Kerion – rare, but important form of tinea capitis – a case report

Kerion – rzadka, ale ważna postać grzybicy głowy – opis przypadku

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KEYWORDS:

- kerion
- fungal infection
- tinea capitis
- isoconazole

ABSTRACT

Tinea capitis is one of the most frequent dermatophytic infections of the scalp in children. The most common pathogen is Trichophyton torsurans and Microsporum canis. One of the most severe forms is described as kerion, which usually occurs due to advanced infection and exaggerated host response resulting in widespread inflammation, frequently with pustule and abscess formation. Prolonged infection may lead to permanent alopecia. Differential diagnosis and adequate treatment play critical role especially when it affects the children.

SŁOWA KLUCZOWE:

- kerion
- zakażenie grzybicze
- grzybica głowy
- itrakonazol

STRESZCZENIE

Grzybica głowy jest jedną z najczęstszych infekcji dermatofitowych głowy u dzieci. Patogenem wywołującymją jest Trichophyton torsurans i Microsporum canis. Jedna z najcięższych postaci opisana jest jako kerion, który zwykle prezentuje nasilony stan zapalny, często z tworzeniem krostek i ropni wskutek zaawansowanej infekcji i nasilonej reakcji gospodarza. Przedłużająca się infekcja może prowadzić do wyłysienia. W szczególności u dzieci krytyczną rolę pełni odpowiednia diagnostyka różnicowa i wdrożenie właściwego leczenia.

Introduction

Tinea capitis is one of the most frequent dermatophytic infections of the scalp in children (1). In the US the most common pathogen is Trichophyton torsurans and Microsporum canis (2). The epidemiology in Europe may differ depending on the region. Most common agent in Europe seems to be T. torsuans or M. canis, but in the Mediterranean area T. violaceum is more often responsible for tinea capitis, due to immigration from Africa, where it is one of the most endemic pathogens (1, 2).

Different clinical symptoms may occur in regard to the pathogens affecting the skin. Trichophyton spp. (2) infection may lead to the hair damage due to its endothrix pattern infection (2). This way of fungal growth results in hair breakage and "black dot" tinea capitis. On the other hand, Microsporum spp. infection with its ectothrix pattern usually leads to dry, clay patches of alopecia. Clinical spectrum of symptoms varies from very moderate changes with a slight seborrheic dermatitis to very severe forms with intensive inflammation and large plaques of alopecia (3). One of the most severe forms described in the literature is known as kerion (3).

It is a state, where advanced fungal infection and excessive host response are present (3, 4). That usually results in exaggerated inflammation, frequently with pustule and abscess formation (4, 5). Some patients may present with generalized symptoms seen as lymphadenopathy. The alopecia in tinea capitis is temporary and the hair regrowth occurs after elimination of the infection. Nevertheless, if the disease is misdiagnosed (e.g. as a bacterial infection treated with antibiotics) or lasts for longer time the alopecia may remain permanent.

In differential diagnosis, different causes of alopecia should be taken into account. In early stages, without extensive inflammation a non-scaring diseases should be taken under consideration such as alopecia areata, trichotillomania, seborrheic dermatitis or psoriasis, while on the other hand if overwhelming inflammation with pustules occurs pyoderma or folliculitis should be taken into consideration and if the scaring process is present- lichen planus, discoid lupus erythematosus or folliculitis decalvans should be excluded (6).

Depending on the severity of the disease a topical or oral treatment is required. In the slight changes an anti-fungal shampoo, such as 2% ketoconazole, 1% ciclopirox should be effective. If this treatment is not efficacious an ointment with anti-fungal agent should be considered. In most severe case, especially with large plaques of alopecia and excessive inflammation an oral treatment should be introduced (Tab. 1).

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Table. 1

Fluconazole	Griseofulvin	Itraconazole	Terbinafine
8 mg/kg/day – 3-6 weeks	10-15 mg/kg/day – 6-8 weeks	5 mg/kg/day – 4-8 weeks	250 mg/day – 3-4 weeks

Case report

In this case report, the authors present a 10-year-old girl with kerion formation within the skin of the forehead. The most probable cause of the infection was a contact with a cow during a field trip. Seven days after the excursion parents observed a small erythematous papule on the child's forehead (Fig. 1). Over the next days, changes started to progress. Consulting pediatrician prescribed a cream with hydrocortisone, neomycin, and natamycin with little effect. The patient came to the author's office after 2 months of treatment with different topical agents (0,03% tacrolimus, 1% clindamycin, 1% clotrimazole, 1% ciclopirox and 2% fusidic acid) and with the progression of the symptoms (Fig. 2). The treatment effects on the forehead were visible, although the infection was spreading downwards and into the hair. This caused the kerion formation with pustules within the hair area and led to alopecia (Fig. 3).

Due to the previous application of anti-fungal agents and after a few-days pause in the treatment, mycological tests came back negative. Considering the patient's history and treatment response, which was not completely inadequate, fungal infection was still taken under consideration, especially Trichophyton verrucosum infection, as it may mimic bacterial furunculosis and usually is associated with exposure to cattle (4, 5).

The oral treatment was not introduced because of the parents concern to the adverse effects of such therapy and the topical treatment was introduced. A 1% isoconazole with 0,1% diflucortolone cream for 7 days followed by a single isoconazole cream twice a day was used in the first stage of treatment. A 1% cyclopiroxylamine shampoo was maintained. The patient was controlled once a month. Over the next 4 months, combination of cream with diflucortolone was used twice a week for the excessive inflammation.

After 3 months of treatment, the inflammation was almost eradicated and the hair regrowth was seen in dermoscopy. After 5 months of treatment the hairs began to grow regularly (Fig. 4) and the treatment was finished after 4 months.

Fig. 1. Erythematous papules.

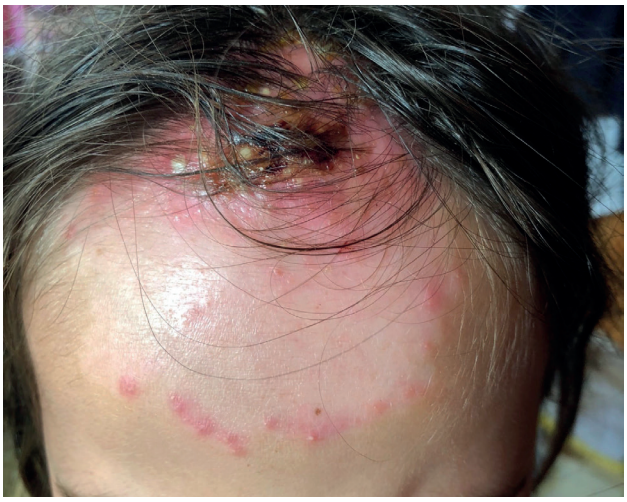

Fig. 2. Kerion.

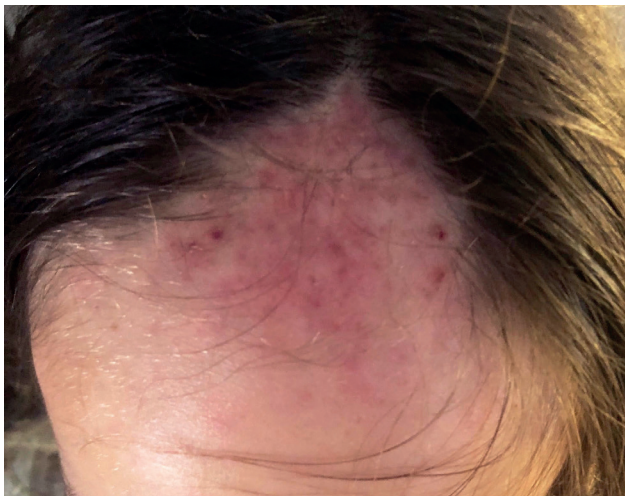

Fig. 3. Inflammatory condition with alopecia during treatment.

Fig. 4. Total hair regrowth.

Conclusions

As mentioned above the tinea capitis may be a fungal infection with limited or very severe form. The most severe is kerion with a risk of permanent alopecia. That is why the proper and fast diagnosis remains the most important in the early stages of this condition. Regarding the systemic conditions, fungal infection should always be excluded, especially before the treatment, which in case of fungi may result in negative test results and postpone the start of proper treatment (6). The treatment should always be established individually, especially in children.

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