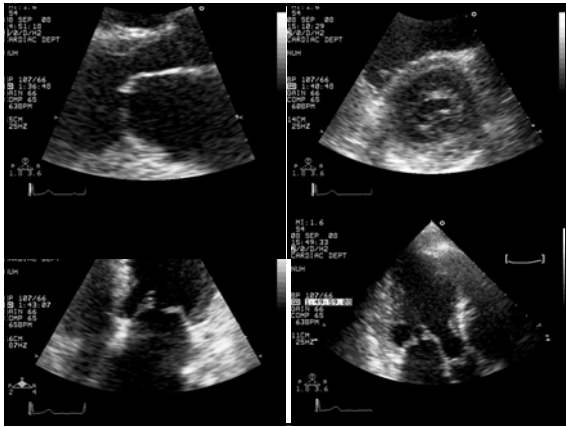


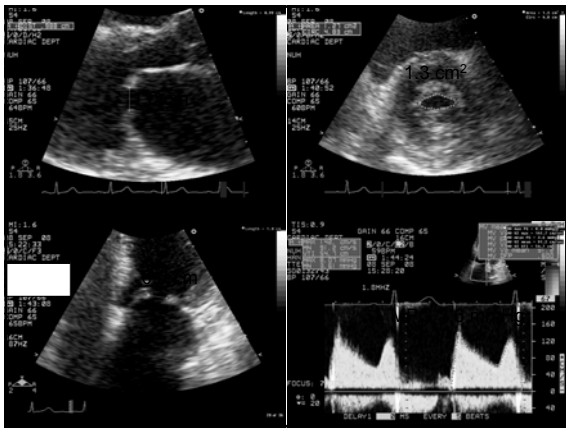
59/F with Mitral Stenosis

- Follow-up since 1998:
 - MS (Dx age 11) + AF
 - S/p PTMC 1999
 - Non-specific CTD/SLE
- Progressive SOB since 2002
 - Lung function test
 - Hi-res CT
 - Ex-MIBI: normal

59/F with Mitral Stenosis

- SOB worsening since 06/2008
- With minimal effort, NYHA 3-4





How Severe is the MS?

- A. Mild
- B. Moderate
- C. Moderately severe
- D. Severe
- E. Sleepless in Sydney

What Do You Advise?

- A. Diuretics
- B. PTMC
- C. MVR
- D. Exercise echo
- E. Look for another cause of SOB



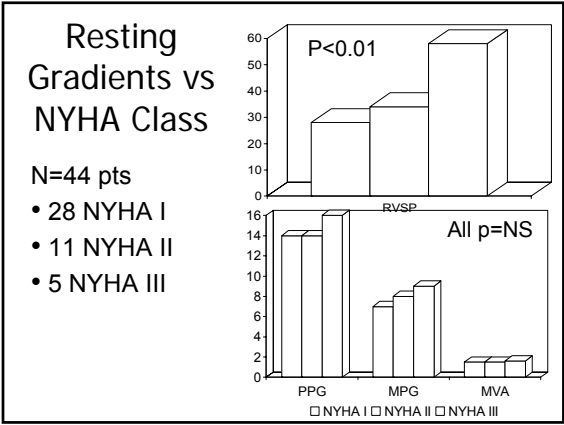
Mitral Stenosis *Role of Stress Echo*

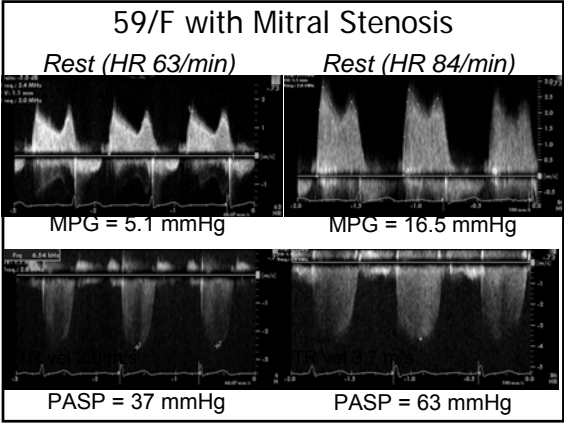
- Evaluate functional capacity
- Assess transmitral gradients
- Assess TR velocity / PASP

Mitral Stenosis *Stress Echo*

- For pts with exertional sx in whom rest hemodynamics do not indicate severe MS
- With fixed MVA, \uparrow CO and HR will \uparrow MPG, LAP and PASP
- Exercise duration inversely related to PASP but not MVA or MPG

Song. Am J Cardiol 1996; 78: 1060-1062





59/F with Mitral Stenosis

- TEE 02/09
 - MV leaflets thickened, pliable
 - MV score = 6
- PTMC 04/02/09
- Marginal if any improvement
- Post-PTMC MVA 1.4-1.5 cm², MPG 4 mmHg, mild MR

Quo Vadis?

- A. 3D-TEE
- B. Cath to check gradient and MVA
- C. Refer Psychiatry
- D. Redo PTMC
- E. MVR



59/F with Mitral Stenosis *Progress*

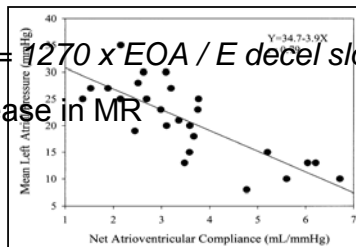
	MHR	MVA	MPG	PASP
TTE pre-PTMC		1.2	5	37
post-PTMC		1.4	4	23
ExE pre-PTMC	87	x	17	67
post	98	x	23	62

Why Do Gradients ↑↑↑ During Exercise in MS?

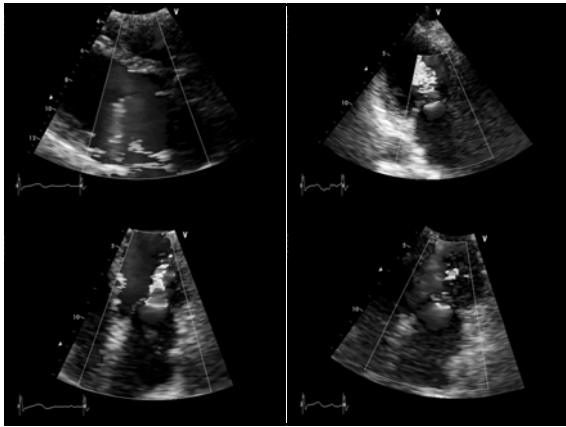
- Abnormal net LA-LV compliance

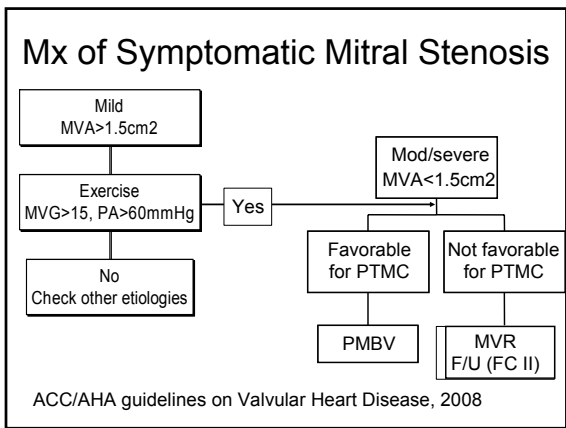
$$C_n = 270 \times EOA / E \text{ decel slope}$$

- Increase in MR



Schwammenthal. *Circulation* 2000; 102:2378-2384
Tischler. *Echocardiography* 1993 Sep; 10(5):453-7





22/F with Mitral Regurgitation

- 14 yo: H. influenzae endocarditis, Rx ceftriaxone. Flail PML, severe MR
- 17 yo: ↑ LVIDs ?artifactual; LVEF 63%
- 20 yo: Marfan clinic – MASS phenotypic?

22/F with Mitral Regurgitation

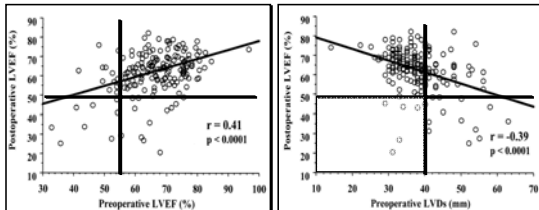
- Asymptomatic, can climb 7 storeys
- BSA 1.3 m²
- BP 92/60 HR
- 4/6 MR
- No HF signs

22/F with Mitral Regurgitation

Date of Echo	LVIDd	LVIDs	LVEF	LA	PASP
27-Mar-96	44	28	66	26	x
22-Nov-96	52	30	71	26	x
7-Jan-98	56	34	68	37	x
7-Sep-99	54	32	70	33	32
13-Mar-00	54	39	63	36	x
6-Jun-00	55	33	65	36	35
4-May-01	55	33	65	35	31
11-Apr-02	58	35	65	40	32
11-Dec-03	57	34	65	40	33
28-Apr-05	57	34	65	43	27
21-Sep-05	56	34	68	44	29

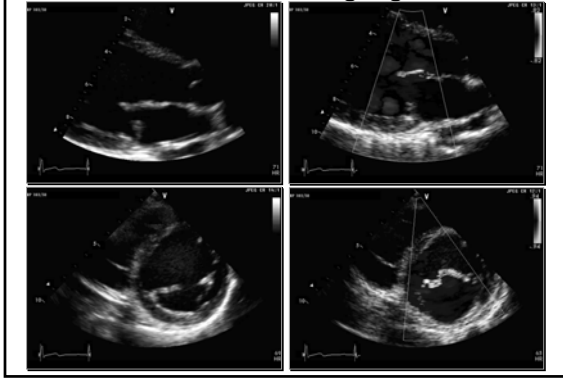
Prediction of Postop LV Dysfunction After MV Surgery

Incidence of postop LV dysfunction high in pts with preop LVEF <55% (38%) or LVIDs ≥40 mm (23%)

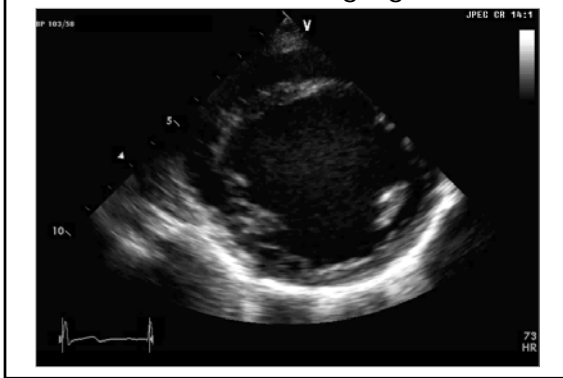


Matsumura. *J Am Coll Cardiol* 2003; 42:458-63

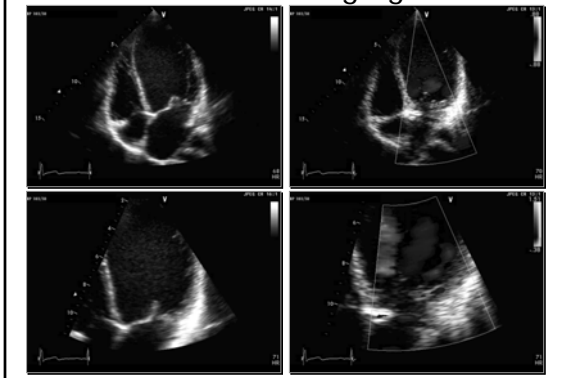
22/F with Mitral Regurgitation



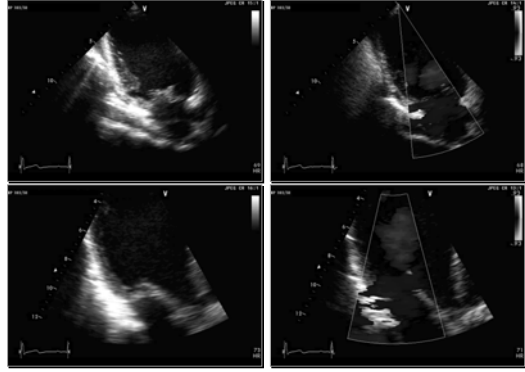
22/F with Mitral Regurgitation



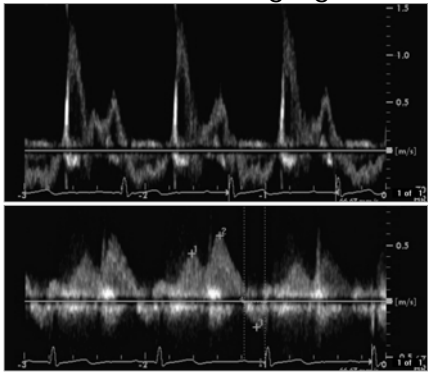
22/F with Mitral Regurgitation



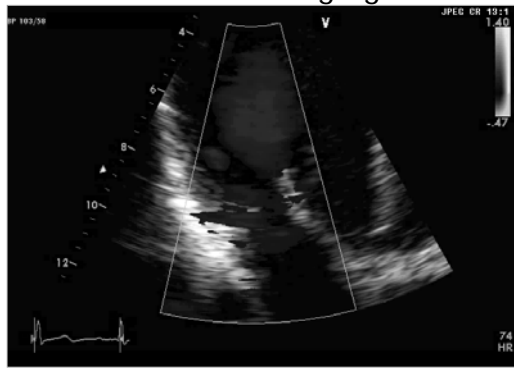
22/F with Mitral Regurgitation



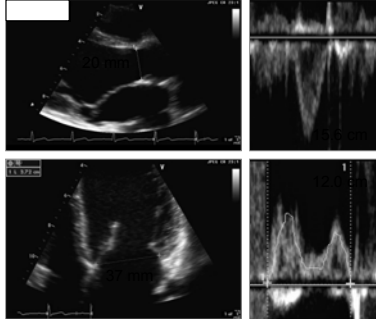
22/F with Mitral Regurgitation



22/F with Mitral Regurgitation



22/F with Mitral Regurgitation



LVOT SV
= 49 ml

Annular SV
= 129 ml

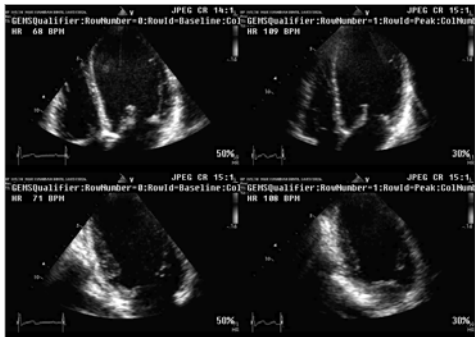
Mitral Reg Vol = 80 ml, Reg Fraction = 62%

22/F with Mitral Regurgitation *What Would You Do?*

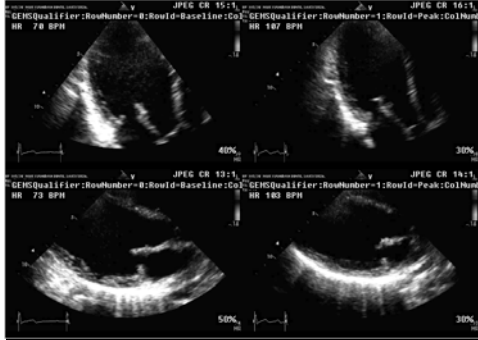
- A. Recommend surgery
- B. Continue medical observation
- C. Exercise echo for contractile reserve
- D. Measure VO₂max
- E. Check BNP



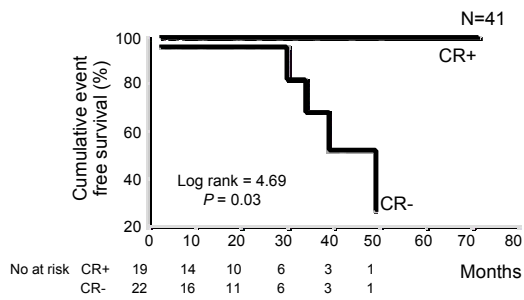
22/F with Mitral Regurgitation



22/F with Mitral Regurgitation

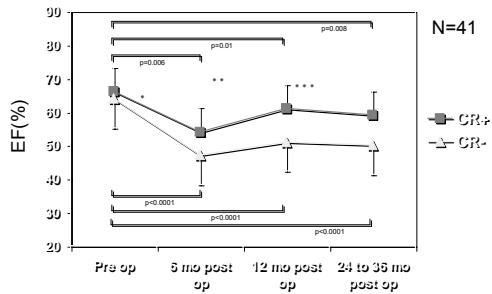


Contractile Reserve in MR Event-free Survival in CR+ vs CR- Pts



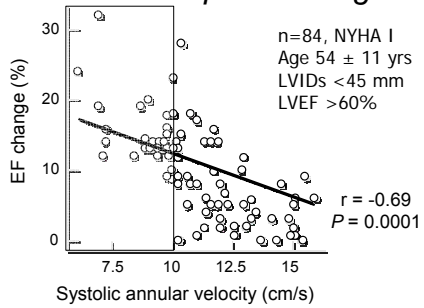
Lee et al. *Heart* 2005; 91;1407-12

Contractile Reserve in MR Post-op LVEF in CR+ vs CR- Pts



Lee et al. *Heart* 2005; 91;1407-12

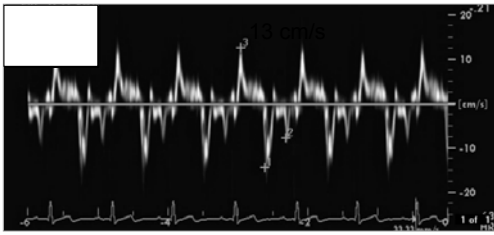
Mitral Regurgitation Sm and Postop EF Change



Agricola et al. *Heart* 2004;90:406-410

22/F with Mitral Regurgitation

Lateral Annular Systolic Velocity



22/F with Mitral Regurgitation *What's the Score?*

<i>Index</i>	<i>Good</i>	<i>Bad</i>	<i>Ugly</i>
Symptoms	X		
LV remodeling		X	
Quantitation of MR			X
Contractile reserve	X		
Tissue Doppler	X		

22/F with Mitral Regurgitation *Denouement*

- Repair attempted, failed – prolapsed A2
- MVR with Carpentier-Edwards Perimount #27 bioprosthesis
- Postop NYHA I

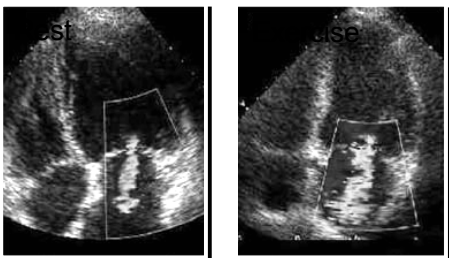
<i>Date of Echo</i>	<i>LVIDd, mm</i>	<i>LVIDs, mm</i>	<i>LVEF, %</i>	<i>PASP, mmHg</i>
21-Sep-05	55	33	68	29
05-Jan-07	43	30	60	28

Risk Stratification for MR *What Do The Guidelines Say?*

- Exercise testing: IIa-C for indication (only for exercise tolerance)

ACC-AHA Guidelines on Valvular Heart Disease, 2008

Ischemic Mitral Regurgitation *Dynamic Response to Stress*



Pierard and Lancellotti. *N Engl J Med* 2004;351:1627-34
