



Post-Surgical Infection Management Using Ayurvedic Herbs: A Review

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Abstract

Post Surgical wound infection is a rare but serious post-surgical complication. The basic line of treatment for dushta vrana is adopted here to manage the surgical site infected wound includes vranashodhana (wound cleaning) followed by vranaropana (wound healing). Ayurveda has effective internal medicines and local applications for the management of dushtavrana.

Achieving timely and effective wound healing remains a significant challenge in surgical practice. Among the most common complications is surgical site infection (SSI), second only to postoperative pneumonia, ¹. SSIs typically develop within 30 days following surgery and are caused by factors such as bacterial invasion, disrupted wound microenvironment, and compromised host immunity. If not managed promptly, SSIs can progress to septicemia, posing a serious threat to the patient's life. ² Additionally, the growing issue of antimicrobial resistance further complicates the treatment of post-surgical infections. ³

Several other factors influence poor wound healing, including the nature and location of the surgery, the patient's general health, and inadequate postoperative care. In such cases, infected wounds require comprehensive care to prevent complications and support faster recovery. ⁴

According to the Sushruta Samhita, if a wound (Vrana) is not treated appropriately in its early stages, it may evolve into a chronic, non-healing wound or ulcer known as Dushta Vrana. Such wounds are typically characterized by foul odor, discolored discharge, severe pain, and delayed healing.

Ayurveda provides a holistic and systematic approach to managing Dushta Vrana through a variety of interventions—surgical, para-surgical, and medicinal. The classical texts mention the Shashti Upakrama (sixty therapeutic measures), which include:

Vrana Shodhana (wound cleansing)

- Vrana Ropana (wound healing)
- Udsadana (promotion of healthy granulation tissue)
- Krishna Karma (repigmentation of healed tissue)
- Pandu Karma (restoration of normal skin color)

Initial treatment aims to eliminate slough, reduce discharge, relieve pain and burning, and initiate healthy tissue formation.

A range of herbal preparations such as Manjisthadi, Jatyadi Taila, Durvadi, Yashtimadhu, and Aragwada are traditionally used for wound management. In the context of SSIs, non-surgical Ayurvedic interventions are often applied first to convert an infected or chronic wound into a clean, healing one, preparing it for complete recovery.

Management of Vrana

The basic line of treatment for severe types of Vrana is conversion of Dushta Vrana into Shuddha Vrana & these includes various measures such as; control of vitiated doshas, management of inflammation, surgical intervention and controlling etiological factors which are responsible for the formation of wounds. Vimlapana, Avasechana, Upnaha, Patanakriya, sodhana, Ropnam and vaikritapaham are some traditional approaches used towards the management of Vrana.

The traditional approaches for the management of Vrana involve Shodhana, Srava hara, Daha hara and ropana properties. The ayurveda also suggests use of drugs which offer properties such as; Amapachaka, Tridosahara, Krimihara & Vishahara. Ayurveda also recommended that Sodhana Chikitsa followed by Ropana Cikitsa helps to cure Vrana completely. Drugs which offer Katu, Tikta, Madhura and Kashaya Rasa offer beneficial effects in Vrana.^[5-7]

Vrana Ropana

In Ayurveda, the process of **Vrana Ropana** (wound healing) is a structured and stage-wise approach aimed at restoring tissue integrity. Healing is addressed at different phases of the wound, namely:

- **Dushta Avastha** (infected or non-healing stage)
- **Shuddha Avastha** (cleansed wound stage)
- **Ruhyamana Avastha** (active granulation and repair stage)
- **Rudha Avastha** (completely healed stage)

Each stage demands specific interventions that support the natural healing process based on the condition of the wound. The *Ropana* process facilitates timely recovery by guiding the wound through these sequential stages of repair.

Several **factors influence the rate and quality of wound healing**, including:

- **Age and gender of the patient**
- **Site and depth of the wound** (*Sthana*)
- **Presence of systemic illnesses** such as diabetes, tuberculosis, or skin disorders
- **Dietary and lifestyle habits** (*Ahara-Vihara*)
- **Environmental exposure**
- **Internal toxins or accumulated waste substances** (*Ama or visha-like states*)

Understanding these variables is essential in customizing the treatment plan and ensuring effective wound management through Ayurvedic principles.

Abhyantara Shodhana

Ayurveda recommends specific **bio-purificatory procedures** (*Shodhana Chikitsa*) tailored to the nature, location, and doshic involvement of a wound. These therapies help eliminate accumulated toxins, correct the doshic imbalance, and support systemic and local healing. Key interventions include:

1. **Vamana (Therapeutic Emesis):**

Indicated in wounds situated **above the navel region** (*Urdhvajatrugata*) and associated with **Kapha-dominant features** such as heaviness, excessive discharge, and swelling. Vamana helps eliminate excess Kapha and clears the upper channels, facilitating wound healing.

2. **Virechana (Therapeutic Purgation):**

Advised in **Pitta-predominant wounds**, especially those that are **chronic or slow-healing**.

Virechana pacifies aggravated Pitta, purifies the blood, and aids in reducing inflammation and discoloration commonly seen in long-standing ulcers.

3. **Basti (Medicated Enema):**

Recommended in **Vata-dominant wounds**, particularly those affecting the **lower limbs** or caused by **margavarana** (obstruction of channels). Basti therapy helps balance Vata, nourishes tissues, and improves circulation, thereby accelerating the healing of such wounds.

4. **Shirovirechana (Nasya or Head-based Purgation):**

Useful in **head and neck wounds** (*Urdhvajatrugata Vrana*) with **Kapha dominance**, presenting with congestion, mucous discharge, or heaviness. Shirovirechana clears the Kapha from the cranial region and supports faster resolution of symptoms.

Bhahya Shodhana

Raktamokshana:

The Margavarana Vrana predominant of Pitta and Rakta dosha may be managed with Raktamokshana.

Vrana Prakshalana: Aragwadhadhi kashaya, Sursadigana kashaya, Lakshadigana kashaya, and Panchavalkala kashaya may be used for Vrana Prakshalana to manage the initial stage of Vrana.

Vrana Pichu: Pichu (medicated soaked cotton/swab) of Jatyaditaila/ghrita, Kshara taila, Nimbadi taila, Sursadi taila & Doorvadi ghrita may also offer relief in Vrana. — Vrana Lepa: Lepa of Vrana with Tilakalkadi relief symptoms of Vrana. [8-11]

Ayurveda formulation for vrana

Panchavalkala Taila is an Ayurvedic medicated oil prepared using the barks of five sacred trees—**Vata (Ficus benghalensis)**, **Udumbara (Ficus racemosa)**, **Parish (Thespesia populnea)**, **Plaksha (Ficus lacor)**—infused in **Tila Taila** (sesame oil) as the base. This formulation is well-regarded in Ayurvedic wound management for its potent **cleansing (Shodhana)** and **healing (Ropana)** properties.

It effectively helps in the removal of **slough, discharge, and necrotic debris**, creating a clean wound bed. Additionally, Panchavalkala Taila exhibits **anti-inflammatory (Shothahara)**, **wound-washing (Vranaprakshalana)**, and **tissue-repairing (Vranaropana)** actions, which collectively accelerate the healing process and promote healthy granulation tissue formation.

Due to these multifaceted therapeutic actions, Panchavalkala Taila is widely used in managing both acute and chronic wounds, particularly in cases of **Dushta Vrana** (infected or non-healing wounds).

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