Extensor Mechanism Reconstruction after Total Knee Arthroplasty with Allograft vs. Synthetic Mesh: Is There a Clear Winner? A Multicenter Retrospective Cohort

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INTRODUCTION:
Patellar and quadriceps tendon ruptures after total knee arthroplasty (TKA) have historically poor outcomes. To date, there is no consensus for optimal treatment. The purpose of this study is to directly compare clinical outcomes and survivorship between allograft versus synthetic mesh for reconstruction of native extensor mechanism (EM) rupture after TKA.
METHODS:
A multicenter, retrospective review was performed from 12/2009-11/2019 identifying consecutive TKA patients ≥45-years-old with native EM disruption treated with either allograft or synthetic mesh with a minimum follow-up period of 2-years. Demographic information, injury mechanism, range-of-motion, operative time, reoperations, and postoperative Knee Injury and Osteoarthritis Outcome Scores (KOOS Jr.) were collected. Student's t-test and Fischer exact tests were used to compare demographic data between groups. Kaplan-Meier survival curve method was used to determine the survivorship as treatment failure was defined as postoperative EM lag >30 degrees or reoperation. Survival curves were compared using log-rank test. Univariate Cox proportional hazard regression identified risk factors associated with treatment failure.
RESULTS:
Thirty-five patients underwent EM reconstruction using synthetic mesh vs. 20 allograft. Both groups had similar demographics and an average follow-up time of 3.5 years (p=0.98). Patients treated with allograft had significantly greater postoperative flexion than patients treated with mesh (99.4±9.5 allograft vs. 92.6±13.6 synthetic mesh, p=0.04). Otherwise, there was no difference in postoperative outcomes between the two groups in average KOOS Jr. (p=0.29), extensor lag (p=0.15), graft failure (p=0.71), reoperation rates (p=0.81), operative time (p=0.42), or ambulation status (p=0.34) at most recent follow up. Survival curve comparison also yielded no difference at up to 5-year follow up (p=0.48).
DISCUSSION AND CONCLUSION:
Our findings suggest reconstruction with allograft or synthetic mesh leads to similar clinical outcomes with good survivorship. Future studies, including larger randomized-control trials, are required to determine the superior reconstruction method for this injury.