

## Prompt Detection and Management of Globe Perforation due to Retrobulbar Anaesthesia

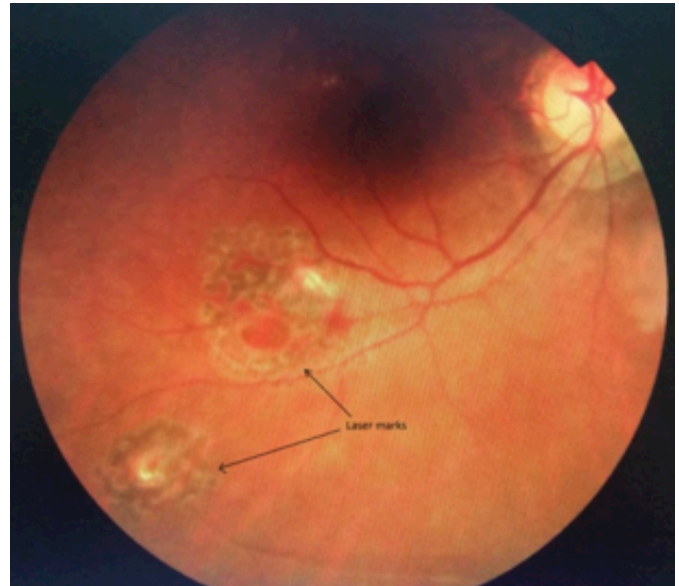
Sir,

Globe perforation is a known complication of retrobulbar anaesthesia with varying incidence of 1 in 1300 to 1 in 12,000.<sup>1,2</sup> The complication occurs mostly in patients with deep orbits, high myopes, posterior staphylomas, thin sclerae, and cases which require repeated injections.<sup>3</sup> We report a case of a 29-year old myopic male whose cataract surgery was planned under local anaesthesia because of his unwillingness to undergo the procedure under topical anaesthesia. Preoperatively, retrobulbar injection of 2cc of Lidocaine HCl 2% and 2 cc Bupivacaine 0.5% was administered. No resistance was felt during administration of injection and the globe was gently felt before the start of surgery to assess rigidity. There was no change in fundal glow, hence phacoemulsification was proceeded. At the end of procedure, the globe felt softer than usual despite proper anterior chamber formation. It raised the suspicion of globe perforation during retrobulbar anaesthesia.

Fundus examination on the following day revealed an entry wound slightly post-equatorial near inferotemporal vascular arcade at 8 o'clock and an exit wound more posteriorly within the same clock hour 4.5 disc diameters away from fovea with mild hemorrhage (Figure 1). A laser barrage around the breaks was performed before discharging the patient. At subsequent visits, the patient had an uncorrected visual acuity of 6/9 with a flat retina and adequate laser marks around the breaks (Figure 2).



**Figure 1:** Fundus picture showing entry and exit sites of needle during retrobulbar anaesthesia.



**Figure 2:** Fundus photograph at follow up showing laser marks around the entry and exit sites and a flat retina.

In this case, the most likely cause of globe perforation was long axial length (25.32 mm) and suspicion of globe perforation arose after completion of the surgery, so a thorough retinal evaluation was planned on first post-operative day. Laser barrage was preferred with a wide field contact lens as view of the breaks was adequate for laser application.

A few techniques have been developed over the years to minimize risk of this complication like keeping the bevel towards the globe, entering the orbit as far temporal as possible near orbital floor, displacing the globe with finger, maintaining a tangential orientation of needle in relation to the globe, using peribulbar instead of retrobulbar anaesthesia, and checking horizontal extraocular motility prior to pushing the plunger of syringe.<sup>4</sup> Pre-operative assessment for whether the patient is a candidate for topical or general anaesthesia should also be performed.

Early recognition of scleral penetration should warrant the surgeon to immediately measure intraocular pressure, look for any change in fundal glow and perform a detailed retinal examination. Should there be confirmation of globe entry, the surgery should be postponed; and an appropriate management should be proceeded with.<sup>4</sup> For a peripheral break, cryotherapy can be done around the break while in cases of extensive subretinal hemorrhage and vitreous hemorrhage, a more invasive approach such as pars plana vitrectomy may be required.<sup>5</sup>

### COMPETING INTEREST:

The authors declared no competing interest.

### AUTHORS' CONTRIBUTION:

MKH: Data collection and drafting.

ZKO: Drafting and literature review.

MA: Corresponding author, drafting, and critical revision.

All authors approved the final version of the manuscript to be published.

### REFERENCES

1. Al-Shehri A, Al-Ghamdi A, Al-Shehri A, Alakeely A. Management of iatrogenic globe perforation during peribulbar anesthesia with submacular hemorrhage. *Oman J Ophthalmol* 2020; **13(2)**:95. doi: 10.4103/ojo.OJO\_208\_2019.
2. Nanji KC, Roberto SA, Morley MG, Bayes J. Preventing adverse events in cataract surgery: Recommendations from a Massachusetts expert panel. *Anesth Analg* 2018; **126(5)**:1537-47. doi: 10.1213/ANE.0000000000002529.
3. Thevi T, Godinho MA. Trends and complications of local anaesthesia in cataract surgery: An 8-year analysis of 12 992 patients. *Br J Ophthalmol* 2016; **100(2)**:1708-13. doi: 10.1136/bjophthalmol-2015-307785.
4. Zhao LQ, Zhu H, Zhao PQ, Wu QR, Hu YQ. Topical anesthesia versus regional anesthesia for cataract surgery: A meta-analysis of randomised controlled trials. *Ophthalmol* 2012; **119(4)**:659-67. doi: 10.1016/j.ophtha.2011.09.056.

5. Yannuzzi NA, Swaminathan SS, Hussain R, Hsu J, Sridhar J. Repair of rhegmatogenous retinal detachment following globe perforation by retrobulbar anesthesia. *Ophthalmic Surg Lasers Imaging Retina* 2020; **51(4)**:249-51. doi: 10.3928/23258160-20200326-08.

---

Muhammad Kashif Habib<sup>1</sup>, Zeeshan Khan Oozeerkhan<sup>1</sup> and Mahmood Ali<sup>2</sup>

.....  
<sup>1</sup>Department of Retina, Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan

<sup>2</sup>Department of Glaucoma, Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan

.....  
Correspondence to: Dr. Mahmood Ali, Department of Glaucoma, Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan  
E-mail: drmahmoodali@alshifaeye.org

.....  
Received: June 14, 2020; Revised: December 18, 2021;  
Accepted: February 09, 2022

DOI: <https://doi.org/10.29271/jcpsp.2022.07.958>

