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Original Article

Minimally invasive endoscopic decompression of the intermetatarsal nerve for Morton's neuroma

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ABSTRACT

Background: We presented case reports of endoscopic decompression for a Morton intermetatarsal neuroma.

Methods: Three patients underwent surgery using an instrument designed to release the transverse carpal ligament for carpal tunnel syndrome. Each patient was 61, 56 and 24 years old. The mean follow up period was 1.5 years.

Results: All patients experienced reduced pain postoperatively. The postoperative scar was very small (only 1 cm). There is no loss of sensation, no hematoma and no infection.

Conclusion: This procedure is simple, and the postoperative morbidity for the patient is minimal. There is rapid recovery with minimal risk of complications that are associated with open techniques. Therefore endoscopic decompression for Morton neuroma offers many advantages and should be studied in a larger number of patients.

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1. Introduction

Endoscopic decompression of the intermetatarsal nerve for Morton's neuroma offers many advantages over the current techniques.^{1–3} We report the endoscopic decompression of Morton's neuroma with an instrument designed to release the transverse carpal ligament for carpal tunnel syndrome.

2. Patients and methods

Three decompression procedures were performed in two women and one man. Two female patients were 56 and 25 years old, and one male patient was 61 years old. Numerous conservative treatments, including insoles, physical therapy, oral nonsteroidal anti-inflammatory agents and injections of

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local anesthetics and corticosteroids had been performed, but there was insufficient pain relief. The amount of the time between the appearance of the symptoms of Morton's neuroma and the operation were 5 months, 5 and 7 years, respectively. The average follow-up period was 1.5 years. The pain visual analog scale (VAS) was investigated at the time of the first visit and at the final follow-up for both patients. In addition, the degree of satisfaction regarding the treatment using a VAS was assessed at the final follow-up.

3. Surgical technique

The procedure was performed using an instrument designed to release the transverse carpal ligament for carpal tunnel syndrome under general anesthesia. An air tourniquet was inflated to 300 mmHg at the thigh level. The 30-degree, 4 mm endoscope and ECTRA 2 (Smith & Nephew®) system designed to release the transverse carpal ligament for carpal tunnel syndrome were used. The ECTRA 2 system consists of an elevator, slotted cannula and obturator, and a disposable knife to release the transverse intermetatarsal ligament (TIML) (Fig. 1). A 1 cm longitudinal incision was made in the affected interdigital interspace, and blunt dissection was done using a mosquito forceps to palpate the edge of the TIML. After the distal edge of the TIML was palpated using the elevator, the slotted cannula/obturator was inserted into the planter side of the TIML. Next, the obturator was removed from the cannula and the 4 mm scope was introduced into the cannula (Fig. 2). The TIML was visualized with the slot of the cannula facing the 12 o'clock dorsal position (Fig. 3). The TIML was seen as dense and white. The intermetatarsal nerve was seen by rotating the slotted cannula and scope, facing 6 o'clock in the plantar position. The distal side of the intermetatarsal nerve was often seen to be thick and fibrous, especially at the contact point of the TIML (Fig. 4). After the scope was removed and the slot cannula was rotated to the 12 o'clock position, the disposable knife was inserted with the blade facing the 12 o'clock position. The TIML was transected to pull the knife. If additional tension on the TIML remained, digital pressure could be applied dorsally between the adjacent metatarsal heads. The scope



Fig. 1 – The ECTRA 2 system contains an elevator, a slotted cannula, an obturator, and a disposable knife.



Fig. 2 – The scope was introduced into the interdigital interspace.

was reinserted to confirm complete transection of the TIML (Fig. 5). Finally, it was confirmed that the TIML was not palpable by the elevator, and the skin was closed.

Patients started to walk the day after the operation. Normal activities, including athletics, can be resumed in four weeks.

4. Results

The decompression procedures provided relief of the neuroma symptoms in all patients. They needed no walkers or crutches postoperatively. The pain VAS was significantly decreased postoperatively compared with preoperatively (from preoperative 89,90 and 95 to postoperative 0, 10 and 34, respectively). The postoperative scar was very small (1 cm). There was no loss of sensation, no hematoma and no infection. The patients did not require treatment with oral anti-inflammatory agents or injections of local anesthetics at the

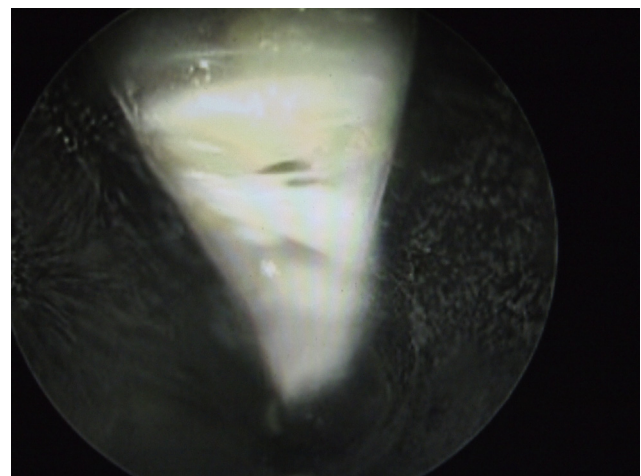


Fig. 3 – The transverse intermetatarsal ligament (TIML) was visualized with the slot of the cannula facing the 12 o'clock dorsal position.

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