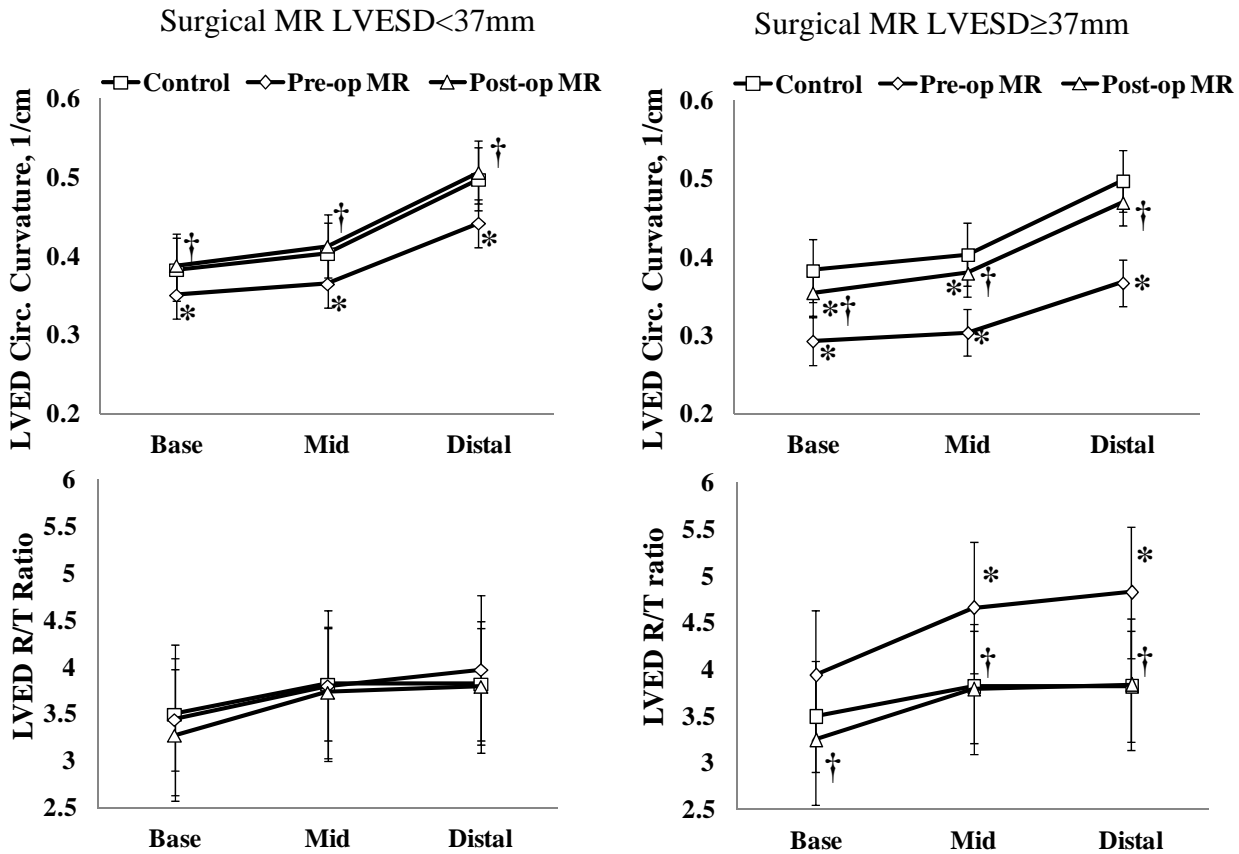


## SUPPLEMENTAL MATERIAL

**Supplemental Table 1. Clinical characteristics of surgical patients with mitral valve repair and MRI-derived LVEF > 60% prior to surgery**

	Control (n=51)	MR	
		Pre-operative (n=20)	Post-operative (n=20)
Age, year	44±14	54±8*	55±8*
% Female	53	15*	15*
Body surface area, m <sup>2</sup>	1.9±0.24	2.01±0.23	2.01±0.21
Heart rate, beats/min	67±12	68±10	70±11
Systolic BP, mm Hg	118±13	125±13	124±12
Diastolic BP, mm Hg‡	75±10	77±9	79±9
LV ED volume index, ml/m <sup>2</sup> ‡	69±10	112±24*	76±14†
LV ES volume index, ml/m <sup>2</sup> ‡	25±7	39±10*	33±9*†
LV SV volume index, ml/ m <sup>2</sup> ‡	44±7	73±16*	44±8†
LV EF, %‡	64±7	65±4	57±7*†
LV ED dimension, mm‡	49±4	59±7*	49±5†
LV ES dimension, mm‡	32±4	37±5*	34±7*†
LV ED mass index, g/m <sup>2</sup>	50±10	70±13*	56±11†
LV ED volume/mass, ml/g	1.45±0.38	1.62±0.26	1.41±0.35†
LV ES R/T ratio‡	1.48±0.40	1.65±0.54	1.71±0.65
Peak early filling rate, ml/sec‡	378±110	686±273*	288±91†

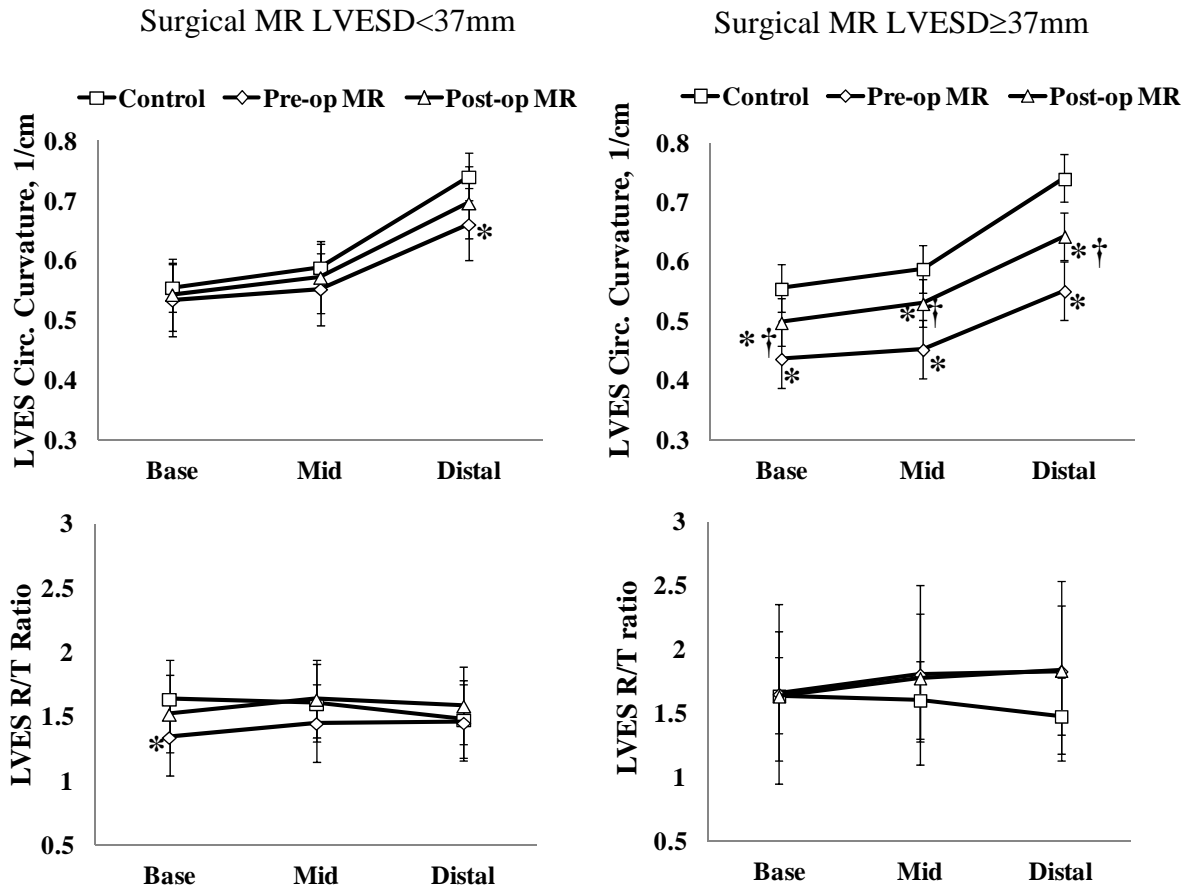
Values are n or mean±SD. BP: blood pressure; R/T ratio: radius /wall thickness measured at distal LV; \*: P<0.05 vs. control; †: P<0.05 vs. pre-operative MR; ‡: log transformation was performed. Comparison results were adjusted for age.



**Supplemental Figure 1. Comparison of LV end-diastolic (ED) geometric remodeling in controls and in surgical MR patients (patients with MRI-derived LVEF < 60% prior to surgery are excluded) with pre-operative LVESD < and ≥ 37mm before and after surgery**

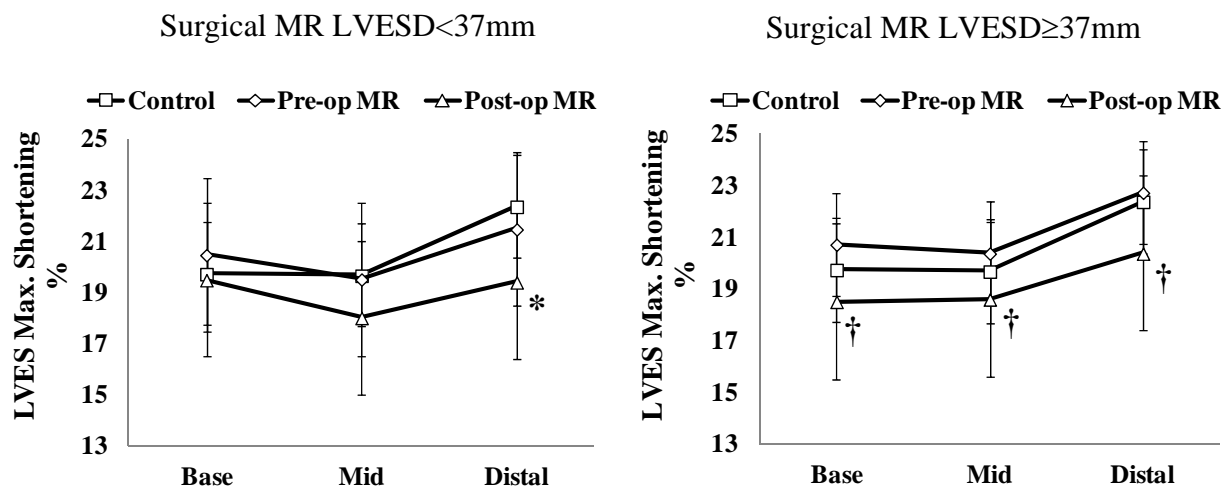
These data demonstrate progressive LV remodeling at ED in the two MR groups and their recovery after surgery. LVED R/T ratio is normalized after surgery in both MR groups.

Circumferential curvatures in MR LVESD < 37mm are normalized after surgery while in MR LVESD ≥ 37mm, circumferential curvatures are increased yet not normalized. \*: P < 0.05 vs. controls; †: P < 0.05 vs. pre-operative MR.



**Supplemental Figure 2. Comparison of LV end-systolic (ES) geometric remodeling in controls and in surgical MR patients (patients with MRI-derived LVEF < 60% prior to surgery are excluded) with pre-operative LVEDD < and ≥ 37mm before and after surgery**

These data demonstrate progressive LV remodeling at ES that is not normalized after surgery in the MR patients with pre-operative LVEDD ≥ 37mm, while it is normalized after surgery in MR patients with pre-operative LVEDD < 37mm. \*: P < 0.05 vs. controls; †: P < 0.05 vs. pre-operative MR.



**Supplemental Figure 3. Comparison of LV end-systolic (ES) maximum shortening in controls and in surgical MR patients (patients with MRI-derived LVEF < 60% prior to surgery are excluded) with pre-operative LVESD < and ≥ 37mm before and after surgery**

These data demonstrate that maximum shortening is decreased below normal in both groups of MR patients. Moreover, LVES maximum shortening in patients with pre-operative LVESD ≥ 37 mm is significantly decreased post-operatively vs. pre-operatively. \*: P < 0.05 vs. controls; †: P < 0.05 vs. pre-operative MR.