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Urrets-Zavalia Syndrome Post ICL Surgery - A Case Report

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Abstract: ***A 23 year old male presented to us with complaints of glare, halos & decreased near visionin RE since 2weeks. Patient had undergone ICL surgery in RE for compound myopic astigmatism of SE -9.5D with normal pre op examination and corneal topography 1 month ago elsewhere. After uncomplicated ICL surgery, he presented to the previous hospital in the 2nd week with the present complaints. On examination, RE vision was 6/6 with clear cornea &IOP of 32mmHg with mid-dilated pupil of size 7mm with stable ICL were noted. Additional 250mg Acetazolamide tablet twice daily and Brimonidine 0.2% E/D 2t/d wereadvised and was referred to us after 1 week. On examination in our hospital, RE vision was 6/6 with clear cornea and lens &IOP of 20mmHg under anti-glaucoma medications, AC depth was normal, pupil size was 7mmoval irregular sluggishly reacting to light, ICLwas stable with vault of 1.5CT. We diagnosed it as Urrets-Zavalia syndrome and attributed its cause to be post operative raised intra-ocular pressure. We counselled patient regarding the condition and advised pilocarpine+timolol e/d to look for any reversibility of pupillary dilatation. After 3weeks IOP was normal and pupil remained 7mm.Patientwas counselled regarding pupilloplasty with or without ICL explantation as only ICL explantation would not have got reverse the present condition. Purpose: To discuss a delayed and rare case of Urrets-Zavalia syndrome post implantable collamer lens surgery.***

Keywords: ICL Surgery, Raised intra-ocular pressure, fixed dilated pupil, pupilloplasty

1. Case Presentation

A 23year male patient presented to us with complaints of glare and halos especially at night and inability to do near work since 2 weeks in his right eye. He had undergone implantable collamer lens (ICL) implantation elsewhere in RE for compound myopic astigmatism. On examination, Best corrected visual acuity (BCVA) in both eyes (OU) were 6/6 with an intra-ocular pressure of 20mmHg in right eye(OD) and 14mmHg in left eye (OS). OD had clear cornea with normal anterior chamber depth. Pupil was oval, irregular, 7mm sized, dilated and sluggishly reacting to light. ICL was stable with a vault of 0.75 (3/4) corneal thickness. Lens was clear and fundus was within normal limits. OS was unremarkable.

Previous records showed that he had undergone toric ICL(STAAR Surgical, Nidau, Switzerland) implantation OD for a refractive error of −8.50Dsph and –1.00×10°Dcyl and was planned OS surgery later. Pre-operative Orbscan (Bausch & Lomb, Orbscan II, Rochester, NY, USA) showed that the thickness of the thinnest point of the right cornea was 506µm and no ectatic changes were detected. Scotopic diameter of the right pupil was 4.0mm, anterior chamber depth (ACD) was 3.30mm, white-to-white (WTW) distance measured was 11.8 mm. 12.6mm ICL was implanted. On post operative day 1 the cornea was noted to be clear, pupil was normal and ICL was stable. Patient was comfortable.

After 2 weeks he had gone to the hospital with the above mentioned complaints. Records show BCVA OU 6/6, OD IOP was 32mmHg. He was given Acetazolamide250mg tablet and Brimonidine 0.2% eye drops twice daily and referred to us.

Based on history and examination, we made a diagnosis of Urrets-Zavalia syndrome post ICL surgery in OD and advised pilocarpine 2% eye drops 4 times a day and timolol 0.5% twice daily to look for any reversibility of pupil dilatation. After 3 weeks, IOP was 12mmHg but pupil remained dilated.

2. Discussion

Urrets-Zavaliasyndrome (UZS) or fixed, dilated pupil after ophthalmic surgery is an uncommon postoperative complication. It was first described following penetrating keratoplasty in keratoconus patients. Later it was also reported after DALK,DSAEK,Glaucoma surgeries, cataract surgery and phakic IOL implantation.[1]Although the pathogenesis of UZS is always controversial, on review of literature there are two widely accepted mechanisms: iris ischemia and atrophy[2, 3, 4,5,6,7] and injury to radial fibers of parasympathetic nerve.[8]The major cause of iris ischemia and atrophy after phakic IOL implantation was elevated IOP during postoperative period either due to pupillary block or due to retained viscoelastic agent.[5] Literature review[5,9,10,11,12,13] revealed similar 7 cases of dilated pupils

post phakic intraocular lens implantation. Postoperative increase in IOP was found in six cases of UZS after phakic intraocular lens implantation. In 2 cases, elevated IOP was detected at the immediate postoperative period and in 4, at postoperative day 1. Four out of the 6patients experienced irreversible fixed dilated pupils, [5,9,11,12]and in 2 patients ,the condition was partially reversed.[13,14]The intraocular pressure at postoperative day 1 ranged from 32 to 64 mmHg, and pupils were not reactive to pilocarpine 2% eye drops. In our case, the elevated IOP was detected 2 weeks after operation in contrast to other cases. Immediate treatment was initiated, however the condition remained irreversible and the patient was counselled about the option of pupilloplasty with or without ICL explanation and explained that only ICL explanation will not reverse the pupillary dilatation.

3. Conclusion

In summary, we report a case of delayed presentation of UZS after phakic IOL implantation and consider elevated IOP to be the reason and the condition is irreversible and that, considering the option for pupilloplasty, it may render the patient from further detailed retinal examinations as incomplete as desired pupillary dilatation will not be achieved thereof.

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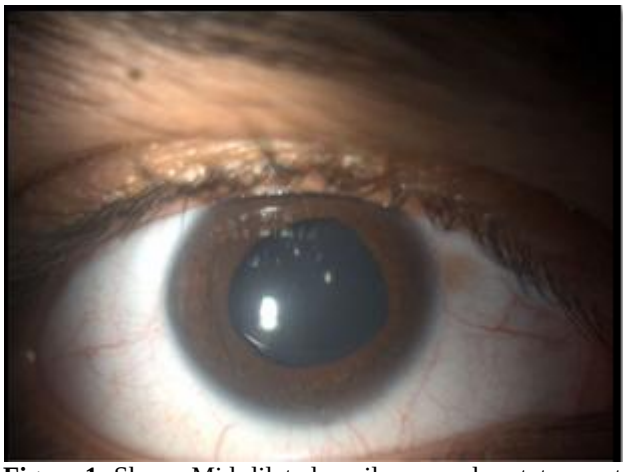

Figure 1: Shows Mid-dilated pupil: a sequalae status post ICL implantation

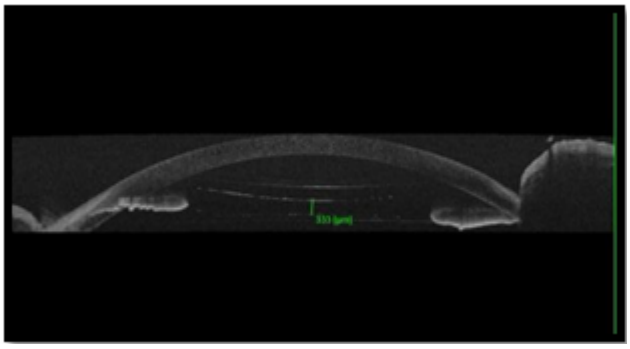

Figure 2: Shows vault-lens distance to be 0.75(¾) corneal thickness