

Paper #44

Combined Anterior Cruciate Ligament Reconstruction with Knee Alignment Osteotomy: Results up to Five Years

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Summary:

In patients with ACL rupture and symptomatic unicompartmental osteoarthritis, simultaneous restoration of coronal knee axis and stability appears to offer excellent improvement in early outcomes.

Abstract:

Introduction

The simultaneous correction of knee malalignment with anterior cruciate ligament (ACL) reconstruction aims to improve outcomes by restoring knee stability while addressing symptomatic unicompartmental osteoarthritis. We present an ongoing single-centre series of 38 patients with up to five-year follow-up who underwent simultaneous knee realignment osteotomy with ACL reconstruction performed by two surgeons.

Methods

Standard investigations were used to identify patients with ACL rupture and coronal knee malalignment. Long leg radiographs and digital templating software were used to plan the proposed osteotomy correction pre-operatively and to ensure there was no interference between the osteotomy and ACL hardware. Anatomical ACL reconstruction was performed using the validated direct measurement technique. In addition to ACL reconstruction, patients underwent either simultaneous distal femoral osteotomy (DFO), high tibial osteotomy (HTO), or both. Patients were evaluated preoperatively and at 6 months, 12 months and annually postoperatively using the Knee Injury and Osteoarthritis Outcome Score (KOOS), Oxford Knee Score (OKS) and Euroqol's Visual Analogue Score (VAS) for pain.

Results

38 patients (25 men and 13 women) with a mean age of 42.9 (SD +/-8.99) years and mean BMI of 28.6 (SD +/- 5.78) kg/m², underwent the combined procedures. Tibiofemoral re-alignment was achieved with DFO in 2 patients, HTO in 35 and dual DFO and HTO in 1 patient. Complete subjective and objective scores have been obtained in 80.5% of patients at up to 5 years post-operatively (mean 2.26 years) and show an improvement in total KOOS of 26.5 points ($p<0.005$), OKS of 14.1 ($p<0.005$) and VAS for pain of 26.7 points ($p<0.005$). No ACL reconstruction failed. Complications consisted of one post-operative DVT, one superficial wound infection and two delayed unions.

Conclusions

In patients with ACL rupture and symptomatic unicompartmental osteoarthritis, simultaneous restoration of coronal knee axis and stability appears to offer excellent improvement in early outcomes. Although the combined procedure

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is technically challenging and requires careful pre-operative planning, it represents an attractive alternative to arthroplasty surgery in this cohort of patients.