

OBSERVATIONAL STUDY OF ANKLE JOINT LIGAMENT INJURY WITH SPECIAL REFERENCE TO VIDHA LAKSHANA OF CORRESPONDING SNAYUMARMA**[Rucha Pawar¹](#), [Vinod MChoudhari²](#)**¹PG scholar, Dept. of Rachana Sharir, Shri AyurvedMahavidyalaya, Nagpur, India²Professor and HOD, UG, PG& Ph.D. Dept of Rachana Sharir, Shri AyurvedMahavidyalaya, Nagpur, India.**Corresponding Author:** vmchoudhari72@gmail.com<https://doi.org/10.46607/iamj3010062022>**(Published Online: June 2022)****Open Access**

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Article Received:24/05/2022 - **Peer Reviewed:** 08/06/2022 - **Accepted for Publication:** 20/06/2022**ABSTRACT**

Ayu means to join the individual with the entire lifecycle beginning from birth to death. *Marma* is one of the important considerations as per *Ayurveda* which plays a significant clinical role and may be correlated to acupressure/acupuncture. *Marma* is a common topic in three great *Ayurveda* classics of *Charak*, *Sushrut*, and *Vagbhata*, which provides wealth of information on their location, function, and application. Different types of muscles, veins, bones, ligaments, and joints meet with each other at the *Marma* point thus these points act as a physiological junction.

Keywords - *Ayurveda*, *Marma*, *Acupressure*, *acupuncture*.**INTRODUCTION**

Ayurveda is an ancient science of life. The great thinkers of *Ayurveda* devoted their time to the maintenance and longevity of life and freedom from disease. *Ayurveda* deals with the scientific study of the subject *Rachana Sharir* (Human Anatomy) in details. *Sushruta Sharirsthana* has great anatomical importance, therefore it is said that *Sharirsthana* of

Sushruta Samhita is the best. To achieve the purpose of life i.e., *Dharma*- following the path of righteousness, *Artha*- earning money in a legal way, *Kama*- fulfilling our desire, *Moksha*- achieving salvation⁽¹⁾. *Marma* is a unique concept of *Ayurvedic sharir*. First and foremost, the literature of *Marma* is seen in *Brihatrayee* which is described in the *Sushrutasa-*

hitaSharirsthana Sixth Adhyay. Acharya Sushruta has described 107 *Marmas* & their anatomical classification.

According to Acharya Sushruta, the five anatomical structures are basically & essentially involved in *Marma*. These structures are- *Mamsa*, *Sira*, *Snayu*, and *Asthi & Sandhi*. *Marma*(Fatal spots) of the ankle joint are *Kshipra* - In between the big toe and the next toe, there is a *Marma* by the name *Kshipra*. *Kurcha* - Situated above the *Kshipramarma*, on both sides are present fatal spot by name *Kurcha* *Kurchashira* – Below the ankle joint, on, both sides are situated fatal spots by the name *Kurchashira*.

Symptoms of *Aghat* over *Snayumarmas* are- *Aayam*, *Aakshepaka* (convulsions), *Jadata*(heaviness), *Vedana*(pain), *Vikalata* (deformity), *Mrityu*(death). Knees, Ankle & Hip joints are the most complex joints of the body and these are the weight-bearing joints. Most of the ligaments are present in these joints. And in accidental trauma, the bones and ligaments of these joints get ruptured. So, the study of ligament injury is very important. Detailed *Viddhalakshana* of *Snayumarma* are not described in *Ayurvedic* texts. Though the concept of *Marma* is related to Traumatology. Hence it is necessary to ex-

plore the ancient concepts on the modern platform on the basis of scientific study.

AIM: Study of Ankle joint ligament injury with special reference to *Viddhalakshana* of corresponding *Snayu Marma*.

Objectives:

- 1) To study the ligament injury of the Ankle Joint with special reference to *Viddhalakshana* of the corresponding *Snayumarma*.
- 2) To study the type of ligament injury of the ankle joint.
- 3) Literary study of *Snayumarma* in detail.

Material & Methods

1. Available literature from *Ayurvedic* texts about *Snayumarma* was studied & its related literature from modern anatomical books.
2. Dissection was done to determine anatomical structures of the Ankle joint and *Snayumarmas* related to the Ankle joint.
3. An observational study was assessed on 35 diagnosed patients with ankle joint ligament injury.
4. Signs and symptoms of ligament injury of the Ankle joint & *Viddhalakshana* of the corresponding *Snayumarma* were examined.

Assessment parameters:

Table 1: Examination of joints

<i>Lakshana</i>	Signs and Symptoms
1. <i>Ruja</i>	1. pain
2. <i>StabdhaPadata</i>	2. Restriction of movements
3. <i>Aachake</i>	3. Crepitus
4. <i>Dhanurvata</i>	4. Shopha
5. <i>Khanjata</i>	5. Instability of joints
	6. Limitation of extension
	7. Limitation of flexion

- ***Snayumarma Viddhalakshana:*** Symptoms of *Aghat* over *snayumarma* are- *Dhanurvata*, *Stabdhapadata*, *Jadata*(heaviness), *Vedana* (pain), *Vikalata* (deformity) or *Mrityu*(death).
- ***Kshipramarma Viddhalakshana:*** *Akshepaka*, *Maran*. ***Kurchashiramarma Viddhalakshana:*** *Ruja*,

Shopha. *Kurchamarma ViddhaLakshane:* *Bhraman*, *Aachake*.

Review Of Literature

The term *Marma* means *Pran*, *Jiva*, or *Life*. *Marma* word is derived from *Mru* (*Mrityu*) or death.⁽²⁾ Death or serious damage may occur after infliction to these vital places. *Marma* is a speciality of *Rachana Sharir*⁽³⁾. An injury on *Marmas* cause death if one is saved

after an injury to *Marmas* due to an expert treatment by a wise surgeon, the patient is prone to suffer from disabilities. Therefore, *Sushruta* quoted that the complete knowledge of *marmas* is equivalent to half of the knowledge of *Shalya Tantra* (Surgery)⁽⁴⁾. *Marma* is that place that has unusual throbbing and pain on the touch. The *Marmas* (vital spots) are so-called because they cause death⁽⁵⁾.

Acharya Sushruta has defined *Marma* as-*Marma* is a confluence of muscles (*Mamsa*), veins (*Sira*), ligaments (*Snayu*), bones (*Asthi*), joints (*Sandhi*) in these places *prana* (life) resides specially by nature, hence when fatal spots are injured, they produce their respective effects⁽⁶⁾. *Marma* is the point where *Prana* is most concentrated. Among the above-mentioned anatomical structures, a *Marma* may not consists of all the five always, even when they are in junction or *Sandhi* between any two of them the point can be called as *Marma*⁽⁷⁾.

Classification of Marma:

Acharya Sushruta has described the anatomical classification of *Marma* as follows-*Mamsa* – 11, *Asthi* – 8, *Sira*- 41, *Sandhi* – 20⁽⁸⁾, *Snayu*-- 27

Names and distributions of *Marmas* in lower limb:

The *Marmas* which are situated in each leg are known as *Kshipra*, *Talahradaya*, *Kurcha*, *Kurchashira*, *Gulpha*, *Indrabasti*, *Janu*, *Aani*, *Urvi*, *Lohitakshaya* & *Vitapa*⁽⁹⁾.

Marma (Fatal spots) of the ankle joint are *Kshipra* - In between the big toe and the next toe there is a *Marma* by the name *Kshipra*; injury to this causes death from convulsions. *Kurcha*- Situated above the *Kshipramarma*, on both sides are present a fatal spot by the name *Kurcha*; this when injured produces difficulty in walking and bending the foot.

Kurchashira – Below the ankle joint, on both sides are situated fatal spots by the name *Kurchashira*; injury to these produces pain and swelling.

Snayumarma

According to *Sushruta*, *Snayumarma* is 27 in number. These are: -

- | | |
|---------------------------|---------------------------|
| 1. <i>Aani</i> – 4 | 6. <i>Kurchashira</i> - 4 |
| 2. <i>Vitapa</i> – 2 | 7. <i>Kshipra</i> - 4 |
| 3. <i>Kakshadhara</i> – 2 | 8. <i>Ansa</i> - 2 |

- | | |
|----------------------|------------------------|
| 4. <i>Kurcha</i> - 4 | 9. <i>Utkshepa</i> - 2 |
| 5. <i>Basti</i> – 1 | 10. <i>Vidura</i> – 2 |

Out of these 27 *Snayumarma*, 2 *Kurcha*, 2 *Kshipra* & 2 *Kurchashiramarma* are associated with the ligaments of the ankle joint. No injury to the fatal spots is either mildly dangerous or un-dangerous, all injuries produce either deformity or death generally⁽¹¹⁾.

According to *Ashtang Sangraha* *Snayumarma* are 27 in number. They are as follows: *Kshipra*, *Kurcha*, *Kurchashira*, *Vitapa*, *Kakshadhara*, *Aani*, *Basti*, *Ansa*, *Vidhura*, and *Utkshepa*⁽¹²⁾.

Snayumarma Viddhalakshanas are:

Symptoms of *Aghat* over *Snayumarma* are- *Aayam*, *Aakshepaka* (convulsions), *Jadata*(heaviness), *Vedana*(pain), *Vikalata* (deformity) or *Mrityu*(death)⁽¹³⁾.

Ligaments

The anatomical study of the ligaments is known as *Desmology*.

A ligament is a fibrous connective tissue that connects bones to other bones. It is also called as articular ligament, articular Laura, fibrous ligament, or true ligament.

Ligament Injury

Common causes of the ligament injury include twisting or landing awkwardly. It is most common when the ligament around the particular joint is at full stretch & can cause it to tear away from the bone. The most common torn ligaments are Knee and Ankle ligaments.

Irregular exercise i.e., a person who indulges in exercise discontinues it for a short period then restarts, is more prone to have knee joint ligament injury⁽¹⁴⁾.

Ankle sprains are one of the most common musculo-skeletal injuries. In all sports injuries, the rate of ankle sprain ranges from 15% to 20%.

Classification

Sprains are classified into 3 degrees –

- 1) First-degree sprain: - Is a tear-off only a few fibres on the ligament. It is characterised by minimal swelling, localised tenderness but little functional disability.
- 2) Second-degree sprain: - Is the one where anything from a third to almost all the fibres of a ligament are disrupted. The patient presents with pain, swelling,

and inability to use the limb. Joints movements are normal.

- 3) Third-degree sprain: - Is a complete tear of the ligament. There is swelling and pain over the torn ligament. *Marma* is defined as a conglomeration of *Mamsa, Sira, Snayu, Asthi,* and *Sandhi*. There is a need to explore the structures involved in the *Snayumarma* of the lower limb as told in the definition. Being classified under the heading of *Snayumarma*, the relation of the *Snayu* present in these *Marmas* & their effect on injury may be critically analysed for a better understanding of the regional anatomy of these *Marma*.

DISCUSSION

The present research work “**Observational Study of ankle joint ligament injury with special reference to vidhdhalakshana of corresponding Snayumarma**” was undertaken to establish the relation between the symptoms of ankle joint ligament injury with *Vidhdhalakshana* of corresponding *Snayumarma*.

Criteria for selection of patients:

1. Willing patients of both genders having age group between 20-60 years were included.
2. Patients having injury due to any type of trauma to the ankle joint having both open and closed wounds were included.
3. Patient having poliomyelitis, crushed injuries, injuries to other joints were excluded.
1. **Age:** all 35 patients included in the study were divided into 4 age groups viz 21-30, 31-40, 41-50, 51-60 years. Out of them, the fourth group contains the highest numbers i.e. 11(31.43%). In the older age, bones lose density and strength, which leads to a greater risk of fractures. And visual impairment can also be a factor in old age. So, here we can say that the age group between 41-60 is at high risk for injuries.
2. **Sex:** Out of 35 patients there were 23(65.71%) males and 12(34.29%) females. As there is higher male participation in various social and economic activities, such participation would imply higher degrees of movement and travel. So, here we can say that males are more prone to accidental trauma.
3. **Site of injury:** According to the site of injury, out of 35 patients, 22 patients had an injury to the

right ankle and 13 (37.14%) patients had an injury to the left ankle.

4. **Nature of ligament injuries:** The commonest type of injury is sprain affecting 31 (88.57%) patients followed by sprain with fracture of ligament wall in 4 (11.43%) patients. In the study of 35 patients, the most common injury found is a sprain, in ankle joint injury, mostly ligaments get torn, and ligament tear is mostly included in a sprain.
5. **Affected Marma:** Out of 3 *Snayumarma* related to ligaments of ankle joint. The most affected *Snayumarma* is *Kurchashiramarma* 30(85.71%), *Kshipramarma* was affected in 3(8.57%) patients, *Kurchamarma* affected in 2 (5.71%) patients. The location of *Kurchashiramarma* is below the ankle joint as described above, it is correlated with lateral ligaments of the ankle, and mostly the lateral ligaments got teared, so here we can say that the most affected *Snayumarma* is *Kurchashiramarma*.
6. **Marmavidhdhalakshanas:** While over viewing the *Marmavidhdhalakshanas Ruja* and *Stabdhapadata* are observed in all 35 patients followed by *Dhanurvata* in 20 (57.14%) patients.

The other *lakshanas Aachake* 11 (31.43%), *Khanjata*8 (22.86%) were also found.

Most ankle joint injury patients have ankle sprain due to forcefully inversion, twisting of the ankle joint. On the basis of symptoms, most of the patients are found to have the distressing and horrible type of pain with restrictions of movements as they are the most common symptoms of an ankle sprain.

It means, most of the patients having sprain of the lateral side of ankle joint and lateral collateral ligament got injured.

- In association of five *Marmavidhdhalakshanas* with *Kshipramarma* - Weak but significant agreement was found between observed *Khanjatalakshana* and *Kshipramarma*.
- Association of five *Marmavidhdhalakshanas* with *Kurchamarma*- Fairly good and significant agreement between *Khanjatalakshana* and *Kurchamarma*.
- Association of five *Marmavidhdhalakshnas* with *Kurchashiramarma*- weak, negative and non-significant agreement observed between *Khanjatalakshana* and *Kurchashiramarma*.

CONCLUSION

In modern texts, the signs and symptoms of ankle joint ligament injury are already mentioned, in the

present research work 35 diagnosed patients with ankle joint ligament injury were examined, and in this examination, it is observed that *Kurchashiramarma* was mostly affected in most of the patients and *Viddhalakshana* of these three *Marmas* are significantly related with the signs and symptoms of ankle joint ligament injury.

- Ankle joint ligament injury was studied.
- A detailed literary study of *Snayumarma* was done.
- From the above statistical data, it is proven that there is a significant relation between symptoms of ankle joint ligament injury and *Snayumarma-viddhalakshanas*.

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