

## Does Tibial Tuberosity-Trochlear Groove Distance Affect Clinical Outcomes of Medial Patellofemoral Ligament Reconstruction?

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### Summary:

MPFL reconstruction with lateral release can achieve good clinical outcomes in patients with an increased TT-TG distance without performing medialization of tibial tuberosity.

### Abstract:

#### Introduction:

Medial patellofemoral ligament (MPFL) reconstruction has been widely performed to treat recurrent patellar dislocation. However the effectiveness of MPFL reconstruction in patients with severely lateralized tibial tuberosity has not been well examined. Some surgeons advocate MPFL reconstruction combined with medialization of tibial tubercle if the patients' tibial tuberosity-trochlea groove (TT-TG) distance is more than 20 mm. In the present study, we examined clinical outcomes of MFPL reconstruction in patients with a TT-TG distance of more than 20 mm.

#### Material and Methods:

34 patients who received MFPL reconstruction for recurrent patellar dislocation were retrospectively examined for this study. 19 patients with a TT-TG distance of more than 20 mm were examined as an increased TT-TG distance group and compared with 15 patients with a TT-TG distance of less than 20 mm as a control group (Mean follow up; 40 months, 32 months respectively). TT-TG distance was measured using CT images taken at knee extension. MPFL reconstruction was performed using semitendinosus tendon graft. Lateral release was additionally performed for patients with severe tight lateral soft tissue. Clinical outcomes of MPFL reconstruction was evaluated by the presence of redislocation, Crosby and Insall grading system, apprehension sign and congruence angle on axial view of plain radiographs.

#### Results:

The mean TT-TG distance was  $22.6 \pm 2.5$  (20.2-27.2) mm for the increased TT-TG distance group and  $15.7 \pm 2.6$  (11.3-19.0) mm for the control group. There was no significant difference between the two groups in patient age, follow-up duration, the mean sulcus angle and tilting angle. Lateral release was performed in 14 patients (73.7%) in the increased TT-TG distance group and in 8 patients (44.4%) in the control group. None of the patients reported redislocation. With Crosby and Insall grading system, 9 patients were excellent (47%), 10 patients were good (53%) in the increased TT-TG distance group, while 5 were excellent (33.3%), 10 were good (66.6%) in the control group. None was fair to poor and worse in both groups. In the increased TT-TG distance group, apprehension sign was positive in 3 patients and congruence angle was improved from  $19.3^\circ$  to  $0.41^\circ$ .

#### Conclusions:

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The overall clinical outcomes after MPFL reconstruction with lateral release were favorable in patients with a TT-TG distance of more than 20 mm although apprehension sign was positive in 3 patients. MPFL reconstruction with lateral release can achieve good clinical outcomes in patients with an increased TT-TG distance and TT-TG distance of more than 20 mm may not be an absolute indication for medialization of tibial tuberosity when performing MFPL reconstruction.