

Microtropia

Microtropia is a small angle ($<10 \Delta$) squint. This condition is also known as monofixation syndrome. It may be primary or secondary, the latter representing the sequela to strabismus surgery or other treatment (e.g. optical, such as fully accommodative esotropia controlled with glasses to a microtropia rather than true bifoveal BSV) for a larger deviation and occasionally to other pathology.

- Symptoms are rare unless there is an associated decompensating heterophoria.
- The small manifest angle of deviation may not be readily detectable on cover testing.
- There is a prominent association with anisometropia, commonly hypermetropia or hypermetropic astigmatism, with amblyopia (typically mild) of the more ametropic eye.
- There is normal motor fusion as demonstrated by fusional amplitudes.
- Anomalous retinal correspondence (ARC) is present, with associated abnormal BSV. The fovea of the fixating eye acquires an anomalous common visual direction with an extrafoveal location in the deviating eye. Under binocular conditions extrafoveal fixation occurs in the deviating eye with a central foveal suppression scotoma and peripheral fusion. However, when the preferred eye is covered, fixation in the deviating eye then returns to the fovea and the eye is aligned. Stereopsis is usually present, but reduced.
- The 4Δ prism test, is useful in assessment.

Treatment

Treatment involves correction of refractive error and occlusion for amblyopia as indicated. There is evidence that aggressive treatment sometimes leads to normalization. Most patients remain stable and symptom-free.

Other esotropias

Near esotropia (non-accommodative convergence excess)

- **Presentation** is usually in older children and young adults.
- **Signs**
 - No significant refractive error.
 - Orthophoria or small esophoria with BSV for distance.
 - Esotropia for near but normal or low AC/A ratio.
 - Normal near point of accommodation.
- **Treatment** involves bilateral medial rectus recessions.

Distance esotropia

- **Presentation** is in healthy young adults, who are often myopic.
- **Signs**
 - Intermittent or constant esotropia for distance.
 - Minimal or no deviation for near.
 - Normal bilateral abduction.
 - Fusional divergence amplitudes may be reduced.
 - Absence of neurological disease.
- **Treatment** is with prisms until spontaneous resolution or surgery in persistent cases.

Acute (late-onset) esotropia

- **Presentation** is at around 5–6 years of age.
- **Signs**
 - Sudden onset of diplopia and esotropia.
 - Normal ocular motility without significant refractive error.
 - Underlying sixth nerve palsy must be excluded.
- **Management**
 - Because the onset of comitant esotropia in an older child may indicate an underlying neurological disorder, it is important to check the pupil reflexes and exclude optic disc changes, nystagmus and a sixth nerve palsy. Neuroradiological examination may be needed.
- **Treatment** is aimed at re-establishing BSV to prevent suppression using prisms, botulinum toxin or surgery.

Secondary (sensory) esotropia

Secondary esotropia is caused by a unilateral reduction in VA that interferes with or abolishes fusion. Causes can include cataract, optic atrophy or hypoplasia, macular scarring or retinoblastoma. Fundus examination under mydriasis is therefore essential in all children with strabismus.

Consecutive esotropia

Consecutive esotropia follows surgical over-correction of an exodeviation. If it occurs following surgery for an intermittent exotropia in a child it should not be allowed to persist for more than 6 weeks without further intervention.

Divergence insufficiency

Age-related distance esotropia (ARDE) or the sagging eye syndrome is due to age-related degeneration of the lateral rectus-superior rectus bands, allowing the lateral rectus pulley to shift and tilt inferolaterally.

If symmetrical, ARDE results and if asymmetrical, unilateral hypotropia with excyclotropia results ('cyclovertical strabismus').

- **Signs**

- Distance esotropia with no near esotropia.
- Limited supraductions both eyes.
- Ptosis with deep superior sulcus.

Cyclic esotropia

Cyclic esotropia is a very rare condition characterized by alternating manifest esotropia with suppression and BSV, each typically lasting 24 hours. The condition may persist for months or years and the patient may eventually develop a constant esotropia requiring surgery.

High myopia esotropia

Patients with high myopia may have instability of the muscle pulleys that stabilize the superior rectus and lateral rectus muscles.

This results in nasal displacement of the superior rectus and inferior displacement of the lateral rectus. The possibility of this condition should be considered in high myopes with acquired esotropia. Magnetic resonance imaging is key to the diagnosis. Treatment involves plication of the superior and lateral recti with a non-absorbable suture.