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MANAGEMENT OF CHRONIC NON-HEALING LEG ULCER BY AYURVEDIC INTERVENTIONS: A CASE REPORT

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ABSTRACT

The incidence of non-healing ulcers is the most commonly increasing trend in the current scenario. Such non-healing ulcers affect the quality of life in old as well as young individuals. A non-healing ulcer is a persiflage medical problem with increased morbidity that ultimately worsens the condition of the patient leading to mental and physical stress due to the same. It also imposes an economic burden on the patient too. In spite of much-advanced research, there is no sure-shot effective management for such conditions. Ayurveda has a great record of management of such wounds on the basis of the concept of *dusta Vrana* (chronic non-healing wounds). Acharya Sushruta has described 60 therapeutic measures to manage such wounds with effective outcomes medically and cosmetically as well.

The present case report is the sum total of the management history of a 24-year-old gentleman, a barber by occupation suffering from a non-healing chronic ulcer for 6 years. He was admitted and treated with *Prapaundrikadi ghrita* - an Ayurvedic formulation described in *Chakradutta* in *Vrana Sotha Chikitsa* chapter no 44 along with some oral Ayurvedic medicines in IPD, Department of Shalya Tantra, SSH, IMS,

BHU. He got improvement in the condition of the wound (wound healing was achieved) soon after the commencement of management protocol for 2 months but the treatment got discontinued due to economic weakness of the patient. The improvements have been documented by the authors and are being presented as a case report to show the efficacy of this particular Ayurvedic management protocol.

KEYWORDS:- Chronic Non-Healing Leg Ulcer, Ayurveda, Case Report

INTRODUCTION

Chronic wounds represent a heterogeneous group that shares the common characteristic of delayed wound healing due to any underlying pathology. Most patients suffer from poor quality of life including pain, physical discomfort, functional limitations, and psychological distress. Chronic non-healing wounds include venous ulcers, diabetic foot ulcers, arterial ulcers, and pressure ulcers, etc. The area of non-healing ulcers has drawn the attention of many healthcare professionals due to its complex and cardinal mechanism. Chronic leg ulcer disease also known as chronic lower limb ulcer is a chronic wound of the leg that shows no tendency to heal after 3 months of appropriate treatment or is still not fully healed at 12 months [(1)] The usual definition of venous ulcer is "An open skin lesion of the leg or foot that occurs in an area affected by venous hypertension. [(2)]" .Approximately 70% of the limb ulcer is caused by venous disease [(3)]. Non-healing chronic wound has been referred to under the name of *Dusta Vrana* [(4)] in Ayurveda that develops due to localization of morbid body humor in body tissue. In tropical countries like India, a study estimated the prevalence at 4.5 per 1000 population. The incidence of acute wounds was more than double at 10.5 per 1000 population. [(5)] Nowadays, there have been many more modalities of treating foot ulcers which include dressing, application of topical agents, skin grafts (Autologous) laser ablation etc. However, the exact mechanism of each treatment is not that clear and is under trial. Acharya Sushruta has described 60 therapeutic measures to manage such wounds with effective outcomes medically and cosmetically as well.[(6)] While treating a wound, the clinician's primary and foremost aim is to treat a wound in less wound healing time and produce cosmetically good skin without compromising any normal function of the body.

MATERIAL AND METHOD:

CASE REPORT:

A 24-year male patient visited our **Vranopchara OPD (Out-patient Department of Indian Medicine Wing, SSH, IMS, BHU)** during the month of February 2021, presenting with symptoms of ulcers over the legs associated with pain, swelling, watery discharge, and mild bleeding, since 6 years. The history of the patient showed that he was non-hypertensive, non-diabetic, and didn't have any endocrinological or immunological diseases. He was a barber by occupation. His Prakriti was assessed as vata-pitta on proper examination.

According to the patient he encountered a road accident in 2015 and he got abrasions in his legs. For this, he was admitted to a private hospital, and medication was started followed by an autologous skin graft from the thigh region but wasn't successful. In another accident, he got a burn injury from a hot motorbike muffler over the same location and consequently was again admitted to other private hospitals in Varanasi for approximately 3 months but his condition was not improved completely. Finally, he came to the Indian Medicine Wing of SS Hospital, Institute of Medical Science, Banaras Hindu University and got admitted on 13/02/2021 for further management.

General examination- Pallor, icterus, cyanosis, clubbing, and edema were absent & we didn't get any lymphadenopathy.

Systemic examination-

Central Nervous System- The patient was conscious, cooperative & well-oriented to person, place and time.

Cardiovascular System- Both heart sounds (S1 and S2) were normal & no cardiac murmur was heard.

Respiratory System- Trachea was centrally placed. The patient was having equal chest expansion & equal air entry, bilaterally. The bronchovesicular sound was normally heard.

Gastrointestinal System- Umbilicus was centrally placed and inverted. We didn't see any scar marks or visible venous prominence on inspection. The bowel sound was heard as 2 per minute. The abdomen was soft and nontender with no palpable organomegaly.

PHYSICAL EXAMINATION OF WOUND LESION:

(A)Inspection

Size (Length x Width): 5.4cm x 3.5cm (18.9 sq. cm) over left leg

Depth: partial thickness skin loss involving epidermis and dermis

Anatomical location: Left-Lower leg involving medial malleolus

Edges: distinct, clearly visible outline, attached, even with wound base

Exudate's type: serosanguineous, thin watery and yellow

Exudate's amount: small

(B)PALPATION-

Peripheral tissue induration: <2 cm around wound

Peripheral tissue edema: no swelling or edema

Pathological test and routine investigations:

(A) Color Doppler (bilateral lower limb) (17.02.2021)

(a)Deep venous system: Bilateral common superficial and deep femoral, popliteal and posterior tibial veins show normal course, caliber, wall thickness and anechoic compressible lumen. No evidence of DVT was noted.

(b)Arterial system: No evidence of arterial insufficiency bilateral lower limb shows subcutaneous edema around the ankle region.

Biopsy of wound of left leg: (12.03.2021) Biopsy shows inflammatory granular tissue and exudates with foreign body (suture material) features suggestive of inflammatory lesion.

CBC: (23.03.2021)

Hemoglobin: 15.2gm/dl

RBC: $5.61x10^6$/ul

WBC: $7.62x10^3$/ul

N/L/M/E/B: 58.8%/ 31.01%/ 6.2%/ 3.9%/ 0.1%

RBS(13.02.2021): 77.2mg/dl

LFT(13.02.2021)

SGOT= 26.3 u/l

SGPT= 15.5u/l

Total bilirubin= 0.3 mg/dl

Sr. ALP=157.3 u/l

Sr.Protein=8.6 gm/dl

Sr. Albumin=4.5 gm/dl

Treatment plan: Table 1.

Orally	**Dose**	**Duration**
Panchatikta ghrita guggulu	2 tab bd (500mg) bd	2 months
Shigru guggulu	2 tab bd (500mg) bd	2 months
Amalaki rasayana	2tsf bd (3gms) bd	2 months
Ashwagandha churna	2tsf bd (3gms) bd	2 months

Cleaning and dressing with normal saline, followed by ***Prapaundrikadi ghrita*** application	Required according to the size of the wound	once in a day for 2 months

OUTCOME-

Edge: indistinct diffuse non clearly visible

Exudate's amount: none, dry wound

Exudate's type: none

Peripheral tissue edema: no any swelling

Peripheral tissue induration: not present

RESULT AND DISCUSSION-

There are many more modalities to treat different kinds of ulcers and this patient had gone through many of them like dressing, application of topical agents and skin grafting too, but despite of all efforts, the wound was not completely healed. Here, we have tried a method of treating this ulcer by cleaning with normal saline and dressing with Prapaundrikadi Ghrita over the wound with supportive oral Ayurvedic drugs (Table No-1). This therapy was also found to be cost-effective for the patient. An ample amount of hyper granulation tissues were noted over the edges of the wound. To resolve this, papaya Kalka was applied over the affected area. Thus, the Shodhana of the wound has been done and a similar protocol was repeated. In Vimlapana with Prapaundrikadi ghrita, uniform pressure is exerted over the wound area which increases local temperature and helps to relieve local vasoconstriction thereby improving micro and macro circulation of the wound site. Increase blood circulation provide required oxygen and essential nutrients and combats the anoxic condition of the wound and helps in the removal of local stagnated toxin and inflammatory mediators.

Panchatikta ghrita guggulu[(7)]

It contains Nimba twak, Guduchi, Vasapachanga, Patola branches and Kantakari. Panchatikta Ghrita is basically rich in tikta rasa that helps in maintaining the equilibrium of all dhatus. The tikta rasa is also having the property to reduce kleda, pitta, shleshma and meda shodhana properties.

Shigru guggulu [(8)]

Having Shigru (*Moringa oleifera* Gaertn) and *Suddha Guggulu* (*Commiphora mukul*), they having Tikta rasa (bitter taste) which have the action of Shoshana (drying up) of Kapha, Puya srava (pus) & Kleda (moisture) from the wound. It also does Twak mamsa Sthirikarana (brings stability and strength in the tissue,with the help of Kashaya rasa(astringent taste), Sthambana (styptic action) & both Tikta (bitter) and Kashaya rasas

(astringent taste) does, Shoshana (dries up) thus maintaining a dry locality at the site of Vrana (wound), which prevents the invasion of Krimis (microbes). Sandhaniya karma (holding together of the tissue) enhances the process of contraction and Ropana karma (healing process) helps in formation of healthy granulation tissue thus facilitating the Wound healing. Katu rasa (Pungent taste), Vranam Avasadayati (eschars the wound), Mamsa Lekhana (scraping of the wound) , Shodana (cleansing of the wound), Chedana (cuts off the unhealthy tissue), removes the unhealthy tissue formed at the site of Vrana (wound) and removes the sluff formation.

Aamlaki rasayana [9]-Having Amla (Embelica officinalis) has multiple action as shown by different studies, mainly it works as an anti-oxidant and having property to get rid of free radicals, it has been also been proved that it helps in decreasing inflammation, pain, and temperature, it has also antimicrobial activity against E.coli.

Ashwagandha churna [10] - Is obtained from the roots of Withania Somnifera having the property of anti-spasmodic and analgesic.

Prapaundrikadi ghrita[11] This drug is described by Acharya Chakradutta in the chapter Vrana Sotha Adhikara for the purpose of wound healing, it contain few Ayurvedic plants(6 raw drugs) which have the following activity in the process of wound healing

(a)Sacchrum officinarum [12]The bark of sugarcane demonstrate a strong antibacterial activity on gram negative bacteria indicating its high antibacterial potential and effectiveness in the treatment of wound infection.

(b)Rubia cordifolia [13]-Extract of Rubia cordifolia shows marked infiltration of the inflammatory cells, it increases the blood vessel formation and enhanced proliferation of cells ,this drug prevents the prolongation of inflammatory phase , anthraquinones are major phytoconstituent present in this plant which may be required for wound healing.

(c)Glycyrhhizha glabra [14]-Its aqueous extract of leaves possess the ability of wound healing by decreasing the level of wound area, increase the percentage of wound contraction and decrease pus discharge.

(d)Viteveria zizanoides [15]-It has been found to be an effective antibacterial agent which also possess antifungal activity

(e)Prunus cerasoides [16]-Its phytoconstituent shows the activity of antipyretic, antioxidant, anti-inflammatory and analgesics. Some studies revealed that it contains antimicrobial activity against both gram positive as well as gram negative bacteria.

(f)Curcuma longa [17]-This plant has an active ingredient which is curcumin having analgesic and anti-inflammatory effect, it contains vitamin A, B and C which have an important role in the healing of wounds. Turmeric results in early synthesis of collagen fibre by mimicking fibroblast activity.

The patient underwent these Ayurvedic medications and regular dressing resulted in the wound contraction with significant healing of the wound. Ayurvedic management plan shows good results compared to all other treatments he underwent. Further Research and standard Ayurvedic line of management of such kind of Non-healing wounds should be designed so that maximum numbers of people can get benefitted.

CONCLUSION

Leg ulcers are common and very debilitating and carry a huge impact on the patient's life and society. Venous ulcers are the most common of all ulceration followed by arterial and mixed variety. The Ayurvedic treatment plan having the proper application of Prapaundarikadi Ghrita for the management of Dustavrana (chronic non-healing ulcer) was found effective along with a few Ayurvedic oral medications. Similar treatment protocols or Integrated management protocols can be designed and modified accordingly for the management of chronic non-healing ulcers. This study can be a clue for many researchers seeking the solutions for the management of Dustavrana (chronic non-healing leg ulcers).

Patient consent- Informed consent regarding documentation and publication of the case was obtained from the patient.

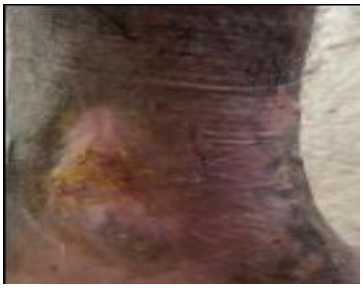
Day 0

Day 10

Application of papaya pulp

Day 30

Day 40



Day 60

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