Original Article

Causes of Poor Visual Outcome After Bilateral Congenital/ Developmental Cataract Surgery in a Teaching Hospital, Lahore (Pakistan)

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Objective: To determine the causes of poor visual outcome after bilateral congenital/ developmental cataract surgery, like posterior capsular opacification, strabismus, glaucoma, retinal detachment and endophthalmitis in a teaching hospital, Lahore Pakistan.

Methods: This prospective study was conducted in Eye unit 1, Services Hospital, SIMS, Lahore from January,2010 to January, 2016.

During this periodwe evaluated 80 eyes in 40 children aged 6 years to 12 years with bilateral congenital cataract with no other associated posterior segment pathology. Male children were 26 and female were 14 in number. Follow up period was for 6 years.

A comprehensive detailed history, demographic data, surgical techniques and causes of poor visual outcome was noted like posterior capsular opacification, glaucoma, strabismus, retinal detachment and endophthalmitis.

Results: The incidence of posterior capsular opacification was observed in 45%,glaucoma in 2.5%,strabismus in 12.5%. Retinal detachment and endophthalmitis was not observed in any child after bilateral congenital cataract surgery.

Conclusion: The present study revealed that the early detection and treatment including refractive rehabilitation and regular and close follow-up are essential for good visual outcome. Better visual outcome can further be improved by parent's guidance and motivation postoperatively

Keywords: congenital cataracts, amblyopia, posterior capsular opacification, glaucoma, blindness.

Introduction

Congenital and developmental cataracts are the most common cause of treatable childhood blindness, but it is difficult to obtain a good visual function after surgical treatment in spite of modern surgical techniques, early and proper correction of refractive errors and visual rehabilitation.

The global incidence of this congenital disorder has been reported to be 1-15/10,000 live births.[1] Foster etal[2] reported that about 200,000 children are blind as a result of congenital cataracts. This blindness is a major problem of developed and developing countries and it is a priority for VISION 2020.[3]

The lack of visual stimulus in these children during the early years of life is responsible for blurring retinal image which disrupt the development of visual pathway. This visual deprivation adversely affect overall development of the child with far reaching effects onself esteem, psychosocial and peer interaction, educational, and occupational aspects.[4]

Restoring the vision of one blind child from cataracts may be equivalent to restoring the sight of 10 elderly adults 2 due to disability burden in terms of blind year. It is of utmost important to detect and diagnosed congenital cataracts to prevent amblyopia and blindness.[5] It has been noted that treatment of congenital cataract is a challenge to ophthalmologists, patients and parents in term of visual development and rehabilitation in the developing world.[6]

During the last few decades, the advancements in microsurgical techniques in congenital cataract surgery have improved the safety and visual status of paediatric cataracts,[6] although several studies have concluded that posterior capsular opacification, glaucoma, strabismus, nystagmus and mal development of binocular function aremajor complications of congenital cataract surgery which can lead to amblyopia and blindness.[8]

Several techniques have been developed for prevention of these complications by a number of techniques, for example for posterior capsular opacification, posterior curvilinear capsulorhexis, anterior vitrectomy ,intra-ocular lens implantation with optic capture and lens in the bag technique,[8] but still this major complication need attention for the

Prevention of blindness.

The objective of this study was to assess the incidence of posterior capsular opacification, glaucoma, nystagmus, strabismus, congenital cataract surgery.

Methods

This retrospective study was conducted in Eye-unit 1, Services Hospital, Lahore affiliated to Services Institute of Medical Science, Lahore from January, 2010 to January, 2016.

A Total of 40 patients with 80 eyes with bilateral congenital cataracts were completely evaluated before surgical intervention.26 male and 14 female patients were included in this study. Age range was between 6 year to 12 year and follow up period was for 2 years. Informed consent was taken from the parents/guardians of patients included in this study, ocular trauma, congenital glaucoma, anterior, segment dysgenesis, Lowe's syndrome, maternal rubella syndrome, trisomy, optic nerve abnormalities , retinopathy of prematurity and retinal detachment were not included in this study.

Pre-operative assessment included a comprehensive history, including perinatal history, history of ocular and systematic disorders, anterior and posterior segment examination, retinoscopy, ocular motility, axial length, keratometry, and ultrasonography to assess retinal status. Paediatric evaluation was done for systemic diseases and dysmorphic features in Paediatric unit of Services Hospital, Lahore. Specific tests like blood complete examination, urine complete examination, chest x-ray, serology for virus, renal function tests, serum calcium, parathyroid hormone and other necessary tests were done accordingly. Before surgical intervention, fitness for general anaesthesia was taken. Dilation of the pupil was done by using cyclopentolate1% and phenylepherine 10% at 90, 60, 30 and 15 minutes preoperatively. Surgical procedures included anterior capsulotomy/anterior continuous curvilinear capsulorhexis, irrigation and aspiration of lens matter, intraocular lens implantation. All cases remained on topical steroids and antibiotics eye drops for six weeks.

Patients were followed on first postoperative day and first postoperative week for detection of early postoperative complications. Then patients were followed after three months, six months and one year. In every visit patient were completely evaluated, including Vision, record of intraocular pressure, anterior and posterior examination.

Results

A total of 40 patients with bilateral congenital cataracts (80 eyes) were completely evaluated before surgical intervention. Male were 26and female were 14 **(Fig-1).** Age range was between 6 years to 12 years. Posterior capsular opacification occurred in 45%, glaucoma in 2.5%, and strabismus in 12.5%, as shown in **Fig-2-3.**

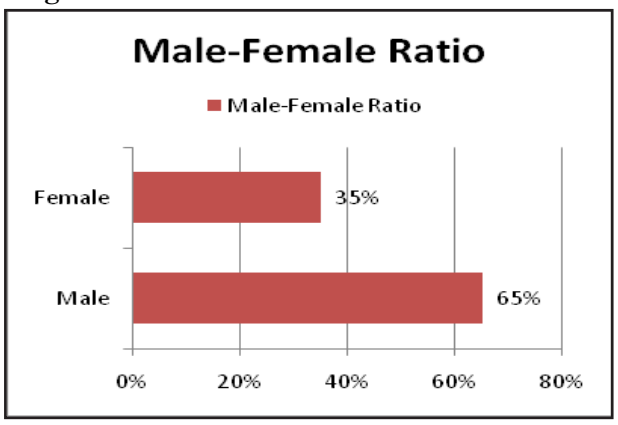

Fig-1: Shows male and female ratio.

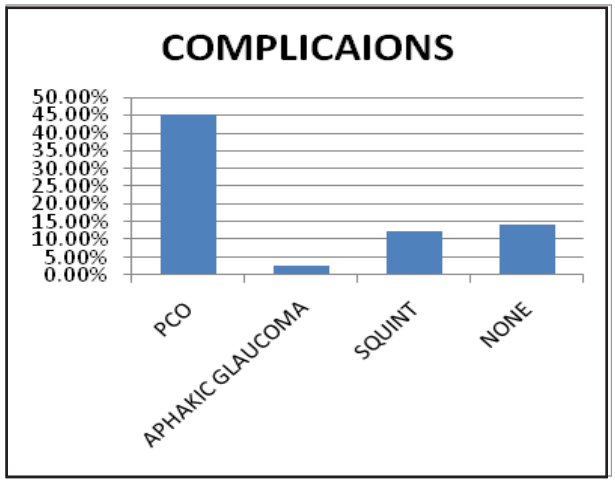

Fig-2: Shows complications.

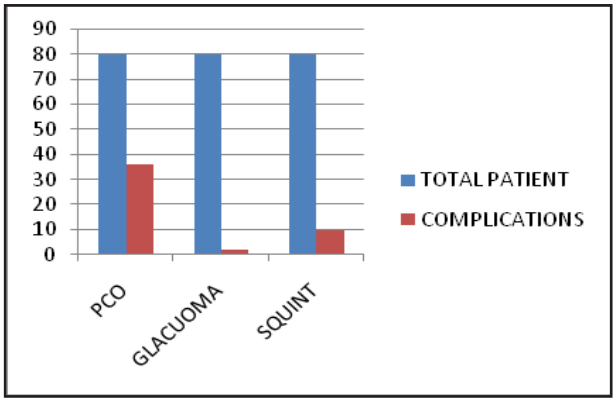

Fig-3: Shows total patient complications.

Discussion

In this study we assessed the factors of poor visual out come after congenital/developmental cataract surgery. It was noted in this study that posterior capsular opacification is still major cause of decreased vision in congenital cataracts, which can lead to poor visual prognosis due toamblyopia in children.

The posterior capsular opacification is occurs due to proliferation, migration, epithelial to-mesenchymal transition, collagen deposition and lens fibres regeneration of lens epithelial cells and these are the main cause of opacification. Its incidence after cataract surgery is nearly 100% in infants even when posterior capsulorrhexishas been performed without disruption of anterior vitreous phase, opacification, caused by in growth of lens epithelial cells on the vitreous surface, can be found months after surgery.[7]

In our study the posterior capsular opacification was noted in 45 % patients. Its incidence is very less as compared to other several studies.[14] A study conducted by Muzafferet al[15] who had noted posterior capsular opacificationin51.72% of cases in the first 90 days of follow-up. Our results also similar to Hosal and Biglan[14] who have shown decreased risk of posterior capsular opacification after posterior capsulorhexis and anterior vitrectomy.

However, our study is similar to Mazar et al in which rate of posterior capsular opacification is only 34%.[17]

In our study 5 (12.5%) out of 40 patients had squint, this study is consistent with Rohit et18 al in which incidence for squint was 14.4% but this is contrast to Ondracek et al[16] which noted squint in52% 0f cases of bilateral cataracts and 44% in unilateral cases.

2.5% had secondary glaucoma which is similar to Ondracek et al they noted in 4.35% of cases. Nystagmus was noted in 37.5% of children preoperatively and it was persists after surgery and it was more common in bilateral cases , it is contrast to Rohit et al and it was 77%.

In addition to all above cited factor another important factor is very poor compliance of the parents of the patients due to which postoperative management and amblyopic therapy was not carried out properly for visual improvement.

Conclusion

The present study revealed that the early detection and treatment including refractive rehabilitation and regular and close follow-up are essential for good visual outcome. Better visual outcome can further be improved by parent's guidance and motivation postoperatively.

Further studies with a larger paediatric patients group are necessary to confirm the optimal treatment of congenital cataract surgery.

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Medical News

Whole Tomato Extract May Prevent, Treat Stomach Cancer

Numerous studies have suggested that tomatoes have anti-cancer properties. A new study provides further evidence of this, after finding that whole tomato extract has the potential to treat and even prevent stomach cancer.

Researchers have found that whole tomato extract has the potential to combat stomach cancer.

Researchers from the United States and Italy found that whole extracts from two varieties of tomato - San Marzano and Corbarino-blocked the growth of stomach cancer cells and dampened their malignant characteristics.

According to the American Cancer Society, there will be around 28,000 cases of stomach cancer diagnosed in the U.S. this year.

Also referred to as gastric cancer, stomach cancer is most common among older adults; around 60 percent of adults diagnosed with the disease are aged 65 or older.

Previous studies have suggested that compounds found in tomatoes - such as lycopene, a carotenoid that gives tomatoes their red color - may help to fight cancer. However, Prof. Giordano and colleagues note that few studies have investigated the anti-cancer effects of whole tomatoes - a research gap they set out to address with their new study.

Growth of stomach cancer cells halted with whole tomato extracts. To reach their findings, the researchers tested the effects of whole extracts from San Marzano and Corbarino tomatoes on stomach cancer cell lines.

They found that each extract not only halted the growth of gastric cancer cells, but they also interfered with cell migration - whereby cancer cells begin to move away from the primary tumor to invade surrounding tissues - and led to cancer cell death. Furthermore, the researchers found that the anti-cancer effects of the tomato extracts were not down to one particular compound.

"Their anti-tumoral effect seem not related to specific components, such as lycopene, but rather suggest that tomatoes should be considered in their entirety," says study co-author Daniela Barone, of the Oncology Research Center of Mercogliano in Italy.

According to the researchers, their findings indicate that whole tomato extracts may be useful for the prevention and treatment of stomach cancer.