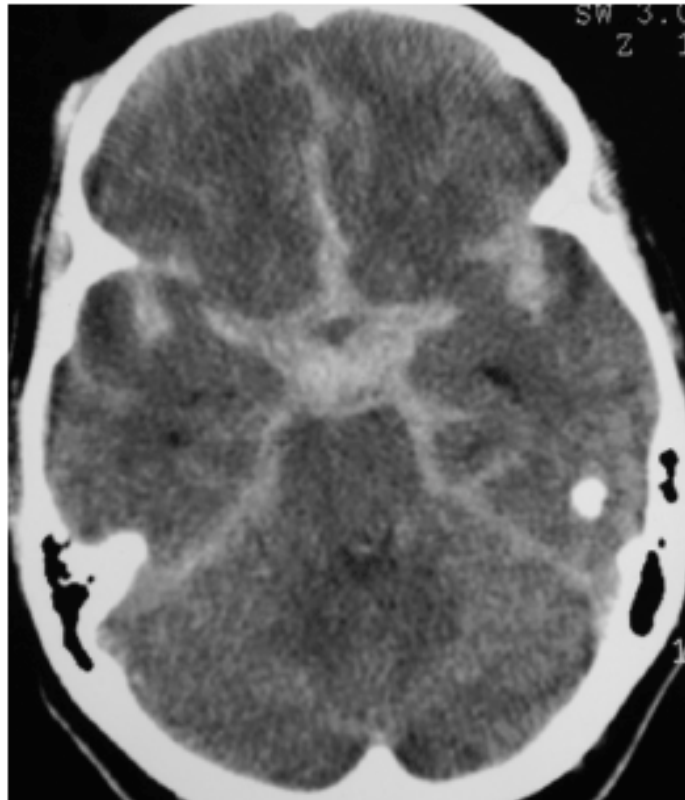


ED QUICK QUIZ

WHAT IS THE DIAGNOSIS?

BACKGROUND

A 62 year old female presents to the emergency department after developing a headache. The headache occurred suddenly and is most intense over the occipital region. There is no history of trauma. She is GCS 15 on arrival, however after 15 minutes deteriorates and her GCS drops to 3. She is moved from majors to the resuscitation room and is intubated. On speaking to her family she is on 'blood thinners', but they don't know which ones. She has been recently well and is normally functionally independent. A CT head is performed and is shown below.



QUESTIONS

1. What is the diagnosis?
2. How would you manage this?
3. What would you do if the CT head was normal?
4. What are the headache 'red flags'?
5. How is GCS composed?

ANSWER & DISCUSSION

1. Diagnosis

Subarachnoid haemorrhage

2. Management

Intubation and ventilation requiring sedation and paralysis. Position head up by about 30 degrees. Consider taping the endotracheal tube in place instead of tying in order to avoid potential increases in intracranial pressure. The case should be discussed with the neurosurgeons on call and the intensive care team. If the neurosurgeons are wanting the patient transferred to the neurosurgical unit for ongoing care then she will require the anaesthetic 2nd on to transfer her safely as she will need to remain intubated. Medication history requires further investigation by phoning the GP or on ECS. Blood tests that should be performed include FBC, U&Es, LFTs, CRP, coagulation screen (including INR if appropriate) and group and hold. If she is on warfarin then this should be reversed with IV vitamin K (5-10mg) and Beriplex (prothrombin complex concentrate). INR level and weight will enable the Beriplex dose to be calculated.

Pre-treatment INR	2.0 – 3.9	4.0 – 6.0	> 6.0
Approximate dose ml/kg body weight	1	1.4	2
Approximate dose IU (Factor IX)/kg body weight	25	35	50

Beriplex should be administered at a rate of less than 8ml/minute. It is reconstituted as per the instructions supplied with the solvent vial enclosed. This is very fidgety and will normally need performed by medical staff. It can take a while!

The correction of the vitamin K antagonist-induced impairment of haemostasis is commonly reached approximately 30 minutes after the injection. The simultaneous administration of vitamin K should be considered in patients receiving Beriplex for urgent reversal of vitamin K antagonists since vitamin K usually takes effect within 4-6 hours.

3. Normal CT

Lumbar puncture should be performed to exclude a subarachnoid haemorrhage. This should be delayed until 12 hours after the onset of the headache as xanthochromia is only reliably detected after this time. Features that suggest a SAH are:

- Raised opening pressure
- Xanthochromia
- Clear/bloody tap
- Increased RBCs
- Normal gram stain
- Elevated protein
- Normal/ increased WBCs
- Normal glucose

4. Headache 'red flags'

These suggest the need for further investigation.

- New onset or change in headache in patients aged >50 years
- Thunderclap headache – rapid time to peak intensity (secs to 5 mins)
- Focal neurological symptoms
- Non-focal neurological symptoms eg. Confusion
- Change in headache frequency, characteristics or associated symptoms
- Abnormal neurological examination
- Changes with posture
- Wakes the patient up
- Precipitated by physical exertion or Valsalva manoeuvre (coughing, laughing, straining)
- Risk factors for cerebral venous sinus thrombosis – coagulopathies, dehydration, nephrotic syndrome, chronic inflammatory disease, pregnancy, oestrogen containing oral contraceptives, infections (meningitis, sinusitis, mastoiditis), head trauma

- Jaw claudication
- Visual disturbance
- Neck stiffness
- Fever
- New headache in a patient with HIV
- New headache in a patient with cancer

5. **GCS**

Glasgow Coma Scale

3 components: Eye opening, Motor response, Verbal response

Scoring: 3 – 15

It is best to note this as a total score and a combination of its components such as ExMxVx.

Eye opening

Spontaneously	4
To speech	3
To pain	2
None	1

Motor response

Obeys commands	6
Localises to pain	5
Withdraws from pain	4
Abnormal flexion	3
Extends to pain	2
None	1

Verbal response

Orientated	5
Confused	4
Inappropriate words	3

Incomprehensible sounds	2
None	1