

Clinical Outcome After Anatomic Double-Bundle Anterior Cruciate Ligament Reconstruction in Patients Older than Forty Years: Comparison Between Different Age Groups

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Summary:

There were no significant differences between the two different age groups after anatomic double-bundle ACL reconstruction concerning knee stability and postoperative outcome.

Abstract:

INTRODUCTION

As a worldwide lifestyle change has occurred in older people, the age limitation and management of ACL-deficient knees have come into question, and indications for surgery are changing [1,2]. We have developed anatomic double-bundle ACL reconstruction, [3] in which four independent tunnels were created through the center of each anatomic attachment of the two bundles. Recently, anatomic double-bundle ACL reconstruction has attracted a great deal of attention because of biomechanical advantages in laboratory studies [4]. The purpose of this study was to compare clinical outcome after anatomic double-bundle ACL reconstruction between different age groups, over 40 years and under 40 years.

METHODS

A prospective study was conducted with 218 patients (125 men and 99 women) who underwent unilateral ACL reconstruction between 2008 and 2011. The mean age was 27 years. All patients were divided into the following two groups; the over 40 years group (M group) or the under 40 years group (Y group). In the M group, 40 patients were enrolled in this study with a mean age of 48 years (40 to 71 years). In the Y group, 178 patients were enrolled with a mean age of 23 years (13 to 39 years). All the patients were performed same anatomic double-bundle ACL reconstruction procedure using hamstring tendon autografts [3].

All the patients were followed up at 2 year or more after surgery, and we evaluated the standard clinical evaluation methods.

We also assessed tunnel enlargement with computed tomography (CT) at two weeks and 1 year after surgery for 35 patients (15 and 20 patients, in M and Y groups, respectively).

Statistical analysis to compare two groups was made using Mann-Whitney U test, and the chi-square test. The significance level was set at $p=0.05$.

RESULTS

The concomitant rate of meniscal and chondral injury was 24 knees (60%) and 102 knees (57%) in M and Y groups, respectively, showing no statistical difference. The post-operative anterior laxity was 0.5 ± 1.5 mm in M group, and 1.2 ± 2.0 mm in Y group. Concerning the anterior laxity, the Lysholm knee score, the IKDC evaluation, and the peak

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muscle torque of hamstrings, there were no significant differences between the two groups. On the other hand, regarding the peak muscle torque of quadriceps as a ratio to the uninvolved knee, M group (81%) was significantly lower than Y group (88%) ($p=0.0163$).

Concerning the degree of femoral tunnel enlargement, there were no significant differences between the two groups, although tunnel enlargement was seen in bilateral groups. Concerning the degree of tibial tunnel enlargement of posterolateral bundle in coronal view, M group (114%) was significantly greater than Y group (99%) ($p=0.02$).

DISCUSSION

This study demonstrated that there were no significant differences between the two different age groups after anatomic double-bundle ACL reconstruction concerning knee stability and postoperative outcome. However, the recovery of quadriceps muscle was significantly lower in older patients than in young patients. Also, Femoral tunnel enlargement was occurred in two groups, but tibial tunnel enlargement of the posterolateral bundle was significantly higher in older patients than in young patients. For clinical relevance, therefore, surgeons should be aware of residual muscle weakness and tunnel enlargement when they perform double-bundle ACL reconstruction in elderly patients, and patients should be informed of the risks before surgery.

REFERENCES

- [1] Conteduca Fabio et al. International Orthopaedics 2013
- [2] Claudio Legnani et al. J Orthopaed Traumatol 2011
- [3] Yasuda et al. Arthroscopy 2004
- [4] Kondo et al. AJSM 2010