

CASE FOUR

Short case number: 3_23_04

Category: Children and Young People

Discipline: Paediatrics_Surgery

Setting: Urban_General Practice

Topic: Strabismus in children

CASE



Tomas Alvarez is 8 weeks old, his mother is very concerned because he seems to be 'cross-eyed' at times.

Tomas is her first child and he was born at full term by normal vaginal delivery following an uneventful pregnancy.

He is feeding and growing well.

You note that there appears to be a problem with Tomas' right eye and that he may have a squint.

QUESTIONS

1. What are the key components of your history and examination of Tomas?
2. How would you clinically assess if Tomas has strabismus?
3. Why is it important to detect and manage strabismus as early as possible?
4. You determine that Tomas has a right esotropia, what would you explain to his mother about this condition and the ongoing management?

Resources

- South M, Isaacs D editors. Practical Paediatrics. 7th edition. Edinburgh: Churchill Livingstone; 2012.

What are the key components of your examination of Tomas?

- Examine Visual Acuity - See if child is focusing on things and people
- Check CN 2, 3, 4 & 6 (just by general observation of child looking round)

How would you clinically assess if Tomas has strabismus?

- The Cover Test

Cover eye with suspected strabismus

Get normal eye to fixate on something (e.g. wiggle a toy around)

Then expose strabismus eye and cover normal eye

If child has strabismus, the strabismus eye will shift to focus/fixate on the object

Why is it important to detect and manage strabismus as early as possible?

- To avoid **amblyopia** "lazy eye" later in life

the brain does not properly process images from one eye, leading to **decreased visual acuity** in that eye or both eyes

Can be caused by strabismus, cataracts or refractive errors (e.g. uneven far or near sightedness)

You determine that Tomas has a right esotropia, what would you explain to his mother about this condition and the ongoing management?

Esotropia - Visual Axes Converge AKA "cross-eyed" OR "convergent strabismus"

One or both eyes facing inward

Exotropia / Divergent Strabismus - Visual Axis Diverge

Treatment for strabismus (5)

Glasses

Eye Drops (*Atropine in normal eye dilates pupil & blurs its vision - forces strabismus eye to work harder to focus, improving its vision and alignment*)

Patching (*works same way as atropine*)

Surgery (of eye muscles)

Eye Exercises

ANSWERS

Question 1

What are the key components of your history and examination of Tomas?

History

- The current problem
- Past history
- Social history
- Family history
- Systems review
- Growth and development
- Immunisations
- Behaviour
- Medications
- Allergies

Examination

In keeping with paediatrics in general, observation without approaching or touching a child often supplies a great deal of information. By observation it is possible to rapidly determine an infant's use of vision. Does the child smile at a face? Is the child looking around the room? If something moves, does the child look to it? If there is a noise, does the child look to the source of the noise? A blind child will become still and will often drop the head down while using hearing to further localize the source of the sound, but will not look towards this source.

Most eyelid, eyelash and ocular surface abnormalities can be detected readily by simple observation. Many intraocular abnormalities can be detected by examination of the 'red reflex'. This is the red to orange colour seen within the pupil when the line of illumination and observation are approximately coaxial (that is, the same). This situation is most easily obtained by observing the child's eye with a direct ophthalmoscope from a distance of about 1 m. It is then easy to compare the reflexes for the two eyes and the child is not threatened by the examiner getting too close. A dull or absent red reflex indicates an opacity, such as a cataract, in the normally clear media of the eye. A white reflex results from an abnormally pale reflecting surface within the eye, such as a white retinal tumour (retinoblastoma). While these intraocular disorders are rare, they are important in terms of the severe effect on vision or threat to life

Question 2

How would you clinically assess if Tomas has strabismus?

Observation will confirm the presence of large-angle strabismus. However, a broad nasal bridge or prominent epicanthic folds will mimic milder degrees of strabismus, especially in younger infants. This situation is known as pseudostrabismus. The epicanthic folds cover the sclera on the medial aspect of the globe while the lateral sclera is easily visible. This creates the appearance of misalignment, particularly when the child looks laterally. Examining the symmetry of corneal light reflections will help to avoid being misled by pseudostrabismus.

The cover test is by far the most reliable method of detecting strabismus. The cover test is done by first getting the child to fix on an object while the observer determines which eye appears to be

misaligned. The eye that appears to be fixing on the object (and not misaligned) is then covered while the apparently misaligned eye is observed. If strabismus is present a corrective movement of the misaligned eye will be seen as this eye takes up fixation on the object of regard. If no movement is seen then the eye is uncovered.

The cover test is then repeated but the other eye is covered this time and the eye that is not covered is again observed for a corrective movement and, if present, strabismus is confirmed. The test can be repeated as many times as necessary. If no movement is seen following repeated covering of either eye, then no strabismus is present.

Question 3

Why is it important to detect and manage strabismus as early as possible?

A squint or misaligned eye is important to detect as it is frequently associated with amblyopia. Most childhood strabismus is the result of failure of binocular control at a cortical level within the central nervous system (CNS). Less commonly it is the result of cranial nerve lesions or extraocular muscle disease. In most children this CNS abnormality in eye movement control is an isolated abnormality with no other associated neurological or intellectual problems. However, children with widespread CNS abnormalities have an increased risk of developing strabismus. Down syndrome is a good example of this, with an approximately tenfold increase in the risk of developing strabismus.

Amblyopia is the cortical response to abnormal input from the eyes and is manifest as reduced visual acuity in one or both eyes. This abnormal input may result from a refractive (spectacle) error, a structural abnormality of the eye (e.g. cataract) or strabismus. Provided it is detected early enough, while the developing visual cortex is immature, amblyopia is treatable. Conversely, if the amblyopia is not treated before visual cortex maturation (about 7 years of age), it may not be reversible later in life. Detection of amblyopia is one of the major reasons for routine visual screening in childhood.

Question 4

You determine that Tomas has a right esotropia, what would you explain to his mother about this condition and the ongoing management?

Esotropia is the form of strabismus in which the visual axes converge. Also called convergent strabismus, crossed eyes.

Infantile esotropia is a squint seen before 6 months of age. Patching followed by surgery is the most common initial treatment. Children need to be followed up throughout childhood, as about one-third need more than one operation and reduced vision can occur following apparently successful initial treatment