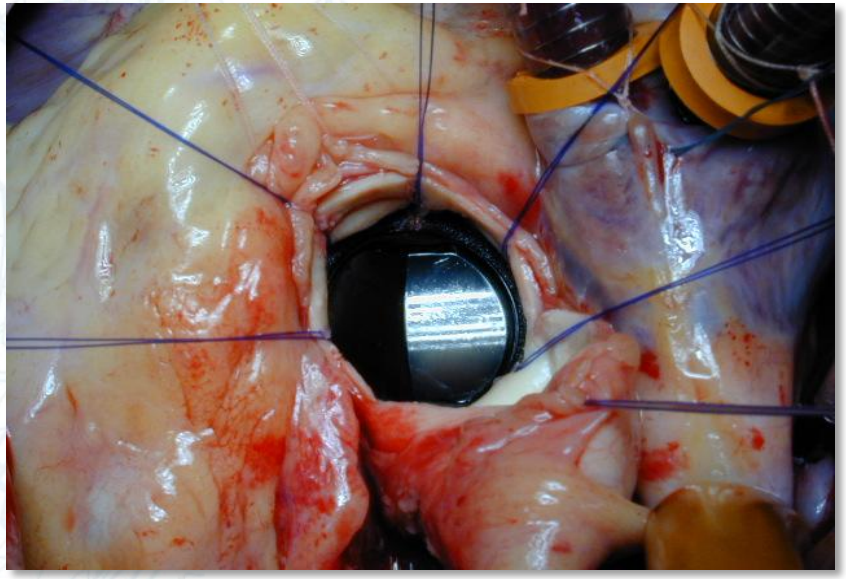
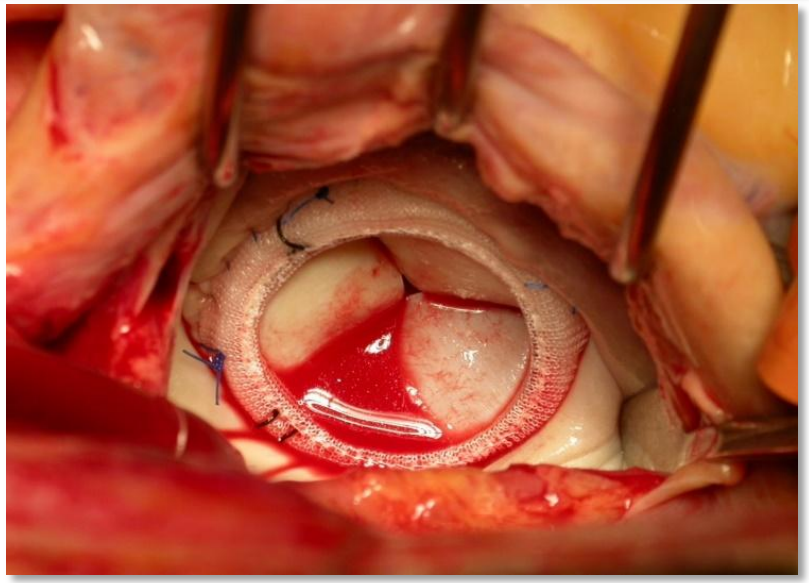
Chirurgické řešení – náhrady chlopní









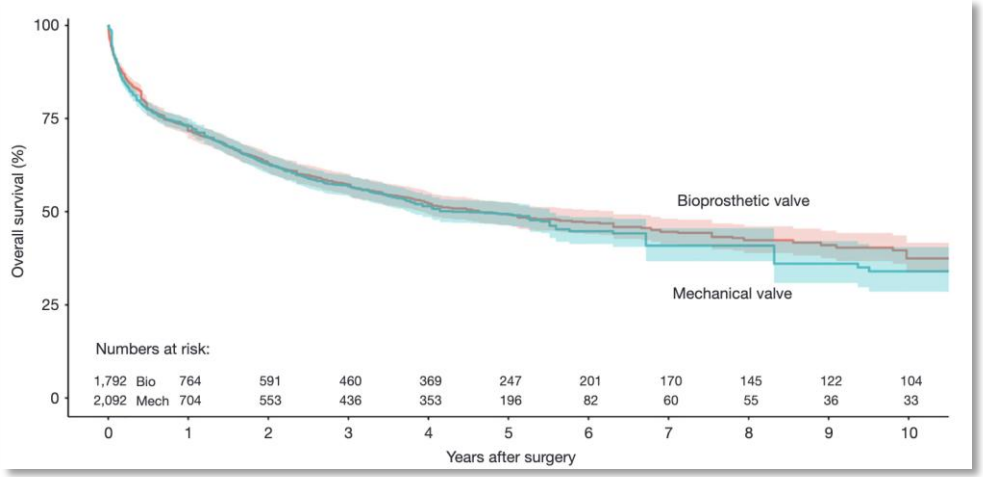


Chirurgické řešení – náhrady chlopní

Systematic Review

Systematic review and meta-analysis of surgical outcomes comparing mechanical valve replacement and bioprosthetic valve replacement in infective endocarditis

Campbell D. Flynn[1], Neil P. Curran[1], Stephanie Chan[1], Isabel Zegri-Reiriz[2], Manel Tauron[3], David H. Tian[4], Gosta B. Pettersson[5], Joseph S. Coselli[6,7], Martin Misfeld[8], Manuel J. Antunes[9], Carlos A. Mestres[10,11] Eduard Quintana[12]

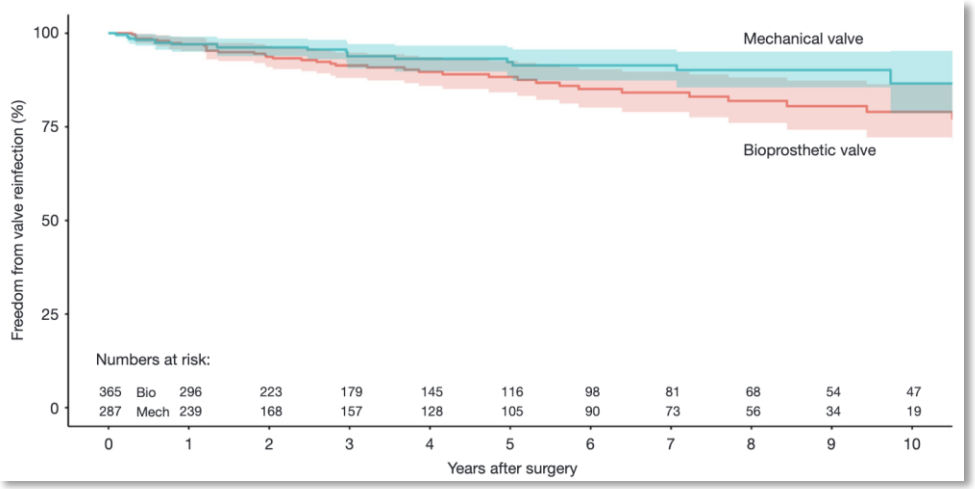


2,336 mech a 2,057 bio

rozhodnutí o volbě mechanické či bioprotézy

- založené věku pacienta, komorbiditách a preferenci

- NE na přítomnosti IE



Flynn, Systematic review and meta-analysis of surgical outcomes comparing mechanical valve replacement and bioprosthetic valve replacement in infective endocarditis. Annals of cardiothoracic surgery, 2019, 8.6: 587.

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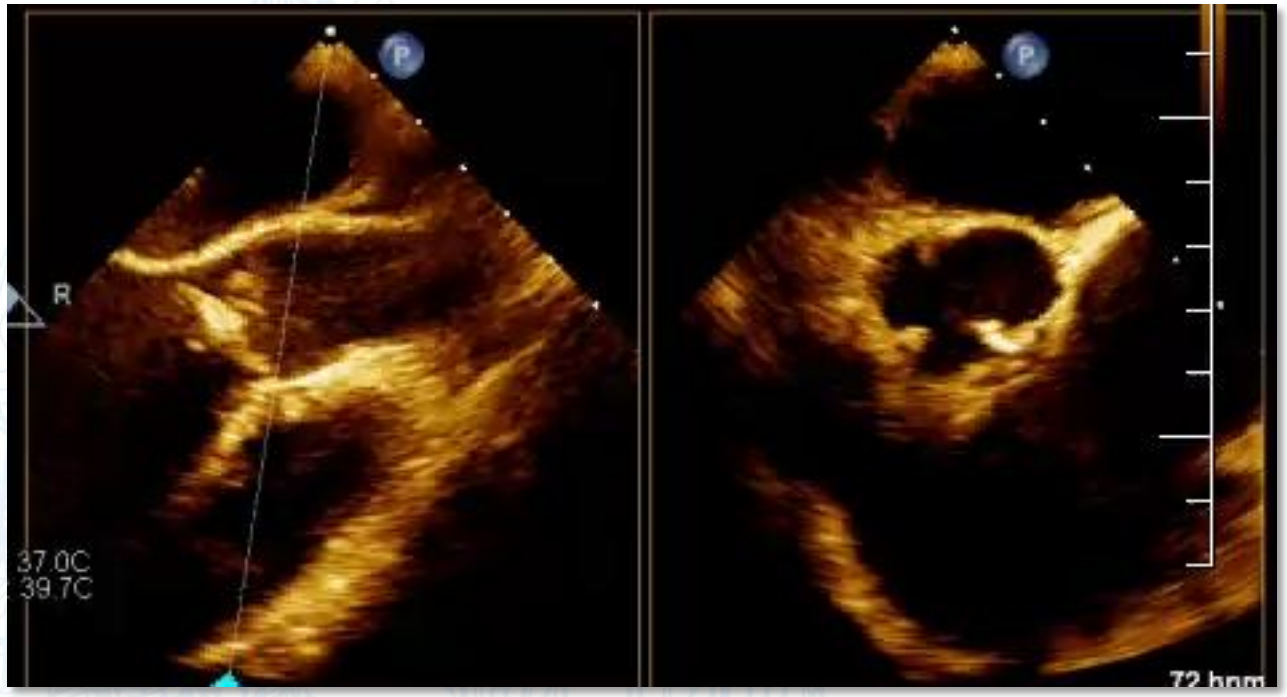
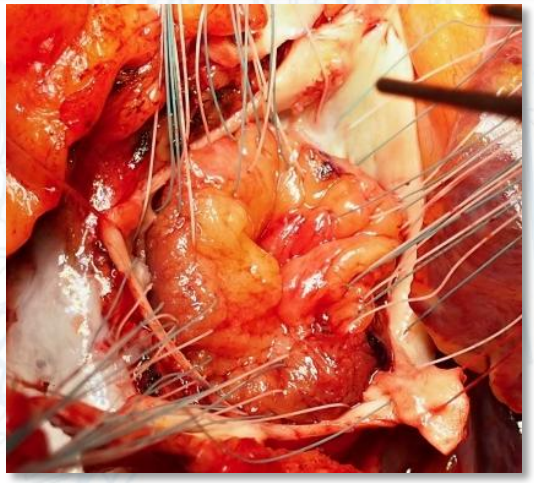
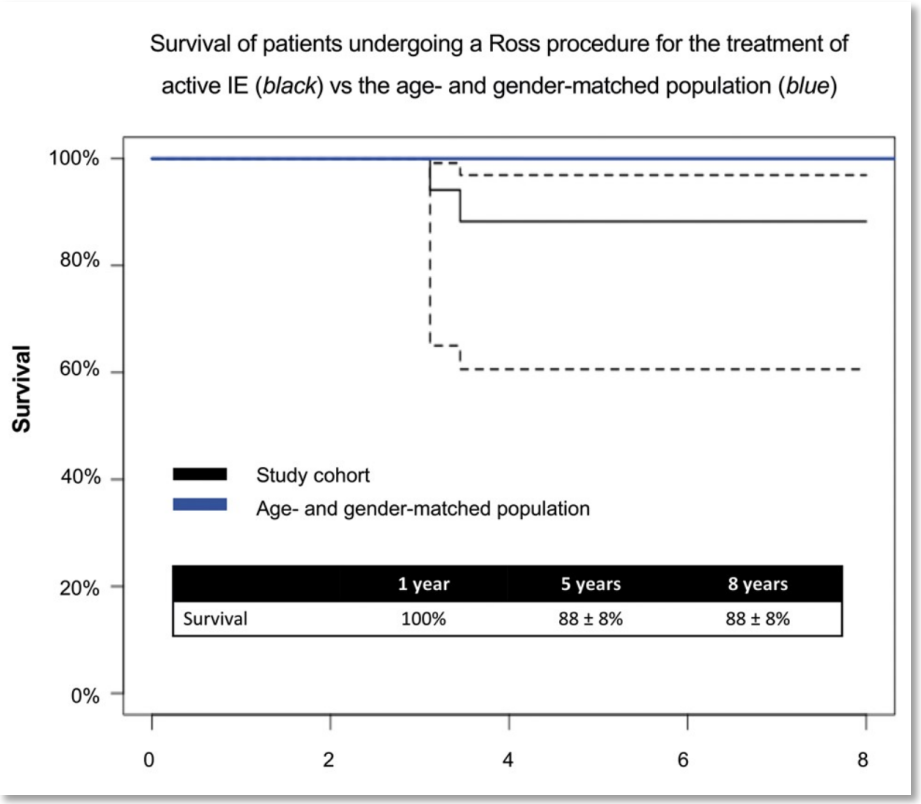
Rossova operace při IE





The Ross procedure is a safe and durable option in adults with infective endocarditis: a multicentre study

Vincent Chauvette [a], Ismail Bouhout [a], Laurence Lefebvre[a], Mohammed Tarabzoni [b], Marie-Ève Chamberland[c], Nancy Poirier [a], Philippe Demers[a], Michael W.A. Chu [b], Jean Perron[d] and Ismail El-Hamamsy[a,e,*]



Chauvette, The Ross procedure is a safe and durable option in adults with infective endocarditis: a multicentre study. European Journal of Cardio-Thoracic Surgery, 2020, 58.3: 537-543.

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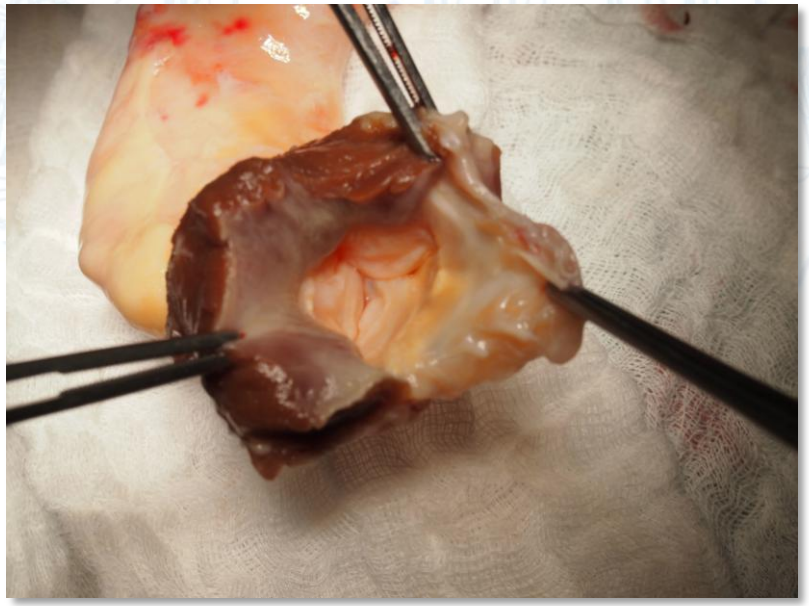
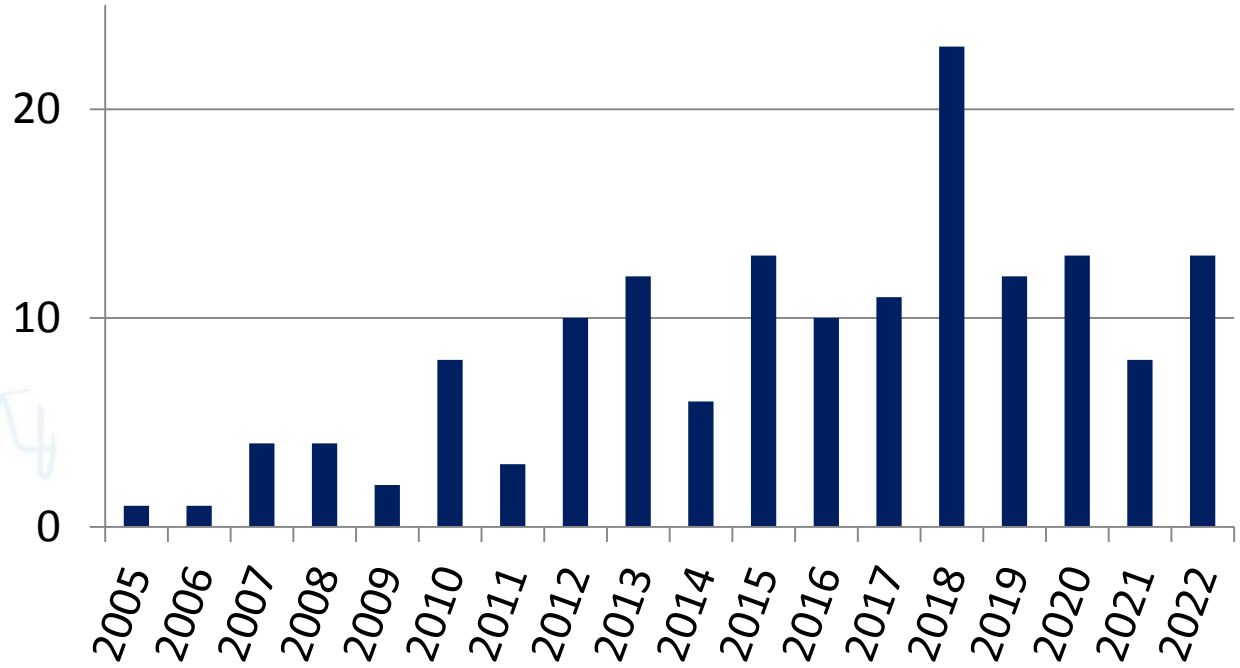
Infekční endokarditida - užití homograftu



n = 154
prostetická 116 (75%)
mortalita: hospitalizační - 16,7 %, roční - 21,0 %
degenerace - 3x 1,9%
recidiva IE - 3x (5,11 a 46 měsíců) 1,9%



nepublikovaná data

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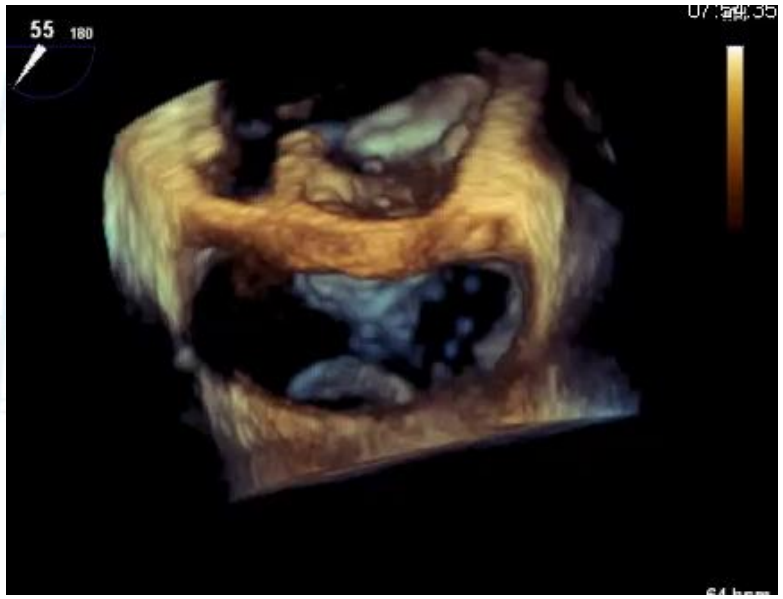
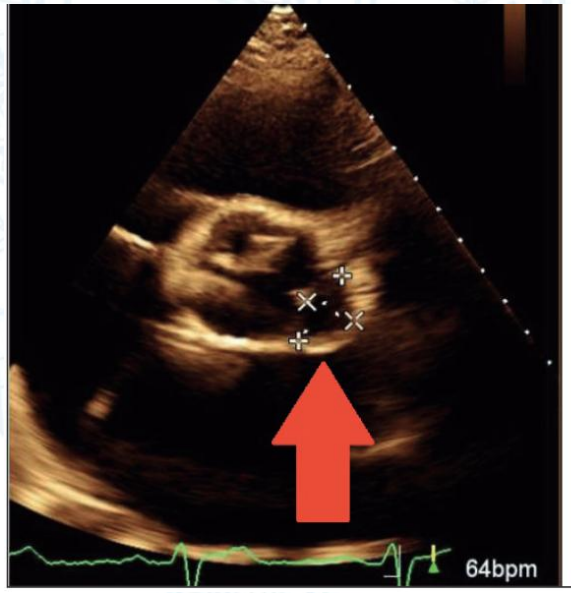
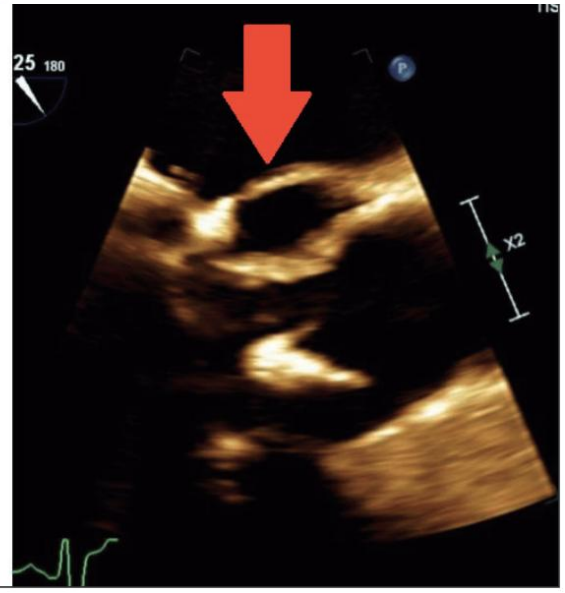
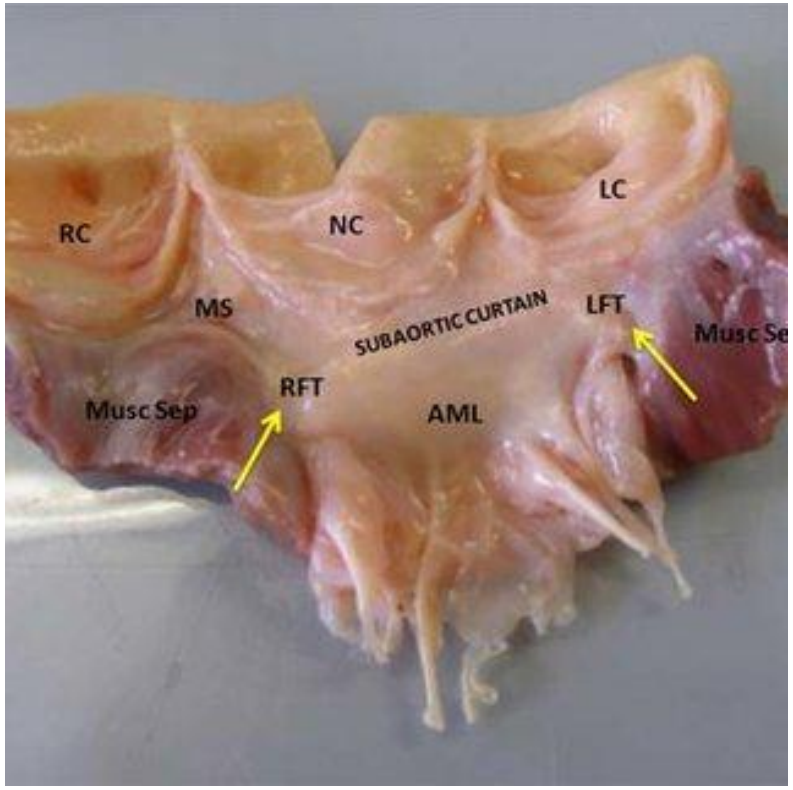
Double valve IE - aortomitrální kontinuita









Yacoub, The left ventricular outflow in hypertrophic cardiomyopathy: from structure to function. Journal of cardiovascular translational research, 2009, 2: 510-517.
Kolárik,. Rekonstrukce aortomitrální kontinuity u infekční endokarditidy dvou chlopní. Cor et Vasa, 2021, 63.4: 513-517.

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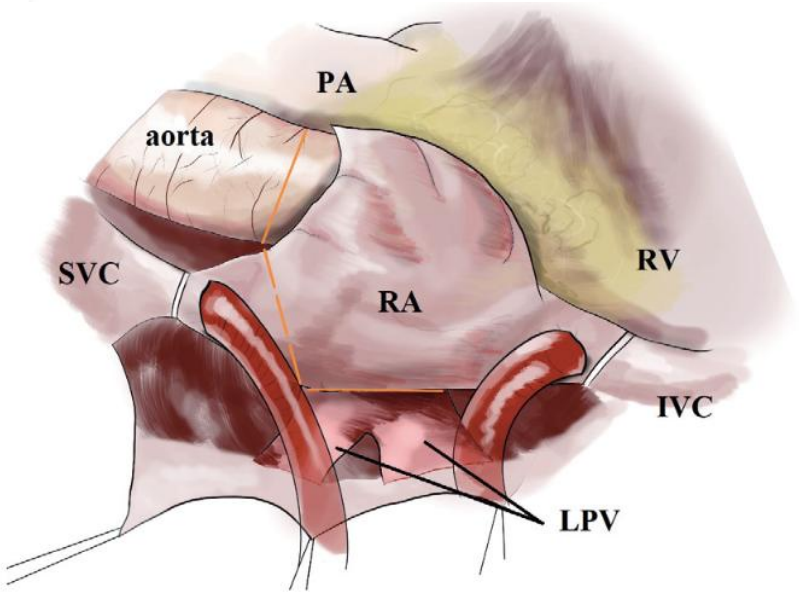
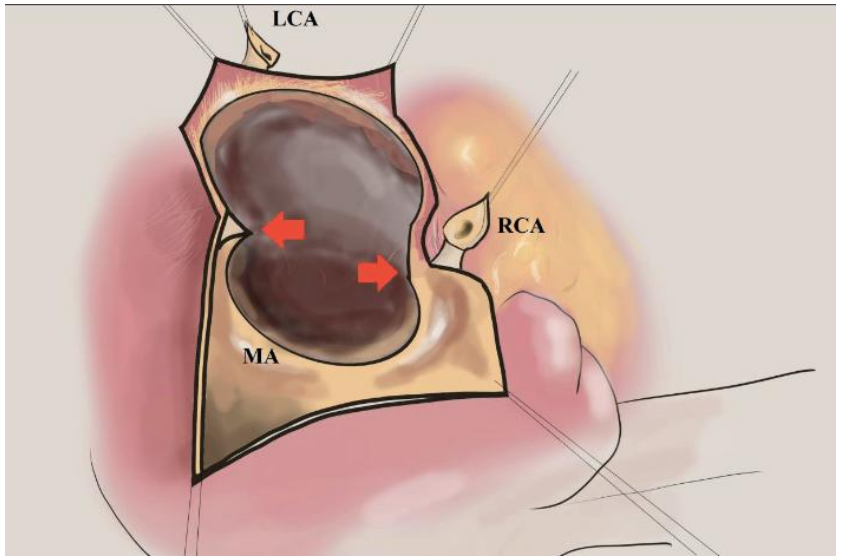
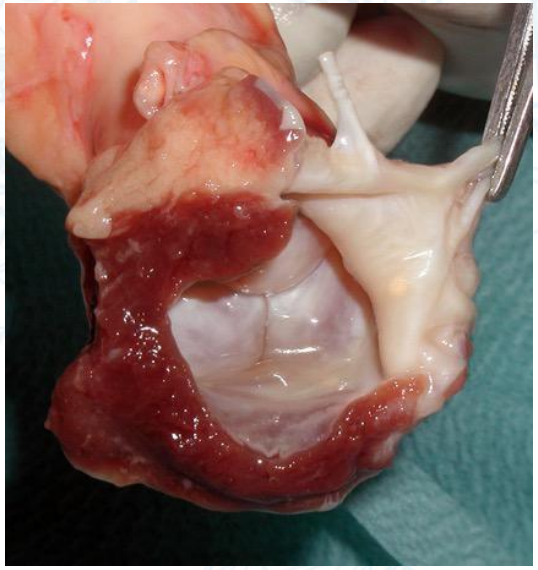
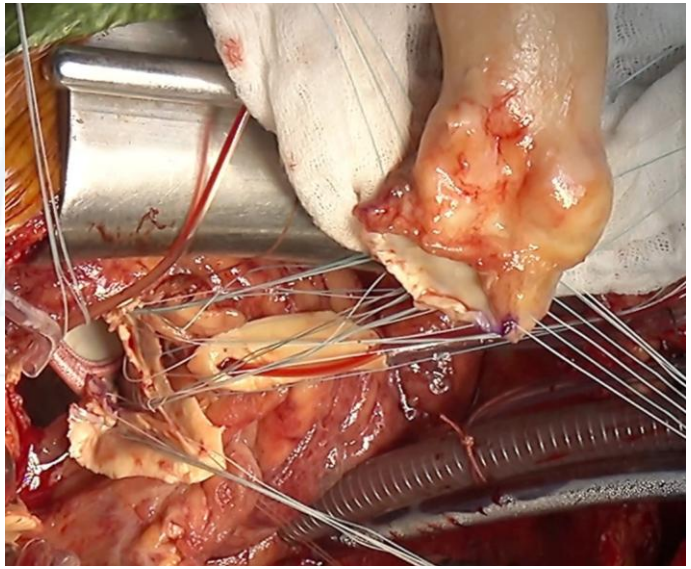
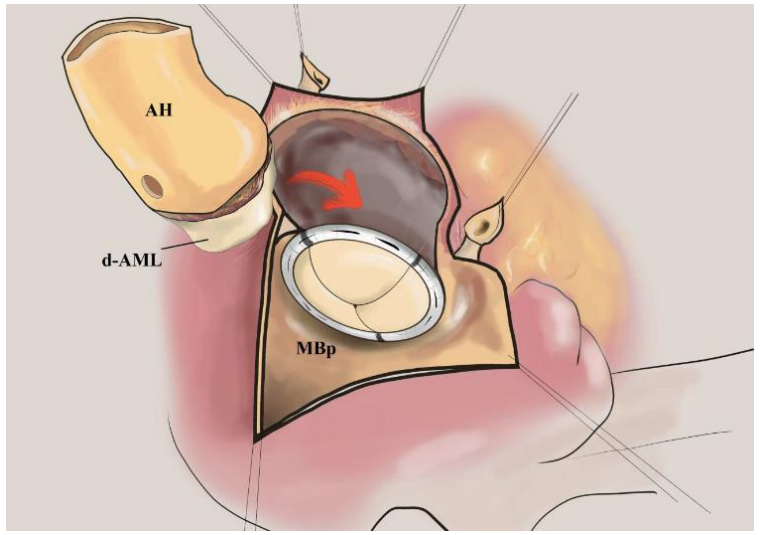
Double valve IE – Commando /UFO











Kolárik,. Rekonstrukce aortomitrální kontinuity u infekční endokarditidy dvou chlopní. Cor et Vasa, 2021, 63.4: 513-517.

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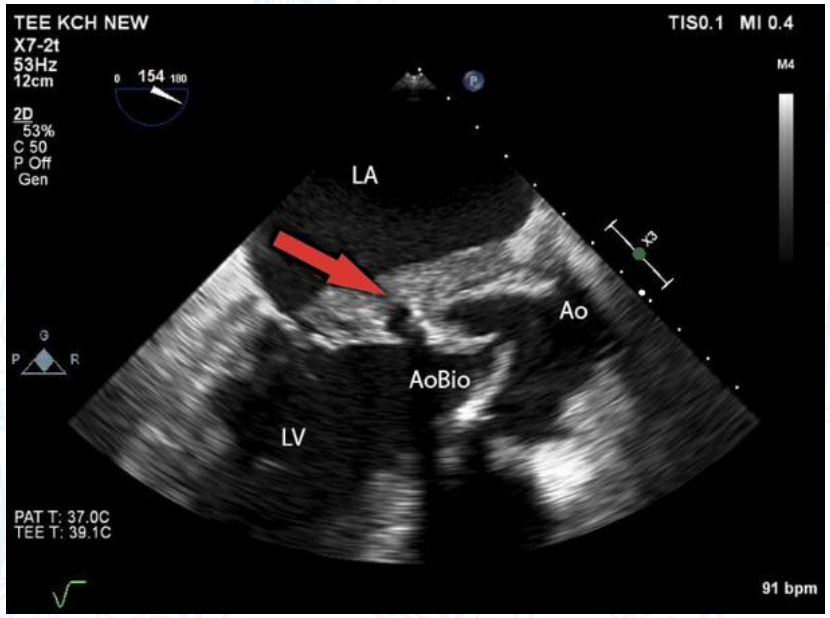
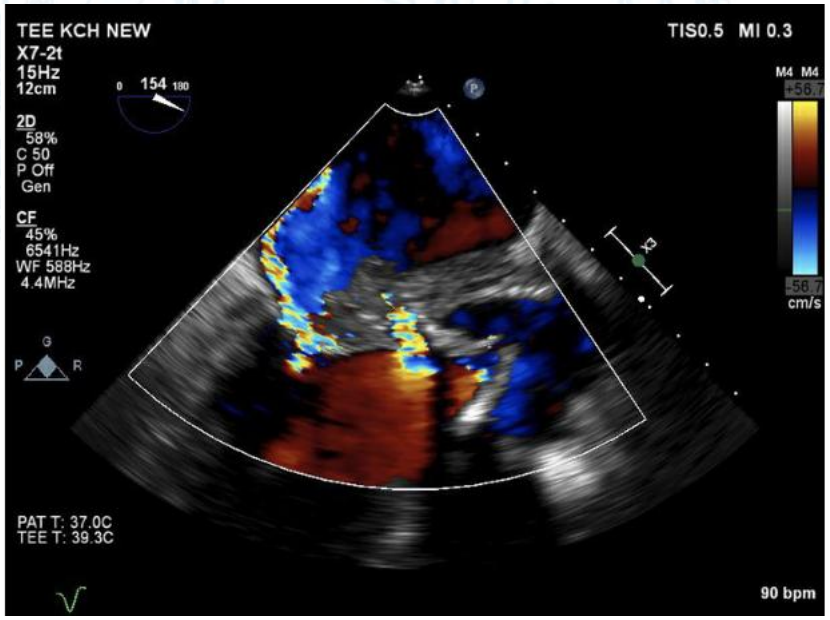
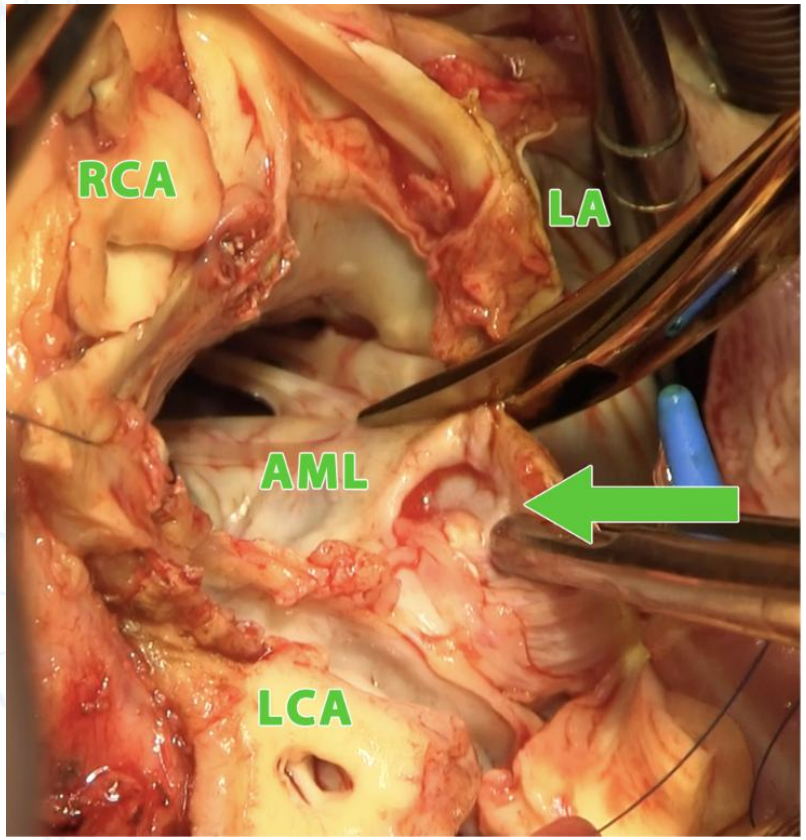
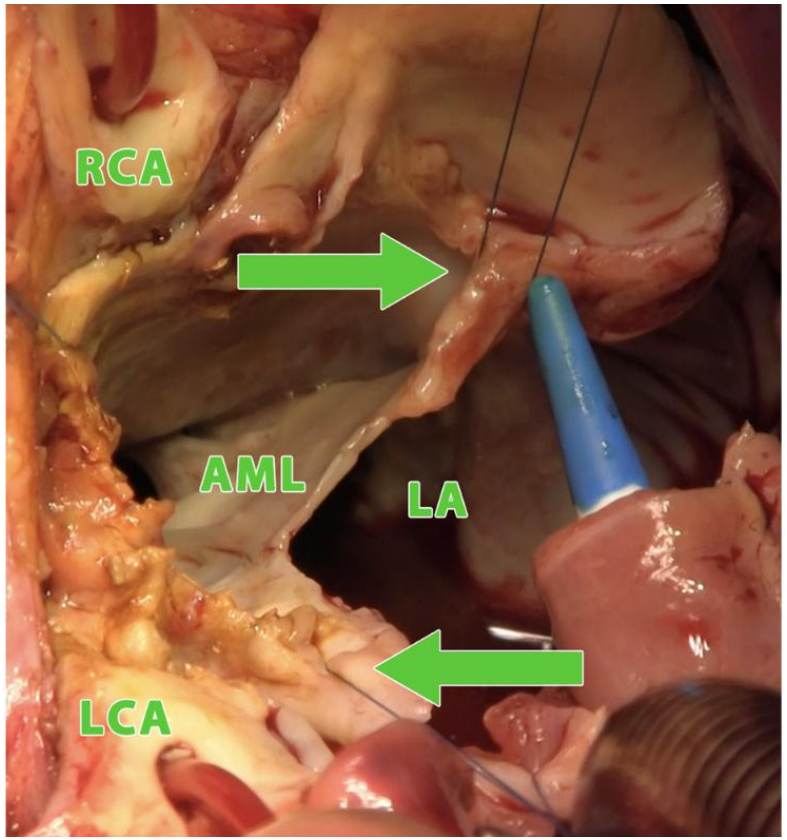
Double valve IE – hemi-Commando









Vobornik, Aorto-mitral curtain reconstruction in invasive double-valve endocarditis: mid-term outcomes. Frontiers in Cardiovascular Medicine, 2023, 10: 1154129.

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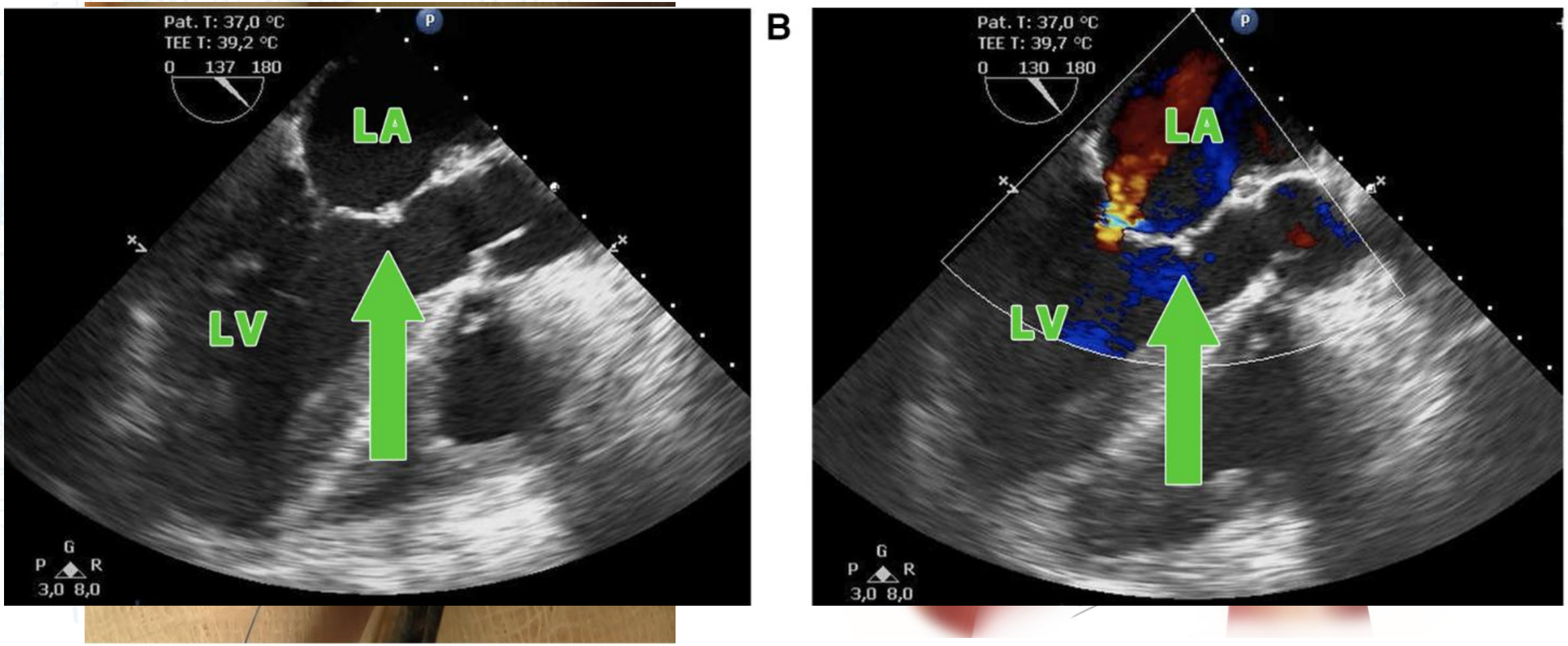

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Shrnutí

- závažné onemocnění = časná intervence
- chirurgie umožňuje radikální odstranění infekční tkáně
- operovat než dojde k „devastujicím“ komplikacím
- neodkládat ani po ischemické CMP
- prodělaná IE zvýšené riziko recidivy
- nutná prevence vzniku
- multidisciplinární přístup v centrech se zkušenostmi