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Management Of Pramehajanya Vrana (Diabetic Wound): An Ayurvedic And Integrative Approach

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Abstract

Pramehajanya Vrana, described in Ayurvedic classics, can be clinically correlated with diabetic wounds or diabetic foot ulcers (DFUs). These wounds are notoriously difficult to heal due to chronic hyperglycemia, neuropathy, microangiopathy and impaired immunity. Ayurveda offers a holistic framework of understanding through Prameha, Vrana and Dusta Vrana concepts, emphasizing the role of Shodhana (purification), Shamana (pacification) and Ropana (healing) therapies. Integrative management combining Ayurveda with modern wound care, glycemic control, and infection management provides a comprehensive approach. This article reviews the Ayurvedic perspective, classical and contemporary modalities and integrated strategies for effective management of Pramehajanya Vrana.

Keywords: Pramehajanya Vrana, Diabetic Foot Ulcer, Ayurveda, Dusta Vrana, Shodhana, Ropana, Wound Healing, Integrated Management, Diabetes Mellitus, Chronic Ulcer.

Introduction

Vrana (wound) is a major clinical entity extensively detailed in the Sushruta Samhita**,** where Sushruta is regarded as the father of surgery. Vrana may result from external causes (Agantuja) or internal systemic disorders (Nija). Pramehajanya Vrana**,** occurring in chronic *Prameha* (diabetes mellitus), is classified as Dushta Vrana due to poor healing capacity. Its classical features—foul smell (durgandha), discoloration (shyava varna), excessive discharge (ati srava), sloughing (mridu sparsha), and delayed healing (manda ropana)—closely correlate with the presentation of chronic diabetic wounds described in modern medicine [1–3].

In contemporary medical science, diabetic foot ulcers (DFUs) are among the most debilitating complications of diabetes, arising primarily from peripheral neuropathy, ischemia due to micro/macroangiopathy, and secondary infection**.** Neuropathy promotes repeated unnoticed trauma, while vascular compromise reduces tissue oxygenation and nutrition and high glucose levels weaken immune response. At the molecular level, persistent hyperglycemia leads to formation of AGEs, oxidative stress, endothelial dysfunction, impaired leukocyte action, and defective collagen synthesis, resulting in chronic, non-healing wounds with poor granulation and prolonged inflammation. The global prevalence of DFUs is 6–10%**,** and the lifetime risk among diabetics is 15–25%**,** contributing to ~85% of non-traumatic lower-limb amputations**,** making them a major health and socioeconomic burden [4]. Their chronic and recurrent nature demands a multidisciplinary approach, including infection control, debridement, pressure off-loading, vascular management, and glycemic optimization**.** The close resemblance between Pramehajanya Vrana and diabetic foot ulcers in terms of clinical features and pathophysiology forms a strong basis for integrative management, combining Ayurvedic principles of Shodhana**,** Ropana, and Pramehahara Chikitsa with modern wound care for improved healing outcomes.

Vrana in Ayurveda

Definition

Sushruta defines Vrana as a breach in the continuity of skin, muscle, vessels, ligaments and other tissues resulting in pain, swelling, and discharge [5].

Types

- Shuddha Vrana (clean wound) – tends to heal naturally.
- Dushta Vrana (infected/chronic wound) – characterized by foul smell, excessive discharge, pain, blackish discoloration, induration, and delayed healing [6].
  Pramehajanya Vrana belongs to this category.

General Principles of Vrana Chikitsa

Sushruta advocates a triple-stage approach:

Acharya Sushruta describes Shaṣṭi Upakrama (sixty measures) for the comprehensive management of Dushta Vrana, which encompass both surgical and medicinal modalities.

1. Shodhana (Purification)

Aim: To remove slough, necrotic tissue, discharge and microbial load and prepare the wound bed for healing.

Key measures:

- Shastra Karma (surgical debridement) to excise unhealthy tissue.
- Kshara Karma (chemical debridement) for dissolving slough.
- Agni Karma (thermal cauterization) to control infection and bleeding.
- Dhavana / Parisheka (herbal wound irrigation) using Triphala or Panchavalkala decoctions.
- Internal Shodhana (e.g., Virechana) when systemic dosha involvement persists.

Outcome: Dushta Vrana converts to a clean Shuddha Vrana ready for healing.

2. Shamana (Pacification)

Aim: To reduce inflammation, infection, pain and dosha imbalance.

Key measures:

- Lepa (herbal pastes) with anti-inflammatory and antiseptic properties.
- Seka (warm medicated fomentation) to reduce edema and pain.
- Abhyanga (gentle local oiling) to improve circulation.
- Shamana Aushadhi (internal medicines) to control Kapha-Pitta imbalance and hyperglycemia.
- Deepana-Pachana to correct impaired digestion and metabolism.

Outcome: Stabilization of the wound environment and prevention of further tissue damage.

3. Ropana (Healing)

Aim: To promote granulation, angiogenesis, collagen synthesis and epithelialization.

Key measures:

- Ropana Taila and Ghrita such as Jatyadi Taila and Chakramarda Taila.
- Bandhana (scientific wound dressing) to maintain moisture balance and prevent contamination.
- Rasayana therapy (e.g., Amalaki, Guduchi) to enhance tissue nutrition and immunity.
- Diet and lifestyle regulation to support systemic healing.

Outcome: Healthy granulation, scar maturation, and complete wound closure.

Pramehajanya Vrana: Ayurvedic Perspective

Etiopathogenesis

- Prameha causes chronic kapha–meda dushti, leading to srotorodha (microvascular obstruction).
- Tissue weakness (dhatu shaithilya) makes wounds prone to infection.
- Neuropathy and poor perfusion lead to painless, chronic ulcers.

Lakshana (Clinical features) [8]

- Foul-smelling discharge (durgandha)
- Soft, insensitive wound base (mridu sparsha)
- Blackish discoloration (shyava varna)
- Excess exudation (ati srava)
- Slow or absent healing (mandagati ropana).

These features correlate with neuropathic, ischemic and infected diabetic ulcers in modern medicine.

Ayurvedic Management of Pramehajanya Vrana

1. Shodhana Chikitsa (Purificatory Management)

The primary goal of Shodhana is to remove necrotic tissue, pus and toxic metabolites, thereby creating a clean wound bed conducive to healing.

- Wound cleansing:

Irrigation with herbal decoctions such as Triphala, Panchavalkala and Nimba kwatha helps in reducing local infection, slough and inflammation, while maintaining the wound's moisture balance [9].

Application of herbal alkalis (Kshara dravya) to achieve effective chemical debridement. [10].

Jalaukavacharana reduces local congestion, improving microcirculation and exerting mild antimicrobial and anti-inflammatory effects through bioactive compounds in leech saliva [11].

2. Shamana Chikitsa (Pacificatory Management)

Shamana aims to correct the underlying Prameha dosha dushti and promote internal and external wound healing through both systemic and topical approaches.

Internal Medications:

- Nisha Amalaki acts as a hypoglycemic, antioxidant and anti-inflammatory formulation beneficial in metabolic control and wound repair [12].
- Guduchi (Tinospora cordifolia), Shilajatu, and Triphala guggulu are known to enhance immunity, promote detoxification, and regulate deranged kapha-medovriddhi associated with Prameha [13].

3. Ropana Chikitsa (Healing Phase)

After adequate purification and pacification, Ropana therapy accelerates tissue repair and restores the normal structure and function of the skin.

- Jatyadi taila, Nimba taila and Haridra taila possess shodhana and ropana properties, effective against local infection and in promoting wound contraction [14].
- Madhu (honey) dressings are widely used due to their proven antibacterial, de-sloughing, and osmotic cleansing properties, which facilitate granulation and epithelialization [15].
- Ghrita-based preparations like Yashtimadhu ghrita and Shatadhouta ghrita act as soothing, anti-inflammatory agents that promote epithelialization and prevent scar formation [16].
- Internal administration of Panchatikta ghrita guggulu supports wound granulation and aids in overall rejuvenation and metabolic balance [17].

Modern and Integrative Management

Modern Interventions

- **Debridement:** Sharp/surgical removal of necrotic tissue.
- **Antibiotic therapy:** Based on wound swab culture.
- **Moist dressings:** Hydrogel, hydrocolloid, or foam.
- **Offloading:** Total contact casting (TCC) to redistribute pressure away from the ulcerated lesions.
- **Adjunct therapies:** Negative Pressure Wound Therapy (NPWT), Hyperbaric Oxygen Therapy (HBOT).

Integrated Management of Pramehajanya Vrana

The management of Pramehajanya Vrana (diabetic wounds) requires a holistic and evidence-based approach combining Ayurvedic principles with modern medical strategies. Such an integrative framework addresses both local wound pathology and systemic metabolic imbalances, ensuring comprehensive healing and prevention of recurrence.

Clinical Practice Guidelines [18]

- **Assessment:**
  Strict glycemic control is essential before initiating any wound intervention. Ayurveda emphasizes Prameha Nidana Parivarjana (avoidance of causative factors) along with systemic balance and restoration of Dhatu Samya for effective wound healing.

- **Cleansing:**
  Daily wound irrigation with Triphala or Nimba kwatha provides natural antimicrobial and cleansing action, promoting wound purification and reducing bacterial load.

- **Debridement:**
  Application of Kshara Karma or surgical/mechanical debridement helps remove necrotic tissue and slough, facilitating healthy granulation and preparing the wound bed for healing.

- **Dressings:**
  Topical application of Madhu (honey) or Jatyadi taila under aseptic precautions accelerates granulation tissue formation, minimizes infection, and promotes epithelization due to their Ropana and Shodhana properties.

- **Systemic Support:**
  Internal administration of Guduchi, Nisha Amalaki, and Shilajatu enhances glycemic regulation, strengthens immunity, and accelerates chronic wound healing through Rasayana and Medohara effects.

- **Adjunct Therapies:**
  Jalaukavacharana (leech therapy) is recommended for ischemic or Dushta Vrana to improve local circulation and reduce congestion, while Negative Pressure Wound Therapy (NPWT) may be employed for large, deep or exudative ulcers for enhanced drainage and tissue repair.

- **Dietary Advice:**
  Restriction of Madhura, Snigdha and Guru foods is advised. Incorporation of Yava (barley), Mudga (green gram) and Tikta Shaka (bitter vegetables) aids in better glycemic control and tissue metabolism.

Integrative Therapeutic Framework

- **Nidana Parivarjana:**

Prevention of causative and aggravating factors remains the cornerstone in both Ayurveda and modern medicine.

– Ayurvedic View: Avoid excessive intake of sweet, oily and heavy foods; reduce sedentary habits and mental stress which aggravate Kapha and Medas, thereby preventing Prameha progression and wound formation.

– Modern View: Emphasize lifestyle modification through balanced diet, foot hygiene, smoking cessation, weight control and regulation of lipid profile and blood pressure to minimize neuropathic and ischemic complications.

- **Wound Irrigation:**
  Use of Triphala or Panchavalkala kwatha instead of plain saline for wound irrigation enhances cleansing, provides astringent and antioxidant benefits, and promotes granulation.

- **Topical Applications:**
  Post-debridement dressing with Madhu or Jatyadi taila effectively removes slough, reduces microbial contamination and supports tissue regeneration and epithelial repair.

- **Leech Therapy (Jalaukavacharana):**
  In ischemic or sloughy wounds, leech application enhances local perfusion, reduces stagnation of Dushta Rakta and exhibits mild antimicrobial and anti-inflammatory effects, aligning with modern microcirculatory correction principles.

- **Systemic Glycemic Control:**
  Maintained through modern Oral Hypoglycemic Agents (OHAs) and/or insulin therapy along with Ayurvedic formulations such as Nisha Amalaki, Guduchi, and Shilajatu. This dual approach helps normalize glucose metabolism, enhance immunity and prevent recurrence.

Research Evidence

Recent studies highlight the value of Ayurvedic interventions as adjuncts in Pramehajanya Vrana(diabetic wounds).

- **Honey dressings:** Multiple systematic reviews and meta-analyses confirm honey's efficacy in chronic wounds, including diabetic foot ulcers (DFU), showing faster debridement, reduced infection, and quicker healing compared with conventional dressings [15].
- **Jatyadi taila & Panchavalkala:** Clinical evaluations and innovative aerosol formulations demonstrated accelerated granulation and wound closure in DFU and chronic ulcers, often outperforming standard dressings [14].

- **Triphala:** Both experimental and translational studies reveal antioxidant, antimicrobial, and collagen-enhancing effects, significantly improving wound contraction in diabetic models [16,17].
- **Leech therapy (Jalaukavacharana):** Case series and systematic reviews suggest it improves microcirculation and ischemic wound salvage, with potential benefit in selected DFU cases [11].
- **Integrative protocols:** Case series report that combining modern debridement and antibiotics with Ayurvedic dressings (Honey, Jatyadi, Triphala, Leech therapy) leads to favorable outcomes and reduced amputation risk [19,20].

Conclusion

Pramehajanya Vrana, correlated with diabetic foot ulcer, is a complex, chronic and difficult-to-heal wound. Ayurveda provides a clear framework under Vrana Chikitsa emphasizing shodhana, shamana, and ropana measures. Classical remedies such as Jatyadi taila, honey, ghrita formulations, and leech therapy have scientific evidence for wound healing. Modern medicine provides surgical, pharmacological, and adjunctive tools. An integrative model combining both systems can yield superior outcomes, reduce recurrence and prevent amputations.

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