OSCE-Aid Presents:

Common Cases in Neurology
Outline

• Stroke
• Parkinson’s Disease
• Motor Neurone Disease
• Cerebellar syndrome
Aims

• To revise common clinical features
• To present examination findings
• To revise differential diagnoses
• To revise basic investigations and management
OSCE-Aid Presents:

Case 1: Stroke
“Please examine this patient’s lower limbs”
Examination - INSPECT

Say what you see

- Connect tubes
- Nil By Mouth
Examination - TONE
Examination - POWER

MRC grading of power
0  Nada
1  Flicker
2  Moves with gravity neutralised
3  Moves against gravity
4  Reduced power against resistance
5  Normal

Three is Free
Examination – REFLEXES, COORDINATION and GAIT

• Reflexes:
  – Brisk
  – Extensor plantars

• Coordination: poor

• Gait: circumducting
Offer to examine...

- Sensation & Proprioception
- Swallow
- Speech
- Visual fields
- Clues to the cause: AF, heart murmurs, carotid bruits
Present your findings:

“This is an 82 year old woman with wasting, increased tone and weakness in her left leg. These findings are compatible with a right-sided stroke”
Top Questions
1. How would you define a stroke?

Rapid onset, focal neurological deficit due to a vascular lesion lasting >24 hours
2. How do you classify strokes?

<table>
<thead>
<tr>
<th>Clinical features</th>
</tr>
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<tbody>
<tr>
<td><strong>Total Anterior Circulation Stroke</strong></td>
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<tr>
<td>Hemiplegia</td>
</tr>
<tr>
<td>Homonymous Hemianopia</td>
</tr>
<tr>
<td>Higher cortical dysfunction</td>
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<tr>
<td><strong>Partial Anterior Circulation Stroke</strong></td>
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<tr>
<td>2/3 of above</td>
</tr>
<tr>
<td><strong>Posterior Circulation Stroke</strong></td>
</tr>
<tr>
<td>Cerebellar syndrome, isolated homonymous hemianopia, LOC</td>
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<tr>
<td><strong>Lacunar Stroke</strong></td>
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<tr>
<td>Pure motor/sensory</td>
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</tbody>
</table>
3. How would you investigate a patient presenting with stroke?

1. Diagnosis
   - History and examination
   - CT head
   - MRI brain

2. Underlying causes
   - Blood pressure
   - Lipid screen
   - Carotid dopplers
   - ECHO (mural thrombus)
   - 24hr tape (paroxysmal AF)
4. How would you manage this stroke patient?

– Pharmacological
  • **Thrombolysis** within 4.5 hours of onset
  • **Aspirin** (high dose) for 2 weeks

– Non Pharmacological
  • **Stroke Unit:** SaLT, PT/OT, specialist nursing

– Secondary prevention
OSCE-Aid Presents:

Case 2 Cerebellar Syndrome
“This 28 year old man has noticed problems with his coordination. Please examine him and suggest a diagnosis.”
Clinical examination

1. General inspection
2. Brief conversation
3. Eyes
4. Upper limbs
5. Lower limbs
<table>
<thead>
<tr>
<th>1. General</th>
<th>Walking aids Posture</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Speech</td>
<td>Scanning dysarthria</td>
</tr>
<tr>
<td></td>
<td>Bri-tish Cons-ti-tu-tion</td>
</tr>
<tr>
<td>3. Eyes</td>
<td>Nystagmus</td>
</tr>
<tr>
<td>4. Arms</td>
<td>• Rebound phenomenon</td>
</tr>
<tr>
<td></td>
<td>• Hypotonia</td>
</tr>
<tr>
<td></td>
<td>• Hyporeflexia</td>
</tr>
<tr>
<td></td>
<td>• Finger-nose</td>
</tr>
<tr>
<td></td>
<td>• Incoordination</td>
</tr>
<tr>
<td></td>
<td>• Intention tremor</td>
</tr>
<tr>
<td></td>
<td>• Dysdiadochokinesia</td>
</tr>
<tr>
<td>5. Legs</td>
<td>Heel-shin incoordination</td>
</tr>
<tr>
<td></td>
<td>Broad-based gait</td>
</tr>
<tr>
<td></td>
<td>Romberg’s negative</td>
</tr>
</tbody>
</table>
Clinical examination

Dysdiadochokinesis and dysmetria
Taxia
Nystagmus and broken saccades
Intention tremor
Scanning dysarthria
Hypotonia/Pendular knee jerks
Present your findings

“This is a 79yo man with slurred speech, nystagmus, dysdiadochokinesis, dysmetria and an intention tremor in the right upper limb. He also had a broad based gait.”
Top Questions
1. What are the causes of cerebellar syndrome?

**Paraneoplastic** – rare

**Alcohol** – assess other signs of EtOH abuse

**Sclerosis** – MS (INO/optic atrophy)

**Tumour** – $2^\circ > 1^\circ$ in adults

**Rare** – Friedrich’s/SCA/MSA

**Atrogenic** – phenytoin (gingival hypertrophy)/chemo

**Endocrine** – hypothyroid/hypoparathyroid

**Stroke** – ischaemic/haemorrhagic
2. How would you investigate this patient?

- **Bloods**
- **Imaging**
  - CT-head
  - MRI: posterior fossa
- **CSF**
  - Infection, MS
- **Specialist Investigations**
3. How would you manage this patient?

**Acutely:**
- Identify reversible causes
- Thiamine if Wernicke’s encephalopathy

**Subacute/Chronic:**
- Cause specific treatments
- Support with PT/OT involvement
- Genetic counselling in hereditary cases
Cardinal Symptoms

- Bradykinesia
- Muscular Rigidity
- Resting Tremor
  - Worse when concentrating
- Postural instability
Inspection

✓ GAIT-
Stooped posture,
Slow to stand,
Slow to start,
Festinant gate
Inspection

✓ ARMS
Loss of arm swing
Resting Tremor
Inspection

✓ FACE
Loss of facial expression (Mask-like face)
Examination

- Assess for bradykinesia
Examination

• Assess for rigidity and cogwheeling
More info...

www.osce-aid.co.uk/osce.php?code=osce_pd
Present your findings:

“This 67 year old man presents with a shuffling gait, unilateral resting tremor and upper limb rigidity. He exhibits bradykinesia. This is consistent with a diagnosis of Parkinsonism, the most common cause of which is Idiopathic Parkinson’s Disease”
1. What is your Differential Diagnosis?

- Tremor:
  - Benign essential tremor
    - 50% AD (usually young onset)
    - Booze helps
    - Postural
  - Hyperthyroidism
  - Caffeine/Alcohol
“The top differential diagnosis for the tremor here is Essential Tremor. This tremor is usually postural. It is inherited in 50% of patients, and is often improved by alcohol. Other common causes of tremor include hyperthyroidism and anxiety, and ingestion of substances such as alcohol and caffeine”
1. What is your Differential Diagnosis?

• Parkinsonism
  – Drugs: antipsychotics e.g. haloperidol, risperidone
  – Vascular
1. What is your Differential Diagnosis?

- Parkinson’s Plus e.g. PSP, MSA, LBD

“The commonest cause of parkinsonism is Idiopathic parkinson’s disease. This remains largely a clinical diagnosis. Alternative diagnosis to consider are drug induced parkinsonism, genetic and vasular causes, and of course the parkinsons plus syndromes”
“Misdiagnosis of Parkinson's disease is common. If I suspected the diagnosis, I would refer the patient to a physician with an interest in Parkinson’s disease, for confirmation of diagnosis and initiation of management.”
2. What are the non-motor symptoms associated with Parkinson’s?

- Hyposmia - precedes disease,
- Constipation
- Cognitive deficit,
- Poor coordination,
- Depression
- REM sleep disturbances,
- Autonomic dysfunction
“It is important to reassess the diagnosis regularly in Parkinson’s Disease, as misdiagnosis is common. Some features that would prompt reconsideration include poor response to Levodopa, early severe autonomic symptoms, and upward gaze palsy.”
5. How would investigate a patient with parkinsonism?

- History
- Examination
- Drug history
- L-dopa trial
• “The diagnosis of Parkinson’s disease remains largely clinical. However, most patients undergo brain imaging to rule out a vascular cause. A careful history including drug and family history is essential. Thorough neurological and mental state examination should be carried out. Accurate documentation is important to allow assessment of the progression of symptoms”
6. How would you manage a patient with Parkinson's disease?

- Physician: Pharmacological management and assessment by a physician with interest in Parkinson’s disease with review every 6-12 months
- MDT approach – Physio, OT, SALT.
- Assessment for motor symptoms as well as depression, autonomic symptoms.
Parkinson’s - Management

“The management of idiopathic Parkinson's disease demands an MDT approach. Pharmacological intervention, psychological support and physio and occupational therapy. There is a small role for surgery. The mainstay of treatment for extrapyramidal features is with dopamine replacement.
7. Tell me more about dopamine replacement

Medical
1. Monoamine oxidase-B inhibitors (selegiline)
2. Dopamine agonists (ropinerole, pramipexole)
3. Dopamine replacement (levodopa)
“The basis of treating Parkinson’s Disease is the replacement of diminished dopamine. The options include pure dopamine replacement (Levodopa), and drugs that reduce the breakdown of the body’s own dopamine (selegeline). Finally, there are drugs that enhance the action of the remaining endogenous dopamine (repinerole). Of course, all of these medications have their pitfalls....”
OSCE-Aid Presents:

Case 4:
Motor Neurone Disease
“Please examine this patient’s arms”
Clinical signs: UMN + LMN

- **Inspection**: wasting, fasciculation, NBM/NG or PEG feed
- **Tone**: spastic/flaccid
- **Power**: weak
- **Reflexes**: brisk/absent
- **Gait**: spastic, foot drop
Normal findings

- Sensation
- Extra-ocular muscles
- No cerebellar signs
- No extra-pyramidal signs

Speech + tongue:
- Hot potato
- Donald Duck
Present your findings:

“This is a 49 year old male who has both upper and lower motor neuron signs including fasciculations, increased tone, brisk reflexes and weakness. I therefore think this man has MND”
Top Questions
1. What is your differential diagnosis?

a) Mixed **UMN** + **LMN** signs
b) **UMN** signs
c) **LMN** signs
1. What is your differential diagnosis?

a) Mixed **UMN + LMN signs**

- Transverse myelitis
- Subacute combined degeneration
- Myeloradiculopathy
1. What is your differential diagnosis?

b) **UMN signs**
   - MS
   - Stroke

c) **LMN signs**
   - Myasthenia Gravis
   - Guillain Barre Syndrome
2. What are the different clinical patterns of MND?

• **Amyotrophic lateral sclerosis (50%)**
  – Mixed UMN + LMN features

• **Progressive muscular atrophy**
  – Predominantly LMN

• **Progressive bulbar palsy**
  – Speech and swallow problems

• **Primary lateral sclerosis**
  – Spasticity, pseudobulbar palsy
3. How would you investigate this patient?

- Primarily a clinical diagnosis
- EMG – fasciculation
- MRI brain and spinal cord in order to exclude other differentials
4. How would you manage this patient?

- **Multidisciplinary**
  - Neurologist, palliative care, hospice, PT/OT, SaLT, dietician, psychological support for patient and family.

- **Symptomatic**
  - **Drooling**: Amitriptyline
  - **Spasticity**: Baclofen
  - **Respiratory failure**: NIV
  - **Dysphagia**: thickened foods, NG tube, PEG

- **Anti-glutamatergics**
  - Riluzole (limited effect)
Thank you
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