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# A comprehensive study on Regional Anatomy of *Adho Shaakhaagata Maamsa Marma* by Cadaver Dissection and their Applied Anatomy

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## ABSTRACT

*Marma* is the meeting point where *Mamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi* along with *Prana* resides which on injury produce death or death like miseries. *Maamsa Marma* is one such category based on predominant *Marma Vasthu*. They are eleven in number. Among them four are present in *Adho Shakhaa* i.e., two *Talahrudaya* and two *Indrabasthi*. *Talahrudaya Marma* is located in the middle of *Paada* in the line of middle finger, which on injury causes *Ruja* and *Marana*. *Indrabasthi Marma* is located in the middle of *Janghain* the side of *Paarshni* and it causes death due to *Shonitha Kshaya*. Both of them are *Kaalantarapraanahara Marmas*. **Methods:** Literature regarding *Marma* and its *Viddhalakshana* were collected from various sources and its *Viddha Lakshanas* are analysed scientifically. Anatomical structures found in the region of *Adhoshakhaagata Maamsa Marmas* were confirmed with the help of cadaveric dissection in five bodies. **Results:** Muscles of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup>, layer of the sole, Medial & lateral plantar nerves, deep plantar arch, shielded by thick layer of skin, superficial fascia and plantar aponeurosis are the important structures present in the *Talahrudaya Marma Sthaana*. Superficial & deep calf muscles, posterior tibial vessels, peroneal vessels, tibial nerve and short saphenous nerve are the important structures present in the *Indrabasthi Marma Pradesha*. The *Viddha Lakshanas* are analyzed with applied aspects of these regions. **Conclusion:** Centre of the sole along the line of middle finger can be considered as the region of *Talahrudaya Marma* which on injury results in *Ruja* & *Marana*. *Indrabasthi Marma* is located in the middle of the *Jangha* (calf) in the side of *Paarshni* (heel) about 12 *Angula* above heel, which on injury results in *Shonitha Kshaya* & *Marana*.

**Key words:** *Marma*, *Talahrudaya*, *Indrabasthi*, *Maamsa*.

## INTRODUCTION

The science of *Marma* was more developed in war fields, as enemies were targeted by hitting arrow in vital areas by the warriors. Knowledge of *Marma* is

being adapted in field of health, spiritual practices, wound management and diseases.

*Marma* is a vital spot where *Maamsa*, *Sira*, *Snayu*, *Asthi*, *Sandhi* along with *Prana* unites. *Marma* on injury produces death or death like miseries.<sup>[1]</sup> *Acharya Sushruta* gave detailed information of *Marmas* by classifying them based on location, predominant *Marmavasthu*, *Pramana*, effect on injury.<sup>[2]</sup>

Based on predominant *Marmavasthu*, *Marmas* are classified into *Maamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi Marmas*.<sup>[3]</sup> *Maamsa Marmas* are 11 in number<sup>[4]</sup> and among them *Talahrudaya* and *Indrabasthi Marma* are located in *Adhoshakha*.

*Adhoshakha* is one among *Shadanga* which helps in the locomotion, postural balance, as well as for bearing

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weight and it is an area which is more prone for injury while walking, sports, war etc. Hence it is highly essential to have an idea about vital spots present in *Adhoshakha*.

In this study an effort is made to study the regional anatomy of *Adhoshakhaagata Maamsa Marma* with the help of cadaver dissection and their *Viddha Lakshanas* based on clinical anatomy for their better understanding.

### AIMS AND OBJECTIVES

1. To study the literature on *Adhoshakhaagata Maamsa Marma* and their applied anatomy.
2. To identify the regional anatomy of *Adhoshakhaagata Maamsa Marma* by cadaver dissection.

### MATERIALS AND METHODS

Literature regarding *Adhoshakhaagata Maamsa Marma* was collected from various books, journals, previous work done and it was analyzed scientifically. Anatomical structures found in the region of *Adhoshakhaagata Maamsa Marma* were identified with the help of cadaver dissection in five bodies. Photographs were collected. The observations were then correlated with *Ayurvedic* and contemporary views.

#### Assessment Criteria

Regional anatomy and *Viddha Lakshanas* of *Adhoshakhaagata Maamsa Marma* were studied with the help of cadaver dissection and literature study.

### OBSERVATION

The dissection of *Adhoshakhaagata Maamsa Marma* has been carried out in 5 cadavers as per the Cunningham's manual of practical. Dissection procedure was carried out layer by layer, and the structures were observed and studied thoroughly.

#### *Talahrudaya Marma*<sup>[5]</sup>

The plantar aspect of the middle of the foot was dissected in the region of *Talahrudaya Marma* layer by layer and the following observations were made

superficial to deep. Skin, Superficial fascia, Plantar aponeurosis, Flexor Digitorum Brevis, Medial Plantar Nerve, Lateral Plantar Nerve, Flexor Digitorum Longus, Flexor Digitorum Accessories, Oblique Head of Adductor Hallucis, Deep Plantar Arch and Tendon of Peroneus Longus.

#### *Indrabasthi Marma*<sup>[6]</sup>

The back of the leg in the region of *Indrabasthi Marma* region was dissected layer by layer and the following observations were made from superficial to deep. Skin, Superficial fascia, Short Saphenous Vein, Sural Nerve, Deep Fascia modified to form intermuscular septa, Gastrocnemius, Soleus muscle containing venous sinusoids, Posterior tibial vessels, Tibial nerve, Flexor digitorum longus, Flexor hallucis longus and Interosseous membrane between the Tibia and Fibula.

#### Location of *Talahrudaya Marma* and Location of *Indrabasthi Marma*

Fig. 1: *Talahrudaya Marma*

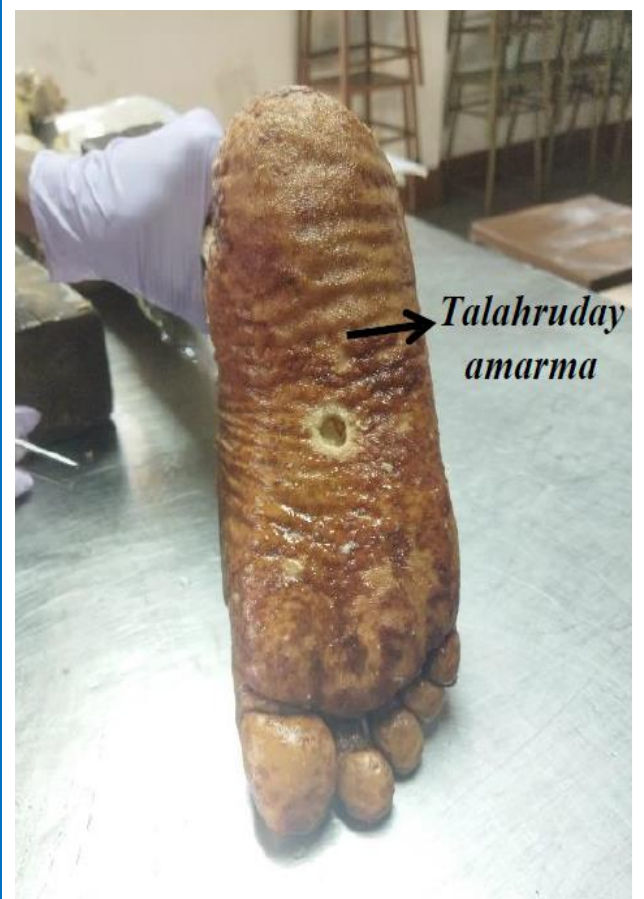


Fig. 2: Indrabasthi Marma



## DISCUSSION

### Discussion on Marma

Marma is a vital point in our body where Mamsa, Sira, Snayu, Asthi, Sandhi along with Parna meet. Which on injury produce death or death like misery.

Agni, Soma, Vayu, Satva, Raja, Tama, and Bhutatma are the Prana situated in Marma Pradesh. The Satva, Raja, Tama can be considered as Mano Gunas whereas Agni, Soma, and Vayu can be considered as the Shareerika Doshas. The Bhootatma is the Atma which is present in the Deha. The injury to the Marma Sthana will vitiate the Shareerika Doshas, which further disturbs the Manasika Gunas and finally they cause the destruction of Bhootatma resulting in Marana.

107 Marmas mentioned in the Samhitas<sup>[7]</sup> are grouped into different categories<sup>[8]</sup> based on Pramana as Ekangula Pramana, Dviangula Pramana, Triangular Pramana, Svapaanitala Pramana and Ardhangula Pramana Marma.<sup>[9]</sup> Based on predominance of Marmavasthu, they are classified as Maamsa Marma,

Sira Marma, Snayu Marma, Asthi Marma and Sandhi Marma<sup>[10]</sup> On the basis of location, Marmas are grouped as Shaakhagata Marma, Udaraurogata Marma, Prushtagata Marma and Urdhwajatrugata Marma.<sup>[11]</sup> Based on effect of injury they are classified into Sadhyopranahara, Kaalantharapranahara. Vaikalyakara, Vishalyaghna and Rujakara Marma<sup>[12]</sup>

### Talahrudaya Marma

#### Discussion on location

Talahrudaya Marma is situated in the centre of the sole in the straight line drawn from root of the middle toe or Madhyamanguli.

Pramana of Talahrudayamarma is  $\frac{1}{2}$  Angula.

Centre of the sole along the line of middle figure can be considered as the region of Talahrudayamarma.

#### Discussion on Marma Vasthu

**Maamsa Marma Vasthu** - flexor digitorum longus, flexor digitorum brevis, flexor digitorum accessories, oblique head of adductor hallucis, peroneus longus.

**Sira Marma Vasthu** - medial plantar artery, lateral plantar artery, deep plantar arch.

**Snayu Marma Vasthu** - medial plantar nerve, lateral plantar nerve, plantar aponeurosis.

**Asthi Marma Vasthu** - navicular and cuneiform bone, cuboid, metatarsal bones.

**Sandhi Marma Vasthu** - cuboideonavicular joint, cuneocuboidal joint, tarsometatarsal joints.

#### Discussion on Marmaviddha Lakshana

As Talahrudaya Marma Sthana contains predominantly muscles, hence it can be considered as Maamsa Marma. Injury to Talahrudaya Marma causes Ruja (severe pain) and Marana.

The symptoms may be due to following reasons.

1. As Sira, Dhamani are spread inside the Maamsa, whenever Maamsa is injured Rakta Srava will be seen. Due to Dhathukshaya, Vataprakopa will occur which results in severe pain and Marana.
2. As muscle tissue is the best culture media for growth of bacteria, in ischemic muscle the

anaerobic bacterial growth particularly clostridium can occur. It may produce severe painful condition and may be fatal as it leads to shock.

3. Traumatic shock is the shock caused by some external trauma which occurs due to damage of muscles and bones common in battlefields and road accidents. Myoglobin and some toxic substances are released from damaged muscles will damage the renal tubular cells leading to degeneration of renal tubules. Stimulation of somatic afferents from damaged muscles causes constriction of renal blood vessels resulting in renal failure.

### Indrabasthi Marma

#### Discussion on location

*Indrabasthimarma* is located in calf region of leg in the side of heel. It is situated about 12 *Angula* from heel in calf region.

#### Discussion on Marma Vasthu

**Mamsa Marma Vasthu** - gastrocnemius muscle, soleus muscle, flexor digitorum longus, flexor hallucis longus, tibialis posterior.

**Sira Marma Vasthu** - Small saphenous vein, deep veins, venous sinusoids, posterior tibial artery, peroneal artery.

**Snayu Marma Vasthu** - tibial nerve, crural interosseous membrane

**Asthi Marma Vasthu** - tibia and fibula.

**Sandhi Marma Vasthu** - middle tibiofibular joint

#### Discussion on Vidha Lakshana

As *Indrabasti Marma Sthana* contains predominantly muscles, it can be considered as *Mamsa Marma*. Injury to *Indrabasti Marma* causes *Raktakshaya* and *Marana*.

The symptoms may be due to following reasons.

1. As *Sira*, *Dhamani* are spread inside the *Maamsa*, whenever *Maamsa* is injured *Raktasrava* will be seen. Due to *Dhathukshaya*, *Vataprakopa* will occur which results in severe pain and *Marana*.

2. Soleus is considered as peripheral heart as it contains venous sinusoids within it, which is responsible for venous blood return. Deep to soleus posterior tibial vessels are situated. When calf region is injured, there may be profuse bleeding due to the rupture of venous sinusoids or posterior tibial vessels.
3. In myositis caused by anaerobic bacteria particularly clostridium, pain, swelling, edema, and toxemia usually develops within 48 hours which may further affect adrenals and can cause hypotension and death.
4. Traumatic shock is the shock caused by some external trauma which occurs due to damage of muscles and bones common in battlefields and road accidents. Myoglobin and some toxic substances are released from damaged muscles will damage the renal tubular cells leading to degeneration of renal tubules. Stimulation of somatic afferents from damaged muscles causes constriction of renal blood vessels resulting in renal failure.

### CONCLUSION

*Marma* is the meeting point where *Maamsa*, *Sira*, *Snayu*, *Asthi*, *Sandhi* along with *Prana* resides which on injury causes death or death like misery or pain. *Prana* here refers to the *Agni*, *Soma*, and *Vayu* i.e., *Shareerika Doshas*, *Satva Raja*, and *Tama* i.e., *Manasika Gunas* and *Bhootatma*. So, *Marma* is *Nivasa* for *Shareera Doshas* and *Manasika Gunas* which are *Adhara* for *Bhutatma*. *Marma* is classified into various types based on predominant *Marma Vasthu*, effect of injury, location and *Pramana*. *Maamsa Marma* is one such type based on predominance of *Marma Vasthu*. There are 11 *Maamsa Marmas*. Among them four are located in *Adhoshakha* i.e., two *Talahrudaya* and two *Indrabasthi* (one on each limb). Centre of the sole along the line of middle finger can be considered as the region of *Talahrudaya Marma*. It is a  $\frac{1}{2}$  *Angula Pramana*, *Kalantarapranahara Marma*. Muscles of 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> layer of the sole, Medial & lateral plantar nerves, deep plantar arch, shielded by thick layer of skin, superficial fascia and plantar aponeurosis are the

important structures present in the middle of the sole. This thick shield as well as bulk of muscles justifies the reason of classifying it as *Maamsa Marma*. Injury to them results in *Ruja & Marana* as a consequence of *Rakthadhatu Kshayajanya Vata Prakopa*. *Indrabasthi Marma* is located in the middle of the *Jangha* (calf) in the side of *Parshni* (heel) about 12 *Angula* above heel. It is a  $\frac{1}{2}$  *Angula Pramana*, *Kaalantarapranahara Marma*. Superficial & deep calf Muscles, posterior tibial vessels, peroneal vessels, tibial nerve and short saphenous nerve are the important structures present in the *Indrabasthi Marma Pradesha*. Bulk of calf muscles justifies the reason of classifying it as *Maamsa Marma*. Injury to these calf muscles which is considered as peripheral heart along with the vessels lying deep to these muscles results in *Shonitha Kshaya & Marana*.

## REFERENCES

1. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p371.
2. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p369.
3. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p369.
4. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p367.
5. B D Chaurasia's Human Anatomy, Vol 1. 5th edition. New Delhi: CBS Publishers & Distributors Pvt Ltd; 2020,Pp466, p123-32.
6. B D Chaurasia's Human Anatomy, Vol 1. 5th edition. New Delhi: CBS Publishers & Distributors Pvt Ltd; 2020,Pp466, p113-21.
7. Agnivesa. Vaidya Yadavji Trikamji Acharya, editor. Charaka Samhita revised by Charaka and Drdhabala with Sri Chakrapanidatta Ayurvedadipika commentary in Sanskrit. 5th ed. Varanasi: Chaukhambha Sanskrit Sansthan; 2008. Pp738, p697.
8. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p369.
9. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p375.
10. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p369.
11. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p370.
12. Sushruta. Yadavji Trikamji Acharya, editor. Sushruta Samhita with Nibandha Sangraha of Dalhanacharya. 8th ed. Varanasi: Chaukhambha Orientalia; 2008. Pp824, p370.

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