Chapter 5
Central nervous system

Checklist

<table>
<thead>
<tr>
<th>HELP:</th>
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<tr>
<td>H: ‘Hello’ (introduction and gains consent)</td>
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<td>Explains that needs to examine the nerves of the face</td>
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<td>E: Exposure of head and eyes – sits opposite the patient at eye level</td>
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<td>L: Lighting</td>
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<td>P: Positions correctly (sits opposite patient at eye level), asks if patient is in any pain</td>
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<td>Washes hands</td>
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Inspection:

- Facial asymmetry (stroke, parotid gland tumour)
- Ptosis (complete – cranial nerve III palsy, or partial – Horner’s syndrome)
- Convergent or divergent squint (congenital or muscle/nerve pathology)
- Medical aids – glasses, eye patch, hearing aids, pen and paper for communication
- Hearing aids (deafness – peripheral or central cause)
- Fasciculations (LMN)
- Dyskinesia
- Wasting (LMN, UMN, disuse atrophy)
- Abnormal movements (tremor, chorea, myoclonus)
- Speech defects (see Chapter 8 on speech)
- Scars (back of ear – acoustic neuroma, craniotomy, in front of ear – parotid gland tumour, and may have associated ipsilateral facial nerve palsy)

Cranial nerve I: olfactory nerve (sensory):
- Sense of smell can be tested with smelling salts
- Any change/loss of smell?
- Most likely cause of abnormal sense of smell is conductive/mechanical (e.g. due to obstruction)

Cranial nerve II: optic nerve (sensory):
- Any change in vision?
- ‘AFRO-C’:
  - Acuity: With glasses (if worn), gets to the patient to identify how many fingers are held up, and then tests with a Snellen chart
  - Fields:
    - Confrontation (can the patient see the student’s face? – central vision)
    - Asks them to cover their right eye with their right hand. Student covers their own left eye with the left hand, and asks patient to keep looking into their eye. Using free hand, student tests fields, and then swaps hands and repeats on other side
    - During this part of the exam, maps the blind spot (the area where the patient’s view of the finger temporarily disappears)
    - Tests each eye separately: brings in fingers from outside the field of vision. Does this match the student’s field (peripheral vision)?
  - Pupillary Reflexes:
    - Comments on whether the pupils are the same size
    - Direct and consensual
    - Accommodation (pupils constrict on convergence)
    - Considers testing for relative afferent pupillary defect (RAPD) – damage to optic nerve on one side results in a delay in constriction when swinging a light between the eyes. Pupil appears to dilate when the light is swung to the eye with the damaged optic nerve
    - Red pins for colour desaturation
  - Fundi: See Chapter 6 on Ophthalmoscopy
  - Colour vision: Ishihara plates
  - Uses a pinhole to correct refractive error

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Cranial nerves III, IV and VI: oculomotor, trochlear, abducens (all motor):
- Tests nerves individually:
  - IV: superior oblique
    - Damage means eye is unable to look down when abducted
  - VI: lateral rectus
    - Damage means eye is unable to abduct
  - III: Other movements: Examine smooth pursuit and nystagmus with a hat pin moved in a ‘H’ pattern
    - Damage causes dilated pupil, ptosis and restricted eye movements
  - Look for exophthalmos
  - Double vision
    - Whether it is going across/up/down and in which direction
  - Nystagmus

Cranial nerve V: trigeminal nerve (motor and sensory):
- Tests sensation in three areas supplied by branches V1, V2 and V3 (light touch and pin-prick)
- States intent to elicit a corneal reflex (wisp of cotton on the sclera of the eye – both eyes should blink)
- Opens the patient’s mouth against resistance and moves it from side to side (pterygoids)
- Feels the temporalis and masseter muscles while the patient clenches their teeth
- Jaw jerk

Cranial nerve VII: facial nerve (motor and sensory):
- Asymmetry – look for a Bell’s palsy
- Is the forehead spared?
- Asks the patient to raise their eyebrows and shut their eyes tight against resistance
- Asks them to show their teeth
- Asks them to puff out their cheeks
- Taste in anterior two-thirds of the tongue

Cranial nerve VIII: vestibulocochlear (sensory):
- Simple test of hearing – whispers a number into each of patient’s ears while rubbing the fingers next to the other ear (to prevent the whisper being heard in that ear)
- Rinne and Weber tests (256 Hz tuning fork) – see ‘Hints and tips for the exam’ below
- States intent to perform caloric testing

Cranial nerves IX and X: glossopharyngeal and vagus (both motor and sensory):
- Assesses cough (‘bovine’ cough if Xth nerve lesion)
- Listens and identifies hoarseness of voice
- Asks patient to say ‘Ah’ (uses a torch to see if the palate rises uniformly bilaterally and the uvula is central)
- Taste: posterior third of tongue
- Offers to test gag reflex (using a tongue depressor, carefully touches the back of the throat. Patient should gag. Positive reflex shows intact afferent cranial nerve IX and efferent cranial nerve X)

Cranial nerve XI: accessory (motor):
- Asymmetry of muscles
- Asks patient to shrug shoulders against resistance – trapezius
- Asks patient to turn head to left and right against resistance – sternocleidomastoid

Cranial nerve XII: hypoglossal (motor):
- Visualises tongue at rest (fasciculation)
- Asks patient to protrude tongue (deviation)
- Asks patient to moves tongue to left and right

Thanks patient
- Offers to help patient get dressed
- Washes hands
- Presents findings
- Offers appropriate differential diagnosis
- Suggests appropriate further investigations and management

OVERALL IMPRESSION: