

Short-term clinical results after computer-navigation assisted ACL reconstruction

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Purpose: Next to graft fixation, correct positioning of the tibial and femoral tunnel is a deciding factor for the clinical result of anterior cruciate ligament reconstruction surgery. Computer navigation can assist in the accuracy of tunnel placement and there are some reports about techniques and accuracy of the tunnel placement using Computer-Navigation assisted anterior cruciate ligament (Navigated ACL) reconstruction. But there is little report about clinical results after Navigated ACL reconstruction. This study is to evaluate clinical results after navigated ACL reconstruction with more than 1 years follow up.

Materials & Methods: Forty-five patients who were operated with the assistance of a navigation system (Orthopilot) enrolled for this study. Among them 40 patients were followed up at least more than 2 year and included for this study. The hamstring autograft or tibialis anterior allograft were used for this study. The graft was fixed with Endo-button at femoral tunnel and with bioabsorbable interference screw at tibial tunnel. The mean follow-up period was 15 months (12-21). The clinical results were evaluated by Lachman test, pivot-shift test and Lysholm knee score. Anterior laxity difference compared with normal side by instrumented anterior laxity test with Telos (Telos stress device; Austin & Associates, Inc., Polston, US) were evaluated.

Results: The Lysholm knee score improved from 75.5 points preoperatively to 95.0 points at last follow up. On the Lachman test, there were mild instability in 7 cases, moderate instability in 18 cases, and severe instability in 15 cases preoperatively. 36 cases were converted to negative and 4 cases to mild instability at postoperative follow up. All patients except 4 cases recovered to the level of pre-injury sports activity. On the instrumented anterior laxity test with Telos, difference between normal and affected knee was 10.8 (8-15 mm) mm in average preoperatively and was decreased to 3.2 (0-6 mm) mm at last follow-up. We observed 5 cases of anterior knee crepitus, 7 cases of quadriceps muscle atrophy more than 3 cm than normal side, and 6 cases of saphenous nerve paresthesia as complications.

Conclusions: Computer-Navigation assisted anterior cruciate ligament reconstruction could restore knee stability and improve clinical results without any complications related to navigation. The role of computer-assisted navigation systems on clinical performance and longevity needs further investigation in large sample, long-term randomized trials compared with conventional techniques.

References

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