

MORTEN'S NEUROMA SYNDROME

The *Interdigital Neuroma Syndrome* was first reported by Thomas G. Morten, from whom it derives its popular name the *Morten's Neuroma Syndrome*.

The etiology of an interdigital neuroma is somewhat controversial. Suggested causes include contusion of the common digital nerve, mechanical pressure against the transverse metatarsal ligament, enlargement of the intermetatarsal bursa, impingement by a synovial cyst, or vascular changes within the nerve. Tight or pointed shoes are thought to be causative, as are high-heeled shoes. The latter is cited as the reason for *Morten's Neuroma Syndrome* being more prevalent among women (10:1, over men). Commonly, the patient is unable to cite a specific trauma that has caused it, relating that the symptoms developed gradually.

The sufferer commonly complains of pain localized on the plantar aspect of the foot, between or just behind the distal metatarsal heads, when standing or walking. Generally, the patient will be able to precisely locate the site of pain origination, though sometimes the pain may radiate either proximally or distally making it more difficult to locate it. Occasionally, a patient may complain of a "lump" at the locus of pain, when walking. Usually there is no pain when the patient is sitting with the foot off of the floor. Neuromas most often occur in the spaces between the second and third, or third and fourth distal metatarsal heads. They usually occur unilaterally, but bilateral involvement has been known to occur. Neuromas occur most often appear between the ages of 40 and 70.



The high skin resistance patterns commonly associated with the Morten's Neuroma Syndrome between the second and third distal metatarsal heads (dorsal and plantar views)

DSR survey is most effective in determining the exact location of an interdigital neuroma. Most surprising is the fact that an inflammation pattern will occur both on the dorsum and the plantar surface of the foot. Some minor swelling of both the plantar and dorsal tissues within and around the DSR patterns is commonly found.

Treatment

Treatment of the neuroma depends on reducing any swelling and inflammation that may be present, breaking any adhesions in the area, and “dissolving” the neuroma itself, if possible.

Application:

- Paper tape should be applied around each inflamed zone, so that only the inflamed zone is exposed (this protects the surrounding bone from the ultrasound). Apply an effective anti-inflammatory over each inflamed zone as the coupling agent. Manually pull the two involved down into plantar flexion (at the metatarsal phalangeal joints), spread them apart, and hold them in that position for the duration of the ultrasound treatment. Ultrasound each inflamed zone with the ultrasound unit set to deliver a 1 MHz pulsed waveform, at 1.8 W/cm² (reduction of the amplitude should be made as the patient’s tolerance decreases, but not below 1.2). Ultrasound for six minutes.
- Manipulate the soft tissues in and around each inflamed zone to eliminate any adhesions that may be present.
- Preset an electrical stimulation unit be set to deliver a visible rhythmic contraction, at 7 Hz. Place positive electrodes (split-leaded) over the two inflamed zones and a negative electrode over the gastrocnemius muscle. Stimulate for 20 minutes.
- Mechanically vibrate the plantar surface of the foot, for two minutes (preferably with a foot vibrator), to further increase capillary circulation and to desensitize the involved tissues.

Successful treatment usually occurs in three or four sessions, if sessions are within a few days of each other. Ultimately, however, successful treatment only occurs if the patient is able to prevent further injury.

Post Treatment Suggestions:

Instruct the patient to forebear wearing tight or high-heeled shoes. Running should also be avoided, if possible, during treatment course and for at least two weeks after all the pain disappears.

Trigger Points

The following trigger point formations may, singly or in combination, imitate or contribute to the pain accompanying the *Morten’s Neuroma Syndrome*: Long toe extensors, Short toe extensors, and Abductor hallucis.