

Refractive Error, Strabismus and Amblyopia in Congenital Ptosis

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ABSTRACT

Introduction: Congenital ptosis is often associated with visual impairment. The aim of the study is to find out the pattern of refractive error, strabismus and amblyopia in patients with congenital ptosis in a hospital setting.

Methods: This is a hospital based prospective and descriptive study conducted at Tribhuvan University, B P Koirala Lion's Centre for Ophthalmic studies in Nepal from February 2003 to July 2004. All the consecutive cases with congenital ptosis were included and cases with pseudoptosis were excluded from the study.

Results: Among the 78 cases (95 eyes) of congenital ptosis, refractive error was present in 13 cases (16.7%) with astigmatism as the commonest refractive error (8.9%). Strabismus was found in 23 cases (26.9%) of congenital ptosis. Among the strabismus, combined exotropia with hypotropia was found in the majority of cases (16.7%). Visual impairment due to amblyopia was found in 15 cases (19.2%) of congenital ptosis with mixed strabismic and refractive etiology as the commonest one (46.7%) followed by pure strabismic (26.7%), pure refractive (20%) and stimulus deprivation amblyopia (6.7%).

Conclusions: Patients with congenital ptosis have higher rate of amblyopia due to greater prevalence of strabismus and refractive errors although stimulus deprivation amblyopia is less common. Early ophthalmic evaluation and timely treatment of these conditions may help prevent the irreversible visual impairment in case of congenital ptosis.

Key Words: amblyopia, congenital ptosis, refractive error, strabismus

INTRODUCTION

Congenital ptosis is a common congenital childhood ocular problem usually resulting from dysgenesis of the levator muscle or rarely due to defect in its aponeurosis.¹

It may be simple or complicated with co-existing ocular anomalies.² The higher proportion of concomitant strabismus, anisometropia, and induced astigmatism in congenital ptosis compared to normal eyelids may lead

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to amblyopia.³ Hence it is essential for all patients with congenital ptosis to have a comprehensive ophthalmic evaluation and not just an evaluation of eyelids. Timely detection and appropriate treatment of these associated ocular conditions of congenital ptosis could help in proper visual and psychological development of the child, preventing irreversible visual impairment.

The aim of the study is to explore the patterns of refractive error, strabismus and amblyopia in congenital ptosis. Given the fact that there are limited studies in Nepal in the field of the congenital ptosis, I hope this study will be helpful for proper evaluation and management of such cases.

METHODS

This is a hospital based prospective and descriptive study conducted at B P Koirala Lion's Center for Ophthalmic Studies (BPKLCOS), Tribhuvan University Teaching Hospital (TUTH) during the period of February 2003 to July 2004. Ethical approval was obtained from the medical ethics committee of the Institute. Informed consent was taken from patient, and parents or guardians in case of children before the enrollment in the study. All the consecutive cases of congenital ptosis attending BPKLCOS were included in the study. Acquired ptosis and pseudoptosis were excluded from the study. Detailed history, examination and relevant investigation findings were recorded in the specially designed proforma.

Snellen's visual acuity was recorded. For preschool children, Catford vision drum was used and for infants flash light was used to see whether they followed light or not. Palpebral fissure height, levator function, margin reflex distance one (MRD1) were recorded. Such measurements were taken thrice and average was calculated and recorded. Bell's phenomenon, presence of synkinesis like Marcus Gunn Jaw Winking phenomenon, Marin-Amat phenomenon were noted. Likewise lagophthalmos, upper lid crease, variability of drooping, corneal sensation, head posture were also recorded. Extraocular motility was checked in all positions of gaze and cover test was carried out in every patient to find out associated strabismus. Anterior and posterior segment examination was done to find out associated ocular problem with the help of slit lamp, direct ophthalmoscopy and 90D/ 20D lenses (Volk) for indirect ophthalmoscopy. Children and adults with reduced vision underwent refraction and cyclorefraction. A diagnosis of myopia was made if it was more than -0.5 diopter. Hypermetropia was recorded if it was more than +1 diopter after cycloplegic refraction. Astigmatism was recorded if it was more than 0.50 diopter. Diagnosis of amblyopia was made if the vision was 6/9 or worse or the visual acuity difference of two lines between two eyes with the best correction.⁴

Investigations were done to rule out systemic conditions if suspected or as a part of pre-op evaluation. Available old photographs were reviewed and photographic documentation was done whenever possible.

Data was analyzed in statistical package for the social sciences version 11.

RESULTS

A total of 78 cases (95 eyes) with congenital ptosis presented during the study period. The age ranged from 1-51 years with a mean of 16 years. Ptosis was unilateral in 61 cases and bilateral in 17 cases. Congenital simple ptosis was present in 45 cases (57.7%) whereas 33 cases (42.3%) were congenital complicated ptosis.

About 24 eyes out of 95 eyes (25%) with congenital ptosis had presenting visual acuity of less than 6/18 (Table 1).

The significant refractive error was found in 13 cases (16.7%) of congenital ptosis. Out of them, seven cases (8.9%) had astigmatism whereas three cases (3.9%) each had myopia and hypermetropia (Table 2).

Strabismus was present in 23 cases (26.9%) of congenital ptosis. Among the strabismus, exotropia with hypotropia was found in 13 cases (16.7%). It was followed by exotropia in four cases (5.1%) and hypotropia in two cases (2.6%) (Table 3).

Amblyopia was found in 15 cases (19.2%) of congenital ptosis. Amblyopia due to mixed etiology was the commonest type of amblyopia comprising of seven cases (46.7%). Like-wise, four cases (26.7%) had strabismic amblyopia, three cases (20%) refractive and one case (6.7%) stimulus deprivation amblyopia. Amblyopia was more common in congenital complicated cases than in congenital simple ptosis (Table 4).

DISCUSSION

In our series of 78 cases (95 eyes) of congenital ptosis, it was unilateral in 61 cases and bilateral in 17 cases. Refractive error in this study (16.7%) was nearly similar to the other previous studies in congenital ptosis.^{5,6} Some studies had also reported the higher refractive error in congenital ptosis of up to 70%.⁷ The higher proportion of refractive error in the ptotic eyes than in the normal lid population was also reported by studies from Nepal and elsewhere,^{4,8-11} except few studies with higher refractive error in the normal lid population.^{12,13}

Astigmatism was the commonest type of refractive error with

congenital ptosis in this study like in other studies.^{7,14-19} Unlike the finding in congenital ptosis, myopia was the commonest refractive error in the normal school children.^{4,8,13}

Strabismus was present in 26.3% of the congenital ptosis in our series. This proportion was comparable to the findings of other previous studies which range from 20-34%.^{6,14,16,18, 20,21} Unlike these studies, Broniarczyk-Loba et al have reported the higher rate of strabismus in their series (68%).¹⁶ But the morbidity with strabismus was very less (1.6%) in school children of normal lid condition in one of the study from Nepal.⁴

Combined exotropia and hypotropia was the common form of strabismus (16.7%) in congenital ptosis in our study. This higher proportion of hypotropia in congenital ptosis may be due to the co-existing superior rectus muscle abnormalities because of common embryological origin of superior rectus muscle with levator muscle. Esotropia was the common association with unilateral ptosis and exotropia with the bilateral ptosis in a series by Gusek-Schneider et al.¹⁴ Likewise, esotropia, exotropia and hypertropia respectively were the co-existing strabismus with ptosis in a series by Dawson et al.⁶

Unlike these findings on congenital ptosis, alternate divergent squint was the commonest type of strabismus (1.4%) in school screening of normal child.⁴

Amblyopia was found in 19.2% of the patients with congenital ptosis in this study. It was more in congenital complicated ptosis than in congenital simple ptosis. The

rate of amblyopia in congenital ptosis was also similar to many other studies in congenital ptosis which ranged from 19-25%.^{5,18,19,22,23} However, the rate of amblyopia was quite higher in some of the other studies.^{7,14,16,17}

Among the cases with amblyopia in this study, combined strabismus and refractive error was the cause for amblyopia in 46.7% of cases. It was followed by pure strabismic amblyopia (26.6%). The amblyopia due to strabismus was also comparable to other studies.^{5,19,21}

The ametropia as a third commonest cause of amblyopia in this series was also consistent with finding from some previous studies.^{5,19,21} In this study, the occlusion amblyopia was a least common cause for amblyopia in congenital ptosis as in other series.^{5,21,23}

CONCLUSIONS

Patients with congenital ptosis have higher rate of amblyopia due to greater prevalence of strabismus and refractive errors although stimulus deprivation amblyopia is less common. Early ophthalmic evaluation and timely treatment of these conditions may help prevent the irreversible visual impairment in case of congenital ptosis.

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Table 1. Visual acuity of ptotic eyes

	Visual Acuity				Total
	6/6-6/18	6/24-6/60	5/60-3/60	<3/60-PL	(eyes)
Presenting visual acuity	71 (74.7%)	16 (16.8%)	2 (2.1%)	6 (6.3%)	95 (100%)
Best corrected visual acuity	81 (85.3%)	7 (7.4%)	1 (1.1%)	6 (6.3%)	95 (100%)

Table 2. Pattern of refractive error among congenital ptosis

Visual Acuity	
Refractive error	Frequency (%)
Emetropia	65 (83.3%)
Astigmatism	7(8.9%)
Myopia	3 (3.9%)
Hypermetropia	3 (3.9%)
Total	78 (100%)

Table 3. Pattern of strabismus in congenital ptosis

Visual Acuity	
Pattern of strabismus	Frequency (%)
Orthophoria	57 (73.07%)
Exotropia + hypotropia	13 (16.67%)
Exotropia	4 (5.12%)
Hypotropia	2 (2.56%)
Esotropia + hypotropia	1 (1.28%)
Esotropia	1 (1.28%)
Total	78 (100%)

Table 4. Types of amblyopia among congenital ptosis

	Types of amblyopia					
	Stimulus deprivation	Aniso-metropic	Strabismic	Mixed	Ammetr-opic	Total
Simple	1 (6.67%)	-	-	-	1 (6.67%)	2 (13.34%)
Complicated	-	2 (13.33%)	4 (26.7%)	7 (46.7%)	-	13 (86.63%)
Total	1 (6.67%)	2 (13.33%)	4 (26.7%)	7 (46.7%)	1 (6.67%)	15 (100%)

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Endoscopic Grading of Adenoid in Otitis Media with Effusion

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ABSTRACT

Introduction: Adenoid is thought to be one of the causes of otitis media with effusion, though it is controversial. Grading the adenoid by rigid nasal endoscope in patients with Otitis Media with effusion may justify adenoidectomy in Otitis media with effusion in the future.

Methods: A Prospective study was carried out at GMS Memorial Academy of ENT and Head Neck studies from 15th December 2005 – April 2007. Study group comprised of 32 children with otitis media with effusion and control group of 28 children with clinically normal ear and nose. Rigid nasal endoscope was used for grading of adenoid in study and control group. The severity of otitis media with effusion was assessed by preoperative air–bone gap and thickness of the fluid aspirated from middle ear during ventilation tube insertion.

Results: In the study group 13 out of 32 had grade 4 adenoid hypertrophy. This grade 4 adenoid hypertrophy was found to be statistically significant in children with otitis media with effusion ($P < 0.0002$). In control group 15 out of 28 had grade 1 adenoid hypertrophy which was significant in the same group ($P < 0.002$). Air – bone gap and thickness of fluid did not correlate with the increasing grade of adenoid hypertrophy.

Conclusions: Grade 4 adenoid hypertrophy was statistically found to be significant with otitis media with effusion but severity of hypertrophy were not reflected by hearing loss and thickness of fluid.

Key Words: adenoid hypertrophy, myringotomy, otitis media with effusion, ventilation tube insertion.

INTRODUCTION

Adenoid is a pad of lymphoid tissue present at the vault of the nasopharynx. It is considered to be one of the causes of the otitis media with effusion (OME), although it is still controversial.¹

Nasal endoscopy offers several advantages over the lateral skull radiograph in the evaluation of adenoid hypertrophy.² The grading of adenoid hypertrophy was followed in our study as described by Cassano et al.³

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