

Chronic Headaches and Migraines



Key learning objectives

- Understand basic definition and mechanisms of common headaches
 - Primary headaches
 - Tension-type, migraine, vascular-autonomic (cluster headache)
 - Secondary headaches
 - Chronic daily headache
 - Medication overuse, cervicogenic, post-whiplash, occipital neuralgia
 - Intracranial, facial, head and neck pathology
- Headache-orientated history and examination to construct a differential diagnosis
- Understand importance of screening for 'red flags' in all headache patients
 - T.I.N.T: Tumour, Infection, Inflammation, Intracranial pressure, Neurovascular, Trauma
- Perform a headache-oriented physical examination
 - Cranial nerves, temporal arteries, greater occipital nerves (GONs), scalp sensation, BP, fundoscopy (papilloedema)
 - Trigeminal nerve & GON examination
 - Head & neck, ENT, orofacial TMJ & sinuses
 - Eyes (glaucoma)
- Understand 'sensitization' of *trigeminal-cervical nucleus* (V, C2-3) is key to pathogenesis of most headaches
- List the main pain-generating structures in the head and neck
- Understand migraine is a complex stress-related neurovascular-inflammatory brain disorder
- Understand migraine management involves acute symptom control and attack prevention (prophylaxis)
- Understand the concept of medication-overuse headache
- Apply a *bio-medical-psycho-social-environmental* approach to headaches

Introduction

- 5-10% of the population have chronic headaches
- Mainly affects females
- Major quality of life and economic burden
- In top-ten of worldwide health-related disabilities (W.H.O)

Headache classification

Type

- Primary headaches
- Secondary headaches
 - Chronic daily headaches

Timing

- Acute
- Chronic: > 15 headaches per month for more than three months

Primary headaches

- Tension-type (most common 80%)
- Migraine (15%)
 - Aura (15%)
 - Common migraine (without aura) (75%)
- Vascular-autonomic (cluster headache) (rare <1%)

Secondary headaches

- Chronic daily headache (CDH)
 - Primary or secondary headaches may be 'transformed' in to CDH
 - Medication overuse headache (MOH)
- Cervicogenic headache
- Whiplash-associated headache
- Occipital neuralgia
- Others e.g. sinus headache
- Pathological 'red flags' e.g. tumour, temporal arteritis

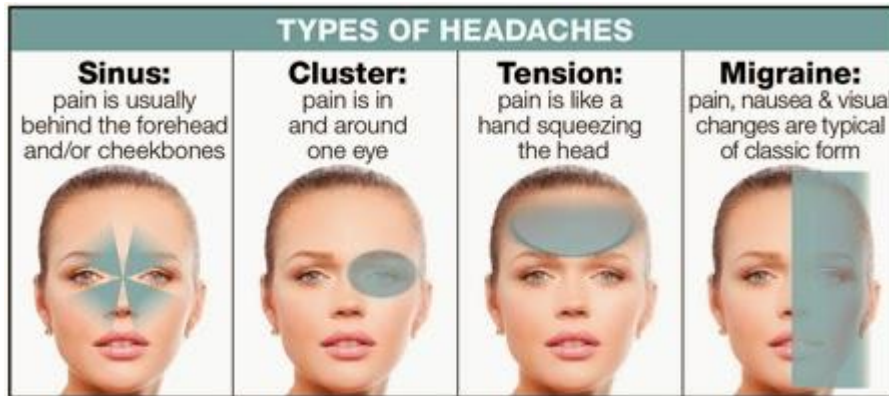


Figure 1. Main headache types

Primary headaches

Migraine

Introduction

- *Migraine* is derived from Greek word 'hemi-crania'
- Chronic migraine defined as > 15 episodes per month
- 15% of population
- F: M (3:1); menstrual component
- Familial predisposition (Na, Ca ion channels, mitochondria, free radicals, neuro-immune)
- Complex pathophysiology (see figure 1: migraine cycle diagram)
- Concept: A form of 'brain attack' when overloaded, similar to a heart attack
- Stress-related neuro-vascular-inflammatory disorder
- The 'vulnerable brain' concept (similar to epilepsy)

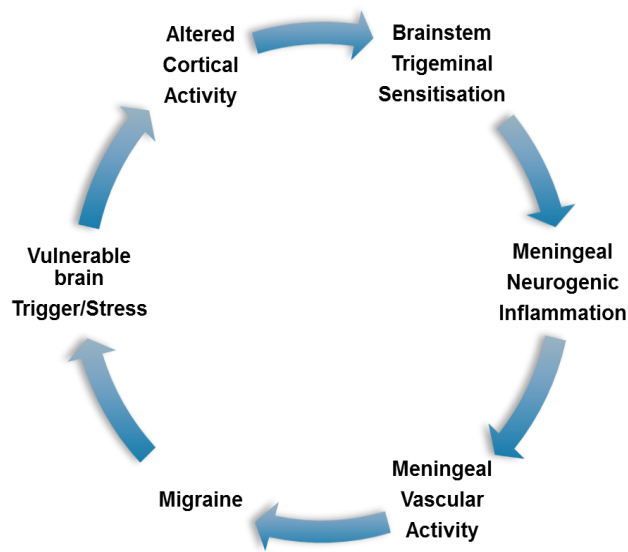


Figure 2. Migraine cycle

Presentation

- ✓ Headache (throbbing, exploding, pressure)
- ✓ Neurological dysfunction
- ✓ Triggers: anything that may 'overload' a vulnerable brain
 - Stress, sensory, sleep, food, alcohol, menstruation
- ✓ Prodrome (impending 'brain attack'): neurological, psychological
 - Aura (flashing lights, 'zig-zag' lines) (spreading cortical hyperactivity)
 - Vision, smell, hearing, cognition, sleepiness, cravings
- ✓ Postdrome
 - Recovery (like post-ictal state following seizure)

Diagnostic features

- ✓ Hemicranial (unilateral headache)

- ✓ Nausea and/or vomiting
- ✓ Photophobia and/or phonophobia
- ✓ Worse with movement (climbing stairs)
- ✓ Want to sleep it off (rest the brain)
- ✓ Functional impacts (ADLs, work)

Menstrual migraine

Abdominal migraine

- Children: 5-12 (M>F)
- Recurrent abdominal pain
- Nausea (rarely vomiting)
- Unwell, pallor, mild fever, quiet, sleepy

Tension-type-headache (TTH)

Introduction

- Most common form: 80% of headaches
- More than just cranial muscle tension
- Frequently related to psychological stress
- On a 'spectrum' with migraine (shared mechanisms: trigeminal sensitization & allodynia)
- Minimal neurological or functional impacts

Presentation

- ✓ Hatband headache
- ✓ Feels like a tight hat on your head
- ✓ Squeezing or pressure sensation

Diagnostic features

- ✓ Bilateral headache
- ✓ Minimal other symptoms
- ✓ May have *mild*
 - photophobia or phonophobia
 - nausea (but not vomiting)
- ✓ Doesn't interfere too much with function



Figure 3. TTH

Vascular-autonomic headaches

(Trigemino-Autonomic-Cephalalgias) (TAC)

Introduction

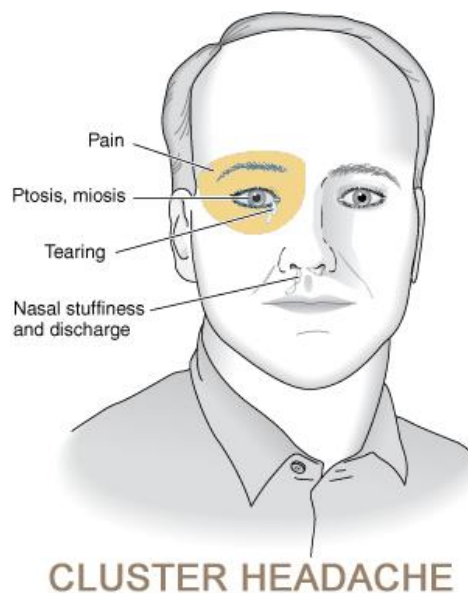
- Severe headaches occurring in *clusters* at certain times
- Main types
 - Cluster headache
 - Hemicrania

- Rare (<1% of headaches) (you won't see many but you will remember them)
- Often causes of chronic headaches
- One of the worst pains on the planet
- M>F (3:1)

- Severe headache (suicide headache)
- Severe neurological, autonomic & functional impacts
- Associated with hypothalamic (autonomic) & circadian (sleep) dysfunction
- Shares some features with migraine

Presentation

- ✓ Unilateral, periorbital headache
- ✓ Clusters of attacks lasting minutes-days
- ✓ Sharp, stabbing, ice-pick headache
- ✓ *The eye of the needle*: needles in the eye or temple
- ✓ Feels like 'brain freeze'
- ✓ Often wakes patient from sleep
- ✓ Distress, restlessness, head-banging, rocking
- ✓ Pacing the room at 3 am (compared with 'sleeping it off' in migraine)



Diagnostic features

- ✓ Hemicrania (unilateral)
- ✓ Cluster attacks
- ✓ Periorbital pain & autonomic features
 - Puffy eye: swelling, tearing, redness
- ✓ Distress, restless, pacing

- ✓ Major functional impacts (sleep)
- ✓ Photophobia, phonophobia, nausea, vomiting
- ✓ Diagnostic response to indomethacin (specifically) or high-flow oxygen by mask

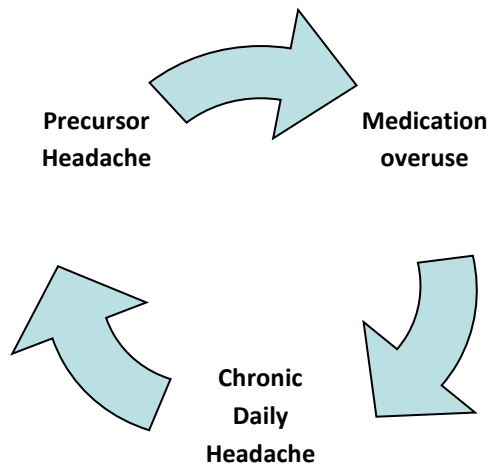
Secondary headaches

Chronic daily headache (CDH)

Introduction

- Headache lasting most of the day for >15 days per month
- Common (5% of adults)
- May be disabling, affecting many aspects of the person's life
- 'Transformed' from precursor headache (primary or secondary) then fuelled by...
- Medication overuse

Figure 4: Transformed chronic daily headaches



Main types

- Transformed migraine
- Transformed tension-type headache
- Transformed secondary headache
 - Cervicogenic headache (most common)
- Medication-overuse headache

Medication-overuse headache (MOH) (rebound headache)

Definition

- Most common form of chronic headache
- Headache associated with taking medication >15 times per month
- Rebound headache as the pain *rebounds* when analgesia wears off

Issues

- Often a missed diagnosis
- Most people with CDH have MOH
- ANY drug that affects the brain's chemistry can cause MOH
- Only takes a few weeks to develop

Presentation

- ✓ Precursor headache (usually migraine)
- ✓ CDH
- ✓ Increasing frequency of headache medication or analgesic use
- ✓ Medications often taken to *prevent* headaches (e.g. mornings)
- ✓ Problems with dose control & cessation
- ✓ Pseudo-addiction: shopping for over-the-counter analgesics
- ✓ Most frequent drugs associated with MOH
 - Over-the-counter analgesics
 - ibuprofen-codeine, antihistamine-paracetamol-codeine
 - Opioids (codeine)
 - Triptans
 - Ergots
 - Others e.g. caffeine, nitroglycerin

Key message

- ✓ It is vital to ask about analgesic use in every headache patient
- ✓ Ask about over-the-counter analgesics

What to tell your patient

Taking any pain reliever for headaches, especially opioids (codeine), over-the-counter medications (e.g. Nurofen Plus) and migraine treatments (e.g. Imigran) to treat or prevent your headache, can quickly lead to *medication-overuse headache*, which makes the pain much worse. The only treatment is to *stop using pain medications for about one week*, which may be difficult to do without help.

Cervicogenic headache

- Neck pain-related headache (referred pain)
- Frequent due to ‘whiplash’ or arthritis
- Main structures in neck causing headache:
 - C2/3 facet joints
 - Greater occipital nerves
 - Trigger points (trapezius)

Management of chronic headaches (including chronic migraines)

Apply a bio-medical-psycho-social-environmental approach

1. Make a clear headache diagnosis.
 - Primary
 - Secondary
 - Medication-overuse
2. **Exclude rare but serious ‘red flags’: T.I.N.T (<1% of cases).**

Tumour, Infection, Inflammation, Intracranial pressure, Neurovascular, Trauma

3. **MRI or CT head (neck) within past 2 years.**
4. **Review** by a neurologist or pain specialist.
5. **Monitor ‘character’ of headache:** Worsening or changing in ‘character’, wakes at night, or confusion, drowsiness, dizziness, changes in vision, weakness in arms or legs, or vomiting.

Key patient message:

‘Go to the nearest emergency department immediately if you ever experience the worst headache you’ve ever had’.

6. **Ask patient to keep headache diary:** Work out how often they have headaches, what might be causing them (e.g. lack of sleep, stress, foods) and **medication-use**.
 7. **Diet:** Avoid caffeine, chocolate, smoking and alcohol.
 8. **Vitamin therapy** (mainly for migraine prevention):
 - Combine any two vitamins e.g. Vitamin B2 & magnesium.
 - Review their effectiveness after 2 months (it can take that long to work).
- ✓ **Vitamin B2 (riboflavin) 200 mg once daily**
 - ✓ **Magnesium 500 mg once daily**
 - ✓ **Coenzyme Q 150 mg once daily**
 - ✓ **Fever few 125-200mg once daily (avoid in pregnancy/breast feeding)**
 - ✓ **Vitamin E, 500 IU once daily (only for menstrual migraine)**
9. **Migraine prevention medications:** Beta-blockers (e.g. propranolol or metoprolol), Amitriptyline, Topiramate, Pizotifen, Valproate, Pregabalin, Candesartan, Verapamil or Amlodipine.
 10. **Chronic headaches or medication-overuse headaches:** Amitriptyline or Pregabalin.
 11. **Avoid opioid (morphine-based) pain medications** for headaches, especially codeine-based tablets and pethidine injections—they make headaches a lot worse over a short period of time and can lead to addiction.

IMPORTANT patient message

Keep pain reliever use to an absolute minimum to avoid medication-overuse headaches.

Taking any pain reliever (even over-the-counter medications like Nurofen-plus or Panadeine) for more than a few days can cause this problem. The *codeine* in these medications can become habit-forming very quickly.

12. *Patient explanation: Medication-use headache* means the chemistry of your brain has changed to make headaches worse when you miss a dose of pain medication, so you end up taking more-and-more. The pain clinic can provide help in reducing your pain reliever use.
13. **Behavioural strategies:** Stress and anxiety worsen headaches—relaxation, mindfulness and sleep management are very effective.
14. **Exercise:** At least 40 minutes a day (e.g. walking) reduces chronic headaches and migraines.
15. **Weight reduction:** Especially if snoring, consider **(obstructive) sleep apnoea**. Sleep study to diagnose this condition.
16. **Trigger-point treatments:** Examine neck and shoulder (trapezius) muscles for (*myofascial*) *trigger points*, which may cause headaches, especially after ‘whiplash’. Trigger points may respond to *physiotherapy, stretching, trigger point injections, ‘dry needling’ or acupuncture*.
17. **Procedures:** If tender over occiput, *greater occipital nerve injections* with local anaesthetic and steroid, just under the skin, may help. These nerves may be blocked for longer periods of time by using electro-magnetic pulses (pulsed radiofrequency) or freezing (cryoneurotomy).
18. Other procedures include *facet joint injections in the neck* (C2/3 level) (medial branch blocks, neurotomies or pulsed radiofrequency), *Botox injections* (only for chronic migraines), *occipital nerve stimulation with a pacemaker* (high tech and expensive).
19. Cefaly supraorbital nerve TENS machine.
20. **IMPORTANT:** There are effective **headache management programmes** available.

Check the **Headache Help** website: <http://www.headachehelp.org.au/>

Essential reading

<http://www.racgp.org.au/afp/2014/march/chronic-headache/>



Management of chronic headache

[Volume 43, No.3, March 2014](#) Pages 106-110