



UNDERSTANDING THE SAMPRAPTI OF ANKLE SPRAIN ACCORDING TO AYURVEDA

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ABSTRACT

Ankle Injuries are a common medical problem. Many people have a traumatic injury in the ankle, most of which are a result of sports. In classics there are no direct references regarding sprain and its management. *Acharya Sushruta* in his classic of *Asthi Bhagya* has explained "*Patanabhighatadwa*" which means *Patana*, *Abhighata* are the causes of traumatic injuries. He has mentioned about *Lepana karma* as the primary *chikitsa* in these types of injuries. It can be co-related to *Agantuja janya Sotha* and *Marmabhighata* according to *Ayurveda* considering the signs and symptoms and the principle of management.

KEYWORDS : Gulpha sandhi, Sotha, Marma, Sprain

INTRODUCTION:

History of traumatic injury is as old as the existence of mankind. Trauma and its management depends on the types and severity of tissue injury. Whenever the physiology and anatomy of the tissue tend to be altered, it resists and reacts to the stimulus. Different *Acharyas* have mentioned about the words like *Patana* (fall), *Abhighata* (injury) which can be considered as an aetiology of the soft tissue injury. Trauma is very common condition, almost each and everyone suffers from it once in their life. Soft tissues are more prone to injuries in comparison to other tissues. The commonly occurring traumatic injuries are sprains, strains, synovitis, fractures, dislocations etc. however, the ankle joints wrists joints and interphalangeal joints are more prone to these kinds of injuries.

Anatomical Consideration of Gulpha Sandhi Shareer

Definition: Union of Two or more bones is called *Sandhi*
Synonyms: *Gulpha*, *Khulaka*, *Khudaka*, *Khallaka* and *Kuduka*.

Bhava Sambandhi: *Asthi*, *Snayu* are considered as *Pitruja Bhava*.

Asthi Sambandhi: According to *Sushruta* total number of *Ashti* in *Pada* is twenty-six, among them ten *Asthi* in *Talakurcha* (Talus) and one in *Parshni* (Calcaneus).

Acharya Caraka mentions that *Gulpha Sandhi* is formed by *Gulphasthi* (talus) below and *Janghasthi* above.

Sandhi Sambhandi : *Gulpha* is a *kora sandhi* (Hinge joint). *Acharya Sushruta* tells *Gulpha Sandhi* is present between the *Gulphakarma*. *Acharya Dalhana* narrates *Gulpha Sandhi* is present between *Pada* and *Jangha*. *Acharya Gananath Sena* explains that *Gulpha Sandhi* is situated below the *Janghasthi* and also called as *Pada Sandhi*.

Sandhi Viddha Lakshana:

When *Sandhi* is injured there will be increased swelling, severe pain, splitting type of pain in the small joints, loss of strength, edema and loss of function in joints.

Peshi Sambandhi:

As the *Peshi* cover the *Sira*, *Snayu*, *Asthi*, *Asthi Parva* and *Sandhi* they give strength and stability to them. In the *Gulpha Sandhi* there are 10 *Peshi*

Marma: *Marmas* are the vital points in the body. Any injury to this produces pain, disability of the injured part of the body, loss of movement or sometimes there may be a death.

The injury to the *marma* makes symptoms like pain, deformity of the organ, loss of movements. Severe type of intolerable pain in the body.

GULPHA MARMA:

Gulpha is the important joint in the leg present at the junction of leg and foot. *Gulpha Marma* is present at the junction of *Pada* and *Jangha*.

- According to **Rachana** – It is a *Sandhi Marma*.
- According to **Pramana** – *Acharya Dalhana* has specially documented the measurement of this area of two *Anguli*. This description draws the attention towards Ankle joint.
- According to **Sankhya** – They are two in number, one in each foot.
- According to **Avayavabheda** – It is a *Sakthi Marma*.
- According to **Amarkosh** *Gulpha* means *Padasya granthi*.
- According to **Parinama** – It is *Rujakara Marma* and produces the symptoms as *Ruja* (pain), *Stabdha Padata* (stiffness of joints) or *Khanjata* (limping).

All *Marmas* have *Soma*, *Vayu*, *Teja Mahabhuta* with *Satva*, *Raja* and *Tama Guna* in them. *Rujakara Marma* has *Vayu* and *Agni Guna* predominance, both of which produce pain. *Ruja* means pain *Acharya Sushruta* says that the *Gulpha* is seat of *Ruja*. The ankle joint is formed by ligaments, tendons, periosteum and apophyseal joints which are rich in nociceptive receptors. Therefore sprain is more intensely painful than bony fractures.

Injury to the ankle joint can occur at three different levels that is tendons, ligaments and bones. The ligaments are predominantly injured in sports. Ankle joint is one of the most frequently injured areas of the body, since this being the connecting link between stable leg and mobile foot. *Gulpha Sandhi* is subjected to great variety of forces in standing, walking and running. twisting or excessive forces produce injury to the bones and ligaments. Sports injuries are one of the commonest events producing fracture, dislocation and sprain.

There are 8 *ruja kara marmas* in the body.

Gulpha 2 *manibandha* 2 *kurchachira* 4

The *rujakaara marma* has *agni* and *vayu guna pradhanya*, if there is injury to the *ruja kara marma sthana* the *agni* and *vayu guna* becomes *prakopa* and causes severe pain in the *marma sthana*.

Structural study of Gulpha Marma shows 5 compositions as

is correlated as:

Mamsa- Fibularis (peroneus) longus, fibularis brevis, superior fibular (peroneal) retinaculum

Sira- Perforating branch of Fibular (peroneal) Artery, Fibular nerve

Snayu- Lateral ligament of the ankle which consists of these ligaments:

1. Anterior talofibular ligament
2. Calcaneofibular ligament
3. Posterior talofibular ligament.
4. Medial malleolar ligament
5. Fibulocalcaneal ligament
6. lateral Talo calcaneal ligament

Asthi – Tibia, Lateral malleolus of Fibula and Talus.

Sandhi - Joint between Tibia, Fibula and Talus.

As we know *Gulpha Marma* is *Rujakar Marma* and after *Aghata* over *Gulpha Marma* symptoms appears *Ruja* (pain), *Stabdhapadata* (restricted movement) and *Khanjata* (functional deformity). According to Severity *Khanjata* is most severe symptom of *Aghata* over *Gulpha Marma*.

The articulation between the tibia and the talus bears more weight than that between the smaller fibula and the talus. So after *Aghata* over ankle joint maximum chances of injury in lateral side or fibulotalar joint as tibiotalar joint is more stable than fibulotalar joint and lateral collateral ligament is weaker than medial collateral ligament. So the *Ruja* on the lateral side is more than medial side.

A sprained Ankle is nearly always an inversion injury involving twisting of the weight bearing planter flexed foot. The lateral ligament is injured because it is much weaker than the medial ligament that resists inversion at the Talocrural joint.

Ankle sprain is the term used for ligament injuries of the ankle joint. Commonly, it is an inversion injury, and the lateral collateral ligament is sprained. Sometimes, an eversion force may result in a sprain of the medial collateral ligament of the ankle. This condition gives rise to tremendous pain which is associated with all joints. But there is high prevalence in ankle joint. So it is clear that ankle sprain is ligament injury and ligament is important part of *Sandhi* so if ligament is injured than the chances of *Sandhi* injury increases.

The main bones of the ankle region are the Talus (in the foot), and the Tibia and Fibula (in the leg). The talus is also called the ankle bone. The talocrural joint is a synovial hinge joint that connects the distal ends of the Tibia and Fibula in the lower limb with the proximal end of the Talus. The articulation between the Tibia and the Talus bears more weight than that between the smaller Fibula and the Talus.

So after comparing the *Ayurvedic* and modern view we conclude that the exact location of *Gulpha Marma* is nothing but the joint between tibia, fibula and talus and other structures related to lateral aspect of Ankle joint.

Kurchasira Marma

Kurchasira marma is one of the and vital points of the body located in the hands and feet.

Kurchasira marma are four in number.

- 1 each on one right and left hand – 2
- 1 each on the right and left foot – 2

Location

In lower part of the limb – It is locate distal to the *Gulpha sandhi* (Ankle Joint) of both feet.

Categories:

Kurchasira marma is classified in various categories.

Sakhagata marma : *Sakha* means limbs. Since *Kurchasira marma* is located in both upper and lower limbs they are classified in *sakhagata marmas* i.e *marmas* located in the *sakha*. They are present in the hands and feet.

Snayugata marma : *Kurchasira marma* is predominantly made up of *snayus* i.e tendons and nerves. Therefore it is classified under *snayu marma*.

Rujakara marma : *Ruja* means pain and *kara* means causing. These *marma* cause severe pain on getting damaged. *Kurchasira marma* on getting injured causes *ruja* or pain in the hands (upper limbs) and Feet(lower limb) depending upon the site at which *marma* is injured. Since the *marma* causes pain and deformity it is classified as *Rujakara marma*.

Pramana : The *pramana* of *Kurchasira marma* is 1 *angula*.

Effect of injury : Ruja, Sopha

Injury to the *kurchasira marma* causes *sopha* (swelling), *ruja* (pain)

Modern persepective of Kurchasira marma

Structures falling under *kurchasira marma*

Lower Limb

- Deltoid ligament
- Talo calcaneal ligament
- Calcano fibular ligament
- Annular ligament
- Tendon of tibialis anterior muscle

The muscles blood vessels and the other tissues are also present in the area comprising of *kurchasira marma* but the *marma* is rich in ligaments , tendons and nerves. Therefore it is said to be *snayu marma*.

When *kurchasira marma* is injured, all the structures involved in any place of *marma* i.e *sira*, *asthi*, *mamsa*, *sandhi* may be susceptible for damage but the *snayu* which make up the *Kurchasira marma* tends to get severely injured in comparison to other structures.

Snayu Marma Viddha Lakshana

When *Snayu Marma* is injured, there will be bending (contractions) of the body, convulsion, severe pain, and inability for riding, sitting etc, distortions or even death.

आयामाक्षेपस्तंभाः स्नवजेऽभ्यणघकं रुजा।

यानस्थानासनासनाशक्ति वैकल्यमयवान्तकः॥ अ हू शा ४/४८

Classification Gulpha and Kurchasira Sandhi

Sl. No	Bheda	Gulpha Marma	Kurchasira Marma
1	Rachana	Sandhi Marma	Snayu Marma
2	Avayavabheda	Sakthi Marma	Sakthi Marma
3	Pramana	Two Angula	One Angula
4	Parinama	Rujakara Marma	Rujakara Marma
5	Sankhya	Two	Two

Disease review

The trauma and its management is mainly dependant on the tissues and injury and its responses. Whenever the physiology and anatomy of any tissue is altered it resists and reacts to the injury. *Ruja* (pain) is the first sign of morbidity of any tissue, this phenomenon has already been observed by the father of surgery *Sushruta*. The micro anatomy of the structure is altered affecting the physiology of the tissue and the functioning condition. *Gulpha marma* and *kurchasira marma*

in ankle is affected due to chronic inflammation of capsular and extra capsular tissue. Ankle injuries are painful and can make it hard to carry out normal daily activities. Without adequate care acute ankle trauma can result in chronic joint instability.

There are mainly two types of rogas mentioned in Āyurveda. They are

- 1) *Nija*
- 2) *Agantuja*

Abhigataja comes under *agantuja roga*. In all kinds of *Agantuja abhigata* immediately after trauma, the heat of the assault spreads quickly. This obstructs the path way of *Vata*, vitiating *Rakta* and aggravation of *pitta* which does the *Margavarana* to normal flow of *Vata*. This obstructed *Vata* gets further aggravated producing *Ruja*, *Shopha* etc features. This gives way for the manifestation of clinical symptoms.

Acharya Vagbhata says about *pitta prakopa* along with *Vata*.

Acharya Sushruta says that *Vata* aggravates as a result of *Marmabighata* and produce severe pain. The *Doshas* stay in between *Twak*, *Mamsa* and *Snayu* in *Sopha*. On injury bones, muscles, blood vessels, and joints do not inflict the person so as the ligament.

For mitigating this, *Sheeta upachara* similar to those for *Pitta Shamana* are advised first. After a period of seven days there is involvement of *Tridosha* and produces the clinical features as that of the predominant *Dosha*. Therefore in the initial stage of *Agantuja Sotha Sheeta Kriya* or *Sheeta Upachara* is advised. *Acharya* narrates when one undergoes *Shrama*, *Abhigata*, *Kshata* etc *Vata Dosha* gets aggravated, which brings the vitiation of *Rakta*. This vitiated *Rakta* further blocks the flow of *Vata* producing symptoms as *Vyatha*, *Shopha*, *Vaivarnya*. To this *Acharya Hemadri* comments, by *Kshata*, *Vyatha*, *Shopha* and *Vaivarnya* are produced while *Ruja* is result of *Abhigata*.

Acharya Sushruta mentions about the *Sandhi Kshata lakshana* as swelling, severe pain, slitting type of pain in the joints, loss of strength, oedema, loss of function of joints.

Shortening and debility of body parts, pain and delayed wound healing are the consequences of injury to the *snayu*.

Gulpha Marma Kshata lakshanas according to the table as follows

Sushruta Samhita	Āstanga Samgraha	Āstang Hridaya
Ruk	Ruk	Ruk
Sthamba	Stabdha Sakthi	Sthamba
Khanjatwa	Shantat	Mandhyakrith

Shotha

According to *Sushruta* vitiated *Doshas* reside in between *Twak* and *Mamsa* producing swelling at a particular site.

Vagbhata gives importance to *Rakta*, he says that *Raga* (discoloration) and *Paka* (suppuration) are due to *Rakta*.

Lakshana

Ruja, *Shotha*, *Khanjata* or *Stabdha Padata*.

Diagnosis and management of Shotha

Agantuja Shotha are assessed by their *Hetu* and *Lakshana*, which makes it different from *Nija Shotha*. They are managed by either by *Bandhana*, *Agadaprayoga*, *Lepa*, *Nirvapana* etc.

Chikitsa

In the event of the vitiation of bodily *Dosha* generally three

types of therapies need to be implemented to treat the disease.

- i) *Anta Parimarjana* (Internal cleansing)
- ii) *Bahya Parimarjana* (External cleansing)
- iii) *Sashtra Pranidhana* (Surgical therapy)

Diseases caused by improper diet are eradicated by medicines meant for *Anta Parimarjana*. The cleansing therapy, which has its curative effect by external contact i.e *Bahya Parimarjana* with the body such as massage, fomentation, *Lepa* and kneading, is the external one. Surgical therapy comprises execution of incision, puncturing etc.

Acharya Sushruta in the context of *Bhagna Chikitsa* while explaining the *Shoonanga Chikitsa* narrated - due to fall from height or assault, when any part of the body if found swollen but not having an external wound, then *Lepa* of the drugs having cold potency and cold to touch should be applied or cold liquids to be poured over the affected region.

Shotha Chikitsa

- i) *Alepa* is the initial or first line of treatment, which is common to all inflammatory swellings and the most important one.
- ii) *Apatarpana* is also considered as first line of management, this is applied generally in all types of inflammatory swelling.

In *Chikitsasthana Sushruta* has mentioned *Apatarpana* as the first line of management. But in *Sutra Sthana Alepa* is considered as first line of management. Both the statements are correct. So as first line of treatment as *Bahi Parimarjana Chikitsa*

- ii) *Alepa* alleviates pain instantaneously
- iii) It is superior to *Apatarpana*
- iv) It acts locally and gives quick results

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