



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21



Title: Comparing The Risk of Iatrogenic Peroneal Nerve Injury in Lateral Meniscal Repair between Preoperative and Real Arthroscopic Position MRIs

Authors: Chaiwat Chuaychoosakoon, M.D.
Tanarat Boonriong, M.D.
Wachiraphan Parinyakhup, M.D.





ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21



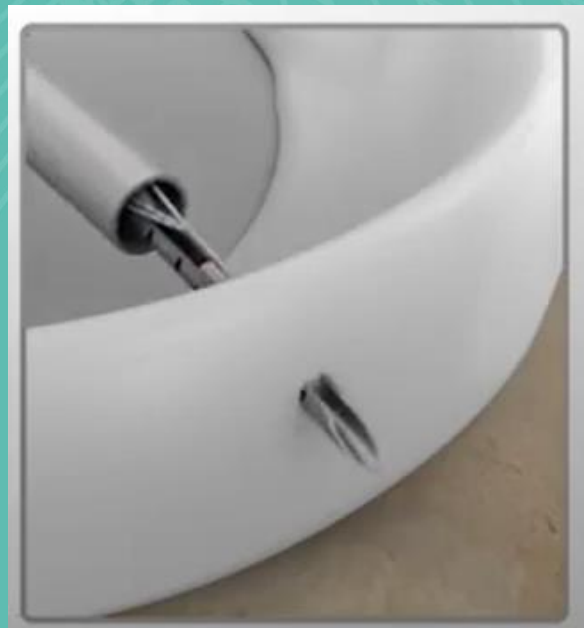
Disclosures: We have no disclosures concerning this study.



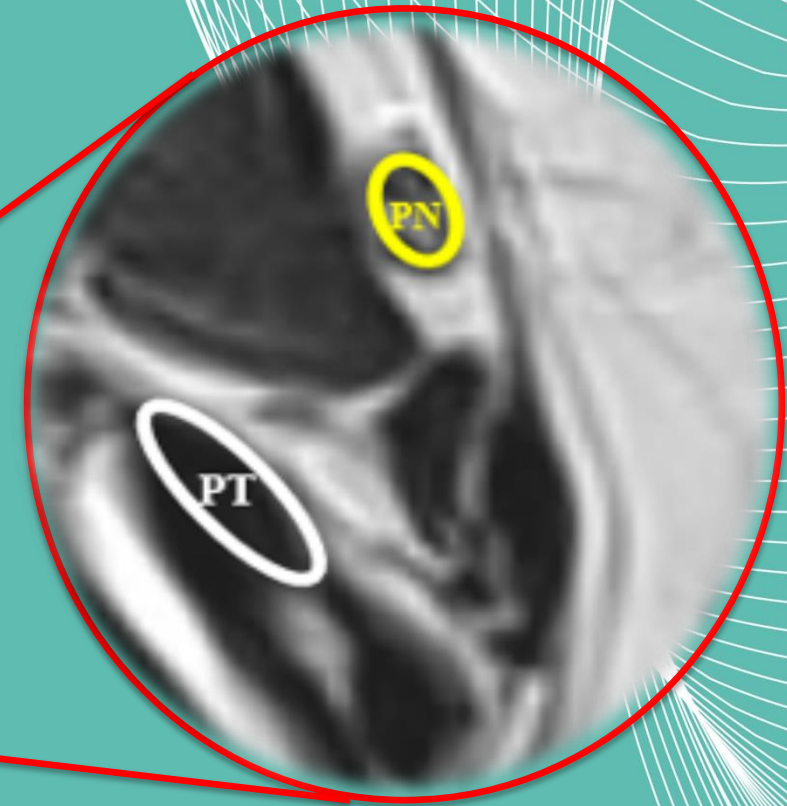
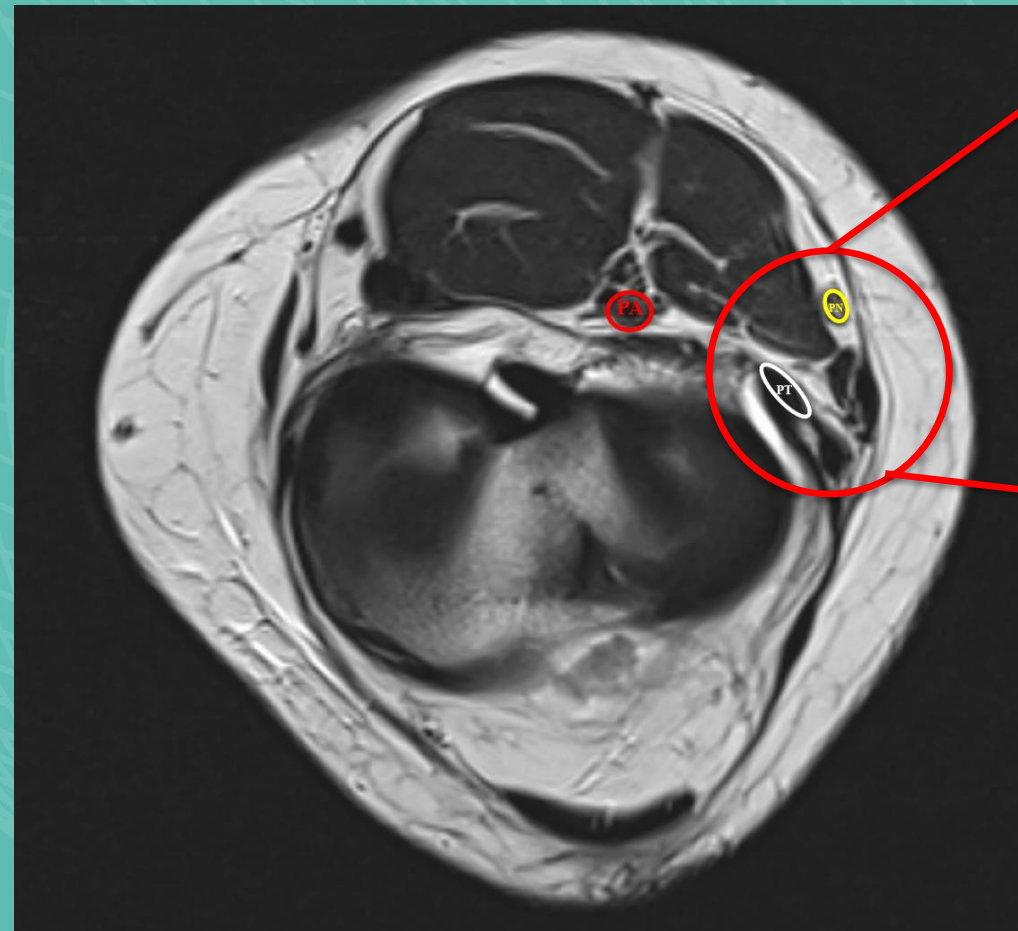
Introduction

The **peroneal nerve (PN)** is at risk for iatrogenic injury in arthroscopic all-inside lateral meniscal repair.

Reported incidence = **4.17% to 20.42%** ¹⁻⁴



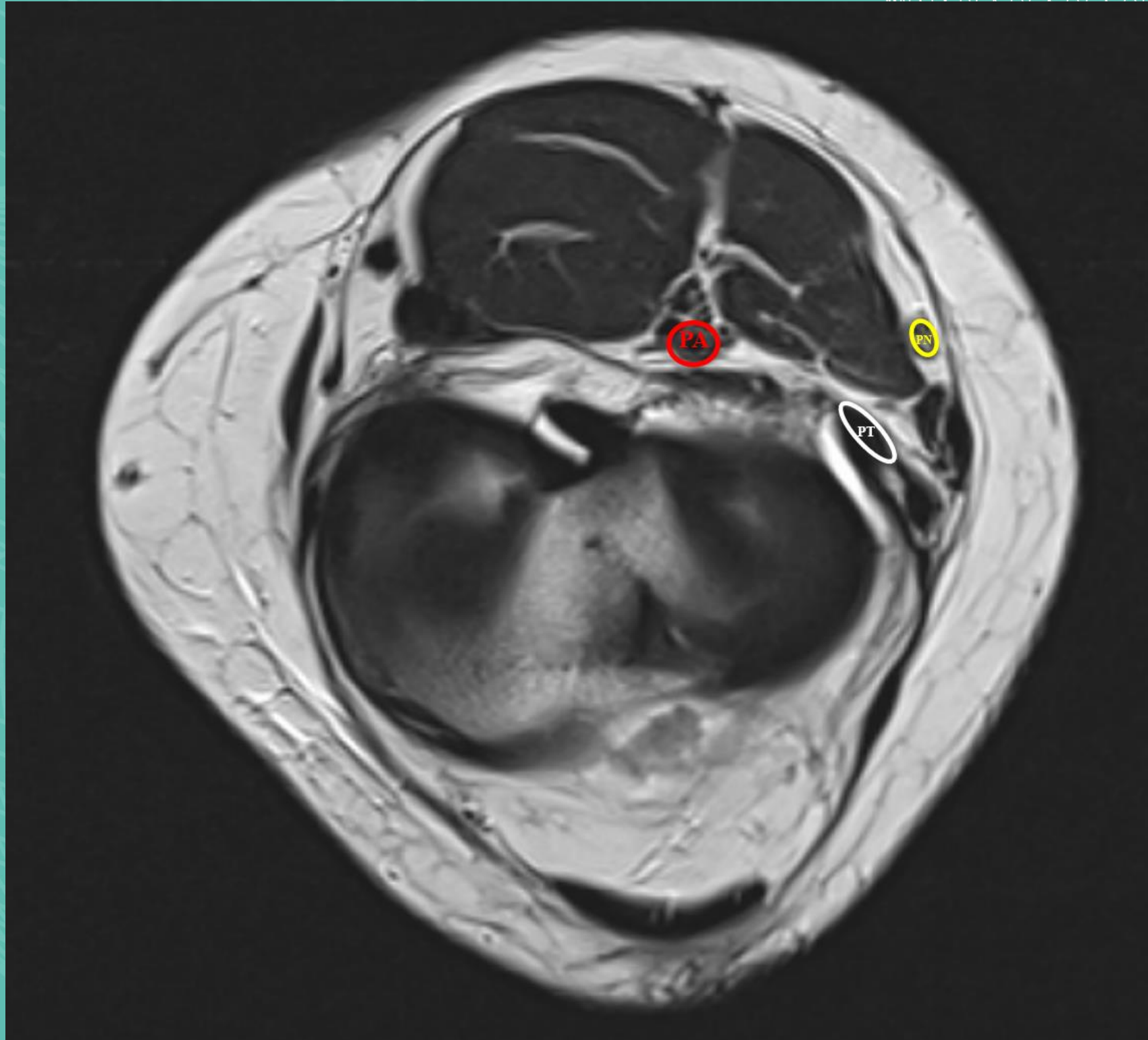
All-inside meniscal repair



ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21



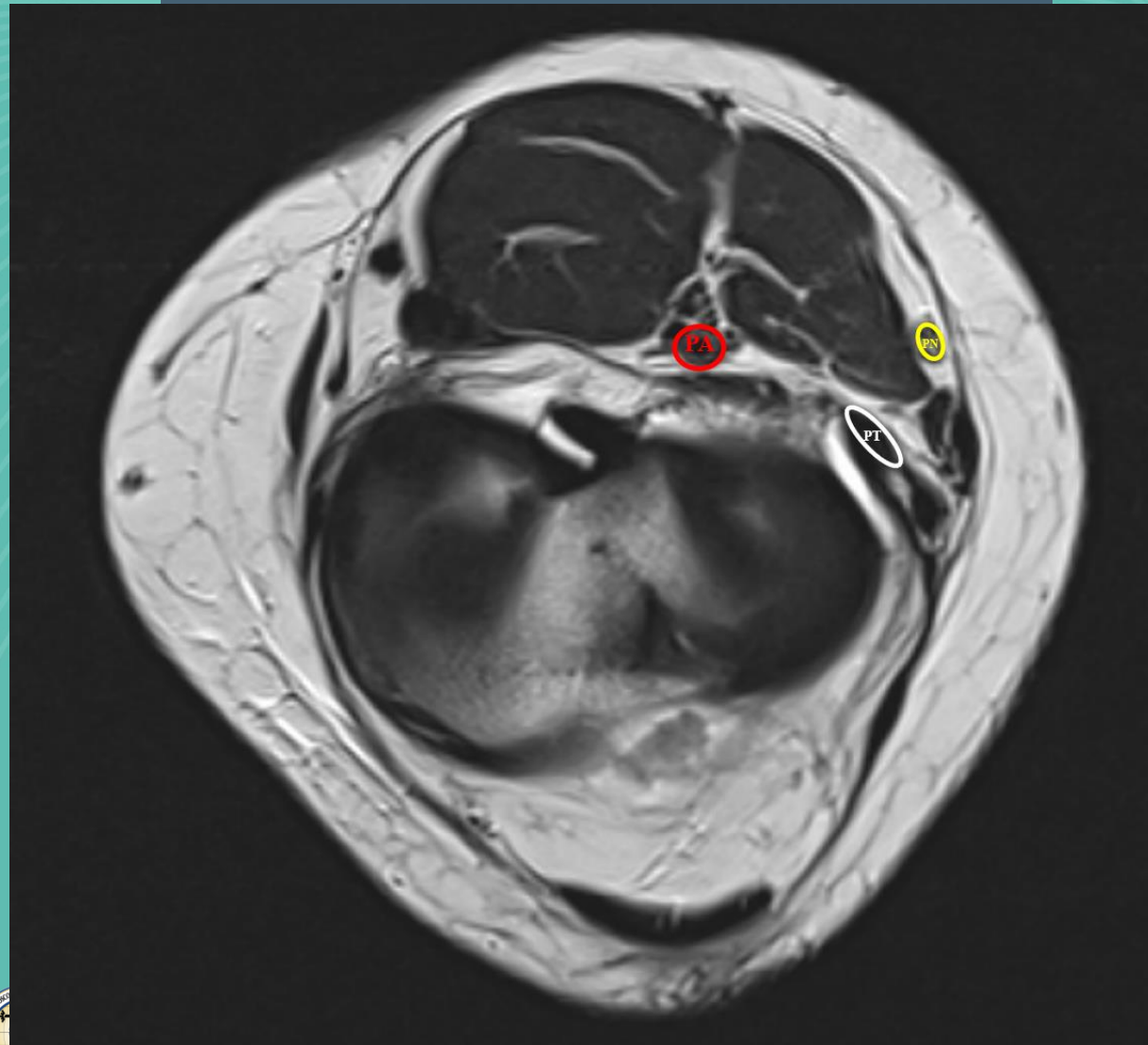
ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

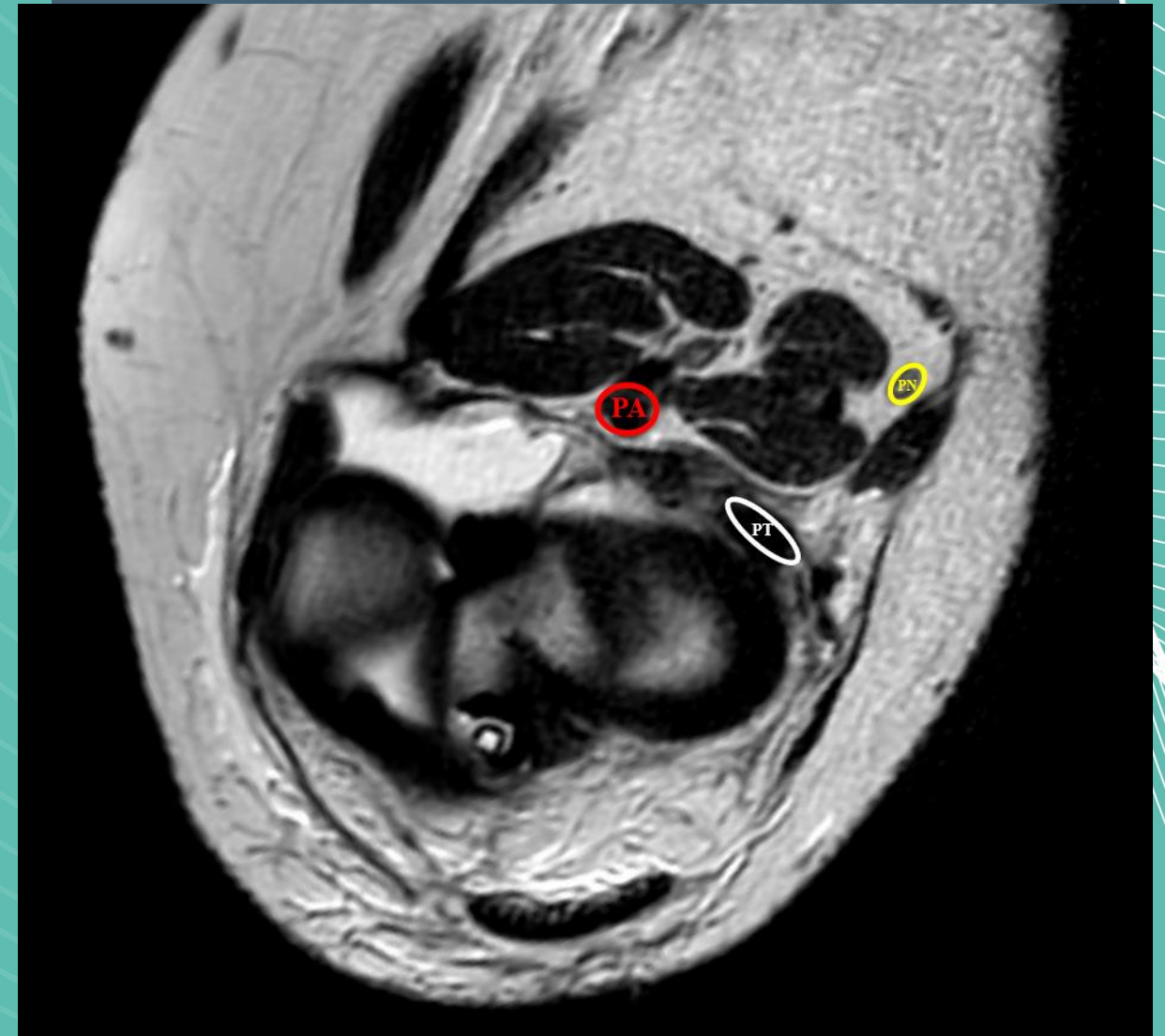
Introduction

Pre-operative MRI image of a slight knee flexion position ⁴



≠

Actual arthroscopic lateral meniscal repair position MRI image ⁵



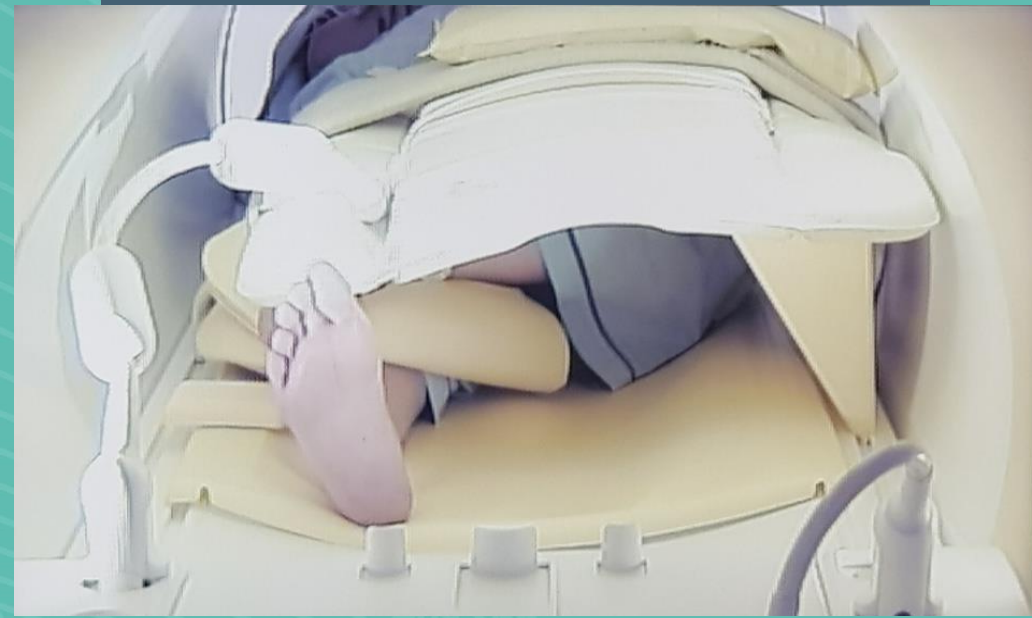
Knowledge gap

No previous studies have examined risk assessment comparing between preoperative knee MRI and actual arthroscopic lateral meniscal repair position MRIs.

Pre-operative MRI position



Actual arthroscopic lateral meniscal repair position



Methods

Patient

MRI in slight
knee flexion
position

Arthroscopic
surgery

MRI in figure-of-
4 position with
varus force and
joint dilatation



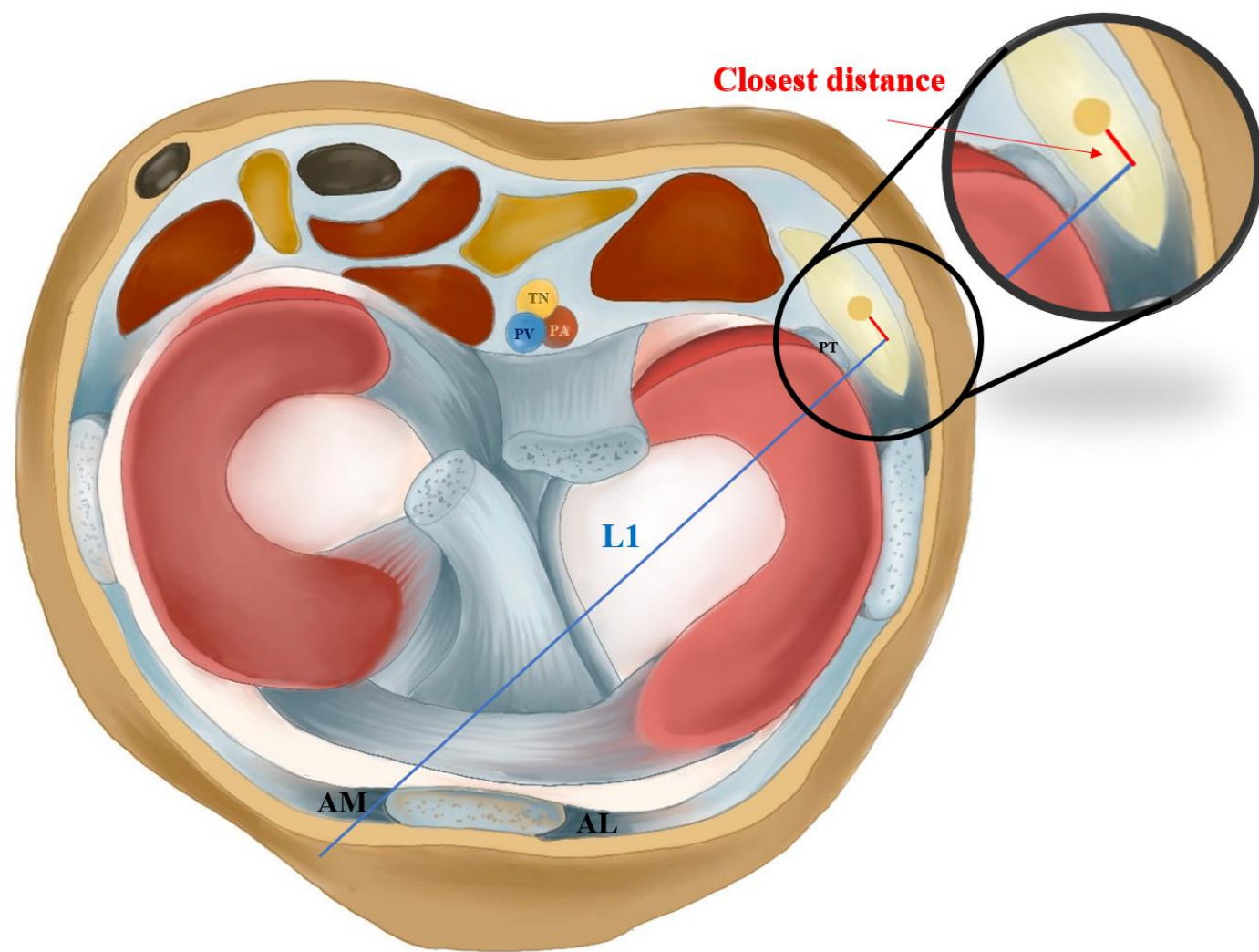
ISAKOS
CONGRESS
2023



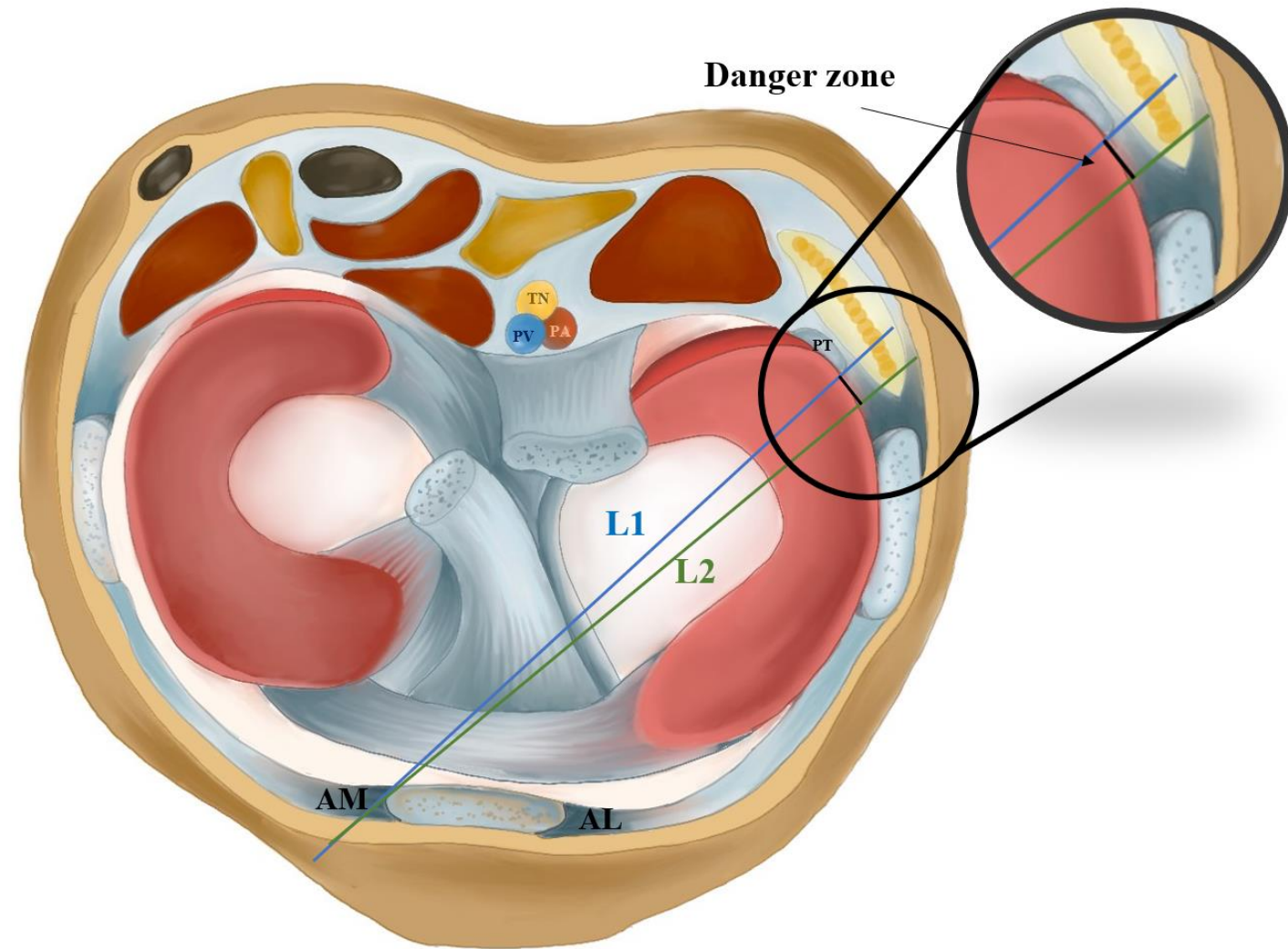
Boston
Massachusetts
June 18–June 21

Methods

Closest distance in case of non-deemed injury



Danger zone in case of deemed injury



Results (28 patients)

- 28 MRI knee image pairs: 25 male and 3 female
- The average age of the patients was 31 ± 10 years.
- Of the 28 MRI pairs
 - 2 knees: remove a loose body
 - 26 knees: anterior cruciate ligament reconstruction



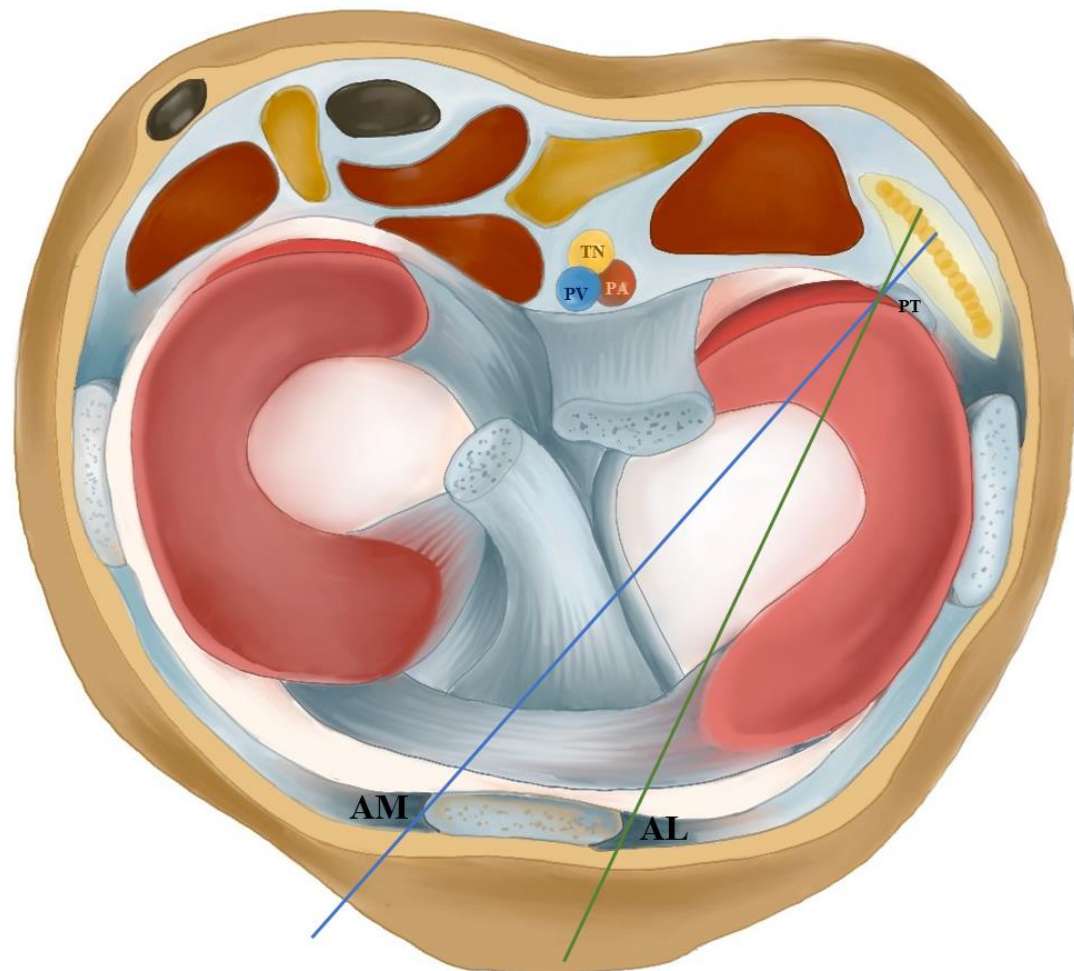
ISAKOS
CONGRESS
2023



Boston
Massachusetts
June 18–June 21

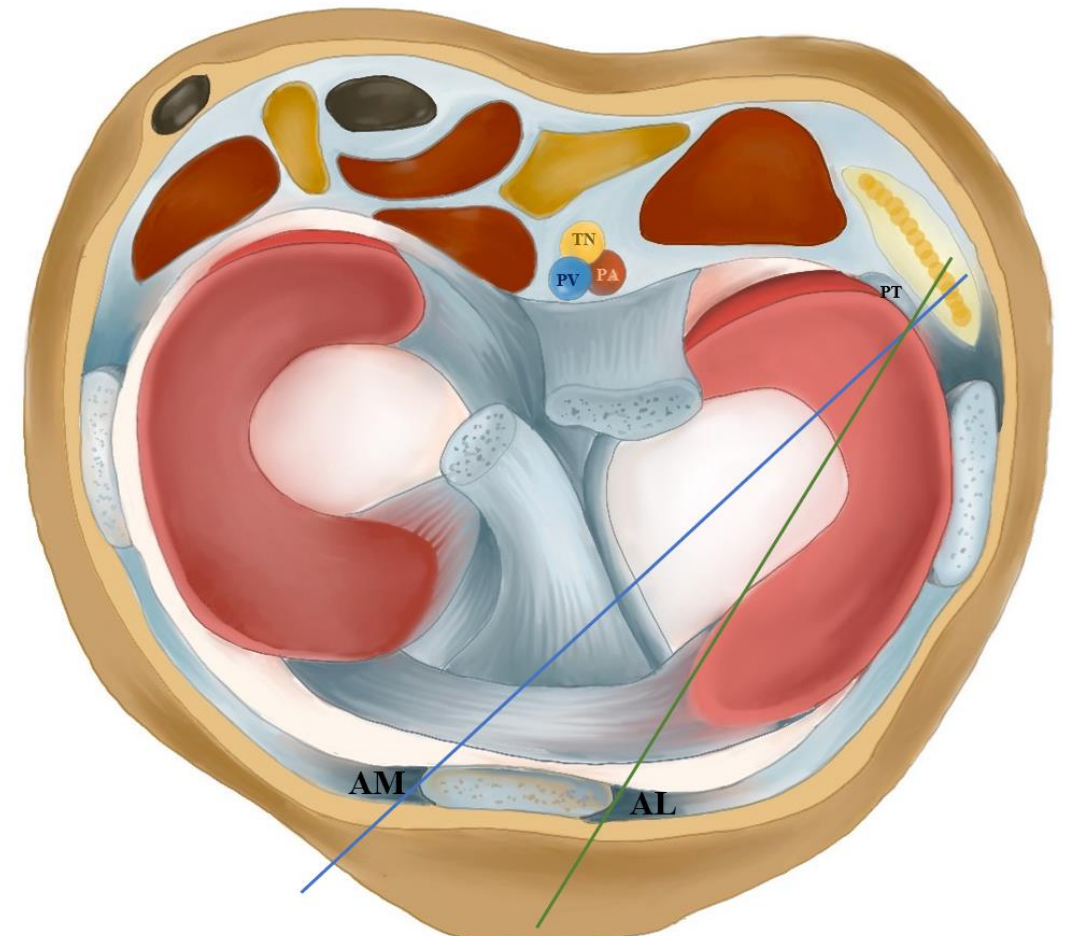
Results (28 patients)

In relation to medial border of the popliteus tendon



Preoperative MRIs	28.6%	17.9%
Actual arthroscopic position MRIs	25%	0%

In relation to lateral border of the popliteus tendon



Preoperative MRIs	7.1%	46.4%
Actual arthroscopic position MRIs	0%	17.9%



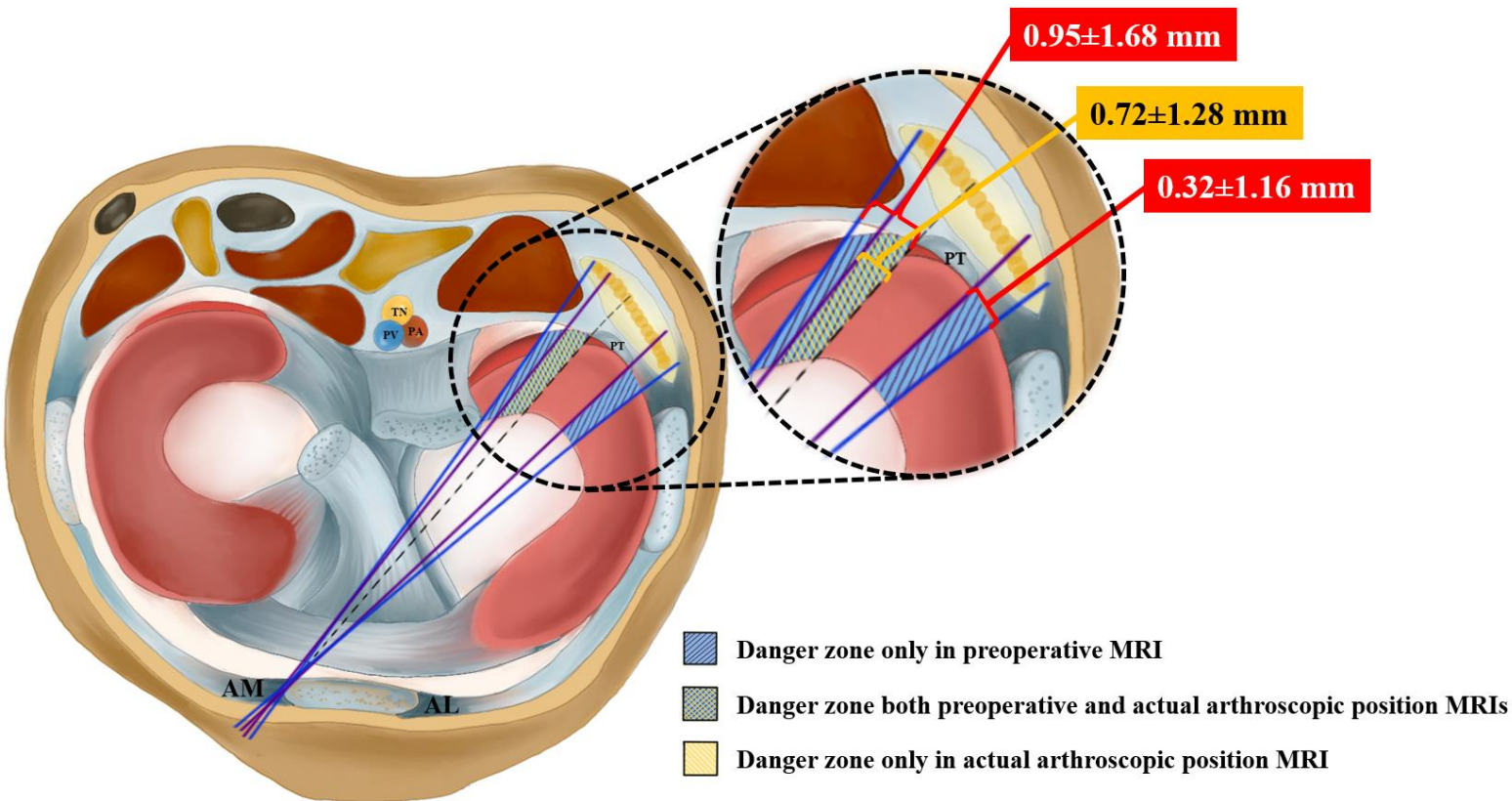
CONGRESS
2023



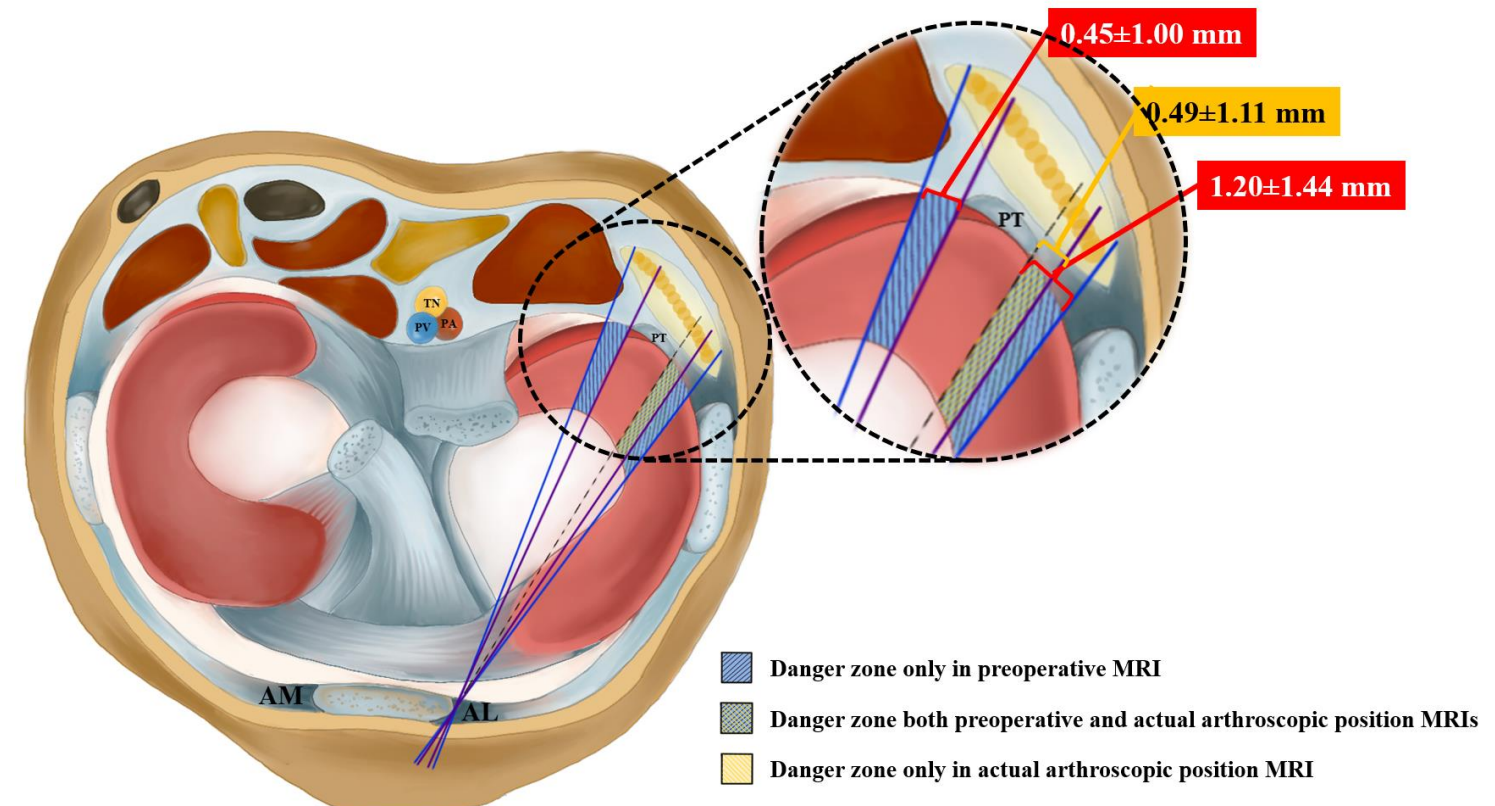
Massachusetts
June 18-June 21

Results (28 patients)

Using AM portal



Using AL portal



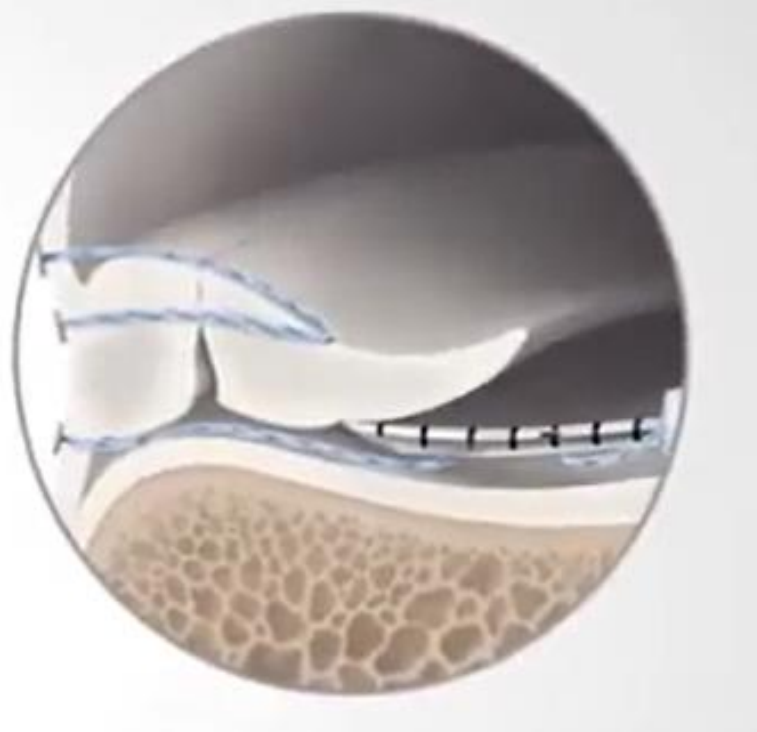
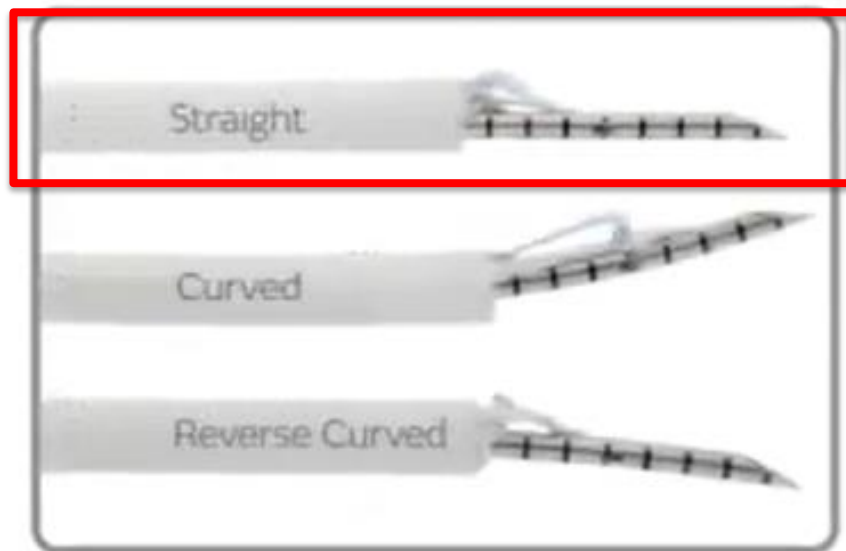
Discussion

It is safe to use preoperative MRI images to determine the risks and the danger zones, with the understanding that there will be fewer and smaller safety zones than are assessed with actual arthroscopic meniscal repair position MRIs.

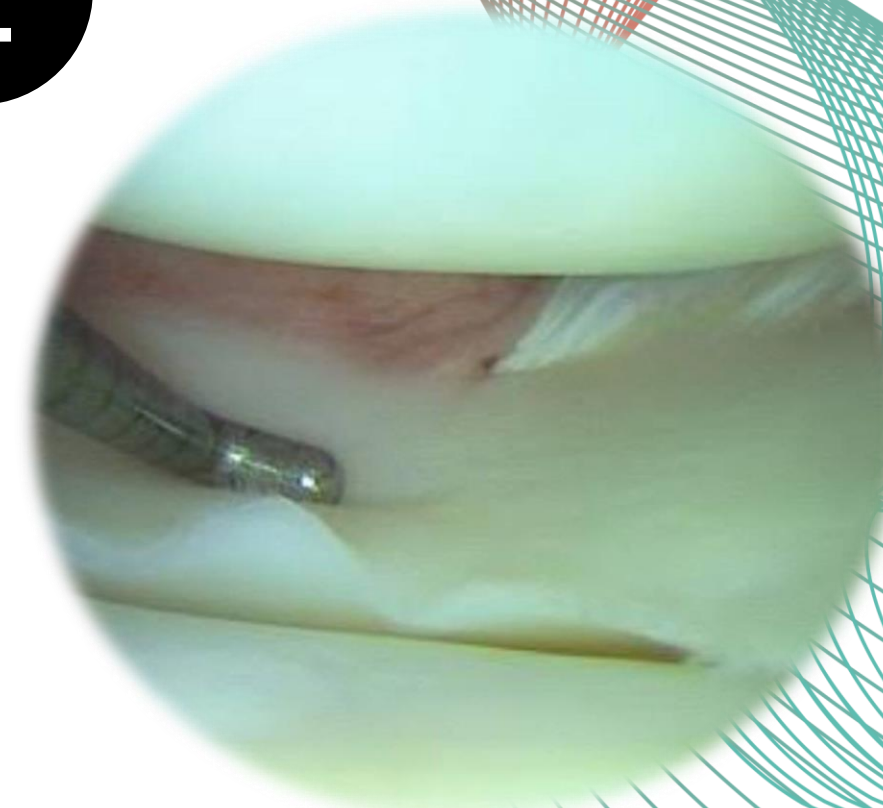


Limitations

1



2



References

- Bernard M, Grothues-Spork M, Georgoulis A, Hertel P. Neural and vascular complications of arthroscopic meniscal surgery. *Knee Surg Sports Traumatol Arthrosc.* 1994;2(1):14-18.
- DeLee JC. Complications of arthroscopy and arthroscopic surgery: results of a national survey. Committee on Complications of Arthroscopy Association of North America. *Arthroscopy.* 1985;1(4):214-220.
- Small NC. Complications in arthroscopic surgery performed by experienced arthroscopists. *Arthroscopy.* 1988;4(3):215-221.
- Small NC. Complications in arthroscopy: the knee and other joints. Committee on Complications of the Arthroscopy Association of North America. *Arthroscopy.* 1986;2(4):253-258.
- Chuaychoosakoon C, Wuttimanop W, Tangjatsakow P, et al. The Danger Zone for Iatrogenic Neurovascular Injury in All-Inside Lateral Meniscal Repair in Relation to the Popliteal Tendon: An MRI Study. *Orthop J Sports Med.* 2021;9(10):23259671211038396.
- Chuaychoosakoon C, Boonsri P, Tanutit P, Laohawiriyakamol T, Boonriong T, Parinyakhup W. The Risk of Iatrogenic Peroneal Nerve Injury in Lateral Meniscal Repair and Safe Zone to Minimize the Risk Based on Actual Arthroscopic Position: An MRI Study. *American Journal of Sports Medicine.* 2022;50(7):1858-1866.

