

## “Masked” Rash: *Candida Albicans* Infection Disguised as Acne

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### 1. Clinical Image

*Candida albicans* (*C. albicans*) is a prevalent fungus responsible for superficial fungal infections of the skin, particularly affecting the mucosal membranes in the oral and genital areas, as well as other moist-exposed skin surfaces [1]. As a part of the human microbiota, an overgrowth of *C. albicans* can lead to infections in open wounds and in individuals with compromised immune systems, such as those with poorly controlled diabetes [2]. However, not all *C. albicans* infections occur in immunocompromised individuals. Here we report a case of *C. albicans* infection in adolescent male facial misdiagnosed as acne.

The patient was a 17-year-old male, initially presenting with facial papules, comedones, pustules, and yellow scabs (Figure 1A) that had been present for two months. The patient had no history of fever, immune function decline related diseases, or skin trauma. Additionally, the blood routine examination yielded no abnormal findings. Direct fungal microscopy did not reveal any mycelium, and the fungal culture was negative. Initially, the patient was diagnosed with acne. The treatment regimen included the removal of crusts, followed by a two-month course of oral isotretinoin and minocycline, as well as the topical application of Fusidic Acid Cream and adapalene. However, following treatment, the skin lesions progressively deteriorated, presenting as an increase in papules and pustules, covered with thick, yellow-

low-brown crusts (Figure 1B). Direct fungal microscopy and fungal culture were still negative again. To identify the cause of the worsening disease, lesions metagenomics next generation sequencing (mNGS) was performed. Surprisingly, *C. albicans* was identified based on PCR sequencing of ITS1/4 amplicons. At the same time, white, smooth and moist colonies appeared after 7 days of culture at 25°C on Sabouraud’s glucose agar medium (SDA) after repeated three times of scab skin and pus culture (Figure 2).

Ultimately, the truth came out and the correct diagnosis was established: the patient was suffering from cutaneous candidiasis due to *C. albicans*, explaining the lack of efficacy of the antibacterial treatments previously administered. The treatment approach was modified to include oral itraconazole at a dosage of 400 mg per day, application of a topical naftifine-ketoconazole cream, and a combination of blue and red LED phototherapy. Clinical improvement was observed and the patient did not report any more complications leaving acceptable scarring after 2-month treatment (Figure 1C). No recurrence was noted after 3-month follow-up (Figure 1D).

Cutaneous candidiasis is prevalent worldwide and affects all age groups and genders, mainly in immunocompromised populations [3]. Previous reports mainly involved the mouth [4], esophagus [5], genitals [6], nails [7] and the spaces between fingers [8]. Given these considerations, the rash pres-

entation resembling acne, and the negative results from the fungal microscopy and culture, which were misleading, this patient was misdiagnosed with acne. Thus, when faced with an acne-like rash that is unresponsive to antibiotics, it is essential not only to consider factors such as decreased drug

sensitivity but also to suspect a *C. albicans* infection, regardless of whether the individual is healthy or not. Repeated microscopic examination and fungal cultures are necessary, and mNGS can help confirm the diagnosis.



**Figure 1:** (A) Facial lesions consisting of papules, acne, pustules, and yellow scabs at initial visit. (B) The skin lesions progressively deteriorated, presenting as an increase in papules and pustules, covered with thick, yellow-brown crusts after antibiotic treatment. (C) Clinical observation improved significantly after antifungal treatment. (D) The erythema continued to subside without recurrence.



**Figure 2:** Cultivation on Sabouraud's Dextrose Agar (SDA) at 25°C led to the emergence of distinctive white, smooth, and moist colonies after a seven-day incubation period.

## 2. Acknowledgments

We are grateful to the patient for agreeing to provide the valuable case for publication, which contributes to enhancing our understanding of facial skin candidiasis.

## 3. Conflicts of Interest

None declared.

## 4. Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## 5. Funding Information

No funding.

## 6. Consent from Patients

The patient and his parents have agreed to use his case information and images for publication and provided written informed consent.

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