WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 14, 442-448. Review Article ISSN 2277–7105

CALENDULA AS AN ADJUNCT THERAPY FOR SUPPURATION CONTROL AND ENHANCED HEALING IN LSCS RECOVERY

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Article Received on
27 May 2025,

Revised on 16 June 2025,
Accepted on 06 July 2025,

DOI: 10.20959/wjpr202514-37587

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ABSTRACT

Calendula, commonly known as marigold, is a plant of the Asteraceae family with a rich history of medicinal use. This plant possesses a variety of bioactive compounds, including steroids, terpenoids, triterpenoids, phenolic acids, flavonoids, carotenoids, and essential oils. These compounds confer significant anti-inflammatory, antioxidant, antimicrobial, and anticancer properties to Calendula, making it a promising candidate for treating various skin conditions, particularly skin wounds.in my case single subject with lacerated caesarean wound was treated with calendula 200 C thrice a day for 7 days. Wound healing process was closely monitored and results show significant reduction in Suppuration and granulation to approx. 80% faster compared to typical wound healing. Notably no pus formation was observed during healing process, suggest that calendula effectively prevented infections. Additionally Wound exhibited minimal scarring. These findings suggest calendula may serve as an effective natural remedy for accelerating wound healing and preventing infection.

KEYWORDS:-calendula officinalis, Wound healing, Suppuration, LSCS.

INTRODUCTION

Wound healing is a complex, dynamic process involving several biological stages through which the body repairs tissue damage caused by injury. This process is critical for restoring the integrity of the skin or other tissues, and it can be influenced by various factors such as infection,

the severity of the injury, and overall health of the individual. Suppuration, on the other hand, refers to the production or discharge of pus, usually as a result of infection**.**

1. Wound Healing Process Wound healing can be divided into several overlapping stages

- Haemostasis (immediate phase): The first response to injury is the cessation of bleeding through vasoconstriction and clot formation. Platelets aggregate and release various growth factors.
- Inflammatory Phase: This phase lasts for several days and involves the recruitment of immune cells (like neutrophils and macrophages) to the site of injury to clear debris and combat infection. The classic signs of inflammation, such as redness, heat, swelling, and pain, often appear during this phase.
- Proliferative Phase: During this stage, the body begins to form new tissue. Fibroblasts synthesize collagen, and new blood vessels (angiogenesis) develop. The formation of granulation tissue helps in filling the wound bed.
- Maturation/Remodelling Phase: This phase can last for months to years. The collagen deposited during the proliferative phase is reorganized to increase the strength of the tissue, and the wound site is gradually reepithelialised.

2. Factors Affecting Wound Healing

3. Suppuration (Pus Formation)

Suppuration occurs when the wound becomes infected, usually due to bacterial contamination. The body's immune system responds by sending white blood cells to the site, and their destruction leads to the accumulation of pus, which is made up of dead neutrophils, bacteria, tissue debris, and serum.

TYPES OF SUPPURATION

Acute Suppuration: Characterized by a rapid build up of pus and inflammation. It is often associated with bacterial infections like staphylococcal or streptococcal infections.

Chronic Suppuration: Can occur in cases of long-standing infection where the body is unable to clear the infection effectively.

CAUSES OF SUPPURATION

Bacterial infections, especially by pyogenic organisms such as Staphylococcus aureus, Streptococcus pyogenes, and Pseudomonas aeruginosa.

Foreign bodies (e.g., splinters, surgical implants).

Poor wound care or inadequate drainage.

Complications: If not properly managed, suppurative wounds can lead to systemic infections like sepsis, prolonged inflammation, or chronic wounds that require surgical intervention.

CLINICAL MANAGEMENT OF WOUNDS AND SUPPURATION

Infection Control: Proper management of infection with appropriate antibiotics is essential. However, the development of antibiotic resistance and the persistence of biofilm-forming bacteria require novel therapeutic approaches**.**

Wound Debridement: This involves removing necrotic tissue, foreign material, and infected tissue to promote healing. Mechanical, enzymatic, and autolytic debridement methods are used in different clinical situations.

Moist Wound Healing: Maintaining an optimal moisture balance in the wound has been shown to accelerate healing. Dressings that absorb exudate while providing a moist environment are frequently used in clinical practice**.**

Growth Factors and Stem Cells: Research into growth factors (e.g., platelet-derived growth factor, vascular endothelial growth factor) and stem cell therapies for wound healing is expanding. These therapies aim to enhance tissue regeneration, reduce infection, and accelerate healing.

Nutrition: Proper nutritional support (high-protein diet, supplementation of vitamins like C and A, and zinc) is critical for wound healing, as these nutrients are essential for collagen synthesis and immune function

PHARMACOLOGICAL ACTION OF CALENDULA

Calendula commonly called as marigold, is a plant of Asteraceae family which has a rich history of medicinal use. This plant possess a variety of bioactive compound, including steriod terpenoids, phenolic acid, flavonoids, carotenoids, triterpenoids and essential oils. These compounds confer significant antimicrobial, anti inflammatory, antioxidant and anti cancerous properties to Calendula, which make it most suitable for treating skin wounds**.**

CALENDULA PROMOTES WOUND HEALING BY

1. Reduces inflammation

2. Improves blood circulation

3. Flavonoids like quercetin possess ant inflammatory properties which minimises inflammation and swelling.

4. Enhances delivery of essential nutrition and oxygen to wounded areas.

5. Disrupts the cell membrane of microbes help in preventing wound infection.

6. Increases permeability, allowing essential elements to leak out which can lead to cell death.

7. Inhibits activation of pro inflammatory cytokines which prevent recruitment of neutrophils.

8. Promotes angiogenesis

9. Increases level of hydroxyproline, Major component of collagen.

10. Balances deposition of extracellular matrix components, prevents excessive fibrosis.

11. Prevents suppuration

12. Promotes healthy granulation in wound

Name:-Mrs Patel	Age:-26 years
Sex:-female	Date of LSCS:-5th September 2024
Family history: Mother :-hypertension Father-hypertension and diabetes mellitus	Past History: No other prior infection that interfered wound healing.

A 26 year healthy female (primigravida) had undergone LSCS surgery. Post-operative a lacerated wound which failed to adjoin the skin was left as an open wound which oozed watery yellowish pus from within and prevented healing. The subject had undergone for dressing her wound twice but no positive result were obtained and the subject was advised for re-stiches prior to administration of calendula. During the same day experiment was conducted and continued for 7 days with an intention to prevent Suppuration and hasten the process of healing and observe the action of calendula.

TREATMENT: Subject was treated with oral administration of calendula mother tincture in placebo as a vehicle due to its anti-inflammatory and antimicrobial property.

Route: Oral administration (medicated globules)**, Dosage:** 200 c mother tincture administration in form of pills**, Period of administration:** 6 Pills Three Times In A Day For 7 Days.

MONITORING AND ASSESSMENT

Throughout the treatment period healing process was monitored at regular intervals.

Healing progress was documented by

1. PHOTOGRAPHIC DOCUMENTATION

Photographs were taken every 2 days to visualize the wound



2. PARAMETERS: WOUND SIZE-Measured initially throughout the treatment period

SIGN OF INFECTION -To check for pus and discharges

SIGN OF INFLAMMATION -To check for pain**,** Tenderness and swelling

HEALING PROGRESS-To check action of medicine

OUTCOME MEASURES

1. HEALING TIME

Duration of wound healing with emphasis on reduction in size and time to full closure.

2. INFECTION CONTROL

Absence of pus or other infection during treatment period.

3. SCARRING

Minimal scarring was considered as positive outcome.

CONCLUSION

Understanding the complex processes of wound healing and suppuration is crucial for improving clinical outcomes, particularly for chronic wounds that resist standard healing strategies. Our results demonstrate healing and antibacterial effects.

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