WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 7, Issue 17, 638-643. Review Article ISSN 2277– 7105

STUDY OF DIFFERENT ASPECTS OF GULPHA WITH REFERANCE TO TARSAL TUNNEL SYNDROME

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Article Received on
06 August 2018,

Revised on 26 August 2018,
Accepted on 16 Sept. 2018

DOI: 10.20959/wjpr201817-13441

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ABSTRACT

In Ayurved, Gulpha is explained in different aspects. Gulpha is explained under Marmashareera as gulpha marma, in Sandhishareera as gulpha sandhi, in Paribhashashareera as asthisanghat and also as situation of jaala. So there is need to clarify such different aspects of gulpha. Most of these structures are made up of Mansa (Muscles), Sira (Vessels and nerves), Snayu (Ligaments and Tendons), Asthi (Bones) and Sandhi (Joints). Also, in modern science tarsal tunnel is a structure in the foot that is formed between the underlying bones of the foot and the overlying fibrous tissue. The flexor retinaculum constitutes the roof of the tarsal tunnel and is formed by the deep fascia of the leg and the deep transverse fascia of the ankle. So, injury to this gulpha i.e. gulpha marma and tarsal tunnel leads to pain, structural and functional deformity of the affected area i.e. tarsal tunnel syndrome.

KEYWORDS: Gulpha, Gulpha sandhi, Gulpha marma, Tarsal tunnel syndrome.

INTRODUCTION

The word gulpha is categorised under various concepts like as a sandhi (Joint), marma (Vital point of the body), asthisanghat (Union of more than 2 bones) & jaala (Plexus or network).[1,2]

Gulpha Marma

Marma is the vital point of the body which is made up of Mansa (Muscles), Sira (Vessels and nerves), Snayu (Ligaments and Tendons), Asthi (Bones) and Sandhi (Joints).

It is explained as one of the vital marma amongst 107 marmas explained by Aacharya Sushruta. Its categorisation is as follows,

Table No. 1

Name of Marma	Number	Shadang	Rachana	Parinam	Pariman	Underlying structure
Gulpha	02	Adhoshakhagat (Lower Extremity)	Sandhi	Rujakara	2 angula	Ankle joint

[1]The other structures involved except ankle joints are tibial, superficial and deep peroneal nerves and anterior, posterior tibial and peroneal arteries and also deltoid and lateral ligaments.[3]

Gulpha Sandhi

Gulpha sandhi (ankle joint) is the sandhi of the lower limb. It is located at the junction of leg and foot. Modern classification of ankle joint is as,

Table No. 2

Name of Joint	Arthrosis	Compound/Simple	Complex/Simple
Ankle Joint	Diarrthrosis- Hinge	Compound	Simple

The fibrous capsule surrounds the joint and is attached all around the articular margins with two exceptions, posterosuperiorly inferior transverse tibiofibular ligament. Anteroinferiorly it is attached to dorsum of the neck of the talus at some distance from trochlear surface. Deltoid or medial and Lateral ligaments are also stabilizes the joint.[3]

Gulpha Asthisanghat

The articulation of two or more bones forms joints such joint region is known as asthisanghat. There are 14 asthisanghat are mentioned in Sushrutsamhita Sharirsthan in 5th adhyaya and 16th citation, in that one asthisanghat is present in gulphapradesha (ankle region).

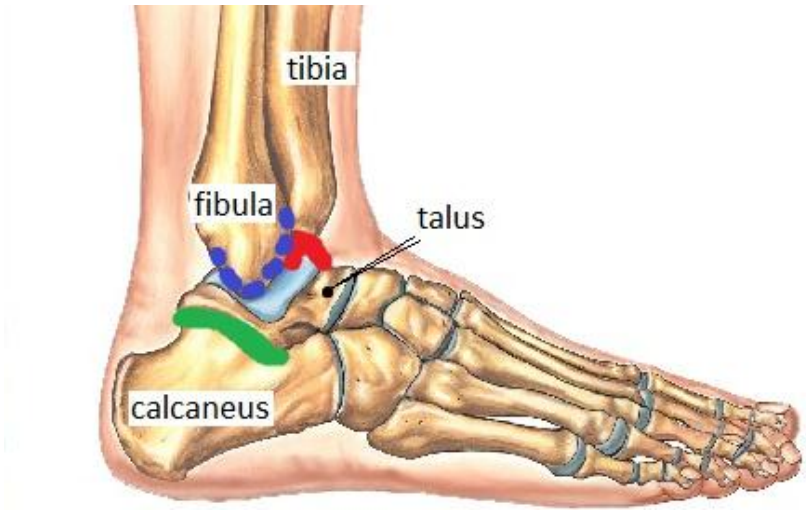

Photo 1 – Ankle Joint with its articulating bones.

Gulpha Jaala

The jaala is plexus or network like arrangement of sira, snayu, mansa and asthi in one particular region of the body. There are 16 jaalas are present in the body i.e. 4 each in manibandha (wrist region) and gulpha pradesha (ankle region).[2]

Gulpha Sirajaala

Around the ankle joint, mainly there arteries like anterior and posterior tibial and peroneal arteries are present, ankle joint is supplied by these three arteries.

Veins mainly dorsal venous arch on the dorsal aspect of the foot. From which laterally short saphanous vein and medially great saphanous vein mainly constitutes the venous drainage.[3]

Gulpha Mansajaala

Muscular arrangement in ankle region is as,

Anteriorly – Tibialis anterior, Extensor hallucis longus, Extensor digitorum longus and Peroneus tertious.

Laterally – Peroneus longus and Peroneus brevis.

Posteriorly – Gastrocnemius, Soleus, Plantaris, Popliteus, Tibialis Posterior, Flexor hallucis longus and Flexor digitorum longus.[3]

Gulpha Snayujaala

Ligaments of ankle joint are as,

The fibrous capsule, Deltoid or medial ligament and Lateral ligament.[3]

Gulpha Asthijaala

The bones related to the ankle region are as,

Lower end of the tibia including medial malleolus, lateral malleolus of the fibula and also upper, medial and lateral aspects of the tallus.[3]

Tarsal Tunnel Syndrome

Tarsal tunnel syndrome (TTS), also known as posterior tibial neuralgia, is a compression neuropathy and painful foot condition in which the tibial nerve is compressed as it travels through the tarsal tunnel. This tunnel is found along the inner leg behind the medial malleolus. The posterior tibial artery, tibial nerve, and tendons of the tibialis posterior, flexor digitorum longus, and flexor hallucis longus muscles travels in a bundle through the tarsal tunnel. Inside the tunnel, the nerve splits into three different segments. One nerve (calcaneal) continues to the heel, the other two (medial and lateral plantar nerves) continue on to the bottom of the foot. The tarsal tunnel is delineated by bone on the inside and the flexor retinaculum on the outside.

Patients with TTS typically complain of numbness in the foot radiating to the big toe and the first 3 toes, pain, burning, electrical sensations, and tingling over the base of the foot and the heel. Depending on the area of entrapment, other areas can be affected. If the entrapment is high, the entire foot can be affected as varying branches of the tibial nerve can become involved. Ankle pain is also present in patients who have high level entrapments. Inflammation or swelling can occur within this tunnel for a number of reasons. The flexor retinaculum has a limited ability to stretch, so increased pressure will eventually cause compression on the nerve within the tunnel. As pressure increases on the nerves, the blood flow decreases. Nerves respond with altered sensations like tingling and numbness. Fluid collects in the foot when standing and walking and this makes the condition worse. As small muscles lose their nerve supply they can create a cramping feeling.[4]

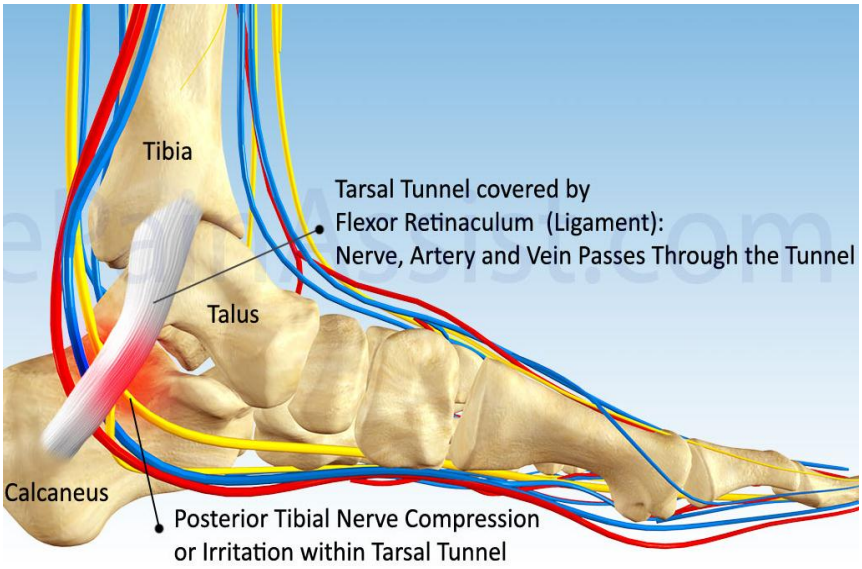

Photo 2 – Tarsal tunnel showing involvement of various structures.

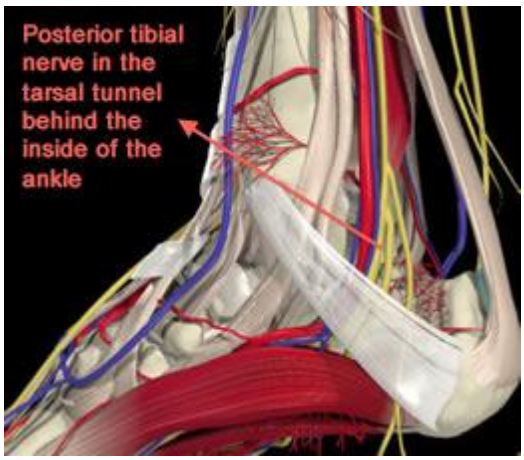

Photo 3 – Tarsal tunnel showing involvement o Posterior tibial nerve

DISCUSSION

Gulpha (Ankle) is the important region in our body as it is the site of marma, sandhi, asthisanghat and jaala. Many important structures are present anteriorly, posteriorly, laterally and around the ankle, i.e. in the form of bones, ligaments, arteries, veins, nerves, muscles etc. So, gulphapradesha is one of the major sites to the various injuries in the lower extremity.

Here, related to tarsal tunnel syndrome, can be correlated with gulpha as a marma as, gulphapradesha is the site of presence of mamsa, Combination of same components forms the gulphamarma as well, which is rujakara marma i.e. injury to this cause pain and the structures involved are as ankle joint, medial and lateral ligaments also tibial, superficial and deep

peroneal nerves and also anterior, posterior tibial and peroneal arteries. Injury to this cause structural and functional deformity of these structures.

CONCLUSION

Reviewing gulpha as a whole, as it is explained by Sushrutacharya as, Marma, Sandhi, Asthisanghat and jaala, we can conclude that the site of the gulpha is very vital as it is related to many different and important structures of our body. So, this region is prone to the various injuries and in this case to tarsal tunnel syndrome which can be correlated with gulpha as marma.

REFERENCES

1. Sushrut Samhita Sharirsthan, Chapter 6, citation no.22, Reprint Nov. 2008, Meherchand Lacchamdas Publications, Page no. 186.
2. Sushrut Samhita Sharirsthan, Chapter 5, citation no.11 and 15, Reprint Nov. 2008, Meherchand Lacchamdas Publications, Page no. 153 and 154.
3. Dr. B. D. Chourasia, Vol. 2, Chapter no. 12, 4th edition Reprint 2007, CBS Publishers and distributors, Page no. 150-151.
4. https://en.wikipedia.org/wiki/Tarsal_tunnel_syndrome citation date 12/09/2018.