



# PREVALANCE OF INTERMITTENT EXOTROPIA IN STRABIMUS PATIENTS VISITING TERTIARY EYE CARE CENTRE

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## Abstract

Intermittent exotropia is the most common form of childhood exotropia with an incidence of 32.1 per 100,000 in children under 19 years of age. Onset of the deviation is believed to be in the first few years of life with a female preponderance.<sup>3</sup> Exodeviation occurs more commonly in middle east subequatorial africa and orient in united state. Study was aimed to analyzed how common is intermittent exotropia among strabismus age group 5-25 years. 75 subjects having strabismus were enrolled into the study. All the subjects were screened from tertiary eye care centre . The brief history and visual assessment along with refractive error correction for distance and near were assessed. With best corrected visual acuity orthoptic evaluation is done including sensory ,motor evaluation ,fixation ,ocular motility and patch test were done in subjects having intermittent exotropia. The maximum subjects were in age group of 20-25 years are affected in intermittent XT . 63% of subjects were males and 37 % were females are found in intermittent XT. The prevalence of intermittent exotropia among all patients of strabismus visiting tertiary eye care centre is found to be approximately one fourth(25.33%).

**Key Words:** Intermittent exotropia, Exophoria, Squint

**Introduction:** Intermittent exotropia is the most common form of childhood exotropia with an incidence of 32.1 per 100,000 in children under 19 years of age.<sup>1,2</sup> Onset of the deviation is believed to be in the first few years of life with a female preponderance.<sup>3</sup> Exodeviation occurs more commonly in middle east subequatorial africa and orient in united state. The heredity play a major role in exodeviation and etiology of XT is probably multifactorial.<sup>2</sup> Suppression is the key that unlocks the fusion mechanisms 4. Most studies describe a preponderance of female patients in exotropia. The precipitating factors in the tropia phase of intermittent exotropia are, most noticeable when the child is tired or sick or when they are day dream.<sup>2</sup> The natural history of intermittent exotropia remains obscure due to lack of longitudinal prospective studies and few retrospective studies of untreated intermittent exotropia. All intermittent exotropia are progressive. At times, the deviation might stay stable for a long time. In a couple of case it might even improve and patient ought to be followed over the long haul to decide if their exotropia is steady or deteriorating.<sup>2,3</sup>

**Aim:** To study intermittent exotropia in strabismus patients visiting tertiary eye care center

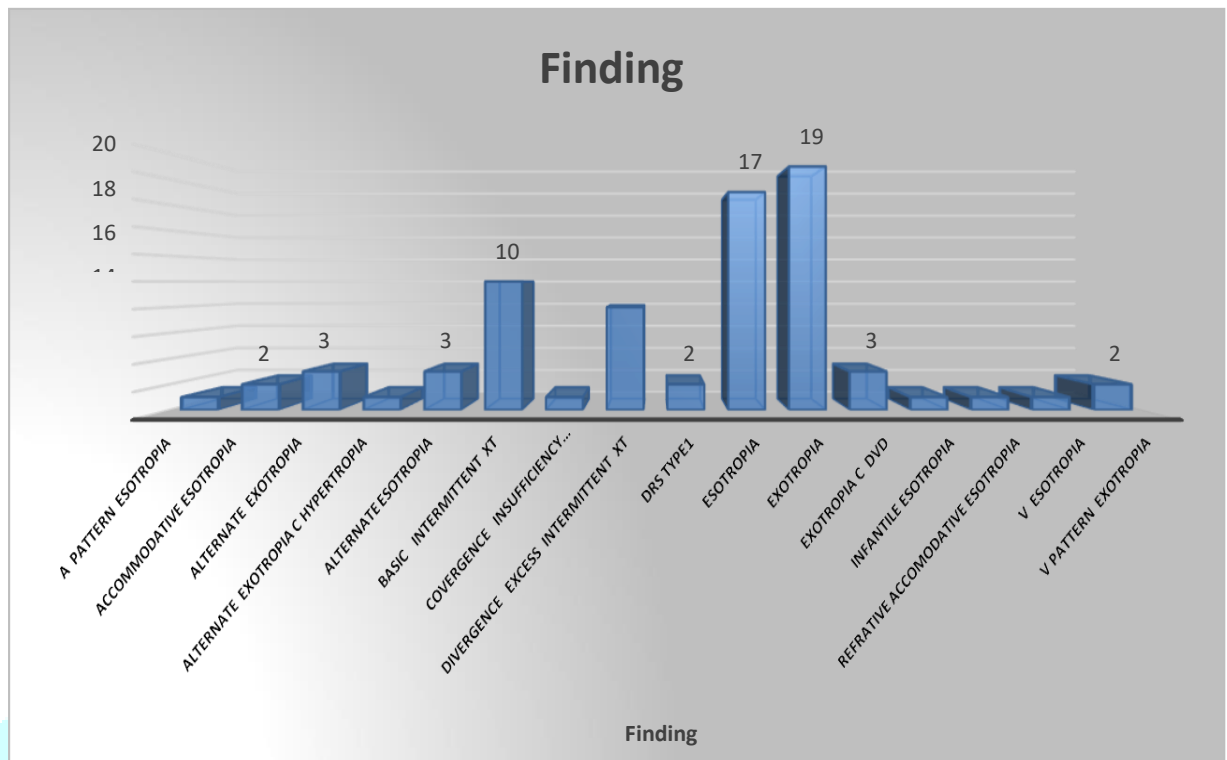
**Method:**

A cross sectional study was carried out in tertiary eye care centre within a period of November 2019 to 2021. Subjects having squint in the age group of 5-25 years, Visual acuity greater than 6/60 were included. Exclusion criteria were One eyed subjects, Subjects having other systemic diseases specifically which can affect the study, and subjects having any co-existing ocular pathologies. Ocular history was taken, specific details regarding convulsions, onset of the deviation and about development of the child motor speech, health, motor behavior patterns, handedness general behavior anomalies were asked. Slit lamp examination was carried for evaluating any anterior segment abnormality. Fundus evaluation was done by Binocular indirect ophthalmoscopy was done to rule out any posterior segments abnormality. Objective and subjective tests were done to rule out refractive error. Tests for sensory evaluation of strabismus included, Worth's four dot test, for distance and near to rule out retinal correspondence. Titmus fly test was used to rule out stereopsis. Motor evaluation included, Hirschberg test, Cover test, Prism bar and alternate cover test to rule out the amount of deviation at distance and near. Occlusion test was done in all subjects with exodeviation in order to differentiate true and simulated divergence excess type of exotropia.

**Results:**

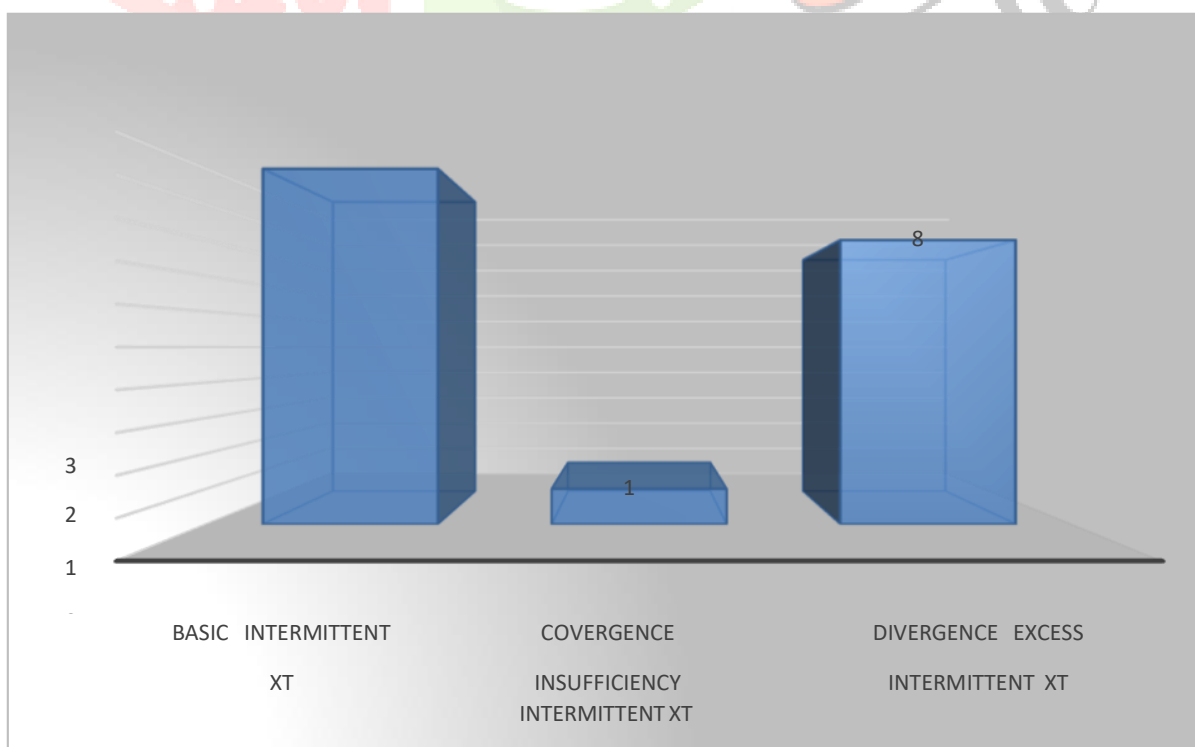
In this study 75 subjects were enrolled out of this; Out of that 45(60%) were males and 30(40%) were females. this study 19 subjects are having intermittent XT were enrolled. 2 subjects are in age group of 5-10 years. 6 subjects are in age group of 10-15 years. 4 subjects are in age group of 15-20 years. 7 subjects are in age group of 20-25 years.

Among the total number of strabismic patients screened, 1 Subjects are having a pattern esotropia, 2 Subjects are having accommodative esotropia, 3 Subjects are having alternate exotropia, 1 Subjects are having alternate exotropia c hypertropia, 3 Subjects are having alternate esotropia, 2 Subjects are having DRS type 1, 17 Subjects are having esotropia, 19 Subjects are having exotropia, 3 Subjects are having exotropia c DVD, 1 Subject are having infantile esotropia, 1 Subjects are having refractive accommodative esotropia, 1 Subjects are having V pattern esotropia, 2 Subjects are having V pattern exotropia and 19 subjects are having intermittent exotropia.



In this study 19 subjects are having intermittent exotropia out of this; 10 subjects are having basic intermittent XT, 1 subject are having convergence insufficiency intermittent XT and 8 subjects are having divergence excess intermittent XT.

In this study, total 19 subjects having intermittent XT ocular motility were measured out of this; 18 subjects are having full ocular motility and 1 subject are having inferior oblique grade 1 overaction. worth four dot test were measured out of this 12 subjects have fusion and 7 subjects doesn't have fusion.



The fixation were measured and all subjects with intermittent exotropia were having C/S/M fixation pattern . this study a total 19 subjects having intermittent XT stereoacuity were measured; 5 subjects are having 40 sec of arc stereoacuity . 1 subject are having 50 sec of arc stereoacuity. 4 subjects are having 80 sec of arc stereoacuity 3subjects are having 140 sec of arc stereoacuity. 5 subjects are having 200 sec of arc stereoacuity. 1 subject are having 400 sec of arc stereoacuity. In this study total 75 subjects were enrolled out of this 62 subjects havingnegative family history and 13 subjects having positive family history. intermittent XT were enrolled out of this 17 subjects having negative family history and only 2 subjects having positive family history. In this study 75 subjects were enrolled. 57 subjects having constant deviation of eyes. 1 subject are having pure phoria < 1 sec recovery after 10 sec. 3 subjects are having no XT unless dissociated 10 sec recovery in 1-5 sec. 4 subjects are having no XT unless dissociated 10 sec recovery in > 5 sec. 7 subjects are having XT < 50% of time burning a 30sec of observation period. 3 subjects are having XT >50% of time during a 30 sec before observation periods before dissociation.

**Discussion:** “In study Shibin lin et al <sup>2</sup> : Prevalence of intermittentexotropia among primary and secondary school students in Shantou, China” was included primary and secondary school going students in their study 6-17 years of age was included prevalence total 7464 subjects were participates in their study 2657 students are high prevalence in 9-11 years age of group<sup>1</sup>. In our study 7 subjects are having higher prevalence in 20-25 years of age group. In our study percentage of males are 63.2% and females are 36.8% were found the percentage of males are higher than females. “In study by ‘P. GRAHAM Cardiff epidemiology of strabismus.” The prevalence was slightly higher for boys (7.3 percent.) Than for girls (6.9 per cent.5). “In study ASCO(association of school and colleges of optometry): Management of intermittent exotropia of the divergences excess type: teaching case report”and “intermittent exotropia: A Major Review Rahul Bhola, Md Fellow, Pediatric Ophthalmology & Strabismus The University of Iowa Department of Ophthalmology & Visual Sciences ”was describe a preponderance of females in exotropia<sup>2-3</sup>.

In our study all subjects quality of control and squinting hours was noted. out of 75 subjects, no of 57 subjects having constant deviation of eyes.1 subject are having pure phoria < 1 sec recovery after 10 sec.3 subjects are having no xt unless dissociated 10 sec recovery in 1-5 sec.4 subjects are having no xt unless dissociated 10 sec recovery in > 5 sec.7 subjects are having xt < 50% of time burning a 30sec of observation period. 3 subjects are having xt >50% of time during a 30 sec before observation periods before dissociation. “In study by P. A. GRAHAM Cardiff epidemiology of strabismus” assessed revealed no significant difference between any type of squint and the control group the findings. In Newcastle score

there was a significant difference, with a prevalence of 8.2 percent Of squints in children whose care was deficient compared with 3. 9 percent in the population<sup>5</sup>. In our study patients having intermittent XT 89 % subjects having negative family history and 11% subjects having positive family history. “In study by P. A. GRAHAM Cardiff epidemiology of strabismus” the number of sib the position of the squinting child in the sibship appears to be related to the appearance of squint group show a higher proportion of children falling in the composite group of illegitimate. The proportions being 6.85% for strabismus cases and 6.90% of control cases.<sup>5</sup> “In study intermittent exotropia: A Major Review Rahul

Bhola, Md Fellow, Pediatric Ophthalmology & Strabismus The University of Iowa Department of Ophthalmology & Visual Sciences” told that A positive family history is often noticed Children born with craniofacial anomalies and those with neurologic defects are more likely to exhibit exotropia.<sup>2</sup> In our study worth four dots were measured the patients having intermittent XT shows maximum fusion in their BSV status .In stereopsis maximum number of subjects shows 40 to 200 sec of arc of stereoacuity. All subjects of intermittent XT have c/s/m ( central, steady, maintained) fixation pattern and maximum subjects has full ocular motility. In study total 60% of subjects doesn’t associated with IO overaction, underaction and DVD. 40 % of subjects are associated with IO overaction, underaction and DVD all squint subjects treatment were given 65% of subjects are having non surgical treatment were refractive error correction ,minusslenses, occlusion ,vision therapy to restore bsv and 35% of subjects went for surgical intervention to restore bsv and to improve cosmetic appreance “In study coffey et al evaluated the efficacy of VT in IXT shows success rate of VT 58% and current recommendation for surgery include worsening of tropia phase and manifest deviation during more than 50% of working hours”.<sup>3</sup> In our study total 75 subjects are enrolled the prevalence intermittent XT were 25.33% in all squint subjects (74.67)%.”In study of Shibin lin etal2 Prevalence of intermittent exotropia among primary and secondary school students in Shantou, China” The prevalence of IXT achieved 7.89% form 73.04% of all types of strabismus1. “In study by P. A. GRAHAM Cardiff epidemiology of strabismus” told that the proportion of 7:I per cent. Includes all types of strabismus and large heterophorias5. In our study general there were 1.3% of A pattern esotropia ,2.7% of accommodative esotropia, 4% of alternate exotropia, 1.3% alternate exotropia with hypertropia, 4% of alternate esotropia ,13.3% of basic intermittent XT, 1.3% of convergences insufficiency, 10.7% of divergences excess, 2.7% of DRS type 1, 22.7% of esotropia, 25.3% exotropia, 4% of exotropia with DVD ,1.3% of infantile esotropia ,1.3% of refractive accommodative esotropia, 1.3% of V pattern esotropia ,and 1.3% of V pattern exotropia .

In our study basic intermittent XT were 52.63%, convergence insufficiency were 5.26% and divergence excess were 42.11% are present. In study “Lgnanaraj and SR richardson2 Intervention for intermittent distance exotropia ”in their study strabismus develops in approximately 5% of developmental normal children and approx 25% present with exotropia most commonly divergence excess types of intermittent XT.<sup>6</sup>

**Conclusion:** The prevalence of intermittent exotropia among all strabismus patients visiting tertiary eye care centres is found to be approximately one fourth(25.33%) .

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