

Outcomes of Arthroscopic Adhesiolysis for Arthrofibrosis following Primary Anterior Cruciate Ligament Reconstruction

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INTRODUCTION:

Arthrofibrosis is a known postoperative complication of anterior cruciate ligament (ACL) reconstruction with rates between 2 to 34% reported in the literature. This study's purpose is to assess the outcomes of arthroscopic adhesiolysis following primary ACL reconstruction with regards to the postoperative recovery of knee range of motion (ROM), presence of osteoarthritic changes, International Knee Documentation Committee (IKDC) subjective knee score and Lysholm knee score, in relation to the time of arthroscopic adhesiolysis.

METHODS:

In this retrospective cohort study, patients who underwent arthroscopic adhesiolysis for arthrofibrosis following primary ACL reconstruction between January 2011 until June 2019, and were available for at least one-year follow-up were evaluated. The influence of the timing of arthroscopic adhesiolysis on the postoperative recovery of knee ROM and the development of knee osteoarthritis were analyzed, together with the subjective IKDC and Lysholm knee score.

RESULTS:

There were 70 males and 17 females in this study with a mean age of 30.31 years (SD 6.43, range 18-46 years). Amongst them, 56.3% had primary ACL reconstruction after a traumatic non-contact onset, with 5.7% elite athletes. The time of ACL reconstruction from the onset of trauma mainly was more than six months (64.4%), and most had a concomitant meniscal injury (74.7%), concurrent synovitis (72.4%) and preoperative knee effusions (78.2%). Here, 57.5% of the patients had arthroscopic adhesiolysis done after one year for Shelborne Type 3 and 4 arthrofibrosis, while 43.5% had adhesiolysis performed less than a year. The mean preoperative knee ROM was 97.48 ± 2.54 degrees, with extension deficit 15.15 ± 8.35 degrees and flexion deficit 29.25 ± 19.26

degrees. There is a significant association between the time of arthroscopic adhesiolysis to the postoperative full recovery of knee range of motion ($p=0.002$), and to the development of osteoarthritis in the medial compartment and the patellofemoral joint ($p=0.006$). However, there is no significant association between the timing of arthroscopic adhesiolysis to the IKDC ($p=0.135$) and the Lysholm subjective knee score ($p=0.19$) at 1-year postoperatively.

DISCUSSIONS:

Our study found that early intervention of arthroscopic adhesiolysis (<1year) showed better outcomes in terms of faster recovery of postoperative knee full range of motion and less likelihood that they will develop knee joint osteoarthritis, especially in the medial compartment and the patellofemoral joint. This will affect the patient's long-term outcome concerning secondary knee osteoarthritis. Mayr et al. reported a similar finding, where 141 patients showed significantly greater progression of knee osteoarthritis with a more severe grading and a lower jump distance if arthroscopic adhesiolysis were done more than 1-year¹.

CONCLUSION:

Early surgical intervention of arthroscopic adhesiolysis (<1year) for Shelborne Type 3 and 4 arthrofibrosis following primary ACL reconstruction may benefit the patients in terms of earlier full recovery of knee range of motion. It may also reduce the risk of progression to knee osteoarthritis, especially the medial joint compartment and the patellofemoral joint in the long term.

REFERENCES:

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