**Acute (Secondary Care) Headache pathway for adults**

Patient presents with severe headache

Take full history and carry out a full neurological examination

Do not omit visual acuity and fields, optic fundi, meningism and gait.

Check temperature, skin (rash), BP and gait.

Consider following possibilities (red flags) and check if present:

* Thunderclap headache
* CNS Infection
* Raised intracranial pressure
* New neurological deficit or alteration of consciousness
* Higher risk scenarios
* Low intracranial pressure
* Temporal arteritis
* Glaucoma

If none present, consider primary headache disorder (see details below on page 5)

**Thunderclap headache**

New, sudden and severe headache that builds up to its maximum within seconds to a minute and may be associated with neck stiffness.

Vomiting and syncope can occur at onset.

Possible diagnosis – subarachnoid haemorrhage, other intracranial haemorrhage (including pituitary apoplexy) acute cranial artery dissection.

**CNS Infection**

Persistent raised temperature with / without neck stiffness, rash, focal neurological deficit, altered consciousness / behaviour, seizures.

Possible diagnosis - meningitis\*, encephalitis, cerebral abscess, subdural empyema.

Consider travel history (TB, malaria etc)

\*NB. British Infection Association Guidelines (Jan 16) advise not delaying LP for prior CT scan if meningitis suspected unless

- severe sepsis/rapidly evolving rash

- severe cardiovascular/respiratory compromise

- bleeding risk

- focal neurological signs, papilloedema, uncontrolled seizures

- GCS < 12

**Raised intracranial pressure**

New headaches brought on by coughing, straining, night time exacerbation; can be associated with recurrent brief loss of vision (obscurations), vomiting, pulsatile tinnitus, visual field defect or papilloedema.

Possible diagnosis - space occupying lesion, hydrocephalus (including blocked shunt), colloid cyst, cerebral venous sinus thrombosis, malignant meningeal infiltration, idiopathic intracranial hypertension, hypertensive encephalopathy.

**New neurological deficit or alteration of consciousness**

New onset cranial nerve palsy/ hemisensory disturbance or hemiparesis, ataxia / incoordination, alteration in level of consciousness / behaviour / cognition or alertness.

Any new (recent) onset of persistent headache (new daily persistent headache) requires investigation

**Higher risk scenarios**

Elderly / known or suspected malignancy / immunocompromised / anticoagulated / recent head trauma

**IF ANY OF ABOVE PRESENT - MANAGEMENT ADVICE**

CT Brain Scan – consider with contrast

Discuss scan report with radiologist & senior colleague

If indicated, proceed to lumbar puncture only if clinically appropriate and safe to do so (see note below)

If advice required about investigations or patient’s condition at this stage discuss with the Walton Centre on-call Neurosurgical or Neurology Registrar

TEL 0151 525 3611- Ask for the neurology registrar / neurosurgical registrar as appropriate.

Scans done at Walton Centre linked hospitals are automatically networked into the Walton Centre radiology system and will be available for their viewing.

Carefully record the name of the registrar and the on call consultant and the advice given in the patient’s notes.

Consultant neurologists from the Walton Centre visit linked hospitals 3-4 days a week and do outpatient clinics and see ward referrals

Urgent or out of hours referrals should be discussed with the WALTON CENTRE ON CALL NEUROSURGICAL OR NEUROLOGY REGISTRAR and should not be kept waiting for the visiting service

Teleneurology is available at certain hospitals only but will be extended in time.

Referrals to the visiting neurology service should be made only on the advice of a registrar or consultant. This should be done by sending a detailed referral (to enable appropriate triage by neurologists) to the neurology secretary with the name, grade and contact number of the referrer and their consultant written legibly. Do not fax A&E notes.

**NOTES ON LUMBAR PUNCTURE**

A well timed and well performed LP is a very useful investigation – do not delay if safe and indicated, especially in suspected meningitis.

See above note.

In thunderclap headaches where CT brain scan is normal - undertake a lumbar puncture 12 hours after the onset of the headache. Where CNS infection is suspected, LP should be performed within the first 24 hours

CONTRAINDICATIONS- Known bleeding / clotting disorder / on anticoagulation (attempt to correct if feasible and pursue LP when safe); mass lesion, scan evidence of obstructive hydrocephalus (eg enlarged ventricles, dilated temporal horns, effaced sulci) or significant brain oedema.

PRACTICAL TIPS - Before you start, ensure a full LP set is available including manometer and 5-6 sample bottles.

Measure opening pressure only with the patient in the lateral decubitus position. Read the pressure after getting the patient to relax and once the column of CSF is at a stable level.

Take 5-6 samples – each with 1-2 ml and send for all appropriate tests.

Send CSF samples for relevant biochemistry, microbiology and immunology tests. Xanthochromia test mandatory in thunderclap cases.

Take paired blood samples for glucose, bilirubin (and oligoclonal bands if indicated).

Protect xanthochromia CSF sample from light. Forewarn the lab and dispatch samples immediately and safely.

There is no benefit in a patient lying flat after an LP. Patients should rest and be kept well hydrated. 20% can develop a post LP low CSF pressure headache.

If abnormal investigations refer as above to on call neurology / neurosurgery at Walton Centre or on site visiting neurologist

If normal investigations, re-assess patient and discuss with senior colleague

If any of above red flags still present, refer as above

If none of above red flags present, consider other remaining red flags

**Low intracranial pressure**

Headaches only on sitting or standing up, completely relieved by lying flat. No other red flag features present.

Possible diagnosis – Iatrogenic after a spinal or epidural puncture, spontaneous CSF leak.

Advice:

Lie Flat; Hydrate with IV fluids over 48-72 hours, IV anti-emetics and NSAID.

If no history of a spinal puncture, arrange an MRI of the brain and spine with contrast to look for features of low intracranial pressure.

If no improvement after 48-72 hours, liaise with Walton Centre neurology on call for advice or refer for on-site neurology consultation

**Temporal arteritis**

New onset headache over the age of 50; variably associated with temporal artery tenderness, jaw claudication, evolving neurological symptoms; 20% develop visual deterioration; stroke can occur.

Systemically unwell; polymyalgia like symptoms. Can be cough, fever, oedema, malaise.

Usually with high ESR & CRP (rarely slight elevation or normal).

Advice:

Urgent ESR and CRP then commence steroid therapy immediately – prednisolone 1mg/kg/day (Maximum 100mg)

Do not delay for biopsy or its result

Dose 40-60mg daily if no visual symptoms; 60-100mg if visual symptoms present (or consider IV methyl prednisolone 500-1000mg daily for 3 days then high dose oral as above).

Refer BNF, oral steroids to be taken after food; PPI gastric protection; counsel on side effects.

Aspirin no longer advised

Refer urgently to ophthalmology if any visual symptoms

Contact appropriate departments urgently to arrange urgently temporal artery biopsy and ophthalmology review. Do not delay steroids. MRI or ultrasound artery imaging option only if appropriate expertise available.

**Glaucoma**

Eye pain and ipsilateral headache associated with decreasing visual acuity, halo effect around objects, vomiting. May be red eye.

Advice:

Contact on-call Ophthalmology registrar Urgently.

If none of above red flags present, consider primary headache disorders

**Primary headache disorders**

**Episodic migraine +/- aura**

Recurrent episodes of headache lasting up to 3-4 days. There should be a clear past history of previous similar episodes with recovery – i.e. a history of prior episodic migrainous attacks.

Has moderate to severe aching / throbbing pain involving scalp, face and neck. Usually will have nausea and sensitivity to light, noise and movement. Affects patient’s capacity to function. Pain free in between episodes.

Aura is an evolving visual/ sensory/ motor/ speech disturbance that develops over minutes to an hour- unlike in TIAs where the deficit happens suddenly. Visual blurring and spots are not diagnostic of aura. Only 20% have aura.

* Avoid starting regular analgesia. Pain Control (paracetamol / NSAID +/-triptan +/- pro-kinetic anti-emetic) should be used sparingly for 1-2 days only. Ensure adequate hydration.
* Patient should be supplied with Walton PRIMARY HEADACHE INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>) and advise to consult GP about options on Walton primary care headache pathway.

**Chronic migraine**

Headaches > 15 days / month (of which at least 8 are migrainous and the rest can be featureless headaches) for the last 3 months.

Some patients may also report difficulty in day to day functioning, feeling dizzy and perceive problems with concentration, attention and recall.

* Discuss diagnosis and give PRIMARY HEADACHE INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>)
* Stop use of regular analgesics- withdraw opiates slowly
* Advise patients to stop all caffeine intake
* Advise patients to limit acute attack analgesic medication use to a maximum of 2 does a week and only for severe attacks. e.g. paracetamol 1g or ASPIRIN 600mg or NAPROXEN 500mg or IBUPROFEN 400mg for severe headaches but not more than twice a week. DO NOT PRESCRIBE CODEINE/MORPHINE/TRAMADOL or other opiates
* Patient should be supplied with Walton Primary Headache INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>) and advised to consult GP about options on Walton primary care headache pathway regarding preventative treatments.

**Medication overuse headache**

Use of any analgesia more than twice a week (10 -15 days in a month) for 3 months can worsen most primary headaches. Lower intakes can also cause this condition and reduce effectiveness of headache preventative treatments.

Caffeine can also aggravate the condition and should be stopped.

Very frequently occurs with episodic and chronic migraine.

Patients describe a persistent ‘hangover’ like feeling and lack of response to analgesics.

* Discuss diagnosis and give INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>)
* Stop use of regular analgesics - withdraw opiates slowly
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* Warn patients that headaches will worsen for the first 2-3 weeks and that headaches will resolve only over a few months
* Patient should be supplied with Walton PRIMARY HEADACHE INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>) and advised to consult GP about options on Walton primary care headache pathway regarding preventative treatments

**Chronic tension headache**

Persistent, featureless, bilateral, non-severe, vice like headache without the additional migranous characteristics like sensitivity and difficulty in functioning.

* Simple analgesics like paracetamol or ibuprofen (max 2 does per week to avoid medication overuse headache)
* Discuss diagnosis and give PRIMARY HEADACHE INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>)
* Patient should be advised to consult GP about options on Walton primary care headache pathway.

**Cluster headache**

Strictly unilateral headaches, typically very severe, lasting for up to 1-4 hours, 2-6 episodes /24 hours, attacks often waking the patient from sleep, prominent associated autonomic symptoms (redness of the eye, eye watering, nasal blockage) and severe restlessness, agitated behaviour during the headache.

* a) Administer subcutaneous SUMATRIPTAN 6mg INJECTION (refer to any local hospital formulary) to terminate an acute attack
* (b) 12-15 Litres/min high flow oxygen through a non rebreathable, tight fitting mask (caution in COPD) to terminate an acute attack
* If having regular attacks, commence PREDNISOLONE 60mg daily for 3 days; reducing by 10mg every 3 days until stopped; maximum duration =18 days. Refer BNF, to be taken after food; consider gastric protection counsel on side effects.
* Verapamil 40mg tds increasing over a week if tolerated to 80mg tds (unlicensed indication but well established in neurology)
* Consider PPI prophylaxis
* Supply patient with sumatriptan 6mg sc injections (maximum 2 per day)
* Discuss diagnosis and give PRIMARY HEADACHE INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>)
* Refer for NEUROLOGY OUTPATIENT APPOINTMENT

Fax a detailed referral letter addressed to’ ’CONSULTANT NEUROLOGIST’’ (copy of A&E notes will not be accepted) clearly marked "FOR URGENT OUTPATIENT APPOINTMENT’’ to the Neurology Appointments Office at the Walton Centre on 0151-5295769.

Inform patient that the appointment to see a neurologist may be either at The Walton Centre or a local hospital. All neurology appointments are handled by the appointments office at the Walton Centre .

The time frame for the appointment will be decided by the triaging neurologist depending on the clinical information provided. Please do not give an estimated appointment date to the patient.

**Trigeminal neuralgia**

Unilateral paroxysmal, recurrent sharp shooting ("electric shock’’) pain in the maxillary /mandibular division, triggered by touch/ chewing.

Not all facial pains are neuralgia. Constant aching or long-lasting facial pain is unlikely to be TN.

Ask for history of zoster of the affected area (post herpetic neuralgia)

* IV fluids if oral intake affected by symptoms
* Commence CARBAMAZEPINE or GABAPENTIN – (Refer to any local hospital formulary)
* Discuss diagnosis and give PRIMARY HEADACHE INFORMATION LEAFLET (available at <https://www.thewaltoncentre.nhs.uk/473/pathways-for-health-professionals.html>)
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