Answer to Dermacase *continued from* **page 271**

1. Kerion (inflammatory tinea capitis) secondary to *Trichophyton tonsurans* infection

Tinea capitis is a dermatophyte infection of the scalp and hair shaft. The disease occurs mainly in children between the ages of 6 months and 7 years.[1] *Microsporum canis* is the most common cause worldwide, while in North America the most common cause is *Trichophyton tonsurans*.[2] Tinea capitis affects anagen hair only and the affected hairs can be easily plucked.[3] The clinical presentation depends on the type of dermatophyte. In general, zoophilic (animal inhabitant) and geophilic (soil inhabitant) dermatophytes produce a greater inflammatory response than anthropophilic (human inhabitant) ones. Some dermatophytes produce bright green fluorescence (eg, *Microsporum audouinii*, *M canis*, *Microsporum ferrugineum*) due to tryptophan metabolites, which accumulate in affected hair.[4]

Two important clinical presentations of tinea capitis are recognized: *noninflammatory* and *inflammatory*. The noninflammatory type presents with seborrheic-dermatitislike scales and a "black dot" pattern.[3,4] The noninflammatory presentation is caused by ectothrix dermatophytes (eg, *M audouinii*, *M canis*, *M canis* subsp *distortum*, *M ferrugineum*, *Microsporum gypseum*, *Microsporum nanum*, *Trichophyton verrucosum*), while the inflammatory presentation is caused by endothrix organisms (eg, *T tonsurans*, *Trichophyton soudanense, Trichophyton violaceum)*.[5]

Inflammatory presentation variants include *kerions* and *favus*. Kerions are suppurative and painful plaques or nodules with purulent drainage and regional lymphadenopathy, with possible dermatophytic folliculitis.[1,6,7] Kerions are mainly caused by *Trichophyton mentagrophytes*, *T verrucosum*, *M canis*, *M gypseum*, *T tonsurans*, *T violaceum,* and *T soudanense*. They are the result of an intense hypersensitivity reaction from a dermatophyte infection. The dermatophyte produces a severe inflammatory response, with follicular pustules and neutrophilic infiltrates surrounding the hair follicles. Favus is the least common inflammatory variant and is characterized by the presence of scutula; it is mainly caused by *Trichophyton schoenleinii*.[6]

The differential diagnosis for tinea capitis includes seborrheic dermatitis, atopic dermatitis, alopecia areata, folliculitis, and less commonly, psoriasis and tinea amiantacea. Possible complications of tinea capitis include id reaction, which presents as a pruritic papular or vesicular eruption that typically begins on the face and then spreads to the trunk.[5] Other possible complications are erythema nodosum and scarring alopecia if the inflammatory types are not treated.

Diagnosis

Culture is the criterion standard test. A scraping might be cultured on Sabouraud dextrose agar or Mycosel agar. Dermatophyte test medium is another appropriate culture medium with a colour indicator that changes from yellow to red in the presence of dermatophytes. The culture should be incubated for 30 days before being labeled as negative for dermatophytes. A quick method of testing for dermatophytes is to prepare a scraping with potassium hydroxide on a slide and examine it for hyphae.[5] Carriers will usually have positive cultures for *T tonsurans* and *T violaceum*, but they are asymptomatic.

Treatment

All family members of children who have *T tonsurans* infection should be examined and tested, if possible. They should use antifungal shampoo (eg, selenium sulfide or zinc pyrithione) twice a week for a couple of months to eradicate it. Sharing of fomites and other objects must be discouraged.[5] Children with tinea capitis should continue to attend school.[5] However, if an outbreak occurs in a school then all children and their family members should be checked to rule out being carriers.[5] The first-line treatment is griseofulvin; however, it is not available in Canada. It effectively treats both *Trichophyton* spp and *Microsporum* spp with a very good safety profile.[5,8] Terbinafine, on the other hand, is available in Canada and it is the most widely used medication for this indication. It effectively treats *Trichophyton* spp but is less effective in treating *Microsporum* spp. *Trichophyton* spp respond effectively to 4 weeks of treatment; for *Microsporum* spp, the duration of treatment should be at least 6 weeks, or a higher daily dosage should be used.[5,8] The standard doses of terbinafine are 62.5 mg a day for children weighing less than 20 kg, 125 mg a day for children weighing between 20 and 40 kg, and 250 mg a day for children weighing more than 40 kg. Other systemic therapies are fluconazole and itraconazole.[8] The oral solution of itraconazole contains cyclodextrin, which has been shown to cause pancreatic adenocarcinoma in rats at human exposure doses.[8]

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Competing interests
None declared

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