

P106. Impact Of Mitral Annular Dilatation On The Efficacy Of Edge To Edge Mitral Valve Repair For Posterior Leaflet Prolapse

Muralidhar Padala¹; Vinod H. Thourani²; David H. Adams³; Ajit P. Yoganathan¹

¹Georgia Institute of Technology, Atlanta, GA, United States; ²Emory School of Medicine, Atlanta, GA, United States;

³Mt.Sinai School of Medicine, New York, NY, United States

OBJECTIVES: Edge to edge (E2E) mitral valve repair is an established surgical treatment for leaflet prolapse, and is now performed in percutaneous clinical trials. The outcomes of percutaneous E2E repair in patients with annular dilatation are unknown. In this study we sought to investigate the impact of annular dilatation on the hemodynamic efficacy of E2E repair in a posterior leaflet prolapse model.

METHODS: 8 porcine mitral valves were evaluated in a pulsatile heart simulator prior to surgical manipulation (Control) at 120mm Hg ventricular pressure, 5L/min cardiac output at 70beats/min. Mitral regurgitation (MR) was created in these valves by transecting the marginal chordae inducing P2 prolapse, and was corrected using an E2E stitch at A2-P2 segments. Each valve was studied with three annular sizes: normal (32mm), 15% dilated (34mm) and 30% dilated (36mm). MR volume (ml/beat) and leaflet coaptation length (mm) were measured.

RESULTS: Chordal transection resulted in severe P2 prolapse and 12.0±5.5ml/beat of MR. E2E repair corrected prolapse and reduced MR to 1.4±1.2ml/beat at normal annular size. MR increased to 6.4±4.1ml/beat at 15% dilatation and 8.6±4.1ml/beat at 30%, (Fig 1a). Leaflet coaptation length decreased as the annulus dilated (Fig 1b).

CONCLUSIONS: Although E2E repair relieved MR in the setting of P2 prolapse, repair efficacy was impacted by annular dilatation. This may have important implications on selecting patients that are offered treatment of MR by percutaneous E2E technologies.

Figure 1

