



Post-traumatic Anterior Globe Luxation

Othmane Nassaf MD, Abdessamad Daoui MD, Nabil Bouslous PhD, Omar Moustaine PhD
Department of Ophthalmology, Mohammed VI University Hospital Center, Agadir, Morocco

DOI: 10.62856/djcro.v10.85

*Corresponding Author

Othmane Nassaf MD

E-mail: othmane.nassaf@gmail.com

Introduction

Post-traumatic globe luxation is an exceptional emergency in which the globe is displaced anteriorly beyond the palpebral fissure and becomes incarcerated anteriorly beyond the eyelids.^{1,2} It usually follows orbito-facial trauma and may be associated with extraocular muscle disruption and, in severe cases, optic nerve avulsion with immediate and irreversible vision loss. Visual and motility outcomes depend on the extent of injury to intraorbital structures and on the rapidity of reduction. We report an unusual case of traumatic anterior globe luxation caused by a finger assault, successfully managed with manual reduction and conservative therapy.

Case Report

A 28-year-old male with no notable medical history presented to the ophthalmic emergency department of Mohammed VI University Hospital Center in Agadir, Morocco for severe pain and redness of the left eye after an assault earlier in the day. The aggressor forcefully introduced an index finger beneath the superior orbital rim, resulting in immediate anterior displacement of the globe.

On admission, the left globe was luxated anteriorly, with the globe incarcerated behind markedly edematous eyelids that were displaced posterior to the equator (Figure 1). Visual acuity in the affected eye was 20/200. Direct and consensual pupillary light reflexes were normal. Ocular motility was markedly limited and very painful.

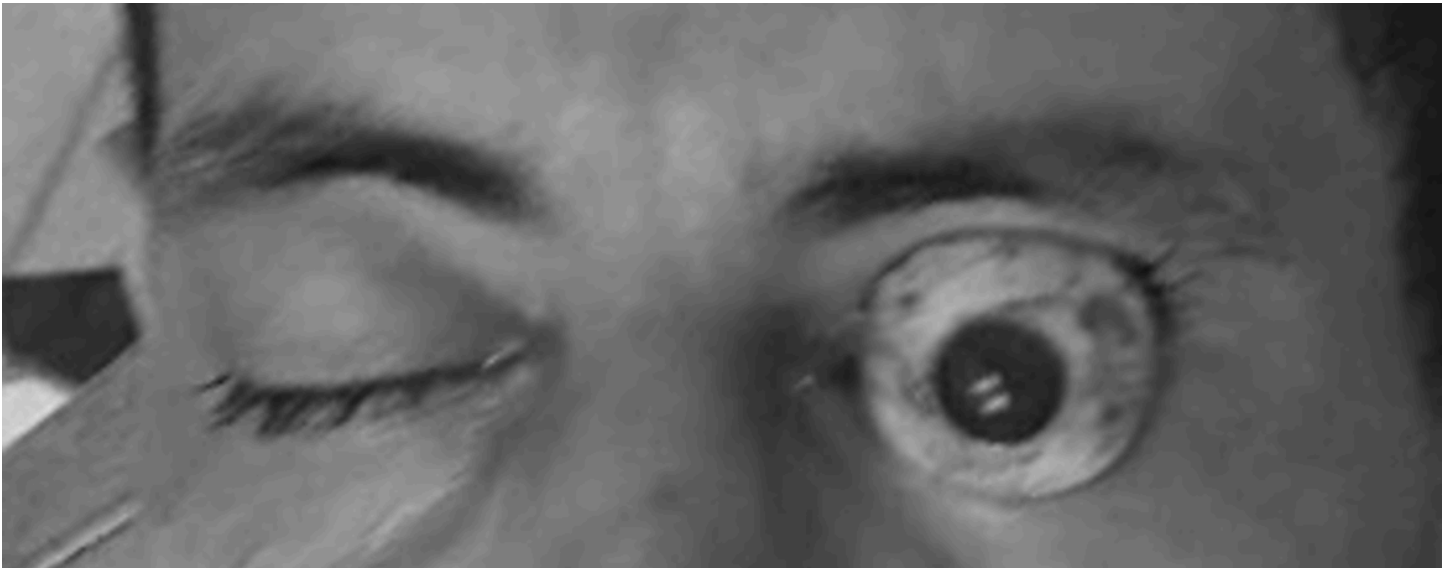


Figure 1. Post-traumatic luxation of the left ocular globe with anterior incarceration of the ocular globe beyond the eyelids.

Slit lamp examination showed conjunctival chemosis with mild corneal edema. The anterior chamber was deep and quiet, the lens was clear, and there was no sign of open globe injury. Intraocular pressure was 20 mmHg. Fundus examination was unremarkable, with a normal-appearing optic disc. The fellow eye examination was normal.

Emergency management consisted of prompt eyelid disengagement and globe reduction. After topical anesthesia and adequate patient positioning, the upper eyelid was lifted with a Desmarres lid retractor while the patient was instructed to look downward (Figure 2). Gentle pressure was applied to the globe with the examiner's index finger, directing it inferiorly and posteriorly until the upper and then lower eyelid was freed and returned to their normal position (Figure 3).

Post-reduction treatment included oral prednisone 1 mg/kg/day for 5 days, analgesia (paracetamol–codeine), and topical antibiotic–steroid therapy (framycetin sulfate/dexamethasone sodium phosphate drops and ointment) with lubricating drops (hyaluronic acid) for 10 days. The outcome was favorable. Within 48 hours, pain markedly regressed, intraocular pressure normalized to 14 mmHg, extraocular motility improved, and visual acuity recovered to 20/20.



Figure 2. Immediate result after reduction using a Desmarres retractor.

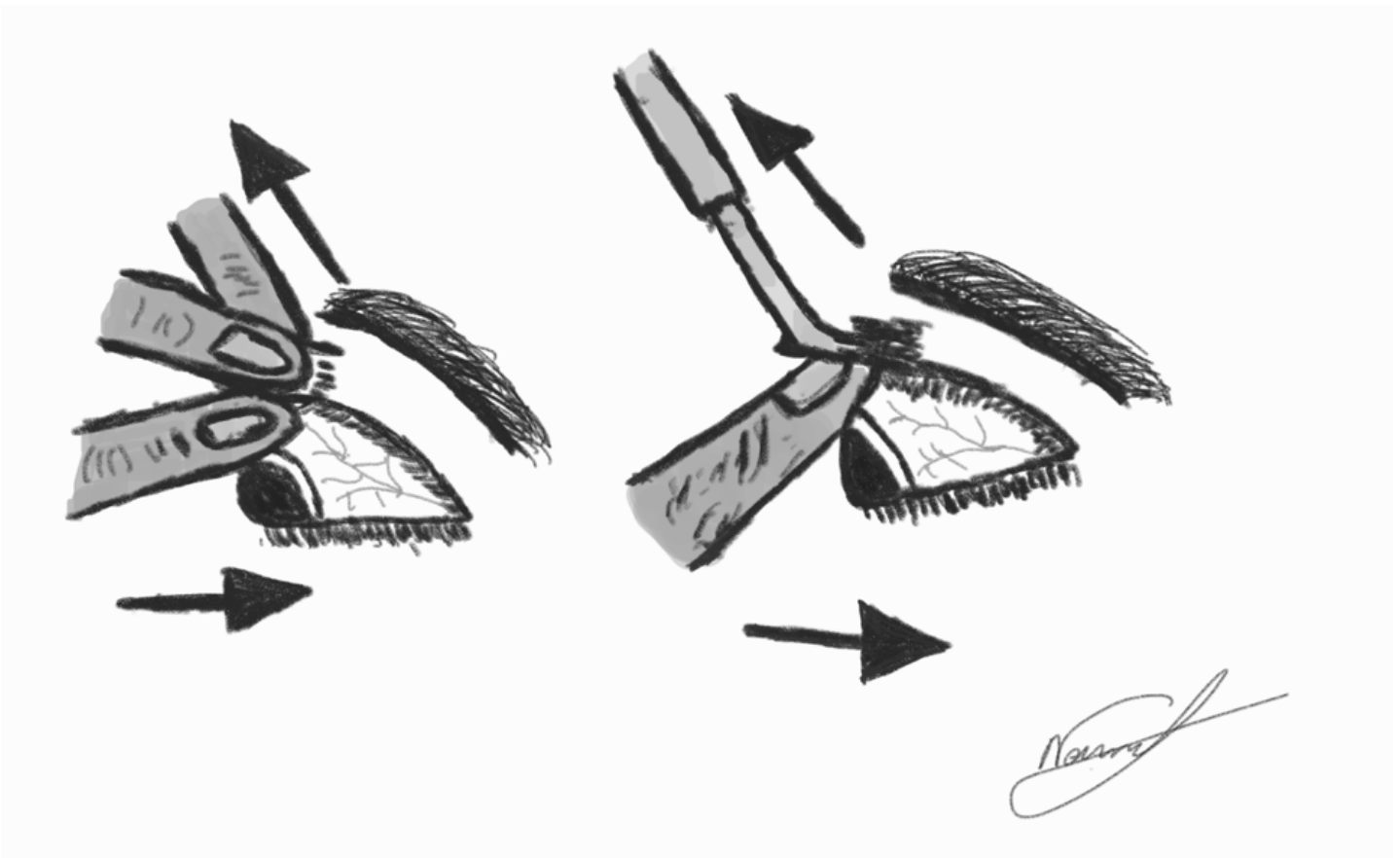


Figure 3. Illustration of the manual technique to reposition the luxated ocular globe using a Desmarres lid lifter.

Discussion

Traumatic anterior globe luxation is an uncommon entity, and most reported cases occur after high-energy orbito-facial trauma. Depending on the mechanism, the globe may either be expelled anteriorly beyond the eyelids (luxation/subluxation) or displaced into the paranasal sinuses through an orbital wall fracture (globe dislocation).¹ In addition, non-traumatic luxation has been described in conditions that predispose to shallow orbits or eyelid laxity such as craniofacial dysostosis, thyroid eye disease, orbital tumors, and floppy eyelid syndrome. The primary concern in traumatic luxation is the frequent association with sight and life-threatening injuries: optic nerve avulsion or transection, extraocular muscle disinsertion (most often the medial rectus), globe rupture, orbital fractures, and intracranial complications.³⁻⁶ Accordingly, once the globe is protected (copious lubrication, moist shield) and the patient stabilized, urgent imaging, typically orbital and craniofacial CT, should be performed to evaluate fractures, muscle disruption, optic nerve integrity, and associated cranial injury.⁴⁻⁶

When the globe is intact, and some visual function persists, rapid reduction is recommended to minimize ischemia, corneal exposure, and secondary damage.⁷ The technique used in our patient, disengagement of the eyelids with Desmarres retractors combined with gentle posterior, inferior pressure, has been reported as a simple, effective approach that can often be performed under topical anesthesia in a cooperative patient.⁷ Alternative or adjunctive maneuvers include lateral canthotomy/cantholysis in cases of severe eyelid tightness and reduction under sedation or general anesthesia when required.

Management after reduction is individualized. Topical lubrication and broad-spectrum topical antibiotics are commonly used to prevent exposure keratopathy and infectious complications when there is conjunctival or eyelid injury. Systemic corticosteroids are sometimes administered to reduce soft tissue edema and to support optic nerve perfusion when traumatic optic neuropathy is suspected; however, evidence is limited, and practice varies.⁸

If extraocular muscles are disinserted, early surgical exploration and repair (often within 7–10 days) is advocated by several authors to reduce the risk of fibrosis, restrictive strabismus, and poor cosmesis.³⁻⁵ In cases with optic nerve avulsion and no visual potential, many contemporary reports still favor attempted globe repositioning for psychological and cosmetic reasons, with secondary enucleation reserved for painful blind eyes, infection, or phthisis.⁶⁻⁹ Long-term follow-up is essential to monitor for exposure keratopathy, restrictive motility, optic nerve-related sequelae, and late socket complications. Although orbital CT is recommended to exclude fractures and muscle disinsertion,⁴⁻⁶ imaging was deferred in our case given the rapid clinical improvement and absence of diplopia or enophthalmos at follow-up.

Our patient had preserved pupillary responses and a normal fundus, suggesting an intact optic nerve and no clinical signs of globe rupture. Prompt manual reduction led to rapid improvement in pain, intraocular pressure, and vision, emphasizing the importance of immediate management when the globe is salvageable.

Conclusion

Post-traumatic anterior globe luxation is an exceptionally rare ophthalmic emergency. When the globe is intact and optic nerve function is preserved, immediate eyelid disengagement and globe reduction are key to improving prognosis and preserving vision. Comprehensive assessment for associated orbital and craniofacial injuries, appropriate medical therapy, and close follow-up are essential.

References

1. Ern KKJ, Muhammed J, Amin NH, et al. Traumatic Globe Luxation and Optic Nerve Avulsion: A Case Report and Literature Review. *Cureus*. 2024;16(1):e53150.
2. Alam MS, Noronha OV, Mukherjee B. Timing of Surgery in Traumatic Globe Dislocation. *Indian J Ophthalmol*. 2017;65(8):767-770.
3. Savur F, Yildirim Y. Delayed Primary Reposition in a Patient with Traumatic Globe Avulsion: A Case Report. *Beyoglu Eye J*. 2023;8(1):64-68.
4. Omari A, Carniciu AL, Desai M, et al. Globe Dislocation and Optic ANerve avulsion All-TFollowing all-terrain Vehicle Accidents. *Am J Ophthalmol Case Rep*. 2022;27:101621.
5. Meena S, Rakheja V, Sahu S, et al. Traumatic Avulsion of the Globe with Optic Nerve Transection: An Unusual Presentation. *BMJ Case Rep*. 2020;13(1):e233148.
6. Ersan I, Adam M, Oltulu R, et al. Traumatic Luxation of the Globe: A 6-Year Follow-Up. *Orbit*. 2016;35(2):69-71.
7. Amaral MB, Carvalho MF, Ferreira AB, et al. Traumatic Globe Luxation Associated with Orbital Fracture in a Child: A Case Report and Literature Review. *J Maxillofac Oral Surg*. 2015;14:323-330.
8. Osman EA, Al-Akeely A. Luxation of Eyeball Following Trauma: Novel Simple Treatment. *Indian J Ophthalmol*. 2014;62(7):812-813.
9. Lelli GJ Jr, Demirci H, Frueh BR. Avulsion of the Optic Nerve with Luxation of the Eye after Motor Vehicle Accident. *Ophthalmic Plast Reconstr Surg*. 2007;23(2):158-160.

Statement of Ethics

This case series adheres to patient confidentiality and ethical principles in accordance with the guidelines of the Declaration of Helsinki and relevant local regulations. Consent was obtained from the patient for the publication of this case report.

Conflict of Interest Statement

Authors declare no conflicts of interest related to this topic.

Funding

This work received no funding or grant support.