Cutaneous mucormycosis extending to deeper soft tissues is a life-threatening complication in trauma patients. Case reports demonstrate invasive fungal infections from direct inoculation arising from trauma due to motor vehicle accidents (MVA), tornadoes, tsunamis, and blast injuries. Upon review of the literature, there are only 4 case reports of mucormycosis of the parotid gland, all involving patients with diabetes or leukemia. Our patient’s case is unique, given a lack of premorbid immunosuppression; however, his poly-traumatic injuries, prolonged intensive care unit (ICU) course with multi-organ failure, and numerous blood transfusions certainly caused transient immune suppression. In addition, our patient’s case is complicated by a full-thickness pressure necrosis of the face overlying the parotid gland associated with a commercially available endotracheal tube (ETT) bridle—which has not been reported in the literature.

We present a 43-year-old Hispanic male who was transferred to our level-I trauma center after an MVA with ejection. The patient presented with a complex scalp avulsion injury, in addition to multiple thoracoabdominal and orthopedic injuries. On hospital day (HD) #1, the patient was taken to the operating room (OR) for irrigation and debridement of his scalp wound and was started on empiric antibiotics. The patient’s scalp wound demonstrated ongoing suppuration requiring repeat washouts and broad-spectrum antibiotics. On HD#4, the patient had a cardiac arrest and was placed on extracorporeal membrane oxygenation. Daily scalp wound care was rendered for 2 weeks. On HD #16, the patient’s ETT bridle was manipulated and a black facial eschar was identified directly beneath the bridle associated with midface paresis (Figure 1). Definitive surgical management was delayed due to patient instability until HD#26 when he was taken to the OR for further scalp debridement and facial soft tissue debridement that amounted to superficial parotidectomy. Surgical pathology demonstrated fat necrosis with fungal elements, aseptate hyphae with 90-degree angle branching, suggesting mucormycosis (Figure 2A-B). The patient was started on IV amphotericin B and micafungin—which he remained on for several months. He was ultimately taken to the OR on HD# 28 for subtotal parotidectomy with sparing of frontal branches of the facial nerve and cheek reconstruction with

Figure 1. Full-thickness facial necrosis revealed beneath endotracheal tube fastener.
split-thickness skin grafting. Despite his tenuous course, the patient fully recovered and was discharged from the hospital. At last clinic follow-up, he was doing well with routine healing and permanent midface paresis (Figure 3).

Cutaneous mucormycosis extending to deeper soft tissues of the head and neck is a rare disease entity. We believe that this patient’s invasive fungal infection was likely multifactorial. Facial skin breakdown and mucosal injuries are known adverse effects of endotracheal tube securement devices, and certain fasteners have fewer adverse effects than others, that is, skin breakdown and accidental extubation. However, to our knowledge, full-thickness necrosis of the face has not been reported as a known complication of ETT fasteners. It is our belief that the patient may have had prolonged pressure on his left face due to a right internal jugular vein central line used for continuous renal replacement therapy. A second contributing factor to development of the patient’s infection was direct inoculation of fungal spores into the scalp during the initial traumatic event that spread through local invasion.

Invasive fungal infections in the ICU often present with non-specific symptoms that may predispose to underdiagnosis. At this time, serologic tests are neither sensitive nor specific for diagnosing mucorales infections. In addition, occult fungal colonization may develop into rampant infections in traumatic wounds in otherwise immunocompetent patients. In a case series of 21 patients with cutaneous mucormycosis, 75% were immunocompetent and 56% had traumatic injuries, most of which were MVAs (78%).

Aggressive surgical debridement is the principle management for cutaneous mucormycosis extending to deeper soft tissues of the head and neck. Intravenous antifungals and wound care are helpful adjuncts. There must be a low index of suspicion for mucormycosis in a contaminated wound that is exhibiting signs of delayed healing or persistent infection despite aggressive wound care, surgical washouts, and antimicrobial therapy. This case highlights a rare complication of an ETT bridle—full-thickness necrosis of the face in a patient with scalp trauma after an MVA. This extraordinary complication emphasizes the importance of daily bedside physical examination in ICU patients who remain intubated for prolonged periods. A greater index of suspicion for occult invasive fungal infections must be emphasized for facial trauma patients, particularly MVAs.

**Author’s note**

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