A Strange Looking Rash That Does Not Respond to Topical Corticosteroids

ABSTRACT

Tinea incognito is a superficial dermatophyte infection in which the clinical appearance of the symptoms has been altered by inappropriate treatments, such as topical corticosteroids.
Dermatophyte infection may result from contact with infected humans, animals, or inanimate objects. An erythematous, pruritic, annular and scaly plaque is characteristic of a symptomatic infection. A potassium hydroxide (KOH) examination of skin scrapings is usually diagnostic. If topical corticosteroids have been applied recently, the amount of surface scales may be reduced and may lead to false negative results. Topical therapy is the first line treatment for localized infections. Systemic antifungals should be used in extensive condition, immunosuppression, resistance to topical antifungal therapy.

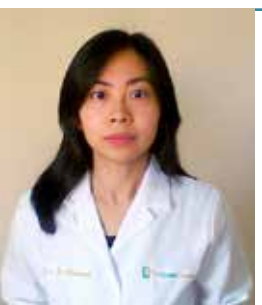
KEYWORDS: Tinea incognito, dermatophytoses, fungus, trichophyton rubrum, topical corticosteroids

CME Pre-test Quiz

An 84-year-old female presents with a 2-month history of pruritic and erythematous plaques on the upper chest after her return from India where the weather was very hot and humid (Figure 1). The patient has been treated with a number of very potent topical corticosteroids with no relief. On further questioning, she has similar symptoms on her breasts and thighs, but she refuses to have these areas examined due to embarrassment.

What is your diagnosis?

Tinea incognito is a superficial dermatophyte infection in which the clinical appearance of the symptoms has been altered by inappropriate treatments, such as topical corticosteroids (Figure 2). Trichophyton, Microsporum, and Epidermophyton are the three anamorphic genera that cause dermatophytoses. Dermatophytes may infect humans (anthropophilic) or nonhuman mammals (zoophilic), or they may reside primarily in the soil (geophilic). The most common cause of dermatophyte infections



ABOUT THE AUTHOR

Francesca Cheung, MD CCFP, *is a family physician with a special interest in dermatology. She received the Diploma in Practical Dermatology from the Department of Dermatology at Cardiff University in Wales, UK. She is practising at the Lynde Centre for Dermatology in Markham, Ontario and works closely with* ***Dr. Charles Lynde, MD FRCPC,*** *an experienced dermatologist. In addition to providing direct patient care, she acts as a sub-investigator in multiple clinical studies involving psoriasis, onychomycosis, and acne.*

globally is Trichophyton rubrum. Other common pathogens include Trichophyton tonsurans, Trichophyton mentagrophytes, Trichophyton interdigitale, Trichophyton verrucosum, Microsporum canis, and Microsporum gypseum.[1,2,3]

TINEA INCOGNITO IS A SUPERFICIAL DERMATOPHYTE INFECTION IN WHICH THE CLINICAL APPEARANCE OF THE SYMPTOMS HAS BEEN ALTERED BY INAPPROPRIATE TREATMENTS, SUCH AS TOPICAL CORTICOSTEROIDS.

Warm and moist environments are conducive to fungal proliferation. The nonliving, cornified layers of skin, hair, and nail are attractive for dermatophytes. Fungi may release keratinases and other enzymes to invade deeper into the stratum corneum, although typically the depth of infection is limited to the epidermis. After a 1 to 3 weeks incubation period, dermatophytes invade peripherally in a centrifugal pattern. The active border has an increased epidermal cell proliferation.[4]

Dermatophyte infection may result from contact with infected humans, animals, or inanimate objects. An erythematous, pruritic, annular and scaly plaque is characteristic of a symptomatic infection. Scales, crusts, vesicles, and even bullae may develop in the advancing border.[5] Some patients occasionally experience a burning sensation. Zoophilic or geophilic dermatophytes may produce a more severe inflammatory response than those caused by anthropophilic microbes.

A potassium hydroxide (KOH) examination of skin scrapings to visualize fungal elements is usually diagnostic in this condition. If topical corticosteroids have been applied recently, the amount of surface scales may be reduced and may lead to false negative results. In order to obtain a high yield of fungal elements, the sample should be taken from the active border of a lesion or the roof of the vesicle. A fungal culture is used as an adjunct to KOH for diagnosis because it is more specific. A fungal culture should be

Figure 1: Tinea incognito on the upper chest

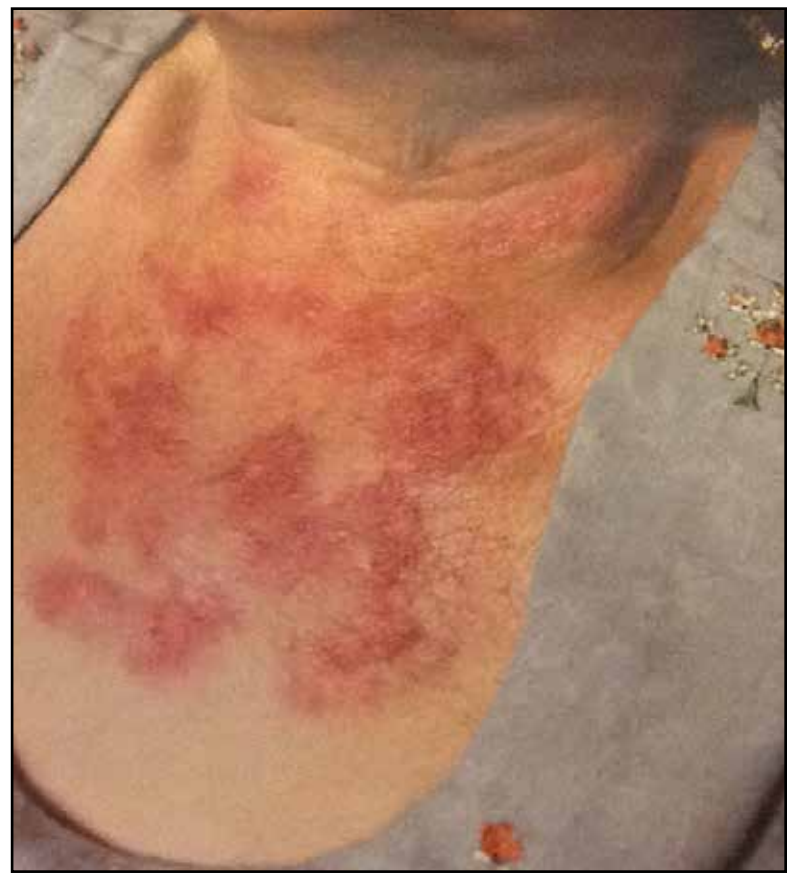
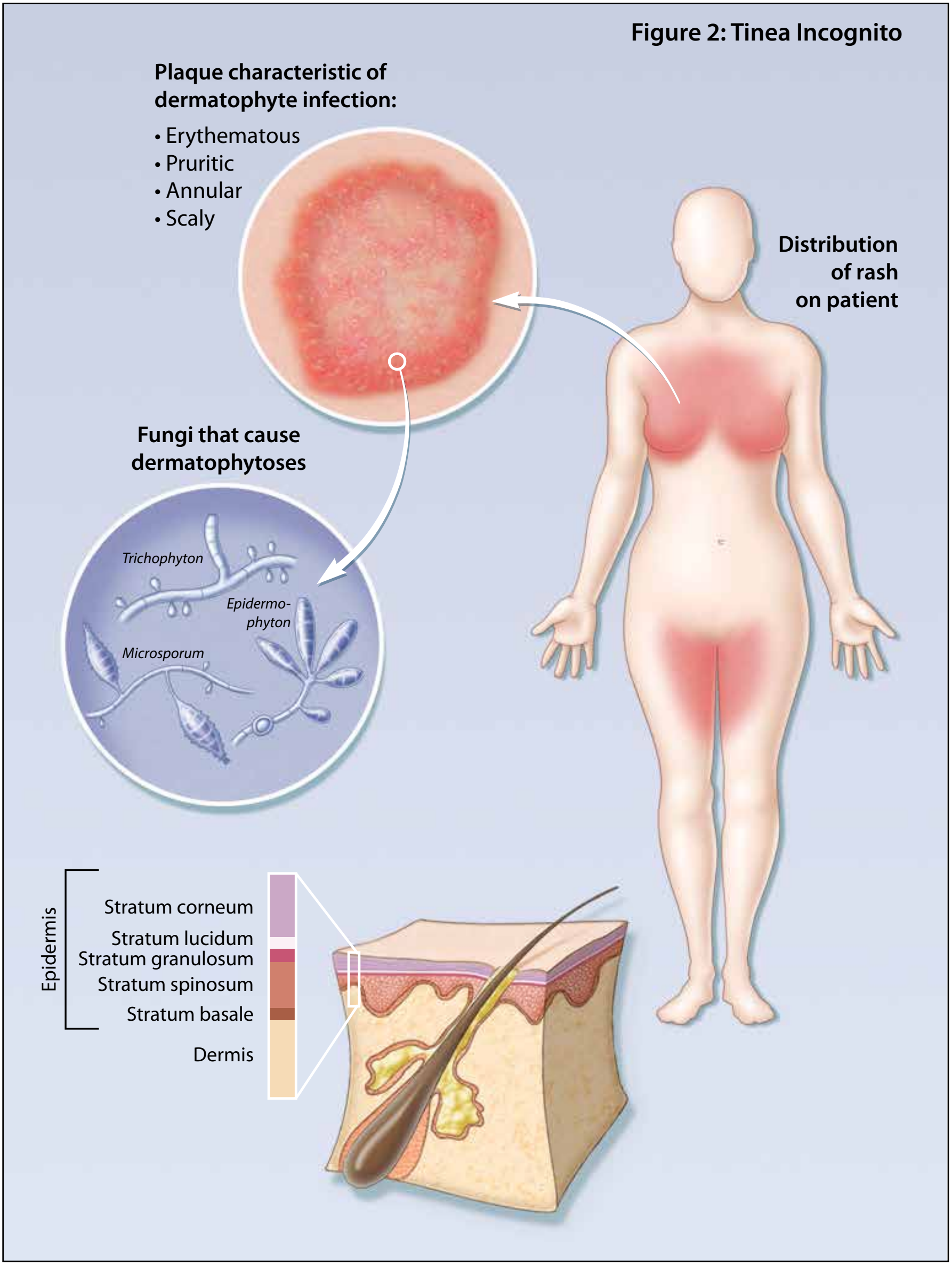


Figure 2: Tinea Incognito



SUMMARY OF KEY POINTS

Tinea incognito is a superficial dermatophyte infection in which the clinical appearance of the symptoms has been altered by inappropriate treatments, such as topical corticosteroids.

Trichophyton, Microsporum, and Epidermophyton are the three anamorphic genera that cause dermatophytoses.

An erythematous, pruritic, annular and scaly plaque is characteristic of a symptomatic infection. Scales, crusts, vesicles, and even bullae may develop in the advancing border.

A potassium hydroxide (KOH) examination of skin scrapings is usually diagnostic in this condition. If topical corticosteroids have been applied recently, the amount of surface scales may be reduced and may lead to false negative results.

In order to obtain a high yield of fungal elements, the skin scrapings for KOH examination should be taken from the active border of a lesion or the roof of the vesicle.

obtained if the clinical suspicion is high, but the KOH result is negative. Polymerase chain reaction for fungal DNA identification can be applied if the aforementioned clinical evaluations are inconclusive.[6]

Topical therapy is the first line treatment for a localized infection because dermatophytes rarely invade living tissues. Depending on the agent being used, topical therapy should be applied to the lesion and at least 2 cm beyond this area once or twice a day for at least 2 weeks.[7] Topical azoles and allylamines inhibit the synthesis of ergosterol, a major fungal cell membrane sterol, which are highly efficacious.[8]

A low-to-medium potency topical corticosteroid can be added to the topical antifungal for the first few days of treatment only, providing rapid relief from the inflammatory component of the infection. Prolonged use can lead to persistent and recurrent infections as well as longer treatment duration.[9] In cases which the condition is extensive, the patient is immunosuppressed, or topical antifungal therapy fails to clear the symptoms, systemic azoles (eg, fluconazole, itraconazole, ketoconazole) should be used.[10]

Close contact between infected and non-infected individuals and sharing of fomites (eg, via clothing and towels) should be avoided to prevent spread of infection. Reinfection may occur if a reservoir, such as an infected nail, is present. Many adult patients with tinea incognito or tinea corporis also have tinea pedis and unguium, which should be treated.

CME

Post-test Quiz

Members of the College of Family Physicians of Canada may claim MAINPRO-M2 Credits for this unaccredited educational program.

The condition may recur if therapy does not result in complete eradication of the organism, such as when patients prematurely discontinue topical therapy or if the organism is resistant to the antifungal agent prescribed.[7]

All of the tables and photos are original.

No competing financial interests exist in preparation of this case study.

References

1. Aly R. Ecology and epidemiology of dermatophyte infections. J Am Acad Dermatol. Sep 1994;31(3 Pt 2):S21-5.
2. Dahl MV. Dermatophytosis and the immune response. J Am Acad Dermatol. Sep 1994;31(3 Pt 2):S34-41.
3. Sanchez-Castellanos ME, Mayorga-Rodriguez JA, Sandoval-Tress C, Hernandez-Torres M. Tinea incognito due to Trichophyton mentagrophytes. Mycoses. Jan 2007;50(1):85-7.
4. Macura AB. Dermatophyte infections. Int J Dermatol. May 1993;32(5):313-23.
5. Ziemer M, Seyfarth F, Elsner P, Hipler UC. Atypical manifestations of tinea corporis. Mycoses. 2007;50 Suppl 2:31-5.
6. Seyfarth F, Ziemer M, Gräser Y, Elsner P, Hipler UC. Widespread tinea corporis caused by Trichophyton rubrum with non-typical cultural characteristics--diagnosis via PCR. Mycoses. 2007;50 Suppl 2:26-30.
7. Weinstein A, Berman B. Topical treatment of common superficial tinea infections. Am Fam Physician. May 15 2002;65(10):2095-102.
8. Jones HE. Immune response and host resistance of humans to dermatophyte infection. J Am Acad Dermatol. May 1993;28(5 Pt 1):S12-S18.
9. Lesher JL. Therapeutic agents for dermatologic fungal diseases. In: Elewski BE, ed. Cutaneous Fungal Infections. Malden: Blackwell Science; 1998:321-46.
10. Lesher JL Jr. Oral therapy of common superficial fungal infections of the skin. J Am Acad Dermatol. Jun 1999;40(6 Pt 2):S31-4.