

Management of partially accommodative esotropia

By Elsayed Mohamed Eltoukhi, MD.
Professor of Ophthalmology and Consultant of Pediatric Ophthalmology and strabismus , The Research Institute of Ophthalmology.
EOS meeting March 2018

Abstract

- ▶ Partially accommodative esotropia is an important entity of Esotropia and one of the clinical forms met with in an ocular motility clinic . The consultant should use his clinical skills and proper evaluation methods to detect this entity and be sure of the proper treatment.
- ▶ Partially accommodative esotropia may be part of an deteriorated accommodative esotropia .
- ▶ It may be associated with convergence excess esotropia whether a high AC/A or a normal AC/A ratio or the hypoaccommodative form.
- ▶ It may be a part of the decompensated microstrabismus with the deep rooted anomalous retinal correspondence where proper orthoptic evaluation should be done including the biprism test.
- ▶ It may not be associated with any deterioration of the previously installed accommodative element and surgery may be indicated.

Introduction

- ▶ Partially accommodative esotropia represents a good percentage of clinical esotropia in an ocular motility clinic , in his communication I am going to discuss under three headings whether it is a **deteriorated accommodative esotropia** or it is a **decompensated microstrabismus** or it is a **purely partially accommodative esotropia** and the accommodative element is a part of it .

Deteriorated accommodative esotropia

- ▶ Case presentation

Methods

- ▶ A clinical follow-up of a case of a child presented at the age of 2 years with hypermetropia . Her cycloplegic retinoscopy at the start of therapy was +4 diopters of hypermetropia with no astigmatism with normal ocular motility and normal sensory and fusional amplitudes. (fig.1)
- ▶ 1 year later she developed a comitant esotropias which can be regarded as acute in origin or gradual or a variation of Lang's normo-sensorial strabismus (1-5). A full cycloplegic retinoscopy was given +4 and she was followed up. (fig.2)
- ▶ Unfortunately she developed some variability of the angle with greater angle at near. Bifocals were prescribed but the variability of the angle continued and early dominance of the left eye was observed.

One year later

- ▶ Progressive variability of the angle of esotropia developed with fixation preference for the left eye.



Under anesthesia

- ▶ The eyes were orthotropic or even divergent under anesthesia.



Post-operatively

- ▶ The patient regained fusion rapidly and continued to do so for years after surgery.



Recent photographs

- ▶ After more than 10 years from surgery the patient continued to be orthotropic for distance and near fixation with excellent sensory and motor functions and higher grade of stereopsis 40 seconds of arc.



Discussion

- ▶ This case illustrates well the value of early diagnosis and proper monitoring of children with accommodative esotropia , and the follow up of this case showed that some cases of accommodative esotropias can retain excellent sensory and motor functions despite having strabismus .There are no reasons that we cannot consider this case a variation or representative of the normo sensorial strabismus of Lang.(1-5)
- ▶ In this case early fitting with glasses didn't prevent the process of emmetropization as at the start of treatment there were 4 diopters of Hypermetropia and the last follow up showed 2 diopter of hypermetropia. Also, this case is a representative that early surgical and optical ocular alignment of strabismic patients is advisable to achieve fusion and stereopsis .(6)

Conclusion

- ▶ An important consideration in treatment of strabismic patients is early eye alignment to establish binocular function before visual maturation. Excellent results can be achieved and the severe complications of strabismus can be avoided as amblyopia , suppression and loss of stereopsis.(1-7)

Decompensated micro strabismus

- ▶ Microstrabismus is an important entity with its deep rooted anomalous retinal correspondence HARC . Microstrabismus may decompensate at any time and appears as an esotropia with periferal fusion and HARC and amblyopia . Surgery sometimes may be indicted but prudently and management of amblyopia is the main role of the strabologist .
- ▶ The proper orthopdic evaluation is mandatory and here comes the role of the biprism test in ocular motility evaluation.

The biprism test in Ocular motility evaluation

Abstract

- ▶ In ocular motility examination the examiner must depend on certain orthoptic tests to elicit signs and evaluation of strabismus .
- ▶ The biprism test is a very useful test which employs binocular motor response (saccades) based on uniocular sensory response (loss of foveation).
- ▶ It's very useful to differentiate between normal and tropia as well as supression and anisometropia. It is superior to other fixation preference tests.



introduction

- ▶ The detection of ocular dominance and or amblyopia depends on several fixation preference tests the most famous of which is the hole in the card test but the gravis biprism test is a very useful test to differentiate amblyopia , ocular dominance , anisometropia with microtropia.

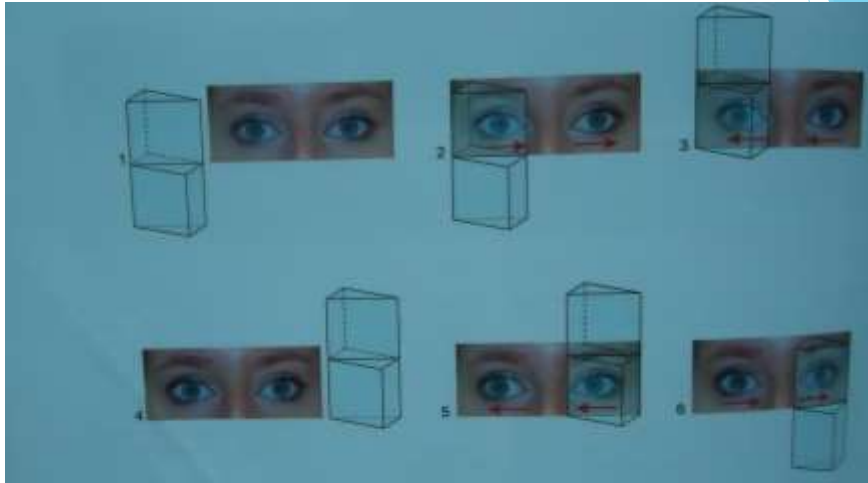


Physiological basis

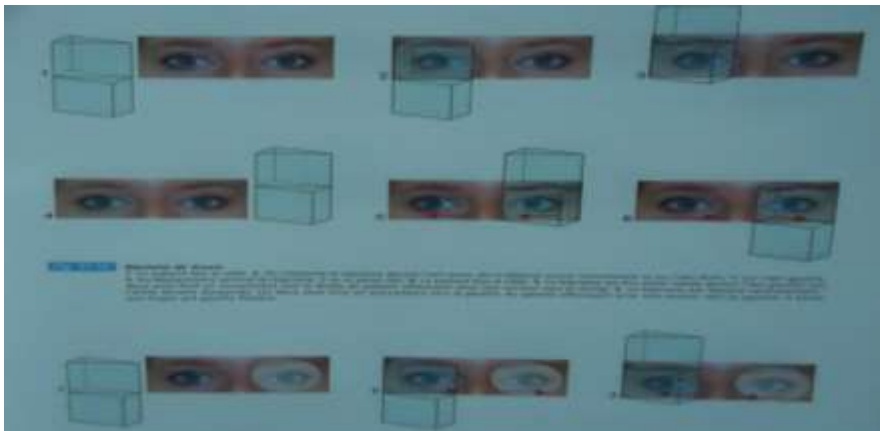
- ▶ The normal response of the eye to a based out prism is a version movement towards the apex of the prism, putting a base out attached to a base in prism allow the examiner to magnify the version movements and elicit a saccade.

Method of examination

- ▶ The examiner sits in front of the patient and the patient fixates a target at 30-40 cm. Starting by the base out,
 - Normal response:
Version movement toward the base of the prism. Then, the examiner depresses the prism to give the base in, a reversal of the movement ie the saccade is elicit. **If you can elicit 3 successive double saccades this means a normal fixation and foviatiion in both eyes.**

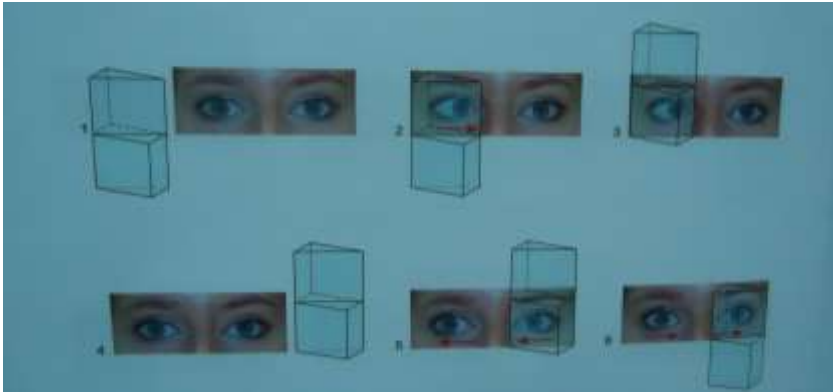


- ▶ **Abnormal response:**
 no movement is elicited which might be due to suppression or non seeing eye . Put a translucent cover over the other eye , if you can elicit a response on the non responding eye then this is amblyopia . If no response is elicited again then this is a non seeing eye .



Diagnosing microstrabismus

- ▶ Gracis described a particular response with moderate amblyopia and anisometropia causing microstrabismus which is a progressive eso shift.



Partially accommodative esotropia

- ▶ It may be associated with an accommodative element but this element may not cover all the angle present and may be associated with hypoaccommodative convergence excess or a normal AC/A ratio . Surgery is indicated and many formulas has been proposed but a simpler formula is :

$$\begin{array}{ccc} \text{ET without correction for distance ETSC} & \times & \text{ET with correction for distance ETCC.} \\ \text{ET' without correction for near ET' SC} & \leftarrow & \text{ET' with correction for near.} \end{array}$$
 The average of any of these values can be used as a target angle for surgery.

Conclusion

- ▶ Partially acomodative esotropia is an important entity and proper evaluation and classification is needed . Proper clinical and or orthoptic evaluation is needed. Surgery when indicated can yield good results but posterior fixation sutures is an important part of the surgical armamentarium of the strabologist surgeon.

Thank you