

Extra-articular tenodesis in ACL surgery: comparison of two techniques: anatomical ALL reconstruction vs ITB tenodesis

Imrane Gazali¹ MD, Nathalie van Beek¹ PhD, Stijn Bartholomeeusen¹ MD, Toon Claes² MD, and Steven Claes² MD, PhD

¹Department of Orthopaedic Surgery, Sint-Elisabeth Hospital, Herentals, Belgium

²University of Leuven, Leuven, Belgium

Introduction

Anterior cruciate ligament (ACL) reconstruction is a prevalent orthopedic procedure driven by the increasing incidence of ACL injuries. Despite its success in restoring knee stability and function, complications and the risk of reinjury remain. Lateral extra-articular procedures (LEAP) like anatomical ALL-reconstruction (ALL-R) and ITB-tenodesis (ITB-T) have been shown to reduce re-rupture rates. However, there is a lack of comparative studies examining the clinical outcomes between these two techniques. This study aims to compare clinical and patient-reported outcome measures (PROMs), complications, failure rate, and revision rate between both techniques, hypothesizing no significant difference between the two methods.

Materials & Methods

A retrospective study analyzed patients with ACL ruptures undergoing ACL reconstruction combined with a LEAP procedure. The inclusion criteria comprised patients aged between 16 and 50 years, diagnosed with a clinically and radiologically confirmed ACL rupture and comprehensive clinical outcome data. A total of 108 patients were enrolled, with 66 undergoing ALL-R and 42 undergoing ITB-T. Clinical outcome scores included International Knee Documentation Committee (IKDC) score, Lysholm Knee Score, Tegner score, and NRS pain scale. Data was collected at baseline, 12 months, and 24 months. The primary outcome was the re-rupture of the graft. Secondary outcome was the re-operation rate (meniscal tears, cyclops...) up to 24 months post-operatively.

Results

There were no statistically significant differences observed in IKDC, Lysholm, Tegner, and NRS scores at any of the time points between the two groups. Both groups demonstrated significant improvement in IKDC from preoperatively to 3 months postoperatively. Pain levels during activity significantly decreased for both groups from preoperatively (ALL: 43.2 ± 2.6 , ITB: 41.8 ± 3.2) to 3 months postoperatively (ALL: 25.7 ± 3.0 , ITB: 23.9 ± 3.4).

At the 12-month follow-up, the ALL-R group experienced 1 re-rupture, while at the 24-month follow-up 3 re-ruptures were reported. At the 12-month follow-up, 4 re-operations were performed, consisting of 3 for cyclops lesions and 1 for medial meniscectomy after repair. For the ITB-T group, no re-ruptures were observed at the 12-month follow-up, but 1 re-rupture occurred at the 24-month follow-up. There were no re-operations reported at the 12-month follow-up, but 1 re-operation (medial meniscectomy after repair) occurred at the 24-month follow-up.

Discussion

As anticipated, there were no statistically significant differences observed between the ALL-R group and the ITB-T group in terms of functional outcomes, complications, revision and failure rate. This suggests that both lateral extra-articular procedure (LEAP) techniques are similarly effective in treating ACL ruptures with rotatory instability. Notably, re-ruptures involving medial meniscal RAMP lesions were observed in both groups, warranting further investigation into their significance.