

Candidal Granuloma on the Lip Masquerading as Squamous Cell Carcinoma

Jin Ho Kim, Yong Hyun Jang^{†*} and Seok-Jong Lee^{†*}

Department of Dermatology, School of Medicine, Kyungpook National University, Daegu, Korea

Skin fungal infections are sometimes misdiagnosed as malignancies and vice versa. Herein, we present the case of a 78-year-old woman who visited our clinic because of a rapidly growing "hard-crusted nodule" on the lower lip persisting for 1 month. Keratoacanthoma or squamous cell carcinoma (SCC) was initially considered. However, the histopathological findings revealed suppurative granuloma and fungal elements without atypical cells. *Candida albicans* was grown in tissue culture. The lesions were treated with topical ketoconazole. After 2 years, the patient revisited because of a black-crusted nodule on the left corner of her mouth that had been persisting for 1 month. The nodule resembled SCC. Histopathological examination revealed suppurative granuloma and fungal elements. After confirming *Candida glabrata* in fungal culture, the lesion was diagnosed as candidal granuloma and disappeared spontaneously without any treatment. Herein, we report a case of candidal granuloma on lip mimicking recurrent malignancies.

Key Words: Candidal granuloma, Fungal infection, Malignancy, Squamous cell carcinoma

INTRODUCTION

Skin fungal infections, including candidal granuloma, have heterogeneous clinical presentations, including papulo-plaques, nodules, and ulcerative lesions¹. They are differentially diagnosed as benign skin lesions and malignant tumors, such as other subcutaneous infections, eczema, squamous cell carcinoma (SCC), fibrolipoma, and Kaposi sarcoma². Patient burden increases when skin fungal infections are misdiagnosed as a malignancy as patients are compelled to undergo excessive surgical treatment. Herein, we report a case of candidal granuloma on the lip masquerading as SCC.

CASE REPORT

A 78-year-old woman presented to our clinic with a solitary and rapidly growing, large bean-sized, hard-crusted, dusky erythematous nodule on the right corner of her lower lip persisting for 1 month (Fig. 1A). The lesion emerged after a minor trauma that occurred while toothbrushing. She had received chemotherapy with dacarbazine for malignant melanoma 10 years ago. Owing to the initial impression of keratoacanthoma or SCC, incisional biopsy was performed. Hematoxylin and eosin (H&E) staining revealed suppurative granuloma with dense neutrophils, histiocytes, and some

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*These authors contributed equally to this work.

[†]**Corresponding:** Yong Hyun Jang, Department of Dermatology, School of Medicine, Kyungpook National University, Kyungpook National University Hospital, 130 Dongdeok-ro, Jung-gu, Daegu 41944, Korea.

Phone: +82-53-200-5838, Fax: +82-53-426-0770, e-mail: yhjang@knu.ac.kr

[†]**Corresponding:** Seok-Jong Lee, Department of Dermatology, School of Medicine, Kyungpook National University, Kyungpook National University Hospital, 130 Dongdeok-ro, Jung-gu, Daegu 41944, Korea.

Phone: +82-53-200-5838, Fax: +82-53-426-0770, e-mail: seokjong@knu.ac.kr

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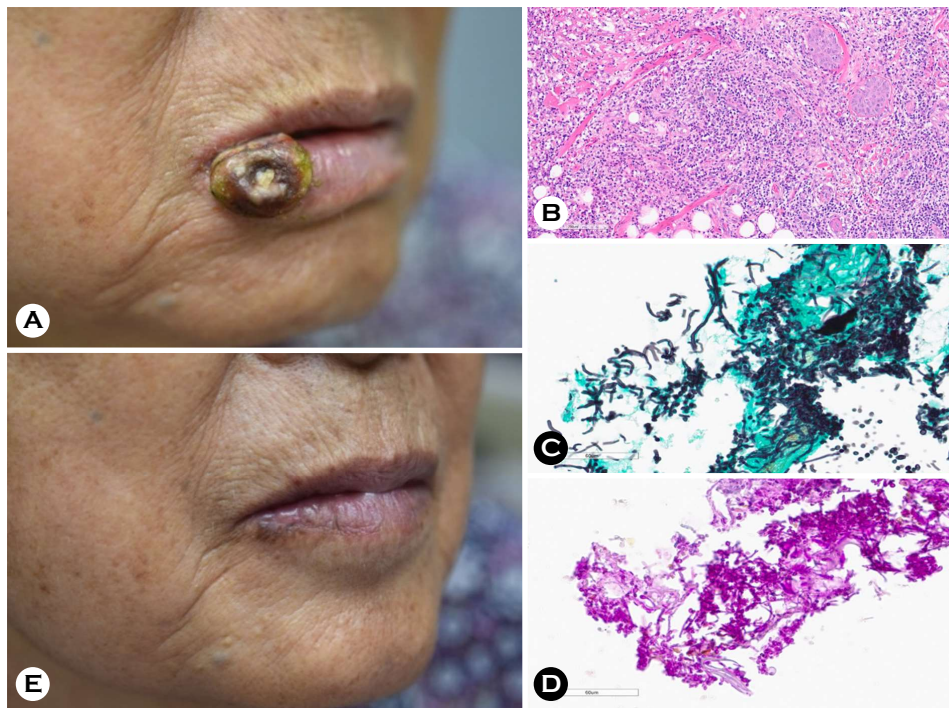


Fig. 1. (A) Large, bean-sized, hard-crusting dusky erythematous nodule on the right corner of the lower lip (B) histopathological findings showing dense neutrophils, histiocytes, and few multinucleated giant cells without atypical cells (H&E, $\times 100$) (C, D) yeasts with pseudophyphae (GMS, $\times 400$ and D-PAS, $\times 400$) (E) the lesion almost disappeared after 2 weeks of treatment.

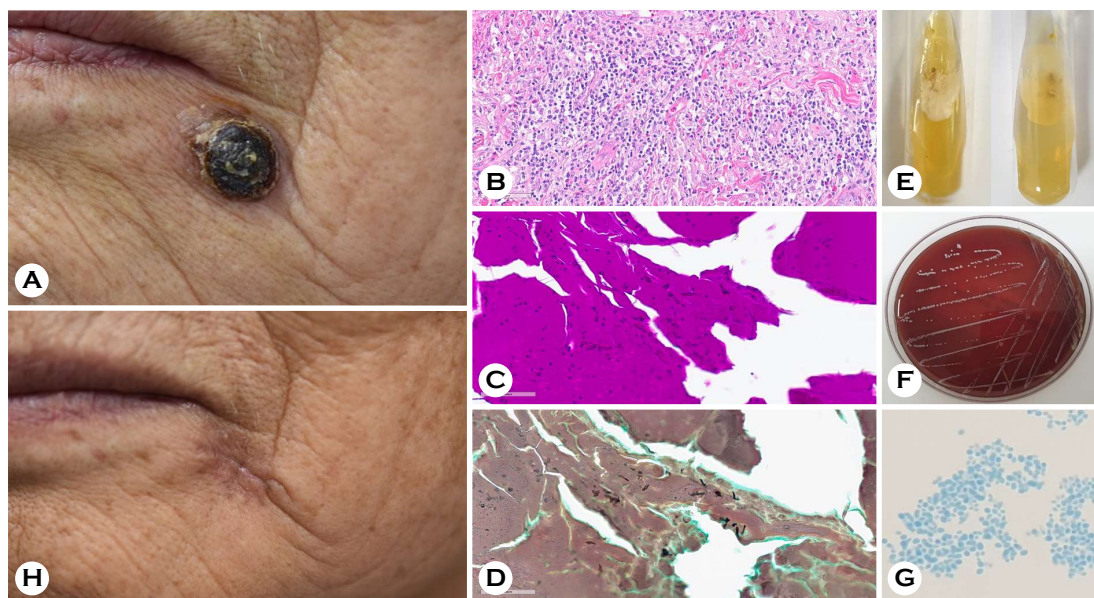


Fig. 2. (A) Black-crusting nodule on the lower left corner of the mouth (B-D); histopathological findings showing ellipsoidal yeasts with neutrophils and histiocytes infiltration, and the absence of atypical cells (H&E, $\times 200$; D-PAS, $\times 400$; and GMS, $\times 400$). (E, F) Smooth and glabrous colonies with white to cream color (Sabouraud dextrose agar, sheep blood agar) (G) ovoid to ellipsoidal budding blastoconidia (lactophenol cotton blue staining, $\times 400$) (H) the lesion spontaneously disappeared after 2 weeks.

multinucleated giant cells in the dermis. However, atypical cells were not observed (Fig. 1B). To determine the causes of infections rather than the possibility for malignancy, the periodic acid-Schiff with diastase (D-PAS) and Grocott's methenamine silver (GMS) staining were performed. These methods revealed the presence of pinkish yeasts with pseudohyphae (Figs. 1C and D). *Candida albicans* was identified in fungal culture. Therefore, the lesion was ultimately diagnosed as candidal granuloma. After treatment with topical ketoconazole for 2 weeks, the lesion slowly disappeared (Fig. 1E). After 2 years, the patient presented again with similar black-crust nodule on the lower left corner of her mouth that had been persisting for 1 month (Fig. 2A). To differentiate between the SCC and candidal granuloma, fungal culture and incisional biopsy with D-PAS and GMS stain were performed. Histopathological examination revealed yeasts measuring 2~3 µm with numerous neutrophilic and histiocytic infiltration and the absence of atypical cells (Figs. 2B-D). Fungal culture on both Sabouraud dextrose agar and sheep blood agar revealed smooth and glabrous colonies with a white to cream color (Figs. 2E and F). Ovoid budding blastoconidia measuring 2~3 µm without pseudohyphae were observed in the lactophenol cotton blue stain (Fig. 2G). *Candida glabrata* was identified in fungal culture. Therefore, the recurring lesion was diagnosed as candidal granuloma, which disappeared spontaneously after 2 weeks (Fig. 2H).

DISCUSSION

Candidal granuloma is a rare form of mucocutaneous candidiasis usually reported in patients who are immunocompromised. The histopathological findings of such patients are characterized by the neutrophilic and histiocytic inflammatory reaction expanding into the dermis and formation of suppurative granuloma³. Candidal granuloma is presented as inflammatory papules, nodules and plaques covered with thick crust on face, scalp, and oral mucosa⁴.

According to the case reports reporting that subcutaneous candidal infection can be misdiagnosed as SCC, cutaneous candidal infections, such as candidal granuloma, are differentially diagnosed as malignant tumors, especially SCC^{5,6}. The clinical manifestations presented as inflammatory papules, nodules with hyperkeratosis on face share similarities with SCC. Moreover, the regional lymphadenopathy accompanying candidal infection can be misdiagnosed as malignant lymph node metastasis.

In addition to the symptomatic similarities, the patient's immunocompromised state can be another reason for con-

fusing fungal infections with malignancies. Patients who are immunocompromised patients have huge concerns regarding fungal infections and are at an increased risk of skin cancer. It is well known that iatrogenic immunosuppression can lead to an increased risk of secondary or primary tumors, particularly SCC. Kidney and heart transplant patients receiving immunosuppressive therapy have a 65-250-fold increased risk of developing SCC⁷.

While many modalities can be used to diagnose candidal granuloma, the most definite tool directly relies on microscopic examination of hyphae or filaments and isolation of etiologic organism via fungal culture. Histopathological examinations followed by D-PAS and GMS staining revealed neutrophilic and histiocytic infiltration and allow visualization of fungal elements. Although fungal culture is a powerful diagnostic tool for confirming fungal infection, it is not routinely done when malignancy is considered as the initial diagnosis. In a retrospective review of subcutaneous fungal infections in Taiwan, 30% of patients were not initially diagnosed with fungal infection¹ instead with different diseases. Fungal culture was performed in only 36% of the patients.

Although skin fungal infection can be treated with topical or systemic antifungal agents, confusing it with malignancy can result in overtreatment. In a case reported by Efares et al., the patient who had a final diagnosis of fungal infection was amputated to acquire sufficient safety margin due to the initial impression of invasive Kaposi sarcoma⁸. From this case, it can be concluded that misdiagnosis of skin fungal infection as malignancy increases patient burden as the latter requires more aggressive diagnostic or therapeutic treatment.

In conclusion, we reported a case of candidal granuloma on the lip that was initially diagnosed as a malignancy with clinical manifestation. Thus, we need to be aware that fungal infections in the skin can be misdiagnosed as malignancies, compelling the overtreatment of patient before the confirmation of the malignancies.

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CONFLICT OF INTEREST

In relation to this article, we declare that there is no conflict of interest.

ORCID

Jin Ho Kim: 0000-0003-4315-8134

Yong Hyun Jang: 0000-0003-1706-007X

Seok-Jong Lee: 0000-0002-6131-632X

PATIENT CONSENT STATEMENT

The patient provided written informed consent for the publication and the use of her images.

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