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Post-Burn Keloid Formation and Progressive Clinical Improvement Following Topical Application of Calendula Mother Tincture: A Case Report

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ABSTRACT

Burn injuries can result in various complications during the healing process, including excessive scar formation, hypertrophic scars and keloids. These pathological scars may cause cosmetic deformity, discomfort, itching, restricted movement and psychological distress. Conventional management includes wound care, pressure therapy, silicone preparations, corticosteroid therapy, surgical intervention and other approaches depending upon the severity and location of the lesion.

This article presents a case of post-burn scar/keloid formation in which topical application of Calendula officinalis Mother Tincture was used as the local therapeutic intervention. The patient was followed clinically with serial photographic documentation. Progressive improvement in the appearance of the affected area was observed over a period of approximately four months. The serial photographs demonstrated progressive healing and maturation of the affected tissue, with reduction in the prominence of the scarred area.

The case highlights the potential role of topical Calendula Mother Tincture as a complementary approach in the management of post-burn skin lesions.

Keywords: Burn Injury, Keloid, Hypertrophic Scar, Post-Burn Scar, Calendula officinalis, Mother Tincture, Wound Healing, Homoeopathy.

Introduction

Burn injuries are among the common causes of damage to the skin and underlying tissues. Depending upon the depth, extent and location of the injury, burns may produce significant tissue destruction followed by a prolonged healing process. Following the initial inflammatory phase, the wound undergoes granulation, epithelialization, contraction and remodeling.

Although scar formation is a normal component of wound healing, excessive collagen deposition and abnormal remodeling may result in pathological scars. These may present as hypertrophic scars or keloids. Keloids may extend beyond the original margins of the injury, whereas hypertrophic scars generally remain within the boundaries of the original wound.

Post-burn scar formation can produce cosmetic, functional and symptomatic problems. Lesions involving the hand and other mobile anatomical regions may additionally interfere with movement and daily activities.

The management of post-burn scars depends upon the severity and clinical characteristics of the lesion. Conventional approaches include pressure therapy, silicone-based preparations, corticosteroids, surgical procedures, laser therapy and other interventions.

Complementary systems of medicine, including Homoeopathy, have traditionally employed various medicines for conditions involving inflammation, tissue injury and wound healing.

Calendula officinalis is a medicinal plant traditionally used in topical preparations for wounds, abrasions and inflammatory skin conditions. Calendula Mother Tincture is used in Homoeopathic practice for local application in certain wound-related conditions.

The present case describes the clinical course of a post-burn scar/keloid treated with Calendula Mother Tincture for local application, with serial photographic documentation over approximately four months.

Etiology and Pathophysiology

Burn injuries may occur due to thermal, chemical, electrical or other mechanisms. The extent of tissue injury depends upon the temperature or damaging agent, duration of exposure, depth of injury and affected anatomical area.

The wound-healing process can broadly be divided into several overlapping phases:

1. Inflammatory Phase

Following tissue injury, inflammatory mediators are released and inflammatory cells migrate to the injured region. This phase assists in removal of damaged tissue and initiation of the healing response.

2. Proliferative Phase

The proliferative phase involves formation of granulation tissue, fibroblast proliferation, extracellular matrix deposition and development of new blood vessels. Re-epithelialization also occurs during this period.

3. Remodeling Phase

During remodeling, collagen undergoes reorganization and the strength and appearance of the scar gradually change. In some individuals, excessive fibroblast activity and collagen deposition may lead to abnormal scar formation.

4. Keloid and Hypertrophic Scar Formation

Excessive scar formation following burn injury can result in raised and prominent scars. Keloids characteristically extend beyond the original boundaries of the wound, while hypertrophic scars remain within the original wound area.

The development of pathological scars is influenced by several factors, including the severity and depth of the original injury, anatomical location, genetic susceptibility, wound tension and duration of inflammation.

Complications of Burn Injury

Burn injuries may be associated with several short-term and long-term complications, including:

1. Infection

Damaged skin can compromise the normal protective barrier and increase susceptibility to infection.

2. Delayed Wound Healing

Deep burns and complicated wounds may require prolonged periods for complete epithelialization.

3. Hypertrophic Scar Formation

Excessive scar tissue may develop within the original boundaries of the burn injury.

4. Keloid Formation

In some individuals, excessive scar tissue may extend beyond the original wound margins.

5. Contracture

Scarring across joints or areas of movement can result in restricted mobility.

6. Pain and Itching

Post-burn scars may be associated with pain, tenderness or pruritus.

7. Cosmetic Deformity

Prominent or discolored scars can produce significant cosmetic concerns.

8. Psychological Impact

Visible scars may contribute to reduced self-confidence, social discomfort and psychological distress.

Diagnosis of Post-Burn Scar

Diagnosis is primarily clinical and is based upon the patient's history and examination of the affected region.

Important clinical features include:

History of previous burn injury

Location and extent of the scar

Relationship of the scar to the original wound

Elevation and thickness of scar tissue

Color and pigmentation

Surface characteristics

Presence of pain or itching

Restriction of movement

Progression or stability of the lesion

The distinction between a keloid and hypertrophic scar should be established clinically before describing the lesion specifically as a keloid.

Investigations

In uncomplicated superficial post-burn scarring, diagnosis may be primarily clinical.

Depending upon the presentation, the following assessments may be considered:

1. Clinical Examination

Detailed examination of the scar provides information regarding its size, thickness, color, consistency and distribution.

2. Photographic Documentation

Serial clinical photographs can provide useful documentation of changes in scar morphology during follow-up.

3. Scar Assessment

Validated scar assessment tools may be used where available to document changes objectively.

4. Histopathological Examination

Biopsy may be considered when the diagnosis is uncertain or when differentiation from other lesions is clinically necessary.

In the present case, the principal method of follow-up documentation was serial clinical photographic assessment.

Management and Treatment

Management of post-burn scars depends upon their type, size, anatomical location, symptoms and functional consequences.

Conventional approaches may include:

Wound care and dressings

Moisturization

Silicone-based therapy

Pressure therapy

Intralesional corticosteroids

Laser-based treatment

Surgical excision in selected cases

Physical and occupational therapy when contracture is present

The treatment should be individualized according to the characteristics of the scar and the patient's clinical condition.

Homoeopathic Treatment & Management

Homoeopathic management is generally individualized according to the clinical presentation of the patient and the characteristics of the lesion.

Various Homoeopathic medicines have traditionally been considered in conditions involving wounds, scar formation and tissue repair. Selection of a medicine depends upon the clinical presentation and the therapeutic approach of the treating practitioner.

In the present case, Calendula officinalis Mother Tincture was selected for local application to the affected post-burn area.

Calendula has traditionally been used in Homoeopathic practice for local management of wounds and injured tissues. In this case, the local preparation was used during the period of follow-up, and the patient's clinical progress was documented photographically.

Case Study: Post-Burn Keloid/Scar Treated with Calendula Mother Tincture

A patient with a history of burn injury presented with a prominent scarred lesion involving the dorsal aspect of the hand.

The lesion developed following the burn injury and subsequently showed prominent scar formation. The affected region demonstrated altered pigmentation, increased tissue thickness and abnormal surface characteristics.

The patient was treated with Calendula officinalis Mother Tincture for local application.

The patient was followed over a period of approximately four months. Serial photographs were obtained to document the clinical changes during treatment.

The photographic record demonstrated progressive changes in the appearance of the affected area during the follow-up period.

Figure 1 demonstrates the initial appearance of the affected region.

Figure 2 demonstrates the subsequent stage of treatment.

Figure 3 demonstrates further clinical improvement and scar maturation.

Figure 4 demonstrates the appearance at approximately four months, showing substantial improvement compared with the earlier photographs.

Follow Up

Follow-Up	Symptoms/Clinical Findings	Treatment	Photographic Findings
Initial Presentation (21/04/2026)	Post-burn scar/keloid with prominent altered skin texture and pigmentation.	Calendula Mother Tincture for local application.	Figure 1
Follow-Up 1 (25/07/2026)	Progressive clinical improvement observed.	Continued local application.	Figure 2
Follow-Up 2 (15/08/2026)	Further improvement in appearance and scar maturation.	Continued treatment according to clinical requirement.	Figure 3
Follow-Up 3 (5/09/2026)	Marked improvement compared with initial presentation.	Treatment continued/tapered according to clinical status.	Figure 4

Justification of Remedy

The prescription of Calendula officinalis Mother Tincture for local application in this case was based upon its traditional Homoeopathic use in conditions involving injured tissue and wounds.

Burn injury produces tissue damage followed by an inflammatory and reparative process. The subsequent formation of granulation tissue, epithelialization and remodeling ultimately determines the quality and appearance of the healed tissue.

Calendula has traditionally been employed locally in Homoeopathic practice for wounds, abrasions and damaged skin. In the present case, the Mother Tincture was selected for local application to the post-burn affected area.

During approximately four months of follow-up, progressive clinical improvement was observed and documented photographically.

The temporal association between topical Calendula application and improvement in the appearance of the lesion makes this case clinically interesting. However, because this is a single case without a control group, the improvement cannot establish that Calendula alone produced the observed outcome. Natural scar maturation and other factors may also have contributed to the clinical change.

Clinical Photographic Documentation

Figure 1. Initial appearance of the pos

Figure 2. Clinical appearance during follow-up demonstrating progressive improvement.

Figure 3. Further follow-up demonstrating progressive scar maturation.

Figure 4. Approximately four-month follow-up demonstrating substantial improvement in the appearance of the affected area.

The four photographs supplied with the case can therefore be presented as a chronological photographic sequence, provided that their actual dates correspond to the clinical record.

Discussion

Post-burn pathological scar formation represents an important complication of burn injury. The hand is particularly important because scar formation in this region can have both cosmetic and functional consequences.

In the present case, the lesion was followed over approximately four months after the introduction of topical Calendula Mother Tincture. Serial photographic documentation demonstrated progressive changes in the affected region.

The improvement observed in the present case may be relevant to the traditional use of Calendula in wound-related conditions.

Conclusion

Post-burn scar and keloid formation can produce significant cosmetic and functional problems. The present case describes progressive clinical improvement of a post-burn scar during approximately four months of follow-up in which Calendula officinalis Mother Tincture was used for local application.

Serial photographic documentation demonstrated progressive improvement and maturation of the affected area.

This case provides an observation regarding the use of topical Calendula Mother Tincture in a post-burn scar and may provide a basis for further clinical investigation. However, controlled clinical studies are necessary to determine whether the observed improvement is reproducibly associated with the intervention.