Headache Workup

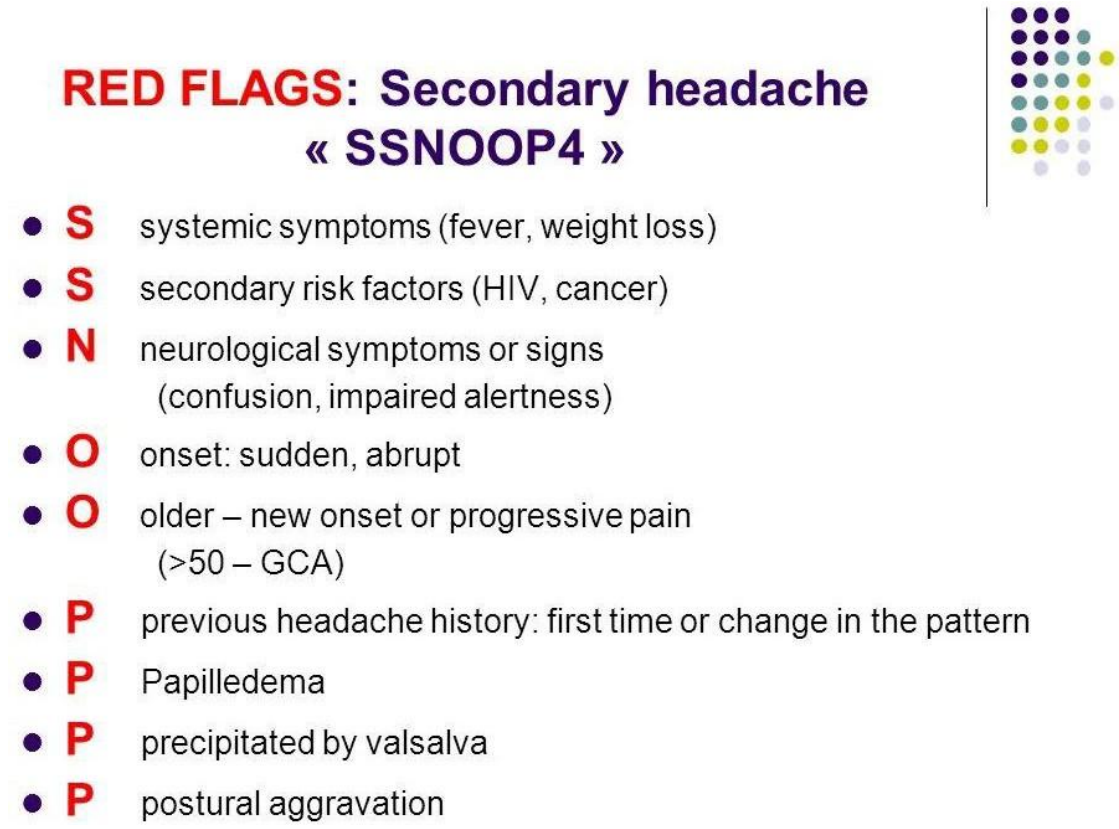
Follow the basic acute care workup

1. Triage and Retraige
2. Initial stabilization
    - A- patent airway
    - B– Look, Listen, Feel- RR, SpO2
    - C- PR, BP, CRFT- IV canula, ECG
    - D- AVPU/GCS, Blood sugars
    - E-Rashes, Temperature
3. Focused History
4. Focused Examination
5. Focused investigations
6. Management and disposition plan

1) History

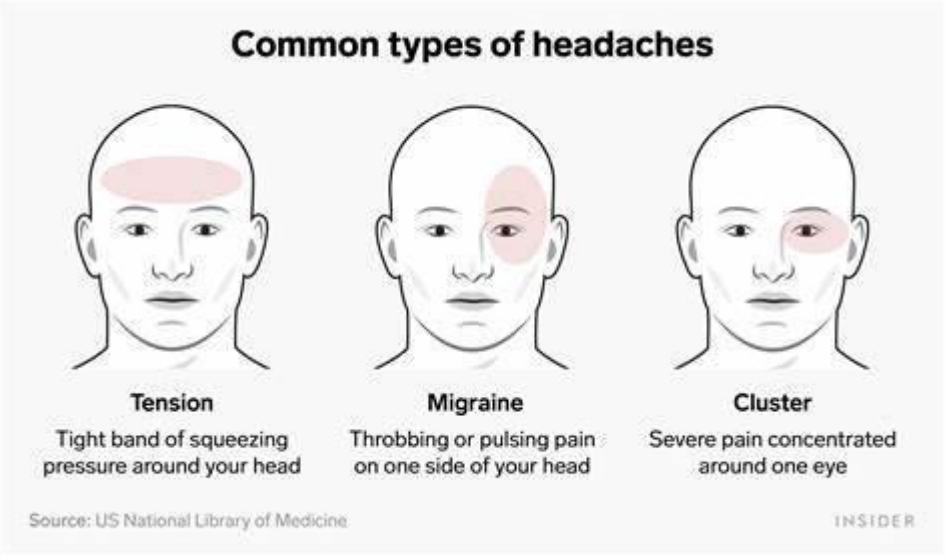
Exclude Red Flags in the history

Mnemonic- SSNOOP4



Classification of headache (According to Therapeutic Guidelines, Australia) (Therapeutic Guidelines, 2021)

1. Primary headache - (migraine, tension-type headache, trigeminal autonomic cephalgia, other primary headache disorders)
2. Secondary headache - due to structural causes (occupying lesion, subarachnoid haemorrhage, venous sinus thrombosis) or disease (giant cell arteritis, meningitis, systemic infection)
3. Painful cranial neuropathies (trigeminal neuralgia) and other facial pains and headaches.



Primary Headaches

Type of headache	Features in the history	Examination findings
Migraine without or with aura	Typically one-sided, can be bilateral) Pulsating moderate to severe intensity aggravated by routine physical activity associated with nausea and/or photophobia, phonophobia Aura symptoms can affect vision, senses, speech and/or language, motor function, brainstem and retina.	
Tension-type headache	Lasts from 30 minutes to 7 days.	

	Usually bilateral feels like pressure or tightness in head- band like Mild to moderate intensity Not associated with nausea	
Cluster headache	Severe unilateral pain around trigeminal distribution (around the eye) conjunctival irritation, lacrimation, nasal congestion, Episodes may last 1−3 hours and occur in clusters with periods of remission in between	eyelid swelling or drooping facial sweating and miosis
Trigeminal autonomic cephalgia	Unilateral usually follow the distribution of first division of trigeminal nerve) with, fullness of the ear, tinnitus, facial flushing or sweating The patient is often agitated and restless.	unilateral autonomic features- tearing, conjunctival injection/irritation, ptosis, nasal stuffiness/rhinorrhoea
Miscellaneous (cough headache, exertional headache, headache associated with sexual activity)	Associated with specific triggers- cough, exercise, sexual activity	

Source (Therapeutic Guidelines, 2021) and (Somani, 2016)

Secondary headaches

Type of headache	Features in the history	Examination findings
Subarachnoid haemorrhage (SAH)	Sudden onset Worst ever headache Occipital May be associated with vomiting, neck pain, photophobia May have a loss of consciousness or fits	Fundoscopy- sub hyaloid retinal haemorrhage Focal neurological signs- 3rd nerve palsy
Meningitis	Generalized headache Photophobia +/- Fever +/-	Drowsy patient Neck stiffness+ Meningococcal rash +/-
Temporal arteritis	Diffuse, throbbing headache Age > 50yrs	Scalp tenderness

	Jaw claudication Visual disturbance	Tender temporal artery with reduced pulsation
Space occupying lesion (raised ICP)	Headache exacerbated by lying down/ Valsalva manoeuvre Transient change in vision Headache may wake up the patient from sleep, and improve upright Worse in morning	Papilledema Focal neurological sings
Acute angle closure glaucoma	Unilateral Eye pain+ Red eye+, mildly dilated Halos around light	Red eye Reduced visual acuity

Source (Banerjee, 2017) and (Somani, 2016)

Facial pains (Therapeutic Guidelines, 2021)

Type of headache	Features in the history	Examination findings
Trigeminal neuralgia	Mainly women 40-70 yrs Unilateral Recurrent Shock-like pain in trigeminal nerve distribution Triggered by touch or cold winds	

Past medical history- alcohol, illicit drugs, cyclosporin, exogenous hormones (to exclude drug-induced headache)

2) Examination (Banerjee, 2017)

- Check blood pressure, Pulse rate, blood sugars
- Fundoscopy
- GCS/ AVPU
- Pupillary size and movements
- Cranial nerve examination
- Assess tone, power, reflexes and coordination of all four limbs
- Plantar response
- Assess gait including heel-toe walking

3) Investigations (Banerjee, 2017)

Neuroimaging

Not indicated- patients with a clear history of migraine, no red flags, normal neurological examination

Indications for CT Brain-

1. Suspected SAH
2. Suspected stroke
3. Unexplained abnormal neurological signs
4. Reduced level of consciousness
5. Signs and symptoms suggestive of increased ICP

MRI- more sensitive than CT to identify secondary causes, needs neurology opinion

Lumbar puncture with CSF analysis

use for patients with thunderclap headaches with normal neuroimaging to exclude SAH

perform after 12 hours

Features of LP suggesting SAH- Xanthochromia, RBC> 50, elevated protein, normal glucose and gram stain

ESR, CRP- increased in temporal arteritis

4) Management- depends on the possible diagnosis

Migraine

Pharmacological management

Step 1- oral nonopioid analgesic- 1st line- Aspirin 900-1000mg or Ibuprofen 400-600mg, 2nd line diclofenac 50mg/ paracetamol 1g (wait for 4-6 hours before the second dose)

If nausea/vomiting- oral antiemetics- metoclopramide 10 mg (max30mg) /domperidone 10-20mg/ ondansetron 4-8mg

Step 2- triptans- eletriptan 40-80mg orally, sumatriptan 50-100mg orally

Step 3- Intractable migraine- sumatriptan 6 mg subcutaneously

Acute migraine in pregnancy- oral paracetamol 1g, avoid aspirin and NSAID

If acute migraine episodes 2-4 times a month- migraine prophylaxis

Migraine prophylaxis - amitriptyline 10 mg orally once daily at night /candesartan 4 mg orally, once daily/pizotifen 0.5 mg orally, once daily at night for 8-12 weeks

Non-pharmacological management of migraine-

- cold packs over the forehead or back of the skull (targeting the supraorbital and greater occipital nerves)
- hot packs over the neck and shoulders (targeting the innervation of the scalp)
- neck stretches and self-mobilisation
- rest in a quiet dark room

Source- (Therapeutic Guidelines, 2019)

Subarachnoid Haemorrhage

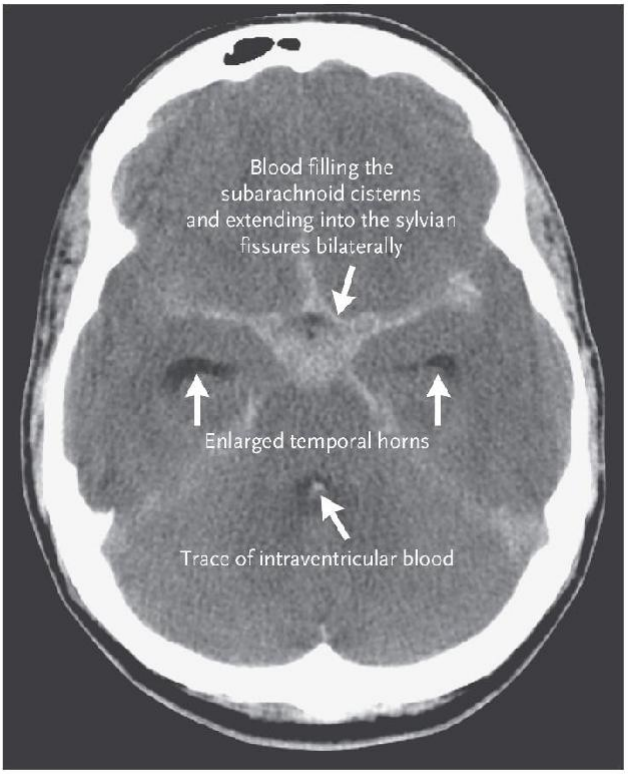


Image source (Lawton & Vates, 2017)

Supportive management at ED

Table 11.4 Supportive management of a patient with a SAH

A and B	Ensure adequate oxygenation (aim for oxygen saturations >94%) Aim for $PaCO_2$ in normal range Intubate and ventilate as required to achieve these aims and protect the airway Tape the endotracheal tube in place rather than tie it to avoid increases in ICP Avoid excessive intrathoracic pressures to prevent rises in ICP
C	Maintain end organ perfusion (aim for MAP≥80 mmHg) Use urine output as indicator of adequate renal perfusion
D	Maintain normoglycaemia Treat seizures (benzodiazepines, prophylactic phenytoin) Position—30° head-up tilt to help reduce ICP Avoid cervical collars/compression if possible to avoid increased ICP Monitor for signs of neurological deterioration
E	Pain management to avoid increases in ICP (if the patient has severe pain titrate morphine IV in 1-mg increments) Temperature control (aim for normothermia)

Source (Banerjee, 2017)

Specific management- manage on the advice of the neurology team and interventional neuroradiology team (Nimodipine and IV Mannitol)

Tension headache- non-opioid analgesics (similar to migraine management)

E.g. Aspirin/Diclofenac/paracetamol (Therapeutic Guidelines, 2021)

Cluster headache- Subcutaneous triptans (Sumatriptan 6mg s/c) (Therapeutic Guidelines, 2021)

Headache/ facial pain

Indications for admission

Primary headaches (Migraine/ Tension/Cluster/ Trigeminal autonomic cephalalgias)

Severe symptoms despite initial treatment; eg uncontrolled vomiting/ nausea/ inability to maintain oral intake.
New onset cluster headache in a patient> 40y.

Discharge plan

1.Avoid precipitants/ triggers
2.Migraine:
Pain relief- Paracetamol, NSAIDS, Triptans (oral/subcut/nasal)
Antiemetics
Prophylaxis-
Normal weight: Amitriptyline 12.5mg nocte/ Propanolol 20mg bd/Flunarizine 10mg nocte/Pizotifen
Obese: Amitriptyline still first line. Consider Topiramate 25mg nocte If concerns for weight gain. Gradual escalation.

	Cluster headache	Paroxysmal hemicrania	SUNCT
Prevalence	0.06–0.3%	0.02%	Very rare
Sex ratio F/M	1:3	2.4:1	1:1.3–2
Mean age at onset	29	37	48
Attack duration (mean)	15–180 min (70–160 min)	2–30 min (17 min)	5 s to 4 min (58 s)
Attack frequency (mean)	1–8 day (5)	5–40 day (11)	3–200 day (59)
Chronic/episodic	Episodic (85%)	Chronic (80%)	Chronic (70%)
Pain quality	Boring, pressing, burning	Sharp, stabbing, throbbing	Stabbing, electric shock, sharp
Pain location	Retro-orbital, temporal	Temporal, orbital	Eye, retro-orbital
Triggers	Alcohol, nitroglycerin	Usually not triggered	Cutaneous stimuli
Autonomic features	Yes	Yes	Yes (Cl & T)
Migrainers features	Yes	Yes	No
Indomethacin effects	–	++	–
Abortive treatment	Oxygen Sumatriptan s.c.	Indomethacin	Lidocain i.v.
Prophylactic treatment	Verapamil lithium	–	Lidocain i.v. Lamotrigine

Secondary headaches/presence of red flag symptoms

Indications for admission

All need admission for evaluation