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Evaluating the dermoscopic characteristics and clinical findings of T1 affecting the face and topical steroid- damaged skin.

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ABSTRACT

Background: Dermatophytosis is quite common in India due to resistant and stubborn infections. TI (tinea incognito) is a modified type of dermatophytosis caused by unintentional topical steroid usage. TSDF (topical steroid-damaged face) is also caused by long-term topical steroid usage. In face-affected situations, it is difficult to distinguish between TSDF and TI. Dermoscopy can assist differentiate between the two by displaying their distinguishing characteristics.

Aim: The current study sought to evaluate the dermoscopic and clinical characteristics of tinea incognito affecting the face, as well as the face that had been injured by topical steroids.

Methods: A total of 160 patients, 54 male and 106 female, were evaluated for evidence of tinea incognito or topical steroid injury to the face. Demographic information was collected from all of the enrolled participants. Subjects who had used tinea incognito or combo cream were eventually included in the trial. The study employed a portable dermoscope with a 10X magnification and a potassium hydroxide mount to confirm the tinea incognito diagnosis.

Results: Out of 160 research patients, 106 were female and 54 were male, with an average application duration of 8.23±6.8 months. The study also found that tinea incognito affected the eyelids rather than the face, which had been injured by topical steroids. Burning sensation, scaling, erythema, and pruritus were common clinical characteristics observed in research participants. Tinea incognito caused eyelid involvement, but not in the face affected by topical steroids. On dermoscopic examination, morphological aspects were dominating in tinea incognito, whereas vascular signs predominated in the topical steroid-damaged face and white rosettes.

Conclusions: The current study suggests that dermoscopy is critical and useful in separating tinea incognito from topical steroid-damaged face by exhibiting the decisive characteristics. Furthermore, involvement of the eyelids is a good clinical presenting indication in tinea incognito.

Keywods: dermoscopy, eyelid, tinea incognito, topical steroids, pustules.

INTRODUCTION

Dermatophytosis has been reported to have increased prevalence in Indian subjects in recent years due to resistant and recalcitrant infection, which can be attributed to structural changes in the causative organisms as well as changes in the local community as a result of inadvertent TS (topical steroid) use. It includes every potential place on the body, including the scalp. Facial lesions are also found often. Subjects rely on over-the-counter products that are available easily in India.1

These topical medicines contain a mix of topical steroids, antibacterial, and antifungal agents that are accelerated, resulting in brief alleviation that eventually returns. This cycle of application, alleviation, and return continues, eventually leading to tinea incognito (TI), a modified tinea infection caused by the inappropriate use of systemic and topical steroids, as well as topical calcineurin inhibitors. Dermatologists find difficulties in making an accurate diagnosis in such cases due to a lack of traditional dermatophytosis symptoms.[2]

Similarly, Indian individuals are fascinated with fair skin, which drives them to take over-the-counter products containing topical steroids alone or in combination with tretinoin and hydroquinone. They temporarily reduce pigmentation, thus individuals continue to use these topicals on a daily and long-term basis. Prolonged use of topical steroids, whether alone

or in combination with creams, exacerbates TSDF. Because India is a tines pandemic, it can damage the face in persons with TSDF, where characteristic tine features are absent, or new tinea may appear on the face. Lesions in both disorders resemble photodermatitis, seborrheic dermatitis, and the malar rash of lupus erythematosus. As a result, there is a delay in precise diagnosis and appropriate care.[3]

Inaccurate diagnosis, KOH (potassium hydroxide), and skin biopsy are all options that are typically declined by individuals or delayed by dermatologists. Dermoscopy has been extensively studied for tinea infection/TI and TSDF.

However, tinea incognito and TSDF have distinct dermoscopic appearances, with white hairs, scales, telangiectasia, and/or brown globulus seen in both TI and TSDF. 4 As a result, the current study sought to evaluate the dermoscopic and clinical characteristics of tinea incognito affecting the face as well as the face that had been affected by topical steroids. The study also found that tinea incognito affected the eyelids rather than the face, which had been injured by topical steroids.

MATERIALS & METHODS

The current cross-sectional observational study sought to evaluate the dermoscopic and clinical characteristics of tinea incognito affecting the face and topical steroid-damaged skin. The study also found that tinea incognito affected the eyelids rather than the face, which had been injured by topical steroids. All individuals provided verbal and written informed consent before to participation.

The study's inclusion criteria included a history of topical steroids/combination cream administration, erythematous scaly patches on the face (signs of TI and TSDF), and pruritus patches. The combo cream consisted of topical steroids, hydroquinone, tretinoin, and antibacterial and antifungal agents. Inclusion criteria included using a topical steroid/combination cream for at least four weeks.

Subjects with superadded infection, a history of using traditional medicine or other topical salicylic acid preparations, or a history of photosensitivity were also removed. Following the final inclusion of the research subjects, a full history was collected of each subject, followed by a thorough clinical examination and the collection of demographic information. The demographic data collected included the length of time the preparation was used, as well as gender and age. A full clinical examination was also conducted. A dermoscopy was performed on the face, including the eyelids, at 10X magnification.

The Dermoscopy parameters evaluated were based on the International Dermoscopy Society's consensus, which included (i) pigmented structures (pigment globules, pigment network), (ii) vascular changes (types and distribution of vessels; Y-shaped and polygonal vessels were recorded under branching vessels), (iii) scales (types and distribution), (iv) appendageal structures (follicles and eccrine openings), and (v) morphological structures (micro pustules, etc.). 5 Tinea incognito was diagnosed using a 10% KOH preparation and the display of fungal hyphae. The research population was classified as tinea incognito or TSDF based on dermoscopic characteristics and KOH preparation.[6-8]

The collected data were statistically analyzed using SPSS (Statistical Package for the Social Sciences) software version 24.0 (IBM Corp., Armonk, NY, USA) for descriptive measures, Student t-test, ANOVA (analysis of variance), and Chi-square test. The data were presented in the form of mean and standard deviation, as well as frequency and percentage. A p-value of <0.05 was considered.

RESULTS

The current cross-sectional observational study sought to evaluate the dermoscopic and clinical characteristics of tinea incognito affecting the face and topical steroid-damaged skin. The study also found that tinea incognito affected the eyelids rather than the face, which had been injured by topical steroids. The current study included 160 participants, 54 males and 106 females, who had tinea incognito or topical steroid injury to their faces. The average age of research participants was 36.49±11.9 years. The research included 48.75% (n=78) participants between the ages of 30 and 50, with 37.5% (n=60) under 30 and 13.75% (n=22) beyond 50. The current study included 33.8% (n=54) men and 66.3% (n=106) female patients (Table 1).

The research participants had an average illness duration of 8.23±6.8 months. Scaling was the most common clinical trait seen in study individuals, accounting for 71.3% (n=114). This was followed by pruritus in 61.3% (n=98) of the research patients, as well as eyelid involvement in 60% (n=96). Erythema was found in 52.5% (n=84) of the research individuals, whereas burning was seen in 51.2% (n=82) (Table 1).

White hair was observed in 26 out of 96 participants with tinea incognito and 48 out of 64 subjects with TSDF, indicating a significant difference ($p<0.01$) between the two skin conditions. Brown globules were substantially greater in tinea incognito compared to TSDF ($p<0.01$). Tinea incognito showed considerably larger levels of micropustules and

perifollicular scale compared to TSDF ($p<0.01$). There were no breaching vessels in tinea incognito cases or 46 patients with TSDF ($p<0.01$). Globular vessels were seen in 2 and 8 individuals with tinea incognito and TSDF, respectively, however this was not statistically significant ($p=0.1312$). Linear vessels were substantially greater in TSDF compared to tinea incognito ($p<0.01$). Dotted vessels were only observed in 10 patients with TSDF compared to tinea incognito ($p<0.05$) (Table 2).

DISCUSSION

The current study included 160 participants, 54 males and 106 females, who had tinea incognito or topical steroid injury to their faces. The average age of research participants was 36.49±11.9 years.

The research included 48.75% (n=78) participants between the ages of 30 and 50, with 37.5% (n=60) under 30 and 13.75% (n=22) beyond 50. The current study included 33.8% (n=54) men and 66.3% (n=106) female individuals. These findings were consistent with earlier studies by Kwak HB et al9 in 2023 and Valdés Morales KL et al10 in 2020, in which authors evaluated patients with demographic data similar to the current research.

The study found that patients had an average illness duration of 8.23±6.8 months based on their disease features. Scaling was the most common clinical trait seen in study individuals, accounting for 71.3% (n=114). This was followed by pruritus in 61.3% (n=98) of the research patients, as well as eyelid involvement in 60% (n=96). Erythema was found in 52.5% (n=84) of the research individuals, whereas burning was seen in 51.2% (n=82). These findings were consistent with those of Dutta B et al11 in 2017 and Jain S et al12 in 2020, who reported illness features comparable to those found in the current investigation.

The study found a significant difference between tinea incognito and topical steroid-dependent skin, with white hair seen in 26 out of 96 tinea incognito subjects and 48/64 TSDF subjects ($p<0.01$).

Brown globules were substantially greater in tinea incognito compared to TSDF ($p<0.01$). Tinea incognito showed considerably larger levels of micropustules and perifollicular scale compared to TSDF ($p<0.01$). There were no breaching vessels in tinea incognito cases or 46 patients with TSDF ($p<0.01$). Globular vessels were seen in 2 and 8 individuals with tinea incognito and TSDF, respectively, however this was not statistically significant ($p=0.1312$).

Linear vessels were substantially greater in TSDF compared to tinea incognito ($p<0.01$). Dotted vessels were only observed in 10 patients with TSDF compared to tinea incognito ($p<0.05$). These findings were consistent with the findings of Jakhar D et al13 in 2018 and Friedman P et al14 in 2017, who reported a dermoscopic difference in tinea incognito and topical steroid damage faced/dependent skin that was comparable to the results of the current study.

CONCLUSIONS

The present study, considering its limitations, concludes that Dermoscopy is vital and helpful for distinguishing tinea incognito from topical steroid-damaged face comprehensively demonstrating the definitive features. In addition, the involvement of eyelids is an excellent clinical presenting sign in tinea incognito. However, further future studies are warranted to reach a definitive conclusion.

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S. No	Characteristics	Number (n)	Percentage (%)
1.	**Mean age (years)**	36.49±11.9	
2.	**Age range (years)**		
a)	≤30	60	37.5
b)	30-50	78	48.75
c)	>50	22	13.75
3.	**Gender**		
a)	Males	54	33.8
b)	Females	106	66.3
4.	**Disease duration (months)**	8.23±6.8	
5.	**Clinical features**		
a)	Pruritus	98	61.3
b)	Burning	82	51.2
c)	Eyelid involvement	96	60
d)	Erythema	84	52.5
e)	Scaling	114	71.3

Table 1: Demographic data and clinical features in study subjects

S. No	Parameters	Tinea incognito (n=96)	TSDF (n=64)	p-value
1.	**White hair**	26	48	**<0.01**
2.	**Brown globules**	82	32	**<0.01**
3.	**Micropustules**	32	0	**<0.01**
4.	**Perifollicular scale**	58	10	**<0.01**
5.	**Branching vessels**	0	46	**<0.01**
6.	**Globular vessels**	2	8	0.1312
7.	**Linear vessels**	2	60	**<0.01**
8.	**Dotted vessels**	0	10	**<0.05**

Table 2: Dermoscopic difference in tinea incognito and topical steroid damage faced/dependent skin in study subjects