

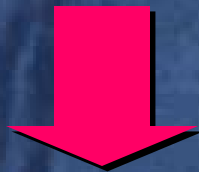
Element 29.00

Bolling

Cardiomyopathy & MR

Altered ventricular geometry

“Papillary muscle” dysfunction



MR = poor survival <20%

CHF trials: Mortality predictors – MR, TR
HF + MR do worse than CAD, VF, and cancer

Mitral Repair & Cardiomyopathy

- Operative feasibility
- Intermediate outcome

Survival

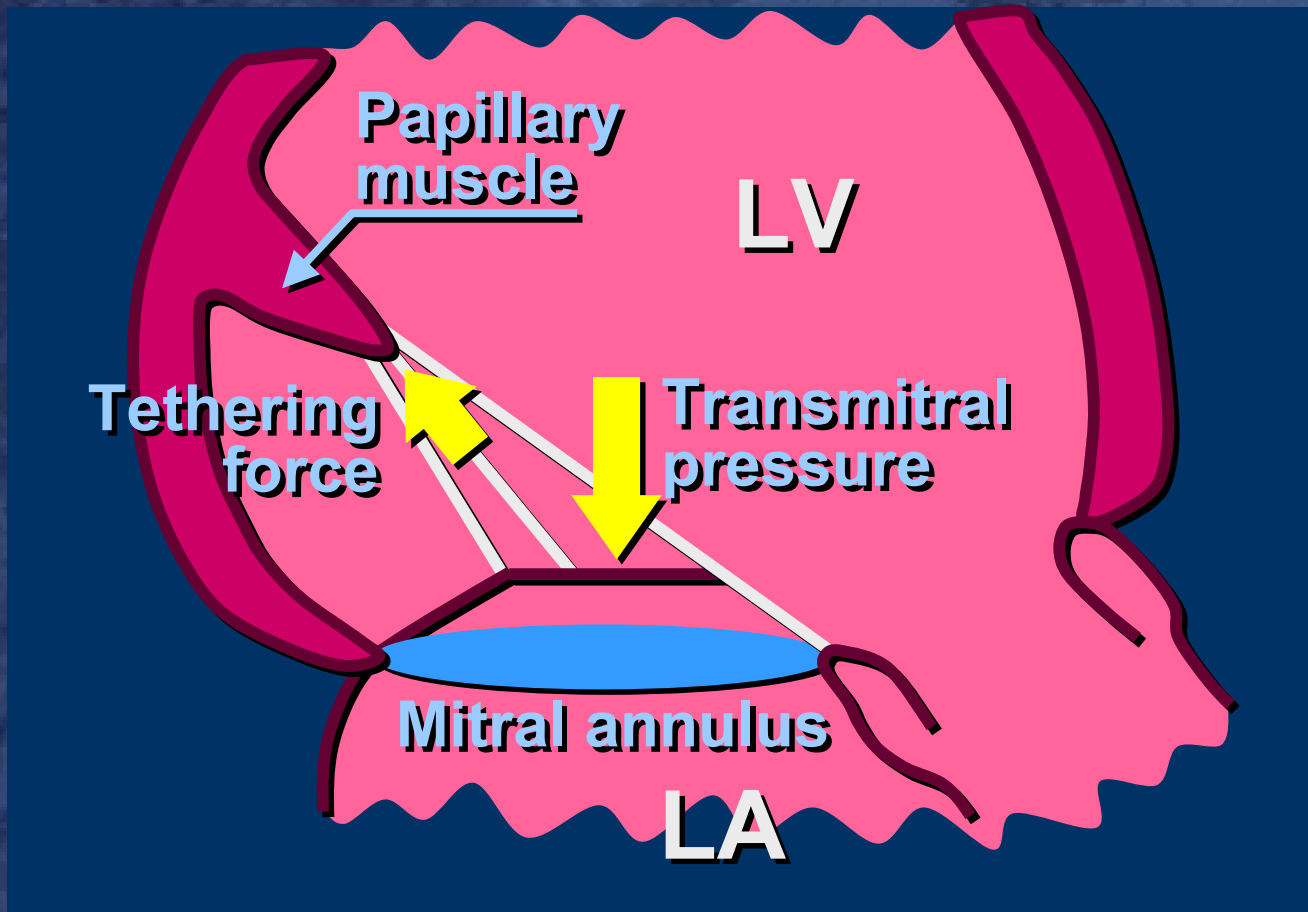
Heart failure

LV function

LV remodeling

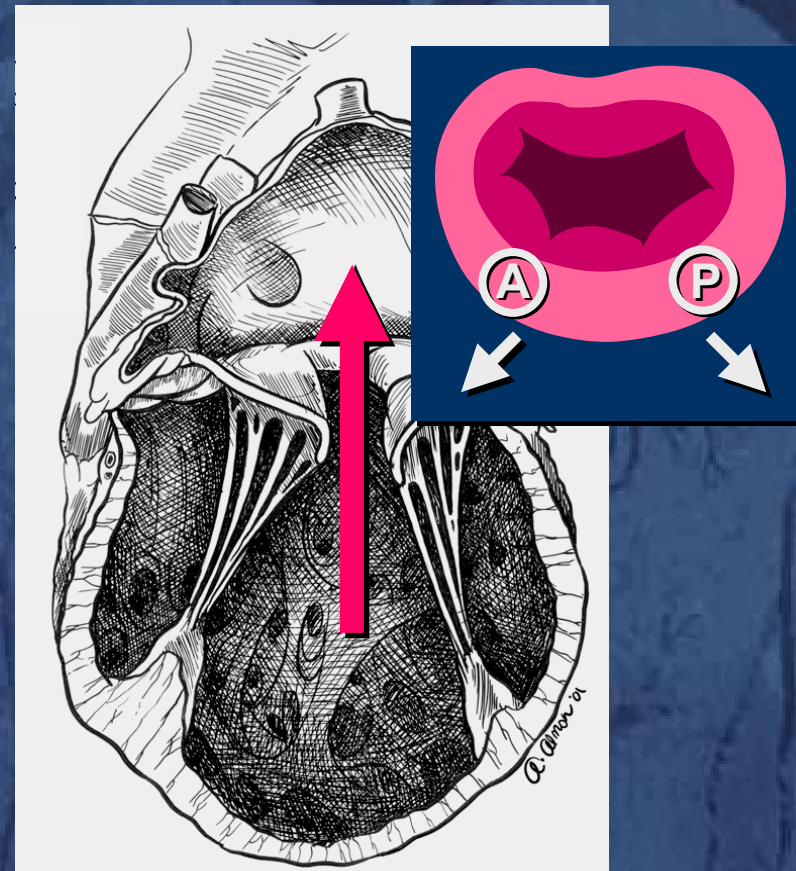
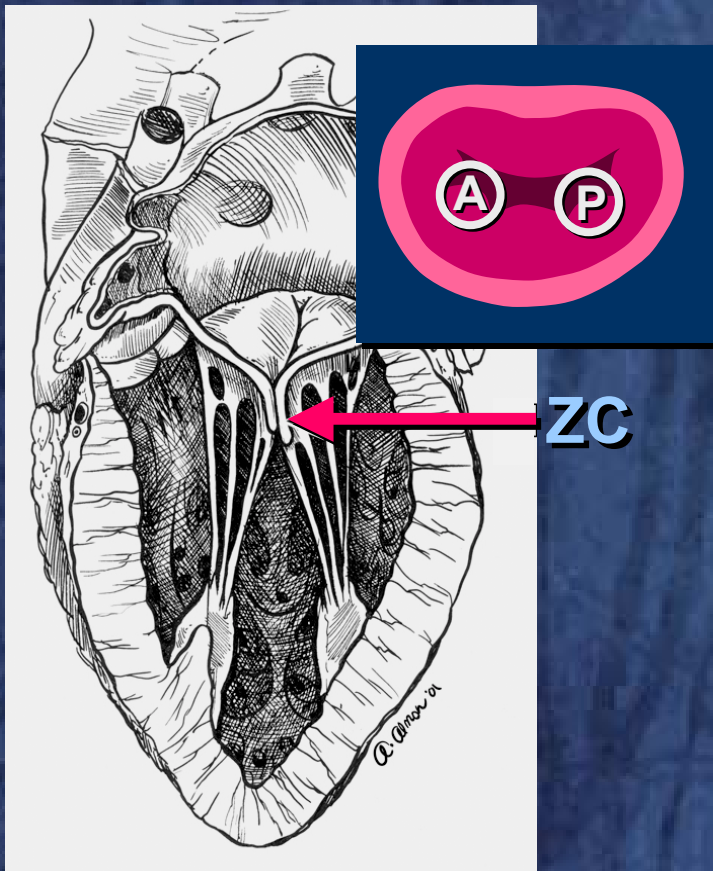
Geometric MR

A complex of forces



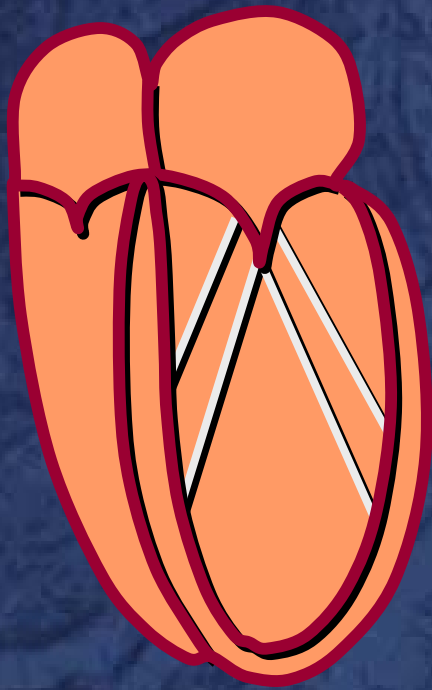
Morphological Changes

Heart failure

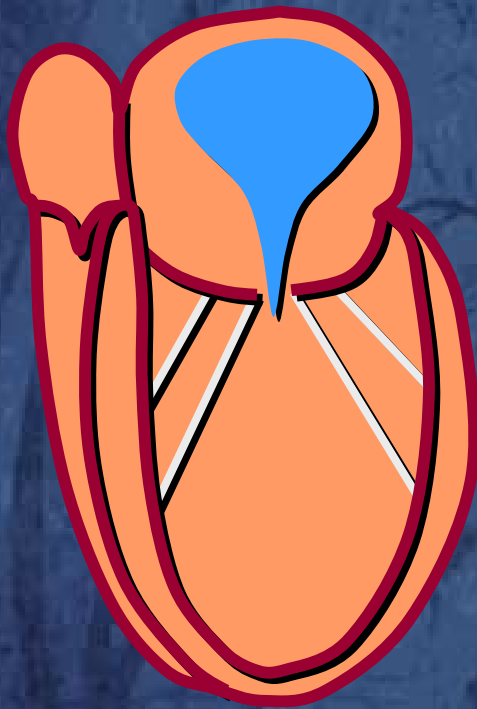


Geometric Reconstruction

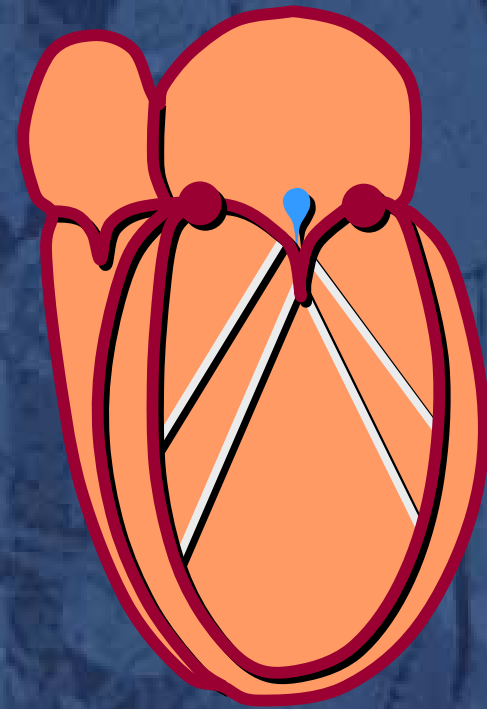
Reduce mitral annulus, restore LV pathology



Normal



Cardiomyopathy



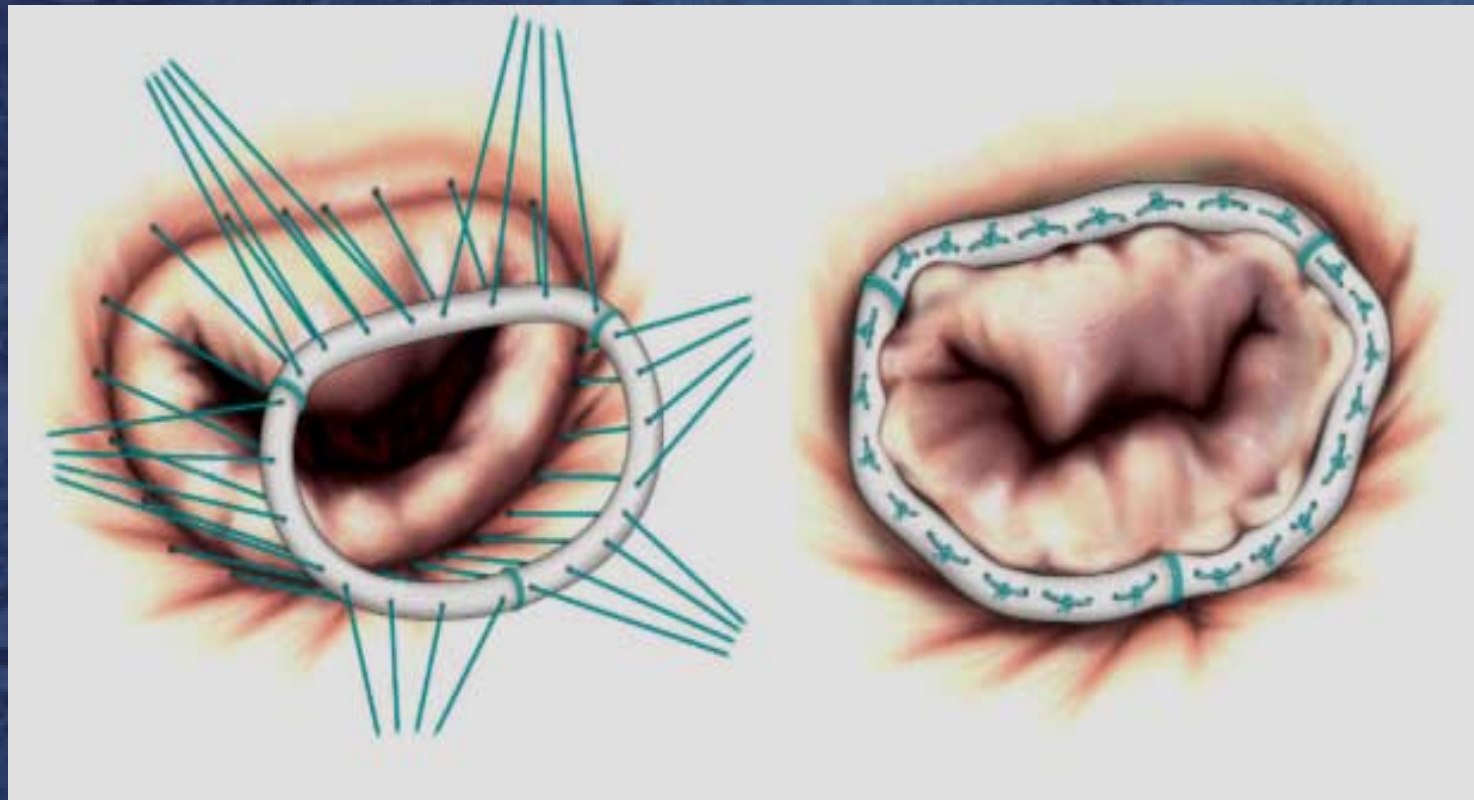
Reconstruction

Mitral Valve and Myopathy

- 150 pts (2002)
- Age 33-81 (*mean* = 63)
- EF: 6-26% (*mean* = 16%)
- NYHA IV
- 4+ severe MR
- Idiopathic > ischemic

Geometric Reconstruction

*“Undersize and Overcorrect”
Use Milrinone and Norepi*



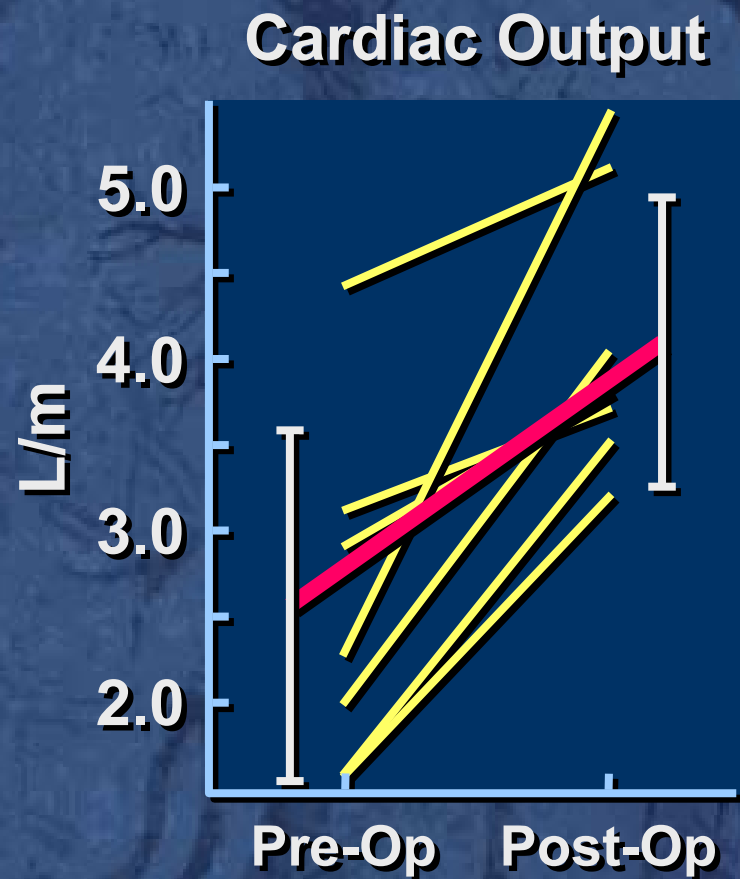
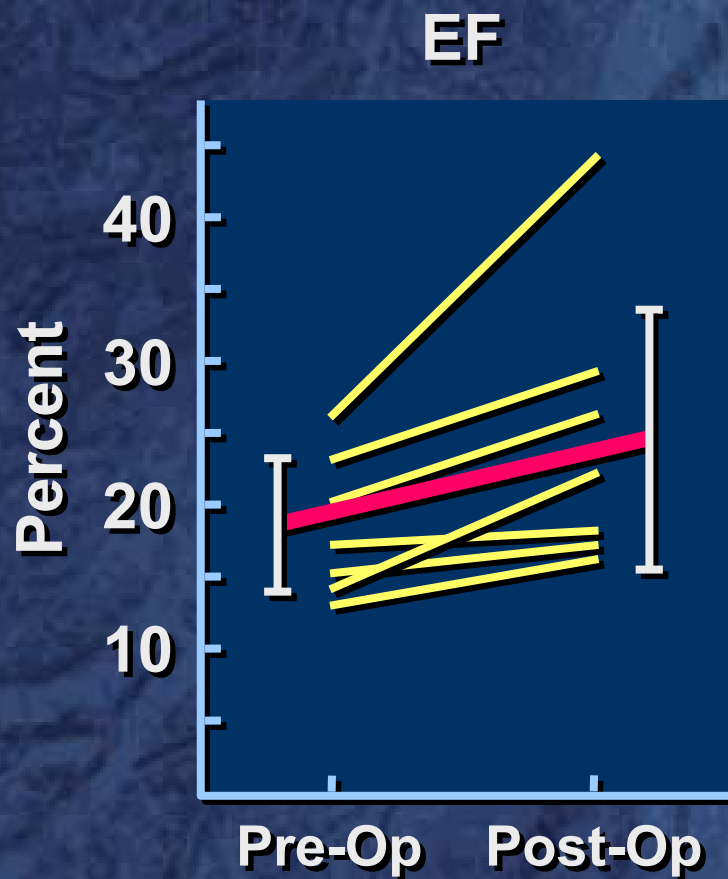
Mitral Valve and Myopathy

U of M Experience

- 30-day mort (8/145) 6%
1 OR death, no LVAD, no MS, no SAM
- 1 year survival 82%
- 2 year 71%
- 5 year 52%
- 7 year f/u NYHA I or II
- return of MR 12%
10 of 10 case matched controls dead at 1 yr

Restoring LV Geometry

Enhanced hemodynamics – 6 mos



Mitral Repair & Cardiomyopathy

	Pre-Op	24m Post-Op
EDV	281 \pm 86	206 \pm 88*
RF%	70 \pm 12	13 \pm 10*
NYHA	3.9 \pm 0.2	1.8 \pm 0.4*
VO₂ Max	14	19
Sphericity	0.82 \pm 0.1	0.74 \pm 0.07

Mitral Repair and Myopathy

Echo - restoration of LV geometry

Pre MVr



Post MVr



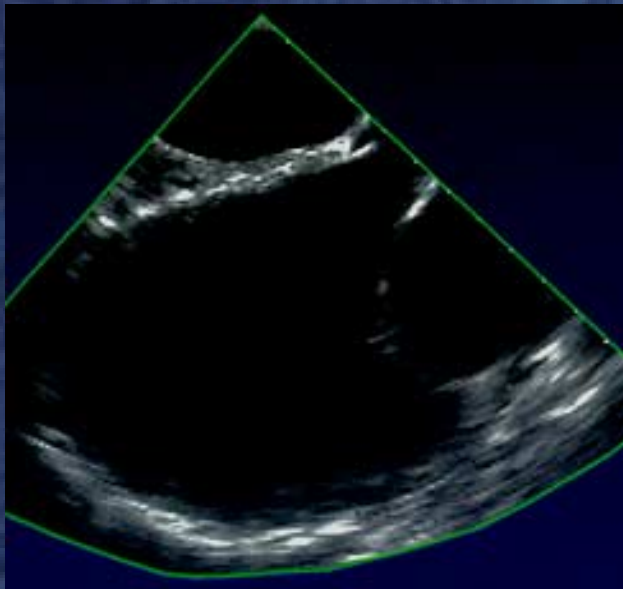
Neurohumoral Effects

	TNF α (pg/mL)	TNFR1 (pg/mL)	TNFR2 (pg/mL)	IL-6 (pg/mL)	IL-6R (ng/mL)
Pre-op	3.5 \pm 1.3	931 \pm 187	1989 \pm 381	6.1 \pm 6.6	36.0 \pm 5.2
Post-op	2.8 \pm 1.1	774 \pm 177	1450 \pm 254	2.9 \pm 1.8	31.2 \pm 8.1
P value	0.02	<0.01	<0.001	0.13	0.15

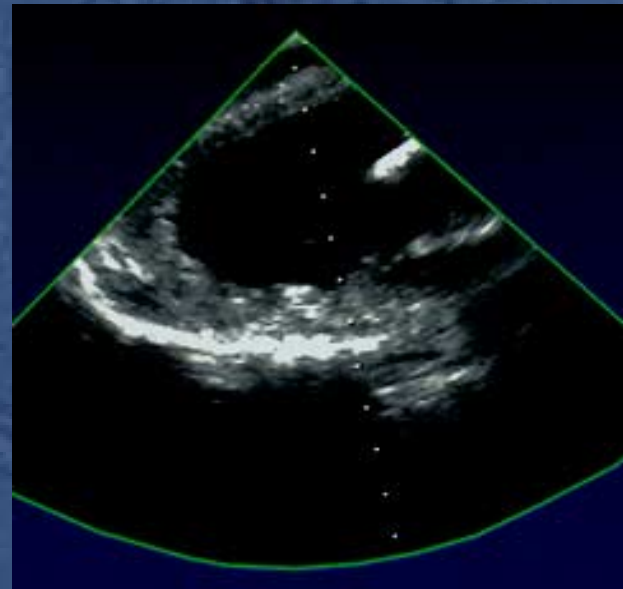
Data are shown as mean \pm SD

Intra-operative Echo

Dilated Cardiomyopathy *Volume reduction test*

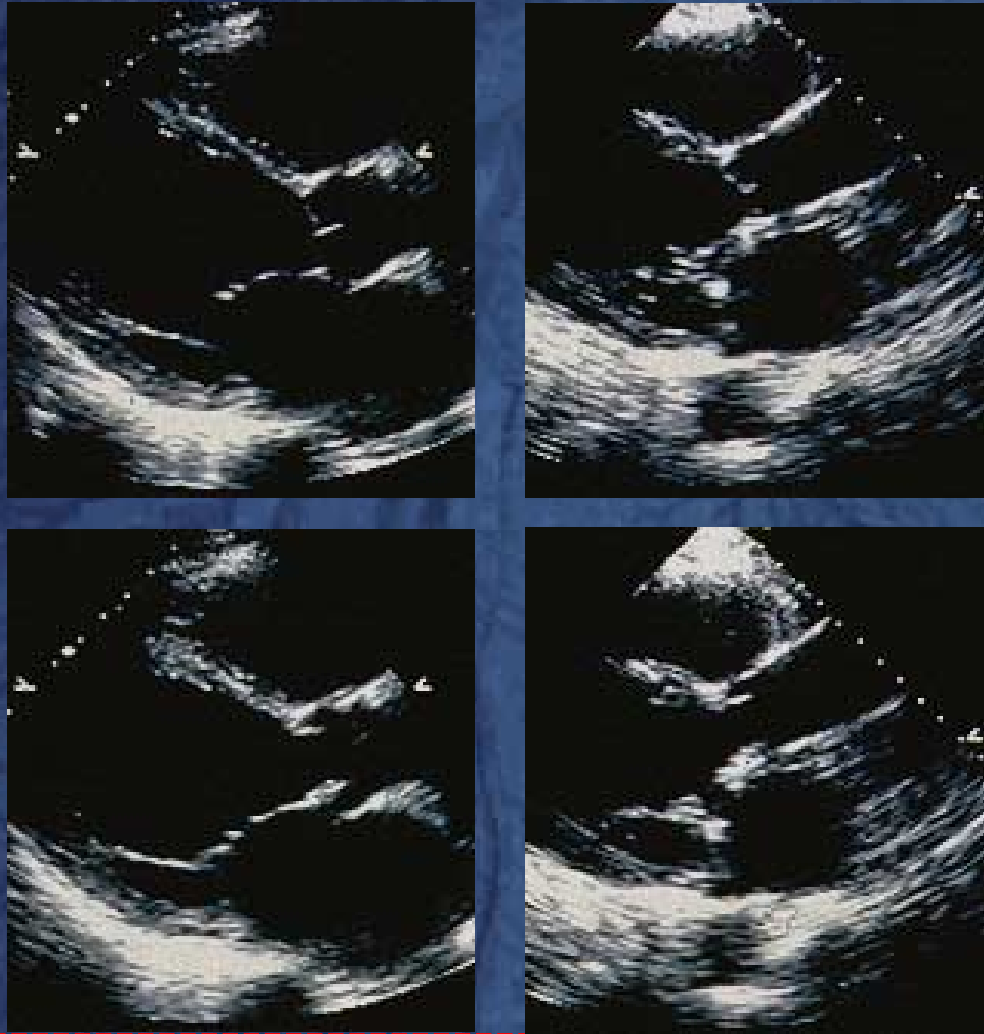


Before CPB



**On-pump and
LV decompression**

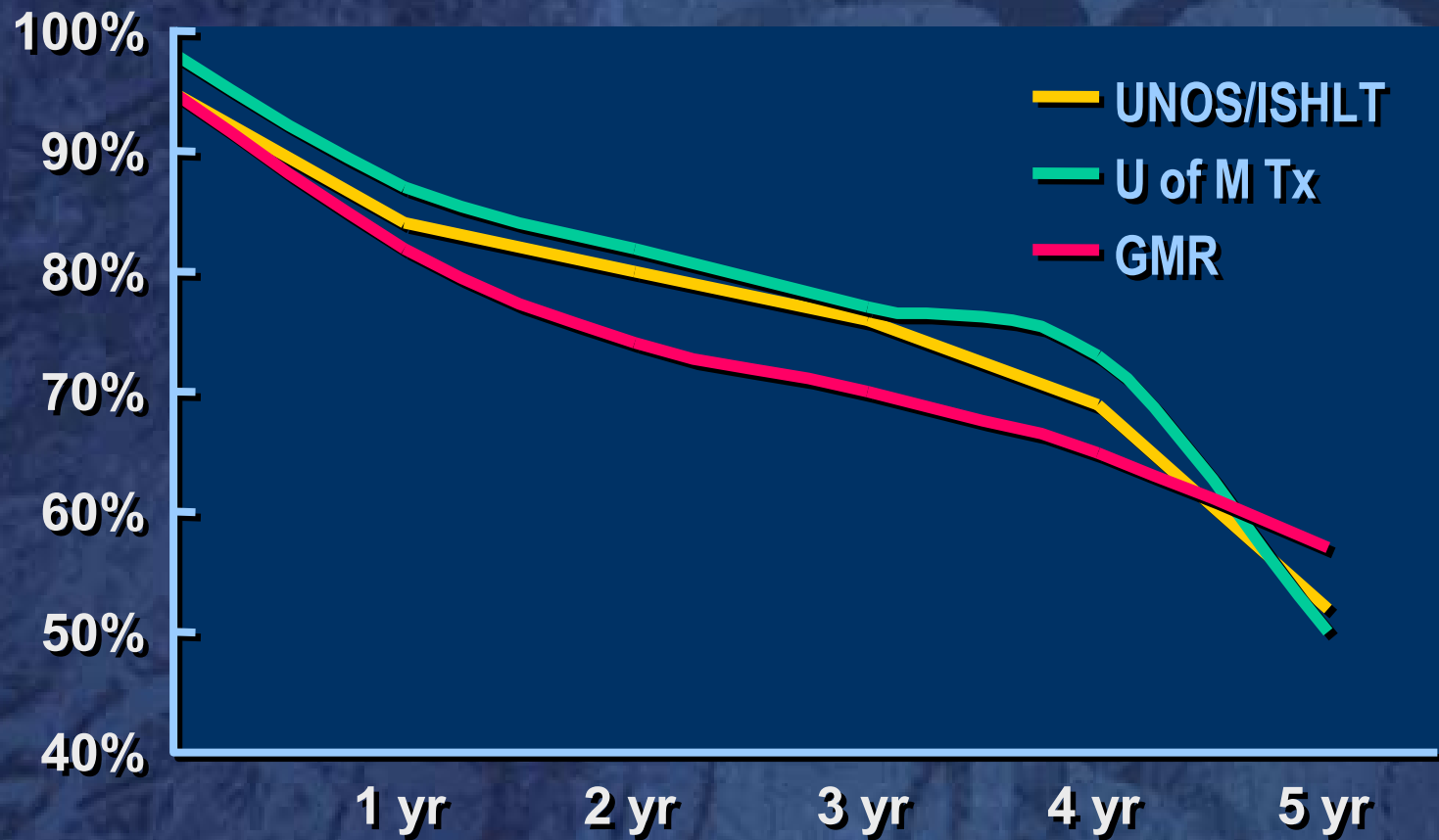
Echo - Acute LV Remodeling



Mitral Valve and Myopathy

No “Pop Off” Effect

Survival Comparison



Mitral Repair and Myopathy

- Survival benefit
- Restoration of LV geometry
- Patients better, not “perfect”
- “Anything but a transplant”