

Steroid-Modified Tinea Corporis: A Clinical Study of Unusual/Atypical PatternsAbhyuday 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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Conflict of interest: Nil

Abstract:

Introduction: Dermatophytosis, the leading cause of superficial fungal infections globally, has witnessed a surge in cases in recent years, particularly in India, where an escalating number of chronic and recurrent dermatophytosis cases have emerged. This study addresses the significant rise in steroid-modified tinea corporis, a consequence of the misuse of fixed drug combinations containing steroids. Such cases, presenting with chronic, resistant, and widespread lesions, pose challenges for standard treatment protocols, leading to increased morbidity and economic loss. The primary aim of this study is to investigate the various unusual and atypical patterns associated with steroid-modified tinea corporis.

Material and Methods: A Prospective Observational Cross-Sectional Study with a sample size of 500 and duration of 18 months was conducted at the department of Dermatology, Venereology, and Leprology of Teerthanker Mahaveer Medical College and Research Centre. Inclusion criteria encompassed patients willing to participate, aged 1-70 years, with a history of topical and/or systemic corticosteroid use and positive KOH results. Pregnant women were excluded.

Results: The study, encompassing 500 patients, revealed that the age group of 21-30 years constituted the majority (37.6%), and males accounted for 67% of cases. Topical steroid formulations were extensively used, with a mean of 17 formulations per patient. Notably, no nodules were observed in lesions on the chest and abdomen. In upper limb lesions, annular shapes predominated at 88.8%, while scaling was absent in 66.9% of cases. The body surface area involved ranged from 1.00% to 60.00%, with a mean of 7.2760% and a standard deviation of 12.46831%.

Conclusion: Steroid-modified tinea corporis poses a growing public health concern in India, leading to atypical and chronic presentations that challenge conventional treatment strategies. Understanding the diverse clinical patterns and risk factors is crucial for effective management and prevention. The study emphasizes the need for targeted interventions to curb the misuse of steroid-containing formulations and mitigate the rising burden of dermatophytosis in the country.

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

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Introduction

Dermatophytosis has been the most common cause of superficial fungal infections in the dermatology clinics, throughout the world. [1] However, in the past 5-7 years, there is an alarming increase in the overall number of cases and increasing proportion of difficult to treat chronic and recurrent dermatophytosis in India.[1]

Patients are presenting with widespread, atypical, extremely symptomatic lesions of tinea corporis, faciei, cruris, pedis and capitis which requires prolonged duration of therapy.[1] There is an epidemic-like situation of dermatophytosis in the

country.[2] The chief culprit behind this scenario is Fixed drug combinations which contain a steroid, an antifungal and an anti-bacterial.[2] Presentations which are chronic, recurrent and widespread. Such presentations do not respond to standard protocols of treatment.[3]

All in all the menace of steroid modified dermatophytosis is wreaking havoc in India.[3] There is an increase in chronic, resistant and recurrent cases and has led to increased morbidity and economical loss. The primary aim of this study is to investigate the various unusual and atypical

patterns associated with steroid-modified tinea corporis.

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

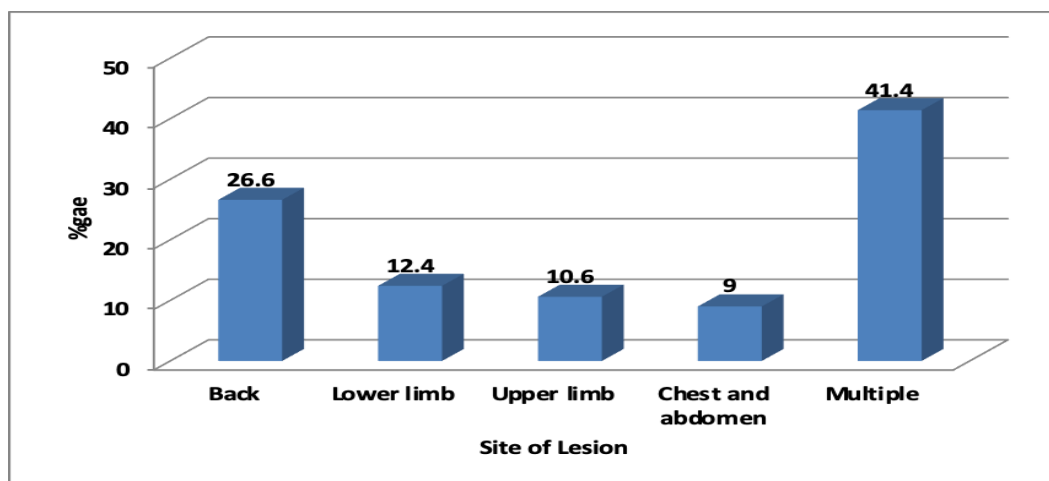
The methodology for the 10% KOH mount involves a systematic process for the examination of skin scrapings to detect fungal elements. Firstly, the suspicious area is meticulously scrubbed with 70% ethyl alcohol to ensure cleanliness and prevent contamination [7].

Subsequently, scales are collected from the periphery using sterile number 15 scalpel blades, 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.



Graph 1: site involvement patients wise

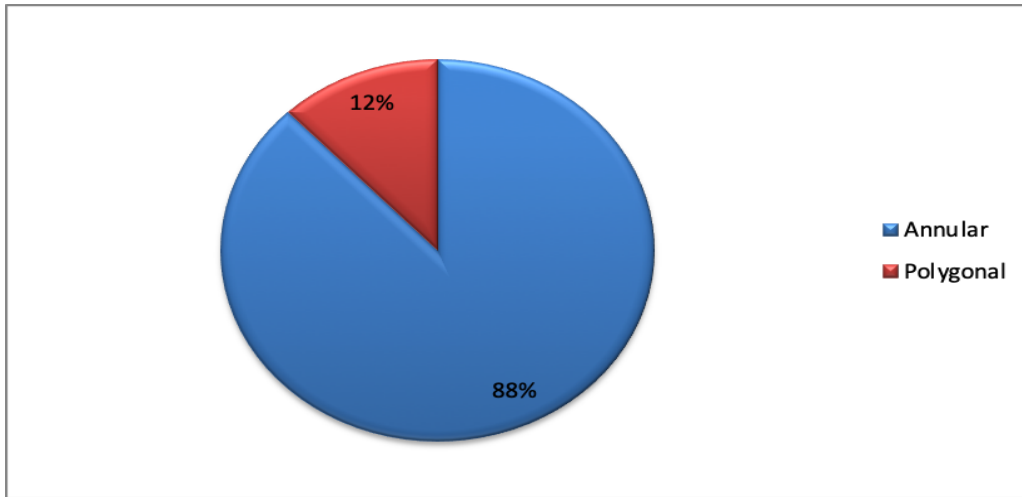
Table 1: Body surface area involved in percentage

BSA	N	Minimum	Maximum	Mean	Std. Deviation
	500	1.00	60.00	7.2760	12.46831

The study involved 500 patients as shown in Table 1 and Graph 1, and their body surface area (BSA) involvement was examined. The analysis revealed a varied distribution, with the percentage of BSA involvement ranging from 1.00% to 60.00%. The mean BSA involvement was found to be 7.2760%,

indicating the average extent across the patient population.

The standard deviation of 12.46831% highlights the variability in BSA involvement, signifying differences in the severity or extent of the condition among the examined cases.



Graph 2: Type of shape in the lesions on the back.

Graph 2 shows that 12% polygonal and 88% annular shaped lesions.

Table 2: Central clearing on the lesions of chest & abdomen

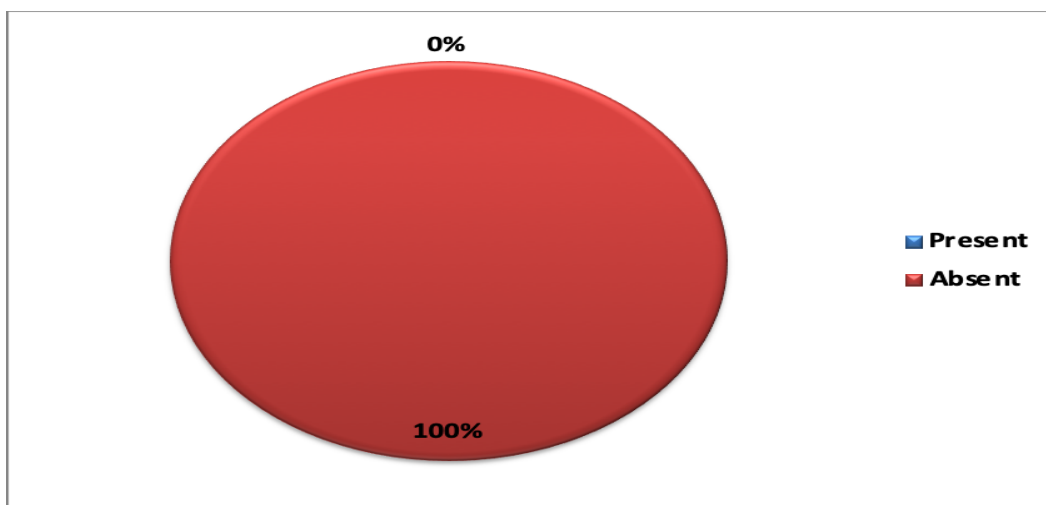
Central Clearing	Frequency	Percent
Absent	183	95.3
Present	9	4.7
Total	192	100.0

Table 2 presents data on the presence or absence of central clearing in lesions observed on the chest and abdomen. Among the total of 192 cases examined, a significant majority, comprising 183 cases (95.3%), exhibited lesions without central clearing. In contrast, central clearing was identified in 9 cases (4.7%).

Table 3: Margins whether depressed or elevated on the lesions of chest & abdomen.

Margins	Frequency	Percent
Depressed	149	77.6
Elevated	43	22.4
Total	192	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.



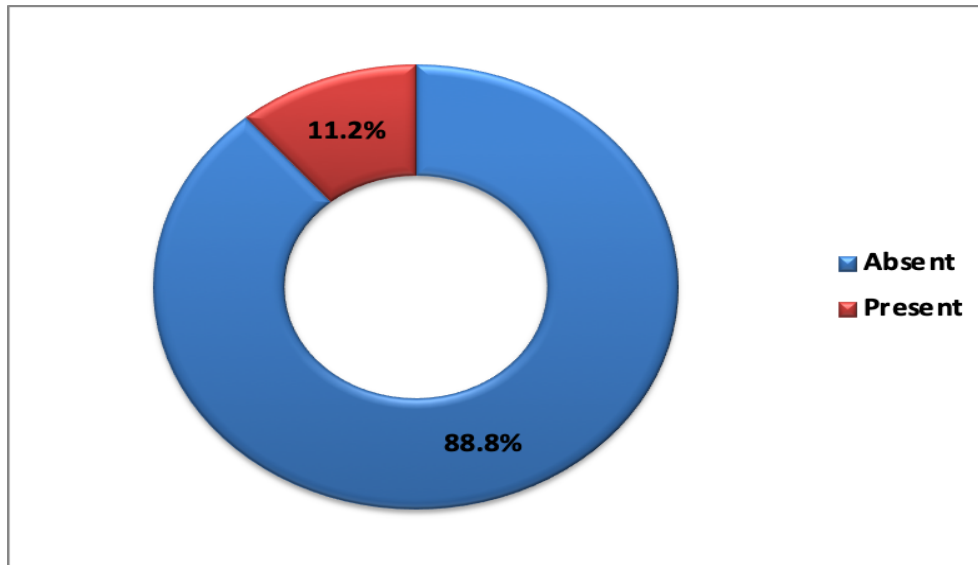
Graph 3: Nodules in lesions of chest & abdomen.

The findings from Graph 3 showed that no nodules were present

Table 4: Shape of lesions on upper limbs

Shape	Frequency	Percent
Annular	142	88.8
Polygonal	18	11.2
Total	160	100.0

Table 4 provides insights into the shapes of lesions observed on the upper limbs. The data reveals that among the total of 160 cases examined, a significant majority, accounting for 88.8%, exhibited lesions with an annular shape. In contrast, a smaller proportion, comprising 11.2% of the total cases, displayed lesions with a polygonal shape. This distribution highlights the predominant occurrence of annular-shaped lesions on the upper limbs within the studied population.

**Graph 4: Scaling in lesions of upper limbs.**

Graph 4 sheds light on the presence and severity of scaling in lesions observed on the upper limbs. The data indicates that among the 160 cases examined, the majority, accounting for 66.9%, displayed lesions where scaling was absent. In contrast, 33.1% of the cases exhibited mild scaling. The table offers valuable insights into the frequency distribution of scaling in the studied population, emphasizing that a substantial proportion of upper limb lesions are characterized by the absence of scaling.

Discussion

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] 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. 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

In conclusion, the escalating prevalence of steroid-modified tinea corporis in India presents a burgeoning public health challenge, underscoring the urgency for comprehensive strategies to address its atypical and chronic manifestations.

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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