CASE REPORT

A Deceptive Facial Rash

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INTRODUCTION

Dermatophyte infections are common in the pediatric population and prevailing causes of fungal infections of hair, skin, and nails. Fungal infections of the epidermis include tinea corporis, tinea pedis, tinea cruris, tinea faciei and tinea manuum. Tinea faciei is an uncommon fungal infection of the face, devoid of terminal hairs, and often presents with clinical symptoms that are usually misdiagnosed. This case illustrates a young girl whose diagnosis and clinical course was prolonged due to misdiagnosis. Prompt recognition of this dermatophyte infection in the pediatric population should be suspected with scaly and pustular eruptions on the face.

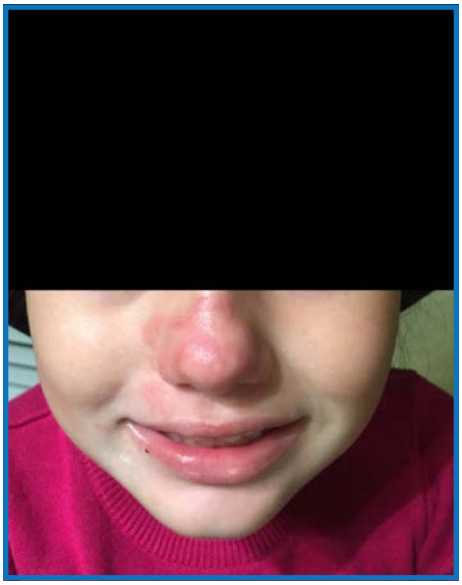

Figure 1:
Initial presentation

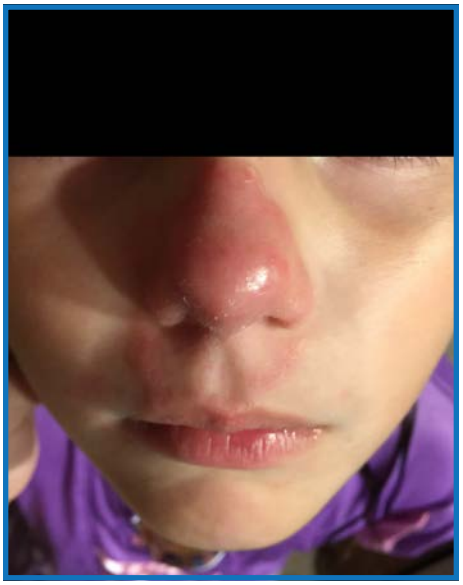

Figure 2:
After a course of topical steroids

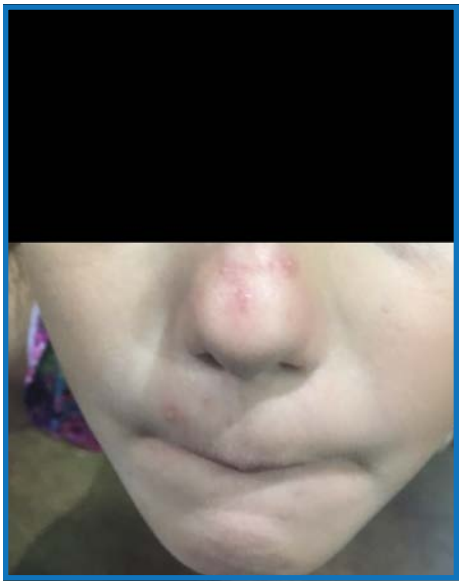

Figure 3:
Resolving Dermatophyte Infection

CASE

A 6-year-old female presented to her pediatrician's office for the chief complaint of a progressively growing rash on her nose and upper lip that had been present for several weeks. There were also other smaller lesions present on her cheek, chin and forehead (Figure 1). The rash was annular, scaly, dry, and light pink in color. The lesions had well defined borders with a raised pink edge and paler center. There were no others at home who had anything similar. There were several outdoor animal exposures including multiple dogs, a cat and chickens. She is an otherwise healthy 6-year-old, had no significant medical history, and was up to date with all her vaccinations.

She was initially diagnosed with a bacterial infection of the face and treated with a course of topical mupirocin and oral cephalexin. However, when she did not improve after one week, she presented again to her pediatrician's office and was prescribed a course of mometasone furoate 0.1% and instructed to apply twice daily for one to two weeks for presumptive contact dermatitis. Two weeks later, when the facial lesions still did not improve (Figure 2), she had a fungal culture done and the labs grew *Trichophyton* species. She was started on butenafine Hcl 1% solution and oral fluconazole. Her facial lesions ultimately resolved approximately six weeks after her initial presentation (Figure 3).

DIAGNOSIS

Tinea faciei

CONDITION	CHARACTERISTICS
Granuloma annulare	Annular array of dermal and sometimes shiny papules without a scale. Dusky or violaceous center and asymptomatic. Most common on dorsal or lateral surface of hands or feet. Atypical presentation can occur on the face, trunk or extremities. It is seen in children, adolescents and young adults.
Cutaneous lupus erythematosus	Erythema in a malar distribution, cheeks and bridge of nose. Nasolabial folds are spared
Atopic or nummular eczema	Chronic, relapsing, inflammatory skin condition. Characterized by multiple, pruritic, coin-shaped eczematous lesions on the face, body and extremities.
Seborrheic dermatitis	Erythematous, scaly patches localized in areas with high density of sebaceous glands such as the lateral sides of the nose, nasolabial folds, eyebrows, glabella, behind the ears and scalp.
Pityriasis rosea	Slightly inflammatory, oval, papulosquamus lesions on the trunk and proximal areas of the extremities . Preceded by a herald patch.
Impetigo	Bacterial infection caused by the Strep or Staph species. Golden adherent crusts localized on the face or extremities. Responds to topical mupirocin and if extensive, oral antibiotics
Perioral dermatitis	Multiple 1-2mm, clustered, erythematous papules, papulovesicles or papulopustules with or without a mild scale. Some features of mild, eczematous dermatitis is present. Self-limited. Steroids can contribute to chronicity so topical metronidazole is often used.
Rosacea	Presentation consists of centrofacial erythema, rhinophyma, burning or stinging sensations, edema telangiectasias, skin dryness and inflammatory papules or pustules. There is no cure for this conditions and treatment is focused on symptom suppression. Aggravated by sun exposure, hot beverages and spicy foods. Although uncommon in children, it can present with red, irritated eyes, frequent styes or conjunctivitis, red swollen pruritic eyelids and chronic erythema of the face.

Table 1: Differential Diagnosis of Tinea Faciei

DISCUSSION

Dermatophytes are the major cause of fungal infections to the skin, hair and nails and are very common.[1,2] Dermatophytes are filamentous fungi and belong to the *Trichophyton*, *Microsporum* and *Epidermophyton* genera. Dermatophyte infections classically colonize and metabolize the top layer of skin, the stratum corneum, and reside in the keratin layer of the skin, hair and nails.[3,4] The major clinical subtypes of dermatophyte infections include: tinea capitis (head), tinea barbae (beard), tinea corporis (body), and tinea pedis (feet).[5] Tinea faciei is a sub-group of tinea corporis that accounts for 3-4% of these infections.[6] A typical presentation is an erythematous, annular plaque with scaling, pustules and crusting on the non-bearded region of the face. Additionally, this subtype occurs more frequently in those who live in humid, tropical or subtropical climates.[6]

TOPICAL MEDICATION	FREQUENCY – LENGTH OF TREATMENT	RECOMMENDED DOSAGE FORMS
Allylamines		
Naftifine	DAILY, BID – 2 to 4 weeks	Cream (QD), Gel (BID)
Terbinafine	DAILY – minimum 1 week	Cream, Gel
Azoles		
Clotrimazole	BID – 4 weeks	Cream, Ointment
Econazole	DAILY – 4 weeks	Cream, Foam
Ketoconazole	DAILY – 2 weeks	Cream
Luliconazole	DAILY – 1 week	Cream
Miconazole	BID – 4 weeks	Cream, Ointment, Solution
Oxiconazole	DAILY to BID – 2 weeks	Cream, Lotion
Sertaconazole	DAILY – 2 to 4 weeks	Cream
Benzylamine		
Butenafine	DAILY – 2 weeks	Cream
Other		
Ciclopirox (age ≥10)	BID – 4 weeks	Cream, Suspension (Lotion), Gel (≥ 16 years only)
Tolnaftate	BID – 4 weeks	Cream, Solution
ORAL Medication	Dose	Length of Treatment
Terbinafine Tablets	10 to 20 kg: 62.5 mg/day 20 to 40 kg: 125 mg/day Above 40 kg: 250 mg/day	1 to 2 weeks
Terbinafine Granules	< 25 kg: 125 mg/day 25 to 35 kg: 187.5 mg/day > 35 kg: 250 mg	1 to 2 weeks
Itraconazole	3 to 5 mg/kg/day (up to 200 mg/day)	1 week
Fluconazole	6 mg/kg once weekly	2 to 4 weeks
Griseofulvin	Microsize: 10 to 20 mg/kg/day Ultramicrosize: 5 to 15 mg/kg/day	2 to 4 weeks

Table 2: Treatments for Tinea Faciei

The clinician should be suspicious of a cutaneous dermatophyte infection based upon clinical findings. The differential diagnosis of tinea faciei includes granuloma annulare, cutaneous lupus erythematosus, atopic or nummular eczema, seborrheic dermatitis, pityriasis rosea, impetigo, perioral dermatitis and rosacea (Table 1).

Tinea faciei is observed in both children and adults.[6] Individuals who are immunocompromised or who have trisomy 21 have a higher susceptibility to dermatophyte infections. Infection is usually transmitted from contact with infected humans (anthrophilic), animals (zoophilic), soil (geophilic) or fomites (e.g. brushes, combs, towels, hats) as dermatophytes can remain viable for prolonged periods of time.[4]

While diagnosis is generally made by clinical observation, it can also be confirmed with Potassium hydroxide (KOH) wet mount preparation with direct microscopic examination. This rapid method can be done in most outpatient settings. A fungal culture may also be used to confirm the diagnosis, however it takes 2-4 weeks to process. A sample for either test can be obtained by scraping the moistened, active margin of a lesion with a blunt scalpel, brush or picking at the skin with tweezers.

A fungal culture may also be obtained by swabbing the active margin with a cotton-tipped applicator.[5,7] Dermatophytes from the genus *Microsporum* will fluoresce blue-green under Woods lamp and may provide another diagnostic tool.[7]

Commonly, dermatophyte infections are misdiagnosed, likely due to the infrequent nature and varied presentation of tinea faciei. Nearly 70% of patients are initially misdiagnosed as having an inflammatory skin reaction and treated with topical steroids.[8] This modifies the appearance of the dermatophyte infection making the diagnosis more difficult. This phenomenon is known as tinea incognito.[4] This altered appearance is characterized by decreased erythema and absence of the typical scaly borders.

There is a myriad of effective topical and systemic anti-fungal drugs that can be used as treatments (Table 2). First line therapy can be used for most superficial infections and includes topical therapy with azoles or allylamines such as butenafine, ciclopirox or tolnaftate for two to four weeks. Clinical resolution may be noted by two weeks or earlier, but continuing therapy for two to four weeks is recommended to ensure complete resolution. Oral medications are indicated for extensive and intractable infections that have extended into the dermis, hair follicles or nails. In these cases, Terbinafine, itraconazole, fluconazole and griseofulvin are often prescribed for two to eight weeks.[5,7-10]

CONCLUSION

Tinea Faciei is an uncommon superficial dermatophyte infection that is often misdiagnosed and treated as a bacterial infection or an inflammatory skin reaction. Treatment with corticosteroids can further preclude timely diagnosis due to the incognito phenomenon. Fungal infections should always be suspected with scaly eruptions on the face, and both topical and oral treatments are readily available.

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