Interactive workshop: prescribing & binocular vision cases

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Is this art?
A. Yes
B. No
Case 1: 50y old female in contact lenses with PH of strab since teenager, now worsening

SYMPTOMS: AHP gradually worse over last year or diplopia

Rx: R+6.00DS 6/6  L+6.25DS 6/6  Add+1.75

WEARING: RGP R+6.00  L+8.50  (monovision)

COVER TEST: D 10Δ L Hyperphoria → GS → L hypertropia
N 15Δ L Hyperphoria → GS → L hypertropia

FUNDUS: fully described; all normal

IOP: R13  L14 mmHg

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<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>rapid and smooth</td>
</tr>
<tr>
<td>2</td>
<td>slightly slow/jerky</td>
</tr>
<tr>
<td>3</td>
<td>definitely slow/jerky but not breaking down</td>
</tr>
<tr>
<td>4</td>
<td>slow/jerky and breaks down on repeat covering, or only appears after a blink</td>
</tr>
<tr>
<td>5</td>
<td>breaks down readily after 1-3 covers</td>
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Which muscle is palsied?

LIR  RSO  LSO  RSR

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LSO palsy

- In SO palsy, usually:
  - Hyper-deviation of affected eye, worse in down-gaze
  - Under-action of affected eye when looking down and in
  - More likely to have symptoms with reading than with distance
- But, may have secondary sequelae


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SO palsy

- Usually:
  - Hyper-deviation of affected eye, worse in down-gaze
  - Under-action of affected eye when looking down and in
  - More likely to have symptoms with reading than with distance
- But, may have secondary sequelae
- May contraindicate fitting multifocal spectacles or monovision

**What management?**

A. Refer urgently
B. Refer routinely
C. SV CL & large readers
D. Alternating vision MF CL
E. Stop CL, MF glasses
F. Stop CL, 2 pairs of glasses (DV & NV)

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**Case 2: 2½ year old girl, 1st EE**

**Divergence excess**

- Characteristics:
  - D XOP > 15% greater than N XOP
  - Typically, no symptoms as suppress
  - Often worse at far distance of 6m
  - Often worse with bright sunlight or alcohol
  - Often accompanied by a V-syndrome
  - Divergent fusional reserve very high
  - Can be classified according to effect of occlusion & AC/A ratio
Case 2: 2½ year old girl, 1<sup>st</sup> EE

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Case 3: 10y old female, monitoring early myopia

**Symptoms:**
- D blur, occasional episodes N blur

**V:**
- R 6/15+
- L 6/19

**Ret:**
- R-0.25/-0.50x155 L-0.50/-0.50x175

**Sub:**
- R 6/15+ L 6/19

**NPC & AA:**
- to nose R 16D L 15D

**Cover test (s):**
- D orthophoria
- N 3A esophoria G1

**Ocular health:**
- Pupils, motility, ophthalmoscopy, fields, ret reflex; all normal

**Reflex:**
- all normal

**Pupils, motility, ophthalmoscopy, fields, ret to nose R 16D L 15D**

**R-0.25/-0.50x155 L-0.50/-0.50x175**

**R 6/15+ L 6/19**

**D blur, occasional episodes N blur**

**Why does myopia matter?**

- **Common and increasing prevalence**
  - 93% of Taiwanese medical students are myopic (Lin et al., 1997)
  - Prevalence of myopia in USA has increased in last 30 years from 25% to 42% (Vitale et al., 2009)
  - 50-53% of UK university students are myopic (Logan et al., 2005)
  - Prevalence of myopia in UK has more than doubled in last 50 years (McCullough et al., 2016)

- **Significant health impact**
  - High myopia (≥-6) increases risk of retinal detachment, myopic macular degeneration, glaucoma, & other conditions
    - “no evidence of a safe threshold level of myopia for any of the known ocular diseases linked to myopia” (Flitcroft, 2012)
  - In the Copenhagen study myopia-related diseases were the most common cause of impaired vision (H資訊 et al., 2014)

**Case 3: 10y old female – further tests**

**Accom. lag:**
- not done (would do now!)

**Cycloplegic:**
- done in 2009 showing early myopia

**Maddox wing:**
- 3A eso with subjective

**Mallett unit s:**
- 1A base out L aligning prism; or +0.50D aligning sphere

**AC/A ratio:**
- 3.5 Δ/D

**Sub:**
- R-0.25/-0.50x155 6/7.5 L-0.50/-0.50x175 6/9

**Larger near segment gives greater treatment effect**

**Slowing of axial elongation with OK contact lens**

**Slowing of myopia progression with multifocal spectacles**

**Prefored management?**

A. No Rx
B. Single vision glasses
C. Multifocal glasses
D. Single vision contact lenses
E. Multifocal contact lenses

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What next?

A. Accommodation
B. Cycloplegic
C. Near visual acuity
D. No Rx
E. Rx
F. Refer

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Case 4: 3y old boy; Mum says specs not needed

Case 3: 10y old myope – what happened?

Slowling of myopia progression with multifocal (MF) or myopia control (MC) soft contact lenses

Not included: Fujikado et al (2014) – small pilot study of experimental lens only 0.50D add

Aller et al (2006/16, RCT)
Walline et al (2013, CCS)
Anstice & Phillips (2011, RCT PE)
Sankaridurg et al (2011, CCS)
Lam et al (2013, RCT)
Paune et al (2015, CCS)
Cheng et al (2016, RCT)
Case 4: 3y old boy; Mum says specs not needed

**Recommended management option**

A. No Rx  
B. Occlusion  
C. Spectacles  
D. Spectacles + occlusion  
E. Refer

What Rx would you have given:

A. Same?  
B. More plus?  
C. Less plus?
Recommended management option

A. No Rx
B. Occlusion
C. Spectacles
D. Spectacles + occlusion
E. Refer

Case 4: 3y old boy; 6 months later

Case 4: 3y old boy; 6 months later; referral letter

Case 4: 3y old boy; 9 months later; reply to referral

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Case 6: 5y old girl, new px, 2nd EE, May 2012

Many cases never require full-time occlusion

If 6/9 to 6/25, 2h occ. ≡ 6h

If ≤ 6/30, 6h > 2h

Avoid full time occlusion for orthotropic anisometropia

Timings approximate

See patients frequently during the treatment of amblyopia, to begin with every 4-6 weeks.

Many cases of amblyopia can be cured by refractive correction alone;

20% don’t need occlusion (Gibson, 1955; Pickwell, 1984; Stewart et al., 2004; West & Williams, 2011)

Contact lenses are likely to be best (Evans, 2006)

Flow chart based on review of recent RCTs in Evans et al. (2011; OPO)

Contact lenses are likely to be best (Evans, 2006)

Who can treat amblyopia?

A. hospital eye clinics
B. community optometrists
C. both
Case 6: 2 years later, now 7y old girl

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<td>1.00</td>
<td>1.20</td>
<td>1.40</td>
<td>1.60</td>
</tr>
</tbody>
</table>

We find comfort among those who agree with us – growth among those who don’t.

Frank A. Clark

Some famous people who were dyslexic:
- Thomas Edison
- Albert Einstein
- Michael Faraday
- Willem Hollenbach
- Orlando Bloom
- Tom Cruise
- Danny Glover
- Whoopi Goldberg
- Keanu Reeves
- Oliver Reed
- David Bailey
- Leonardo da Vinci
- Tommy Hilfiger
- Pablo Picaso
- Auguste Rodin
- Andy Warhol
- Duncan Goodhew
- Cher
- John Lennon
- King Carl Gustav
- Winston Churchill
- Michael Heseltine
- John F Kennedy
- Nelson Rockefeller
- George Washington
- Hans Christian Anderson
- Agatha Christie
- F. Scott Fitzgerald
- Richard Branson
- F.W. Woolworth
- Walt Disney
- W.B. Yeats.

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