Alcohol Injections for Treatment of Peripheral Morton Neuromas

Introduction

A neuroma is a thickening or growth of nerve tissue. It can often form after an injury to a nerve. Morton's neuroma is a thickening or lump of tissue around a specific nerve in the foot. A Morton's neuroma usually forms between the third and fourth toes. It can cause sharp, burning pain in the ball of the foot, a stinging sensation, or a feeling of numbness. Often, initial treatment calls for the use of pads or inserts to relieve pressure. Other techniques are aimed at destroying the excess nerve tissue that's creating the pain. One of these methods calls for alcohol to be injected (shot) into the neuroma. The goal is to eventually destroy the neuroma by repeated injections of alcohol. Alcohol injections to try to treat Morton's neuroma are investigational. More studies are needed determine whether this technique is effective.

Note: The Introduction section is for your general knowledge and is not to be taken as policy coverage criteria. The rest of the policy uses specific words and concepts familiar to medical professionals. It is intended for providers. A provider can be a person, such as a doctor, nurse, psychologist, or dentist. A provider also can be a place where medical care is given, like a hospital, clinic, or lab. This policy informs them about when a service may be covered.
**Procedure**

<table>
<thead>
<tr>
<th>Alcohol injections</th>
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**Investigational**

*Alcohol injections are considered investigational for treatment of Morton neuroma*.  

*May be referred to as intermetatarsal neuroma, interdigital neuroma, interdigital neuritis, and Morton metatarsalgia*

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**Coding**

<table>
<thead>
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<th>Code</th>
<th>Description</th>
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<tr>
<td>CPT</td>
<td>Destruction by neurolytic agent, plantar common digital nerve.</td>
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**Related Information**

N/A

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**Evidence Review**

**Description**

Morton neuroma is a common and painful compression neuropathy of the dorsal foot that is also referred to as intermetatarsal neuroma, interdigital neuroma, interdigital neuritis, and Morton metatarsalgia. Morton neuroma is usually treated with conservative measures, surgery, or minimally invasive procedures. Alcohol injection is a minimally invasive alternative to open surgery to treat Morton neuroma. Alcohol causes chemical neurolysis through dehydration,
necrosis, and precipitation of the treated area, ultimately destroying the lesion after multiple injections.

Background

Neuroma

A neuroma is a growth or tumor consisting of nerve tissue that develops as part of a normal reparative process following nerve injury. The injury may be due to chronic irritation, pressure, stretch, poor repair of nerve lesions or previous neuromas, laceration, crush injury, or blunt trauma. Neuromas typically appear 6 to 10 weeks after trauma, with most presenting within 1 to 12 months after injury or surgery. They may gradually enlarge over 2 to 3 years and may or may not be painful. Pain from a neuroma may be secondary to traction on the nerve by scar tissue, compression of the sensitive nerve endings by adjacent soft tissues, ischemia of the nervous tissue, or ectopic foci of ion channels that elicit neuropathic pain. Patients may describe the pain as low-intensity dull pain or intense paroxysmal burning pain, often triggered by external stimuli such as touch or temperature. Neuroma formation has been implicated as a contributor of neuropathic pain in residual limb pain, postthoracotomy, postmastectomy, and postherniorrhaphy pain syndromes. They may coexist with phantom pain or can predispose to it.

Morton Neuroma

Morton neuroma is a common and painful compression neuropathy of the common digital nerve of the foot that may also be referred to as interdigital neuroma, interdigital neuritis, or Morton metatarsalgia. It is histologically characterized by perineural fibrosis, endoneurial edema, axonal degeneration, and local vascular proliferation. Thus, some investigators do not consider Morton neuroma to be a true neuroma; instead, they consider it to be an entrapment neuropathy occurring secondary to compression of the common digital nerve under the overlying transverse metatarsal ligament. The incidence and prevalence of Morton neuroma are not clear, but it appears 10-fold more often in women than in men, with an average age at presentation of around 50 years.

The pain associated with Morton neuroma is usually throbbing, burning, or shooting, localized to the plantar aspect of the foot. It is typically located between the 3rd and 4th metatarsal heads, although it may appear in other proximal locations. The pain may radiate to the toes and can be associated with paresthesia. The pain can be severe, and the condition may become debilitating to the extent that patients are apprehensive about walking or touching their foot to
the ground. It is aggravated by walking in shoes with a narrow toe box or high heels that cause excessive pronation and excessive forefoot pressure; removal of tight shoes typically relieves the pain.

**Diagnosis**

Although a host of imaging methods are used to diagnosis Morton neuroma, including plain radiographs, magnetic resonance imaging, and ultrasonography, objective findings are unique to this condition and are primarily used to establish a clinical diagnosis. Thus, a patient’s toes often show splaying or divergence. Patients may describe the feeling of a “lump” on the foot bottom or a feeling of walking on a rolled-up or wrinkled sock. Clinical examination with medial and lateral compression may reproduce the painful symptoms with a palpable “click” on interspace compression (Mulder sign).

**Treatment**

Management of patients diagnosed with Morton neuroma typically starts with conservative approaches, such as the use of metatarsal pads in shoes and orthotic devices that alter supination and pronation of the affected foot. These approaches are aimed at reducing pressure and irritation of the affected nerve. They may provide relief, but they do not alter the underlying pathology. There is little evidence supporting the effectiveness or comparative effectiveness of these practices. In a case series, Bennett et al (1995) evaluated a 3-stage protocol of private practice patients (N=115) who advanced from stage I (education plus footwear modifications, and a metatarsal pad) to stage II (steroid injections with local anesthetic or local anesthetic alone) and into stage III (surgical resection) if treated while in stages I and II did not bring relief within 3 months. Overall, 97 (85%) of 115 patients believed that pain had been reduced with the treatment program. However, twenty-four (21%) patients eventually required surgical excision of the nerve and 23 (96%) of those had satisfactory results.

**Ablation Techniques**

Alternative approaches to treat refractory Morton neuroma include minimally invasive procedures aimed at in situ destruction, including intralesional alcohol injections. Dehydrated ethanol has been shown to inhibit nerve function in vitro, has high affinity for nerve tissue, and causes direct damage to nerve cells via dehydration, cell necrosis, and precipitation of protoplasm, leading to neuritis and a pattern of Wallerian degeneration. Technically, ethanol is a
sclerosant that causes chemical neurolysis of the nerve pathology but is considered an ablative procedure for this evidence review. The use of ultrasound guidance during this procedure has been shown to increase surgical accuracy, improve outcomes, and shorten procedure duration.

**Summary of Evidence**

For individuals who have Morton neuroma who receive intralional alcohol injection(s), the evidence includes retrospective case series. Relevant outcomes are symptoms, resource utilization, and treatment-related morbidity. The body of evidence is limited, consisting of case series reporting on the treatment response of patients with refractory Morton neuroma. The available series have generally reported that some patients experience pain relief and express satisfaction with the procedure. Some evidence has suggested that surgery after failed cases of alcohol injections is more complex and challenging than in untreated patients due to the presence of fibrosis. There is a lack of controlled trials comparing alcohol injections with alternative therapies, and there are no controlled studies comparing outcomes for alcohol injections with those for surgery in surgical candidates. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Ongoing and Unpublished Clinical Trials**

A search of [ClinicalTrials.gov](http://ClinicalTrials.gov) in May 2018 did not identify any ongoing or unpublished trials that would likely influence this review.

**Clinical Input Received from Physician Specialty Societies and Academic Medical Centers**

While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

In response to requests, input was received from two specialty societies and five academic medical centers while this policy was under review in 2015. Input was consistent that the use of alcohol injections to treat Morton neuroma is investigational.
Practice Guidelines and Position Statements

American College of Foot and Ankle Surgeons

The American College of Foot and Ankle Surgeons (2009) released a clinical practice guideline on the diagnosis and treatment of forefoot disorders. The statement reported that 3 to 7 injections of dilute 4% alcohol administered at 5- to 10-day intervals had been associated with an 89% success rate, with 82% of patients achieving complete relief of symptoms. The statement’s pathway for treatment of intermetatarsal space neuroma listed decompression, excision, and cryogenic neuroablation under surgical management options.

Association of Extremity Nerve Surgeons

The Association of Extremity Nerve Surgeons issued practice guidelines (2014), which drew the following conclusions about alcohol injections:

“The literature regarding alcohol injections is equivocal. There may be some short-term positive effect, but long-term effect is poor for this therapy. Some of the literature recommends using 30% alcohol solution to get effective results. However, there is not enough data to support the use of alcohol. As a general rule, we do not advocate the use of alcohol injections.”

Medicare National Coverage

There is no national coverage determination.

Regulatory Status

Alcohol injection for Morton neuroma is a surgical procedure and, as such, is not subject to regulation by the U.S. Food and Drug Administration.

References

History

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<th>Date</th>
<th>Comments</th>
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<tbody>
<tr>
<td>08/01/18</td>
<td>New policy, approved July 10, 2018, effective November 2, 2018. Policy created with literature review through April 2018. Alcohol injections are considered investigational for treatment of peripheral neuromas (eg, Morton neuroma).</td>
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<tr>
<td>09/01/19</td>
<td>Annual Review, approved August 6, 2019. Policy updated with literature review through April 2019, no references added. Policy statement unchanged. Title changed from “Alcohol Injections for Treatment of Peripheral Neuromas” to “Alcohol Injections for Treatment of Peripheral Morton Neuromas”.</td>
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