

# Podium #30

## ULTRASOUND EVALUATION OF MORTON'S NEUROMA PRIOR TO AND FOLLOWING LASER THERAPY

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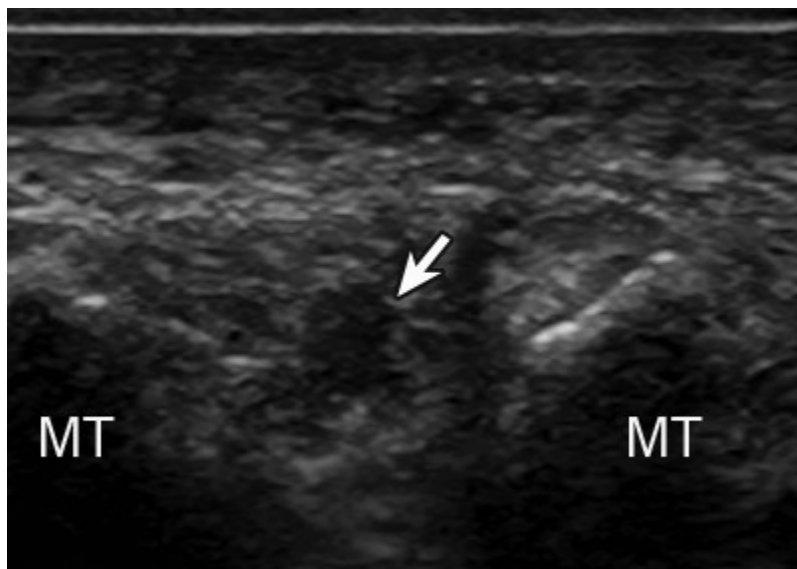
(Presented by: Mihra Taljanovic, MD, PhD, FACR)

**Purpose:** To retrospectively assess for differences in imaging appearances of Morton's neuromas prior to and following laser therapy using ultrasound with MRI correlation.

**Materials and Methods:** Following IRB approval, a retrospective review was performed identifying 42 patients who underwent US to evaluate for Morton's neuroma prior to laser therapy. Sonographic and MRI reports and images were reviewed in correlation with clinical history. The final study group consisted of 21 patients, who underwent evaluation of 24 feet with identification of 32 Morton's neuromas prior to laser therapy followed by post-treatment ultrasound. A retrospective 2 radiologists consensus review of the US from patients with treated Morton's neuromas was then carried out to characterize the appearances of these lesions prior to and following therapy, and data was then evaluated to identify ultrasound variables associated with laser therapy. When available, comparison of ultrasound to MR images was performed to assess differences in lesion visibility.

**Results:** Of 42 patients undergoing Morton's neuroma evaluation by US, 21 underwent treatment of a total of 32 Morton's neuromas. Retrospective ultrasound review of the pre-treatment lesion showed fusiform, heterogeneously, hypoechoic masses with well-defined border in the majority of cases, which demonstrated pain with transducer pressure in 97% (31/32). An associated bursa (3/28) and Mulder sign (1/31) were identified in a minority of cases. Following treatment the lesions remained heterogeneously hypoechoic but the majority demonstrated ill-defined borders (23/31) with significantly decreased or absent pain with transducer pressure (29/31). Statistical analysis revealed significant differences in pre and post-treatment borders ( $p < 0.0001$ ) and pain with transducer pressure ( $p < 0.0001$ ), as well as the presence of associated intermetatarsal bursa ( $p < 0.05$ ), which resolved following treatment. In addition, significantly more neuromas occurred in the 2<sup>nd</sup> intermetatarsal space compared to 1<sup>st</sup> and 3<sup>rd</sup> ( $p < 0.0001$ ). Finally, all neuromas were determined by consensus to be better visualized on ultrasound compared to MRI.

**Conclusion:** US is an excellent imaging technique for assessment of Morton's neuromas and may be used to identify post-treatment changes following laser therapy for Morton's neuroma, which include ill-defined lesional borders, resolution of bursae and improved/absent pain with transducer pressure, and these criteria may be applied in future clinical studies evaluating the efficacy of laser therapy for this condition.



A - Pre-treatment Morton's neuroma with well-defined margins at second intermetatarsal space



B - Post-treatment Morton's neuroma with ill-defined margins blending into adjacent tissue