

An Infant Case of Recurrent Globe Luxation

Songul Tomar-Guneysu, Okşan Derinoz-Guleryuz

Department of Pediatrics, Division of Pediatric Emergency, Gazi University Faculty of Medicine, Ankara, Turkey

ORCID:

Songul Tomar-Guneysu: 0000-0003-0573-978X

Okşan Derinoz-Guleryuz: 0000-0001-7348-0656

Abstract

Even though globe luxation is a quite rare eye problem observed in the pediatric emergency department, it is quite vital since it causes loss of vision. An 8-month-old male patient presented with the complaint of spontaneous eye protrusion. Eye manipulations that would increase intraocular pressure were avoided and the eye was quickly covered with a dressing to keep the eye wet. The eyeball was placed back performing lateral canthotomy. Unlike the other cases in the literature, the present case is a case of spontaneous and recurrent globe luxation in an infant with a syndromic facial appearance. Early diagnosis and management of the cases will prevent the development of complications.

Keywords: Infant, recurrent globe luxation, spontaneous globe luxation, syndromic baby

INTRODUCTION

Globe luxation is anterior displacement of the eye and quite rare disease.^[1] Due to the risk of permanent vision loss, an appropriate emergency procedure should be performed on time.^[2] Globe luxation occurs mostly after major trauma in pediatric cases.^[3] Unlike the other cases in the literature, the present case is a case of spontaneous and recurrent globe luxation in an infant with a syndromic facial appearance. It was intended to emphasize an appropriate approach and management for recognizing this extremely rare condition by emergency physicians, for early intervention, and prevention of complications.

CASE REPORT

An 8-month-old male patient was brought to the pediatric emergency departments (PED) with the complaint of anterior dislocation of his left eyeball. He was followed up due to craniosynostosis, congenital bilateral exophthalmos, hydrocephalus, renal calculi, and syndromic facial appearance (high palate, gingival hypertrophy, hypertelorism, depressed nasal root, low-set ear). In his medical history, he had ventricular enlargement in the prenatal period, delivery with 3100 g of cesarean section at 38 weeks in the natal period. He also stayed in the intensive care unit for 40 days due to

respiratory distress in the postnatal period. He had choanal atresia when he was 15-day-old and had pyloric stenosis and adenoidectomy when he was 1-month-old. He had also a history of ventriculoperitoneal (VP) shunt surgery when he was 1-month-old. His story learned that the eyeball dislodged when he pushed the eyelid while scratching his eye with his hand at home half an hour before admission. It was also indicated that he had a similar complaint in his left eye after excessive crying during blood collection 3 months ago and his complaint regressed spontaneously. The general appearance was good, agitated, crying. The pupillary light reflex was present in both eyes. Pupillary constriction was symmetrical in both eyes and there was no relative afferent pupillary defect in the light. The patient's left eyeball was protruding, left eye movements were limited and he had conjunctival hyperemia [Figure 1a and b]. Exophthalmos was observed in the right eye and eye movements were normal. He had bicoronal synostosis, broad, flattened head, and syndromic facial appearance (high palate, gingival hypertrophy, hypertelorism, flattened nasal

Address for correspondence: Dr. Songul Tomar-Guneysu, Department of Pediatrics, Division of Pediatric Emergency, Gazi University Faculty of Medicine, Ankara, Turkey.
E-mail: tomarsongul@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Tomar-Guneysu S, Derinoz-Guleryuz O. An infant case of recurrent globe luxation. Arch Trauma Res 2021;10:232-4.

Received: 18-06-2021, **Revised:** 05-09-2021,

Accepted: 22-11-2021, **Published:** 29-12-2021.

Access this article online

Quick Response Code:



Website:
www.archtrauma.com

DOI:
10.4103/atr.atr_47_21

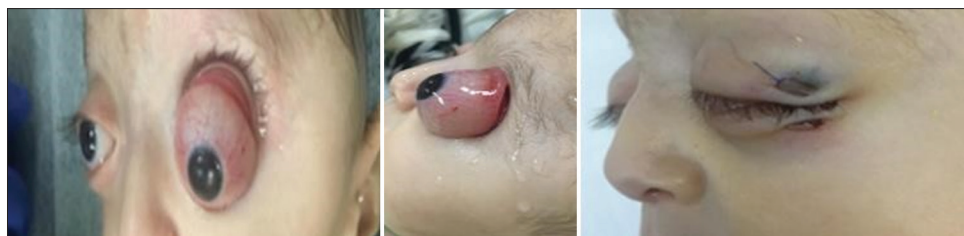


Figure 1: (a) Right orbital is exophthalmic Left orbital luxation is present. (b) Left orbital luxation; its appearance from the lateral side. (c) The appearance after the lateral canthotomy under sedation

root, low ear). Other systemic examinations were normal. The VP shunt catheter was in place on cranial computed tomography (CT), there was no increase in hydrocephalus findings compared to previous imaging results, and there were no signs of increased intracranial pressure syndrome or cerebral edema. Old craniotomy defects were observed in both frontoparietal and temporal areas. Cranial anteroposterior diameter slightly decreased. Soft tissue increments were observed in the paranasal sinuses. Exophthalmos is present in both bulbous oculi. Orbital CT revealed exophthalmos in both bulbous oculi, prominent on the left [Figure 2]. Bulbous oculi, retrobulbar spaces, extraocular muscles, and optic nerves were normal on both sides. There was no significant hematoma in the retrobulbar fat planes and vitreous bodies. There was no significant compression in the optic canal or retraction of the optic nerve. There was no mass in the orbital cavity.

Procedures to increase intraocular pressure (IOP) are avoided. Eye manipulations that would lead to increased IOP were avoided and the dressing was performed quickly with sterile saline-soaked sponges to keep the eye wet, and then the eye was closed. Dexamethasone (0.6 mg/kg/dose) was administered because of its anti-edema effect and also a proton pump inhibitor to prevent nausea and vomiting. After sedation, the eyeball was placed back performing lateral canthotomy [Figure 1c]. After 12 h of follow-up, he was discharged without any sequelae. 1 month later, cranio-orbital surgery was performed on both eyes. 4 months later, the patient applied with the same complaint of eye dislocation after crying [Figure 3a-c]. It was observed during the imaging that the left eyeball entered back the socket spontaneously. The patient was discharged without any complications. On discharge, topical antibiotic drops were started due to the risk of infection, and topical eye drops were started due to the eye lubricating and moisturizing effect. It was recommended to avoid Valsalva maneuvers such as crying, straining, and vomiting.

Written informed consent was obtained from the families of the patient who were included in the study.

DISCUSSION

Globe luxation may be due to several mechanisms. The most common cause of traumatic globe luxation has been reported to be displacement of the globe into the paranasal sinuses due to orbital fractures. However, slowing movement, the sudden increase in intraorbital pressure, and direct retraction of the



Figure 2: Exophthalmos, computed tomography image

globe are among the other mechanisms, as may be due to the decrease in the posterior orbital area due to orbital fractures that reduce the orbital volume and displace the globe.^[3] In our case, luxation occurred with minor trauma due to predisposing disease.

Globe luxation might be traumatic, intentional, or spontaneous. Traumatic subluxation generally occurs after a high-energy trauma such as a traffic accident or an intentional eye-gouging. Optic nerve and eyeball are resistant to minor and moderate trauma; so globe luxation occurs when there is severe trauma to the head or orbit and the patient usually has fractures in the orbital and facial bones.^[2] In our case, luxation did not occur after high-energy trauma. In both cases, globe luxation occurred spontaneously due to congenital abnormalities of the patient's face and skeletal abnormality.

Even though it is quite rare for globe luxation to occur after minor trauma, shallow orbital pits, floppy eyelid syndrome, excess orbital fat with loose extraocular muscles, sarcoidosis, Graves' disease, might be seen in exophthalmos caused by orbital tumors.^[1] It is necessary to investigate whether there is an underlying disease or predisposing factor due to the disease in globe luxation caused by minor trauma. In our case, the presence of facial appearance syndrome, exophthalmos, cranial abnormalities, other system anomalies, and its repetitive manner suggests that there is an undiagnosed underlying disease and it is a predisposition factor.



Figure 3: (a) Left globe luxation is present during the second admission of the patient. (b) Lateral appearance. (c) Appearance after spontaneous reduction

What determines the prognosis in globe luxation is the presence of optic nerve damage. Optic nerve avulsion leads to total loss of vision.^[4] Besides being the most serious complication of globe luxation, it has been reported that it occurs in about 38.2% of the cases.^[3]

Systemic examination and cranial CT should be performed in terms of other possible injuries due to the correlation of globe luxation with trauma and its frequent association with craniofacial trauma. In the case of globe luxation, self-enucleation and psychosis should be considered.^[5] On CT, signs of proptosis, retrobulbar hematoma, stretching or avulsion of the optic nerve, decrease in orbital volume can be seen.^[3]

The initial evaluation of patients with ocular trauma and globe luxation is often performed in emergency rooms. Physicians should first determine how serious the injury is and seek the necessary consultations without causing further damage to the eye. Vital signs should be examined. Bradycardia might occur as a result of eye muscles tightening. After the other bone and soft tissue injuries are examined quickly and the general condition is stabilized, an ophthalmological evaluation should be performed.^[6] Patients may have pain and anxiety. There should be no attempts to hold the child tightly. Pressure should not be exerted on or around the eyes. Examination under sedation should be performed after medical treatment in terms of pain and nausea, and an ophthalmologist should be consulted for surgical treatment.^[7] If the globe is intact, the primary treatment option is globe repositioning. Under sedation, the upper eyelid is pulled forward, while gently pushing the eyeball inward with the gloved thumb.^[2,4,8] It is quite vital to sedate the patient to facilitate the placement of the globe and to relax the orbicularis oculi muscles.^[1] In the literature, a study reported that the globe was repositioned first in about 73.5% of the cases, and posterior enucleation or evisceration was performed in 5.9%. It has also been reported that repositioning the globe leads to better results in terms of aesthetics, functionality, and psychology of patients.^[4] The first evaluation of our case was suboptimal because of his age and agitation. Bone and soft tissues were evaluated quickly at first and they were normal. The IOP of the patient did not increase and further luxation was not seen because he was not held tightly.

In conclusion, globe luxation is a quite rare condition for PEDs. However, it requires emergency treatment since it may lead to loss of vision and it may be associated with serious complications. For this reason, emergency department physicians should have an idea about globe luxation and should be able to manage it. Moreover, it should be investigated whether there is an underlying disease that may lead or predispose to this condition in a child with traumatic or spontaneous globe luxation.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Thapa R. Luxation of eye ball following trauma – A rare case presentation. *JNMA J Nepal Med Assoc* 2011;51:79-82.
2. Bajaj MS, Kedar S, Sethi A, Gupta V. Traumatic globe luxation with optic nerve transection. *Orbit* 2000;19:165-70.
3. Amaral MB, Carvalho MF, Ferreira AB, Mesquita RA. Traumatic globe luxation associated with orbital fracture in a child: A case report and literature review. *J Maxillofac Oral Surg* 2015;14:323-30.
4. Zaoutis LB, Chiang VW, editors. *Comprehensive Pediatric Hospital Medicine*. Elsevier Health Sciences; 2007.
5. Wei LA, Durairaj VD. Pediatric orbital floor fractures. *J AAPOS* 2011;15:173-80.
6. Zandi A, Pourazizi M, Radmanesh P, Alemzadeh-Ansari MH. A successful case of surgical intervention for traumatic globe luxation in a child: From light perception to full visual acuity. *Nation J Trauma Emerg Surg* 2019;25:202-4.
7. Khan JA, Buescher L, Ide CH, Pettigrove B. Medical management of self-enucleation. *Arch Ophthalmol* 1985;103:386-9.
8. Poroy C, Cibik C, Yazici B. Traumatic globe subluxation and intracranial injury caused by bicycle brake handle. *Arch Trauma Res* 2016;5:e33405.