

ROLE OF PANCHKARMA IN THE MANAGEMENT OF DUSHTA VRANA

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Abstract

Dushta Vrana, as classified in Ayurveda, represents chronic non-healing wounds that persist as a major healthcare challenge worldwide, negatively affecting patient quality of life and increasing healthcare costs. Traditional approaches fail to achieve full recovery, so Ayurvedic medicine presents an integrated healthcare system based on doshic balance and systematic purification principles. The foundational therapeutic practice of Panchkarma in Ayurvedic medicine includes Vamana, Virechana, Basti, Nasya, and Raktamokshana. These five core procedures support detoxification, rejuvenation, and the targeted treatment of pathophysiological factors underlying chronic wounds. This study gathers knowledge from ancient medical texts with present-day medical studies to conduct a comprehensive analysis of the Panchkarma treatment approaches for Dushta Vrana. Research evidence demonstrates that these therapeutic practices possess anti-inflammatory properties along with antimicrobial effects, immunomodulation, and the ability to quicken both wound healing and tissue restoration processes. The current studies are constrained in their field by inconsistent methodologies and insufficient large-scale controlled research protocols. Manufacturing Panchkarma therapies faces barriers because standard

protocols need refinement and healthcare providers need training, and these approaches need to connect to standard medical practices. Several treatments implemented simultaneously from Panchkarma and wound treatment traditions create an integrated healthcare solution capable of integrating traditional medical approaches with contemporary medical systems. Research collaboration between different disciplines, together with improvements in regulations, must continue to establish Panchkarma as a complete solution for chronic wound treatment.

Keywords: Panchkarma, Dushta Vrana, Ayurveda, chronic wounds, wound healing

1. Introduction

The global burden of chronic wounds is particularly severe in India due to rising diabetes prevalence, increasing cases of vascular disease, and an aging population. These factors have collectively contributed to higher healthcare costs and reduced patient well-being (Dudhamal et al., 2023). Ayurvedic medicine classifies non-healing wounds as Dushta Vrana, which exhibit a chronic nature alongside offensive odor, persistent discharge, discoloration, and recurrent infections (Sharma & Samhita, 2000). The knowledge of Dushta Vrana classification comes from three classical Ayurvedic texts, including the Sushruta Samhita, Charaka Samhita, and the writings of Vagbhata. These sources explain how dosha imbalance, improper diet, and systemic impurities collectively lead to pathogenesis (Sharma & Samhita, 2014). A review of Ayurvedic nosology demonstrates that chronic wounds align with contemporary definitions of non-healing ulcers, characterized by persistent inflammation, delayed granulation, and significant patient distress (Das et al., 2016). Ayurvedic knowledge includes vital organs and tissues in chronic wounds, offering a comprehensive view of systemic health (Arif et al., 2021). Systematic reviews of both classic literature and modern grey literature have proved that ancient wound healing procedures and formulations continue to be significant in modern chronic wound care practices (Dudhamal et al., 2023). The current state of modern wound care remains inadequate for treating wounds that present challenges due to comorbidities and antibiotic resistance, or immune dysfunction, thus requiring additional treatment strategies (Naikwad & Barahate, 2022). The Ayurvedic technique of Lekhana Karma (scraping), which the literature describes, is specifically used to treat Dushta Vrana by removing necrotic tissue while promoting healthy healing, according to Shrilaxmi et al. (2021). Dhoopana (medicated fumigation) has shown effectiveness through case reports for treating infections and promoting wound healing in difficult-to-heal wounds (Ahmad & Sarika, 2016). The literature reviews of herbal and polyherbal wound remedies demonstrate how plant-based formulations should be combined with procedural therapies (Gupta & Nautiyal, 2016). The scientific investigation and modernization of Dushta Vrana management principles continues to be studied (Kumar et al., 2020). The literature demonstrates both traditional formulation applications and accumulating clinical data, which validates Ayurvedic wound treatment methods (Sewwandi et al., 2023). Recent narrative reviews confirm that dietary recommendations (pathya-apathya) play an essential role in wound healing (MODI et al., 2024). Ayurvedic nosology provides thorough explanations of infected wound progression, which helps healthcare professionals develop comprehensive treatment approaches (Gond & Singh, 2017). Scientific evidence reported that Panchkarma therapies to determine their therapeutic effects on both chronic wounds and lifestyle diseases (Ahlawat & Ohlan, 2024). Research studies on wound care demonstrate the effectiveness of Ayurvedic Ksharasutra procedures for treating intricate wound types (Amulya, 2018). Recent reviews about Panchkarma treatments establish clinical worth for treating different health problems, including chronic wounds, because they promote detoxification and tissue recovery alongside immune balance (Patidar et al., 2023). Research reviews establish Panchkarma treatments as holistic therapeutic interventions for inflammatory disorders and skin reparative needs (Arya et al., 2023). The practical use of Ayurvedic wound care approaches for Dushta Vrana remains evident through recent case reports (Rajan & Nair, 2021). Jatyadi Ghrita represents a specific formulation demonstrating therapeutic effects when treating Dushta Vrana according to Sharma et al. (2016). The traditional knowledge system within Ayurveda, together with modern medical observations, has established strong reasons to re-evaluate Panchkarma therapies as complete integrated approaches for treating chronic wounds that do not heal. The current review establishes a connection by analyzing the theoretical bases and clinical procedures alongside existing evidence about Panchkarma's function in treating Dushta Vrana. A review that combines Ayurvedic ancient writings from traditional texts with recent clinical medical data explores the Panchkarma healing potential and proposes new research paths in wound treatment practice.

2. Dushta Vrana: Classical and Contemporary Perspectives

The global burden of chronic wounds is particularly severe in India due to rising diabetes prevalence, increased vascular disease cases, and an aging population. These factors have significantly elevated healthcare costs and reduced patient well-being (Dudhamal et al., 2023). Ayurvedic medicine classifies non-healing wounds as Dushta Vrana, which exhibit a chronic nature alongside offensive odor, persistent discharge, discoloration, and recurrent infections (Sharma & Samhita, 2000). The classification of Dushta Vrana is based on three classical Ayurvedic texts: the Sushruta Samhita, the Charaka Samhita, and the writings of Vagbhata. These sources explain that pathogenesis arises from doshic imbalance, improper diet, and systemic impurities (Sharma & Samhita, 2014). Literature research on Ayurvedic nosology demonstrates that chronic wounds match contemporary definitions of non-healing ulcers and chronic wounds by showing persistent inflammation, delayed granulation, and patient distress (Das et al., 2016). Ayurvedic knowledge includes vital organs and tissues in chronic wounds, offering a comprehensive view of systemic health (Arif et al., 2021). New systematic research analyzes both traditional literature and undocumented records to validate historical wound healing treatments as modern techniques in treating chronic wounds (Dudhamal et al., 2023). The current state of modern wound care remains inadequate for treating wounds that present challenges due to comorbidities and antibiotic resistance, or immune dysfunction, thus requiring additional treatment strategies (Naikwad & Barahate, 2022). The Ayurvedic technique of Lekhana Karma (scraping), which the literature describes as specifically used to treat Dushta Vrana by removing necrotic tissue while promoting healthy healing, according to Shrilaxmi et al. (2021). Dhoopana (medicated fumigation) has shown effectiveness through case reports for treating infections and promoting wound healing in difficult-to-heal wounds (Ahmad & Sarika, 2016). The literature reviews of herbal and polyherbal wound remedies demonstrate how plant-based formulations should be combined with procedural therapies (Gupta & Nautiyal, 2016). The scientific investigation and modernization of Dushta Vrana management principles continues to be studied (Kumar et al., 2020). The literature demonstrates both traditional formulation applications and accumulating clinical data, which validates Ayurvedic wound treatment methods (Sewwandi et al., 2023). Recent narrative reviews confirm that dietary recommendations (pathya-

apathya) play an essential role in wound healing (MODI et al., 2024). Ayurvedic nosology provides thorough explanations of infected wound progression, which helps healthcare professionals develop comprehensive treatment approaches (Gond & Singh, 2017). Scientific evidence reported that Panchkarma therapies to determine their therapeutic effects on both chronic wounds and lifestyle diseases (Ahlawat & Ohlan, 2024). Research studies on wound care demonstrate the effectiveness of Ayurvedic Ksharasutra procedures for treating intricate wound types (Amulya, 2018). Scientific reviews of Panchkarma approaches prove these therapies effective for multiple health conditions, especially chronic wounds, by cleansing the body, improving immunity, and fostering tissue restoration (Patidar et al., 2023). Results from systematic reviews demonstrate how Panchkarma treatments provide comprehensive support to heal both inflammatory diseases and wounds (Arya et al., 2023). The practical use of Ayurvedic wound care approaches for Dushta Vrana remains evident through recent case reports (Rajan & Nair, 2021). Jatyadi Ghrita represents a specific formulation demonstrating therapeutic effects when treating Dushta Vrana according to Sharma et al. (2016). These classical philosophical understandings and contemporary medical observations serve as proof to question how Ayurvedic medicine, specifically Panchkarma, may function as a complete and unified natural method to treat persistent non-healing wound problems. The current review establishes a connection by analyzing the theoretical bases and clinical procedures alongside existing evidence about Panchkarma's function in treating Dushta Vrana. This article combines Ayurvedic ancient text insights with contemporary clinical research to offer an extensive therapeutic explanation of Panchkarma alongside potential future research and clinical implementation directions for chronic wound care.

3. Panchkarma: Principles, Procedures, and Theoretical Basis

Historical Evolution and Philosophical Underpinnings

Panchkarma represents a fundamental contribution of Ayurveda to medical holistic treatments that ancient Ayurvedic texts, Sushruta Samhita and Charaka Samhita, first introduced (Yadav & Singh, 2024; Sharma & Samhita, 2014). The classical texts present Panchkarma as an advanced clinical management approach for internal cleansing and healing, which belongs to the field of chikitsakalika. The procedures and principles underwent refinement over the centuries, as the Brihat Trayi (the great triad of Ayurvedic texts) articulated their rationale, clinical significance, and evolutionary development (Khan et al., 2024). The philosophical basis of Panchkarma receives a modern interpretation, which demonstrates its ability to restore balance and eliminate disease root causes (Patil, 2013).

Key Milestones in the Evolution of Panchkarma

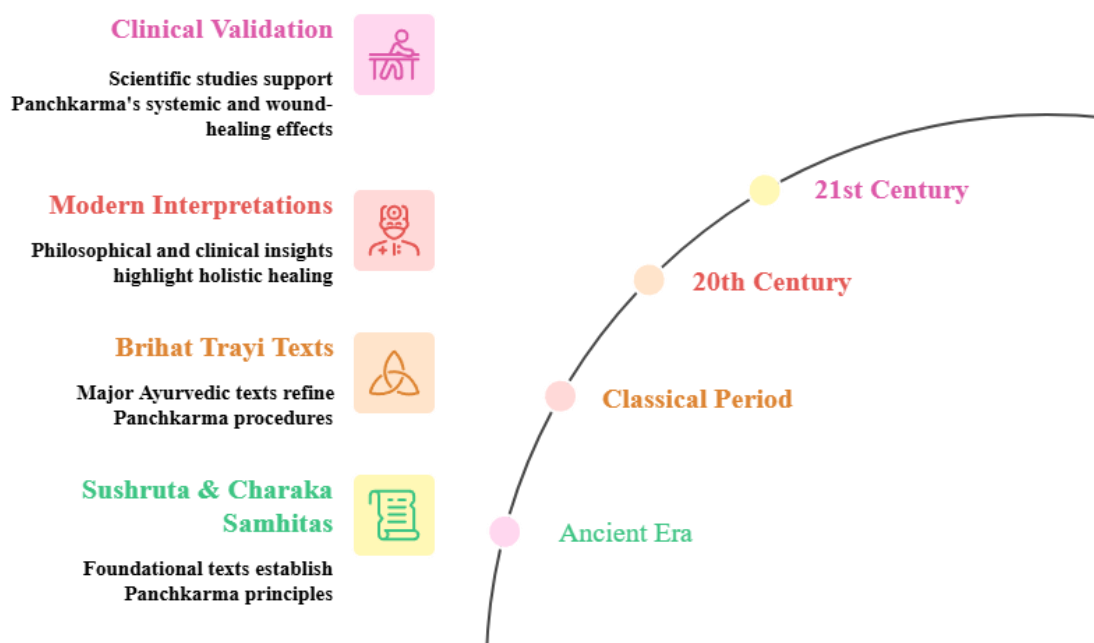


Figure 1: Evolution of Panchkarma Thought and Practice: From Ancient Texts to Modern Validation

The Five Principal Procedures

Vamana (Therapeutic Emesis)

The main indication for Vamana treatment involves diseases caused by Kapha dosha imbalance. The process of Vamana requires medical vomiting to eliminate harmful substances and toxins present in the upper gastrointestinal tract (Joshi, 1997). Modern clinical research and holistic health approaches demonstrate that Vamana treatment effectively cleanses body channels, which leads to metabolic reset and immune system regulation (Conboy et al., 2009).

Virechana (Therapeutic Purgation)

Virechana targets morbid Pitta dosha and involves the use of specific purgative substances to cleanse the gastrointestinal tract. This procedure is known for its role in detoxifying the liver, regulating digestion, and rebalancing inflammatory pathways, with both classical texts and clinical practice supporting its use in chronic and metabolic disorders (Jaiswal & Williams, 2017; Patil, 2016; Vanajakshi, 2014).

Basti (Medicated Enema)

Basti is regarded as the most important therapy for Vata-related disorders. It employs medicated oils or decoctions introduced rectally, allowing both local and systemic therapeutic effects. Scientific studies affirm its benefits in neuromuscular, gastrointestinal, and degenerative diseases, with additional applications in chronic wound healing due to its nourishing and cleansing actions (Kumar & Bhardwaj, 2024).

Nasya (Nasal Therapy)

Nasya is the administration of medicated oils or powders through the nasal passages, primarily to treat disorders of the head, neck, and central nervous system (Dwivedi, 2022; Pandey & Mishra, 2019). It is especially valued in conditions related to sinus congestion, headaches, and neurodegeneration, as well as in systemic detoxification protocols.

Raktamokshana (Bloodletting)

Raktamokshana refers to controlled bloodletting, either through surgical means or leech therapy, and is classically indicated for disorders involving vitiated blood, including certain inflammatory skin conditions and chronic non-healing ulcers. Recent reviews have reaffirmed its historical roots and clinical value, particularly in the management of Dushta Vrana (Narine & Mangal, 2022).

Selection Criteria, Indications, and Systemic Effects

The selection and ordering of Panchkarma therapies depend on the patient's prakriti constitution, disease state, age, strength, and seasonal factors to create personalized treatment (Patil, 2016; Sharma & Samhita, 2014). The therapeutic process starts with purva karma steps, including oleation and fomentation, before moving into paschat karma procedures for benefit consolidation. The scientific evidence shows Panchkarma removes body toxins (ama) while it balances doshas and enhances tissue regeneration to achieve preventive and therapeutic health outcomes (Patil, 2016; Joshi, 1997).

The Conceptual Basis for Using Panchkarma in Wound Healing and Tissue Regeneration

The wound healing applications of Panchkarma for Dushta Vrana treatment stem from its ability to eliminate chronicity-causing internal factors while simultaneously reducing inflammation at both local and systemic levels and supporting new tissue regeneration (Dudhamal, 2023; Mavale & Dasar, n.d.). The classical documentation and systematic reviews demonstrate that Basti, Raktamokshana, and supportive detoxification therapies create an optimal healing environment, thus supporting their integration into comprehensive chronic wound management (Vinjamury et al., 2011).

Table 1: Classical Panchkarma Procedures—Indications and Actions in Dushta Vrana

Panchakarma Procedure	Primary Dosha Targeted	Indication in Dushta Vrana	Therapeutic Actions	Classical Reference
Vamana (Emesis)	Kapha	Sluggish healing with Kapha symptoms (e.g., swelling, heaviness, thick discharge)	Removes Kapha, clears toxins, reduces edema	Sushruta Samhita, Charaka Samhita
Virechana (Purgation)	Pitta	Inflamed, red, hot, or infected wounds; Pitta predominance	Reduces inflammation, purifies blood	Charaka Samhita, Ashtanga Hridaya
Basti (Enema)	Vata	Dry, painful, slow-healing wounds; Vata predominance	Nourishes tissues, improves healing, regulates Vata	Sushruta Samhita, Ashtanga Hridaya
Nasya (Nasal Therapy)	Kapha & Vata (primarily head/neck)	Chronic wounds with head/neck symptoms or sinus involvement	Clears channels, supports systemic healing	Ashtanga Hridaya
Raktamokshana (Bloodletting)	Pitta & Rakta	Dushta Vrana with blood vitiation (infection, discoloration, burning)	Removes vitiated blood, controls infection, and reduces toxins	Sushruta Samhita

4. Application of Panchkarma in the Management of Dushta Vrana

Classical Treatment Protocols and Therapeutic Algorithms

The classical Ayurvedic approach to Dushta Vrana follows the belief that each chronic or non-healing wound requires individualized assessment because wounds develop differently based on their origins. The Nidan Panchak framework

serves as the core diagnostic method in Ayurvedic medicine because it examines multiple causes, such as doshic imbalances, trauma, chronic diseases, and improper wound care, to determine personalized treatment plans for each patient (Yogita et al., 2023). Both classical Panchakarma treatises provide comprehensive step-by-step guidelines to handle Dushta Vrana through preparatory treatments including Snehana and Swedana, before performing cleansing therapies, following them with post-procedural support to improve tissue and systemic balance (Patil, 2016). The classical algorithms help healthcare providers select appropriate treatments that match both the wound classification and patient-specific characteristics, including their body constitution and medical conditions. The journal research confirms the biological foundation behind Ayurvedic wound treatments, demonstrating anti-inflammatory action and antimicrobial effect coupled with tissue regeneration properties and supporting traditional wound management practices (Raj et al., 2020).

Integration of Panchakarma with Local Wound Care Techniques

Effective management of Dushta Vrana in Ayurveda hinges on a synergistic blend of systemic detoxification and targeted local wound care. Shodhana and Ropana are primary procedures described in classical literature because they fight tissue death alongside microbial suppression and promote new granulation tissue growth according to Soni and Shirode (2023). Specialized local treatments, including Prachhannakarma (therapeutic scarification) together with Jalaukavacharana (leech therapy), demonstrate maximal value for infection control and fast wound debridement and improved microcirculation along with ideal wound bed readiness (Kumar et al., 2022; Soni & Shirode, 2023). The combination of potent herbal and herbo-mineral preparations with Panchkarma leads to faster tissue repair because these formulations show effectiveness in antimicrobial protection and fibroblast activity stimulation (Ghodela & Dudhamal, 2017; Khattri, 2024). This treatment strategy follows Ayurvedic principles by showing that patients experience their best outcomes through the combination of internal purification therapies with specific evidence-based local treatments.

Combination of treatments: Rasayana with Snehana and Swedana as adjunct therapies

The Panchkarma-based treatment of chronic wounds depends heavily on the use of additional therapeutic methods. Rasayana therapies employ both local wound healing and systemic resilience enhancement mechanics through their rejuvenative herbs, lifestyle methods, and formulations (Singh & Rastogi, 2011). The preparatory treatment Snehana (oleation) softens tissues and lubricates them while mobilizing deep toxins to prepare the body for cleansing procedures, while Swedana (sudation/fomentation) enhances peripheral blood circulation and assists waste elimination, reduces pain, and stiffness in chronic wounds (Kadam, 2010). The expert implementation of Panchkarma regimens creates accelerated wound healing effects, which strengthen immune responses to both infection prevention and wound recurrence (Raj et al., 2020; Gangopadhyay et al., 2014).

Practical Aspects: Patient Assessment, Safety Considerations, Contraindications, and Monitoring

Panchkarma succeeds safely as treatment for Dushta Vrana through thorough assessments of patients and tailored treatment designs. A comprehensive evaluation of patient prakriti type and wound duration, severity, health conditions, physical, and mental strength must be performed (Acharya, 2024). The selection of Panchkarma procedures must consider specific contraindications because systematic reviews (Akashlal et al., 2025) show leech therapy and invasive methods should not be used by people with bleeding disorders or compromised immunity. The monitoring protocols for Panchkarma procedures include continuous dietary management, together with wound care hygiene practices and pain control strategies, and scheduled clinical check-ups for early detection of complications (Sharma & Sharma, 2024; Meena & Meena, 2023). The evolution of Panchkarma procedures now enables their use in outpatient facilities and at home through proper patient selection and education while maintaining safety and therapeutic effectiveness (Meena & Meena, 2023). Panchkarma continues to prove its importance and flexibility as a patient-driven holistic method of care, which remains useful for wound treatment today.

5. Evidence from Classical Texts and Clinical Practice

Review of Major Ayurvedic Scriptures

The three fundamental Ayurvedic scriptures, Sushruta Samhita, Charaka Samhita, and Ashtanga Hridaya, present an extensive method for treating Dushta Vrana. Sushruta Samhita presents detailed information about wound classification and healing phases while emphasizing the need to treat underlying doshic imbalances for successful treatment (Yadav & Singh 2024). The protocols include methods for wound cleaning, dressing, and debridement, together with Panchkarma-based systemic detoxification and localized procedures. The Charaka Samhita explains how dosha, dhatu (tissues), and mala (waste) interact to provide theoretical principles for wound care of both acute and chronic conditions that include algorithms for selecting appropriate treatments based on patient constitution and wound characteristics (Sharma & Samhita, 2014). The pediatric wound therapy section of Ashtanga Hridaya provides specific guidance that emphasizes the combination of internal medicine treatments and localized applications for maximum tissue restoration (Kumari & Vats, 2020). These classical works support a personalized healing strategy because successful dushta vrana treatment needs ongoing reassessment and therapeutic adjustment that depends on patient indicators and wound behavior changes.

Documentation of Traditional Panchkarma Interventions for Wound Care

Traditional Ayurvedic protocols for Dushta Vrana treatment involve more than wound dressing because they establish a comprehensive therapeutic algorithm based on Panchkarma interventions. The treatment approach includes Virechana for Pitta detoxification, along with Basti for Vata regulation and Raktamokshana for blood vitiation disorders according to wound chronicity and pathology (Sharma & Samhita, 2014). The texts outline how localized therapies, including herbal

washes, medicated oils, and tailored pastes, should be used simultaneously to create a comprehensive approach for infection control and granulation. The comprehensive care model from Ashtanga Hridaya remains crucial because it links internal detoxification to external wound care approaches alongside nutritional guidance (Kumari & Vats, 2020). The comprehensive therapeutic approach of Ayurveda addresses both local wound conditions while simultaneously correcting systemic factors that maintain chronicity, which distinguishes it from conventional medical practices.

Summary of Published Case Studies and Clinical Reports

Multiple concrete clinical examinations show increasing evidence of favoring these established treatment methods. Research conducted by Shastri et al. in 2024 proved that Ayurvedic medication containing *Nicotiana tobacum* demonstrates quantifiable curing ability through antibacterial function combined with anabolic effects on tissue growth. Herbal decoction irrigation known as *Parisheka* (with *Nyagrodadi Kashaya* or *Triphala Kashaya*) has been shown to speed up the treatment of chronic wounds in a clinical study, which documents practices aligned with ancient texts (Bhusal, 2018). The documented clinical cases from hospital care, along with community healthcare sites, have proven that skilled healthcare providers can effectively employ classical therapeutic algorithms.

Clinical Outcomes, Advantages, and Research Gaps

Individualized Panchkarma treatments administered with Ayurvedic patient care monitoring revealed significant improvements in patients with chronic non-healing ulcers according to reports published by Mavale and Dasar (2024). These approaches demonstrate their main strength through holistic treatment because Ayurveda focuses on resolving both local tissue damage and systemic body imbalances to create comprehensive healing effects. The main restriction of these approaches stems from inconsistent treatment methods between practitioners, regions, the dominance of anecdotal, and small-scale research findings that reduce their general applicability (Shastri et al., 2024). Another requirement exists to carry out extensive clinical research with standardized benchmarks that will finalize both effectiveness and safety evidence, along with optimal practices (Bhusal, 2018). The integration between classic medical texts along modern clinical research keeps Panchkarma-based wound treatment established as a vital development area in integrative medicine.

6. Evidence Base: Insights from Ayurveda and Modern Research

Comparative Analysis of Principles: Ayurveda and Biomedicine

Panchkarma stands as a complete and synchronized therapeutic method outlined in Ayurvedic literature to clean the body while enabling tissue growth and safeguarding against illness according to its classical texts. The texts stress the need to maintain balanced doshas while removing ama toxins and using personalized treatments to achieve body equilibrium (Abhilash, 2016). Modern biomedicine tackles both systemic inflammation and chronic wound treatment using pharmacological drugs as well as antimicrobial and surgical procedures. The combination of Ayurvedic multi-level interventions, which include dietary changes, detoxification, and mind-body practices, shows promise to enhance modern medical treatments according to Vinjamury et al. (2011).

Mechanistic Insights: Anti-Inflammatory, Antimicrobial, Immunomodulatory, and Pro-Regenerative Effects

Laboratory investigations on Ayurvedic medications and therapeutic practices have established their anti-inflammatory mechanisms, which prove vital for both body-wide wellness and continued wound healing. Clinical research on holistic interventions shows that Panchkarma therapies regulate cytokine function while lowering systemic inflammatory indicators as reported by Conboy et al. (2009) and Abhilash (2016). Research has demonstrated that numerous antimicrobial Ayurvedic plants utilized both in Panchkarma treatments and wound management showcase successful pathogen and fungus suppression in laboratory tests (Nag et al., 2016). The antimicrobial and wound sterilization properties of Ayurvedic medicine match traditional infection control and wound healing principles. Study results demonstrate that Panchkarma helps improve both regenerative properties and immune function alignment while supporting rejuvenation goals, which align with modern research findings (Conboy et al., 2009; Abhilash, 2016).

Correlation of Panchkarma Practices with Modern Scientific Studies

The medical field has started to study Panchkarma through clinical research, demonstrating that Panchkarma treatments lead to measurable improvements in physiological, psychological, and biochemical markers. A combination of Panchkarma therapies with supportive dietary and lifestyle changes leads to decreased inflammation, together with better metabolic factors and enhanced personal well-being according to Conboy et al. (2009) and Vinjamury et al. (2011). The research demonstrates that Ayurvedic approaches show strong compatibility for both medical prevention and therapy purposes, including wound management for chronically injured patients.

Synergistic Potential and Limitations of Integrating Both Paradigms

Modern medical approaches can benefit from Panchkarma integration because it helps treat chronic diseases that need extended multi-system treatment. The Panchkarma therapeutic approach provides systemic detoxification and rejuvenation alongside medicines to enhance overall body physiology and decrease their side effects per the research by Vinjamury et al. (2011). The application of Panchkarma faces three main challenges, including inconsistent procedural standards and inconsistent practitioner competency, and insufficient evidence from large-scale randomized controlled trials comparing it to standard biomedical treatment methods (Abhilash, 2016).

Gaps in Current Evidence and Avenues for Further Exploration

The current understanding of Panchkarma, plus its role in chronic wound treatment, needs further development, even though relevant clinical outcomes show initial promise. The available clinical trial evidence remains insufficient, along with extended safety assessments and complete biomarker measurement (Patwardhan & Mashelkar, 2009). Additional research requires well-planned collaborative investigations between classical Ayurvedic knowledge and modern scientific quantification to create new integrated patient-focused healthcare methods.

Table 2: Mechanistic Insights—Classical Rationale and Modern Evidence for Panchkarma in Wound Healing

Mechanistic Aspect	Ayurvedic Rationale	Modern Biomedical Insight	Reference
Anti-inflammatory	Balances aggravated doshas, reduces swelling	Reduces pro-inflammatory cytokines, cellular inflammation	Abhilash, 2016; Conboy et al., 2009
Antimicrobial	Cleanses the wound, eliminates pathogens	Plant extracts show antibacterial/antifungal activity	Nag et al., 2016
Immunomodulatory	Enhances ojas (vitality), supports immunity	Modulates immune cell function, increases healing factors	Conboy et al., 2009
Pro-regenerative	Promotes granulation and tissue repair	Stimulates angiogenesis and collagen synthesis	Shastri et al., 2024
Detoxification	Removes ama (toxins), improves tissue quality	May lower oxidative stress and systemic toxin markers	Vinjamury et al., 2011

7. Challenges, Limitations, and Future Prospects

The acceptance of Panchkarma therapy for Dushta Vrana management remains limited in evidence-based clinical practice because of multiple ongoing challenges and research limitations. The available research about Panchkarma treatment of Dushta Vrana relies heavily on small-scale observational studies, isolated case series, and anecdotal clinical reports that often lack rigorous methodological frameworks and proper randomization and control groups (Mavale & Dasar, 2024; Bhusal, 2018; Vinjamury et al., 2011). Some research studies lack standardized outcome measures and consistent follow-up protocols. These limitations lead to significant heterogeneity, hinder cross-study comparisons, and diminish both the reliability and reproducibility of reported outcomes (Abhilash, 2016; Vinjamury et al., 2011). The execution of Panchkarma procedures shows substantial variation between practitioners and institutions because they use different treatment choices, dosing schedules, procedural times, and combinations with additional therapies. The absence of standardized procedures in patient evaluation, eligibility screening, and post-treatment care creates safety risks that affect treatment outcomes (Patil, 2016; Abhilash, 2016). The safety risks associated with Raktamokshana therapy become more severe when practitioners lack proper training or fail to execute procedures correctly, because this invasive treatment can lead to adverse effects (Akashlal et al., 2025; Kumar et al., 2022). The ongoing development of regulatory standards for Panchkarma training, accreditation, and quality assurance makes it more challenging to achieve standardized, high-quality care (Patil, 2016; Vinjamury et al., 2011). The integration of Panchkarma with conventional wound management faces obstacles such as philosophical conflicts, limited interdisciplinary collaboration, and insufficient understanding among both practitioners and the public. However, these challenges are increasingly being recognized as opportunities for new research and educational development (Patil, 2016; Vinjamury et al., 2011). The future success of Panchkarma in wound care depends on extensive, well-designed trials along with strong safety data, standardized clinical protocols, complete educational, and regulatory changes to develop interdisciplinary training and communication between Ayurveda and contemporary medicine for better patient results.

8. Conclusion

The review of Ayurvedic literature, clinical reports, and biomedical research demonstrates Panchkarma's diverse therapeutic benefits for treating Dushta Vrana. Panchkarma contains hundreds of years of historical knowledge behind its implementation of personalized methods that cleanse the body while rejuvenating patients through treatments targeting doshic imbalances and systemic elements that cause chronic wounds. By integrating Panchkarma therapeutic approaches with local wound treatment measures, including Shodhana, Ropana, complementary Swedana, Snehana, and Rasayana treatments, clinicians receive a comprehensive therapeutic method that heals wounds both locally and systemically. Studies using modern mechanisms have supplied scientific evidence for these effective traditional practices through their proven anti-inflammatory properties, antimicrobial effects, and immunomodulatory activities that support wound healing mechanisms. Current research faces important limitations because evaluative consistency between studies is low and standard operating procedures are absent as well, and trials are insufficiently large-scale and controlled. Further development of this field depends on conducting scientific trials alongside unified procedures and joint efforts between different healthcare specialties. The connection between Ayurvedic medicine and biomedicine shows promise to enhance chronic wound treatment, specifically for patients who do not respond to standard medical approaches. Panchkarma has demonstrated potential as a sustainable integrative therapeutic approach for Dushta Vrana through proper practice and research support, so health systems should approve its implementation.

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