Rates of Early Revision Surgery in Operatively Treated Patella Fractures: A Retrospective Review of 286 Cases

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Purpose: The purpose of this study was to assess the overall revision rate for operatively treated patella fractures and to assess which treatment variables were associated with a higher rate of early revision surgery.

Methods: We performed a retrospective review of all operatively treated patella fractures at two tertiary academic hospitals between November 2007 and July 2020. The primary outcome was revision surgery for any cause within 3 months of the index procedure. Multivariate analysis was performed to assess the association between risk of revision surgery and the following variables: fixation strategy, presence/absence of preoperative CT scan, and the use of an arthrotomy.

Results: Overall, 286 fractures were identified and included in our review. All-cause revision rate was 9.8%. Failure of fixation accounted for 81% of all revisions. Revision rates varied among the different types of fixation: combined screw and Kirschner-wire (K-wire) fixation (36.4%, 4 of 11), cannulated screws with nonabsorbable sutures (20%, 3 of 15), inferior rim/basket plate fixation (14.3%, 2 of 12), suture repair (11.8%, 4 of 34), K-wire tension band wiring (9.4%, 13 of 139), cannulated screw tension band wiring (5.3%, 2 of 38), partial patellectomy (0%, 0 of 3), interfragmentary screw fixation (0%, 0 of 20), and mesh plate fixation (0%, 0 of 12). A medial or lateral arthrotomy to expose the articular surface was performed in 16.3% of patients with an overall revision rate of 6.5% ($P = 0.289$). In patients with preoperative CT, revision rate was 6.5% ($P = 0.750$). In cases in which a cerclage wire was used as an adjunct to fixation, the revision rate was 17.4% (4 of 23) and when a detensioning wire was used, the revision rate was 12.5% (3 of 24).

Conclusion: Early revision surgery occurs in nearly 10% of operatively treated patella fractures, with the majority being for loss of fixation. Direct visualization of the articular surface with an arthrotomy and the use of CT scan for operative planning may help reduce revision risk. Certain fixation strategies may also reduce the risk of revision surgery, with mesh plate fixation showing promising early results.