

Analysis of the Risk of Neurovascular Injury of Inside-Out Sutures of the Posterior Horn of the Lateral Meniscus

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Summary:

Inside-out suture of the posterior horn of the lateral meniscus represents a high risk of injury of common peroneal nerve and and popliteal neuromuscular bundle.

Abstract:

AIM

To quantify the risk of injury of the popliteal neurovascular bundle (PNVB) and common peroneal nerve (CPN) when performing an inside-out suture for posterior horn repair of the lateral meniscus.

MATERIAL & METHODS

Ten healthy individuals underwent an MRI with the knee in full extension and another one with the knee flexed with 15° of forced varus. Three virtual needles were drawn on each case, converging on the posterior horn of the lateral meniscus, in the spot where the virtual suture would be performed: 'I' needle (tangent to the medial side of patellar tendon), 'M' needle (perpendicular to the middle third of patellar tendon) and 'E' needle (tangent to the lateral side of patellar tendon). Distances to the PNVB and to the CPN were measured. Distances from PNVB to each needle were named EP, IP and MP for knees relaxed in full extension and VEP, VIP and VMP for knees flexed 15° with forced varus. Distances from CPN to each needle were named EN, IN and MN for knees relaxed in full extension and VEN, VIN and VMN for knees flexed 15° with forced varus

RESULTS

Mean distances from PNVB to each virtual needle, measured in cm, were: EN = 1.7, MN = 1.48, IN = 1.35, VEN = 1.56, VMN = 1.37, VIN = 1.25. Mean distances from CPN to each virtual needle were: IP = 1.59, MP = 1.95, EP = 2.24, VIP = 1.31, VMP = 1.65, VEP = 1.99.

CONCLUSION

The short distance between meniscal inside-out suture of the posterior horn of the lateral meniscus and PNVB and CPN represents a high risk of injury of these structures.