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OUTCOME OF CATARACT SURGERY IN CHILDREN

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ABSTRACT

Objectives: To evaluate the management and visual outcome of cataract surgery in children.
Study design: Descriptive.
Material and Methods: This study included one hundred pediatric patients having cataracts over a period of two year, from 1st January 2005 to 31st December 2006, at the Department of Ophthalmology, Saidu Teaching Hospital, Saidu Sharif, Swat.
Results: Age range was fourteen years and below. Sixty five (65%) patients were males and thirty five (35%) females. Sixty three (63%) patients had congenital or developmental cataracts and thirty seven (37%) had traumatic cataracts. Extracapsular cataract extraction (aspiration) was performed on 150 eyes. Post operative visual acuity was recordable in 112 eyes. A corrected visual acuity of 6/18 or better was obtained in 50 (44.64%) eyes. Forty one (36.6%) eyes obtained visual acuity of 6/24 to 6/60, while in 21 (18.75%) eyes the visual acuity remained below 6/60. The most common postoperative complication was development of thick posterior capsule, which occurred in 51 (34%) eyes and vitreous loss in 10 (6.6%) eyes. Pupil block glaucoma developed in 4 (2.66%) eyes. No case developed endophthalmitis. Posterior chamber IOL was implanted in 9 (6%) eyes.
Conclusions: Management of cataracts in children is still a problem and delayed presentation leads to poor visual outcome. The public should be educated to seek early treatment for childhood cataracts. Paramedics and doctors should be made aware of the problem and its management. Management of unilateral cataracts is still a difficult problem. Therefore search should continue for better surgical approach and better methods of correction of aphakia so as to achieve better visual outcome.
Key words: Childhood Cataracts, Congenital Cataracts and Traumatic Cataracts.

INTRODUCTION

Pediatric cataract blindness presents an enormous problem to developing countries in terms of human morbidity, economic loss and social burden.[1] Children below 14 years of age make up 42.3% of the population in Pakistan as calculated in the national census of 1998.[2] Congenital and infantile cataracts are relatively a common clinical entity, affecting 1 in 2,000 live births. In Pakistan an estimated 33,840 children are blind because of childhood cataracts[3]. The problem is of great concern in the developing countries, where it may form a significant proportion of blind children because of the unoperated cataracts.[4,5] Today, the management of congenital and developmental pediatric unilateral and bilateral cataracts is still a problem, particularly because untreated lens opacity has a high amblyogenic potential.[6] This produce significant psychological impacts on the patients and their families.[7] The proper evaluation and management of childhood cataracts will lead to reduction in childhood blindness.

Health service structure, the best possible surgical technique, health education and community screening to promote early referral, good surgical follow up and training of multidisciplinary teams based at specialist children eye centers are required for effectively controlling the childhood cataracts.[8]

Descission was widely practiced in the early part of twentieth century for the treatment of childhood cataracts[9]. The origin of simple irrigation/ aspiration of lens is attributed to Rhazes and other members of the Muslim Arabian School[10] and later-on reintroduced by Schie in 1960[11]. It is done as

soon as possible preferably within 2-3 months of age and Yag. Laser capsulotomy done later if needed. It gives results as good as can be achieved with an invasive procedure of primary anterior vitrectomy.[12] Opacification of the visual axis is the most common complication of cataract surgery in children.[13] This can be avoided by performing anterior vitrectomy and optic capture after posterior capsulotomy. Posterior capsulotomy alone is not adequate except in older children.[14]

Corrections with glasses, IOL, contact lens or epikeratophakia have been able to solve the problem satisfactorily. IOL power calculation is satisfactory in young children,[15] though the problem of adjustment of IOL power as the age advances is yet to be solved.

Visual outcome is better in eyes with bilateral cataracts compared to unilateral cataracts. The results will also depend on early surgery as well as adequate orthoptic therapy and compliance with wearing the correction.[16] Visual results are poor after surgery in cases of unilateral congenital cataracts[17].

The study is undertaken to assess the visual outcome of the available surgical procedures and assess the results, so that a strategy for intervention in childhood cataracts is evolved for better visual outcome.

MATERIALS AND METHODS

This prospective study over a period of two years from 1st January 2005 to 31st December 2006 was conducted in the Department of Ophthalmology, Saidu Teaching Hospital, Saidu Sharif, Swat. A total of 100 consecutive pediatric subjects with cataracts below 14 years of age of either sex were included.

Visual acuity in age group 3-14 years, was tested by illiterate "E" or Snellen's chart. Below the age of three years, the determination of visual acuity is very difficult and we had a rough idea of visual acuity from the history and response of the patient while presenting a toy (small torch) to the patient from various directions and at various distances.

Anterior segment was examined with slit-lamp biomicroscope, Intra Ocular Pressure with Schiotz tonometer and fundus with direct and indirect ophthalmoscope. Pediatrician's and anaesthetist's opinion was obtained on all such patients.

Investigations like urine routine examination, serum calcium, blood glucose, IgM for rubella, Ig G for toxoplasmosis by ELISA, haemagglutinin test for syphilis and various other tests were also performed when considered necessary.

Surgery was performed under general anesthesia. If posterior capsule was found thickened, primary central posterior capsulotomy was performed. Peripheral iridectomy was performed in routine. If IOL was indicated, it was inserted in the capsular bag. Surgery was performed under the operating microscope while in bilateral cataracts both eyes were operated in the same session.

As temporary measure 14.00 DS glasses were prescribed to those having bilateral surgery, right on the day of discharge and its use and significance was explained to the parents. They were advised to come for check up after one week.
Each patient was examined after one week and then after one month. Now proper refraction was also done. Last examination was done after 6 months. All the patients turned for follow up because the parents were worried about the visual outcome.

RESULTS

Total admissions in two years were 3555 and childhood cataracts made up 2.8% of all admissions. Out of these on e hundred patients, 63 (63%) patients had congenital or developmental cataracts, while 37 (37%) had traumatic cataracts. Forty (40%) had unilateral cataracts and sixty (60%) bilateral. Sixty five (65%) of the patients were male and thirty five (35%) female.

A total of 150 eyes (100 patients) had been operated for cataracts. In 112 out of 150 eyes visual acuity could be tested almost correctly, while in the rest (38 eyes) visual acuity could not be determined correctly because of low age (below 3 years). These 38 eyes were not included in the

results of visual outcome. Fifty (44.64%) of these eyes achieved a corrected visual acuity of 6/18 or better, while 41 (36.60%) of the eyes had their post-operative visual acuity of 6/24 to 6/60. Twenty one (18.75%) of the eyes could not improve even up to 6/60. (Figure No. 1)

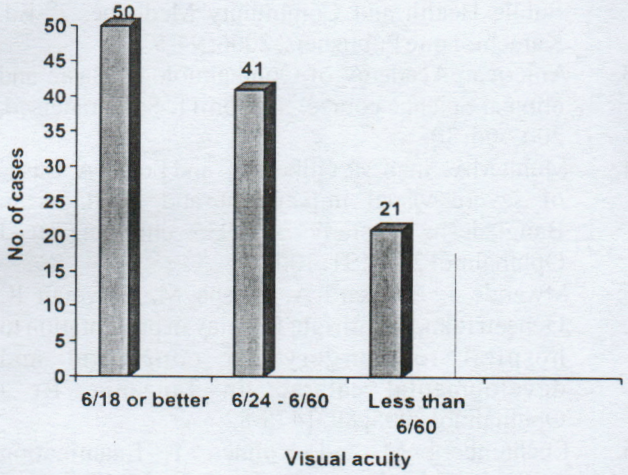


Figure No. 1: Post-operative corrected visual acuity (Total eyes = 112)

In case of congenital and developmental cataracts out of a total 75 eyes the visual out come in the three groups was 31 (41.33%), 32 (42.66%) and 12 (16.00%) respectively. (Figure No. 2)

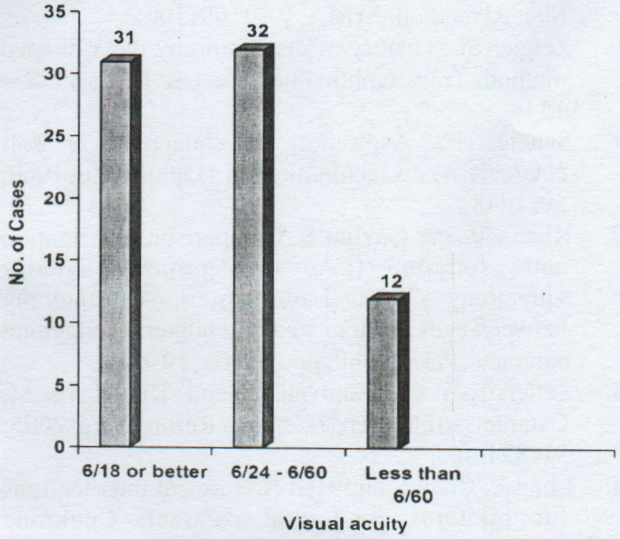


Figure No. 2: Post-operative corrected visual acuity of congenital/ developmental cataracts (Eyes = 75)

In case of traumatic cataract out of a total of 37 eyes, 19 (51.35%) of the eyes got corrected visual acuity of 6/18 or better, 9 (24.32%) could get visual acuity of 6/24 to 6/60 and 9 (24.32%) could not get corrected visual acuity of even 6/60. (Figure No. 3)

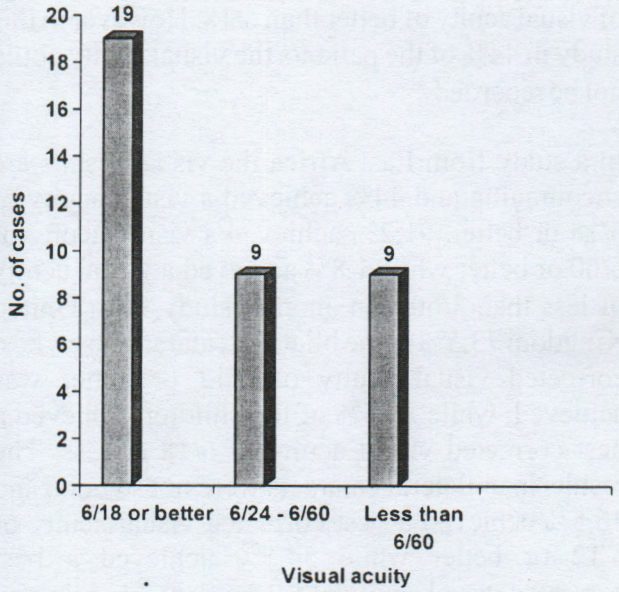


Figure No. 3: Post-operative corrected visual acuity of traumatic cataracts (Eyes = 37)

Development of posterior capsular opacification (PCO) was the most common post-operative complication occurring in 51 (34%) eyes, vitreous loss in 10 (6.66%) eyes and four (2.66%) eyes developed pupil block glaucoma. Fortunately none of the cases developed endophthalmitis. Follow up of the children was very good and no children were lost to follow up.

DISCUSSION

Ophthalmologists have always been taking great interest in the search for medical or surgical treatment of childhood cataracts and the correction of residual refractive errors. Most of the results of our study are similar to the older studies but a few are quite different because of our socio-economic conditions and geographical situation.

The results of this study regarding visual outcome were more or less within the range of other studies. Visual acuity of 6/60 or better was obtained in 81.24 % of the eyes. The goal obtained by another study is 75 % [18] which is not too much different from this study. Another study, carried out in Pakistan shows visual acuity of less than 6/60 only

in 7 % and 93% had gained visual acuity of 6/60 or better[19], where all children were implanted IOLs. Yet another study from this part of the world has better results than this, with a 16.4% achievement of visual acuity of better than 6/18. However in this study in 44% of the patients the visual acuity could not be recorded [20]

In a study from East Africa the visual results are encouraging and 44% achieved a visual acuity of 6/18 or better, 91.2% achieved a visual acuity of 6/60 or better while 1.8% achieved a visual acuity of less than 3/60[21]. In another study from United Kingdom 73.5% of the bilateral cataract cases, best corrected visual acuity of 6/12 or better was achieved, while 20.5% of the children achieved a best corrected visual acuity of 6/18 or less. The results in unilateral cataracts were not so good and 46.5% achieved a best corrected visual acuity of 6/12 or better while 34.5% achieved a best corrected visual acuity of 6/18 or less [22] In bilateral cataracts, aphakia (after cataract extraction) was corrected with glasses.[23] Unilateral cases are more amblyogenic[24]. No significant difference in visual outcome between lensectomy and lens aspiration with primary capsulotomy for children with bilateral cataracts was found in a study in South India.[25].Correction of aphakia with IOL, contact lens or epikeratophakia must be associated with patching of the good eye[26] for development of vision in the affected eye below the age of 6-7 years[23]. But in our study IOL has been implanted in 9 eyes only (in unilateral cases). All bilateral cases have been corrected with glasses. Not a single case has accepted contact lenses.

Posterior capsular opacification (PCO) developed in 51 (34%) eyes. In other studies it has been shown to be 75 %[19] and 50%[14]. The rate of post-operative glaucoma is given as 20%[28], while only 4 (2.66%) eyes have developed post-operative glaucoma in our study. The incidence of pos-operative endopthalmitis in cataract surgery is 0.12 % to 1 %[29]. But fortunately in our study not a single case has developed endophthalmitis which is highly encouraging.

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