

***RUJAKARA MARMA KSHAT LAKSHANA W.S.R. TO SPORTS INJURY
MANAGEMENT BY HERBAL PASTE APPLICATION (MANJISHTHADI LEPA)
AND LAXADI GUGGULU***

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ABSTRACT

Background: Sports medicine is described as such, neither in ancient nor in modern medicine. It is the application of various medical principles to the sports activities, physical exercise and performance endeavors. It is related to the physiological as well as patho-physiological aspects of sports and athletics injuries. It is not only prevention and treatment of injuries, but it is a scientific investigation of training methods and practices in sports also. Recently research studies proved that Ayurvedic medicine and treatment are very effective in sports, health & fitness related fields such as aerobic training, strength training, bodybuilding, endurance sports, games like football, volley ball, basketball, cricket and tennis etc. A combined approach of Ayurveda, physiotherapy and yoga 'can be in successfully employed sports, for training sports person, treating injuries and rehabilitation. Among commonly occurring sports injury, fracture, sprains and strains of ankle joint and inter-phalangeal joints are more prone. In all such conditions initial complaint of patients will be pain associated with swelling with or without deformity. Sometimes it has been chronic due to improper treatment. These clinical conditions hamper the routine activities and also financial status of the individuals. *Sushruta*-the ancient Hindu surgeon thoroughly explains many preparations including application of *Manjishthadi Lepa* (herbo-mineral paste application) in the different traumatic joint injuries in his book *Sushruta samhita*.

Method: By continuous and persistence applying of this drugs we achieved the strengthening of the injured part, improvement of the joint or injured part's function and enhancement of performance in particular sports. By internal administration of medicine (i.e. LaxadiGuggulu), we achieved anodyne effect, tissue healing and nutrition buster of the affected part and its converted to strengthen the injured part in minimum period.

Conclusion: *Manjishthadi Lepa* (herbo-mineral paste application) and *laxadi guggulu* were observed to be very beneficial in traumatic joint disorders like sprain, strain and hairline fracture.

Keywords: Sports Medicine, *Rujakarmarma Kshata Lakshan*, *Manjishthadi lepa* and *Laxadi guggulu*

INTRODUCTION

The word *Marma* comes from Sanskrit origin 'mru' or 'marr'. 'MarayantiitiMarma', the Sanskrit phrase means likelihood of death after inflion to these places. The word *Marma* is also used with synonyms as tender, secret or vital spots. According to *Sushruta*, *Marma* point is an anatomical site where *Mansa* (muscles), *Sira* (blood vessels), *Snayu* (tender), *Asthi* (bones), *Sandhi* (joints) confluence. According to traumatic effect, *Marma* are classified as *Sadhyapranahara* (causing death immediately), *KalantaraPranhara* (causing death on time), *Rujakara* (causing pain), *Vaikalyakara* (causing deformity) and *Vishalyaghna* (one with foreign body). Pain is the first sigh of morbidity of any tissue. The eight (8) *RujakaraMarma* are such sites in the body where in slight injury lead to severe pain though there is no much disturbance in its structural anatomy.

Sports medicine is described as such, neither in ancient nor in modern medicine. It is the application of various medical principles to the sports activities, physical exercise and performance endeavors. It is related to the physiological as well as patho-physiological aspects of sports and athletics injuries. It is not only prevention and treatment of injuries, but it is a scientific investigation of training methods and practices in sports also.

Sports injury - Any bodily damage sustained during participation in competitive or non- competitive sports activities. Sports injuries can affect bones or soft tissue like muscles, ligaments, tendons, nerves etc.,. That who is overstressed and lack of warming up suffers with these injuries.

Acharya *Sushruta* has advocated the application of *Manjistadi lepa* in traumatic joint injuries in *chikitsasthana*. *Manjishthadi Lepa* gives excellent result in fracture healing, swelling and pain. It was found that, a very good analgesic and anti-inflammatory action.

LakshadiGuggulu is indicated in the management of *Bhagna* as internal medicine in various texts.

LakshadiGuggulu is mostly used in *Asthigatavikara* such as *Bhagna* (fracture), pain and trauma.

MUSCULO SKELETAL ELEMENTS OF 8 RUJAKARA MARMA

(A) MANIBANDHA MARMA

Name: *Manibandha* (bracelet)

Type: *Sandhi* (joint)

Size: 2 *angula* (finger unit)

Site: The wrist

Controls: Controls skeletal system (*Asthivahasrotas*) and movement of hands, *sleshaka kapha* (lubrication of joints) and *vyanavayu* (peripheral circulation)

Anatomical structures: Wrist joint, Radio-ulnar, radio-carpal ligaments, radial and median nerve artery.

Qualities relative to injury: *Rujakara* (pain-causing)

Symtoms if injured that's correlated with sports injury: Loss of flexion and extension of the second, third and fourth finger and adduction of second, third and fourth metacarpels. Bleeding may lead to pain, shock or infection.

(B) KURCHA SIRA OF THE HAND

Name: *Kurchashira* (the head of the *kurcha*)

Number: 2 (one on each hand)

Type: *Snayu* (ligament)

Size: 1 *angula* (finger unit)

Site: The root of the thumb just above wrist.

Controls: Controls *alochaka pitta* (power of site), *agni* (digestive power), Stomach (form of *pitta*, *kapha* and *vata* governing digestion) also influences the head, mind and nervous system, alleviating *vata*.

Anatomical structures: Tendon of flexor carpi radialis, tendon of abductor policislongus, tendon of extensor carpi radialislongus, tendon of extensor pollicislongus and brevis.

Qualities relative to injury: *Rujakara* (pain-causing)

Symptoms if injured that's correlated with sports injury: Impairment of the flexion and abduction of the wrist, bleeding from the radial artery and pain due to injury to the radial nerve.

(C) GULPHA MARMA

Name: *Gulpha* (ankle joint)

Number: 2 (one on each ankle)

Type: *Sandhi* (joint)

Size: 2 *angula* (finger units)

Site: The ankle joint

Controls: Controls fat, bone and reproductive system (*medovaha*, *Asthivaha* and *shukravahasrotamsi*) *vyanavayu* (circulation of prana), *sleshakakapha* (lubrication of the joint) and movement of the feet.

Anatomical structures: Flexor hallucis longus and bravis, tibialis posterior and flexor digitorum longus muscle, posterior tibial artery and vein.

Qualities relative to injury: *Rujakara* (pain-causing)

Symptoms if injured that are correlated with sports injury: Injury to the joint will cause swelling and impair the function of the flexion and extension.

(D) KURCHA SHIRA MARMA OF THE FOOT

Name: *Kurchashira* (the head of *kurcha*)

Number: 2 (one on each leg)

Type: *Snayu* (ligament)

Size: 1 *angula* (finger units)

Site: Planter surface of the foot

Controls: Controls muscular system (*mamsavahasrotas*), particularly muscles of the foot and bodily posture.

Anatomical structures: Peroneus bravis and longus muscle. Peritoneal artery and tributaries of short saphenous vein, peritoneal nerve.

Qualities relative to injury: *Rujakara* (pain-causing)

Symptoms if injured that's correlated with sports injury: Damage to the ligaments and bone may cause severe pain along with the impairment of the function of the foot.

Types of sports injuries:

- Acute – (Characterized by sudden appearance of symptoms usually associated with Single traumatic incident. These are caused by excessive force applied to bone or soft tissues during sport activity.)
- Chronic - (over use) According to cause - sports injuries.
- Intrinsic - Arising from specific incidence, not involving any outside agencies e.g. running.
- Extrinsic- Due to contact with an external object.e.g. football.

According to nature of tissue damage:

- Strains (muscle/tendon injuries).
- Sprains (joint/ligament injuries).
- Contusions and hematomas.
- Fractures and dislocations.
- Wounds (abrasions, lacerations, punctures, blisters).

Sports Injury Related Conditions in *Ayurveda*

1. *Bhagna* - Bone fracture.
2. *Sandhimukta*- Joint injuries (dislocation & subluxation).
3. *MamsagatVata*- Sprain & Fatigue syndrome.
4. *SnayugatVata*- Ligament, Nerve & Bursa injuries.
5. *KandaragatVata*- Tendon injury.
6. Common sports injury.
7. Knee- ligament injuries.
8. Shoulder- rotator cuff injuries.
9. Ankle joint- sprains.
10. Muscles- muscle cramps.

DIAGNOSIS

Acute injuries are self evident, as they are associated with specific traumatic event. After the trauma the physician performs physical examination of the patient to identify the specific injury. In case of suspected skeletal injuries or joint injuries, a radiological examination is carried out and radiologist confirms or rules out a dislocation, fracture of a soft tissue injury. With over use/ chronic injuries, the physician performs physical examinations and signs and symptoms and training history to diagnose the injury.

GENERAL TREATMENT

Recently research studies proved that Ayurvedic medicine and treatment are very effective in sports, health & fitness related fields such as aerobic training, strength training, bodybuilding, endurance sports, games like football, volley ball, basketball, cricket and tennis etc. A combined approach of *Ayurveda*, physiotherapy and yoga ‘can be in successfully employed sports, for training sports person, treating injuries and rehabilitation.

For sports injuries the standard treatment followed is protection, rest, ice, compression and elevation. Depending on the injury, protection alone i.e. immobilizing the affected area with a brace, tape, or wrap, or simply avoiding the activities that aggravate the injury is sufficient. Rest means refraining from activities that prevent recovery from injury. Ice should be used to relieve pain and swelling immediate after the injury. Compression, with tape or elastic wraps, is used to limit the swelling and stabilize the area. Elevation, where the injured body part is placed above the level of heart, is also used to prevent swelling and promote early healing.

Along with these, medicines and rehabilitation techniques are also a part of Sports medicine. Non steroid anti-inflammatory drugs have been used for pain management and corticosteroid injections are sometimes used to control inflammation and pain. These drugs reduce the strength and flexibility of soft tissues also has hepatotoxic effect in long term usage.

MANAGEMENT BY HERBAL PASTE APPLICATION (*MANJISHTHADI LEPA*) AND *LAXADI GUGGULU*

Table 1: *Manjishthadi Lepa*

| Drug | Latin Name | Part Use | Proportion |
|--------------------------|--------------------|-----------|----------------|
| <i>Manjishtha</i> | Rubia Cordifolia | Root | 1 Part |
| <i>Yashtimadhu</i> | Glycyrrhiza Glabra | Root | 1 Part |
| <i>Raktachandana</i> | Santalum Rubrum | Heartwood | 1 Part |
| <i>Shalipishti</i> | Oryza Sativa | Grain | 1 Part |
| <i>Shatadhautaghrita</i> | | | As Per Require |

Preparation of *Manjishthadi Lepa*: The above said drugs are grinded separately and then mixed one by one. The required quantity of powder is taken and paste is made by adding *Shatadhautaghrita* and used for application over the fractured area. For each application fresh paste will prepared.

Probable mode of action of therapies:

Lepa: Almost in all the patients the swelling was reduced within 24-36 hours after application of the

lepa. This may be because; the *lepa* consists of following drugs:

Manjishtha:

Manjishtha by its action it is *raktaprasadaka* and as it is having *UshnaVeerya* due to which it will dilate the peripheral vessels, especially there will be venous dilatation followed by increased peripheral arterial blood flow. This may be the reason for the reduction of the swelling around injured

area. As it is having *kapha-pitta-shamaka* property by which it will reduce the local edematous residue and its *ushnaveerya* property helps to penetrate in to local tissue. The chemical composition is calcium salts, gum, resinous matter may be absorbed, by these properties it initiates for early callus formation in fractured person. The swelling is the one of the reason for pain at injury site due to pressure on peripheral sensory nerves. Where in here the reduction of the swelling and pain may be due to its *ushna* property and *madhura rasa* by which local *vatashamana* action takes place and pain is reduced.

Yashtimadhu:

This drug is told in *Sandhaneeyagana* by *charaka*, and with *madhura* and *kashayarasas*, it definitely enhances the bone healing. As this drug is having *Madhura* and *Snigdha* properties due to which it reduces the Pitta i.e. it does anti-inflammatory action locally. And also this drug, which is having the property of *MadhuraVipaka* and *guru Guna* due to which it, does *vatashamana* i.e. responsible for *shoolahara*. As it is having anti-microbial properties by which it doesn't allow to grow any microbes in the *lepa* and its chemical composition includes salts and potassium, these may also help for bone growth when it is absorbed internally.

Raktachandana: Due to its *Madhura Rasa* and *SheetaVeerya* it reduces *Sthanikadaha* by which it helps to reduce pain. By *shotahara* property of this

drug it will take out the edematous fluid of injured site.

Shalipisti:

The *Laghu Guna* makes the drug penetrate through skin very easily. The *pisti* prepared out of it will be having *Pichhila Guna*, at the time the *Sheeta Veerya* and *Snigdha* property of the drug creates stickiness on the skin by which it puts a local pressure which makes the collected tissue fluid to escape out. The same drug may again absorb this. The starch content of the Shali gives strong support to fractured bone. Hence this may be very important drug in reducing swelling, pain and for immobilization.

Shatadoutagritha:

The *LaghuGuna* of *gritha* enhances, after it has been washed hundred times. Means it attains much *Laghutva* by its *sanskara* and becomes readily permeable in to skin by body temperature. As the molecules of *ghrita* and further reduced which is now rendered easily into the skin. The *Snigdha* and *Madhura* property of the same reduces swelling and pain. The *SnigdhaGuna* may also enhance the bone formation at fractured site. The fatty lobules of the absorbed *ghritha* may help for tissue repair as in case of sprain, strain and tear of ligament.

Table 2: Lakshadi Guggulu:

| Drug | Latin Name | Part Use | Proportion |
|------------------------|-----------------------------|----------|------------|
| <i>Laksha</i> | <i>Laccitalacca</i> | Resin | 1 Part |
| <i>Asthishrinkhala</i> | <i>Cissusquadrangularis</i> | Stem | 1 Part |
| <i>Arjuna</i> | <i>Terminaliaarjuna</i> | Root | 1 Part |
| <i>Nagabala</i> | <i>Grewiahirsute</i> | Root | 1 Part |
| <i>Ashwagandha</i> | <i>Withaniasomnifera</i> | Root | 1 Part |
| <i>Shuddhaguggulu</i> | <i>Commiphoramukul</i> | Resin | 5 Part |

Discussion on probable mode of Action of Drugs:

Asthi dhatu is mainly predominant of *Khara Guna*, hence it is called as *Asthi*. In the fracture, obviously there is *Asthikshaya* due to the break and loss of continuity of *Asthi*. The main aim of fracture treatment is *Asthisandhana* through *Asthivardhana*. Hence, the *Asthi vardhana Upakramas* should be adopted in the *Asthikshaya* condition. The *Dravyas* which produce *Snigdhatata*, *Shoshana* and *Kharatva Gunas* should be used for *Asthivardhana*.

Arunadatta has said that *Kharatva* is the nature of bone, and *Snigdha* is necessary for *Vridhdhi* of any *Dhatu*, particularly for *Asthi* the all *BrimhanDravyas* with the help of *ShoshanaGuna* of *Vata*, *Kharatva* and *Shaushiratva* produce *Asthi dhatu* and thus *Asthisandhana* through *Asthivardhana* promoted.

So, the drugs having the properties of *Kharatwa*, *Snigdatwa* and *Shoshana*, properties should be used in fractures, in this study *LakshadiGuggulu* fulfilling all these properties and it was proven useful in cases of *AsthiBhagna*.

In *LakshadiGuggulu* ingredients are prominent of two *Rasas*

(1) *Kashaya Rasa* like *Laksha*, *Arjuna* etc. and they work on fractured part, they constricts dilated capillaries reduces excessive swelling at fracture site, when Swelling reduced pain is Also reduced.

(2)*Madhura Rasa* also having *Sandhaneeya* properties like, *Nagabala*, *Asthishrinkhala* etc. *Madhura Rasa Dravyas* mainly do *Brimhan* and then *Asthi dhatuVridhdhi*.

The ingredients of "*LakshadiGuggulu*" have the following properties;

1. *Guggulu*: *Guggulu* is referred as *Athilekhaneeya* which has *Tiktakatu rasa*, *Sukshma* and *Sara Gunas*, *Shothahara* as well as *Bhagna Sandhanakara properties*.

Anti-inflammatory activity of *Guggulu*:

Guggulu having anti-inflammatory properties and it is proven that it is reducing inflammation in oral use. Intra peritoneal administration of 200fl ammatationed by Freundumresincr extract of the oleo-gum resin reduced xylene- induced ear inflammation in mice by 50%.

1. *Laksha*:

Laksha is *Kashaya*, *Tikta*, *Snigdha*, *SheetaGuna*, *KatuVipak* and has properties of *Bhagna sandhana*, *Vrinaropaka*, *RaktaStambhaka* properties. An animal experiment and in chemical and histological study, result showed that *Laksha* enhance tissue repair and bone healing.

2. *Ashwagandha*:

Ashwagandha constitutes the properties of *Balya*, *Rasayana*, *Vedanasthapana* and has *Laghu*, *Sheeta*, *Ruksha Sara Gunas* in common. *Ashwagandha* possesses anti-inflammatory, antitumor, anti-stress, antioxidant, immune-modulator, hemopoetic, and rejuvenating properties. It is also appears to exert a positive influence on the endocrine, cardiopulmonary, and central nervous systems.

3. *Nagabala*:

Nagabala is having *Madhura*, *Kashaya Rasa*, *Guru*, *Snigdha* and *Pichchhila Guna*, *ShhetaVeerya* and *MadhuraVipaka*, the *Rasayana* properties, and root of *Nagabala* is diuretic, anti-diarrhoeal.

4. *Arjuna*:

Arjunahaveing Laghu-Ruksha, *Gunas*, *SheetaVirya*, *KatuVipaka* with *Raktastambhaka*, *Sandhaniya*, *Vranaropaka*, *Raktaprasadana properties*. The bark of *Arjuna* is astringent, cooling, aphrodisiac, demulcent, cardiogenic, styptic, antidysentric, urinary astringent, expectorant, alexiteric, lithontriptic and tonic. It is useful in fractures, ulcers, urethrorrhea, spermatorrhoea, leucorrhoea, diabetes, anaemia, cardiac disorders, excessive perspiration, fatigue, asthma, bronchitis, cough, consumption, intrinsic

haemorrhages, tumour, otalgia, dysentery, inflammations, skin diseases like freckles, wound, haemorrhoids, diarrhoea associated with blood, cirrhosis of liver and hypertension.

5. Asthishrinkhala:

Asthishrinkhala (*Cissusquadrangularis*): constitutes *Laghu*, *Ruksha*, *Sara Guna*, *Madhura Rasa*, *UsnaVirya* and *MadhuraVipaka* and *Sandhaniya*, *Dipana*, *Pachana*, *krimighna*, *Rakta-Stambhaka*, *RaktaShodhakakarma* so it is very useful in *Asthibhanga*, *Abhighatajasotha* and *Raktasrava*. Results of many study done on *Cissusquad arngularis*, it was observed antioxidant, analgesic, anti-inflammatory, antipyretic, anti-microbial activity and having natural steroids and vitamin it is useful for early healing.

DISCUSSION

The musculoskeletal system of *RujakaraMarma* comprises a number of specialized connective tissue, including bone, cartilage, muscle, ligament and tendon. Its major functions are to provide rigid support for the body, protect organs and other tissue and to generate and enable controlled movement. It is a target site of variety of different injuries and disorders during sports, because of its complex structure and weight bearing capacity, It is frequently affected in sports compared to other joints of the body. • The serious injuries involve the injury to the joint, collateral ligament, muscles, bones, and dislocation of the joint. • In *Ayurveda* there is no direct explanation regarding sports injuries and its management but in present scenario it is demand of time that *Ayurveda* shows importance of his science in the field of sports. Pain, swelling, stiffness, irritation, fracture etc. are the main complaints in *Rujakara Marma Kshata Lakshana* (w.s.r. to Sports injuries) • In *Ayurveda* there are so many herbal drugs, *Aushadhi yoga*, *Lepa*, *Guggula Kalpa*, *Ghritha*, *Rasakalpa* and *Panchakarma Procedures* like (*Snehana*, *Swedana*, *Janubasti*, *Raktamokshana*etc.) Which play

important role in the management of the sports injuries • *Rasayana* and *Yoga* may also play significant responsibility in maintaining the proper anatomy, stability, strength, mobility and elasticity of the *Rujakara Marma*. So, the combined effect of *Manjishthadi Lepa* with *Lakshadi Guggulu* will fulfill our treatment aim regarding to *Rujakara Marma Kshata lakshanas*.

CONCLUSION

Summary of methodology Adopted External Therapies (Herbal paste application) :

By virtue of this external medicine (i.e. *Manjishthadi Lepam*) we can find that the pain of the particular part was alleviated. By continuous and persistence applying of this drugs we achieved the strengthening of the injured part, improvement of the joint or injured part's function and enhancement of performance in particular sports. By internal administration of medicine (i.e. *LaxadiGuggulu*), we achieved anodyne effect, tissue healing and nutrition buster of the affected part and its converted to strengthen the injured part in minimum period.

Probable mechanism of Treatments

1. Local heat generation.
2. Increased peripheral circulation.
3. Peripheral nerve stimulation.
4. Muscle relaxation.
5. Pain reduction.
6. Sweat pores opened.
7. Permeability increased (transfer of medicaments and nutrients towards to needed sites.).
8. Encourage nutrition & electro excitability of the muscle (Fatigue reduced).

Studying on repeated application of these treatment procedures and interchanging the samples from one treatment procedures to other may be conducted to evaluate further. Detailed studies using modern principles of investigation should be initiated as a combined project between the practi-

tioners of different systems of medicine so as bring out the maximum benefits. This would create new opportunities for upcoming branch of *Ayurveda* that is *Krida Ayurveda*.

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