A case of paracoccidioidomycosis in a HIV-positive patient

Sir,

A 35-year-old HIV-positive male with a CD4 count of 20 cells/μl presented with 2-month history of insidious onset, painless, skin-colored nodules over face [Figure 1]. Gradually, the number of lesions increased, and new lesions appeared over the entire head-and-neck region. The patient was not on any antiretroviral therapy and was evaluated on the basis of his clinical presentation and cutaneous markers suggestive of an underlying immune suppression. His examination revealed generalized lymphadenopathy, angular cheilitis, and mucosal candidiasis. A differential diagnosis of systemic mycosis including paracoccidioidomycosis, histoplasmosis, and coccidioidomycosis was considered, considering the morphology of the lesions and the underlying immunosuppression. The other differentials which were considered included multiple giant molluscum contagiosum, acneiform drug eruptions, cutaneous sarcoidosis, histoid leprosy, lupus vulgaris, cutaneous leishmaniasis, cutaneous lymphoid hyperplasia, and other granulomatous disorders. Skin biopsy of one of the nodules [Figure 2] revealed a dense granulomatous inflammation with lymphocytes, epithelioid cells, and multinucleated giant cells along with overlying epidermal pseudoepitheliomatous hyperplasia. High-power examination revealed large round fungal forms. There were numerous eosinophils. The characteristic feature of the histopathology was the presence of several minute narrow-based buds surrounding the large round fungal forms. These have often been referred to as "mariner's wheels" or "captain wheels" considering their appearance. His Chest X-ray did not reveal any evidence of systemic fungal infection or tuberculosis. He was started on highly active antiretroviral therapy and capsule itraconazole 100 mg twice daily for the next 6 months.

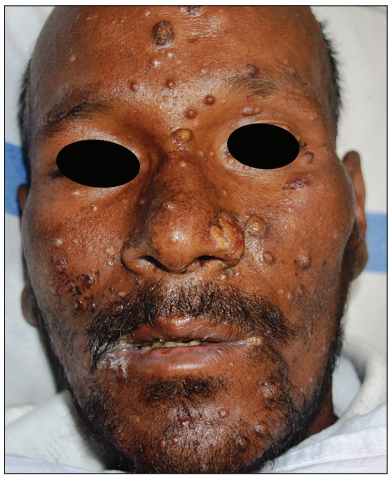

Figure 1: Multiple skin-colored nodules over face with angular cheilitis

Paracoccidioidomycosis is a subcutaneous fungal infection caused by a dimorphic fungus *Paracoccidioides brasiliensis*.[1] It is primarily a systemic pulmonary infection then spreading onto oral mucosa and skin.[2] *P. brasiliensis* naturally resides in soil, and the infection is due to inhalation of its propagules. Paracoccidioidomycosis rarely affects the skin in isolation. Cutaneous lesions generally

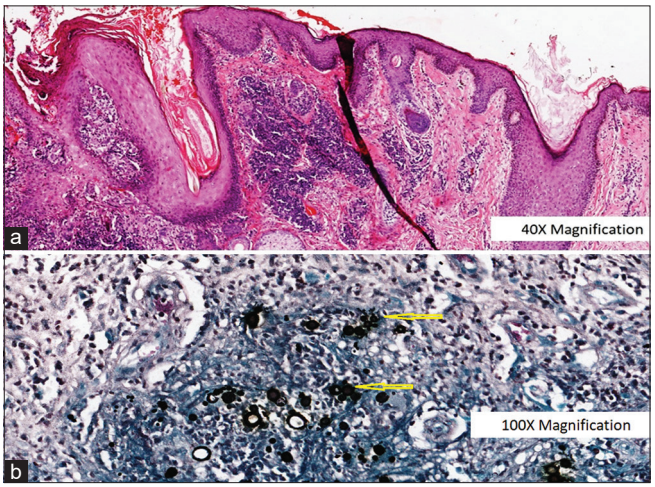

Figure 2: Histopathology showing granulomas with dense aggregation of lymphocytes, epithelioid cells, and multinucleated giant cells in × 40 magnification (a), and several *Paracoccidioides* sp. (yellow arrows) in × 100 magnification (b) showing as "mariner's wheel" or "captains wheel" appearance with abundant round to oval yeast cells enclosed in a granuloma. Gomori Methenamine Silver stain

Table 1: Differential diagnosis

Differential diagnosis	Classical clinical feature	Classical histopathological feature
Cutaneous histoplasmosis	Papule, plaque, pustule, or nodule with or without central umbilication, resembling molluscum	The presence of tiny 2-4 (μm) spores with a clear zone around the nucleus, inside or outside macrophages or giant cells
Cutaneous coccidiomycosis	Papules, nodules, gummas, pustular acneiform lesions, ulcerated and verrucous plaques, scars, abscesses, and fistulae mostly over head and neck	Non-caseating granulomas with a few thick-walled large round structures which are present both inside the granulomas and in the surrounding stroma
Molluscum contagiosum	Umbilicated papules and giant molluscum in HIV-positive patients	Crateriform, acanthotic epidermis containing intracytoplasmic molluscum bodies
Acneiform drug eruption	Monomorphic skin-colored papules or nodules with the history of the offending drug	Superficial, inflammatory folliculitis with ectatic follicular infundibula and rupture of the epithelial lining
Cutaneous sarcoidosis	A dermatologic masquerader: papules, plaques, lupus pernio	Typical naked granulomas
Lupus vulgaris	Papular, plaque, nodular, tumid, atrophic, and ulcerative forms	Tuberculoid granulomas composed of epitheloid and Langhans giant cells seen predominantly in the upper dermis
Histoid leprosy	Skin colored fleshy nodules classically over ear lobes	Presence of acid-fast bacilli in clusters
Cutaneous lymphoid hyperplasia	Infiltrated plaques and multiple nodules	Dense clusters of atypical lymphocytes confirmed with immunohistochemistry

originate from contiguous lesions, from hematogenous dissemination, or rarely, from direct inoculation of *P. brasiliensis* into the skin. Skin lesions generally appear over the face mostly around the mouth and nose. Lesions tend to be monomorphic initially and later may ulcerate or settle with a verrucous appearance. Sometimes, a sarcoid-like lesion on the face can be a close differential adding additional diagnostic difficulties, but sarcoid-like lesions have few, if any, visible fungi on histologic examination.[3]

The histopathology was classic in this case with the presence of Mariner's wheel appearance, and this helps in differentiating from other subcutaneous and systemic mycoses. The other differential diagnoses considered were eliminated due to the presence of granulomas and fungal buddying yeast. The classical clinical features and histopathological features are listed in Table 1.

This case highlights the importance of early diagnosis of this fungal infection preventing a systemic dissemination. The case is rare as isolated cutaneous presentation without pulmonary involvement is generally not reported. Furthermore, underlying immunosuppression due to HIV did alter its clinical presentation, and cutaneous cases of paracoccidioidomycosis are also not reported frequently in HIV setup. Itraconazole 100 twice daily is the standard therapy recommended for 6–9 months.[4] In therapy resistant cases or more severe infection, as in multiorgan spread including pulmonary dissemination, amphotericin B deoxycholate in doses of 0.75–1.0 mg/kg daily is recommended, followed by sulfamethoxazole 2400 mg daily for 24 months.[4] The present case illustrates the diagnosis process and successful systemic treatment of a paracoccidioidomycosis case in the backdrop of HIV infection and may serve as an alert for clinicians about the manifestation and importance of diagnosing and treating this infection.

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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