

Myxomatous Mitral Valve Repair: What are the Mechanisms of Failure?

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Objective:

While the advantages of mitral valve repair over replacement are well documented for degenerative myxomatous disease, there is still 10-20% repair failure rate in most large series. Understanding the mechanisms of repair failure may contribute to improve the surgical technique and improve long term durability of mitral valve repair

Methods:

From 2004, 532 patients with myxomatous mitral valve underwent repair in our department. All patients are followed prospectively. Clinical and echocardiographic follow up (FU) ranged 1-95 months (mean 28±24). At FU, 51 patients (9.5%) either needed reoperation due to recurrent mitral regurgitation or were found to have recurrent moderate or severe (grade 3/4) MR, these were included as valve repair failure (RF) group. Clinical outcomes, re-operation reports and echocardiographic exams were reviewed and timing and mechanisms of repair failure were defined.

Results:

Overall, there were 2(0.4%) in-hospital deaths and 14(3%) late deaths. At FU, 479 patients (90%) were found to be in FC I/II. Freedom from reoperation on the mitral valve was 96% (513 patients). In the RF group, 19 patients (35%) needed reoperation due to recurrent mitral regurgitation and 32 patients (60%) were found to have recurrent moderate or severe (grade 3/4) MR. 34(66%) were defined as early failure (up to 3 years post operation) and 17(33%) had late failure (>3 years). Mechanisms of repair failure were: technical 8%, SBE 6%, mal coaptation 18%, recurrent MVP or Flail 48% in 4% relative elongation of the artificial chords that caused prolapse was found. In the rest of patients, no definite failure mechanism was determined.

Conclusions:

Recurrent MR after MV repair is significant. Recurrent prolapse, flail or mal-coaptation account for the majority of failures. Techniques aimed at post-repair increase leaflet coaptation may reduce tension on the MV chords and reduce the rate of repair failure.