



A LITERARY REVIEW OF MARMA SHARIR W.S.R. TO FOOT

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ABSTRACT

Ayurved has existed since time immemorial due to its unique fundamentals that help in sustenance of life. Ayurved has beautifully described the body and its constituents with equal emphasis to all. On the go, there is a unique topic - *Marma Sharir*, explained very extensively by all the great Acharya. There are 5 different basis of categorization of 107 *Marma* explained by Acharya Sushruta i.e. *Shadang Bheda*, *Rachana Bheda*, *Pramana Bheda*, *Sankhya Bheda* and *Sadhyas/Asadhyata Bheda*. The *Marma* present in the region of foot are - *Kshipra*, *Talahridaya*, *Kurcha*, *Kurchashira* and *Gulpha*.

KEYWORDS: Marma, Marma bheda, Shadang Bheda, Kaalantarpranahara Marma, Vaikalyakara Marma, Rujakara Marma.

INTRODUCTION

Ayurved – the science of life has existed for more than 5000 years. It mainly focuses on the maintenance of health and also directs to the measures for prevention of the diseases. The science that describes about the 4 types of Ayu - *Hita Ayu*, *Ahita Ayu*, *Sukh Ayu* and *Dukh Ayu*; describes about its *Pathya* and *Apathya*, Ayu *Maan/Pramaan* and its *Swaroop* is called Ayurved.^[1]

The need to gain the knowledge of Ayurved was felt when the people around the earth started suffering from various diseases and, hence, they requested the intellectuals to give a remedy to their sufferings. Meetings were held among the great sages and, at last, they decided that *Rishi Bhardwaj* should approach Lord *Indra* to help and save the living beings on earth to lead a longer life.^[2]

It has 8 main branches viz. *Shalya*, *Shalakya*, *Kaya-Chikitsa*, *Bhootvidya*, *Kaumaryabhritya*, *Agad Tantra*, *Rasayana Shastra* and *Vaajikarana Tantra*.^[3]

Among these, *Shalya Tantra* may be correlated to the branch of surgery of the present day world. Also, it is said that to become a proficient surgeon, one must have a thorough knowledge of anatomy of a normal human body. This complete knowledge of *Sharir* can be achieved by studying the *Sharir Rachana*. The branch of *Rachana Sharir* can be defined as the one that deals with both the aspects of the human body viz. microscopic and

macroscopic.^[4]

While describing all these constituents of the body, a unique topic has been mentioned as *Marma Sharir* by almost all great Acharya.

Acharya Sushruta mentions the importance of *Marma Vigyan* as – “*Marma Sharir* forms half of the *Shalya Tantra* as *Marma* are the points of instant death, if injured. Moreover, if the patient remains alive due to a treatment by very efficient *Vaidya*, such injury will definitely lead to a deformity. Also, even though a patient has got severe injuries in *Kostha*, *Shira-kapaal* or if amputation of limbs has occurred, but if the *Marma* are safe then, a patient may remain alive.”^[5]

Although the *Brihatrayee* have accepted the presence of 107 *Marma* in the human body, there is a difference in the classification of these *Marma* under different categories.

For instance, Acharya Charak has focused on the concept of *Trimarma*. Charak Samhita Siddhi Sthana has a separate chapter number 9 - *Trimarmiya Siddhi Adhyaya* which indicates that the 3 *Marma* viz. *Hridaya*, *Shira* and *Basti* are the main *Marma* that are of the highest concern.

Acharya Sushruta has classified *Marma* into 5 types - *Mamsa Marma*, *Sira Marma*, *Snayu Marma*, *Asthi*

Marma and *Sandhi Marma* on the basis of *Rachana*.^[6]

While, on the other hand *Acharya Vagbhatta* has added one more type i.e. *Dhamani Marma*.^[7]

There are 4 different ways of categorization of *Marma*. These include the categories based on *Sadhya-Asadhyata* / *Parinaam Bheda*, *Rachana Bheda*, *Shadanga Bheda* and *Pramaan Bheda*.

This article mainly focuses on the *Marma* present in the region of foot, which can be better studied as the category of *Shadang Bheda*. The 5 *Marma* present in the region of foot i.e. *Kshipra*, *Talahridaya*, *Kurcha*, *Kurcha-Shira* and *Gulpha*.

REVIEW OF LITERATURE

Review of literature refers to an in-depth evaluation of the existing literary works available in different forms. In this case, a critical review of the *Marma Sharir* will be done followed by emphasizing on the *Marma* present in the region of foot.

Marma in Veda

The *Rig Veda* mentions *Marma* at various instances. Few instances are mentioned below:

- Lord *Indra* used the *Vajra*, sharpened by *Vishwakarma*, for tormenting *Vratra Asura* by attacking *Marma Sthana*.^[8]
- There are frequent references to words like *Marma* and *Varman* which is some kind of body armor to protect oneself from the enemy.^[9,10]

Atharva Veda also gives indications to support the concept of *Marma* by usage of words like *Kavacha*. There is reference to the word *Kavacha* i.e. a chest plate or corslet to protect the chest region.^[11]

Marma in Upnishad

- *Garbhopanishad* says that the body consists of 107 *Marma*, 180 sutures, 109 *Snayu* (ligament), 700 *Sira*(channels), 500 *Majja*, 360 *Asthi*(bones), 45 million hairs.^[12]
- In *Shandilya Upanishad*, 18 *Marma* of *Shareera* have been explained on which by application of *Pratyahara*, one can pursue *Dharana*. The Eighteen *Marma* mentioned in the above reference are *Padangustha*, *Gulpha*, *Jangha*, *Janu*, *Uru*, *Guda*, *Linga*, *Nabhi*, *Hridya*, *Kanthakupa*, *Talu*, *Akshi*, *Brhumadhya*, *Lallata*, *Murdhni*.^[13]
- *Kshurika Upanishad* contemplates upon the name and form of the *Marma* in locations of the legs.^[14] Similarly there are references in *Purana*, *Epics* – *Ramayana* and *Mahabharat* also.

Marma in Samhita Kaal

In *Samhita*, there are distinct explanations about *Marma* which extensively explain about *Marma Sharir* in terms of their *Swaroop*, *Bheda*, *Viddha Lakshana*, *Pramana*, etc.

- According to *Charak Samhita*, there are 107 *Marma* in our body. Moreover, it emphasizes the concept of *Trimarma* viz. *Shira*, *Hridaya* and *Basti*.^[15]
- *Acharya Sushruta* has described *Marma Sharir* in *Sharir Sthana* 6th Chapter in detail.
- The number of *Marma* enumerated by them is the same i.e. 107 as said by *Vridhdha Vagbhatta* and *Laghu Vagbhatta* in chapter 7 and 4 of *Sharira Sthana* respectively.
- Also, there is reference of *Trimarma* in *Kashyap Samhita* same as that of *Charak* in *Sharir Sthana* 4th chapter
- *Bhavprakash* has mentioned in details about *Marma* similar to that of *Sushruta* in *Poorva Khand*, *Garbha Prakarana Adhayaya*
- *Vashishtha Samhita* has described 18 *Marma* which are seats of *Prana*. It explains how to follow *Pratyahara* to gain *Dharana*.^[16]

AIM AND OBJECTIVE

- This study aims to understand the concept of *Marma*.
- To understand, correlate and validate the concept of *Marma* present in the foot region with the contemporary science in terms of the regional & surface anatomy.

MATERIAL AND METHODS

This study is primarily based on literary review of various case reports, retrospective clinical studies, and recommendations relating to the intestinal tract from articles published in the PubMed, EMBASE, and various other international databases available in gastroenterology society websites.

This will be a type of secondary literary research involving study of primary data from classical texts by evaluation and interpretation, and secondary data search will be conducted on supplementary sources including references, lists of papers, reports and articles.

DISCUSSION

The *Marma Sharir* is a very important chapter explained in *Ayurvedic* texts as and when required. It holds great importance in clinical aspects that evolved as a science of war in old times. Also, it has a very significant role in *Shalya Tantra*.

Nirukti of Marma

- According to *Rajnighantu*,
“मृ-मनिन्-जीवस्थाने, सन्धिस्थाने, तात्पर्ये च।”
रा.नि. मनुष्य वर्ग ६४

i.e. the word *Marma* is derived from *Mri-Manin* which refers to the seat of *Jeeva* (life) and is a conglomeration of many structures.

- According to *Amarkosha*,
“मृ + मनीन, मृ + प्राणत्यागे”

अमरकोष ३/५/३०

i.e. the word *Marma* is derived from the root word 'Mri-Manin' or 'Mru' Pratyaya'. It means that which causes death or death-like pain.

- According to *Shabdkaalpdruma*,

“मृ + सर्वधातुभ्यो मनिन, सन्धिस्थानम्, जीवस्थानम्”

i.e. *Marma* is derived from 'Mri' Dhatu which refers to *Sandhisthana* or *Jeeva-Sthana*.

- Etymologically, each letter of the word *Marma* has got specific meaning i.e.

म means प्राण/ वायु.

रेफ means house/ seat.

Hence, *Marma* refers to seat of प्राण/ वायु.

Definition of Marma

- According to *Charak Samhita*, 107 *Marma* are present in the whole body. These are extremely painful if injured because these are sites of 'Chetna Dhatu'. Among these, the *Marma* present in trunk are more significant than those present in appendages as the latter are also dependent on trunk. Moreover, among all these the 3 *Marma* - *Hridaya*, *Basti* and *Shira* are most significant.^[17]
- According to *Acharya Sushruta*, *Marma* is the site of the union of *Mamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi*. These are the seats of *Prana*. Hence, if injured, it may lead to loss of perception of senses (*Shabd*, *Sparsh*, *Roop*, *Rasa*, *Gandh*) and also deviation of mind and intellect. According to some other *Acharya*, it may also lead to *Brahma*, *Pralapa*, *Patana* and *Pramoha*.^[18]
- According to *Ashtanga Hridaya*, *Marma* is a site which causes severe fluttering or quivering sensation associated with pain on injury.^[19]

Marma Sankhya

All the *Brihatrayees* have accepted the presence of 107 *Marma*.

Similar number is accepted by all the *Acharya* that there are 107 *Marma* present in the human body. Although, *Vagbhatta* adds another type of *Marma* i.e. *Dhamani Marma*, but the total number of *Marma* is the same. This means there is difference in categorisation of few *Marma* according to different *Acharya* keeping the total number of *Marma* as constant i.e. 107.

Classification of Marma

There are 5 different categories under which the *Marma* can be enumerated. These include:

1. *Shadang /Desha Bheda* (Regional classification)
2. *Rachnatmak Bheda* (Structural classification)
3. *Pramana Bheda* (Dimensional classification)
4. *Sankhya Bheda* (Numerical classification)
5. *Vyapath / Sadhya-Asadhyata Bheda* (Prognostic classification)

Marma present in the foot

This topic should be studied by reviewing the regional classification of *Marma* i.e. *Shadang / Desha Bheda*.

According to the *Shadang Bheda*, 11 *Marma* are enumerated in each of the 4 *Shakha* (limbs) viz. *Kshipra*, *Talahridaya*, *Kurcha*, *Kurchashira*, *Gulpha*, *Indravasti*, *Jaanu*, *Aani*, *Urvi*, *Lohitaksha* and *Vitapa*.^[20]

Here, we will focus on the 5 *Marma* present in the region of foot viz. *Kshipra*, *Talahridaya*, *Kurcha*, *Kurchashira* and *Gulpha*.

1. Kshipra Marma

- Sankhya - 4
- Shadang Bheda – Adho-Shakhagata Marma
- Rachana Bheda - Snayu Marma
- Pramana Bheda - ½ Angula
- Sankhya Bheda - 1 in each limb
- Sadhya/Asadhyata Bheda - Kaalantarapranahara Marma
- Location and Marma Viddha Lakshana - *Kshipra Marma* is present between the toe and its adjacent finger. Any injury to this *Marma* causes *Aakshepa*.^[21,22]

2. Talahridaya Marma

- Sankhya - 4
- Shadang Bheda - Shakhagata Marma
- Rachana Bheda - Mamsa Marma
- Pramana Bheda - ½ Angula
- Sankhya Bheda - 1 in each limb
- Sadhya/Asadhyata Bheda - Kaalantarapranahara Marma
- Location and Marma Viddha Lakshana - *Talahridaya Marma* is present in the sole of the foot, below the middle finger (toe). Any injury to this *Marma* causes severe pain and then death.^[23,24]

3. Kurcha Marma

- Sankhya - 4
- Shadang Bheda - Shakhagata Marma
- Rachana Bheda - Snayu Marma
- Pramana Bheda - 4 Angula
- Sankhya Bheda - 1 in each limb
- Sadhya/Asadhyata Bheda - Vaikalyakara Marma
- Location and Marma Viddha Lakshana - *Kurcha Marma* is present above the *Kshipra Marma*. Any injury to this *Marma* causes deformity in the foot and trembling.^[25,26]

4. Kurchashira Marma

- Sankhya - 4
- Shadang Bheda - Shakhagata Marma
- Rachana Bheda - Snayu Marma
- Pramana Bheda - 1 Angula
- Sankhya Bheda - 1 in each limb
- Sadhya/Asadhyata Bheda - Rujakara Marma
- Location and Marma Viddha Lakshana - *Kurchashira Marma* is present below the *Gulpha*

Sandhi on both the sides. Any injury to this *Marma* causes severe pain and swelling.^[27,28]

5. Gulpha Marma

- Sankhya - 4
- Shadang Bheda - Shakhagata Marma
- Rachana Bheda - Sandhi Marma
- Pramana Bheda - 2 Angula
- Sankhya Bheda - 1 in each limb
- Sadhya/Asadhyata Bheda - Rujakara Marma
- Location and Marma Viddha Lakshana - *Gulpha Marma* is present at the joints between foot and leg. Any injury to this *Marma* causes severe pain, stiffness of foot and limping.^[29]

DISCUSSION

Kshipra Marma – The region of *Kshipra* has the presence of following structures:

- Metatarsal bursa.
- Nerves - Common plantar digital nerve - divides into proper plantar digital nerve, (Common plantar nerve is a branch of Medial plantar nerve).
- Muscles - 1st Lumbrical, Adductor hallucis brevis, Adductor hallucis longus - transverse head & oblique head.
- Arteries - Deep plantar arch, Common plantar artery (termination of plantar metatarsal artery), Perforating branches.
- Veins - Deep plantar metatarsal vein
- Ligaments - Superficial transverse metatarsal ligament, Deep transverse metatarsal ligament and collateral ligament.
- Metatarsophalangeal articular capsule (2nd digit)

Presence of the common plantar digital nerve, deep plantar arch, common plantar artery and together form a neuro-vascular complex. Any deep wound at this site will cause hemorrhage. Moreover, absence of oxygen leads to multiplication of tissues at such sites, thus, causing release of exotoxins which travel through the neurovascular tissues and get fixed to the anterior horn cells. This may cause convulsions especially in the lower portion of the body.

Moreover, adductor hallucis longus is a muscle that originates from 2 heads (oblique & transverse heads) that inserts onto the lateral side of the base of the proximal phalanx of the great toe. It is associated with adduction of the great toe towards midline of foot and its flexion. It supports the longitudinal and transverse arches of the foot. Its action is significant during the terminal phase of gait cycle where it makes the forefoot as the center of gravity before the heel-lift. Its rupture may lead to hallux valgus (it is a common foot deformity^[176] which is described as the lateral deviation of hallux and its consequent distancing from the median axis of the body.^[177]

Now, as we know that laborers or former classes who

mostly work barefoot are injured in these fatal spots of *Kshipra Marmas* due to more use of hands and feet during work. *Clostridium tetani* is commonly found in moist and soil areas. So, they are infected easily by these bacteria. According to modern science, tetanus is caused by *Clostridium tetani*, when these bacteria enter the body, they produce a toxin 'tetanospasmin' which interferes with motor neurons, and causes painful muscle contractions. The incubation period of *Clostridium tetani* is between 4 -14 days which strikingly match with the fact that the person injured in the *Kalantara Pranhara Marma* will die within 15-30 days. Severe injury to the first plantar metatarsal artery or plantar arch may lead to excess blood loss; due to hypovolemic shock the death takes place suddenly.

Talahridaya Marma

The region of *Talahridaya Marma* has the presence of following structures:

- Plantar aponeurosis.
- Muscles - Flexor digitorum brevis, Quadratus plantae, Adductor longus (hallucis)- Oblique head.
- Nerves - Lateral plantar nerve
- Arteries - Lateral plantar artery
- Veins - Lateral plantar vein
- Ligaments - Long plantar ligament

When considered anatomically, the region of *Talahridaya Marma* comprises important structures viz. plantar aponeurosis, flexor digitorum brevis, quadratus plantae, adductor longus - oblique head and long plantar ligament.

These muscles working together assist in flexion of the great toe, eversion of foot and foot stability. The long plantar ligament contributes to the formation and stability of the longitudinal arch of the foot.

Any injury or trauma to this area leads to severe pain, restricts the eversion of foot and decreases the foot stability. If left unattended, this may lead to acute pain and gradual death.

Kurcha Marma

The region of *Kurcha Marma* has the presence of following structures:

- Plantar aponeurosis.
- Muscles - Interosseous muscles
- Tendons of - Flexor hallucis longus, Flexor digitorum brevis, Flexor digitorum longus, Extensor digitorum longus and brevis. Flexor hallucis brevis (lateral and medial head)
- Nerves - Medial plantar nerve, Fibular nerve (superficial and deep).
- Arteries - Medial plantar artery, Deep plantar artery, Dorsalis pedis arter.

Site of *Kurcha Marma* is assumed 2 *Angula* above the *Kshipra Marma*.

The structures present in this viz. Plantar aponeurosis, interosseous muscles, tendons of Flexor hallucis longus, Flexor digitorum brevis, Flexor digitorum longus, Extensor digitorum longus and brevis. Flexor hallucis brevis area are responsible for adduction-flexion-extension of 3-5th toes (through plantar interosseous muscles); plantar flexion and extension of big toe, digits and ankle joint; maintenance of longitudinal arches.

Any injury to this site may lead to the conditions similar to foot drop which occurs due to weakness or paralysis of muscles that dorsiflex the foot, often due to nerve injury (peroneal nerve).

Kurchashira Marma

The region of *Kurchashira Marma* has the presence of following structures:

(a) Lateral aspect of ankle joint

- Retinaculum - Superior and Inferior peroneal retinaculum, Inferior extensor retinaculum.
- Ligament - Calcaneofibular ligament.
- Muscles - Peroneus (Fibularis) longus and brevis.

(b) Medial aspect of ankle joint

- Retinaculum - Flexor retinaculum

Kurchashira Marma is said to be present on both sides of *Gulpha Sandhi*.

Anatomically, the retinaculæ (flexor-extensor-peroneal) and tendons (flexor-extensor) are present in this region. These structures represent the shape of the bristles of a brush. These structures represent the *Snayu* as explained in *Ayurved*.

Any injury at this site leads to *Ruja* (severe pain) and *Shopha* (Inflammation).

For instance, in tarsal tunnel syndrome, there is compression of tibial nerve within the fibrous tunnel due to some trauma under flexor retinaculum. This is associated with pain and paresthesia in the sole. As the pain is the chief complaint after the injury, it shows the *Rujakara* property – severe pain associated with inflammation of the *Koorchashira Marma*.

Gulpha Marma

The region of *Gulpha Marma* has the presence of following structures:

- Bones - Tibia, Fibula and Talus
- Joints - Joint between Tibia, Fibula and Talus
- Ligaments - Medial ligament, Lateral ligament (anterior talofibular ligament, posterior talofibular ligament and calcaneofibular ligament)

The region of *Gulpha Marma* can be correlated to the ankle joint which is responsible for locomotion, foot mobility and bearing of body weight.

Ankle joint is a modified hinge joint, which is a very

stable joint. It assists in dorsiflexion, plantar flexion, inversion and eversion of the foot.

As this region is prone to injuries due to a great variety of forces while walking, standing, running and jumping, any abnormally extensive force might cause sprain, fracture, ligament injury, etc. consequently leading to pain, stiffness and limping of the affected limb.

CONCLUSION

The topic of *Marma Sharir* is a very holds great significance in *Ayurved*. And, a thorough knowledge of the subject can be very helpful for application in the fields of traumatology, sports medicine, acupuncture, acupressure, etc.

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