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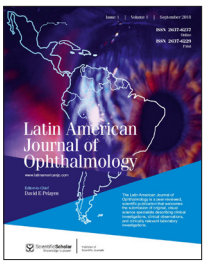

Case Report *Glaucoma*

Fungal endophthalmitis following transscleral cyclophotocoagulation

Aashish Kant Shah[1], Brijesh Takkar[2], Gazella Bruce Warjri[3]

[1]Department of Pediatric and Binocular Vision, L. V. Prasad Eye Institute, [2]Smt. Kanuri Santhamma Center for Vitreoretinal Diseases, L. V. Prasad Eye Insitute, [3]Department of Ophthalmology, L. V. Prasad Eye Institute, Hyderabad, Telangana, India.

***Corresponding author:**
Gazella Bruce Warjri,
Department of Ophthalmology,
L. V. Prasad Eye Institute,
Hyderabad, Telangana, India.

gazellabr@gmail.com

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ABSTRACT

Most cases of refractory glaucoma not amenable to filtration surgery or glaucoma drainage device are managed by cyclodestructive procedures. An 84-year-old female had undergone oculus sinister (OS) transscleral cyclophotocoagulation (TSCPC) after a diagnosis of OS closed angle stage of neovascular glaucoma was made. On the 1st week post-TSCPC, discharge on the conjunctival surface was noted along with a 6 mm hypopyon in the anterior chamber and associated vitritis. Treatment on the lines of fungal endophthalmitis was initiated. At 1 month review, the reaction had reduced significantly. Cases with significant reaction and vitritis post-TSCPC must be treated aggressively on the lines of endophthalmitis to salvage the globe. A rather safe approach to the management of such cases, TSCPC does have rare complications such as inadvertent sclerostomy or panophthalmitis, being reported as isolated case reports. To the best of our knowledge, this is the first case of fungal endophthalmitis being reported post-TSCPC.

Keywords: Transscleral cyclophotocoagulation, Fungal endophthalmitis, Refractory glaucoma, Cyclophotocoagulation

INTRODUCTION

Glaucoma, a chronic progressive optic neuropathy, is one of the leading factors of irreversible blindness, and numbers are expected to increase to 111.8 million cases worldwide by 2040.[1]

Adding to the woes of the glaucoma caseload are refractory glaucomas, the most difficult to manage with poor outcomes. Refractory glaucoma includes cases of glaucoma in which the intraocular pressure (IOP) remains uncontrolled despite filtration surgeries and/or laser treatment and/or maximum tolerated medical treatment.[2] Such cases are finally managed by cyclodestructive procedures. Cyclophotocoagulation has largely replaced cyclocryotherapy due to the lower rate of complications such as severe inflammation and pain, with an increased risk of hypotony and phthisis.[3] Numerous lasers have been utilized for cyclophotocoagulation, but, currently, diode laser is the most commonly used. The laser works by destroying ciliary epithelium and ciliary blood vessels, which, in turn, leads to a reduction in the production of aqueous. Other mechanisms have also been described for lowered IOP post-cyclophotocoagulation such as intraocular inflammation, increased transscleral, and uveoscleral outflow.[4]

Complications post-transscleral diode laser photocoagulation are known, but a case of severe reaction with the formation of hypopyon with vitritis has never been reported.

CASE REPORT

An 84-year-old female presented to our center with complaints of severe pain in the left eye for 2 days. She was a known diabetic and hypertensive and had coronary artery disease, all for which she was undergoing medical management. She had a long history of decrease in vision oculus uterque (OU) for 5 years and had documents from a previous consultation where she was diagnosed as OU idiopathic polypoidal choroidal vasculopathy (IPCV). She gave a history of oculus dexter (OD) cataract surgery done 2 years back with multiple intravitreal anti-vascular endothelial growth factor given OU, with pan-retinal photocoagulation done oculus sinister (OS).

On examination, her visual acuity was a positive perception of light with accurate projection of rays (PL + PR accurate) OD and PR accuracy only in the temporal quadrant OS. Anterior segment OD was unremarkable and the intraocular lens was in the bag, while the left eye was congested (circumcorneal) along with grade 2+ cells with 2 + flare in the anterior chamber (AC) OS, with the presence of neovascularization of iris. The pupil OD was round, regular, and sluggishly reacting while, in OS, it was fixed and 4 mm in size, through which the cataractous lens was seen (nuclear sclerosis grade 4). Gonioscopy showed open angles OD and closed angles 360° OS. The recorded IOP by Goldman applanation tonometry was 19 mmHg OD 40 mmHg OS. Fundus findings OD included a medium-sized pale disc with 0.7 cup-disc ratio (CDR) with bipolar thin rims with diffuse retinal scarring involving the macula, while the fundus OS was not visible due to the AC reaction and cataract. An ultrasound B scan was done which showed an anechoic scan OS [Figure 1a]. An ultrasound biomicroscopy was also performed to rule out any ciliary body mass [Figure 1b and c], which revealed the absence of any mass.

A provisional diagnosis of OU IPCV OD pseudophakos OS cataract with closed-angle stage of neovascular glaucoma was made.

The patient was started on topical brimonidine 0.15%, dorzolamide 2%, and homatropine 2% OS along with oral acetazolamide 250 mg thrice daily after confirming good renal function, supplementing for the potassium depletion with the addition of potassium chloride syrup (1.5 g/15 mL). She was then asked to review after 2–3 days depending on the subsidence of her symptoms. A carotid Doppler was also advised to rule out ocular ischemic syndrome (OIS). She reviewed back after 2 days still complaining of severe pain OS, and OIS was ruled out accordingly, followed by a decision to go ahead with transscleral cyclophotocoagulation (TSCPC) in that eye as there was limited visual potential.

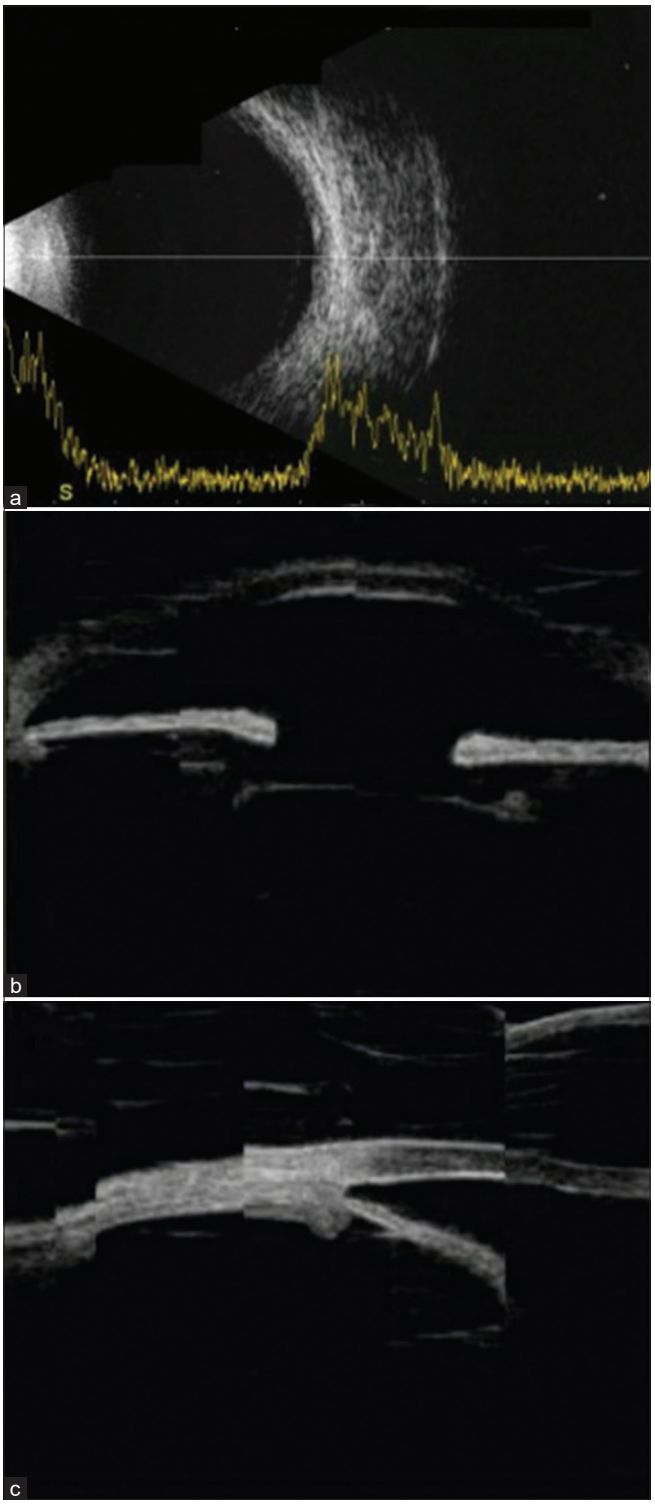

Figure 1: (a) Ultrasound images of oculus sinister showing an anechoic scan. (b) and (c) Ultrasound biomicroscopy images showing the ciliary body with no mass lesions or hemorrhage.

TSCPC was carried out after an 8 mL peribulbar block consisting of 2% xylocaine and 0.5% bupivacaine augmented with hyalase. 16 spots, 270° of TSCPC with an initial power of 1650 mW for a duration of 2 s was performed with a G

probe. As pop sounds were not heard, the power was steadily increased step-wise till 1950 mW. After the procedure, 0.5 mL of dexamethasone was injected subconjunctivally and the eye was patched after instilling 2.5% betadine drops.

On the first post-operative day, the vision remained the same and the IOP came down to 10 mmHg OS. She was administered the usual topical antibiotics, steroids, cycloplegics, and oral non-steroidal anti-inflammatory drugs as per routine and asked to review after 1 week. On her 1-week review, discharge was noted in the conjunctival surface and a 6 mm hypopyon was noted in AC [Figure 2a and b], with vitreous opacities on B scan [Figure 3a and b]. After a retina consult, fungal endophthalmitis was suspected and the patient was then taken up for AC tap along with intravitreal vancomycin, ceftazidime with amphotericin B under aseptic precautions. Topical natamycin 5% was started as well. Other causes of possible hypopyon like chronic myeloid leukemia were ruled out after consulting with the physician. After 1 month, the reaction had decreased and the smear and culture were negative for any organisms.

DISCUSSION

TSCPC is usually considered a relatively safe process, with minimal complications. The most common post-procedure complaint is pain which is often transient. Iridocyclitis can occur in up to 42% of cases, but it is minimal and resolution occurs with time and with the use of topical steroids.[5] Hypotony is a major complication although rates are lower than cyclocryotherapy. Other reported complications include conjunctival burns, corneal edema, corneal epithelial defects, corneal endothelial decompensation, zonular damage, pupillary distortion, macular edema, retinal detachment, and serous/hemorrhagic choroidal detachment.[6,7]

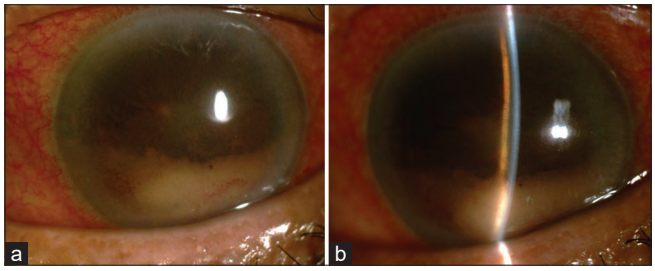

Figure 2: Slit lamp images of oculus sinister showing anterior chamber hypopyon (a) diffuse illumination and (b) optic section.

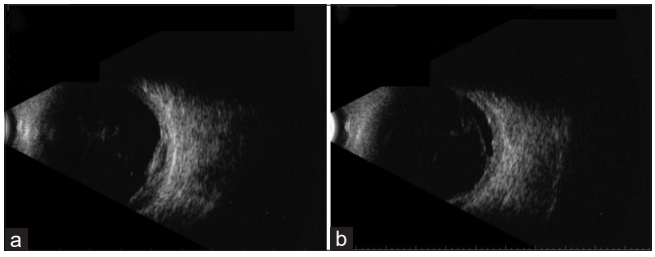

Figure 3: (a and b) Ultrasound images of oculus sinister post-transscleral cyclophotocoagulation showing vitreous opacities.

Other complications have been reported as isolated case reports. Inadvertent sclerostomy and panophthalmitis are serious rare complications that have been reported.[8,9] Causes of perforation here have been cited to be pre-existing thin sclera or the use of the same probes for multiple cases. Probes have been noted to have cracks and irregularities on electron microscopy after multiple uses, thereby increasing the risk of mechanical trauma and perforation.[8] The case of panophthalmitis that was reported, had a globe rupture post-TSCPC and the patient had to ultimately undergo evisceration. Here, the cause of the rupture was most probably due to pre-existing scleral thinning with charred debris at the G-probe tip causing a rise in temperature, leading to the perforation.[9]

Our case did not have any clinically visible perforation, and she was suspected to have fungal endophthalmitis based on clinical findings, but her culture and smears came out negative. She may have been a case of culture-negative endophthalmitis, with an occult perforation, with a similar occurrence of charred debris at the G-probe due to the high power used and the fact that the probe had been reused. Culture-negative endophthalmitis is still common and is a limitation in the treatment of fungal endophthalmitis.[10] Therefore, such cases with intense reaction along with vitritis must be treated aggressively and on the lines of endophthalmitis to salvage the eye.

CONCLUSION

Therefore, cases having intense reaction along with vitritis must be treated aggressively and on the lines of endophthalmitis to salvage the eye.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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