

A 20 Year Longitudinal Prospective Evaluation of Endoscopic ACL Reconstruction with Patellar Tendon Autograft

Simon M. Thompson, MBBS, BSc(Hon), MSc MD(Res), FRCS(Tr & Orth), AUSTRALIA

Lucy J. Salmon, PhD, AUSTRALIA

Alison Waller, BAppSci(Physio), AUSTRALIA

Justin P. Roe, FRACS, A/Prof (UNSW), AUSTRALIA

James M. Linklater, MBBS (Hons), FRANZCR, AUSTRALIA

Leo A. Pinczewski, FRACS, AUSTRALIA

North Sydney Orthopaedic and Sports Medicine Centre
Sydney, NSW, AUSTRALIA

Summary:

Over the long term ACL reconstruction with the patellar tendon graft was associated with good clinical outcomes, but a high rate of contralateral ACL injury.

Abstract:

INTRODUCTION

This longitudinal prospective study reports the outcome of isolated anterior cruciate ligament (ACL) reconstruction using middle-third patellar tendon autograft in 90 patients over 20 years.

METHODS

Between January 1993 and April 1994, 333 consecutive patients underwent anterior cruciate ligament reconstruction. Patients with associated ligamentous injury requiring surgery, previous meniscectomy, or meniscal injury requiring more than one third meniscectomy; chondral injury diagnosed at arthroscopy; and an abnormal contralateral knee were excluded. Ninety patients met the inclusion criteria. Evaluation was conducted annually for 5 years, then at 7, 10, 15 and 20 years after surgery. Outcomes included range of motion, Lachman and pivot-shift tests, instrumented ligament testing, single-legged hop test, Lysholm Knee Score, the International Knee Documentation Committee evaluation, and radiographic assessment.

RESULTS

At 20 years after ACL reconstruction 31 patients had sustained another ACL injury, 8 to the index limb and 27 to the contralateral limb, including 3 who injured both the reconstructed and contralateral ACL. The mean IKDC score at 20 years was 86 and 50% of subjects reported regular participation in strenuous to very strenuous activities. Kneeling pain was present in 62%. Radiographic degenerative change was found in 60%. IKDC ligamentous examination was grade A in 82% and grade B in 16% of those without further ACL injury. Significant gender differences were apparent at 20 years after surgery. When compared to males, females had higher ACL graft survival at 20 years (83% v 97%, HR 7.1, $p=0.06$). However females also reported significantly poorer mean IKDC subjective score (90 v 83, $p=0.03$), more activity related pain ($p=0.02$), and swelling ($p=0.05$) and lower regular activity level ($p=0.04$) than males.

CONCLUSION

The incidence of further ACL injury 20 years after ACL reconstruction was high, and more commonly occurs in the contralateral ACL than the reconstructed ACL graft. Females demonstrate a trend towards lower rates of further ACL compared to males, this may be related to less participation in high risk sports due to symptomatic limitation. Kneeling pain remained a persistent symptom over 20 years. Radiographic osteoarthritis was evident in the majority of subjects but symptomatic osteoarthritic symptoms were rarely reported.