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Meniscoplasty and Centralization for Medial Meniscus Degenerative Tears with Extrusion: A Novel Technique and Initial Clinical Outcomes

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Faculty Disclosure Information

- Nothing to disclose

Introduction

- Medial meniscus extrusion can lead to a loss of meniscal function, is a risk factor for osteoarthritis, and may predispose patients to posterior root tears

- Current centralization techniques that involve release of the meniscotibial ligament can result in further instability and ineffective reduction of the extruded meniscus

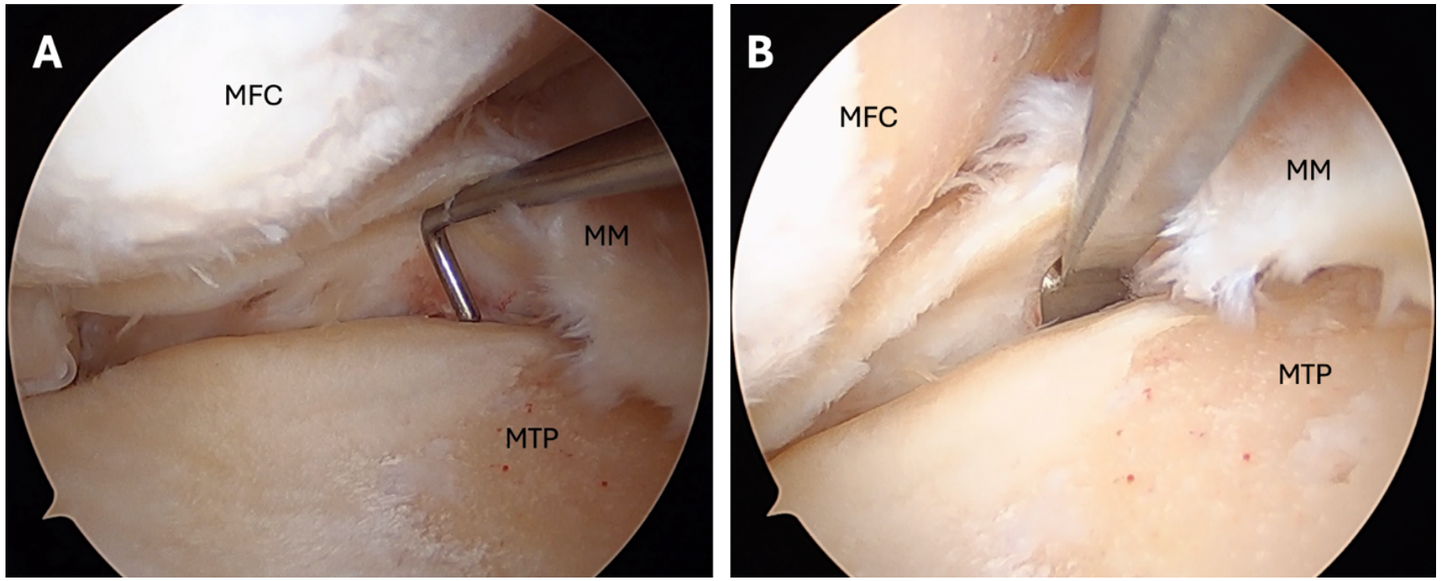
- We describe an arthroscopic technique that preserves the meniscotibial ligament while achieving medial meniscus centralization through a unique release technique utilizing capsular advancement

Methods

- A small initial cohort of patients were included
- Pre- and post-operative KOOS, IKDC, and Lysholm scores were obtained
- Two-tailed distribution paired t-test was used to determine statistical significance ($P < 0.05$) between pre- and post-operative scores

Surgical Technique

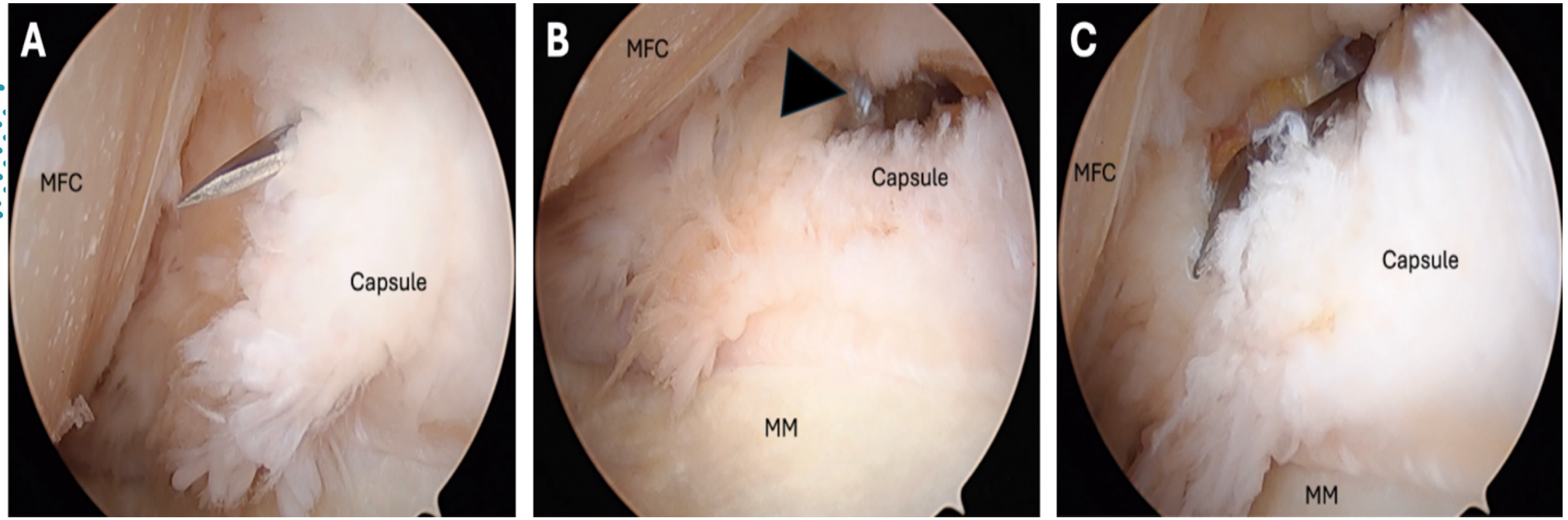
1. Confirm extrusion and release medial meniscus, ensuring not to go beyond 4mm distal from the tibial plateau edge to avoid meniscotibial ligament disruption



A) Confirm MM extrusion with a probe (right knee, viewing from AL portal). (B) Release the MM from the posteromedial edge of the MTP. Abbreviations: AL, anterolateral; MFC, medial femoral condyle; MM, medial meniscus; MT, medial tibial plateau.

Surgical Technique

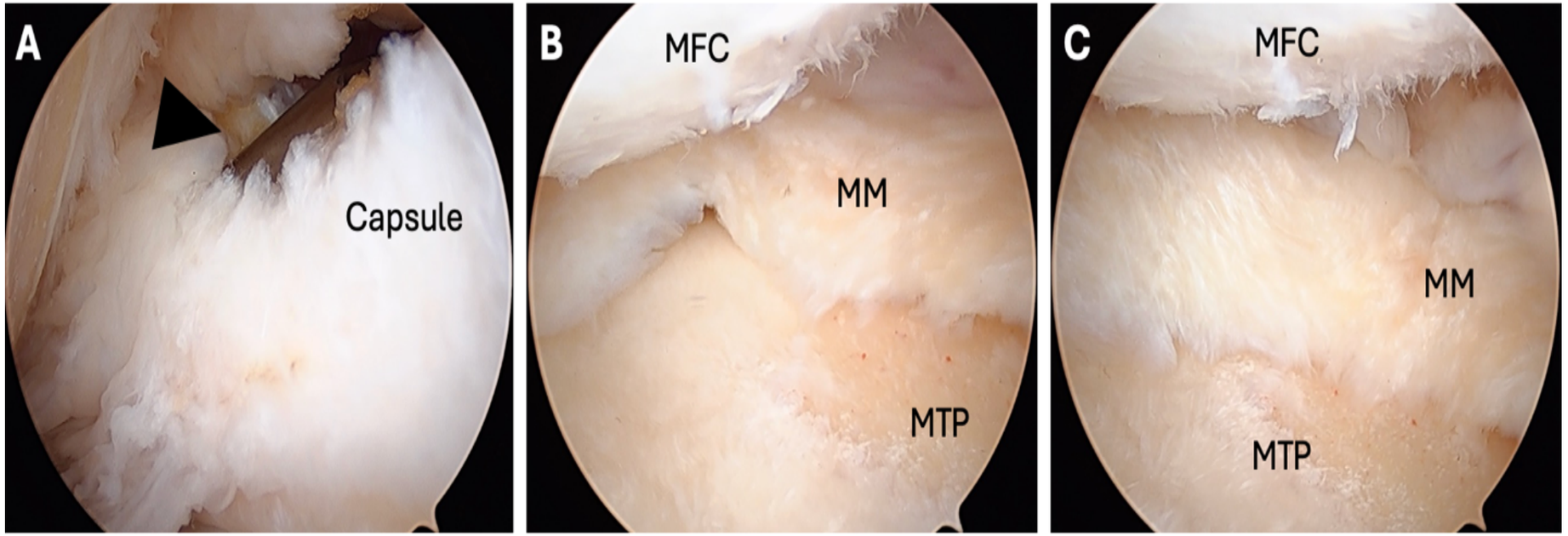
2. Establish midmedial portal, release capsule



(A) Establish a midmedial portal. (B) Angle the knife posteriorly to incise the capsule until the white fibers of the anterior aspect of the MCL are visualized (black arrow). (C) Introduce a small osteotome between the anterior portions of the deep and superficial MCL. Abbreviations: MFC, medial femoral condyle; MM, medial meniscus.

Surgical Technique

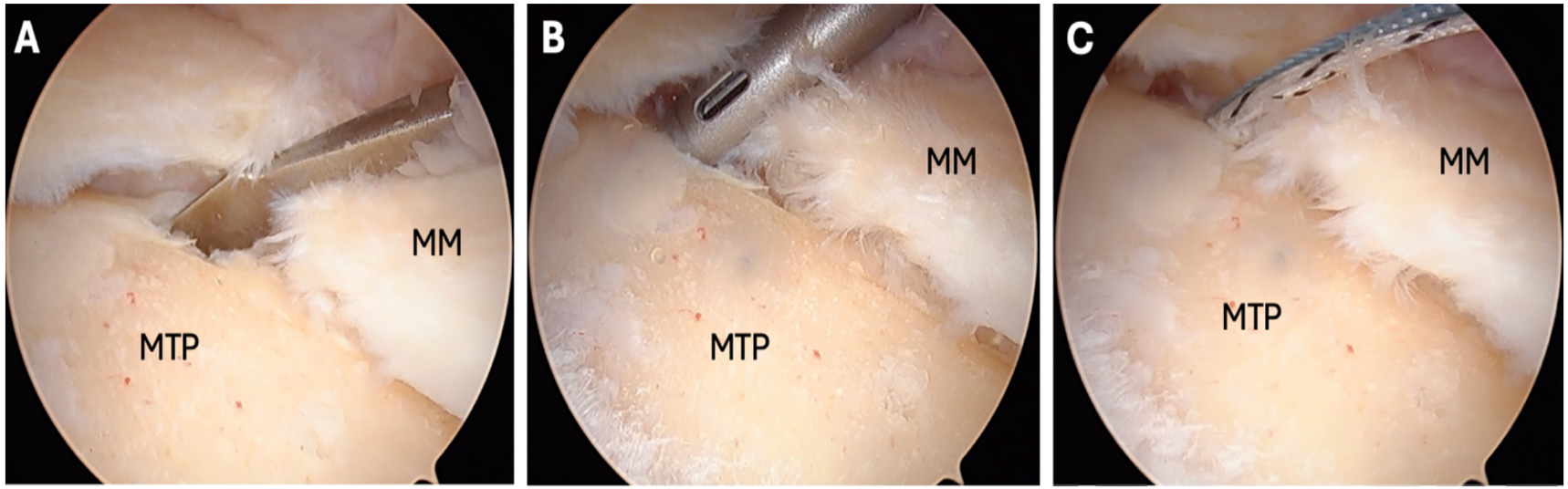
3. Confirm that released medial meniscus and capsule can be centralized



(A) Advance the osteotome (black arrow) posteriorly toward the posteromedial part of the medial meniscus. (B) Perform several passes with the osteotome to break up adhesions and improve meniscus mobility. (C) Confirm the medial meniscus is reducible to its original and appropriate configuration.

Surgical Technique

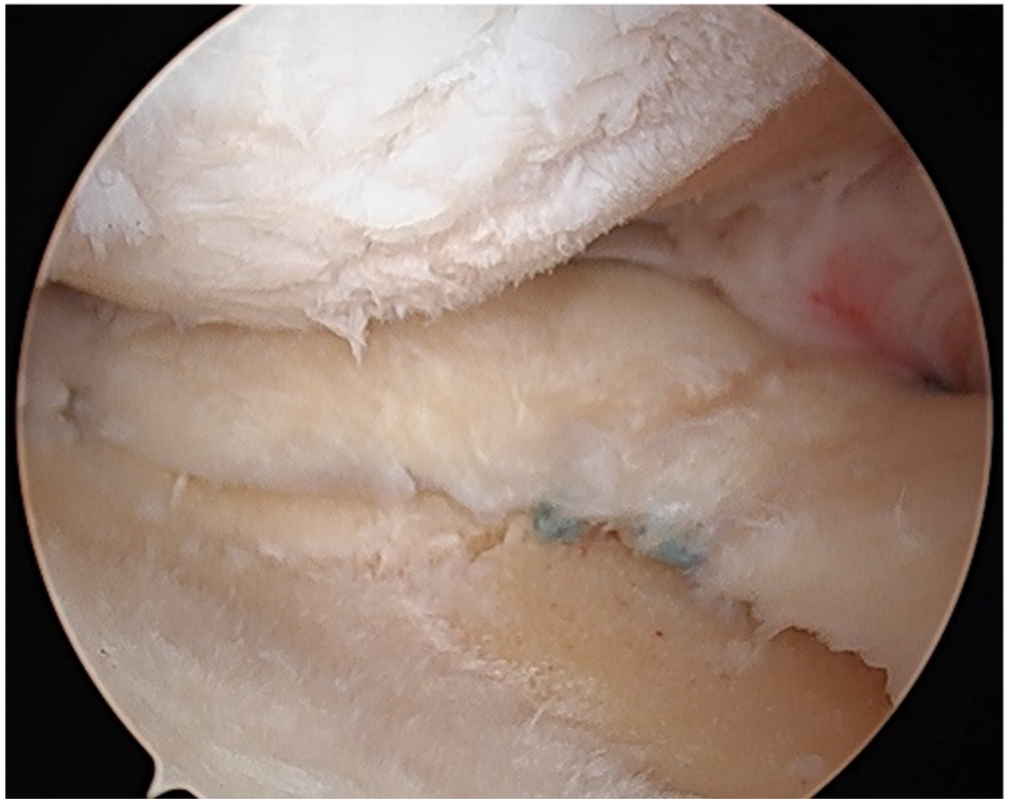
4. Prepare medial tibial plateau and deploy suture anchor for repair



(A) Prepare the peripheral edge of the medial tibial plateau for suture anchor deployment with an osteotome. (B) Position the FiberTak anchor drill guide (Arthrex). (C) Deploy the suture anchor with sutures exiting the midmedial portal. Abbreviations: MM, medial meniscus; MT, medial tibial plateau.

Surgical Technique

5. Final repair and tensioning of medial meniscus and capsule



Centralization and repair of right medial meniscus extrusion

Results

- 25 Patients were included in an initial cohort
- Average age: 65 years
- Average follow up: 8 months (range 4-16)
- KOOS, IKDC, Lysholm all significantly improved from pre-operative to post-operative

	Pre-op	Post-op	P
KOOS	36.25	64.76	<0.01*
IKDC	34.90	65.91	<0.01*
Lysholm	33.13	73.13	<0.01*

* Statistically significant

Results: Centralization and Meniscoplasy on 9-Month Post-Op MRI

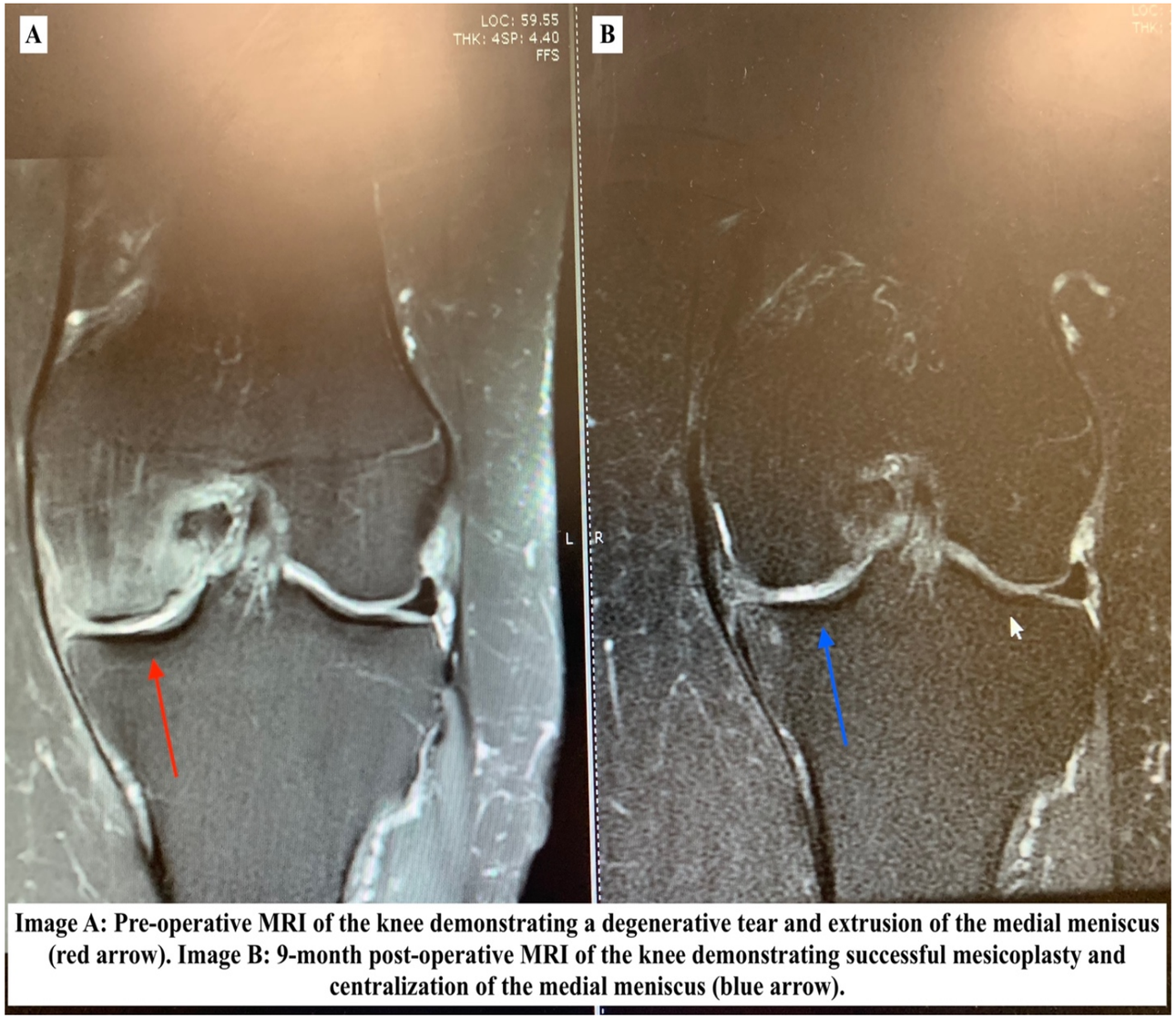


Image A: Pre-operative MRI of the knee demonstrating a degenerative tear and extrusion of the medial meniscus (red arrow). Image B: 9-month post-operative MRI of the knee demonstrating successful mesicoplasty and centralization of the medial meniscus (blue arrow).

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Conclusion

- Technique for meniscoplasty and centralization of medial meniscus degenerative tears with extrusion that involves a unique release of the meniscus and capsule through medial knee layers 2 and 3
- This release addresses adhesions from superficial MCL thickening that cause medial meniscus extrusion
- Initial clinical outcomes of a small cohort are promising

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