Tinea Incognito in an Urban Pediatric Population

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PRACTICE **POINTS**

- Within our pediatric study population of microbiologically confirmed tinea cases at an American academic center, we found a 35% prevalence of tinea incognito (TI).
- Unlike investigations of TI in other countries, *Trichophyton tonsurans* was found to be the most common causative dermatophyte.
- Our data suggest that facial tinea may be more likely to be improperly treated in females and likewise tinea of the trunk or extremities in males.

Tinea incognito (TI) describes a common dermatophytosis with often atypical clinical features attributed to inappropriate use of topical immunomodulatory agents, usually corticosteroids. Given the high prevalence of TI and limited literature detailing this condition, we conducted a retrospective review of cases of pediatric dermatophytosis presenting to the Faculty Group Practice of the Ronald O. Perelman Department of Dermatology, New York University School of Medicine (New York, New York), between 2005 and 2016. Among microbiologically confirmed dermatophytosis cases, we found that even with prior treatment, TI often presented with classic features of tinea such as annularity and scale. The majority of cases were treated with oral antifungals, though some were treated with topical antifungals alone. This case series underscores the need to maintain a high clinical suspicion for TI.

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Tinea incognito (TI) describes a dermatophytosis with often atypical clinical features attributed to prior use of topical corticosteroids or other immunomodulating agents. Tinea incognito may lack the scale and elevated margin typical of cutaneous dermatophytoses and can be mistaken for other pediatric cutaneous diseases, particularly atopic dermatitis.[1] Given the prevalence of TI and its susceptibility to misdiagnosis, we conducted a retrospective medical record review of cases of pediatric dermatophytosis presenting from 2005 to 2016.

Methods

We reviewed medical records for patients younger than 18 years who had been seen at the Faculty Group Practice of the Ronald O. Perelman Department of Dermatology, New York University School of Medicine (New York, NewYork), between January 1, 2005, and October 21, 2016, using *International Classification of Diseases, Ninth Revision* (*ICD-9*) codes 110.0 (tinea capitis), 110.1 (onychomycosis/tinea unguium), 110.3 (tinea cruris), 110.4 (tinea pedis), 110.5 (tinea corporis), and 110.9 (tinea, unspecified site). Cases were included in this study if there was documentation of dermatophytosis previously treated with topical corticosteroids or calcineurin inhibitors as well as positive potassium hydroxide (KOH) preparation or fungal culture with dermatophyte growth obtained from lesions satisfying the first criterion. This study was approved by the New York University School of Medicine institutional review board (study no. S15-01388).

Statistical analyses were conducted in SPSS 19.0 for Windows. Categorical variables were assessed using the χ^2 test for independence and the Fisher exact test.

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Drs. Stringer and Gittler report no conflict of interest. Dr. Orlow has served as an advisor for Dermira, Inc, and Unilever, and serves as a board member for Almirall, SA, and R2 Dermatology. He also is on the board of trustees for the Dermatology Foundation.

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Clinical and Laboratory Characteristics of Microbiologically Confirmed Tinea Incognito Cases (N=29)

Characteristic	Patients With Tinea Incognito, n (%)
Gender	
Female	12 (41.4)
Male	17 (58.6)
Age at presentation	
≤2 y	4 (13.8)
3–11 y	20 (69.0)
12–18 y	5 (17.2)
Duration of symptoms[a]	
≤1 mo	6 (26.1)
1–6 mo	12 (52.2)
6 mo to 1 y	5 (21.7)
Anatomic location	
Face	14 (48.3)
Body (trunk, extremities, groin)	14 (48.3)
Scalp	3 (10.3)
Multifocal	6 (20.7)
Physical examination findings	
Annularity	24 (82.8)
Pustules	5 (17.2)
Papules	11 (37.9)
Oral antifungal treatment	
Griseofulvin	13 (72.2)
Fluconazole	3 (16.7)
Terbinafine	2 (11.1)
History of atopy	7 (24.1)
Positive potassium hydroxide preparation	3 (10.3)
Positive dermatophyte culture	
Trichophyton tonsurans	16 (55.2)
Trichophyton rubrum	4 (13.8)
Trichophyton mentagrophytes	3 (10.3)
Microsporum canis	2 (6.9)
Microsporum gypseum	1 (3.4)

[a]Duration of symptoms not reported in 6 cases.

Results

A total of 464 cases were reviewed. A positive KOH preparation or dermatophyte fungal culture was documented in 83 cases. Of them, 29 (34.9%) were treated with topical steroids and/or calcineurin inhibitors prior to presentation to dermatology (Table). The mean age at presentation was 8 years. Duration of symptoms prior to presentation was recorded for 23 of 29 patients (79.3%). Of them, 6 (26.1%) experienced symptoms for 1 month or less, 12 (52.2%) for 1 to 6 months, and 5 (21.7%) for 6 months to 1 year.

Physical examination findings (Figure) were documented in all 29 cases. Annular lesions were noted in 24 patients (82.8%). Pustules were present in 5 patients (17.2%) and papules in 11 patients (37.9%). Fourteen patients (48.3%) had involvement of the face, 14 (48.3%) of the body (ie, trunk, extremities, or groin), and 3 (10.3%) of the scalp. Six patients (20.7%) demonstrated findings at more than one body site.

Females were more likely to demonstrate facial lesions (P=.02), while males were more likely to present with body lesions (P=.04). Of 26 patients diagnosed via fungal culture, 16 (55.2%) grew *Trichophyton tonsurans*, 4 (13.8%) grew *Trichophyton rubrum*, 3 (10.3%) grew *Trichophyton mentagrophytes*, 2 (6.9%) grew *Microsporum canis*, and 1 (3.4%) grew *Microsporum gypseum*. Treatment entailed oral medication in 18 cases (62.1%). Of them, 13 (72.2%) were treated with griseofulvin, 3 (16.7%) with fluconazole, and 2 (11.1%) with terbinafine. Topical antifungals were prescribed in the remaining 11 cases (37.9%); no further treatment was documented.

Comment

Since the initial description of TI, approximately 60 case reports and small series as well as several larger observational studies describing TI have been published. In our series of pediatric patients, 29 of 83 culture- or KOH-confirmed dermatophytosis cases (34.9%) were considered to be TI due to treatment with topical corticosteroids and/or calcineurin inhibitors prior to presentation. This high prevalence contrasts with the 5.6% prevalence reported in the only prior large case series examining TI in childhood.[2] These authors further reported that in their pediatric population, TI was significantly (odds ratio, 8.7; 95% CI, 4.7-16.1) more likely to occur on the face relative to other dermatophytoses and significantly (odds ratio, 0.014; 95% CI, 0.002-0.099) less likely to occur on the scalp.[2] We noted a significant association between female gender and facial symptoms as well as between male gender and truncal symptoms. Taken together, these findings suggest an increased likelihood of pediatric tinea faciei to be inappropriately treated, particularly in females.

Although TI treated with topical corticosteroids or calcineurin inhibitors can mimic other skin diseases, a majority of patients in our series demonstrated findings associated with classic tinea, such as annularity and scale.

A 15-year-old girl with tinea incognito on the right cheek (A). A 10-year-old girl with tinea incognito on the left antecubital fossa (B). An 8-year-old girl with tinea incognito on the left posterior neck (C). A 5-year-old boy with tinea incognito on the dorsum of the left foot (D).

Further, we found that *T tonsurans* was the causative organism in most cases with *T rubrum* uncommonly seen, though it is the most prevalent dermatophyte observed worldwide and in 2 large TI case series.[3,4] Regional variation in dermatophytes may account for these differences. In our study, griseofulvin was used most frequently in TI treatment, though a systematic review of oral antifungals in tinea capitis supported terbinafine's greater efficacy in patients infected with *T tonsurans*.[5]

Conclusion

Our case series demonstrated a 35% prevalence of TI cases in a population of children with confirmed dermatophytosis presenting to dermatologists at an American academic medical center. We hope that noting the high prevalence and manifold presentations of this disease will aid practitioners in maintaining clinical suspicion for dermatophytosis and thereby facilitate appropriate identification and treatment of TI.

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