

Correlation Between Anatomical Landmarks and Bony Trough Position in Lateral Meniscal Allograft Transplantation

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INTRODUCTION: Determination of the rotational axis of the bony trough during lateral meniscal allograft transplantation (MAT) is difficult. There is a paucity of the literature reporting anatomical landmarks that can help the rotational alignment of the graft during lateral MAT.

METHODS:

Forty-four patients who underwent the lateral MAT from July 2000 to February 2011 were enrolled in this study. The mean age at the time of surgery was 30.8 years and postoperative MRI was examined at mean 3.6 months after surgery and extrusion was measured. Patients were divided into two groups with and without extrusion. 3 coronal views were selected at the level of the tibial tuberosity, the anterior bony trough, and the posterior bony trough. Distance (TT distance) between the center of the anterior bony trough and the center of the tibial tuberosity (TT) was measured. Distance (LFC distance) between the center of the posterior bony trough and the medial border of lateral femoral condyle (LFC) was measured.

RESULTS:

There were 15 patients (34.1%) in the extrusion group and 29 patients (65.9%) in the non-extrusion group. Mean center of the anterior bony trough was in a more medial position relative to the center of the TT in the non-extrusion group (-2.9 ± 4.8 mm) than in the extrusion group (1.3 ± 4.9 mm) ($P=0.010$). Mean center of the posterior bony trough was in a more medial position relative to the medial border of the LFC in the non-extrusion group (-1.7 ± 3.9 mm) than in the extrusion group (1.0 ± 3.2 mm) ($P=0.027$). TT distance and LFC distance were correlated statistically with extrusion, respectively ($P=0.005$, $P=0.025$). The cut-off value was -0.24 mm for the anterior bony trough and -0.58 mm for the posterior one. Negative values indicate that the trough was medial to the respective landmarks.

DISCUSSION AND CONCLUSION: To prevent extrusion of the allograft, the center of the anterior bony trough needs to be aligned to the center of the TT and the center of the posterior bony trough needs to be aligned to the medial border of the LFC.

