Common Features of Periocular Tinea

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Objective: To present the common features of periocular tinea to aid physicians in future diagnosis and therapy of this condition, because superficial fungal infections on the face are often misdiagnosed owing to the diverse morphologies that they manifest. This is especially true of dermatophytoses involving the periocular region.

Methods: A retrospective review was performed of patients with a diagnosis of periocular tinea who were seen between January 2003 and September 2009 in the pediatric dermatology clinic at St. Louis Children's Hospital.

Results: Ten cases of periocular tinea were identified (6 male patients and 4 female patients). Common features included prolonged misdiagnosis (all 10 cases), a normal ophthalmologic examination (all 10 cases), and inappropriate corticosteroid application (7 cases). Loss of the eyelashes occurred in all 10 patients. No cases had evidence of other tinea infections on examination. Only 2 cases had the central clearing classically associated with tinea corporis. Seven patients had a potassium hydroxide preparation and/or culture positive for fungal elements. Lesions improved with topical and oral antifungal treatment in all cases, and patients were able to regrow their eyelashes.

Conclusion: Periocular tinea should be considered in the differential diagnosis for periocular inflammation, especially in those patients refractory to therapy for more common conditions. Loss of the eyelashes is characteristic of these fungal infections, similar to the hair loss that occurs in kerions associated with tinea capitis.


DERMATOPHYTE INFECTIONS are common during childhood yet are frequently mistaken for other infections because of their pleomorphic appearance. Diverse presentations of tinea faciei have been reported in the literature, but the subset of facial fungal infections involving the periorbital region has not been described in detail. Physicians are often unaware of tinea's capacity for targeting the periorbital area, specifically the eyelashes. We report 10 cases, all of which were initially misdiagnosed and treated incorrectly. The purpose of this review is to educate physicians about this entity and to present the common features to aid in future diagnosis and therapy.
significantly improved, and only minimal erythema remained on the left eyelid and cheek. He completed the 8-week course of griseofulvin and continued the econazole cream for 2 weeks after the infection appeared completely clear. He had no relapse.

**RESULTS**

This case epitomizes the features common to the presentations of the 10 patients in our review, including prolonged misdiagnosis, inappropriate corticosteroid application, normal ophthalmologic examination finding, and ciliary madarosis. All 10 children had been previously diagnosed and treated for at least one other condition prior to their diagnosis of tinea (Table). Most had a periocular rash for over a month. Half of the patients were initially diagnosed with eczema. Four were diagnosed with impetigo. Three had a vesicular component to their eruptions resulting in the diagnosis of herpes simplex virus and were treated with oral acyclovir sodium (Figure 2A). These 3 patients ultimately had polymerase chain reaction test results that were negative for herpes simplex virus. Seven patients were treated with topical steroids, and 5 patients received at least 1 course of oral antibiotics. Eyelash loss occurred in all cases, and some patients also lost some of their eyebrows (Figure 2B). Upper eyelid involvement was most noticeable, but either or both lids were affected. Ophthalmoscopy was performed for 3 patients and showed normal findings. Only 2 cases had the annular appearance with central clearing classically associated with tinea corporis (Figure 3). The remaining 8 patients had confluent unilateral erythematous plaques. Scaliness varied for each patient, ranging from none to hyperkeratotic. Only 7 of the 10 patients had a KOH preparation and/or culture positive for fungal elements. The remaining 3 children were treated on the basis of a high degree of clinical suspicion for tinea. The diagnosis was confirmed by rapid response to antifungal treatment. Six patients were exposed to domestic animals, including dogs, cats, a horse, and a guinea pig. One child had a prior history of tinea capitis. None had evidence of other tinea infections on examination. No patients demonstrated regional lymphadenopathy. Treatment included oral griseofulvin, 20 mg/kg/d, plus a topical antifungal cream (terbinafine hydrochloride, micona-
zole nitrate, and/or econazole) for approximately 8 weeks.
All cases resolved within 3 months of initiating therapy,
and all patients regrew their eyelashes. No relapses were
reported.

The diagnosis of periocular tinea is often missed. Only a
few case presentations of periorbital dermatophyte in-
fec tions have been reported in the literature,\textsuperscript{6-16} several
of which were described as preseptal cellulitis.\textsuperscript{12-15} This
is misleading, as dermatophytes do not invade dermal and
subcutaneous tissue and therefore cannot technically cause
 cellulitis. However, they can cause a significant inflam-
matory response, such as occurs on the scalp as a ker-
 rion,\textsuperscript{17-19} which can lead to the clinical appearance of a
cellulitis. It should be recognized, however, that not all
periocular tinea incites a strong inflammatory response,
as shown in Figure 3. The diagnosis should be consid-
 ered in less dramatic presentations that lack periorbital
edema and red, tender, swollen eyelids.

Our clinical experience suggests that the paucity of
data regarding periocular tinea is likely secondary to un-
derdiagnosis rather than negligible prevalence. Periocu-
lar tinea has a highly pleomorphic appearance that of-
ten mimics other conditions, especially when partially
or inappropriately treated. Key features that should arouse
suspicion for tinea include the presence of scaling, ex-
acerbation with the use of topical corticosteroids, and the
loss of eyelashes or eyebrows. KOH preparations made
with scrapings at multiple sites within the affected area
can confirm the diagnosis in the majority of cases. If de-
sired, fungal cultures can also be sent to the laboratory,
but we do not routinely do them if the KOH preparation
is positive for fungal elements. If one has a high degree
of suspicion for tinea but the KOH preparation is nega-
tive for fungal elements, then rapid response to antifun-
gal therapy is a cost-effective and sufficient method of
confirming the diagnosis.

Treatment with oral griseofulvin is effective and analo-
gous to treating tinea capitis, which requires oral medi-
cation for organism clearance. Patients typically had a no-
ticeable response within 1 to 2 weeks of beginning the
medication and achieved complete resolution after 8 to
12 weeks. Alternative systemic antifungals include oral
terbinafine, itraconazole, and ketoconazole, but griseo-
fulvin has fewer toxicities, fewer concerning potential drug
interactions, and does not require monitoring of he-

Figure 2. A, Patient misdiagnosed with herpes simplex virus and treated with oral acyclovir sodium. Small papules are present lateral to the nasal bridge and under the lower eyelid with erosions along upper eyelid. Culture grew Microsporum gypseum. B, Loss of medial eyebrow hairs secondary to tinea infection is noted in a 2-year-old child. Upper eyelid is involved with ciliary madarosis.

Figure 3. Less inflamed tinea orbitale lesion in an 8-year-old African American boy treated with topical hydrocortisone. The lesion has minimal erythema and scaling because of topical steroid treatment.
Topical antifungals were a useful adjunct and, in cases of mild infections, were sufficient and curative as primary therapy. Although we prescribed topical econazole, miconazole, and terbinafine with success, we used topical terbinafine more often because of its fungicidal properties. To prevent relapses, topical therapy was continued for a minimum of 2 weeks after the eruption cleared clinically. In cases in which domestic animals were a potential source of infection, we recommended that they be examined by a veterinarian and, if need be, treated.

Periocular tinea can masquerade as other dermatoses, and diagnosis requires a high degree of clinical suspicion. Greater awareness of this diagnosis can result in faster resolution and decreased patient exposure to unnecessary systemic and topical medications. Physicians should consider periocular tinea in their differential diagnosis for periorbital eruptions, particularly those resistant to therapy for more prevalent conditions.

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REFERENCES


