

Supplement Table 1: Relationship to 3D Mitral Valve Parameters to MR in MFS Only

	MR ≥ Moderate		MR ≤ Mild		p
	n=5		n=22		
Annular Parameter					
AP-Diameter (cm/M)	3.5	(3.5-3.8)	2.7	(2.4-3.1)	0.02
AL-PM diameter (cm/M)	4.3	(4.1-4.5)	3.1	(2.7-3.5)	0.02
Annular width at commissure (cm/M)	4.1	(4.0-4.2)	3.1	(2.7-3.4)	0.02
Sphericity	0.86	(0.85-0.90)	0.90	(0.80-0.94)	0.44
Annulus circumference (cm/M ²)	12.7	(12.4-13.2)	10.1	(8.6-10.7)	0.03
Annulus area (cm ² /M ²)	11.9	(11.0-13.3)	7.4	(5.6-8.6)	0.03
Annulus height (cm/M)	0.62	(0.46-0.68)	0.58	(0.43-0.75)	0.87
AHCWR	0.14	(0.14-0.15)	0.21	(0.14-0.23)	0.07*
Non-Planar Angle (°)	150	(149-167)	145	(138-155)	0.12*
Leaflet Parameter					
Total Leaflet Area (cm ² / M ²)	13.1	(12.0-15.9)	7.8	(5.9-9.1)	0.03
Anterior Leaflet Area (cm ² /M ²)	6.9	(5.8-7.7)	4.5	(3.8-4.9)	0.02
Posterior Leaflet Area (cm ² /M ²)	7.3	(5.2-8.1)	3.2	(2.4-4.1)	0.03
Anterior Leaflet Length (cm/M)	2.2	(2.2-2.4)	2.0	(1.7-2.2)	0.05*
Posterior Leaflet Length (cm/M)	1.6	(1.3-1.8)	1.0	(0.8-1.2)	0.05*
Tenting Height (mm/M)	1.6	(1.6-3.2)	3.8	(2.5-5.1)	0.09*
Tenting Area (cm ² /M ²)	0.59	(0.12-0.74)	0.57	(0.35-0.82)	0.87
Billow Volume (cc/M ²)	1.1	(0.6-3.3)	0.07	(0.01-0.16)	<0.01
Tenting Volume (cc/M ²)	0.3	(0.1-0.9)	0.7	(0.3-1.0)	0.04

Values are listed as median (IQR), P-values calculated by Wilcoxon rank sum test.

A-P: Anterior-Posterior, AL-PM: Anterolateral-Posteromedial

AHCWR: Annular height to commissural width ratio, BSA: Body Surface Area

*Significant in larger cohort n=54, but not in MFS only group (n=27)