Multiple Midface Degloving Injury in an Elderly Man: Challenges and Management Outcome

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We present a case of multiple degloving injuries in an elderly man following a fall from a palm tree. Multiple midface injuries are very rare, although individual types have been reported. Our patient sustained injuries in the lower and middle thirds of the face, including multiple tongue lacerations and a deep jagged laceration at the lower posterior part of the neck with a piece of wood in place. The facial degloving injury in this case posed an immediate danger from disruption of the respiratory system and hemorrhage. Emergency care involved prevention of respiratory embarrassment through a tracheostomy, maintenance of hemostasis and wound contamination. All the bone fractures were immobilized using interosseous wires and the avulsed nasal cartilage was immobilized with polyglactin 910 sutures against the anterior nasal spine. This case was unique because it was possible to manage the various challenges and significant risk to life by emergency tracheostomy and adoption of a multidisciplinary approach.

Key words: injury ■ trauma ■ trachea ■ emergency care ■ surgery

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INTRODUCTION

Facial injuries resulting from falls have been previously reported from northern[1] and eastern[2] parts of Nigeria. Palm wine-tapping is an important traditional economic activity in rural parts of Nigeria. The palm wine serves social and religious functions among many ethnic groups. The professional activity of wine-tapping is widely seen as an exclusive preserve of few men with the delicate skill.[2]

Soft-tissue injuries of the face are particularly common, but most of the time the supporting bony structures tend to be involved.[3] Once the bony structure of the face is involved, the management becomes challenging. Soft-tissue injuries of the facial region that result from a shearing or stripping force are termed degloving injuries. Degloving injuries are described best in relation to injuries of the hand, but other parts can be involved such as the external nose and mandible.[4] It may also follow an unusual foreign body[5] injury and may be associated with mental protuberance.[6] The intriguing thing about degloving injury on the face is that it can involve varying levels of injuries, which makes it life threatening.

Degloving injury of the facial region is an uncommon trauma, and to the best of the authors' knowledge, there is paucity of such reports in the literature.

CASE REPORT

A 61-year-old farmer presented within two hours of falling from a palm tree while tapping wine. He had apparently climbed up to about 4 m high when the jig for climbing snapped, following which he fell head first (on his face) over a protruding branch. There was, however, no loss of consciousness in spite of the fact that he bled profusely from his multiple orofacial lacerations.

Detailed examination was impossible without significant risk to survival considering his clinical state, so an emergency tracheostomy was done. Examination under anesthesia following intubation revealed multiple degloving injuries (Figure 1). These included the right lower eyelid with exposure of the floor of the right orbit, complete avulsion of the anterior nose, fracture of the nasal bone, gapping and partial avulsion of the right cheek, bilateral fracture of the body of edentulous mandible. Other facial trauma included Le Fort I type midface fracture, multiple tongue laceration and a deep jagged laceration at the lower posterior part of the neck with a piece of wood in place.

Hemostatic sutures were put in place and tetanus prophylaxis and antibiotics were administered. Subsequently, a thorough debridement of all the wounds, as well as reduction and immobilization of fractured bones were done under general anesthesia. The mandibular fractures and Le Fort I were immobilized using interosseous wires (0.35 mm), while the avulsed nasal cartilage was immobilized against the anterior nasal spine using polyglactin

910 sutures. All lacerations were sutured in layers using polyglactin 910 suture with sterile dressing. The patient did not have a radiograph done because the relations were frightened by his clinical state and thought he would not survive the injury and as such were not prepared to waste their money on investigations. The hospital's emergency pack was used to stabilize the patient.

Postoperative Management

The patient was fed on a protein-rich liquid diet through a nasogastric tube, and good oral hygiene was maintained with a warm saline mouth bath. He had a smooth recovery, but there was a breakdown of the right infraorbital wound (Figure 2) that produced a triangular skin defect that was secondarily reconstructed with a skin flap from the right postauricular region. He was discharged in a satisfactory condition after 70 days without features of facial nerve palsy.

DISCUSSION

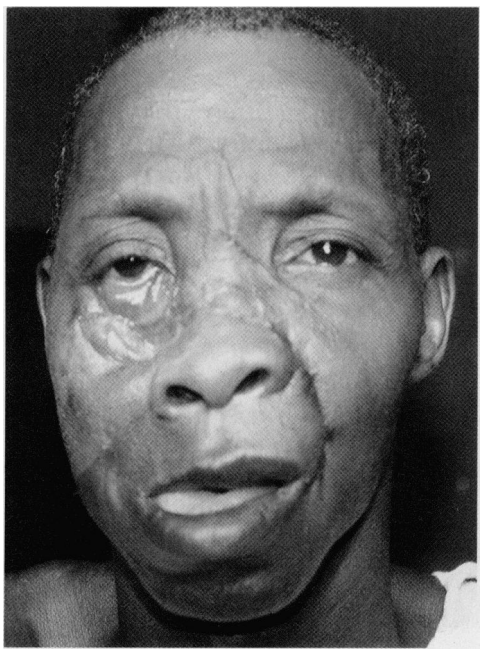
Palm wine-tapping is an economic exercise that had been in existence for ages.[2] Traditionally, the jig used for

Figure 1. Presentation at the emergency department. A, B and C show the multiple degloving injuries. D shows the patient with hemostatic sutures and tracheostomy.

climbing trees is obtained from palm fronds and tend to be poorly resilient and sometimes develops weak points with use. They are also prone to snapping during the periods of low humidity due to reduction in their tensile strength.[2] Previous reports on falls from a palm tree in Nigeria have found it to be the most common cause of spinal cord injury,[5] which was absent in our patient. Barss et al.[7] had previously reported that head and chest trauma were the commonest causes of death in victims of fall from trees, but it is likely that victims with facial injuries might have died from their more severe head and chest injuries and failed to present for medical attention. The mechanism of degloving injury has been attributed to a shearing force with attending shearing action on the tissues. In our patient, considering the direction of force on the jig, injury to the back should have been the most probable but was absent. The possibilities are that he fell head down, and the shearing force was directed mid-face towards the jaw or he was caught in the stump of another tree nearby. Anesthetic consideration and challenges in this patient included the need for proper airway management, as the extent of injury frequently results in a compromised airway.

The term "degloving" also describes a technique for the management of various facial traumas with possibility of avoidance of a superficial scar in major facial fracture correction. Even though mid-facial traumatic degloving injuries tend to be life threatening, the suture lines in this case were easily identified, and the fractures (bilateral fracture of the edentulous body of the mandible and Le-Fort I mid-face fracture) were easy to reduce under direct visualization. Each of these degloving injuries had previously been reported singly but never as multiple degloving injuries as seen in our patient. The small bones of the face around the nasal bridge were properly aligned, but there was a significant problem with support for the area. Soft-tissue repositioning was done in layers because improper repositioning of soft tissues predisposes the site to deformities with subsequent adverse effects on the aesthetics of the final result.[8] The challenge in treating patients with injuries sustained in craniofacial trauma is to reinstate preinjury facial projection and function.[9] Also, traumatic lesions of the soft tissues of the face may have an important social impact affecting vital functions of the face as well as aesthetics. Despite some tolerance in adapting to tissue loss, major tissues of the face need to be reconstructed at all levels.[10] Frequently, treatment is most successful if reconstructions are performed atraumatically, using well-vascularized tissues and respecting the aesthetic units of the face.

Figure 2. The patient some weeks after the primary treatment with infraorbital defect. Tracheostomy had been closed then.



Wound contamination was an unquestionable risk factor with which we had to contend. Despite various precautionary measures, such as thorough debridement and proper antibiotic coverage, there was wound dehiscence at the right infraorbital area, resulting in a triangular skin defect that was subsequently managed with a free skin graft from the right postauricular region. The graft was successful and aesthetically acceptable. Inadequate bony support for the soft tissues could probably have contributed to the wound dehiscence.

In view of the multiple degloving injuries and multiple lacerations of the tongue, and compromised oral status, adequate nutrition supplied by the institution's diet department was provided through nasogastric tube. This was maintained until the oral status improved with adequate deglutition. The long hospital stay was a reflection of the following risk factors, namely severity of the injury, compromised oral function, age and wound contamination.

He was followed-up in the clinic for about three months before he was lost to follow-up. This is a usual pattern in our environment once patients are satisfied with the outcome of their care.[11] The financial implication of coming to the hospital may be responsible for failure to honor the follow-up appointment and also contributory towards our patient's being lost to follow-up.

The multiple degloving injuries make this case unique and the challenges therein worth sharing. In view of the various challenges posed by this presentation with significant risk to life, a multidisciplinary team approach was adopted. Urgent care for degloving injuries is important with emphasis on good airway maintenance and adequate nutrition.

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