

Titles:

Heart failure in Valvular heart

Non Cardiac Surgery

Infective Endocarditis Prophylaxis

Secondary Rheumatic fever Prevention



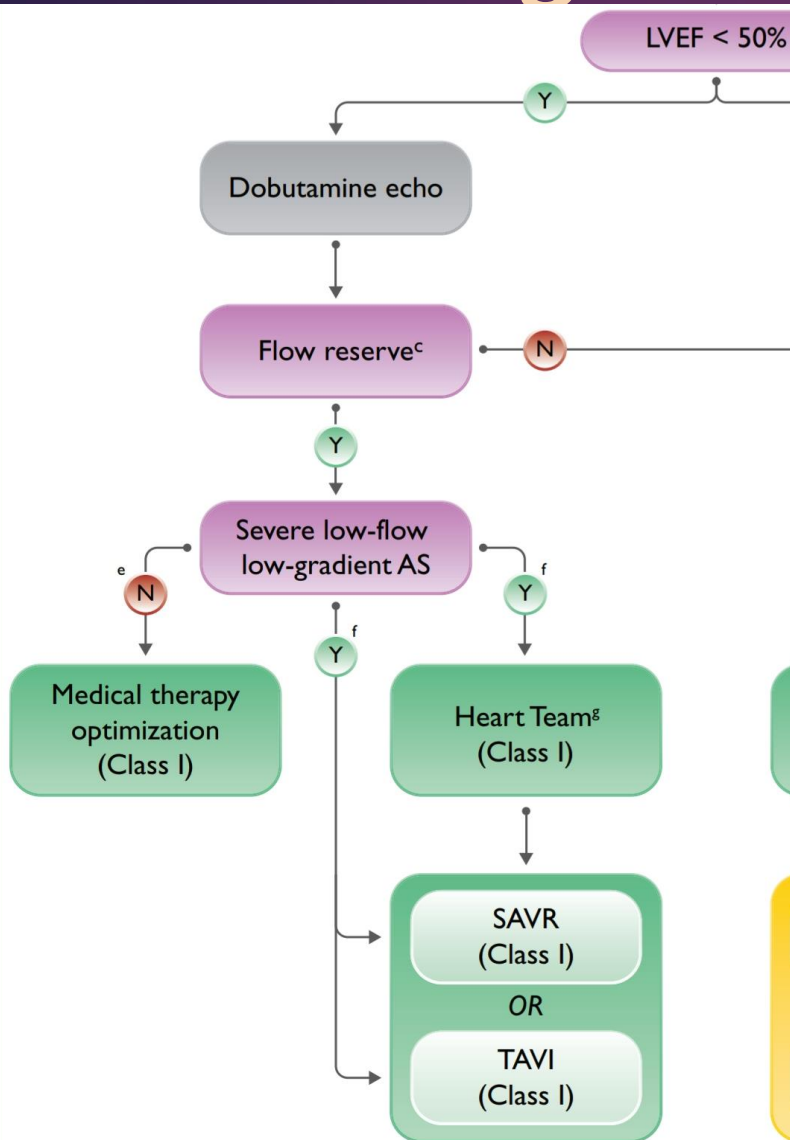
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**FELLOWSHIP OF HEART
FAILURE AND TRANSPLANT**

Severe, High gradient AS

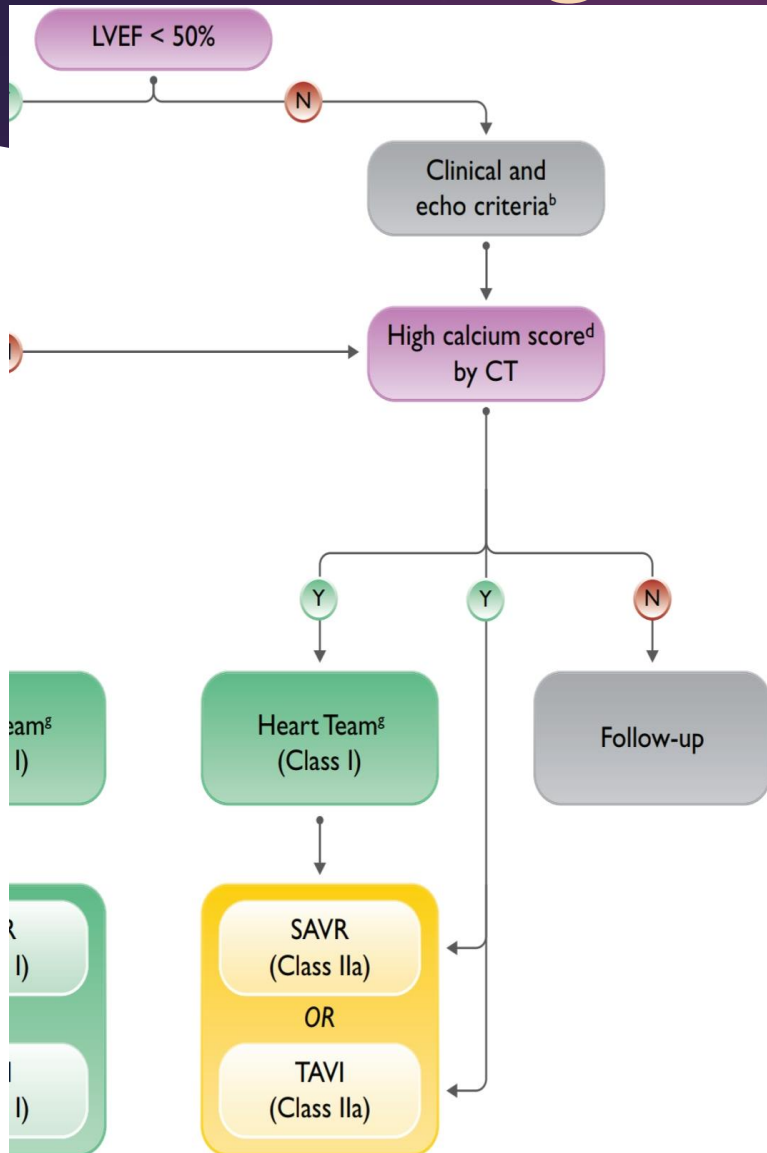
A) Symptomatic aortic stenosis	Class ^b	Level ^c
Intervention is recommended in symptomatic patients with severe, high-gradient aortic stenosis [mean gradient ≥ 40 mmHg, peak velocity ≥ 4.0 m/s, and valve area ≤ 1.0 cm ² (or ≤ 0.6 cm ² /m ²)]. ^{235,236}	I	B

Severe low-flow low-gradient AS



- ▶ Flow reserve in dobutamine echo is :
- ▶ stroke volume index increase >20%
- ▶ Increase in valve area to >1.0 cm² in response to flow increase
- ▶ Increase in mean gradient to at least 40 mmHg without significant change in valve area

Severe low-flow low-gradient AS

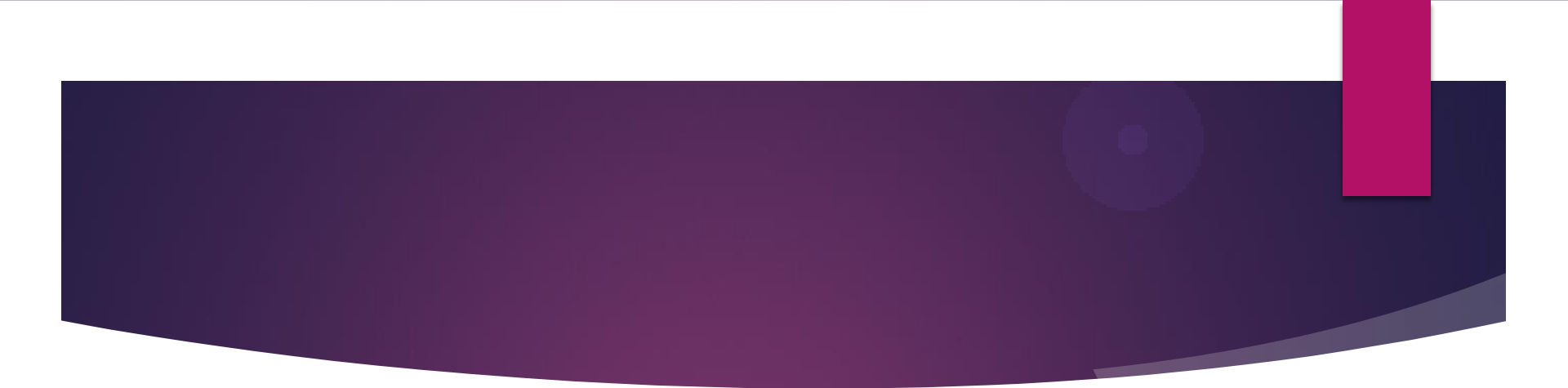


► Calcium Score

men >3000, women >1600 = highly likely

men >2000, women >1200 = likely;

men <1600, women <800 = unlikely

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- ▶ **Low Flow ,Low gradient ,low EF**
 - ▶ **Low Flow ,Low gradient ,Preserved EF**
 - ▶ **NL Flow ,Low gradient ,Preserved EF
(moderate AS)**

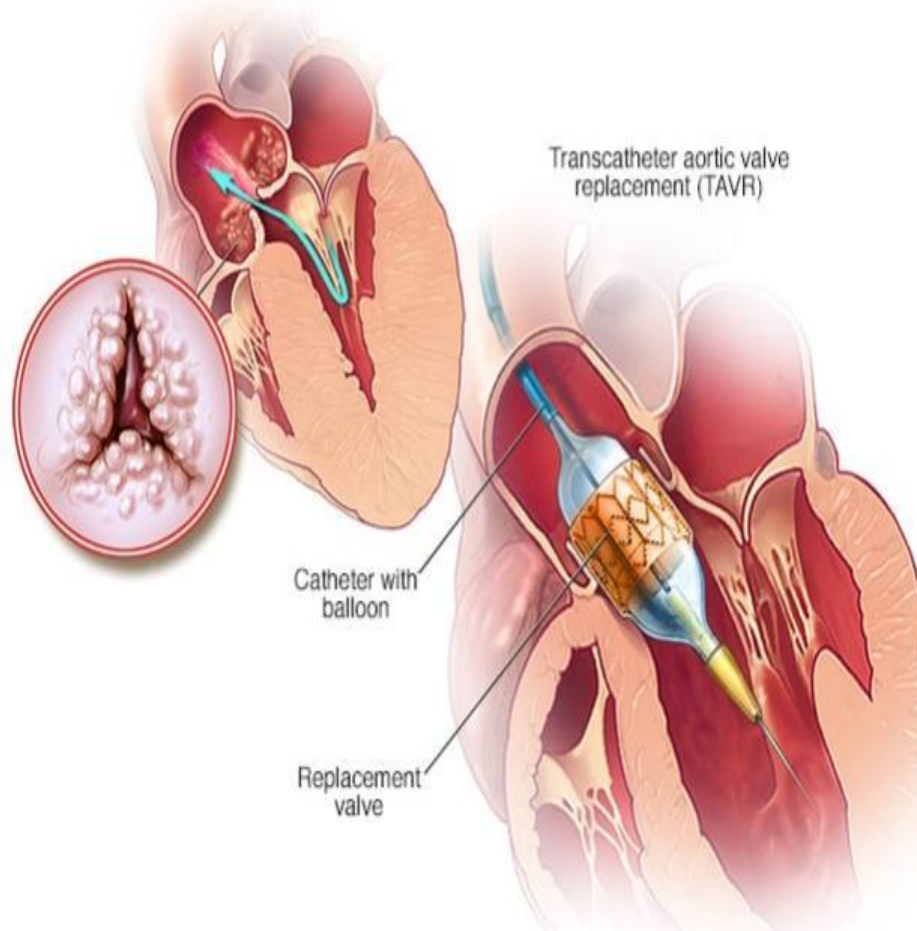
	TAVI	SAVR
Clinical characteristics		
Lower surgical risk	–	+
Higher surgical risk	+	–
Younger age ^a	–	+
Older age ^a	+	–
Previous cardiac surgery (particularly intact coronary artery bypass grafts at risk of injury during repeat sternotomy)	+	–
Severe frailty ^b	+	–
Active or suspected endocarditis	–	+
Anatomical and procedural factors		
TAVI feasible via transfemoral approach	+	–
Transfemoral access challenging or impossible and SAVR feasible	–	+
Transfemoral access challenging or impossible and SAVR inadvisable	+ ^c	–
Sequelae of chest radiation	+	–
Porcelain aorta	+	–
High likelihood of severe patient–prosthesis mismatch (AVA <0.65 cm ² /m ² BSA)	+	–
Severe chest deformation or scoliosis	+	–
Aortic annular dimensions unsuitable for available TAVI devices	–	+
Bicuspid aortic valve	–	+
Valve morphology unfavourable for TAVI (e.g. high risk of coronary obstruction due to low coronary ostia or heavy leaflet/LVOT calcification)	–	+
Thrombus in aorta or LV	–	+
Concomitant cardiac conditions requiring intervention		
Significant multi-vessel CAD requiring surgical revascularization ^d	–	+
Severe primary mitral valve disease	–	+
Severe tricuspid valve disease	–	+
Significant dilatation/aneurysm of the aortic root and/or ascending aorta	–	+
Septal hypertrophy requiring myectomy	–	+

TAVI or SAVR ?

- ▶ SAVR is recommended in patients aged <75 years and low surgical risk (STS-PROM score or EuroSCORE II <4%)
- ▶ whereas TAVI in those aged >75 years or at high/prohibitive surgical risk (STS-PROM score or EuroSCORE II >8%).
- ▶ In all the other cases, the choice between TAVI and SAVR is recommended to be decided by the Heart Team, weighing the pros and cons of each procedure, according to age, life expectancy, individual patient preference and features including clinical and anatomical aspects

TAVI

Aortic valve stenosis



AI and HF

► Recommendations on indications for surgery

Surgery is recommended in asymptomatic patients with LVEDD >50 mm or LVEDD >25 mm/m² BSA (in patients with small body size) or resting LVEF $\leq 50\%$.^{107,108,112,114,115}

I

B

Surgery may be considered in asymptomatic patients with LVEDD >20 mm/m² BSA (especially in patients with small body size) or resting LVEF $\leq 55\%$, if surgery is at low risk.

IIb

C

AI and HF

- ▶ **Medical Therapy in AI:**
- ▶ **Inhibitor of RAAS ✓**
- ▶ **B-blocker □**

Primary MR and HF

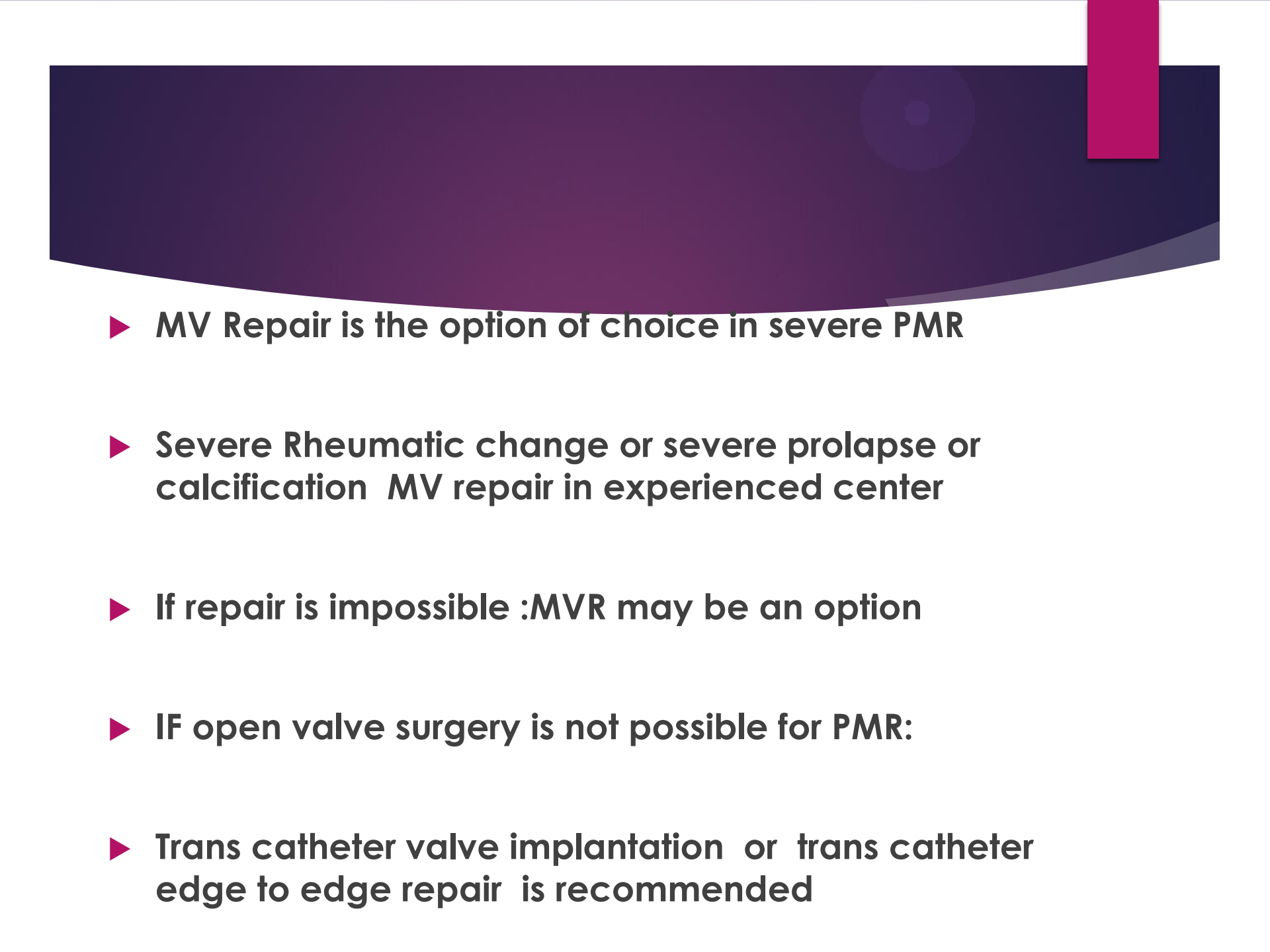
► Recommendations on indications for intervention in severe primary MR

Surgery is recommended in asymptomatic patients with LV dysfunction (LVESD \geq 40 mm and/or LVEF \leq 60%). ^{277,286,292}	I	B
Surgery should be considered in asymptomatic patients with preserved LV function (LVESD <40 mm and LVEF >60%) and AF secondary to mitral regurgitation or pulmonary hypertension ^c (SPAP at rest >50 mmHg). ^{285,289}	IIa	B

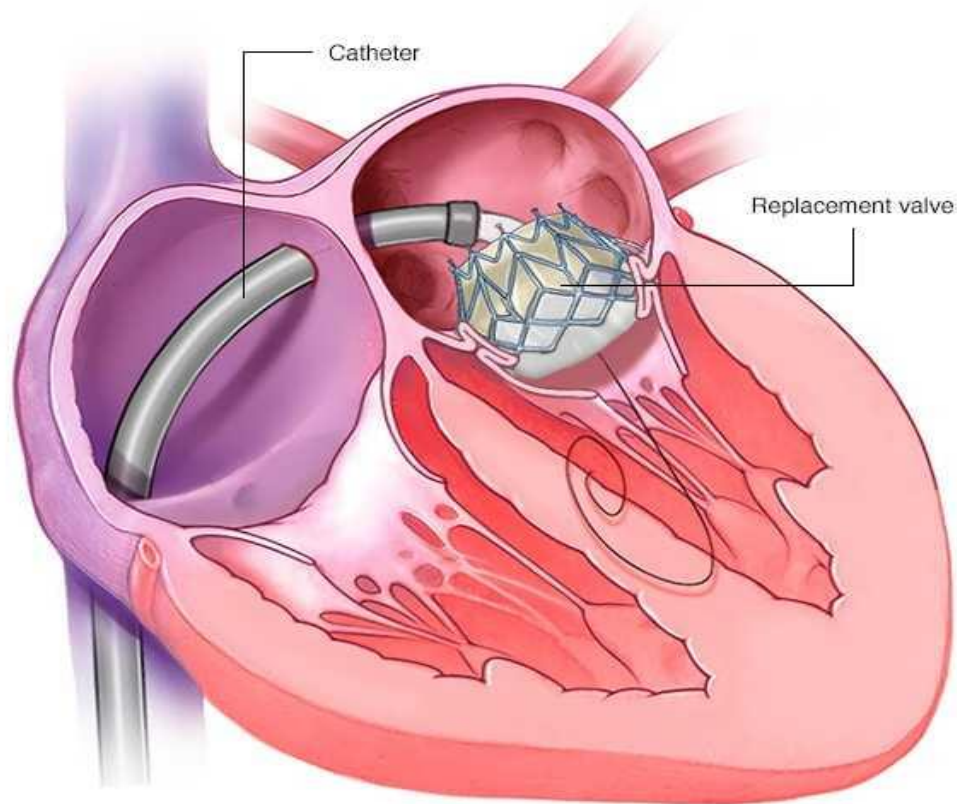
Primary MR and HF

► Medical Therapy

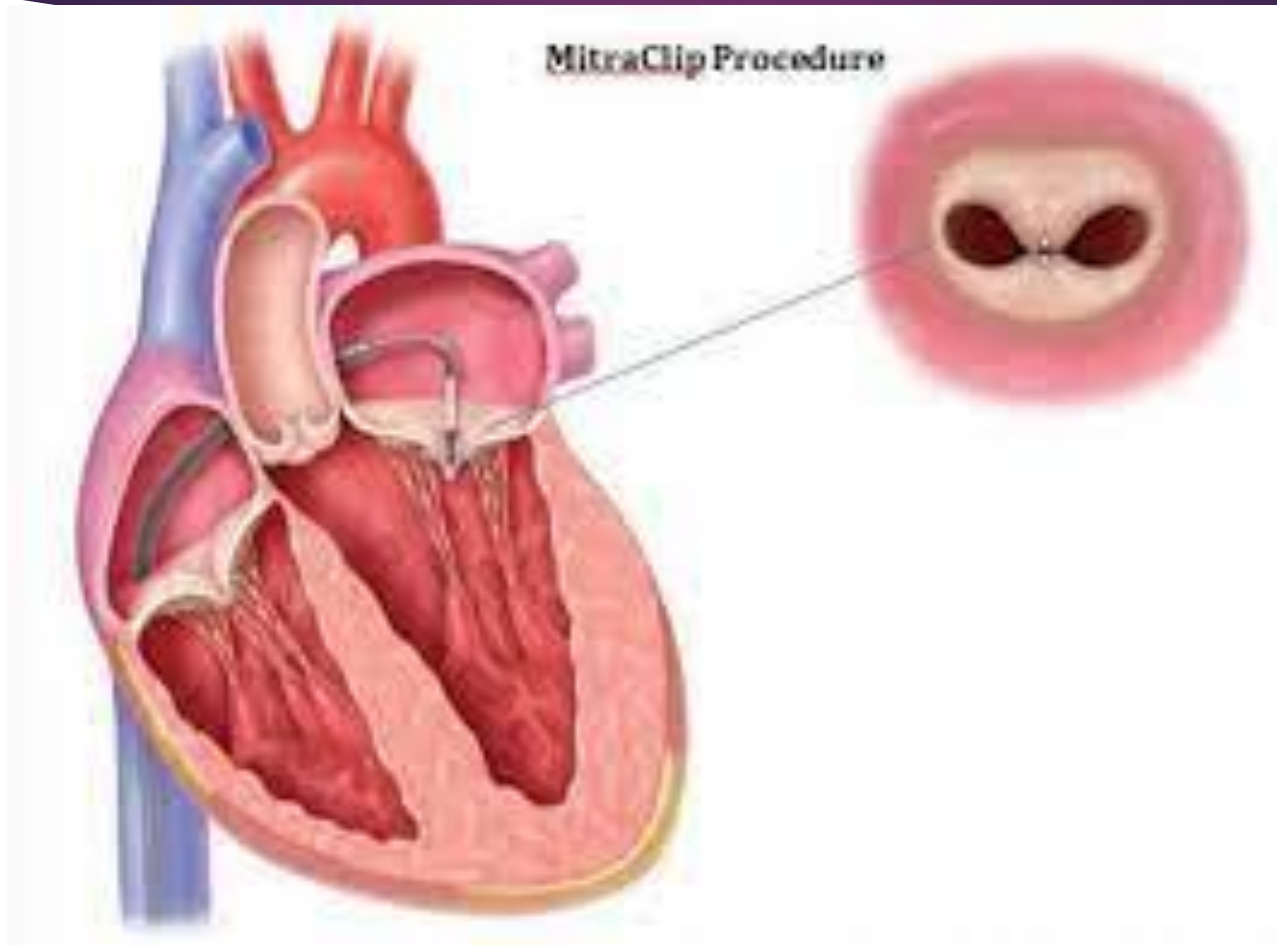
COR	LOE	Recommendations
2a	B-NR	1. In symptomatic or asymptomatic patients with severe primary MR and LV systolic dysfunction (Stages C2 and D) in whom surgery is not possible or must be delayed, GDMT for systolic dysfunction is reasonable. ¹⁻³

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- ▶ **MV Repair is the option of choice in severe PMR**
 - ▶ **Severe Rheumatic change or severe prolapse or calcification MV repair in experienced center**
 - ▶ **If repair is impossible :MVR may be an option**
 - ▶ **IF open valve surgery is not possible for PMR:**
 - ▶ **Trans catheter valve implantation or trans catheter edge to edge repair is recommended**

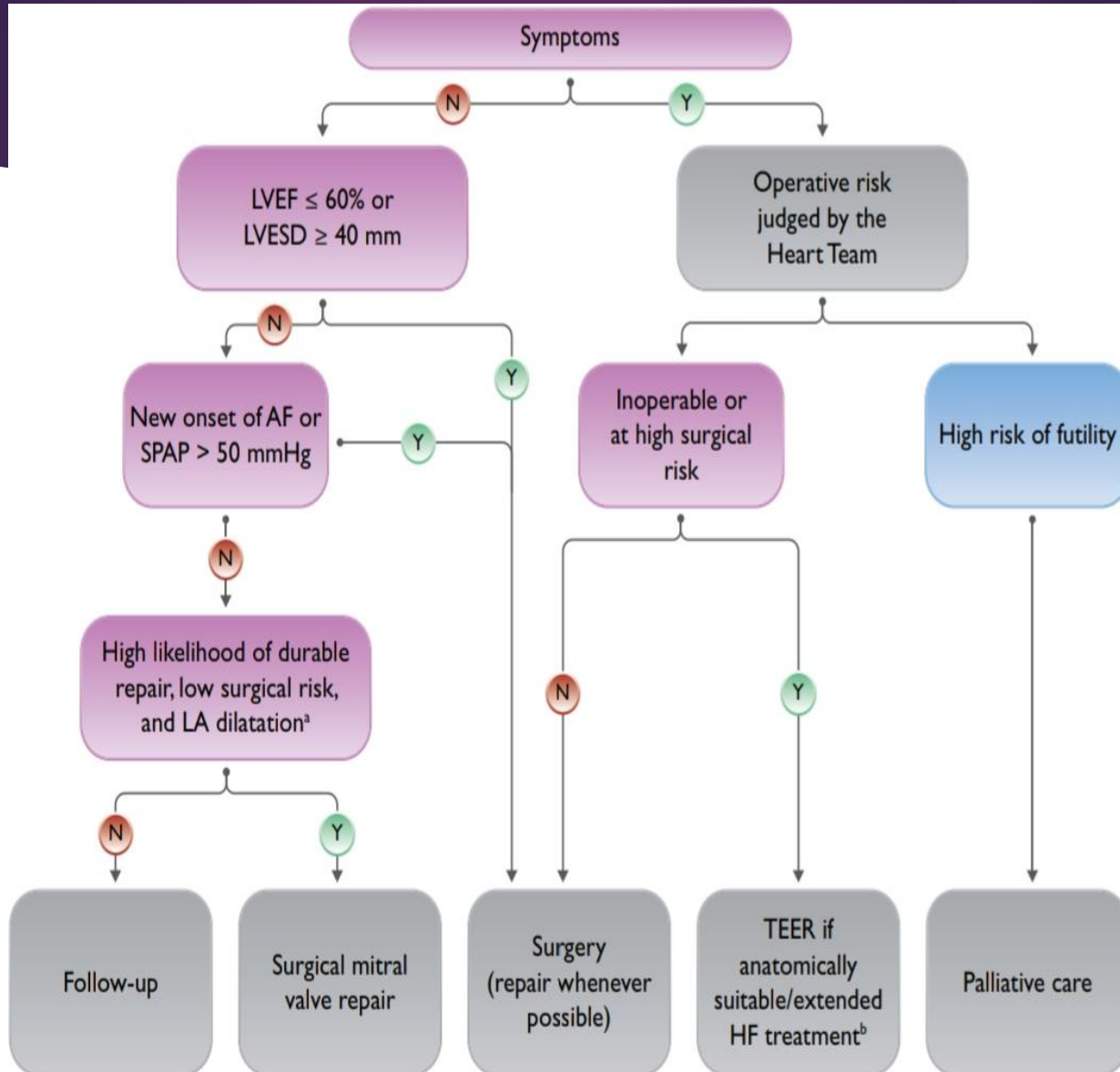
Trans catheter valve implantation



trans catheter edge to edge repair





Primary MR and HF



Secondary MR

- ▶ **Definition:**
- ▶ Normal valve leaflets and chordae
- ▶ Severe LV Dilation + LV dysfunction
- ▶ Isolated infero-basal MI leading to posterior leaflet tethering + Normal LV size and function
- ▶ Atrial functional MR: LAE and mitral annular dilatation in patients with longstanding AF

Medical Therapy in Secondary MR

- ▶ Optimal medical therapy of HF is the first and essential step in the management of all patients with SMR
- ▶ Replacement of ACEI or ARB with sacubitril/valsartan, sodium-glucose co-transporter 2 inhibitors and/or ivabradine, whenever indicated.
- ▶ Indications for CRT should be evaluated.
- ▶ If symptoms persist after OMT  
Intervention

Medical Therapy in Secondary MR

Recommendations	Class ^b	Level ^c
Valve surgery/intervention is recommended only in patients with severe SMR who remain symptomatic despite GDMT (including CRT if indicated) and has to be decided by a structured collaborative Heart Team. ^{247,323,336,337}	I	B

Intervention in secondary MR

Patients with concomitant coronary artery or other cardiac disease requiring treatment

Valve surgery is recommended in patients undergoing CABG or other cardiac surgery.^{329,330,333}

I

B

In symptomatic patients, who are judged not appropriate for surgery by the Heart Team on the basis of their individual characteristics,^d PCI (and/or TAVI) possibly followed by TEER (in case of persisting severe SMR) should be considered.

IIa

C

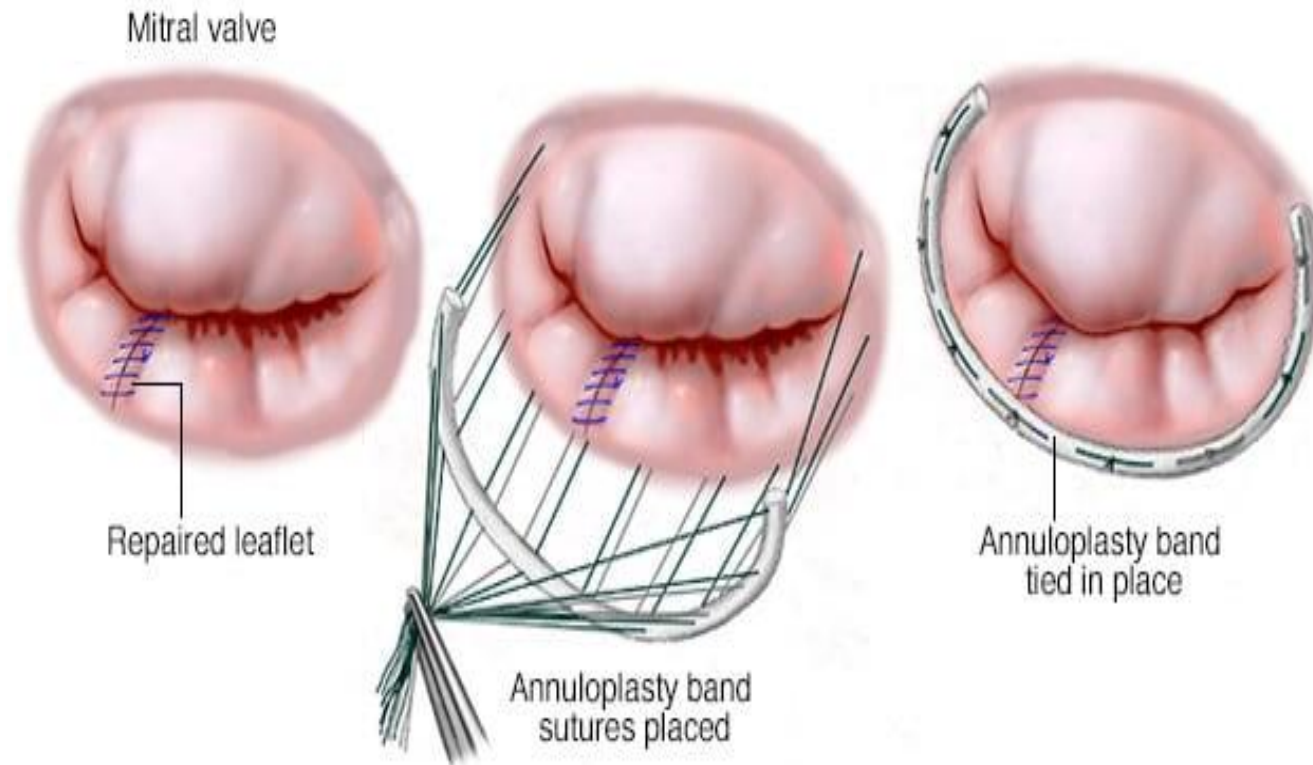
Intervention in secondary MR

- ▶ Patients without advanced LV remodelling
 - ☞ MV repair with an undersized complete rigid ring
 - ☞ Restores valve competence + Improves symptoms + Reverse LV remodelling
- ▶ In patients with echocardiographic predictors of repair failure
 - ☞ Additional valvular/subvalvular techniques or chordal sparing valve replacement

Intervention in secondary MR

- ▶ **Valve replacement:**
Avoids recurrence of MR ✓
Better LV reverse remodelling or survival
- ▶ **Atrial functional MR** ☞ **Ring annuloplasty + AF ablation**

Ring annuloplasty



Intervention in secondary MR

- ▶ **TEER with the MitraClip system is a minimal-invasive treatment option for SMR.**
- ▶ **Two RCTs (COAPT and MITRA-FR) have evaluated its safety and efficacy in patients with symptomatic heart failure and severe SMR persisting despite medical therapy**

Intervention in secondary MR

Patients without concomitant coronary artery or other cardiac disease requiring treatment

TEER should be considered in selected symptomatic patients, not eligible for surgery and fulfilling criteria suggesting an increased chance of responding to the treatment.^{337,338,356,357 e}

IIa

B

Valve surgery may be considered in symptomatic patients judged appropriate for surgery by the Heart Team.

IIb

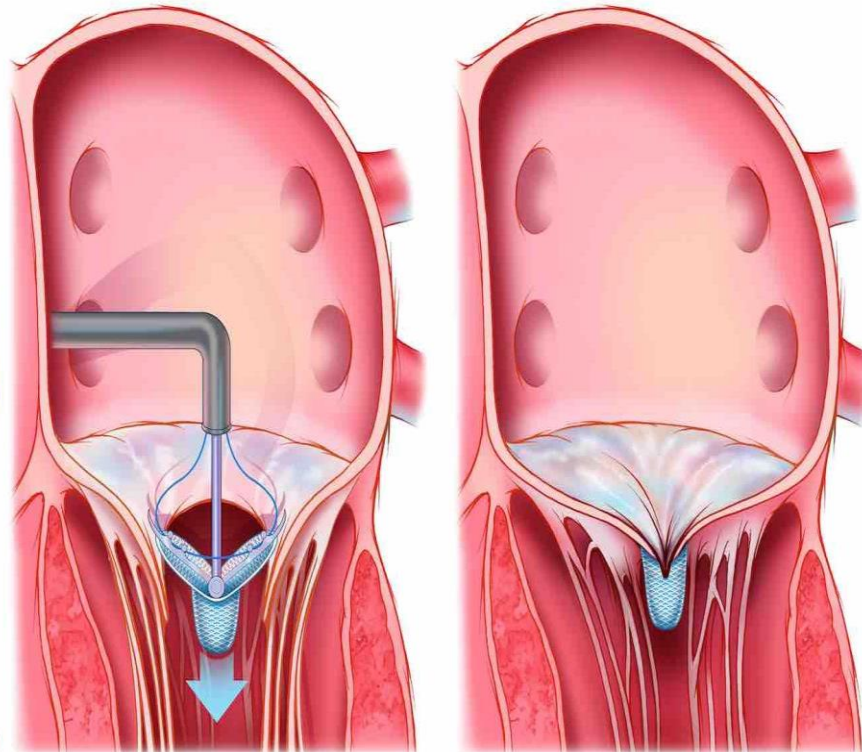
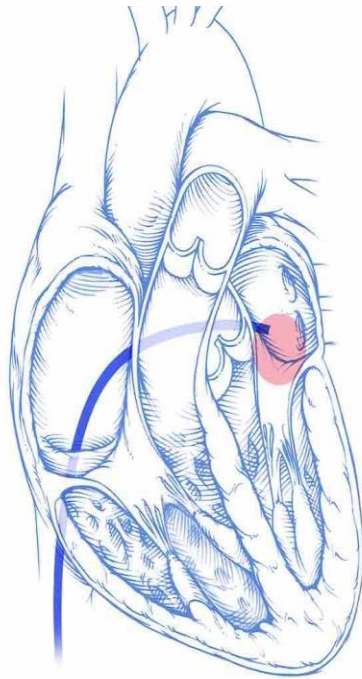
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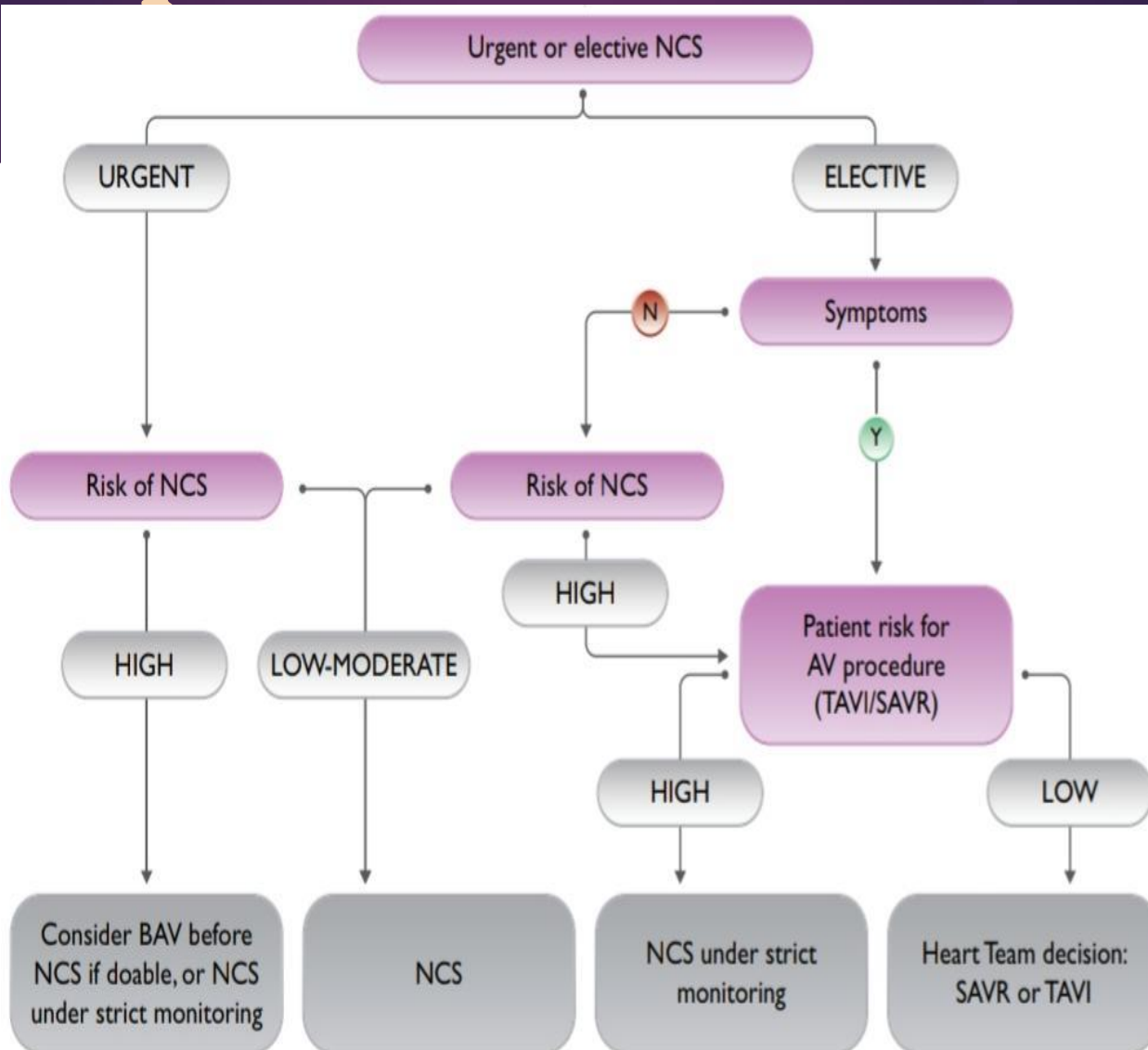
In **AHA** guide line:

- ▶ TEE R is recommended if LVEF is more than 20% and SPAP < 70 mmHg , LVESD <70 mm.
- ▶ TEE R is not recommended if LVEF is less than 15%

MitraClip



Non cardiac surgery in patients with AS



Non cardiac surgery in patients with MS

- ▶ 1. Non significant MS (valve area > 1.5) ☞ Non Cardiac Surgery ✓
- ▶ 2. Asymptomatic patients with significant MS and an SPAP < 50 mmHg ☞ Non Cardiac Surgery ✓
- ▶ 3. In **symptomatic** patients or in patients with **SPAP > 50 mmHg** ☞ **valvular intervention** before elective noncardiac surgery ✓

MR and AI

- ▶ 1. In asymptomatic patients with severe MR or AI and preserved LV function ☞☐ Non Cardiac Surgery ✓
- ▶ 2. Symptomatic or Mild to Moderate LV dysfunction ☞☐ Seldom need valvular surgery before NCS
- ▶ 3. If **EF < 30%** and/or **SPAP > 50/60** mmHg ☞☐ NCS should be performed only if strictly necessary and after optimization of medical therapy for heart failure

Recommendations for IE Prophylaxis

COR	LOE	Recommendations
2a	C-LD	<ol style="list-style-type: none">1. Antibiotic prophylaxis is reasonable before dental procedures that involve manipulation of gingival tissue, manipulation of the periapical region of teeth, or perforation of the oral mucosa in patients with VHD who have any of the following¹⁻⁹:<ol style="list-style-type: none">a. Prosthetic cardiac valves, including transcatheter-implanted prostheses and homografts.b. Prosthetic material used for cardiac valve repair, such as annuloplasty rings, chords, or clips.c. Previous IE.d. Unrepaired cyanotic congenital heart disease or repaired congenital heart disease, with residual shunts or valvular regurgitation at the site of or adjacent to the site of a prosthetic patch or prosthetic device.e. Cardiac transplant with valve regurgitation attributable to a structurally abnormal valve.

Recommendations for IE Prophylaxis

**3: No
Benefit**

B-NR

2. In patients with VHD who are at high risk of IE, antibiotic prophylaxis is not recommended for nondental procedures (eg, TEE, esophagogastroduodenoscopy, colonoscopy, or cystoscopy) in the absence of active infection.^{10,11}

Antibiotic regimens for prevention of endocarditis prior to dental procedures

Situation	Agent	Adults	Children
Oral	Amoxicillin	2 g	50 mg/kg
Unable to take oral medication	Ampicillin OR	2 g IM or IV	50 mg/kg IM or IV
	Cefazolin or ceftriaxone	1 g IM or IV	50 mg/kg IM or IV

Allergic to penicillin or ampicillin and unable to take oral medication	Cefazolin or ceftriaxone ^Δ	1 g IM or IV	50 mg/kg IM or IV
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Allergic to penicillin or ampicillin—oral	Cephalexin [¶] OR	2 g	50 mg/kg
	Azithromycin or clarithromycin OR	500 mg	15 mg/kg
	Doxycycline	100 mg	<45 kg, 4.4 mg/kg >45 kg, 100 mg

Duration of Secondary Prophylaxis for Rheumatic Fever

Type	Duration After Last Attack*
Rheumatic fever with carditis and residual heart disease (persistent VHD†)	10 y or until patient is 40 y of age (whichever is longer)
Rheumatic fever with carditis but no residual heart disease (no valvular disease†)	10 y or until patient is 21 y of age (whichever is longer)
Rheumatic fever without carditis	5 y or until patient is 21 y of age (whichever is longer)

- ▶ ***Lifelong prophylaxis may be recommended if the patient is at high risk of group A streptococcus exposure.**
- ▶ **Secondary rheumatic heart disease prophylaxis is required even after valve replacement.**

Secondary Prevention of Rheumatic Fever

Antibiotics for Prevention	Dosage*
Penicillin G benzathine	1.2 million U intramuscularly every 4 wkt
Penicillin V potassium	200 mg orally twice daily
Sulfadiazine	1 g orally once daily
Macrolide or azalide antibiotic (for patients allergic to penicillin and sulfadiazine)‡	Varies