ORIGINAL ARTICLE

Visual Outcome in Management of Posterior Capsular Thickening by Anterior Vitrectomy Through Limbal Route Corrected

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ABSTRACT

Aim: To evaluate the safety efficacy and visual outcome in the management of primary posterior capsulotomy through limbus.

Methods: This prospective intervention case series was conducted in Institute of Ophthalmology/Mayo hospital Lahore from January 2012 to January 2014. Complete ophthalmic examination of anterior and posterior segments including assessment of type of posterior capsular opacification, visual acuity, intraocular pressure and B scan were carried out. This study included 30 eyes of 28 patients who underwent anterior vitrectomy and capsulotomy performed through limbus. Mean follow up was 6 months. Surgical techniques, per operative and postoperative complications were recorded. Final visual acuity was also recorded. Outcome measures were assessment of visual acuity and complications.

Results: The study included 30 eyes of 28 patients with posterior capsular thickening who were treated with anterior vitrectomy with capsulotomy through limbal approach. There were 14(47%) male and 16(53%) female eyes. The mean follow up was 6 months (ranges from 3 to 24 months). In 12 eyes the intraocular lenses were implanted including 4 eyes (33%) with anterior chamber lens implantation and in 8 eyes (67%) with posterior chamber lens implantation. Visual acuity was improved in all eyes 6/60 in three (10%) eyes ,6/36 to 6/24 in one (3.3%) eyes 6/18 to 6/12 in sixteen (55%),6/9 to 6/6 in seven eyes (23%). Mean intraocular pressure ranged from 8 to 28. Complications included moderate uveitis in seven eye (23%), two (6.6%) eyes developed glaucoma, lens tilt occurred in three eyes (30%) due to poor support of posterior capsule, hypotony in two eyes (6.6%), vitreous hemorrhage in four (13%) eyes and insufficient capsular opening was noted in 2 eyes (6.6%) eyes. We found no case of recurrent posterior capsular opacification, retinal detachment and endopthalmitis. No eye developed recurrent posterior capsular thickening.

Conclusion: Anterior vitrectomy with posterior capsulotomy through limbus appears to be a safe and effective procedure to improve visual acuity in patient with thick posterior capsular thickening.

Keywords: Congenital cataract, management, posterior capsular thickening, anterior vitrectomy

INTRODUCTION

In developing countries, congenital cataract is the most common cause of blindness. The estimated incidence is about 1- 6/10,000 birth[1]. Congenital cataract is treated by extra capsular cataract extraction with intraocular lens implantation. The blindness may be due to the cataract itself or due to posterior capsular thickening after cataract extraction. The risk of posterior capsular thickness is 90% which decreases the vision[2]. The causes of posterior capsular opacification are multifactorial. It may be related to the age of the patient, surgical procedure residual lens matter, postoperative inflammation.

Now a days due to the development of new surgical techniques, instruments, microscopes, and intraocular lens implantations, the incidence of posterior capsular thickening has decreased. Mostly cataract extraction done with or without intraocular lens implantation. 25% of patients develop significant posterior capsular thickening within one year and about 50% of them become blind visually due to impaired vision or development of amblyopia[3].

Extra capsular cataract extraction is done with or without intraocular lens implantation in far flung areas where modern techniques and modern machines like YAG laser and vitreoretinal surgeons are not available. These surgeries may help to improve the visual outcome for the time being. But half of the cases become visually impaired due to posterior capsular thickening, or development of amblyopia[4]. Incidence of posterior capsular thickening increases due to retained lens matter post operative, inflammations, and improper medication use after surgery. In cases where the patient is of small age, mentally retarded, uncooperative, or cases in which posterior capsule is very thick and fibrosed, the

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application of YAG laser may lead to pitting of intraocular lens. In these areas we can perform surgical capsulotomy through anterior route or limbal route to save the vision.

MATERIAL AND METHODS

This prospective, interventional study was conducted Institute of Ophthalmology/Mayo Hospital K.E/M/University Lahore January 2012 to January 2014. A total of 30 patients with posterior capsular opacification were selected for this study from eye outdoor. Cases with posterior capsular opacification with or without intraocular lens implantation were included in the study. Cases with complicated cataract, glaucoma, diabetic cataract and posterior corneal opacities which effected vision were excluded from the study.

The age of the patients ranged from 6 to 18 years with a mean of years. After getting the consent, present and past history, socioeconomic and patient inquire about surgery, duration, and detail of vision and details of vision deteriorations. Complete examination included both general and ophthalmic examination. Ophthalmic examination included vision recorded by Snellens chart. Slit lamp examination, Posterior capsular opacities were graded according to Aslam and Patton[4] from grade 0 to 4, intraocular tension, and Detail fundus examination included macula, optic disc and peripheral fundus examination done by indirect ophthalmoscope and 90 D lens if fundus detail was not visible in B Scan, ultrasonographic examination was done to exclude retinal detachment and vitreous hemorrhage. After preparing the eye for surgical procedure under General anesthesia a 3.5 mm blade incision was given at limbus. A 27G needle bend at 30 degree angle was passed perpendicularly through the limbus to try to break the adhesion between anterior capsules, iris and part of posterior capsule and make the pupil rounded. And do anterior vitrectomy if the posterior capsule is thick cut the posterior capsule with Vana scissor by giving two vertical incision in the capsule then join them inferiorly to clear the centre to optical portion. Do anterior vitrectomy. 1cc Triamsilone injected intra cameral to visualize the vitreous and do anterior vitrectomy anterior chamber form with air. 10/0 stitches are applied. Post operative day steroid and broad spectrum antibiotic used hourly .followed up after one week, one month, and 3 months to record best visual acuity

RESULTS

A total of 30 eyes of 28 patients were included in this study. They underwent surgical capsulotomy with anterior vitrectomy. 14 patients were male 16 patients were female. Two patients were operated for two eyes. The common age group was between the ages of 6 to 10 years which were 56% of all age group. The age distribution of the patient is shown in Table 1. On Slit lamp examination Posterior capsular fibrosis was present in 16 cases, wrinkling in 9 cases and Elschining's pearls in 5 cases. The grading of the PCO can be seen in Table 2. At the time of admission visual acuity was c.f and hand movement, now it's improved from 6/60 to 6/6. Intraocular pressure ranges from 8 to 28.Raised iop was controlled by medication.

Table 1: Age distribution

Age years	Frequency	%age
6-10	17	56
11-18	13	44
Total	30	100

Table 2: Different group of PCO

Grading	Definition	Frequency	%age
Grade1	Pco not reaching the edge of optic	6	20
Grade 2	Pco reaching the edge	13	43.33
Grade 3G	Pco beyond the edge but visual axis is clear	9	30
Grade 4	Pco on the visual axis reaching the edge	2	6.66
Total		30	100

Table 3: Complications

Complications	Frequency	%age
Moderate uveitis	7	23
Glaucoma	2	6.6
Insufficient capsular opening	2	6.6
Soft eye	1	3.3
Vitreous hemorrhages	4	13
Removal of iol	1	3.3

DISCUSSION

There are 1-6/10,000 children become blind due treatable cause of congenital cataract. Congenital cataract is present in 1 out of every 2000 live births. It is responsible for more than one million childhood blindness in Asia. Now a days due to development of new technology , improved surgical techniques and intraocular lens implantation visual acuity may improved. But posterior capsular opacification is the common problem after cataract extraction. Although posterior capsulotomy and anterior vitrectomy is the standard procedure for congenital cataract, in some circumstances due to non availability to vitreretinal surgeons or vitrectomy machine or ND- YAG laser machine, only extra capsular cataract extraction is performed. Normally 25% patients develop posterior capsular opacification in a period of 5 years. They

may also develop blindness due to development of Amblyopia. In these cases YAG laser capsulotomy is difficult to manage because these fibrous opacities may result in the pitting of intraocular lens. To overcome these problems we have to adopt an alternative method to save the vision, money and time by managing within an ordinary surgical set up. We do surgical capsulotomy through limbus with the cut the posterior capsular thick membranewith the help of vana scissor to clear the central portion of pupil then Anterior vitrectomy performed. Wisemanet al [5] noticed that visual acuity improve to H.M to 20/30 in 87.5% of patients. Rantal et al [6] noticed that there was improvement of visual acuity in 7 out of 14 eyes. Another study done by Xie et al [7] noticed that 80% of patient visual acuity was better than C.F to 6/60 after YAG laser applications. Our study showed that before surgery the vision is C.F to H.M. It improved in all eyes. It became 6/60 in three (10%). 6/36 to 6/24 in one (3.3%), 6/18 to 6/12 in sixteen (55%) eyes,6/9 to 6/6 in seven eyes 23%) eyes. Mean intraocular pressure ranged from 8 to 28 mm of Hg controlled by beta blocker medications. Complications noticed by Wahab S at al[8] minor grade were vitreous hemorrhages in 9(4.1%) cases. He also noticed absence of retinal detachment in early post operative peroid. We noticed one (3.3%) case of retinal detachment after 15 months. In one case we remove the tilt intraocular lens. Ambler et al[9] reported in their study that incidence of retinal detachment is 1.4% after YAG laser capsulotomy within 6 months after the procedure. Lamb et al [10] noted the incidence of retinal detachment is 2% 9(4.1%) cases. Insufficient capsular opening was also noted by Wahab S et al in 8(3.6%) cases. In our study insufficient capsular opening was noticed in (6.6%). Gore et al [11] noted the time period between the cataract surgery and development of posterior capsular thickening was 2.49 years. In another study it was 24 months. In our study it was 18 to 24 months. The incidence of different type of PCO as compared to Gore et al noticed that Elschinig's pearls in pseudophakic and secondary fibrosis in aphakic eyes. In our study we also noticed the same results.

CONCLUSION

Anterior vitrectomy with posterior capsulotomy through limbal approach appears to be safe and an effective procedure to manage posterior capsular thickness.

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