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Paper #174

Clinical Results and Rotational Stability of the Knee Two Years After the ACL Reconstruction Using a Quadriceps Tendon Graft

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Summary:
The BT (quadriceps tendon) reconstruction of the ACL provides similar clinical results, less pain, easier kneeling and the same rotational stability of the knee in comparison to the BTB (patellar ligament) reconstruction

Abstract:

Purpose

It is technically difficult to measure the rotational stability of the knee in vivo in weight-bearing condition. Navigation systems give us such an option. The aim of this prospective controlled blinded randomised study was to evaluate clinical results and rotational stability at least 2 years after single-bundle anterior cruciate ligament (ACL) reconstruction using bone-tendon (BT) graft harvested from the m. quadriceps femoris and bone-tendon-bone (BTB) graft from the ligamentum patellae and to compare it with the contralateral healthy knee joint. We have postulated two hypotheses: 1) The BT reconstruction restores the knee stability in internal rotation (IR) without any significant difference in comparison to the BTB reconstruction; 2) The knee after the BT reconstruction is less painful than after the BTB reconstruction.

Material And Methods

In both groups (BT and BTB), 40 patients selected prospectively at random were evaluated. Only cases with isolated ACL lesions and healthy contralateral knees were included. The mean follow-up after the surgery was 28 months (range, 24 to 33 months). For all measurements, the navigation system was used. Measurements were done by the blinded investigator. Patients were asked to perform (in 30° weight-bearing flexion) the maximal external trunk rotation to develop the reverse rotation of the tibia against the femur. All measurements were taken on both the reconstructed and healthy knees. Cincinnati, Lysholm, and IKDC scores and visual analog score (VAS) were used to evaluate clinical results. The nonparametric Wilcoxon test was used to evaluate results.

Results

After the BT reconstruction, the mean internal rotation of the tibia (IR) was 9,5°. In the contralateral healthy knee joint, IR was 8,6° at average. We found statistically significant difference in IR stability between reconstructed and healthy knees ($p < 0,05$). After the BTB reconstruction, the mean IR was 9,9°. In the contralateral healthy knee joint, IR was 8,7° at average. We found statistically significant difference in IR stability between reconstructed and healthy knees ($p < 0,05$). We did not find any statistically significant difference in IR stability between BT and BTB reconstruction. In terms of clinical results (Cincinnati, Lysholm, IKDC), we did not find any statistically significant difference between BT and BTB group. Regarding the VAS, patients perceive significantly more pain after the BTB reconstruction ($p < 0,05$). Kneeling was reported more difficult after BTB reconstruction.

Conclusion

Paper #174

The data confirmed both hypotheses. The BT reconstruction of the ACL provides similar clinical results, less pain, easier kneeling and the same rotational stability of the knee in comparison to the BTB reconstruction (p ? 0.05).