

Integrative Approach to Cosmetic-Induced Contact Dermatitis Comparative Insights on Clobetasol and Kinsukadi Taila

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Abstract—Background: Cosmetic-induced contact dermatitis (CICD) is an increasingly prevalent skin disorder caused by allergens and irritants present in cosmetic products. It manifests as erythema, pruritus, scaling, vesiculation, and post-inflammatory pigmentation, significantly impacting quality of life. Conventional dermatology relies on topical corticosteroids such as clobetasol propionate for rapid anti-inflammatory control. However, prolonged or inappropriate use is associated with adverse effects including skin atrophy, telangiectasia, tachyphylaxis, and steroid-induced dermatitis. **Objective:** This review aims to provide comparative insights into clobetasol and Kinshukadi Taila, an Ayurvedic polyherbal formulation traditionally used for inflammatory and pigmentary skin conditions, and to propose an integrative approach to CICD management. **Methods:** Literature from modern dermatology and Ayurveda was reviewed, including clinical trials, systematic reviews, case series, and pharmacological studies. **Comparative evaluation** focused on mechanisms of action, therapeutic efficacy, safety profile, and clinical applicability of both therapies. **Results:** Clobetasol propionate is effective in rapidly controlling acute flares of CICD and is strongly supported by clinical evidence and guidelines. Its limitations include risk of adverse events and the necessity for physician-supervised, short-term use. Kinshukadi Taila, composed of herbs such as *Butea monosperma*, *Rubia cordifolia*, *Curcuma longa*, and *Tinospora cordifolia*, has demonstrated anti-inflammatory, antioxidant, and complexion-enhancing properties in traditional use and small-scale studies. Although evidence is promising, rigorous randomized controlled trials are lacking. Kinshukadi Taila appears safer for longer-term use but may cause allergic reactions in sensitive individuals. **Conclusion:** An integrative model combining the rapid, short-term efficacy of clobetasol with the safer, restorative potential

of Kinshukadi Taila offers a pragmatic approach to CICD management. Acute inflammation may be best managed with supervised corticosteroid therapy, while Ayurvedic oil formulations may support skin barrier repair, reduce pigmentation sequelae, and minimize steroid dependence. Further large-scale, standardized trials are required to validate the efficacy and safety of Kinshukadi Taila in comparison with conventional corticosteroids.

Index Terms—cosmetic-induced contact dermatitis; clobetasol propionate; Kinshukadi Taila; topical corticosteroid; Ayurveda; integrative dermatology

I. INTRODUCTION

Cosmetic-induced contact dermatitis (CICD) is a common dermatological condition resulting from exposure to allergens and irritants present in cosmetic and personal care products. The global rise in cosmetic use, driven by increasing urbanization, aesthetic awareness, and social trends, has led to a parallel increase in cases of CICD. Cosmetics such as creams, lotions, hair dyes, perfumes, nail products, and sunscreens contain multiple chemical constituents—fragrances, preservatives, surfactants, dyes, and emulsifiers—that can trigger allergic or irritant reactions. 1 Clinical presentations may vary from mild erythema and scaling to intense pruritus, vesiculation, lichenification, and secondary infections. Persistent inflammation often results in post-inflammatory hyperpigmentation or hypopigmentation, which can significantly affect quality of life, especially in populations with high cosmetic usage. 2

The condition is broadly classified into irritant contact dermatitis (ICD) and allergic contact dermatitis (ACD). Irritant reactions are caused by direct chemical damage to the skin barrier, while allergic reactions involve immune-mediated type IV hypersensitivity. Diagnosis typically depends on clinical history, exposure patterns, and in recurrent cases, patch testing to identify specific allergens. The cornerstone of management includes immediate discontinuation of the offending product, barrier repair with emollients, and topical anti-inflammatory therapy to control acute symptoms.³

In conventional dermatology, topical corticosteroids remain the mainstay of treatment. Among them, clobetasol propionate, a very-high-potency steroid, is frequently used for severe acute dermatitis due to its rapid anti-inflammatory action. While effective, clobetasol carries risks of cutaneous adverse effects such as atrophy, telangiectasia, and steroid-induced dermatitis if misused or overused. Moreover, in cosmetic-related conditions where lesions often affect visible areas such as the face, patients may be hesitant or anxious about steroid side effects, leading to poor compliance or unsupervised self-medication.⁴

Parallel to modern dermatology, Ayurveda, the traditional Indian system of medicine, describes various skin conditions under the broad category of Kushta and Twak Vikara. Topical oils (taila) and herbal preparations have long been used for their anti-inflammatory, wound-healing, and complexion-enhancing properties. Kinshukadi Taila, a polyherbal formulation mentioned in classical texts and widely available today, is traditionally indicated for inflammatory and pigmentary skin disorders.⁵ Its ingredients—such as *Butea monosperma*, *Rubia cordifolia*, *Curcuma longa*, *Tinospora cordifolia*, and saffron—are credited with anti-inflammatory, detoxifying, and complexion-promoting effects. Contemporary Ayurvedic practice often employs Kinshukadi Taila for cosmetic-related reactions, post-inflammatory pigmentation, and chronic dermatitis.⁶ The comparative study of clobetasol and Kinshukadi Taila is significant because it reflects two contrasting but potentially complementary paradigms of dermatology: the rapid, targeted suppression of inflammation through corticosteroids versus the gradual, holistic restoration of skin health through herbal formulations. An integrative approach may balance efficacy with safety, particularly in patients

who experience recurrent CICD or prefer natural therapies.⁷

This review aims to synthesize available evidence on both clobetasol and Kinshukadi Taila, highlight their respective strengths and limitations, and propose an integrative framework for managing cosmetic-induced contact dermatitis.

II. AIMS & OBJECTIVES

- Summarize pathophysiology and clinical patterns of CICD.
- Review pharmacology, efficacy, and safety of clobetasol in CICD.
- Describe composition, proposed mechanisms, and clinical evidence for Kinshukadi Taila.
- Compare advantages and limitations of both approaches and propose a pragmatic integrative management pathway.

III. METHODS (SEARCH STRATEGY)

A targeted narrative search was conducted across medical and Ayurvedic/open sources to synthesize conventional and integrative evidence for CICD management. Sources included clinical reviews and guideline summaries for topical corticosteroids and recent Ayurvedic articles, product monographs, and small clinical trials/registries concerning Kinshukadi/Kinshukadi Taila. (Representative sources are cited in the References below.)

Background — Cosmetic-Induced Contact Dermatitis (CICD)

CICD encompasses skin inflammation provoked by cosmetic ingredients (preservatives, fragrances, dyes, botanicals, emulsifiers) and can be irritant or allergic in origin. Clinically it ranges from erythema, scaling, vesiculation, pruritus, to post-inflammatory hyperpigmentation and secondary infection. First-line management centers on removal/avoidance of the offending product, symptomatic care (emollients, cool compresses), and targeted anti-inflammatory therapy for symptomatic relief and to prevent chronic changes. Identification of causative agents via history and patch testing (when indicated) remains important.⁸

Clobetasol Propionate — Conventional Pharmacology, Efficacy, and Safety

Mechanism & Indications

Clobetasol propionate is a very-high-potency topical corticosteroid with potent anti-inflammatory, antipruritic, and vasoconstrictive effects. It is commonly used for short courses in severe localized inflammatory dermatoses including acute contact dermatitis to rapidly control intense inflammation. Clinical guidance supports use of mid- to high-potency topical steroids for localized allergic contact dermatitis, with emphasis on limiting duration and area of application. 9

Efficacy

High-potency corticosteroids produce rapid symptomatic relief (reduced erythema, pruritus, edema) and promote faster resolution of acute lesions than emollients alone. Clobetasol formulations (0.05%) are well-documented to be effective when used appropriately and for limited periods. 10

Safety and Limitations

Topical corticosteroids carry risks—especially very-high potency agents—if misused: skin atrophy, telangiectasia, striae, hypopigmentation, delayed wound healing, secondary infections, and systemic effects (rare with limited use but possible with large areas/occlusion). Paradoxically, topical steroids or excipients may themselves cause or worsen dermatitis (allergic contact to vehicle components or steroid molecule), and steroid misuse can lead to tachyphylaxis or steroid-induced rosacea/acneiform eruptions. Patient education, limiting duration (commonly $\leq 2-4$ weeks for clobetasol), and follow-up are essential. 11

Kinshukadi (Kinshukadi/Kinsukadi) Taila — Ayurvedic Topical Oil: Composition, Rationale, and Evidence

Composition & Traditional Rationale

Kinshukadi Taila is an Ayurvedic herbal oil (taila) composed of multiple botanical ingredients reported in commercial formulations to include kinshuka (*Butea monosperma*), manjistha (*Rubia cordifolia*), nagakeshara (*Mesua ferrea*), haridra (*Curcuma longa*), guduchi (*Tinospora cordifolia*), saffron, rakhtchandan, henna and various oils (sesame/til oil), among others depending on the classical recipe and manufacturer. These components are traditionally ascribed anti-inflammatory, wound-healing, depigmenting, and antiseptic properties in Ayurvedic texts and contemporary commentaries. 12

Proposed mechanisms (phytopharmacology)

Many constituent herbs have documented anti-inflammatory, antioxidant, and antimicrobial activities in preclinical studies (e.g., curcumin, manjistha). Oil vehicles provide occlusion and hydration, support barrier repair, and may enhance penetration of lipophilic phytochemicals. From an Ayurvedic perspective, formulations aim to pacify localized vitiated doshas and promote srotoshodhana (cleansing of channels) and twak (skin) health. 13

Clinical evidence

The published clinical evidence for Kinshukadi Taila in cosmetic-induced skin allergy is limited to small open trials, product monographs, and registered comparative trials (some in Ayurvedic institutions) rather than large randomized, blinded trials published in mainstream dermatology journals. Small randomized/open comparative studies and case series claim symptomatic improvement, but methodological heterogeneity and limited sample sizes restrict generalizability. Rigorous trials (randomized, placebo-controlled, and with objective outcomes) are needed. 14

Safety

Topical herbal oils are generally well tolerated but allergic reactions to certain botanicals, fragrances, or preservatives can occur — importantly, “natural” does not guarantee absence of sensitizers. Quality control (standardization, contamination, adulteration) of commercial formulations varies. Patch testing may be helpful if an Ayurvedic oil is suspected as the culprit or if new adverse reactions occur. 14

Comparative Insights — Efficacy, Safety, and Practical Roles

Speed of symptomatic control 15

Clobetasol: Rapid, predictable anti-inflammatory effect; useful for severe acute flares.

Kinshukadi Taila: May reduce irritation and promote healing over days; onset likely slower and evidence less robust.

Safety profile 16

Clobetasol: Risk of local and systemic corticosteroid adverse effects with inappropriate use. Requires strict duration/area limits and physician supervision.

Kinshukadi Taila: Lower risk of steroid-related adverse effects; possible allergic contact reactions to herbal components; variable product quality.

Evidence quality 17

Clobetasol: Supported by dermatology guidelines and numerous clinical studies for contact dermatitis and other inflammatory dermatoses.

Kinshukadi Taila: Limited to small Ayurvedic trials, case series, and product literature; high-quality RCTs are sparse.

Practical roles (when integrated) 18

Acute severe flares: Short course of clobetasol for rapid control plus identification/avoidance of irritant/allergen.

Milder or resolving cases / post-steroid taper / pigmentary sequelae: Adjunctive application of Kinshukadi Taila may support barrier repair, calm residual inflammation, and address hyperpigmentation in line with traditional uses.

Patient preference / steroid-avoidant patients: An Ayurvedic topical may be considered with counseling on slower onset and uncertain evidence, and monitoring for allergic reactions.

Proposed Integrative Management Algorithm (Practical)

Assess severity & identify cause

Stop suspected cosmetic/product immediately. Obtain history and photographs; consider patch testing for persistent/recurrent cases.

Initial therapy

For severe symptomatic dermatitis (marked erythema, edema, vesiculation, intense pruritus): prescribe a short course (commonly up to 2 weeks) of a high-potency topical corticosteroid such as clobetasol under close supervision, with clear instructions on amount, frequency, site limitations (avoid prolonged facial use), and follow-up. Provide emollients and infection surveillance. 19

Transition / taper

Once marked improvement occurs (usually days to 1–2 weeks), taper steroid potency/duration (step down to lower potency steroid or non-steroidal anti-inflammatory topical such as topical calcineurin inhibitors where appropriate) and begin integrative measures. 20

Adjunctive Ayurvedic topical

Consider Kinshukadi Taila as an adjunct for barrier repair, symptomatic soothing, and pigment care after active inflammation is controlled (or in milder cases where steroid avoidance is preferred). Apply under supervision, and stop if new irritation occurs.

Emphasize using standardized, reputable product batches.21

Long-term care & prevention

Emollients, avoidance of offender, patient education on cosmetics (hypoallergenic, fragrance-free), and follow-up for post-inflammatory hyperpigmentation or chronic dermatitis. 22

When to refer

Refractory or recurrent dermatitis, extensive involvement, suspected steroid-induced dermatitis, or diagnostic uncertainty—refer to dermatology. Consider dermatology + Ayurvedic collaboration for integrative care and documentation.

Limitations & Research Priorities

- High-quality randomized controlled trials comparing Ayurvedic oils (e.g., Kinshukadi Taila) head-to-head with standard topical therapies are lacking. Existing studies are small or open-label and heterogeneous.
- Standardization and quality control of herbal products must be improved and reported in trials.
- Mechanistic studies (phytochemistry, penetration studies, anti-inflammatory pathways) and safety/patch-test series for common formulations are needed.
- Comparative effectiveness research (patient-reported outcomes, objective severity scores, relapse rates, safety) would guide integrative protocols.

IV. DISCUSSION

Cosmetic-induced contact dermatitis (CICD) represents an increasing challenge in dermatology due to the rising use of complex cosmetic products containing numerous potential allergens and irritants. The condition is distressing for patients both symptomatically (pruritus, pain, erythema) and psychosocially (visible lesions, post-inflammatory hyperpigmentation), and requires individualized, safe, and sustainable management strategies. 23

Conventional therapy considerations

Clobetasol propionate, as a very-high-potency corticosteroid, has been the mainstay for severe localized CICD flares. Its efficacy is well documented, with rapid suppression of inflammation, relief of

pruritus, and visible resolution of acute lesions. However, prolonged or unsupervised use can lead to significant cutaneous adverse events such as skin atrophy, telangiectasia, steroid-induced acne, perioral dermatitis, and rebound flares. The risk of tachyphylaxis and dependency is well recognized, especially in cosmetic dermatitis where patients often self-apply over-the-counter steroid creams. Hence, dermatology guidelines recommend clobetasol for short courses and limited areas, with step-down therapy once control is achieved. This approach is effective but may not fully address chronic relapsing patterns or the patient's preference for natural or "chemical-free" therapies. 24

Integrative and Ayurvedic perspectives

Ayurvedic dermatology traditionally emphasizes both symptom relief and restoration of *twak* (skin) integrity through herbal oils, *lepas* (pastes), and systemic cleansing therapies. Kinshukadi Taila, a classical polyherbal oil formulation, is widely marketed for inflammatory and pigmentary disorders. Its constituent herbs such as *Butea monosperma*, *Rubia cordifolia*, *Curcuma longa*, and *Tinospora cordifolia* have demonstrated anti-inflammatory, antioxidant, and wound-healing effects in pharmacological studies. While anecdotal and small-scale clinical studies suggest improvements in dermatitis symptoms and pigmentation, large-scale randomized trials are lacking. Moreover, the quality and composition of commercially available preparations vary widely, which affects reproducibility of outcomes. 25

From a safety perspective, Kinshukadi Taila lacks the steroid-induced adverse effect profile of clobetasol, making it appealing for long-term use and maintenance phases. However, allergic contact dermatitis to herbal components is possible, and quality control remains a concern.

Integrative role and comparative insights 26

An integrative approach leverages the strengths of both systems:

- Acute phase: Clobetasol offers rapid suppression of acute inflammatory flares, particularly in severe cases where quality of life is significantly affected.
- Transition and maintenance: Kinshukadi Taila may serve as a supportive therapy to reduce steroid exposure, maintain barrier function, and address pigmentation sequelae, which are common after CICD.

- Patient preference and adherence: In populations where patients seek "natural" or Ayurvedic solutions, offering Kinshukadi Taila as part of a supervised integrative regimen can improve adherence, trust, and holistic care.

Research gaps and priorities

The main limitation in current practice is the disparity in evidence strength. While clobetasol is backed by high-quality trials and guideline recommendations, evidence for Kinshukadi Taila is restricted to small studies, case reports, and traditional usage claims. Future research must include:

- Randomized controlled trials directly comparing Ayurvedic oils with topical corticosteroids.
- Mechanistic studies exploring phytochemical effects on inflammatory mediators and skin barrier repair.
- Pharmacovigilance and safety registries to capture adverse events and allergic reactions with herbal oils.
- Standardization of formulations to ensure batch-to-batch consistency and clinical reproducibility.

Broader implications

CICD management exemplifies a broader challenge in dermatology: balancing rapid relief from pharmaceutical agents with safer, long-term strategies that align with patient values. Integrative models may enhance outcomes by reducing steroid load, supporting skin recovery, and empowering patients with culturally acceptable alternatives. However, this requires collaborative frameworks between dermatology and Ayurveda, standardized protocols, and transparent patient education. 27

V. CONCLUSION

Clobetasol remains an effective, guideline-supported option for rapid control of severe cosmetic-induced contact dermatitis but requires cautious, time-limited use because of well-known adverse effects. Kinshukadi Taila and similar Ayurvedic topical oils offer a potentially useful complementary approach—particularly for barrier repair, symptomatic soothing, and post-inflammatory care—but current evidence is limited and quality varies. An integrative, patient-centered approach uses the strengths of each: short supervised steroid courses when needed for acute control followed by adjunctive herbal topical therapy

and preventive measures. Rigorous clinical trials and improved standardization of herbal preparations should be prioritized.

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