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LITERARY REVIEW OF GULPHA MARMA WITH SPECIAL REFERENCE TO ANKLE SPRAIN

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ABSTRACT

Ayurveda is not only a medical science but a way of life. Marma is one of most important and unique principal described in ayurveda. Ayurveda has described 107 vital points in the body and name them as Marma. Marma is the science that deals with some specific vital point which involves Mamsa, Sira, Snayu, Asthi and Sandhi. Gulpha marma is one of them located in between ankle and foot region. This is the sandhi marma and Rujakar marma. Injury to Gulpha marma causes pain, rigidity, stiffness and functional deformity in ankle region. According to Modern science the gulpha marma can be correlated with ankle joint. Abnormal and excessive force causes injury to ankle joint which in turn leads to sprain, ligament injury. Now a days marma therapy is widely and successfully used to treat the different diseases. The present topic highlights the Gulpha marma and its traumatic effect sprain.

KEYWORDS:- Marma, Gulpha, Sandhi, Sprain.

INTRODUCTION

Ayurveda literally means traditional science of life. Ayurveda believes on complete normal and healthy state of life. Word Ayurveda derived from two words i.e. Ayu and Veda. Here Ayu means life is the conjuction of body, soul, mind and senses. Basic principles of Ayurveda has a significant value in the life of modern era also. One can be a good physician and surgeon only when he has practically observed and learned all about the human anatomy doubtlessly. Marma Sharir is one of the special and unique aspect of Ayurveda. Marmas are

the several vital points on the body having importance regarding traumatic effect. When these points are exposed to trauma generate the symptoms from pain to fatal effect. Also the Marmas are healing points. Gulpha Marma is the Sandhi Marma and RujakaraMarma situated between the Paada and Jangha with its measurement as two Anguli.

In the present era of fast moving life, each and every person is in hurry and always running to achieve their goal. So accidentally occurring minor injuries are very common. One among them is Sprain which is commonly occurred while playing, walking or any sudden jerk on the joint. Injury to ligament is termed as sprain which is common in all the joints but its prevalence is higher in ankle joint called as Ankle Sprain. Acharya Sushruta being a surgeon described Marma in detail with their numbers, size, location and effects of injury. The knowledge of Marma is very useful worldwide for prevention and cure. Now a day's acupuncture and acupressure points are correlated with Marma points. Marma has its own prime importance in Shalyatantra because for Surgery knowledge of Marma is essential. Hence this is an effort to study the Gulpha Marma with special reference to ankle sprain.

RESULT AND DISCUSSION

Definition of marma

According to Acharya Dalhana these are the vital points which can produce death if injured.[1]

This means these are the point which causes death and death like symptoms.[2]

According to Acharya Vagabhata these are the points where important nerves (Dhamni) come together with other structures like muscles, tendons etc. Vagabhata says that those sites which are painful, severe tender and shows abnormal pulsation are considered as Marma or Vital points.[3]

Acharya Sushruta defined the Marma as anatomical site where muscles, bone, ligaments, veins and joints come together. They are also the sites where not only Tridosha are present but their subtle forms Prana, Ojus and Tejas are also present with Sattva, Raja and TaasGuna. Hence this is specific area on the body which has relation with various internal organs through Pranic Channel.[4]

Composition of marma

According to Acharya Sushruta Mamsa, Sira, Snayu, Asthi and Sandhi are the five anatomical structure involved in Marma points. Acharya Vagabhata added extra Dhamni in the above five structure.[5]

Types of marma

Marmas are divided on the basis of following points

- Anatomical structure involved
- Body Regions
- Traumatic effects

1. **Types of marma on the basis of anatomical structure involved.[6]**

Sr. No.	Type of Marma	No.	
		Sushruta	Vagabhata
1.	Mamsa Marma	11	10
2.	Sira Marma	41	37
3.	SnayuMarma	27	23
4.	AsthiMarma	08	08
5.	Sandhi Marma	20	20
6.	DhamaniMarma	00	09

2. **Types of marma on the basis of six regions of body.[7]**

Sr. No.	Regions of Body	No.
1.	Shakhagat (each Shakha 11X4)	44
2.	Madhyasharirgat Urah Udara Prushtha	26 09 03 14
3.	Jatru- urdhva Griva Shira	27 14 23

3. **Types of marma on the basis of traumatic effects.[8]**

Sr. No.	Types of marma	Numbers
1.	Sadyapranahar	19
2.	Kalantarpranahar	33
3.	Vishalyaghna	03
4.	Vaikalyakar	44
5.	Rujakar	08

Gulpha marma[9]

- Location:- It is located at the joint between Paada (foot) and Jangha(leg).
- Type:-

According to Rachana:- Sandhi Marma

According to Shadanga:- ShakhagatMarma

According to parinam:- RujakarMarma

- Praman:-

2 Augul

- VidhhaLakshane:-

- Ruja (pain)
- Stabdha Padata (Restricted movements)
- Khanjata (Functional Deformity)

Ankle joint

According to Dr. Ghanekar, GulphaMarma is the ankle joint which includes tibiofibular and talocrural articulation.[10] According to Modern Literature the ankle or the talocrural region is the region where foot and ankle meet. The ankle joint includes three joint ankle joint or talocrural joint, subtalar joint and inferior tibiofibular joints. Active movements of these joints are dorsiflexion and plantar flexion.

- Type:- This is synovial joint of hinge variety.
- According to Ayurveda Kora Sandhi[11]
- Synonyms:-Kurchashir-janghika Sandhi, Gulphasthi Sandhi.
- Numbers:- 2
- Articular Surfaces:-

The upper articular surface is formed by:[12]

1. The lower end of the tibia including the medial malleolus.
2. The lateral malleolus of the Fibula.
3. The inferior transverse tibiofibular ligament. These structure forms a deep socket.

The inferior articular surface is formed by articular areas on the upper, medial and lateral aspects of the talus.

Structurally, the joint is very strong. The stability of the joint is ensured by:

a. Close interlocking of the articular surfaces.

b. Strong collateral ligaments on the sides.
c. The tendons that cross the joint, four in front, and three on posteromedial side and two on posterolateral side.

The depth of the superior articular socket is contributed by

a. The downward projection of medial and lateral malleoli, on the corresponding sides of talus.
b. By the inferior transverse tibiofibular ligament that bridges across the gap between the tibia and the fibula behind the talus. The socket is provided flexibility by strong tibiofibular ligaments and by slight movements of the fibula at the superior tibiofibular joint.

There are two factors, however that tend to displace the tibia and fibula forwards over the talus. These factors are:

a. The forward pull of tendons which pass from the leg to the foot.
b. The pull of gravity when the heel is raised. Displacement is prevented by the following factors.

I. The talus is wedge-shaped, being wider anteriorly. The malleoli are oriented to fit this wedge.
II. The posterior border of the lower end of the tibia is prolonged downwards.
III. The presence of the inferior transverse tibiofibular ligament.
IV. The tibiocalcanean, posterior tibiotalar, calaneofibular and posterior talofibular ligaments pass backwards and resist forward movements of the tibia and fibula.

Ligaments of ankle joint

The joint is supported by

a. Fibrous Capsule
b. The deltoid or medial ligament
c. A lateral ligament

1. **Fibrous capsule:-** It surrounds the joint and is attached all around the articular margins with two exceptions.

Posterio superiorly it is attached to inferior transverse tibiofibular ligament.

Antero inferiorly it is attached to the dorsum of the neck of the talus at some distance from the trochlear surface.

2. **Deltiod or medial ligament:-** This is a very strong triangular ligament present on the medial side of the ankle. The ligament is divided into a superficial and deep part.

Superficial part- It is divided into three fibers anterior, middle and posterior fibers.

I. Anterior fibers or tibionavicular are attached to the tuberosity of the navicular bone and medial margin of the spring ligament.
II. Middle fibers or tibiocalcanean are attached to the whole length of the sustentaculum tali.
III. Posterior fibers or posterior tibiotalar are attached to the medial tubercle and to the adjoining part of the medial surface of the talus.

Deep part or anterior tibiotalar is attached to the anterior part of the medial surface of the talus.

3. **Lateral ligament:-** The ligament consists of three bands as fallows.

a. The anterior talofibular ligament is a flat band which passes from the anterior margin of the lateral malleolus to the talus, just in front of the fibular facet.
b. The posterior talofibular ligaments passes from the lower part of the malleolar fossa of the fibula to the lateral tubercle of the talus.
c. The calcaneofibular ligament is a long rounded cord which passes from the notch on the lower border of the lateral malleolus to the tubercle on the lateral surface of the calcaneum. It is crossed by the tendons of the perineum longus and brevis.
d. The interossesoustibiofibular ligament, inferior extensor retinaculum and inferior and superior peroneal retinacula also contribute to the stability of the ankle joint.

Relations of the ankle joint

Anteriorly, from medical to lateral side, there are the tibialis anteriror, the extensor hallucis longus, the anteriror tibial vessels, the deep peroneus tertius.

Posteromedially, from medial to lateral side, there are the tibialis posterior, the flexor digitorum longus, the posterior tibial vessels, the tibial nerve, the flexor hallucis longus.

Posterolaterally the peroneus Longus and The peroneus brevis.

Movements

Active movements are Dorsiflexion and Plantar flexion.

1. In dorsiflexion the forefoot is raised, and the angle between the front of the leg and the dorsum of the foot is diminished. It is a clock-pack position with maximum congruence of the joint surfaces. The wider anterior trochlear surface of the talus fits into lower end of narrow posterior part of the end of tibia. There are no chances of dislocation in dorsiflexion.
2. In plantar flexion, the forefoot is depressed, and the angle between the leg and the foot is increased. The narrow posterior part of trochlear surface of talus loosely fits into the wide anterior part of the lower end of tibia. High heels cause planter flexion of ankle joint and its dislocation.

Blood supply

From anterior tibial, posterior tibial and peroneal arteries.

Nerve supply

From deep peroneal and tibial nerves.

Ankle sprain

Tearing of the ligament is called as ankle sprain. The most commonly ankle sprain occurs on the lateral or outside part of the ankle. This is an extremely common injury which affects many people during a wide variety of activities. An ankle sprain occurs when the strong ligaments that support the ankle stretch beyond their limit and tear. It occurs among peoples of all the ages. They range from mild to severe; depending upon how much damage there is to the ligament. Ligaments are strong fibrous tissues that connect one bone with other bone. The ligament in the ankle helps to keep the bones in proper position and stabilize the joint. Most sprained ankles occur in the lateral ligaments on the outside of the ankle. Sprains can range from tiny tears in the fibers that make up the ligament to complete tears through the tissues.

Symptoms:-A sprained ankle is painful. Other symptoms may include

-Swelling

-Bruising

-Tenderness on touch

-Instability of the ankle – this may occur when there has been complete tearing of the ligament.

Grades of sprains[13]

Sprains are graded on how much damage has occurred to the ligaments.

1. **Grade 1**

Slight stretching and microscopic tearing of the ligament fibers.

Mild tenderness, bruising and swelling around the ankle.

Typically no pain with weight bearing

No instability on examination

2. **Grade 2**

Partial tearing of the ligament.

Moderate tenderness and swelling around the ankle.

Mild pain with weight bearing

Slight instability on examination

3. **Grade 3**

Complete tearing of the ligament.

Significant tenderness, bruising and swelling around ankle

Severe pain with weight bearing

Substantial instability on examination.

CONCLUSION

Following conclusion were drawn from the study

1. Gulpha Marma is Sandhi Marma means it is Sandhi predominant Marma but other structure are like Mamsa, Sira, Snayu and Asthi are also involved in it. Its measurement 2 angula. It is rujakar Marma, trauma over the Gulpha region causes the symptoms like Ruja (pain), Stabdhapadata (Restricted movement) and Khanjata (Functional deformity).
2. Gulpha Marma is located between Paada and Jangha compared with the modern anatomy it is found that it lies in Ankle region.
3. The articulation between the tibia and the talus bears more weight than that between the smaller fibula and the talus. So after injury over ankle joint there are maximum chances of injury in lateral side or fibulotaller joint as tibiofibular joint is more stable than

fibuotalur joint. Also lateral collateral ligament is weaker than medial collateral ligament. hence pain is more on lateral side as compared to medial side.

4. Ligament injuries of the ankle joint are termed as ankle sprain. Ligament helps the joint to stay stable. Ankle sprain is commonly inversion injury which occurred if lateral ligament is sprained.
5. As every Marma is made up of five structures, the composition of Gulpha Marma can be correlated with modern as follows.

- **Mamsa:-** According to modern it is muscles. These are fibularis longus, fibularis brevis, superior fibular retinaculum.
- **Sira:-** Perforating branch of peroneal nerve.
- **Snayu:-** Lateral ligament of the ankle joints which consists of three separate ligament, anterior talofibular ligaments, Calcaneofibular ligament, Posteriortalofibular ligament.
- **Asthi:-** Tibia lateral malleolus of fibula.

After detailed review of modern and Ayurvedic literature we can concluded that the location of Gulpha Marma is the ankle joint which is formed between tibia , fibula and talus and other structures related to lateral aspect of ankle joint and ankle sprain occurred mostly in lateral or outside part of ankle.

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