

Tarsal Tunnel Syndrome: “A Rare but not too Fair”

A Case Series

Stephy sabu
Nursing lecturer (Msc nursing)
Lissie College of Nursing
KUHAS

Abstract:- Case reports on two patients with tarsal tunnel syndrome have been presented. Among the illustrated cases, it showed the association of nature of the work and existing comorbidities leading to the onset of a relatively rare syndrome- TARSAL TUNNEL SYNDROME. This disease is clinically under recognized ,thus delaying its treatment. It affects one or two branches of tibial nerve either laterally or medially and anteriorly or posteriorly. The clinical triad of the disease includes pain, paresthesia and numbness. The incidence is actually unknown which may occur in any age .Various underlying causes that directly or indirectly causes a pressure over the tibial nerve and may be confirmed by electromyography and nerve studies. Combination treatment provides relief from the symptoms if in milder stage and surgical decompression as the stage worsens.

I. INTRODUCTION

Tarsal tunnel syndrome is a rare disorder in which the tibial nerve and its branches are damaged, when the nerve is compressed as it passes through the tarsal tunnel. The disease has a similarity in its name with carpal tunnel and thus it can be considered as a differential diagnosis. The tarsal tunnel is a narrow passage way bound by bone and soft tissue that lies on the inside of the ankle. However, tarsal tunnel syndrome is caused by several factors. Individuals with tarsal tunnel syndrome may experience pain, burning, or a tingling sensation along the tibial nerve.

II. SALIENT FEATURES OF TTS

- **TTS is a rare condition that affects lower limbs Long term illness can lead to permanent nerve damage, The ultimate management is the stretching exercises and the use of orthotics Causes**
- ✓ A person with feet outward tilting of heel that causes extra strain to the tibial nerve.
- ✓ Co existing diseases like a varicose vein, ganglion cyst, swollen tendon or arthritic bone spur.
- ✓ An ankle sprain or a fracture , resulting in compression of the nerve.
- ✓ In patients with diabetes or arthritis can be at risk of developing TTS.

- ✓ Any space occupying lesions lipomas, gangliomas, shwannomas.
- ✓ Anatomic deformity
- **Symptoms : “PINS AND NEEDLES PRICK DISEASE “ TTS affects males and females equally and seen those among middle aged.**

The onset can be sudden or gradual. The primary complaint is a sharp, shooting pain along the tibial nerve and can be radiating . Affected individual may experience numbness of the affected area or burning or paresthesia. The pain can be termed as neuropathic pain and loss of sensation that gets worse after prolonged standing up.

The affected parts are ankle, heel and foot. The pain rarely radiates from ankle to calf . Some daily activities that can worsen the condition are prolonged standing or walking and is relieved by taking rest. If the condition is left untreated, the pain may be felt even during rest and during night.

- **Differential diagnosis or the diseases with similar features**
- ✓ Plantar fasciitis :the similarity is observed in the nature of the pain with tarsal tunnel syndrome.
- ✓ Diabetic neuropathy
- ✓ stress fractures
- ✓ peripheral neuropathy

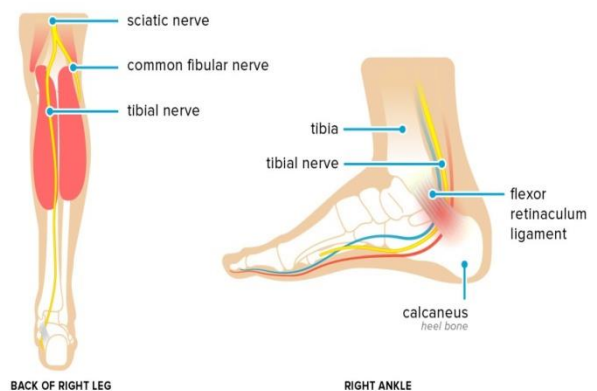


Fig 1

III. HOW DOES THE SPECIALIST RULE OUT?

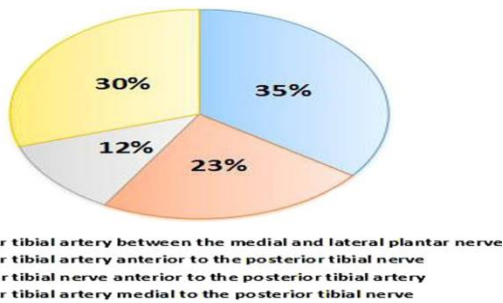
A careful analysis of symptoms, a detailed patient history, a thorough clinical evaluation and a variety of specialized tests.

➤ **Tinel’s sign for TIBIA**

Applying a pressure to the tibial nerve causes a tingling or a “pins and needles” sensation in the foot or toes, it is considered positive and is indicative of tarsal tunnel syndrome.

Doctors order to evaluate— through electromyography and nerve conduction velocity (EMG/NCV) , MRI and xrays if the disease remains hidden. Plain radiographs of the ankle are the primary choice to rule out.

➤ **A study was conducted in Harward university on neuromuscular disorders and it was found that Distribution of damage to nerves in tarsal tunnel syndrome are as follows:**



➤ **Management**

Combination therapy is used to treat tarsal tunnel syndrome

Non pharmacology treatment

- As in case of progressed pattern, it is necessary to take Rest and immobilization that can prevent injury and thus improve the healing
- Stretching exercises : stretching exercises are advised only after diagnosing the severity of the disease , preferably in mild form.
- Decompressive Orthotic devices and bracing are prescribed by the specialist in order to maintain the alignment and restrict the movement.

➤ **Pharmacology treatment**

The heading symptoms of tarsal tunnel syndrome are pain and inflammation and thus non steroidal anti infalammtory drugs can be used .Local anaesthetics and injected corticosteroids are used as a secondary step

➤ **A CASE REPORT**

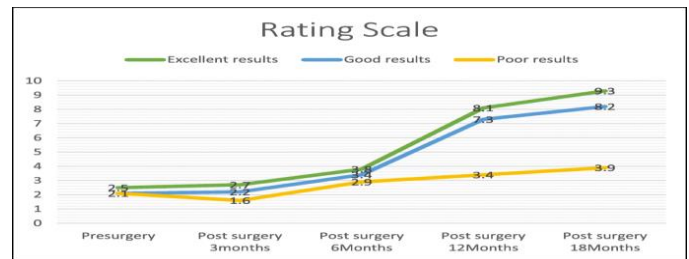
A 66 year old male patient who used to work as security guard for 34 yrs diagnosed with tarsal tunnel syndrome reported pain and burning sensation along the

ankle with a numerical Rating Scale of 9/10. He was consulted after the disease has been progressed . On EEG and other related tests , he was found to be with compression of the medial aspect of tibial nerve. At first he was adviced to be on orthotics for 3 months and the pain was not relieved .As a combination therapy, he started on oral medications and exercise therapy for another 2 months. . The patient’s symptoms began to decrease at 3 weeks, resolved within 12 weeks. The patient reported no pain at a ten month follow up. There are many studies that have proved the effectiveness of combination therapy for the management of TTS.

➤ **Surgical management**

De compressive Surgery is recommended for individuals with severe symptoms who do not respond to conservative treatment. The goal is to remove the underlying causes through the removal of benign cyst or masses , thus by relieving the pressure over tibial nerve. The optimal duration for the recovery is 8-16 weeks after surgery.

The below graph shows the recovery percentage before and after surgical intervention for the patients with tarsal tunnel syndrome.



The prognosis is about 75 % of patients had complete relief from pain and compression and others had a minimal reduction .

➤ **Facts about TTS**

The age group includes 20 -70 yrs
Positive outcomes are shown during 3 years follow up and treatment.
Symptom progress from pain – paresthesia- numbness
Primary test is by history and physical examination(tinel sign)
Primary treatment is non pharmacological measures.

IV. VARICOSITY AND TTS CASE REPORT

A 47 yr old male was admitted with numbness and pain in his left foot and ankle after pronged standing. He was undergone neurological testing and found tinel sign positive. After a detailed history , it was added that he was a known case of varicose veins in the affected leg. However he had prformes t nerve conduction studies to conclude about his illness. Through an open approach surgeon did venous

stripping along with decompression , followed by relief from pain after 1 month.

➤ *Nurses roles*

- Assess the level of pain using numerical pain scale. Assess for paresthesia and numbness.
- Monitor for the side effects of NSAIDS
- Assess neurovascular status.
- Apply ice compressions and teach the ways of using orthotic devices.
- As the condition is always under diagnosed, it can be best managed by more specialized professional team includes orthopedic surgeon , orthopedic nurse and physiotherapist.

➤ *Clinical overlook on the disease*

Patients diagnosed with tarsal tunnel syndrome, experiences nagging foot pain and they seek consultation after prolonged bearing. Tarsal tunnel has got a complex anatomy creating the specialist in more difficult situation to rule out. A thorough history taking, physical examination and image studies , as a triad , required to diagnose it. One of the best and favouring test to diagnose TTS is the nerve conduction studies that was found effective in almost 80% of cases. Poor outcome can be expected if the condition has led to nerve fibrosis.

V. CONCLUSION

Though tarsal tunnel syndrome is a rare disease that affects nerve, it is necessary to rule out in the initial attack. Proper diagnosis and proper treatment at the right time is essential to cure from the nerve attack. The prevalence and incidence of tarsal tunnel syndrome have not been reported. There was significant improvement in the patients symptoms. Thus , positive outcome and follow up have observed after the management of tarsal tunnel syndrome.

REFERENCES

- [1]. Birkmeiger, Weinstein. Spondylitis Curative and Preventive.12thedition. Philadelphia:Elseiver publications;1999.
- [2]. Smeltzer & Bare et. al.“Brunner & Suddharth’s Textbook of Medical-Surgical Nursing.” Vol.1. 12 th Ed. 2010. 1 st Indian Reprint. 2011.
- [3]. Chourasya B D, Human anatomy.6th edition, vol1. CBS publishersand distributors pvt ltd.
- [4]. <http://www.stmaryhealthcare.org/body.cfm?id=555613>
- [5]. Chapman, Comprehensive orthopedic surgery. edition 4th. Jaypee publications.PG: 389-96