the right patient at the right time, who is the patient who benefits from M-TEER

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Disclosure Statement of Financial Interest and Potential for Conflicts of Interest

I, Francesco Maisano, have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation

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Consulting fees, Honoraria:	Abbott; Medtronic; Edwards Lifesciences; Swissvortex; Perifect; Xeltis; Transseptal s solutions; Cardiovalve, Magenta, Croivalve
Royalty Income/IP Rights	Edwards Lifesciences (FMR surgical annuloplasty)
shareholder of	Cardiovalve, Magenta, SwissVortex, Transseptalsolutions,Occlufit, 4Tech, Perifect

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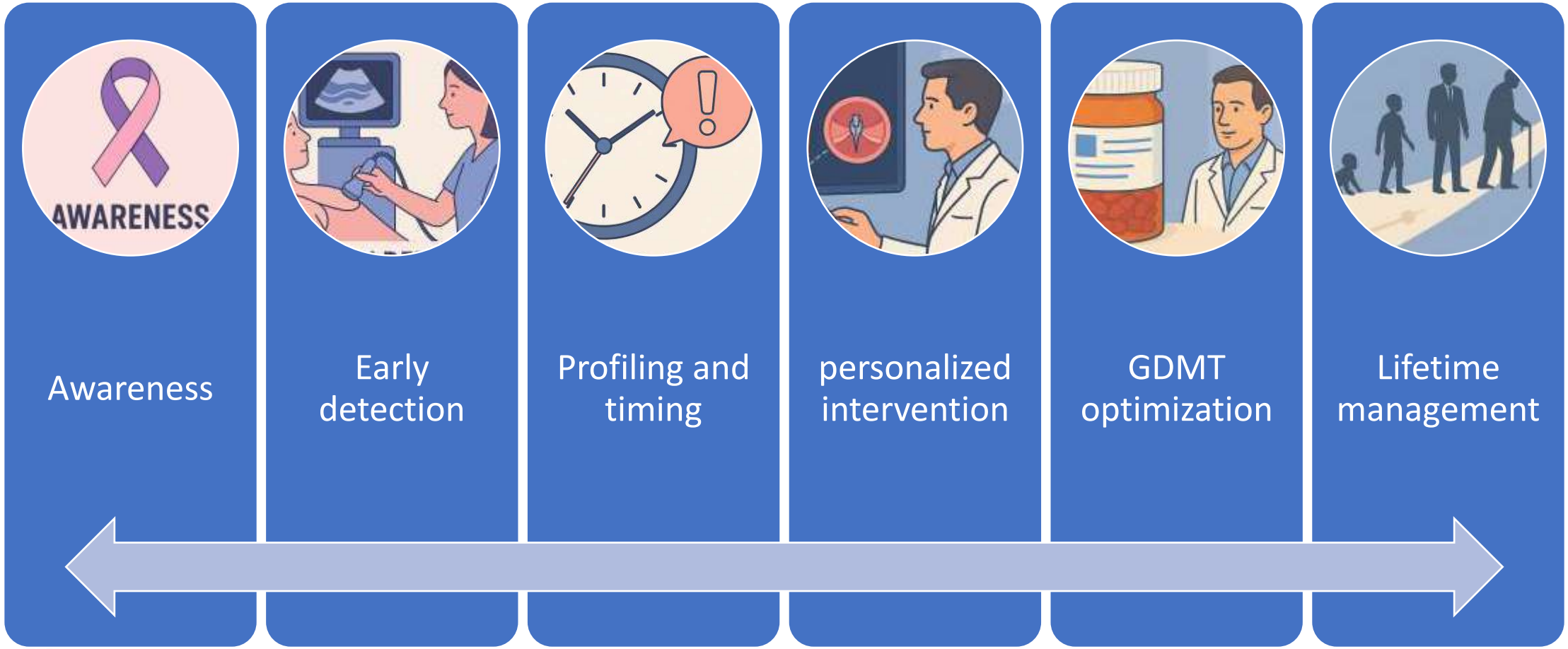
Benefit is obtained if: diagnosis is made, early, TEER is performed in a timely manner, in the right patient, by a good operator and the patientis are properly followed-up



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MR: a spectrum of phenotypes

	Carpentier Type I	Carpentier Type II	Carpentier Type IIIa	Carpentier Type IIIb
	(normal leaflet motion and position)	(excess leaflet motion)	(restricted leaflet motion in systole and diastole)	(restricted leaflet motion in systole)
PRIMARY MR	 Leaflet Perforation Cleft	 Mitral Valve Prolapse	 Rheumatic Valve Disease Mitral Annular Calcification Drug Induced MR	
SECONDARY MR	 Atrial MR  Nonischemic Cardiomyopathy			 Ischemic Cardiomyopathy

El Sabbagh, A. et al. J Am Coll Cardiol Img. 2018;11(4):628-43.

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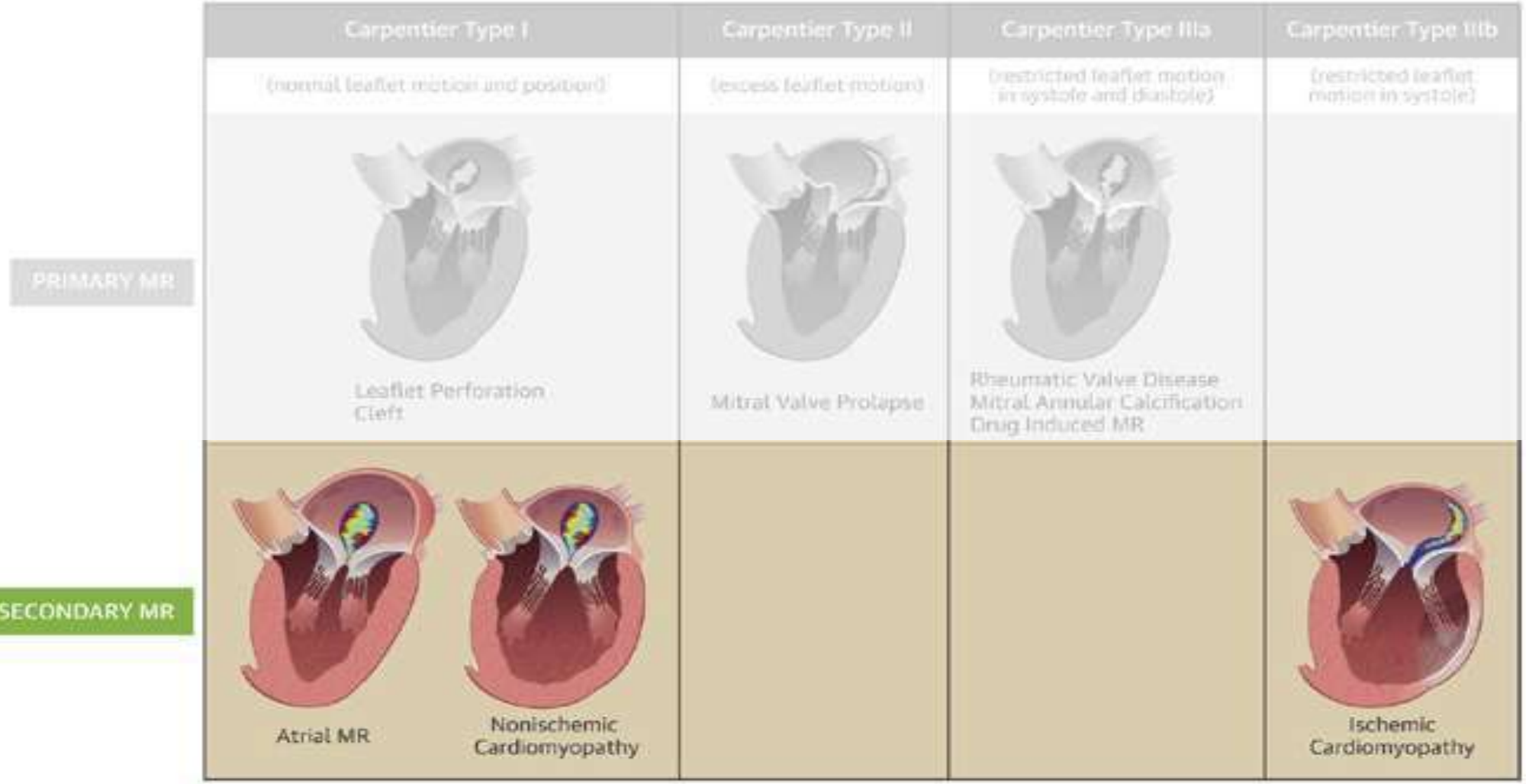
MR: a spectrum of phenotypes



El Sabbagh, A. et al. J Am Coll Cardiol Img. 2018;11(4):628-43.

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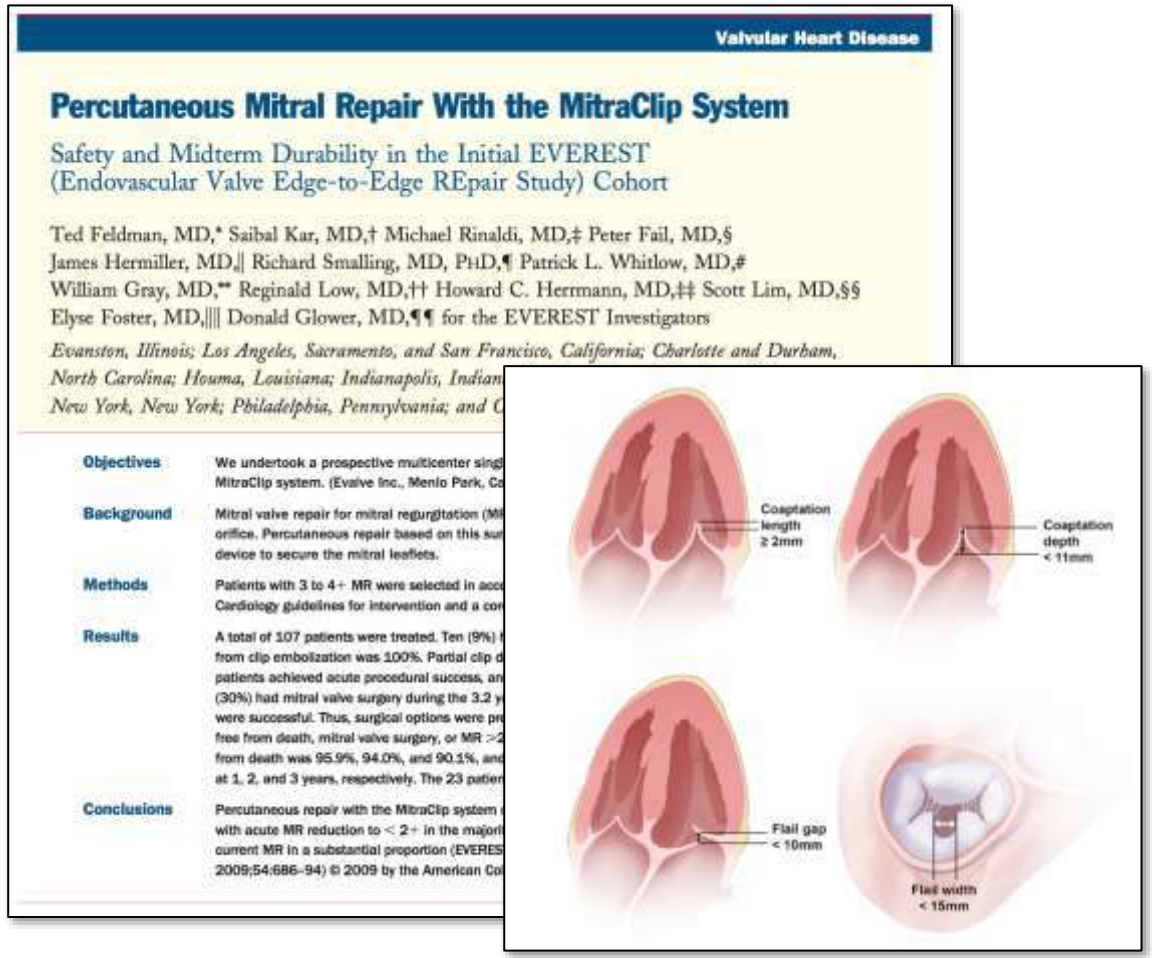
SMR: Anatomical ideal candidates



Valvular Heart Disease

Percutaneous Mitral Repair With the MitraClip System

Safety and Midterm Durability in the Initial EVEREST (Endovascular Valve Edge-to-Edge REpair Study) Cohort

Ted Feldman, MD,* Saibal Kar, MD,† Michael Rinaldi, MD,‡ Peter Fail, MD,§
James Hermiller, MD,‖ Richard Smalling, MD, PHD,¶ Patrick L. Whitlow, MD,#
William Gray, MD,** Reginald Low, MD,†† Howard C. Herrmann, MD,‡‡ Scott Lim, MD,§§
Elyse Foster, MD,‖‖ Donald Glower, MD,¶¶ for the EVEREST Investigators

Evanston, Illinois; Los Angeles, Sacramento, and San Francisco, California; Charlotte and Durham, North Carolina; Houma, Louisiana; Indianapolis, Indian... New York, New York; Philadelphia, Pennsylvania; and C...

Objectives We undertook a prospective multicenter sing... MitraClip system. (Evalve Inc., Menlo Park, Ca...

Background Mitral valve repair for mitral regurgitation (Mi... orifice. Percutaneous repair based on this su... device to secure the mitral leaflets.

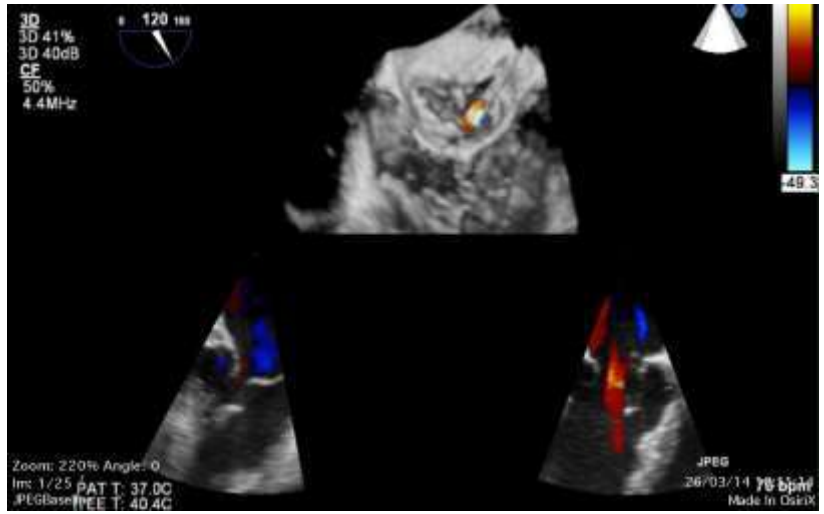
Methods Patients with 3 to 4+ MR were selected in acc... Cardiology guidelines for intervention and a co...

Results A total of 107 patients were treated. Ten (9%) ... from clip embolization was 100%. Partial clip d... patients achieved acute procedural success, an... (30%) had mitral valve surgery during the 3.2 y... were successful. Thus, surgical options were pr... free from death, mitral valve surgery, or MR >2... from death was 95.9%, 94.0%, and 90.1%, and... at 1, 2, and 3 years, respectively. The 23 patie...

Conclusions Percutaneous repair with the MitraClip system ... with acute MR reduction to < 2+ in the majori... current MR in a substantial proportion (EVERES... 2009;54:686–94) © 2009 by the American Co...

AVOID (if beginner)

- Severely dynsfunctioning LV
- Severe leaflet tethering
- Calcified leaflets (and annulus)
- Non central MR
- Complex Jet morphology



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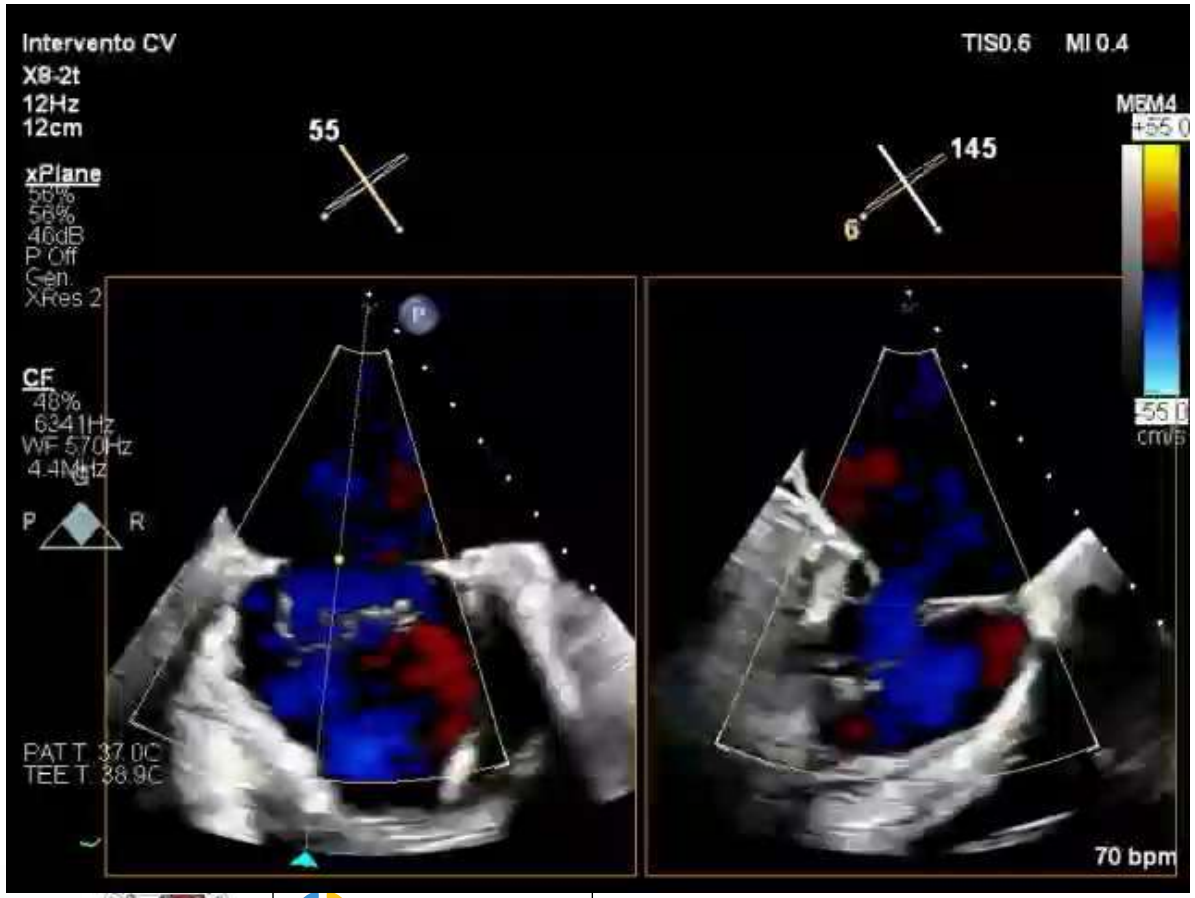
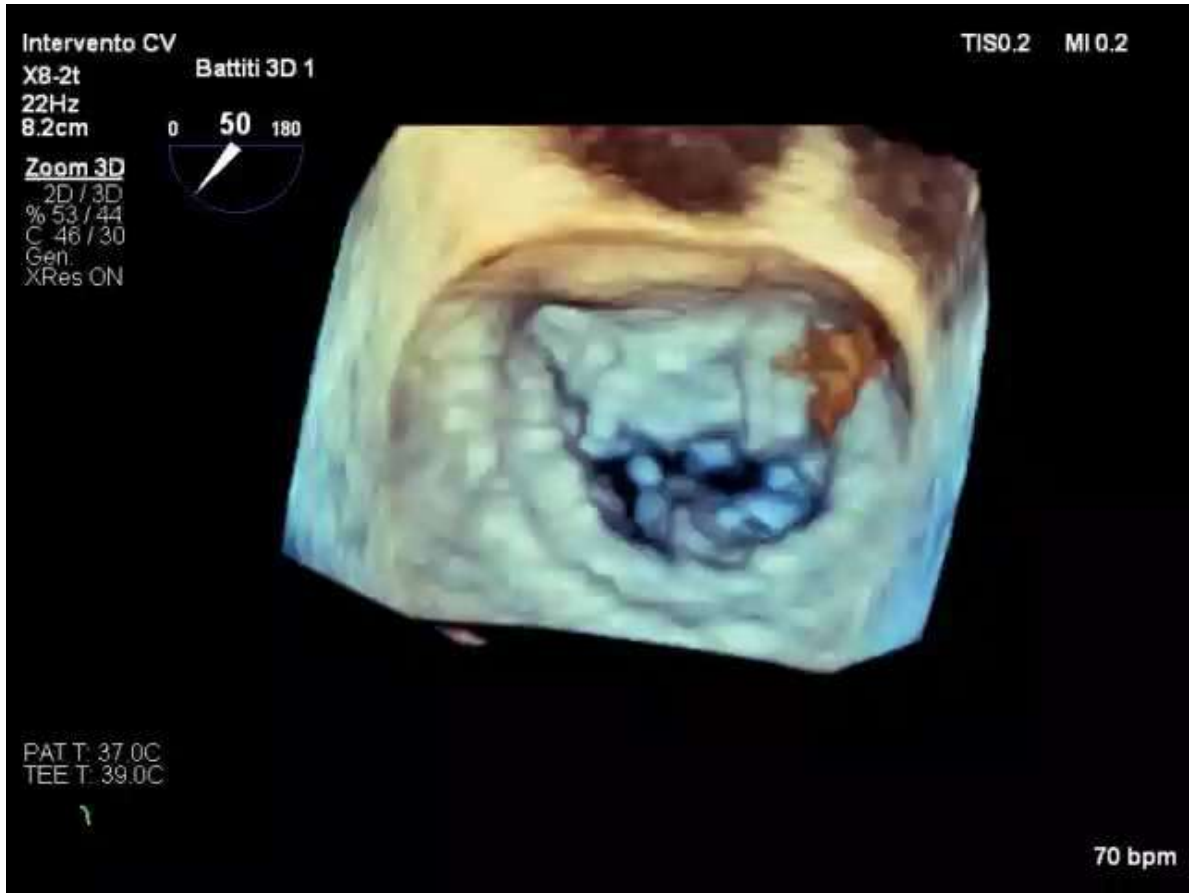
A good way to start..atriogenic FMR





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TEER for atrial SMR: indirect annular reduction in addition to leaflet coaptation

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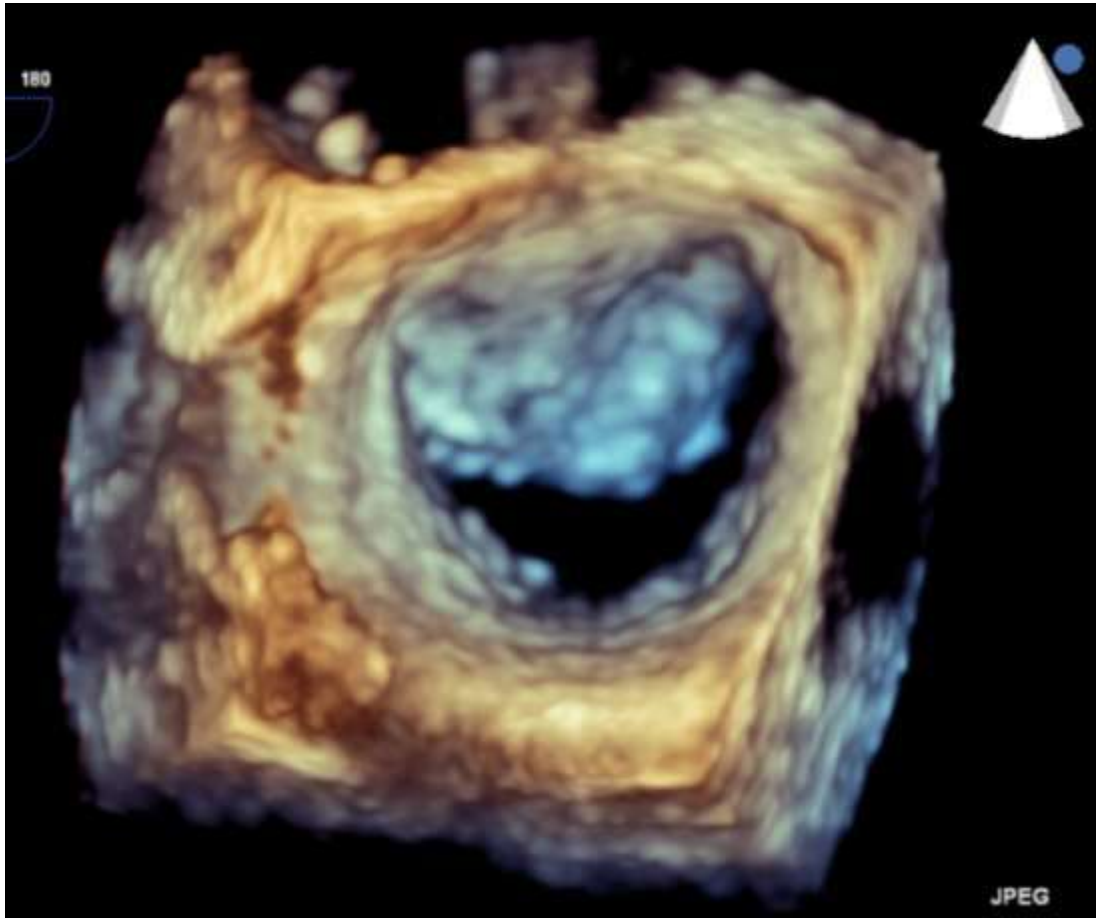
More than anatomy… timing



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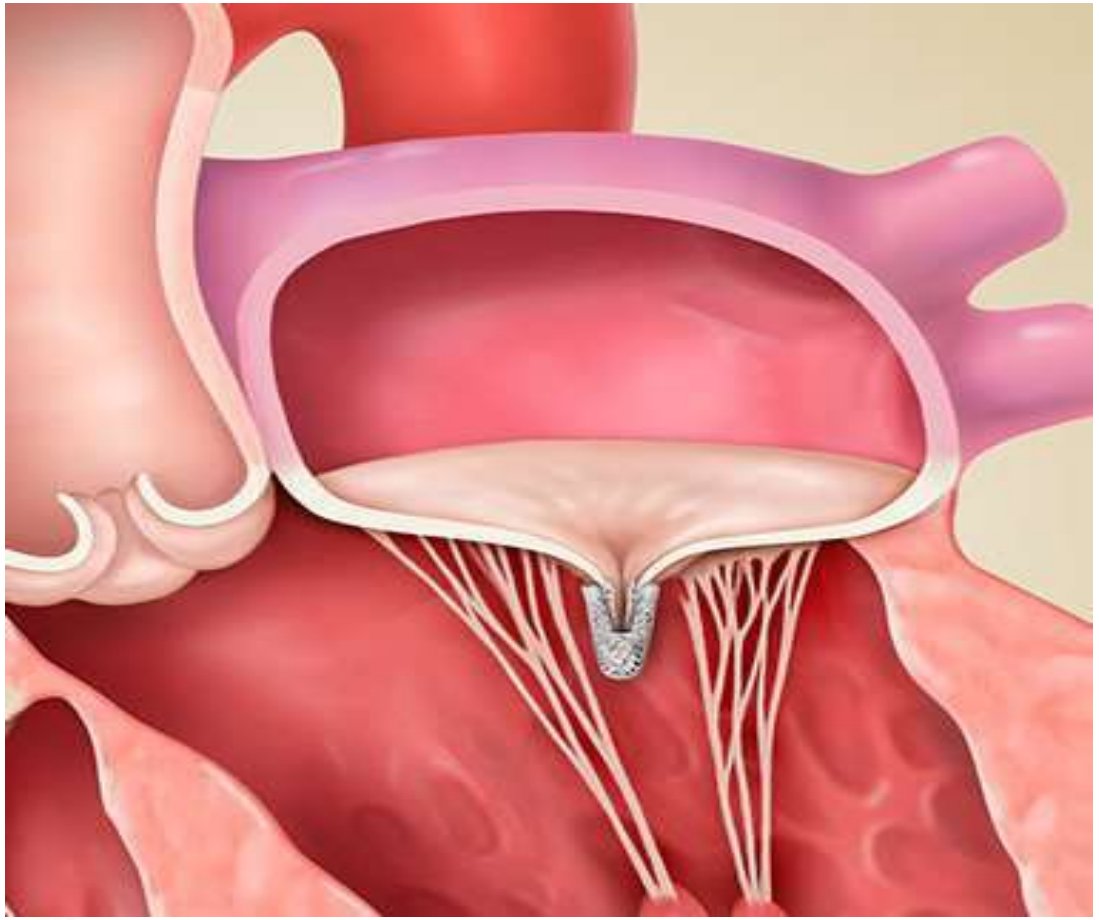
MitraClip therapy is not an alternative to ECMO, VAD or HTx



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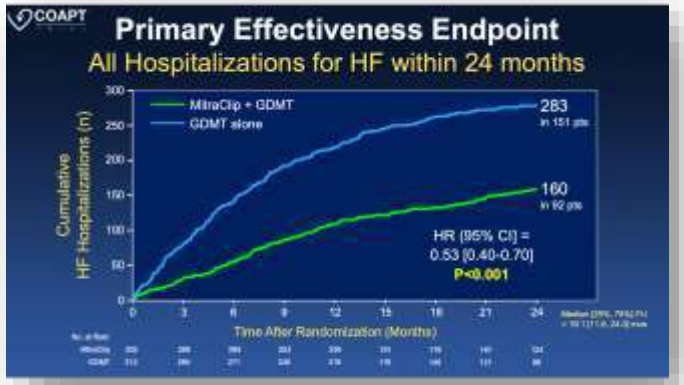
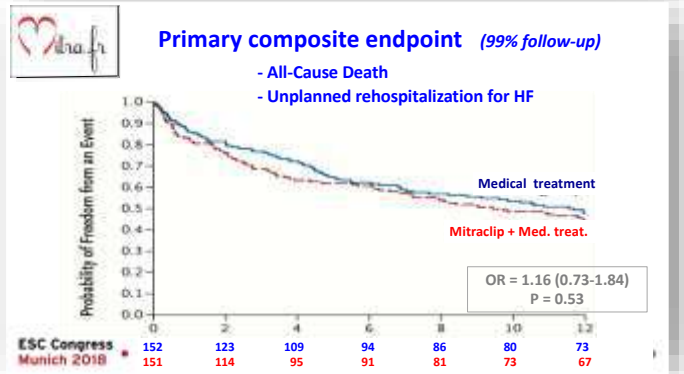
COAPT vs Mitra-FR phenotype

Two randomized trials, MITRA-FR and COAPT, evaluated the effectiveness of percutaneous edge-to-edge mitral valve repair plus OMT compared to OMT alone, in symptomatic patients with reduced LVEF (15–40% in MITRA-FR and 20–50% in COAPT) and moderate-to-severe or severe SMR [effective regurgitant orifice area (EROA) ≥ 20 mm^2 in MITRA-FR and EROA ≥ 30 mm^2 in COAPT].[610–612] MITRA-FR failed to show any benefit from the intervention on all-cause mortality or HF hospitalization at 12 months (primary endpoint; HR 1.16, 95% CI 0.73–1.84) and at 24 months.[610,611] In contrast, COAPT showed a significant reduction in hospitalization for HF at 24 months (primary endpoint; HR 0.53, 95% CI 0.40–0.70) and mortality (secondary endpoint; HR 0.62, 95% CI 0.46–0.82).[612] Differences in patient selection, concomitant MT, echocardiographic assessment, procedural issues and severity of SMR in relation to the degree of LV dilatation may be responsible for the diverging results of the MITRA-FR and COAPT trials.[613–615] Thus, percutaneous edge-to-edge mitral valve repair should be considered for outcome improvement only in carefully selected patients who remain symptomatic (NYHA class II–IV) despite OMT, with moderate-to-severe or severe SMR (EROA ≥30 mm^2), favourable anatomical conditions, and fulfilling the inclusion criteria of the COAPT study (i.e. LVEF 20–50%, LV end-systolic diameter <70 mm, systolic pulmonary pressure <70 mmHg, absence of moderate or severe RV dysfunction, absence of severe TR, absence of haemodynamic instability) (*Figure 17*).[615,616]





TEER should be considered in selected symptomatic patients, not eligible for surgery and fulfilling criteria suggesting an increased chance of responding to the therapy.	**IIa**
In high-risk symptomatic patients not eligible for surgery and not fulfilling the criteria suggesting an increased chance of responding to TEER, the Heart Team may consider in selected cases a TEER procedure or other trans-catheter valve therapy if applicable, after careful evaluation for ventricular assist device or heart transplant.	**IIb**

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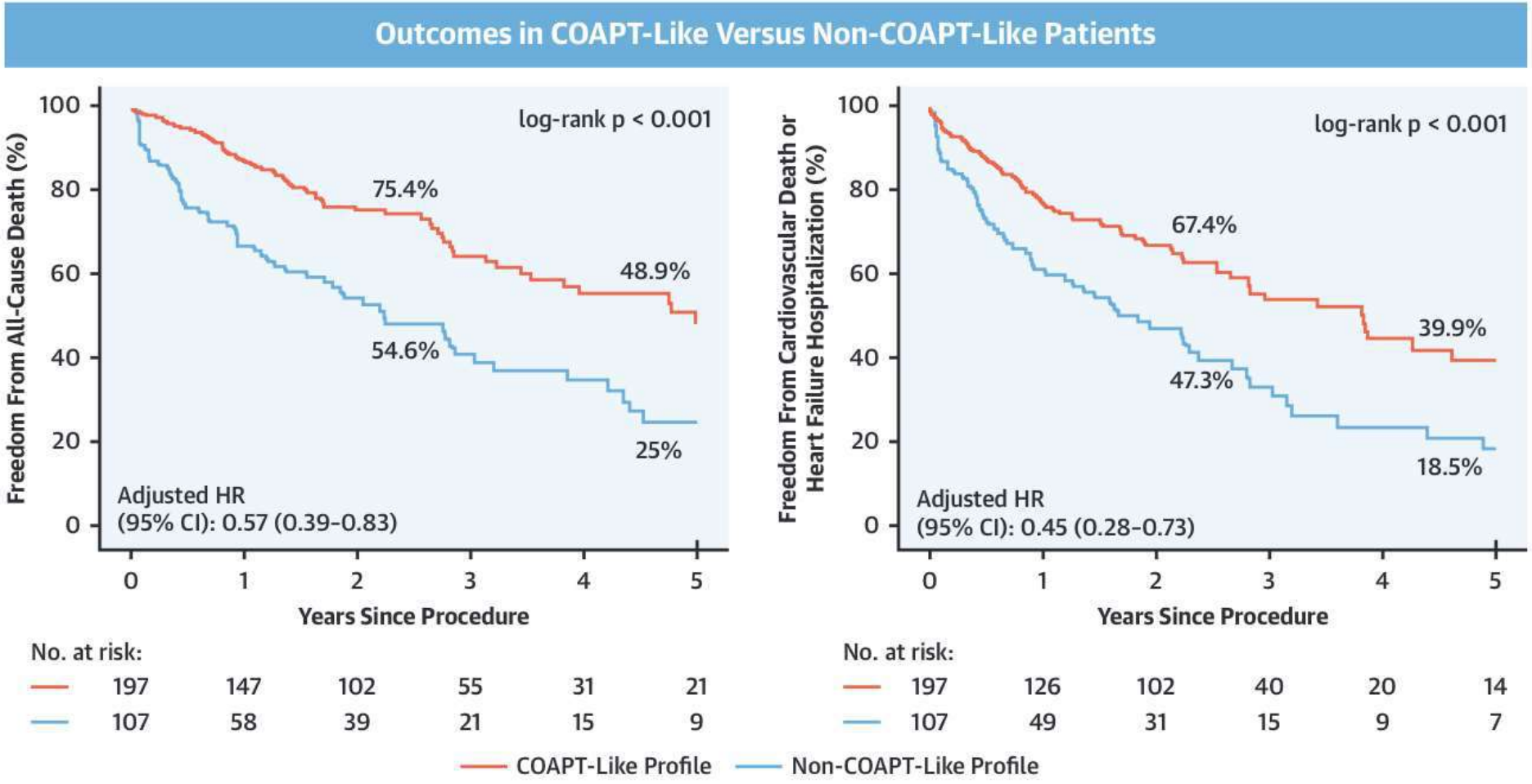
COAPT phenotype predicts survival and freedom from HF hospitalizations



Adamo, M. et al. J Am Coll Cardiol Intv. 2021;14(1):15-25.

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who are the COAPT like patients: LV function, LV size, Right ventricle, clinical presentation

Cardiovascular Outcomes Assessment of the MitraClip Percutaneous Therapy for Heart Failure Patients With Functional Mitral Regurgitation (COAPT)-Like Profile Definition

All of the 3 following criteria should be fulfilled to define a COAPT-like profile:

Absence of Severe Left Ventricular Impairment

- ✓ Left ventricular ejection fraction ≥20%, and
- ✓ Left ventricular end-systolic diameter ≤70 mm

Absence of Right Ventricular Impairment and/or Severe Pulmonary Hypertension

- ✓ TAPSE ≥15 mm or peak systolic velocity by tissue Doppler imaging ≥8 cm/s, and
- ✓ Less than severe tricuspid regurgitation, and
- ✓ Systolic pulmonary artery pressure ≤70 mm Hg

Absence of Hemodynamic Instability

- ✓ No advanced heart failure refractory to medical therapy, and
- ✓ No need for intravenous drugs or mechanical circulatory support

The lack of at least 1 of these 3 criteria defines a non-COAPT-like profile

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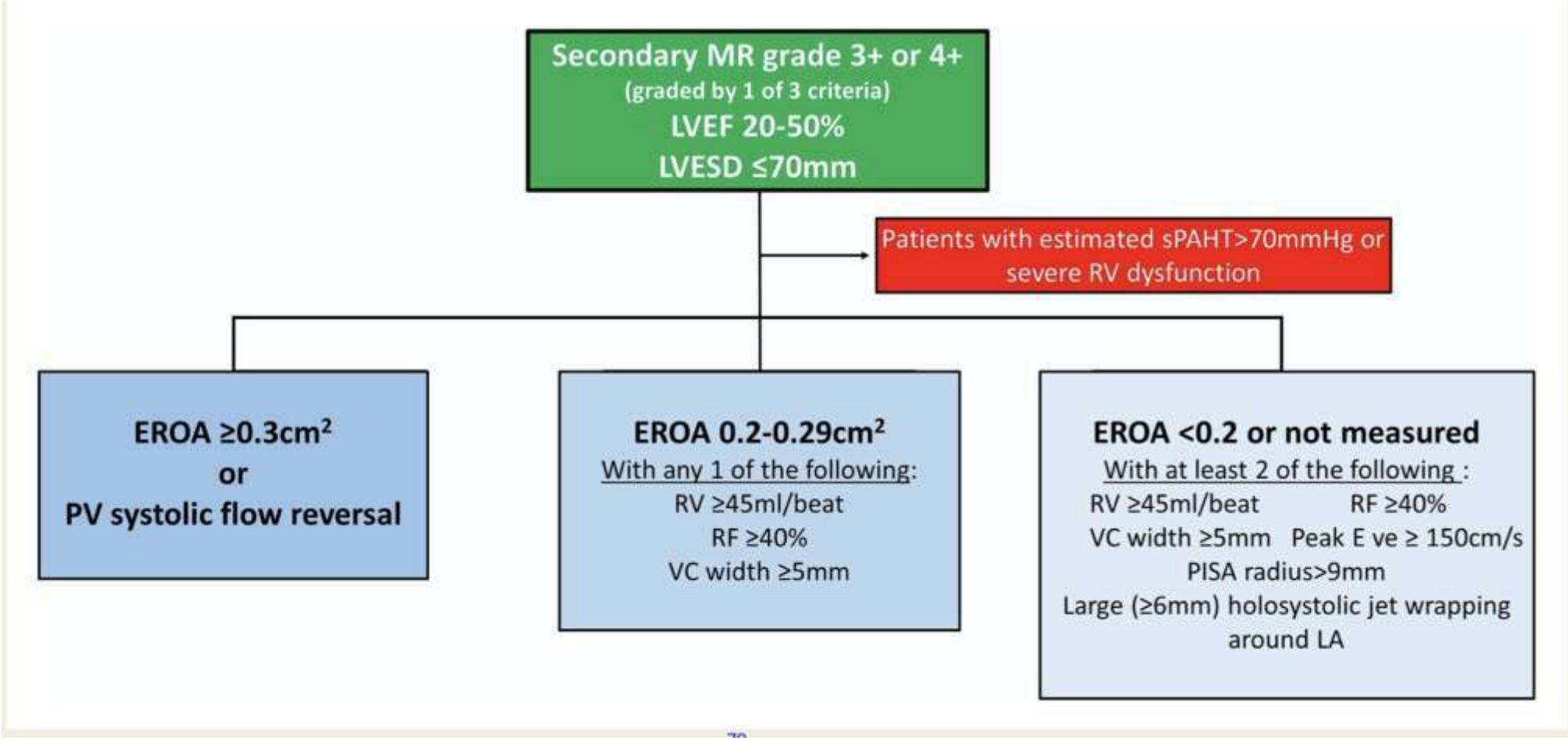
Adamo et al. JACC CV interventions 2021

who are the COAPT like patients: severe MR



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RESHAPE II

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Transcatheter Valve Repair in Heart Failure with Moderate to Severe Mitral Regurgitation

S.D. Anker, T. Friede, R.-S. von Bardeleben, J. Butler, M.-S. Khan, M. Diek, J. Heinrich, M. Geyer, M. Placzek, R. Ferrari, W.T. Abraham, O. Alfieri, A. Auricchio, A. Bayes-Genis, J.G.F. Cleland, G. Filippatos, F. Gustafsson, W. Haverkamp, M. Kelm, K.-H. Kuck, U. Landmesser, A.P. Maggioni, M. Metra, V. Ninios, M.C. Petrie, T. Rassaf, F. Ruschitzka, U. Schäfer, P.C. Schulze, K. Spargias, A. Vahanian, J.L. Zamorano, A. Zeiher, M. Karakas, F. Koehler, M. Lainscak, A. Öner, N. Mezilis, E.K. Theofilogiannakos, I. Ninios, M. Chrissoheris, P. Kourkoveli, K. Papadopoulos, G. Smolka, W. Wojakowski, K. Reczuch, F.J. Pinto, Ł. Wiewiórka, Z. Kalarus, M. Adamo, E. Santiago-Vacas, T.F. Ruf, M. Gross, J. Tongers, G. Hasenfuss, W. Schillinger, and P. Ponikowski, for the RESHAPE-HF2 Investigators*

ABSTRACT

BACKGROUND

Whether transcatheter mitral-valve repair improves outcomes in patients with heart failure and functional mitral regurgitation is uncertain.

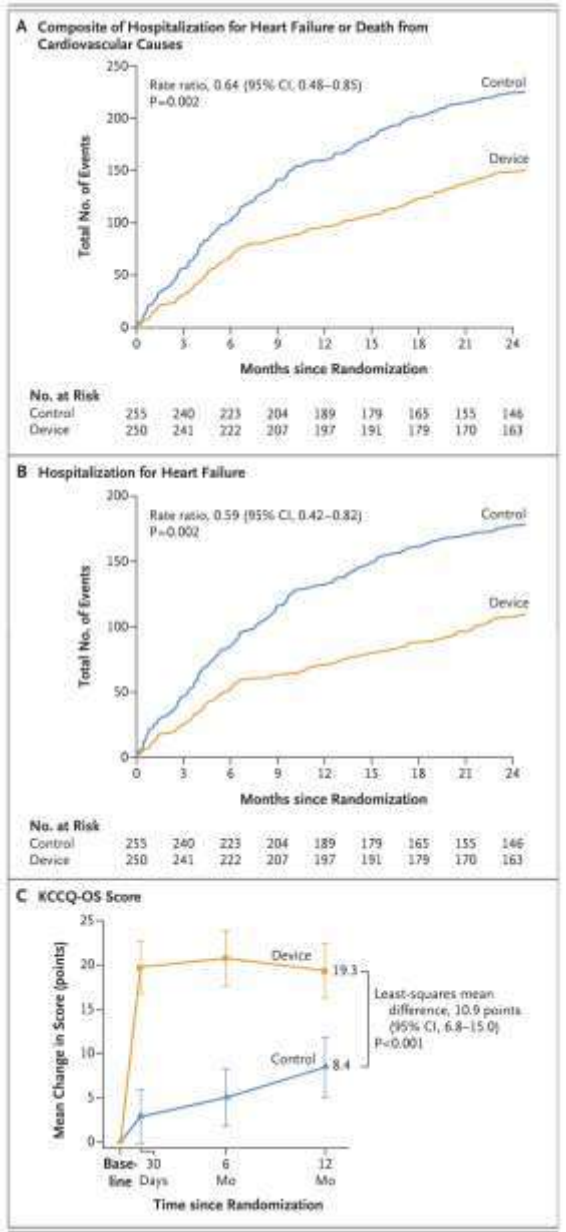


TABLE 1 Baseline Characteristics and 2-Year Outcomes in 3 Randomized Trials of M-TEER in FMR

	COAPT (n = 614)	MITRA-FR (n = 304)	RESHAPE-HF2 (n = 505)
Mean age, y	72	70	70
Male	72	75	80
Etiology			
Ischemic	61	59	65
Nonischemic	39	41	35
NYHA functional class III/IV	61	67	75
HFH within prior 12 months	57	100[a]	66
Mean LVEF, %	31	33	31
Mean LVEDV, mL	193	250	211
Mean EROA, cm^2	0.40	0.31	0.25
Baseline HF medical therapy	Maximally tolerated, independent committee confirmed	Community management per EU guidelines	Optimally managed (investigator assessed)
Follow-up HF medical therapy	Few changes	Not collected	Not collected
2-y mortality, control group	46.1	34.2	29.6
Reduction with M-TEER[b]	0.62 (0.46-0.82)	1.02 (0.70-1.50)	0.73 (0.51-1.05)
2-y all HFHs, control group, per 100 patient-y	67.9	106.9	46.6
Reduction with M-TEER[b]	0.53 (0.40-0.70)	0.87 (0.56-1.35)	0.62 (0.46-0.83)

STONE JACC 2024

Expanded registry, FMR cohort,

Significant Left Ventricular Remodeling in Subjects With SMR and Baseline MR 2+ Through 1 Year

JACC: HEART FAILURE VOL. ■, NO. ■, 2024

Evaluating Mitral TEER in the Management of Moderate Secondary Mitral Regurgitation Among Heart Failure Patients

Anita W. Asgar, MD,[a] Gilbert H.L. Tang, MD,[b] Jason H. Rogers, MD,[c] Wolfgang Rottbauer, MD,[d] M. Andrew Morse, MD,[e] Paolo Denti, MD,[f] Paul Mahoney, MD,[g] Michael J. Rinaldi, MD,[h] Federico M. Asch, MD,[i] Jose L. Zamorano, MD,[j] Melody Dong, PsD,[k] Rong Huang, MS,[k] Joann Lindenfeld, MD,[l] Francesco Maisano, MD,[m] Ralph Stephan von Bardeleben, MD,[n] Saibal Kar, MD,[o] Evelio Rodriguez, MD[p]

ABSTRACT

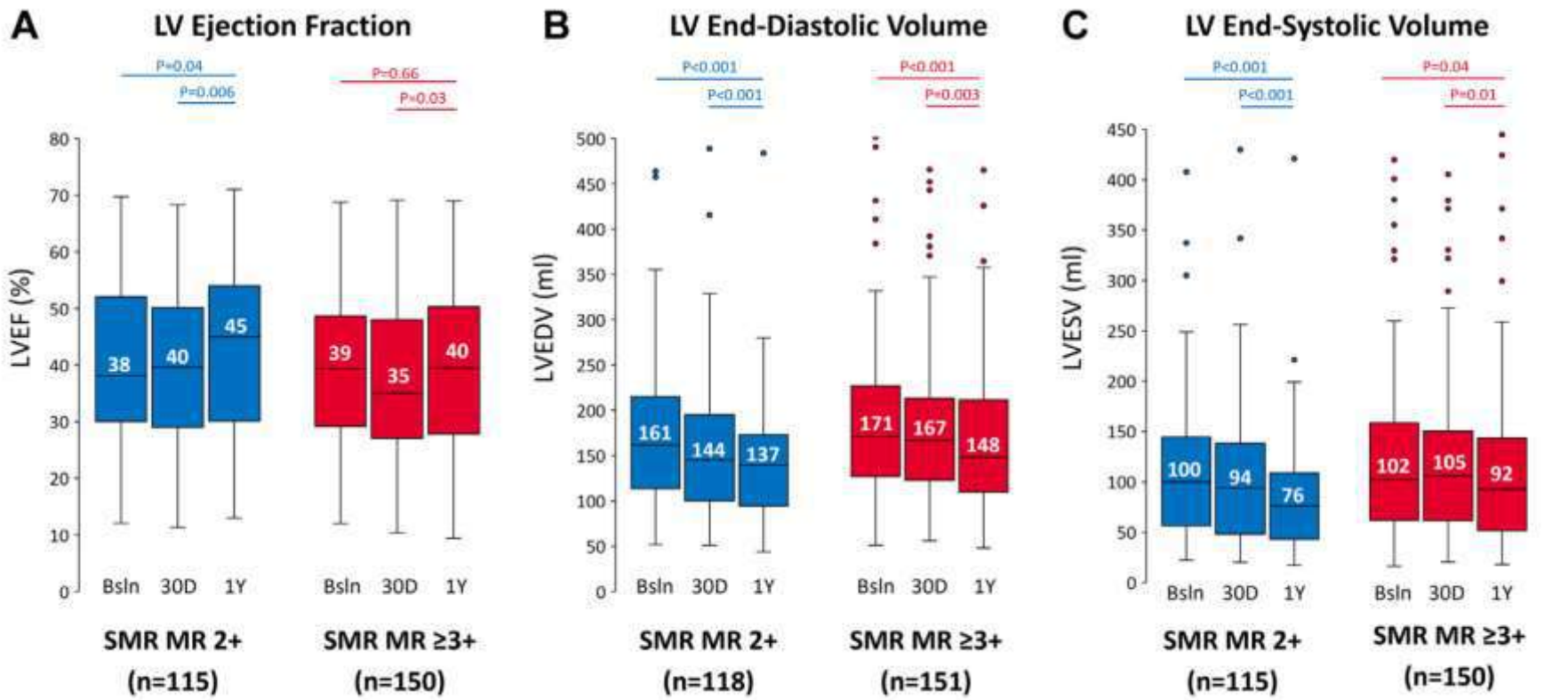
BACKGROUND Moderate secondary mitral regurgitation (SMR) represents a subgroup of heart failure (HF) patients with treatment restricted to medical therapy. Outcomes in patients with moderate SMR treated with mitral transcatheter edge-to-edge repair (M-TEER) are less well known.

OBJECTIVES The aim of this study was to assess the safety and effectiveness of M-TEER in subjects with moderate SMR using the EXPANDed studies.

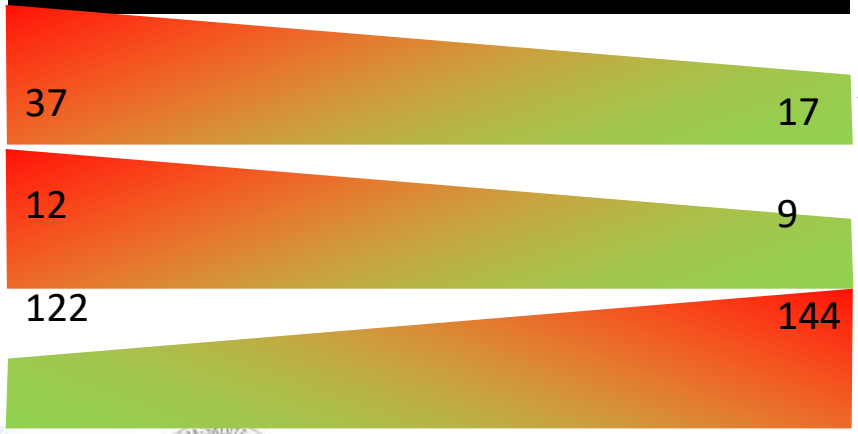
METHODS One-year outcomes in subjects from the EXPANDed studies (EXPAND [A Contemporary, Prospective Study Evaluating Real-world Experience of Performance and Safety for the Next Generation of MitraClip Devices] and EXPAND G4 [A Post-Market Study Assessment of the Safety and Performance of the MitraClip G4 System] MitraClip studies) with baseline moderate SMR (2+), per echocardiographic core laboratory (ECL) assessment, were compared with subjects with baseline severe SMR (≥3+).

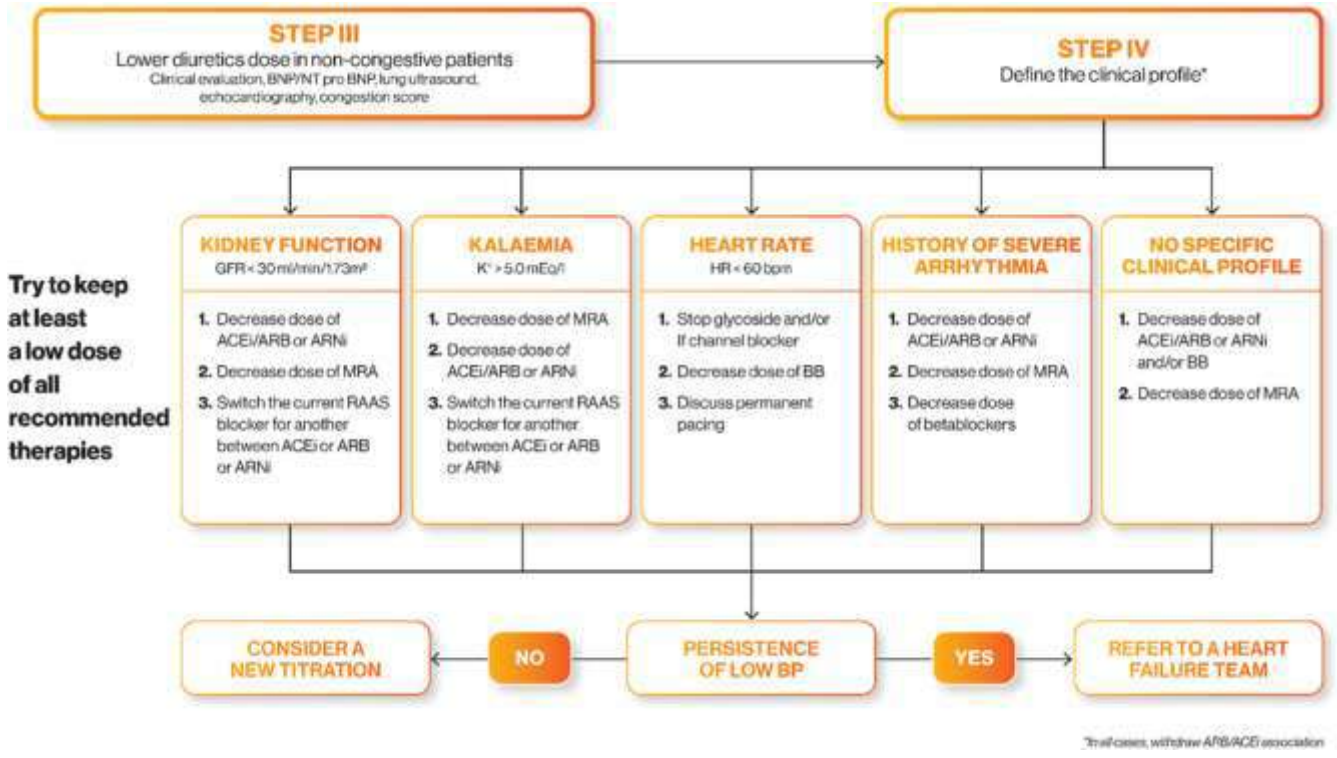
RESULTS There were 335 subjects with moderate SMR and 525 with severe SMR at baseline per ECL review. Baseline characteristics were similar between the 2 subgroups. After treatment with M-TEER, significant MR reduction was achieved in both groups. Significant left ventricular (LV) reverse remodeling was observed through 1 year, with a >20 mL decrease in LV end-diastolic and end-systolic volumes on average in the moderate SMR group. Significant 1-year improvements in NYHA functional class (>78% NYHA functional class I or II) and quality of life (>20 points on the Kansas City Cardiomyopathy Questionnaire-Overall Summary) were observed in subjects with moderate SMR. Similarly, low rates of major adverse events, all-cause mortality, and HF hospitalizations were observed between the 2 subgroups through 1 year.

CONCLUSIONS In the EXPANDed studies, subjects with moderate SMR treated with M-TEER had improvements similar to subjects with severe SMR in quality of life and positive LV remodeling at 1 year. Future studies are needed to evaluate if M-TEER would be beneficial for HF patients with moderate SMR. (JACC Heart Fail. 2024;■■■-■) © 2024 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).



A modern target: to improve compliance





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Uptitration

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NEW RESEARCH PAPER

STRUCTURAL

Impact of Transcatheter Edge-to-Edge Mitral Valve Repair on Guideline-Directed Medical Therapy Uptitration

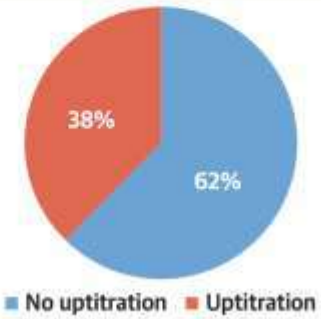
Marianna Adamo, MD,[a,*] Daniela Tomasoni, MD,[a,*] Lukas Stolz, MD,[b] Thomas J. Stocker, MD,[b] Edoardo Pancaldi, MD,[a] Benedikt Koell, MD,[c] Nicole Karam, MD,[d] Christian Besler, MD,[e] Cristina Giannini, MD,[f] Francisco Sampaio, MD,[g] Fabien Praz, MD,[h] Tobias Ruf, MD,[i] Louis Pechmajou, MD,[d] Michael Neuss, MD,[j] Christos Iliadis, MD,[k] Stephan Baldus, MD,[k] Christian Butter, MD,[l] Daniel Kalbacher, MD,[c] Philipp Lurz, MD,[e] Bruno Melica, MD,[g] Anna S. Petronio, MD,[f] Ralph Stephan von Bardeleben, MD,[i] Stephan Windecker, MD,[b] Javed Butler, MD,[l] Gregg C. Fonarow, MD,[m] Jörg Hausleiter, MD,[h,†] Marco Metra, MD[a,†]

ABSTRACT

BACKGROUND Guideline-directed medical therapy (GDMT) optimization is mandatory before transcatheter edge-to-edge mitral valve repair (M-TEER) in patients with secondary mitral regurgitation (SMR) and heart failure (HF) with reduced ejection fraction (HFrEF). However, the effect of M-TEER on GDMT is unknown.

CENTRAL ILLUSTRATION Prevalence, Predictors, and Impact on Outcomes of Guideline-Directed Medical Therapy Uptitration After Mitral Transcatheter Edge-to-Edge Repair

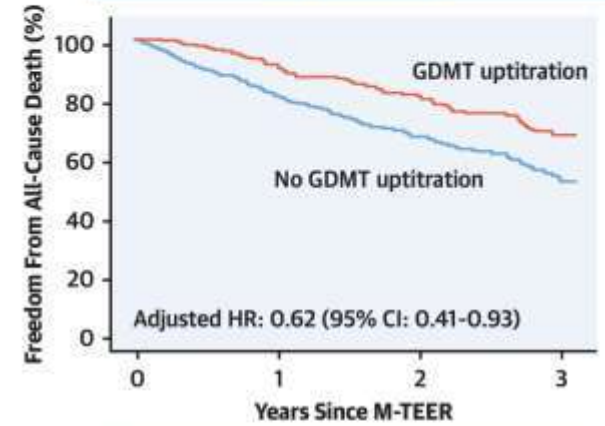
GDMT Uptitration After M-TEER

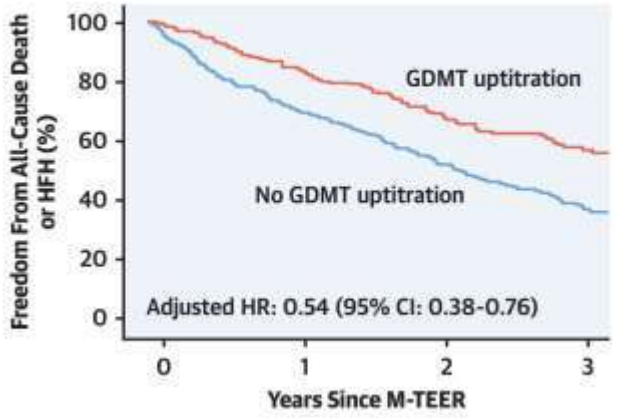


Predictors of GDMT Uptitration

Variables*	OR (95% CI)	*P* Value
NT-proBNP	1.16 (0.56-2.41)	0.695
Systolic pulmonary artery pressure	0.99 (0.97-1.02)	0.513
Previous myocardial infarction	0.81 (0.38-1.75)	0.593
Mean arterial blood pressure	1.00 (0.98-1.02)	0.868
Glomerular filtration rate	1.01 (0.99-1.02)	0.280
MR reduction of at least 3 grades	1.71 (1.08-2.71)	0.022
NYHA improvement (≥1 class)	0.66 (0.35-1.25)	0.200

Association Between GDMT Uptitration and Outcomes





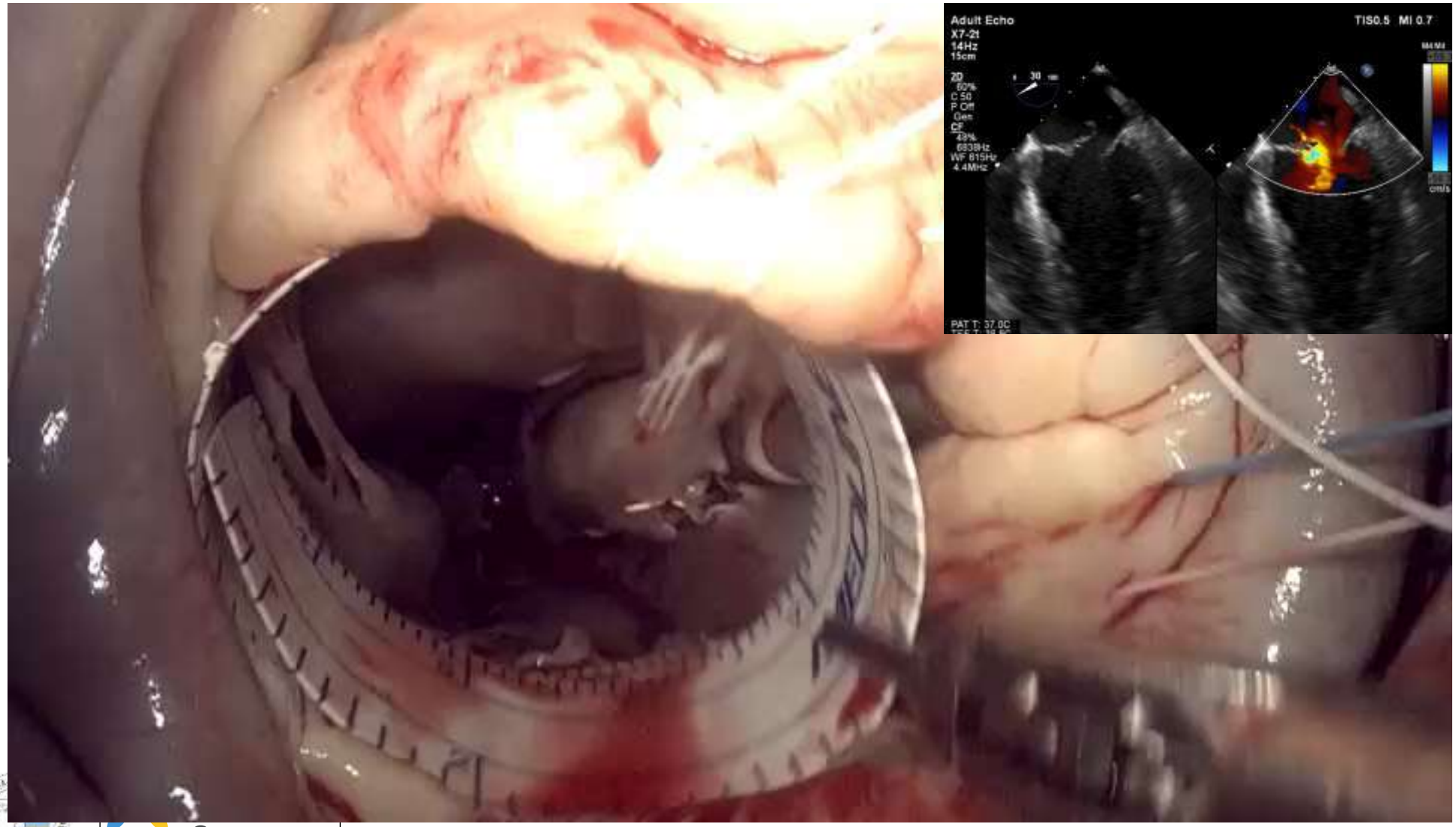
Adamo M, et al. J Am Coll Cardiol Intv. 2023;16(8):896-905.

MR: a spectrum of phenotypes

	Carpentier Type I	Carpentier Type II	Carpentier Type IIIa	Carpentier Type IIIb
	(normal leaflet motion and position)	(excess leaflet motion)	(restricted leaflet motion in systole and diastole)	(restricted leaflet motion in systole)
PRIMARY MR	 Leaflet Perforation Cleft	 Mitral Valve Prolapse	 Rheumatic Valve Disease Mitral Annular Calcification Drug Induced MR	
SECONDARY MR	 Atrial MR  Nonischemic Cardiomyopathy			 Ischemic Cardiomyopathy

El Sabbagh, A. et al. J Am Coll Cardiol Img. 2018;11(4):628-43.

Primary (Degenerative) MR is a surgical business




Hook for bladder stones

Surgery is no more invasive

Long-term Outcomes of Contemporary Surgical Mitral Repair for Degenerative Mitral Regurgitation: a benchmark for transcatheter mitral valve interventions

3317 pts
- consecutive repairs 2008-2017
- OSR

100% complete
- Follow-up done by AGENAS

0.21%
- Hospital mortality

13 yrs outcomes
- 83.84±1.02% survival
- 95.84±0.53 freedom from reoperation

MR phenotype	
• Barlow's disease (n, %)	611 (18.42)
• Fibro-elastic deficiency (n, %)	476 (14.35)
• Myxomatous degeneration (n, %)	2115 (63.76)
REDO (n, %)	71 (2.14)

Concomitant procedures (n, %)	**918 (26.67)**
• Tricuspid valve repair	491 (14.8)
• Tricuspid valve replacement	4 (0.12)
• AF ablation	272 (8.2)
• Aortic valve replacement	68 (2.05)
• Ascending aorta replacement	20 (0.6)
• CABG	187 (5.64)

Long-term freedom from reoperation multivariable predictive analysis

	HR	95% CI	p-value
Mild-to-moderate MR at discharge	2.54	1.08-5.94	0.032
Anterior leaflet disease	3.44	1.96-6.03	<0.0001
Second CPB run	3.61	1.84-7.08	0.0002

Del Forno B. JACC 2025

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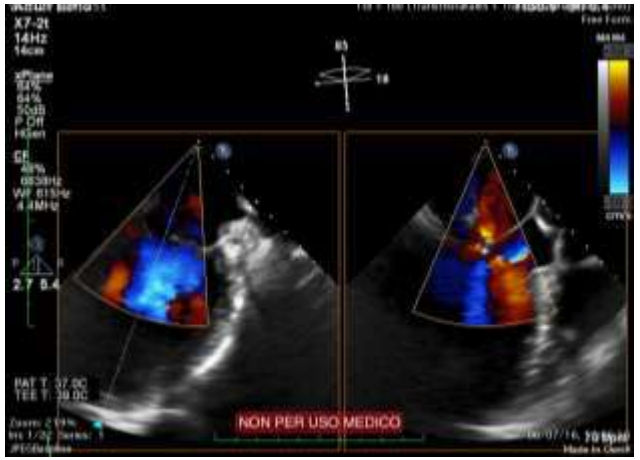
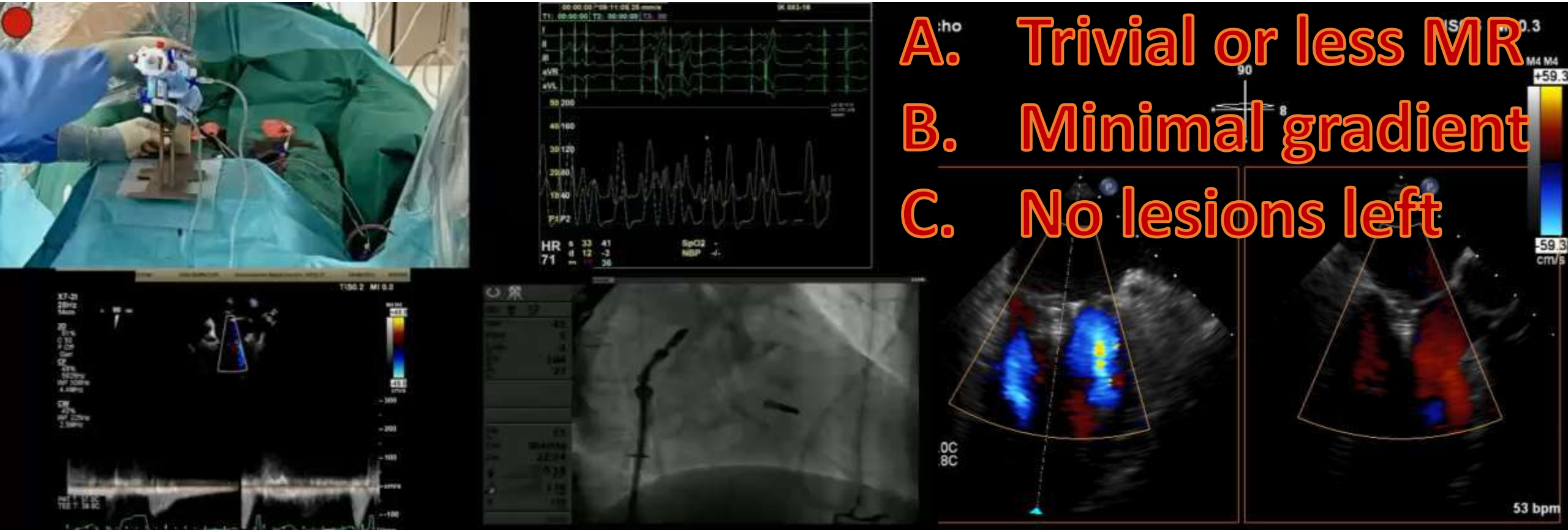
However….. TEER is a great alternative for high risk and fragile patients (and elderly)

- 81 yo
- NYHA III, CCS:0
- no comorbidities
- P2 prolapse/flail
- EF: 68%
- Euroscore II: 2.07%



TEER is not palliation: in intermediate risk patients, a surgical like outcome is mandatory



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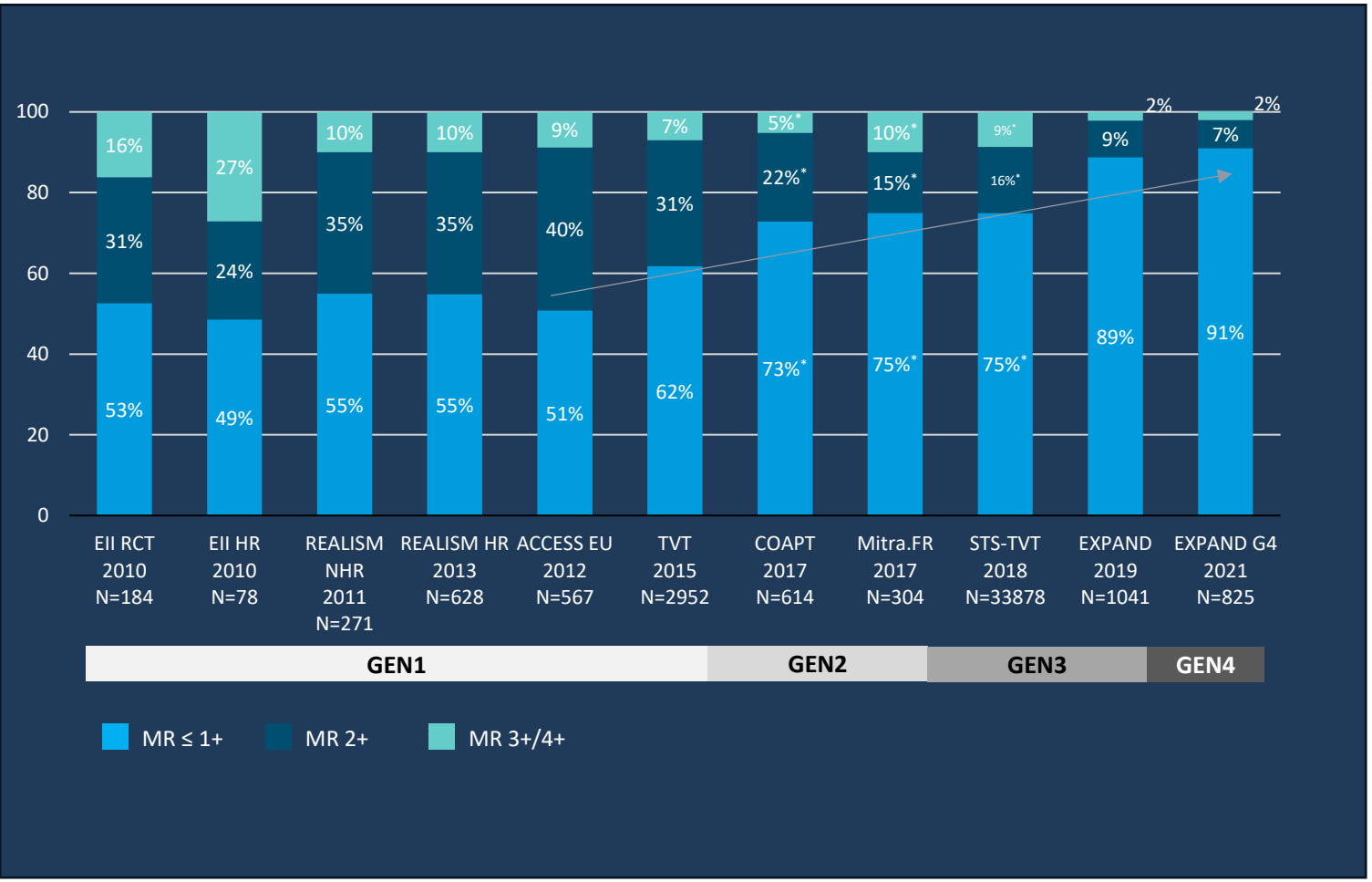
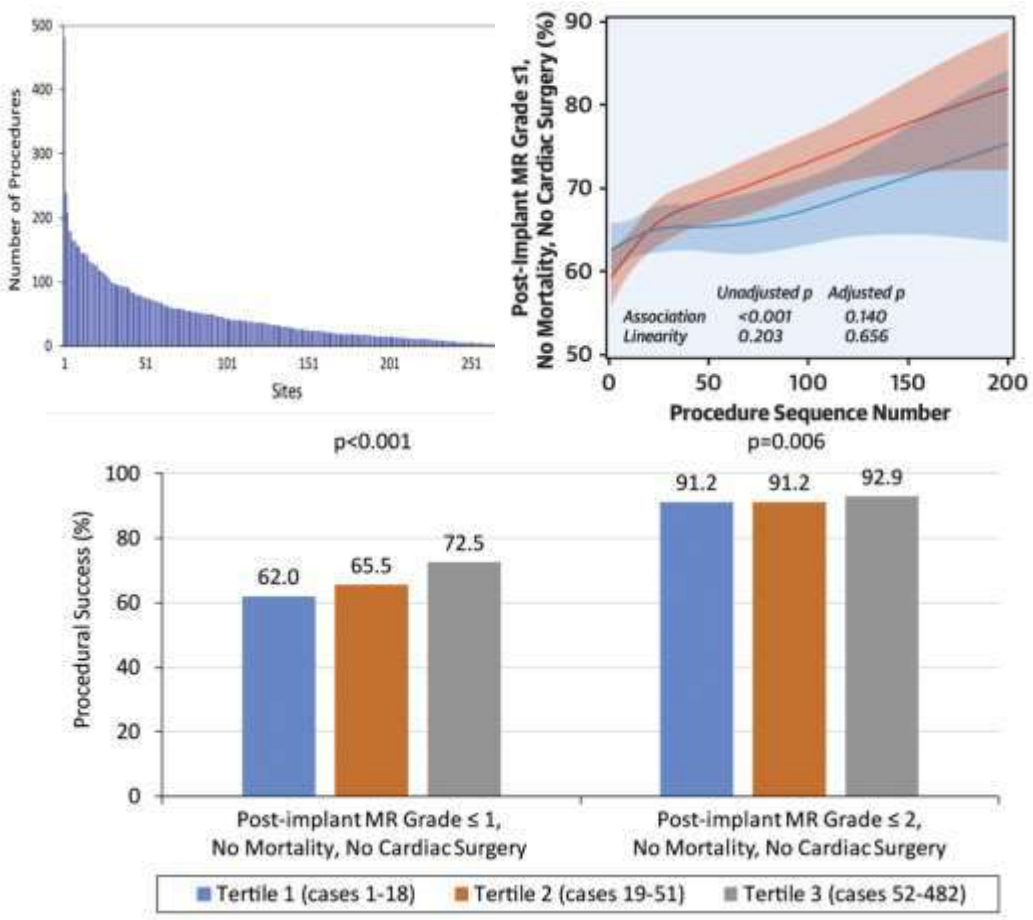
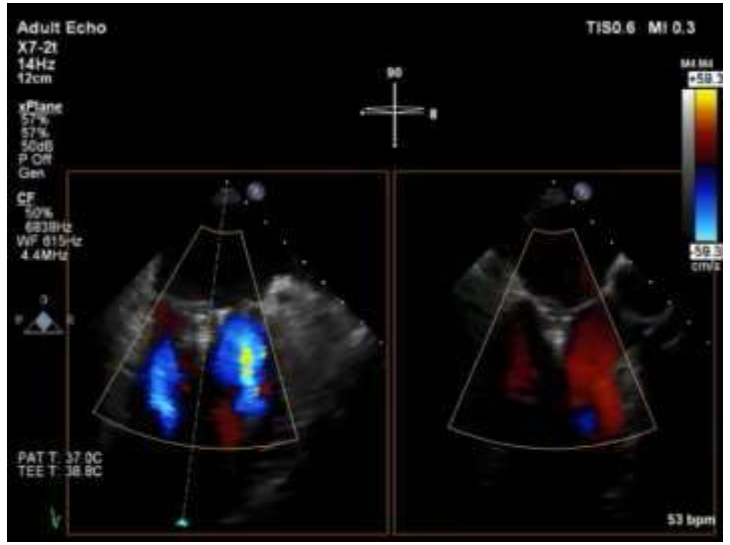
expert centers vs overall outcomes





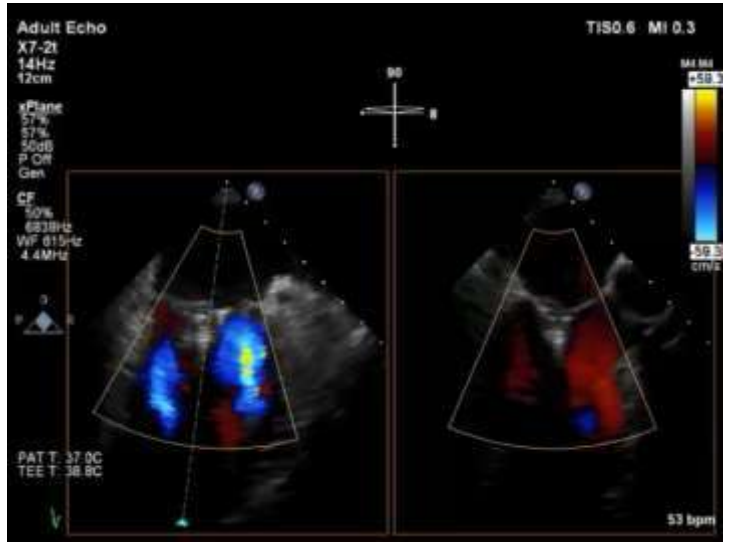
65% vs 91% 91% vs 98%

how to get the best from TEER



- Patient selection
- imaging
- good (efficient) transseptal
- understand anatomy of the mitral valve
- select the device
- respect the rules of a good edge-to-edge repair
- abolish any lesion at risk of progression
- find the best compromise between MR reduction and gradients

how to get the best from TEER



- **Patient selection**
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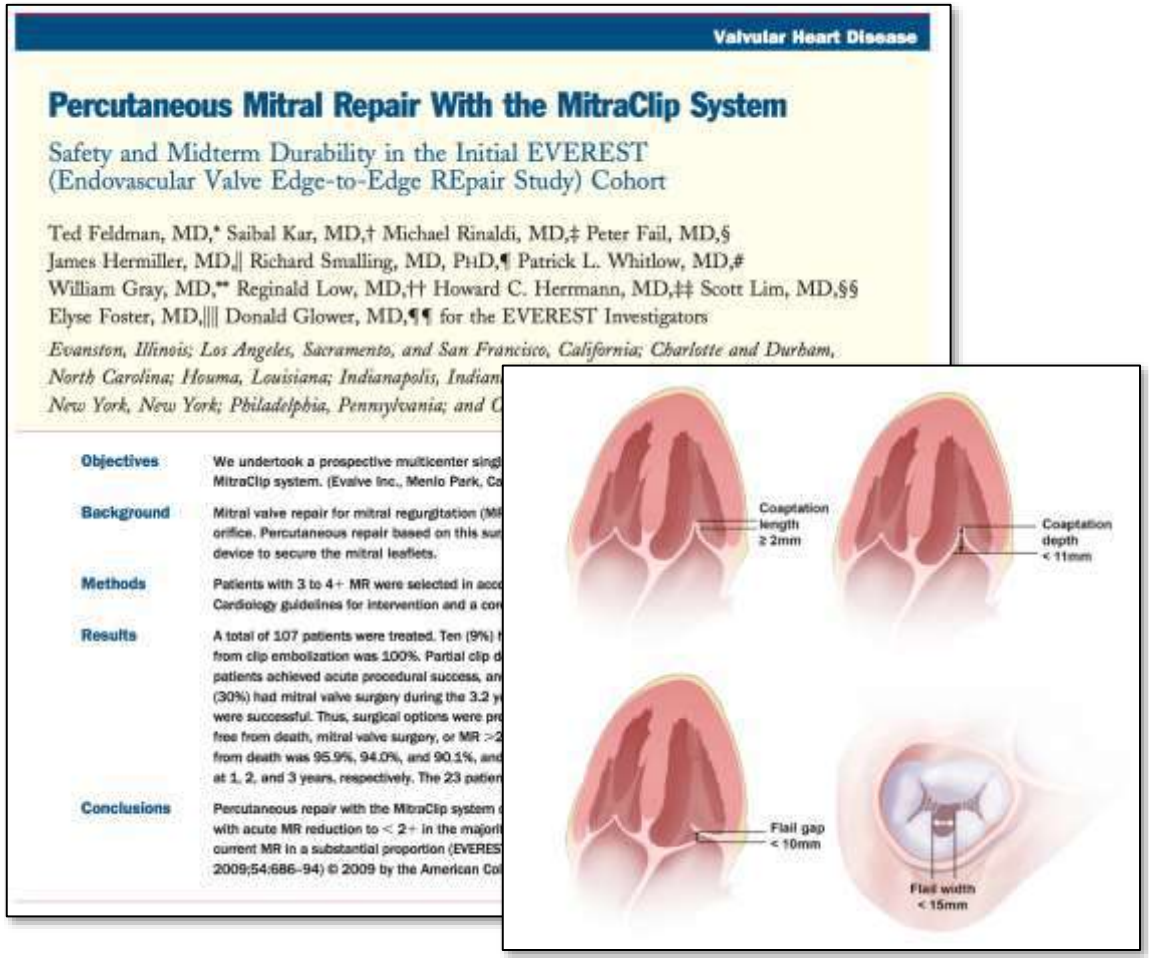
- find the best compromise between MR reduction and gradients

Patient selection for DMR (for beginners)

- Narrow lesions
- Single scallop
- Anterior easier
- A2 / P2
- Avoid Bileaflet (Barlow's)
- Avoid Calcified lesions
- Avoid post-endocarditis



Valvular Heart Disease

Percutaneous Mitral Repair With the MitraClip System

Safety and Midterm Durability in the Initial EVEREST (Endovascular Valve Edge-to-Edge REpair Study) Cohort

Ted Feldman, MD,* Saibal Kar, MD,† Michael Rinaldi, MD,‡ Peter Fail, MD,§ James Hermiller, MD,‖ Richard Smalling, MD, PhD,¶ Patrick L. Whitlow, MD,# William Gray, MD,** Reginald Low, MD,†† Howard C. Herrmann, MD,‡‡ Scott Lim, MD,§§ Elyse Foster, MD,‖‖ Donald Glower, MD,¶¶ for the EVEREST Investigators

Evanston, Illinois; Los Angeles, Sacramento, and San Francisco, California; Charlotte and Durham, North Carolina; Houma, Louisiana; Indianapolis, Indian… New York, New York; Philadelphia, Pennsylvania; and C…

Objectives We undertook a prospective multicenter sing… MitraClip system. (Evalve Inc., Menlo Park, Ca…

Background Mitral valve repair for mitral regurgitation (MI… orifice. Percutaneous repair based on this sur… device to secure the mitral leaflets.

Methods Patients with 3 to 4+ MR were selected in acco… Cardiology guidelines for intervention and a cor…

Results A total of 107 patients were treated. Ten (9%) h… from clip embolization was 100%. Partial clip d… patients achieved acute procedural success, an… (30%) had mitral valve surgery during the 3.2 y… were successful. Thus, surgical options were pre… free from death, mitral valve surgery, or MR >2… from death was 95.9%, 94.0%, and 90.1%, and… at 1, 2, and 3 years, respectively. The 23 patien…

Conclusions Percutaneous repair with the MitraClip system … with acute MR reduction to < 2+ in the majorit… current MR in a substantial proportion (EVERES… 2009;54:686–94) © 2009 by the American Col…

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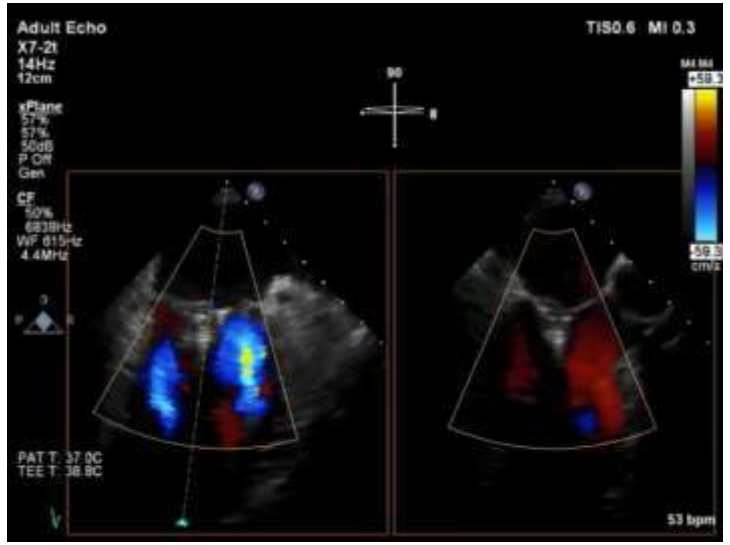
how to get the best from TEER

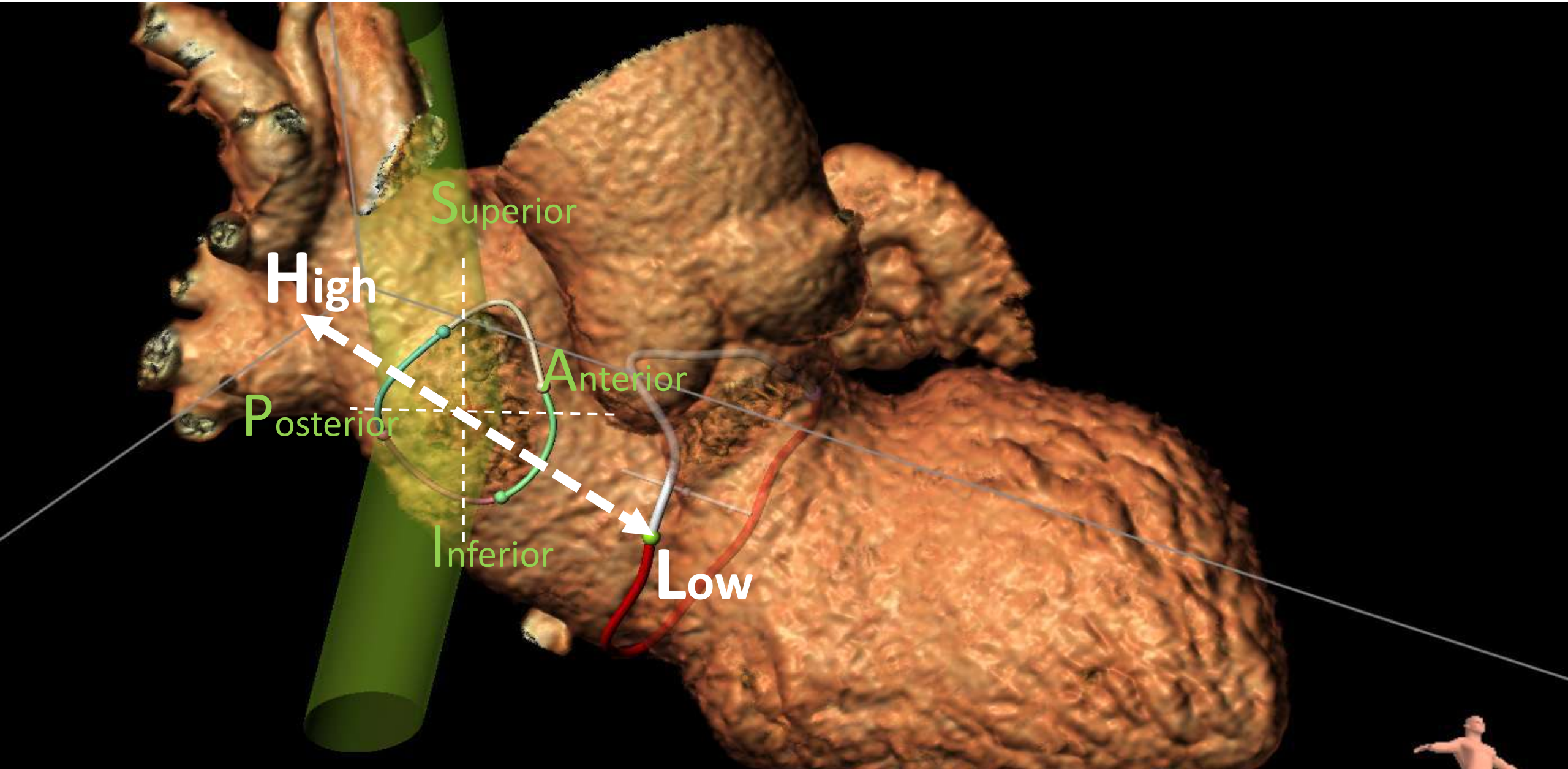


- Patient selection
- imaging
- **good (efficient) transseptal**
- understand anatomy of the mitral valve
- select the device
- respect the rules of a good edge-to-edge repair
- abolish any lesion at risk of progression
- find the best compromise between MR reduction and gradients

What makes a TSP a good one..

- Safe
  - **Avoid complications** of TSP
  - Avoid complications due to bad TSP and additional complexity to the procedure (lack of coaxiality)
- Efficient
  - **Achieve coaxiality**
  - Achieve smooth trajectory for delivery systems
  - Allow fast and unenventful delivery of devices

nomenclature

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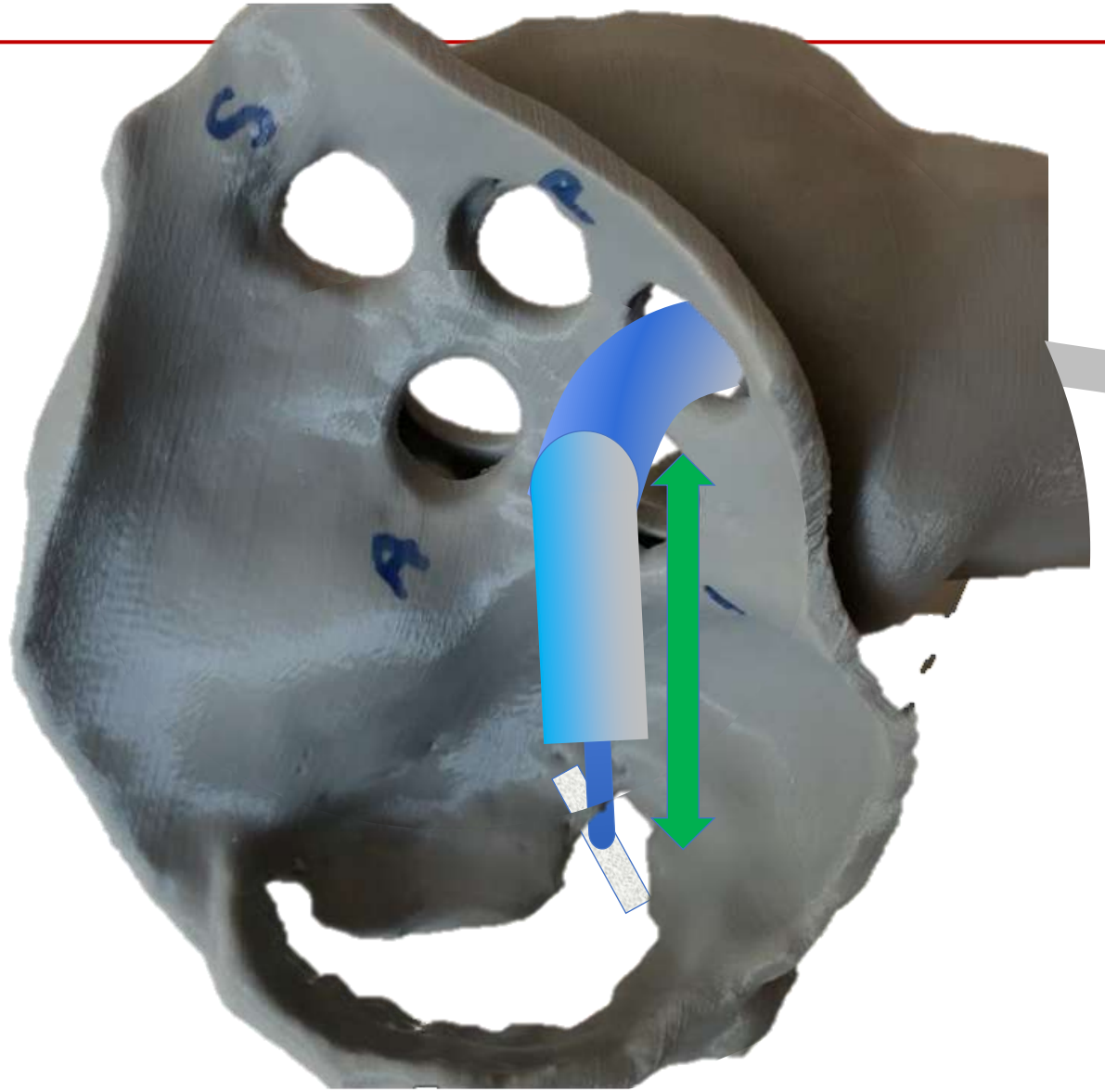
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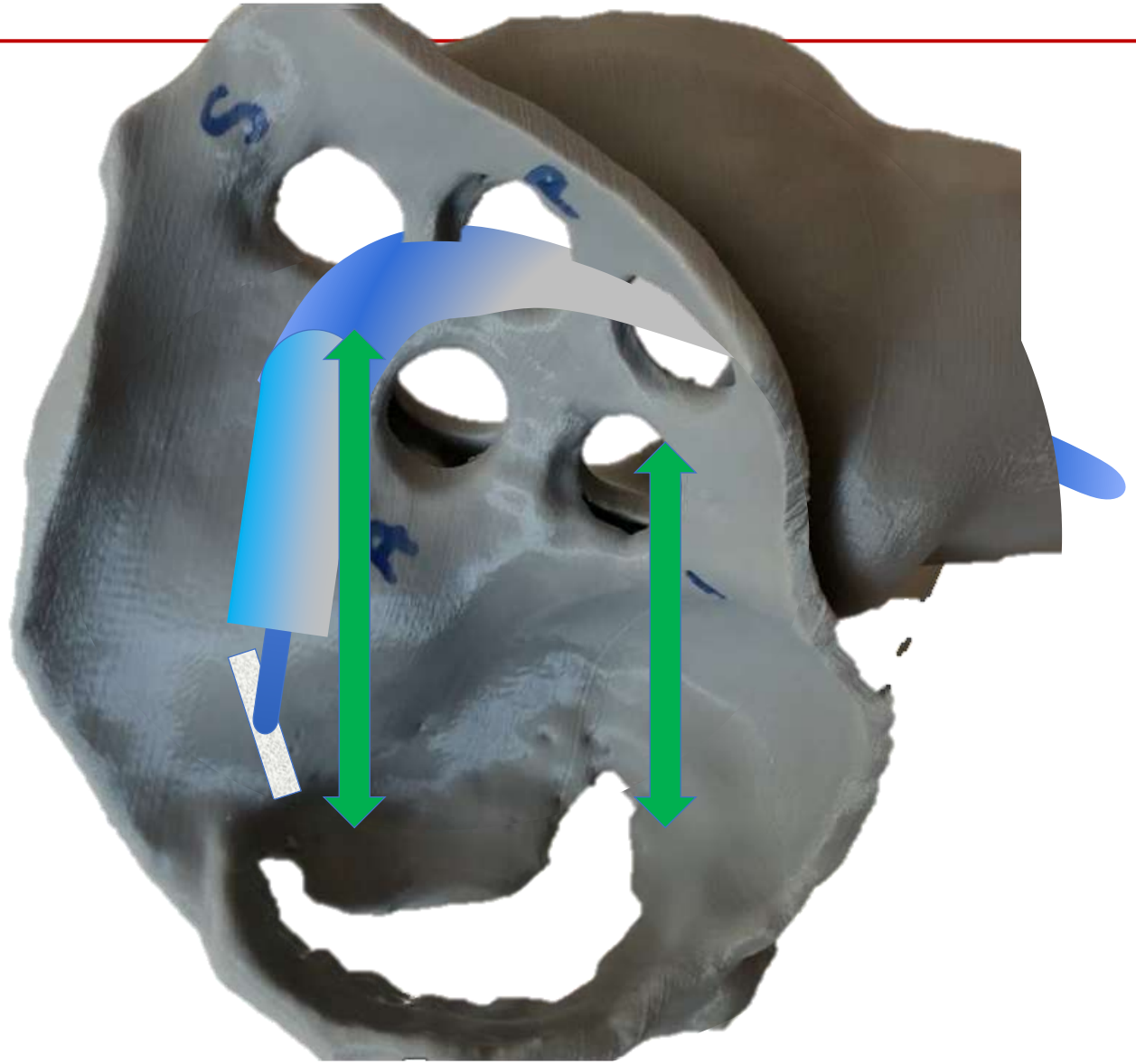
S
A
R

how to get the best from TEER

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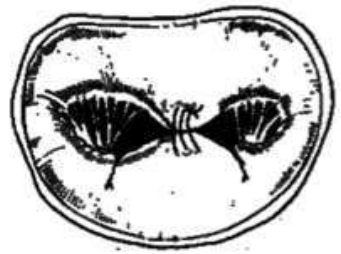
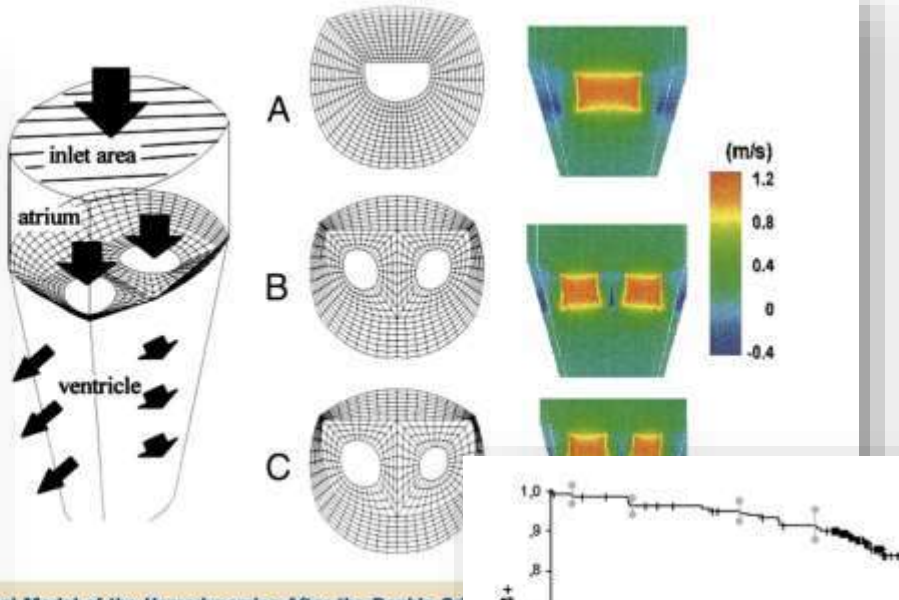
Surgical rules, long-term evidence, hemodynamics

Learning from experience
Surgical rules

I. The suture must incorporate the diseased segment(s) completely
II. Respect symmetry
III. Suture lenght should be kept to the minimum effective to correct MR in order to avoid stenosis
IV. Depth of suture bites is variable according to the nature of the MR





tical Model of the Hemodynamics After the Double Or

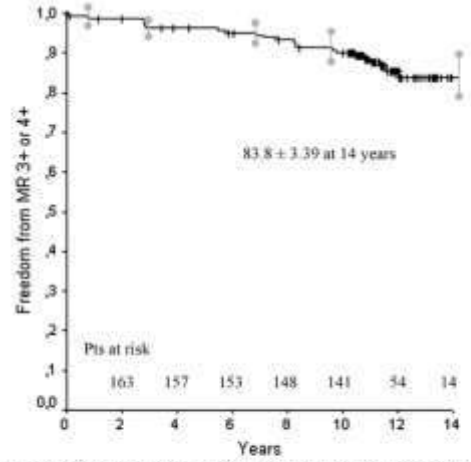


FIGURE 2. Actuarial freedom from echocardiographic recurrence of MR ≥ 3+ (the standard error of the mean is shown as *error bars*). *MR*, Mitral regurgitation; *Pts*, patients.

of the posterior leaflet in the
cified annulus. In addition, i
MR resulting from different
disease.[1,9,10] The 5-year re
such a large variety of mech
ported previously by our
comes were observed in p
undergoing DO repair com
versely, suboptimal results
with rheumatic valve diseas
dergo a concomitant annu
years after its introduction,
term results of this surgica
in the right setting and w
nique—namely, in degener
neous prosthetic ring annul
not include in this study pop
ing from etiologies other th
those who underwent DO r
with annuloplasty techniqu
implantation). Indeed, parti
experience, a ring annulopl
tients with an extensively
partial annuloplasties with

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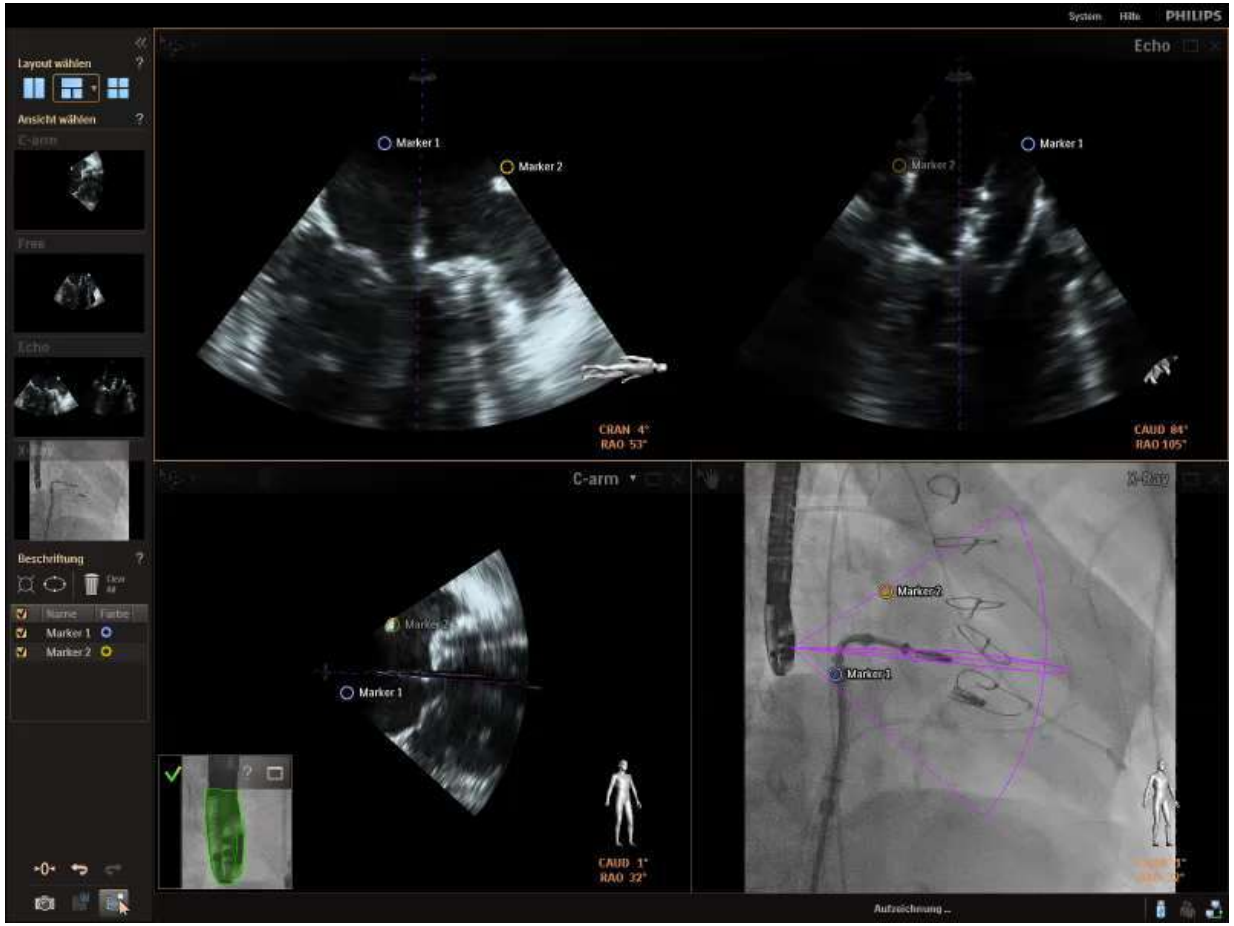
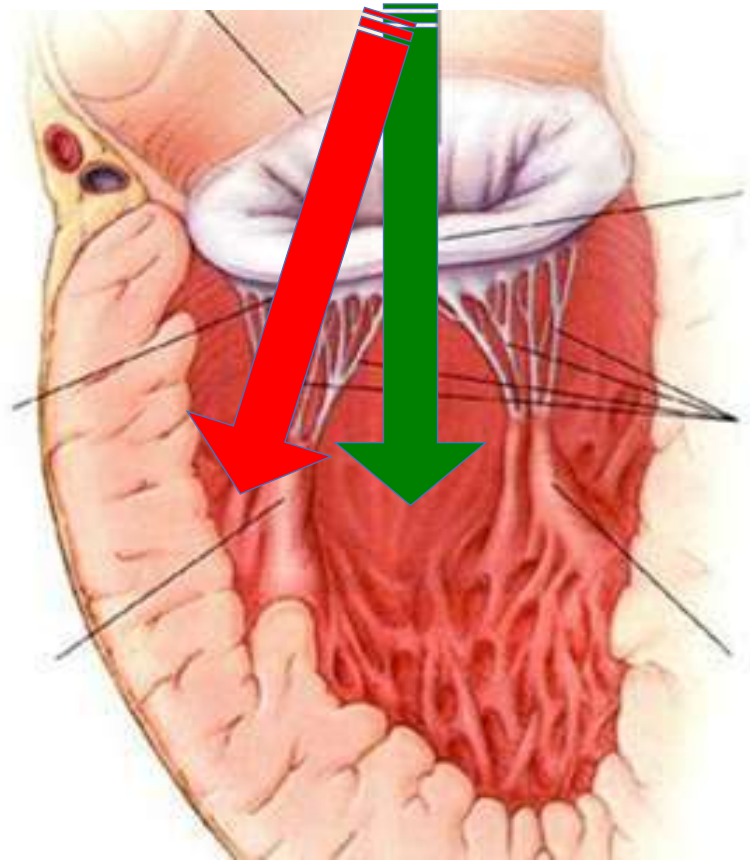
CDS optimization (coaxiality and trajectory)





Prevent clip entanglement by checking trajectory (AP and ML) prior to enter the LV

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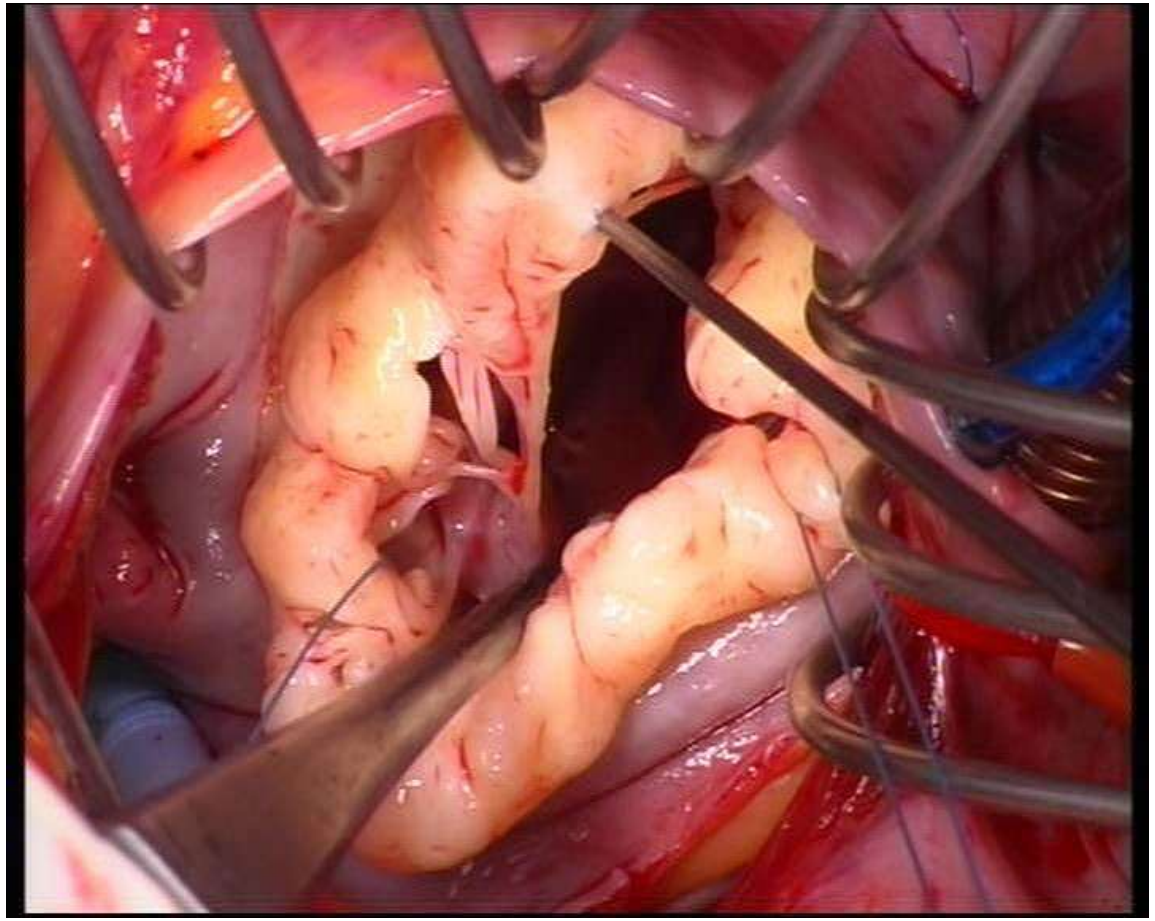
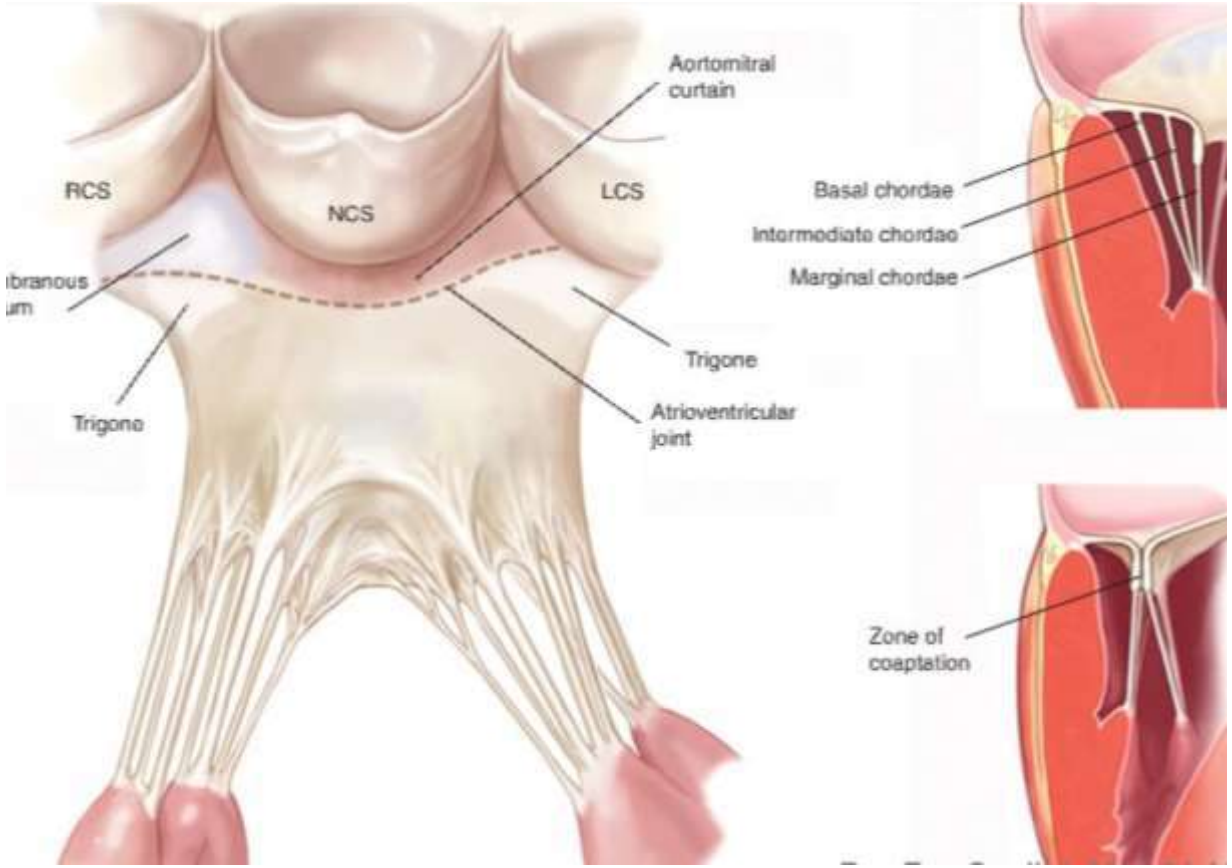
A2-P2 is the chordal free zone





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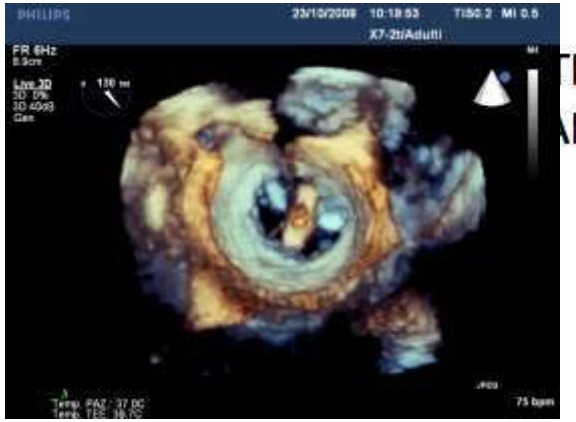
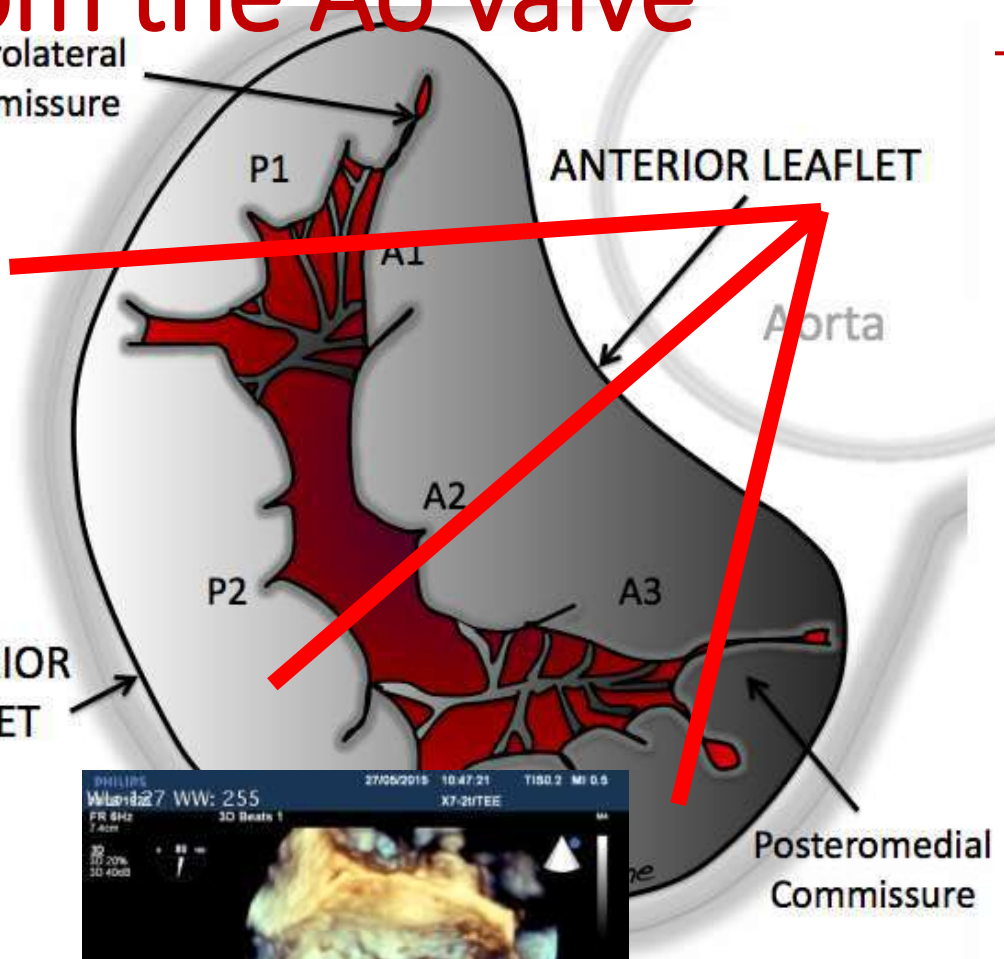
The line of coaptation is perpendicular to lines originating from the Ao valve





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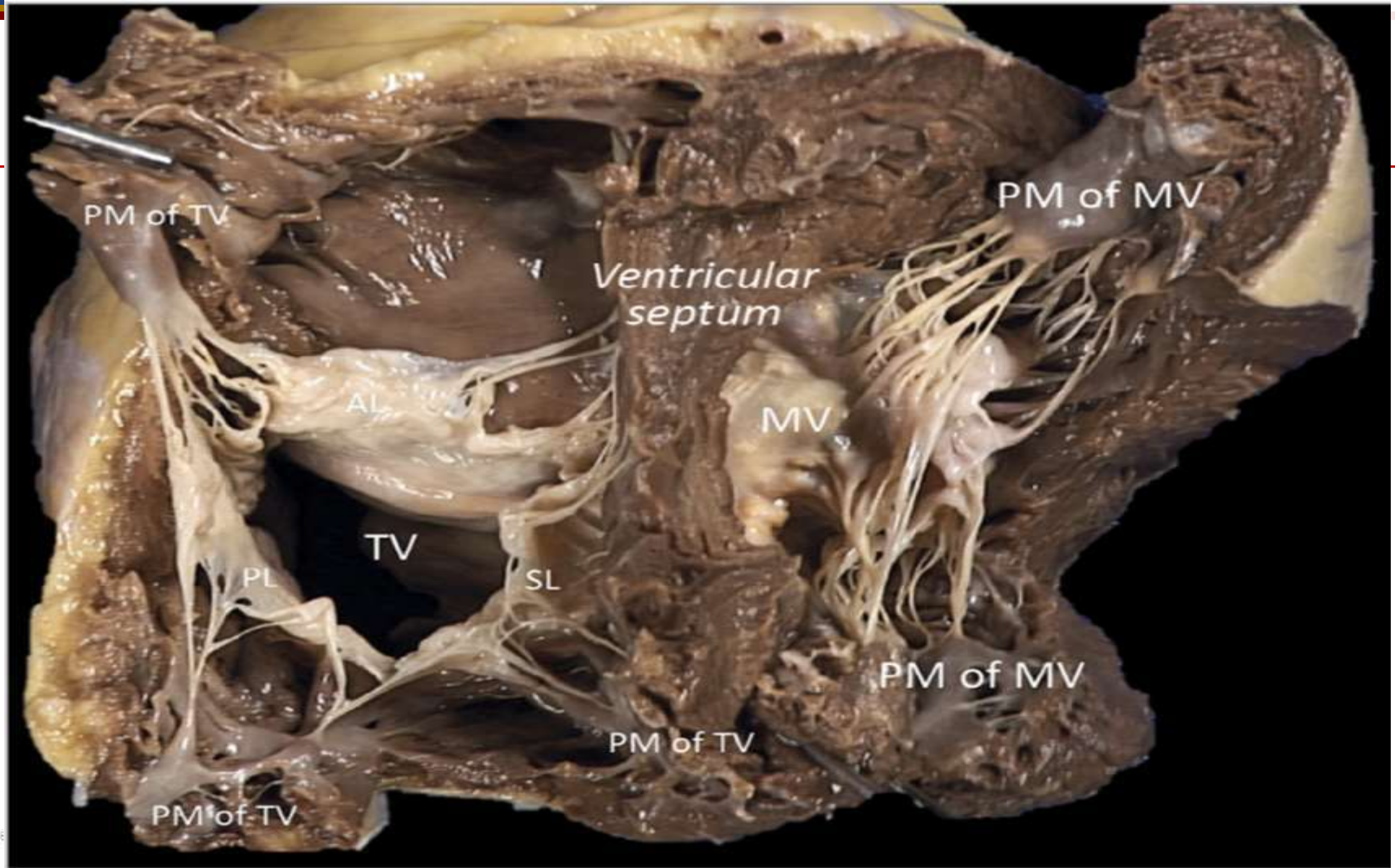
PM of TV
PM of MV
Ventricular septum
AL
MV
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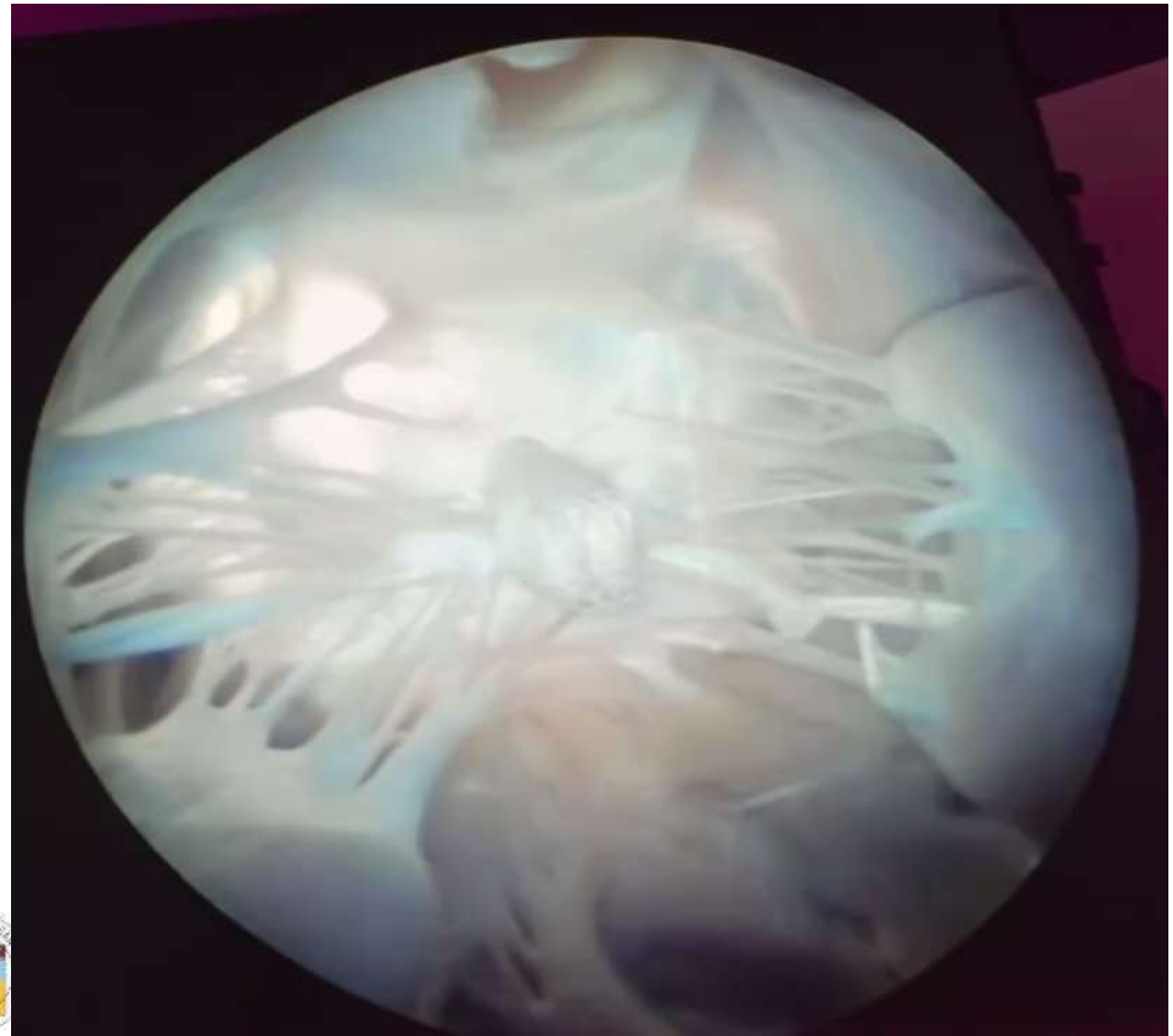
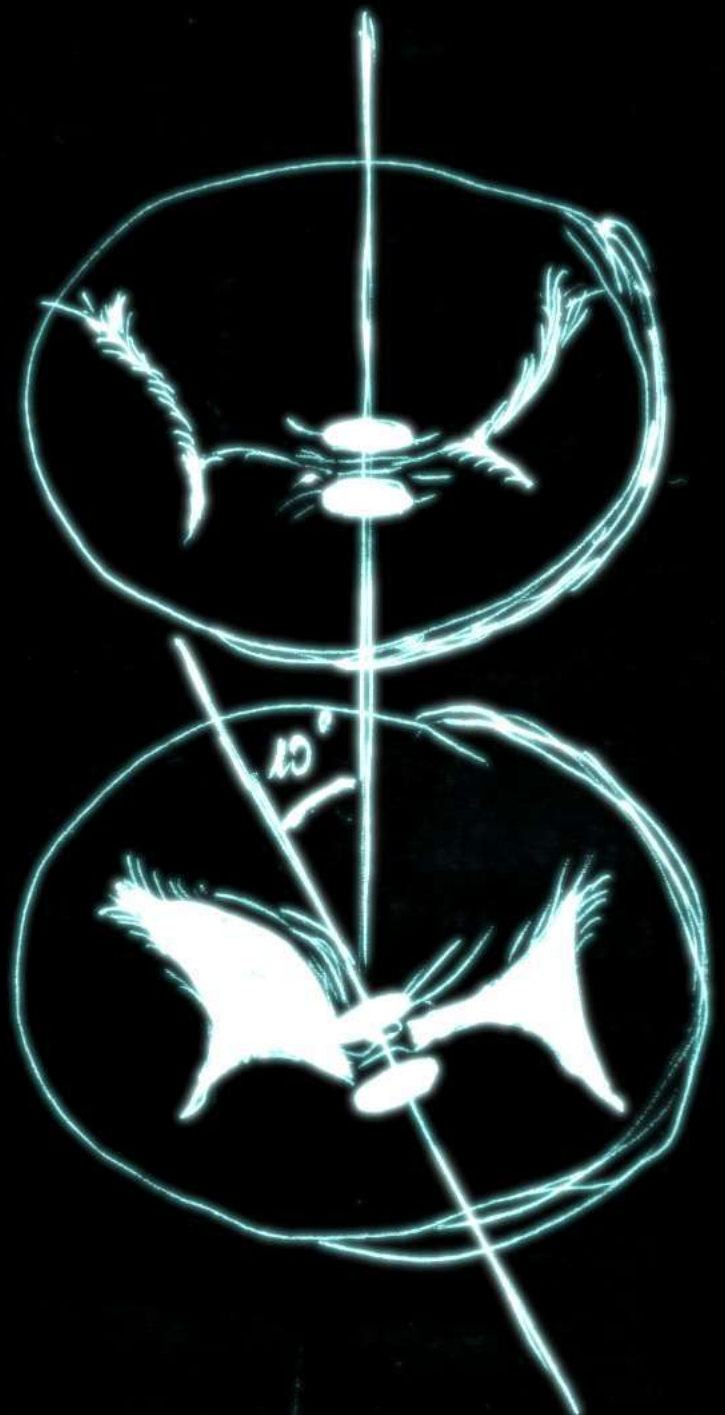
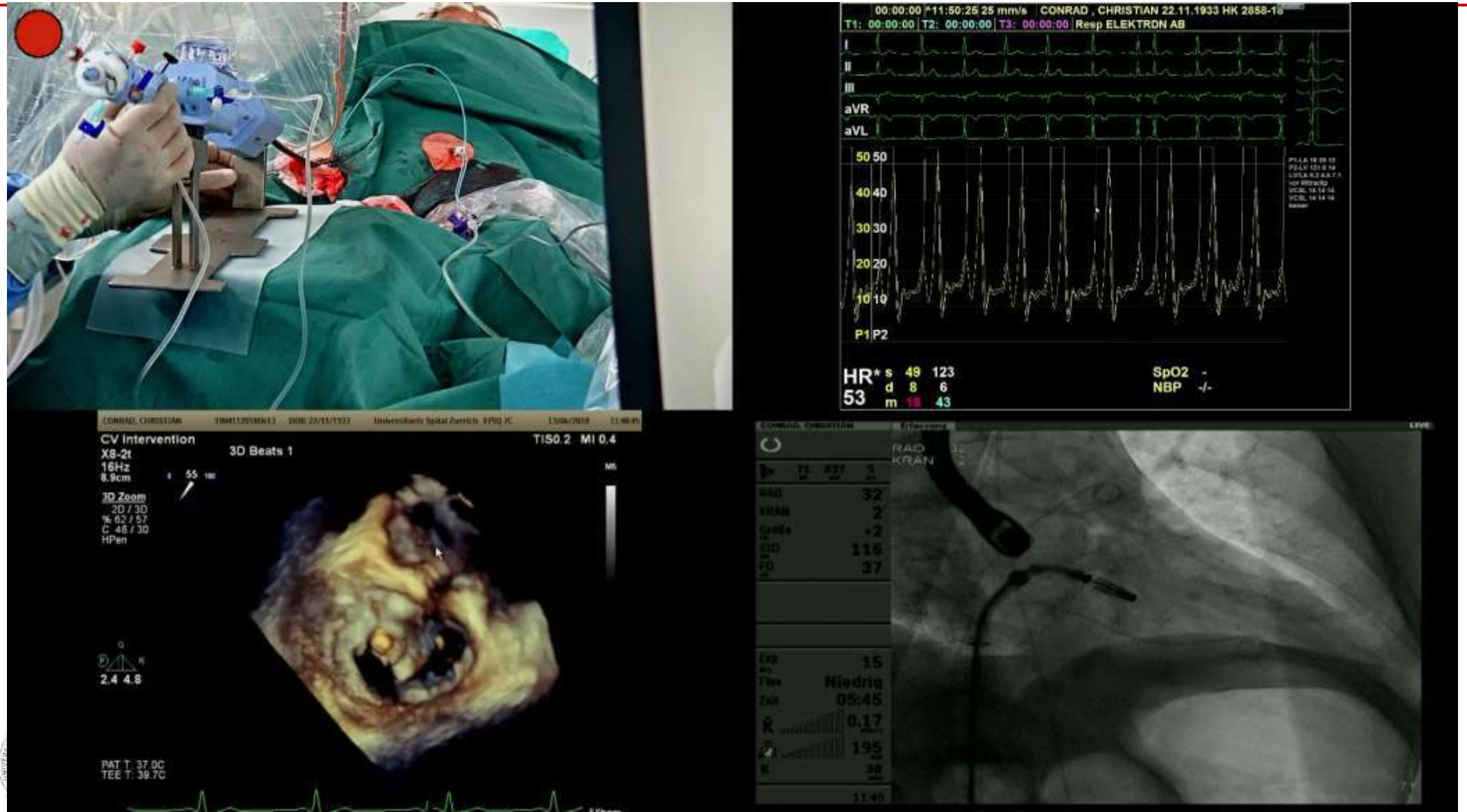




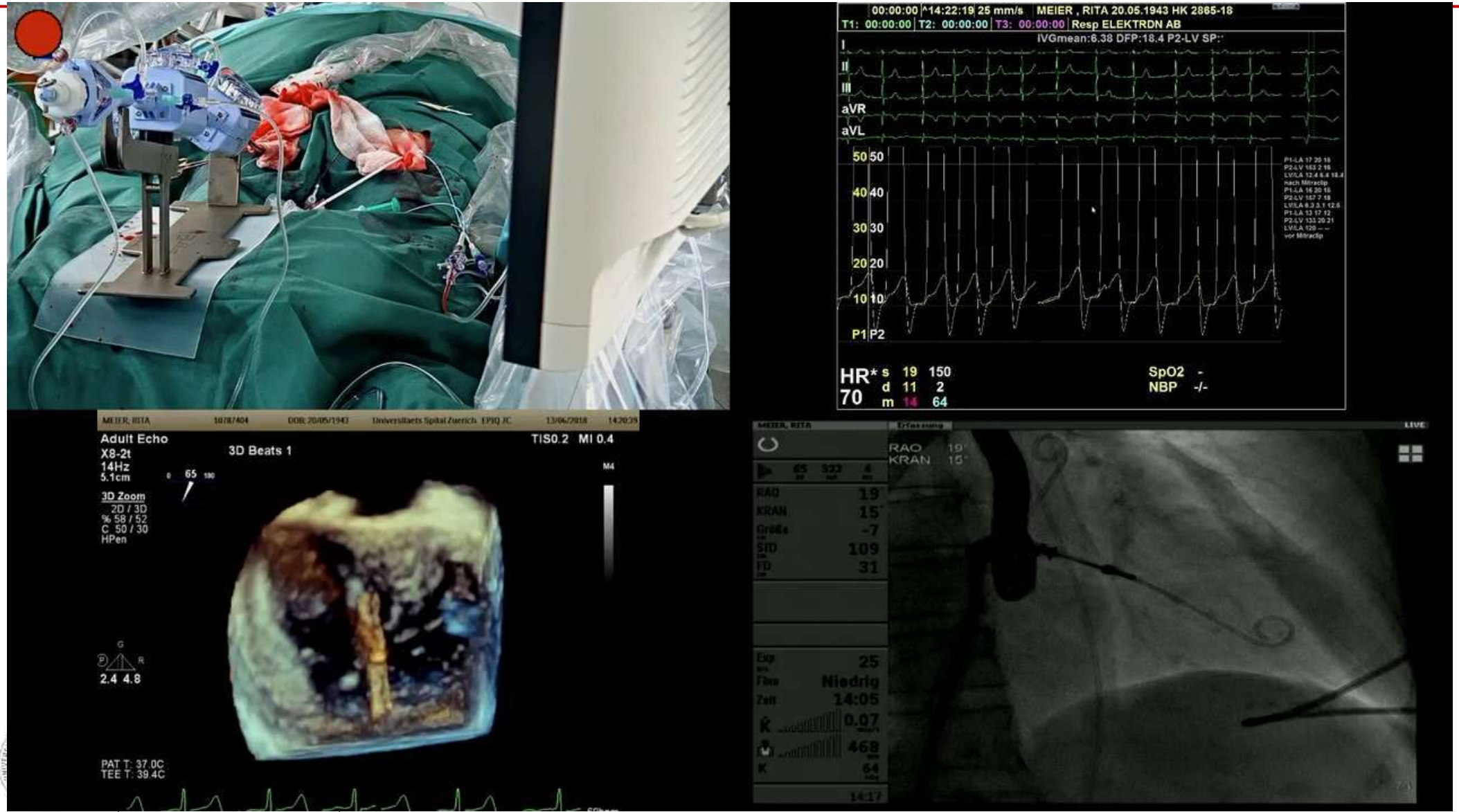
Perfect clip orientation is crucial to achieve a safe and effective MitraClip procedure.

Clip should be oriented **perpendicular to the line of coaptation.** This is best identified when the commissure are clearly seen on 3D Surgical view

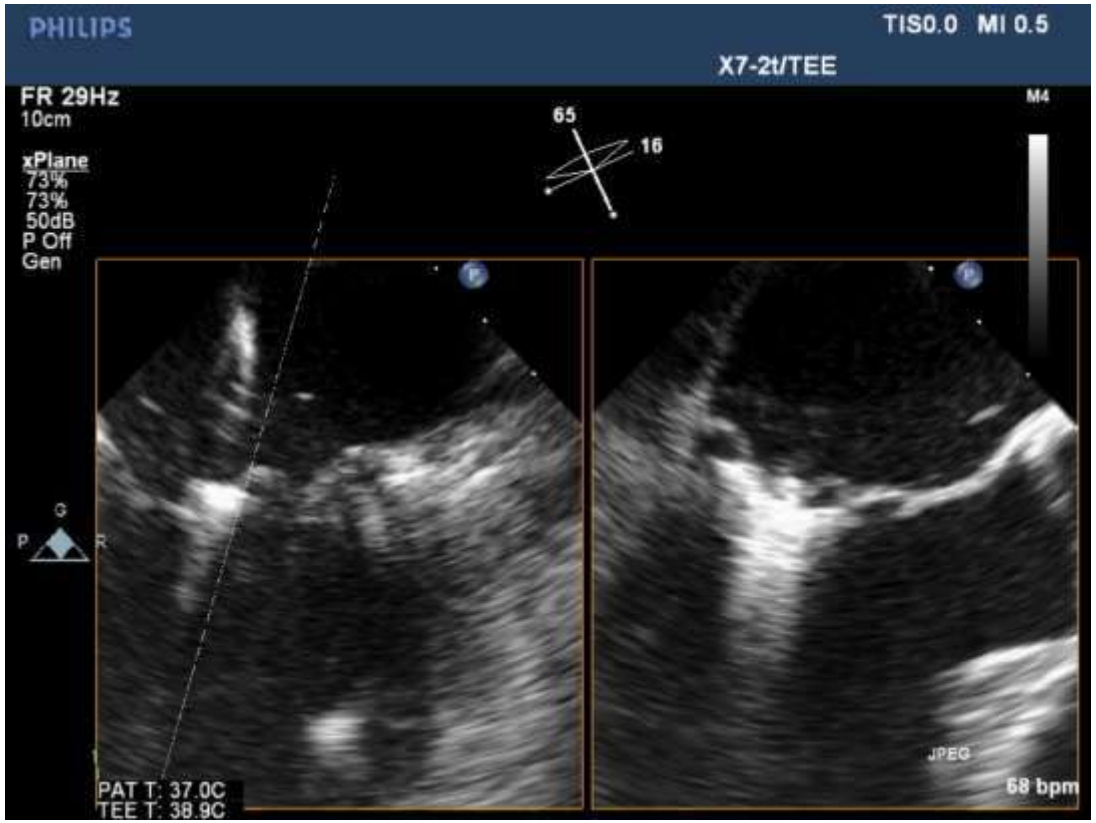
tip number 1: optimizing orientation

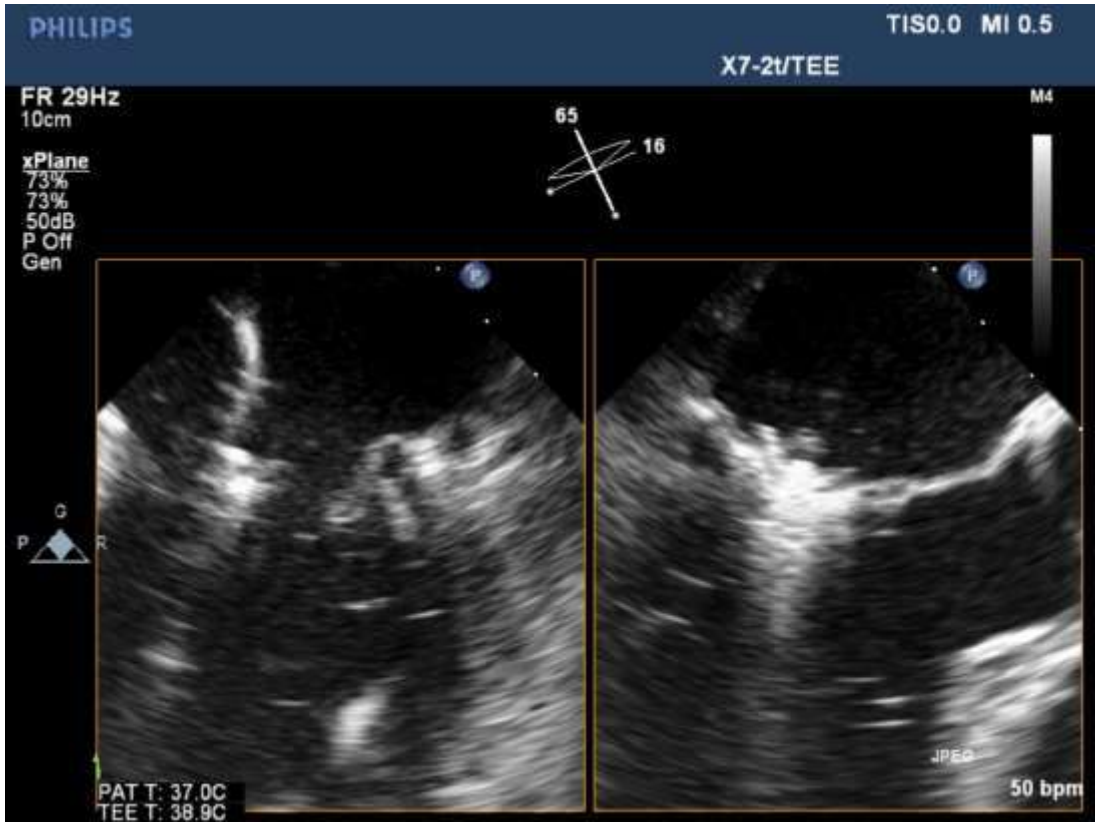


Tip 2: cross the valve with breath hold



Durability assessment: leaflet insertion





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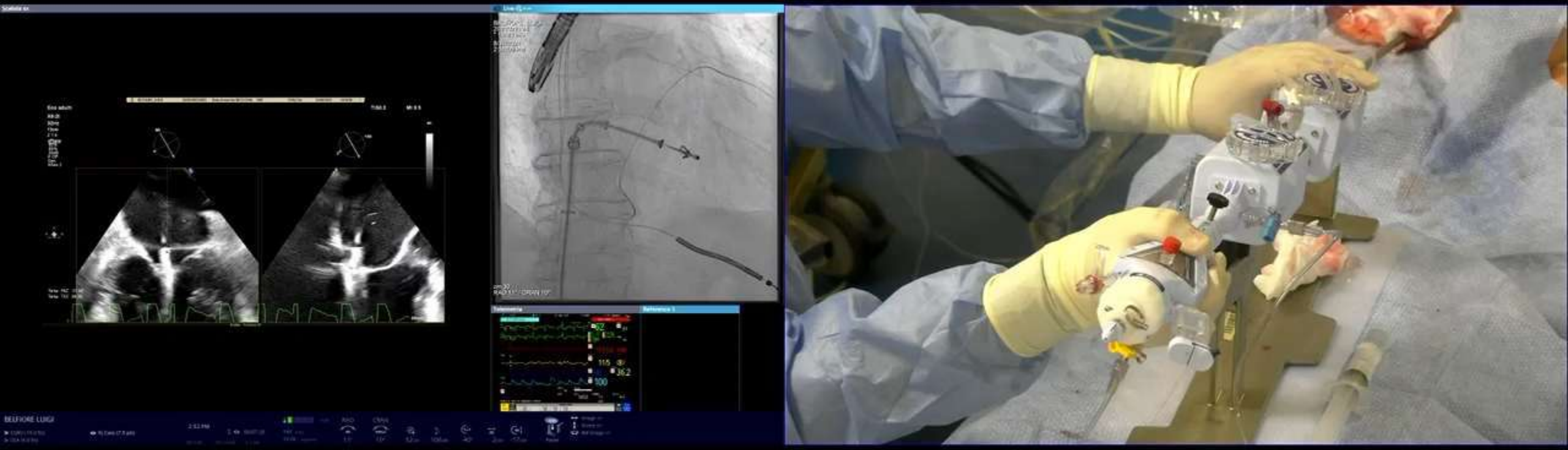
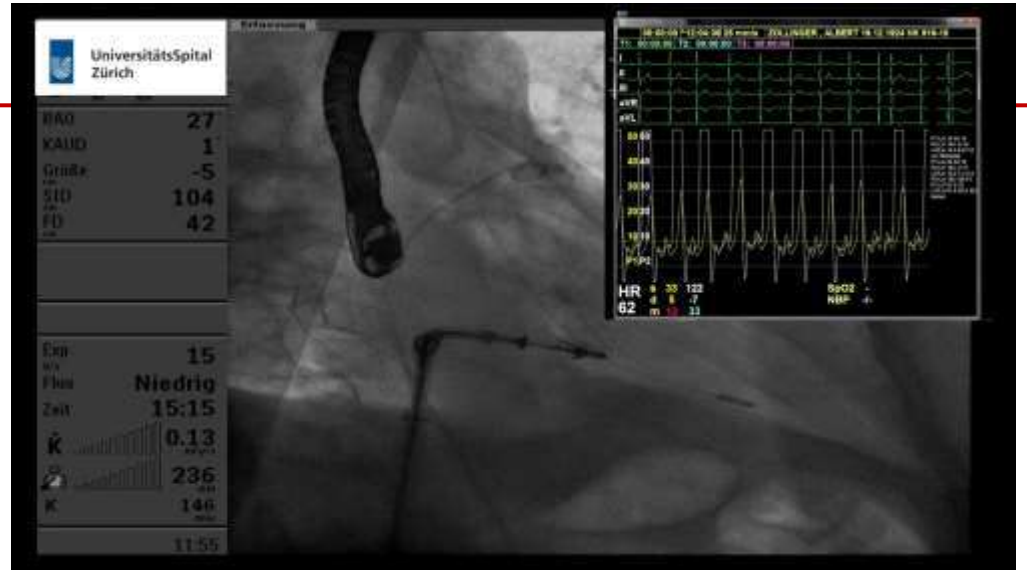
Indipendent grasping allows more control on leaflets insertion



Improve coaptation, enhance MR reduction, improve durability

how to get the best from TEER

- Patient selection
- imaging
- good (efficient) transseptal
- understand anatomy of the mitral valve
- select the device
- respect the rules of a good edge-to-edge repair
- abolish any lesion at risk of progression
- **find the best compromise between MR reduction and gradients**



V wave	37	17
Mean LAP	12	9
LV pressure	122	144

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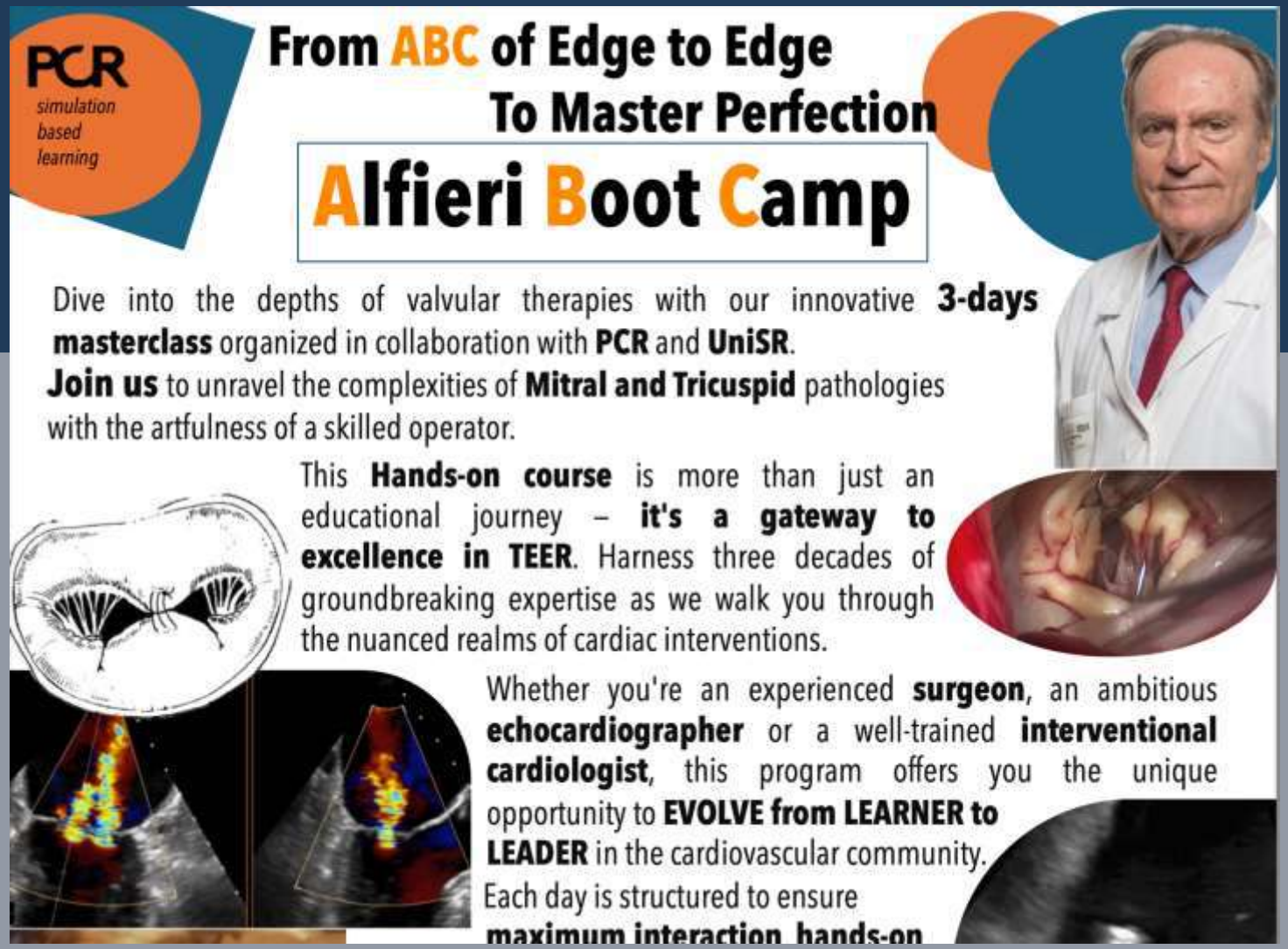
Alfieri Boothcamp: 3 days full immersion and networking in the Hospital where TEER was invented



PCR simulation based learning

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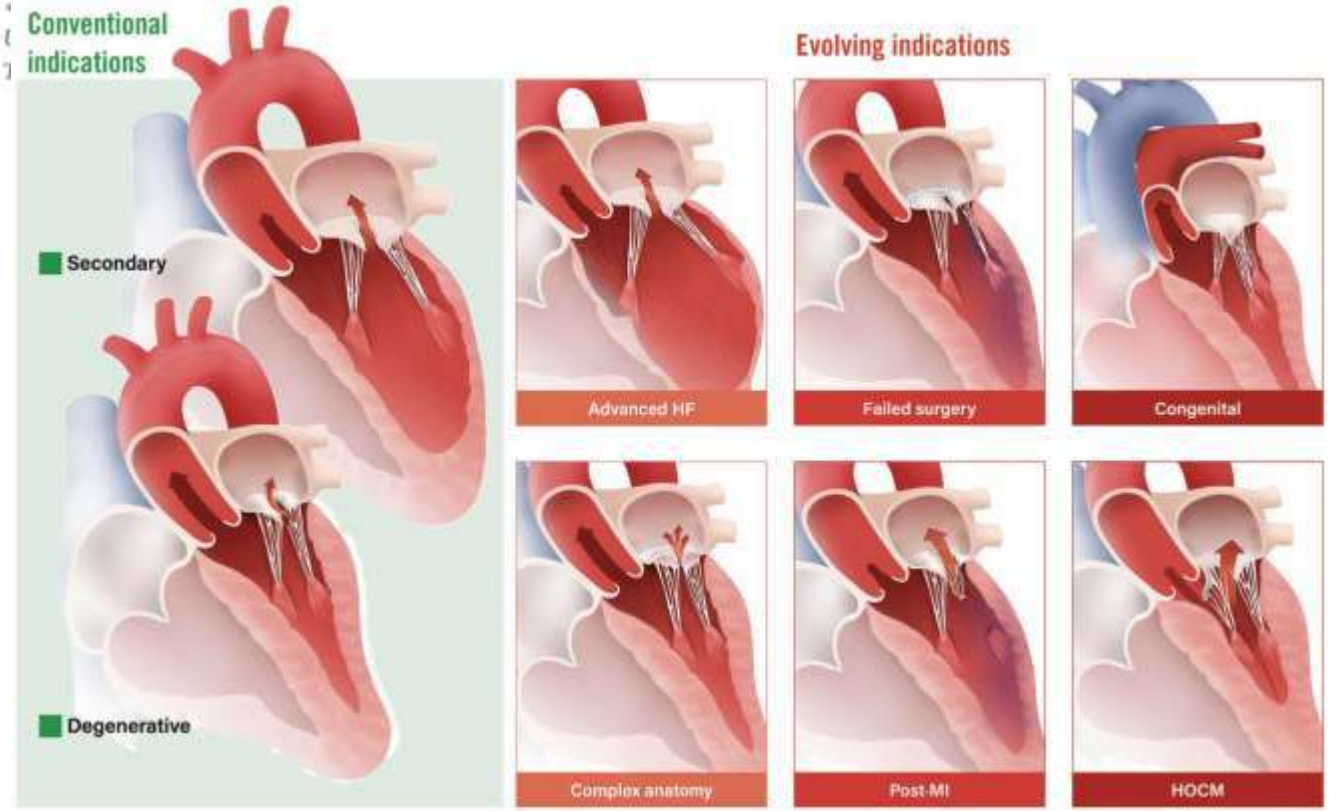
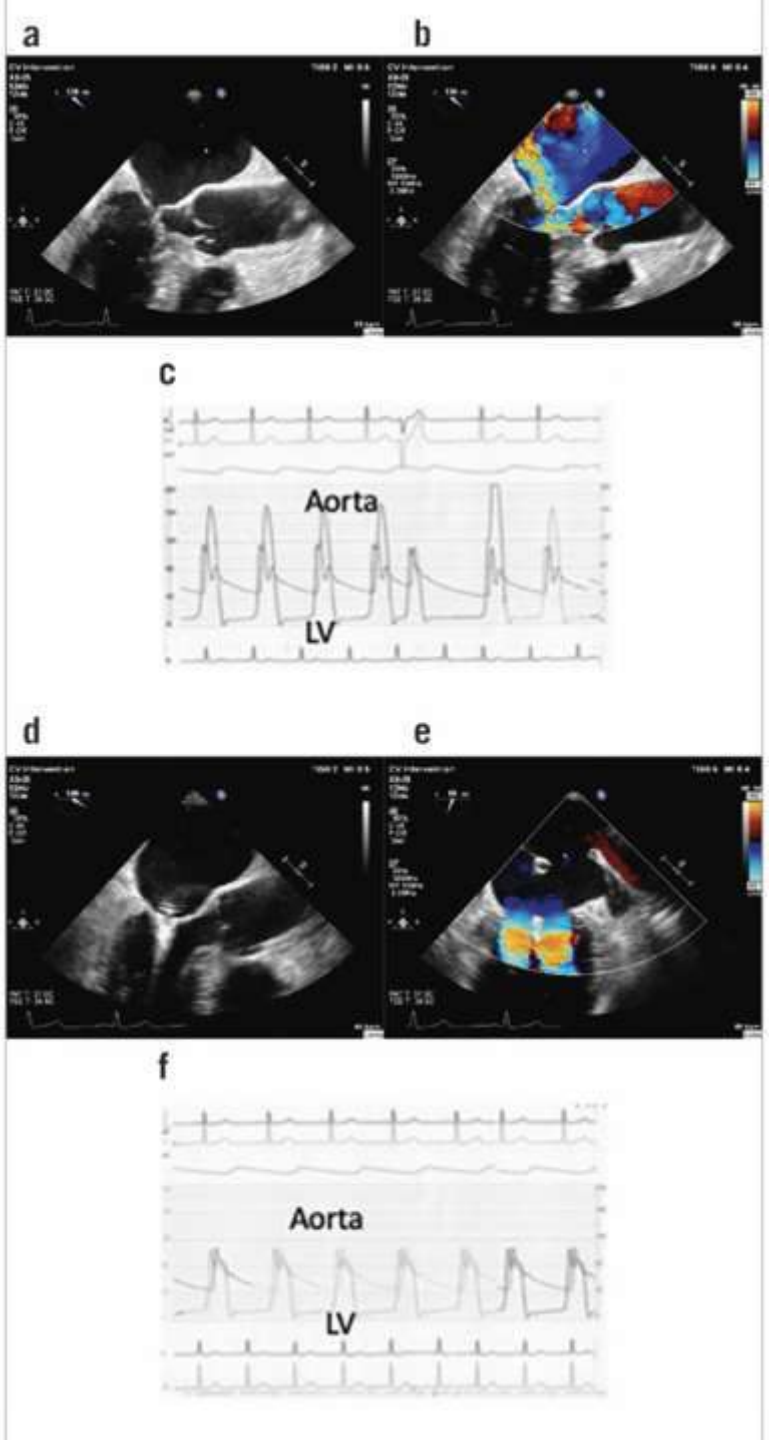
M-TEER, evolving indications

Evolving indications for transcatheter mitral edge-to-edge repair

Mony Shuvy[1]*, MD; Francesco Maisano[2], MD





TEER for failed surgical repair

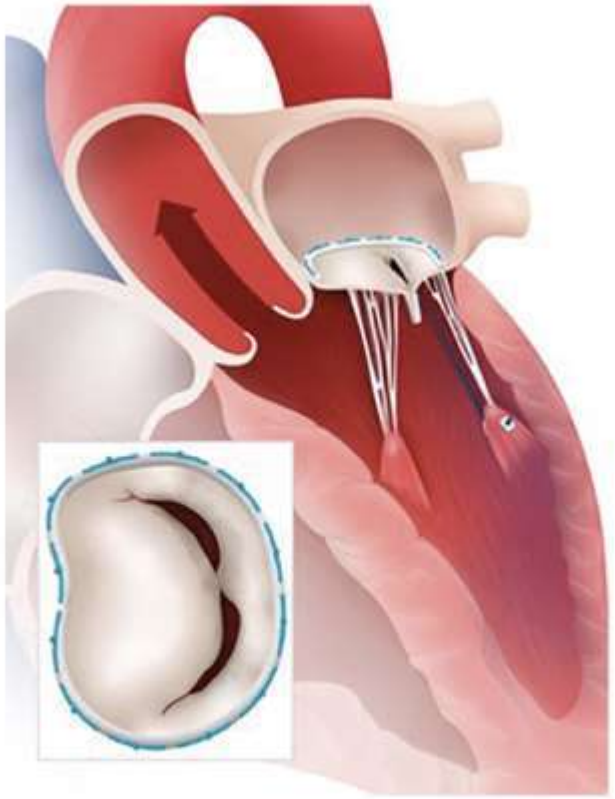


Figure 3. *TEER in failed surgical mitral intervention. A ruptured chord in a previous surgical mitral ring implantation treated with TEER in a ring. TEER: transcatheter edge-to-edge repair*

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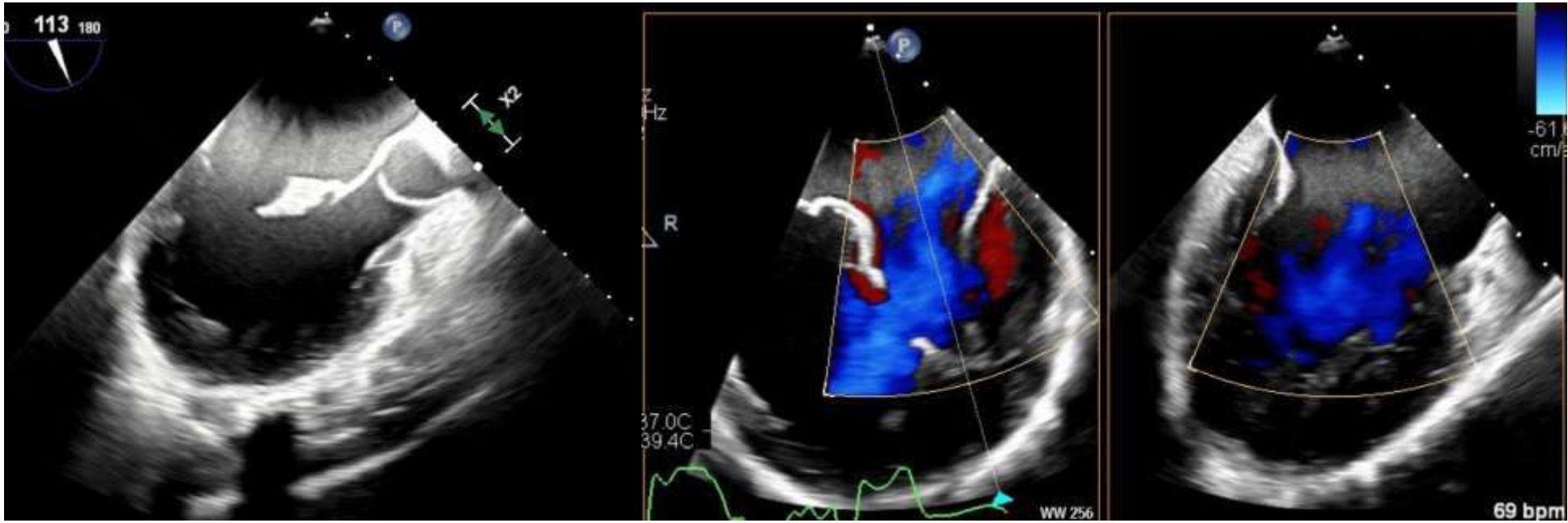
Congenital (Fontan physiology)

Pazient: JC
Age: 33 yo (1992)



Cardiac Diagnosis
Pulmonary atresia with intact septum
1992 mRBT shunt (Mr Di Donato , MR Di Carlo)
1993 bidirectional Glenn (Mr Di Carlo)
1995 intracardiac TCPC (Mr Di Carlo)
1996 redo TCPC for detachment of intra-artial patch

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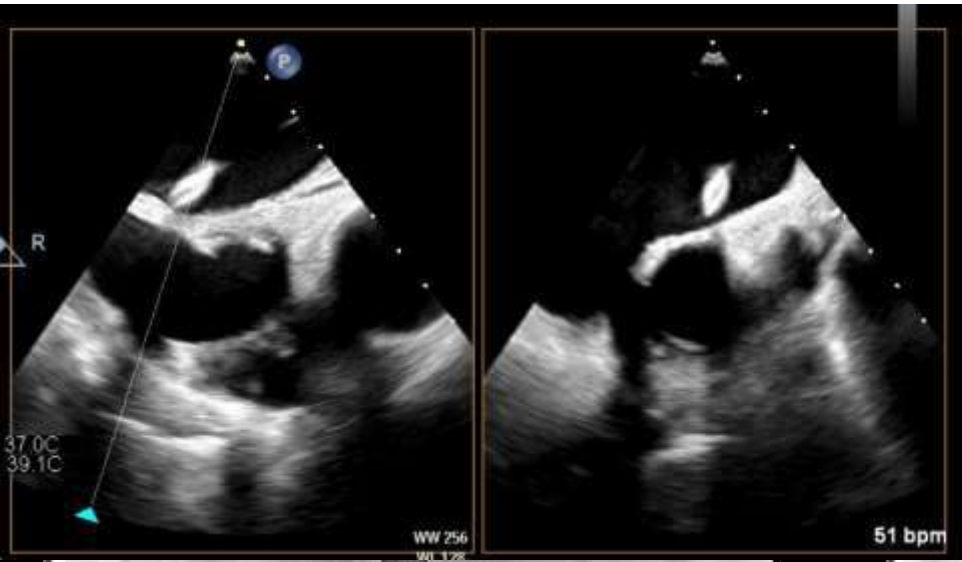

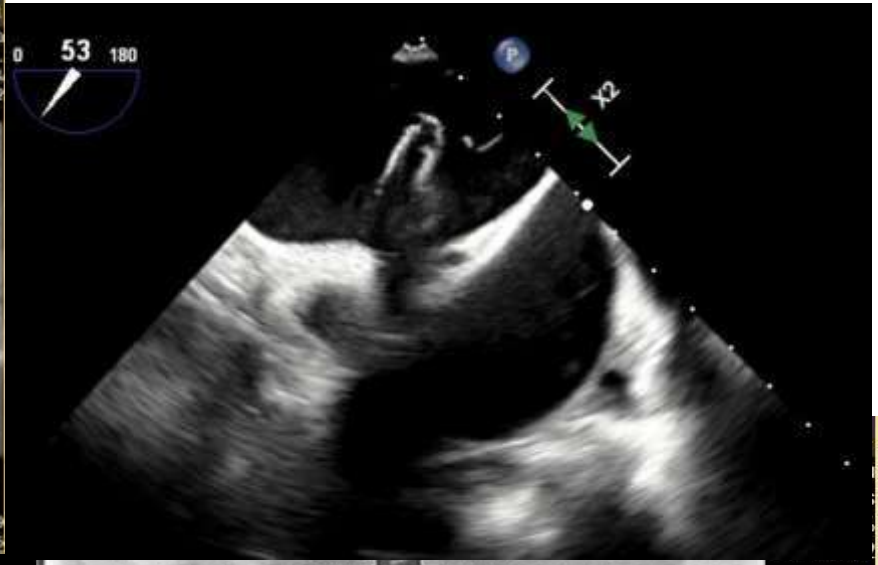

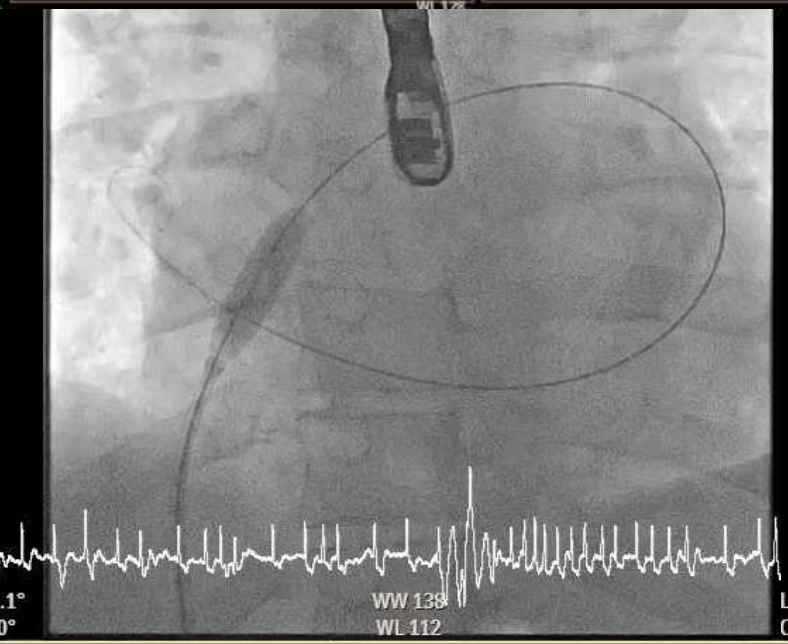

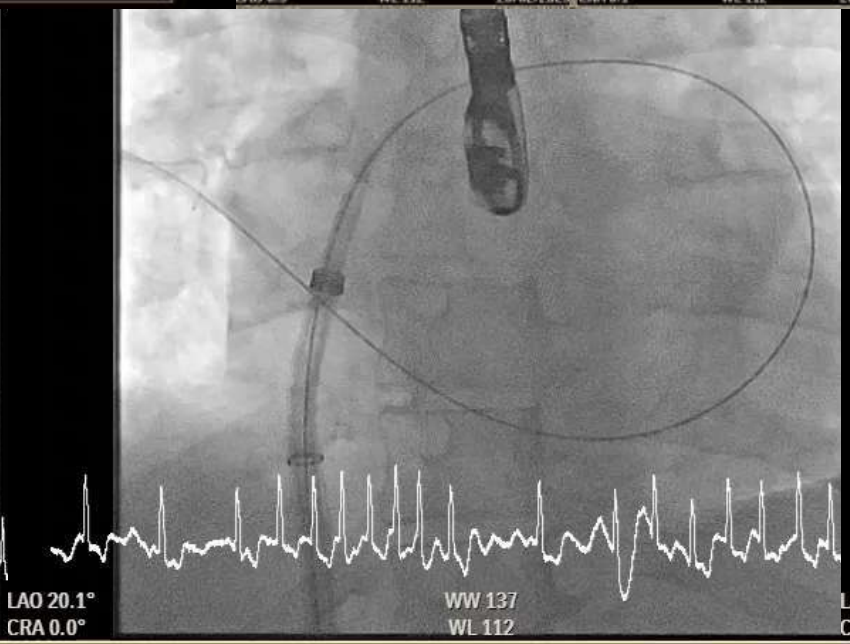

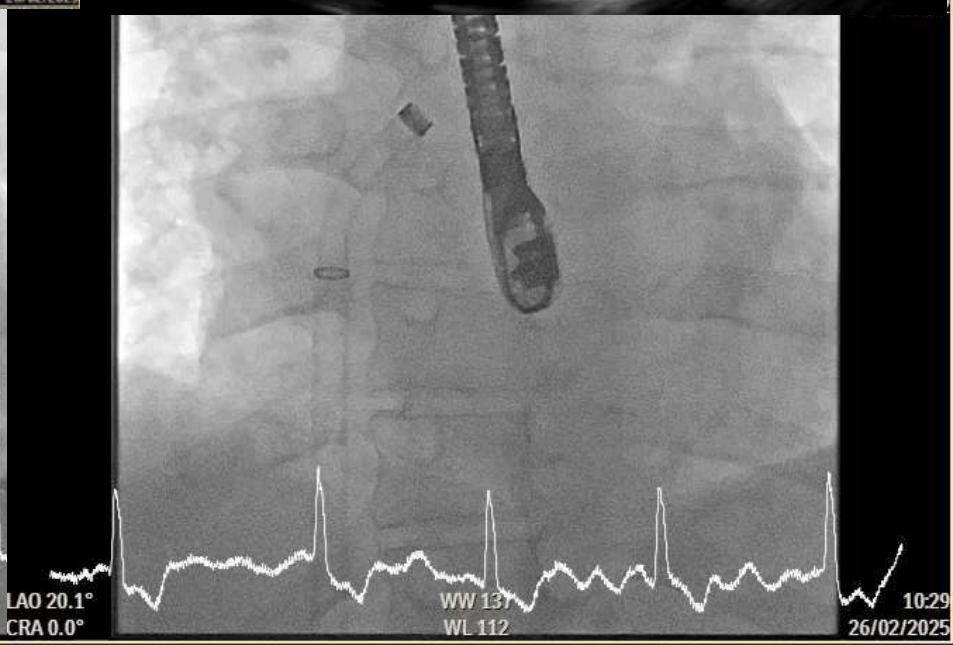

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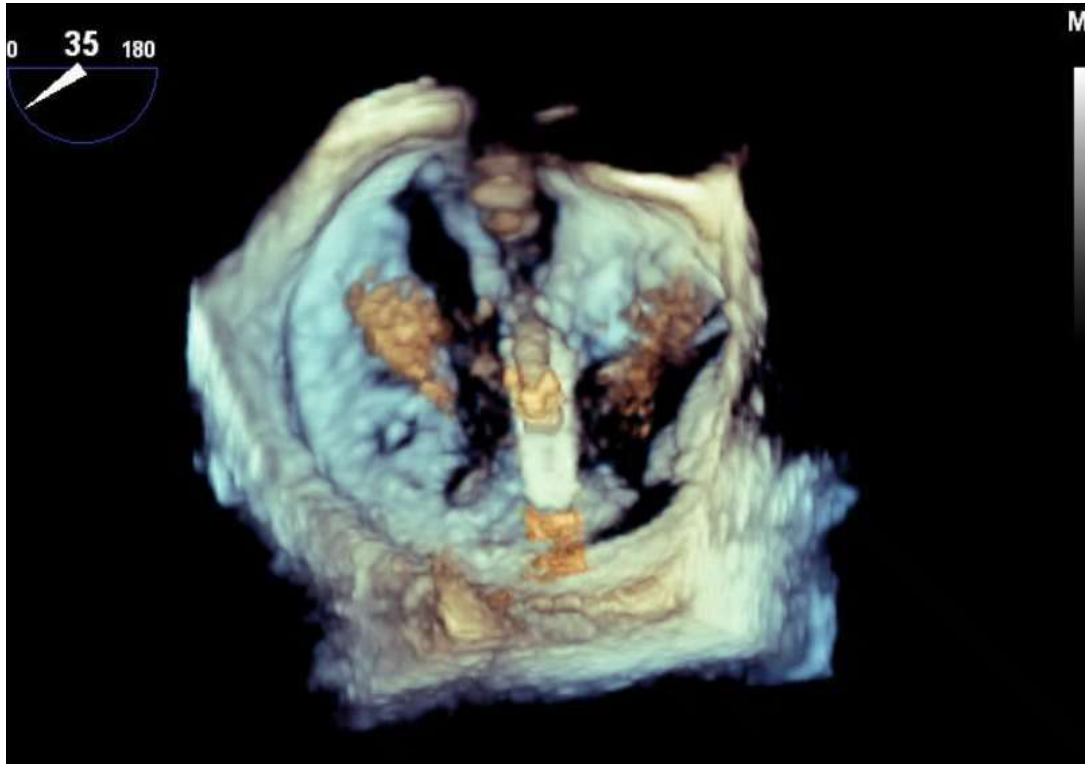

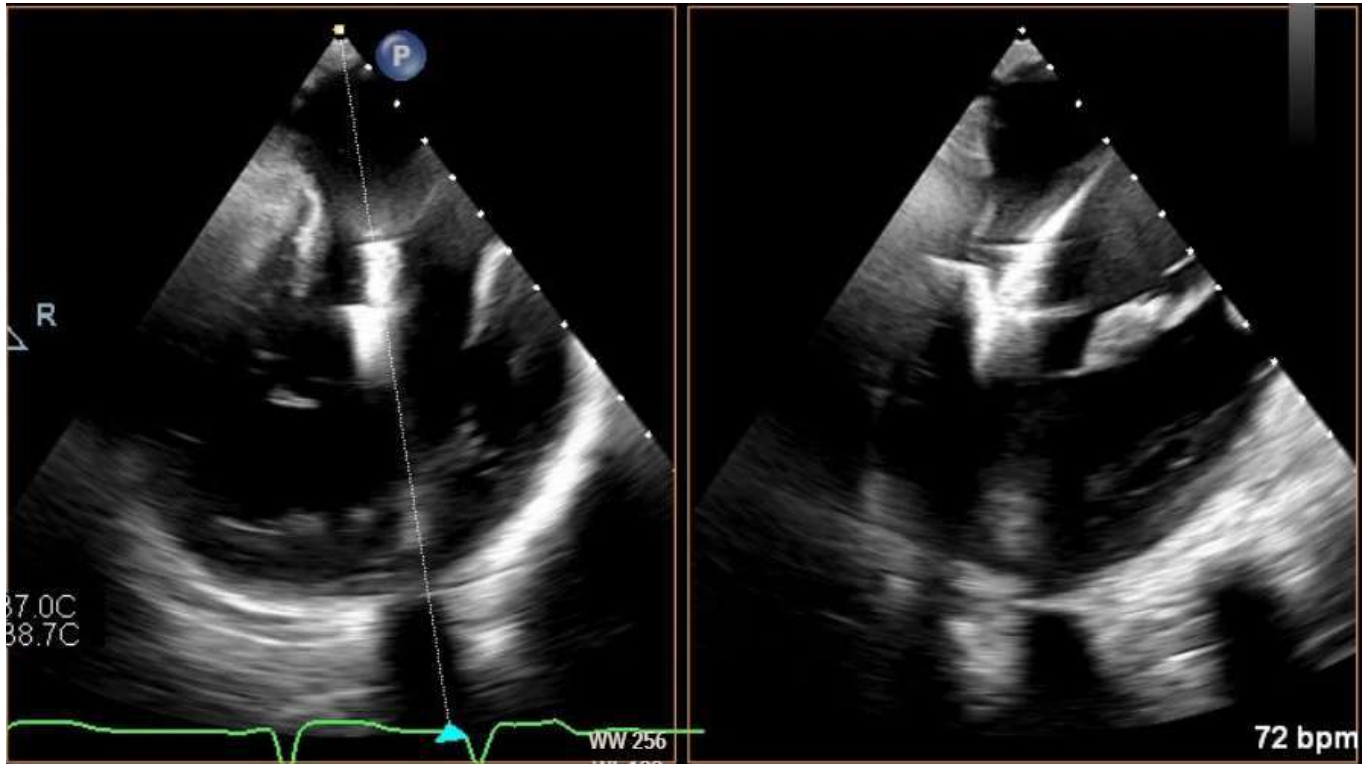

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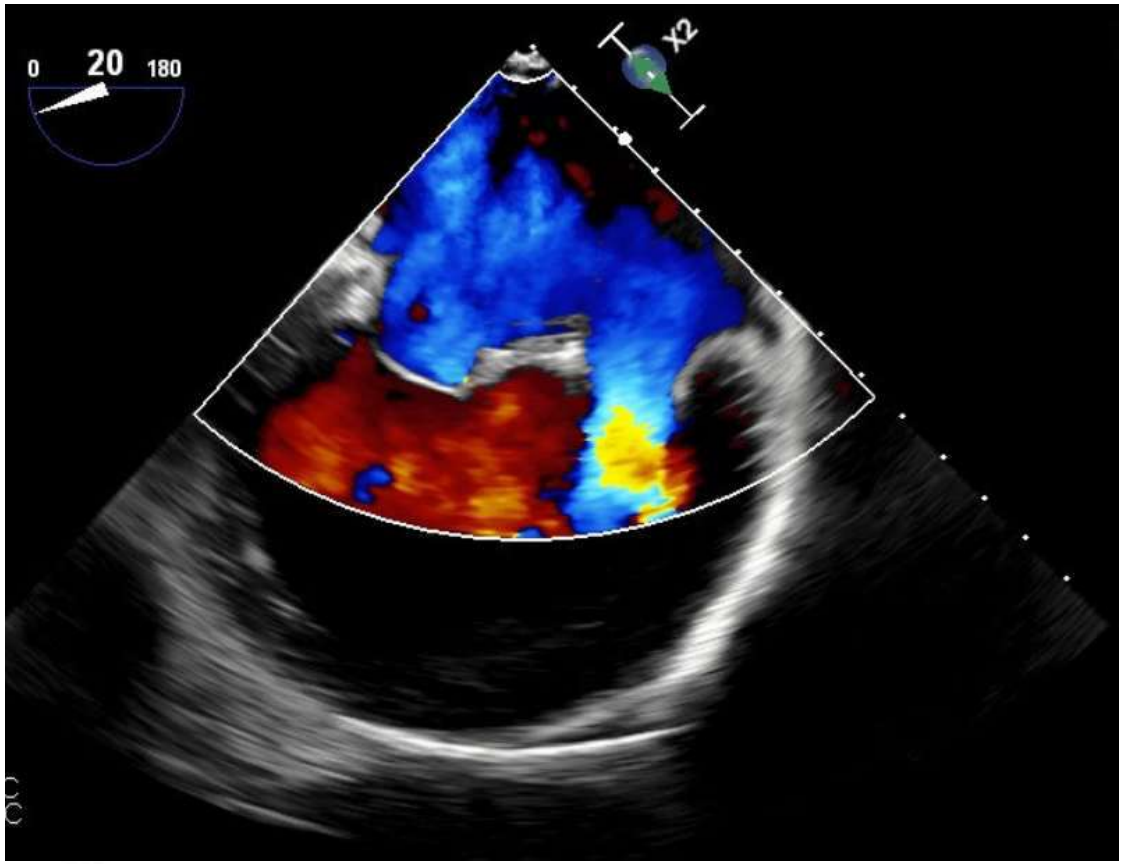

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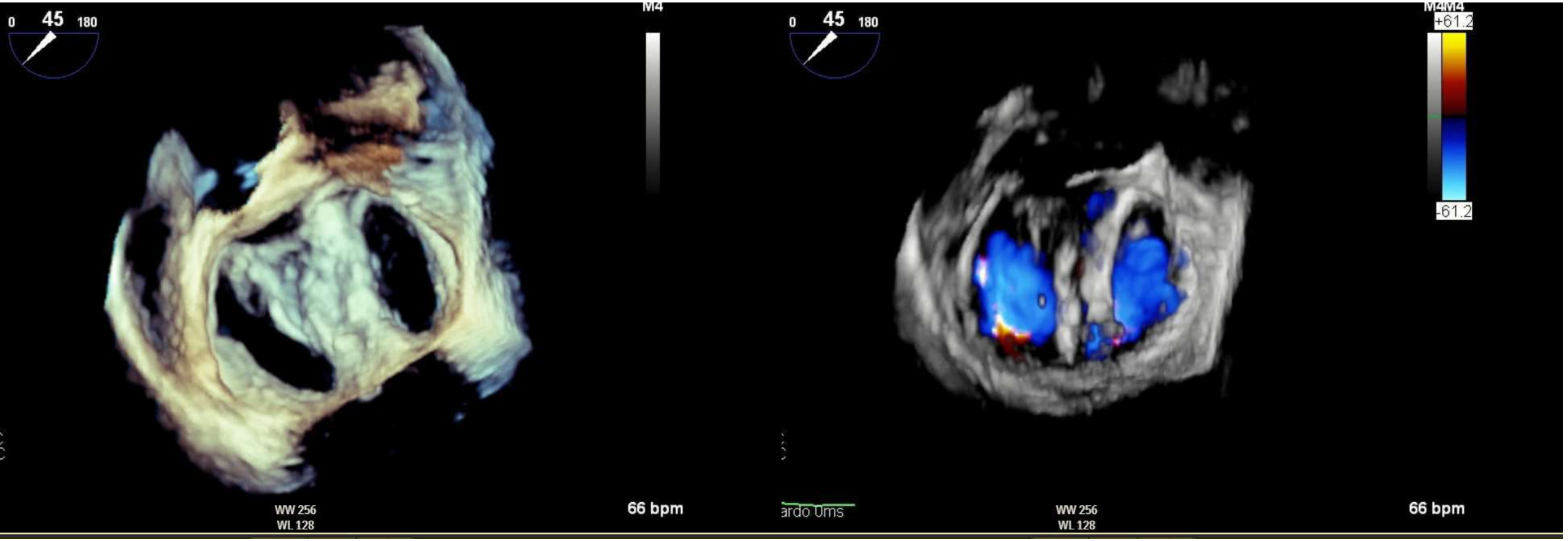

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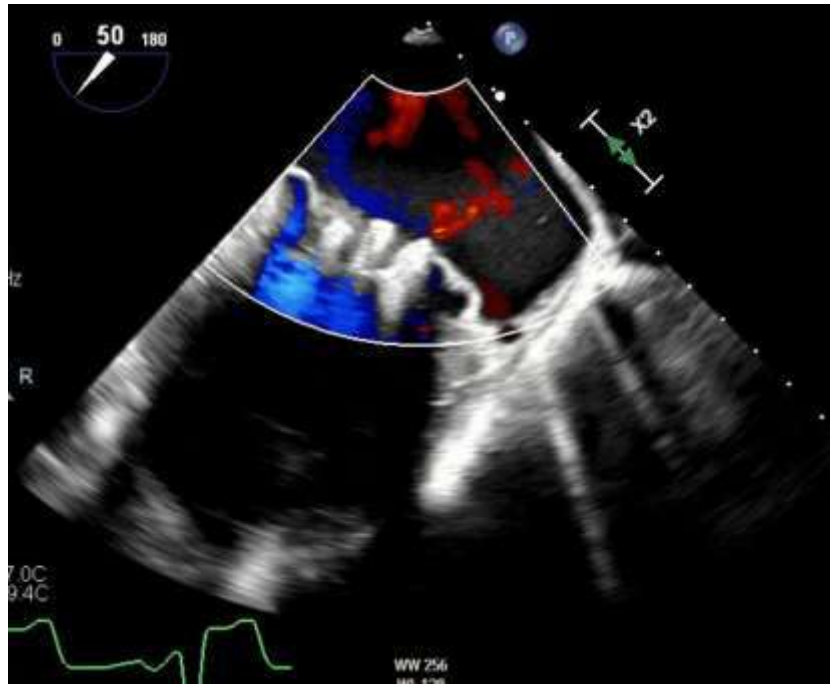

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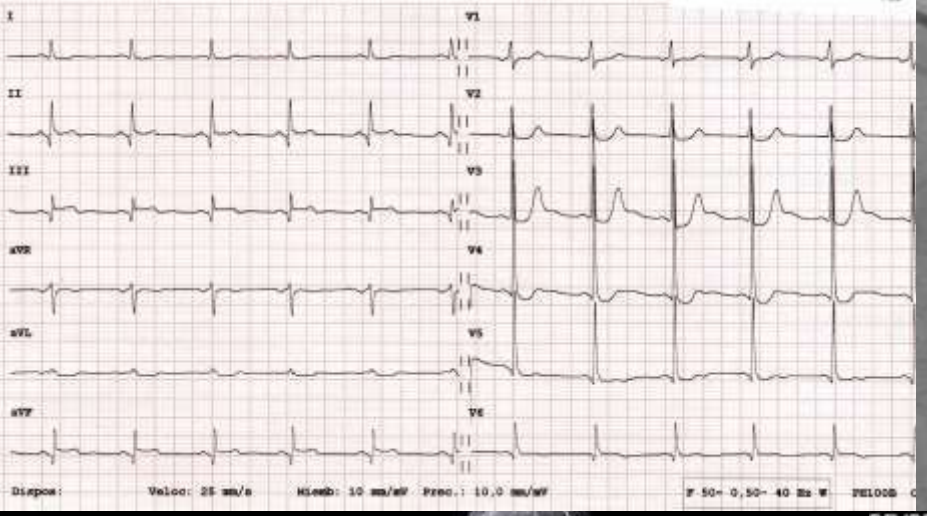

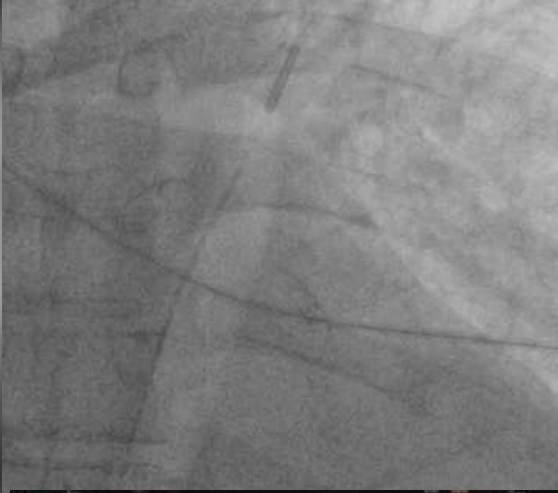

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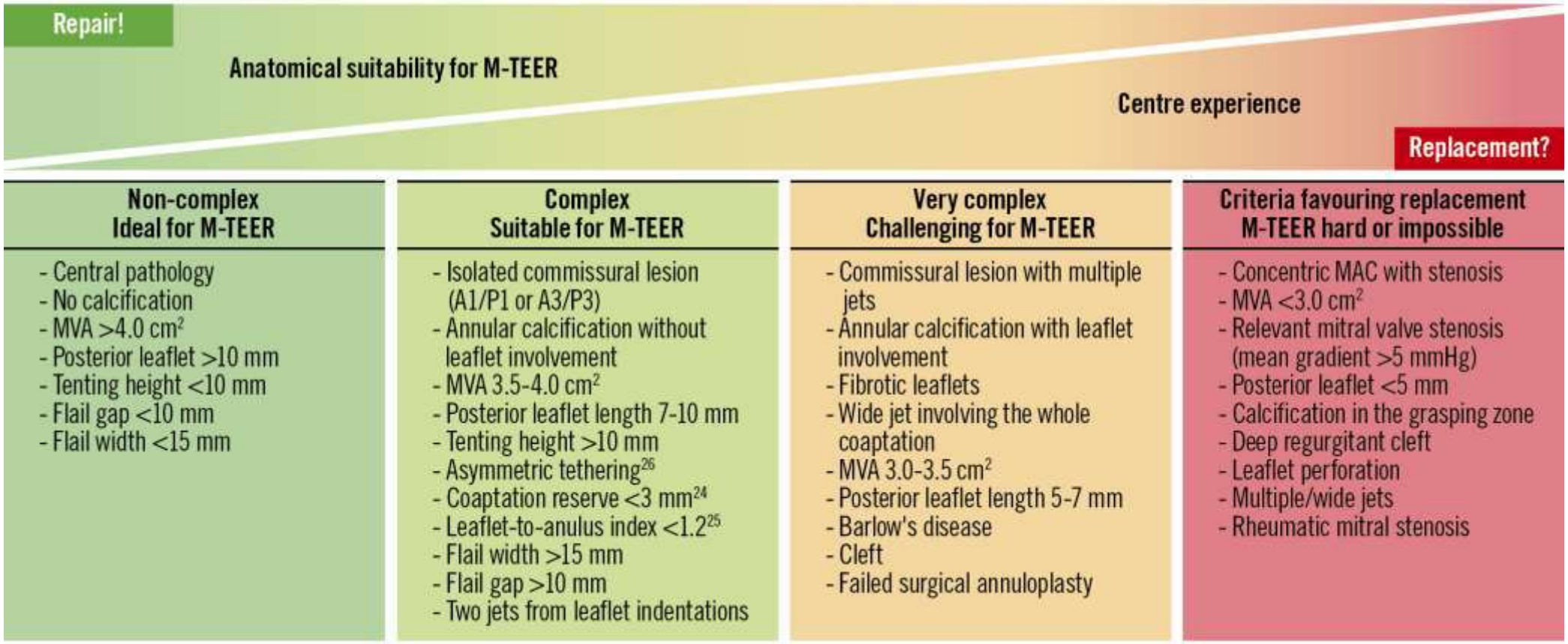
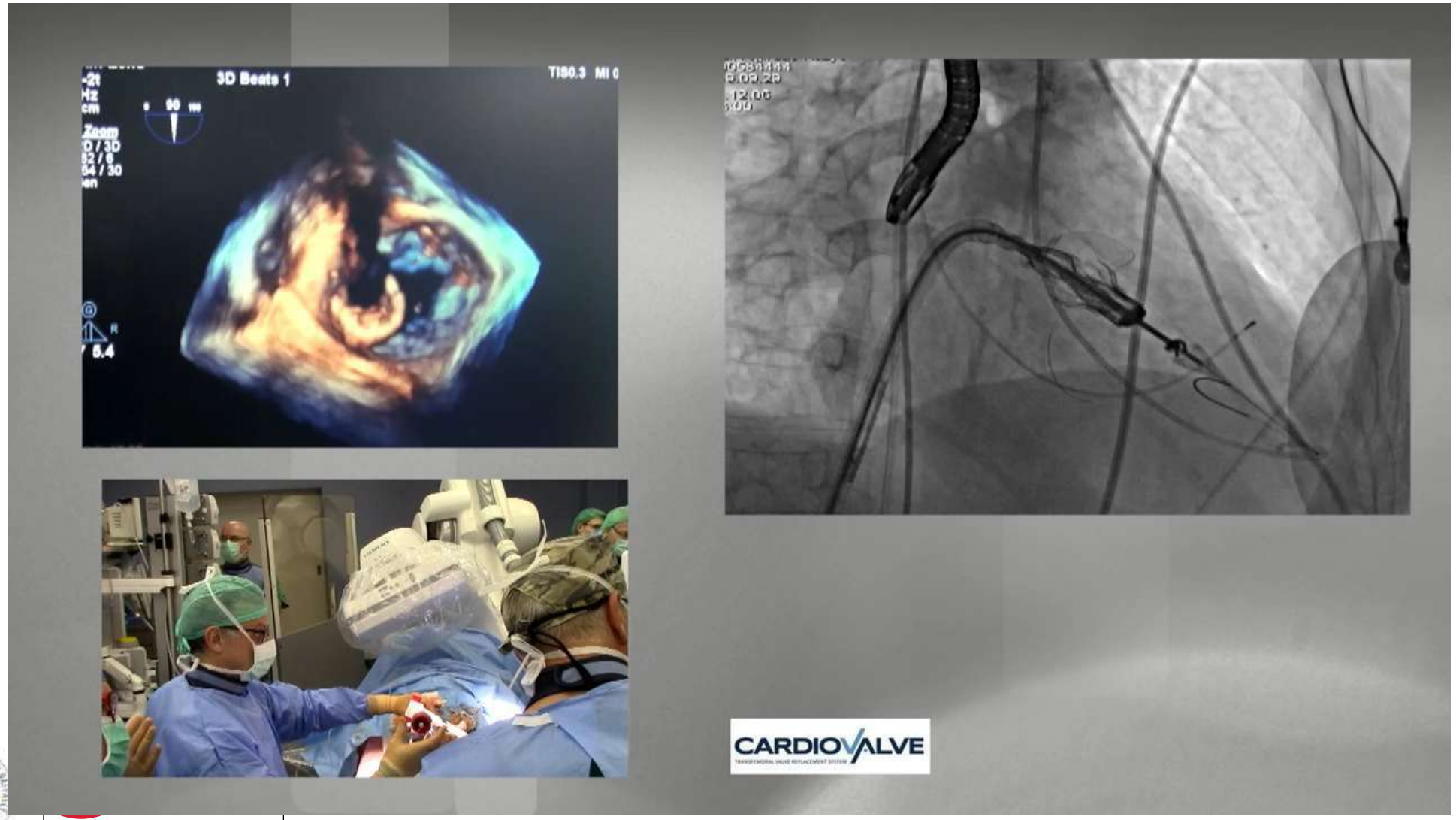


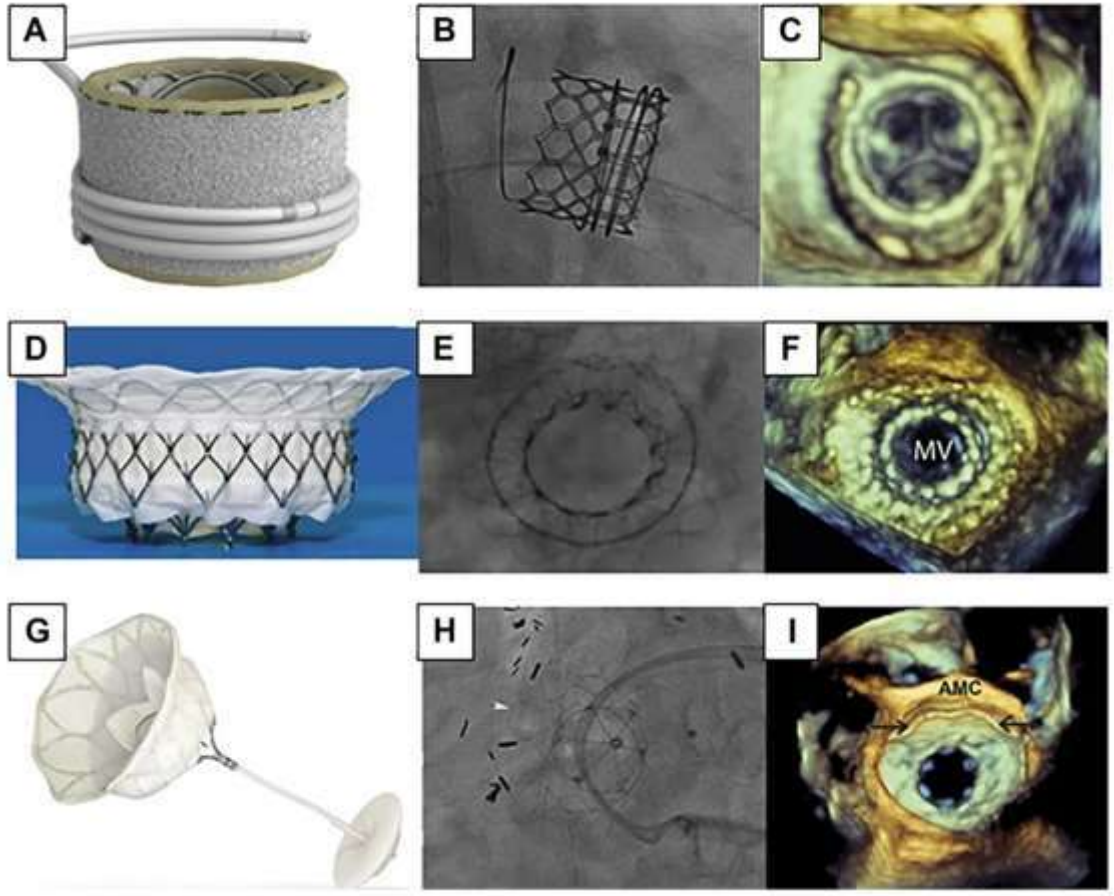
Non-complex Ideal for M-TEER	Complex Suitable for M-TEER	Very complex Challenging for M-TEER	Criteria favouring replacement M-TEER hard or impossible
- Central pathology - No calcification - MVA >4.0 cm^2 - Posterior leaflet >10 mm - Tenting height <10 mm - Flail gap <10 mm - Flail width <15 mm	- Isolated commissural lesion (A1/P1 or A3/P3) - Annular calcification without leaflet involvement - MVA 3.5-4.0 cm^2 - Posterior leaflet length 7-10 mm - Tenting height >10 mm - Asymmetric tethering[26] - Coaptation reserve <3 mm[24] - Leaflet-to-anulus index <1.2[25] - Flail width >15 mm - Flail gap >10 mm - Two jets from leaflet indentations	- Commissural lesion with multiple jets - Annular calcification with leaflet involvement - Fibrotic leaflets - Wide jet involving the whole coaptation - MVA 3.0-3.5 cm^2 - Posterior leaflet length 5-7 mm - Barlow's disease - Cleft - Failed surgical annuloplasty	- Concentric MAC with stenosis - MVA <3.0 cm^2 - Relevant mitral valve stenosis (mean gradient >5 mmHg) - Posterior leaflet <5 mm - Calcification in the grasping zone - Deep regurgitant cleft - Leaflet perforation - Multiple/wide jets - Rheumatic mitral stenosis

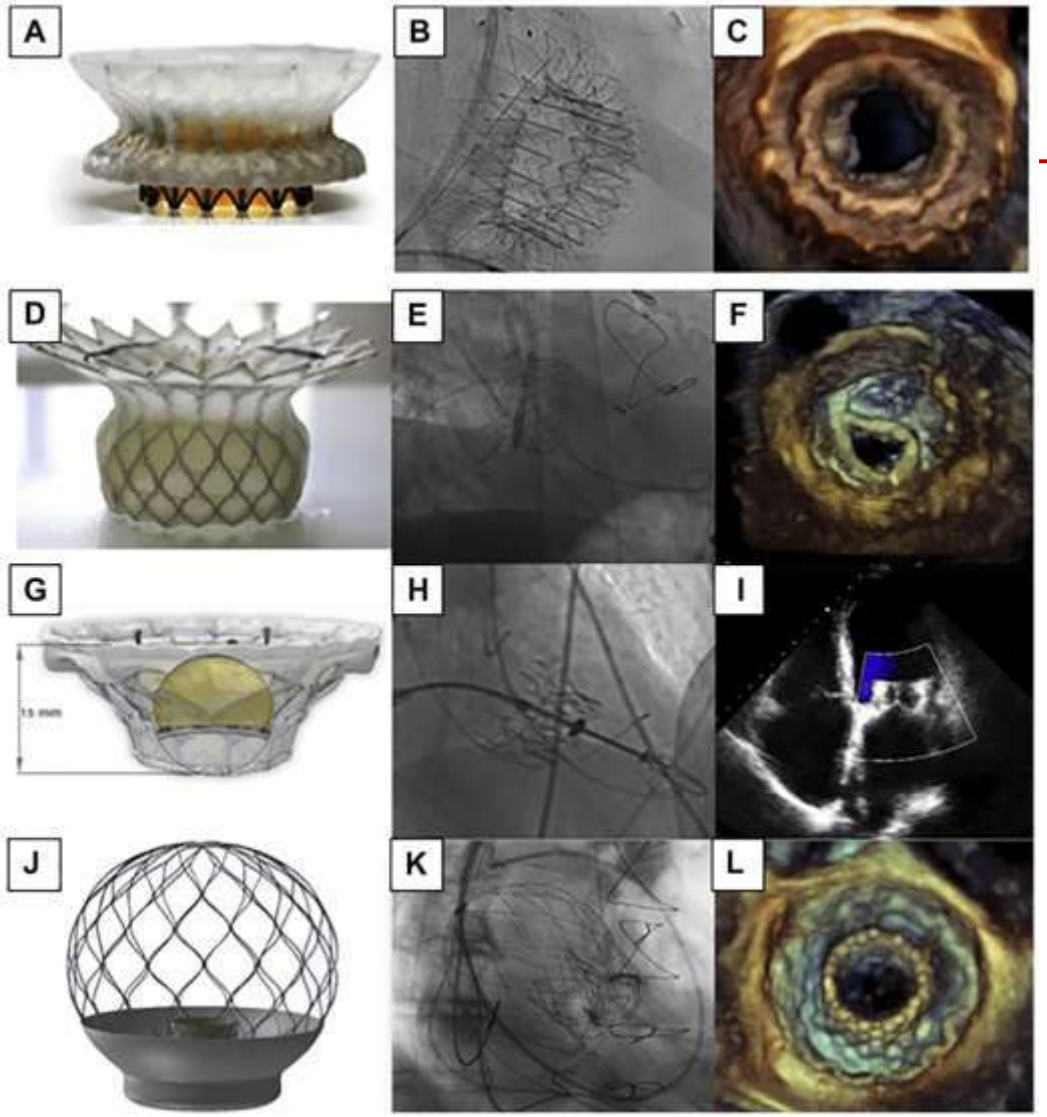
TMVR

simpler, predictable, learnable…. The future???



TMVR





Eng MH. et al, Intervent Cardiol Clin 13 (2024) 227–235

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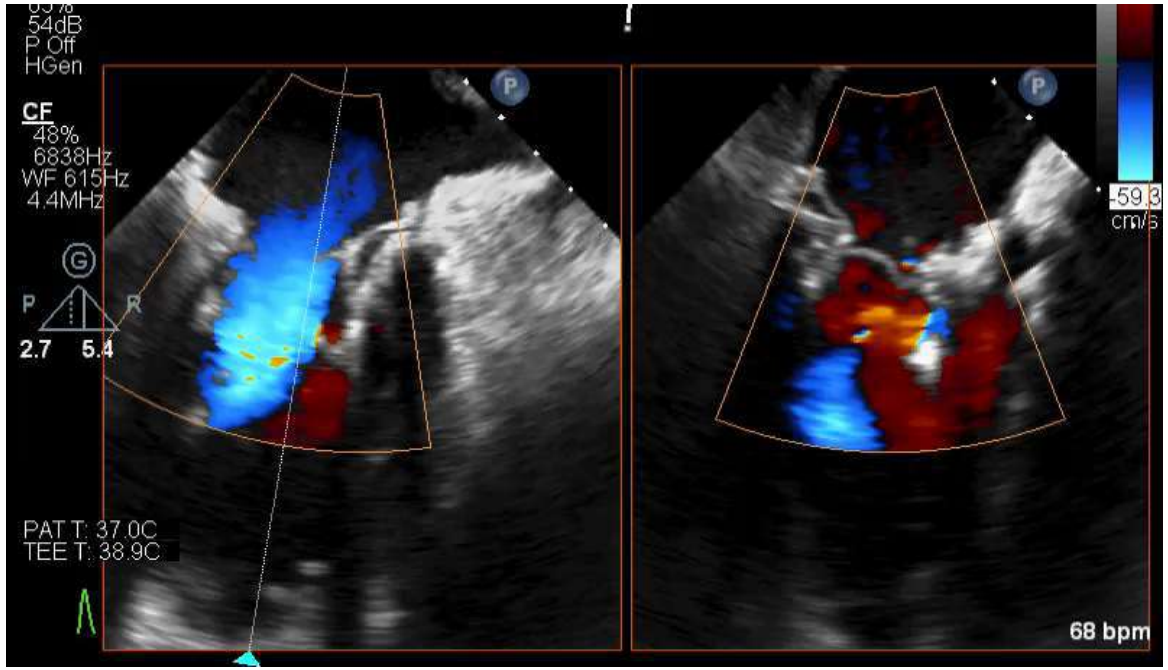
open issues for TMVR

- anatomical eligibility (LVOT, calcifications, size)
- timing and patient selection
- risk of the procedure
- risk of PVL, LVOTO, BAV III
- durability
- revalvability (?)
- reproducibility of results in inexperienced hands



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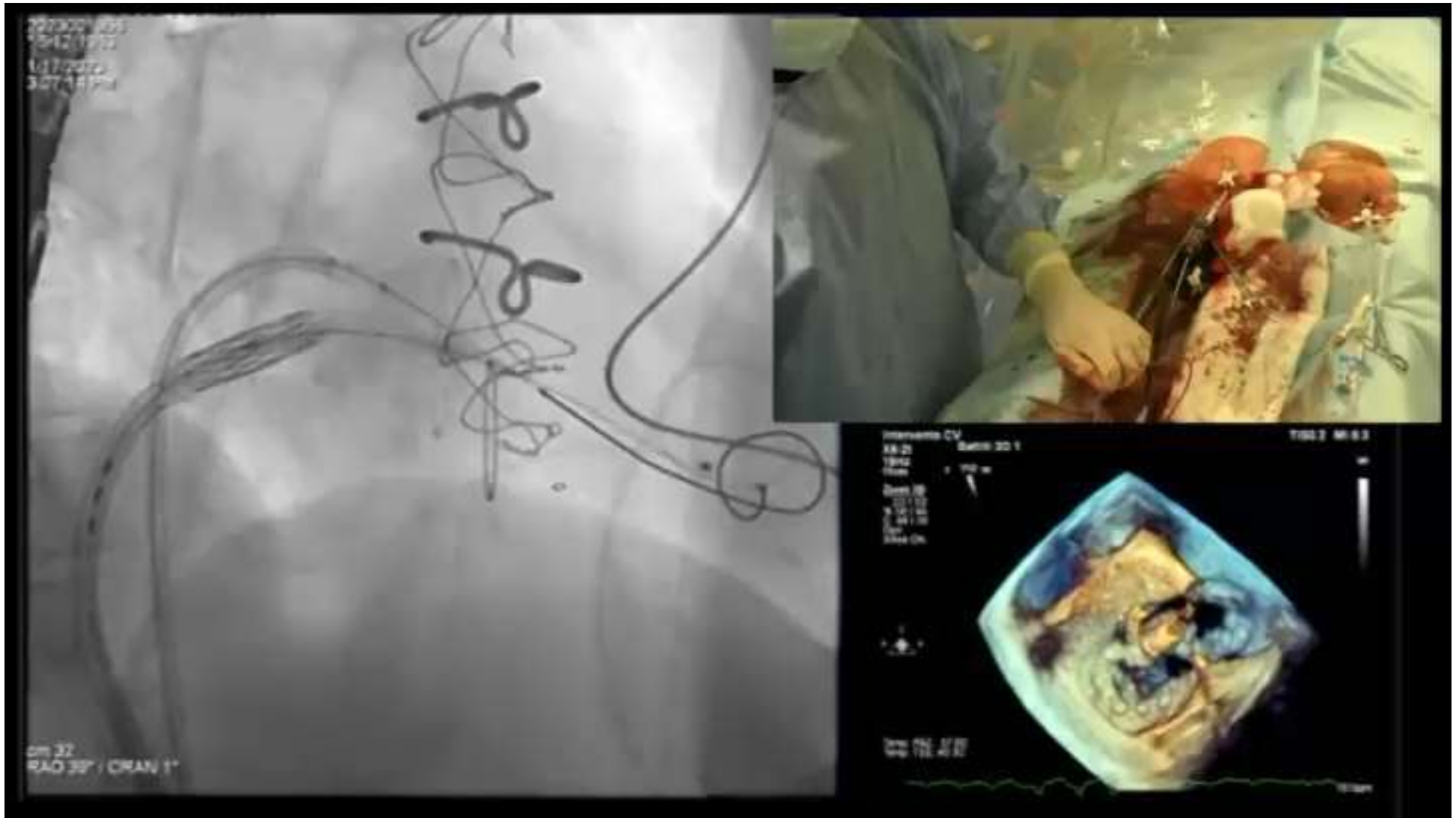
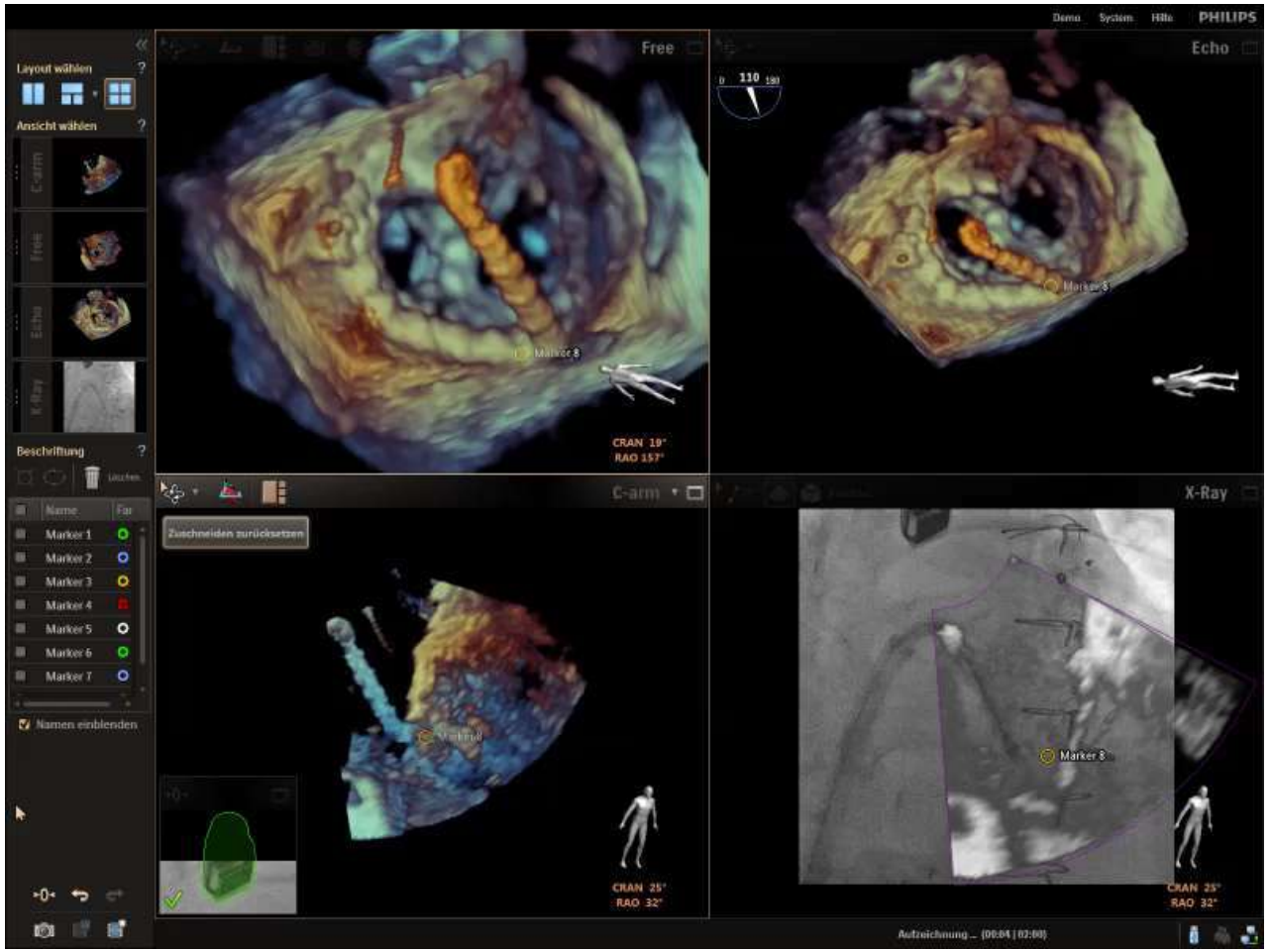
electrosurgery a Sapien 3 ViV crossing the mitral valve after anterior leaflet management (BATMAN)



With the right instruments and the right imaging anything is possible…..



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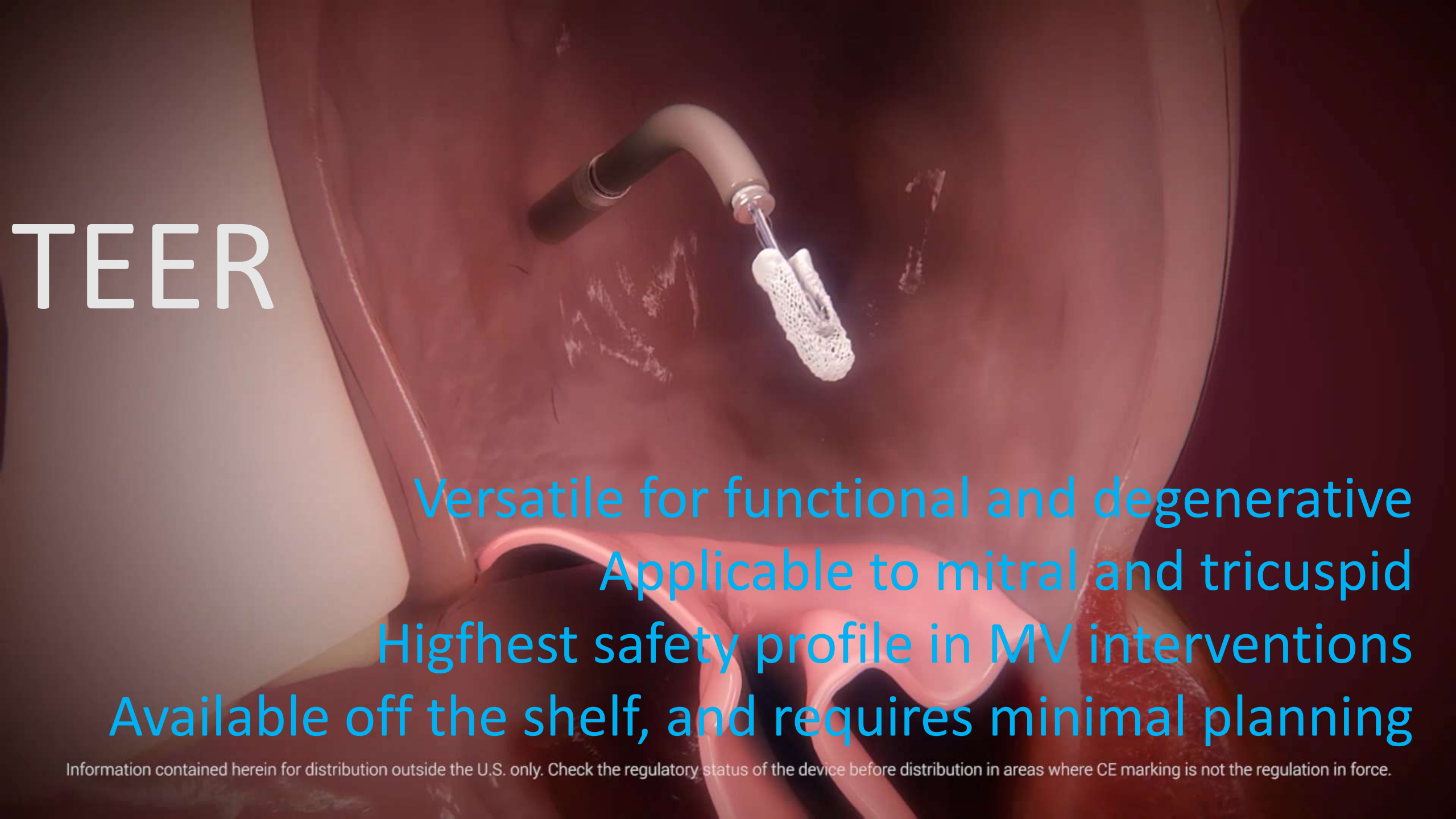


TEER

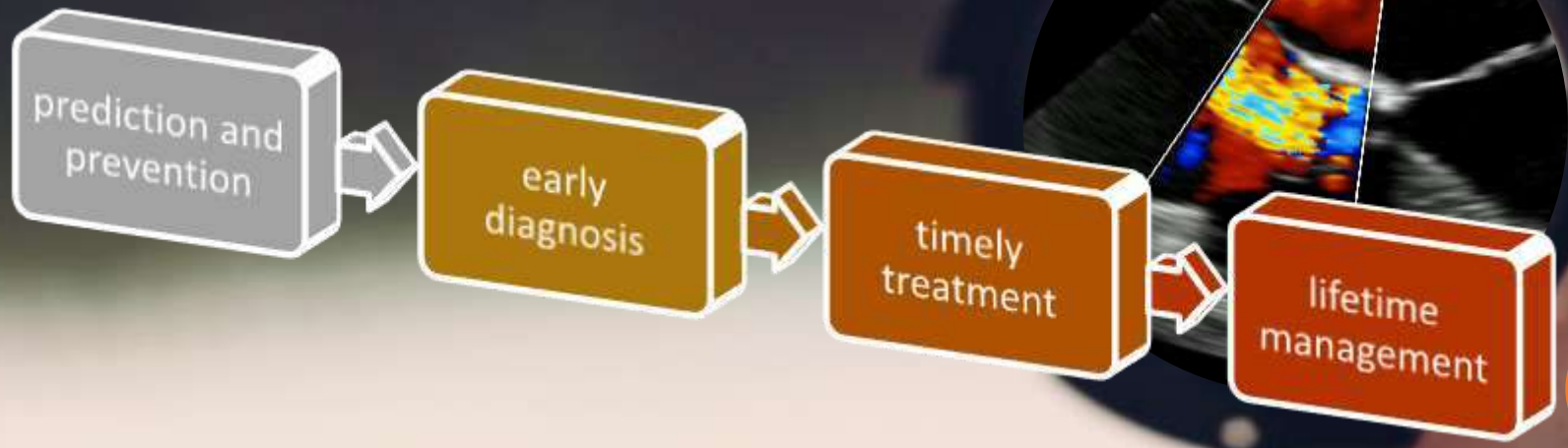
Versatile for functional and degenerative

Applicable to mitral and tricuspid

Higfhest safety profile in MV interventions

Available off the shelf, and requires minimal planning

Change of Focus in SHD



- Imaging and biomarkers
- Precision Medicine
- Artificial Intelligence
- Drugs
- Surgery and transcatheter
- predictive medicine

from index procedure to patient-centered lifetime management