

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine

12th Biennial ISAKOS Congress • May 12-16, 2019 • Cancun, Mexico

Paper #69

Open Meniscal Allograft Transplantation with Transosseus Suture Fixation of the Meniscal Body Significantly Decreases Meniscal Extrusion Rate Compared to Arthroscopic Technique

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Summary:

Transosseous fixation for the meniscal body appears to be protective against meniscal extrusion after MAT.

Abstract:

Background

Meniscal allograft transplantation (MAT) is a well-established procedure for patients with symptomatic meniscal deficiency to improve the biomechanical properties of meniscus-deficient knees. Despite the introduction of several MAT techniques, including soft tissue-only, bone-plug and bone bridge fixation, meniscal extrusion remains a concern as it may compromise load transmission.

The aim of this study was to compare the extrusion rate of lateral MAT performed in an arthroscopic versus open bone bridge-in-slot technique. The open MAT technique utilizes transosseous sutures to secure the meniscal body and adjacent joint capsule to the proximal tibia, while the arthroscopic technique uses inside-out sutures to secure the meniscus body to the capsule.

Methods

In this review of prospectively collected data, we analyzed data from 20 patients who underwent lateral MAT. Ten lateral MAT were inserted by an arthroscopic technique and compared with 10 lateral MAT implanted by an open technique. Two independent examiners assessed meniscal extrusion by measuring the absolute value and the relative percentage of extrusion (RPE) on 1.5-T magnetic resonance images at 1-year follow-up. The number of MAT with radial displacement larger or smaller than 3 mm was determined.

Results

There was no statistically significant difference in baseline demographics. The absolute meniscal extrusion was similar between both groups (p = 0.091) There was significantly larger RPE (arthroscopic MAT 31+-27 mm, open MAT 10+-29 mm; CI -0.4 to -0.02; p=0.03) and significantly higher extrusion rate in patients with arthroscopic MAT compared to those treated with open MAT (>3 mm: 5 patients (50%) with arthroscopic MAT, none with open MAT, p=0.01).

Conclusion



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The present study identified significantly lower postoperative lateral meniscal extrusion rates after open MAT when compared with arthroscopic MAT. Transosseous fixation of the meniscal body appears protective against meniscal extrusion after MAT; further studies are desirable to investigate its clinical significance.