



A STUDY OF CONCOMITANT STRABISMUS IN AN INDIAN RURAL SETUP.

Ophthalmology

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ABSTRACT

AIMS & OBJECTIVES: To describe concomitant strabismus with regards to type, sex distribution, role of positive family history and amblyopia.

MATERIALS & METHODS: It is a descriptive cross-sectional study of 86 patients 2-25 years of age diagnosed to have concomitant strabismus between Oct 2018 & Oct 2020. Proforma was filled with patient's age, sex, address, complaints & detailed history. Routine ocular examination done. Ocular movements checked in all directions of gaze. Cycloplegic refraction, detailed fundus examination & orthoptic assessment done.

RESULTS: 86 cases between 2-25yrs of age were examined. 42(48.83%) females and 44 males (51.16%) with a male to female ratio of 1:1.04. Most common type of deviation was esodeviation seen in 48(55.81%). 53 (61.62%) patients were found to be hypermetropes. Amblyopia was seen in 33(38.37%) patients and 11(12.80%) were found to have contributing family history.

CONCLUSION: Most common type of concomitant strabismus was esodeviation, amblyopia and positive family history was seen in significant number of patients.

KEYWORDS

concomitant strabismus, esodeviation, hypermetropia, amblyopia.

INTRODUCTION:

The word strabismus has been derived from 'STRABO', a prominent geographer who lived in Alexandria during the Roman period and had a 'peculiar and unbecoming squint'. In the primitive folk and mythology, the squint was considered as an affliction sent by a malignant spirit or an angry God.

Strabismus is a condition in which there is a misalignment of the two visual axes so that the object of regard falls on the fovea of one eye (called the fixing eye) and on the extra foveal area of the other eye (called the deviating eye). This deviation of one eye relative to the other impairs the ability of the eye for motor and sensory fusion of images (into single binocular vision), resulting in the occurrence of two distressing phenomenon: - diplopia and confusion².

Strabismus might be associated with amblyopia, adding another spectrum to the functional disability. Visual loss coupled with poor self-image and esteem places the person at a social and emotional disadvantage and contribute to low Quality Of Life in these patients^{3,4}. The society is prejudiced against strabismic individuals, often underestimating their Intelligent Quotient and stereotyping them^{5,6}. It is of utmost importance to understand that the general societal standards classify strabismus as a cosmetic disadvantage only, failing to realize the functional aspect of this disease. The patients are viewed as inferior to the peers with less appeal as potential friends and partners. However, a review of current literature shows a tendency to denounce the use of the word "cosmetic" within the treatment specifications, in an attempt to highlight that strabismus is a pathological state of the binocular visual system, affecting the normal appearance and hence the quality of life.⁷

AIM OF THE STUDY:

To acquire knowledge about the causes, clinical manifestations of concomitant squint, which may add to our therapeutic efficiency and create awareness about the squint among the community in general and the patient in particular.

INCLUSION CRITERIA:

1. Patients with concomitant squint
2. Patients aged between 2-25 years of age.
3. Patients who are themselves/whose parents willing to give consent.

EXCLUSION CRITERIA:

1. Patients with paralytic squint.
2. Patients with history of trauma.

MATERIAL AND METHODS:

This descriptive cross-sectional study was carried out at a tertiary

referral hospital in a rural setup. All new patients between the age of 2 years and 25 years who were diagnosed to have concomitant strabismus at Pravara Institute of Medical Sciences, Ahmednagar between October 2018 and October 2020 were examined and assessed in a prospective manner. It included 86 patients. A detailed proforma having details of the patient's age, sex, address, complaints and history were noted, including birth and family history. Patients operated previously for strabismus were excluded.

Visual acuity assessment, cycloplegic retinoscopy, anterior segment examination and fundoscopy was done in all patients. Deviation was measured objectively using Prism Bar Cover Test and Modified Krimsky test. Worth 4 Dot Test was used to evaluate Binocular single vision and stereopsis. Before the start of the study ethical clearance and informed consent was obtained respectively from the institute and subjects.

RESULTS:

1) Sex incidence

Table 1: Distribution according to sex of the patient.

MALE		FEMALE	
NO.	PERCENTAGE	NO.	PERCENTAGE
44	51.16	42	48.83

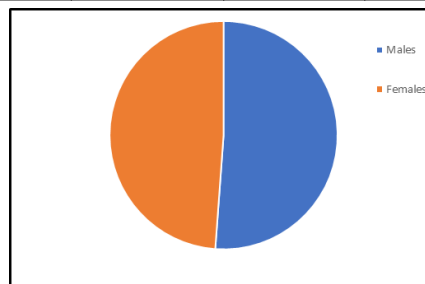


Fig 1: Distribution according to sex of the patient

2) Age wise distribution

Table 2: Distribution according to age of the patient.

AGE	NO.	PERCENTAGE
2-6yrs	32	37.20
7-11yrs	18	20.93
12-16yrs	11	12.80
17-21yrs	17	19.76
22-25yrs	8	9.30

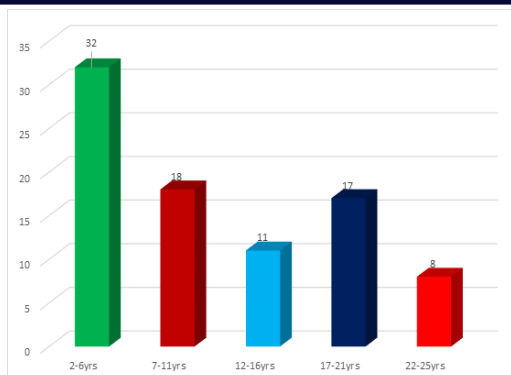


Fig 2: Distribution according to age of the patient.

3) Type of deviation

Table 3: Distribution according to type of deviation .

CONVERGENT		DIVERGENT	
NO.	PERCENTAGE	NO.	PERCENTAGE
48	55.81	38	44.18

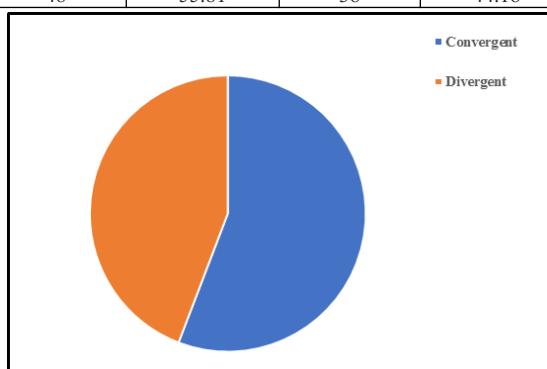


Fig 3: Distribution according to type of deviation.

4) Type of refractive error

Table 4: Distribution according to type of refractive error.

TYPE OF ERROR	NO. OF CASES	PERCENTAGE
Hypermetropia	53	61.62
Myopia	23	26.74
Emmetropia	10	11.62

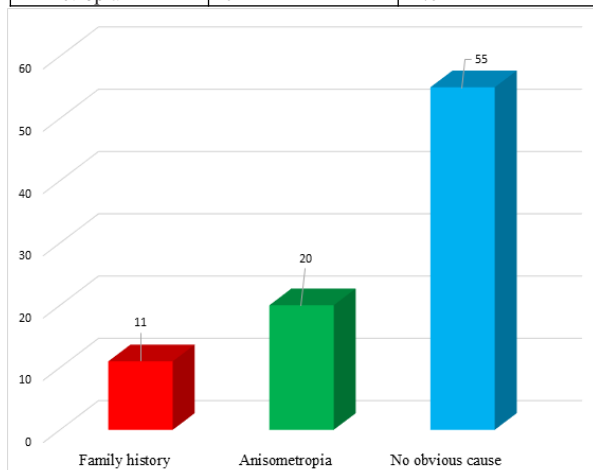


Fig 4: Distribution according to type of refractive error.

5) Amblyopia incidence:

Table 5: Distribution according to incidence of amblyopia.

Total no. of cases	No. of cases of amblyopia	Percentage
86	33	38.37

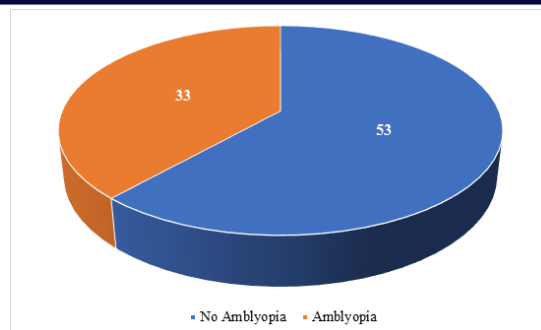


Fig 5: Distribution according to amblyopia incidence.

6)Aetiology

Table 6: Distribution according to aetiology.

AETIOLOGY	NUMBER	PERCENTAGE
Family history	11	12.80
Anisometropia	20	23.25
No obvious cause	55	63.95

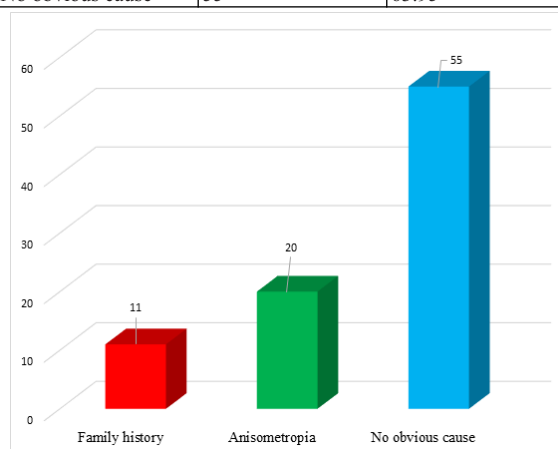


Fig 6: Distribution according to aetiology.

DISCUSSION:

This study is based on 86 patients of concomitant strabismus who were evaluated in Ophthalmology OPD at Pravara Institute of Medical sciences. A detailed workup was made and based on the observations given in the previous tables the following conclusions were made from the study:

1) Gender distribution of patients studied:

In this study, it was found that 51.16% of males were affected and 48.83% females were affected, in accordance with Sarita Behera, Bijaya Kumar Dutta et al (2014)⁸ and Azonobi et al⁹ and Attada et al¹⁰ where males dominated over females. On the contrary, female predominance were reported in previous studies in Nigeria, Ethiopia and United States¹¹.

2) Age wise distribution of patients studied:

It was noted that maximum incidence of concomitant strabismus was seen in the age group of 2-6-years of age as opposed to the maximum incidence in 0-5yrs of age as observed by Musa KO, Ikuomenisan SJet al¹² and by Awoyesuku et al (2016)¹³.

3) Type of deviation of patients studied:

In this study, the incidence of esotropia was 55.81% whereas it was 44.18% for exotropia. It is similar to the greater incidence of Esotropia (57%) than Exotropia (43%) noted by Vijay Chopra, Pramila Balasubramanian et al (2017)¹⁴. In the study, Strabismus in paediatric age (3-16 year): a clinical study Tarakeswara Rao Attada et al¹⁵, exotropia accounted for 57.6% and esotropia for 40.60% of cases.

4) Type of refractive error of patients noted:

Maximum incidence of hypermetropia (61.62%) was noted, followed by myopia (23%) and 10% patients were emmetropic. In a study of 100 patient (upto 12 years of age) with concomitant strabismus in Kolkata,

by Datta D et al¹⁶, they found that there were 50% hypermetropes, 18% myopes and 32% emmetropes. A similar pattern was observed by Rimsha Sarosh, Afroz et al¹⁸ where hypertropia was found to be the more common refractive error in their study population along with a low incidence of myopia.

5) Incidence of Amblyopia in the patients studied:

38.37% of patients were found to be amblyopic in this study. Amblyopia was seen in 54% of the patients by the clinical study of concomitant squint by Vijay Chopra, Pramila Balasubramanian et al (2017)¹⁴. Amblyopia was present in 15.25% of children with strabismus in the study 'Strabismus in paediatric age (3-16 year): a clinical study' by Tarakeswara Rao Attada et al¹⁵ when compared to 53% of all cases of manifest strabismus as reported by Abrahamsson A et al¹⁹.

6) Aetiology of strabismus in the patients studied:

Family history accounted for 12.80% of cases of strabismus in this study. Anisometropia accounted for 23.25% of the cases. 63.95% did not exhibit any obvious cause. Family history of strabismus was seen in 3.3% of cases in the study by Tarakeswara Rao Attada et al¹⁵, whereas it accounted for 11% of cases in study by Vijay Chopra, Pramila Balasubramanian et al¹⁴.

CONCLUSION:

86 patients with concomitant strabismus were evaluated in this study and the following conclusions were drawn from the same:

1. Males were more affected than females.
2. Highest incidence was noted in the 2-6 years age group.
3. Esotropia showed greater incidence than exotropia.
4. Hypermetropia was the more commonly associated refractive error than myopia.
5. Amblyopia was noted in a significant number of patients.
6. There was no obvious cause of strabismus in majority of cases.

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