ADULT SQUINTS Chptr 12

CHAPTER 9 STRABISMUS (SQUINT) AND AMBLYOPIA

As strabismus has very different significance, symptomatology and effects, according to whether it occurs in children or adults, the adult squints will be dealt with separately in chapter 12

Definition of Strabismus: the condition where the object of visual attention is not imaged on both foveas.

STRABISMUS IN CHILDREN

- Approximately 4% of children have strabismus.
- Most childhood squints are concomitant, ie. the angle of squint is approximately the same in all positions of gaze. Paralytic squints may also occur in children but they differ from paralytic squints in adults in that diplopia may only be transient because suppression in children can occur quickly.
- The critical (sensitive) period of visual development is birth to 7+ years - during this time impairment of retinal image sharpness or of binocularity can lead to maldevelopment of the visual system leading to amblyopia.

AMBLYOPIA

Definition of Amblyopia: Loss of visual acuity in one or both eyes not due to structural causes in the retina or visual pathways.

- Amblyopia will not occur if there are clear retinal images and binocular vision or free alternation.
- Any impairment of image quality or ocular alignment may lead to amblyopia, e.g. cataract, corneal opacities, high hypermetropia, astigmatism, ptosis, occlusion, anisometropia and unilateral squint. The amblyopia is usually much more severe if only one eye is impaired because of 'competition' at the level of the lateral geniculate body and visual cortex e.g. amblyopia due to unilateral congenital cataract is usually much more severe than that in an eye affected by bilateral cataracts. Hence surgical treatment of unilateral cataract is futile.

DETECTION OF STRABISMUS

A general impression that a child has or has not a squint can be misleading (e.g. in epicanthus). More accurate tests are:

1. Cover/Uncover test

   If the straight eye is covered when the child is fixing a small object, then the deviating eye will move to take up fixation and the previously straight eye will move behind the cover. This process reverses on removal of the cover

if the squint is unilateral but not in alternating squint. The cover test is normally done in all gaze positions.

In convergent squints, the eye will move outwards to take up fixation and in divergent squints. The eye will move inwards to take up fixation.

The steadiness of fixation gives an estimate of visual acuity in younger children.

An acuity of 6/18 or worse will have unsteady fixation, the worse the vision the more unsteady the fixation. (Congenital nystagmus is frequently associated with squint, as is latent nystagmus, see later).

2. Symmetry of corneal reflexes

A light reflex from the examiner's torch will be reflected symmetrically from each cornea. The reflex is usually just nasal of centre of the pupil. IGNORE EPICANTHUS.

TYPES OF SQUINT:

1. Convergent squint

Early Onset. Usually occurs within 6 months of birth. It usually has a large angle and is associated with latent nystagmus but is not commonly associated with refractive problems. (Latent nystagmus = nystagmus increased or present only when one eye is covered).

Accommodative. This is usually due to moderate hypermetropia and often present from age 18 months onwards. The hypermetropic child has to accommodate even for distance vision and therefore, as accommodation and convergence are linked in the near synkinesis, convergence may also be inappropriately large leading to convergent squint. If accommodation is normalised, then the convergent squint may be abolished. This type of squint can be corrected completely with hypermetropic glasses.

Anisometropic. One eye with a blurred image becomes somewhat amblyopic. The fusional reflexes are disrupted and this eye may well squint. The correction of anisometropia to achieve sharp bilateral retinal image is mandatory in these cases.

2. Divergent squint

This presents around the age of 2 years and is usually intermittent at first. Divergence can be controlled by voluntary convergence to some extent. Amblyopia occurs if the squint becomes constant and unilateral. This type of squint is not usually associated with refractive errors.

3. Organic

This occurs at any age. Organic lesions affecting the vision in one eye will disrupt fusional reflexes e.g. macular scars from toxoplasmosis, unilateral congenital cataracts. Rarely the cause may be of overwhelming importance, e.g. retinoblastoma. Squints due to organic lesions are known as secondary squints.

TREATMENT OF SQUINT

Aims

1. Good visual acuity in each eye
2. Binocular vision
3. Good cosmetic appearance

Methods

1. Optical - to correct hypermetropia or anisometropia or astigmatism. At the time of refraction when a cycloplegic and mydriatic is used, the fundus is inspected to exclude organic lesions.

2. Occlusion - patching of the good eye will improve the visual acuity of the amblyopic eye. N.B. injudicious occlusion in small children may itself lead to amblyopia.

3. Surgical correction - e.g. to correct a convergent squint, the medial rectus would be recessed (the insertion set back from the limbus) and the lateral rectus resected (= shortened). Operative intervention may achieve alignment to permit fusion, if done early in the course of the squint. It should always achieve good cosmesis.

   The later the onset of squint, and the earlier in its course it is treated, the easier is the treatment of amblyopia and the better the chance of achieving good binocular vision. Binocularity demands good ocular alignment and 2 sharp retinal images. The pay-off for binocularity is stereopsis.

   Squints arising in adults are usually paralytic in nature and are considered in the next chapter.