root repair group had the lowest scores for cartilage damage (2.5; 2-3) and the meniscectomy group exhibited higher and more severe signs of OA (16; 9-16) compared to the conservative treatment group (5; 4-6). Between group comparison revealed significant differences as the PM group showed significantly higher rate macro and microscopic osteoarthritic changes compared to the RR (p< 0.001) and CT group (< 0.001). The weight-bearing area of the medial femoral condyle was the most severely affected and tidemark disruption was evident in all tissue samples. Conclusions: Meniscus root repair could not completely arrest histopathological progression of knee OA but lead to significantly less severe degenerative changes than partial meniscectomy and nonoperative management. Partial meniscectomy leads to the most severe osteoarthritic progression while stable radial tears left in situ presented lower OA progression compared with partial meniscectomy.

Category: Knee - Meniscus

Isolated Meniscus Allograft Transplantation Effectively Reduces Knee Osteoarthritic Progression while stable radial tears left in situ presented lower OA progression.

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Summary:
Medial MAT improved knee kinematics by reducing AP translation and VV maneuver. Conversely, Lateral MAT determined a massive reduction of the PS and mild decrease of the AP translation and VV.

Data:
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 (AP90 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 VVO and 1.7° (31%; P= .0119) for VV30. However, the medial MAT did not show 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 VVO. 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.

Category: Knee - Meniscus

Meniscal Allograft Transplantation Outcome in Adolescents and Young Adults

Abstract ID# 22725
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Summary:
Factors such as age, sex and laterality of transplant should be strongly considered when conducting surgical planning for patients eligible for MAT to better understand risks and potential outcomes of the procedure.

Data:
INTRODUCTION: Meniscus insufficiency in young patients occurs following recurrent or irreparable tears. In such cases, meniscus allograft transplantation (MAT) is performed to protect joint integrity and prevent subsequent acceleration of arthritic changes. There is limited information on the outcomes of such procedures in an adolescent and young adult population. The purpose of this study was to retrospectively examine patients who underwent MAT at a single children’s hospital and describe their baseline characteristics and outcomes. Methods: We performed a retrospective chart review for all patients who underwent primary MAT at a single children’s hospital between 2015 and 2022. Demographic information and surgical characteristics of all eligible patients were included. The primary outcomes were presence of postoperative complications, reoperation, and graft failure. A logistic regression analysis was performed considering age, sex, affected compartment, discoid meniscus, malalignment, chondral lesion, and concomitant procedure, as risk factors for postoperative complications and re-operation. A subgroup analysis was performed considering only patients who were 18 years old or younger. Results: Forty-eight primary MAT in 47 patients were included in this study. The mean age at time of surgery was 17.15 years, and 54% were females. Half of cases had knee sports related injuries, and 31% had a disoid meniscus. Malalignment was documented in 7 patients (15%), Chondral lesions were found in 30 patients (63%), 90% of chondral lesions were found in the same compartment in which the MAT was performed. Concomitant procedures were performed in 20 patients (42%). Postoperative complications were reported in 26 patients (54%). Re-operation was reported in 13 patients (27%), with mean time to re-operation of 286.92 days. Logistic regression analysis showed that female sex and concomitant procedures significantly increased the risk of postoperative complications, and older age, female sex and lateral MAT significantly increased the risk of re-operation. Subgroup analysis of 33 patients aged -18 years at the time of surgery revealed similar findings to those reported in the full patient analysis. Conclusion: The MAT is an efficient procedure aimed to help preserve joint integrity and can improve function and symptoms in patients with meniscal insufficiency, but it is not without complications. More than 50% of patients in our cohort experienced postoperative complications and 27% required re-operation. Individuals of the female sex with concomitant procedures undergoing MAT have increased risk for postoperative complications. Further, increased age, female sex and lateral MAT also significantly increased the risk of re-operation. These factors should be strongly considered when conducting surgical planning for patients eligible for MAT to better understand risks and potential outcomes of the procedure.

Category: Knee - Meniscus

Analysis of Risk Factors in Arthroscopic Meniscus Repair of Bucket Handle Tear

Abstract ID# 23062
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Summary:
The rate of incomplete healing after arthroscopic repair of bucket handle tear was significantly higher at the medial meniscus than at the lateral meniscus, but there was no difference in clinical failure between bucket handle medial meniscus tear and lateral meniscus tear.

Data:
Background: Since bucket-handle tears are usually larger and displaced, their repair can be challenging. There have been few comparative studies evaluating clinical and radiological outcomes of bucket-handle meniscal tears. Purpose: This study aimed to assess the clinical outcomes, failure rate, and risk factors for failure of bucket-handle tears that were treated with arthroscopic repairs. Methods: Seventy-four cases of bucket-handle tears (mean age, 27.2 ± 11.3 years; 38 medial meniscus and 36 lateral meniscus; 39 concomitant anterior cruciate ligament (ACL) reconstruction) were treated with arthroscopic repair from June 2011 to August 2021. The exclusion criteria were revisions, fracture histories, combined with microfracture and root repair. Chi-square test, Fisher exact test, Mann-Whitney test analysis and multivariable Cox proportional hazard ratio model were performed to evaluate the factors. These factors were: age, sex, body mass index (BMI, = 25kg/m2), chronicity (= 6 months), laterality (medial meniscus or lateral meniscus), and location (posterior horn only, tear involving midbody). They also comprised: tear location (posterior horn only, tear involving midbody). They also comprised: tear location (posterior horn only, tear involving midbody).