Managing patients with severe acute headache

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Bed 2

- 46 yr old lady
- Presented to A&E with headache
- ‘Sudden’ onset at 18:30 while washing up - 10/10
- Previous headache and admission one month previously
- No Hx migraines
- Examination normal

Bed 2
What will help me most now?

1. A CT scan

2. An LP

3. Retaking the history

4. Getting the old notes

Bed 3

- 24 yr old law graduate presented to A&E with one week HX of headache
- One week previously had been snowballing, then had shower and had onset of headache in shower
- No previous headache history
- Headache all day every day
- Frontal, radiating to occiput and shoulders
- Eased by lying flat
- Throbbing, photophobia, exacerbated by movement

Bed 3

What is the likely cause of the headache?

1. Pituitary apoplexy

2. Low-pressure headache

3. Migraine

4. Space occupying lesion

Bed 4

- 68 yr old man
- Dialysis patient
- Previous MI with stenting 2008
- COPD – smoker
- 3 week history of L peri-orbital headaches
- Lasting ca 90 minutes
- Once or twice daily – usually early morning
- Restless with headache – couldn’t keep still
- Puffy red eye, tearing, blocked nose on L w. headache

Bed 4

What is the likely cause of the headache?

1. Migraine

2. Pituitary apoplexy

3. Episodic paroxysmal hemicrania

4. Cluster headache

Bed 5

- 24 yr old girl presents with headache
- Previous history of complex partial seizures 3 yrs ago
- Diabetes, overweight
- 2 months worsening, daily, global, exacerbated by coughing
- Blacking of vision on standing up
- Machine like whooshing noise in her head
- Taking 6-8 co-dydramol daily for one month
- Disc margins not clear but ‘difficult to see’
- VA 6/9 right, 6/12 left
- CT normal

Bed 5
What do I do now?

1. LP

2. MRI plus MRV

3. Heparinise

4. Give sumatriptan

Bed 1 (ITU !)

- 34 yr old woman
- 2 day Hx of headache and fever
- Found at home unrousable, urinary and faecal incontinence
- GCS 9/15
- 1x GTCS in ambulance, 2 in A&E

Bed 1 (ITU)
What do I do now?

1. Give 10 mg diazepam and arrange urgent CT scan

2. Check BM, ABC, give lorazepam and call anaesthetist

3. Panic

Primary vs secondary headache

- Migraine
- Cluster
- Tension type

Migraine

- 5- 20% of those presenting to ED
- Around 30% correctly diagnosed in ED
- Its all in the HX
  - How old were you when you were first troubled by headaches?
  - Unilateral, throbbing, nausea, vomiting, photophobia, phonophobia, movement, aura, previous attacks, FH

Migraine with aura or stroke?

- Migraine may be associated with stroke - often posterior
- RR of stroke =2.8 with aura, 1.6 without
- Visual, somatosensory, motor
- Usually marches, +ve or -ve
- Onset over 30 mins, then headache
- Typical symptoms or first attack?

Migraine - acute treatment

- NSAIDS
- antiemetics
- triptans
- avoid drug cocktails of opioids, antihistamines and dopamine antagonists

Cluster headache

- International Classification of Headache Diseases 2004

  Severe unilateral pain lasting 15-180 minutes untreated.

  At least one of the following, ipsilaterally:-

  - Conjunctival injection and/or lacrimation
  - Nasal congestion and/or rhinorrhoea
  - Eyelid oedema
  - Forehead and facial sweating
  - Miosis and/or ptosis
  - A sense of restlessness or agitation

- Frequency between one on alternate days to 8 per day.
- Not attributable to another disorder
- Treatment
  - oxygen, triptan,
  - steroids, verapamil

Acute onset headache ‘thunderclap headache’

- Sudden headache of unusual severity reaching maximum intensity in a few seconds
- Of patients with thunderclap headache and normal examination referred to neurology 2/3 have SAH

Thunderclap headache - TCH

	Primary care	Hospital
Intracerebral haemorrhage (or other severe)	37%	67%
Primary headache disorder	63%	33%

Acute onset headache ‘thunderclap headache’

- Vascular disorders
  - Subarachnoid haemorrhage
  - Intracerebral haemorrhage
  - Venous sinus thrombosis
- Infections
  - Meningitis / encephalitis
- Primary headache disorders
  - Crash migraine
  - Exertional or coital headache
  - Cluster headache
- Rare causes
  - Pituitary apoplexy
  - Cervical artery dissection

Subarachnoid haemorrhage

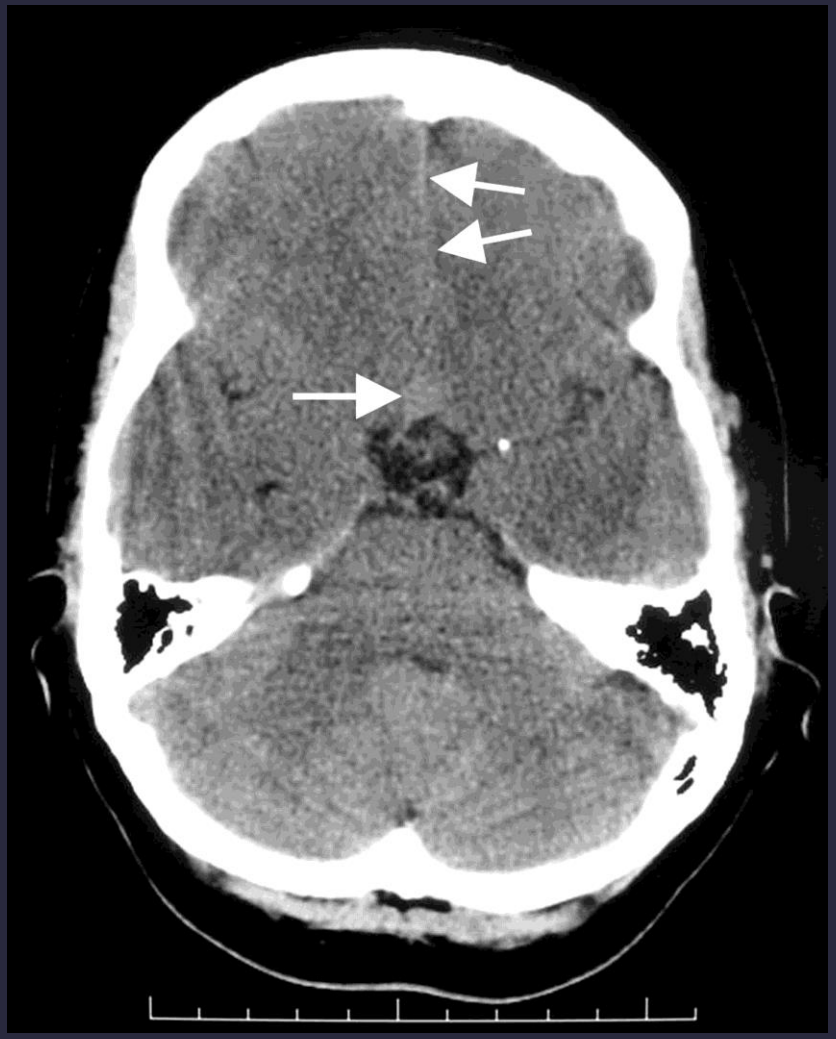
a few background details

- Women > men, 1.6:1
- ADPKD in only 2% of SAH
- 50% mortality, of survivors 30% dependent
- Only 50% say onset instantaneous
- Don’t forget drug history - cocaine
- GCS affected in 50%

Subarachnoid haemorrhage
investigations

- CT brain
  - Negative in 2-10% of SAH
  - Sensitivity 95% within 6hrs, 50% at 5 days
  - After a few days MRI superior
- CSF

Non-contrast CT brain on day 6 of subarachnoid haemorrhage; note subtle outline of anterior communicating artery aneurysm, with blood in interhemispheric fissure.



Richard Davenport J Neurol Neurosurg Psychiatry 2002;72:ii33-ii37

JNNP

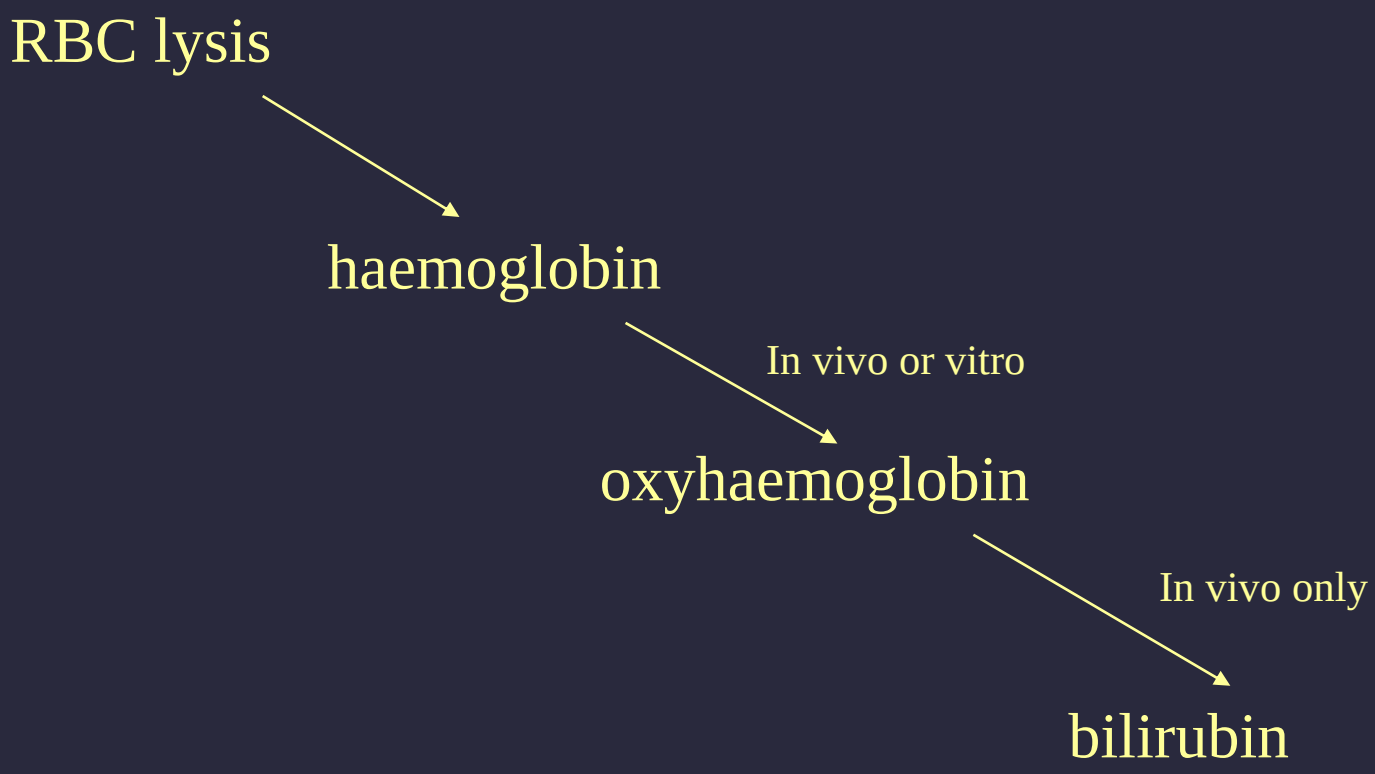
Subarachnoid haemorrhage

SAH or traumatic tap?

- 10-20% of LPs traumatic tap
- Opening pressure
  - Increased in 60% of SAH
- CSF can contain 400 rbc before being detected by naked eye
- Three tube test
  - False positives e.g. 1st tube 5000 and third tube 700
  - If third tube count is zero, good evidence for traumatic tap
  - Can help to collect a few extra mm of fluid in last tube to reduce cell count
- Visual inspection for xanthochromia

Subarachnoid haemorrhage

SAH or traumatic tap?



Subarachnoid haemorrhage

SAH or traumatic tap?

- CSF from traumatic tap may contain oxyhaemoglobin but no bilirubin
- CSF from a SAH will contain both

- Xanthochromia takes 12 hrs to develop

- For visual inspection, CSF should be centrifuged and compared to water. False positives from jaundice, high CSF protein, rifampicin

- Spectrophotometry is highly sensitive but has false positives

Subarachnoid haemorrhage
grading

- World Federation of Neurological Surgeons scale I to V based on GCS
- I = GCS 15
- II = GCS 13/14 no focal deficit
- III = GCS 13/14 focal deficit
- IV = GCS 7-12
- V = GCS 3-6

Subarachnoid haemorrhage
general management

- Refer to neurosurgical unit
- Attention to feeding and fluids
- Do not treat hypertenson unless end organ damage
- Pain relief
- Compression stockings
- Nimodipine 60 mg 4 hrly for 3 weeks

Subarachnoid haemorrhage
early complications

- Early rebleeding
  - Around 15% of those admitted will rebleed in first few hours
  - If respiratory arrest ensues a significant proportion will make good recovery within hours
- Hydrocephalus
  - If left untreated, 90% have poor outcome
  - Need urgent neurosurgical intervention

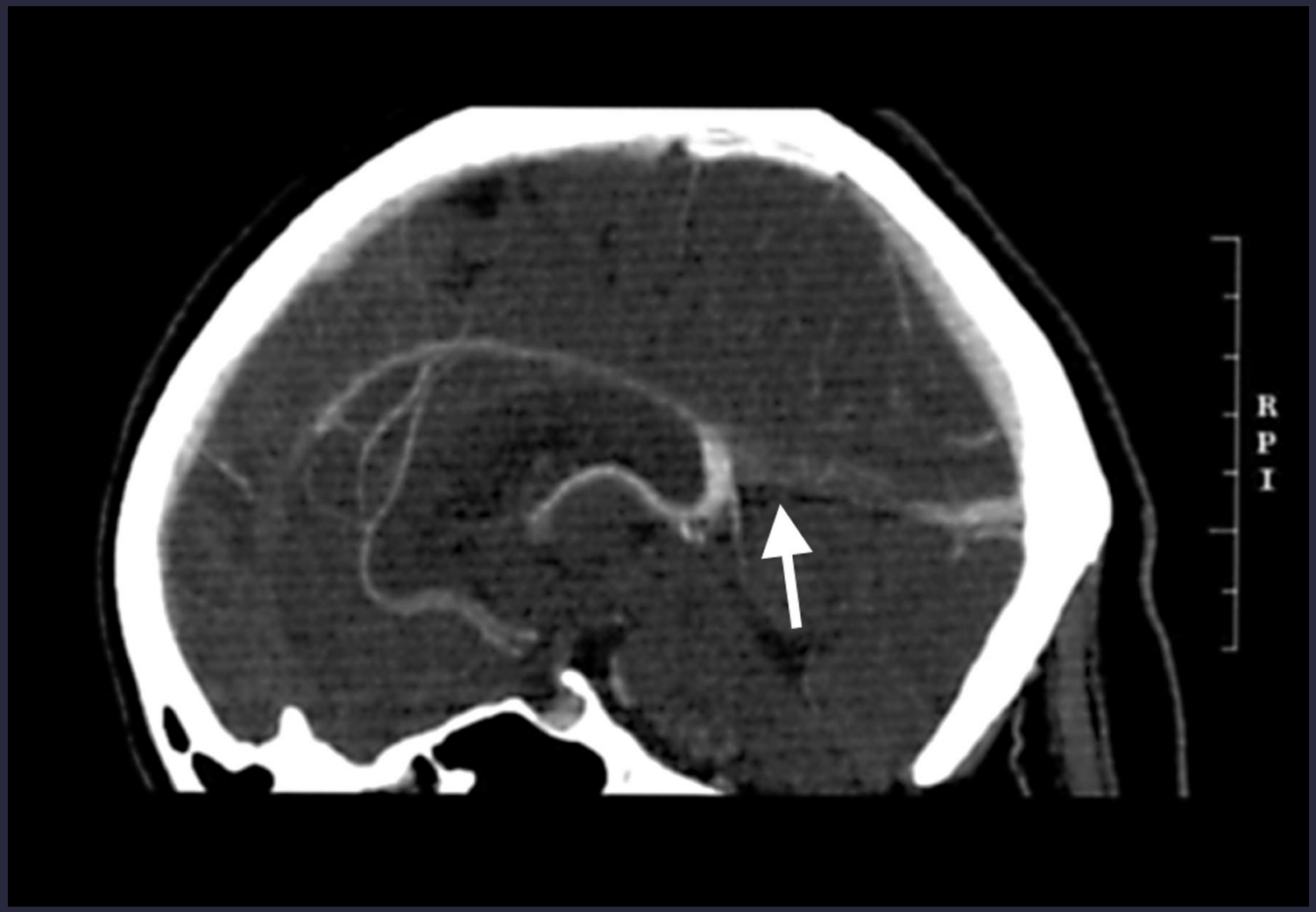
Thunderclap headache due to unruptured aneurysms?

- 10% report severe or unusual headache in weeks before SAH – ‘sentinel headaches’ -? report bias
- Cases reported of TCH with normal CT and CSF who had aneurysms on angiography
- 5% prevalence of unruptured aneurysms in general population
- Retrospective series of 562 cases of TCH with normal CT/CSF, 9% found to have aneurysms
- 71 patients with thunderclap headache and negative CT and CSF followed up for 3 yrs – none had SAH
- All comes back to clinical judgement and index of suspicion

TCH - Venous sinus thrombosis

- Headache onset usually subacute but 10% of CVST present as TCH
- CT normal in over 50% presenting as headache and raised ICP
- MRI investigation of choice

CT venogram in intracranial venous thrombosis.



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TCH – idiopathic thunderclap headache

- Has been referred to as benign vascular headache, crash migraine, benign sexual (coital) headache type II
- Onset over 30 seconds, may last days
- 1/3 get recurrance with precipitants e.g. exercise, sexual activity
- 40% have history of migraine
- May have abnormal angiograms with alternating constriction and dilatation

Headache associated with sexual activity (= coital headache)

- Usually men, usually bilateral
- Type 1 – dull pain, increasing in intensity as sexual excitement increases – associated witht ensing of the face, neck, and shoulders
- Type 2 – vascular type, onset at orgasm, usually fades by 2 hrs
  - 25-50% have had migraine or family history of migraine
  - Differentiated from SAH by duration of headache (4-11% of SAH occurs during sexual activity)
  - Usually no vomiting, meningism, focal symptoms
  - CT scan if first presentation
  - Responds to ß blockers
  - Related to benign exertional headache
- Type 3 – like low pressure headache after LP - ? Due to dural tear

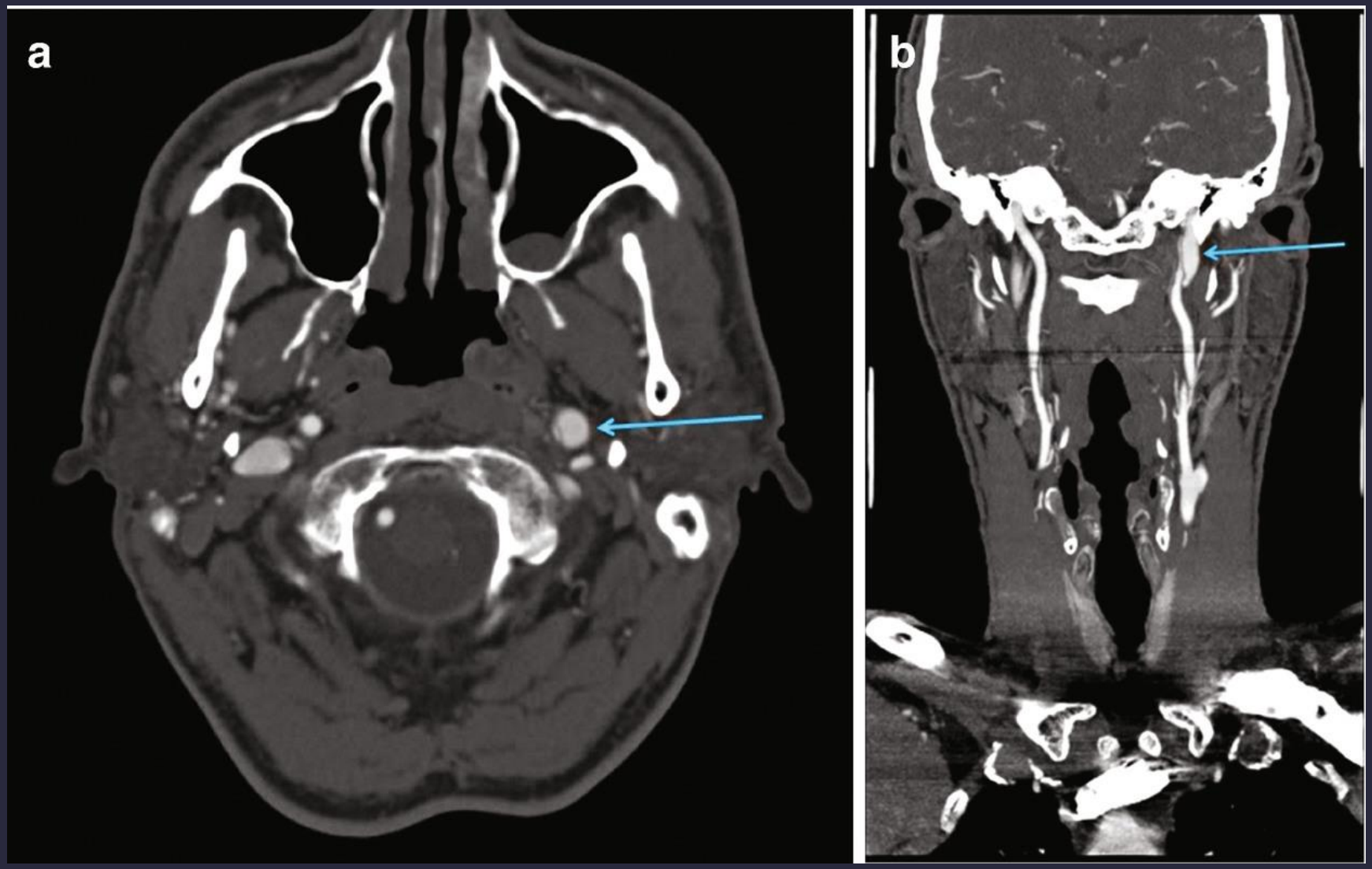
TCH - pituitary apoplexy

- Sudden infarction or haemorrhage into pituitary gland – usually adenoma
- Uncommon, previously asymptomatic
- Headache (retro-orbital, bifrontal, sub-occipital)
- +/- opthalmoplegia
- May get meningeal irritation leading to H/A, vomiting
- CT may be normal

TCH – cervical artery dissection

- Headache common presenting symptom in ICA dissection
- Headache and Horner's think dissection
- 15% of ICA dissections may present as TCH

TCH – cervical artery dissection



Take Home Messages

- Acute Headache in ED up to 1/3 of patients may have a potentially fatal/disabling intracranial condition
- ? Don’t rush to nearest scanner-history is the most important
- Decide first who requires urgent intervention
- Don’t forget ICA dissection/optic neuritis and acute glaucoma can all explain retro-orbital pain with visual disturbance.