



MANAGEMENT OF DIABETIC FOOT WOUND IN UNCONTROLLED TYPE-II DIABETES WITH
TRIPHALA KASHAYA WASH & ARKA KSHEERA LEPA- A SINGLE CASE REPORT

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Abstract

A wound is one of the common reasons of visiting a hospital. The burden of chronic wounds is growing rapidly due to increasing healthcare costs, aging population and a sharp rise in incidence of diabetes and obesity worldwide. The scope for wound management in the modern science is a little limited compared to the extensive formulations of Ayurveda. Ayurvedic treatises mention the *Vrana Ropana Property* (Wound healing action) for both *Triphala* & *Arka Ksheera* and plenty of scientific data is available for the same. The Current article reports the successful management of wound in Chronic Diabetic patient with *Triphala Kashaya* wash followed by *Arka Ksheera Lepa* (milky latex of *Calotropis procera*, W. T. Aiton) and also discusses the scientific rationality of Wound healing activity of both drugs i.e *Triphala* and *Arka Ksheera*.

Key Words: Wound Diabetes, Triphala Kashaya, Arka Ksheera, Neuropathy, Polyphenols, Terpenes.

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INTRODUCTION

Wound is defined as a break in the skin or other body tissues caused by injury or surgical incision (cut). It's not just acute wounds but even chronic wounds have become very difficult to treat because of other pre-existing health conditions. Foot problems give rise to severe morbidity in Diabetic patients. The life time risk of developing foot lesions in the diabetes is 12-15%. The factors contributing the foot problems are (1) Neuropathy- sensory & motor. (2) Ischemia (3) Trauma- Physical, mechanical, thermal (4) Infection ^[1].

Wound healing is a fundamental response to tissue injury that results in restoration of tissue integrity. Currently, the treatment options for majority of wounds include more of supportive measures (maintenance of hygiene, proper dressing, and prophylactic use of antibiotics) rather than agents that actually enhance the process of wound healing.

Several drugs obtained from plant resources are known to increase the healing of wounds ^[2]. The Ayurveda pharmacopoeia contains over 200 herbs, minerals, animals and fat preparations that are used or skin care, which have the potential to be used for wound healing ^[3].

Triphala is one such Ayurveda formulation, commonly prescribed by most healthcare practitioners in India. It is equi-proportional

mixture of three traditional herbs- *Haritaki* (*Terminalia chebula* Linn.), *Bibhitaki* (*Terminalia bellarica* Roxb.) and *Amalaki* (*Embllica Officinalis* Gaertn). This wonder drug combination is known to exhibit Antioxidant, Immunomodulatory, Antimutagenic, Antiviral, Antibacterial and Antifungal properties^[4,5]. According to Kumar et al Triphala has antibacterial, wound healing and antioxidant properties necessary for management of infected dermal wounds^[6].

In Ayurveda, the term *Vrana* is equated to wound of modern parlance and the drugs having both *Vrana shodhana* (wound cleansing) and *Vranaropana* (wound healing) properties play an important role in wound management.

Acharya Sushruta mentioned *Triphala* as one among the *Vranaropana* (Wound healing) *Dravya* along with *Priyangu*, *Dhava*, *Kaasisa*, *Lodhra* etc ^[7] and in *Kaiyadeva Nighantu* the *Ropana* & *Kleda hara* (which dries up the exudations from wound) Properties are mentioned for *Triphala* ^[8].

The *Arka Ksheera* (Milky latex) was also used for different clinical conditions externally mainly and it is one among 3 drugs having milky latex used for *Vamana* & *Virechana karma* ^[9]. The Properties of *Arka Ksheera* mentioned by *Bhavamishra* are, it is *Tikta rasa*, *Ushna Virya*, *snigdha guna* and is used in diseases like *Kushta* (various skin diseases),

Gulma (a type of Lump), *Udara* (diseases of abdomen) and is best *Virechana Dravya* ^[10]. Plant latex has wider ethno-pharmacological applications for wound healing, burns, joint pain and for controlling worm infections.

Materials

Dried fruits of Triphala were purchased from local market made to course powder and latex from Arka plant was daily collected from the College Herbal Garden.

CASE REPORT

A male patient of 51years age was having Diabetes since 12year came to hospital with wound at plantar region of Left foot. He also complaints tingling sensation on & off with feeling of roughness of skin at both foots which suggests the Neuropathy.

Upon history taking it was known that he developed blister in the evening while walking with bare foot at his construction area. He applied “Burn heal Cream”, with that blister got opened & he continues the application for 5 days.

After 5 days he visited nearby local clinic, their Physician removed the debris from the wound & dressing was done. He prescribed some antibiotics orally with T-bact ointment for local application. The patient used the ointment only for 10 days and found nothing significant improvement in healing of wound.

Methodology

TABLE 1. SHOWING DRUGS WITH FREQUENCY, TIMINGS AND DURATION OF TREATMENT

Drug	Frequency	Time	Duration
<i>Triphala Kashaya wash</i>	Twice daily	Moring & Evening	Initially 7 days but continued for 3 months
<i>Arka Ksheera Lepa</i>	Twice daily	Moring & Evening	Initially 7 days but continued for 3 months

Preparation of *Kashaya* (Decoction)

The course powder was prepared from deseeded *Triphala* fruits. The one part of this crude powder and 16 parts of Water is added and boiled till it reduced to 1/8th ^[11] and thus prepared decoction was used for wound wash. The wound wash was done with freshly prepared *Triphala Kashaya* for about 15

minutes and when it is dried completely milky latex of *Arka* plant which is collected freshly was applied and left over as such without dressing it until latex was dried completely. During this treatment protocol immediate dressing was not done but during night time to avoid any sort of dust particle contact a clean cotton cloth was covered over wound.

This treatment was initially planned for 7 days as IPD management but due to his job and financial condition he discharged from hospital and advised to continue it in home with proper guidelines of preparing *Kashaya* and latex application.

Results

This medication was continued for 3 months upon observing good signs of

improvement in healing process of wound as well as Neuropathic symptoms on regular consultation once in every 15 days. It is significant to note that during 3 months of Treatment the Blood sugar levels (PPBS) of the patient were around 230-250mg/dl. Still the *Triphala kashaya* wash followed by *Arka ksheera Lepa* has shown excellent Wound healing effect.



Fig 1.Before Treatment

Fig.2. after 1 month of Treatment

Fig 3. At 2nd month



Fig 4. After 2 and half month of Treatment- Healed wound

DISCUSSION

Whatever be the nature of wound there are four essential components in the process of healing

1. Traumatic inflammation & dead tissue demolition

2. Wound contraction, which reduces the wound size.
3. Epithelisation, which covers the wound surface.
4. Connective tissue formation, which fills the gap in wound^[12.]

Mode of Action of Medicines Used in Present Case

1. ANTIMICROBIAL ACTIVITY

Controlling the infection in Diabetic wound is highly primitive, *Triphala* rich in Polyphenols and ascorbic acid might be responsible for antimicrobial action ^[13]. Calotropis latex contains tannins which are known to promote wound healing mainly due to their astringent and antimicrobial properties that contribute to wound contraction and increased rate of epithilization ^[14].

2. COLLAGEN SYNTHESIS

Collagen is the predominant protein of the extra cellular matrix in the skin, and is the component which ultimately contributes to wound strength and also plays role in other processes such as homeostasis, re-epithilization ^[13]. However, the antibiotics formulation merely eradicates the microbial growth and has no role in the synthesis of collagen. *Triphala* shown to be an instrumental medication in promoting synthesis of collagen at wound site due to presence of active ingredients like Ascorbic acid, catechins and Poly phenols such as ECGG (Epigallocatechin gallate)^[13].

3. ANTI-OXIDANT ACTIVITY

During the early inflammatory phase of wound healing, leukocytes and macrophages infiltrate the healing tissue and produce large amount of reactive oxygen species (ROS) as part of their defense mechanism. Although this process is beneficial, increased levels of ROS can cause severe tissue damage ^[15]. *Triphala* scavenges the free radicals effectively and decreases the oxidative stress ^[16]. This antioxidant activity of *Triphala* helps to inhibit ROS on wounds and enhance healing ^[15].

Phenolics, the most abundant bioactive compounds present milky latex have been known for their antioxidant properties and taking part in response to oxidative stress conditions like wound ^[17].

4. NEO-VASCULARIZATION

Plant latex increases vascular permeability and allows a variety of cytokines and growth factors to reach the damaged tissue. It also induces angiogenesis and help to repair wound, inhibit tumoral growth and do revascularization of tissues ^[18].

TABLE 2. Wound healing uses of arka ksheera in ayurveda treatises

S. no	Clinical conditions	References
1	When maggots formed in Kushta	Su.chi 9/51 ^[19]
4	Leaves of Arka used for covering the wound	Ch.chi 25/95 ^[20]

5	Arka ksheera application removes Maggots, pus	Vaidya manorama 11/48 ^[21]
6	Filling of Arka latex in tooth removes pain & organisms	A.H.U 22/20 ^[22]

CONCLUSION

Diabetic foot management is multi-disciplinary approach & among these off-loading & debridement is considered vital to the healing process of wound in diabetic patients. The Plantar region of foot being most common site of ulceration & are consequences of mechanical trauma unnoticed by the patient which is very evident in this present case.

The aim of wound care is to promote and enhance wound healing in the shortest time with minimal pain conducive to tissue repair and regeneration. Currently the treatment options for majority of wounds include more of supportive measures (maintenance of hygiene, proper dressing, and prophylactic use of antibiotics) rather than agents that actually improve the process of wound healing.

The various secondary metabolites present in the Triphala & Arka Ksheera assist in the organized manner of wound healing coupled with triggering of the formation of collagen, controlling the infection along with improving Sensory neuropathy and vascular insufficiency. The Present Case of Chronic Diabetic patient with Uncontrolled Blood sugar levels, the Triphala Kashaya wash followed by Arka

Ksheera Lepa is found to be highly effective in healing the wound comprehensively along with improved signs of neuropathy.

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