

Isolated Meniscus Allograft Transplantation effectively reduces knee laxity in the presence of previous meniscectomy: in-vivo navigation of 18 consecutive cases.

Stefano Di Paolo, Gian Andrea Lucidi, Alberto Grassi¹, Luca Macchiarola¹, Luca Ambrosini, Piero Agostinone, Giacomo Dal Fabbro, Stefano Zaffagnini¹

¹Istituto Ortopedico Rizzoli

INTRODUCTION:

Even if meniscal allograft transplantation (MAT) is a well-established procedure with satisfactory clinical results, there's still a lack of evidence on how medial and lateral MAT influences the intraoperative kinematics of the knee. The purpose of the present study was evaluating the intraoperative kinematics of arthroscopic medial and lateral MAT using a surgical navigation system in ACL-intact knees.

METHODS:

18 consecutive patients undergoing MAT (8 medial, 10 lateral) were enrolled in this study. A surgical navigation system was used to acquire and quantify the anterior-posterior displacement at 30 and 90 degrees of knee flexion (AP30 and AP90), the varus-valgus rotation at 0 and 30 degrees of knee flexion (VV0 and VV30) and the dynamic laxity on the pivot-shift test (PS), which was determined through anterior displacement of the lateral tibial compartment (APlat) and posterior acceleration of the lateral tibial compartment during tibial reduction (ACC). Data from before and after MAT were compared.

RESULTS:

After the Medial MAT there was a significant decrease in tibial translation of 2.6 mm (27%; P= .005) for AP30 and 2.3 mm (34%; P = .0197) for AP90, a significant difference of 2.5° (51%; P = .0019) for VV0 and 1.7° (31%; P = .0119) for VV30. However, the medial MAT did not showed any reduction in the PS kinematic data. The Lateral MAT determined a significant decrease in tibial translation of 2.8 mm (43%; P=.005) for AP30 and 1.9mm (38%; P.018) for AP90 as well as a significant difference of 3.6mm (64%; P=.001) for VV0. There was also a significant reduction of the PS of 7.4 mm (39%; P.021) for APlat and 302.9 mm/s² (75%; P.005) for ACC.

DISCUSSION AND CONCLUSION:

Medial MAT improved knee kinematics by determining a significant reduction with particular emphasis to AP translation and VV maneuver. Conversely, Lateral MAT determined a massive reduction of the PS and mild decrease of the AP translation and Varo-valgus.