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Technique 29: Plantar Excision of Morton's Neuroma

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Abstract

Morton's neuroma is an entrapment neuropathy caused by the compression of the plantar digital nerve most commonly in the third web space of the foot. Patients often fail nonoperative management and require surgical intervention. The plantar approach can be utilized for the excision of the neuroma and has the advantage of a more direct line, which results in a high rate of patient satisfaction and pain reduction. © 2024 S. Karger AG, Basel

in the third [2]. It commonly occurs in women in their mid to late forties, but it is also described in younger patients, especially in teen athletes.

Morton's neuroma is not a proliferative or neoplastic disease, it is a degenerative process produced as a benign enlargement of the third common digital branch of the medial plantar nerve that passes below the transverse metatarsal ligament [3].

Indications

- Failure of nonoperative management including:
 - orthotic devices
 - metatarsal pads
 - nonsteroidal anti-inflammatory drugs
 - shoe modifications
 - physical therapy
 - corticosteroid injections.

Introduction

Morton's neuroma is an interdigital neuritis first reported by Civinini in 1835 and then described by Morton as a neuropathy caused by a compression of the plantar interdigital nerve between the metatarsal heads [1] (Fig. 1). It can develop in the first or second web spaces but usually occurs

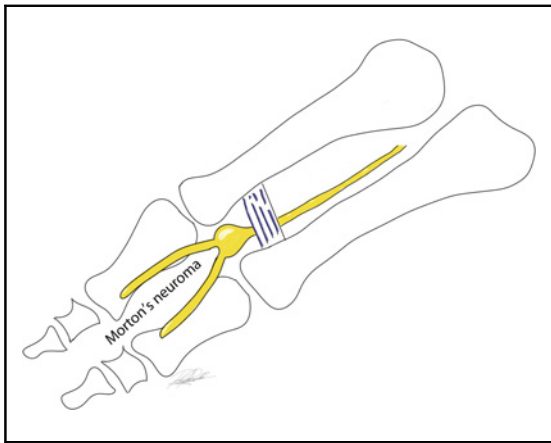


Fig. 1. Diagram showing compression of the plantar interdigital nerve between the metatarsal heads.

Contraindications

- Ongoing infection of the foot
- Compromised perfusion

Technique

- General, epidural/spinal, or regional anesthesia
- Patient supine
- Tourniquet on the upper leg
- Longitudinal plantar approach of 2.5–3 cm long between the metatarsal head of the affected web space (Fig. 2)
- Careful sharp dissection
- Place retractors to visualize the nerve, which is usually founded subcutaneously.
- Identify the nerve proximally and distally and liberate it from adjacent tissues.
- Excise the nerve 2 cm proximal to the neuroma and distally at the level of the division into digital branches.
- Send the excised nerve for histology (Fig. 3).
- Place the proximal stump into the intrinsic muscles of the foot.
- Maintain the transverse metatarsal ligament.
- Close the subcutaneous tissue with 4.0 absorbable sutures and skin with 4.0 nylon sutures.



Fig. 2. Surgical longitudinal plantar approach.

Complications

- Scar tenderness
- Wound drainage
- Plantar keratosis [4]
- Infection
- Complex regional pain syndrome



Fig. 3. Morton's neuroma specimen.

- Hematoma
- Hammertoe formation secondary to resection of the lumbrical tendon during the procedure [3]

Aftercare

- Light dressing
- Partial weight bear in a heel wedge shoe for 2 weeks until the wound has healed
- Sutures removed at 10–14 days

Results and Outcome

The most common approach for Morton's neuroma is excision by dorsal longitudinal

approach and many studies have demonstrated a high patient satisfaction of up to 80%–90%; however, a high complication rate of 10% was also noted [5].

Comparisons of dorsal and plantar approaches have also been undertaken. Habashy and coworkers demonstrated that the dorsal approach resulted in less-painful scar tissue, plantar keratosis, and early weightbearing postoperatively. Despite that, the dorsal approach had more complications such as tenderness or numbness due to damage of cutaneous nerves [4]. They also demonstrated similar quality life and functional scores for both groups; however, the plantar approach had less risk of recurrence and can also be used for primary Morton's neuroma [6–8].

Statement of Ethics

Written informed consent was obtained from patients for publication of the deidentified images.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

ACF collaborated with the case report and clinical pictures; RdPP-L researched the literature, developed the first draft manuscript and the final edition; JYCC and FA reviewed the manuscript; MD, MHP, and VV conceived and approved the final version of the manuscript.

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