

Globe Rupture and Total Traumatic Aniridia Following Blunt Facial Trauma 30 Years after Cataract Surgery

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Abstract

Modern advancements in surgical technique and intraocular implants have reduced the size of the incision required for cataract surgery. However, despite their small size, these wounds may constitute areas of weakness in the globe many years after healing. The inherent weakness from the healed incision may be the site of globe rupture following sudden, severe increases in intraocular pressure from blunt trauma to the eye or face. This case report discusses a 92-year-old woman who presented with a macrohyphema and globe rupture of the left eye following blunt facial trauma. Surgical globe repair was performed which revealed total traumatic aniridia and a posteriorly tilted intraocular lens. The patient progressed without complications and achieved a final visual acuity of 6/18 in the affected eye. This case highlights the lasting structural weakness following cataract surgery which may persist for years and leave the globe susceptible to rupture.

Keywords: Case report, eye injuries, globe rupture, head injuries, intraocular pressure, iris, lens implantation, trauma, visual acuity, wounds

INTRODUCTION

Modern phacoemulsification techniques and foldable intraocular lenses (IOLs) have minimized the size of incisions involved in cataract surgery. However, it is important to note that these wounds may be the site of globe rupture when the eye is exposed to blunt trauma. We present a case of globe rupture, macrohyphema, and traumatic aniridia following blunt head trauma 30 years after phacoemulsification cataract surgery.

CASE REPORT

A 92-year-old Caucasian woman was brought in by ambulance to a metropolitan emergency department following a mechanical fall from standing height onto her left side. The patient struck her head on the floor without loss of consciousness. She complained of blurry vision in her left eye but had minimal pain or discomfort. The patient's past ocular history included bilateral uncomplicated phacoemulsification cataract surgery which occurred 30 years ago through scleral tunnel incisions.

On general inspection, there was left-sided periorbital edema which was most severe temporally with lid ecchymosis. On the lateral aspect of the maxilla, there was a five by three centimeter hematoma which was tender to palpation. Visual acuity was 6/12 in the right eye and hand movement perception in the left eye. The right pupil was reactive to light, while the left pupil was unable to be directly assessed as it was obscured by blood. However, there was no reverse relative afferent pupillary defect. On mobile slit lamp examination of the left eye, there was circumferential chemosis with subconjunctival hemorrhage. The left anterior chamber was approximately 90% occupied by a macrohyphema. There was a 3-millimeter

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perforation to the sclera identified adjacent to the limbus at 11 o'clock through a positive Seidel's test. The wound sealed at rest with no prolapse of contents. Examination of the right eye identified a posterior chamber (PC) IOL with no other abnormalities.

The patient was taken to the operating theatre for primary repair of the globe. A limited peritomy was performed from 9 to 12 o'clock to explore the site of rupture. Anterior chamber washout for the dense macrohyphema was performed, revealing total traumatic aniridia along with a PC IOL [Figure 1]. Apart from total iridodialysis, no further uveal prolapse or damage to the globe was identified intraoperatively. The PC IOL was within the capsular bag which maintained its structural integrity. However, the PC IOL was tilted posteriorly at the superonasal edge. The globe perforation wound site was sutured with three 9-0 nylon sutures.

Following surgery, the patient progressed without complications. There was some mild corneal edema which settled following a month of postoperative prednisolone acetate 1% drops. Postoperative examination of the vitreous and fundus demonstrated no abnormalities. The scleral wound healed well, and the sutures were removed at 4 months. The patient's visual acuity in the left eye at 6 months' postinjury improved to 6/18; however, there were expected issues with glare. This was supportively managed by patching the left eye.

DISCUSSION

Traumatic expulsive iridodialysis due to penetrating injury or globe rupture has been well-described previously.^[1] However, it is rarely due to dehiscence of small incisions used in phacoemulsification. A study by Ball *et al.* reported only one case of traumatic dehiscence in a series of 4200 small incision phacoemulsification cases (0.02%) which was 20 times less than the rate in the extracapsular cataract extraction group.^[2]

Ball *et al.* reported the first case of traumatic aniridia and globe rupture which occurred 12 months after phacoemulsification was performed through a clear corneal incision.^[3] There have been few reports of perilimbal or scleral wound dehiscence. Lim *et al.* reported a similar case to ours of traumatic aniridia through a scleral tunnel incision.^[4] However, in their case, the trauma occurred only 12 weeks following cataract surgery where the wound healing process was still ongoing. It is postulated that the sudden rise in intraocular pressure secondary to blunt trauma reopens the self-sealing corneoscleral incision. The resulting aqueous outflow lifts the iris to block the wound via the Bernoulli effect, and it is subsequently fully expelled with depressurization of the eye.^[5]

As with other case reports in pseudophakic patients with traumatic iridodialysis and hyphema, the presence of a PC IOL may serve as a barrier that prevents damage to posterior segment structures. It is notable in this case that the force of the blunt trauma was severe, as evidenced by complete iridodialysis. Therefore, the presence of the previous

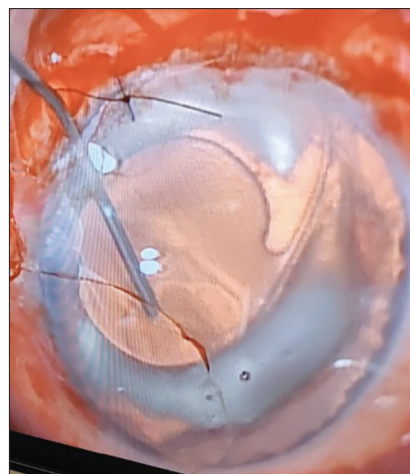


Figure 1: Intraoperative photo during primary globe repair demonstrating total aniridia and tilted posterior chamber intraocular lens

surgical scar may have been protective in allowing early depressurization.

This case report is the first description of perilimbal globe rupture with total traumatic aniridia which occurred after an extensive period of time between the initial scleral tunnel incision and subsequent globe rupture. Our case highlights the lasting structural weakness in the sclera at the site of small incisions even years after uncomplicated modern cataract surgery. Ultimately, this is an important factor to consider when assessing the globe of a traumatic patient considering the high prevalence of patients who have undergone cataract surgery in the past 30 years.

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.

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Conflicts of interest

There are no conflicts of interest.

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