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Case Report

Toxic anterior segment syndrome – A sequel of uneventful cataract surgery

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A report of a case of secondary glaucoma with pseudophakic bullous keratopathy which occurred as a sequel of TASS after uneventful cataract surgery and thereby underwent filtering surgery along with penetrating keratoplasty is being presented.

Case report

A 54-year-old male patient reported to our centre with history of painless, progressive diminution of vision in both eyes of four months duration. On evaluation, visual acuity in right eye was 6/36 improving to 6/18 with correction and 6/60 improving to 6/18 in left eye. On slit lamp examination there was nuclear sclerosis grade II in right eye and nuclear sclerosis grade II with central posterior subcapsular cataract in left eye. Cornea, anterior chamber and fundus were essentially within normal limits. Intraocular pressure (IOP) in right eye was 14 mm Hg and left eye was 16 mm Hg. No history of trauma, diabetes mellitus or hypertension.

Patient underwent phacoemulsification with hydrophilic acrylic in the bag PCIOL implantation in left eye under peribulbar anaesthesia with good postoperative visual recovery. Subsequently, five weeks later he underwent phacoemulsification with hydrophilic acrylic in the bag PCIOL implantation in right eye without any intraoperative complications. On postoperative day one, patient complained of mild pain in right eye and on examination there was mild lid oedema with photophobia, visual acuity was counting fingers at 2 m. On slit lamp examination there was limbus-to-limbus corneal oedema, anterior chamber showed severe inflammatory reaction of grade 02 flare and cells, and pupil was dilated and

Introduction

Toxic Anterior Segment Syndrome (TASS), previously known as sterile endophthalmitis and postoperative uveitis of unknown cause, was aptly termed as 'toxic anterior segment inflammation' by Monson et al.¹ It is defined as a sterile, acute postoperative inflammatory reaction caused by a non-infectious substance that accidentally enters the anterior segment, resulting in toxic cellular and extracellular damage to the intraocular tissues that may occur following any kind of anterior segment surgery. It mostly occurs in outbreaks after uneventful cataract surgery, as it is the most commonly performed anterior segment surgery. The process typically starts 12–48 h after cataract/ anterior segment surgery, and is limited to the anterior segment of the eye.

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non-reacting. IOP was 16 mm Hg by tonopen. USG B Scan did not show any posterior segment abnormality. In view of the sudden development of signs on day one endophthalmitis was suspected and patient was managed accordingly. Patient was then started with hourly topical 1% prednisolone acetate drops and oral prednisolone of 60 mg, the reaction in the anterior chamber reduced by the evening confirming a Toxic Anterior Segment Syndrome (TASS) (Fig. 1).

After one week IOP increased to 26 mm Hg for which patient was put on E/d Timolol, E/d Brimonidine, and oral Acetazolamide daily. Even after three weeks of maximum medical therapy there was persistent raised IOP. To lower the IOP, trabeculectomy with Ologen was performed (Fig. 2). On follow up, visual acuity was counting fingers close to face with IOP of 12 mm Hg without any medication. Five weeks later patient had features of persistent corneal oedema with endothelial decompensation suggestive of pseudophakic bullous keratopathy. Penetrating keratoplasty with a graft size of 8 mm was performed one week later (Fig. 3). Postoperatively visual acuity was 5/60 with well formed bleb and IOP 10 mm Hg. Two months later visual acuity was 4/60 improving to 6/24 with correction, clear corneal graft and filtering bleb, and IOP of 12 mm Hg. Patient is on regular follow up.

Discussion

TASS is a syndrome that can be caused by different factors whose identity is often unproven and it can occur following any kind of anterior segment surgery, but it is particularly common after cataract surgery. It has been frequently reported after adult cataract surgery and it has also been seen following paediatric cataract surgery.^{2,3}

TASS has been attributed to the introduction of toxins into the eye during surgery from glove talc, surgical instruments, drugs used intra-operatively, denatured ophthalmic viscosurgical devices (OVD) etc. In severe cases residual sequelae such as permanent corneal oedema and glaucoma occur.⁴ No definite systemic association of TASS has been found previously, however, diabetes and hypertension have been considered a

Fig. 1 – Corneal oedema and severe anterior chamber reaction.

Fig. 2 – A well formed filtering bleb post trabeculectomy.

significant association.⁵ The main differential diagnosis of TASS includes postoperative inflammation and endophthalmitis. These conditions tend to be confusing and mimicking each other, but timing is a crucial factor in deciding the final diagnosis. Postoperative acute endophthalmitis usually occurs 2–7 days after surgery associated with pain, lid swelling, chemosis, vitreous involvement and having an infectious origin.^{6–8} Postoperative inflammation is due to some mechanical insult to the corneal endothelium or iris during phaco and ECCE with only sector corneal involvement, or due to ultrasonic heat during phacoemulsification surgery.

This patient had typical TASS presentation, with mild pain, markedly decreased visual acuity, diffuse limbus-to-limbus corneal oedema, fibrin accumulation, severe anterior chamber reaction and fixed, dilated pupil^{1,6,8} within 24 h of uneventful cataract surgery. Intense steroid therapy, both topical and systemic, has been proven to be beneficial in treating TASS.^{7,9} This case responded to steroids, with no inflammation at the end of four weeks of treatment. This further confirmed our diagnosis of TASS as postoperative endophthalmitis actually worsens with steroids.

Fig. 3 – Postpenetrating keratoplasty with filtering bleb.

The cause for this isolated case of TASS could not be determined. Due to severity of the condition patient developed corneal oedema and secondary glaucoma for which surgical intervention had to be done. Timely diagnosis, steroid therapy and close monitoring are the main keys for properly managing TASS. A strict surgical protocol is a must which should be re-evaluated periodically and thus prevent the disease from occurring.

Conflicts of interest

All authors have none to declare.

REFERENCES

1. Monson MC, Mamalis N, Olson RJ. Toxic anterior segment inflammation following cataract surgery. *J Cataract Refract Surg*. 1992;18:184–189.
2. Huang Y, Dai Y, Wu X, et al. Toxic anterior segment syndrome after paediatric cataract surgery. *J AAPOS*. 2010;14:444–446.
3. Nizamani NB, Bhutto IA, Talpur KI. Cluster of Urrets-Zavalía syndrome: a sequel of toxic anterior segment syndrome. *Br J Ophthalmol*. 2013;97:976–979.
4. Holland SP, Morck DW, Lee TL. Update on toxic anterior segment syndrome. *Curr Opin Ophthalmol*. 2007;18:4–8.
5. Kutty PK, Forster TS, Wood-Koob C, et al. Multistate outbreak of toxic anterior segment syndrome, 2005. *J Cataract Refract Surg*. 2008;34:585–590.
6. Mamalis N, Edelhauser HF, Dawson DG, et al. Toxic anterior segment syndrome. *J Cataract Refract Surg*. 2006;32:324–333.
7. Ronge LJ. Toxic anterior segment syndrome: why sterile isn't clean enough. *EyeNet*. Nov-Dec 2002:17–18.
8. Davis BL, Mamalis N. Averting TASS: analyzing the cause of sterile postoperative endophthalmitis provides valuable clues for its prevention. *Cataract Refract Surg Today*. 2003:25–27.
9. Jehan FS, Mamalis N, Spencer TS, et al. Postoperative sterile endophthalmitis (TASS) associated with the memory lens. *J Cataract Refract Surg*. 2000;26:1773–1777.