



A novel method for protecting the inter-meniscal ligament during anterior cruciate ligament reconstruction

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ABSTRACT

The intermeniscal ligament is an anatomical structure which is a risk of damage during arthroscopic anterior cruciate ligament reconstruction. We present a simple technique to protect this structure during the procedure.

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1. Background

The intermeniscal (IM) ligament is described in Gray's anatomy as “connecting the anterior convex margin of the lateral meniscus to the anterior end of the medial meniscus”. The average perpendicular distance of the IM ligament from the tibial insertion of the anterior cruciate ligament is 7.8 mm.¹ As improper tunnel placement is the cause of failure of ACL reconstruction in 70% of cases, and ideal tibial tunnel placement is described as 9 mm posterior to the IM ligament, the ligament is at risk of damage during ACL reconstruction.²

2. Technique

We have found that it is possible to retract the IM ligament anteriorly and away from the site of tibial tunnel drill placement using an arthroscopic hook (Fig. 1). The hook can be placed through the same arthroscopic portal as the arthroscope, or through a separate anteromedial, anterolateral or central patellar portal, and is held by the assistant during drilling of the tunnel. This technique reliably prevents damage to the IM ligament.

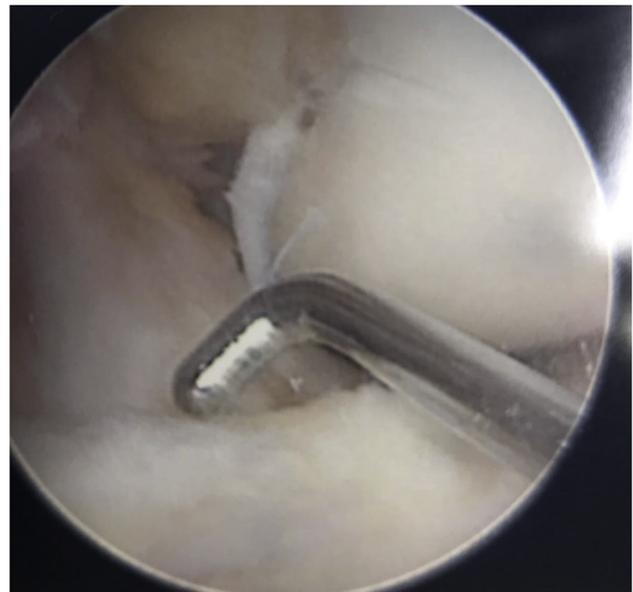


Fig. 1. Retraction of the intermeniscal ligament using an arthroscopic hook.

3. Discussion

The result of damage to the IM ligament is unknown. In biomechanical studies, sectioning of the ligament has been shown not to adversely affect tibiofemoral or menisci contact stresses.³

However histological studies have demonstrated the presence of free nerve endings and mechanoreceptors within the IM ligament, suggesting it may have a proprioceptive role.⁴ It has also been suggested that damage to the IM ligament may play a role in anterior knee discomfort following intramedullary tibial nailing.⁵ Given this uncertainty it is important to preserve this structure.

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References

1. Nelson EW, Laprade RF. The anterior intermeniscal ligament of the knee: an anatomic study. *Am J Sports Med.* 2000;28:74–76.
2. Patel KA, Chhabra A, Makovicka JL. Anterior cruciate ligament tunnel placement using the pathfinder guide. *Arthroscopy Techniques.* 2017;6:1291–1296.
3. Poh SY, Yew KS, Wong PL, et al. Role of the anterior intermeniscal ligament in tibiofemoral contact mechanics during axial joint loading. *Knee.* 2012;19:135–139.
4. Yildirim FB, Soyuncu Y, Oguz N, et al. Anterior intermeniscal ligament: an ultrastructural study. *Ann Anat.* 2007;189:510–514.
5. Yildirim FB, Soyuncu Y, Oguz N, Aydin AT, Sindel M, Ustunel I. Quantification of anterior cortical bone removal and intermeniscal ligament damage at the tibial nail entry zone using parapatellar and retropatellar approaches. *J Orthop Trauma.* 2013;27:438–441.