Management of Cutaneous Mucormycosis During Induction Chemotherapy for Acute Myeloid Leukemia: A Case Report

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ABSTRACT

We report the case of a 37-year-old patient followed for acute myeloid leukemia, who developed an atypical lip lesion during the period of bone marrow aplasia following induction chemotherapy. The clinical course began with significant lip swelling, initially interpreted as an allergic reaction. Given its persistence and rapid worsening, an infectious origin was suspected,particularly facial cellulitis or abscess.

the lesion progressed rapidly over the following days, with infiltration of the surrounding soft tissues, a change in coloration to violaceous, and the subsequent appearance of areas of cutaneous and mucosal necrosis.

Examination by ENT specialist revealed an extensive, blackish, indurated swelling suggestive of underlying tissue ischemia.

Histopathological examination of a cutaneous biopsy specimen confirmed the presence of broad, ribbon-like, non-septate mycelial filaments consistent with mucormycosis, despite a negative mycological culture The extensive labial involvement caused major functional impairment, with inability to maintain adequate oral intake, resulting in significant weight loss and requiring liquid feeding combined with parenteral nutritional support. Appropriate systemic antifungal therapy, combined with regular local wound care, led to a favorable outcome, with progressive healing of the lesions.

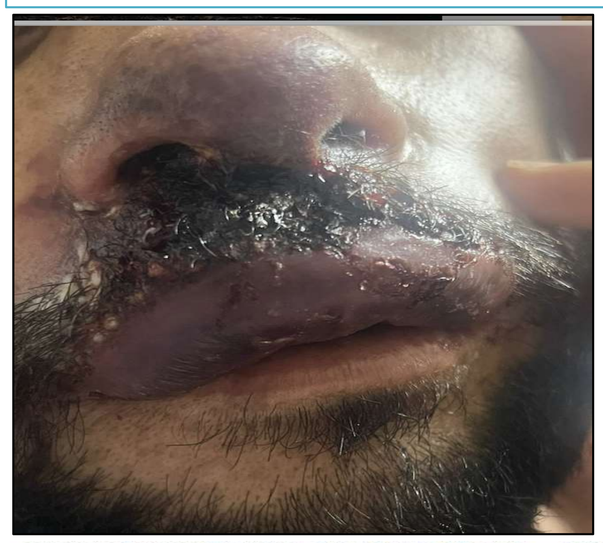

Figure 1 : Rapidly progressive violaceous–black necrotic labial lesion

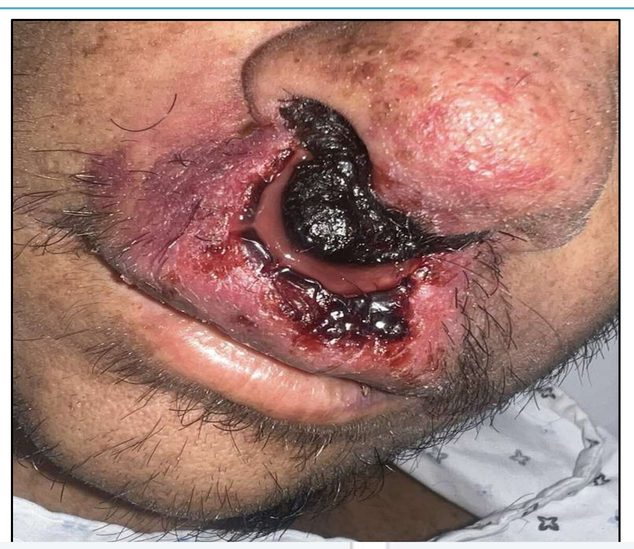

Figure 2 : Extensive blackish induration with cutaneous and mucosal necrosis.

HISTOPATHOLOGICAL CONFIRMATION — H&E

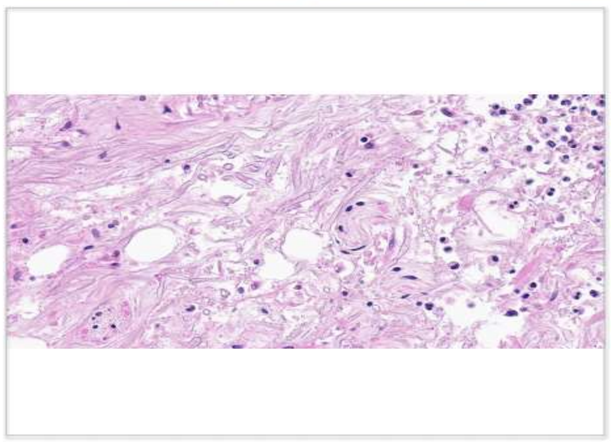

Figure 1. HE ×40 — Ulceration with dense fibrino-leukocytic exudate and extensive coagulative necrosis involving dermis and hypodermis.

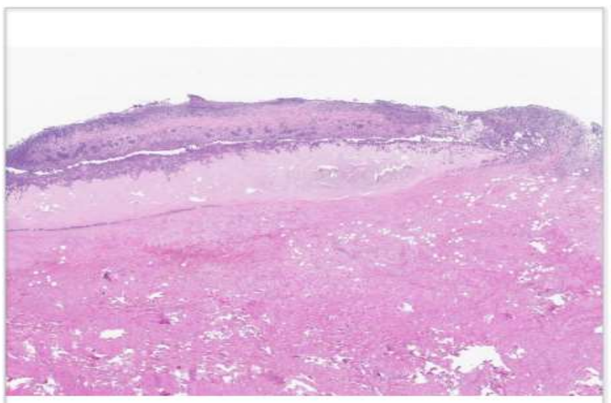

Figure 2. HE ×200 — Numerous fungal hyphae dispersed between collagen bundles in necrotic dermis.

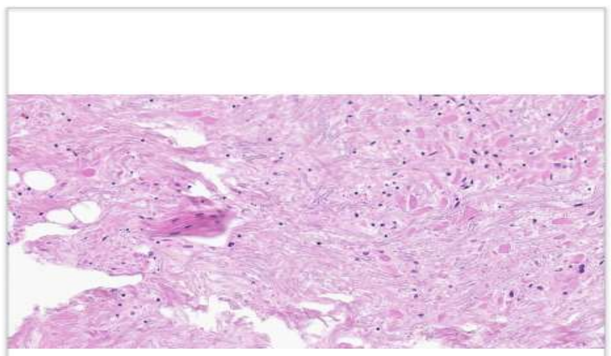

Figure 3. HE ×400 — Broad, ribbon-like, non- or pauci-septate hyphae with irregular right-angle branching, characteristic of Mucorales.

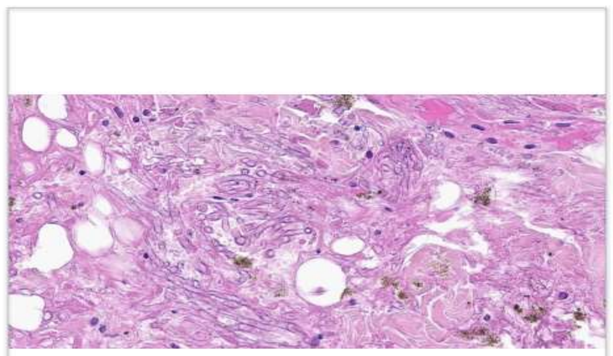

Figure 4. HE ×400 — Deep extension into adipose tissue with fungal elements and soft-tissue necrosis, supporting invasive angio-destructive infection.

DISCUSSION

Mucormycosis is an invasive fungal infection caused by fungi of the order *Mucorales*. It mainly affects immunocompromised patients, particularly those with hematological malignancies, prolonged neutropenia, or receiving intensive chemotherapy [1–3]. In patients with AL , profound and prolonged neutropenia represents one of the major risk factors for invasive mucormycosis.

Cutaneous mucormycosis is an uncommon form of the disease and may present with nonspecific clinical features. Early lesions can mimic bacterial cellulitis, abscesses, or allergic reactions, potentially leading to delayed diagnosis and treatment [3,5]. In our patient, the initial lip swelling was considered an allergic reaction and subsequently suspected to be of bacterial origin. However, the rapid progression of the lesion, associated with violaceous discoloration, induration, and mucocutaneous necrosis, was highly suggestive of an invasive fungal infection.

The characteristic tissue necrosis observed in mucormycosis is mainly related to the marked angioinvasive properties of *Mucorales*. Fungal hyphae invade blood vessels, causing thrombosis, ischemia, and subsequent tissue infarction [1,5]. Therefore, rapidly progressive necrotic lesions, particularly with blackish or violaceous discoloration, should prompt urgent investigation for mucormycosis in immunocompromised patients.

Diagnosis is based primarily on direct examination and histopathology, supported by fungal culture and, when available, molecular methods [1]. Histological examination typically demonstrates broad, irregular, ribbon-like, pauciseptate or non-septate hyphae. In our case, the diagnosis was established histopathologically despite a negative fungal culture. This highlights the limited sensitivity of culture and the importance of tissue examination when clinical suspicion is high [1,6,7]. A negative culture should therefore not exclude mucormycosis or delay treatment when compatible histopathological and clinical findings are present.

Management requires prompt initiation of effective antifungal therapy. Liposomal amphotericin B is considered the first-line treatment for most cases of invasive mucormycosis, while posaconazole or isavuconazole may be used in selected situations [1]. Surgical debridement should be considered when feasible, particularly in necrotic disease, and multidisciplinary management is often required [1,5].

CONCLUSION

This case highlights the importance of considering mucormycosis in any atypical cutaneous lesion in an immunocompromised patient, and the necessity of prompt, multidisciplinary, and comprehensive management to improve prognosis

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