

# Case notes

## Paediatric patient

### Patient details

**Initials:** TG, attended with Mum

**Age & gender:** 4, female

**Occupation:** Attends reception class at  
Townsville School

**Reason for visit:** Failed vision screening  
with visions of logMAR R: 0.6, L: 0.4

**General health:** Good.

Referral underway for speech and  
language assessment as speech  
development is delayed

**Medication:** Nil

**Allergies:** Milk

**Birth history:** Elective C-section at 38  
weeks gestation

**Ocular history:** Nil

**Family ocular history:** Mother and  
maternal aunt both have hypermetropia  
and amblyopia

### Examination

#### Fundus examination post cycloplegia with 20D lens

Right eye	Structure	Left eye
Normal	<b>Lids &amp; lashes</b>	Normal
Clear	<b>Cornea</b>	Clear
Clear	<b>Lens</b>	Clear
C:D 0.10	<b>Disc</b>	C:D 0.10
Well-defined margins		Well-defined margins
Healthy	<b>Macula</b>	Healthy
Normal	<b>Periphery</b>	Normal

### Preliminary measurements

**Distance vision:** RE 6/24; LE 6/15

Measured with crowded Kay pictures:  
unsuccessful with naming, so used matching  
chart

**Distance cover test:** Moderate esophoria with  
slow recovery

**Near cover test:** Esophoria (N>D) with slow  
recovery

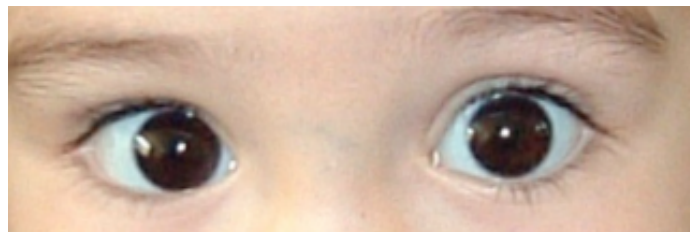
**Pupils:** PERRL, no RAPD

**Lang Stereopsis:** Possibly saw elephant (600")

**Hirschberg:** Symmetrical reflexes

**Ocular motility:** Grossly full

Key: PERRL = Pupils equal, round, reactive to light; RAPD = relative  
afferent pupil defect



## Refraction

### Dry Retinoscopy

**Right eye**

+1.50 DS

**Left eye**

+0.50 DS

### Cycloplegic Retinoscopy

**Right eye**

+4.50/-0.50x180

**Left eye**

+3.00/-0.25x175

## Cycloplegic Refraction

Cycloplegic examination is definitely indicated for children within the critical period of visual development who have reduced vision and/or any abnormality of the oculomotor status.

Following consent from TG's Mum, cycloplegia was performed with 1 drop of 1% cyclopentolate into each eye. An information leaflet about the drug<sup>1</sup> was given to Mum.

After 30 minutes, retinoscopy was performed. A check for stability of the retinoscopy reflex was made (where there is no change in the reflex when the child alters their fixation from distance to near) to establish that full cycloplegia had been achieved, as checking for pupil dilation does not confirm cycloplegia.

From TG's results, it is clear that non-cycloplegic (dry) retinoscopy failed to detect the full extent of her hypermetropia. Cycloplegia has been shown to reveal significantly more hypermetropia than non-cycloplegic examination.<sup>2</sup>

For children who have highly-pigmented irides, full cycloplegia may not be achieved with 1 drop of 1% cyclopentolate. Subsequent actions include either instilling a 2nd drop of 1% cyclopentolate or arranging an atropine refraction.

## Prescribing

**Right eye**

+4.50/-0.50x180

**Left eye**

+3.00/-0.25x175

As TG had an eso deviation, the full plus cycloplegic refractive error was prescribed for full-time wear.

<sup>1</sup> <https://www.college-optometrists.org/patient-resources/ordering-printed-resources#patientinformationtearoffpads-a5b2397c>

<sup>2</sup> Doherty *et al* (2019). <https://doi.org/10.1111/opo.12629>

## Management

A well-fitting frame was chosen for TG by a dispensing optician colleague.

Arrangements were made for a check of TG's visual acuities post-cycloplegia on spectacle collection.

When she attended, her acuities were right eye: 6/24, left eye: 6/12 and there was a small esophoria at distance and near. A referral was made to the local HES paediatric ophthalmology and orthoptic service. As well as continued use of her glasses, it is possible that TG will subsequently require occlusion therapy to improve the acuity in her right eye.



## Tips & tricks

When performing cycloplegic retinoscopy, speed and accuracy are essential.

Below are some tips which may help:

- Ask a colleague to instil the cycloplegic drops, so the child does not have a negative association with you, as the drops do sting due to their low pH.
- Don't use a trial frame - hold trial lenses in front of the child's eye in your fingers.
- Don't use cylindrical lenses - use a spherical lens for retinoscopy of each meridian then calculate the result in sphero-cyl form using the difference between the two spherical lens powers.