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Case Report

Single Pass Four-Throw Pupilloplasty for Diffuse Iris Atrophy in Catractus Herpes Zoster Ophthalmicus (HZO) Case

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Abstract

Patients of Herpes Zoster Ophthalmicus (HZO) develop several ocular complications that need surgical interventions such as cataract, glaucoma and corneal scar. Managing these complications is challenging in which the patient might go into several intera and post-surgical complications. We are reporting a case of Herpes Zoster Ophthalmicus (HZO) having diffuse iris atrophy and the intumescent cataract of the left eye. Both pupiloplasty and cataract surgery were done. Iris atrophy reconstructed by single-pass four-throw technique and phacoemulsification for cataract at the same time. The results were promising, the patient's visual outcome improved, the pupil has a good shape and contour and patient satisfied from the outcome both visually and cosmetically.

Keywords: Cataract; Pupilloplasty; Herpes Zoster Ophthalmicus

Introduction

The risk of developing herpes zoster infection in general during the lifetime is 20%, and the involvement of the ophthalmic division of the trigeminal nerve is up to 20% of these patients leading to a condition called Herpes Zoster Ophthalmicus (HZO), in which all structures of the eyes can be involved leading to various ocular diseases like Scleritis, Keratitis, Cataract, Uveitis, and glaucoma, However chronic inflammation and prolonge steroids use can lead to cataract formation [1].

We are reporting a case of HZO, who underwent surgical intervention for diffuse iris atrophy and intumescent cataract developed in less than 1 year of diagnosis and the post-cataract surgery result in visual improvement.

Case Report:

A 35 years old male, presented to our clinic complaining of decreased vision, glare and abnormal-looking left eye due to diffuse iris atrophy over the left eye. He was diagnosed as a case of Herpes Zoster Ophthalmicus (HZO) having the first attack of anterior uveitis and high intraocular pressure along with forehead vesicular rash for which he was treated with an oral antiviral (valacilovir) and tapering topical corticosteroids at our uveitis service.

He was on regular follow up for the past 8 months' time with uveitis well controlled. Eight months later he presented to the uveitis service with further reductions of the vision over the left eye which was counting finger (CF) and glare due to his pre-existing diffuse iris atrophy.

His examination showed an intumescent cataract of the left eye (Figure1, A/B). Full ophthalmic examination of left eye BCVA Counting finger near the face, clear cornea with intact sensation, deep and quiet anterior chamber, diffuse iris atrophy pupil size around 11.5 , open-angle by gonioscopy, intraocular pressure 16 mmHg and no view of fundus B-scan done show flat retina and no abnormality detected. The right eye examination was within normal limits.

At the corneal service, he was scheduled for phacoemulsification with posterior chamber intraocular lens implant with pupiloplasty of the left eye under local anesthesia. The patient was seen first-day post-op and his examination revealed improvement of his vision from counting finger to 20/60 without correction, IOP 18 mmHg, clear cornea, anterior chamber deep with +3 cells, pupil 9.5 mm size with a round contour, Fundus within normal limit, He was happy about his visual outcome and his glare was almost resolved completely (Figure 2). The patient was continued on antibiotics and steroid drops.

Second-week post-op, the vision was improved, VA (SC) 20/30, the Cornea cleared, Intraocular Pressure (IOP) 14mmHg, Anterior chamber deep and quiet and normal fundus.

Discussion

Our reported case had an intumescent cataract with diffuse iris atrophy of the left eye in which the cataract removed and the residual iris reconstructed. The exact pathogenesis of HZO complications is not well understood, it could be due to viral replication in the early disease stages and the inflammation associated with that [2]. In HZO, the complications requiring surgical intervention are the Neuroparalytic ulcer, Glaucoma, Corneal scar and Cataract [3] in which the cataract is the most common one [1].

The common presentation is the posterior subcapsular cataract in which the steroid and chronic inflammation (uveitis) from virus play a role [2] in our case the patient was having an intumescent type of cataract which is not common in HZO and also its surgical management (phacoemulsification) is a bit difficult as compared to posterior sub-capsular cataract.

A retrospective study of 24 operated eyes of HZO patient having a cataract, the corrected distant visual acuity (CDVA) before surgery 20/112 after phacoemulsification + posterior capsular intraocular (PCIOL) the patient had CDVA 20/44 in the first year [1]. The choice of either ECCE or phacoemulsification and quince 6 months patient have better results on favorable long-term follow up (> 20y) the best-corrected visual acuity (BCVA) was 20/20 [2]. Another study done 11 eyes operated, the BCVA was 20/40 [1]. Most surgeons delay surgical intervention up to 3 months of quiescence and avoiding the active phase of the disease since the surgical intervention can trigger the disease [4]. Our patient had 6 months quiescence period since the last episode of uveitis.

Patients of HZO have the risk of complications after cataract surgery such as developing a corneal scar, fractional retinal detachment or recurrence of uveitis requiring further intervention [1]. Thus the adequate control of inflammation, intraocular pressure, and ocular surface disease improved the visual prognosis of cataract surgery of HZO patient [4], despite the advance of therapy HZO complication may be reduced but not eliminated [2]. Visual recovery compromised by the preexisting chronic ocular condition [1] thus it has an unpredictable result for cataract surgery.

Another situation we had in our patient which is rudimentary iris contour this may be due to chronic iritis and diffuse iris atrophy [3]. We were concern about cataract surgery results that may be compromised by the absence of iris coverage. Patient's glare might worsen further causing more severe glare and photophobia due to reactivation of herpetic uveitis thus leading to unacceptable cosmetic appearance.

There are many techniques for pupilloplasty such Siper slipknot and the modified version, these options were on the table but using single-pass four-throw pupilloplasty technique provide a better option for our patient having advantages of minimal iris manipulation single pass, thus fewer iris pigment dispersion saving what we have of iris structure and also minimizing the reactivation of post-surgical induced uveitis [5]. This technique has an only single pass through the anterior chamber wherein 4 throws in helical configuration taken externally through the suture loop withdrawn from the anterior chamber, few steps were captured (Figure 2). Minimal iris manipulation single pass, thus fewer iris pigment dispersion saving what we have of iris structure [5] and also minimizing the reactivation of post-surgical induced uveitis. Although it has no true looking knot system, this technique provides a self-looking and self-retaining mechanism preventing the loop from reopening [6]. Single-pass four throw pupilloplasty provide adequate pupil dilatation after pupilloplasty facilitating retina examination if needed for patients of HZO. This technique achieves good pupil size, and contour [5].

In Conclusion

HZO patient has many ocular complications, with adequate control, the proper selection of cases to intervene and the proper selection of surgical technique can carry good prognosis of the patients.

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