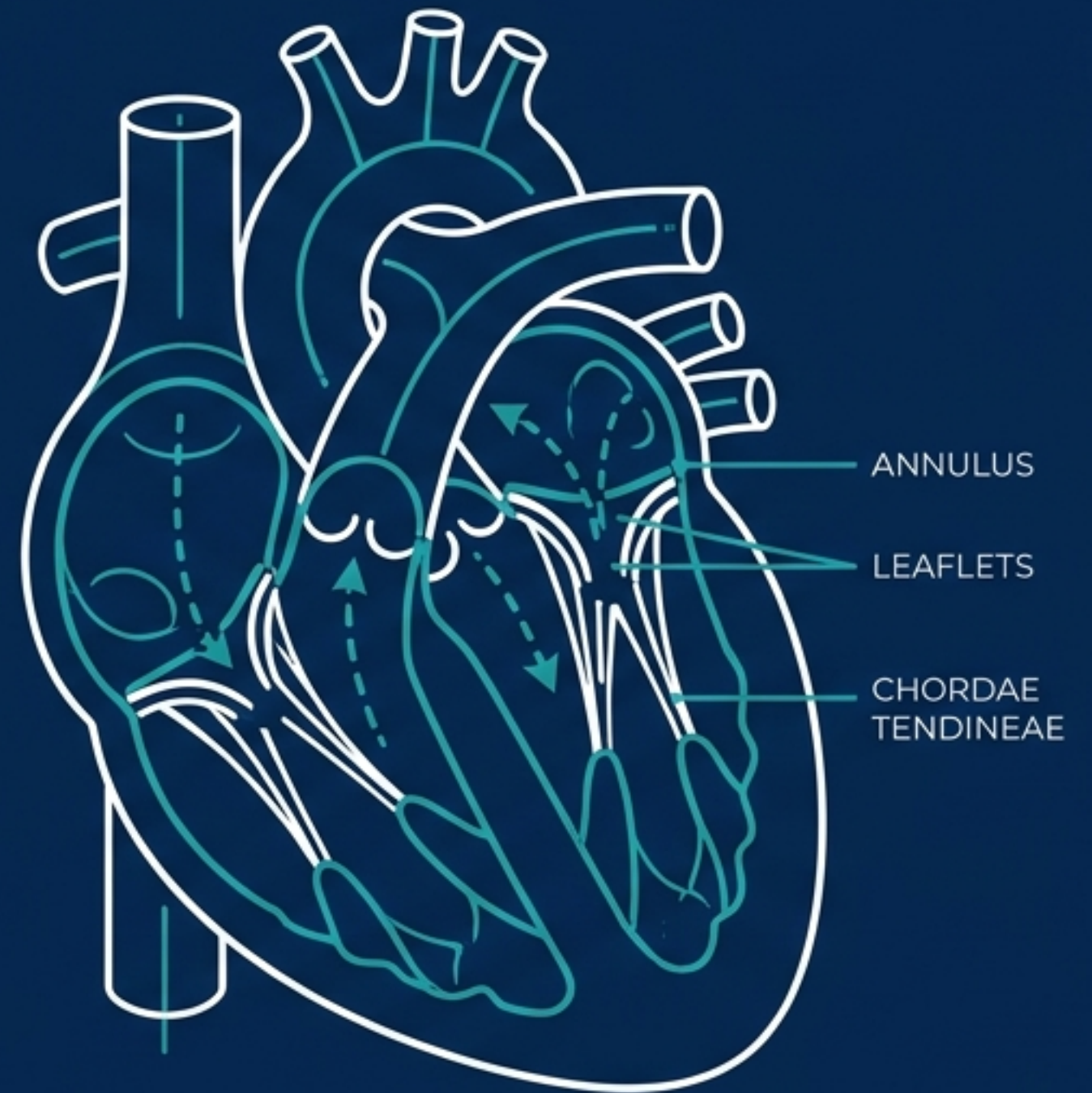


MITRAL REGURGITATION: AUSTRALIAN CLINICAL GUIDELINES

Distilled insights for diagnostic thresholds, intervention pathways, and special populations.

Based on Med2Date 2026.





Prevalence

2–3% general population; spikes to **>10%** in patients aged >75 years.



The Divide

Primary = Valve Pathology

Secondary = LV Remodelling



Diagnosis

TTE is cornerstone.

Severe Primary EROA $\geq 0.40 \text{ cm}^2$

Severe Secondary EROA $\geq 0.20 \text{ cm}^2$



Intervention

Repair > Replacement
(Primary)

GDMT > Surgery
(Secondary)



Equity

RHD-related MR occurs at **20–60x** the rate in **Aboriginal and Torres Strait Islander** communities.

Degenerative Burden
Mitral Valve Prolapse (MVP) affects **2–3%** of Australians.



Hospitalisations
>4,500 annually (AIHW data) with significant mortality.

Procedures
>3,000 mitral procedures yearly across ~40 centres (ANZSCTS registry).

The Indigenous Disparity
Rheumatic heart disease (RHD) drives a massive MR burden in Indigenous communities at **20–60 times** the rate of non-Indigenous Australians.



Primary (Degenerative) MR

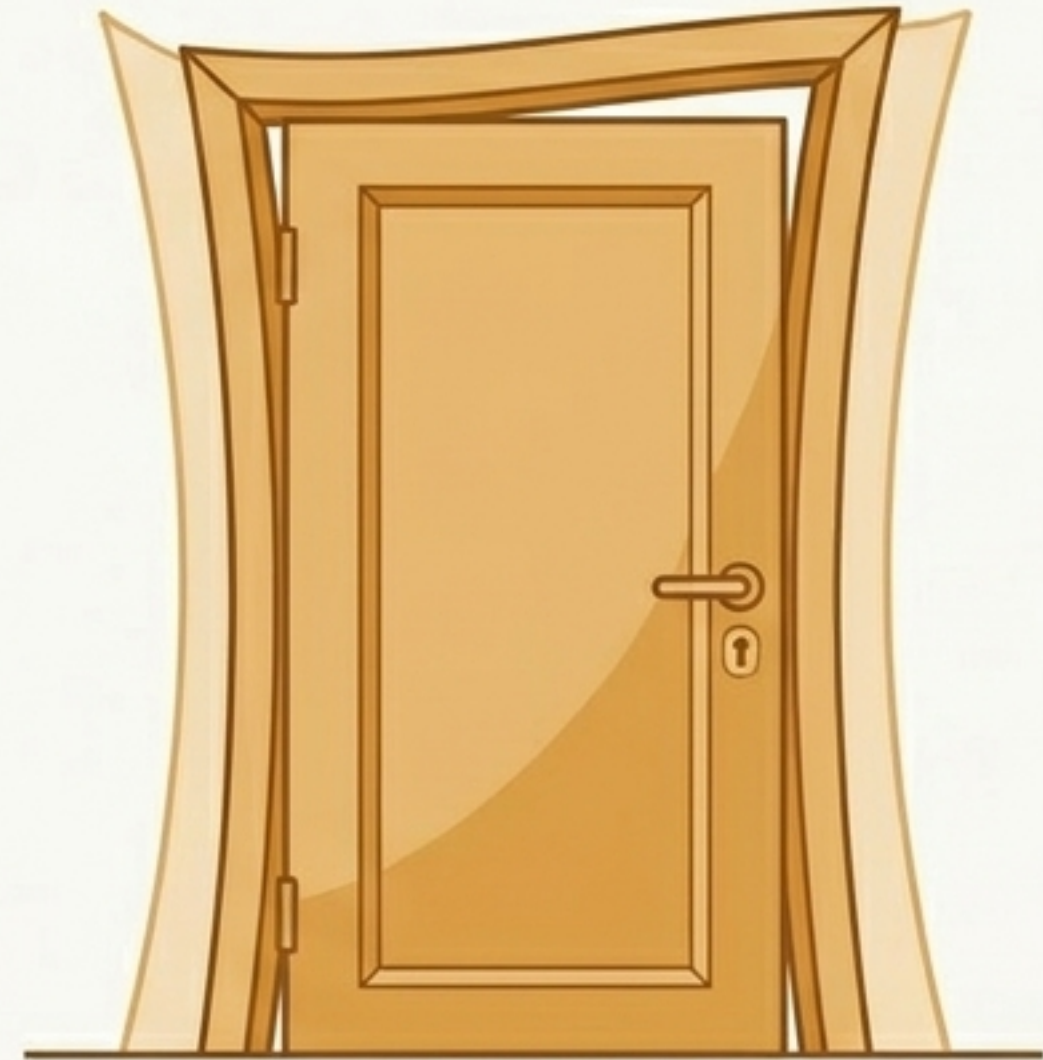
Intrinsic structural abnormality of the mitral valve apparatus.



The valve is broken, the LV is fine.

Secondary (Functional) MR

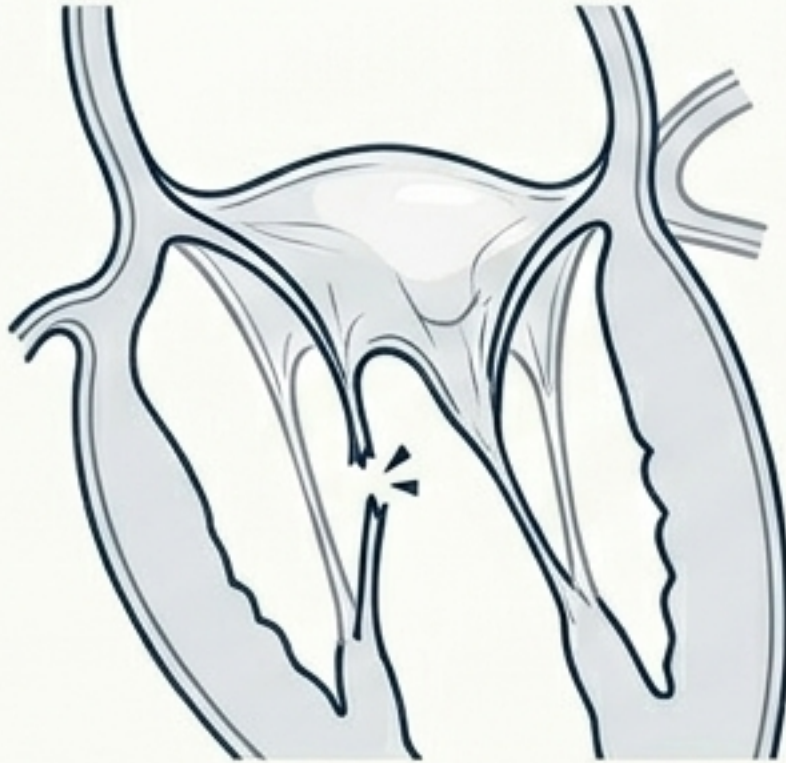
Adverse left ventricular remodelling stretching a structurally normal valve.



The valve is fine, the LV is failing.

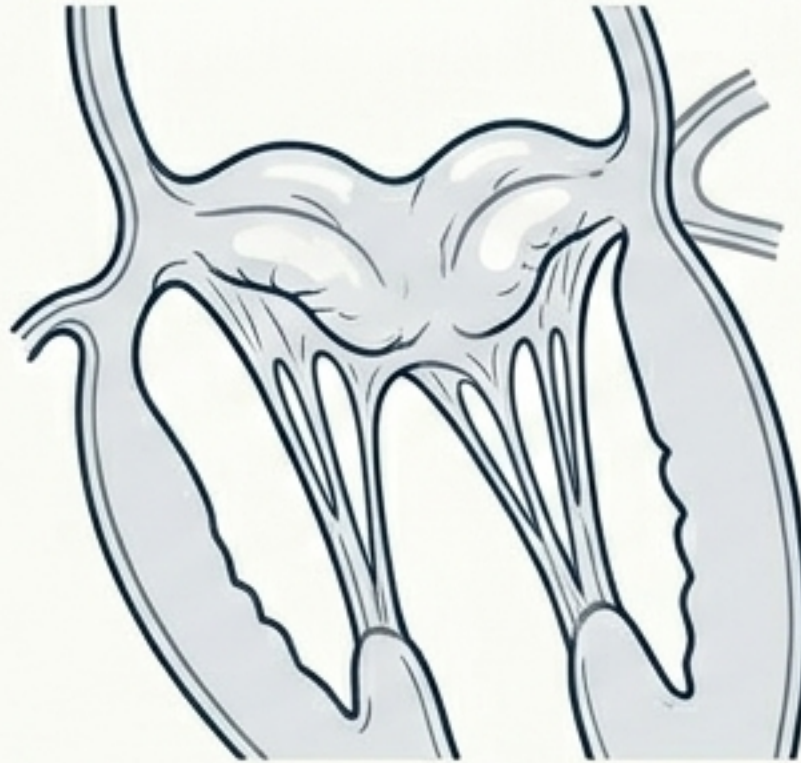
	Primary (Degenerative) MR	Secondary (Functional) MR
Aetiology	Myxomatous (MVP), flail, rheumatic, endocarditis.	Ischaemic (post-MI), Dilated Cardiomyopathy.
Anatomy	Leaflets/chordae abnormal.	Leaflets normal; tethered or annular dilation.
Hemodynamics	Volume overload on normal LV → eccentric hypertrophy.	Volume overload on failing LV → vicious cycle.
Treatment Paradigm	Surgical repair strongly preferred.	GDMT first; TEER for refractory cases.

Fibroelastic Deficiency (FED)



- **Profile:** Thin, translucent leaflets, ruptured chordae.
- **Patient:** Older (>60 years), acute flail presentation.
- **Repair:** Straightforward, high success.

Barlow's Disease

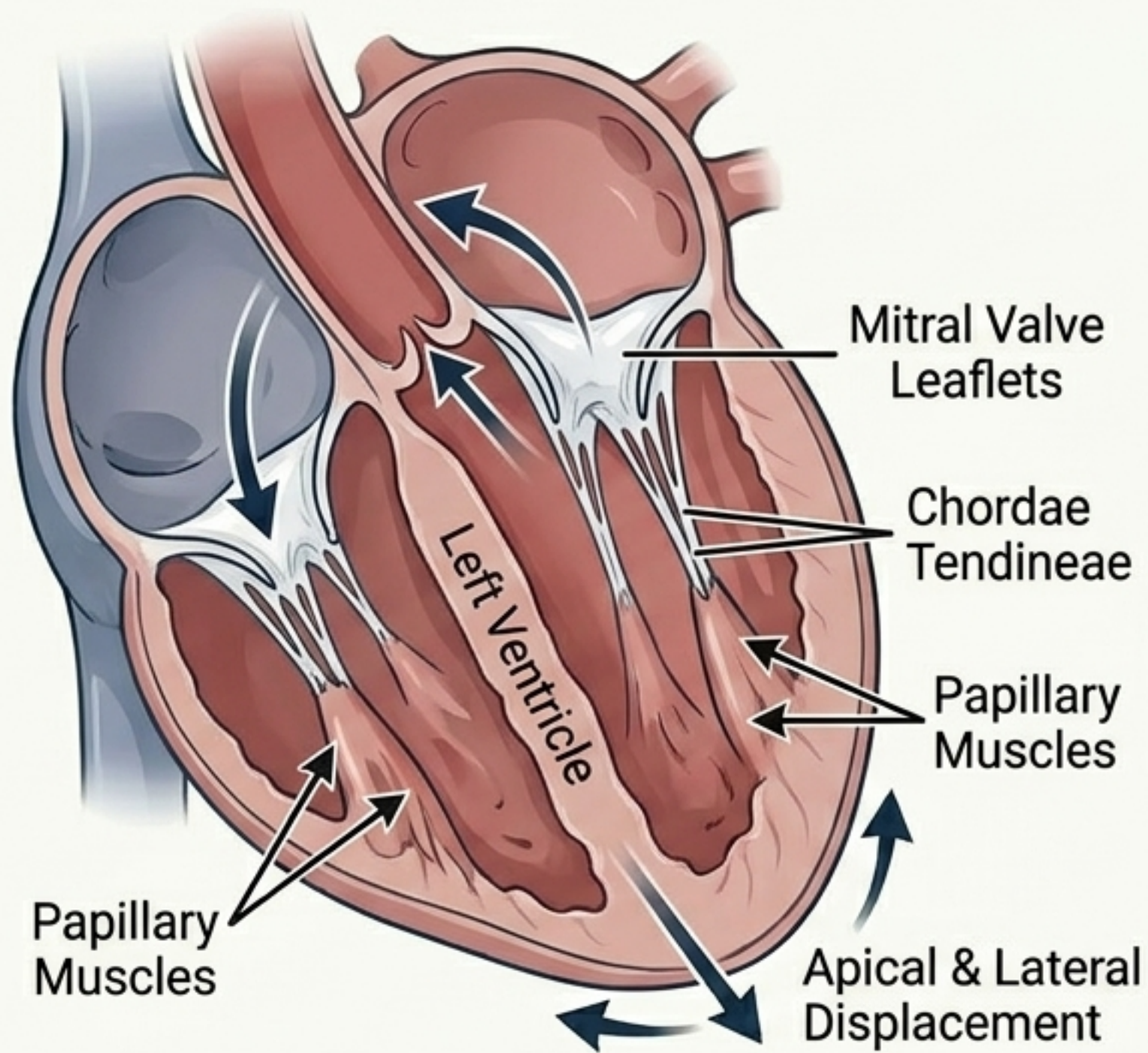


- **Profile:** Thick, redundant, myxomatous tissue (bileaflet).
- **Patient:** Younger (<55 years).
- **Repair:** Complex but highly durable in expert centres.

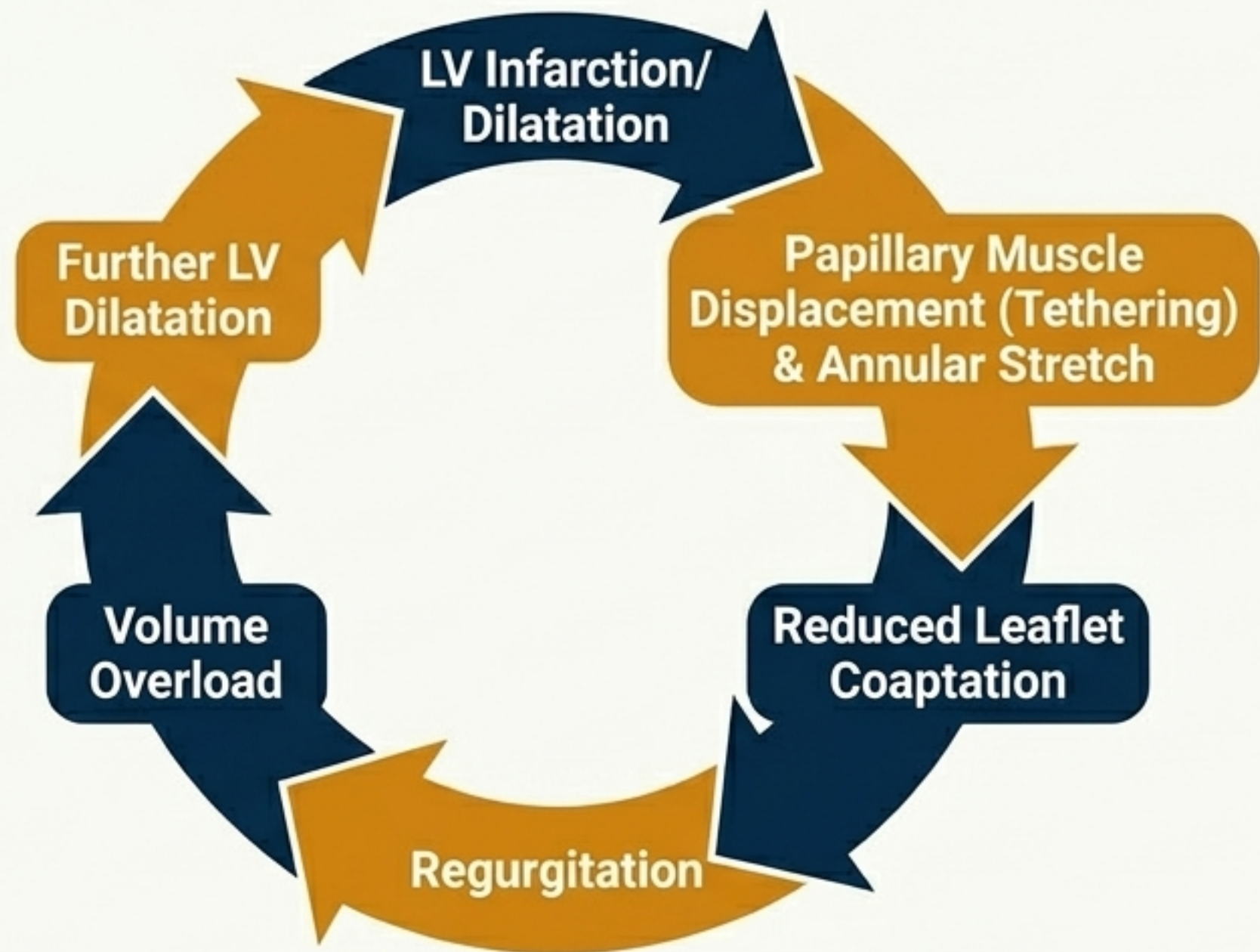
Rheumatic MR



- **Profile:** Commissural fusion, shortened chordae.
- **Patient:** Rare generally, prevalent in Indigenous communities.
- **Repair:** Less amenable to repair; often requires replacement.



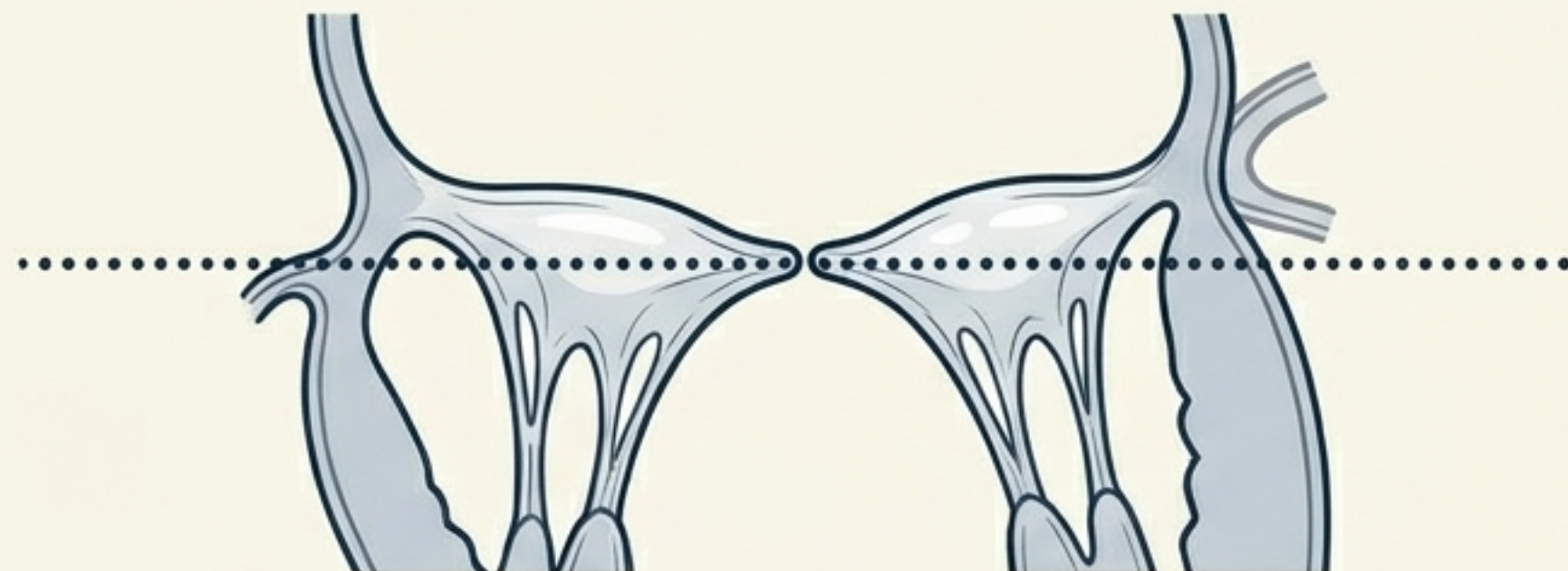
The Vicious Cycle



The GDMT Mandate

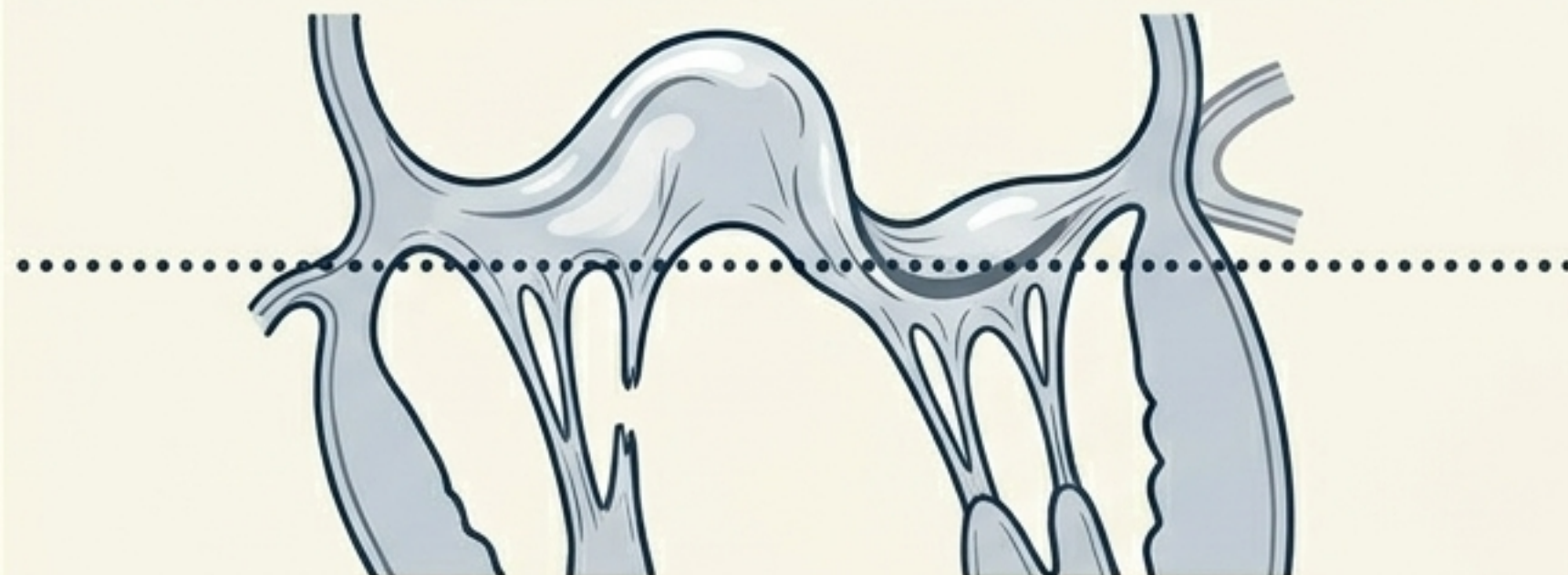
In secondary MR, correcting the valve without optimising LV function fails to improve outcomes (per MITRA-FR). Always optimise GDMT for ≥ 3 months before considering intervention.

Type I: Normal motion



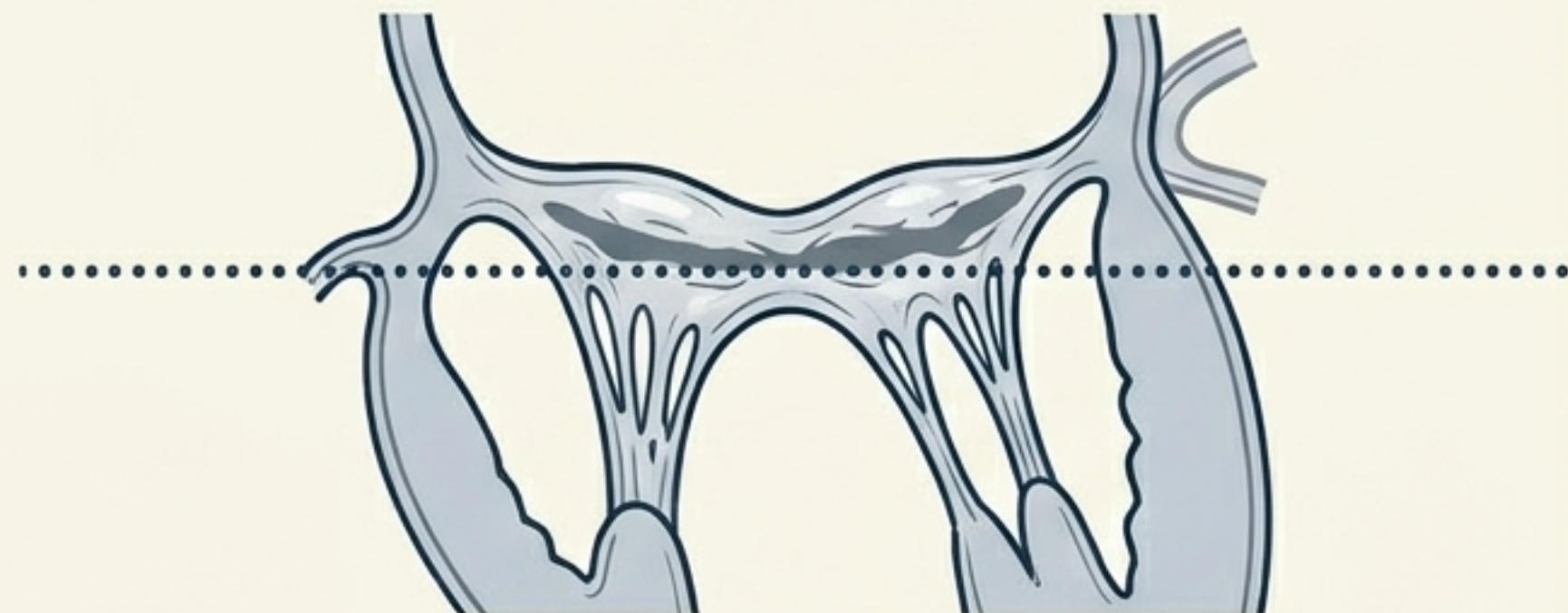
Widened annulus (Functional MR / DCM) or perforation.

Type II: Excessive motion



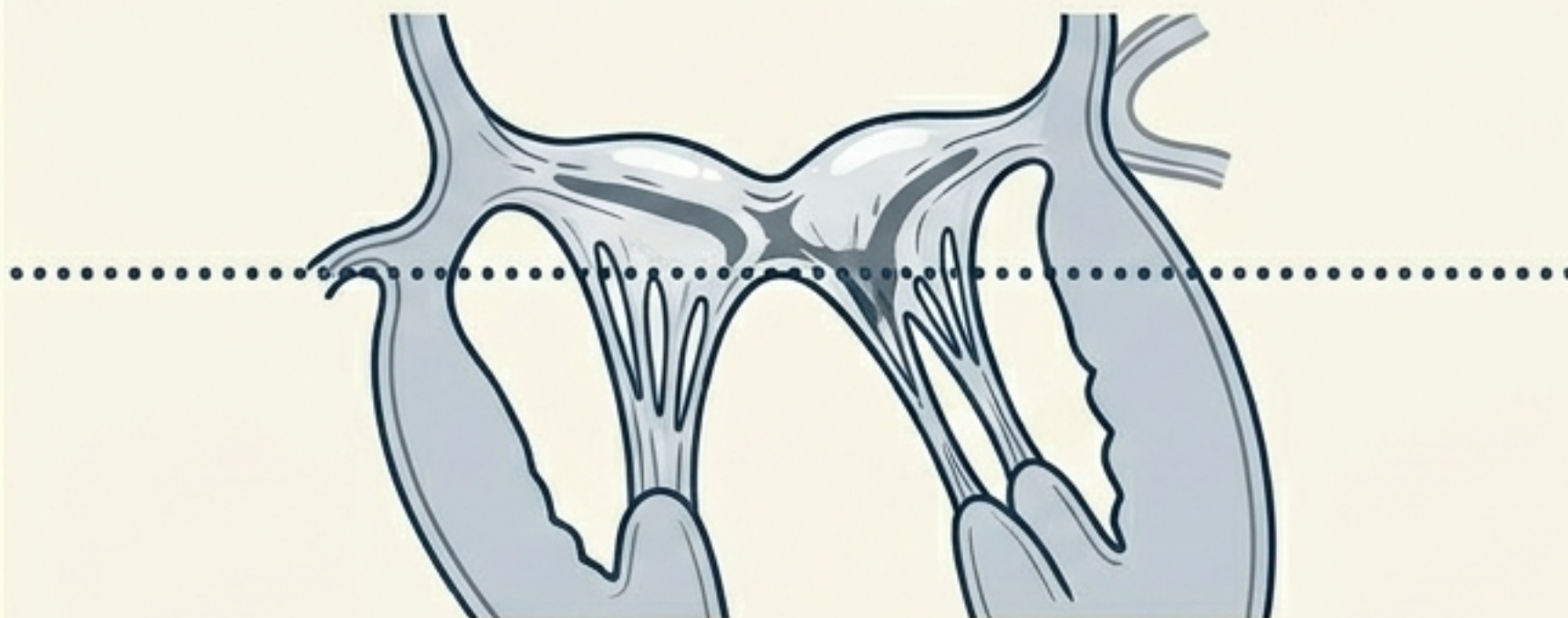
Prolapse / Flail moving above the plane.

Type IIIa: Restricted (Diastole & Systole)



Rheumatic restriction.

Type IIIb: Restricted (Systole only)



Ischaemic apical tethering.

Quantification of Mitral Regurgitation Severity

Effective Regurgitant Orifice Area (EROA)

Mild: $<0.20 \text{ cm}^2$

Moderate: $0.20\text{--}0.39 \text{ cm}^2$

Severe (Primary): $\geq 0.40 \text{ cm}^2$

0.20

0.40

Severe (Secondary) threshold sits at $\geq 0.20 \text{ cm}^2$ (COAPT criteria uses $\geq 0.30 \text{ cm}^2$)

Regurgitant Volume

Mild: $<30 \text{ mL}$

Moderate: $30\text{--}59 \text{ mL}$

Severe: $\geq 60 \text{ mL}$

0.20

≥ 60

Vena Contracta

Mild: $<3 \text{ mm}$

Moderate: $3\text{--}6 \text{ mm}$

Severe: $\geq 7 \text{ mm}$

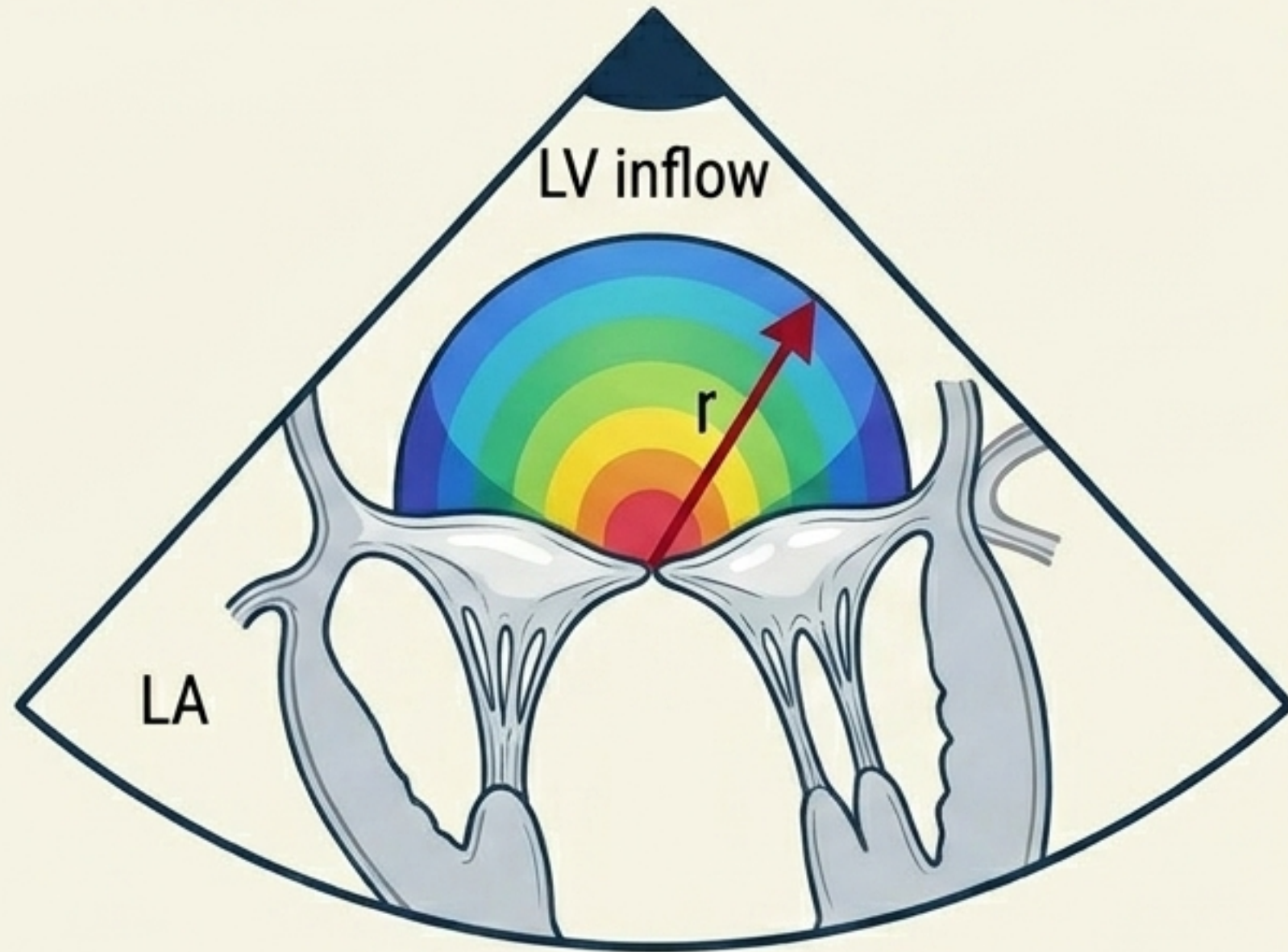
<3

≥ 7

Supporting Metrics

Regurgitant Fraction $\geq 50\%$ | Pulmonary Vein systolic flow reversal | E-wave $>1.2 \text{ m/s}$

PISA (Proximal Isovelocity Surface Area)

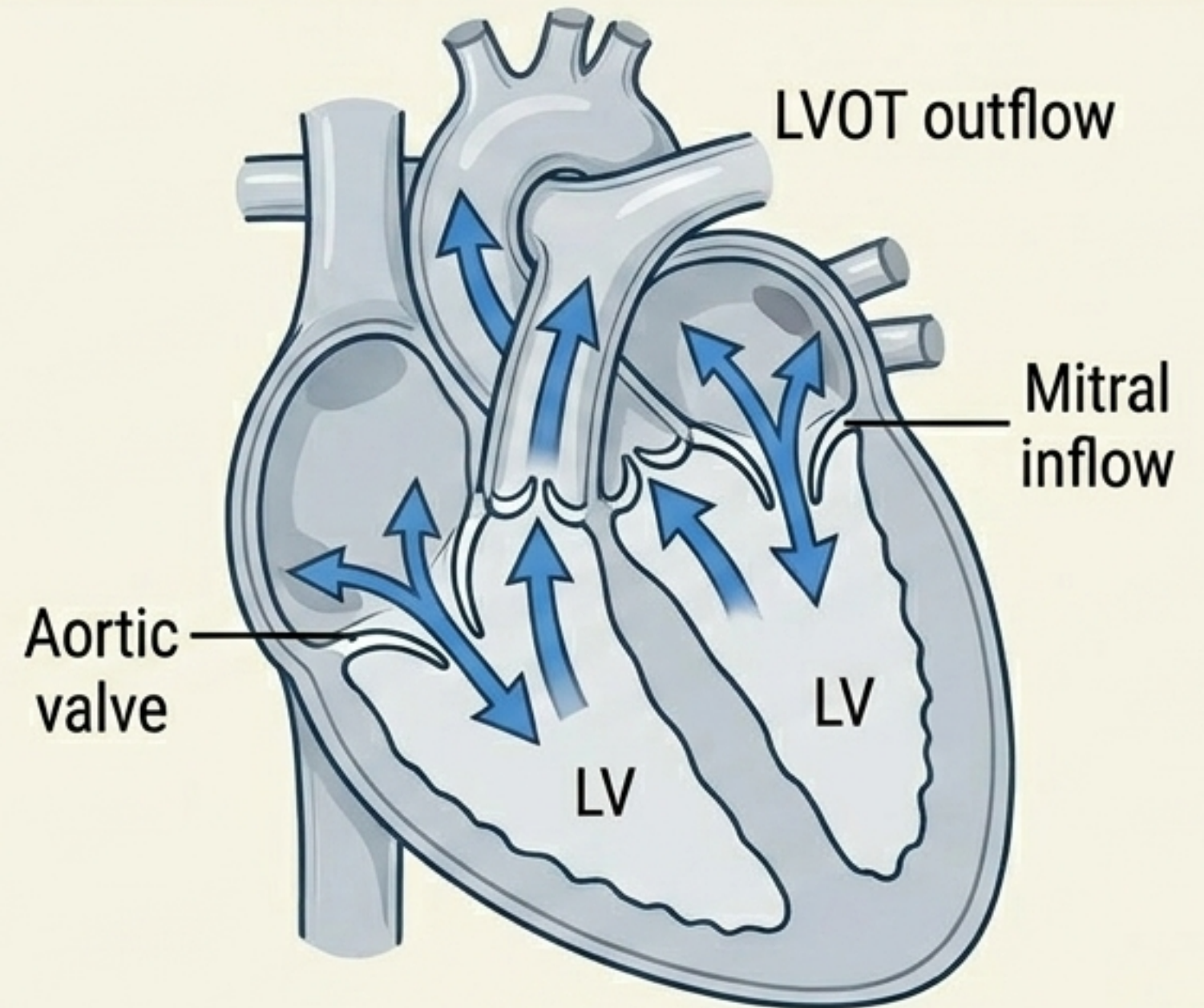


Measures the radius of the convergence zone.

$$\text{Formula: } \text{EROA} = (2\pi \times r^2 \times V_a) / V_{\text{peak}}$$

$$\text{RVol} = \text{EROA} \times \text{VTI}$$

Volumetric Method



Calculates RVol as
(Mitral inflow volume) – (LV outflow volume).

Useful when PISA is unreliable due to eccentric jets.

Clinical Toolkit for Mitral Regurgitation Assessment



Essential TTE

First-line. Assesses severity, mechanism, LV/LA dimensions, LVEF.

MBS 55118



TEE (Transoesophageal)

Gold standard for preoperative planning, leaflet morphology, and intraoperative guidance.

MBS 55124



Cardiac MRI (CMR)

Ultimate accuracy for LV volumes and RVol. Used when echo is suboptimal or discordant with clinical picture.

MBS 63324



Biomarkers & Cath

NT-proBNP correlates with severity (MBS 66502). Cath reserved for assessing LA pressures/coronary anatomy when non-invasive data conflicts.

The Gold Standard: Repair

>95% success rate and <1% mortality in experienced centres.
Preserves native valve, avoids anticoagulation, maintains LV geometry.

	Repair vs. Replacement	
10-year Reoperation Freedom	90-95% (Repair)	75-90% (Replacement)
LV Function	Maintained/Improved (Repair)	May decline (Replacement)
Anticoagulation	None (Repair)	Lifelong or 3-months (Replacement)



Mechanical:

For <60y (lifelong warfarin).

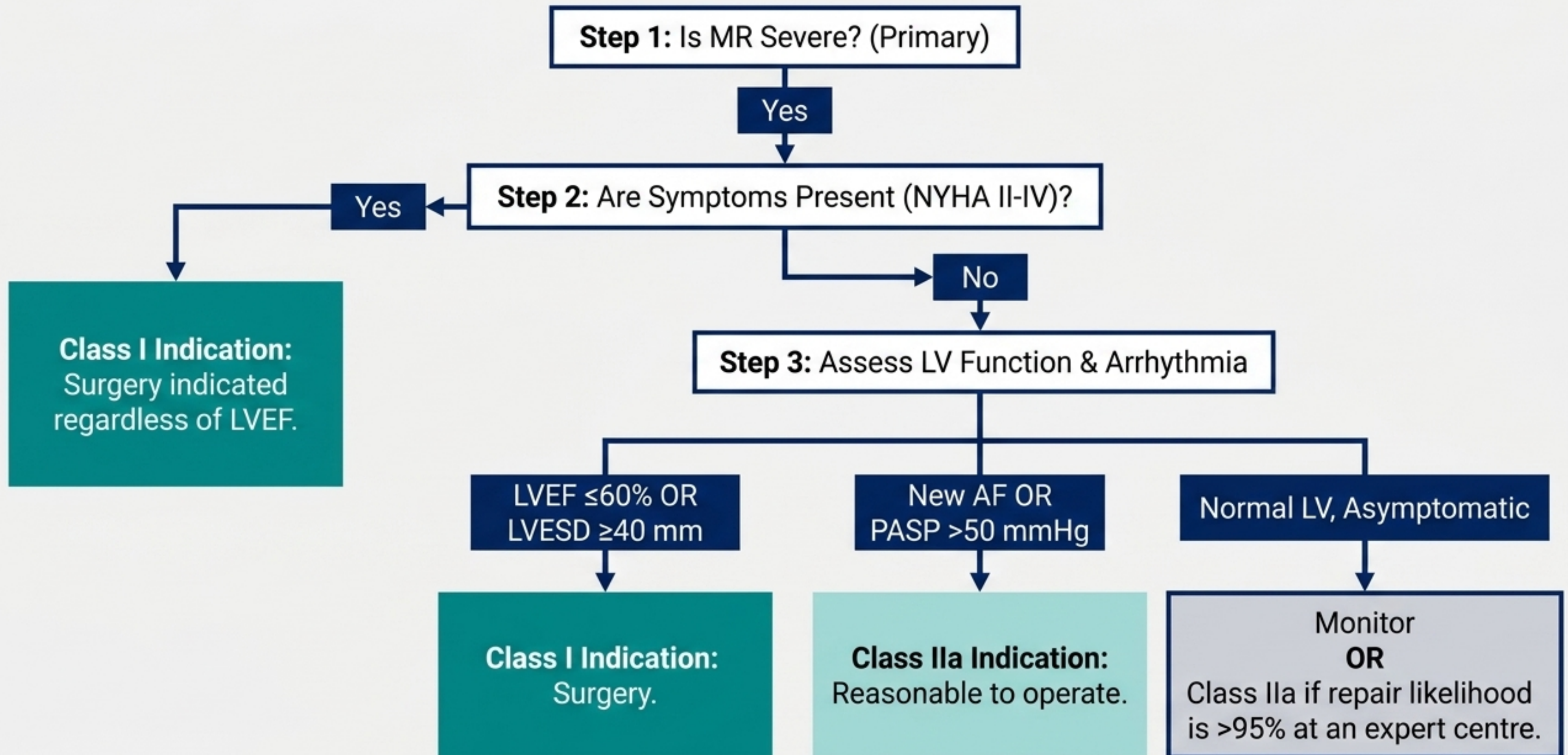


Bioprosthetic:

For >65y (10-15y durability).

Rule: If replacement is necessary, preserve posterior chordae.

Mitral Regurgitation Management Flowchart



Medical Management: Prescription Cards

ARNI

Sacubitril/Valsartan. Start 49/51 BD, titrate 97/103 BD. Avoid eGFR <30.

PBS: LVEF \leq 35%.

Beta-blockers

Carvedilol (up to 25/50 BD), Bisoprolol (up to 10 daily), Metoprolol succinate.

MRA

Spirolonactone / Eplerenone. Target 25-50 daily. Contraindicated if eGFR <30 or K⁺ > >5.0.

SGLT2i

Dapagliflozin / Empagliflozin 10mg daily. Initiate if eGFR \geq 20.

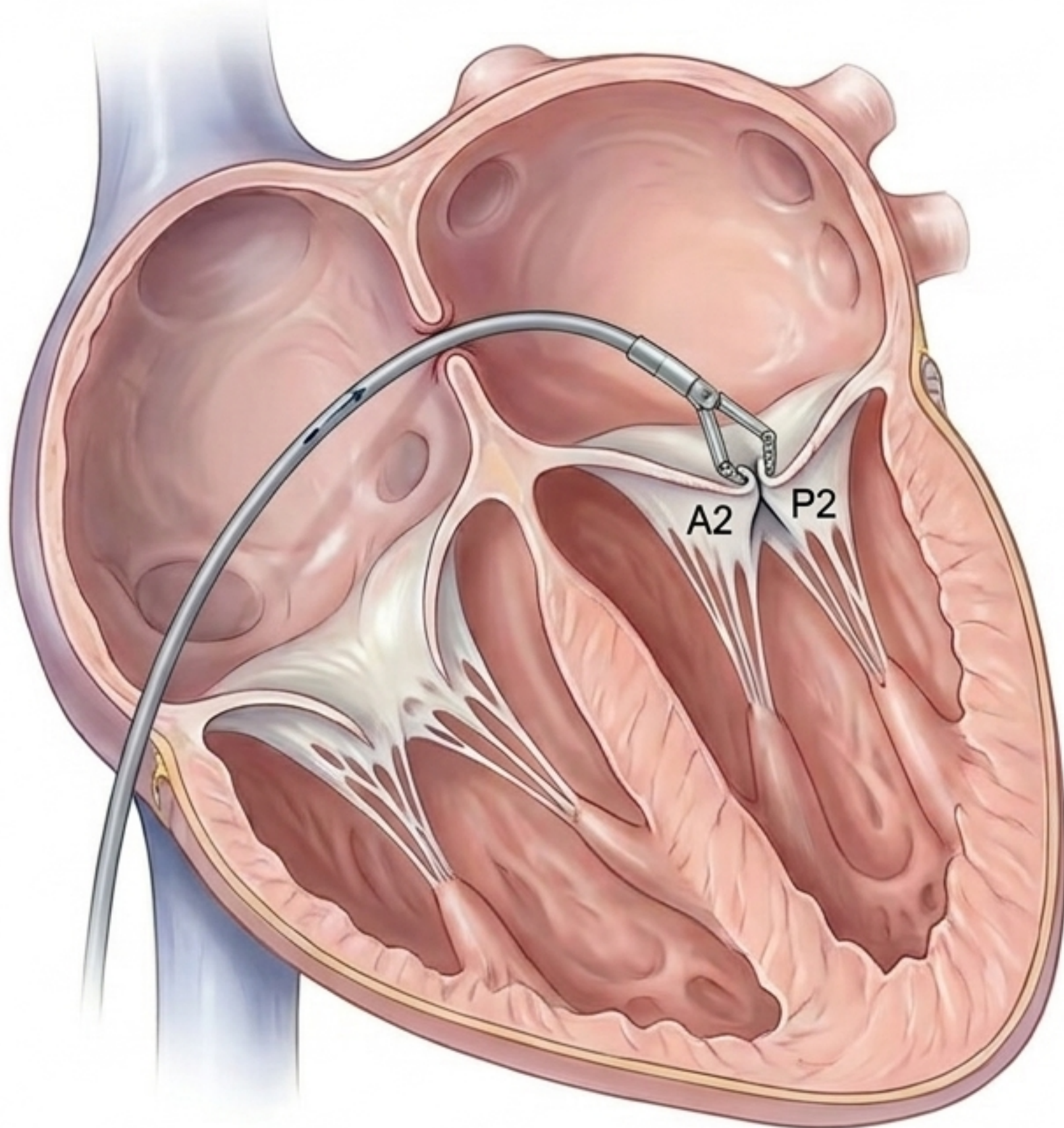
PBS: LVEF \leq 40%.

Diuretics

Furosemide 20-80mg IV/PO for symptoms.

Note: Vasodilators in Primary MR do not delay surgery need; use only for concurrent hypertension.

MitraClip (TEER): Procedure & Criteria



Patient Selection

Primary MR: Prohibitive surgical risk (Class IIa).

Secondary MR: Prohibitive risk AND severe symptoms despite ≥ 3 months of optimised GDMT + CRT.

Anatomical Requirements

Leaflet length ≥ 10 mm

MVA ≥ 4.0 cm²

Coaptation depth < 10 mm

Emerging Landscape

Tendyne (TMVR), Cardioband (Annuloplasty), and PASCAL (TEER alternative) are under investigation. MBS Item 38553 funds MitraClip in Australia.

COAPT vs MITRA-FR: The Great Divide

COAPT Trial

- 614 patients.
- EROA ≥ 0.30 .
- Optimised GDMT rigorously enforced.
- Results: 46% reduction in HF hospitalisation & reduced mortality.

MITRA-FR Trial

- 304 patients.
- EROA ≥ 0.20 .
- Less strict GDMT.
- Results: No benefit shown.

The Synthesis: Disproportionate vs Proportionate MR

TEER works when the MR severity (EROA ≥ 0.30) is disproportionately worse than the LV dilatation would suggest. If the MR is merely proportionate to a massively dilated LV, fixing the valve doesn't fix the patient.

Clinical Pathway: MR Management from Diagnosis to Intervention & Monitoring

Step 1: Differentiate & Refer

Isolate Primary
vs Secondary.

For Primary:
Refer early to
Heart Team.
Do not wait for
irreversible LV
dysfunction.

Step 2: Optimise (Secondary Focus)

Mandated ≥ 3
months of
maximally
tolerated GDMT
tolerated GDMT
(ARNI, BB, MRA,
SGLT2i) + CRT.

Reassess echo
after reverse
remodelling.

Step 3: Heart Team Decision

Multidisciplinary
review
(interventionalist,
surgeon, imaging,
HF cardiologist).

Surgery for
Primary;
TEER for
refractory
Secondary.

Step 4: Monitor

Strict
surveillance
intervals
based on
severity and
intervention.

Mitral Valve Surveillance & Monitoring Pathway

Native Valve Surveillance



- **Mild:** Every 2-3 years.



- **Moderate:** Annually.



- **Severe:** Every 6-12 months (Primary) or 3-6 months (Secondary due to rapid LV dynamics)

Post-Intervention Surveillance

Repair: TTE at 1 month, 6 months, then annually.

- 6-months endocarditis prophylaxis.

Mechanical: Lifelong INR (2.5-3.5 target).

- TTE at 1 month, then annually.

Bioprosthetic: TTE at 1 month, 1 year, then annually.

TEER (MitraClip): TTE at 1 month, 6 months, then annually (Monitor transmitral gradient >5 mmHg).

Clinical Nuances: MR Management in Special Populations

Pregnancy



- ACEi/ARNI/Spironolactone are contraindicated (teratogenic). Pre-pregnancy repair preferred.

Elderly



- Higher surgical risk (calculate EuroSCORE II). Prefer bioprosthetic valves to avoid bleeding risks.
- Use diuretics cautiously.

Paediatrics



- Prefer valve-sparing repair to avoid patient-prosthesis mismatch during growth.

Renal Impairment



- Avoid ARNI/MRA if eGFR <30.
- SGLT2i safe to initiate if eGFR \geq 20.
- Monitor contrast during TEER.

Hepatic Impairment



- High surgical risk in cirrhosis.
- Unreliable INR for warfarin.
- Eplerenone > Spironolactone (less gynaecomastia risk).

Immunocompromised



- High risk of endocarditis.
- Strict prophylaxis protocols.

Aboriginal and Torres Strait Islander Health

The Burden

RHD-related MR occurs at 20–60x the non-Indigenous rate.

Earlier onset, faster progression, massive systemic barriers to screening and TEER access.

Clinical Imperative

Benzathine Penicillin G (BPG) 1.2M units IM every 3-4 weeks. Current adherence is only 40-60%.

Structural Solutions

- Systematic echo screening in high-risk communities (RHD Endgame Strategy).
- Dedicated aeromedical surgical pathways.
- Mandatory engagement with Aboriginal Health Workers and Liaison Officers (AHWLOs) to ensure cultural safety, shared decision making, and improved BPG delivery.