LEONARDO Ärzte für Orthopädie und Traumatologie

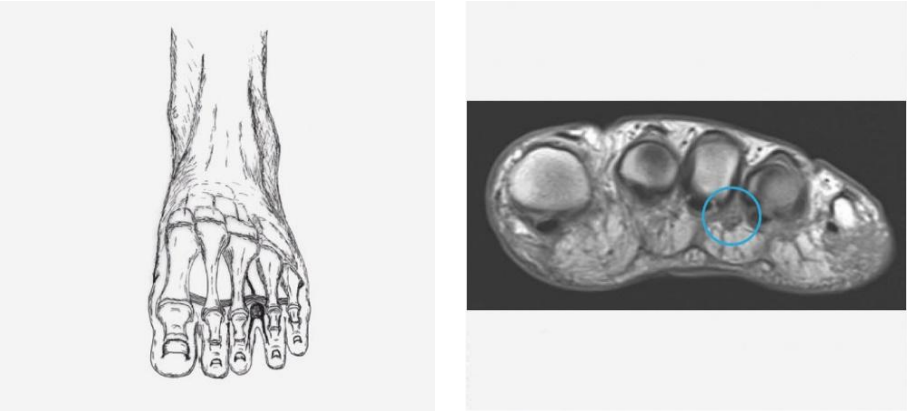
MORTON'S NEUROMA

DEFINITION

Morton's neuroma is a nerve compression syndrome. At the level of the heads of the metatarsal bones, the nerve passes under a ligament (intermetatarsal transverse ligament), which connects the metatarsal heads. Further distal the nerve divides into at least 2 branches, one in each toe (Fig. 1 left). Increased pressure, often caused by footwear that is too tight, a malalignment of the metatarsal bones or tight calf muscles lead to overload, compression and irritation of the nerve.

CAUSE

This chronic mechanical irritation leads to swelling and benign thickening of a nerve. Since this nerve is a sensitive nerve and not a motor nerve, there are no signs of paralysis, only pain and sometimes sensory disturbances (numbness) in the toes. Morton's neuroma is usually located between the 3rd and 4th toes. Sometimes it can also develop between the 2nd and 3rd toes.



1 Nerve pathway and site of entrapment (left) and MRI showing Morton's neuroma (right)

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SYMPTOMS

Symptoms are very diverse. Patients experience burning, stabbing, or electrifying pain in the forefoot, which can radiate into the toes. Some describe it as if they were "walking on a pebble." Symptoms are often aggravated by tight shoes and relieved by removing them or massaging the foot. Occasionally, there is also a tingling or numbness in the toes. In some cases, pain occurs even at rest (e.g. at night), usually only for an instant but sometimes very disturbing.

EXAMINATION

Clinical examination involves applying pressure to the affected area to reproduce the typical pain. A specific squeezing test can elicit a clicking sensation, known as the "Mulder's sign." Occasionally, reduced sensitivity in the toes can be observed. We take an X-ray to assess the bony situation. This can determine how the metatarsal bones are positioned and whether they are exposed to increased stress. An MRI (Fig. 1 right) may confirm the diagnosis and rule out other causes of pain.

Test infiltration with local anesthetic (and often additional cortisone for treatment) is helpful. This can be done directly during the consultation hour.

TREATMENT

A) NON-SURGICAL

For mild symptoms, conservative treatment is the first approach. Wearing wider, more comfortable shoes can help alleviate discomfort, while insoles with metatarsal pads provide additional support and relieve pressure. Physical therapy and foot exercises may also be beneficial in managing symptoms. Especially massaging and stretching tight calf muscles is helpful.

As a next step injection can be carried out with the addition of cortisone (or alternatively Traumeel = arnica mixture). This is believed to reduce inflammation and swelling. Sometimes the thickening of the nerve resolves, and the discomfort even disappears for a longer time or forever. Cortisone injections should not be repeated arbitrarily due to local side effects, experience has shown that the effect decreases each time. We recommend a maximum of two injections per Morton's neuroma.

B) SURGICAL

If non-surgical treatments fail to provide relief, surgery may be considered. The nerve can be decompressed by cutting the intermetatarsal ligament. The neuroma can also be removed. Generally, we perform both procedures, as it is often not enough to simply decompress the nerve. The nerve together with the branches to the toes is exposed.

It is important to remove a sufficiently long piece of the nerve (Fig. 2) to prevent it from growing back together. This procedure eliminates the pain but may result in numbness between the affected toes. Generally, patients get used to this and do not perceive it as disturbing.

The surgery is successful in over 80% of cases, but sometimes pain recurs. The reasons can be scarring, the development of a bursa (with inflammation) or a stump neuroma.

2 Excision of Morton's neuroma

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RISKS AND COMPLICATIONS

All surgeries carry certain risks. Complications may arise during or after surgery, potentially delaying healing or requiring further intervention. These may include:

- Wound healing issues
- Infections
- Vascular injuries, postoperative bleeding, bruising (hematoma), blood loss
- Nerve damage (others than the one removed)
- Thrombosis, pulmonary embolism
- Recurrence (recurrence), formation of a stump neuroma
- CRPS (Complex Regional Pain Syndrome)
- Residual discomfort

FOLLOW-UP TREATMENT

Surgery is only one part of the treatment. Proper post-operative care is crucial for a successful recovery. Upon discharge, patients receive rehabilitation guidelines.

DRESSING AND WOUND CARE

Patients are instructed on proper wound care during hospitalization. Until the wound is completely dry, dressings should be changed daily, and no ointments or powders should be applied until the stitches are removed. Disinfection is not necessary. Always remove the entire dressing when changing. The new dressing must be dry and must not slip.

Once dry, a simple adhesive plaster is sufficient. An elastic bandage can protect and cushion the operated area somewhat. This also reduces the swelling that still exists. If there are concerns about wound healing, you should contact your family doctor or us directly.

Stitches are usually removed about two weeks after surgery. This is usually done by the family doctor.

SWELLING AND PAIN MANAGEMENT

Swelling can persist and recur for weeks, sometimes up to twelve months. Elevating the leg is the most effective way to reduce swelling. This is especially important in the first 2-3 weeks after surgery. Short periods of getting up and moving around several times a day (walking, less standing) are recommended. If swelling and pain occur, the leg should be elevated.

However, despite these measures, pain in the operated foot can occur in the first days and weeks after the operation. Painkillers prescribed by us or the family doctor can be taken if necessary.

WEIGHT-BEARING

Weight-bearing is allowed after excision of a Morton's neuroma. To protect and facilitate rehabilitation, you have received a special shoe (Fig. 3), which should be worn at least for the first 2 weeks and until the wound has healed. Initially, patients should minimize standing to avoid excessive swelling and bleeding. In the first 2 weeks (until the wound heals) crutches may therefore be used.

Full Weight-Bearing

Full weight-bearing is allowed depending on pain level. Crutches may still be used initially, especially outside the house.

3 Bandage shoe

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PERSONAL HYGIENE

While stitches are still in place, typically for the first two weeks, the foot should be covered with a plastic bag when showering. Once stitches are removed and the wound is dry and closed, exposure to water is permitted.

THROMBOSIS PROPHYLAXIS

Thrombosis prevention begins during hospitalization and depending on the surgery generally must be continued at home. In most cases, Fragmin 5000 IU injections are used once daily. Patients receive instructions on self-administration. Depending on individual risks, prevention usually continues for 10-14 days.

WORK ABILITY

Rest is essential in the first two weeks post-surgery. The duration of work incapacity depends on the type of surgery and physical job demands. A temporary lighter-duty work arrangement may allow earlier return. The initial sick leave is an estimate, and extensions can be arranged if needed. Therefore, please contact your family doctor or us. If recovery progresses well, patients may return to work earlier.

DRIVING, TRANSPORTATION

Resumption of driving depends on the surgery type, affected foot, and vehicle transmission type. Driving is not allowed while weight-bearing is restricted or while using crutches or wearing a special shoe, except for left-foot surgery with an automatic car. If in doubt, patients are advised to avoid driving.

FOLLOW-UP

A follow-up with the surgeon occurs approximately six weeks after surgery. Generally, patients transition out of the special shoe back into regular shoes before that. We recommend shoes with a rather firm sole and soft upper material at the beginning. After the follow-up sporting activities can be increasingly resumed and usually no further appointments are necessary. Sometimes depending on the individual situation physiotherapy can be administered. After the operation, shooting pain in the toes may occasionally occur, comparable to phantom pain. However, this phenomenon disappears rather soon.

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