The Surgical Anatomy of the Plantarmedial Hallucal Nerve in Relation to the Medial Approach of the First Metatarsophalangeal Joint

Presenting:
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Summary:
The plantarmedial hallucal nerve is at risk for injury with the vertical capsulotomy during medial approach of the first metatarsophalangeal joint due to its proximity to the plantar extent of the vertical capsulotomy.

Abstract

Introduction:
The medial approach has been widely utilized for various pathologies of the first metatarsophalangeal joint. Injury to the plantarmedial hallucal nerve has been cautioned but never been reported. This study is to determine the proximity of the plantarmedial hallucal nerve to the midline and the vertical capsulotomy through the medial approach.

Materials and Methods:
Nine fresh cadaver legs were dissected under loupe magnification after foot AP radiographs were obtained. The distances from the plantarmedial hallucal nerve to the midline and to the plantar extent of the vertical capsulotomy were measured. The nerves were documented for their course, branching, and intactness.

Results:
The average hallux valgus ankle was 10.3±3.8 degrees (Mean±SD). The distances from the nerve to the midline and to the plantar extent of the vertical capsulotomy averaged 10.6±3.2 mm and 2.4±1.6 mm. One specimen demonstrated a partial nerve transection. All the nerves were found underneath the crural fascia and covered by vertical fibers investing the plantar fat pad at the level of the metatarsophalangeal joint. They gave off an average of seven terminal branches toward the pulp and tip of the hallux.
Discussion and Conclusion:
The plantarmedial hallucal nerve is at risk for injury with the vertical capsulotomy during medial approach of the first metatarsophalangeal joint due to its proximity to the plantar extent of the vertical capsulotomy.