



## A REVIEW ON THE ROLE OF JALAUKAVCHARAN KARMA IN DIABETIC FOOT ULCER

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### ABSTRACT

As per the survey of World Health Organization (WHO) 2016, an estimated 422 million adults are living with diabetes mellitus. Among them almost 15% have suffering to Diabetic foot ulcer. Which affect the quality of life of them. Also it is the one of the big Challenge to Medical science to heal it without any surgery. In that condition Jalaukavcharan a procedure of Raktamokshan is most beneficial for the heal the wound due to so many proteins and substances which are beneficial for healing process along with anti-inflammatory process. present study is built on a detail study on Jalaukavcharan has gained grater utility in managing Diabetic foot ulcer along with depth search in resent researches.

**KEYWORDS:** Diabetic foot ulcer, Jalaukavcharan, Raktamokshan.

### INTRODUCTION

Diabetic foot ulcer is a major complication of diabetes mellitus, and probably the major component of the diabetic foot. Approximately 15 percent of people with diabetes experience foot ulcer.<sup>[1]</sup> Approximately 84 percent of lower limb amputations have a history of ulceration with only approximately half of amputesssurviving more than 2 years. 56 percent of individuals with foot ulcers who do not have an amputation survive for 5 years. foot ulcer and amputation significantly reduce the quality of life.<sup>[2]</sup> Diabetic foot disease is the leading cause of non-traumatic lower limb amputation.<sup>[3]</sup> Diabetic mellitus is one such metabolic disorder that impedes the normal steps of the wound healing process. Many studies show a prolonged inflammatory phase in diabetic wounds, which cause delay in the formation of mature granulation tissue and a parallel reduction in wound tensile strength.

### Classification of diabetic foot

It is a complication of diabetes. Diabetic foot ulcers classified as either neurogenic, neuroischemic or ischemic.<sup>[4]</sup>

### Jalaukavacharan

Asper Ayurvedic science Jalaukavcharan is one of the procedures of Raktamokshan Karma. It is applied in management of various disorders, especially which are caused due to vitiation of pitta and Raktadosha. Among various methods for Raktamokshana, Jalaukavcharan Karma by Jalauka is consider as a ideal method to expel out vitiated Raktasafely, quickly and effectively.<sup>[5]</sup> It is

safely indicated in all mankind. It is also use in person who having poor pain threshold to pain. In Sushruta Samhita, the oldest available manual on surgery has devoted an entire chapter for the description of Jalaukas, anlon with the procedure of Jalaukavcharan.<sup>[6]</sup> In Charak Samhita, Raktaja Roag by Shonitavaschena and various means of Raktamokshana is also mentioned.<sup>[7]</sup>

### Types of Jalauka

It has mainly two types

1. Savish Jalauka (venomous): Originates in decomposed urine and faecal matter of toads and poisonous fishes in ponds of stagnant and turbid water. Which are Krishna, Karbura, Alagarda, Indrayudha, Samudrika, Gochandna.<sup>[7]</sup>
2. Nirvish Jalauka(non-venomous): Originates in decomposed vegetables matter, as the purified steam of the several aquatic plants known as a Padma, Utapal, Nalina, Kumuda, Pundarikaetc which are live in clear water I.e. Kapila, Pingala, Pundrikmukhi, Savarika, Mushika, Shankamuki.<sup>[6]</sup>

### Geographic Distribution

Nirvisha Jalauka were available in Yavan(currently taken as Turkey) Pandya(South region of country-Deccan), Sahya(hill station near bank of Narmada river), Poutana (Mathura) etc.<sup>[6]</sup>

### Collection of Jalauka

Acharya Sushruta has told the JAlauka can be caught with a piece of wet leather, in tanks, streams and where there are lotuses. Another method is the fresh meat of

dead animals, fish or milk must be applied on the thigh of animal or the human thigh in the water for some time. Due to attraction of this diets, JAlauka will come and start biting. then they are made to leave the skin. of the person with the application of Saindhava Lavana and collected.<sup>[6]</sup>

#### Length of Jalauka

For human beings, 4-6 Angulipramana Jalauka is preferred by Acharya Sushruta.<sup>[6]</sup>

#### Time of collection

Acharya Dalhana has told that the best time for collection of Jalauka is Sharad Ritu.<sup>[6]</sup>

#### Preservation and feeding of Jalauka

After collection of JAlaukas, it should be kept in a wide and new earthen pot. The pure water with lotus should be filled into the pot. Feed it with leaf of lotus plants, Shaivala, and powder of stem of small plants and dry meat. The grass and leaves of plants must be kept in the water of pot for the bed. Shringa taka, Kasheruka, Shalloka, Shaivala, Mrunala, Mrustana, Pushkarbeej Churna, Sweet-cold-clean water etc. should be provided diet to Jalauka. On every third day water should be changed.<sup>[6]</sup> Vagbhata mentioned that pot should be changed every five days.

#### Proper time for Jalaukavcharana

JAlaukavcharan is ideal during the moderate climate not done in too hot or too cold conditions. Also it is avoid in a days in which the sun is not seen and sky is completely covered with clouds. Generally, Raktadosha vitiated during the Sharad Ritu hence it is perfect time for Jalaukavcharan.

In Varsha Ritu when the sky is clear without clouds. In Grishma Ritu either morning or evening. In Hemant Ritu mid-day is best time for Jalaukavcharan.<sup>[6]</sup>

#### Method of Jalaukavcharan

##### Purva Karma

- Patient should be made to sit or lie down
- At the site of Jalaukavcharan should be dried by rubbing with earth and powder cow dung and apply milk or scraping can done.
- Jalauka should then be grasped and mixture of mustard and turmeric paste in water should be applied upon them and then for a Muharat(48 min) they should be kept in a vessel of water till they get rid of their exhaustion.

##### Pradhan Karma

- Jalauka may be made to stick at the site of lesion. they should be fully covered with a fine wet white cloth or cotton expect for their mouth.
- If they do not stick, a drop of milk or blood may be applied at that site or scratching may be done there.
- When its mouth gets suck and middle portion get elevated assuming the shape of a horse shoe.

- Withdraw JAlauka when pricking pain or itching is produced at the site of application which indicates that Jalauka is sucking pure blood then it should be removed at that site.
- If it does not withdraw, common salt powder should be sprinkled upon its mouth.

#### Paschat Karma

- After falling Jalauka at the site .It should be cleaned with normal saline an bandaging should be done after sprinkling turmeric powder with bee honey at bleeding site.
- JaLauka should be made to vomit by carrying out by apply turmeric powder at their mouth.
- When the blood comes from the anterior sucker, gentle squeezing from caudal to front end is required for proper emesis.
- After that put Jalauka in a water jar for rest for seven days.
- The wound should simply be anointed by Satadhautghrita or else should be compressed by gauze in the same and bandaged that site.

#### Diabetic foot ulcer and its management

Foot ulcers are a common complication of poorly controlled diabetes, forming as a result of skin tissue breaking down and exposing the layers underneath. They are most common under big toes and the balls of feet. Mainly it is due to poor circulation, high blood sugar, nerve damage, wounded feet. First sign of foot ulcer is drainage from the foot that might stain leak out in shoe. Unusual swelling, irritation, redness, and odours from feet are most common symptoms of it. In serious foot ulcer is black tissue surrounding the ulcer. Partial or complete gangrene, which refer to tissue death due to infection. Signs of foot ulcers are not always obvious. Risk factors are poor quality shoes, poor hygiene, improper trimming of toenails, alcohol consumption, eye disease, heart disease, kidney disease, obesity, tobacco. Medications are used mainly antibiotics in infection condition, antiplatelet or anti-clotting. Topical treatment dressing it with silver sulphadiazine cream, Polyhexamethylenebiguanide gel, iodine, medical grade honey in ointment or gel form. Doctor may recommend that you seek surgical help for foot ulcer. A surgeon can help alleviate pressure around ulcer by shaving down the bone or removing foot deformities such as bunions or hammertoes. If no other treatment option can help your ulcer heal or progress further into infection, surgery can prevent that ulcer from becoming worse or leading to amputation. It can prevent by wearing diabetic shoes, casts, food braces, compression wraps and for prevention of infection in foot ulcer takes foot baths, applied disinfecting around the ulcer, keep ulcer dry with frequent dressing enzyme treatments, dressing with calcium alginate to inhibit bacterial growth.<sup>[8]</sup>

### Probable mechanism of Jalaukavcharan (Leech therapy)

As per Ayurvedic science, the action of Jalaukaavcharna is Vranaropana and Vrana Sodhana as such.<sup>[6]</sup> After Jalauka application expulsion of immured blood take place due to which local vitiated Dosha are removed. Also it facilitates fresh blood supply and promotes wound healing by formation of health newer tissues.<sup>[9]</sup> Leeches known as Jalauka in classical texts. Leeches have various proteins in their saliva, which have different properties responsible for carrying out desired medical effect. They have evolved highly specific mechanisms to feed on their hosts both cold and warm blooded organisms by blocking blood coagulation.<sup>[10]</sup> Its anticoagulant activity done by anticoagulant called "hirudin", from the saliva of leech. It is known to act at different points in the coagulation cascade, thereby preventing blood from clotting by inhibiting conversion of fibrinogen to fibrin. It is also known to inhibit platelet aggregation, which further contributes to the process.<sup>[11]</sup> Leech saliva also contains several other bio-active substances including prostaglandins, vasodilators, anaesthetic and proteins like calin, apyrasehyalurpamidase, eglin, destabilise, piyavit and kollaginase.<sup>[12]</sup> Leech application corrects venous hypertension, reduces vascular congestion due to presence of carboxypeptidase A inhibitors, Histamine like substances and Acetylcholine, thus it venous valve dysfunction and extra vascular fluid perfusion.<sup>[13]</sup> This prevents leakage of proteins and isolation of extra cellular matrix molecule and growth factors, thus help to heal the wound. Leech application has peripheral vasodilator effect due to presence of vasodilator constituent in the saliva which improves blood circulation and corrects ischemia around the wound, thus promotes wound healing.<sup>[14]</sup> Leech applications has Anti-inflammatory action on nerves due to presence of substance like Bdebellins and Eglins in the saliva which prevents leukocyte accumulation in the surrounding vessels, thus inhibits release of inflammatory factors which cause chronic wound formation.

### CONCLUSION

Jalaukavcharan Karma is most often used in diabetic foot ulcer. In diabetic foot ulcer a prolonged inflammatory phase, which cause delay in the formation of mature granulation tissue and a parallel reduction in wound tensile strength. Leech saliva have so many constituents which act as an anti-inflammatory also improve blood circulation which promotes to wound healing process. So this procedure proves to be effective, Time saving, painless treatment.

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