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TRAUMATIC OPEN GLOBE INJURY AND COMPLEX FACIAL FRACTURES FOLLOWING ANIMAL STRIKE: A CASE REPORT

Ophthalomology

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ABSTRACT

Introduction and Background: Open globe injuries resulting from high-velocity blunt or penetrating trauma are severe ocular emergencies that often lead to profound visual impairment. Maxillofacial and ocular injuries secondary to large animal strikes, such as a horse kick, are rare but devastating due to the massive transfer of kinetic energy. **Objective:** To report a complex case of a left eye open globe injury with extensive scleral tearing and uveal prolapse accompanied by multiple facial and orbital fractures following equestrian trauma.**Method:** A 23-year-old male presented to the casualty ophthalmology department at Dr. D. Y. Patil Medical College Hospital, Kolhapur, following a horse kick to the face. Detailed ophthalmic evaluation, multi-disciplinary consultations, computed tomography (CT) imaging of the face and orbits, and subsequent surgical intervention were performed. **Results:** Visual acuity in the left eye was no perception of light (No PL). Clinical examination revealed a massive full-thickness scleral tear from 9 to 4 o'clock with significant active uveal tissue prolapse, total hyphema, and multiple deep eyelid lacerations. Imaging confirmed a ruptured globe along with blowout and blow-in fractures of the left orbit, left maxillary sinus fractures, and a segmental zygomatic arch fracture. The patient underwent extensive primary scleral tear suturing, uveal tissue management, and wound repair under local anesthesia.**Summary and Conclusion:** Equestrian-related facial trauma can cause catastrophic structural ocular damage including massive scleral ruptures with tissue prolapse. Prompt multidisciplinary evaluation and meticulous primary surgical repair are critical for anatomical globe preservation and mitigating risks of severe complications like sympathetic ophthalmia, even when visual prognosis is poor.

KEYWORDS

Open Globe Injury; Globe Rupture; Orbital Fracture; Maxillofacial Trauma; Scleral Tear; Uveal Prolapse.

INTRODUCTION

Open globe injuries (OGI) represent a major cause of preventable monocular blindness worldwide. Trauma involving large animals, such as horses, is relatively uncommon but is notorious for inflicting massive kinetic energy upon impact. A kick from a horse can easily shatter the protective bony architecture of the orbit and face, leading to complex midface fractures and direct or indirect rupture of the globe. These massive forces frequently result in extensive scleral tears with secondary herniation or prolapse of intraocular contents, particularly the highly vascular uveal tissue. Managing such cases presents a significant clinical challenge, requiring prompt primary repair to manage the prolapsed tissues, prevent infection, and restore globe integrity, alongside a multidisciplinary approach involving ophthalmology, otorhinolaryngology (ENT), and oral and maxillofacial surgery (OMFS) to address concomitant injuries. We report the clinical presentation, radiological findings, and surgical management of a young male who sustained an open globe injury with severe uveal prolapse and complex facial fractures following a horse kick.

Patient and Methods

A 23-year-old male patient presented to the casualty department of Dr. D. Y. Patil Medical College Hospital and Research Institute, Kolhapur, with a history of penetrating trauma to the left side of his face by a horse foot on June 14, 2026, at 1:00 PM near Nippani Nagar. The patient had received primary treatment and an initial CT scan of the brain and orbit at a private hospital in Nippani, before being referred to our center for definitive management. He reported active nose bleed following the injury and experienced 6 episodes of vomiting. There was no history of loss of consciousness or seizures. His medical history was negative for previous ocular trauma, surgery, or known drug allergies, though he reported a two-year history of tobacco and alcohol use.

A comprehensive emergency ophthalmic and systemic examination was conducted. Vital signs were stable. Given the mechanism of injury, urgent multidisciplinary referrals to ENT, OMFS, and General Medicine were initiated. Standard hematological investigations and a High-Resolution 3D CT scan of the face and paranasal sinuses (PNS) were performed to delineate the extent of the bony injuries.

Figure-1 showing complex lacerations

RESULTS

Upon ophthalmic examination, the right eye was largely unremarkable with a visual acuity of counting fingers at 6 meters. The left eye (LE), however, demonstrated no perception of light (No PL). Eyelid evaluation of the left eye revealed significant edema and multiple complex lacerations: a 2x1x1 cm full-thickness lacerated wound (CLW) near the inner canthus involving the lacrimal sac and both canaliculi; a 5x2x2 cm CLW near the outer canthus extending below the lower lid laterally; and an additional stab wound lateral to the lateral canthus.

Anterior segment examination of the left eye showed severe conjunctival congestion and chemosis. Crucially, a massive full-thickness scleral tear was identified running parallel to the limbus. It extended extensively from the nasal to the temporal aspect, with the temporal end initially obscured from view due to severe tissue disruption and hemorrhage. Active uveal tissue prolapse was prominently noted extruding through the nasal portion of the scleral tear. The cornea was hazy and a total hyphema obscured any further view of the anterior chamber, iris, pupil, or lens.

Radiological evaluation via CT 3D Face and PNS revealed devastating structural damage: a near-completely collapsed left eyeball with irregular shape and intraocular hemorrhage, highly suggestive of globe rupture. Bony injuries included complex fractures of the anterior, medial, and posterolateral walls of the left maxillary sinus with hemosinus; left orbital blowout and blow-in fractures involving the

medial wall, floor, and lateral wall; and a segmental fracture of the left zygomatic arch. Additionally, extensive periorbital and subcutaneous hematomas were noted, alongside a left deviated nasal septum.

Figure 2 showing radiological findings in CT PNS and CT 3D face

The patient was admitted and commenced on broad-spectrum intravenous antibiotics (Inj. Piperacillin-Tazobactam and Metronidazole), IV Methylprednisolone, and antiemetics. On June 16, 2026, the patient underwent left eye scleral tear suturing under local anesthesia (peribulbar block) with monitored anesthesia care. Intraoperatively, the full extent of the scleral rupture was delineated: the tear spanned a massive arc extending from the 9 to 4 o'clock positions. It was located exactly 3 mm away from and parallel to the limbus, extending continuously towards the medial canthus. A meticulous wound exploration and copious wash were performed using normal saline and betadine, confirming the absence of any intraocular foreign bodies in the wound. The prolapsed uveal tissue was carefully managed to restore the anatomical integrity of the globe and prevent further incarceration. The extensive scleral defect was then meticulously approximated and secured using 10 interrupted 6-0 Prolene sutures placed evenly from the 9 to 4 o'clock extent of the tear. To further stabilize the ocular surface, stay sutures were placed on the conjunctiva specifically at the 9 and 4 o'clock positions. The extensive eyelid and canthal lacerations were meticulously repaired using deep interrupted 6-0 Vicryl sutures and 6-0 Prolene for the skin.

Postoperatively, the patient exhibited a reduction in lid edema and conjunctival chemosis, and the scleral and skin sutures remained intact with no active oozing. He was discharged on June 20, 2026, on a regimen of oral tapering steroids (Tab. Omnacortil), antibiotics (Tab. Amoxyclav), analgesics, and topical ophthalmic drops (Vigamox eye drops and Natamet eye drops and Ocupol eye ointment).

Figure 3 showing Intra operative photos-

Figure 4 showing Post operative photos(POD-0)-

Figure 5 showing Post operative photos(after suture removal)-

DISCUSSION

Open globe injuries combined with extensive maxillofacial trauma present formidable challenges in preservation of both ocular architecture and visual function. Animal-related injuries, particularly those from horses, are characterized by immense blunt force, which dramatically elevates intraocular pressure to the point of global rupture, often at the thinnest points such as the limbus or insertions of the extraocular muscles.

In this patient, the massive impact not only shattered the orbital floor and medial walls but caused a devastating equatorial scleral tear spanning from the 9 to 4 o'clock meridians, located 3 mm parallel to the limbus. The presence of active, extensive uveal tissue prolapse through this massive defect significantly complicated the injury. Uveal prolapse indicates severe disruption of the globe's structural integrity and drastically increases the risk for blinding complications, including virulent intraocular infection (endophthalmitis) and the catastrophic, bilateral autoimmune response known as sympathetic ophthalmia.

The immediate priority in such trauma is the meticulous exploration and restoration of globe integrity. Intraoperatively, thorough irrigation with normal saline and betadine and careful management of the incarcerated uvea were paramount before securely closing the massive defect with multiple interrupted sutures. While anatomical primary suturing was successfully achieved and the globe structure salvaged, the visual prognosis remains exceedingly guarded (No PL) due to the severity of the initial trauma, the profound uveal disruption, the presence of total hyphema, and the likely extensive damage to the posterior segment. The case underscores the necessity of high-resolution 3D CT imaging to accurately map complex fractures, as clinical examination alone is often limited by massive periorbital edema and soft tissue disruption. Multidisciplinary involvement was crucial to comprehensively address the associated zygomatic and maxillary fractures.

CONCLUSION

Equestrian-related maxillofacial trauma can inflict catastrophic open globe injuries alongside complex orbital and facial fractures. Extensive scleral ruptures with uveal prolapse require highly meticulous surgical exploration and anatomical repair to salvage the globe and prevent sympathetic ophthalmia. While the primary goal of urgent surgical intervention is anatomical closure, visual recovery is often limited by the profound intraocular disruption. This case highlights the vital role of prompt, multidisciplinary emergency care and advanced radiological imaging in managing devastating traumatic facial injuries.

Patient Consent

Written informed consent was obtained from the patient for the publication of clinical details and medical records. Efforts have been made to maintain patient confidentiality and anonymity.

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Conflicts of Interest

There are no conflicts of interest.

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