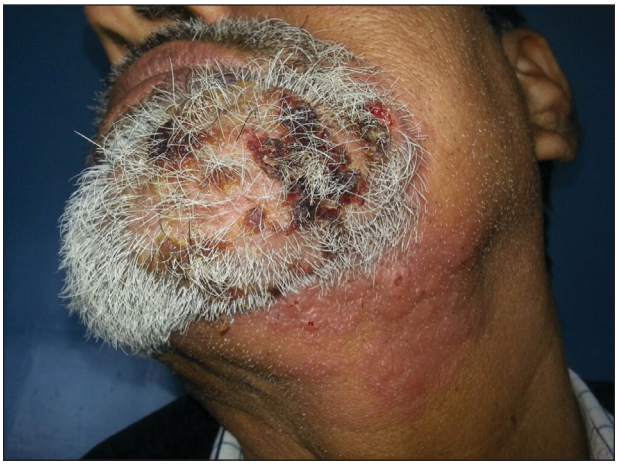
Multiple Crusted Swellings on the Chin

Yashdeep Singh Pathania, MD; Gurwinder Kaur, MD



A 54-year-old man with no comorbidities presented with multiple painless swellings on the left side of the chin of 1 month's duration that progressively were increasing, both in size and number. He denied any discharge of pus or grains from the lesion, facial trauma, insect bites, or dental procedures. The patient was treated with oral antibiotics for 15 days with no relief at an outside hospital. All routine blood and serologic investigations including viral markers and chest radiography were normal. Bacterial and fungal cultures as well as an acid-fast bacilli culture were negative. Systemic examination was normal, and vitals were within reference range. Mucocutaneous examination revealed multiple nontender small nodules and plaques with yellow-brown to dark brown hemorrhagic crusts with mild perilesional erythema on the left side of the chin extending to the adjacent neck. All mucosal sites were normal, and a biopsy was performed.

WHAT'S YOUR **DIAGNOSIS?**

a. basal cell carcinoma
b. cutaneous cryptococcosis
c. cutaneous tuberculosis
d. histoplasmosis
e. leishmaniasis

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Dr. Pathania is from the Department of Dermatology, Venereology and Leprology, All India Institute of Medical Sciences, Jodhpur, Rajasthan.
Dr. Kaur is from the Department of Pathology, All India Institute of Medical Sciences, Bilaspur, Himachal Pradesh.
The authors report no conflict of interest.
Correspondence: Yashdeep Singh Pathania, MD, Department of Dermatology, Venereology and Leprology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India, 342005 (yashdeepsinghpathania@gmail.com).
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THE **DIAGNOSIS:** Cutaneous Cryptococcosis

Histologic examination revealed infiltration of the dermis and subcutaneous tissue with rounded basophilic cells on low magnification (Figure 1A). On higher magnification, encapsulated yeast cells (cryptococci) of varying size accompanied by chronic granulomatous inflammatory infiltration with occasional giant cells were seen (Figure 1B). Alcian blue stain showed mucinous capsular material (Figure 1C). There was no history of diabetes mellitus, tuberculosis, steroid therapy, or immunosuppression. Moreover, systemic involvement or systemic focus of infection was ruled out after computed tomography of the head, chest, and abdomen. Therefore, the diagnosis of primary cutaneous cryptococcosis (PCC) was established. The patient was started on oral itraconazole 100 mg twice daily along with 5 drops of a saturated solution of potassium iodide 3 times daily that later was increased to 20 drops 3 times daily at a weekly interval. The lesions started improving after 1 month and healed completely after 9 months of treatment (Figure 2).

Primary cutaneous cryptococcosis is the identification of *Cryptococcus neoformans* in a skin lesion without evidence of simultaneous disseminated disease. Neuville et al[1] observed that skin lesions resemble cellulitis, ulcerations, or whitlows and were located on unclothed areas. In contrast, lesions from disseminated disease presented as scattered umbilicated papules resembling molluscum contagiosum. Diagnosis of PCC is based on the observation of encapsulated yeasts by direct microscopic examination, isolation of *C neoformans* or *Cryptococcus gattii* in culture, and by the demonstration of capsular antigen in various fluids, including serum and cerebrospinal fluid by latex particle agglutination or enzyme-linked immunosorbent assay. Histologically, *Cryptococcus* species produce a proliferative inflammatory reaction in immunocompetent hosts with the formation of compact epithelioid granulomas, with giant cells and a peripheral layer of lymphocytes. Treatment options for PCC infection range from antifungal medications and surgical debridement to observation.

The differential diagnosis may include cutaneous leishmaniasis, cutaneous tuberculosis, cutaneous histoplasmosis, and basal cell carcinoma. These entities may have similar presentations and can only be confidently differentiated on direct microscopy and histopathologic examination. The characteristic *Leishmania donovani* bodies on microscopy in cutaneous leishmaniasis and tubercular granuloma with central necrosis on histology in cutaneous tuberculosis can differentiate these conditions from cryptococcosis. In some patients with cryptococcosis, the yeast may produce a less characteristic polysaccharide capsule and thus may be confused with histoplasmosis.

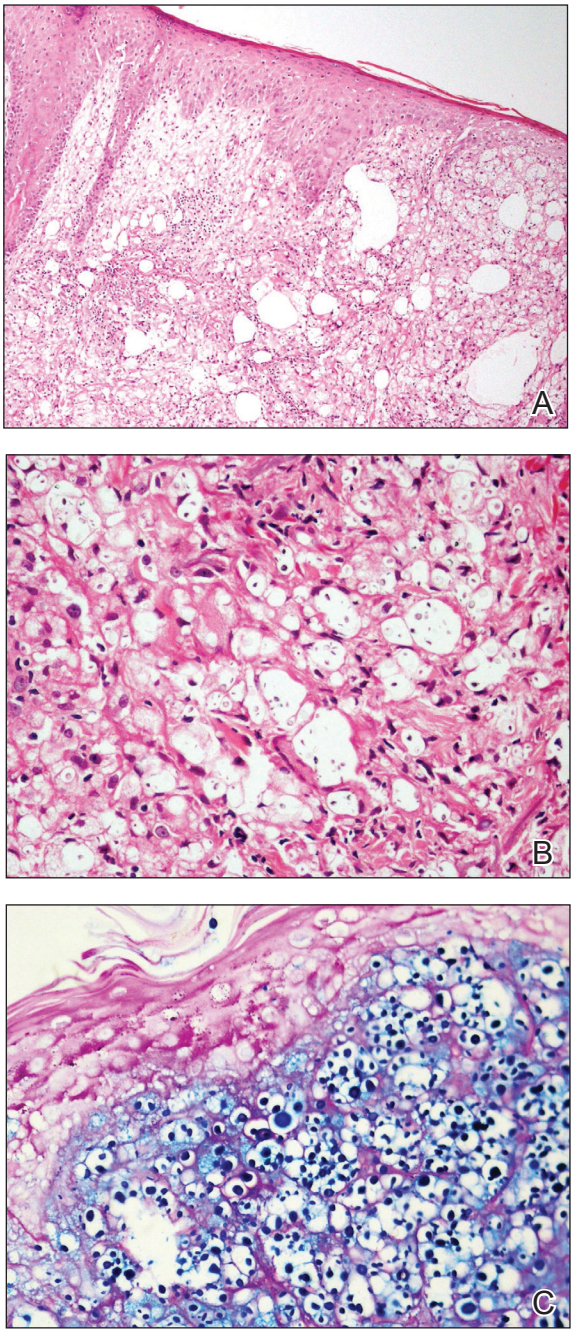

FIGURE 1. A, The dermis and subcutaneous tissue showed infiltration by basophilic cells (H&E, original magnification ×10). B, The dermis and subcutaneous tissue were heavily colonized with encapsulated yeast cells of various sizes, accompanied by chronic granulomatous inflammatory infiltration with occasional giant cells (H&E, original magnification ×40). C, Mucinous capsular material stained blue with Alcian blue (original magnification ×40).

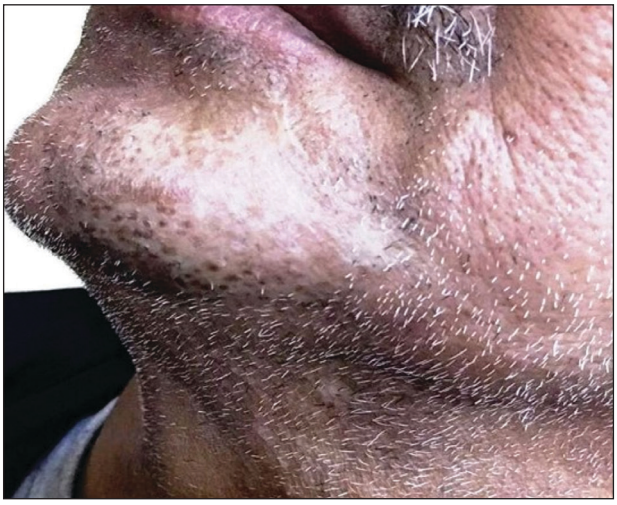

FIGURE 2. Lesions healed with slight postinflammatory hypopigmentation after 9 months of treatment with itraconazole.

Fontana-Masson staining may show melanin-producing yeast, which is characteristic of cryptococci.[2] Ulcerated basal cell carcinoma may present similar clinically; however, histopathology will rule it out.

Cutaneous cryptococcal infection should be presumed to be disseminated until proven otherwise, and a search for other sites of involvement must immediately be undertaken. Cutaneous signs may be the first indication of infection, preceding the diagnosis of disseminated disease by 2 to 8 months, making its recognition crucial to early treatment. It is not possible to diagnose PCC on a specific clinical manifestation because a diverse range of skin lesions may be present. Therefore, culture and histology are the gold standards for diagnosis of cryptococcosis.

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2. Guarner J, Brandt ME. Histopathologic diagnosis of fungal infections in the 21st century. *Clin Microbiol Rev.* 2011;24:247-280.