

# Tinea faciei caused by *Trichophyton mentagrophytes* in a 20-day-old neonate

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## ABSTRACT

Although candidiasis in newborns is not uncommon, superficial dermatophyte infections of infants is quite rare. The causative agents of neonatal tinea reported in various case studies have been *Trichophyton rubrum*, *Microsporum canis*, *Microsporum gypseum*, and *Trichophyton violaceum*. To the best of our knowledge, no case report of neonatal tinea faciei caused by *Trichophyton mentagrophytes* has been reported earlier.

**Key words:** Neonate, Tinea faciei, *Trichophyton mentagrophytes*

## INTRODUCTION

Tinea faciei is the dermatophyte infection that occurs on the nonbearded regions of face. It is often a deceptive facial eruption, and can mimic a variety of cutaneous dermatoses. It has a predilection for tropical humid climates. The pattern of infection depends on the geographic location or the endemic dermatophyte strains of a given area or the cultural population habits.<sup>[1]</sup>

Dermatophyte infection is rare in infancy, and neonatal infection is still rarer.<sup>[2]</sup> Tinea capitis is more common than tinea faciei in newborns.<sup>[3]</sup> Tinea faciei infections are common in children but they are rare in infants. Although neonatal tinea is rare, cases have been reported occasionally.<sup>[4-12]</sup> The incubation period of tinea is 1–3 weeks. The appearance of lesions as early as 20 days in this case is interesting. However, a shorter incubation period has been proved experimentally.<sup>[13-14]</sup>

## CASE REPORT

A 20-day-old female child presented with multiple, annular lesions over the face for last 4 days. On examination, erythematous annular plaques of size 2–3 cm in diameter were present over the face (both cheeks, forehead) with well-defined irregular raised margins [Figure 1]. Periphery of the lesions was studded with minute pustules. The child was apparently normal at birth with uneventful labor and normal vaginal delivery and was breastfed. On enquiring, the

mother gave a history of itching and extensive annular erythematous plaques over both axilla, inframammary area, abdomen, both thighs, inguinal folds, buttocks since her first month of pregnancy [Figure 2]. She was given only topical treatment to avoid any side effects of drugs in pregnancy. There were no pets in the house. There was no history of topical medicament or contact with soil. Scalp and nails were normal. Systemic examination was noncontributory.

In the child, potassium hydroxide (KOH) examination of skin scrapings from the active edge revealed the presence of numerous thin, long, septate, branched hyaline hyphae [Figure 3]. Culture on Sabouraud's dextrose agar grew white granular to powdery colonies after 10 days of incubation [Figure 4]. Lactophenol Cotton Blue mount prepared from the colony revealed abundant microcolonies in clusters. These findings were typical of *Trichophyton mentagrophytes* [Figure 5]. Routine investigations of both mother and baby were normal. Repeat culture after 4 weeks revealed no fungal growth.

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The mother was treated with oral terbinafine 250 mg and topical luliconazole for 4 weeks, and the neonate responded within 7 days to topical clotrimazole alone without any clinical adverse effects [Figure 6].

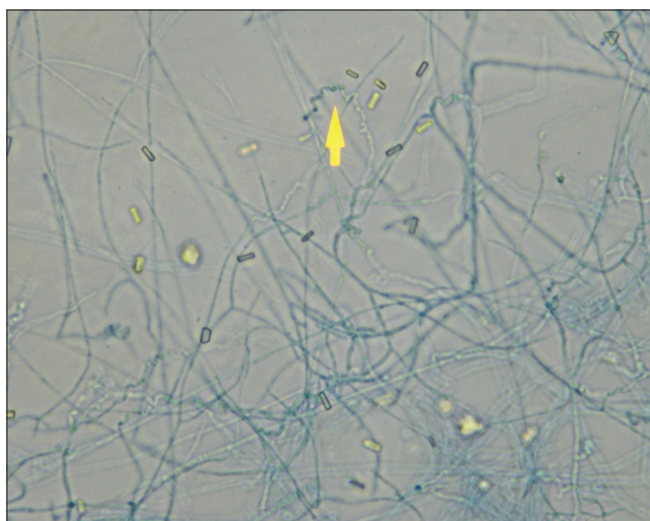
## DISCUSSION

By definition, all dermatophyte infections of face in women and prepubertal boys are tinea faciei. Tinea faciei is often misdiagnosed as seborrhoeic dermatitis, atopic dermatitis, bacterial infections, irritant contact dermatitis, cutaneous lupus erythematosus, rosacea, granuloma annulare, perioral dermatitis, pityriasis alba, and pityriasis rosacea. It can also mimic tinea barbae, where hair follicles of face are affected.<sup>[15]</sup>

The host response to dermatophyte plays an important role in the pathogenesis of dermatophytes. The clinical manifestations are mainly attributed to the immune response of the host to the invading fungal species. Although antigen presentation in neonates is intact, T-cell function is still inadequate to mount an appropriate immune response against fungal infections.<sup>[16]</sup>



**Figure 1:** Neonatal tinea faciei; (left) annular lesion on both cheeks with active periphery, (top right) right cheek and forehead, and (bottom right) left cheek



**Figure 3:** KOH examination of skin scrapings showing branched hyphae

The rare presentation of neonatal tinea faciei is probably explained by the immaturity of their immunological system and also because dermatophytes require an incubation period of 1–3 weeks to produce clinical manifestations.<sup>[17]</sup>

Atypical features are more common in tinea faciei than in other forms of ringworm infections because of the complex anatomy of the face. The variable expression can be attributed to the degree of inflammation and depth of invasion.<sup>[14]</sup> At the onset of disease, the macules are flat and scaly, and spread centrifugally with hypopigmented center. The lesions may be single or multiple, may remain stable for years. Clinical features vary considerably, but it is often associated with burning, itching, and photosensitivity.

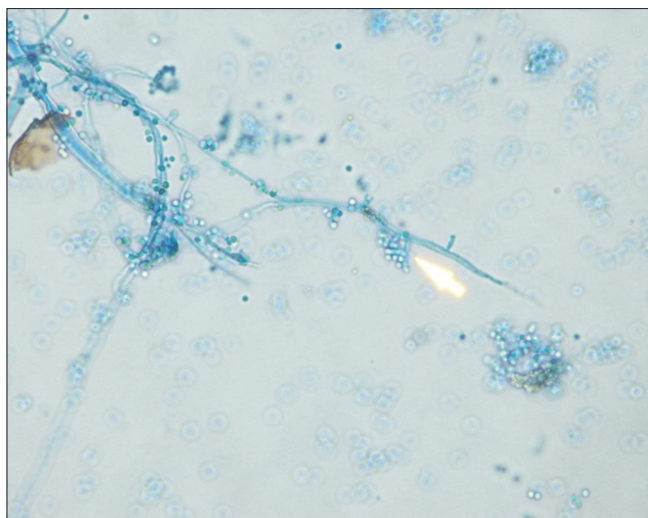
Mycological examination is vital in arriving at a confirmatory diagnosis, especially in cases with variable morphology. KOH examination and culture are contributory, which have a good sensitivity and specificity. Lesional skin scrapings are examined microscopically in 10%–20% KOH. Smears are labeled as provisionally positive when branched, translucent, nonpigmented, thin, and septate mycelia are seen.



**Figure 2:** Tinea corporis in mother, (left) inframammary area, (top right) buttocks, and (bottom right) inguinal folds



**Figure 4:** Creamy white powdery colonies of *Trichophyton mentagrophytes* on Sabouraudæ dextrose agar



**Figure 5:** LCB mount revealing abundant microconidia in clusters

Culture on Sabouraud agar is done for 3–4 weeks for the presence of characteristic fungal colonies. Chloramphenicol and cycloheximide are added to make the medium selective for isolation of dermatophytes. Growth characteristics and LCB preparations from the colony confirms the findings.

Microscopic and culture examination in this neonate was positive for *T. mentagrophytes*, both for the mother and the child. Previous case reports of neonatal tinea faciei have reported *Trichophyton rubrum*, *Microsporum canis*, and *Microsporum gypseum*.<sup>[4-12]</sup> Ghorpade *et al.*<sup>[18]</sup> have reported *T. mentagrophytes* in tinea corporis in a 2-day-old neonate, but to the best of our knowledge, tinea faciei in a 20-day-old neonate caused by *T. mentagrophytes* has not been reported earlier.

The neonatal tinea faciei in our patient shared the same pathogenic fungus causing concurrent tinea corporis with her mother, illustrating the epidemiological association between close contact and infection. The contact between the baby's face and her mother's breast during breast feeding may be the main reason of transmission and infection of the face. Same species has been reported previously by Ghorpade *et al.* to cause tinea corporis in a 2-day-old neonate.<sup>[18]</sup>

Controversy remains on whether topical or systemic antifungals should be used to treat dermatophytoses in neonates. Topical therapy is considered safer for neonates and infants. Ironically, topical antifungals are proposed to work more effectively in infants due to the same risk factor that predisposes them to tinea infection, that is, increased permeability due to immature epidermis.<sup>[19]</sup> Our case also responded well to topical antifungals.

Terbinafine is a category B drug, whereas fluconazole is a category D drug. Hence, terbinafine is safer than fluconazole



**Figure 6:** Healed lesions of neonatal tinea faciei after 7 days

during pregnancy.<sup>[20]</sup> Although terbinafine should be carefully used in pregnancy and lactation, it can be considered for extensive tinea corporis infections as it is a category B drug. Mother had extensive tinea corporis (both axilla, inframammary area, abdomen, both thighs, inguinal folds, buttocks) from the onset of first month of pregnancy, and had taken only topical antifungal combinations during pregnancy with partial relief. She had previous history of partially treated tinea corporis over 5 years, and on grounds of the extensive area of the disease, severe itching and her rural background, she was given oral antifungals.

Neonatal tinea is rare, therefore its occurrence gives a clue to the dermatophyte infection occurring due to intimate contacts, hence complete examination of the source and treatment of infected pets should be carried out to control the infection. Although the person to person transmission route is most likely, the role of environmental reservoirs such as bed linen, mattresses should not be ignored.<sup>[21]</sup>

Although neonatal tinea corporis due to *T. mentagrophytes* has been reported in the past, what makes our case interesting is the fact that it has never been reported to cause neonatal faciei earlier.

#### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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#### Conflicts of interest

There are no conflicts of interest.

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