

Globe Extrusion(Sever Globe Tenting) Due to Trauma

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Abstract: A 13 year-old boy crashed into a car while riding his bicycle and his right face and orbit were traumatized, then immediately globe extruded completely, his outward appearance was terrible when he was hospitalized, and the vision was NLP. Optic nerve, muscles, and all vessels and nerves were in severe stretching and the globe was at risk of ischemia and necrosis. I.V. corticosteroid, antibiotic, and manitol were used. Then globe was repositioned into orbit and lids sutured together, after one week sutures were removed and the globe was inside the orbit and was cosmetically in a very good condition and avoided from enucleation. Immediate medical and surgical therapy can prevent corneal ulceration, ischemia, and necrosis of globe and retrobulbar soft tissues in cases of globe extrusion; in addition outward appearance of the eye was in a good condition as the fellow eye.

Key words: Globe extrusion • Glob tenting • Orbit • Trauma

INTRODUCTION

Traumatic globe extrusion is severe traumatic exophthalmos that may result from reduction in orbital volume due to inward displacement of the orbital walls, hemorrhage, emphysema [1], and traumatic carotid cavernous fistula [2].

These patients usually have evidence of severe orbital tension with pain, a firm globe, limitation of ocular movement, reduced vision, loss of direct pupillary responses, or an afferent defect [1].

Acute increase of orbital tension causes severe globe tenting and stretching of the optic nerve [1]. Globe tenting is defined as a posterior globe angle of less than 130° (in CT scan). A globe angle of less than 120° with acute proptosis is a surgical emergency [1].

This patient had a very severe globe tenting the same as globe luxation or extrusion and NLP vision, so he was managed as a medical and surgical emergency case to prevent eye loss and enucleation.

MATERIAL AND METHODS

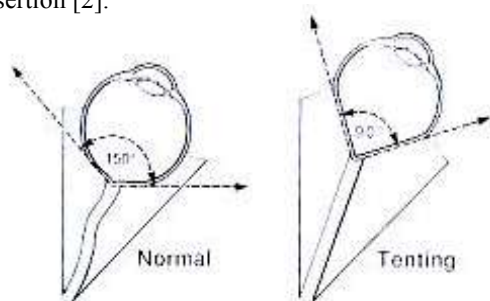
A 13 year-old boy crashed into a care while riding his bicycle and his right face and orbit were traumatized, then

immediately globe extruded completely and was out of the orbit, same as globe luxation in crouzon disease, His outward appearance was terrible when he was hospitalized and the vision was NLP. All retrobulbar contents such as optic nerve, muscles, vessels and nerves were severely stretched and the globe was at risk of ischemia and necrosis.

The globe had severe chemosis, hematoma, and hyphema. High dose corticosteroid (methyl prednisolon sodium succinate 300mg slowly), keflin 500mg, gentamycin 30mg and manitol 20% 150 cc/h° intravenously were administered. To prevent dryness of cornea and exposure keratitis, the patient was immediately carried to operating room and under general anesthesia globe was repositioned into the orbit and tarsorrhaphy performed. Post op. drugs such as methyl prednisolon sodium succinat 300 mg / 4h°/ Bid for 3 days, then shifted to 30 mg tablet prednisolon and keflin, gentamycin were administered for seven days, then sutures were removed and hematoma relatively was absorbed and the globe was in the orbital cavity. After discharge close follow up performed. Post op. examinations after 3 weeks revealed retinal detachment, NLP vision, and prephthisis. At follow up of 6 months the globe was inside the orbit, and very quiet. It was cosmetically in a very good condition.

DISCUSSION

Extrusion of the globe is rare, the globe is out of orbital cavity and is associated with an acute rise in intraorbital tension due to an intraorbital mass such as Hemorrhage, emphysema, displacement of orbital walls or carotid cavernous fistula. These conditions maybe caused by trauma leading to severe globe tenting. Globe tenting is a change in the shape of posterior globe, resulting in a conical appearance of the apex at the site of optic nerve insertion [2].



This schematic illustrates the optic nerve stretching and tenting of the globe

In this case globe tenting was severe, probably $< 90^\circ$ (normal $> 130^\circ$), so all of retrobulbar tissues such as optic nerve, vessels, nerves, muscles were at severe stretch.

Vision loss in orbital hypertension secondary to sudden space-occupying lesions is usually attributed to one of several causes: C.R.A.O, direct compressive optic neuropathy, or compression of optic nerve vasculature, or ischemic optic neuropathy due to stretching of nutrient vessels [3]. For decompression of optic nerve, using high-dose corticosteroid is useful to help alleviate swelling [2] A posterior globe angle of less than 120 degrees with acute proptosis constitutes a surgical emergency [4].

In this case the globe was out of orbit with severe stretching, ischemia and dryness, at a risk of globe necrosis and exposure keratitis, so immediate medical and then surgical treatment performed to prevent globe necrosis and enucleation. So after 6 months of follow-up, the globe was in the orbit, and in a good condition, but was phthisis and had no light perception.

ACKNOWLEDGEMENT

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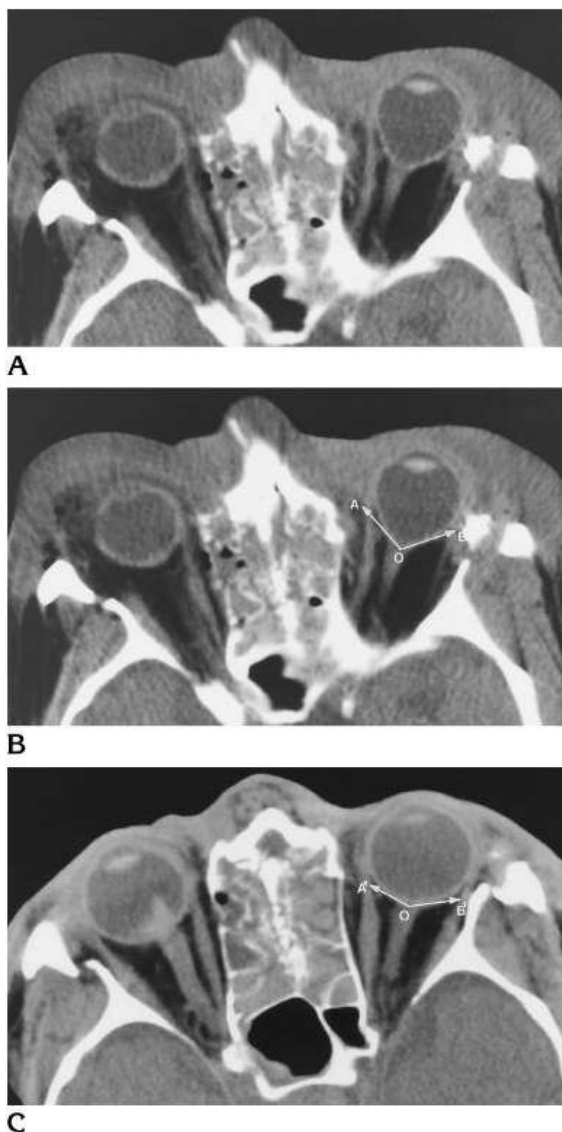


Fig. 1: Globe tenting caused by trauma

A: Scan without annotation

B: Scan with annotation obtained within hours of the patient's injury (left eye vision. 20/800) shows maxillofacial posttraumatic changes and a left posterior globe angle (A.O.B) of 118° (normal, $>130^\circ$).

C: Repeat CT scan obtained 4 days later. After high-dose intravenous corticosteroid therapy (left eye vision. 20/30), shows signification less exophthalmos. The left posterior globe angle (A'-O.B') is now within normal limits (145°). Right vitreous hemorrhage is also seen.

[in a different patient (2)]

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