Esotropia - Exotropia

Carlos Eduardo Solarte MD. MPH
Assistant Clinical Professor
Director Residency Program Ophthalmology
Financial Disclosure and Source

• I have no actual or potential financial interest or conflict in relation to this presentation.

Objective

• To describe the different definitions of Esotropia and Exotropia
• To present surgical and non-surgical management of Esotropia and Exotropia
• To discuss reasons for Early Intervention of Esotropia
• To present management of Esotropia and Exotropia
What of the following procedures is the first choice in Divergence Excess Type Exotropia?

- Bilateral Medial Rectus Resection
- Resection Lateral Rectus / Resection Medial Rectus in NON dominant Eye
- Bilateral Rectus Resection
- Bilateral Rectus Recession
- All of the Above
Esotropia
Definitions

• Congential : Appears BEFORE 6 months of age

• INFANTILE: <1 Year of age but > 6 Months

• Acquired : Appears over 1 year of age (until adulthood)
Esotropia (Two conflicting Theories)

Claud Worth’s Theory:

• “The essential cause of squint is a defect of the fusion faculty.” –Therefore “Irreparable”

• Chavasse:

• “Most infants with congenital squint are capable of developing fusion if the deviation is fully corrected before the age of two years.”
Epidemiology

• 0.25% of the Population
• Incidence is decreasing, mostly because of mass campaigns to diagnose and treat refractive errors
• Rate of surgery remains unchanged
• There is hereditary component
• Described as Mendelian Codominant
Esotropia

- Onset between 2 to 4 months of age.
- ET is more pronounced at the age of 4 months.
- If ET is $<35 – 40$ Prisms diopters there is some regression seen.
- If ET $>40$ Prisms diopters, only $2\%$ regress.
- Is ET variable or intermittent?
- Is refraction $< +3.00$ ?
Examination

• Krismky test
• Hirschberg test
• Bruckner’s Test
• Cover Test : GOLD STANDARD

• Up to 50% of re-operations are mistakes in Pre-Op measurements
Hirschberg Test
Krimsky Test

Source: AAO
Bruckner Test
Pseudo-Esotropia

• Prominent epicanthic Fold
• It is easily confused with true ET
• It is confirmed with Hirschberg, Bruckners and cover test
• Caution : Bruckner’s test can have false positive
Pseudo-Esotropia
Accomodative Esotropia

Three different scenarios:

- Fully Accomodative ET
- High AC/A Ratio: Disparity with ET>Near
- Refractive ET with High AC/A Ratio
- “Early Onset Accomodative ET” Can appear as early as 6 months – Fully corrected with Glasses.
Accommodative Esotropia
Accomodative Esotropia
Accomodative Esotropia
Partially Accomodative ET

• Despite using full prescription, only a portion of the ET is corrected
• Small residual angles which breaks fusion and produce amblyopia
• Patients who do not desire to use Bifocals and have Accomodative component (Faden Surgery)
• Adults with minimal hypermetropia left.
Signs of Alarm – Cross Fixation
Special Forms of Esotropia

- Trauma to the Orbit
- Restrictive Strabismus
- Paralytic Strabismus (6th Nerve Palsy)
- Syndromes (Moebius – Duane)
- “Heavy Eye Syndrome”
Exotropia
Exotropia

- Intermittent Exotropia
- Basic Exotropia
- Divergence Excess type
- Convergence Insufficiency
- Associated to Syndromes
Intermittent Exotropia

• An imbalance between active convergence and divergence, although it is not clear that divergence is active.
Basic Exotropia

- Permanent unchanged deviation
- Same for distance and Near
- Stable angle
- Onset at any time in life, but mostly between 4 to 6 years old initially as Intermittent Exotropia
Divergence Excess Type

- Progressive starting since childhood
- Large angle at distance
- Ortho or small angle at near
- Tight Lateral Rectus
- Respond well to Lateral Rectus Recession
Convergence Insufficiency

• Deviation is greater at near than distance
• Difficulties for reading or education
• Can range from very mild (Exophoria) to large Exotropias (up to 30 Prisms)
• Require surgical management
• Bilateral Medial Rectus Resection
“V” Pattern
Management of ET / XT

• Non-surgical

• Surgical

• Botox

• Signs of “Alarm”
Non Surgical

• Refraction / Refraction / Refraction !!!!
• Accounts for more than 50% of ET being fully accommodative
• However 20% may decompensate and need surgery

• Amblyopia Management: Patching !!!
Early Intervention for ET?

- ET Persistent between 10wks and 6 months
- Two evaluations with ET>40 in at least 4 weeks apart
- Refractive error <+3.00
- Important that pte is not premature, low birth weight, syndromic, developmental delay, or paralytic of incomitant strabismus
Early Intervention of ET

- Fusion and stereopsis are absent before 2 months of age but develop rapidly between 3 and 5 months of age. (Simmons, et al)
Non Surgical

- Adequate management of refractive error
- Amblyopia Management
- Bifocal glasses if indicated
- Full time use of refractive correction
- Overminus / Plus lenses – High AC/A Ratio
Surgical Management

Once surgery is indicated, several procedures can be performed:

• Medial Rectus Recession
• Lateral Rectus Recession

• Target is Esotropia 6-8 prism after surgery.
Recession Horizontal Muscle
Resection Horizontal Muscle
Resection Horizontal Muscle
What of the following procedures is the first choice in Divergence Excess Type Exotropia?

- Bilateral Medial Rectus Resection
- Resection Lateral Rectus / Resection Medial Rectus in NON dominant Eye
- Bilateral Rectus Resection
- **Bilateral Rectus Recession**
- All of the Above
Questions