Managing Acute Headaches
NEANU

Dr Tim Lavin

Consultant Neurologist

Dr Keira Markey

NIHR Academic Clinical Lecturer in Neurology and SpR

Disclosures

Keira – None

Tim – Speaker fees for Alnylam and Sobi pharmaceuticals

Areas to be covered

- Common primary headaches presenting to the acute services
- Secondary headaches and pitfalls/learning points
- Management of acute headaches
- When to refer on.

Headache Overview

- **Primary**
- Migraine
- TACs
- Tension
- Others

- **Secondary**
- SAH and ICH
- Meningitis and encephalitis
- IC hypo and hypertension
- CVST
- CAD/VAD
- Tumours
- GCTA

Headache History

Timing important!

Onset, frequency, duration

Site

Locked or changes?

Character

Stabbing, pressure

Relieving

Lying down? Meds?

Exacerbates?
Postural/Valsalva

Associated symptoms

N&V, photo/phono/osmophobia

Autonomic

Aura? Visual loss?

Drugs, Analgesia

Immunosuppression, cancer, HIV

Headache Examination

ABCDE

- level of alertness/agitation/confusion?

Fundoscopy!

Eye movements and vision

Focal neurology

Red Flags

- **Age >50 yrs**
- **Fever, neck stiffness, rash**
- **Visual loss**
- **Atypical aura (e.g. >1 hour)**
- **Papilloedema**
- **Reduced consciousness/LOC**
- **Seizures**
- **Immunosuppressed – cancer/HIV/immunosuppressants**
- **Postural symptoms/Valsalva**
- **Thunderclap – max intensity by 5 mins**
- **New daily persistent headache**
- **Change in character; refractory**

Case 1

- 46yr old
- Referred with sudden onset headache ?SAH

Further History

- Started 12 hours previously
- Top of head, evolved to whole head
- Reports it came on suddenly, woke her from sleep at 7am but time to maximal severity was 40min
- Nauseous and 1 episode of vomiting
- R eye was red, lacrimating and her eyelid felt droopy – now improved
- Occasional episodes of blurred vision like a untuned TV lasted some minutes and improve
- Prefers to remain still and with dimmed lights
- Gets occasional headaches in the past, never this severe, especially around her menstrual cycle

Clinical Exam

- Normal Fundoscopy
- Normal Visual Acuity
- Subtle ptosis
- Normal pupil
- No meningism

Key Points

- The history is strongly suggestive of Migraine
- Some local autonomic features can be seen in Migraine

Thunderclap Headaches

- Peak max severity within 1-5 mins.
- Not a wake up headache!
- Causes:

Vascular	PRES
SAH/ICH	Cerebellar infarct
RCVS	GCA
CVST	**Non-vascular**
Pituitary apoplexy	Spontaneous IC Hypotension
CAD/VAD	Primary – NDPH/Exercise/Cough

- Only ½ SAH are sudden onset headaches.

Migraine

- Commonest headache disorder
- 3:1 females; Peak onset 35-45yrs

Headaches last at least 1-72hrs
Two of the following features:
- Unilateral or bilateral
- Throbbing or pulsating quality
- Moderate to severe
- Aggravated by physical activity
At least one of the following:
- Nausea and/or vomiting
- Photophobia or phonophobia

What is a migraine attack?

the migraine trust

Migraine attacks come in various shapes and sizes, but generally they have four or five stages:

PREMONITORY STAGE

During this stage people can feel a variety of physical and mental changes such as tiredness, craving certain type of foods, mood changes (from irritability, depression to euphoria), feeling thirsty, neck stiffness and frequent yawning. These feelings can last from 1 to 24 hours.

AURA

Around a 1/3 of people with migraine go through this stage (although not necessarily every time). Aura occurs due to a spontaneous, slow-moving wave that passes over the surface of the brain temporarily affecting the functioning of the parts it travels over. The associated symptoms depend on which parts of the brain are affected.

THE HEADACHE OR MAIN ATTACK STAGE

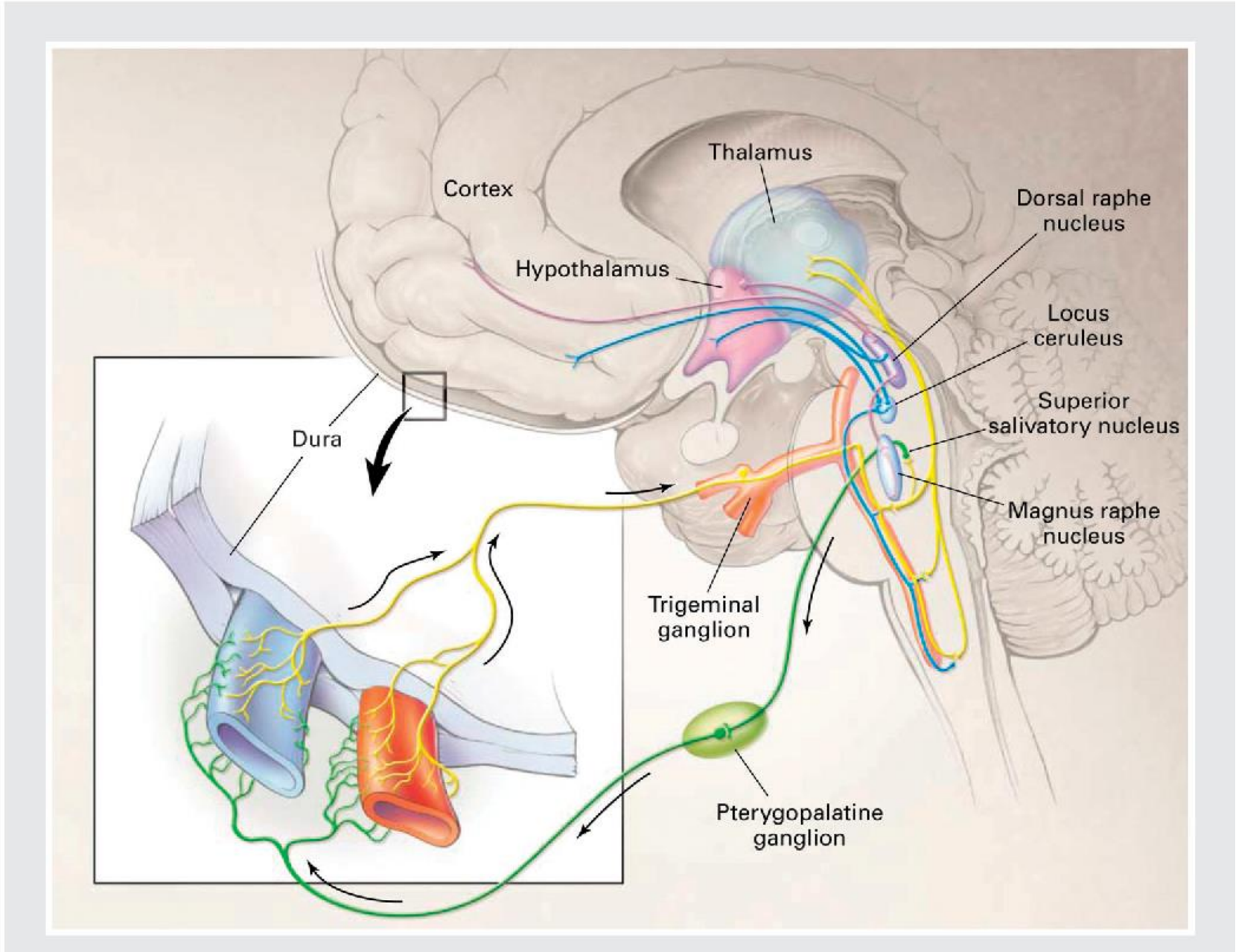
This stage involves head pain, which can be extremely severe. The headache is typically throbbing, and made worse by movement, light or sound. The headache is usually on one side of the head but can be on both sides, or all over the head. Sickness and vomiting can happen at this stage. This stage can last from 4 hours to up to 3 days.

RESOLUTION

Most attacks slowly fade away, but some stop suddenly. Sleep seems to help many people. Even an hour or two of sleep can be enough to end an attack.

RECOVERY OR POSTDROME STAGE

This is the final stage of an attack which can best be described as a 'hangover' type feeling. This feeling can take days to disappear. Symptoms can often mirror symptoms from the premonitory stage. For example, if a person lost their appetite at the beginning of the attack, they might be very hungry now.



Goadsby, NEJM, 2002

Migraine management

BASH headache guidelines: https://headache.org.uk/index.php/for-doctors

- **Acute – Triple treatment**

- Paracetamol + High dose NSAID*/**Triptan** + Metoclopramide (or other antiemetic)
- *800mg ibuprofen/900mg aspirin/50mg diclofenac/500-1000mg naproxen
- One off dose
- Avoid triptans in CV disease/MI

Regular headaches?

- HEADACHE DIARY
- Lifestyle modification: caffeine/smoking/analgesic use*

Migraine management 2

Prophylactic Treatment – NICE recommendations			
Drug	**Type**	**Dosing**	**Side effects**
Propranolol	Beta blocker	Start at 20mg BD, increase by 40-80mg each time up to max of 320mg a day.	Bradycardia, GI Sx
Candesartan	ARB/Antihypertensive	Start 4mg a day, can increase up to 32mg OD	Low BP
Topiramate	Antiepileptic	Start at 25mg OD, increase by 25mg in divided doses, every 1-2 weeks up to 100mg BD.	Parasthesiae Pins and needles Cognitive Dizziness
Amitriptyline/ Nortripylline	TCA/Antihypertensive	Start at 10-20mg ON, increase slowly up to max 100mg ON.	Tiredness QT prolongation Anticholinergic
Treatment dose for at least 3 months or intolerable side effects before changing.			

Tertiary Migraine Management: Old and New

- Botox – Preempt study
- Neurostimulation: VNS, supra-orbital, TMS
- CGRP mAbs:

Fremanuzemab (Ajovy)	Galcanezumab (Emgality)	Erenumab (Aimovig)	Eptinezumab (Vyepti) – awaiting MA
CGRP ligand	CGRP ligand	CGRP receptor	CGRP ligand
Monthly/sc	Monthly/sc	4 weekly/sc	3 month/IV
Hypersensitivity/ No major cardiac	Hypersensitivity/ No major cardiac	Constipation/Hypersensitivity /No major cardiac	Serious hypersensitivity/No major cardiac, neuro or psych

- Gepants/Ditans

  - Ibrogepant, Atogepant and Rimegepant (CGRP RA; oral)

  - Lasmitidan (2023?)

Medication Overuse Headache

- Very common
- Simple analgesics >15 days/month
- Triptans >10 days/month
- **Avoid codeine and other opiates**
- Needs to withdraw. Detox for 1 month.
- Worsens before improving.
- Headache diary!

Case 2

History

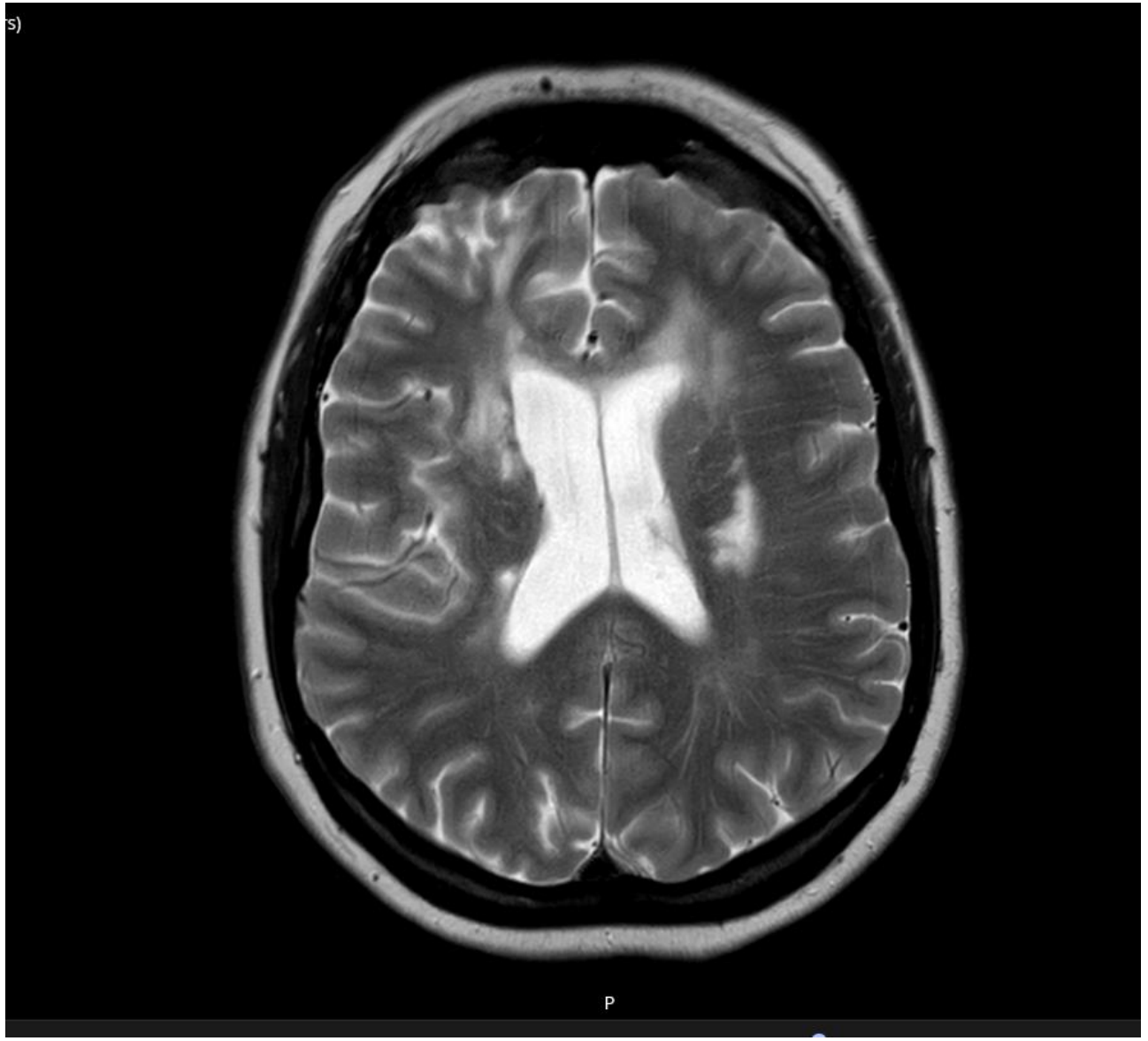
- 39yr
- Obese, diabetic
- Background history of migraine, fibromyalgia
- Admitted with thunderclap headache – R sided, sharp
- New onset and persistent L sided sensory loss, no positive phenomena
- Persistent for 20 hours
- Previously felt nonspecific unwell for number of weeks
- Family concerned about cognition

Examination

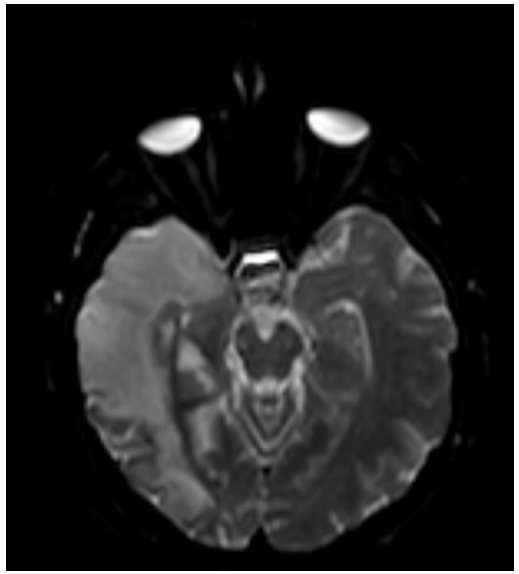
- Hemisensory loss to PP
- Grade 4 weakness
- Cortical sensory function intact

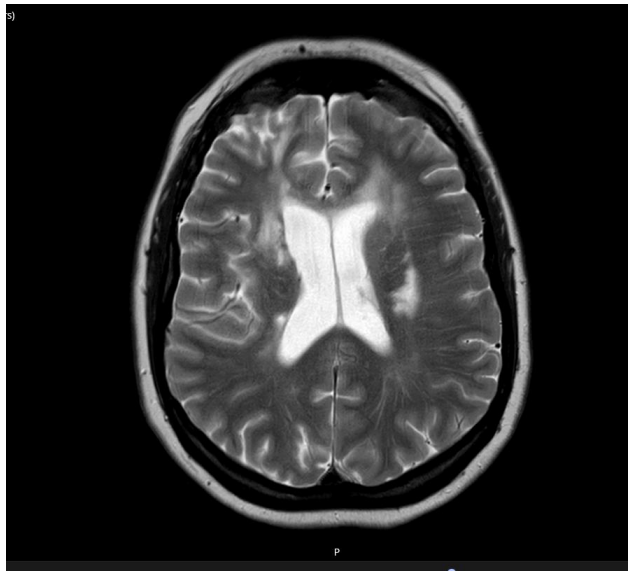
Investigations

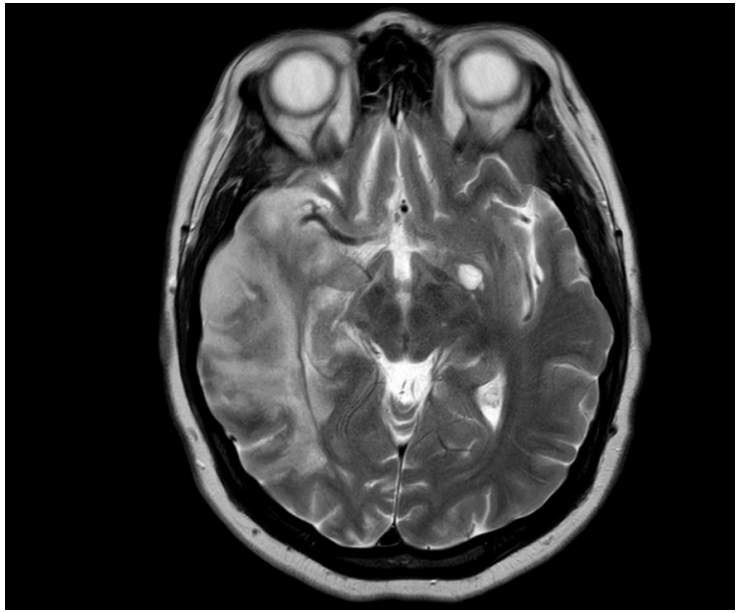
- CRP 104
- ESR 64
- CSF: Xanthochromia absent CSF protein 1.2g


s)
P

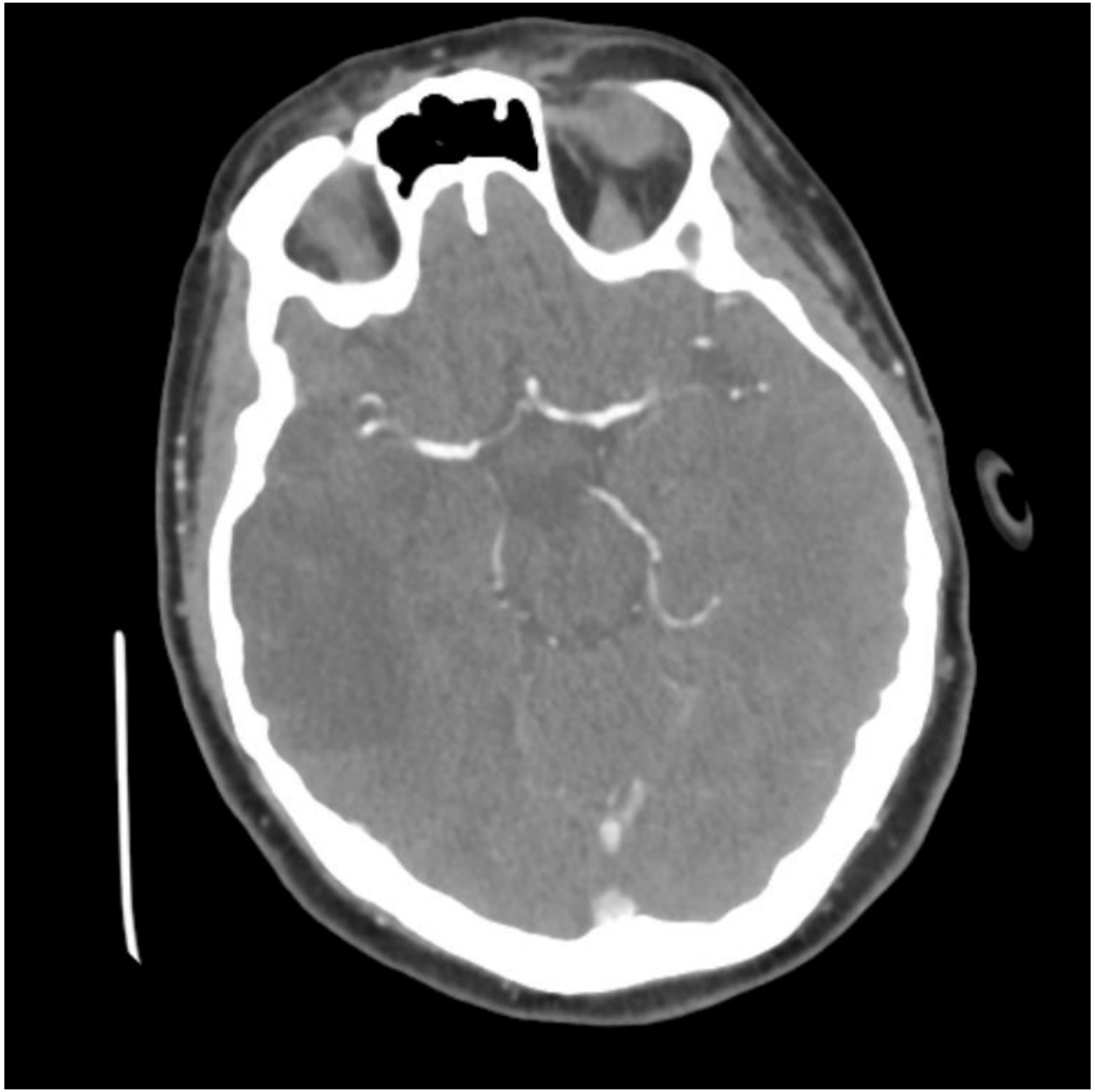
MCA infarct Multi territory infarcts of varying age







Multifocal beading and narrowing of small and medium vessels



Key Points

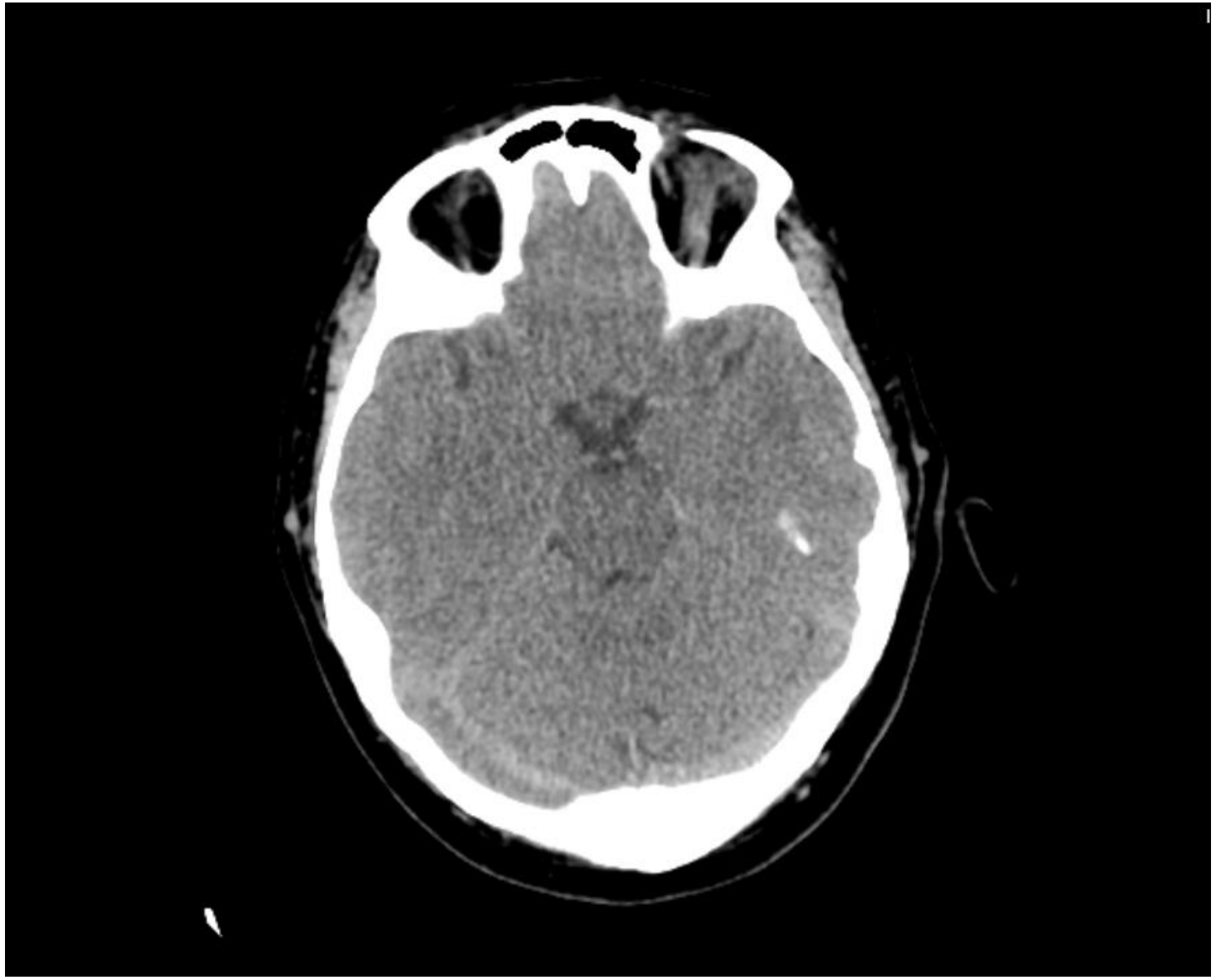
Neurological disturbance too long for Migraine

Young Stroke

Systemic illness- raised ESR and CRP

Case 3

- 38yr old
- Background history of Migraine- 1 month, normally responds to triptan
- 7/7 of pulsatile headache, periorbital and some neck pain
- Pain woke her from sleep at around 5.30am, would improve through the day
- Vomiting for 24hr
- R sided ear pain and tinnitus
- Episode of vision becoming blurred- transiently goes back, often when mobilises



Reported as normal

History evolves and re-presents

Further History

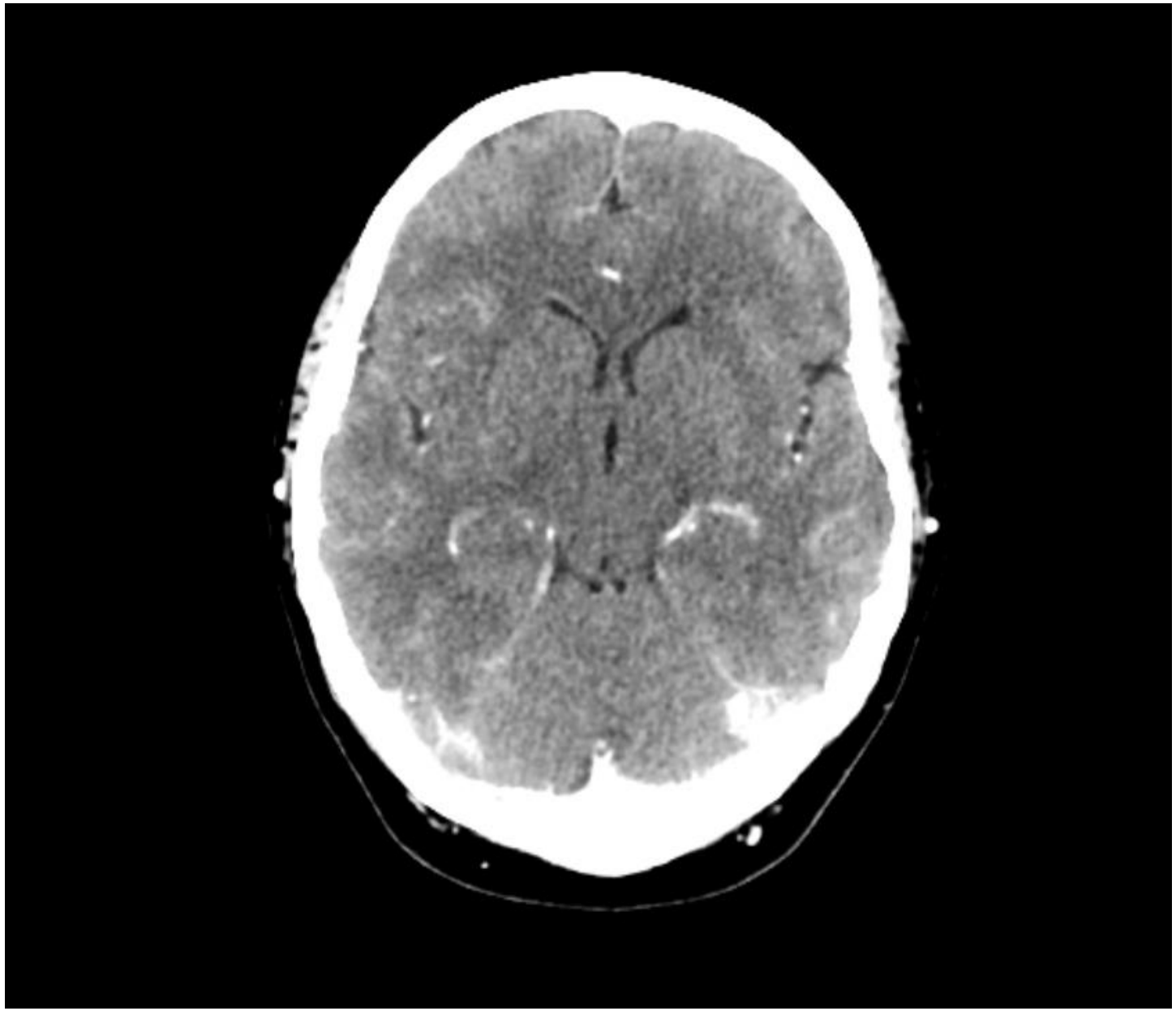
- 3/7 of diplopia- horizontal and both directions of gaze.

Examination

- Grade 3 papilloedema
- Right VI nerve palsy

Investigations

- Normal CSF cell count, protein and glucose

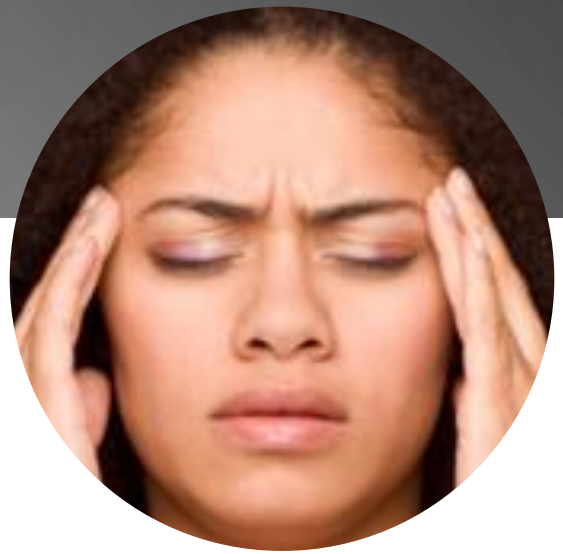


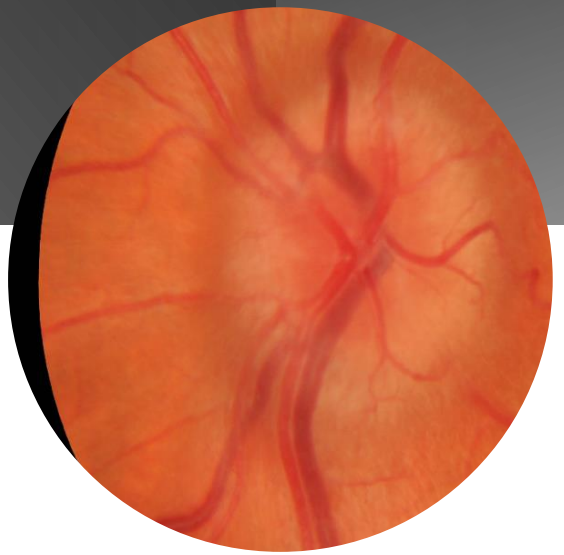
Superior sagittal sinus thrombosis posteriorly, the confluence, distal straight sinus, right transverse and sigmoid sinuses as well as visualized right internal jugular vein.

Red Flags / Key Points

- Raised pressure features- **CHECK OP**
  - Pulsatile Tinnitus
  - Transient loss of vision (TVOs)
  - Postural features
  - VI Nerve Palsy
- Papilledema on Examination
- Significant change in character from previous migraine

Idiopathic Intracranial Hypertension



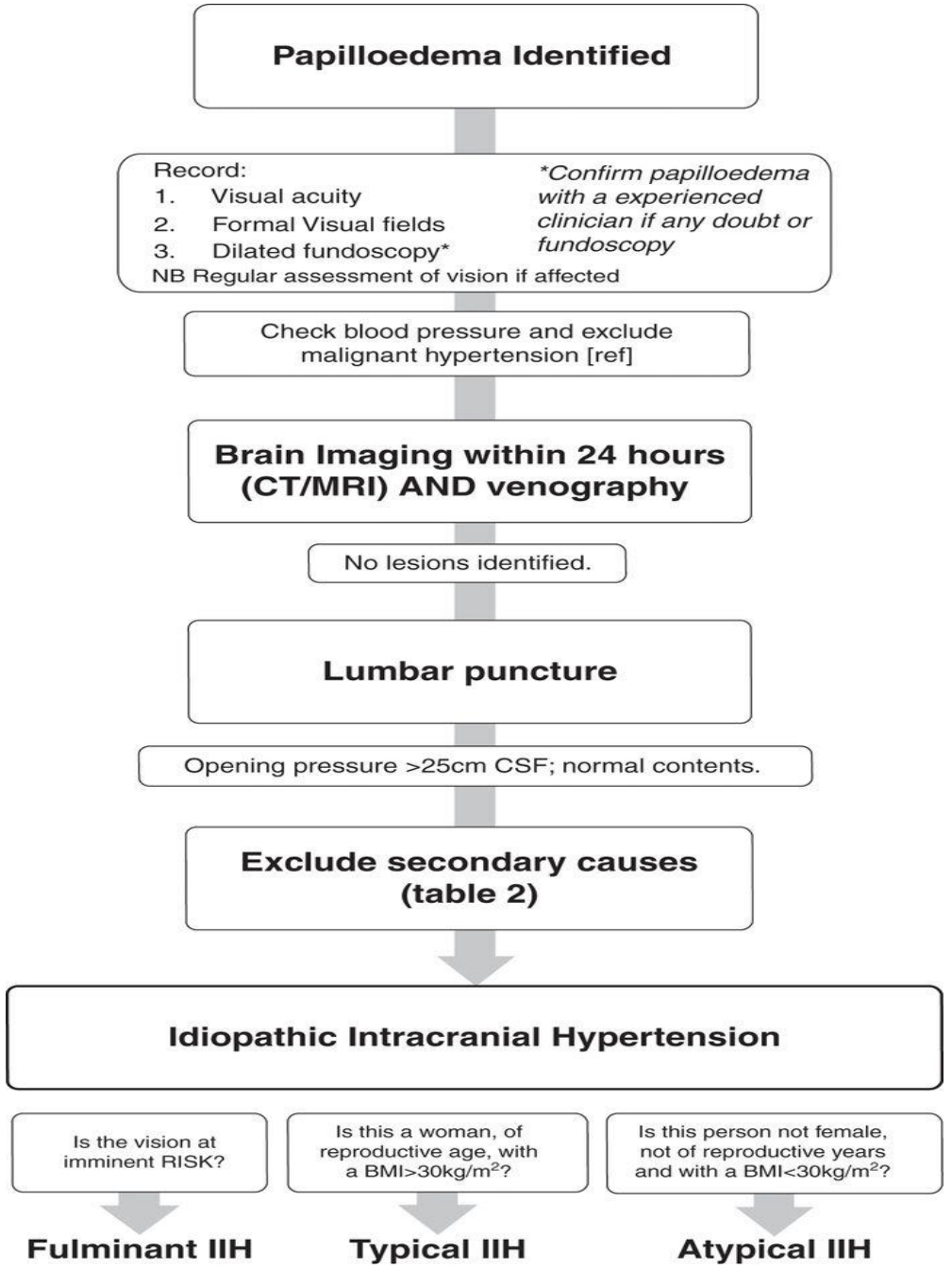


Management

- Weight loss
- Acetazolamide[1] vs topiramate[2]
- Surgery?

1. IIHTT. Nordic. JAMA. 2013. 2.Celebisoy. Acta Neuro Scan. 2007

Idiopathic intracranial hypertension: consensus guidelines on management. Mollan. BMJ 2017



Case 4

History

- 52 yr old
- History of SCLC diagnosed 3/12 previously
- Treated with Etoposide combined with carboplatin
- 7 days of headache
- Vomiting past 3 days
- Worse in AM

Examination

- Apyrexial
- Alert to Voice
- Meningism
- Grade 3 Papilloedema
- 3rd nerve Palsy
- Areflexic UL

Investigations

Radiology

- Normal CT Head

Bloods

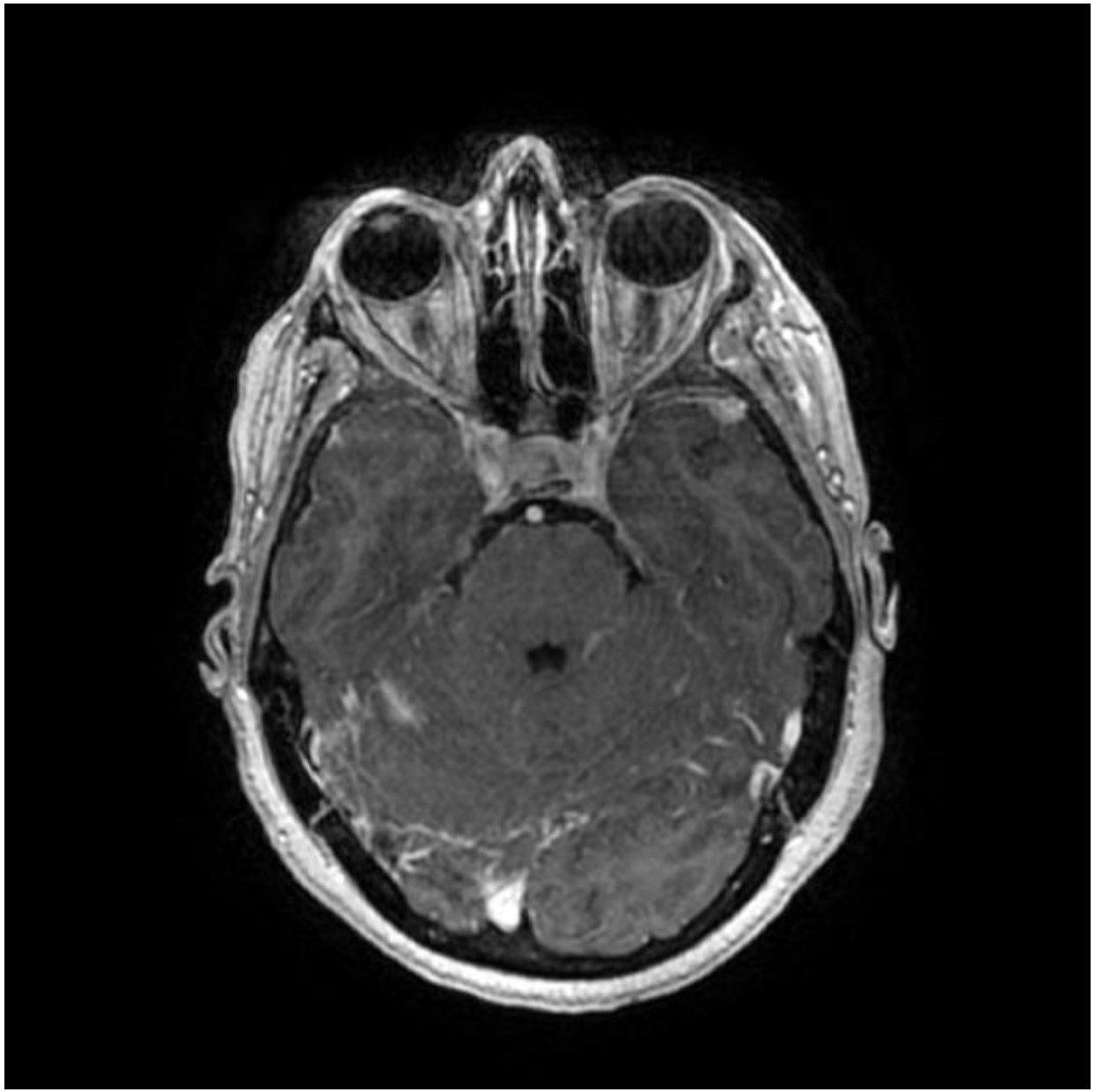
- Neutrophils 0.5

CSF

- Opening Pressure 40 cm CSF
- WCC 35 - lymphocytic
- Protein 4.2g
- Glucose 1.1 Serum 6.4

Normal T1 and T2

Abnormal Leptomeningeal contrast enhancement



Case courtesy of Dr Ahmed Abdrabou, Radiopaedia.org. From the case rID: 62020

Key Points

- Numerous Red flags
  - Immunosuppression
  - History of malignancy
  - Drowsiness on admission with raised pressure features
- Infection requires consideration but if tempo is slow, early CN involvement, malignancy is likely.

Headaches and Space Occupying Lesions

- Sole symptom in only 2%
- Mild to moderate, non-specific, generalised (tension)
- Raised pressure symptoms not usually found. More infratentorial!
- In GP:
  - If primary headache diagnosis, tumour risk <0.0005%
  - If non-specific headache, tumour risk ~0.002%
- More likely to be 2° over 40 yrs
- Over 1/3rd are metastases (ask Ca history)

Schankin. 2007. Cephalgia / Kernick. 2008. Cephalgia

Case 5

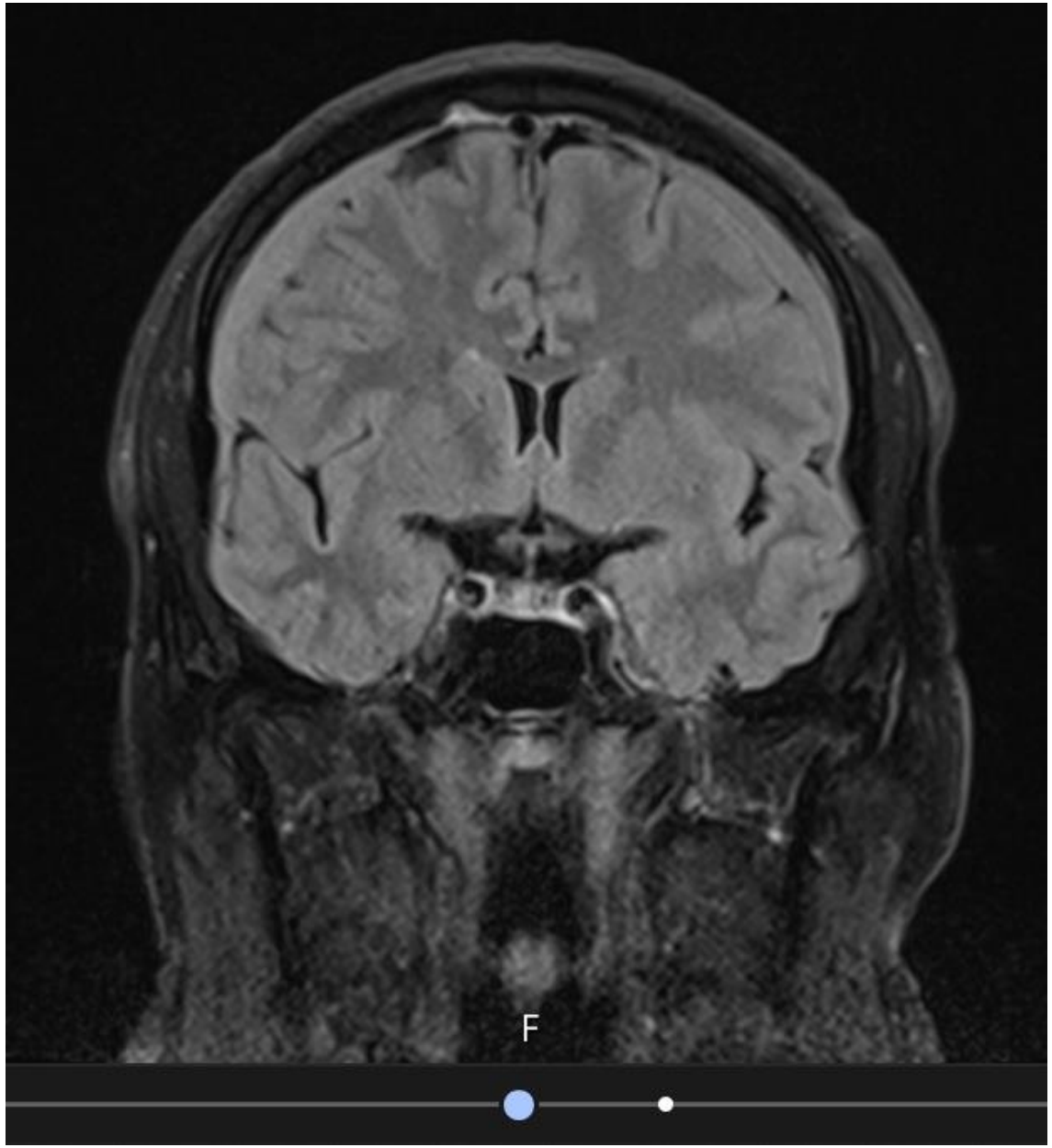
History

- 56 year old
- Gradually worsening 2 weeks of occipital headache
- Reduced hearing bilaterally
- Worsens on standing and improves lying down
- Worsens on coughing and sneezing
- Neck stiffness

Examination

- R pupil sparing 3rd nerve palsy

Chronic bilateral subdural collections



- Cluster headaches: 'Like someone is grabbing your face' - BBC News - YouTube

Cluster Headache

A. At least 5 attacks

B. Severe unilateral orbital, supraorbital and/or temporal pain usually associated with **agitation.**

C. Headache associated with 1 of the following on the same side:
   1. Conjunctival injection
   2. Lacrimation
   3. Nasal congestion
   4. Rhinorrhoea
   5. Forehead sparing
   6. Miosis
   7. Ptosis
   8. Eyelid oedema

D. 1-8 attacks/day

Trigeminal autonomic cephalgia
3:1 males:female
Side-locked

Cluster Management

ACUTE

- SC sumatriptan (3/6mg; max 12mg daily), or IN sumatriptan.
- High flow oxygen (15L, non-rebreathe mask); arrange home O2
- GON block (ask your friendly Neurologist ☺)

SUBACUTE

- Short course of steroids 60mg 7 days, withdraw over 1 week.

PROPHYLACTIC (>2 weeks)

- Verapamil 80mg tds, increase by 80mg 1 week. Max 960mg.
- ECG before start and EVERY increase
- Conduction problems

Others Trigeminal Autonomic Cephalgias

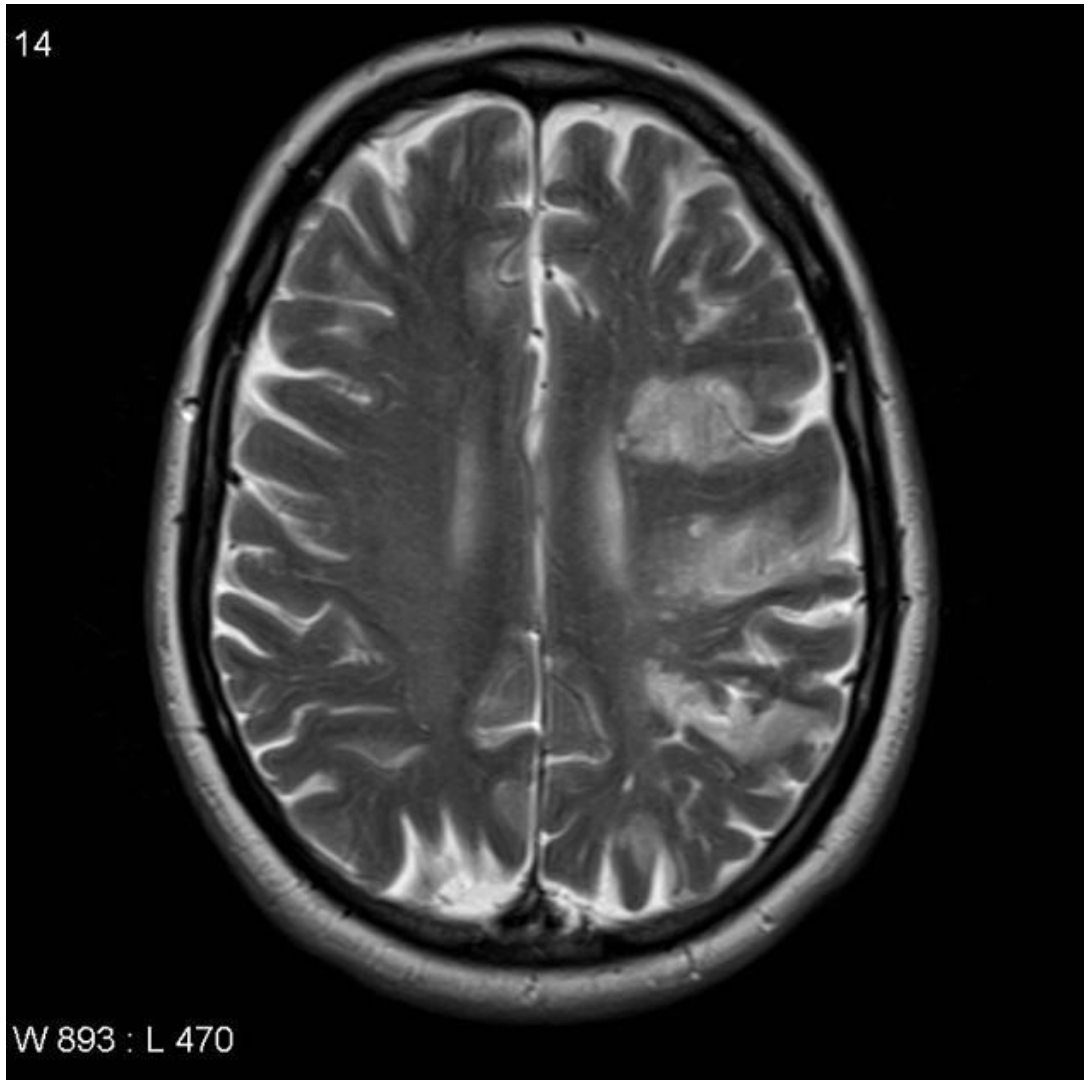
Increasing Frequency

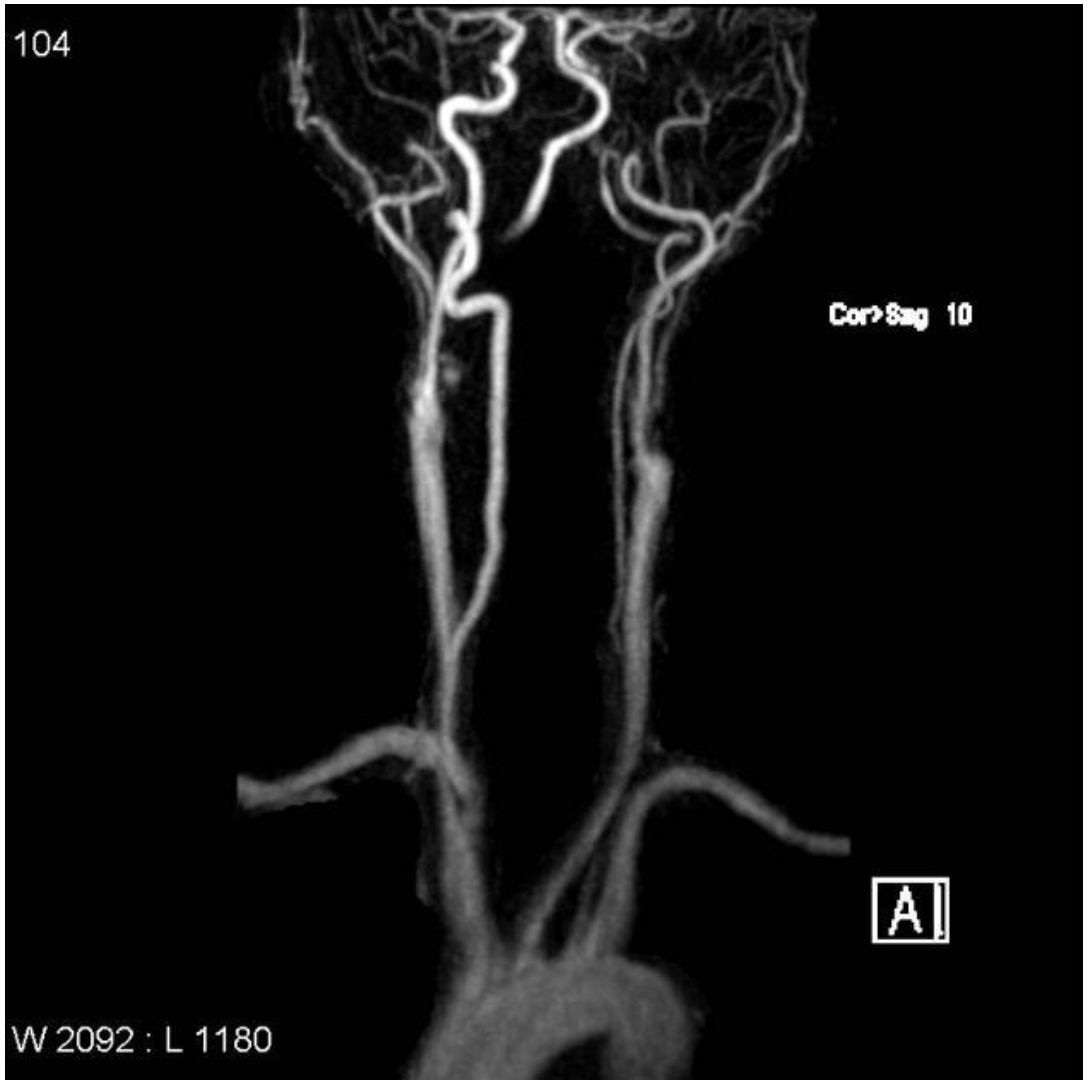
	Hemicrania Continua	Cluster	Paroxysmal Hemicrania	SUNCT/SUNA
F:M	2:1	1:3	3:1	1:8
Character	Pressure-like	Piercing	Piercing	Stabbing
Severity	Moderate	Very high	High	Mod to high
Site	Side-locked; periorbital	Periorbital, frontal, temporal	Orbital, temporal	Orbital, temporal
Duration	Continuous with intense attacks	15-300 mins	1-30 mins	1s-10mins
Frequency	Continuous	1-8 attacks	1-40/day	1-400/day
Associated Symptoms	Conjunctival injection, ptosis, miosis	Ptosis, miosis, U/L nasal discharge, facial sweating	Chemosis, miosis	Conjunctival injection, ptosis, tearing
Acute Management	Indomethacin	O2 / SC sumatriptan	Indomethacin	SC sumatriptan

- OUCH(uk) - Cluster Headache Charity | Support for Sufferers & their Families (ouchuk.org)
- Ordering home oxygen | Air Liquide Healthcare UK

Case 6

- 34yr old factory worker lifted box at work.
- Twinge in neck lasting for 1-2 mins.
- Developed new onset headache the next day.
- CT head was normal.
- Treated as migraine. Sent home.
- Returned with persistent numbness a few days later.
- Sent home again
- Returned 24 hrs later with right MCA stroke





Images courtesy of Radiopaedia.org

Carotid/Vertebral Artery Dissection

Consider in:
- young stroke
- Neck pain/headache with (trivial) trauma

Red Flag	Focal Neurology/New-onset refractory headache
Symptoms	CAD: Horner's syndrome (pain?), TIA/stroke symptoms, neck pain, retinal infarct VAD: Post. Circulation stroke symptoms
Investigations	CT/MRI head Angiogram inc neck vessels
Associations	Trauma CTD Pregnancy
Management	Anticoagulation vs antiplatelets (extra vs intracranial) Stenting?
Refer	Neurovascular/Neurosurgery
Further investigations	Repeat imaging? Pseudoaneurysm

Take home message

- Importance of a thorough history and examination. RED FLAGS
- Migraine is common. Consider prevention if chronic picture.
- Consider MOH
- Not all thunderclap is SAH
- Recognise cluster – high suicide risk!
- Recognition of pressure syndromes with headaches
- Headache rarely sole presentation of SOL
- Be suspicious of CAD/VAD in UL neck pain + new/different headache.

Thank you ?
Any questions?