Degenerative Mitral Regurgitation Anterior Leaflet Repair Without Neochords: Early and Late Results

Objective: Anterior and bileaflet degenerative mitral regurgitation (DMR) repairs are more challenging than isolated posterior leaflet repair. Reoperations may be required due to incorrect judgement of neochord length at surgery, or later ventricular remodeling. We examined our early and late outcomes for repair using various techniques, but without using neochords in any patients.

Methods: Between 02/01/2006– 06/30/2021, a total of 2,368 patients had MV surgery by one surgeon, including 1,160 with DMR. Clinical follow-up was conducted annually (mean 6.8±4.4 years).

Results: Repair rate overall was 98% (1137/1160) and varied significantly between groups: 99% for isolated posterior leaflet (794/799); 91% isolated anterior leaflet (83/91); and 96% bileaflet prolapse (260/270; p<0.001). Mean age was 61±12 years (1160 patients), but was older (77±6 years) in 8 patients with anterior leaflet disease who were replaced. Thirty-day mortality was 0.2%. On a scale of 0-4+ MR, mean MR grade (of 1137 repairs) decreased from 3.76±0.58 pre-operative to 0.07± 0.28 at discharge, including 0.6% (7/1137) moderate (2+), and 0.9% (3/343) in those with anterior or bileaflet prolapse. None were more than 2+ at discharge. Between the 3 groups of leaflet prolapse there was no significant difference in long-term survival (p=0.26), freedom from MV re-operation (p=0.83; Figure A) and freedom from > moderate (2+) MR (p=0.73). Freedom from MV repair "failure" (reoperation and/or >2+ MR) at last follow-up was similar among the 3 most common anterior leaflet repair techniques (chord transfer; commissuroplasty; edge to edge repair; Figure B). Combinations of these 3 techniques were used in 7.6% (26/343).

Conclusions: Early and late repair results for complex anterior leaflet prolapse are successful using a variety of techniques without the risks of neochord implantation. Although neochords are popular with some centers and surgeons, there are other ways to repair complex valves that don't require as much judgment and experience.

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Figure. Freedom from MV Reoperation and “Failure”: A, Freedom from reoperation by leaflet involved. B, Freedom from MV repair failure (reoperation and/or >2+MR) by repair technique.