

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING SEMITENDINOSUS AND GRACILIS AUTOGRAFTS

Evaluation of the clinical outcome, radiographic findings, histology and biochemistry

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ABSTRACT

The present thesis focuses on different aspects of anterior cruciate ligament (ACL) reconstruction using hamstring tendon (HT) autografts. In Study I, two groups of patients were compared. One group underwent surgery in the sub-acute setting, a median of three months after injury (30 patients), and one group underwent delayed surgery a median of 30 months after the injury (31 patients). At clinical evaluation two years post-operatively, the patients in the sub-acute group had a significantly better clinical outcome in terms of the Tegner activity level and Lysholm knee scoring scale. In Study II, 19 patients underwent examination a minimum of six years after ACL reconstruction using HT autografts. MRI of the operated and the contralateral non-operated knee was performed to investigate the cross-sectional area and insertion site of the regenerated tendons. Furthermore, the patients underwent muscle strength measurements using a Biodex dynamometer. The semitendinosus tendon regenerated in 17 of 19 (89%) of the patients and the gracilis in 18/19 (95%). The tendons regained an almost normal point of insertion at the pes anserinus and a cross-sectional area similar to that of the non-operated contralateral side. There was a significant strength deficit in deep knee flexion but not in internal rotation. In Study III, 18 patients underwent bilateral biopsies under ultrasonographic guidance to investigate whether the regenerated tendon-like tissue seen on MRI in Study II is histologically real tendon tissue and/or scar tissue. The biopsies revealed tendon tissue similar to the normal tendon, but, in some of the regenerated tendons, "scar tissue formations" were seen. In Study IV, synovial fluid was aspirated from both knees in 11 patients to evaluate inflammatory components and disturbed cartilage metabolism in the long term (eight years) after unilateral ACL injury and reconstruction. The patients underwent bilateral weight-bearing radiographs and bilateral MRI to evaluate degenerative changes and meniscal and cartilage damage. There were no significant differences between injured and non-injured knees in terms of cartilage markers and inflammatory cytokines, but there were significantly more degenerative changes on radiographs and MRI in the reconstructed knees.

Keywords: Anterior cruciate ligament, hamstring tendon regeneration, biopsies, cartilage markers, inflammatory cytokines, MRI, strength measurements

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AVHANDLINGEN BASERAS PÅ FÖLJANDE DELARBETEN

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