

Paper #135

Transphyseal Anterior Cruciate Ligament Reconstruction In The Skeletally Immature: Outcome in 148 Tanner 1-3 Children

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Summary:

Transphyseal ACL reconstruction in skeletally immature children is a safe and effective surgical procedure permitting return to sport and high patient reported outcomes. Second ACL injury occurs in 1 in 4 children over 5 years after transphyseal ACL reconstruction, with similar incidence between the reconstructed ACL and contralateral ACL.

Abstract:

Introduction

As the incidence of anterior cruciate ligament (ACL) injuries in children is increasing, ACL reconstruction is being performed more frequently in the young and skeletally immature. Surgical management of ACL injuries in children may be complicated by iatrogenic growth disturbances. There is an absence of reliable evidence examining the outcomes of ACL reconstruction in skeletally immature children, especially with respect to transphyseal surgical techniques. The aim of this study was to determine the survival of the ACL graft and the contralateral ACL (CACL) after primary transphyseal ACL reconstruction in a series of Tanner 1-3 children.

Methods

From a prospective database we identified subjects who underwent single-incision endoscopic transphyseal ACL reconstruction and were assessed as Tanner 1, 2 or 3 at the time of surgery. Subjects completed a subjective interview by telephone or online questionnaire at a mean of 44 months after the index surgery, and underwent annual assessment with radiographs until growth plate closure.

Results

A total of 148 children met the inclusion criteria and were reviewed at a mean of 44 months (range 12-156) after transphyseal ACL reconstruction. The mean age at the time of surgery was 12 years (8-16). 44 children were classified as Tanner 1, 35 were Tanner 2 and 69 were Tanner 3. There were no cases of iatrogenic growth disturbance.

Subsequent ACL injury occurred in 32 children (22%). 12% suffered an ACL graft rupture, 13% suffered a CACL rupture and 1% ruptured both the graft and CACL. Expected survival of the ACL graft after reconstruction was 97%, 89% and 80% at 1, 2, and 5 years, respectively. Expected survival of the CACL was 92%, 89%, and 84% at 1, 2, and 5 years, respectively. The mean International Knee Documentation Committee (IKDC) subjective score at 15 years was 94. Return to preinjury sport level was reported in 80% of children.

Discussion

Transphyseal ACL reconstruction in skeletally immature children is a safe and effective surgical procedure permitting

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