

Epidemiological Analysis of Steroid-Modified Tinea in the Back and Upper Limb Regions: Insights from IndiaAbhyuday Tiwari^{1*}, Sanath Aithal²¹Private practitioner, Apex Hospital, University Road, R. K. Puri, Gwalior 474011²Professor, KMCHHSR (KMCH Institute of Medical Sciences & Research), 99a, Avinashi Road, Coimbatore-641014

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Corresponding author: Dr. Abhyuday Tiwari

Conflict of interest: Nil

Abstract

Background: India, with its diverse climate, population, and healthcare practices, serves as an intriguing backdrop for this investigation. The country's tropical and subtropical regions, coupled with socio-economic factors, contribute to an environment conducive to dermatophytic infections. The widespread and inappropriate use of topical steroids has emerged as a significant contributing factor to the modification and exacerbation of dermatophytoses, posing challenges in diagnosis and management.

Material and Methods: A Prospective Observational Cross-Sectional Study was conducted at the department of Dermatology, Venereology, and Leprology of Teerthanker Mahaveer Medical College and Research Centre in Moradabad, India. The study included 500 participants aged 1-70 years with a history of topical and/or systemic corticosteroid use and positive KOH results. Pregnant women were excluded. The 18-month study aimed to explore atypical patterns associated with steroid-modified tinea corporis in the Back and Upper Limb Regions.

Results: Results showed that predominant annular shape in 88% of cases, with polygonal-shaped lesions comprising 12%. Erythema reveals that 54.3% of lesions exhibit erythema, contrasting with 45.7% showing no signs. Results also emphasize a significant majority (94.1%) lacking central clearing, while 5.9% display this feature.

Conclusion: Steroid-modified tinea corporis presents a growing public health concern in India, leading to atypical and chronic presentations challenging conventional treatment. Understanding diverse clinical patterns and risk factors is crucial for effective management and prevention. The study underscores the need for targeted interventions to curb steroid misuse, mitigating the rising burden of dermatophytosis. The escalating prevalence demands comprehensive strategies for nuanced diagnosis and treatment.

Keywords: Steroid-modified tinea corporis, back and upper region, dermatophytosis, atypical patterns, topical steroids, public health, clinical study.

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Introduction

In recent years, the prevalence of dermatological conditions has witnessed a significant surge, with a noticeable increase in cases related to fungal infections. Among these, the dermatophytic infection known as tinea holds a prominent place. Tinea, commonly referred to as ringworm, is caused by various species of fungi that thrive on the skin's keratinized tissues.

While tinea has been a longstanding concern, the landscape of these infections is evolving, presenting new challenges in diagnosis and management [1-5]. This epidemiological study focuses on a distinct aspect of tinea, specifically its manifestation in the back and upper limb regions, with a unique emphasis on cases influenced by the

inappropriate use of topical steroids. The misuse of topical steroids, often driven by self-medication practices, has been recognized as a contributing factor to the modification and exacerbation of tinea infections. This study aims to provide comprehensive insights into the epidemiological patterns, clinical characteristics, and contributing factors associated with steroid-modified tinea, drawing from a rich dataset sourced from diverse regions across India. [6-8]

India, with its diverse climate, population, and healthcare practices, serves as an intriguing backdrop for this investigation. The country's tropical and subtropical regions, coupled with socio-economic factors, contribute to an

environment conducive to dermatophytic infections. Additionally, the widespread availability and over-the-counter accessibility of topical steroids further complicate the scenario, leading to the emergence of steroid-modified tinea as a notable public health concern.

As we delve into the intricacies of this epidemiological analysis, we seek to unravel the nuances of steroid-modified tinea's prevalence, its demographic distribution, and the specific challenges posed by its occurrence in the back and upper limb regions. By shedding light on these aspects, we hope to contribute valuable data that not only advances the scientific understanding of this dermatological phenomenon but also aids in the development of targeted intervention strategies and public health initiatives to mitigate its impact. This study leverages a multidisciplinary approach to comprehensively address the complex interplay of factors influencing the epidemiology of steroid-modified tinea in India. Through this exploration, we aim to pave the way for informed clinical practices, improved diagnostic precision, and effective health measures to combat the rising tide of steroid-modified tinea in the back and upper limb regions of the Indian subcontinent.

Material and Methods

It is a Prospective Observational Cross-Sectional Study with a sample size of 500 and duration of 18 months. The study was conducted on the patients coming to the department of Dermatology, Venereology and Leprology of Teerthanker Mahaveer Medical College and Research Centre.

Inclusion Criteria

- Patients willing to participate in the study.
- All cases of tinea corporis from 1-70 years of age.[7]
- History of topical and/or systemic corticosteroid use.[7]
- KOH positive cases.

Exclusion Criteria: Pregnant women.

Methodology

The methodology for the 10% KOH mount involves a systematic process for the examination of skin scrapings to detect fungal elements. Firstly, the suspicious area is meticulously scrubbed with 70% ethyl alcohol to ensure cleanliness and prevent contamination [7]. Subsequently, scales are collected from the periphery using a sterile number 15 scalpel blade, and if lesions are present in other areas, additional skin scrapings are gathered and processed separately.

On a glass slide, a few drops of 10% KOH are added to the collected sample, and the preparation is covered with a cover slip. The sample is then left for duration of 15-20 minutes to enhance sensitivity. Following this incubation period, all samples are meticulously examined under a microscope for the presence of fungal elements in the Potassium hydroxide (KOH) 10% mount.

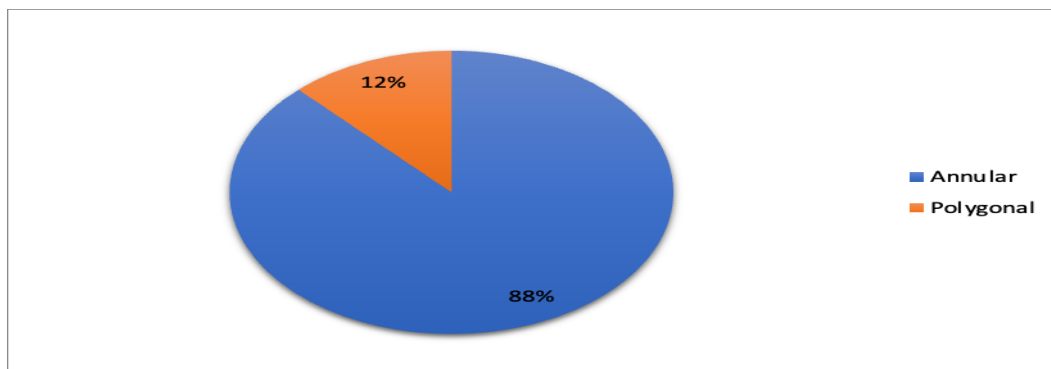
This method ensures a thorough and detailed analysis of skin scrapings to identify potential fungal infections, contributing to the accuracy of diagnosis and subsequent treatment decisions.

Observation and Results

The present study was conducted on a total of 500 patients who presented to the out-patient department or in-patient department. The most common age group to which patients belonged to was 21-30 years.

They constituted 37.6 percent of the cases. The second most common age group was 11-20 years at 22.2 percent. Among the cases, most patients belonged to male gender which constituted 67 percent of the cases. Among the study group, mean number of topical steroid formulation used by a patient was 17. The minimum number of topical steroid formulations used was 1 and maximum was 100. Out of all the patients, only 18 had used injectable steroids.

The compound used by all the patients was dexamethasone. The study involved 500 patients and their body surface area (BSA) involvement was examined for lesions in the Back and Upper Limb Regions.



Graph 1: Type of shape in the lesions on the back and Upper Limb Regions.

Graph 1 shows that the results of the analysis of lesions on the back and Upper Limb Regions, categorized by their shapes. The majority of lesions exhibit an annular shape, with a frequency of 254 (88 %). In contrast, polygonal-shaped lesions are less common, representing 35 cases (12%).

Table 1: Erythema in the lesions on the back and Upper Limb Regions

Erythema	Frequency	Percent
Absent	132	45.7
Present	157	54.3
Total	289	100.0

The table 1 presents the distribution of erythema in lesions on the back and Upper Limb Regions, indicating the frequency and percentage of cases where erythema is either present or absent. Out of a total of 289 cases, 132 (45.7%) show no erythema, while 157 (54.3%) exhibit erythema in the lesions.

Table 2: Central clearing in the lesions on the back and Upper Limb Regions

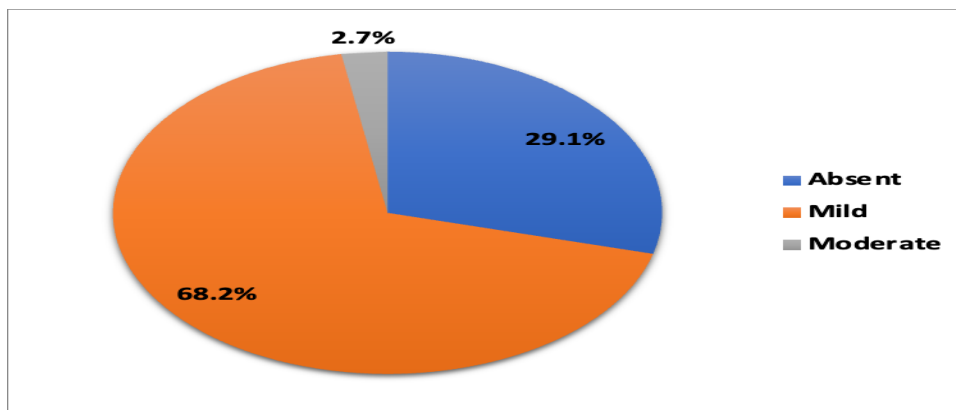
Central Clearing	Frequency	Percent
Absent	272	94.1
Present	17	5.9
Total	289	100.0

Table 2 presents data on the presence or absence of central clearing in lesions observed on the Back and Upper Limb Regions. Among the total of 289 cases examined, a significant majority, comprising (94.1% cases), exhibited lesions without central clearing. In contrast, central clearing was identified in 9 cases (5.9%).

Table 3: Margins whether depressed or elevated in the lesions on the back and Upper Limb Regions.

Margins	Frequency	Percent
Depressed	263	91.0
Elevated	26	9.0
Total	289	100.0

Table 3 detailing the margins of lesions on the chest and abdomen reveal that among the 192 cases examined, a majority of lesions, accounting for 77.6%, displayed depressed margins. In contrast, lesions with elevated margins constituted 22.4% of the total cases.



Graph 2: Scaling in the lesions on the back and Upper Limb Regions.

Graph 2 displays the distribution of scaling in lesions on the back, showcasing the frequency and percentage of cases for each level of scaling. Among the total of 289 cases, 84 (29.1%) exhibit no scaling, 197 (68.2%) have mild scaling, and 8 (2.7%) display moderate scaling.

Discussion

The comprehensive analysis of lesions provides a detailed and nuanced understanding of the

dermatological conditions on the back and Upper Limb Regions. These findings contribute valuable information for medical professionals in diagnosing and treating these lesions, ultimately improving patient care. Existing studies emphasize the varied clinical presentations of steroid-modified tinea, resembling other skin diseases. The current study aligns with global findings, emphasizing the need for nuanced diagnosis and multifaceted interventions to curb steroid misuse. C. Romano et

al (2006) studied tinea incognito or steroid modified tinea in which steroid application has modified the clinical appearance of the fungal infection, transforming the typical tinea and mimicking other skin diseases. 200 cases of tinea incognito were observed and the clinical appearance of the infection was lupus erythematosus discoid-like, eczema-like, rosacea-like, especially on the face, impetigo-like and eczema-like on trunk and limbs.

Less often the dermatophytosis resembled psoriasis, purpura, seborrheic dermatitis and lichen planus.[8,9] Ansar A. et al (2011) studied a total of 6235 patients of dermatophytosis and it revealed that the different patterns of Tinea incognito which is a part of steroid modified Tinea showed that eczema-like was the most common pattern followed by rosacea like and seborrheic dermatitis-like. The most common clinical pattern was Tinea corporis.[10] Kim WJ et al studied Tinea incognito in Korea (2013). It was a study done on 283 patients with tinea Incognito from 25 dermatology training hospitals in Korea.

More than half (59.3%) patients were previously treated by non-dermatologists or self-treated. The most common clinical manifestations were eczema-like lesions, psoriasis-like, and lupus erythematosus-like lesions. The trunk and face were frequently involved, and 91 patients (32.2%) also had co-existing fungal infections. [9] Dutta B et al (2017) did a study on steroid modified dermatophytosis and they found that eczema-like pattern was the most common clinical manifestation. Direct microscopy was positive in 85% of cases.

Pharmacists were responsible for 78% of tinea incognito cases and betamethasone dipropionate was the most common drug used.[11] Dogra S. et al, Narang T. in (2017) found that among the atypical presentations, eczema-like tinea was the most common type of atypical presentation[1]. The need for targeted interventions is paramount, emphasizing a multifaceted approach to counteract the misuse of steroid-containing formulations. Public health initiatives must focus on raising awareness among healthcare providers, pharmacists, and the general public regarding the detrimental consequences of indiscriminate steroid use in dermatological conditions [12].

Additionally, regulatory measures and guidelines should be reinforced to monitor and restrict the availability of fixed drug combinations that include steroids, thereby curbing their unwarranted use. Moreover, the study underscores the importance of continuous surveillance and epidemiological studies to track the evolving patterns of dermatophytosis, ensuring a dynamic response to the ever-changing landscape of fungal infections.

Collaborative efforts between healthcare professionals, researchers, policymakers, and pharmaceutical industries are imperative to develop and implement evidence-based interventions aimed at reducing the prevalence and impact of steroid-modified tinea corporis. By addressing the root causes and implementing preventative measures, there is a substantial opportunity to alleviate the burden of dermatophytosis in India, ultimately safeguarding public health and well-being.

Conclusion

The escalating prevalence of steroid-modified tinea corporis in India necessitates comprehensive strategies to address its atypical manifestations. Insights from this study underscore the complexities in presentation and treatment, highlighting the imperative for a nuanced understanding of the interplay between dermatophytosis and steroid misuse. The study's insights into the diverse clinical patterns and risk factors associated with this condition illuminate the complexities in its presentation and treatment. The persistence and exacerbation of cases, often unresponsive to conventional therapeutic approaches, highlight the imperative for a nuanced understanding of the intricate interplay between dermatophytosis and steroid misuse.

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