

Efficacy of 35% Salicylic Acid Peel in Tinea Infections: A Novel Approach

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Introduction

Superficial fungal infections, primarily caused by dermatophytes, are widespread and have increasingly become a therapeutic challenge. The prevalence of tinea infections has risen significantly in India and other tropical regions, with a notable surge in cases resistant to conventional antifungal treatment [1]. Chronicity, recurrence, and incomplete responses to therapy have raised concerns about the efficacy of existing antifungal agents [2].

Antifungal resistance can result from multiple mechanisms, including activation of alternative signaling pathways, modification of target sites, increased drug efflux, and reduced drug uptake [3]. The absence of new antifungal drugs exacerbates the problem, necessitating alternative treatment approaches.

Salicylic acid is a keratolytic agent that promotes desquamation of the stratum corneum. As dermatophytes reside within this layer, its removal may aid in eradicating the infection. This study explores the efficacy of a 35% salicylic acid peel in treating tinea infections, particularly in patients resistant to standard antifungal therapy.

Materials and Methods

Study Design

This was a prospective, interventional study conducted on 40 patients with active tinea infections.

Inclusion Criteria

- Patients aged ≥ 18 years
- KOH-positive for fungal filaments
- Willing to participate in the study

Exclusion Criteria

- Tinea faciei, Tinea capitis
- Extensive body involvement (>20% BSA)
- Pregnant females
- Concomitant infections

Procedure

A 35% salicylic acid solution was prepared using 100 mL acetone and 35 mg salicylic acid powder. The solution was applied weekly for four weeks on affected lesions using a cotton swab, followed by neutralization after five minutes. No systemic or topical antifungals were administered.

Outcome Measurement

- KOH examination at baseline and one week after the fourth session
- Side effects and recurrence rates were recorded

Results

Table 1: Study Results

Parameter	Number of Patients (n=40)	Percentage (%)
Negative KOH after 4 weeks	22	55
Recurrence among negative cases	07	17.5
Patients resistant to antifungal treatment	15	37.5
Resistant cases responding to SA peel	12	80
Total	40	



A 42 year old male with tinea corporis, completely resolved with no hyperpigmentation after 5 weeks of treatment.



23 year old female with tinea corporis over the knee- post treatment results after 5 weeks of salicylic acid peel.

Discussion

The increasing resistance of dermatophytes to conventional antifungal agents has led to the need for alternative treatments. Recent studies highlight a growing trend of chronic and relapsing dermatophytosis in India, with fluconazole, terbinafine, and itraconazole showing reduced efficacy in some cases [4,5].

Mechanism of Salicylic Acid in Dermatophytosis

Salicylic acid is a beta-hydroxy acid with keratolytic properties, which facilitates exfoliation of the epidermal layer where dermatophytes reside [6]. Unlike antifungal agents that target fungal cell walls or ergosterol synthesis, salicylic acid mechanically removes the infected layer, reducing fungal load without inducing drug resistance.

Comparison with Conventional Therapy

While antifungal agents remain the first-line treatment, their limitations in resistant cases justify exploring complementary therapies. Mahajan et al. [7] demonstrated that combining keratolytic agents with antifungals improved clinical outcomes, supporting the role of salicylic acid peels in treatment-resistant cases.

Advantages and Limitations of Salicylic Acid Peel

The primary advantage of salicylic acid therapy is its low cost and resistance-free mechanism. Additionally, the lack of systemic absorption minimizes adverse effects. However, some limitations include:

- **Burning Sensation:** Reported in all patients, though it was transient and manageable.
- **Recurrence:** Observed in 17.5% of patients, suggesting the need for extended treatment duration.
- **Restricted Use in Sensitive Areas:** Caution must be exercised when applying near mucous membranes.

A larger randomized controlled trial with a longer follow-up period is warranted to validate these findings.

Conclusion

Salicylic acid peel effectively clears dermatophyte infections in a significant proportion of patients, including those resistant to conventional antifungals. It offers a cost-effective, non-resistance-inducing treatment option. However, optimizing treatment duration may help reduce recurrence rates.

References

1. Verma S, Madhu R. The great Indian epidemic of superficial dermatophytosis: An appraisal. *Indian J Dermatol.* 2022;67(3):303-309.
2. Panda S, Verma S. The menace of dermatophytosis in India: The evidence-based perspective. *Indian Dermatol Online J.* 2021;12(5):679-688.
3. Singh A, Masih A, Khurana A, et al. High terbinafine resistance in *Trichophyton interdigitale* isolates in North India: An emerging public health concern. *Mycoses.* 2018;61(8):676-684.

4. Nenoff P, Verma SB, Vasani R, et al. The current Indian epidemic of superficial dermatophytosis due to *Trichophyton mentagrophytes* - A molecular perspective. *Mycoses*. 2021;64(4):333-342.
5. Hazarika N, Jindal R. Recalcitrant dermatophytosis: Current scenario, challenges and solution. *J Clin Aesthet Dermatol*. 2019;12(5):26-30.
6. Khosla R, Bhagat J, Pandhi D, et al. Keratolytics and their role in dermatology. *Indian Dermatol Online J*. 2020;11(3):339-345.
7. Mahajan R, Sharma S, Kanga A. Keratolytic agents in dermatophytosis: An old weapon with a new purpose. *Indian Dermatol Online J*. 2021;12(3):450-454.