

# **Comparison of Clinical, Radiologic Outcomes of Combined Revision Anterior Cruciate Ligament and Anterolateral Ligament Reconstruction Versus Isolated Revision Anterior Cruciate Ligament Reconstruction**

Jisoo Park<sup>1</sup>, Se-Han Jung<sup>2</sup>, Chong Hyuk Choi<sup>2</sup>, Min Jung<sup>2</sup>, Kwangho Chung<sup>2</sup>, Sung-Hwan Kim<sup>1</sup>

<sup>1</sup>Gangnam Severance Hospital, Yonsei University Coll, <sup>2</sup>Yonsei University College of Medicine

## **INTRODUCTION:**

Revision anterior cruciate ligament reconstruction (ACLR) presents a significant challenge for orthopaedic surgeons. In general, the clinical outcomes of revision ACLR are inferior to primary reconstruction and return to sport rates are lower than after primary ACLR. Recently, several studies have shown that the anterolateral ligament (ALL) contributes to the anterolateral stability of the knee, and that in cases of failure after an ACLR, combined revision ACLR with anterolateral ligament reconstruction (ALLR) is more likely to control the pivot-shift than isolated revision ACLR. The purpose of this study is to compare patient-reported outcomes (PROs), clinical outcomes, and radiologic assessment between the isolated revision ACLR and combined revision ACLR with ALLR at 1-year follow up.

**METHODS:** From June 2010 to January 2022, a total of 52 consecutive patients who underwent revision ACLR and had minimal 1-year follow up were retrospectively evaluated. Patients were categorized into 2 groups: the isolated revision ACLR group (n=38) and the combined revision ACLR with ALLR group (n=14). We evaluated PROs – Visual Analogue Scale (VAS) score, Lysholm Knee score, subjective International Knee Document Committee (IKDC) score, Tegner activity scale, and Knee injury and Osteoarthritis Outcome Score (KOOS) and clinical outcomes – Arthrometer KT 2000, pivot-shift test, hops test, IKDC grade, and radiologic osteoarthritis assessment – Kellgren-Lawrence grade at preoperative and 6-months, 1-year after operation.

**RESULTS:** The combined revision ACLR with ALLR group demonstrated significant increase in KOOS Activities of Daily Living (ADL) (p=0.048) and KOOS total score (p=0.021) over time from preoperative to 1-year postoperative. In the pivot-shift test, there was a statistically significant and rapid improvement in residual pivot over time in the combined revision ACLR with ALLR group up to 6-months postoperatively (p=0.012). Also, with respect of IKDC grade, the combined revision ACLR with ALLR group showed higher percentage improvement at 1- year postoperatively (p=0.024). However, there was no significant difference between the two groups in terms in VAS, Lysholm, IKDC subjective, Tegner, KOOS score. Similarly, there was no statistical difference in the hops test results and radiologic osteoarthritis degree.

## **DISCUSSION AND CONCLUSION:**

This study demonstrated combined revision ACLR with ALLR demonstrated superior outcomes relative to changing pivot-shift rate from preoperative to 6-months postoperative and clinically meaningful differences were evident at postoperative 1-year.