

MBChB Year 2 Clinical contact in GP – Collapse (Stream B, 'Green' stream)

22/5/25

Context for the session

The Intended Learning Outcomes are to be able to:

- Discuss common causes of collapse
- Describe how to gather a well-rounded impression of a patient presenting with an episode of collapse and formulate a differential diagnosis
- Perform upper limb neurological examination

Students will have covered the following in the two-week collapse block:

In **Case-Based Learning** a 76-year-old man was brought to the Emergency Department following a collapse at home; and his granddaughter (who fainted/had vasovagal episode when she witnessed venesection).

In **Lectures, workshops and practicals** students will learn about:

- What do you need to maintain consciousness?
- Neural networks
- Epilepsy
- Stroke syndromes
- Cardiac causes of collapse (electrical and structural)
- Shock
- Aneurysms
- Transient loss of consciousness: syncope vs. seizure
- Use of the clinical laboratory in diagnosis of collapse
- How certain can we be of our clinical observations and assays?
- Incapacity and absence of consent
- Differential diagnosis of collapse
- Diagnosis of suspected poisoning
- Applied Anatomy and Imaging Practical (collapse)

Specifics for Collapse in GP clinical contact

Introduction

This is the final session for the Year Two students. It should help prepare them for the to move into Year 3 where they will be doing more work on examination and clinical skills and start to think more about what to do next and management plans.

As with the previous sessions:

The key learning goal for this session is for students to apply their knowledge by interviewing and examining patients, preferably someone with a history of collapse or neurological disorder.

As with the previous sessions:

- refer to the [Year 2 GP handbook](#), which covers the information common to all sessions.

- use the “Session plans for the final GP2 sessions” attached to the email as a guide on how to use your time with your group

Allow time for:

- introductions (reflecting on any learning/action points from the previous session)
- student-led interaction with patient(s), and examination of upper examination practice (please note that they have had no central practice on this examination skill and may like to initially practice on each other)
- **Additionally for this session:** Please allow time for individual feedback and ask students about their creative reflective work. While you speak with individual students the other students should be completing feedback (see email information)

(Expert) patients

Suitable patients for the block are people:

- with a history of syncope or transient loss of consciousness from any cause
- with a history of epilepsy
- with a previous TIA or stroke
- Any patient with a neurological disorder such as Parkinsons

Tasks

Start by assessing their learning needs:

- discuss the students’ learning during the collapse block
- what do they feel confident in and what are they unsure about?

Prepare for the session. Brainstorm:

- What are the common causes of collapse, how to assess and differentiate between causes of collapse. What specific areas of the history are important?
- Get the students to think about what sorts of symptoms patients present with for each of the major causes (TIA/stroke, cardiac arrhythmias, epilepsy) and to have a think about how they might elicit that information.
- As a GP, when someone presents with episode of “collapse” how do you prepare? What is going through your mind? What information is particularly useful and why?
- Are there any key risk factors for types of collapse that you need to know about before you assess the patient.


Follow the usual timetable of talking to and examining one or two patients:

- Practice how to perform upper neurological examination. Students are introduced to peripheral neurological examination of the lower limb but have not yet practiced the upper limb neurological examination. They may like to run through this with you and/or on each other before examining a patient. See the upper limb neurological examination checklist below.

Information given to students

Causes of Collapse

Cardiovascular	Neurological	Other
<ul style="list-style-type: none">• Vasovagal syncope (faint)• Arrhythmia• Valvular disease• Shock• Postural/Orthostatic hypotension• Myocardial infarction• Carotid sinus syndrome	<ul style="list-style-type: none">• Seizure• Stroke/TIA• Intracranial haemorrhage• Non-epileptic attack	<ul style="list-style-type: none">• Hypoglycaemia• Pulmonary embolism• Adrenal crisis



Differential diagnosis of transient loss of consciousness

The below notes are based on Chapter 21: Transient loss of consciousness, Macleod's Clinical Diagnosis.

Transient loss of consciousness can be diagnostically challenging because:

- the event has usually resolved by the time of assessment; and
- critical elements of the history are unknown to the patient

Therefore, witness accounts are crucial.

Common causes of transient loss of consciousness include syncope, cardiac arrhythmias, epileptic seizure, non-epileptic attack disorders.

Table: Features which help discriminate syncope from seizure ((from Macleod's Clinical Examination)

	Syncope	Seizure
Triggers	Typically present (pain, illness, emotion)	Often none (sleep deprivation, alcohol, drugs)
Prodrome	Feeling faint, nausea, tinnitus, vision dimming	Focal onset (not always present)
Duration of unconsciousness	<60 seconds	1-2 minutes
Convulsion	May occur but brief myotonic jerks	Usual, tonic-clonic 1-2 minutes
Colour	Pale	Red/blue, may be pale
Tongue button	Very rare	Common
Recovery	Rapid, no confusion	Gradual, over 30 minutes, often confused, amnesic

History

If witnessed, ask the observer as well as the patient to describe attacks.

- Was there any warning? Faintness, blurring of vision, dizziness or nausea?
- Were there any associated symptoms? Palpitations or sensory symptoms?
- What were they doing at the time? For recurrent episodes, are there any precipitants, e.g. from sitting to standing.
- Did they lose consciousness and if so, for how long?
- Were there any convulsions? Any tongue biting or urinary/faecal incontinence?
- Was there any injury? e.g. from falling to the ground.
- How long did it take them to come around (regain consciousness)? How did they feel afterwards?

Sensory symptoms are common, and it is important to discern what the patient is describing. Clarify that, by 'numbness', the patient means lack of sensation rather than weakness or clumsiness.

Assessing a possible first seizure

The following notes are from NICE [Clinical Knowledge Summary on Epilepsy](#).

An epileptic seizure is the transient occurrence of signs or symptoms due to abnormal electrical activity in the brain. This manifests itself as a disturbance of consciousness, behaviour, emotion, motor function, or sensation.

It is not possible to diagnose epilepsy after a single seizure. There are many other causes for a first seizure (see below).

Epilepsy is a disease of the brain defined by at least two unprovoked seizures occurring more than 24 hours apart.

Risk factors that suggest epilepsy

- Triggers for seizure – on waking or in association with sleep deprivation or flashing lights
- Family history of epilepsy
- Comorbid conditions (cerebrovascular disease, cerebral tumours etc etc)

Any symptoms of auras?

- Simple partial seizures with no loss of consciousness
- Auras arising from the temporal lobe: unexpected tastes, smells, paraesthesia, or a rising abdominal sensation

Specific features of generalised seizures

- **Tonic** seizures that cause impairment of consciousness and stiffening; the trunk may be either straight or flexed at the waist.
- **Clonic** seizures that cause jerking and impairment of consciousness.
- **Tonic-clonic** seizures that cause stiffening and jerking and impairment of consciousness.
- **Atonic** seizures that cause sudden brief attacks of loss of tone, associated with falls and impairment of consciousness.

- **Post-ictal period:** residual symptoms after the attack, such as drowsiness, amnesia, headache, or focal neurological deficit that slowly recovers.
- Injuries may be sustained, including aching limbs and bites to the tongue.

Assessing a possible TIA or stroke

The following notes are from NICE CKS [Stroke and TIA](#).

Stroke and TIA present with sudden onset of focal neurological deficits. Widespread cerebral hypoperfusion (for example subarachnoid or intracranial haemorrhage or massive infarction) may present with non-focal or global neurological deficits.

Suspect a TIA if:

- The person presents with sudden onset, focal neurological deficit e.g.
 - Unilateral weakness or sensory loss.
 - Dysphasia.
 - Ataxia, vertigo, or incoordination. (Isolated dizziness is not usually a symptom of TIA)
 - Syncope.
 - Sudden transient loss of vision in one eye (amaurosis fugax).
 - Homonymous hemianopia. – Cranial nerve defects.
- Resolve within 24 hours and can't be explained by an alternative cause e.g. hypoglycaemia

Suspect stroke if:

- The person presents with sudden onset, focal neurological deficit which is ongoing (or lasted more than 24 hours)
 - Any of the above but acute presentation or persisting. – Confusion, altered level of consciousness and coma.

FAST warning signs

FAST (Face, Arms, Speech, Time) is an acronym to help people identify the most common signs of a stroke, and emphasises the importance of acting quickly by calling 999

- F = Face Drooping – Does one side of the face droop or is it numb? Ask the person to smile. Is the person's smile uneven?
- A = Arm Weakness – Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward?
- S = Speech Difficulty – Is speech slurred?
- T = Time to call 999

Other stroke symptoms – sudden onset of:

- NUMBNESS or weakness of face, arm, or leg, especially on one side of the body
- CONFUSION, trouble speaking or understanding speech
- TROUBLE SEEING in one or both eyes
- TROUBLE WALKING, dizziness, loss of balance or coordination
- SEVERE HEADACHE with no known cause



How to approach a collapse...



A to E

Airway

- Check if the airway is patent

Breathing

- Respiratory rate, oxygen saturations, work of breathing, chest auscultation

Circulation

- Pulse (character, rhythm, rate), CRT, heart sounds, fluid status

Disability

- Capillary glucose, temperature, conscious level, pupils, head injuries

Exposure

- Abdomen, peripheral signs and legs, rashes, injuries

Assessing Conscious Level – AVPU (ACVPU)

Alert

- Fully awake and at their baseline level of cognition

Confusion

- The patient is awake but with new-onset or worsening confusion

Voice

- Responds (e.g. words, grunting, moving a limb, eye opening) when you talk to them

Pain

- Responds to pain stimulus – e.g. trapezius squeeze, supra-orbital pressure

Unresponsive

- No response to verbal or pain stimulus

Assessing Conscious Level - GCS

15/15 = normal conscious level

Best Eye Response	Best Verbal Response	Best Motor Response
E4 = eyes open spontaneously E3 = eyes open to verbal command E2 = eyes open to pain E1 = no eye opening NT = not testable	V5 = orientated speech V4 = confused speech V3 = using inappropriate words V2 = incomprehensible sounds V1 = no verbal response NT = not testable	M6 = obeys commands M5 = localises to pain M4 = withdrawal from pain M3 = flexion to pain M2 = extension to pain M1 = no motor response NT = not testable

For a patient who collapsed, examine:

- Cardiovascular examination
- Upper and lower limb neuro examination
- Cranial nerve examination

And perform:

- Current Observations
 - Bedside tests – lying/standing blood pressure, ECG, CBG (glucose)
 - Bloods – FBC, U&Es, LFTs, CRP, electrolytes, troponin...
- Imaging

Upper limb peripheral neurological examination student checklist

To begin:

WIPE

- Wash hands
- Introduce self, stating your name and role
- Identify patient (check name, DOB and what they would like to be called)
- Permission – gain consent for the exam including a brief outline of what it will entail and how long it will take.
- Position – patient seated
- Pain – ask if the patient is in any pain
- Privacy – ensure curtains/doors are closed
- Exposure – both upper limbs exposed from shoulders to fingers

General inspection

What to examine	Assessing for
Conscious level	AVPU – alert, responds to voice, responds to pain or unresponsive Glasgow coma scale 3-15 gives greater range of level of response
General appearance	Is patient alert, orientated, in pain, generally appearing well or unwell?
Gait/Posture	Use of mobility aids. Does gait appear normal? Abnormal posture e.g. leaning to one side. Limb posture e.g. contractures
Body habitus	Cachectic, well-nourished or obese
Face	Facial droop or asymmetry, reduced facial expression, ptosis, pupil asymmetry
Speech	Is speech normal? Does patient understand instructions? Dysarthria, receptive or expressive dysphasia
Musculature	Scars, wasting, involuntary movements, fasciculations, tremors (SWIFT)

Around the bed:

- Monitoring devices
- Medication
- Oxygen, NG tube, IV infusions, urinary catheter
- Mobility aids

Screening

What to examine	Examination notes	Assessing for:
Pronator drift	Ask patient to hold arms out with palms upwards, and close their eyes. Hold for 30s	Pronator drift – occurs in UMN lesions, the arms start to pronate so they face palm downwards

Tone

What to examine	Assessing for:
Ask the patient to relax their arm and allow you to move it/ take the weight	

Rotate, abduct and adduct shoulder	<p>Flaccidity or increased tone</p> <ul style="list-style-type: none"> • Hypertonia can be upper motor neuron lesion(s) • Hypotonia can be lower motor neuron lesion(s) or cerebellar disease • Cogwheeling at the wrist (sign of parkinsonism) • Clasp knife – gives way suddenly after resistance (UMN) • Spasticity (higher tone as you start the movement, rapidly gives way at a specific point). • Velocity dependent - gets worse with increase speed of movement) • Lead pipe rigidity (increased tone throughout the whole movement of the muscle, velocity independent) • Clonus (UMN sign) – briskly rotating the wrist triggers involuntary, rhythmic muscle contraction. (5+ beats abnormal)
Flex and extend elbow	
Supinate and pronate forearm	
Flex/extend & rotate wrist	

Power

What to examine:	Grading power, muscle group & nerve root supply of the upper limb
<p>Test power of each muscle group:</p> <ul style="list-style-type: none"> • Start with the biggest muscle groups (and work distally) • Compare right with left as you move down • Test power with the same muscle group if possible e.g. if testing wrist flexion, provide resistance with your wrist; finger movements with your finger etc. 	<p>Use the MRC scale to assess power, where:</p> <p>5 – normal power</p> <p>4 – some movement against resistance</p> <p>3 – movement against gravity only</p> <p>2 – movement with gravity eliminated</p> <p>1 – flicker of movement</p>

NB. These are typically tested by nerve root rather than peripheral nerve	0 – no movement
Shoulder Abduction: Ask the patient to put their arms out like a chicken, ask the patient not to let you push their arms down	Deltoid/supraspinatus muscle. C5
Shoulder Adduction: Arms still out, place your hands under their elbows and ask them to push down into your hands	Pectoral muscles C6,C7,C8
Elbow flexion: Ask the patient to put their arms out like a boxer in front of them. Isolate the joint by holding just proximal to the elbow. One at a time, place resistance against each forearm and ask them to pull you towards them	Biceps brachii/brachioradialis C6
Elbow extension: Repeat with each forearm, asking them to push you away	Triceps muscles C7 (radial nerve)
Wrist flexion: Ask the patient to hold their arms outstretched (like superman) and make a fist. Isolate the wrist by holding their forearm. Place your other hand underneath their fist and ask them to push down	Flexor carpi groups C7, C8
Wrist extension: Move your hand on top of their fist and ask them to push up	Extensor carpi groups C7 (radial nerve)
Finger abduction: Ask the patient to put their hands out, palm down, and splay their fingers. Ask them to resist you pushing their little finger and index finger inwards	Abductor digiti minimi and interossei T1 (ulnar nerve)
Thumb abduction: Ask the patient to turn their hands over (palms facing up) and point their thumbs up. Place downward pressure on their thumb and ask them to resist you.	Abductor pollicis brevis T1 (median nerve)

Reflexes

What to examine	Assessing reflexes
Use a tendon hammer in a “swinging arc” If reflexes absent or diminished ask the patient to grit their teeth or clench their hands to reinforce the reflex	

Biceps reflex – ask the patient to relax their arms, place across their body, place thumb on biceps tendon and tap hammer onto thumb	<p>May be:</p> <ul style="list-style-type: none"> • Absent • Reduced • Normal • Brisk <p>Brisk (or increased) reflexes suggest upper motor neurone Reduced or absent reflexes suggest lower motor neurone</p>
Triceps reflex – support arm so elbow is in 90 degree flexion, tap triceps tendon	
Supinator reflex – 2 fingers over brachioradialis tendon (posterior and lateral aspect of forearm), tap fingers with tendon hammer	

Co-ordination

What to examine	Examination notes	Assessing for
Finger-nose test	Place your finger arm's length in front of the patient. Ask patient to touch their nose with their index finger, then touch your finger, then their nose and repeat. Repeat with other arm.	<p>Looking for smooth accurate movements Testing for a loss of coordination / ataxia but can be abnormal for other reasons e.g. weakness Intention tremor – tremor that becomes more intense as they near the target (your finger)</p>
Dysdiadochokinesia	Ask patient to place hands on top of each other. Ask them to turn their top hand over, then back... Continue this as fast as they can. Repeat with the other hand on top.	<p>Testing ability to make rapid, repetitive movements</p> <p>Dysdiadochokinesia – slow irregular movements – cerebellar dysfunction.</p>

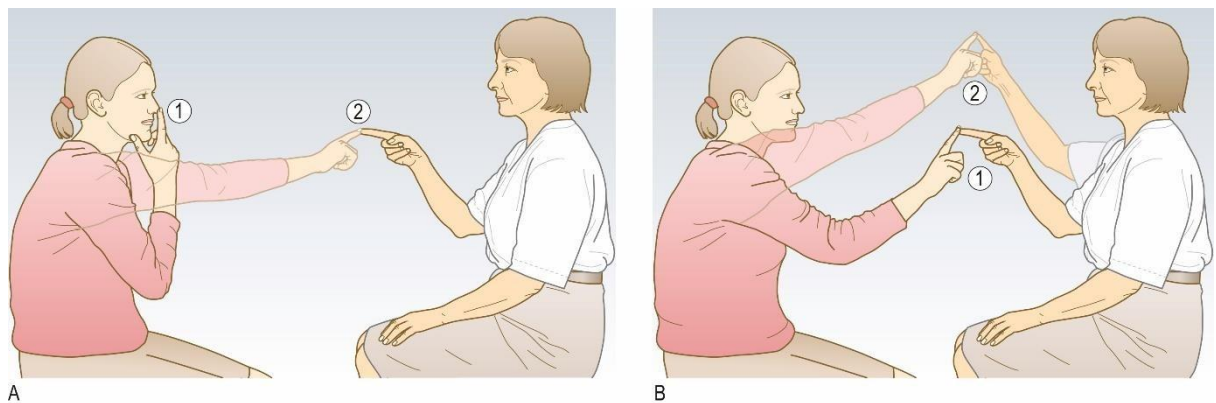


Figure 4: Finger nose test (from Macleod's Clinical Examination)

Sensation

What to examine	Examination notes	Extra notes
Sensation: Get patient to close their eyes. Use the sternum to demonstrate "normal"	Move down in a dermatomal distribution (C4/5-T1) compare side to side. Ask if the patient can feel the sensation and if it feels the same on both sides	Offer: Light touch – cotton wool Pain – neuro tip
Vibration: eyes closed Use the sternum to demonstrate "normal"	Tuning fork; start with most distal bony prominence (distal IP joint thumb) and if they can't feel it move to next proximal joint	128Hz tuning fork
Proprioception: eyes closed	Using your thumb and forefinger stabilise the distal interphalangeal joint of the thumb & demonstrate moving the thumb up and down. Ask the patient to tell you if the thumb is up or down as you move it.	Hold the thumb on either side to prevent pressure on the nail

To finish

- Ensure the patient is dressed and comfortable
- Wash hands

Further examinations

- Cranial nerve examination
- Lower limb peripheral neurological examination
- Ix such as bloods (low B12, TFTs, auto-Abs), nerve conduction studies, imaging (CT head/MRI brain)

Resources

Core reading is available via library textbooks: Macleod's Clinical diagnosis and Clinical examination.

[Geeky medics Upper limb neurological examination](#)