Opthalmology CEX Steps

**1. VISUAL ACUITY**

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| 1 | Inspection | My patient is a elderly Chinese gentleman. On inspection, I do not note obvious pathology such as pthiasis bulbi, occular deviation, or ptosis. He is not wearing spectacles. |
| 2 | Snellen Chart | I will first test distance vision with a Snellen chart at 6m  Sir, please cover your right eye and read out the letters  His visual acuity without pinhole is ---- |
| 3 | Pinhole | Sir, please look through this pinhole and read out the letters  His visual acuity with pinhole is ---, which is an improvement over the vision without pinhole, suggesting a refractive error.  (Repeat for contralateral eye) |
| 4 | Near vision | Sir, please look at this near-vision chart and read out the letters |
| 5 | If poor vision | Count fingers at 1m, then  Hand movement, then  Perception of light. |
| 6 | Summary | Offer additional tests as appropriate |

**2. VISUAL FIELDS**

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| 1 | Inspection  Gross visual field | Sir, please cover your right eye.  Can you see my face? How many fingers do you see? |
| 2 | Central field | Count fingers in 4 quadrants centrally:  Sir, please look straight at my nose. Tell me how many fingers you see.  Repeat for contralateral eye |
| 3 | Peripheral field | Sir, I will wriggle my finger and move it in from the side. Look straight at my nose. When you see my finger appear, say “yes” and point to the finger.  Wriggle finger in from 4 peripheral quadrants  Repeat for contralateral eye |
| 4 | Red hat pin | Sir, this is a red object. I will move it in from the side. Look straight at my nose. When you can see the object AND the object is red, say “yes” and point to where the object is.  Move red hat pin in 8 planes: 30°, 60°, 120°, 150°, 210°, 240°, 300°, 330°  Repeat for contralateral eye |
| 5 | Presentation | My patient is a elderly Chinese gentleman.  On confrontation visual field testing, he shows a (e.g.)   * Bitemporal hemianopia suggesting an optic chiasmal lesion e.g. a pituitary adenoma * Congruent right homonymous hemianopia with macular sparing suggesting a lesion posteriorly in the left occipital lobe * Right superior quadrantanopia suggesting a lesion in the left temporal lobe * Right inferior quadrantanopia suggesting a lesion in the left parietal lobe * Inferior altitudinal defect suggesting ischemic optic neuropathy * Restricted peripheral vision, e.g. due to glaucomatous changes * Monocular blindness suggesting a right optic nerve / eye lesion.   I will like to   * Verify my findings using static automated perimetry * Examine cranial nerves / colour vision (optic neuropathy) / fundoscopy (glaucoma) / IOP (glaucoma) |

**3. RED REFLEX AND DIRECT FUNDOSCOPY**

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| 1 | Inspection | Sir, I am going to look in your eyes. The light may be a little bright but it will not hurt you. I will come quite close, please let me know if you feel uncomfortable. |
| 2 | Red reflex | [Opthalmoscope 1m in front of patient, look for bilateral red reflexes]. E.g.   * Bilateral red reflexes are present and symmetrical * There is decreased red reflex on the left, which may be due to a pathology e.g. cataract |
| 3 | Fundoscopy | Describe   * Demography * Optic disk: margin (sharp vs blur), colour (pink vs pale), cup-disk ratio (<0.6), neovascularization * Vessels: tortuosity, microaneurysms, AV nipping) * Additional features: cotton wool spots (peripheral, fluffy), exudates (central, more defined, in DM eye), drusen (in non-DM eye) * Macula: neovascularization, etc   I will like to (offer as relevant)   * Test visual acuity / IOP / visual fields / check for RAPD   Yellow spots may be   * Cotton wool spots: fluffy edge, outside macula * Hard exudates: in DM eyes, harder edges, harder to trace edge as may clump together * Drusen: in non DM eyes, individual lesions   Red colour may be   * Microaneurysm, dot/blot haemorrhage * Subretina bleed (vessels on top – from choroid vessels in wet AMD) * Retinal bleed * CRVO type bleed * Subhyaloid bleed (the precursor to vitreous haemorrhage * Vitreous haemorrhage (will have hazy view) |

**4. PUPIL EXAM**

Either (i) RAPD type, or (ii) anisocoria type.

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| 1 | Inspection | My patient is an elderly Chinese gentleman. On inspection, I do not note ptosis, head tilt, or obvious occular deviation which I will like to confirm on Hirschburg testing |
| 2 | Anisocoria | [Lights on then off for rest of steps]   * There is no anisocoria in light or in dark * There is anisocoria, worse in the dark. The constricted left pupil is abnormal. Possible etiologies include Horner’s syndrome, and drugs e.g. opiates * There is anisocoria, worse in the light. The dilated right pupil is abnormal. Possible etiologies include a surgical CN III palsy, drugs e.g. mydriatic eyedrops |
| 3 | Direct light reflex | [One eye, pause, other eye] |
| 4 | Consensual | [Need 2nd diffuse light]   * On illuminating the right eye, the left pupil constricts normally |
| 5 | RAPD | [Swing rapidly from one eye to the next]   * There is no RAPD * On illuminating the right pupil, the left pupil paradoxically dilates. This is a right RAPD suggesting a lesion of the right optic nerve (e.g. optic neuropathy, advanced glaucoma) or a large retinal lesion.   \*\* Do not confuse Hippus (pupil constricts then dilates) for RAPD. Hippus is normal. |
| 6 | Accomodation |  |
| 7 | Complete exam | I will like to complete my examination by   * Horner’s case: testing extraocular eye movements, confirming Horner’s using cocaine eyedrops, localizing the lesion using hydroxyamphetamine eye drops, examining the lung apex, the T1 muscles, and the neck * RAPD case: performing fundoscopy for signs of optic nerve pathology or large retinal disease. |

**5. HIRSCHBURG & COVER TESTS**

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| 1 | Inspection | My patient is an young Malay boy. On inspection, I do not note any head tilt. The patient is bespectacled. |
| 2 | Hirschberg | There is visible exotropia which I will like to confirm on Hirschberg testing.  There is unequal corneal light reflex, deviating is abt 1mm, corresponding to 7° of squint |
| 3 | Cover test | [Cover right, look at left eye. Uncover right, look at right eye]   * Occlusion of the right eye causes the left eye to turn out to fixate.  On uncovering, I notice that the right eye had turned in (may or may not turn out to take up fixation). This confirms a eso*tropia* * Occlusion of the right eye causes the left eye to turn in to fixate On uncovering, I notice that the right eye had turned out (may or may not turn in to take up fixation again). This is a exo*tropia* |
| 4 | Alternate cover test | [Cover right, cover left, cover right, cover left]   * With both eyes open, there is no exotropia. On occluding the right eye, the left eye takes up fixation When the left eye is rapidly occluded, the right eye turns in.  When the right eye is rapidly occluded, the left eye turns in This is a exo*phoria* * With both eyes open, there is no esotropia. On occluding the right eye, the left eye takes up fixation When the left eye is rapidly occluded, the right eye turns out.  When the right eye is rapidly occluded, the left eye turns out This is a *esophoria* |
| 5 | Extraocular muscles | See EOM testing.   * There is no EOM deficit. The strabismus is concomitant * There is an EOM deficit. The strabismus is likely incomitant |
| 6 | Complete | I will like to complete my examination by using prisms to identify the degree of misalignment |

**6. EOM**

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| 1 | Inspection | My patient is an elderly Chinese gentleman. On inspection, I do not note ptosis or head tilt. However the right eye is adducted and there is esotropia which I will like to confirm on Hirschburg testing |
| 2 | Versions | Sir, can you see my red ball? Do you see one or two? Please look at my red ball, don’t move your head, only move your eyes. If you see one, say “one”, if you see double, see “two”  Test movements in 9 positions |
| 3 | Ductions | If there is any deficit, cover the “normal” eye and test movement again. If movement is now normal, it was not due to a nerve palsy |
| 4 | Complete | Based on identified pathology, e.g.   * CN3: check pupils, vertical gaze * CN6: fundoscopy for papilloedema for raised ICP * CN4: Parks-Bielchowsky 3-step test * Cerebellar signs, other CN, long tract signs * Fatigability for MG |

**7. Anterior segment**

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| 1 | Inspection | My patient is an elderly Chinese gentleman. On inspection, I note that his eyes are not erythematous and there is no discharge. |
| 2 | Pentorch exam | Sir, I will look into your eyes. I will use a cotton bud to lift your eyelid, it may be slightly uncomfortable but will not be painful.  In his left eye, there is a 5mm x 5mm opacity at the 2 o’clock position of the cornea, 5mm away from the centre of the cornea. |
| 3 | Fluorescein | I will like to stain his eyes with fluorescein and examine under cobalt blue light.  The left eye corneal opacity does not light up under fluorescein stain suggesting that the epithelial defect has healed. |
| 4 | Summary | Given the lack of erythema, discharge, and epithelial defect, the most likely pathology is a healed scar due to an old cornea ulcer |