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## Original Article

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# Refractive Errors in Congenital Ptosis-A Clinical Study

Nanda Kumar Reddy PV<sup>1</sup>, Kamala D<sup>2</sup>

<sup>1</sup>Professor, Department of Ophthalmology, Malla Reddy Medical College for Women, Hyderabad

<sup>2</sup>Senior Resident, Sarojini Devi Eye Hospital, Hyderabad

### Corresponding Author:

Dr. P.V. Nanda Kumar Reddy

Email: [drnkreddyperur@gmail.com](mailto:drnkreddyperur@gmail.com)

### Abstract:

**Background:** Ptosis is a common public health problem worldwide. It is the lowering of eye lid or prolapse of an organ. In all major ocular surgeries the involvement of eye lid is seen. Etiology of ptosis is multifactorial.

**Objective:** The main objectives of the study were degree of ptosis, refraction through clinical examination and measuring with refractionometer.

**Methods:** The study was conducted in SD Eye Hospital, Hyderabad. 60 eyes of 55 patients with congenital ptosis were studied. Complex ptosis cases were excluded from study.

**Results:** 37 patients were in the age group of 0-19 years & 18 in 20-39 years age group were in the study group. 31 patients of them were males. In five cases both eyes were involved. 10 cases of the studied were with severe ptosis. In 18 cases astigmatism was observed.

**Conclusion:** In the present study congenital ptosis observed more in males in first two decades of life, unilaterally with more than 80% astigmatism. Amblyopia was associated more with severe ptosis.

**Key words:** Ptosis, Amblyopia, Auto-refractometer

### INTRODUCTION:

Ptosis is derived from the Greek word meaning "fall" and is defined as the abnormal lowering or prolapse of an organ or body part<sup>1,2</sup>. Ptosis of upper eyelid is a common condition encountered by every ophthalmologist especially an oculoplastic surgeon and accounts for more than 50% of all major oculoplastic surgeries<sup>3</sup>. The etiology of ptosis is varied and multifactorial<sup>4</sup>. It can be congenital or acquired; the spectrum of both the conditions is quite large. Hence a thorough understanding of the subject is essential for an appropriate scientific approach to the problem in each case.

This study is made to assess the incidence of refractive errors and Amblyopia in simple congenital ptosis.

### MATERIAL AND METHODS

This prospective clinical study was conducted at the department of Oculoplastic of Sarojini Devi Eye Hospital a tertiary eye care centre. 60 eyes of 55 patients visiting department of plastics and orbit were studied during the period of November 2011 to August 2013.

### Inclusion Criteria:

Patients with simple congenital ptosis

### Exclusion Criteria:

Complex congenital ptosis like blepharophimosis syndrome, double elevator palsy, marcusgunn jaw winking synkinesis and squint are common.

**PROCEDURE:** All the patients first underwent thorough clinical examination including history general examination and ocular examination using slit lamp. Measurement of amount and degree of ptosis, levator function, extra ocular movements, corneal protective phenomenon like Bells phenomenon, corneal sensitivity, schirmers test were recorded. Visual acuity measurement, cycloplegic refraction and auto-refractometer readings were taken. A pre tested format was used to collect data of ptosis patients. Presenting illness, diurnal variations, previous ocular illness, lid movements etc., variables were included in proforma. The cases were analyzed using demographic and other variables.

**RESULTS**

Table 1: Age Distribution of congenital ptosis

Age group (years)	Number of cases
0-19	37
20-39	18
Total	55

Congenital ptosis patients commonly presented to hospital in 1<sup>st</sup> decade of life (67.27%).

Table 2: Sex Distribution of Ptosis

Males	Females	Total
31	24	55

Males (56.37%) were slightly more commonly affected than females (43.63%)

Table 3: Laterality of ptosis

Right eye	Left eye	Both eyes
22	28	05

Unilateral ptosis (90.91%) was common than bilateral ptosis (9.09%). Among unilateral, left eye (56%) was more commonly involved than right eye (44%).

Table 4: Severity of Ptosis

Mild	Moderate	Severe
22	28	10

Out of 60 eyes of 55 patients studied. Eyes with moderate ptosis (46.67%) were slightly more than eyes with mild ptosis (36.67%).

Table 5: Distribution of refractive errors in ptosis

Astigmatism	Myopia	Hypermetropia
18	02	02

Out of 60 eyes of 55 patients, 22 eyes (36.67%) had refractive error. In refractive errors in astigmatism was found in 18 eyes (81.82%), myopia found in 2 eyes (9.09%), Hypermetropia found in 2 eyes (9.09%).

Table 6: Distribution of refractive errors in relation to severity of ptosis

Refractive error	Mild/moderate ptosis	Severe ptosis	Total
Yes	14 (63.63%)	08 (36.37%)	22 (36.6%)
No	36 (94.73%)	02 (5.37%)	38 (63.4%)
Total	50 (83.33%)	10 (16.67%)	60 (100%)

Chi-square = 9.54, p <0.05, Significant

Out of 60 eyes 55 of patients 22 eyes had refractive error among them 14 (63.63%) had less severe ptosis, 8 had severe Ptosis (36.37%). Out of 60 eyes of 55 patients 38 eyes does not had refractive error among them 36 (94.7%) had mild/moderate ptosis 2 (5.3%) had severe ptosis. The above difference was statistically significant (Chi. Square=9.54, p <0.05, Significant) severe ptosis was associated with more incidence of astigmatism

Table 7: Causes of Amblyopia in Simple Congenital Ptosis

Cause of Amblyopia	Number of cases
Anisometropia	09
Stimulus deprivation	01

Out of 60 eyes of 55 patients 10 eyes (16.67%) had Amblyopia out of them 9(90%) are due to Anisometropia, 1(10%) is due to stimulus deprivation.

Table 8: Amblyopia in relation to severity of ptosis

Amblyopia	Mild/moderate ptosis	Severe ptosis	Total
Yes	02 (20%)	08 (80%)	10 (16.7%)
No	48 (96%)	02 (04%)	50 (83.3%)
Total	50 (83.3%)	10 (16.7%)	60 (100%)

Chi-square = 34.08, p <0.001, highly significant

Out of 60 eyes of 55 patients 10 eyes (16.67%) had Amblyopia. Among these, 2 (20%) had less severe ptosis and 8 (80%) had severe ptosis. Among 60 eyes 50 eyes had no Amblyopia and among these, 48 (96%) had less severe ptosis 2 (4%) had severe ptosis. There was a significant difference in presence of Amblyopia mild+moderate ptosis (2eyes) and severe ptosis (8 eyes). The above difference was statistically significant. (Chi-square = 34.08, p <0.001, highly significant). Severe ptosis was associated with higher incidence of Amblyopia.

**DISCUSSION:**

In our study congenital ptosis patients commonly presented to hospital in the first two decades of life (67.27%). In a study conducted by AK Bavishi et al<sup>5</sup>, out of 100 ptosis cases, 51% were congenital. These patients presented between 11 and 20 years. Males (56.37%) were commonly affected than females (43.63%). A study conducted by Muhammad et al<sup>6</sup> comprised of 56 eyes of 50 patients of congenital ptosis. Male to female ratio was 3:1. Unilateral ptosis (90.91%) was more common than bilateral ptosis (9.09%). Among Unilateral ptosis left eye (56%) is more commonly involved than right eye. In a study conducted by Griepentrog GJ et al<sup>7</sup>, three (4%) of the simple congenital ptosis cases were bilateral and 55 (68%) of the unilateral cases involved the left upper eyelid. Among the 60 eyes of 55 patients in our study, we identified refractive error in 22 (36.7%) eyes. Among them astigmatism (81.82%) is the common refractive error. In a study conducted by Aperenzingo et al<sup>8</sup>, they compared refractive errors in 35 cases of simple congenital ptosis and 35 control children. They reported that 60% of ptosis children had astigmatism and 37.1% of children in the control group had astigmatism. In a study conducted by

Berry-Brincat and H Willshaw<sup>9</sup>, out of 186 patients 30 (20%) patients had refractive errors.

In our study, we observed Amblyopia in 10 (16.67%) eyes out of 60 eyes with ptosis. Amblyopia is present in 8 (80%) eyes of severe ptosis. Out of them 7 are due to Anisometropia and 1 is due to stimulus deprivation. In two eyes of moderate ptosis, Amblyopia is due to Anisometropia. Vishawanath Sri Ganesh et al<sup>10</sup> in 2011 reported their findings from 92 children. 22 (23%) patients had Amblyopia. Out of them, 20 (91%) patients had severe ptosis and two patients had less severe ptosis. Among the amblyopic patients, 8 (36%) patients had strabismus, 16 (73%) had Anisometropia, 2 (9%) patients lacked either conditions. There was coincidence of Anisometropia and strabismus in 4 patients. In a study conducted by Berry-Brincat and H Willshaw<sup>9</sup>, out of 186 patients, 41 (26.45%) patients were amblyopic. Among them, 20 (48.78%) patients had Amblyopia due to strabismus and 16 (39.02%) patients due to Anisometropia. 3 (7.3%) of them lacked either condition. Two of them had coincidence of Anisometropia and strabismus. In a study conducted by Harrad et al<sup>11</sup>, 37 (17%) patients had Amblyopia in 216 cases of simple congenital ptosis.

#### CONCLUSION:

Simple congenital ptosis was more commonly observed in males than females. Patients more commonly presented between the first and second decade of life. Unilateral ptosis was more common in this study, with left eye involved predominantly. Incidence of refractive errors among the ptosis patients was 36%. In them, astigmatism was more common (81.82%). In our study the severity of ptosis was associated with a refractive error. The incidence of Amblyopia is more common among severe ptosis compared to mild and moderate ptosis. Amblyopia is commonly due to anisometropia. All cases of congenital ptosis need proper evaluation of associated refractive errors and their correction. Cases where surgery is indicated should be undertaken early to prevent stimulus deprivation Amblyopia.

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