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Review Article

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Is it time to rethink the diagnosis of Morton's Neuroma?

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Abstract

There is currently little consensus on the definition and correct diagnosis of Morton's Neuroma. The literature offers multiple treatment options. Presently, a major concern is incorrectly or over-diagnosing of the condition. The objective of this paper is to examine the likelihood of an incorrect diagnosis of patients who receive treatment for Morton's Neuroma and compare to the rates of diagnosis and treatments demonstrated in the academic literature. A retrospective case cohort review was conducted examining patient clinical records over a five-year period from a single clinical practice. The data collected pertained to who and how the diagnosis of Morton's Neuroma was made, the treatments performed and their outcomes. Our review included 30 patients (mostly women) presenting on the right foot. A diagnosis of Morton's Neuroma was suggested by a General Practitioner in majority of the cases, followed by Radiologists, Orthopaedic Surgeons and Vascular Surgeons respectively. The chief concern was the frequent inaccurate diagnosis of Morton's Neuroma in this patient cohort. The uncertainties surrounding this condition result in delayed diagnosis and treatment, unnecessary expenditure of health care funds, and deleteriously affects quality of life in patients.

Keywords: Morton's Neuroma, injection, diagnosis, conservative treatment

Introduction

The forefoot condition Morton's Neuroma, was first reported in 1835 by Civinini, then again in 1845 by Durlacher [1-3]. The condition was described by its namesake Doctor Thomas Morton in 1876, as a peculiar and painful affection of the fourth metatarsophalangeal joint [4]. Other physicians have described the condition as 'a painful clinical syndrome of the forefoot', thus representing an over simplification of the clinical diagnosis and potentially misleading many healthcare providers and patients alike [5]. The terminology 'neuroma' is misleading as the condition is not a benign tumor of the nerve but rather a neuropathic pain in the forefoot associated with the interdigital nerve (most commonly between the third and fourth metatarsal heads) [5].

Morton's neuroma most commonly presents itself in females over males with a 4:1 ratio [6]. The condition affects the feet bilaterally in 21% of cases and afflicts the third metatarsal space 66% of the time [6]. The most common symptom is burning pain in the plantar region of the foot [6]. It is interesting to note that Morton's Neuroma can sometimes be present with no clinical symptoms. A study by Bencardino et al noted this in 33% of their studied patient population [7].

The literature offers multiple treatment modalities for this condition including, extracorporeal shockwave therapy, site injection, surgery as well as a variety of conservative methods such as orthotic inserts or footwear [5-9]. A major concern is the possible incorrect or over-diagnosis of the condition. Inconsistent diagnostic practices can lead to sub-optimal treatment approaches and will result in impacted patient outcomes.

Methods

The chart review performed included data from patients who were diagnosed with Morton's Neuroma at Toronto Western Hospital. This sample set provides a representation of Morton's Neuroma patients treated at Toronto Western Hospital Fracture Clinic. To be eligible patients must have received an initial diagnosis of Morton's Neuroma and been referred to and treated at Toronto Western Hospital between the years of 2014 to 2019.

Data Collection: The data collected from eligible patient charts included: age (at time of treatment), gender, laterality, diagnostic tests performed, relevant comorbidities, surgical and conservative treatments provided, pathology reports related to surgical treatment (if applicable), as well as pre and post operative x-ray images. (See Data Collection Form). To ensure confidentiality, each patient will receive a unique study ID identifier that will be associated with their data in place of personal information. Only de-identified data pertaining to the condition will be copied onto data collection forms. All hard copy clinical files will be kept under double lock, double key in the office of the research assistant at Toronto Western Hospital. Any study files will be stored within UHN under double lock/double key for 10 years after the completion of the study, according to the

Research Ethics Board policy.

Results

Our review included 24 women (mean age 54; SD 11) and six men (mean age 56; SD 6.5). Laterality of the condition was as follows: right foot (50%) and left foot (33%), with 17% affected bilaterally. A diagnosis of Morton's Neuroma was suggested by a General Practitioner in 57%, Vascular Surgeon in 3% and Radiologist in 30%. The diagnosis was validated by an Orthopaedic Surgeon in only 20% of cases.

One or more types of imaging studies was utilized in 27/30 cases: X-ray (70%), Ultrasound (47%), MRI (33%) and CT scan (3%). Surgery was performed in three of the thirty cases. Two patients underwent exploration and bursectomy and one patient underwent bilateral MTP fusions. Conservative methods of treatment included orthotics (43%), cortisone injection (20%), NSAIDs (13%) and physiotherapy (10%). Pathology reports from the two patients who underwent bursectomy stated fibrovascular tissue with reactive peripheral nerves, no malignancy found.

Discussion

We are concerned about the frequent inaccurate diagnosis of Morton's Neuroma in our patient cohort. The fact that none of our patients required neurectomy leads us to seriously question the existence of this condition as initially described. Numerous authors have noted the inaccuracy between the various diagnostic methods available for Morton's Neuroma [10, 11]. These inaccuracies can result in ill-advised and unnecessary treatment and even surgical interventions. The constant referral process to various practitioners can be not only time consuming, but costly to the healthcare system and the patient. Some of the more popular treatments for Morton's Neuroma include the injection of various sclerosing agents [9]. However, there is literature suggesting this can often result in plantar plate rupture, resulting in the requirement of further treatment efforts [11].

Conclusion

This review suggests that many patients who are referred to orthopaedic surgeons with a diagnosis of Morton's Neuroma often do not have the condition at all. There is also a huge discrepancy in the imaging tests performed and resulting diagnosis of Morton's Neuroma between health care practitioners. Future research should focus on methodologies to standardize and improve the accuracy of diagnosis between specialties. Further discussion should address the use of ill-advised treatment options, including but not limited to, cortisone injection, and the possible sequelae of such treatments.

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