Papules (Majocchi’s Granuloma)
within a Scaling Plaque:
A Diagnostic Clue to Tinea Incognito

Inappropriate application of corticosteroids to superficial fungal infections can alter the cutaneous appearance and complicate diagnosis.

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Superficial fungal infections can be difficult to diagnose, as the differential diagnosis of erythematous, scaly patches includes a wide variety of papulosquamous processes. Tinea incognito is a superficial fungal infection with an altered clinical appearance following treatment with a topical corticosteroid. These erythematous patches may show very little scale and do not have a “ring worm” configuration (scaling with peripheral accentuation and central clearing), the clinical hallmark of tinea infections. Yet, when peripheral accentuation of scaling and central clearing is not present (“ring worm”) the diagnosis of superficial fungal infection often is not entertained. In a series of patients with tinea incognito, a common finding is the presence of acneiform papules restricted to the erythematous patches. These papules proved to be Majocchi’s granuloma when biopsied.

A KOH preparation should be the first step taken in patients who present with an erythematous rash with acneiform papular lesions within the involved patches.

Case Reports

Patient 1. A 73-year-old Caucasian male presented for evaluation of an erythematous, scaling and itching patch on his left forearm. He had been treating the area with hydrocortisone cream 1% several times daily for eight weeks. The cream temporarily relieved the itch and decreased the erythema, but the patch continued to slowly expand. Physical examination revealed a 6 x 15cm scaling, erythematous patch without peripheral accentuation of the scale or central clearing. Several papulopustular lesions were present within the broad patch (Fig. 1). Tinea incognito with Majocchi’s granuloma was suspected. A KOH preparation demonstrated septate hyphae. Treatment with terbinafine HCL 250mg tablets daily for one month led to complete resolution of all signs and symptoms and no recurrence over the next six months.
Patient 2. A 46-year-old patient presented with a 5 x 5cm papulosquamous patch on the trunk containing scattered papules and papulopustules. The patch had failed to respond to hydrocortisone cream 1% twice daily for one month. An eczematous patch with bacterial folliculitis was suspected. A 4mm punch biopsy was performed targeting a papulopustule. A central hair follicle showed a dilated follicular infundibulum with acute inflammation within the follicle, its wall, and the surrounding dermis where chronic and granulomatous changes were also noted. A PAS stain revealed septate hyphae within the follicular infundibulum (Figs. 2 and 3) and throughout the overlying stratum corneum, confirming the diagnosis of superficial fungal infection and Majocchi’s granuloma. Treatment with ketoconazole cream 2% BID for four weeks led to complete resolution without recurrence.

Discussion
Tinea incognito, first described by Ive and Marks in 1968, is a superficial fungal infection with an altered clinical appearance that often occurs following treatment with a topical corticosteroid.\(^1\)\(^,\)\(^2\) One-third of cases of tinea faciei present as tinea incognito.\(^3\)\(^,\)\(^4\) Tinea incognito may occur on any location of the body and fails to show the expanding annular erythematous plaques with scaling rim and central clearing that are typical of tinea infections or “ringworm.”

The most common clinical scenario is the appearance of a scaly eczematous patch that fails to respond to a topical anti-inflammatory agent over a period of weeks or months as expected with irritant dermatitis. Often, the implicated therapeutic agent is an over-the-counter product such as hydrocortisone 1% initiated by the patient or a prescription strength topical steroid. However, use of topical immunomodulators tacrolimus and pimecrolimus for atopic dermatitis, systemic immunosuppressants, systemic steroids, and infection with human immunodeficiency virus (HIV) have all been associated with tinea incognito.\(^5\)\(^,\)\(^6\) Application of a topical anti-inflammatory agent often results in initial improvement of the rash with decreased erythema, scaling, and pruritus, but with time there is formation of papules and pustules and slow expansion of the patch.\(^9\)\(^,\)\(^11\)

The pathophysiologic mechanism is clear. When plaques of tinea corporis are treated with topical anti-inflammatory drugs, inhibition of the natural immune response to the dermatophyte leads to less pronounced erythema and scale. Additionally, the typical immune mediated central clearing does not occur. Finally, decreased local immunity allows the dermatophyte to proliferate in hair follicles producing acneiform papules and papulopustules (Majocchi’s granuloma).\(^12\)\(^,\)\(^14\) The lesions of tinea incognito can be mistaken for discoid lupus erythematosus, lymphocytic infiltration, seborrheic dermatitis, rosacea, contact dermatitis, polymorphous light eruption, and granuloma faciale.\(^15\)\(^,\)\(^17\)

In our patients, a common finding was the presence of acneiform papules within an erythematous patch, with or without scaling. KOH preparations demonstrated septate hyphae, and a punch biopsy in one case showed Majocchi’s granuloma confirming that the papules in at least this one patient were related to the same superficial fungal infection (Figs. 2 and 3). When similar papules are related to bacterial folliculitis associated with topical steroid use, the lesions
would be as common in the surrounding skin as in the papulosquamous patches.

In tinea incognito, the papules are restricted to the erythematous patches. Papular eczema should also be considered in the differential diagnosis, although in popular eczema, the papules are generally small and uniform keratotic papules with excoriations unlike the lesions seen in these patients. Prurigo nodules may also be associated with a pruritic papulosquamous eruption, but the acniform lesions in our patients were not suggestive of the keratotic, excoriated nodules of prurigo nodularis.

The KOH preparation is a fast and simple method for the diagnosis of tinea incognito in patients who present with a papular erythematous patch following corticosteroid use. Due to the attenuated inflammatory response, large numbers of fungal elements are present, which increases the sensitivity of this test. It is never wrong to perform a KOH preparation on erythematous patches and plaques in a variety of clinical circumstances. For example, tinea incognito has been described in patients with asymptomatic patches of alopecia without a clinically detectable scale. When tinea is not suspected and a diagnostic punch biopsy of a papule is performed, a suppurative folliculitis with PAS positive staining septate hyphae within the hair follicle will be identified.

Following the diagnosis, the topical steroid/calcineurin inhibitor should be discontinued. This may produce a transient flare-up as local inflammation is no longer suppressed. Broad spectrum topical antifungal agents such as ketoconazole cream 1%, oxycoczone nitrate cream1%, sertaconazole nitrate cream2%, and butenafine HCL cream 1%, are often curative over three to four weeks. When widespread tinea incognito is present, griseofulvin ultramicrosize 10-15mg/kg/day for one month or itraconazole 100mg, two tablets two times per day for one week (Pulse Pak) are routinely effective. Patients with tinea incognito should also receive a full clinical skin examination to determine the primary site of infection. If toenails are involved, longer courses of systemic antifungals are required to clear this reservoir of infection.

When an erythematous patch, including acniform papular lesions restricted to the patch, is not responding to topical steroid treatment, tinea incognito should be suspected. A KOH will confirm the diagnosis. A larger series of patients is required to determine the true incidence of specific morphological features such as papules restricted to the area of the erythematous patches in patients with tinea incognito.

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