PATTERN OF CHILDHOOD GLAUCOMA

Shakya S.¹

Koirala S.²

Pradhan E.³

ABSTRACT:

Glaucoma is one of the important causes of blindness in children all over the world¹. Childhood glaucoma encompasses a wide variety of conditions ranging from primary congenital glaucoma to different acquired varieties. They may present with only ocular involvement or as a part of a syndrome with multiple system involvement. The visual prognosis of childhood glaucoma depends upon the structural involvement, stage of presentation, time of intervention and their follow up². Though all glaucomas are known to produce blindness, childhood glaucoma unlike the glaucoma in adults have different disease process which enables the optic nerve fibers to regain their functional integrity once the IOP is brought down to normal.³ Thus, early diagnosis and early treatment to achieve normal intraocular pressure can, to some extent, bring back one's vision. Childhood glaucoma certainly needs to be addressed with much more emphasis than that of adult glaucoma, as it may threaten physical as well as mental growth if not tackled at proper time to retain visual stimuli.

Most of the literatures on childhood glaucoma have emerged from western world ^{4,5,6}. There has been no literature in this regard from Nepal and profile of childhood glaucoma is yet to be determined. This was a retrospective study carried out by Glaucoma Unit B.P. Koirala Lions Center of Ophthalmic Studies with the main intention to see the profile of glaucoma in Nepalese children.

Out of a total of 475 cases of glaucoma seen in a period of 5 years, 27 (5.68%) were found to be the cases of congenital glaucomas.

Primary congenital glaucoma (PCG) was most frequently seen among children. Majority of the cases of PCG presented late, after 3 years of age, with significant amount of visual loss. Most of them were brought to hospital for the complaint of watering and enlargement of eyeball.

-
- 1 Assistant Professor, Chief Glaucoma Unit; Coordinator, Bachelor of Optometry Program, B.P. Koirala Lions Center for Ophthalmic Studies, Institute of Medicine, Tribhuvan University.
 - 2 Associate Professor; Executive Director, B.P. Koirala Lions Center for Ophthalmic Studies, Institute of Medicine, Tribhuvan University.
 - 3 Resident in Ophthalmology III Year, B.P. Koirala Lions Center for Ophthalmic Studies, Institute of Medicine, Tribhuvan University.

INTRODUCTION:

Glaucoma is known to be one of the important causes of blindness in children, in developing as well as developed countries in the world^{6,7}. Childhood glaucoma comprises not just the primary congenital type but also other glaucomas associated with local and systemic congenital type but also other glaucomas associated with local and systemic congenital anomalies and various secondary glaucomas.

Blindness in children cripples the child not only in terms of vision but also hampers the physical and mental growth due to cessation of visual stimuli. Glaucoma in children differs from the adult onset type in its course of pregression and regression. It requires much more attention in its management as it is not just known to cause blindness but also leads to buphthalmos due to stretching of immature ocular tissues as the result of raised intraocular pressure (IOP). On the other hand, if IOP is brought down to normal in time, the optic nerve fibres may regain their function as the result of which the patient may get back his/her vision to some extent.

In developing countries, there are practical difficulties in the diagnosis of childhood glaucoma owing to illiteracy among the general population and inadequate facilities for proper evaluation. As yet no proper evaluation of childhood glaucoma has been carried out in Nepal.

This study was therefore intended to provide baseline informations on it.

MATERIAL AND METHODS:

All the patients below 15 years of age attending glaucoma clinic, BPKLCOS, IOM were included in this study. Records of all the childhood glaucoma presented in 5yrs period (1994-1998) were retrieved and analyzed to see epidemiological profile, presenting features and pattern of the disease.

RESULTS:

475 case of various types of glaucomas were seen in 5 years period, 27 of them (5.68%) were of child-

hood glaucoma. Primary congenital glaucoma accounted for 70.4% of total childhood glaucoma while secondary glaucoma was encountered in 22.2%, only 7.4% of them cases associated with congenital anomalies (Table 1).

Table 1
Pattern of Childhood Glaucoma

Type of Glaucoma	Num.	Per.
Primary congenital glaucoma	19	70.4
Glaucoma associated with congenital anomalies	2*	7.4
Secondary glaucoma	6	22.2
Total	27	100

* Down's syndrome-1, Aniridia-1

No significant differences were seen regarding the sex distribution. Majority of them were brought for consultation only after the age of 3 years (Figure 1).

The commonest symptom among all the 19 cases of primary congenital glaucoma was watering. Other common symptoms were enlargement of the eye ball followed by photophobia (Figure 2). The patients presented with multiple symptoms and every symptom was considered separately.

Majority of children had impaired vision at the time of presentation and 2 eyes could not perceive the light (Table 2). Visual acuity could not be recorded in 7 cases due to various reasons like, too young to be taken into consideration, uncooperative and so on.

Figure 2
Presenting Symptoms
(Primary Congenital Glaucoma)

Table 2
Visual Acuity at the Time of Presentation

Vision	Number of Eyes
6/6-6/18	5
6/24-6/60	9
5/60-3/60	5
<3/60	3
NPL	2

Visual acuity could not be recorded in 7 cases

18 out of 19 primary congenital glaucomas (PCG) cases had bilateral involvement. (Figure 3).

Figure 3
Laterality
(Primary Congenital Glaucoma)

Twenty-nine eyes of 19 case of PCG had corneal diameter of 13-15 mm, seven had over 15 mm and 2 eyes had corneal diameter within normal limit. (Figure 4).

Figure 4
Corneal Diameter
(Primary Congenital Glaucoma)

Cup disc ratio could be evaluated only in 31 eyes. 27 of them revealed large cup disc ratio between 0.4:1 to 0.6:1. Only four eyes showed normal cupping. Fundus could not be evaluated in 7 eyes due to dense corneal scarring. (Table 3).

Table 3
Clinical Findings (Cup Disc Ratio)

CDR	Number of Eyes
0-0.3	4
0.4-0.6	17
0.7-0.9	8
>0.9	2

CDR could not be evaluated in 7 eyes due to dense corneal scarring.

Twenty six eyes of 19 cases of PCG had intraocular pressure ranging from 21-30 mmHg, 7 eyes had intraocular pressure between 31 and 40 mmHg, whereas only 3 eyes had IOP below 21mmHg (Figure 5).

Figure 5
Intraocular Pressure
(Primary Congenital Glaucoma)

Twenty-three eyes of 19 cases of PCG underwent trabeculotomy combined with trabeculectomy, 10 eyes underwent trabeculectomy, 3 eyes underwent trabeculotomy and 2 eyes had to be enucleated for painful blind eye. (Figure 6).

DISCUSSION:

Childhood glaucoma accounted for 5.68% of total glaucomas in this study. Primary congenital glaucoma was the commonest, accounting for 70.4% of the total cases. Primary congenital glaucoma is estimated to affect less than 0.05% of ophthalmic patients, although patients with the disease account for a significantly higher incidence in institutions for the blind comprising 2% to 15% of total cases⁸. Secondary glaucoma was seen only in 22.2% of the total cases and glaucoma associated with other congenital anomalies were very few in number.

In this study, majority of the cases presented very late after the age of 3 years whereas primary congenital glaucoma is known to be more commonly seen and present before 3 years of age⁷. Unlike in other studies where males were found to have higher incidence of this disease, comprising approximately 65% of cases⁷, there was no gender difference in the present study. Males and females were almost equally affected. Almost all the cases of primary congenital glaucoma presented with the symptoms of watering and many of them presented with the buphthalmos and photophobia. This kind of late presentation was probably due to illiteracy and unawareness of this disease entity in the community. Majority of the cases had impaired vision

while only few had vision within normal range. This is again due to late presentation. The visual impairment was due to corneal scarring and optic nerve head damage. Most of the cases had bilateral involvement of their eyes with enlargement of their corneas ranging from 13mm to over 15mm. The fundus evaluation showed the large cup disc ratio ranging from 0.4 - 0.9 or more than 0.9. The intraocular pressure was recorded higher than 21 mmHg in majority of the cases, only 3 eyes having intraocular pressure less than 21 mmHg. Since most of them were brought to us with grossly enlarged cornea with limbal distortion, they had to undergo trabeculectomy combined with trabeculotomy and infact two of the eyes were enucleated because of gross ocular distortion, painful and blind eye.

CONCLUSION:

The childhood glaucoma is the common cause for blindness in children and is the disease process which if diagnosed and treated in time can prevent the child from not just being a blind but also help in the process of mental and physical growth. Lack of awareness regarding this disease is producing many blind children every day in our community which has to be looked with a critical vision.

Primary congenital glaucoma is the commonest form of childhood glaucoma. Most of them present to us very late with unrepairable vision and distorted, cosmetically undesirable eyeballs. Emphasis should be given to incorporate congenital glaucoma awareness program with eye health awareness programs made available to community.

ACKNOWLEDGEMENT:

This paper was originally presented at the Paediatric Ophthalmology conference held in Kathmandu, 1999, and was based on a study carried out at glaucoma unit, B.P. Koirala Lions Centre for Ophthalmic Studies. The authors express their appreciation and gratitude to the research unit of BPKLCOS for guiding us in carrying out this study. We are indebted to Mr. Rajendra Lamsal for his assistance in preparing and shaping out this article.