ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 9, Issue, 1(L), pp. 23721-23723, January, 2018

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

A STUDY ON MANAGEMENT OF CATARACT IN COLOBOMATOUS EYES IN A TERTIARY EYE CENTRE OF JHARKHAND

Smita Anand and Shobhit Varma

Resident RIO, RIMS, Ranchi

DOI: http://dx.doi.org/10.24327/ijrsr.2018.0901.1524

ARTICLE INFO

Article History:

Received 15th October, 2017
Received in revised form 25th October, 2017
Accepted 23rd December, 2017
Published online 28th January, 2018

Key Words:

Coloboma, SICS, Cataractous coloboma

ABSTRACT

Aim: To Study On Management Of Cataract In Colobomatous Eyes In A Tertiary Eye Centre In Jharkhand

Methods: Total of 26 patients with colobomatous eyes were included in the study who underwent cataract surgery. Laterality of coloboma was documented with findings such as microcornea, iris, retinal and optic disc coloboma. Pre and post operative assessment was done with additional data regarding any other intervention. Small incision cataract surgery was done in all cases.

Results: The complications were seen more in cases with harder density cataracts, which are anticipated due to increased technical difficulties in these cases. In the preoperative assessment, the extent of the ocular structures affected by the coloboma was determined, and uncertainties about the degree of the posterior segment involvement was determined by B-scan ultrasound.

Conclusion: There needs to be difference in management of cataractous coloboma patients with and without disc & macula involvement. Patients without disc and macula involvement and relatively good visual acuity tends to have a better surgical outcome as per the normal SICS data but this is not true for patients for severely impaired visual acuity due to associated macula or disc involvement.

INTRODUCTION

Any notch, fissure or hole in any ocular structure is called as Coloboma. Cataract associated with congenital coloboma has significantly higher risk rate during surgery because of ill development of ocular structures during embryogenesis.[1,2]

Normal physiological closure of transient groove of neuroectodermal cup proceeds anterior and posterior from equator.[3] Failure of the embryonic fissure to close results in the typical form of congenital coloboma. Defects can be present in iris, ciliary body, lens, retina, choroid & optic nerve.

There is significantly increased risk of vitreous loss during surgery due to abnormal embryological formation of sclera, uvea & zonules. There is poor pupillary dilatation and accompanied microphthalmos. This might lead to phthisis bulbi.[1]

In primary coloboma there occurs isolated anomaly of lens indentation in periphery while in secondary there is ill development of zonules and associated ciliary body. Zonular dehiscence or absence is very commonly associated. Retinal colobomas have significantly increased risk for idiopathic rhegmatogenous retinal detachment. Giant retinal tears might be associated with primary coloboma.[4]

The prevalence of congenital coloboma is estimated to be 4.89 per 100 000 newborns.[5] Due to relatively low occurrence of coloboma there are very few studies on management of cataract in coloboma and post operative visual recovery.

MATERIAL AND METHODS

This retrospective study was done for the period from June 2015 to May 2017 in which data of 26 ocular coloboma patients who underwent cataract surgery in RIO, Rims Ranchi was collected and analysed. Small incision cataract surgery (SICS) was done in all cases. All the ocular abnormalities associated with cataract was charted. Laterality of coloboma was documented with findings such as microcornea, iris, retinal and optic disc coloboma.

Visual acuity was taken before and post cataract surgery using snellen's chart. The post operative visual acuity was taken after one month of surgery. Complete anterior and posterior examination was done using slit lamp and indirect ophthalmoscopy. Intraocular pressure was monitored and glaucoma associated cases were not considered in this study.

Corresponding author:* **Smita Anand
Resident RIO, RIMS, Ranchi

Biometry was performed using the Baush and lomb keratometer and contact method type A scan. Axial length measurement was done by locating the patient's preferred fixation point and taking an average of the 8 most accurate axial length readings. In eyes with significant nystagmus, null point was determined to get the keratometry readings.

RESULTS

Out of 26 patients 16 were males while 10 females. Mean age at time of surgery was 47.3 years. Only one eye of each patient was considered for study. Minimum 6 months of follow up was done for each patient post operatively. Most cases of coloboma had iris involvement which may or may not be associated with other structure involvement. There was isolated disc & retina involvement in just one case each.

Table 1 & 2 give the details regarding age, sex, laterality, coloboma, other associated findings, pre and post operative visual acuity with type of surgery done in each patient in the study. In all cases, the coloboma was of the typical form located inferonasally in the region of the embryonic fissure, but the extent of other ocular tissues involved varied. Preoperative cataract assessment was uneventful in eyes in which the coloboma spared the macula and optic disc. Four patients complaining monocular diplopia were taken for pupilloplasty.

Table I

S.No.	Laterality	Coloboma	Others
1	U/L	Iris, Choroid	OS prophylactic cryo
2	B/L	Iris, retinal, disc	Microcornea, nystagmus
3	B/L	Iris, retinal, disc	microcornea
4	B/L	Iris, retinal, disc	Microcornea, barrage laser
5	B/L	Iris, retinal, disc	Microcornea, barrage laser
6	U/L	Iris, retinal	Phacodonesis
7	U/L	Iris, retinal	--
8	U/L	Iris, retinal	
9	B/L	Iris, retinal, disc	Microcornea, Previous RD Sx
10	B/L	Iris, retinal, disc	Previous RD Sx
11	U/L	Retinal	--
12	B/L	Iris, retinal	Brown cataract
13	U/L	Iris, retinal	--
14	U/L	Iris, retinal, disc, macula	Microcornea, nystagmus, shallow AC , post op barrage laser
15	U/L	Iris, retinal	
16	U/L	Iris, retinal, disc, macula	Black cataract
17	U/L	Iris	Fuch's dystrophy
18	U/L	Iris, retinal, disc	Nystagmus, Previous RD Sx
19	B/L	Iris, retinal, disc, macula	Nystagmus
20	U/L	iris	Aborted retinal coloboma
21	U/L	Iris, lens, retinal	Gross Phacodonesis, exotropia
22	B/L	Iris	--
23	B/L	Iris, retinal, disc, macula	Post op Barrage laser
24	U/L	Iris	--
25	U/L	Disc	--
26	B/L	Iris, Lens, retinal, disc macula	Gross Phacodonesis

Table II

	Age/sex	Eye	VA before Sx	VA after Sx	Intraoperative complication	Postoperative complication
1	31/M	OS	6/60	6/6	--	--
2	16/M	OD	H.M.	6/24	--	--
3	35/M	OS	1/60	6/60	--	PCO
4	54/M	OS	0.5/60	6/36	--	Phimosis Capsule Release
5	42/M	OD	6/60	6/6	--	Mono-ocular diplopia
6	37/M	OD	6/18	6/6	PCR, No VD	--
7	28/F	OD	4/60	6/24	--	--
8	56/F	OS	6/60	6/18	--	--
9	40/M	OS	H.M.	1/60	Aphakia	--
10	19/F	OD	1/60	6/60	--	IRITIS, INCREASE IOP
11	79/M	OS	6/36	6/12	--	Mono-ocular diplopia
12	66/M	OD	5/60	6/9	--	--
13	71/M	OS	1/60	6/6	--	--
14	58/M	OD	H.M.	6/12	--	--
15	60/F	OD	1/60	6/18	--	PCO
16	62/M	OS	P.L.	6/24	--	Mono-ocular diplopia
17	70/M	OS	5/60	5/60	--	Pseudophakic bullous keratopathy
18	37/F	OD	H.M.	5/60	--	--
19	29/M	OD	1/60	6/36	--	Steroid Induced Glaucoma
20	45/F	OS	6/60	6/18	--	--
21	30/F	OS	H.M.	1/60	Aphakia	Striate Keratopathy
22	75/M	OS	6/60	6/9	--	--
23	34/F	OS	6/60	6/12	--	PCO
24	57/F	OS	P.L.	2/60	Aphakia	--
25	52/M	OD	6/24	6/6	--	Mono-ocular diplopia
26	97/F	OD	H.M.	6/36	Aphakia	--

DISCUSSION

In our study mean age of coloboma patients reporting with cataract was 47.3 yrs which indicates relative early occurence which is in tandem with most of the studies.

Cataract surgery is complicated in coloboma due to poor pupillary dilatation, hard cataract, zonular dehiscence, phacodonesis, Low scleral rigidity and crowded anterior chamber.[6]

The complications were seen more in cases with harder density cataracts, which are anticipated due to increased technical difficulties in these cases. Hence, it is recommended that cataract surgery be planned in the early stages of nuclear sclerosis, as postponement would only lead to a more difficult surgical situation.

In the preoperative assessment, the extent of the ocular structures affected by the coloboma should be determined, and uncertainties about the degree of the posterior segment involvement should be confirmed by B-scan ultrasound. When colobomas include the macula, axial length measurements may be difficult to obtain because of irregularities in the posterior globe shape. Thus, small changes in the orientation of the ultrasound probe may result in different measurements. It is unclear how to best manage this problem, but IOL selection can be guided by the patient's refraction. Because patients with macular involvement have eccentric vision, the most appropriate axial length may be obtained by locating the patient's preferred fixation point and measuring the distance to the corresponding retina.

The importance of an accurate axial length in an eye with severely limited visual acuity, however, is unknown because an error in selecting the appropriate IOL may not be visually significant. There needs to be difference in management of cataractous coloboma patients with and without disc & macula involvement. Patients without disc and macula involvement and relatively good visual acuity tends to have a better surgical outcome as per the normal SICS data but this is not true for patients for severely impaired visual acuity due to associated macula or disc involvement.

Another important assessment factor is to determine microphtalmos.

There is significant association between micophthalmia and coloboma with several genetic and multisystem disorders.[7] CHARGE (coloboma, heart defects, choanal atresia, retardation, genital anomalies, and ear or hearing abnormalities), Goldenhar's linear sebaceous nevus, Rubinstein- Taybi syndromes, trisomy 13, cat-eye, Wolf-Hirschhorn, Lenz's microphthalmia, Meckel-Gruber, Warburg's, Aicardi's syndromes and Goltz's focal dermal hypoplasia are some of the multisystem disorders associated with coloboma.[8]

Incomplete mydriasis and reactive miosis are frequent occurrences hence should always be anticipated. These can be handled by iris retractors, sphincterotomies or mechanical stretching.

It is of utmost importance to have a capsulotomy of adequate size and a sufficiently large pupil for smooth nucleus delivery. As observed in this study, the posterior capsular tear was noted following radial extension of the capsulorhexis while prolapsing the nucleus from the capsular bag. This complication can happen if resistance is encountered during hydroprolapse of a bulkier nucleus through a relatively smaller size capsulotomy. Achieving a large size capsulorhexis may be a challenge in itself in such eyes due to the small pupil and inadequate zonular support inherent in these eyes. In such circumstances where larger capsulotomy is required, a can opener capsulotomy would be more appropriate.

There is increased risk of retinal detachment post surgery. Appropriate centration of optic relative to ectopic pupil is important for better visual outcome. Silicone IOL is not recommended because retinal coloboma in future may need silicone oil based retinal detachment surgery. Vitreous loss may be seen from coloboma in presence of intact capsule.

Monocular diplopia post operatively was seen in 4 of the 26 patients. This was caused by edge of the optic bisecting the ectopic pupil. Pupilloplasty was done in patients to remove this complaint. Its still controversial whether all coloboma patients should undergo pupilloplasty. However it may be done in case of bilateral coloboma patients who report of monocular diplopia.

Acknowledgements

The study was possible due to active participation of all senior faculties and junior residents in the Department of Ophthalmology of RIO, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, INDIA.

References

1. Elder MJ. Aetiology of severe visual impairment and blindness in microphthalmos. *Br J Ophthalmol* 1994; 78:332-334.
2. Vaughn LW, Schepens CL. Progressive lenticular astigmatism associated with nuclear sclerosis and coloboma of the iris, lens, and choroid: case report. *Ann Ophthalmol* 1981; 13:25-27
3. Barishak YR. The development of the angle of the anterior chamber in vertebrate eyes. *Doc Ophthalmol* 1978;45:329-360
4. Hovland KR, Schepens CL, Freeman HM. Developmental giant retinal tears associated with lens coloboma. *Arch Ophthalmol* 1968; 80:325-331
5. Bermejo E, Martinez-Frias ML. Congenital eye malformations: clinical- epidemiological analysis of 1,124,654 consecutive births in Spain. *Am J Med Genet* 1998; 75: 497-504
6. Jaffe NS, Clayman HM. Cataract extraction in eyes with congenital colobomata. *J Cataract Refract Surg* 1987; 13:54e8.
7. Bermejo E, Martinez-Frias ML. Congenital eye malformations: clinical-epidemiological analysis of 1,124,654 consecutive births in Spain. *Am J Med Genet* 1998; 75: 497-504
8. Robb RM. Developmental abnormalities of the eye affecting vision in the pediatric years. In: Albert DM, Jakobiec FA, eds, Principles and Practice of Ophthalmology. Philadelphia, PA, WB Saunders, 1994; 2791-2798

How to cite this article:

Smita Anand and Shobhit Varma.2018, A Study on Management of Cataract In Colobomatous Eyes In A Tertiary Eye Centre of Jharkhand. *Int J Recent Sci Res.* 9(1), pp. 23721-23723. DOI: http://dx.doi.org/10.24327/ijrsr.2018.0901.1524

****