

## Views and Practice

# Tinea faciei: an easily missed diagnosis in children

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### Case report

A six year-old girl presented with a facial rash first noted for two months (Figure 1). She had a known personal and family history of atopy with mild eczema affecting distal limbs and trunk treated with on occasional use of mild topical corticosteroid. The facial lesion was mildly itchy and worsened despite emollient cream and topical corticosteroid cream given for one month by her family doctor.

Examination revealed a rash on her right temporal forehead. There was a 4-cm solitary plaque lesion with an annular, raised scaly margin that was erythematous with focal pustules (Figure 2). Areas of central clearing were also noted. The scalp was not affected but the distal end of her right eyebrow was involved. Occipital and neck lymph nodes were not palpable.

Her father had known tinea pedis and manuum involving right hand and had not yet received any antifungal treatment. The differential diagnosis of the right facial lesion was atopic dermatitis, discoid eczema, impetigo, seborrheic dermatitis, psoriasis,

cutaneous lupus erythematosus and tinea faciei. Surface scrapings taken from the lesion were negative for fungal elements on direct microscopy with potassium hydroxide (KOH) but were positive for *Trichophyton* spp. on culture (Figure 3). Treatment with topical terbinafine 1% cream for four weeks resulted in clinical clearance of the rash on the face (Figure 4).

### Discussion

This patient was initially managed as facial eczema due to her history of atopic dermatitis. Her facial fungal culture grew *Trichophyton rubrum*, confirming the diagnosis of tinea faciei (TF). She was treated with topical terbinafine cream for four weeks with clearing of lesions.

Diagnostic considerations in annular lesions in children include tinea, discoid eczema, psoriasis, cutaneous lupus erythematosus, erythema annular centrifugum and urticaria.<sup>1</sup> The presence of scales and pustules in this patient were compatible with tinea. Pustules may result from infection of hair follicles. A negative microscopy with KOH is not uncommon in tinea when topical corticosteroid has been applied.<sup>2</sup>

Tinea faciei is a superficial dermatophyte infection of the face. It commonly presents with annular scaly plaques on the face. The condition may sometimes be quite subtle clinically, especially in cases where topical corticosteroid or topical calcineurin inhibitors have been used. It is referred to as tinea incognito as the typical annular scaly

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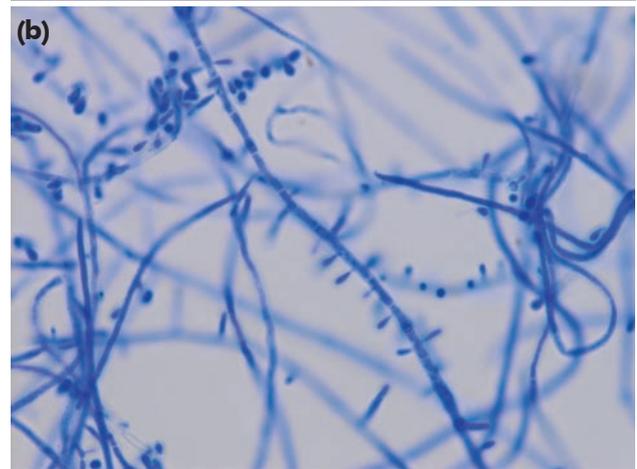
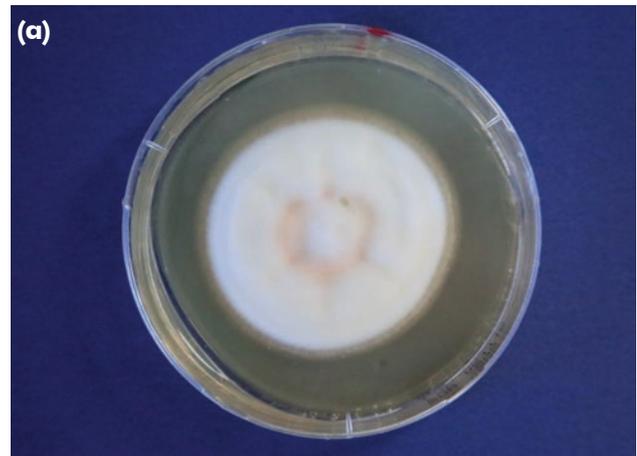
features are no longer apparent when the cutaneous inflammatory response is suppressed by the topical anti-inflammatory agents. Tinea incognito is common on the face but it can also occur in non-facial areas. Thus, the correct diagnosis and treatment of these lesions are often delayed. Although mild localised lesions may respond to antifungal therapy, systemic treatment is often necessary to clear these lesions completely. Household contacts should be examined if a child is not responding as expected or tinea recurs after adequate therapy.



**Figure 1.** A solitary discoid erythematous lesion on the temporal area of the face.



**Figure 2.** A close-up view of the right face lesion showed an erythematous scaly lesion with active margin, scaling, pustules and areas of central clearing.



**Figure 3.** (a) Culture of *Trichophyton rubrum* on Sabouraud agar, showing fluffy white colony with rose colour at the older part of the colony. (b) Microscopic appearance of *T. rubrum* showing pyriform microconidia arising from hyphae at 1000x magnification. Stained by lactophenol cotton blue. (courtesy of Dr. Samson Wong)



**Figure 4.** Clearance of active lesions with residual post-inflammatory erythema after treatment.

*Trichophyton spp.* is a common anthropophilic endothrix dermatophyte infection. Transmission of the fungal infection is by personal contact. Clinical diagnosis of tinea faciei in children can be challenging and sometimes difficult to distinguish from other papulosquamous lesions. The morphology of the lesions on face is variable and sometimes misleading. Diagnosis is made by mycological examination. Endothrix dermatophytes do not fluoresce under Wood's light. Potassium hydroxide examination for hyphae may be negative. Topical antifungals may be inadequate in clearing TF due to the follicular involvement. Although topical terbinafine seemed to be effective in our case, the risk of recurrence of tinea is higher after topical treatment and so the patient needs to be followed up. Systemic griseofulvin, for four to six weeks, is the treatment of choice in children. The clinically deceptive facial lesions can lead to misdiagnosis and erroneous treatment with topical corticosteroids, resulting in tinea incognito that presents with ill-defined pustular skin lesions. Tinea faciei has been reported to be exacerbated by topical application of pimecrolimus 1% cream. It is therefore important to note the dermatophyte infection can be exacerbated by topical calcineurin inhibitors as well as by topical corticosteroids.<sup>3,4</sup>

Griseofulvin is the treatment of choice for children and is US FDA approved. Terbinafine and itraconazole may be used and there is increasing evidence to support its safety and effectiveness in children. Griseofulvin is well-tolerated and safe to use in children. Higher daily doses of 20 to 25 mg/kg are now used for 4 to 6 weeks. Absorption is enhanced by a fatty meal such as yogurt and should be recommended to parents.<sup>5</sup> Oral terbinafine may be used for children older than four years.

A 5-year retrospective study of TF reported 14 cases including four children with a higher female preponderance.<sup>6</sup> Four cases (29%) had tinea incognito. Some cases with facial lesions were initially diagnosed as cutaneous lupus

erythematosus, eczema, polymorphic light eruption, perioral dermatitis and granuloma annulare. Direct microscopic examination showed hyphal elements in 12 cases, and the mycological culture was positive in 11 cases. Five patients had *Trichophyton violaceum* and four had *Trichophyton mentagrophytes*. The authors concluded that TF was frequently misdiagnosed because of its variable appearance.

In a 30-year retrospective study of tinea faciei in children in southern Spain, TF is a common form of tinea in children and is commonly misdiagnosed and treated with corticosteroids.<sup>7</sup> 8.9% of paediatric cases of tinea were diagnosed to suffer from TF and four cases had concomitant tinea capitis. *Trichophyton mentagrophytes* was most frequently isolated (38.4%) from TF lesions and *Microsporum canis* was isolated in 15.1%. Both can result from direct contact with pets, such as rabbits. There was high frequency of cases of tinea incognito among TF cases (approximately one-third) in this study. The authors concluded that TF must be considered in children with inflammatory facial lesions and mycological tests can be used in cases suspicious of TF.

## Conclusion

Clinical presentation of TF is variable in children. Misdiagnosis and subsequent use of topical anti-inflammatory treatment may ameliorate the typical signs of annular scaly features and further exacerbate this superficial dermatophyte infection. Previous treatments used should be noted. Clinicians need to be aware of this diagnostic problem when evaluating children who present with a facial rash.

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