

**CONCEPT OF VRANA SHODHANA AND ROPAN: AN INTEGRATIVE REVIEW WITH
MODERN WOUND HEALING****Shubhangi Somnath Birdawade*¹, Jyoti Shinde², Nisha Bolkuntwar³**¹P.G. Scholar, Department of Shalya Tantra, Shree Ayurved Mahavidyalaya Nagpur, MUHS Nashik, Maharashtra State, India.²Professor and H.O.D., Department of Shalya Tantra, Shree Ayurved Mahavidyalaya Nagpur, MUHS Nashik, Maharashtra State, India.³P.G. Scholar, Department of Samhita Siddhant Evum Sanskrit, Government Ayurved College, Nagpur, Maharashtra State, India.***Corresponding Author: Shubhangi Somnath Birdawade**P.G. Scholar, Department of Shalya Tantra, Shree Ayurved Mahavidyalaya Nagpur, MUHS Nashik, Maharashtra State, India. DOI: <https://doi.org/10.5281/zenodo.18873574>**How to cite this Article:** Shubhangi Somnath Birdawade*¹, Jyoti Shinde², Nisha Bolkuntwar³ (2026). Concept Of Vrana Shodhana And Ropan: An Integrative Review With Modern Wound Healing. World Journal of Pharmaceutical and Medical Research, 12(3), 440–445.This work is licensed under [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by-nc/4.0/).

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ABSTRACT

Wound management remains a persistent clinical challenge, particularly in the context of chronic ulcers, diabetic wounds, surgical site infections, and antibiotic resistance. Ayurveda, the traditional system of medicine of India, offers a comprehensive and structured approach to wound care through the dual principles of Vrana Shodhana (wound purification) and Vrana Ropana (tissue regeneration). Classical Ayurvedic texts, especially the Sushruta Samhita, describe detailed classifications, pathogenesis, and stage-wise management of wounds that remarkably parallel modern concepts of wound bed preparation and phased tissue repair. This review explores the similarities between Ayurvedic wound care and modern medical science. It highlights how Ayurvedic principles can serve as a supportive and evidence-based approach, especially in chronic and difficult-to-heal wounds. Further research, better standardization, and clinical studies are needed to safely integrate classical Ayurvedic knowledge into modern wound care practice, which may help improve patient outcomes and broaden available treatment options. By bridging ancient wisdom and modern science, the article highlights potential synergies, gaps in research, and future directions for integrative wound care.

KEYWORDS: Vrana, Shodhana, Ropana, Ayurveda, wound healing, chronic wounds, integrative medicine, tissue regeneration.**INTRODUCTION**

Wound management remains a significant global health challenge. Chronic wounds, surgical site infections, and trauma-related injuries burden healthcare systems and patients alike. Ayurveda, the traditional Indian system of medicine, offers a detailed approach toward wound care through concepts of Vrana Shodhana (cleansing/purification) and Vrana Ropana (healing/regeneration). This article reviews these principles and examines their relevance to modern wound care strategies.

**Ayurvedic Concepts of Wound (Vrana)
VYUTPATTI (Etymological Derivation)**

The term Vrana is derived from the Sanskrit root “vriya”, which means To recover. When combined with the appropriate grammatical suffix in the sense of bhava (state or condition), it denotes a condition characterized by tissue disruption. Thus, Vrana refers to a pathological state involving structural damage or disintegration of bodily tissues (gatra vichoornana).

NIRUKTI (Interpretative Meaning)

Classical Ayurvedic literature explains the term Vrana through various interpretative definitions.

“Vrana gatra vichoornane vranayati iti vrana” – That which causes destruction or disintegration of body tissues is termed Vrana.^[1]

“Savranoti achchadayati yasmat tasmata vrana iti” – After tissue destruction, the healing process leads to covering or closure of the affected area; hence it is called Vrana.^[2]

“Vranyati iti gatra vaivarnya karoti iti arthah” – That which produces discoloration or altered appearance at the site of injury is known as Vrana.^[3]

In Sushruta Samhita; Nidana (causative factors)^[4], Shatkriyakala (pathogenesis)^[5], classification^[6], Lakshana (symptoms)^[7], Shashtiupakarma (sixty therapeutic procedures)^[8] of wound are described in detail.

- Classification based on cause (Nidana): Trauma, burns, bites, surgical incisions, etc.
- Pathology: Imbalance of doshas (Vata, Pitta, Kapha), ama (toxins), impaired agni (digestive/metabolic fire).
- Shat Kriyakala^[9]

1. Sanchaya: Dosha accumulated in its own place. Symptomatology is tissue inflammation activity with heaviness, mild pain, and redness (As Ama Avastha of Vranashopa).

2. Prakopa: It gives rise to symptoms if not treated. Symptomatology is pain and swelling gradually increases, also can observe vitiation of local Twak and Mamsa Dhatu like “Pachyaman Avastha” of Vranashopha.

3. Prasara: Excited Dosha will overflow at their own space. Vata Dosha possesses the power to initiate movement and get associated with other Symptomatology is Inflammation with Heaviness and Mild pain in Vranashoth.

4. Sthansamsraya: Purvarupa of disease become manifested. Doshas get localised. Symptomatology is Pain and swelling increases gradually. Localization of Prakupita Dosha takes place due to Srotovaignya i.e. Pathological Impairment of related Srotas and leads to “Dosha Dushya Sammurchana”.

5. Vyakti: All characteristic symptomatology includes. Dushti of Twak and Mamsa Dhatu occurs with Doshik involvement. Due to Bursting of Shopha + formation of Vrana, Gatra Vichurnana (Destruction) of tissue takes place. Pain, tenderness occurs because of Vata Dosha, Redness and burning is more due to Pitta Dosha, Excessive swelling, Pus formation, itching due to Kapha Dosha.

6. Bheda: Disease becomes chronic and incurable with Vrana symptoms with structural changes. If it is not treated at this stage various complications may occur. Complications like Lakshans of Vrana and Vranita. Clinical features: Pain (Shoola), discharge (Srava), swelling (Shotha), discoloration (Varnashabda), loss of function.

CLASSIFICATION

- Further Acharya Sushruta explains vrana vastu [seat of wounds], vrana vedana [different kinds of

pains of the wounds], vrana varna [colour of wounds] in order to understand vrana as a whole. All this explanation helps us understand vrana and also for its best care and treatment about signs and symptoms and the doshas aggravated for proper treatment and care.^[10]

- LAKSHANA
- Lakshana of Sudha Vrana¹⁰ According to Acharya Sushruta.^[11]
- Recent in origin unaffected by tridosha, Edges with slight blackish colour and having granulation tissue. Absence of pain, Absence of secretion, Even surface throughout the wound area. Slimy surface and Regular surface.
- Lakshana of Dushta Vrana¹¹ According to Acharya Sushruta.^[12]
- Dushta vrana is vitiated ulcer, or ulcer in which aggravated doshas are localised. Extremely narrow or wide mouthed. Too soft Elevated or depressed Black, red or white coloured Too cold or hot Full of slough, pus, veins, flesh, ligaments or putrid pus Upward or oblique course of suppuration Pus runs into cavity and fissures. with cadaverous smell. Burning sensation, Redness, Itching, Pustules crop up around and blood discharge. Agantuja vrana is also known as sadyo vran.
- Sushruta explained 60 upakrama^[13],
- 1. Apatharpana, 2. Alepa, 3. Parisheka, 4. Abhyanga, 5. Svedana, 6. Vimlapana, 7. Upanaha, 8. Pachana, 9. Visravana, 10. Snehana, 11. Vamana, 12. Virechana, 13. Chedana, 14. Bhedana, 15. Dharana, 16. Lekhana, 17. Eshana, 18. Aharana, 19. Vyadhana, 20. Visravana, 21. Seevana, 22. Sandhana, 23. Peedana, 24. Shonitasthapana, 25. Nirvapana, 26. Utkarika, 27. Kashaya, 28. Varti, 29. Kalka, 30. Sarpi, 31. Taila, 32. Rasakriya, 33. Avachoorana, 34. Vranadhoopana, 35. Utsadana, 36. Avasadana, 37. Mrudukarma, 38. Darunakarma, 39. Ksharakarma, 40. Agnikarma, 41. Krishnakarma, 42. Pandukarma, 43. Pratisarana, 44. Lomasanjana, 45. Lomaapaharana, 46. Bastikarma, 47. Uttarabasti, 48. Bandha, 49. Patradana, 50. Krimighna, 51. Brihmana, 52. Vishaghna, 53. Shirovirechana, 54. Nasya, 55. Kavala dharana, 56. Dhoomapana, 57. Madhusarpi, 58. Yantra, 59. Ahara, 60. Rakshavidhan Sushruta

Ayurveda delineates stages of wound pathology that correlate with inflammation, infection, and tissue necrosis, demanding specific interventions.

Concept of Vrana Shodhana

Vrana Shodhana literally means cleansing/purification of the wound. The aim is to eliminate nidana (causative factors), toxins, necrotic tissue, and microbial load, preparing the wound bed for healing.^[14]

Objectives of Vrana Shodhana

- Removal of slough, necrosed tissue (akin to modern debridement)

- Control of infection/inflammation
- Restoration of microenvironment conducive to healing

Ayurvedic Methods for Shodhana

- Prakriti-specific herbs: Neem (*Azadirachta indica*), turmeric (*Curcuma longa*)
- Poultices and pastes: To draw out toxins (similar to moist wound therapy)
- Medicated cleaning solutions: Decoctions with antimicrobial properties
- Surgical debridement (Shastrakarma), when necessary

Concept of Vrana Ropan

After effective Shodhana, the focus shifts to Vrana Ropan promoting tissue repair and regeneration.^[15]

Goals of Vrana Ropan

- Accelerate granulation tissue formation
- Encourage epithelialization
- Reduce scarring
- Restore normal structure and function

Ayurvedic Ropan Agents

Ayurveda suggests formulations that are:

- Vranaropaka: Promoting healing
- Balancing doshas: Supporting systemic harmony

- Enhancing metabolic fire (Agni): To support tissue nutrition

Common Ropan substances include

- Shatadhaut Ghrita
- Honey (Madhur, Ropan)
- Yashad Bhasma (zinc preparations)
- Gandhaka (sulfur)

These agents are used in medicated oils, pastes, and dressings.

MODERN ASPECT

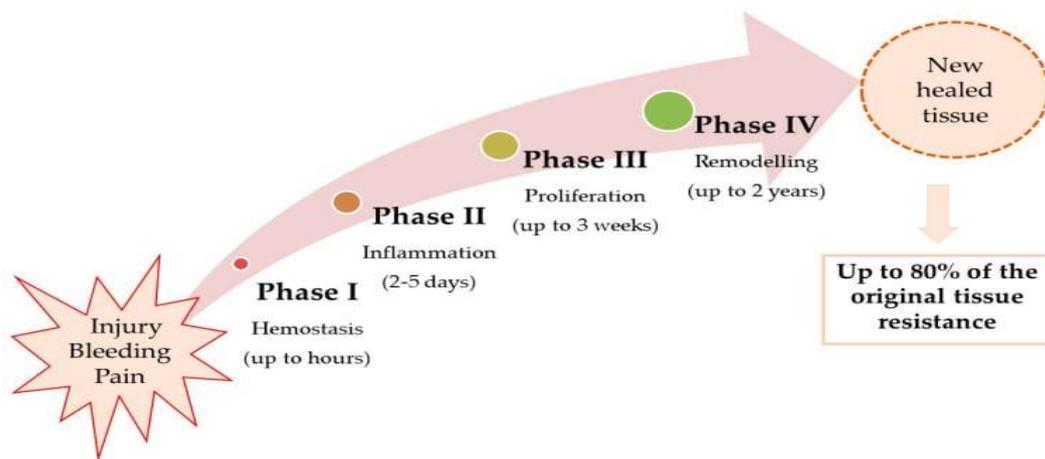
Wound

Wounds are injuries which occur when sudden, rash, and mostly unexpected accidents affect the integrity of skin. The injury may result from different causes such as cuts, crushes, thermal/radiation burns, or surgical events, and could be extended from superficial damages, which affect only the skin's layers, to deep tissues (muscles, nerves, and blood vessels) destruction.^[16]

Pathophysiology of Wound Healing

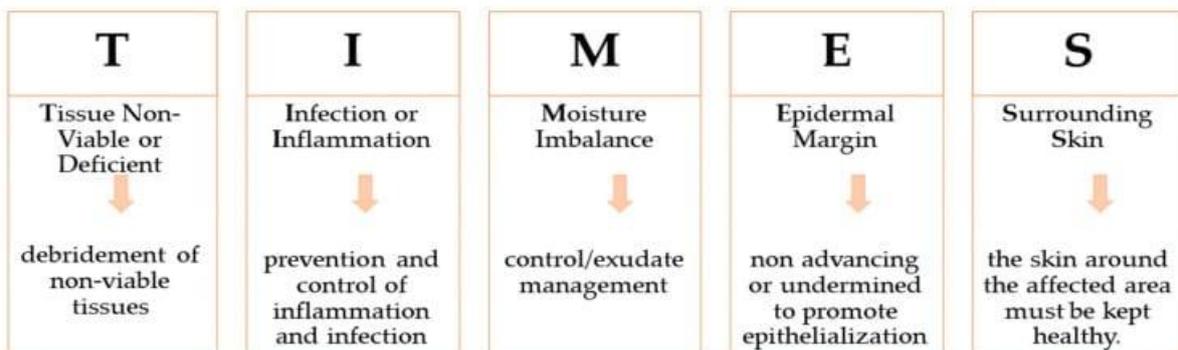
Immediately after injury, a cascade of physiological reactions is triggered in order to restore the physical and functional integrity of the affected area.^[17]

Wound healing involves four steps: hemostasis, inflammation, proliferation, and remodelling.



Wound Care Management

TIMES concept for evaluation of critical parameters during wound healing phases.



Modern Correlates: Modern wound cleansing focuses on.

- Mechanical debridement
- Antimicrobial irrigation (saline, antiseptics)
- Biofilm disruption

Many Ayurvedic herbs have antimicrobial, anti-inflammatory, and antioxidant properties that align with contemporary cleaning methods. For example.

- Neem: Antibacterial against multiple strains.
- Turmeric (curcumin): Anti-inflammatory, antioxidant.

Below is a time-based correlation between modern wound-healing stages and the Ayurvedic Shodhana–

Ropana process, focusing on when each is applied and what is happening biologically.

Shodhana Phase ↔ Early Modern Healing Phases

Ayurveda: Shodhana (Cleansing)

- When used: Day 0 to Day 7 (sometimes longer)
- Until the wound becomes clean, odorless, non-sloughing, and non-infected

Purpose.

- Remove pus, necrotic tissue, foul smell, excessive discharge
- Control infection and inflammation

Modern Medicine Equivalent

Hemostasis + Inflammatory Phase

Modern phase	Time	What happens
Hemostasis	Minutes–hours	Blood clot formation
Inflammation	Day 1–5(7)	Redness, swelling, pain, exudate, immune response

Correlation

Ayurveda considers this period unfit for healing drugs. Emphasis is on cleansing, drainage, debridement. Ropana is contraindicated if Shodhana is incomplete. Shodhana ≈ Hemostasis + Inflammation phase.

Modern View

- End of inflammation, beginning of tissue repair
- Time: Around Day 5–10, depending on wound severity

2. Transition Phase (Clean Wound Stage)

Ayurvedic View

A wound is considered Shuddha Vrana (clean wound) when.

- No pus
- No foul smell
- Minimal pain
- Healthy wound bed
- This stage determines the shift from Shodhana → Ropana

3. Ropana Phase ↔ Repair & Maturation Phases

Ayurveda: Ropana (Healing)

When used

- After complete Shodhana
- Usually Day 7 onward

Purpose

- Promote granulation
- Wound contraction
- Skin regeneration

Modern Medicine Equivalent

Proliferative + Remodeling Phases

Modern phase	Time	What happens
Proliferative	Day 4–21	Granulation tissue, angiogenesis, epithelialization
Remodeling	Weeks–months	Collagen maturation, scar formation

Correlation

- Ropana drugs promote cell growth, tissue strength, and closure

- Comparable to growth factors, dressings, and regenerative therapy

Ropana ≈ Proliferative + Remodeling phase

Integrative Mechanisms: Ayurvedic and Biomedical Perspectives.

Ayurvedic Concept	Biomedical Equivalent	Evidence/Mechanism
Shodhana	Wound cleansing/debridement	Reduces microbial load; promotes healthy wound bed
Ropana	Tissue regeneration	Enhanced collagen deposition, angiogenesis
Medicated Decoctions	Antimicrobial and anti-biofilm agents	Herbal phytochemicals disrupt pathogens
Honey	Bioactive wound dressing	Osmotic effect, antimicrobial, pH modulation

Time period	Ayurveda	Modern healing
0–5 days	Shodhana	Hemostasis + Inflammation
5–10 days	Shodhana completion	Transition phase
7–21 days	Ropana	Proliferation
Weeks–months	Continued Ropana	Remodeling / Scar maturation

Wound healing is completed in three phases: Inflammatory, proliferative and remodelling. Granulation, collagen maturation and scar formation are some of the other phases of wound healing but are independent of each other. Ropana is always associated with Shodhana in Ayurveda because a wound cannot be healed if it is not Shuddha, so healing is only possible factor if Vrana is clean.^[18]

Evidence from Preclinical and Clinical Studies

Several studies have explored Ayurvedic herbs in wound care.

- Honey dressings: Promote healing, reduce infection.
- Curcumin formulations: Anti-inflammatory and antioxidant, aiding chronic wound healing.
- Neem extracts: Antibacterial in vitro against wound pathogens.

Challenges and Limitations

- Standardization of Ayurvedic medicines (dose, preparation).
- Quality of clinical trials (sample size, controls).
- Safety profiles and interactions with modern drugs.
- Regulatory frameworks for integrative therapies.

Future Directions

- Randomized controlled trials comparing integrative protocols with standard wound care.
- Phytochemical research to isolate active compounds.
- Nanotechnology and Ayurveda: Herbal nanoparticles for targeted healing.
- Translational research hubs bridging Ayurveda and biomedicine.

CONCLUSION

This review highlights that the Ayurvedic principles of Vrana Shodhana and Vrana Ropana offer a well-structured, scientific, and stage-specific approach to wound management that closely corresponds with modern wound-healing mechanisms. Ayurveda emphasizes that effective healing cannot occur unless the wound is thoroughly cleansed, free from infection, necrotic tissue, and excessive discharge. This concept of Shodhana is comparable to modern wound bed preparation, debridement, and infection control carried out during the inflammatory phase of healing.

Once the wound is rendered Shuddha (clean), the focus shifts to Vrana Ropana, which aims at promoting granulation tissue formation, epithelialization, and restoration of normal tissue structure. This phase parallels the proliferative and remodeling phases of modern wound healing. Ayurvedic formulations such as

medicated ghee, honey, herbal oils, and mineral preparations support tissue regeneration, reduce inflammation, and minimize scarring.

The strength of Ayurveda lies in its holistic outlook, addressing both local wound care and systemic factors such as metabolism, immunity, and dosha balance. The strong conceptual similarity between Ayurvedic and modern wound-healing principles suggests that integrative approaches can be especially beneficial in chronic, infected, and non-healing wounds. However, wider clinical application requires standardization, safety evaluation, and robust clinical research.

Overall, the integrative understanding of Vrana Shodhana and Ropana provides a valuable, evidence-oriented framework that can complement modern wound care and improve patient outcomes when applied judiciously.

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