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MANAGEMENT OF MADHUMEHAJANYA DUSHTA VRANA (DIABETIC FOOT ULCER) WITH THE HELP OF JALAUKAVACHARAN: A CASE STUDY

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ABSTRACT

Diabetic foot is a serious complication of diabetes which aggravates the patient's condition & also having significant socioeconomic impact. We find the most scientific explanation of wound care in Sushruta Samhita, in that infected wound, non healing wound, wound with Slough, discharge, purulent wound needs Raktamokshan by Jalaukavacharan. Similar to how Sushruta valued bloodletting therapy, he regarded the leech as the most distinctive and successful way to draw blood-even from infected wounds and abscesses, it is also cost effective, easy to available & reusable. A 40-year-old male patient visited our *Shalya* OPD with a wound that hadn't healed over his left foot (the great toe) for two months was advised to keep taking anti-diabetic medication in addition to applying leeches to the ulcer once a week, which, was followed by cleaning the wound with *Panchavalkala Kashaya* treated Successfully within 45 days. Size of wound, odour & pain decrease, However, further evaluation is required to be done by taking a large sample size to prove its significance in treating Diabetic foot ulcer.

KEYWORDS:- Diabetic foot ulcer, Sushruta Samhita, *Jalauka*, *Vrana*.

INTRODUCTION

Diabetic foot ulcers have a considerable negative impact on patient’s lives and are highly susceptible to infection that often leads to amputation. Diabetes-related foot ulcers significantly impair patients' quality of life anp,[3] e prone to infection, which frequently results in amputation. The diabetic foot exhibits a characteristic triad of neuropathy,

ischemia, and infection. Antibiotics, debridement, local wound care, and inventive footwear are the pillars of treatment. Estimates place the prevalence of diabetic foot ulcers at 15% of all cases of diabetes. According to statistics, 40,000 legs are amputated in India each year, 75% of which are neuropathic feet that may be avoidable. Due to neuropathy (sensory, motor, and autonomic disorders), ischemia, or both, people with DM might develop foot ulcers.[1] Acute mechanical or thermal trauma, as well as repetitive or persistent mechanical stress, can cause the first injury.[2] Currently, lower extremity disorders including ulceration, infection, or gangrene account for a large portion of hospitalisations for DM patients. Diabetes-related foot ulcers (DFUs) are painful and expensive for the patient as well as the healthcare system. More than 1 million patients with DM lose a leg each year as a result of their illness.[3] Lack of sensation can also cause pressure spots to form causing unintentional harm to the skin, soft tissues, and bones. Loss of the lower limb is one of the disease's most dreaded outcomes and presents a challenge to surgeons. Diabetes wounds are associated with "*Madhumehaj Vrana*" in Sushruta Samhita Sushruta said throughout his description of it that these *Vranas'* management is challenging, or *kastsadhaya*. *Meda* and *Rakta*, as well as other *Dosha* and *Dushya*, according to Sushruta, contributed to the creation of *Prameha Pidika*, which later evolved into non-healing wounds.[4,5] Acharya Susruta has thoroughly detailed *Shashti Upakrama*[6] in order to obtain good approximation, rapid healing, and an acceptable scar without complications. Another among them is *Rakta Mokshana*. More than 20 known bioactive compounds, including Antistasin, Eglins, Gaumerin, Hirudin, Saratin, Bdellins, Complement Inhibitors, and Carboxypeptidase Inhibitors, are secreted by leeches.[7] Many investigations have been conducted to better understand the mechanism of leeches. The implications of a deep infection in a diabetic foot are more severe than elsewhere, mostly due to some anatomical features, making it a limb-threatening condition. Because the foot has multiple compartments that communicate with one another, the infection can travel from one compartment to another. Moreover, because the patient is not in pain, the spread is facilitated by continued ablation.[8]

AIM AND OBJECTIVES

The primary aim of the study is to evaluate *Jalaukavacharana's* effectiveness in treating *Madhumehajanya dushta Vrana* (Diabetic wound).

MATERIALS AND METHODS

A 40 yr male patient came in our *Shalya* OPD with non healing wound over left foot (Greater toe), size- 2cm × 2cm, Often serous discharge mixed with mild pus and unpleasant smell associated with pain and swelling since 2 month. On enquiry, patient was found to be a case of controlled diabetes since 15 years, was advised to continue anti diabetic medicine along with weekly application of Leech to the ulcer which was followed by cleaning the wound with *Panchavalkala Kashaya*. Routine blood investigations (Hb gm%, BT, CT, ESR, CBC, HIV & HbsAg) were done before starting the trial. Total time frame of the study was 6 weeks and a follow up for 4 weeks.

Materials used for the treatment procedure

- ✓ *Jalauka, Haridra powder.*
- ✓ Sterilized Gauze pieces, dressing pad, cotton, gloves.
- ✓ Disposable syringe, kidney tray, distilled water, needle.
- ✓ Sterilized non-toothed forceps, scissors.
- ✓ Container of sterile water, for placing leeches after they have been fed. (This container must be labeled with patient's name)

Meggit's classification of diabetic foot[9]

Grade 0- Foot pain only

Grade 1- Superficial ulcer of the foot

Grade 2- Deep ulcer of the foot

Grade 3- Ulcer with bone involvement

Grade 4- Fore foot gangrene

Grade 5- Whole foot gangrene

Treatment procedure

1) Jalaukavacharana vidhi- *Jalaukavacharana* was done in a standard protocol as described by *Acharya Susruta.*[10]

Purvakarma

1. Cleaning the wound with *Panchavalkala Kashaya*.
2. Purification of leech in turmeric water was done.

Pradhana karma

1. The area where the ulcer is to be treated was treated with leeches.
2. A wet cotton swab was used to cover the leech while it was sucking blood.
3. Leeches completely remove the impure blood before leaving the area.

Paschat karma

1. After the leech is removed, turmeric powder is poured over its mouth to enable it to vomit blood.
2. Turmeric water was used to clean the leech after that.
3. The leech was then placed in fresh water and used seven days later.

2) Vranadhavana* with *panchavalkala kwath - After cleaning the wound, a gauge and roller bandage were properly applied.

3) Shaman chikitsa

Triphala Guggul - 2tab BD

Gandhak Rasayan- 2tab BD

Arogyavardhini Vati- 2tab BD

***4)* Foot elevation**

Recurrence

After a month of follow-up experiment, the patient who were entirely cured didn't experience a recurrence.

OBSERVATION AND RESULT

Due to diabetic foot gangrene, the wound was uneven in shape, had slough, swelling, purulent discharge, and odour, and was unhygienic in character. Leech therapy resulted in the development of new, healthy granulation tissue, healthy wound margin contractions, and a reduced in slough formation, discharge, odour, and discoloration around the wound. After the initial, typically painless bite, the leech attached and sucked between 10 to 15 ml of blood over the course of 25 to 45 minutes.

Before treatment-



Day 0 **Day 15** **Day 20**

During treatment


***Jalaukavacharan* Day 30**

After treatment


Day 40 Day 45

DISCUSSION

- *Sushruta* in *Chikitsa Sthana Sadhyovrana Chikitsa Adhyaya* mentioned *Raktamokshana* in *Prameha, Kushtha & Dushta Vrana.*[11]

- Since being bite by a leech, the tissues and blood vessels open up to allow the enzymes hyaluronidase and collagenase access.
- The action of histamine-like molecules generates vasodialatation and platelet inhibition.
- The saliva, which contains anticoagulants and vasodilators, has therapeutic effects rather than the blood that is removed after the bite.[12]
- Leech saliva contains a variety of bioactive chemicals, such as the spreading agent and antibiotic hyaluronidase.
- Hirudin, a strong anticoagulant, promotes blood flow by preventing blood from coagulating by binding to thrombin.
- Callin prevents von Willebrand factor from attaching to collagen, hence inhibiting blood coagulation.
- Destabilase has thrombolytic actions and dissolves fibrin.
- Bdellins inhibit trypsin, plasmin, and acrocin in addition to having an anti-inflammatory action.
- A vasodilator is acetylcholine.
- The anti-inflammatory properties of eglins prevent the activity of alpha-chymotripsin, chymase, elastase, substilisin, and cathepsin G.
- Coagulation factor Xa activity is inhibited by factor Xainhibitors. Collagen is decreased by collagenase. Inhibitors of carboxypeptidase-A enhance blood flow.[13]

CONCLUSION

This Case Report shows *Jalaukavacharana* is highly effective in the treatment of Diabetic foot ulcer, had yielded better outcome with more percentage of relief in exudate, odour, granulation and circumference of the wound. It treat's venous insufficiency, restore venous outflows, control pain, stimulates the granulation tissue in the wound bed, indicating that it possesses good vrana *shodhana* and *ropana* properties—properties that aid in wound healing. However, further evaluation is required to be done by taking a large sample size to prove its significance in treating Diabetic foot ulcer.

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