# Appearance of a Rapidly Expanding Facial Eschar in a Severely Injured Trauma Patient

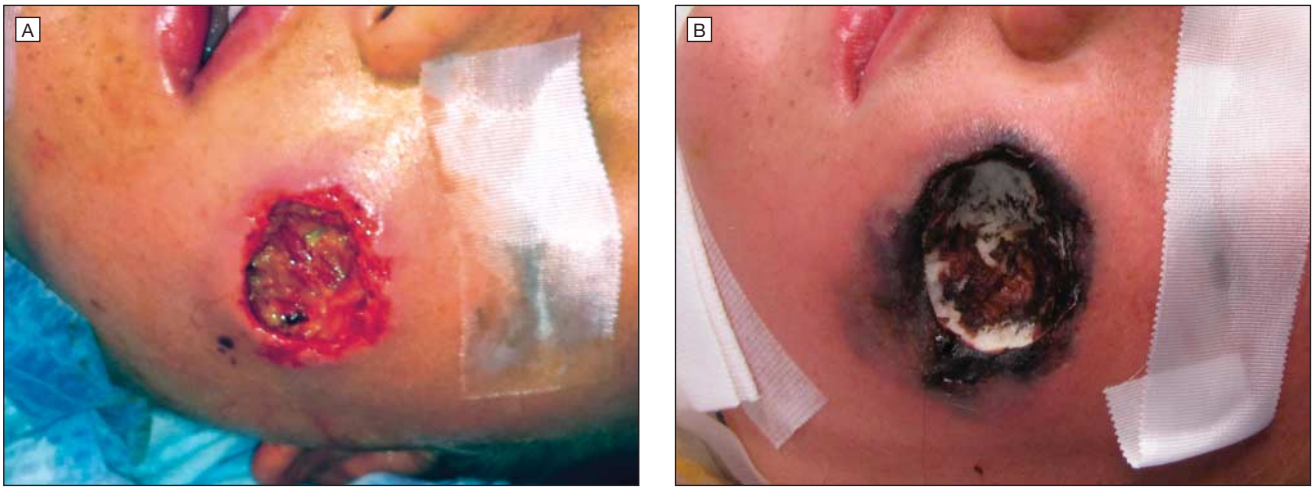


**Figure 1.** A, 4×4-cm left cheek wound with exposed zygomaticus major muscle. B, Cheek wound after wide local debridement 48 hours after the original procedure.

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A 21-YEAR-OLD WOMAN PRESENTS TO THE TRAUMA RESUSCITATION UNIT VIA helicopter transport following a motor vehicle crash. She was an unrestrained driver involved in a front-end collision and had a prolonged extrication from the vehicle. At the scene, she was unresponsive and underwent emergency intubation. She sustained multiple severe traumatic injuries including a ruptured spleen requiring abdominal exploration and splenectomy, atlantooccipital dislocation requiring halo placement, bilateral pelvic fractures requiring pelvic binder, and left lower extremity crush injury with multiple open fractures ultimately requiring a left hemipelvectomy. She underwent 38 operative interventions in a 3-week period.

The plastic surgery department is consulted 14 days after the initial crash to evaluate a 4×4-cm left cheek wound measuring 2.5 cm deep with exposed zygomaticus major muscle (FIGURE 1A). In the ensuing 48 hours, the wound rapidly progresses and develops a necrotic eschar (Figure 1B).

## What Would You Do Next?

A. Do nothing; the wound will resolve and granulate over time
B. Obtain a biopsy of the lesion
C. Perform surgical debridement in the operating room
D. Prescribe intravenous antibiotics

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## Diagnosis

Cutaneous mucormycosis

## What to Do Next

C. Perform surgical debridement in the operating room

The key clinical feature in this case is making the diagnosis of rapidly spreading cutaneous fungal infection. The presence of fuzzy, nonsuppurative necrosis in a critically ill patient should raise the possibility of mucormycosis. Rapidly spreading necrotic soft tissue infections are an indication for emergency surgical debridement.

## Comment

Mucormycosis primarily affects patients who are undergoing immunosuppressive therapy, have hematologic malignancies, or have diabetes mellitus.[1] The most common clinical presentation is rhinocerebral infection in a patient with diabetes.[2] Mucormycosis is not common in trauma patients who have no other risk factors. Mucormycosis can manifest as a superficial or deep infection or can appear as pustules, blisters, nodules, necrotic ulcerations, echthyma gangrenosum–like lesions, or necrotizing cellulitis. A skin biopsy is required for diagnosis. Cultures and fungal stains of wound swabs are not sensitive and may give misleading microbiological results.[3]

Prevention of disseminated infection is of primary concern in patients presenting with cutaneous mucormycosis. There have been occasional case reports of dissemination of the cutaneous form to the lungs, causing severe pulmonary involvement.[4] Prevention of disseminated disease can be accomplished by wide local excision of the lesion with primary or secondary skin grafting and intravenous administration of amphotericin B.[5-7]

## Patient Outcome

Pathology of the lesion from the initial debridement revealed invasion of nonseptate hyphae into the epidermal vasculature leading to thrombosis of the involved vessel (FIGURE 2A). The patient was treated with wide debridement of the wound. Doing nothing would result in rapid progression of the infection and likely development of fungal sepsis. Prescribing oral antibiotics would have no effect on the fungus. Although secondary infection can be a concern with cutaneous mucormycosis, antibiotics were not clinically indicated in this case as evidenced by the lack of surrounding cellulitis and purulent fluid drainage. Obtaining a biopsy would provide relevant information; however, this would not occur in a timely manner.

Amphotericin B was initiated for presumed mucormycosis, and the patient underwent daily surgical debridement, but her course deteriorated. Prior to developing significant metabolic acidosis, control of the cutaneous facial mucormycosis was obtained.

Over the next 7 days the patient was taken back to the operating room every 24 hours for aggressive management of her injuries and abdominal exploration. Disseminated mucormycosis was noted on intra-abdominal exploration. In addition, the right lower extremity and left hemipelvectomy site also became infected with mucormycosis. Subsequently, the patient required increased ventilatory support and high-dose vasopressor therapy for profound sepsis. A discussion was held with the family regarding the patient's critical condition and her continued deterioration despite maximum operative and medical therapy. The family decided to withdraw life support, and the patient died.

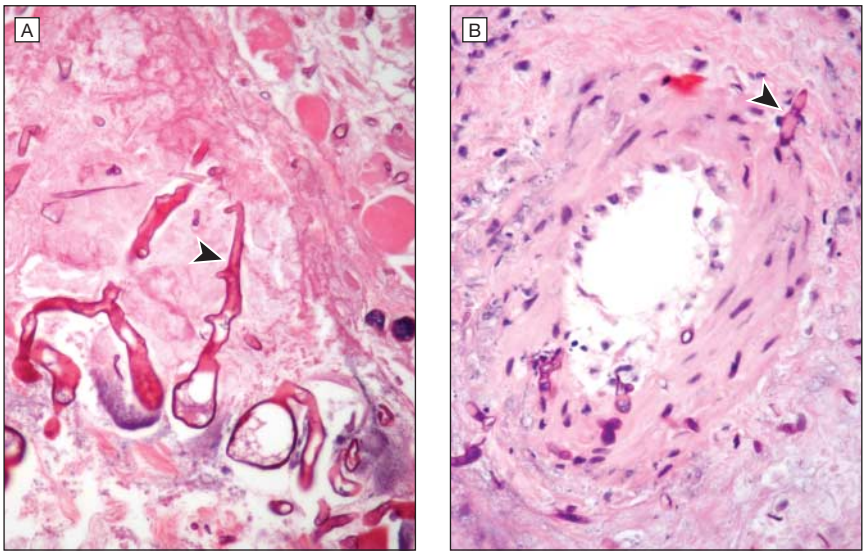


**Figure 2.** A, Biopsy of the initial lesion showing dark pink nonseptate fungal hyphae (arrowhead)(periodic acid–Schiff, original magnification ×600). B, Angioinvasive fungal hyphae (arrowhead)(periodic acid–Schiff, original magnification ×400).

**Conflict of Interest Disclosures:** The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.
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