



Effect of Prakshalana Karma in a Dushta Varana: A Single Case Study

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Abstract

A condition characterized by selective destruction of body tissues, which leads to discoloration and permanent scarring after healing, is referred to as a wound or Vrana. The principles of wound management and healing, applicable to various tissue types and causes of injury, are well-documented in Ayurveda. This knowledge enables surgeons to effectively manage wounds, facilitating optimal recovery in a shorter timeframe. Non-healing ulcers can be associated with Dushta Vrana in Ayurvedic terms. The term "Prakshalana" refers to the process of washing. Prakshalana Karma involves the application of a medicated decoction of Nim-Guduchyadi (Drugs from Aragwadhadi Gana) to the affected area, which is particularly beneficial in cases of Dushta Vrana. This procedure aids in cleansing the wound of dirt, infection, and harmful microorganisms, thereby accelerating the healing process through the prompt renewal of cells. In the present case report on Dushta Vrana, a comprehensive patient history was obtained, along with necessary clinical examinations and laboratory investigations. The patient was hospitalized and treated with external procedures, including Prakshalana Karma, in conjunction with internal medications. Following the Prakshalana Karma, significant improvement was observed in the wound, along with alleviation of other associated symptoms.

Keywords: Dushta Varana, Yashtimadhu Tail, Non-healing wound, Scar, Nimb-Guduchyadi Kashaya, Wounds, Aragwadhadi Gana, Wound Healing, Vrana

Introduction

In Ayurveda, Shalyatantra is a specialized branch that focuses on surgical interventions, including the removal of various foreign materials such as straw, dust, metals, secretions, and more. This field also addresses issues caused by blunt and sharp instruments, fragments of bone, hair, nails, and pus, utilizing techniques such as Kshara and Agnikarma^[1]

Among the various subjects in Shalyatantra, Vrana is particularly significant. Acharya Sushruta, celebrated for his surgical expertise, offers a comprehensive examination of Vrana. In Ayurvedic texts, Vrana is identified as a pathological condition categorized into two main types: Nija Vrana and Agantuj Vrana.

Vrana is defined as follows^[2]:

- Gatra refers to the tissue or body part.
- Vichurnane signifies a discontinuity, break, or rupture in the tissue.

Thus, "Vrana Gatra Vichurnane" conveys the idea of discontinuity, break, rupture, or discoloration of tissue in a specific area of the body. This concept is essential for understanding the management and healing processes of wounds within the Ayurvedic tradition.

Acharya Sushruta elaborates on specific types of wounds that, due to various external or internal factors, deteriorate to a state where healing is either delayed or absent, categorized as Dushta Vrana. Acharya Charaka further describes Dushta Vrana as a wound that emits a foul odour, has lost its normal coloration, and is characterized by excessive discharge and pain. Madhvacharya adds that Dushta Vrana is chronic in nature, elevated above the surrounding tissue, and discharges pus and impure blood, presenting features that are contrary to those of Shuddha Vrana.

In the context of wound healing, two critical concepts must be understood^[3]:

Regeneration: This refers to the replacement of lost tissue with similar tissue types, achieved through the proliferation of surrounding undamaged specialized cells.

Repair: This process involves the replacement of lost tissue with granulation tissue, followed by fibrosis and scar tissue formation. Repair occurs when the surrounding specialized cells lack the ability to proliferate, as seen in tissues like neurons and muscle, particularly when the extent of tissue destruction exceeds the regenerative capacity of the surrounding cells.

Objectives

- To evaluate the shodhan and ropan effect of Prakshalana Karma in management of Dushtavrana
- To study the mode of action of Nimb-Guduchyadi Kashaya in Wound Healing
- To study about Dushtavrana detail according to ayurveda and Traumatic wound according to modern text.
- To assess the subjective and objective parameters according to assessment criteria.
- To achieve the outcome of study in 15 days

Case Report

Type of Study: Observational single case design.

Study Centre: Yashwant Ayurvedic College Kodoli Kolhapur

History of Present Illness

A 30 years old male patient came to Yashwant Charitable hospital on with chief complaints of pain, swelling around right foot with non-healing wound, difficulty in walking due to pain.

History: After 1 week of injury (2.5 Months Ago) wound was infected due to poor hygiene and Debridement was done for the same. And after debridement the wound was not healing properly also mild discharge, pain and slough was present.

Past Medical History: No any

Family History: Mother-HTN ON Rx(since 5 years)

Personal History

Diet-Mixed

Appetite-Regular

Sleep-Disturbed

Bowels-Constipated (once in 2 days)

Micturition-Normal (4-5 times/day)

Habits-Alcohol intake (occasional)

General Examination

Temp-Afebrile

BP-120/70 mm hg

Heart rate-72/bpm

Weight-58 kg

Pallor-Absent

Cyanosis-Absent

Temperature-36.8 degree C

Ashtavidha Pariksha

Nadi-72/min.

Mala-Ruksha/Saam

Mutra-samyaka

Jivha-Sam

Shabda-prakrut

Sparsha-Samsheet

Druk-prakrut

Akriti-Krusha

Local Examination

Darshan Pariksha (Inspection)

- Pus Discharge:** Presence of pus
- Foul Smell:** Emission of a strong odour.
- Colour:** Observation of abnormal coloration (Shukla Krishna varni).
- Slough:** Presence of necrotic tissue (Putimamnsa).
- Swelling:** Inflammation in the surrounding tissue
- Sparshan Pariksha (Palpation)**

vii). Tenderness: Assessment of tenderness (Vedana).

viii). Swelling: Evaluation of swelling in the affected area.

ix). Prashna Pariksha (Interrogation)

x). Pain during Movement: Increased pain while walking.

xi). Itching and Burning Sensation: Presence of itching (Kandu) and burning (Daha).

xii). Duration of Symptoms: Chronicity of the condition (Dirghkal Anubandh).

Investigations Done

BSL(R)-100mg/dl

HIV/HBsAG-Non Reactive

Diagnosis: Dushtavrana (Non Healing Infected Wound)

It was made on the basis of signs and symptoms mentioned by Acharya Sushruta

Selection of Treatment

As per available literature Acharya Sushrut has mentioned "Shashti Upkrama" [14] in the Wound Management [5]. "Prakshalan" is one of the treatment modalities. As Prakshalan with Drugs in Aragwadhadhi Gana [4] possesses qualities like Shodhana, Ropana etc. which are helpful in Vrana Chikitsa. As wound was full of slough and pus it was very important to do Vrana Shodhana for further Ropana and hence decided to do Prakshalan with Kashaya

Materials Used

- Mosquito forceps
- Tissue cutting forceps
- Jar
- Nimb-Guduchyadi Kashaya (Decoction made with Nimb, Guduchi, Patol, Kutaj)

Prakshalan Kashaya used is Nimb-Guduchyadi Kashaya

Pharmacodynamics

i). Guduchi (*Tinospora cordifolia*) [15]

- Immunomodulation:** Enhances the immune response by promoting the activity of immune cells like macrophages and lymphocytes.
- Anti-inflammatory:** Inhibits pro-inflammatory cytokines, helping to reduce inflammation.
- Antioxidant:** Protects cells from oxidative stress, aiding tissue repair.

ii). Kutaj (*Holarrhena antidysenterica*) [16]

- Astringent:** Promotes tissue contraction and can reduce secretions, helping in wound healing.
- Antimicrobial:** Exhibits antibacterial properties, particularly against gastrointestinal pathogens.

iii). Nimba (*Azadirachta indica*) [17]

- Antimicrobial:** Effective against a wide range of bacteria and fungi, aiding in infection control.
- Anti-inflammatory:** Reduces inflammation and promotes skin health.
- Antioxidant:** Protects cells from damage and supports healing.

iv). Patola (*Trichosanthes dioica*) [18]

- Cooling Effect:** Helps to balance excessive heat in the body, which may impede healing.
- Detoxification:** Aids in the elimination of toxins, supporting overall health.

Pharmacokinetics

- **Absorption:** These herbs are typically consumed in various forms (powders, decoctions, extracts). Their active compounds are absorbed through the gastrointestinal tract when ingested.
- **Distribution:** Once absorbed, the bioactive compounds are distributed throughout the body, targeting areas of inflammation and infection. They can cross cell membranes and affect various tissues.
- **Metabolism:** The liver metabolizes the active components. For example, compounds like alkaloids in Kutaj may undergo phase I and II metabolic processes, converting them into more water-soluble forms for excretion.
- **Excretion:** Metabolites and unused compounds are primarily excreted via the kidneys (urine) and bile (feces). The half-life varies depending on the specific active compound.

The combination of Guduchi, Kutaj, Nimba, and Patola works through multiple pathways to promote wound healing, including immunomodulation, anti-inflammatory effects, and antimicrobial activity.

- Yashtimadhu Tail ^[6]
- Cotton Gauze
- Cotton Roller Bandage

Method

Treatment Plan

The patient was treated with both internal medications and external procedures.

Internal medication

Tb. Triphala Guggulu 500mg Twice a Day for 15 Days ^[7]

External Medication

Preoperative (Purvakarma)

- Written informed consent of the patient was taken before initiating the procedure on the patient
- All instruments and dressing material were arranged
- Counselling about pain while cleaning and dressing was done

Operative (Pradhan Karma)

- Position-Supine
- Right foot was stretched out of bed for better exposure
- Debridement of slough with mosquito forceps was done also foreign bodies like soil particles were removed.
- After cleaning, Nimb-Guduchyadi kwath prakshalan was done
- Yashtimadhu tail was locally applied on wound and cotton gauze kept to cover the wound
- Cotton pad applied and dressing was done by cotton bandage.

Postoperative (Paschat Karma)

- Advised daily dressing
- Rest
- Keep dressing clean & dry and avoid contact with water

Assessment Criteria

1. Pain by VAS Scale ^[8]

Table 1: Pain Assessment by VAS (visual analogue scale)

0	No Pain
1	Mild Pain (VAS 1-3)
2	Moderate Pain (VAS 4 to 7)
3	Severe and continuous pain (VAS 8 to 10)

2. Wound Healing Assessment: According to *Bates-Jensen* Wound Assessment Tool (Bwat) ^[9]

- Edges
- Exudate Type
- Exudate Amount
- Surrounding skin color
- Peripheral Tissue edema
- Granulation Tissue
- Epithelialization

i). Edges

Table 2: Edges Assessment of Wound by BWAT

1	Indistinct, diffuse, none clearly visible
2	Distinct, outline clearly visible, attached, even with wound base
3	Well-defined, not attached to wound base
4	Well-defined, not attached to base, rolled under, thickened
5	Well-defined, fibrotic, scarred or hyperkeratotic

ii). Exudate Type

Table 3: Exudate Type Assessment of Wound by BWAT

1	None
2	Bloody
3	Serosanguineous: thin, watery, pale red/pink
4	Serous: thin, watery, clear
5	Purulent: thin or thick, opaque, tan/yellow, with or without odor

iii). Exudate Amount

Table 4: Exudate Amounts Assessment of Wound by BWAT

1	None, Dry wound
2	Scant, wound moist but no observable exudate
3	Small
4	Moderate
5	Large

iv). Surrounding Skin Color

Table 5: Surrounding Skin Colour Assessment of Wound by BWAT

1	Pink or normal for ethnic group
2	Bright red &/or blanches to touch
3	White or grey pallor or hypopigmented
4	Dark red or purple &/or non-blanchable
5	Black or hyperpigmented

v). Peripheral Tissue Edema

Table 6: Peripheral Tissue Oedema Assessment of Wound by BWAT

1	No swelling or oedema
2	Non-pitting oedema extends <4cm around wound
3	Non-pitting oedema extends >4cm around wound
4	Pitting oedema extends <4cm around wound
5	Crepitus and/or pitting oedema extends >4cm around wound

vi). Granulation Tissue

Table 7: Granulation Tissue Assessment of Wound by BWAT

1	Skin intact or partial thickness wound
2	Bright, beefy red; 75% to 100% of wound filled &/or tissue overgrowth
3	Bright, beefy red; <75% & >25% of wound filled
4	Pink, &/or dull, dusky red &/or fills <25% of wound
5	No granulation tissue present

vii). Epithelialization

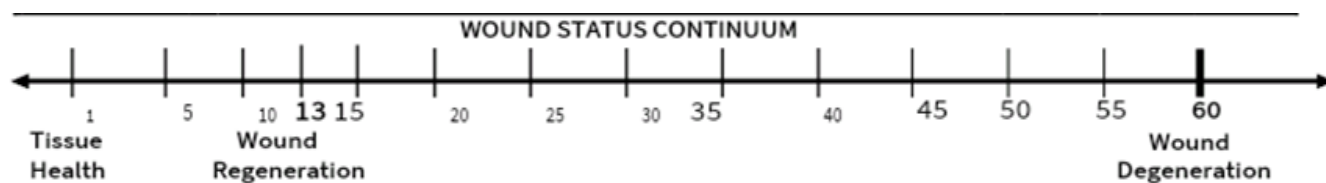
Table 8: Epithelialisation Assessment of Wound by BWAT

1	100% wound covered, surface intact
2	75% to <100% wound covered &/or epithelial tissue extends >0.5cm into wound bed
3	50% to <75% wound covered &/or epithelial tissue extends to <0.5cm into wound bed
4	25% to <50% wound covered

Observation

Table 9: Wound Assessment After and Before Treatment

	BT	AT	AT	AT
Symptoms	0 th day	5 th day	10 th day	15 th day
Pain	7	4	2	1
Edges	4	2	2	1
Exudate type	5	3	2	1
Exudate Amount	4	2	2	1
Surrounding skin colour	4	2	2	1
Peripheral tissue edema	4	3	2	1
Granulation tissue	5	3	2	1
Epithelialization	5	3	2	1
Total	38	22	16	8

**Fig 1:** Wound Status Continuum

At the 15th day score is 8 that suggests

Wound Regeneration hence wound is healing properly. Also Pain is reduced.

**Before Treatment****After Treatment****Fig 2:** Images of Wound Before and After Treatment

Result

- Following an initial 5-7 days of active treatment, which included daily dressing with Nimb-Guduchyadi Kashaya Prakshalana and the application of Yashtimadhu Tail, the patient exhibited significant improvement. Notable signs such as pus discharge, foul odor, and slough diminished, along with a reduction in symptoms like pain and difficulty in walking
- By the ninth day, the wound showed marked improvement; the mucopurulent discharge had transformed into healthy pink/red granulation tissue, accompanied by only mild serous discharge.
- By the fifteenth day, the wound was fully healed, and the patient experienced 90% relief from symptoms, enabling them to resume daily activities with minimal pain.

Discussion

Effective wound management is crucial in healthcare, and Ayurveda provides a comprehensive understanding of wounds (Vrana) that includes both their healing mechanisms and the challenges they present. This case report highlights the treatment of a Dushta Vrana, characterized by infection and the presence of necrotic tissue, utilizing Prakshalana Karma with Nimb-Guduchyadi Kashaya-a traditional Ayurvedic approach.

The patient's non-healing wound, persisting for over two months, reflects the complexities often seen in chronic wounds. The initial debridement was essential for removing slough and foreign debris, thereby creating an optimal environment for healing. The subsequent use of Nimb-Guduchyadi Kashaya aided in cleansing the wound of harmful microorganisms and promoting tissue regeneration. The unique properties of the components-Guduchi's immune-boosting and anti-inflammatory effects, Kutaj's astringent capabilities, Nimba's broad-spectrum antimicrobial action, and Patola's detoxifying and cooling benefits-worked synergistically to facilitate healing.

The notable improvements observed over the treatment period align well with Ayurvedic principles of Shodhana (cleansing) and Ropana (healing). The reduction in pain, exudate, and swelling, along with enhanced granulation and epithelialization, demonstrates the effectiveness of this treatment approach. Additionally, the application of Yashtimadhu Tail provided further support, offering a soothing protective layer to the wound.

Beyond physical healing, the substantial improvement in the patient's quality of life-reflected in decreased pain and the ability to resume daily activities-emphasizes the importance of addressing both subjective and objective measures in wound care.

This case highlights the benefits of a multidisciplinary approach that integrates traditional Ayurvedic practices with modern medical techniques, paving the way for enhanced patient outcomes.

Conclusion

The treatment of Dushta Vrana using Prakshalana Karma with Nimb-Guduchyadi Kashaya has shown significant effectiveness in promoting wound healing. This holistic method not only targets the physical aspects of the wound but also improves the patient's overall well-being. The results from this case support the integration of Ayurvedic principles into contemporary wound management, suggesting that further research into these traditional practices could lead to

more effective strategies for addressing chronic wounds, ultimately benefiting patients with similar issues.

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