

## Concomitant Anterolateral Ligament Tear is Common but Does Not Influence the Early Clinical Outcomes of Anterior Cruciate Ligament Reconstruction Surgery

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### Summary:

Concomitant anterolateral ligament tear does not influence early clinical outcomes of anterior cruciate ligament reconstruction surgery.

### Abstract:

#### INTRODUCTION

Residual rotational instability of the knee following anterior cruciate ligament (ACL) reconstruction is common, with a reported incidence up to 20%. The anterolateral ligament (ALL) has recently been characterised as a distinct consistent anatomical structure and hypothesized as an important internal rotatory stabilizer of the knee. It can be torn at the time of ACL injury. However, the indications and benefits of ALL reconstruction in the same setting as ACL reconstruction surgery have not been established. Prompted by the uncertainty surrounding the clinical relevance of concomitant ALL tear in ACL-injured knees, this study aims to establish: 1) the incidence of concomitant ALL tear; 2) if concomitant ALL tear is associated with preoperative positive high-grade pivot shift test and meniscal injuries; 3) if concomitant ALL tear influences early postoperative clinical outcomes of ACL reconstruction surgery.

#### METHODS

Power analysis was done prior to the conduct of this study. In 2013, 176 patients with radiological evidence of ACL tear on Magnetic Resonance Imaging (MRI) scans underwent unilateral primary ACL reconstruction surgery at a tertiary centre. Among these patients, 90 (51%) had concomitant ALL tear (ALL tear group), 58 (33%) had an intact ALL (control group), while 28 (16%) had ALL not adequately visualised on MRI. The patients were prospectively followed up. The pivot shift test, Tegner Activity Level and Lysholm scores were assessed preoperatively and at six months after surgery. Testing for normality was done with the Shapiro-Wilk test. The Mann-Whitney U test was used to compare the two groups for quantitative variables with non-normal distribution while the Pearson Chi-Square test was used for categorical variables.

#### RESULTS

There was no significant difference between the two groups for age, Body Mass Index, gender and side of operated knee (all  $p > 0.05$ ). Similarly, the proportion of patients with preoperative positive high-grade pivot shift test was 45% and 42% in the ALL tear and control groups respectively ( $p = 0.755$ ). However, the proportion of patients with associated meniscal injuries seen on arthroscopy was 49% in the ALL compared to 66% in the control groups

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( $p=0.047$ ). At six months after surgery, the proportion of patients with postoperative positive high-grade pivot shift test were 9% in both groups ( $p=0.955$ ). The Tegner Activity Level scores were 4 (range 4 to 6) in both groups ( $p=0.734$ ) while the Lysholm scores were 90 (range 76 to 95) in the ALL group and 93 (range 84 to 95) in the control group ( $p=0.517$ ).

### DISCUSSION & CONCLUSIONS

This study represents the only study available in the literature that evaluated the clinical relevance of concomitant ALL tear in ACL-injured knees. In this study, concomitant ALL tear is common and can be diagnosed on MRI in 51% of patients. However, these patients are less likely to have associated meniscal injuries compared to those with an intact ALL. Interestingly, the integrity of the ALL does not influence the early clinical outcomes of ACL reconstruction surgery. The authors conclude that ALL reconstruction in the same setting as ACL reconstruction surgery may be of limited early clinical benefits.