

Incidence & Risk Factors for ACL Graft Rupture & Contralateral ACL Rupture after Reconstruction

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INTRODUCTION

The purpose of this study was to determine the incidence of ACL graft rupture and contralateral ACL injury in patients 5 years after ACL reconstruction with either patellar tendon or hamstring tendon autograft. We also sought to determine if there were any patient characteristics that predispose patients to such outcomes.

METHODOLOGY

A total of 743 patients underwent ACL reconstructions between 1993 and 1994 by Dr Leo Pinczewski. Patellar tendon autograft was used in 316 patients (PT group) and 4 strand hamstring tendon autograft in 427 patients (HT group). Patients with a previous contralateral ACL rupture were excluded, leaving 675 patients.

Clinical evaluation was conducted on all patients via a telephone interview. Patients were questioned regarding the incidence of

- ACL graft rupture
- Family history of ACL injury
- Contralateral ACL injury
- Previous or subsequent surgery
- Activity level according to the IKDC scale

Graft rupture was defined as a traumatic episode of instability, after which the previously stabilised knee became unstable or continuing instability after reconstruction. For those patients who had a clinical failure and underwent revision, operative details were reviewed when available to determine the site of graft failure. Where a subsequent contralateral ACL injury was reported, the circumstances and timing of the injury were noted.

RESULTS

Of the original 675 patients, 612 (91%) were available for follow up at 5 years postoperatively. There was no significant difference in terms of gender, age, chronically of injury, index side, family history of ACL injury or subsequent contralateral ACL injury between the two groups.

Graft Rupture

Five years after primary ACL reconstruction, 612 of the 675 patients (90.7%) were assessed.

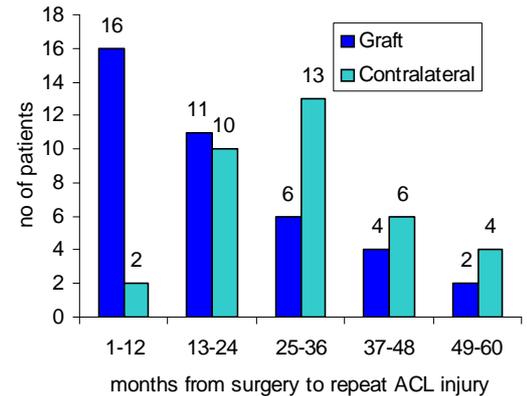
ACL graft rupture occurred in 39 patients (6%) and contralateral ACL rupture occurred in 35 patients (6%). Three patients suffered both a graft rupture and a contralateral ACL injury.

The odds of ACL graft rupture was increased three fold by a contact mechanism of initial injury. Return to Level 1 or 2 sports increased the risk of contralateral ACL injury by a factor of 10.

RESULTS (CONT)

The risk of sustaining an ACL graft rupture was greatest in the first 12 months after reconstruction. No other studied variable increased the risk of repeat ACL injury.

The average time from surgery until graft rupture was 24.1 months in the PT group and 19.3 months in the HT group. The average time until contralateral ACL injury was 34.5 months in the PT group and 28.2 months in the HT group.



A positive family history of ACL injury nor female gender did not significantly increase the risk of graft rupture or contralateral injury, in either HT or PT groups.

85% and 82% of patients did not undergo any subsequent surgery in the HT and PT group respectively. A subsequent meniscectomy to the index side was performed in 3% of the HT group and 4% of the PT group.

CONCLUSION

After reconstruction, repeat ACL injury occurred in 12% of patients over 5 years. In this group of patients, the overall rates of contralateral ACL injury (5.7%) and ACL graft rupture (6.0%) were very similar, and there was no significant difference between the PT and the HT groups. Twelve months after reconstruction the ACL graft is at no greater risk than the contralateral ACL, suggesting that adequate graft and muscular function for most activities is achieved by this time. Risk factors for repeat ACL injury identified included a return to competitive side stepping, pivoting or jumping sports and contact mechanism of index injury. Females were at no greater risk of repeat ACL injury than their male counterparts and graft choice did not affect the rate of repeat ACL injury.

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