

A Comparison of Anterior Cruciate Ligament Reconstruction with Quadriceps Autograft or Bone-Patellar Tendon-Bone Autograft and Return to Operating Room for Arthrofibrosis

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INTRODUCTION:

Arthrofibrosis is a common and dreaded complication of anterior cruciate ligament (ACL) reconstruction. There are many described risk factors for arthrofibrosis, and it can cause significant morbidity in those afflicted. With the rise in popularity of the quadriceps tendon autograft, it is important to critically evaluate its complications compared with those of other graft choices. The purpose of this study was to identify if graft choice, quadriceps autograft vs. bone-patellar tendon-bone (BTB) autograft, was a risk factor for early return to operating room (OR) for arthrofibrosis. We hypothesized an increased return to OR rate for arthrofibrosis release for quadriceps autograft recipients.

METHODS:

A single-center retrospective chart review was conducted between January 2010 and November 2022. All skeletally mature patients undergoing primary ACL reconstruction at any institution (with subsequent follow up at our institution) with either quadriceps tendon autograft or BTB autograft during this period were evaluated. Patients who received an alternate graft (i.e., allograft, hamstrings tendon autograft etc.), those undergoing revision ACL reconstruction, and those who were skeletally immature at time of surgery were excluded. The primary outcome of interest was return to OR for a subsequent procedure of either MUA (CPT 27570) or Lysis of adhesions (CPT 29884). Clinical data such as time from injury to index surgery, concomitant procedures at index surgery, and patient demographics were also collected.

RESULTS:

A total of 1,726 patients who underwent primary ACL reconstruction met our inclusion criteria; 571 patients received a quadriceps autograft, and 1,155 patients received a BTB autograft. Fifty-five of the 1,155 BTB recipients (4.8%) and 37 of the 571 quadriceps recipients (6.5%) required a subsequent procedure for arthrofibrosis release. There was no significant association with graft choice at index surgery and need for subsequent surgery ($P=0.135$). There was no significant association between additional procedures performed at time of index surgery (i.e., meniscus repair) and return to OR. Those that required a second surgery for arthrofibrosis had a significantly shorter time between their injury and index ACL reconstruction (mean of 59.96 ± 49.55 days) than those who did not require a second surgery (mean of 81.57 ± 72.54 days). Significantly more women (65 of 753) than men (26 of 968) required return to OR for an arthrofibrosis surgery, $P=0.000$. Those that required a return to the OR were significantly younger (22.84 ± 9.49) than those who did not (25.71 ± 10.83) $P = 0.03$. There was no significant association between BMI and return to OR.

DISCUSSION AND CONCLUSION:

Our study found no statistically significant difference between graft choice (quadriceps or BTB autograft) or additional procedures performed at index ACL reconstruction and return to the OR for arthrofibrosis release. In our study population, patients who required a subsequent procedure were younger, female, and had a shorter interval between their injury and index ACL surgery. Given these findings, quadriceps autograft does not appear to be a risk factor for arthrofibrosis requiring surgical intervention after primary ACL reconstruction.