Papules, Plaques, and Nodules in an Immunocompromised Patient

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An 85-year-old man is admitted for evaluation of multiple papules, plaques, and subcutaneous nodules on his face, trunk, and extremities. The patient has itching. There is no history of trauma. He has an 8-year history of diabetes and Sjogren syndrome with eye and mouth involvement and has been treated with varied doses of oral methylprednisolone for 5 years. During the 3 years prior to admission, he took 12 mg/d of methylprednisolone. Over the last 5 months, he received topical steroids and antifungal agents. Skin examination reveals multiple erythematous papules on his face and eyelids, clustered or solitary reddish or purple papules, indurated shining plaques, and subcutaneous nodules on his wrists (FIGURE 1A), arms, and lower limbs, mainly around the knees (Figure 1B) and thighs. Pus is not expressed with pressure. There are no lesions on his scalp, eyebrow, upper lip, chin, axillae, pubic area, palms, or soles.

What Would You Do Next?
A Perform dermatoscopic examination of the skin lesions
B Obtain a biopsy of the lesion for pathology and fungal culture
C Prescribe oral antibiotics
D Prescribe topical steroids

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Diagnosis
Generalized cutaneous granuloma caused by *Trichophyton rubrum* (Majocchi granuloma)

What to Do Next
B. Obtain a biopsy of the lesion for pathology and fungal culture

The key clinical feature of this case is realizing that unusual infections, such as deep cutaneous fungal infection, should be considered in patients receiving systemic steroids, even when the dose is low. Steroid use and diabetes may be risk factors in developing disseminated forms of otherwise less aggressive diseases.

Comment
Trichophytic granuloma, also known as Majocchi granuloma, is a deep suppurative and granulomatous folliculitis due to a cutaneous dermatophyte infection with organisms including *Trichophyton mentagrophytes*, *Trichophyton violaceum*, *Microsporum audouinii*, *Microsporum gypseum*, *Microsporum ferrugineum*, *Microsporum canis*, and, most commonly, *T. rubrum*. It can occur in both immunocompetent and immunocompromised hosts.

Two clinical forms of trichophytic granuloma exist: follicular and subcutaneous nodular. The follicular type commonly occurs in young women who shave their legs, and the subcutaneous nodular type typically occurs in immunocompromised individuals. This patient had the subcutaneous nodular type of granuloma.

The differential diagnosis for generalized cutaneous papules and plaques includes cutaneous tumor or tumor-like conditions, such as histiocytoses, cutaneous lymphoma, or Kaposis sarcoma. Histiocytoses are a heterogeneous group of diseases characterized by the accumulation of reactive or neoplastic histiocytes in various tissues. Cutaneous lymphoma may present as multiple cutaneous papules, nodules, or plaques and follows a chronic course. Kaposis sarcoma lesions are nodules or blotches that may be red, purple, brown, or black, and are usually associated with HHV-8 and HIV. Various cutaneous presentations, including pustules, plaques, and ulcers, can be due to infection with nontuberculous mycobacterium. Biopsy is important in distinguishing among these conditions.

The prognosis of trichophytic granuloma is generally good, primarily because there is effective pharmacotherapy available for fungal infection. Effective agents include allylamines (terbinafine and butenafine) and azoles. Oral ketoconazole (100 to 400 mg daily) has been used to treat localized disease. However, continued for a minimum of 4 to 6 weeks or until all lesions are cleared. Protracted treatment may be advisable in immunocompromised patients.

In this patient, a surgical biopsy specimen was obtained from one of the nodules on the left wrist. When the biopsy was performed, thick, honey-like pus was observed from the deep dermis. On staining, hyphae were revealed. Hematoxylin-eosin stain of the biopsy specimen was notable for granulomatous inflammation in the dermis and hypodermis, composed of a mixed inflammatory infiltrate including histiocytes, lymphocytes, plasma cells, neutrophils, and multinucleated giant cells. Septate hyphae and spores were observed in a ruptured hair follicle and a dermal abscess in the deep dermis (Figure 2A). Furthermore, periodic acid–Schiff stain highlighted hyphae and spores inside and outside the multinucleated giant cells (Figure 2B). Acid-fast staining was negative.

*Trichophyton rubrum* was identified in specimens of pus and dermal tissues cultured on potato dextrose agar, according to its characteristic morphology: granular white colonies with blood-red. Identity was confirmed by polymerase chain reaction (PCR). The combination of pathologic examination, fungal culture, and PCR analysis led to a final diagnosis of generalized cutaneous granuloma caused by *T. rubrum*. This patient improved notably with systemic itraconazole at dosage of 200 mg/d for 3 months.

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REFERENCES