ISAKOS

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

11th Biennial ISAKOS Congress • June 4-8, 2017 • Shanghai, China

Paper #71

Graft Length Change Patterns in Medial Patellofemoral Ligament Reconstruction Using a Fluoroscopic-Guidance Method

Takehiko Matsushita, MD, JAPAN
Daisuke Araki, MD, PhD, JAPAN
Yuichi Hoshino, MD, PhD, JAPAN
Shinya Oka, MD, PhD, JAPAN
Kyohei Nishida, MD, JAPAN
Ken Sasaki, MD, PhD, JAPAN
Noriyuki Kanzaki, MD, PhD, JAPAN
Ryosuke Kuroda, MD, PhD, JAPAN

Department of Orthopaedic Surgery, Kobe University Graduate School of Medicine
Kobe, Hyogo, JAPAN

Summary:
The graft length change patterns in medial patellofemoral ligament reconstruction using the fluoroscopic-guidance method was examined in 38 knees with recurrent patellar dislocation. Approximately 30% of the knees showed the unfavorable non-physiological length change pattern. Therefore, surgeons may need a caution when determining the femoral tunnel position using the fluoroscopic-guidance

Abstract:
Background: Medial patellofemoral ligament (MPFL) reconstruction has been widely performed to treat patellar dislocation. It has been reported that femoral tunnel position is one of the most important factors affecting clinical outcomes after MPFL reconstructions. To determine femoral tunnel position, a fluoroscopic-guidance method has been reported. However, the graft length change pattern at the femoral tunnel position determined by the fluoroscopic-guidance has not yet been well examined. The purpose of this study is to examine the graft length change pattern at the femoral tunnel position determined under the fluoroscopic-guidance.
Material and methods: Thirty-eight knees in 36 patients who underwent MPFL reconstructions for the treatment of recurrent patellar dislocations were examined prospectively. During the surgery, suture anchors were inserted into the patella. A pilot-pin for the femoral tunnel was inserted into the position using true lateral view of the knee under fluoroscopic control according to the method reported by Schöttle et al. Photos of the positioning of the pilot-pin were taken during the surgery to confirm the technical accuracy.
The graft length change pattern was examined throughout the knee range motion using the sutures attached to the anchors by twining around the pin. The favorable length change patterns were defined as nearly isometric or slightly long in extension (< =3 mm) based on previously reported physiological length changes of native MPFL. The unfavorable length change pattern was defined as long in flexion. If the length change patter was unfavorable, the pilot-pin was moved to different positions until the graft length change pattern showed the favorable pattern. Knees were divided into two groups, the favorable group and the unfavorable group and the difference between the 2 groups in the radiographic parameters were assessed. Studet's t-test or Chi-square test was used for the statistical analysis.
Results: Twenty-four knees (68.4%) out of 38 knees showed the favorable patterns. However, 12 knees (31.6%) showed the unfavorable pattern and the position was changed. The mean distance from the original position to the final position was 5.2 ± 1.0 mm distal in 6 patients and 7.2 ± 0.4 mm posterodistal in 6 patients. There was no statistically difference in the assessed radiographic parameters including the femoral tibial angle, congruence angle, Insall-salvati ratio, tibial tuberosity-trochlear groove distance and the Dejour trochlear dysplasia classification between the favorable group and unfavorable group. Further, retrospectively, the photos taken during the surgery were reviewed. In 4 out of the 12 knees in the unfavorable group, technical reasons were found. However, no technical problems were found in the rest of the 8 patients.

Paper #71

Discussion: Most of the patients showed the favorable length change patterns at the position determined by the fluoroscopic-guidance method, showing a usefulness of the method to determine femoral tunnel position during the MPFL reconstruction. However, approximately 30% of the patients showed the unfavorable length change pattern at the position determined under the fluoroscopic-guidance, suggesting that at least length change pattern should be checked before fixing the graft at the position. If the length change pattern was unfavorable, it can be advised to move approximately 5 to 7 mm distally or posterodistally from the first position for the next position.
Conclusion: Surgeons may need a caution when determining the femoral tunnel position using the fluoroscopic-guidance method and at least, length change pattern should be checked.