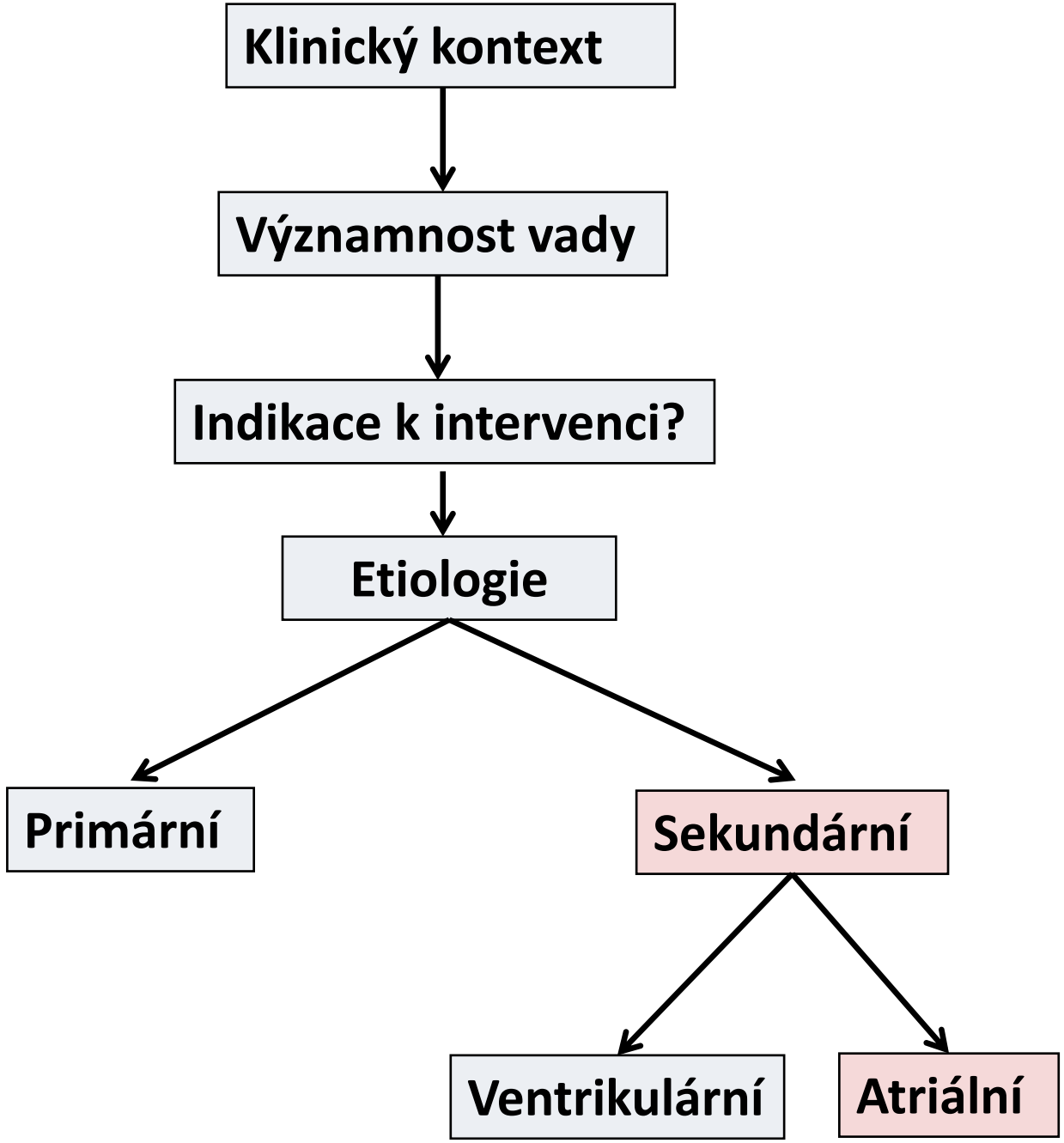
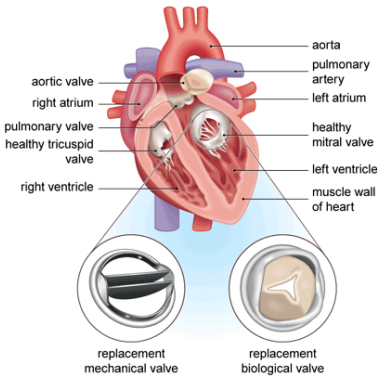
JAK SPRÁVNĚ VYŠETŘIT PACIENTA PŘED KATETRIZAČNÍM VÝKONEM NA MITRÁLNÍ CHLOPNI?

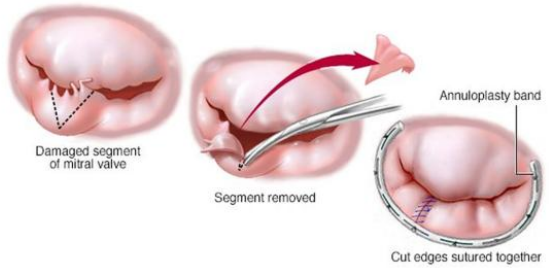
Martin Horváth


Klinický kontext
Významnost vady
Indikace k intervenci?
Etiologie
Primární
Sekundární
Ventrikulární
Atriální

Operace



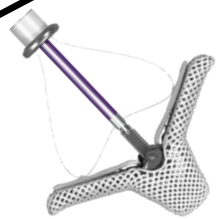
The types of heart valve replacement



Intervence

Anatomická vhodnost

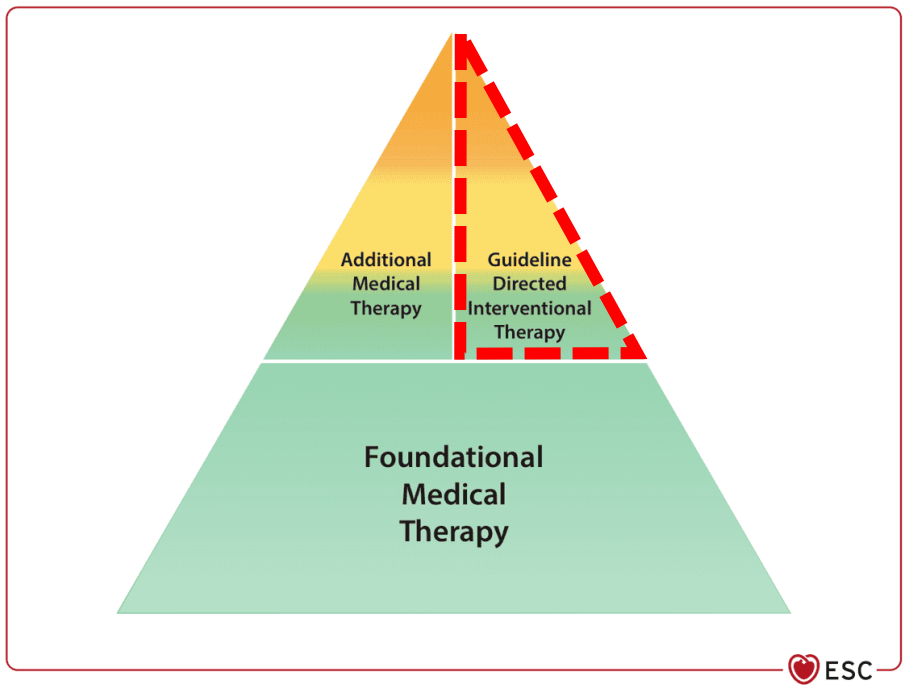
TEER



TMVI

Patient with severe primary mitral regurgitation

Patient with severe symptomatic SMR without concomitant CAD



ESC EACTS

ESC EACTS

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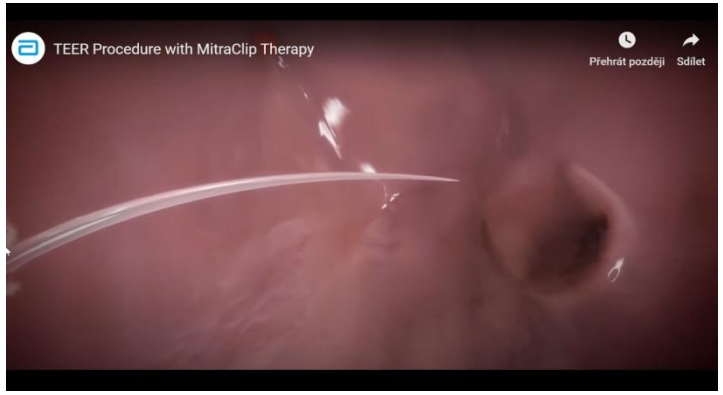
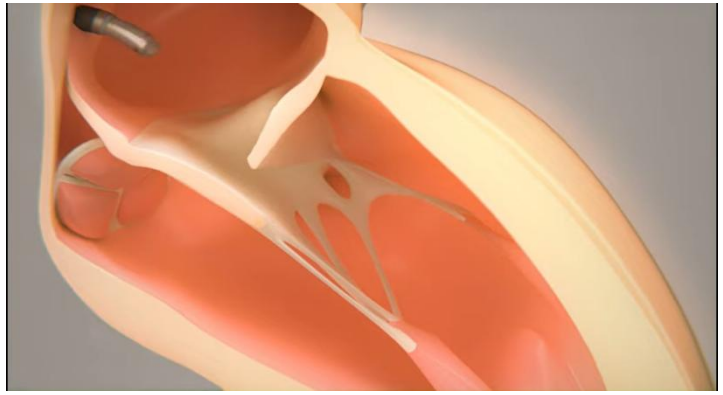
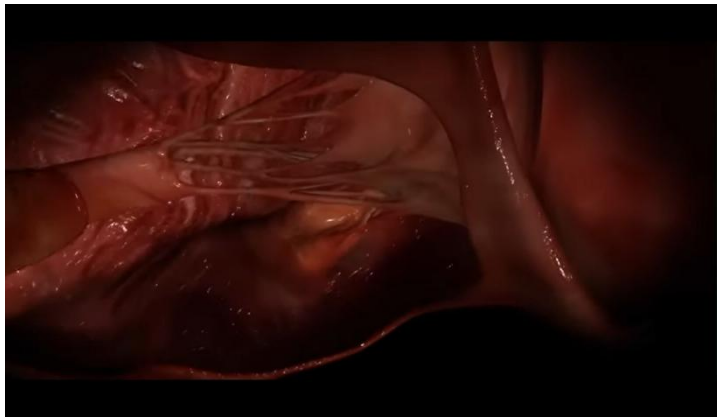
TEER- MitraClip



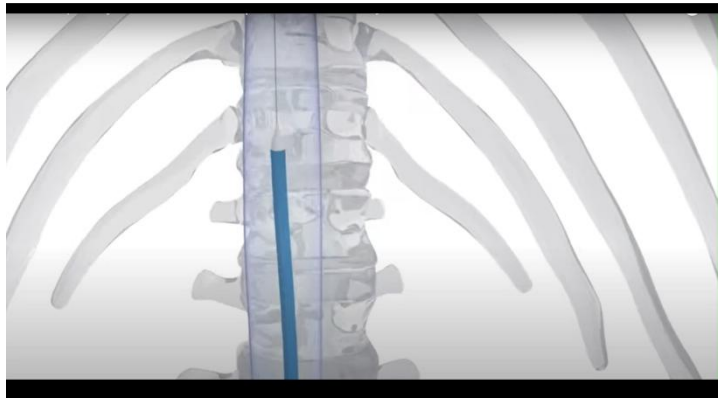
Neochordy



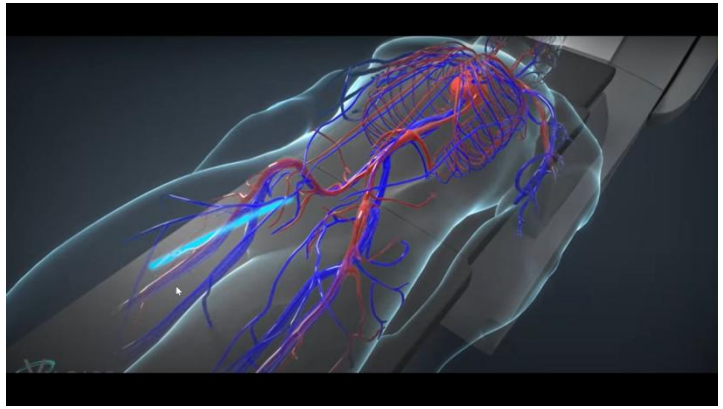
Biologická náhrada



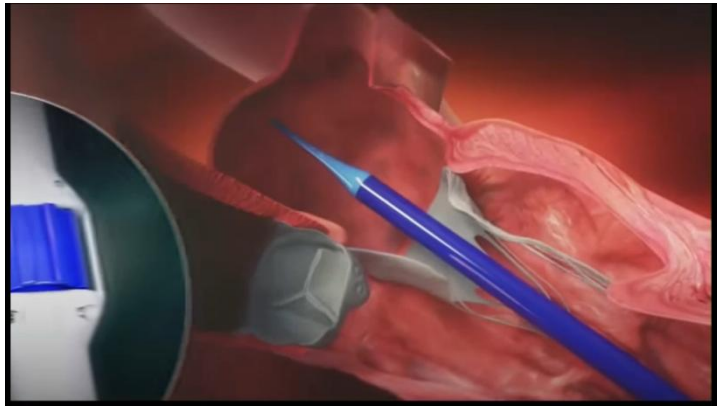
TEER- PASCAL



Anuloplastický ring

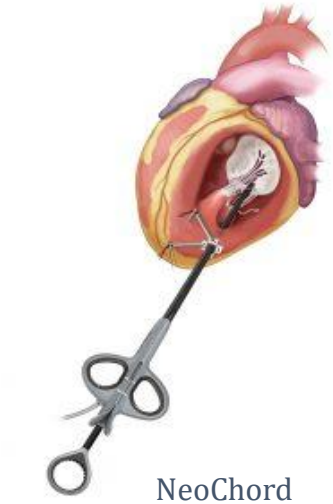


Biologická náhrada



KARDIOLOGICKÁ KLINIKA
2. LF UK a FN MOTOL

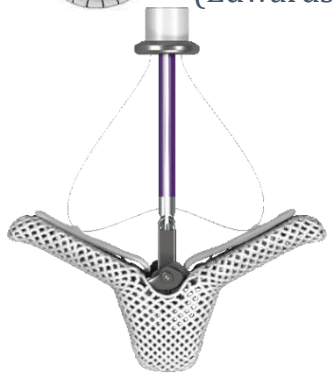
Plastika



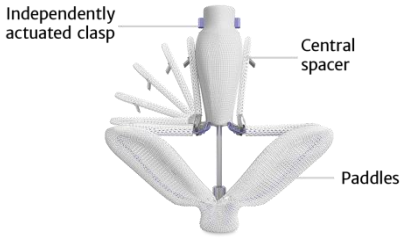
NeoChord
(Neochord inc.)

Carillon (Cardiac dimensions)

Cardioband
(Edwards)



MitraClip
(Abbott)



Pascal
(Edwards)

Náhrada

Interpid
(Medtronic)

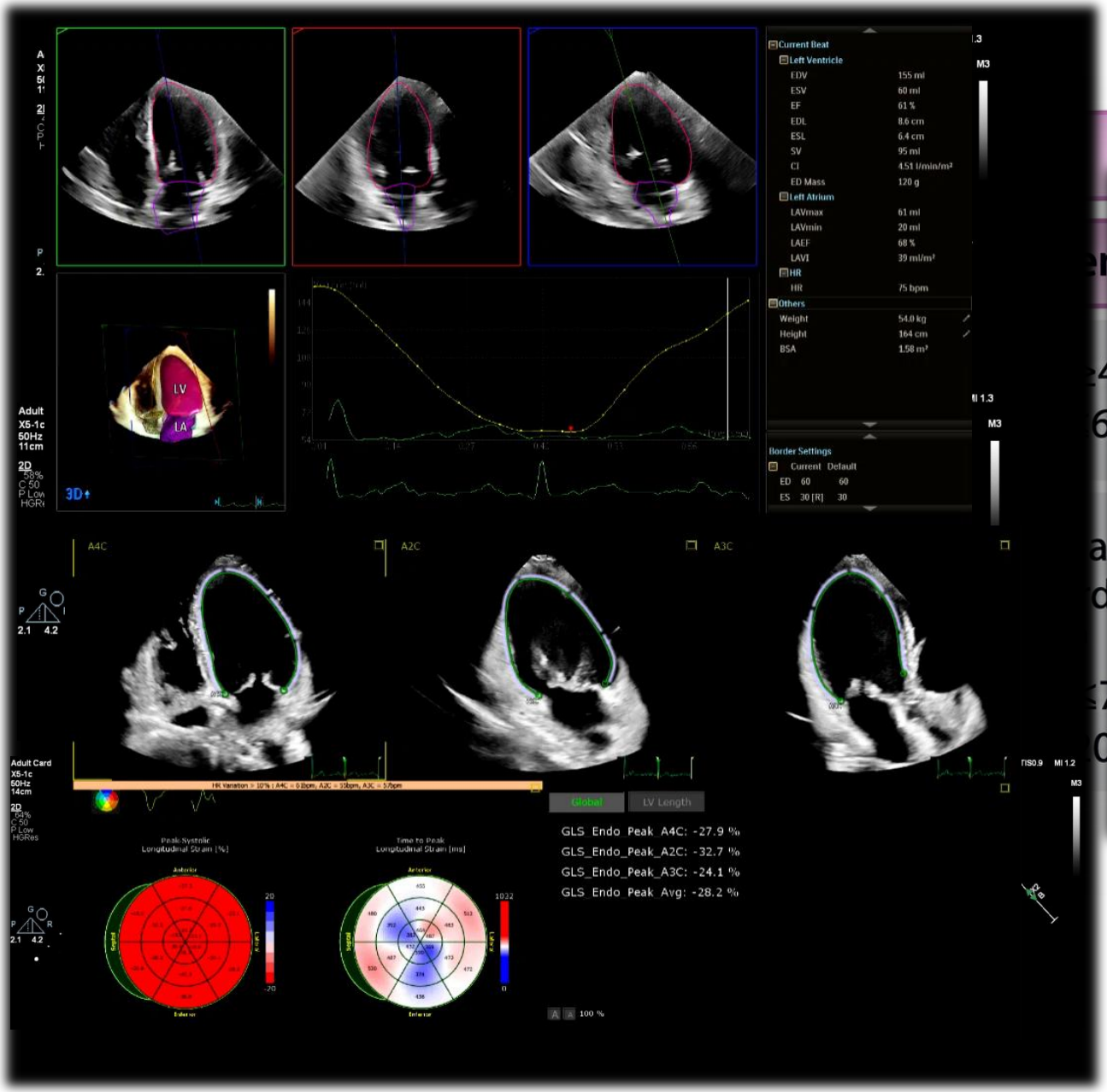
Tiara
(Neovasc)

Sapien M3
(Edwards)

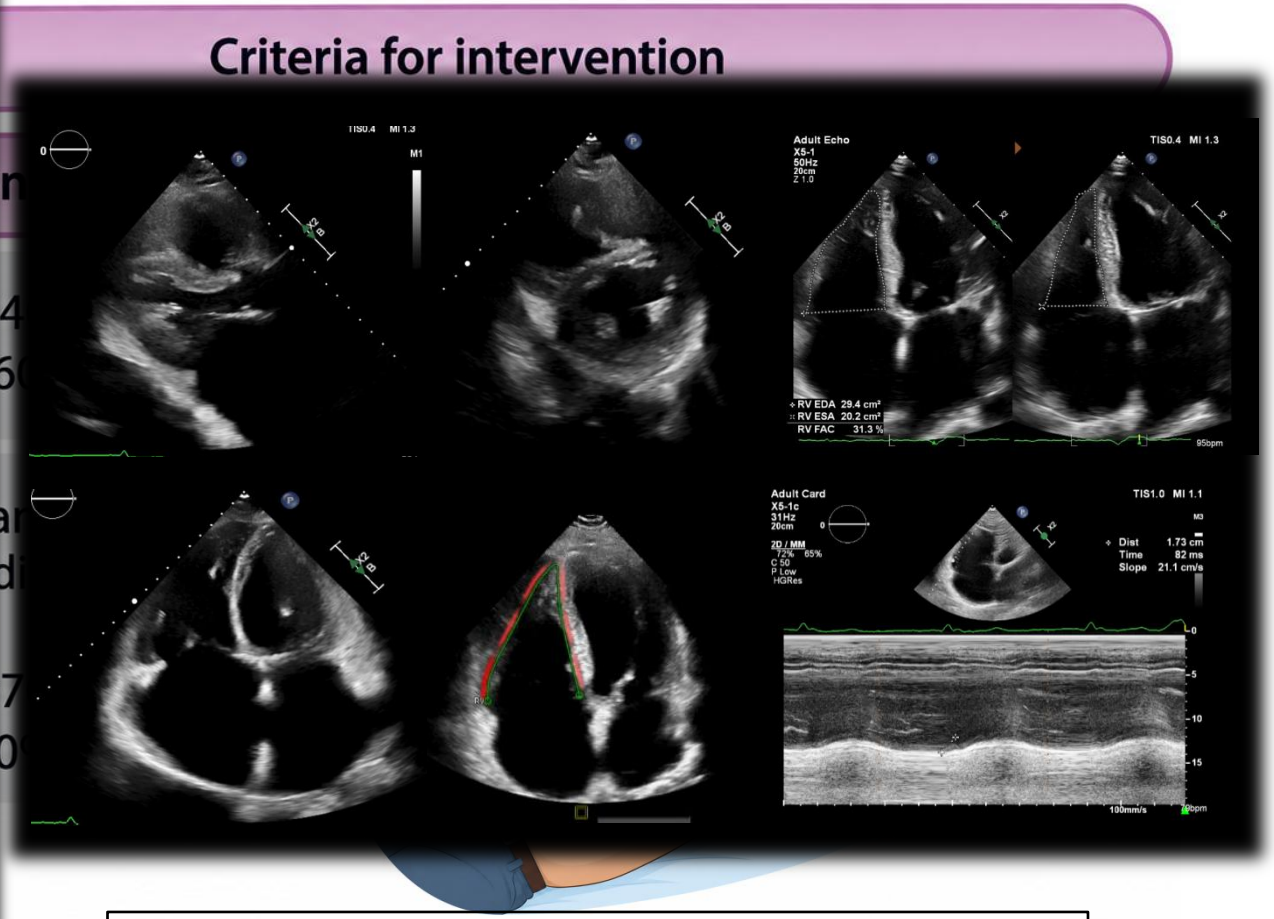
Evoque TMVR
(Edwards)

TENDYNE™
(Abbott)

Systolická funkce levé komory



Systolická pravé komory



Pravá komora rozměry
TAPSE , s TDI ,strain PK , FAC, přítomnost PH

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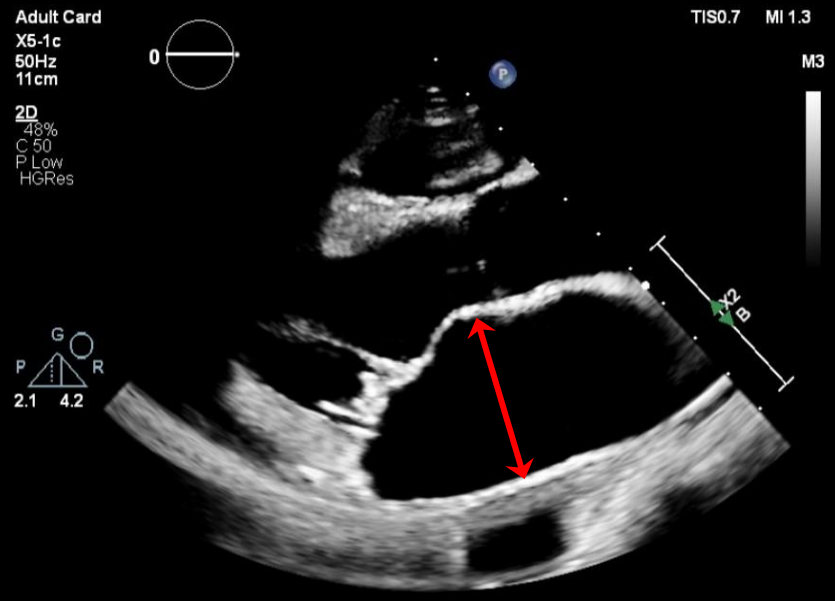
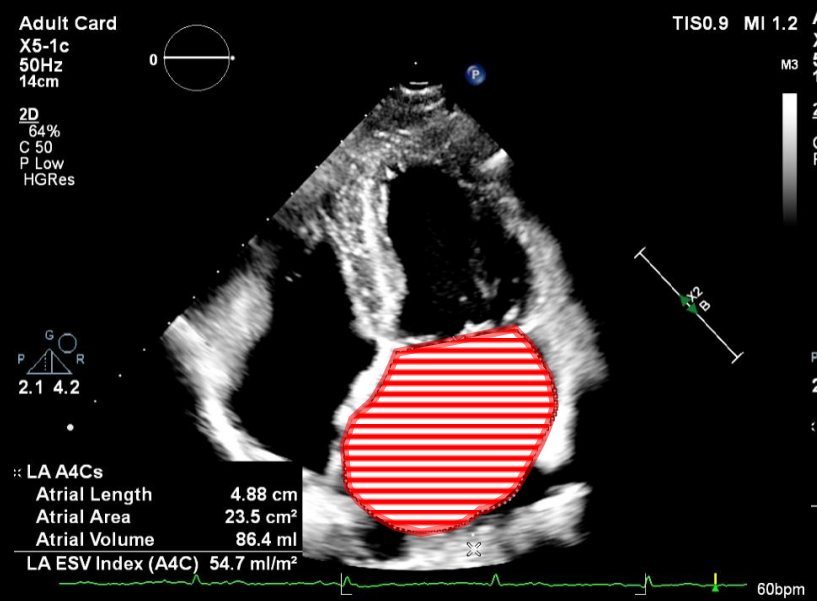
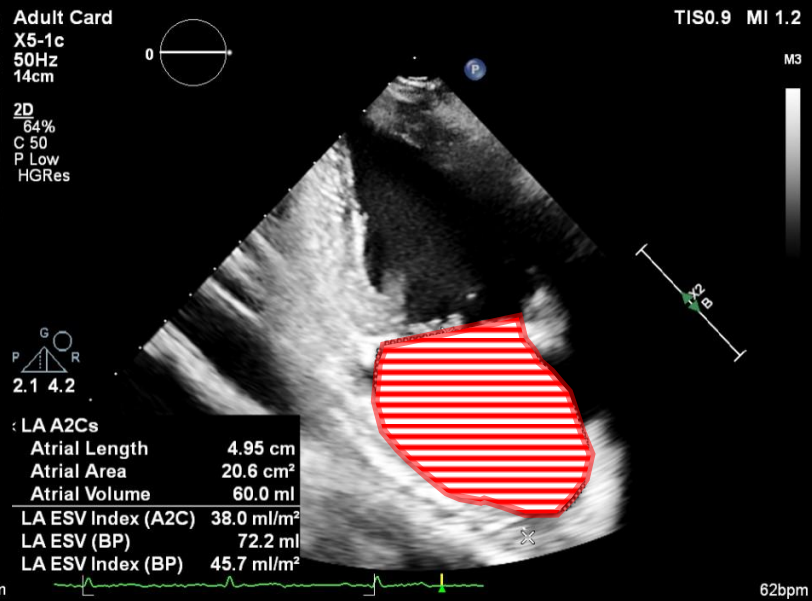
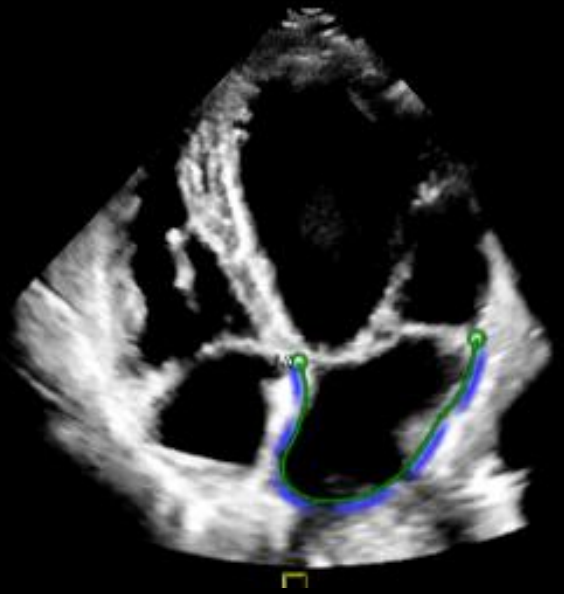
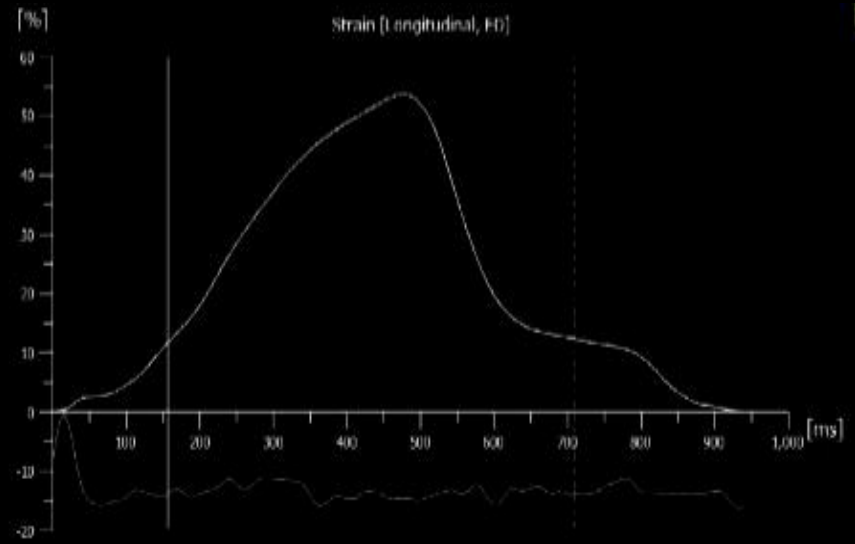

Adult Card
X5-1c
50Hz
11cm
2D
48%
C 50
P Low
HGRes
TIS0.7 MI 1.3
M3
2.1 4.2


Adult Card
X5-1c
50Hz
14cm
2D
64%
C 50
P Low
HGRes
TIS0.9 MI 1.2
M3
2.1 4.2
LA A4Cs
Atrial Length 4.88 cm
Atrial Area 23.5 cm²
Atrial Volume 86.4 ml
LA ESV Index (A4C) 54.7 ml/m²
60bpm


Adult Card
X5-1c
50Hz
14cm
2D
64%
C 50
P Low
HGRes
TIS0.9 MI 1.2
M3
2.1 4.2
LA A2Cs
Atrial Length 4.95 cm
Atrial Area 20.6 cm²
Atrial Volume 60.0 ml
LA ESV Index (A2C) 38.0 ml/m²
LA ESV (BP) 72.2 ml
LA ESV Index (BP) 45.7 ml/m²
62bpm




Strain [Longitudinal, ED]
[%]
[ms]


Reference ED
Reference PreA
LASr_ED: 53.8 %
LAScd_ED: -41.4 %
LASct_ED: -12.4 %
100 %

Zhodnocení tíže vady - 2D echokardiografie

Qualitative

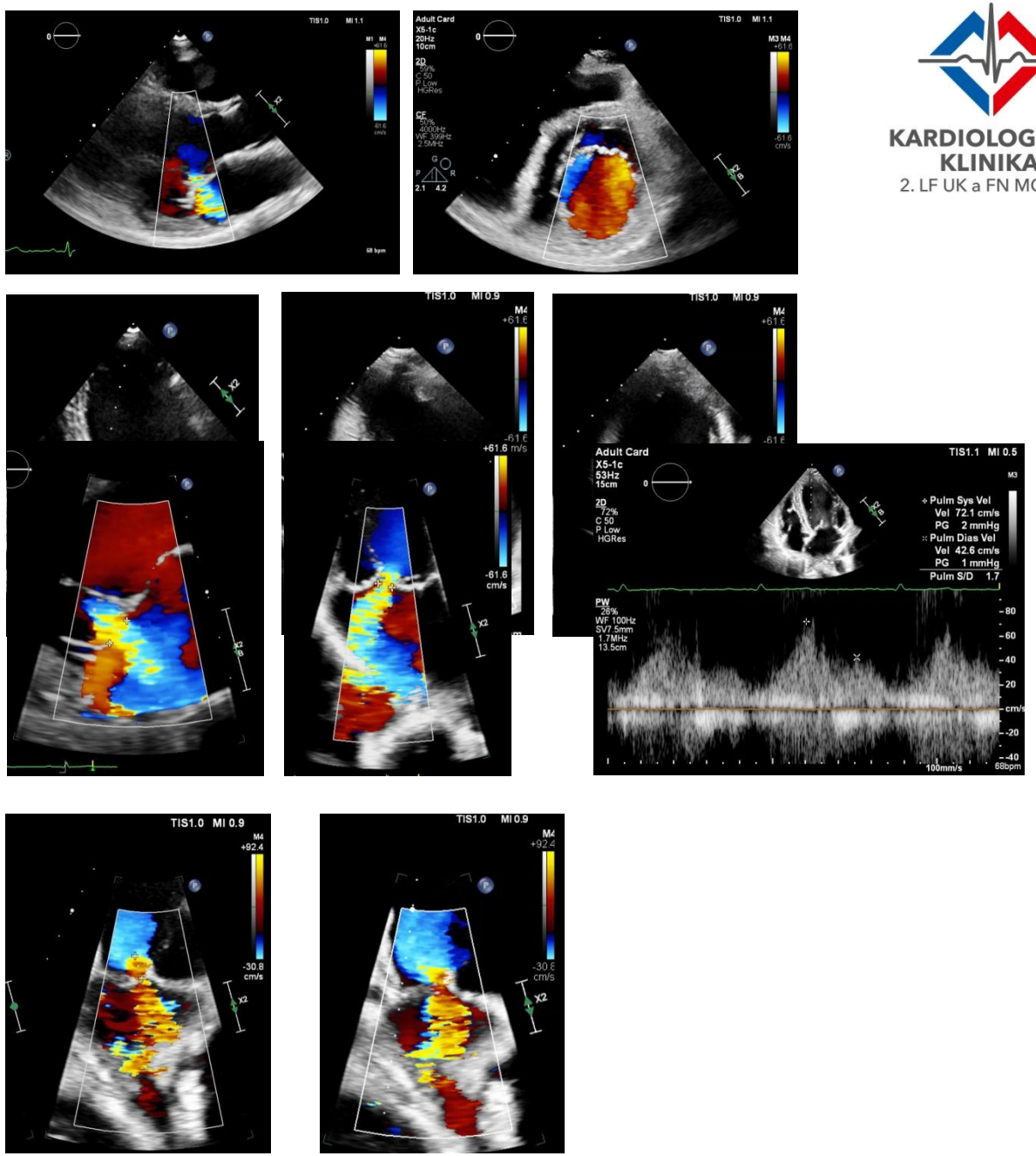
- Flail leaflet, large coaptation defect, severe tenting
- Large central jet
- Large holosystolic convergence zone

Semi-quantitative

- Vena contracta ≥7 mm (≥8 mm for biplane)
- Pulmonary vein systolic flow reversal
- E-wave dominant (>1.2 m/s)
- VTI mitral / VTI LVOT >1.4

Quantitative

- EROA ≥40 mm² (or ≥30 mm² if elliptical regurgitant orifice area)
- RVol ≥60 mL (or ≥45 mL if low flow conditions)
- RF ≥50%



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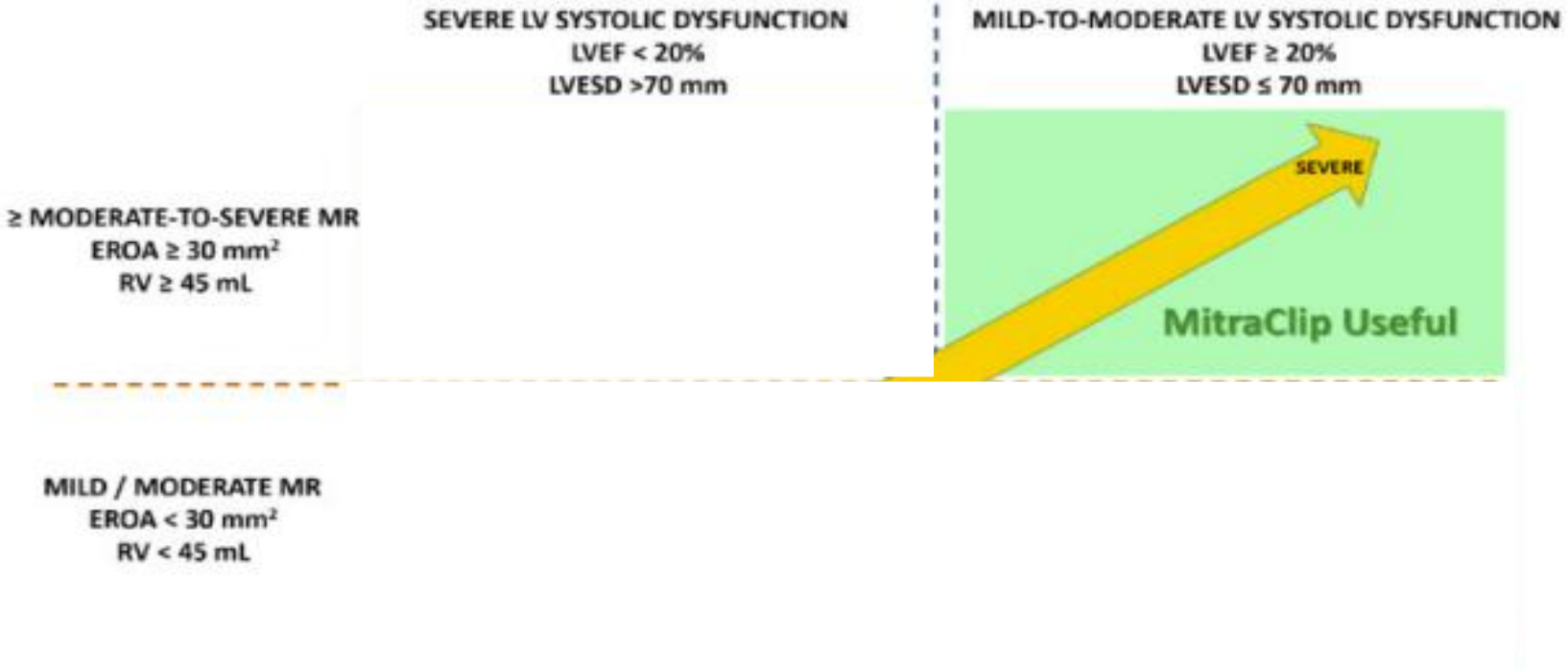
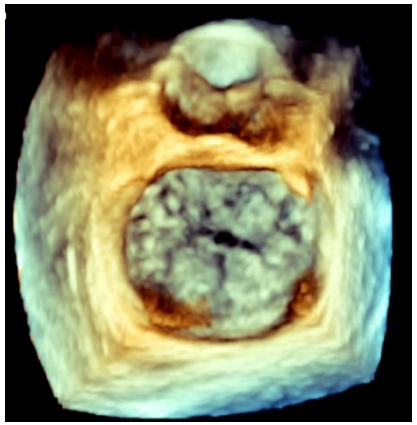
Vhodný pacient

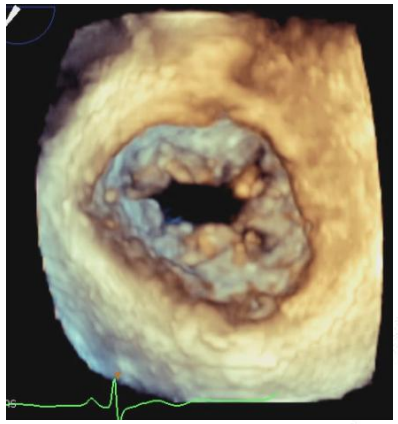
1. Těžká symptomatická primární MR u inoperabilního pacienta
2. Sekundární (ventrikulární) MR u pacienta s:
   - Symptomy přes optimální farmakoterapii a přístrojovou léčbu
   - Těžkou MR „inadekvátní“ k míře remodelace levé komory
   - Systolická dysfunkce levé komory s EF 20-50% a LVESD ≤70mm

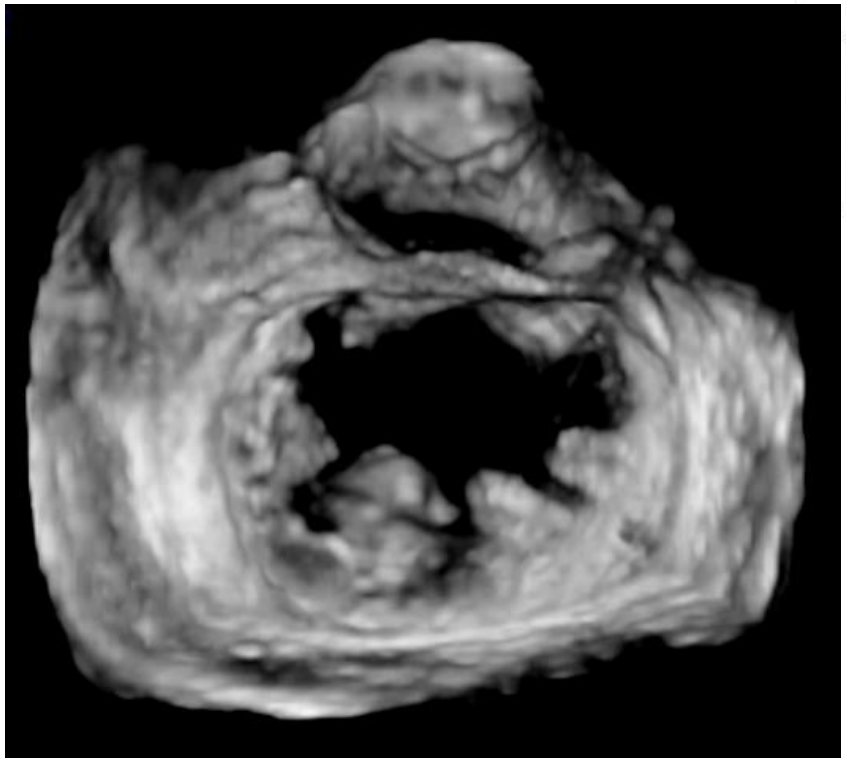


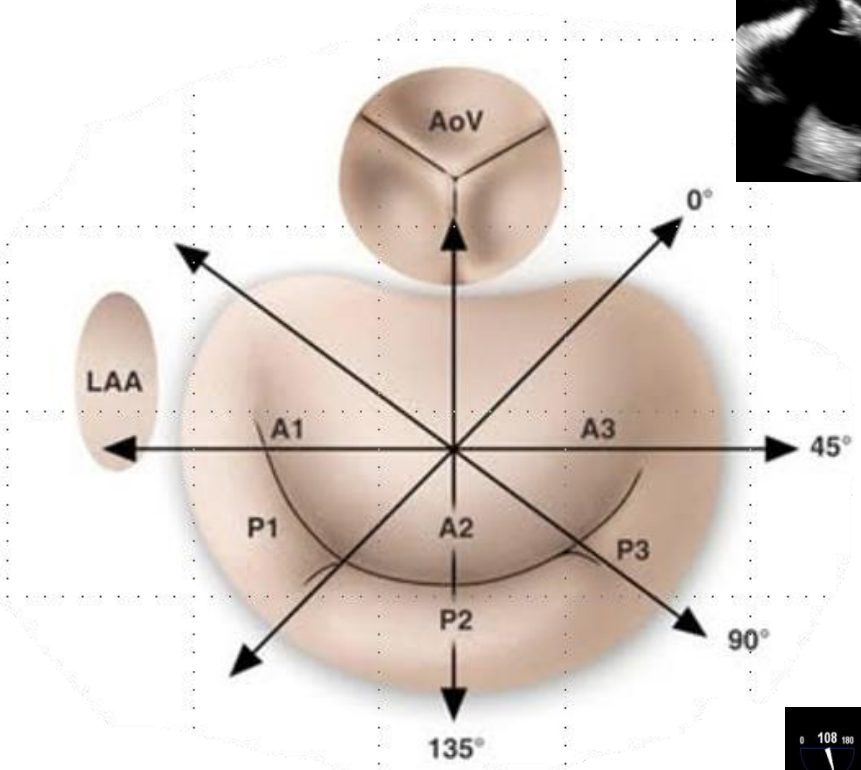
Pibarot, P. et al. Eur H Journal. 2019

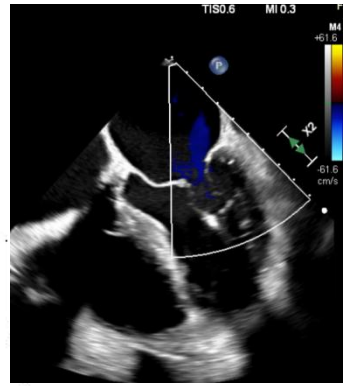
Jícnová echokardiografie

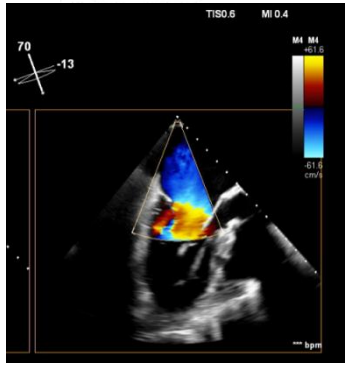


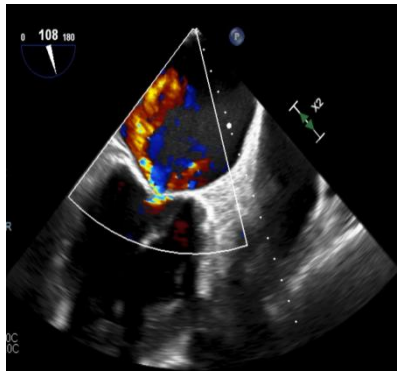


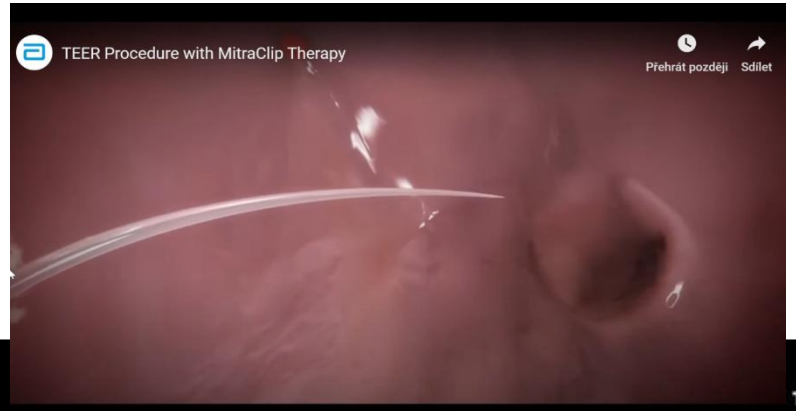












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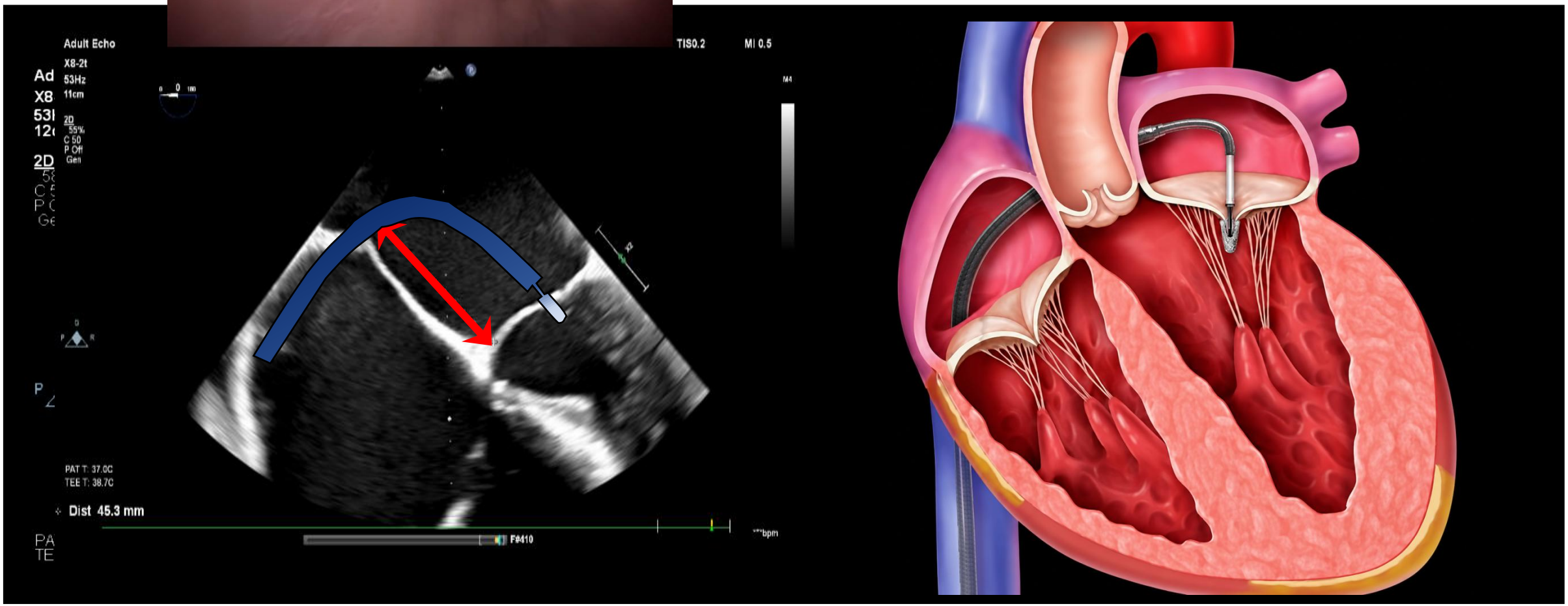
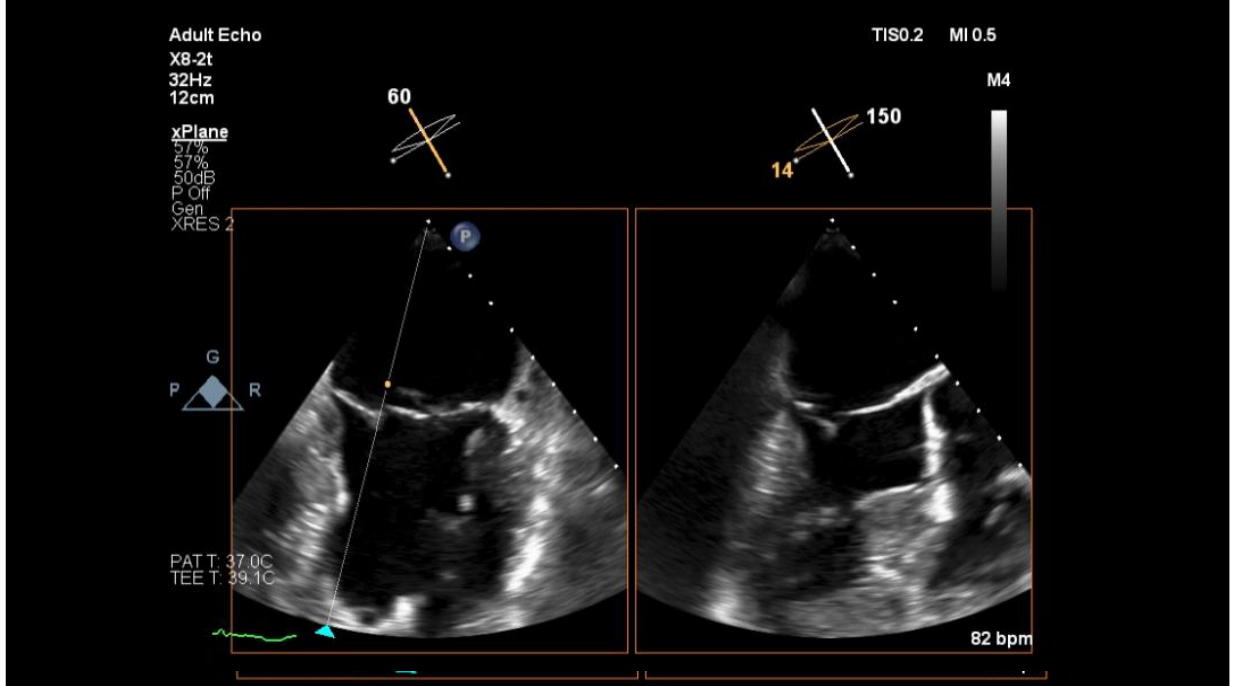
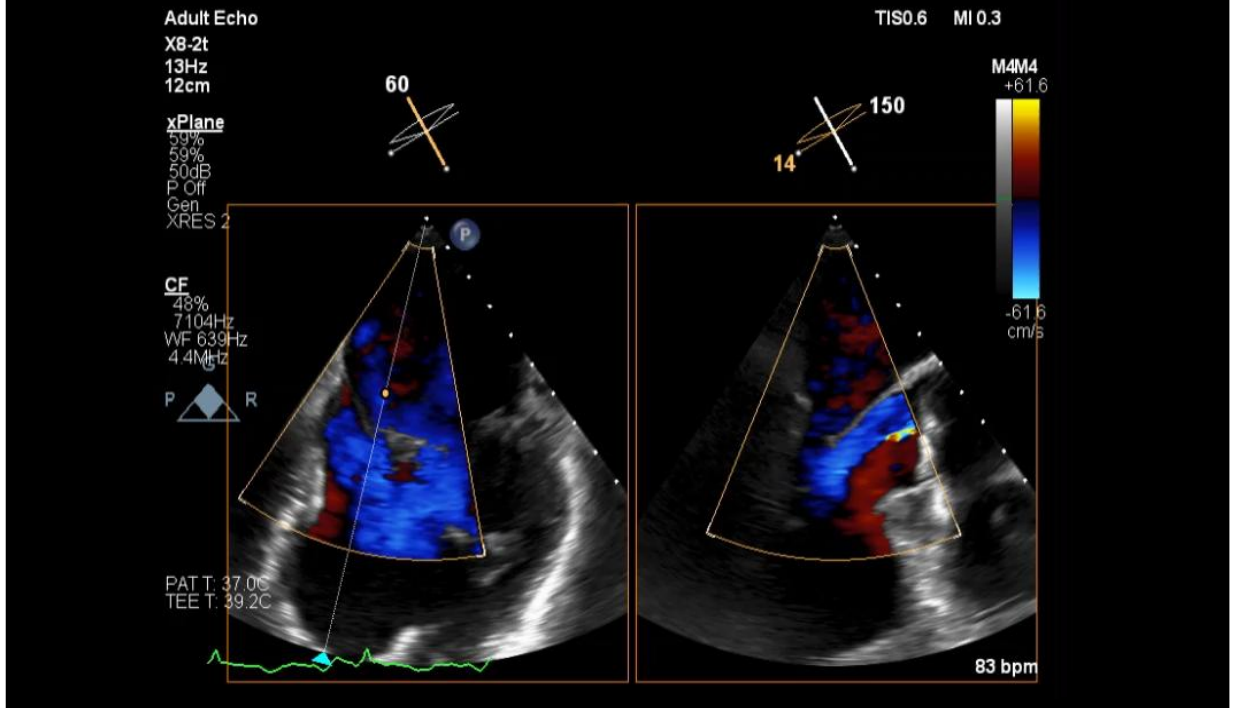
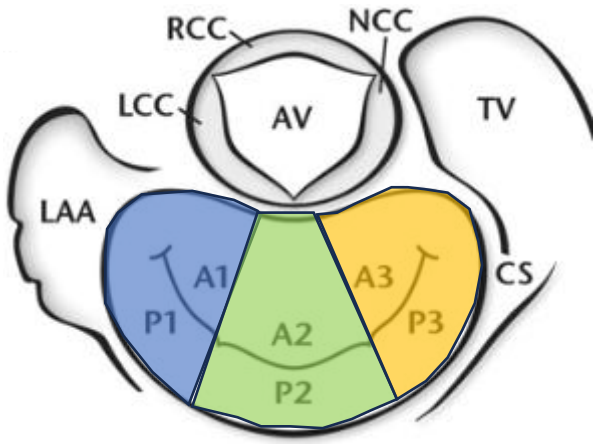


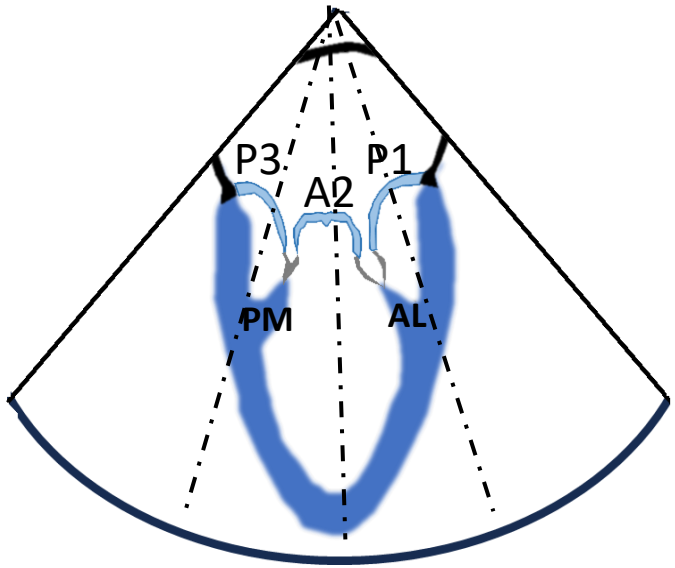
– obvykle cílit postero-superiorně
– ideální výška nad mitrální chlopní většinou ~4-5 cm (dle anatomie a typu MR)

Midkomisurální s x-plain









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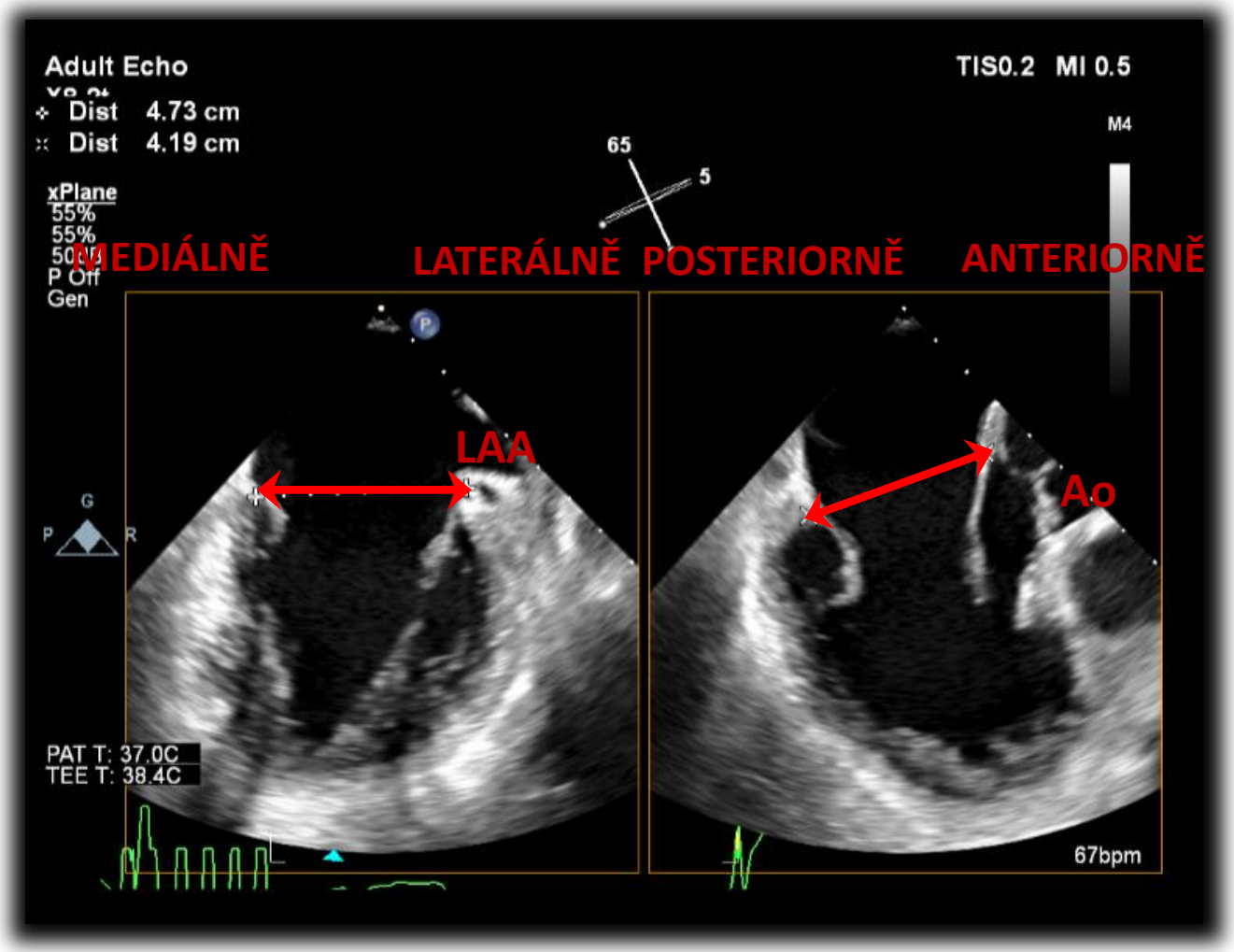
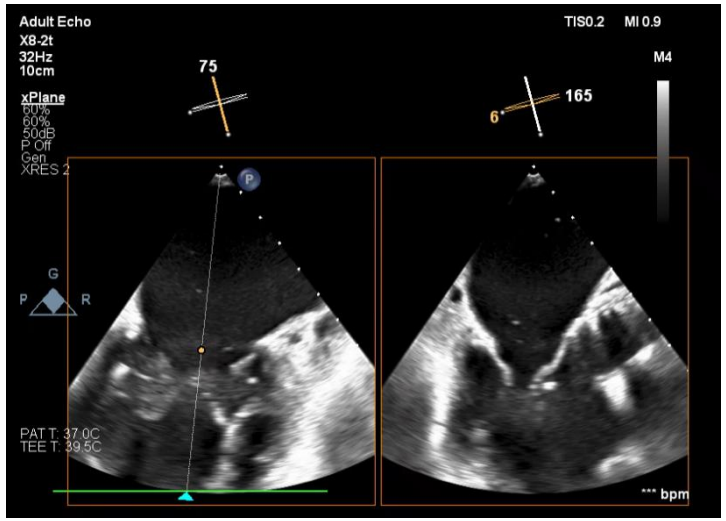
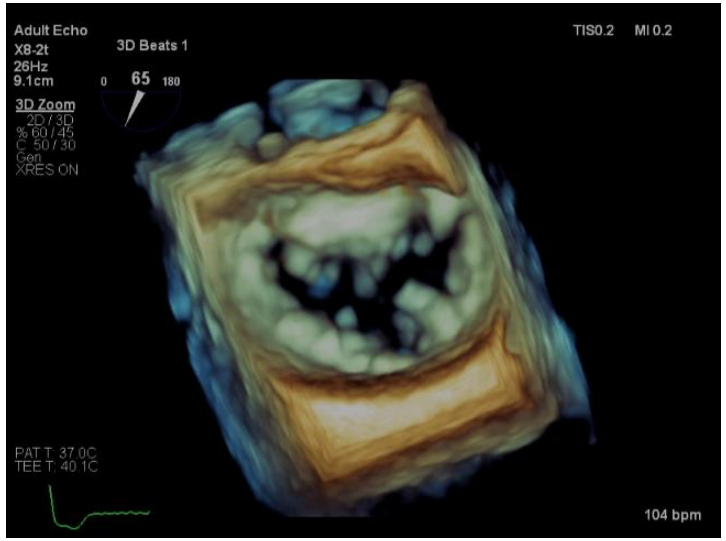
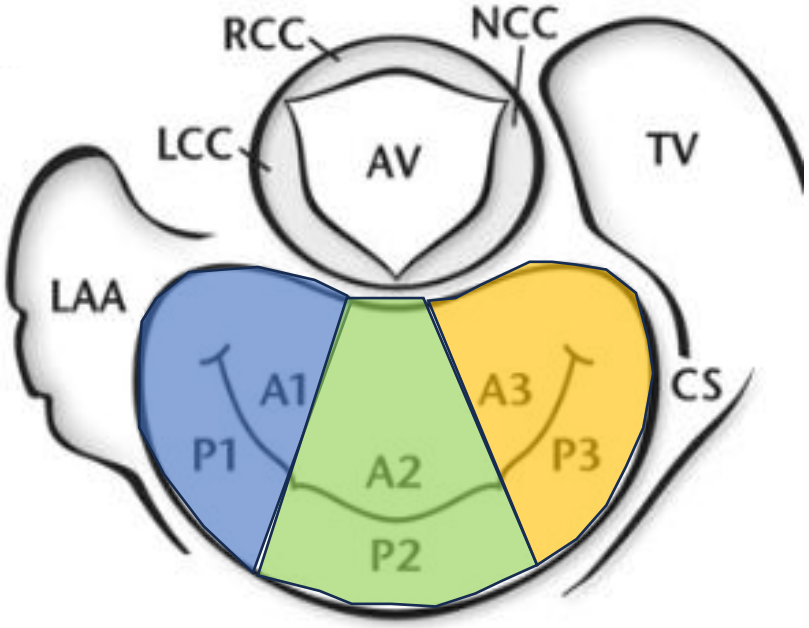
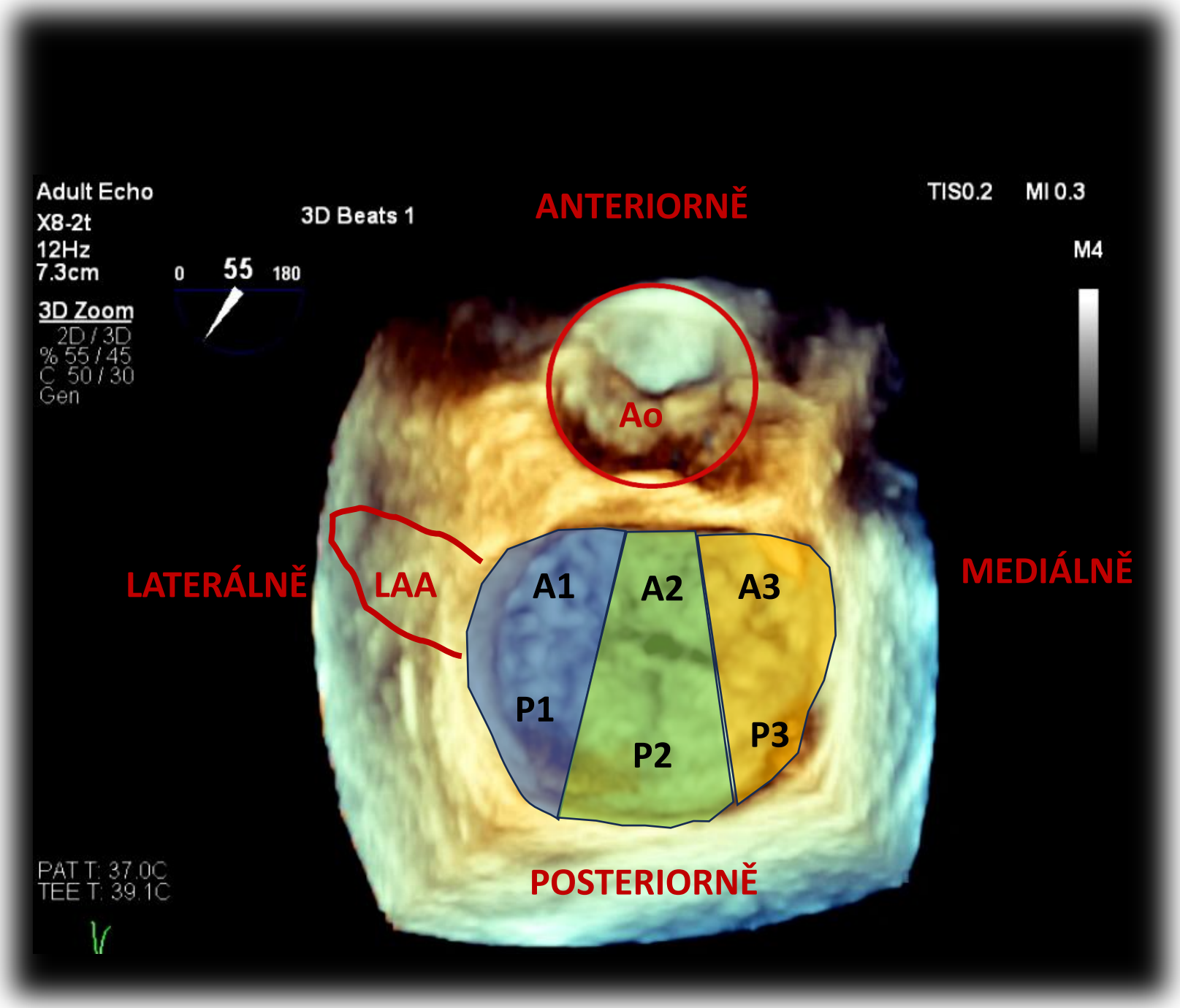







RCC
NCC
LCC
AV
TV
LAA
A1
A3
CS
P1
A2
P3
P2


Adult Echo
X8-2t
12Hz
7.3cm
3D Zoom
2D / 3D
% 55 / 45
C 50 / 30
Gen
3D Beats 1
0
55
180
TIS0.2
MI 0.3
M4
ANTERIORNĚ
Ao
LATERÁLNĚ
LAA
A1
A2
A3
MEDIÁLNĚ
P1
P2
P3
POSTERIORNĚ
PAT T: 37.0C
TEE T: 39.1C

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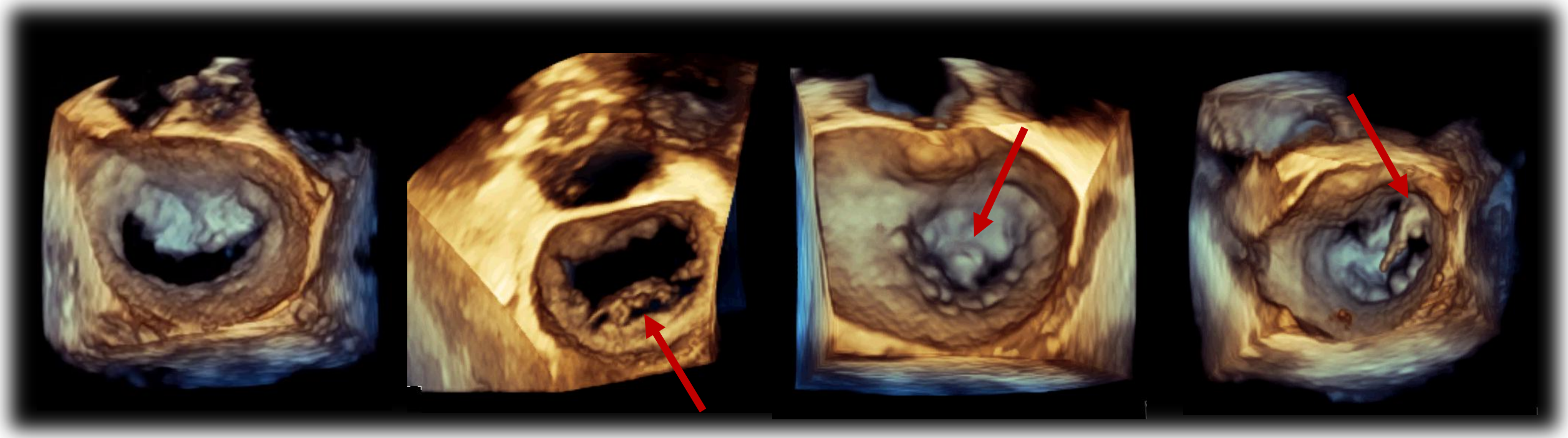


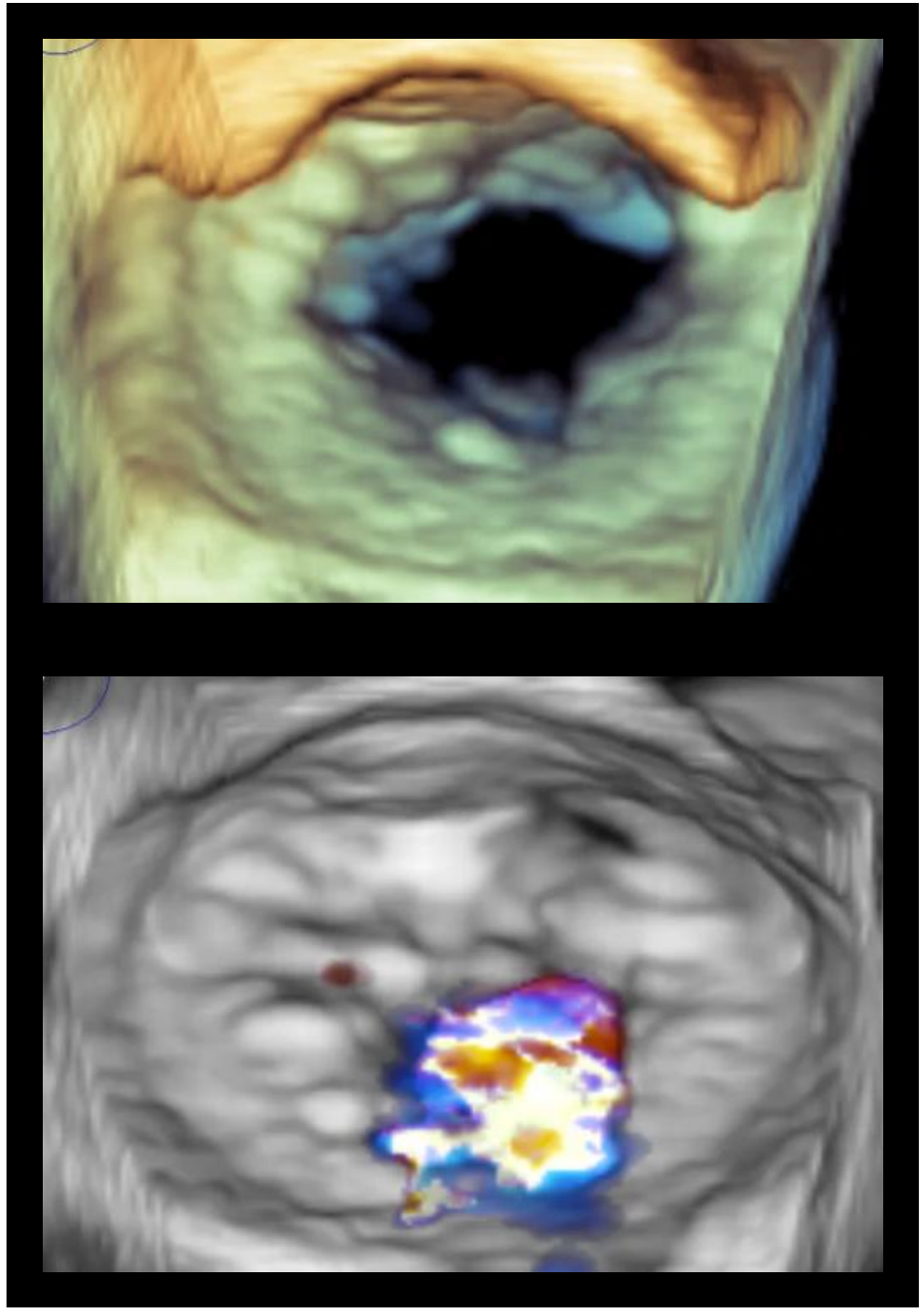
sekundární MR

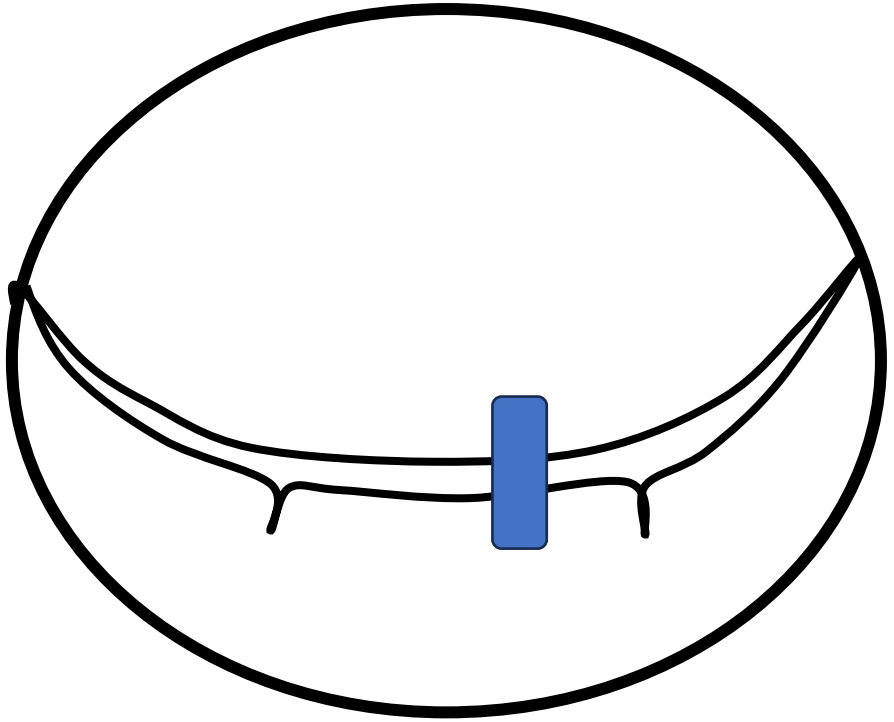
patologie na zadním cípu

patologie na předním cípu

patologie na předním cípu
PM komisura

KARDIOLOGICKÁ
KLINIKA
2. LF UK a FN MOTOL





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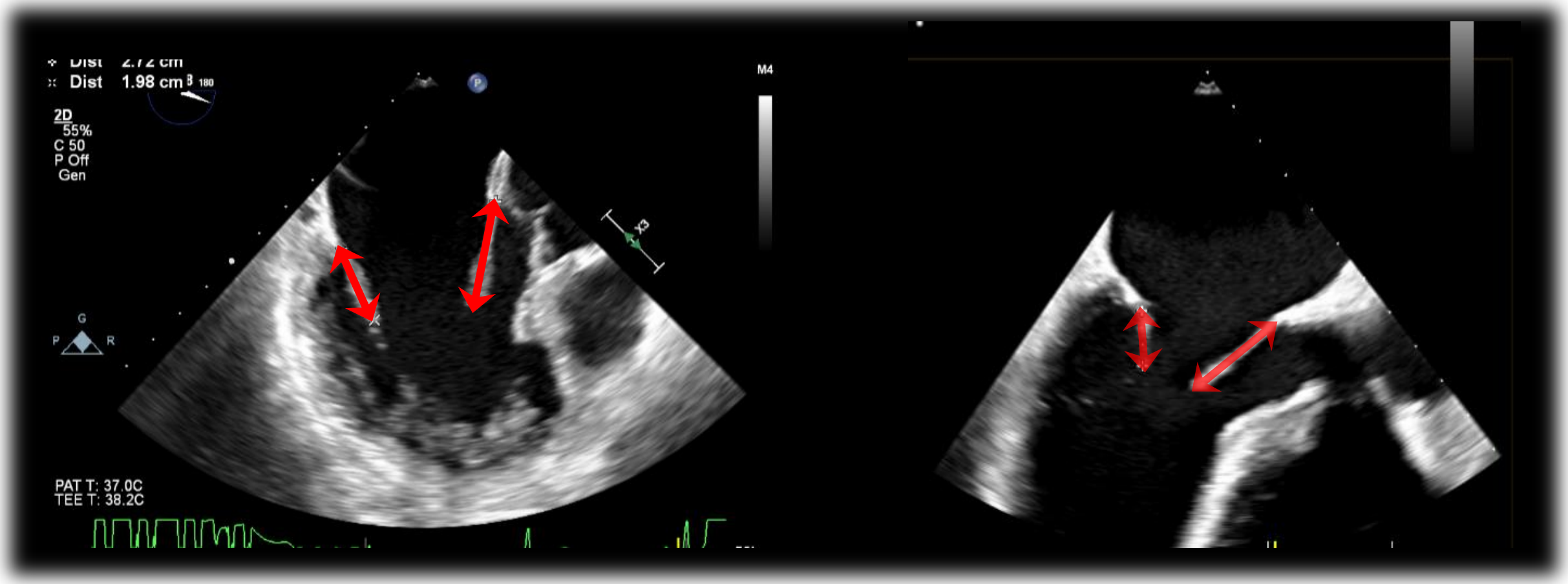
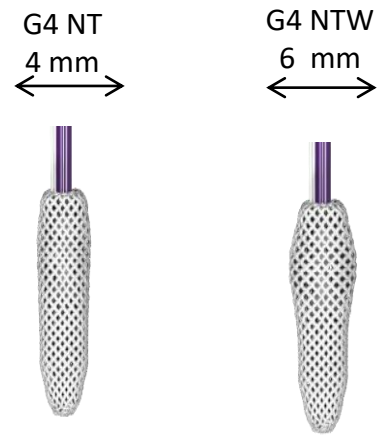
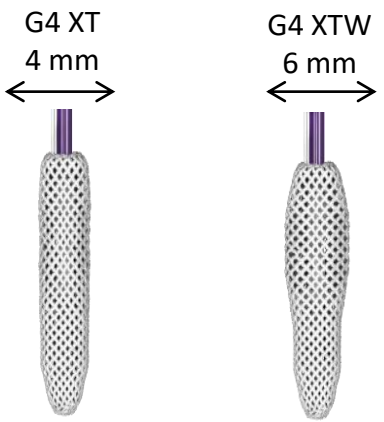
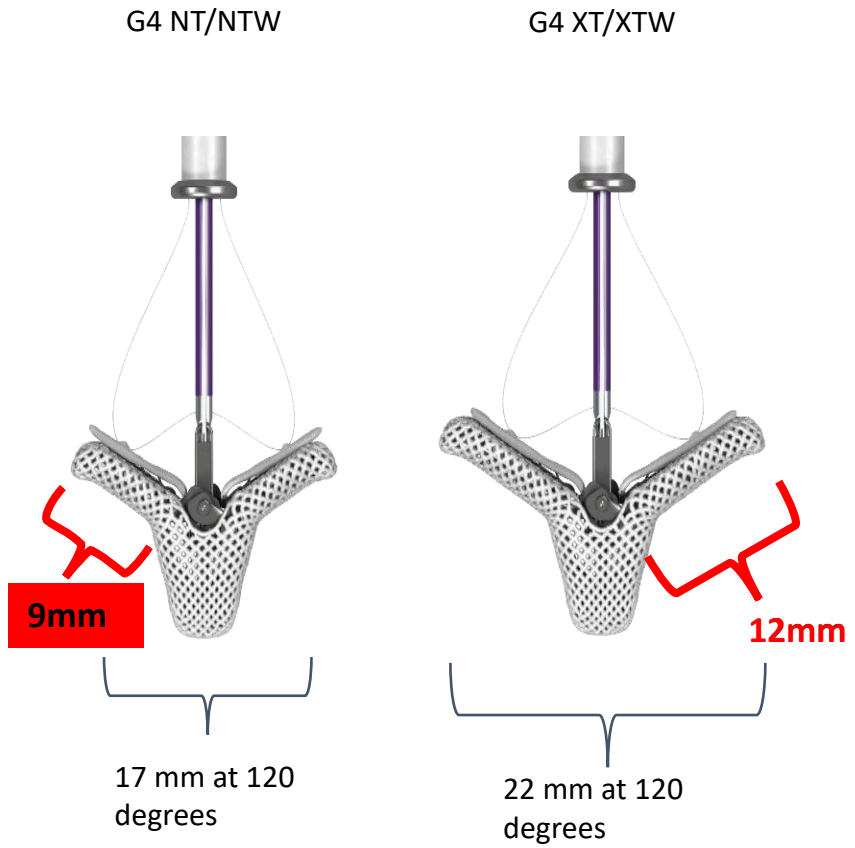




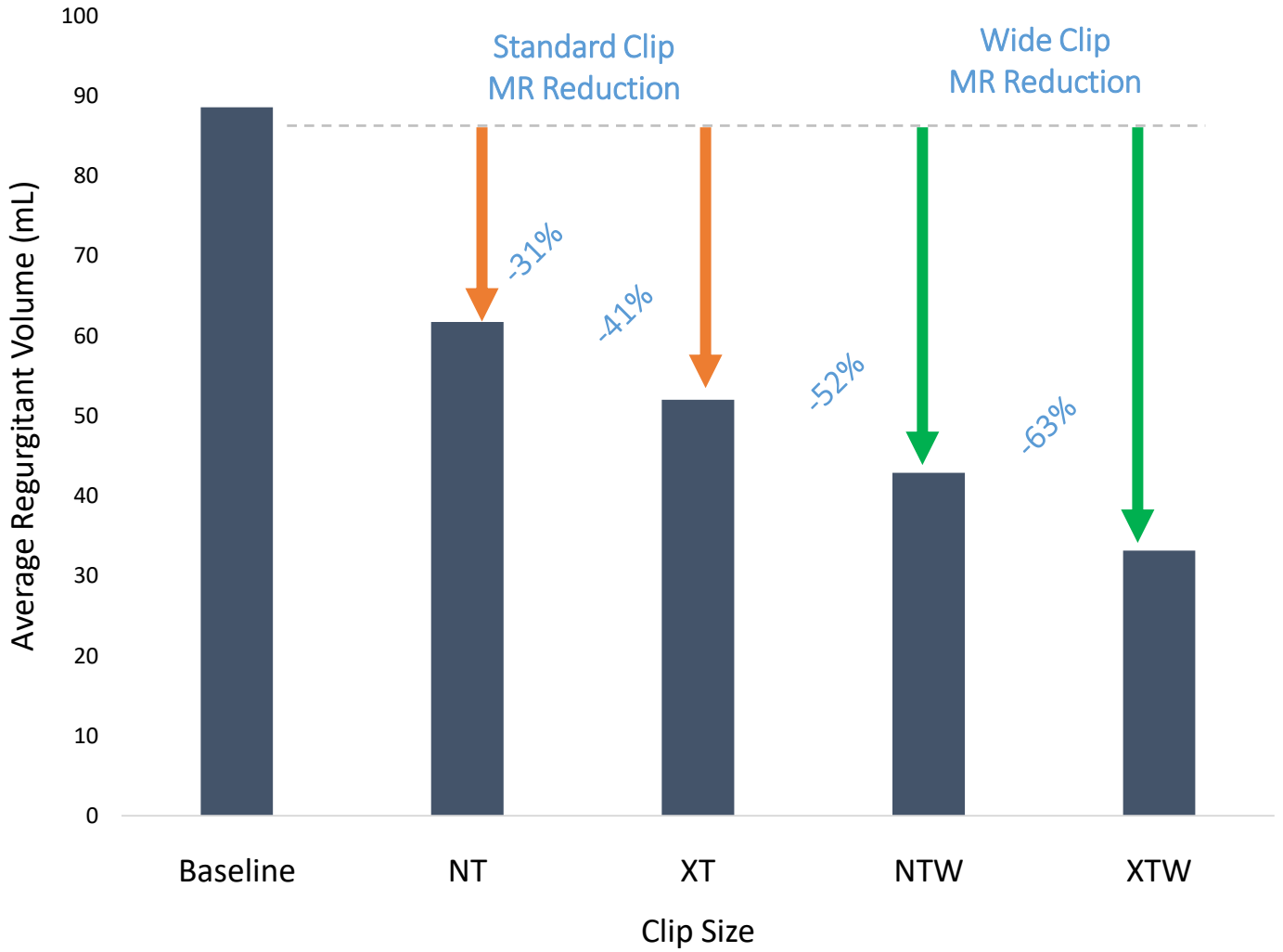
50% wider in the grasping area



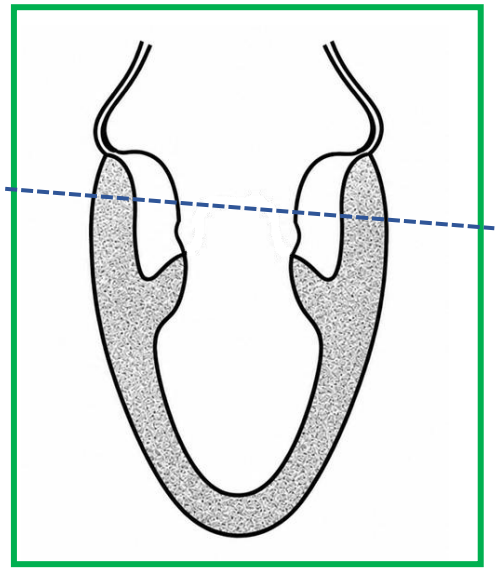
50% wider in the grasping area

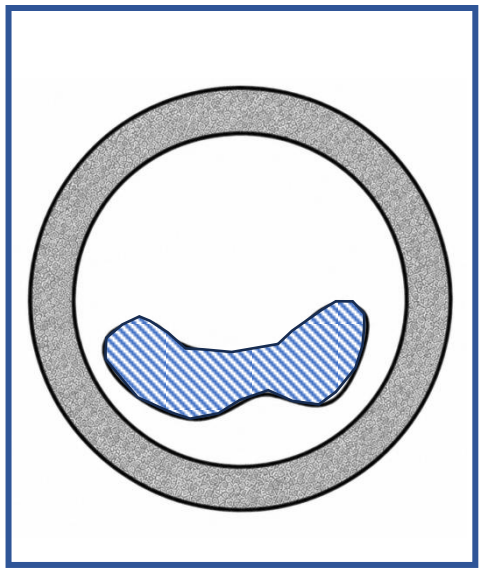


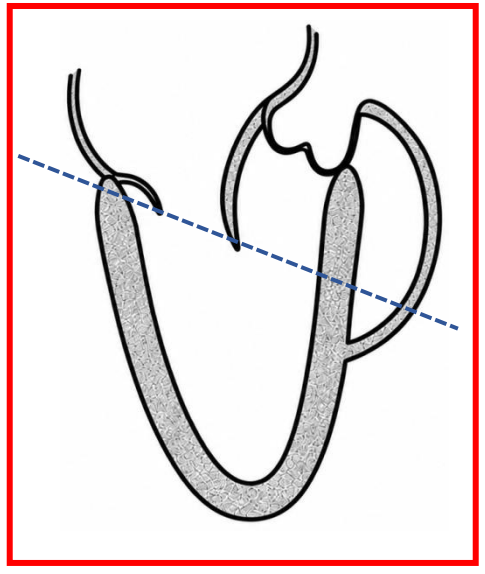
KARDIOLOGICKÁ KLINIKA
2. LF UK a FN MOTOL

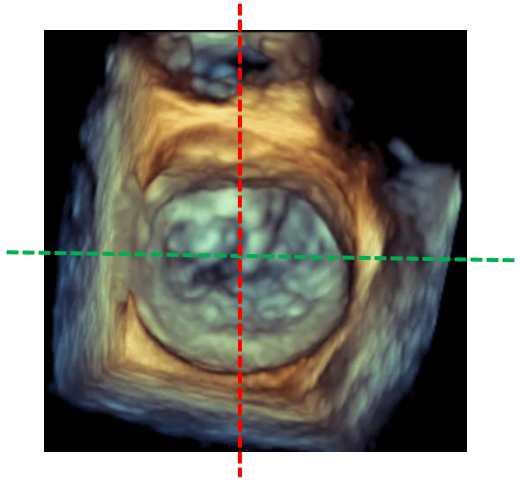


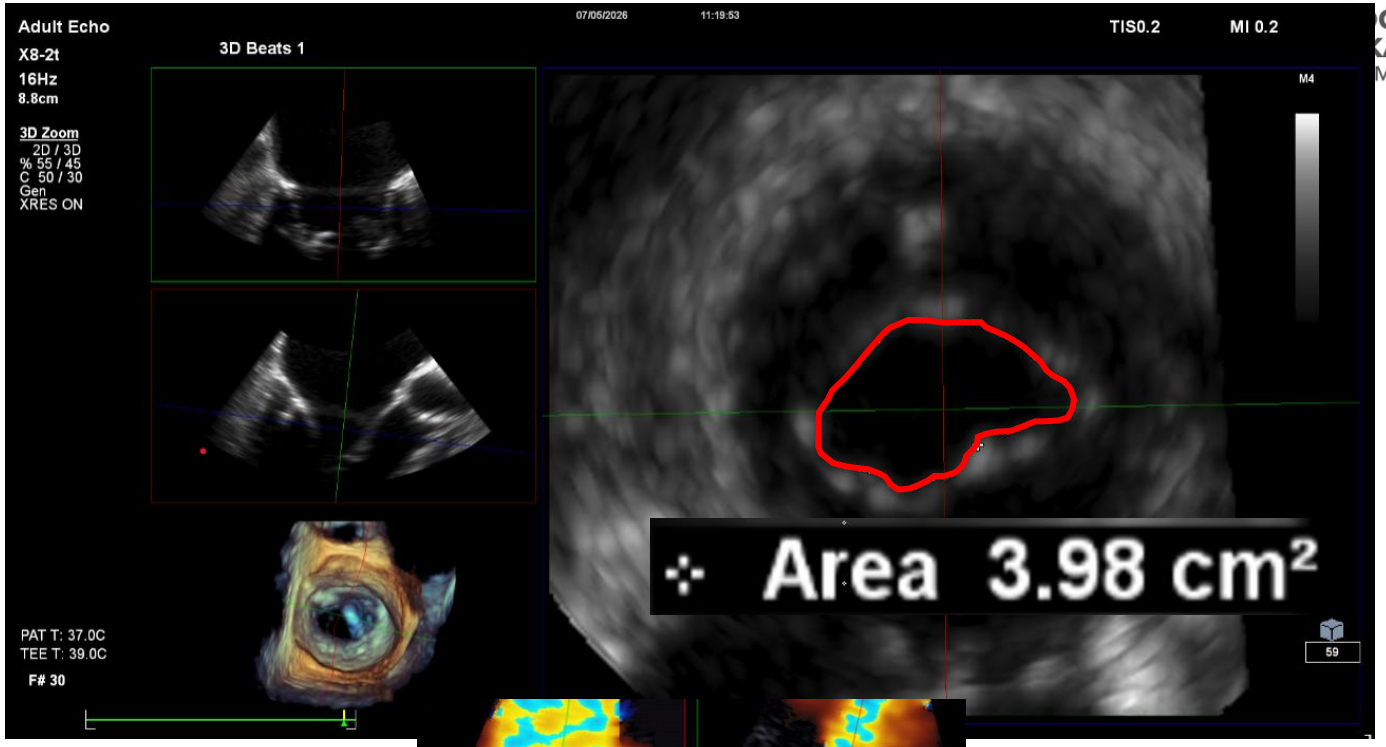
Test performed by and data on file at Abbott.

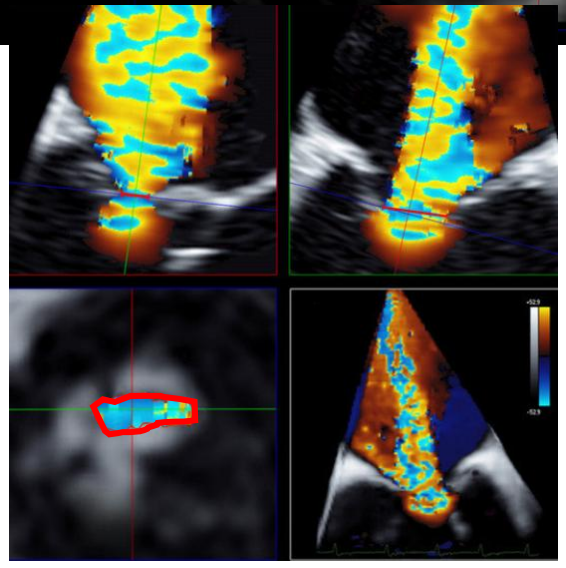









Adult Echo
X8-2t
16Hz
8.8cm
3D Zoom
2D / 3D
% 55 / 45
C 50 / 30
Gen
XRES ON
3D Beats 1
07/05/2026
11:19:53
TIS0.2
MI 0.2
M4
Area 3.98 cm²
PAT T: 37.0C
TEE T: 39.0C
F# 30
59



- Central pathology
- No calcification
- MVA >4.0 cm^2
- Posterior leaflet >10 mm
- Tenting height <10 mm
- Flail gap <10 mm
- Flail width <15 mm

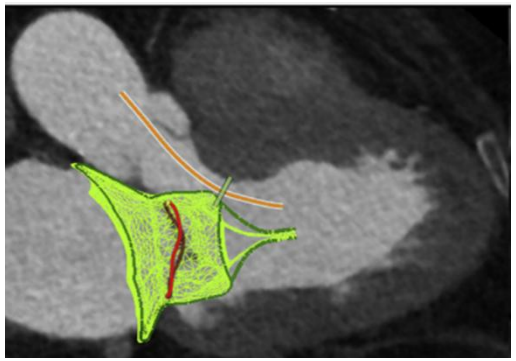
Repair

Replacement

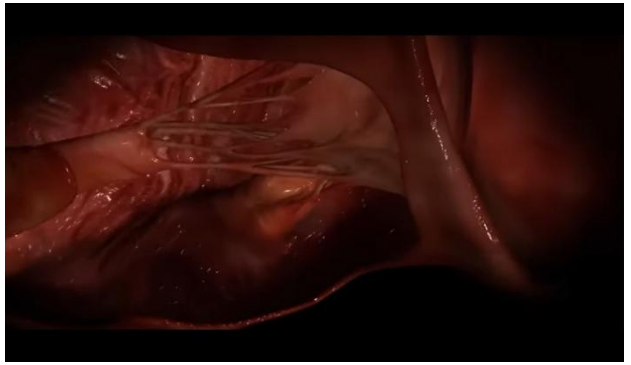
TEER- TriClip

TEER- PASCAL

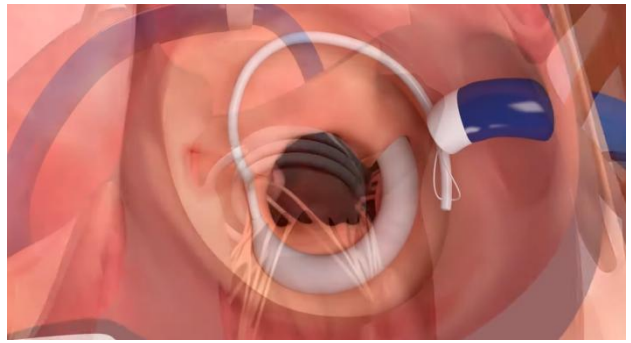
CT srdce



Biologická náhrada



Biologická náhrada



TEE

CT

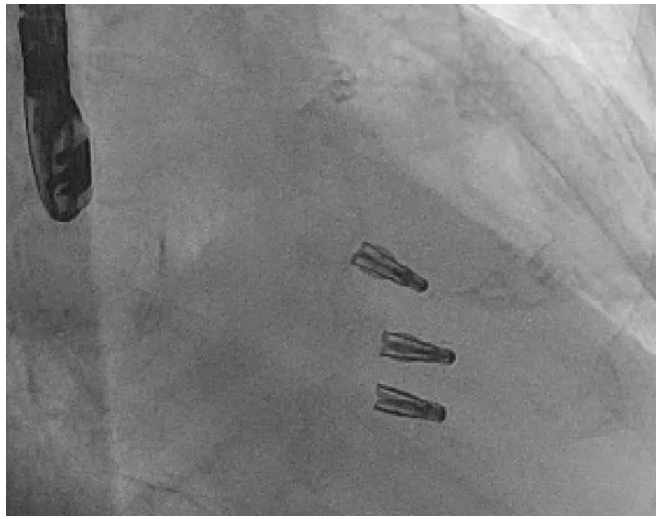
Závěr

KARDIOLOGICKÁ KLINIKA
2. LF UK a FN MOTOL

Echokardiografie je klíčem k úspěšné intervenci

- správná indikace začíná kvalitním echo vyšetřením
- důležitá není jen závažnost MR, ale i anatomie a klinický kontext pacienta
- anatomie rozhoduje o proveditelnosti i výsledku výkonu
- 3D TEE a systematický přístup zvyšují bezpečnost a úspěšnost výkonu
- Echokardiografista je součástí intervenčního týmu

Děkuji za pozornost



Konečný výsledek po implantaci jednoho Mitraclipu a dvou Triclipů aneb Galaxie útočí