



**ANATOMICAL STUDY OF LOHITAKSHA MARMA BASED ON LOWER LIMB BY  
USING CADAVERIC DISSECTION METHOD**

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**ABSTRACT**

The detailed description of *marma* has been found in ancient *samhitas* i.e *Sushrut samhita*, *Charak samhita*, *Ashtang hridaya*. *Marma* is the site where *Mamsa*, *Sira*, *Snayu*, *Asthi*, *Sandhi* are collectively present. As per the description given in *sushrut samhita lohitaksha marma* is situated in both upper and lower limb, In lower limb it is situated in *urumool* above the *urvi marma* and below the *vankshan sandhi*. It is *Vaikalyakar marma* in *pariman* and according to *Rachanatmak* it is *Sira marma*. Therefore it is very essential to protect them from any injury or trauma during surgical procedure. Any Injury to this *marma* leading to *Lohitkshaya*, *pakshaghat*, *Maran* Therefore this study is carried out regional and Applied Anatomy of *lohitaksha marma* with the help of Cadaveric Dissection Method.

**KEYWORDS:** *Lohitaksha marma*, Femoral triangle.

**INTRODUCTION**

The word *Marma* is of Sanskrit origin *Mrin Maranae*. The Sanskrit phrase, —*Mriyatae asmin iti Marmal* means *there is possibility of death or serious damage to health*

- *Marma* is very important and unique concept of ayurved. This term *Marma* is initially used in Vedic literature of India i.e. *Atharvaved*, in connection with warriors ready to go to battlefield.<sup>[1]</sup> They are advised to make themselves fully equipped with required ornaments to protect the vital parts (*Marma*) of the body by the armor so that they may get the victory without having any injury on his vital part of the body. If any injury to the *marma* regions that lead deformity of structures produces the sever pain in the *marma* region, loss of movement, trauma to the local structures and even sometime there may be death. According to acharya Sushrut The *marma* sthan is the site of *mamsa*(muscle), *sira* (vessel), *snayu*(ligament), *asthi*(bone), and *sandhi* (joint).<sup>[2]</sup>

Classification of *Marma*- There are 107 *Marmas* given in *Samhita* is being classified into 5 types on the basis of structural involvement 1 *Mamsa marma*(11), *Sira marma*(41), *Snayumarma*(27), *Asthimarma* (08), and *Sandhi marma*(20). Another classification of *Marma* is on the basis of after- effect of injury to *Marma* these are as follows,

- 1) *Sadhya Pranhara Marma* (19) (causing sudden death),
- 2) *Kalantar Pranhara Marma* (33)(death after

- some time),
- 3) *Vishlyaghna Marma* (03) (type of *Parinam*),
- 4) *Vaikalyakara Marma* (40) (causing deformity),
- 5) *Rujakar Marma* (08)(causing pain).<sup>[3]</sup>

Etymology- the term *Lohitaksha* suggests that the *Marma* sites may look like bloody appearance of eyes (applied for blood vessels), *Lohita* (red) *Akhsa* (axis) all blood vessels in axis.<sup>[4]</sup>

As per the description given in *sushrut samhita lohitaksha marma* is situated in both upper and lower limb, In lower limb it is situated in *urumool* above the *urvi marma* and below the *vankshan sandhi*. It is *Vaikalyakar marma* in *pariman* and according to *Rachanatmak* it is *Sira marma*. Therefore it is very essential to protect them from any injury or trauma during surgical procedure. Any Injury to this *marma* leading to *Lohitkshaya*, *pakshaghat*, *Maran*.<sup>[5]</sup>

**AIM**

To Study the Anatomical Consideration of *Lohitaksha Marma* By Using Cadaveric Dissection Methods.

**OBJECTIVE**

1. To study the *Lohitaksha marma*.
2. To Study the Anatomical Structures in around area of *lohitaksha marma* according to Modern science.
3. Being a *Sira marma* to study the *Viddha lakshan/ Applied Aspect of Lohitaksha marma* in view of femoral vessel.

**MATERIAL AND METHODOLOGY****• Material**Literary Study *Marma*

Literature Available from Ayurved and Modern Text.

Cadaveric Study

Cadaver – 1 Male Cadaver

1 Female Cadaver

Instrument – Dissection Kit

**• METHODOLOGY**

1. Literary study of *lohitaksha marma* was done using all concerned ayurved text book.
2. Identification of *lohitaksha marma* on Cadaver.
3. Dissection of 1 male and 1 female cadaver was done with the help of dissection instrument around *lohitaksha marma* (femoral vessels) at dissection hall of department of Rachana Sharir Government Ayurved College Nanded, Maharashtra.

**Review of Literature**

There are 107 *marma* located at different places all over body.

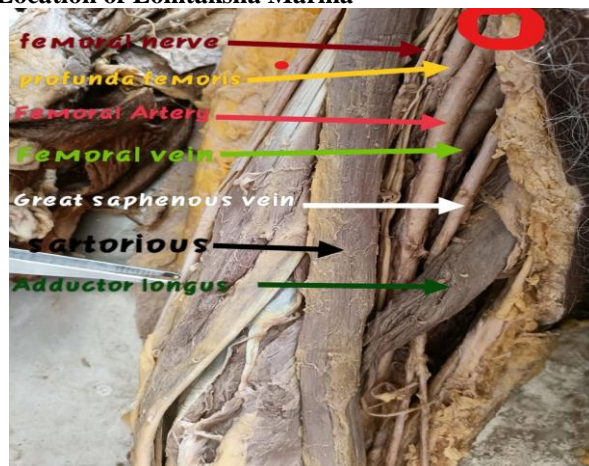
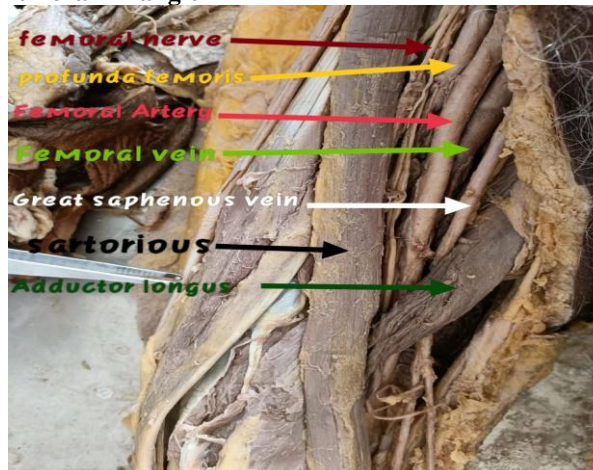
"*Vishamam spandanam yatra pidhite ruk cha marma tat*" The point where irregular pulsation and pain is felt upon pressure are called *marma*.<sup>[6]</sup>

**Defination of Lohitaksha Marma**

"*Urva urdhawam adho Vankshan sandhi uru moole lohitaksham*". It is located Exactly Above the *Urvi marma* (Located in the thigh Above the Knee joint) Below the *Vankshan Sandhi* (Hip Joint) at the root of thigh.<sup>[7]</sup>

**Inclusive Criteria<sup>[8]</sup>**

- *Samastagatram*- Cadaver having all its part intact.
- *Avishopahat*- Dead not caused by poison
- *Adirghavyadhipiditam*- Dead not caused by Chronic diseases.
- *Avarshatik*
- Cadaver of both sex.

**Identification of Area –Lohitaksha Marma****Location of Lohitaksha Marma****Femoral Triangle****DISCUSSION**

- Location - Above the *Urvi marma* and

Below the *Vankshan Sandhi*.

- Number – 2 in lower limb
- According to *Abhighat parinam* -Vaikalyakar
- According to Structure (*Sanrachana*) - *Sira marma*
- According to Measurement (*praman*) – *Ardha Angula* (one angula = 1.20 cm)

### Urumool in View of Modern Science Femoral Triangle<sup>[9]</sup>

- Femoral triangle is a triangular depression on the front of the upper one-third of the thigh immediately below the inguinal ligament.
- Boundaries-The femoral triangle is bounded Sartorius, Adductor longus, Base, Apex.
- The floor of the triangle is formed medially by the adductor longus and pectineus, laterally by the psoas major and iliacus.

### Content of Femoral Triangle

1. Femoral artery and its branches.
2. Femoral vein and its tributaries.
3. Femoral Nerve.
4. Lymphatic nodes

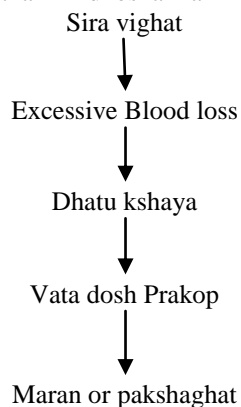
### Vidha lakshan /Applied Aspect

- When *Vaikalyakar Marma* are injured, the person suffers deformities only, if it is protected by efficiency of the physician.<sup>[10]</sup>
  - *Lohitaksha Marma vidhya lakshan-*
1. According to Acharya Sushrut "*Tatra lohita kshayen Maranam pakshaghato va*" Any Injury to this *marma* leading to *Lohitkshaya* which cause *pakshaghat, Maran*.<sup>[11]</sup>

2. According to Acharya Ashtang hriday "*Tat vidhan pakshat hatyasrukshyat vydhe satyapit*"
- Injury to this *lohitaksha marma* may leads to *Pakshaghat* (Paralysis) of limb due to sever blood loss (*Lohita kshaya*).<sup>[12]</sup>
- **Importance of Rakta**  
"*Dehasya rudhiram mulam rudhirenevardhayate tasmay yatnen sanrakshan raktajiva iti sthithi*" .*Rakta* is the *mula* of *sharir*.<sup>[13]</sup>

### Samprapti

- Dosh - Vatadosh prakop
- Dushya -Rakta
- Srotas - Raktavahastrotas
- Udhbhavsthan -Urumool , Vankshan sandhi
  - Vyaktasthan - Adhoshakha



### Modern Aspect

- Injury (viddha) to Structure

- Most Commonly injured vessels are femoral vessels and this injury caused by penetration (Gunshot / Stabbing).

### 1. Femoral Artery<sup>[14]</sup>

PAD (Peripheral arterial Diseases)

- Most common site of Involvement are Superficial and Common Femoral Artery.
- Symptoms :- Claudication in Thigh and Calf, Cold, Discolored Extremities, Gangrene or Necrosis.

Complication of femoral Artery

- Hematoma, Pseudoaneurysms, Retroperitoneal Hemorrhage.

Common Femoral Artery Atherosclerosis is a common cause of claudication And Critical limb Ischemia.

Severe Haemorrhage  $\implies$  Hypovolemic  $\implies$  Shock  $\implies$  Death.

### 2. Femoral Vein

Vein injured – Air entry into venous circulation - Air embolism – Death , Pulmonary Embolism .

### 3. Femoral Nerve

Acute limb Ischemia – The Six Ps (Pain, Pallor, poikilothermia, Pukselessness, Parasthesia, Paralysis) are the classic presentaton of acute arterial occlusive in patient.

### CONCLUSION

- On the Basis of Location- Above the *Urvi marma* (Located in the thigh Above the Knee joint) Below the *Vankshan Sandhi* (Hip Joint ) at the root of thigh.
  - On the Basis of Dissection –The anatomical structures to be considered under the *Lohitaksha Marma* in the lower limb are part of the femoral artery where the origin of profunda femoris is seen along with accompanying femoral vein and a part of femoral nerve.
  - On the Basis of *Viddha Lakshan-*
1. *Maran* - due to *Rakta Kshaya*. The Rakta nourishes the further Dhatu. So, loss of Rakta will lead to death.
  2. *Pakshaghat* -The *Pakshaghata* is considered as pertaining to that particular limb, which is injured, caused due to increased blood loss leading into ischemia and paralysis or due to the injury of the surrounding nerves.

### • By Comparing Structures found

Hip joint is lying 1.2 cms below the inguinal ligament and just below the joint there is angulation between neck and shaft of femur. On the basis of these features and classical description the location of Marma can be exacted between hip joint and neck shaft angle of femur. In these mentioned areas mainly femoral artery, vein with femoral sheath and femoral nerve is seen.



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