

Paper #96

15 Year Survival of Endoscopic Anterior Cruciate Ligament Reconstruction in Children and Adolescents

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

Lucy J. Salmon, PhD, AUSTRALIA

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

Matthew Morgan, MBBS, AUSTRALIA

Leo A. Pinczewski, FRACS, AUSTRALIA

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

Summary:

After ACL reconstruction in those aged 18 years or less, further ACL injury occurred in 1 in 3 over 15 years. A family history of ACL injury was significantly associated with further injuries.

Abstract:

BACKGROUND

The aim of this study was to determine the long term survival of the ACL graft and the contralateral ACL (CACL) after primary reconstruction in those 18 years and under, and to identify the factors that increase the odds of subsequent ACL injury.

METHODS

All patients having undergone primary ACL reconstruction at the age of 18 or less between January 1993 and December 1998 by a single surgeon in a single unit were considered. Those with a contralateral ACL injury prior to index surgery or those who refused participation in prospective research were excluded. ACL reconstruction was performed using a single-incision endoscopic technique with either autologous bone-patellar tendon-bone graft (BPTB) or hamstring tendon graft (HT). Femoral tunnel drilling was performed via the anteromedial portal. Patients were contacted to complete a subjective interview by telephone or online questionnaire at a minimum of 15 years after the index surgery.

RESULTS

A total of 288 juveniles met the inclusion and exclusion criteria of which 242 (84%) were reviewed at a mean of 16.6 years after ACL reconstruction. The mean age at the time of surgery was 16 years (13-18). 167 (69%) had no subsequent ACL injuries and 75 (31%) sustained a further ACL injury. Of the 75 with further ACL injuries, 27 (11.2%) sustained an ACL graft rupture, 33 sustained a contralateral ACL injury (13.6%) and 15 sustained BOTH an ACL graft and a contralateral ACL rupture (6.2%). Expected survival of the ACL graft after reconstruction was 92%, 88%, 85% and 83% at 2, 5, 10 and 15 years, respectively. Expected survival of the CACL was 98%, 90%, 83% and 81%, respectively. Survival of the ACL graft was less favourable in those with a positive family history (69% versus 90%, $p = .001$, HR 3.6). Survival of the CACL was less favourable in males than in females (75% versus 88%, HR 2.1, $p = .03$) and those that returned to competitive team ball sports (78% versus 89%, HR 2.3, $p=0.05$). Graft source, age at surgery and graft diameter did not significantly increase the odds of graft or CACL rupture. The mean International Knee Documentation Committee (IKDC) subjective score at 15 years was 88. Return to preinjury sport level was reported in 76% of patients.

CONCLUSION

After ACL reconstruction in those aged 18 years or less, further ACL injury occurred to 1 in 3 over 15 years. The expected 15 year survival of the ACL graft was 85% and expected 15 year survival of the CACL was 82%. Family history of ACL rupture significantly increased the odds of ACL graft rupture. CACL injury was more common in males

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than females and those who return to team ball sports. High subjective scores and continued participation in sports were maintained over the long term after ACL reconstruction in the juvenile population.