

## Effect of treatment by lymphatic osteopathy on an athlete suffering from medial tibial stress syndrome: Case Report

Deepak Raghav<sup>1,\*</sup>, Parul Rathore<sup>2</sup>, Monika Sharma<sup>3</sup>

<sup>1</sup>Principal, <sup>2,3</sup>Assistant Professor, Santosh College of Physiotherapy, Ghaziabad, Uttar Pradesh

**\*Corresponding Author:**

Email: dr.deepakraghav@gmail.com

### Abstract

Medial tibial stress syndrome (MTSS) is an exercise-induced, localized pain along the distal two thirds of the posterior-medial tibia and can be a debilitating injury in runners. In studies of recreational runners, MTSS has been reported as the second most frequently diagnosed injury. It is an inflammation of the periosteum or muscle from overuse. The cause of this condition is due to many factors including training errors and biomechanical abnormalities. This case study explores the role of Lymphatic osteopathy in a runner suffering from MTSS.

### Introduction

MTSS (shin splints) is a repetitive-stress overuse injury commonly affecting weight bearing athletes. Several intrinsic risk factors for MTSS have been identified: hyper-pronation, body mass index, female sex, hip internal/external rotation, and hyper plantarflexion. Some researchers<sup>1</sup> attributed MTSS pain to the disruption of Sharpey fibres, which connect the medial soleus fascia through the periosteum of the tibia to insert into the bone. It has been suggested that MTSS is a consequence of repetitive stress imposed by impact forces that eccentrically fatigue the soleus, which creates repeated tibial bending or bowing, in turn overloading the bone-remodeling capabilities of the tibia. Stress microfractures might be created that present symptomatically as MTSS but are not confirmed with radiologic findings.<sup>(1)</sup> Although no single prevention method has been proven consistently effective for MTSS, several methods have proved useful: shock-absorbent insoles, pronation-control insoles (specifically controlling navicular drop) and graduated running program. Stretching of the lower leg musculature has been consistently proven to not prevent MTSS.<sup>(2)</sup>

### Patient Details

A 20 year old male patient visited Department of Physiotherapy, Santosh hospital, Ghaziabad, complaining of pain in the right leg. The patient was an athlete who recently had participated in a marathon. His training frequency was 5 times a week with training session of minimum 2 hours. There was no history of any trauma, fracture or any injury to the leg. On assessment, tenderness was found on the posteromedial border of the tibia with pain on palpation 5 cm on the posteromedial border of the tibia. The range of movement of the right ankle was recorded using a digital inclinometer. The active dorsiflexion was found to be 5 degrees whereas that of ankle plantar flexion was 11 degrees. Visual Analogue Scale (VAS) scores were taken pre-intervention and after 2 min. of post-

intervention at day 1, day 3 and day 5 and one week of follow up after the termination of intervention.

### Treatment Techniques Used

After taking informed consent from the patient, the following techniques were applied to the patient:

#### 1. Diaphragm release:

- a. Sacral release: Sacral hand performs nutation and counter-nutation while the passive hand monitors muscular and fascial response.
- b. Pelvic diaphragm release: Using gentle compression, both hand release fascia indirectly and independently, stacking release in all directions. The thumb placement is away from the groin.
- c. Abdominal diaphragm: both hands apply gentle compression and simultaneously both hands release fascia indirectly and independently, stacking release in all directions. The placement of the thumb is away from the groin.
- d. Thoracic diaphragm: Bottom hand bifurcate the upper thoracic spine between second and third finger. Upper hand is placed just below both the clavicle with thumb and index finger.
- e. Hyoid release: Bottom hand supports the neck with upper hand's thumb and index finger carry the hyoid indirectly around a vertical axis.

2. **Cross fibre technique (lower limb):** The borders of the following muscles were located: Tibialis anterior, Gastrocnemius, Soleus. Quickly cross the muscle belly while applying pressure to superficial fascia. On the next stroke with deeper pressure on the superficial fascia and the muscle belly. Cross again with increased depth of pressure.

3. **Pedal pump:** As the patient takes a deep inspiration breath, advance dorsal pressure on the feet bilaterally. With expiration, advance plantar pressure bilaterally. At the end of each phase, gently and briefly exaggerate your motion (either dorsal flexion or plantar flexion)

4. **Inguinal pump:** Stating with the leg in flexion, instruct the patient to inhale as you extend the leg and roll your inguinal fingers from distal to proximal. During inhalation, roll your inguinal fingers from distal to proximal.
5. **Lower limb Drainage:** During inhalation, squeeze your hands bilaterally from hypothenar to thenar eminence while moving sequentially from ankle towards upper thigh. During inhalation, squeeze your hands bilaterally from hypothenar to thenar prominence while moving sequentially from the ankle towards the upper thigh.

### Results

The ankle range of motion taken on Day1, Day3, Day 5 and one week after the osteopathic treatment has been shown in table 1. The ankle ROM i.e., both dorsiflexion and plantar flexion increase from day 1 to day5 and is full after the patient comes after one week for follow up visit. The VAS readings on Day1, Day3, Day3 and one week follow up has been shown in Table 2. The VAS reading decreases from Day 1 to Day 5 indicating decrease in pain. The patient is totally painfree when he visits again after one week for his follow up visit.

**Table 1: Range of motion for Ankle ROM (in degrees) Day 1, Day 3, Day 5 and after 1 week of follow up**

Ankle ROM	Dorsiflexion	Plantarflexion
Day 1	5 degrees	11 degrees
Day 3	10 degrees	18 degrees
Day 5	20 degrees	45 degrees
After One Week Follow Up	20 degrees	50 degrees

**Table 2: VAS readings taken on Day 1, Day 3, Day 5 and after 1 week of follow up**

Sr. No.		VAS
1.	Day 1	8
2.	Day 3	6
3.	Day 5	1
4.	After One Week Follow Up	0

### Discussion

The objective of lymphatic osteopathy in the acute phase is to ease the pain, swelling and inflammation while reducing fatigue and load. The physiological basis for these therapeutic effects is by stimulating the lymphatic system via an increase in lymph circulation, expediting the removal of biochemical wastes from body tissues, enhancing body fluid dynamics, thereby facilitating oedema reduction and decreasing sympathetic nervous system responses while increasing the parasympathetic nervous tone yielding a non-stressed body-framework state.

Lymphatic drainage massage and or ice massage may be used clinically in the acute phase along with rest and elevation.<sup>(3,4)</sup>

### References

1. Rachel Biber Brewer, Andrew J. M. Gregory. Chronic Lower Leg Pain in Athletes: A Guide for the Differential Diagnosis in Evaluation, and Treatment. Sports Health 2012;4(2):121-7.
2. Debbie I. Craig Medial Tibial Stress Syndrome: Evidence-Based Prevention. Journal of Athletic Training 2008;43(3):316-8.
3. R. Michael Galbraith, Mark E. Lavallee Medial tibial stress syndrome: conservative treatment options. Current Reviews in Musculoskeletal Medicine 2009;2:127-33.
4. Oğuz Yüksel, Cengizhan Özgürbüz, Metin Ergün, Çetin İşlegen, Emin Taşkıran, Nevzad Denerel, et. al. Inversion/eversion strength dysbalance in patients with medial tibial stress syndrome. Journal of Sports Science and Medicine 2011;10:737-42.