

EuroValve
March 10-11, 2016
Brussels, BELGIUM



Who can benefit from MitraClip therapy?

P. Debonnaire, MD, FESC

AZ Sint-Jan, Brugge, BE

Mitral regurgitation

Primary MR
(organic)

~33%



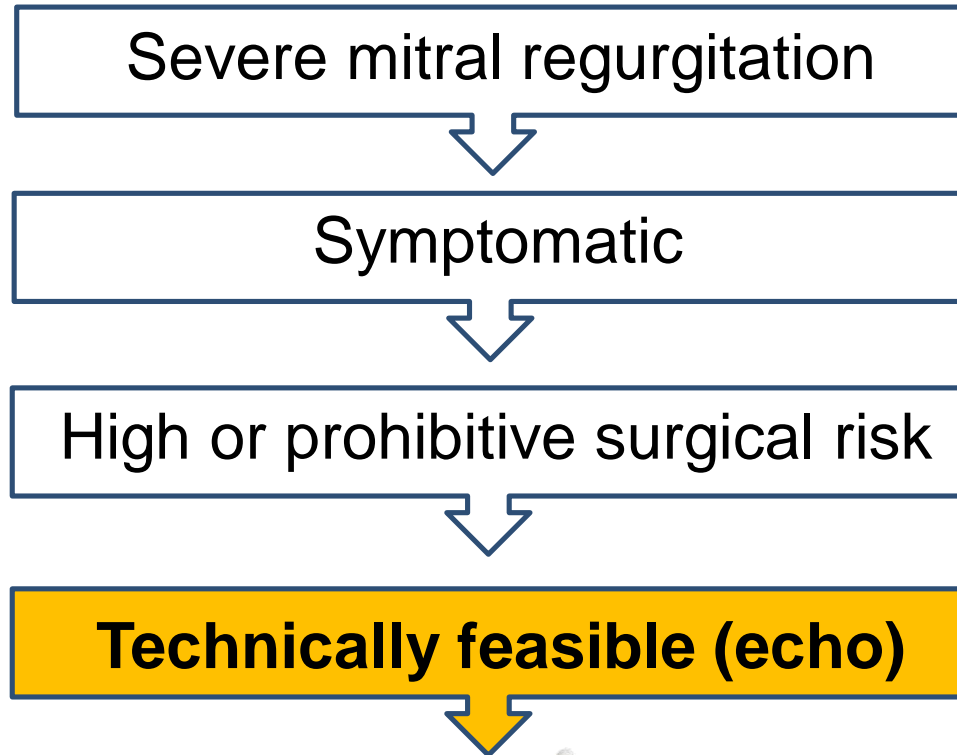
Secondary MR
(functional)

~67%



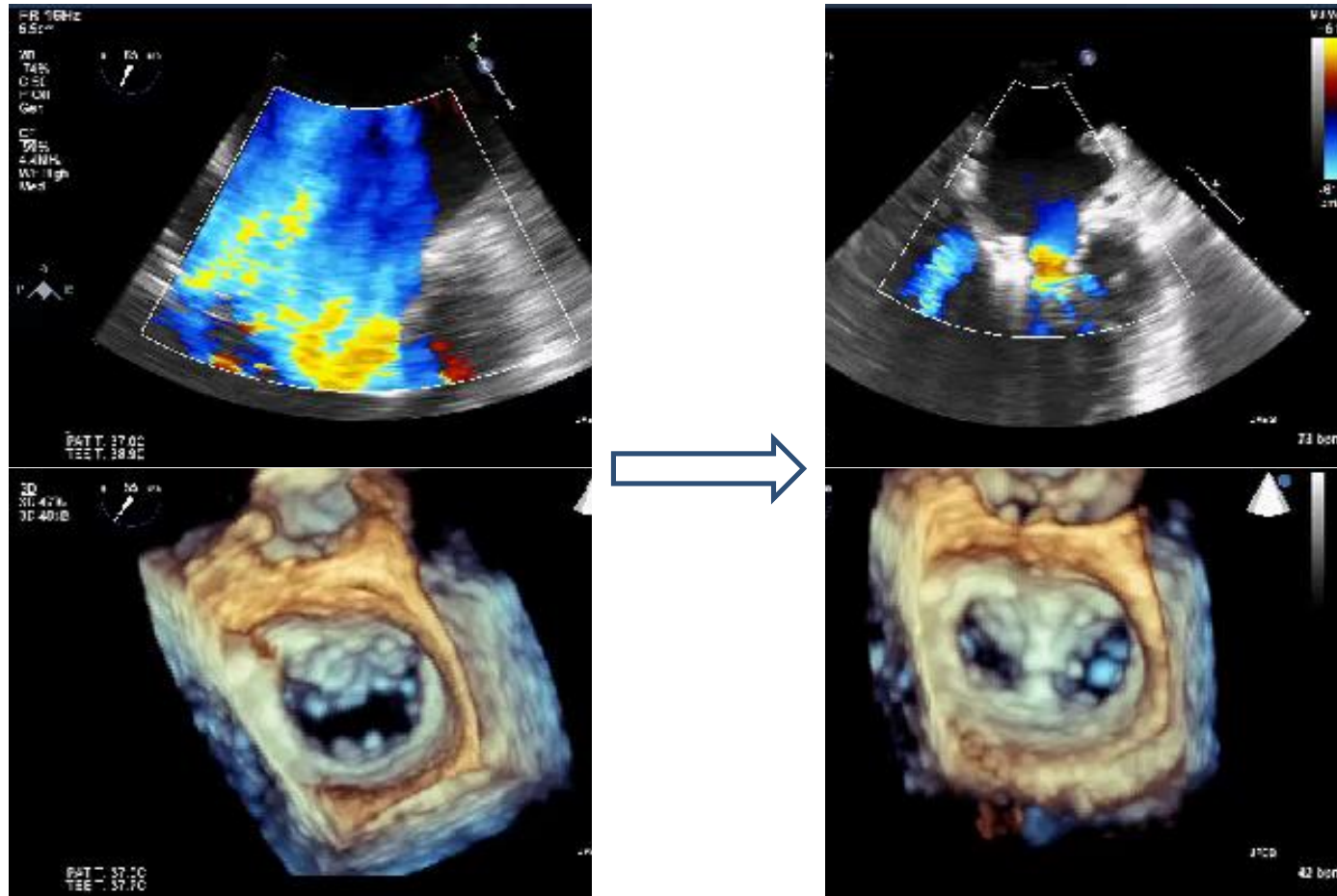
MitraClip indication ?

**II b, level C
DMR & FMR**



Adapted from Vahanian, Eur Heart J, 2014 (guidelines)

MitraClip indication



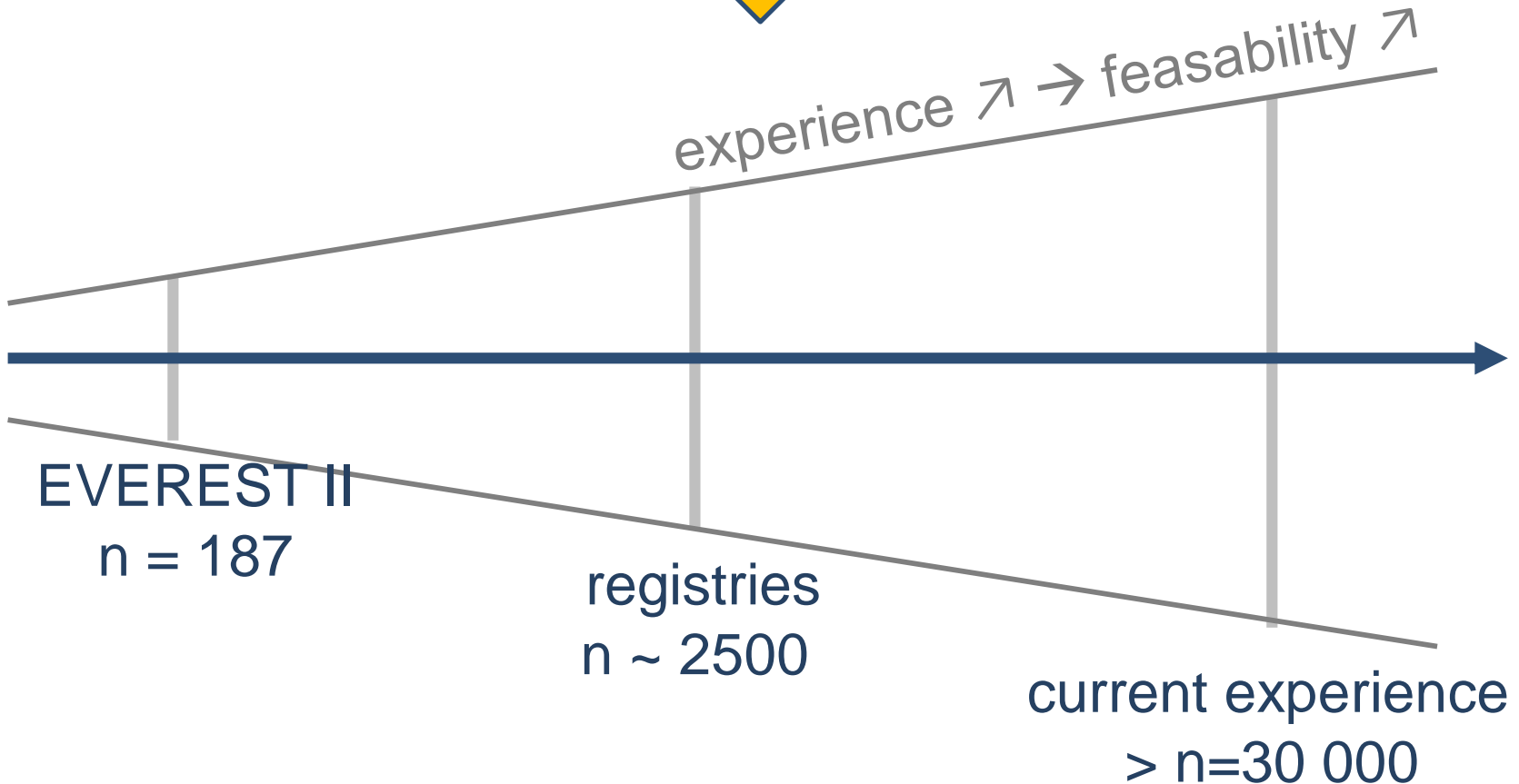
MitraClip: symptomatic benefit (*survival benefit?*)

MitraClip patient selection

Technically feasible (echo)



experience ↗ → feasibility ↗

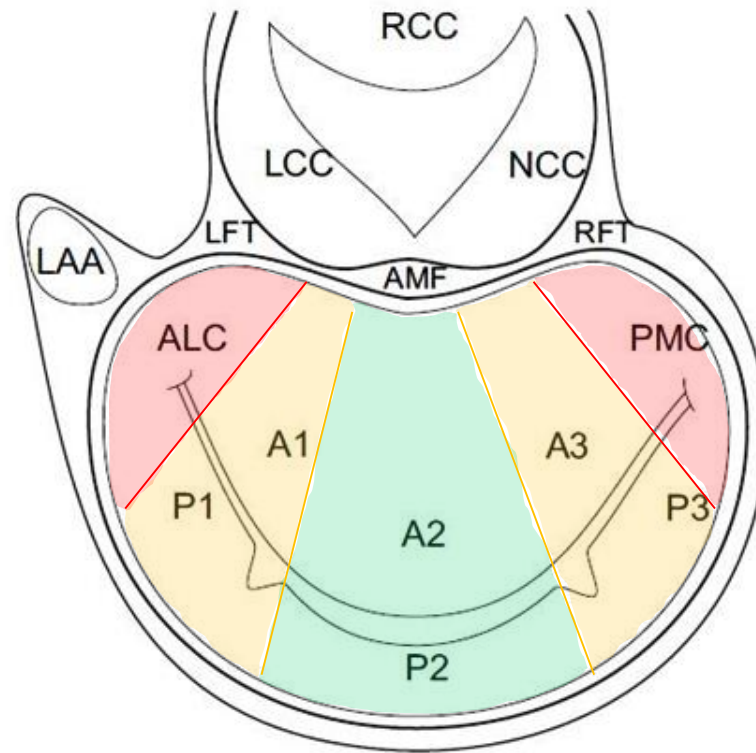


MitraClip selection: echo criteria

	CRITERIA	OPTIMAL	REASONABLE	INAPPROPRIATE
1	Pathology location	Segment 2 Central	Segment 1,3: Lateral, medial	Commissure Cleft, perforation
2	Pathology extent FMR: Coapt. depth Coapt. Length	< 11 mm > 3 mm	> 11 mm 1- 3 mm	No coaptation
	DMR: Flail width Flail gap	< 15 mm < 10 mm	width >15mm if annulus large and option >1 clip	Complex Barlow's disease
3	Calcification	None	Outside grasping area or ring annuloplasty	Severe extensive
4	Area	> 4 cm ²	Area > 3 cm ² if good leaflet mobility	< 3 cm ² or MG > 5 mmHg
5	PMVL length	> 10 mm	7-10 mm	< 7 mm
6	Mobility Thickness	Normal	Severe (IIIB) Asymmetric	Rheumatic (IIIA) thickness > 5 mm

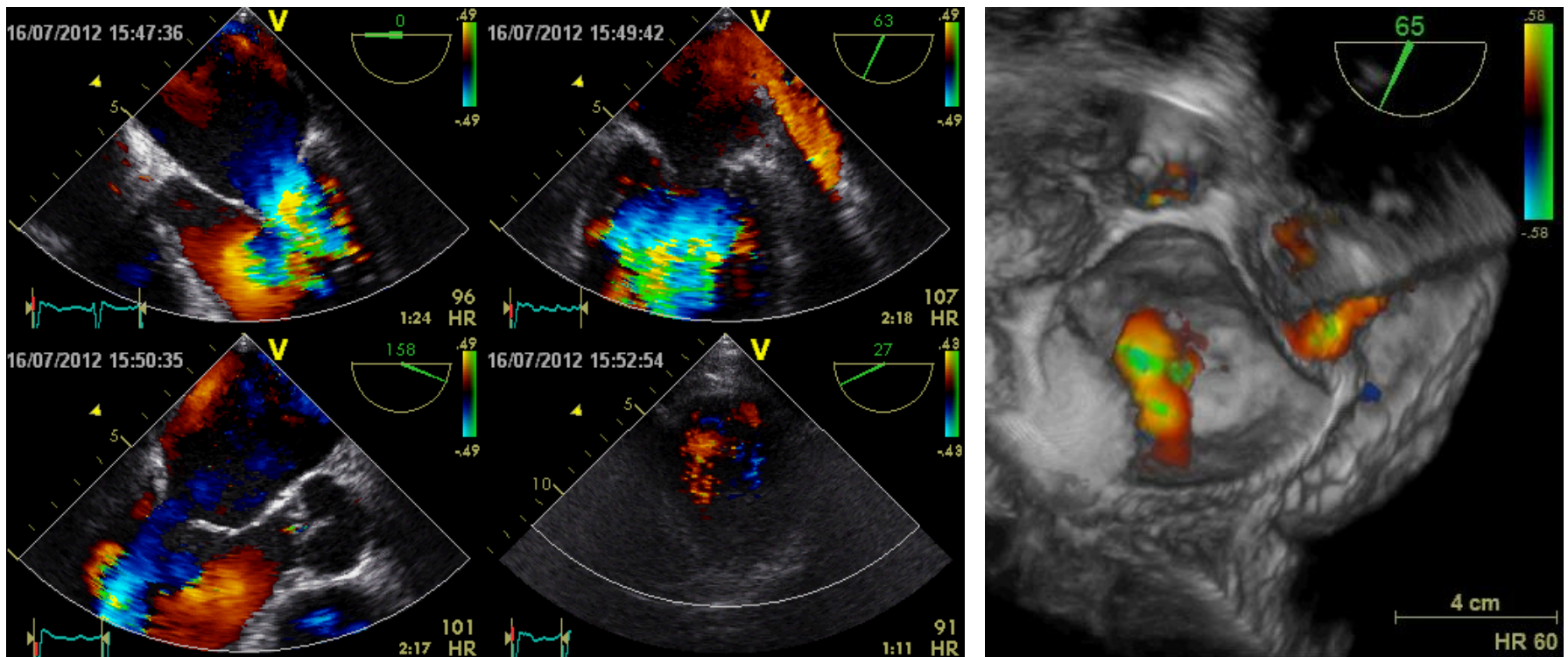
1. Pathology location

OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



1. Pathology location

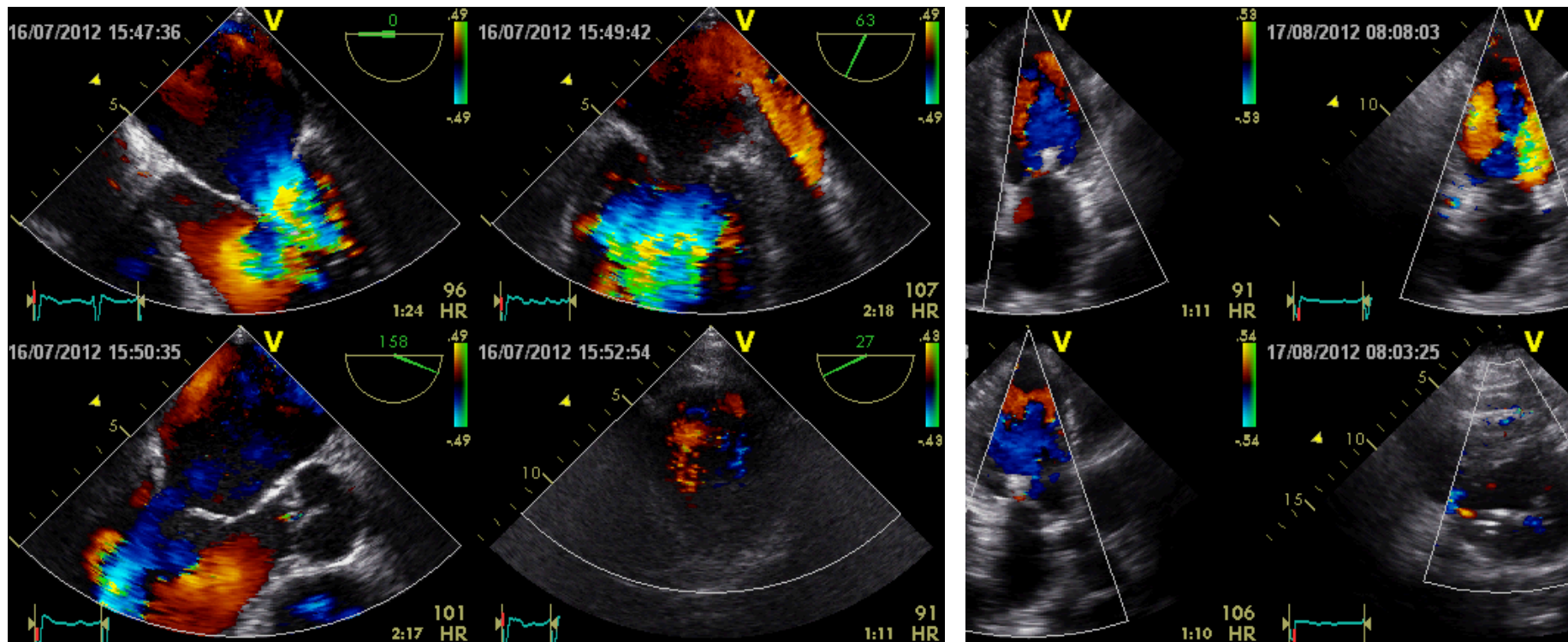
OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



FMR: central mainly

1. Pathology location

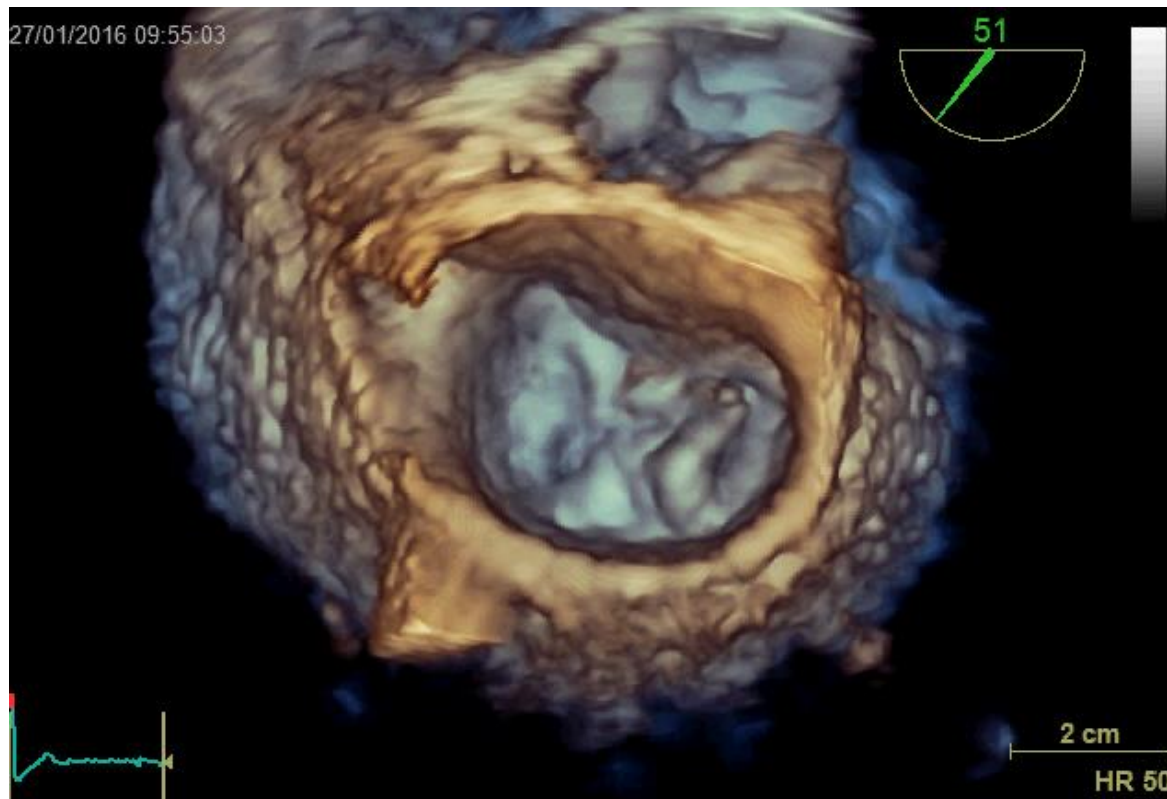
OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



TTE 1 month post 2 clips

1. Pathology location

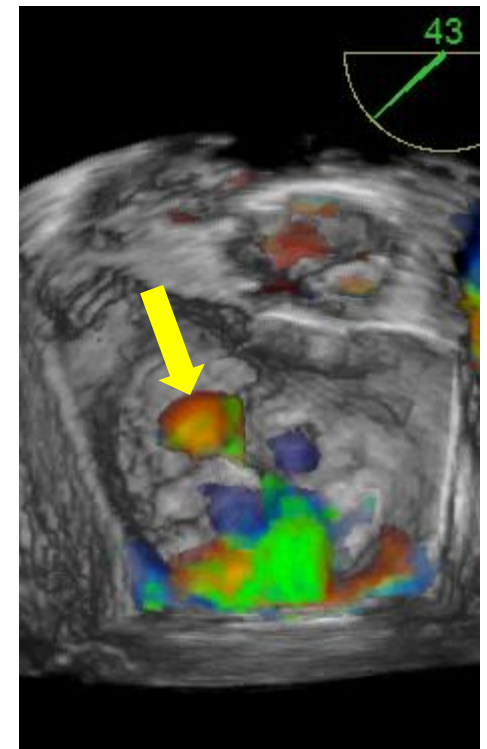
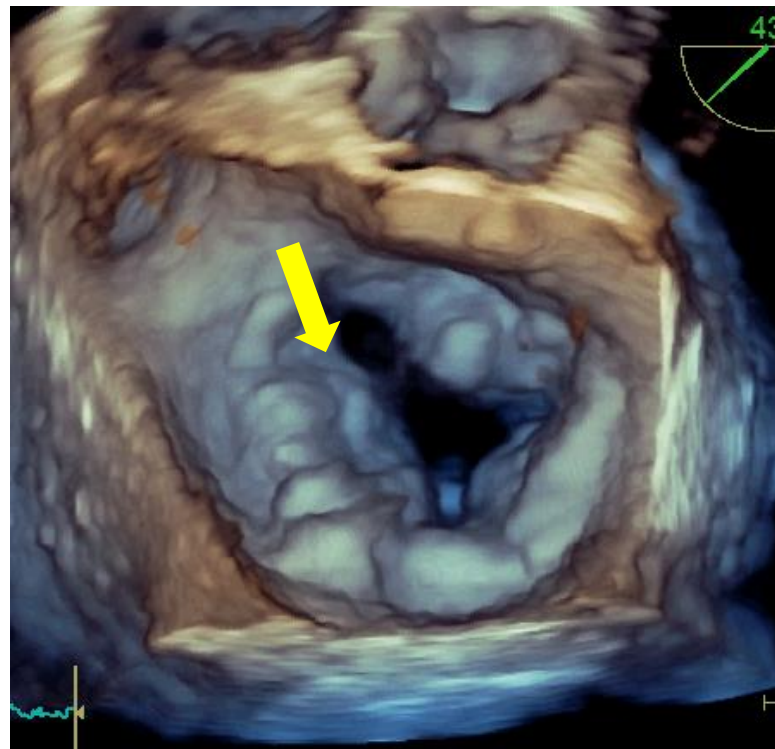
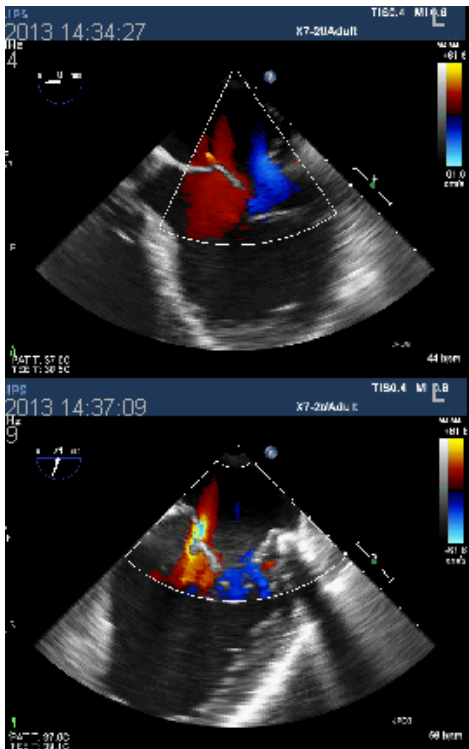
OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



DMR: central mainly

1. Pathology location

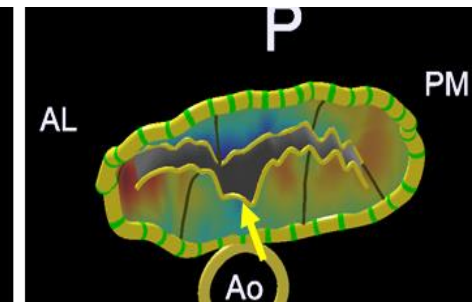
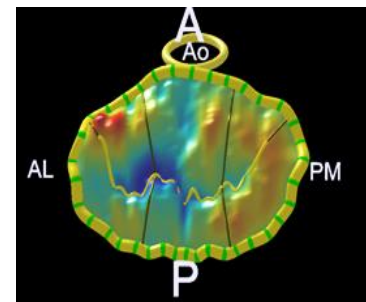
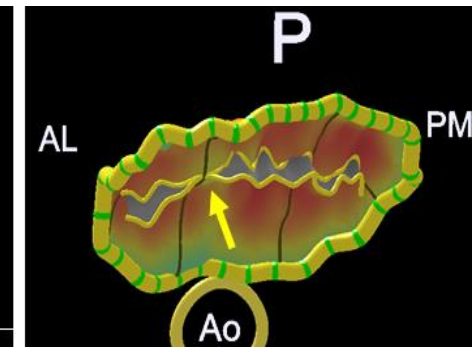
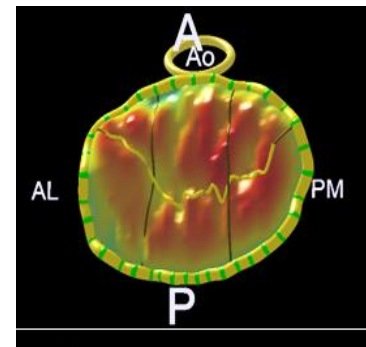
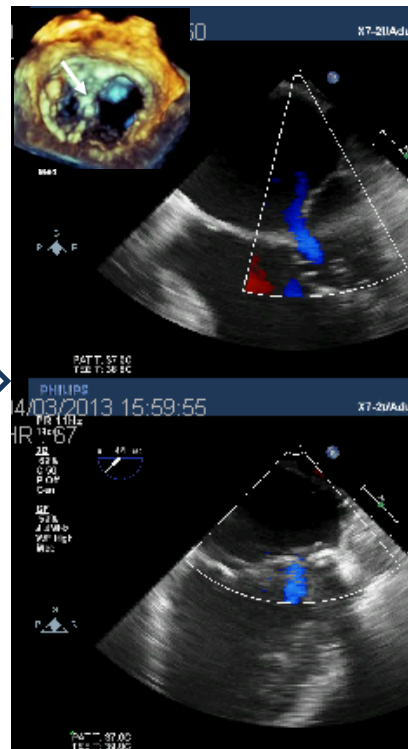
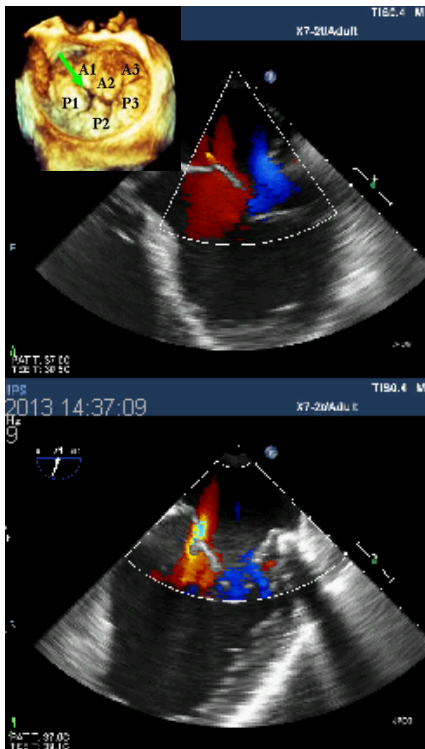
OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



DMR: Barlow, A1-P1 mainly

1. Pathology location

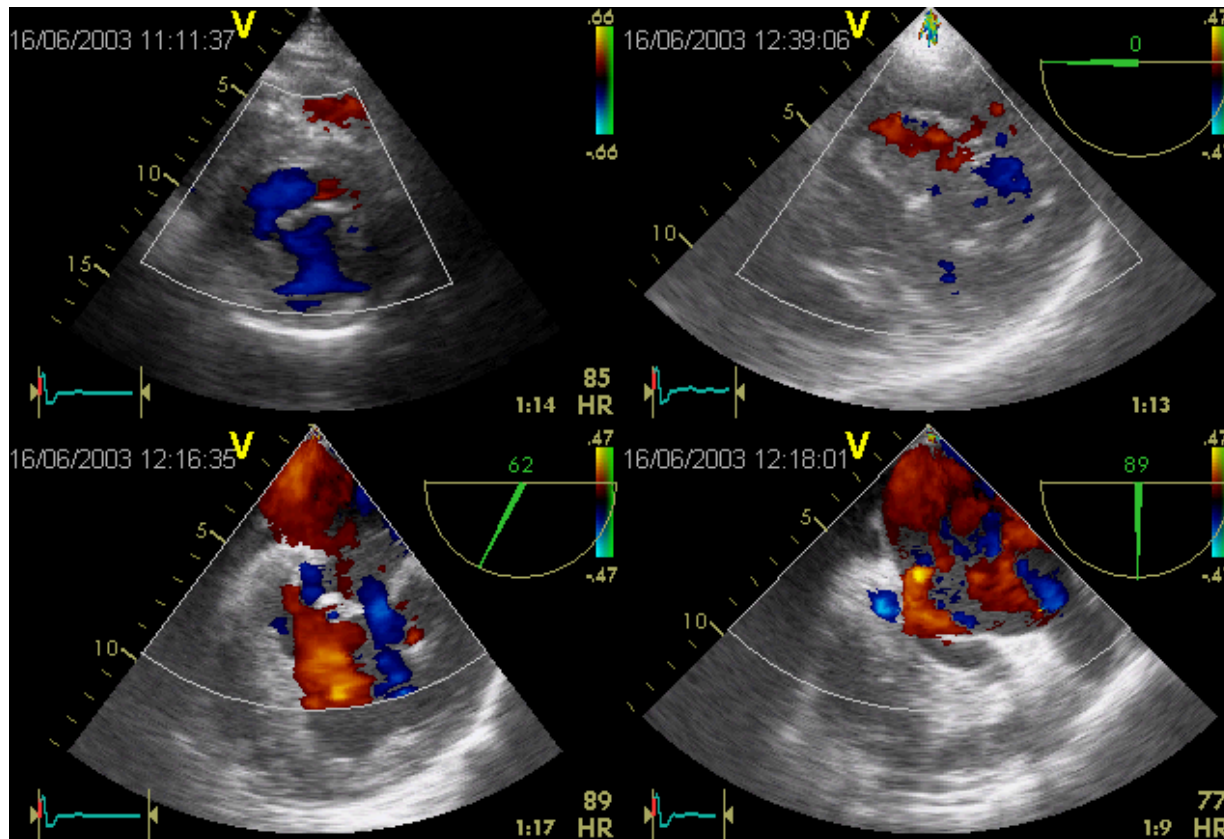
OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



after 1 lateral clip

1. Pathology location

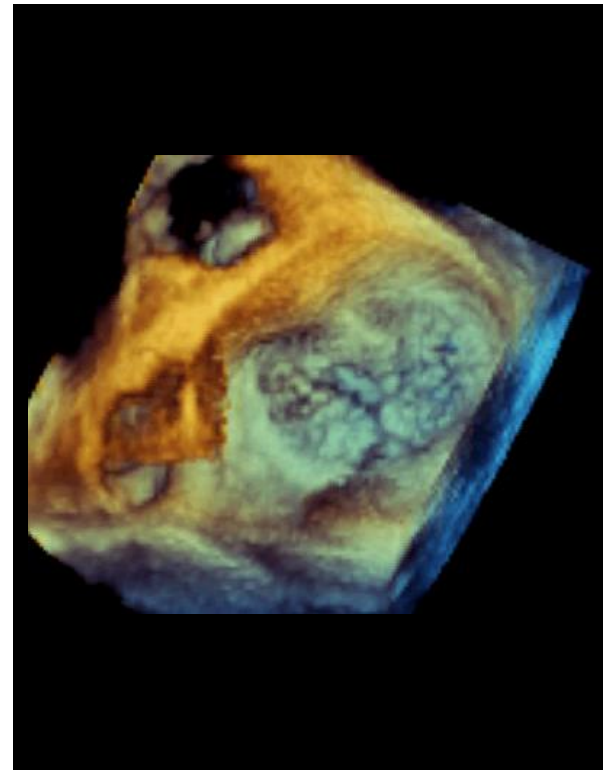
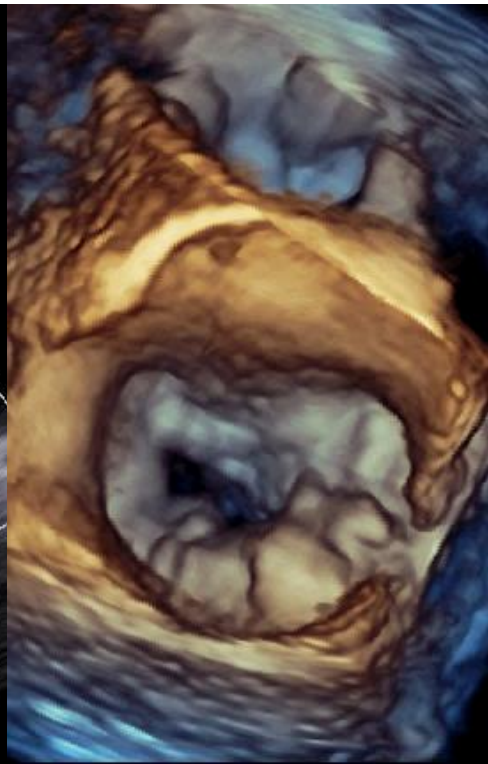
OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



PM commissural perforation (post endocarditis)

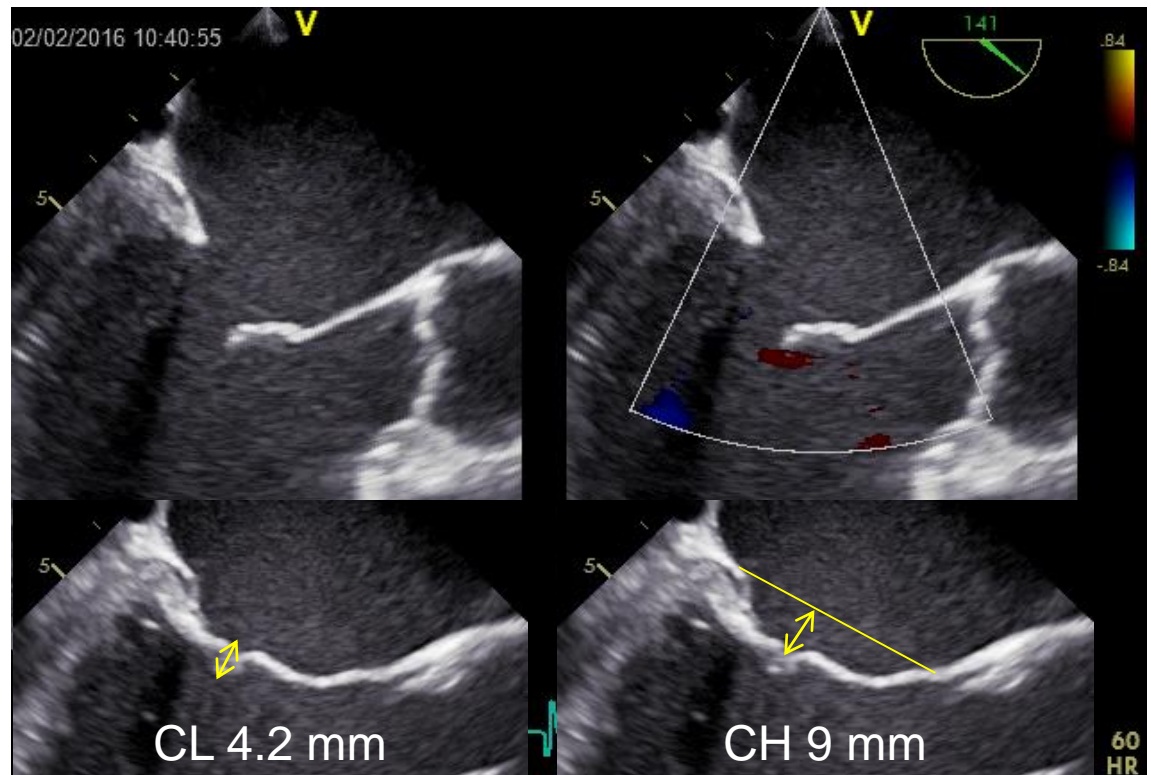
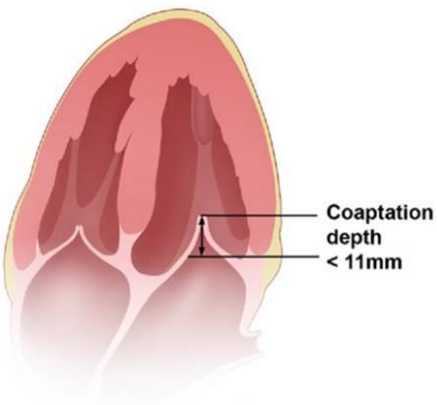
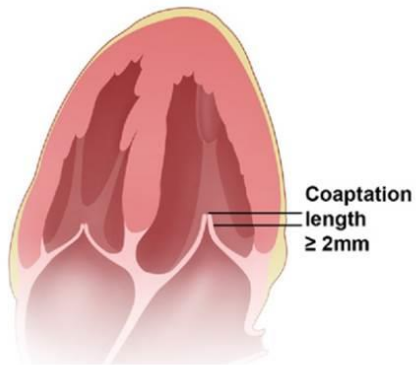
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OPTIMAL	REASONABLE	INAPPROPRIATE
Segment 2: central	Segment 1,3: lateral, medial	Commissure, cleft, perforation



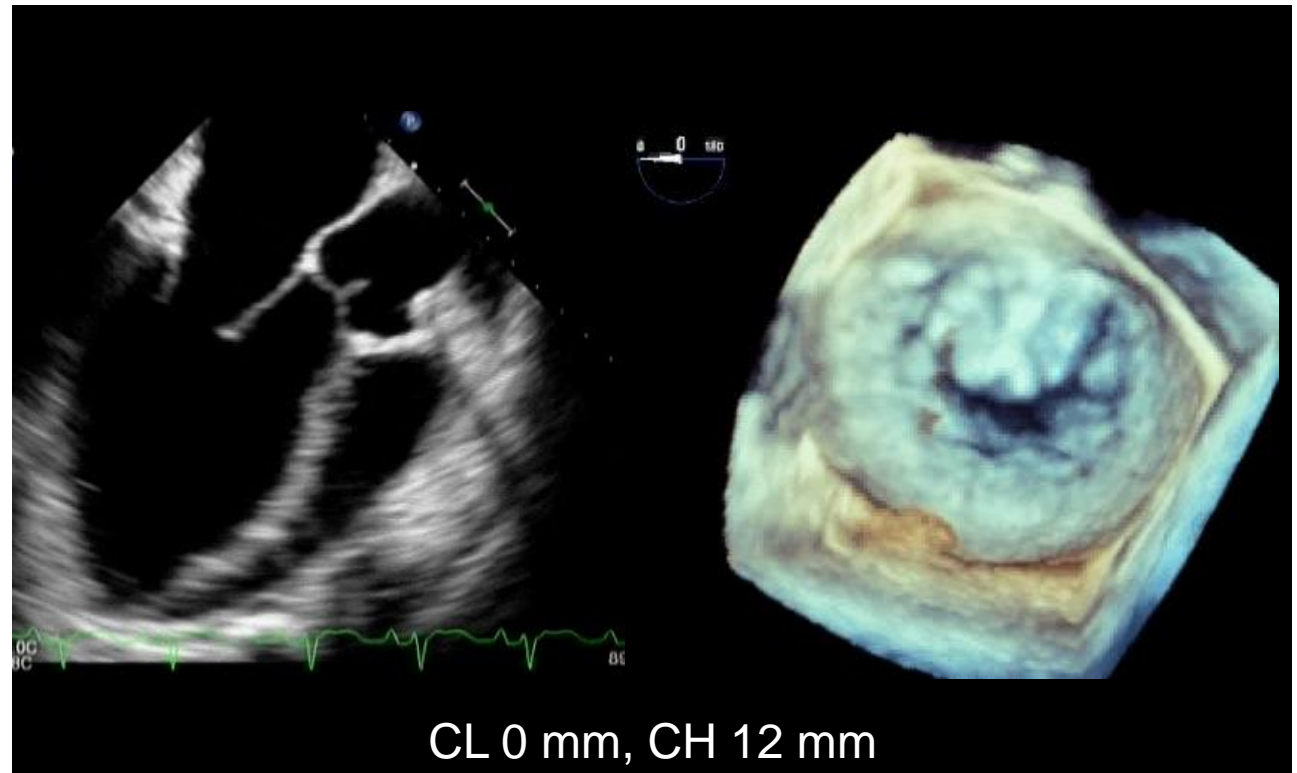
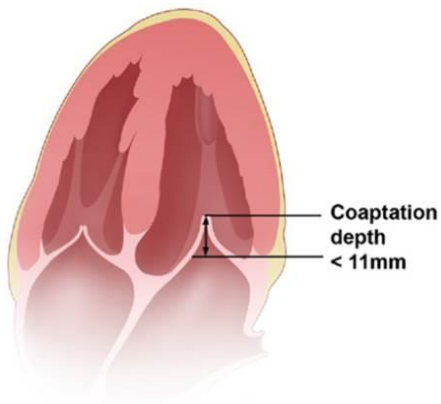
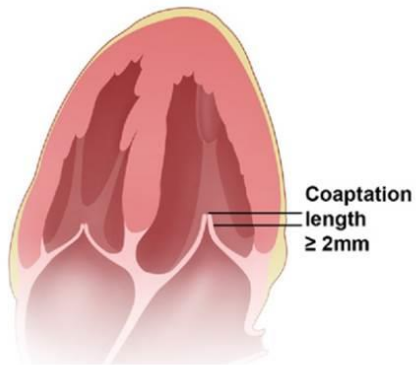
2. Pathology extent (FMR)

OPTIMAL	REASONABLE	INAPPROPRIATE
CD < 11 mm CL > 3 mm	CD > 11 mm CL 1- 3 mm	No coaptation



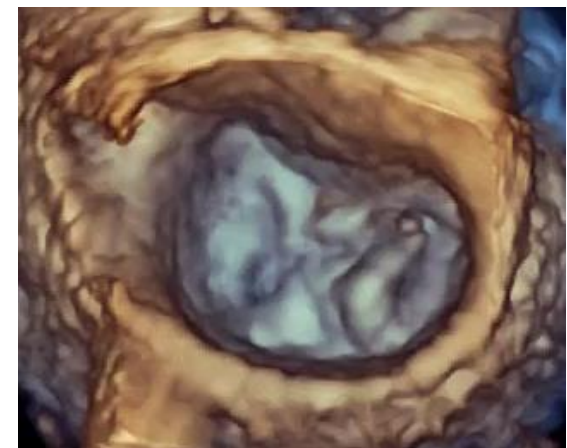
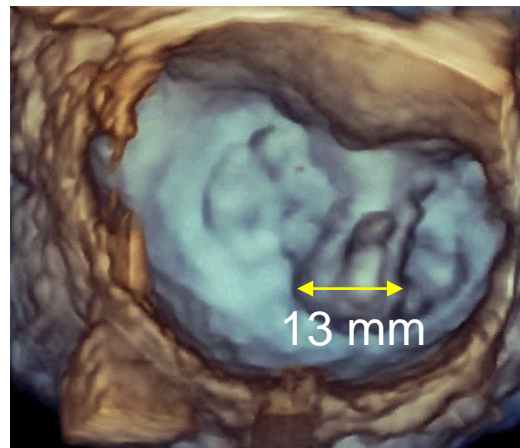
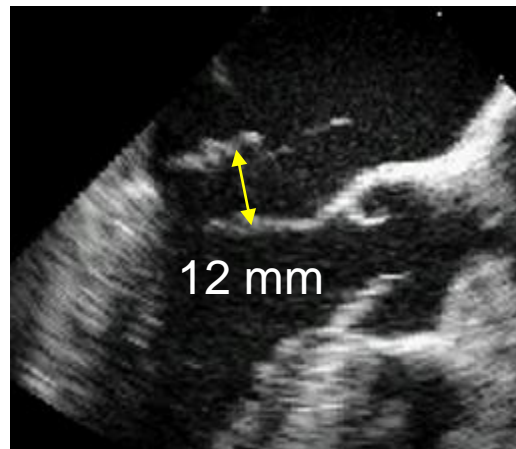
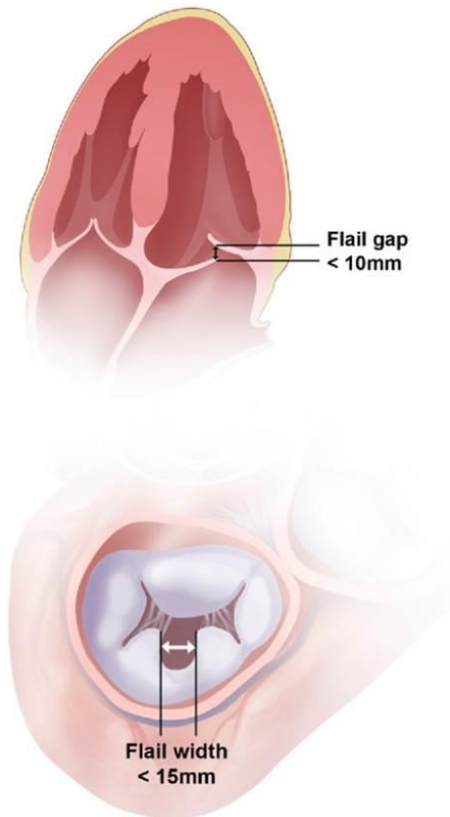
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OPTIMAL	REASONABLE	INAPPROPRIATE
CD < 11 mm CL > 3 mm	CD > 11 mm CL 1- 3 mm	No coaptation



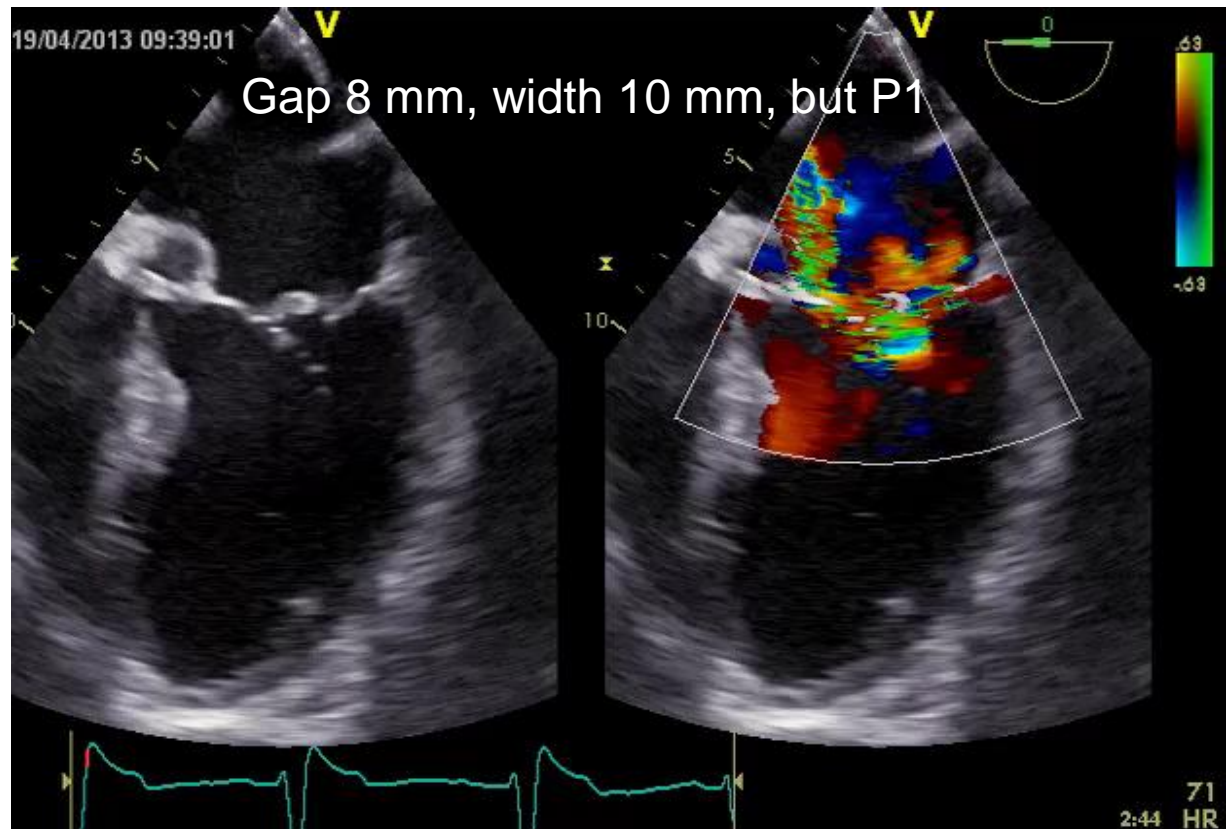
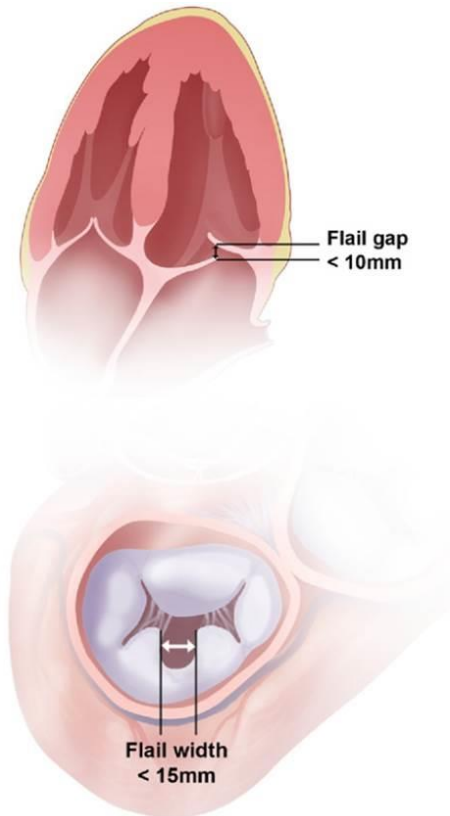
2. Pathology extent (DMR)

OPTIMAL	REASONABLE	INAPPROPRIATE
Width < 15 mm Gap < 10 mm	width >15mm if annulus large and option for >1 clip	Complex Barlow's disease



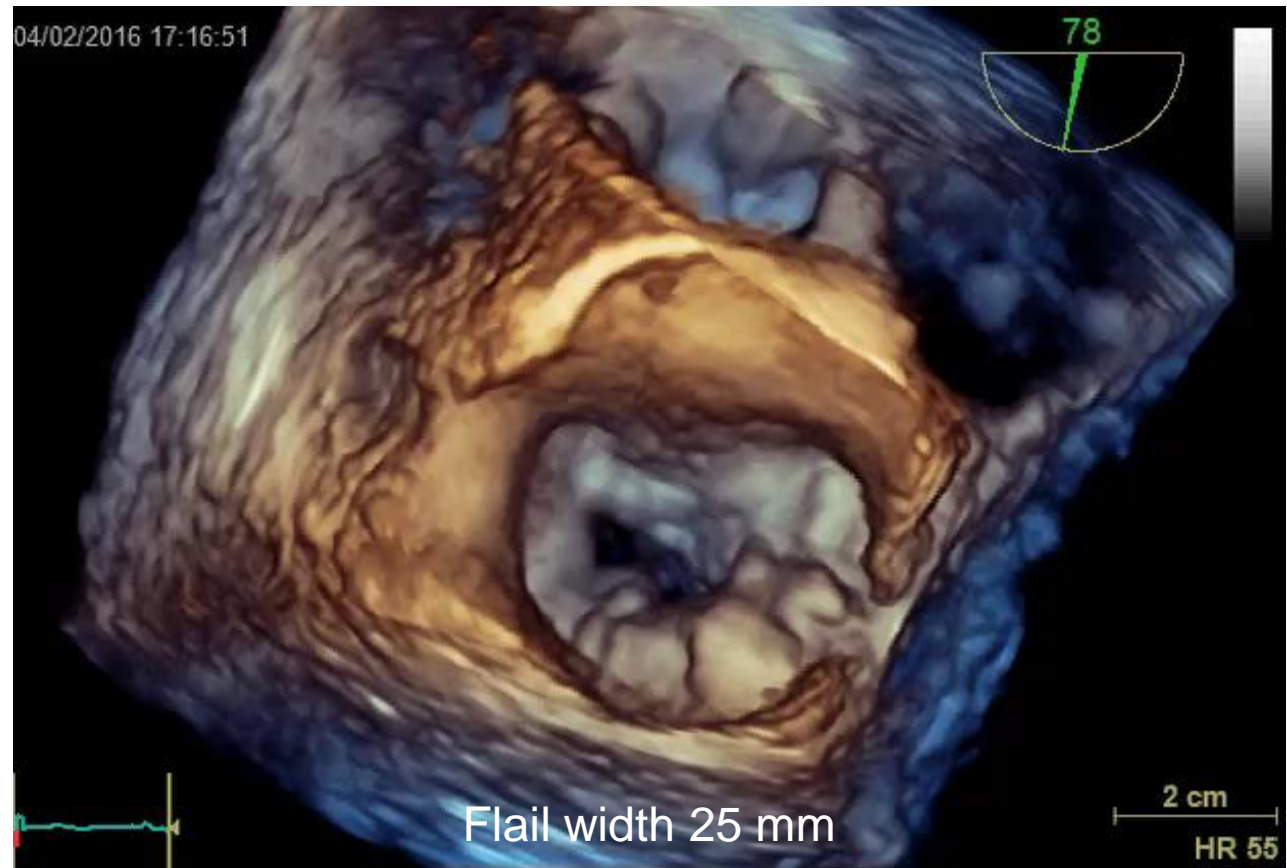
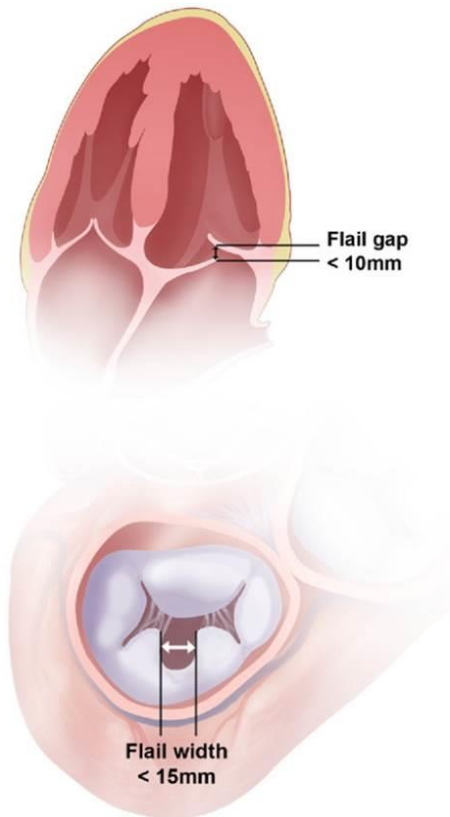
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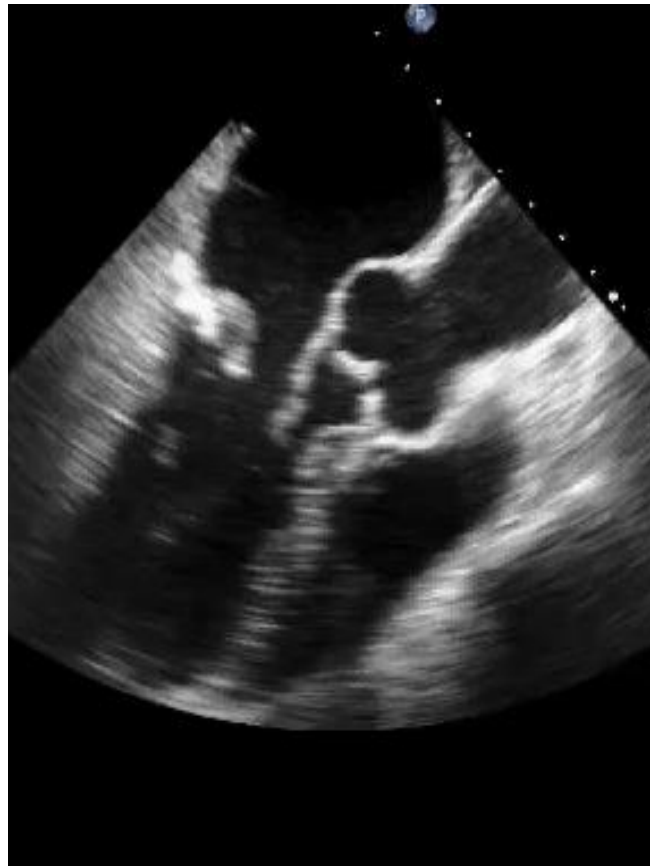
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OPTIMAL	REASONABLE	INAPPROPRIATE
Width < 15 mm Gap < 10 mm	width >15mm if annulus large and option for >1 clip	Complex Barlow's disease



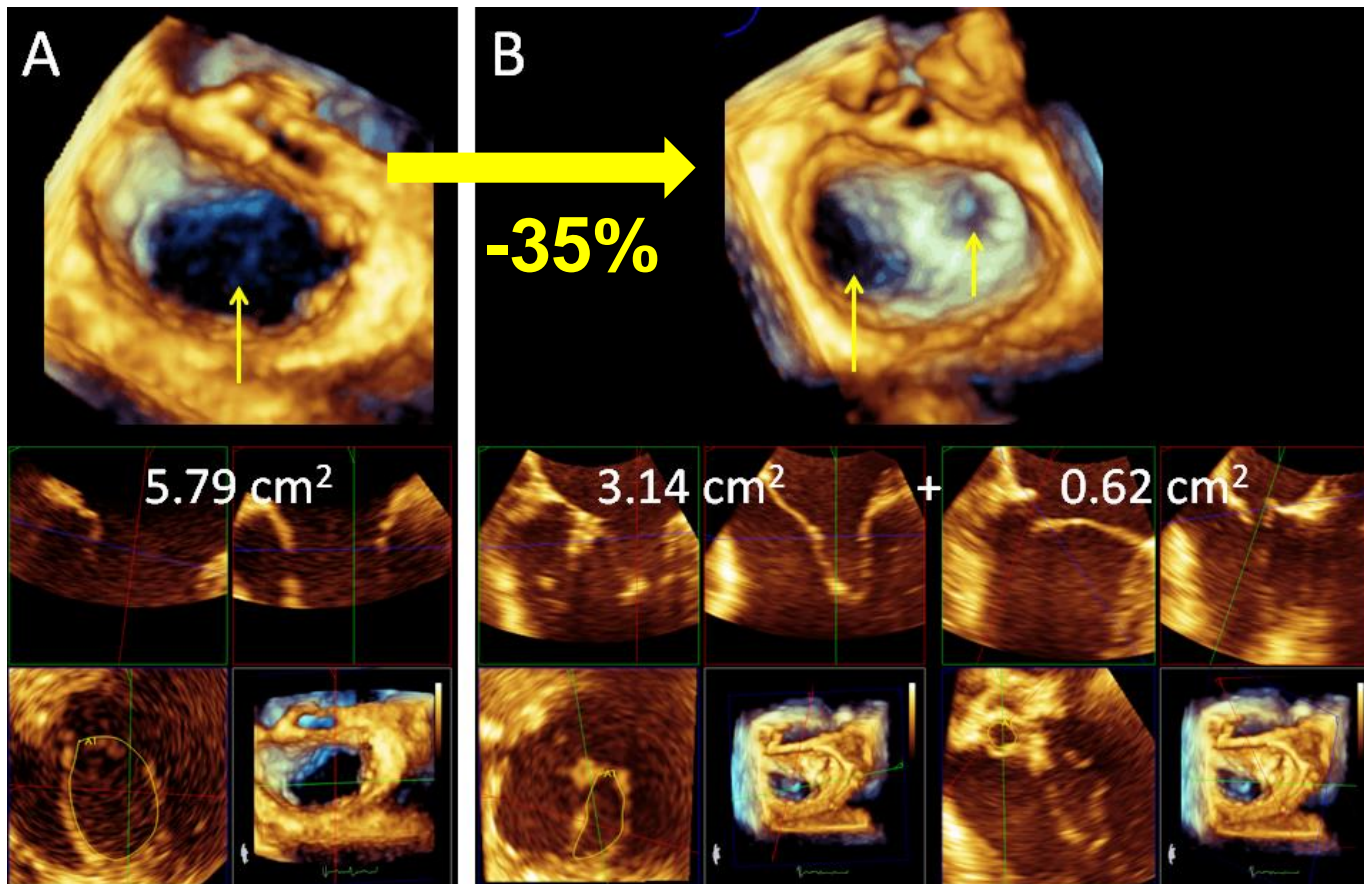
3. Calcification

OPTIMAL	REASONABLE	INAPPROPRIATE
None	Outside grasping area or ring annuloplasty	Severe extensive



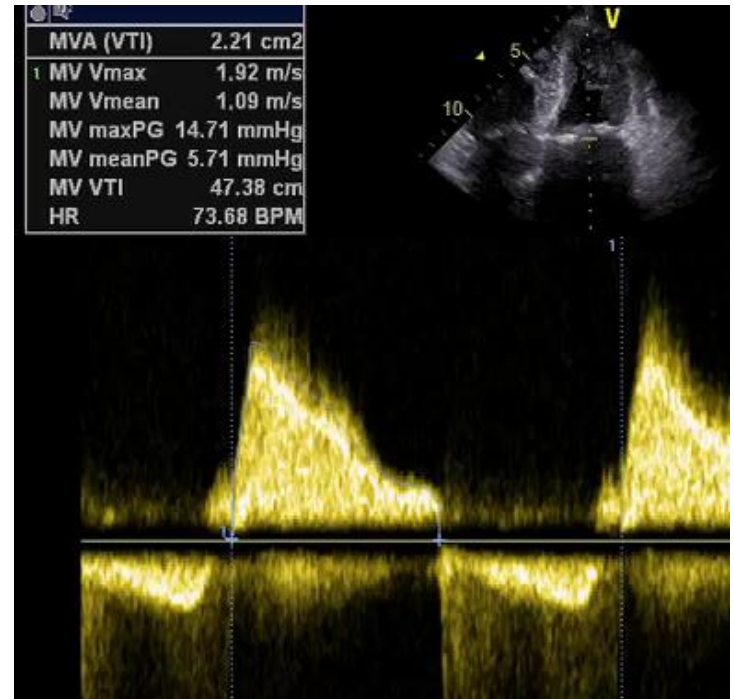
4. Valve area

OPTIMAL	REASONABLE	INAPPROPRIATE
> 4 cm ²	Area > 3 cm ² if good leaflet mobility	< 3 cm ² or MG > 5 mmHg



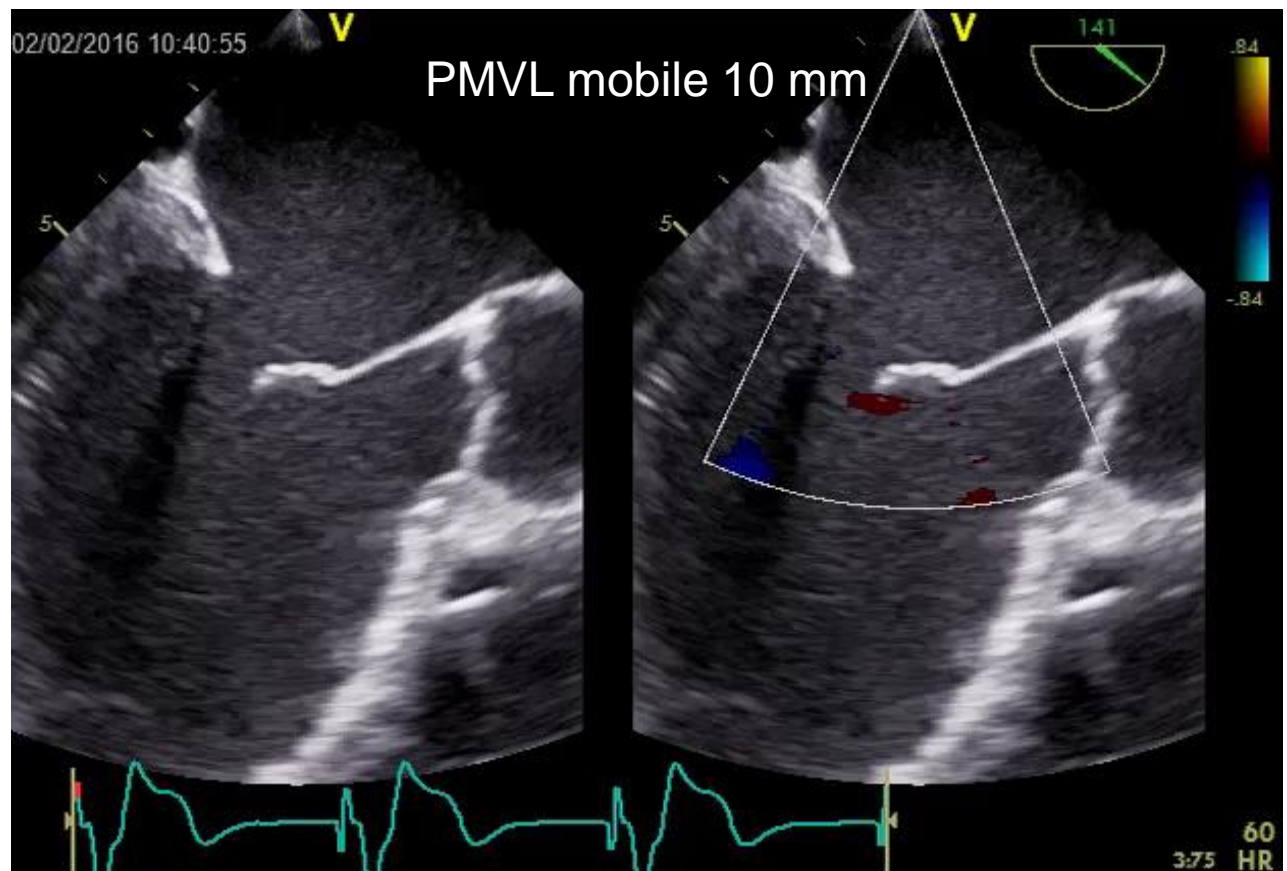
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OPTIMAL	REASONABLE	INAPPROPRIATE
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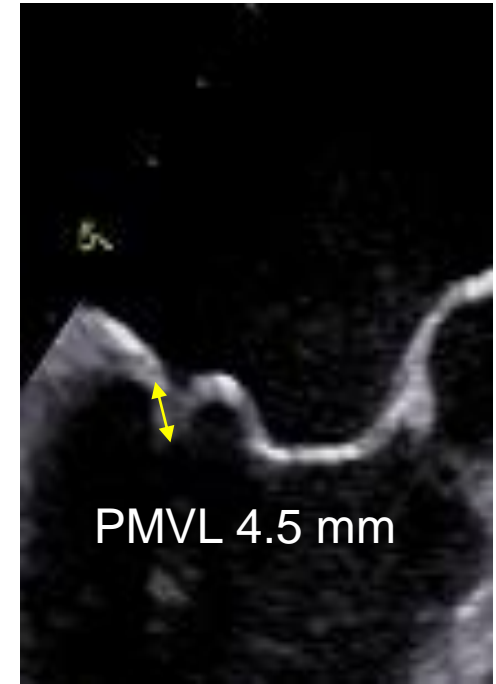
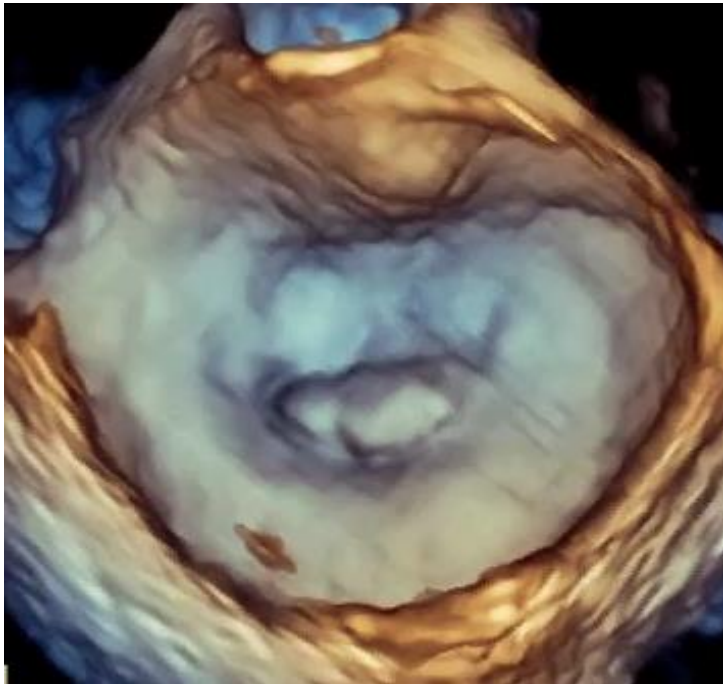
5. PMVL mobile length

OPTIMAL	REASONABLE	INAPPROPRIATE
> 10 mm	7-10 mm	< 7 mm



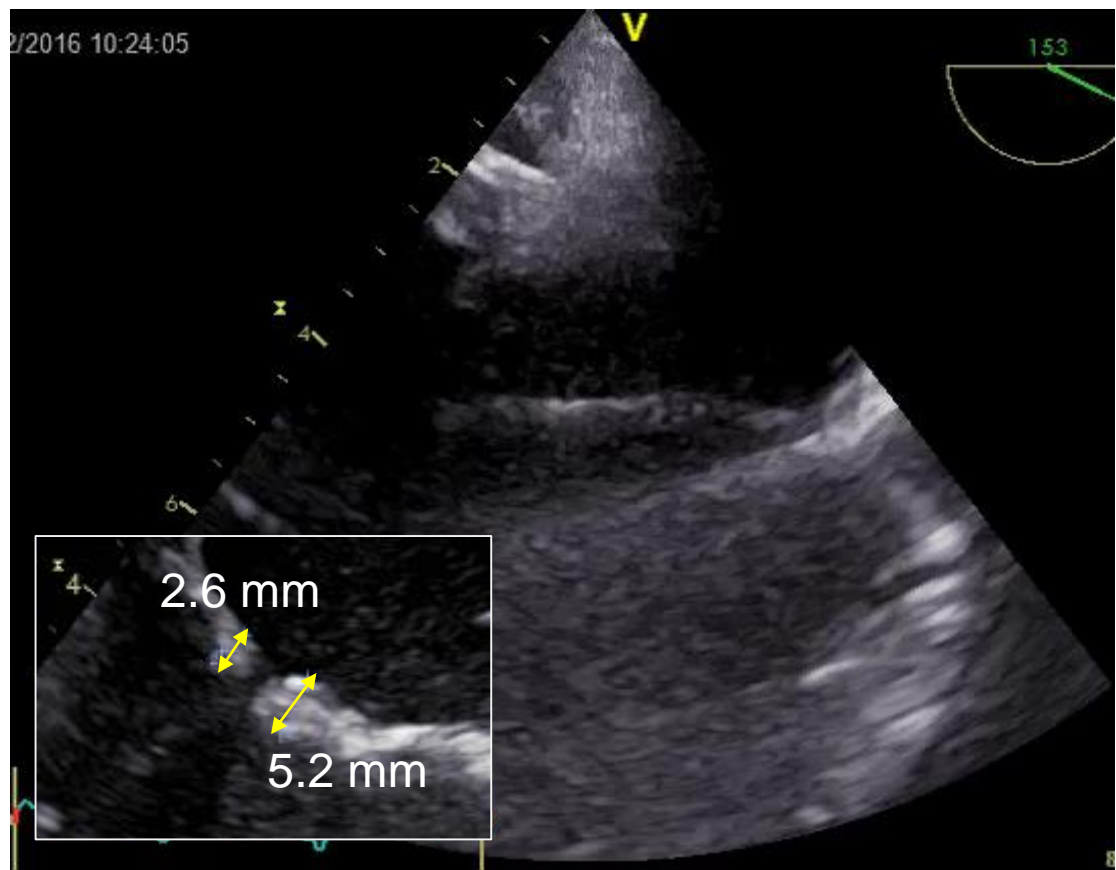
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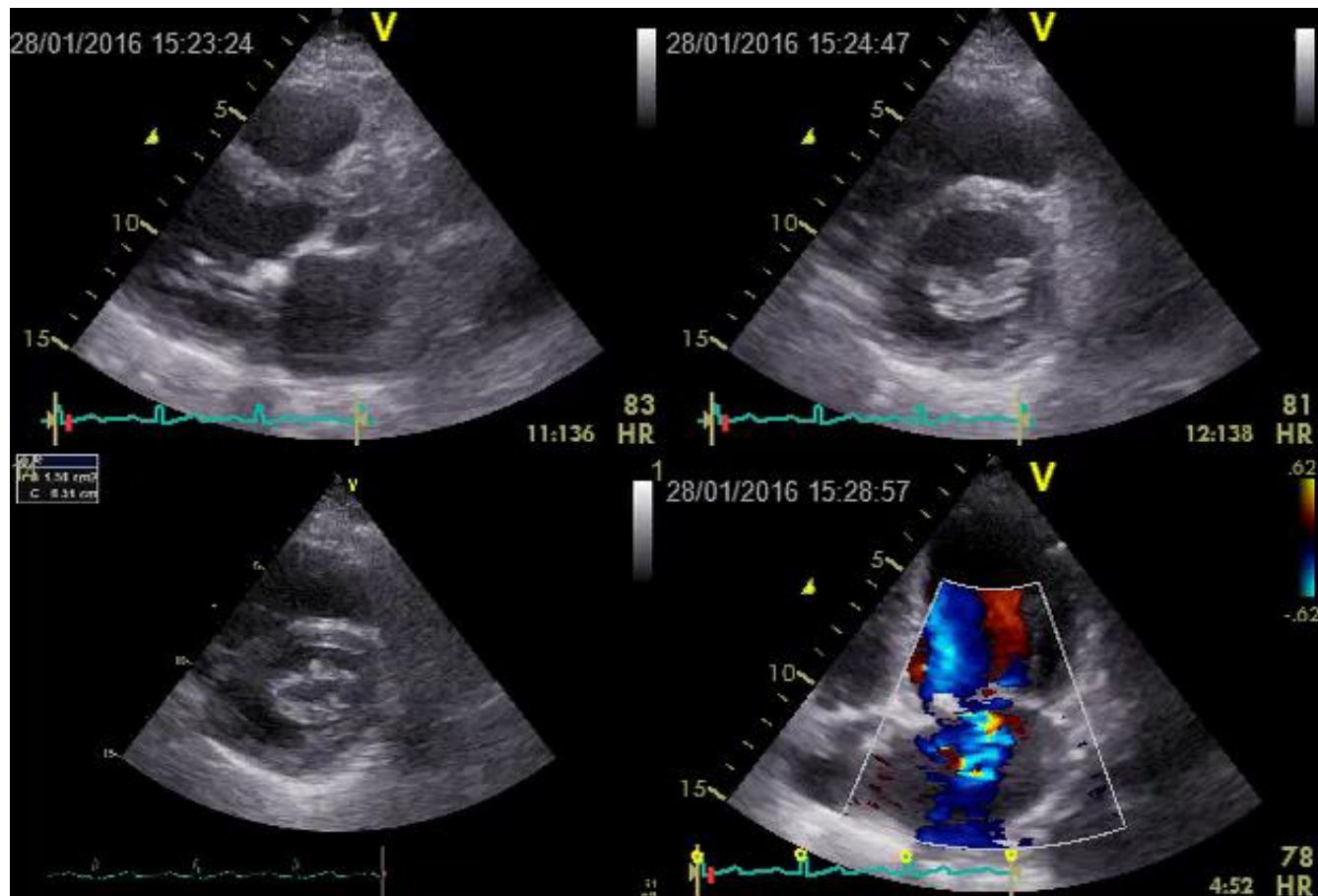
6. Leaflet mobility & thickness

OPTIMAL	REASONABLE	INAPPROPRIATE
Normal	Severe (IIIB) , Asymmetric	Rheumatic (IIIA), thickness > 5 mm



6. Leaflet mobility & thickness

OPTIMAL	REASONABLE	INAPPROPRIATE
Normal	Severe (IIIB) , Asymmetric	Rheumatic (IIIA), thickness > 5 mm



Conclusions

1. Symptomatic severe MR patients at high surgical risk.
2. Technical feasibility relies on **6 step-wise** echocardiography, preferentially **3D-TOE**.
3. Good TOE quality and adherence to initial **EVEREST criteria** assures optimal results, in particular when experience is limited.

A dark, monochromatic photograph of a European town, likely Bruges, Belgium. The scene is dominated by a canal in the foreground, which reflects the buildings and the sky. On the left, a large, leafy tree stands in front of a row of multi-story buildings with gabled roofs. In the background, a tall, ornate church tower rises above the rooftops. The overall atmosphere is quiet and historical.

Thank you.



MitraClip patient selection

Optimal	Limited suitable	Inappropriate
Pathology in segment 2	Pathology in segment 1 or 3	Leaflet perforation or cleft
No calcification	<ul style="list-style-type: none"> - Slight calcification outside the grasping area - Ring calcification - Anuloplasty with ring 	Severe calcification
Valve area >4cm ²	Valve area >3 cm ² & good leaflet mobility	Mitral stenosis (< 3cm ² , gradient >5mmHg)
Length of the posterior leaflet > 10mm	Length of the posterior leaflet 7-10mm	Length of the posterior leaflet < 7mm
Coaptation depth < 11mm	Coaptation depth >11mm	
Normal thickness and mobility of the leaflets	Restriction (Carpentier IIB)	Rheumatic thickening and restriction (Carpentier IIIA)
MR with prolaps Flail size < 15mm Flail gap < 10mm	Flail size > 15mm only with large mitral aulus and option for more than 1 clip	Barlows disease

For optimal results, the following anatomic patient characteristics should be considered:

The primary regurgitant jet is non-commissural. If a secondary jet exists, it must be considered clinically insignificant	✓
Mitral valve area $\geq 4.0\text{cm}^2$	✓
Minimal calcification in the grasping area	✓
No leaflet cleft in the grasping area	✓
Flail width < 15 mm and flail gap < 10 mm	✓
LVEF $> 20\%$ or LVESD $< 60\text{mm}$	✓