

Tinea capitis in a 21-day-old neonate

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Abstract

LH is a two-month-old baby girl seen in the outpatient skin clinic of the Family Medicine Department of the Federal Medical Centre, Bida, Nigeria. She had a single erythematous plaque on her scalp of five weeks duration. The lesion was noticed soon after shaving the hair following the eighth day for the naming ceremony. Shaving of the head was done by a local mobile barber in the community. The scalp lesion was initially tiny but progressively increased in size. There was no history of fungal infection in the parents or siblings and other family members. There was also no history of keeping pets in the family.

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Figure 1: Before treatment

On general examination LH was found to be in good health. Examination of the lesion revealed a single erythematous annular plaque measuring 3 cm by 2.8 cm on the occipital region of the scalp (see Figure 1). The lesion had an active scaly papular margin. The hair on the lesion was lost.

A culture of lesion scrapings on Sabouraud's dextrose agar with chloramphenicol grew *Trichophyton verrucosum* after five days' incubation.

The baby was treated with topical ketoconazole cream with complete resolution of the lesion in three weeks and growth of hair on the lesion (see Figure 2).



Figure 2: After treatment

Discussion

Dermatophytes are a unique group of fungi that infect keratinous tissues of lower animals and humans.¹ Dermatophytes are characterised by their ability to invade the superficial layers of the epidermis, particularly the stratum corneum and the high-keratin-concentration-containing appendages: the hair and nails of the living host.^{2,3} While the literature is replete with cases of dermatophytosis among children in Nigeria, with prevalence ranging from 7% to 15%,⁴⁻⁷ the same cannot be said about neonates. The literature also indicates that dermatophytes rarely infect neonates.⁸

The aetiologic agents of the dermatophytoses (ringworm) are classified into three anamorphic genera: epidermophyton, microsporum and trichophyton.¹ On the basis of primary habitat association, they may be grouped as anthropophilic dermatophytes, which primarily infect humans and are transmitted from human to human, for example *Trichophyton rubrum*; zoophilic dermatophytes, which primarily infect lower animals but can be transmitted to humans, for example *Trichophyton verrucosum*; and geophylic organisms, which live in the soil as saprophytes and can infect both lower animals and humans, for example *Microsporum gypseum*. Familiarity with the ecology of dermatophytes is helpful, both in tracing the source of infection and in preventing reinfection.⁹ However, fungi belonging to any of the three categories can cause infection in humans.¹⁰

Infection takes place by deposition of viable arthrospores or hyphae on the skin surface of susceptible persons. The source of infection is usually an active lesion on a human or an animal; fomites and soil may also serve as other sources of infection.⁸

The usual incubation period of dermatophytosis is 1–3 weeks. However, there have been a few case reports of tinea capitis occurring between the first and third week of life.^{10–12}

The rarity of dermatophytosis in neonates and its development at the third week of life in this patient is noteworthy. *Trichophyton verrucosum* is a zoophilic organism; infection in this patient would have been thought to be due to contact with domestic animals. However, since the family did not keep pets, the use of an infected instrument by a barber is thought to be the source of the infection in this patient. In addition, the fact that the rash developed a few days after shaving the hair and the lack of infection in the parents as well as other family members serves to corroborate this theory. Barbers' instruments have been implicated as a source of transmission of viable

arthrospores or hyphae; when these instruments are not sterilised or are improperly sterilised after use, particularly after use on a dermatophytic-infected adult or child, the infection can be passed on.¹³

It is suggested that a survey to determine potential contagion among barbers' instruments be carried out, and if the outcome suggests that they are a significant source of transmission, a focused education of barbers on how to sterilise their instruments after each use can be carried out.

This case highlights the importance of considering dermatophytosis even among neonates and how barbers' instruments could predispose people to dermatophytosis.

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