

RED FLAGS IN HEADACHE PRESENTATIONS

AN ALPHABETICAL GUIDE

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Headache is the prototypical neurological complaint – an intrusive and limiting symptom that is subjective in its severity, intangible in nature and extremely difficult to quantify or measure. It is also by far the most commonly experienced neurological symptom, occurring as either a primary disorder or secondary to another systemic illness. Its high prevalence across populations regardless of race, gender, age and geographical distribution reflects its generally benign nature and outcome, but results in difficulty in identifying the small minority of individuals whose headaches are underpinned by serious or potentially life-threatening conditions. This leads to concern among medical specialists and primary care physicians alike, often exposed to ‘headache fatigue’ from regularly evaluating patients with this complaint, about missing serious headache cases and on how to judiciously apply finite health resources including imaging across this large population of patients.

There are a number of headache guidelines that indicate specific patient characteristics, accompanying symptoms or signs, and other ‘red flags’ that may either indicate the need for investigation or point towards an underlying cause. While a comprehensive review of these documents is beyond the scope of this short article, hereunder are summarised alphabetically many of the readily identified markers for secondary causes of headache that may be swiftly assessed for and hopefully discounted in a physician-patient encounter.

AGE

While headaches are a common occurrence throughout life, it is less common to develop recurring or chronic headache for the first time beyond the age of 35. Depending on the character, location and severity of the pain, it may be prudent in these cases to refer for neurological assessment or request imaging. All patients 50 years of age and older should be investigated for giant cell arteritis / temporal arteritis by requesting ESR and CRP.

BEHAVIOUR

Changes in behaviour or personality associated with headache must always be investigated thoroughly for a possible space-occupying lesion, in particular when these are persistent, occur pervasively across different settings, or associated with worsening fatigue or cognitive issues.

COITAL HEADACHE

Pain in the head and neck during sexual intercourse is an under-reported complaint which raises the spectre of subarachnoid haemorrhage. Although reportedly more common in men, clinical practice suggests no difference in incidence between genders. It may occur very suddenly or build up progressively. When patients describe multiple episodes at presentation, it is safe to ascribe this to a form of benign exertional headache and manage accordingly. Conversely, first episodes must be investigated urgently.

DRUGS

All medications may cause side-effects, and headache may sometimes be one of them. It is helpful to take a drug history to exclude headaches resulting from the introduction of medications. Common culprits are vasodilators like nitrates, oral contraceptive medication, cimetidine and asthma medication. If the patient describes taking regular painkillers for chronic headache, their symptoms may be aggravated by MOH (medication overuse headache, also called rebound headache). This is estimated to occur in up to 70% of patients with chronic migraine, making them more resistant to treatment. Ask about the number of days per week when painkillers are taken (MOH is likely if taken >2 days/week), frequency of purchase of painkillers (“Do you always get some paracetamol when you’re out shopping?”) and fluctuating severity of headache related to timing of medication.

EYES

Any patient with headache should have an eye exam, including fundoscopy. Papilloedema, field defects, pupillary asymmetry or diplopia may all be indicative of a space-occupying lesion. Drooping of an eyelid (ptosis) with ipsilateral small pupil (miosis) is indicative of damage to the sympathetic trunk (Horner’s syndrome) and requires immediate referral for investigation.

FEVER

Headache and pyrexia most commonly are caused by a unifying underlying systemic illness, such as influenza, glandular fever, the common cold or sinusitis. Patients with accompanying neck stiffness and/or confusion should be investigated immediately for meningitis or encephalitis, as should those known to have a history of cancer, immunosuppression, inflammatory or rheumatic disorders.

GONE TO GROUND

Headaches are rarely associated with loss of consciousness, and a collapsed patient with headache should lead to a careful history from the patient and any witnesses (enquire about prior illnesses, premonitory symptoms, appearance or movements while unconscious, and recovery) and a thorough neurological examination. Causes to consider include severe headache leading to vasovagal syncope, epileptic seizure or subarachnoid haemorrhage.

HIV

Headache in a patient known to have HIV or AIDS may be the result of a cerebral infection or abscess, CNS tumour, HIV-related systemic disease or toxicity caused by highly active antiretroviral medication. New or severe headaches in HIV carriers should always be carefully assessed.

INCREASING...

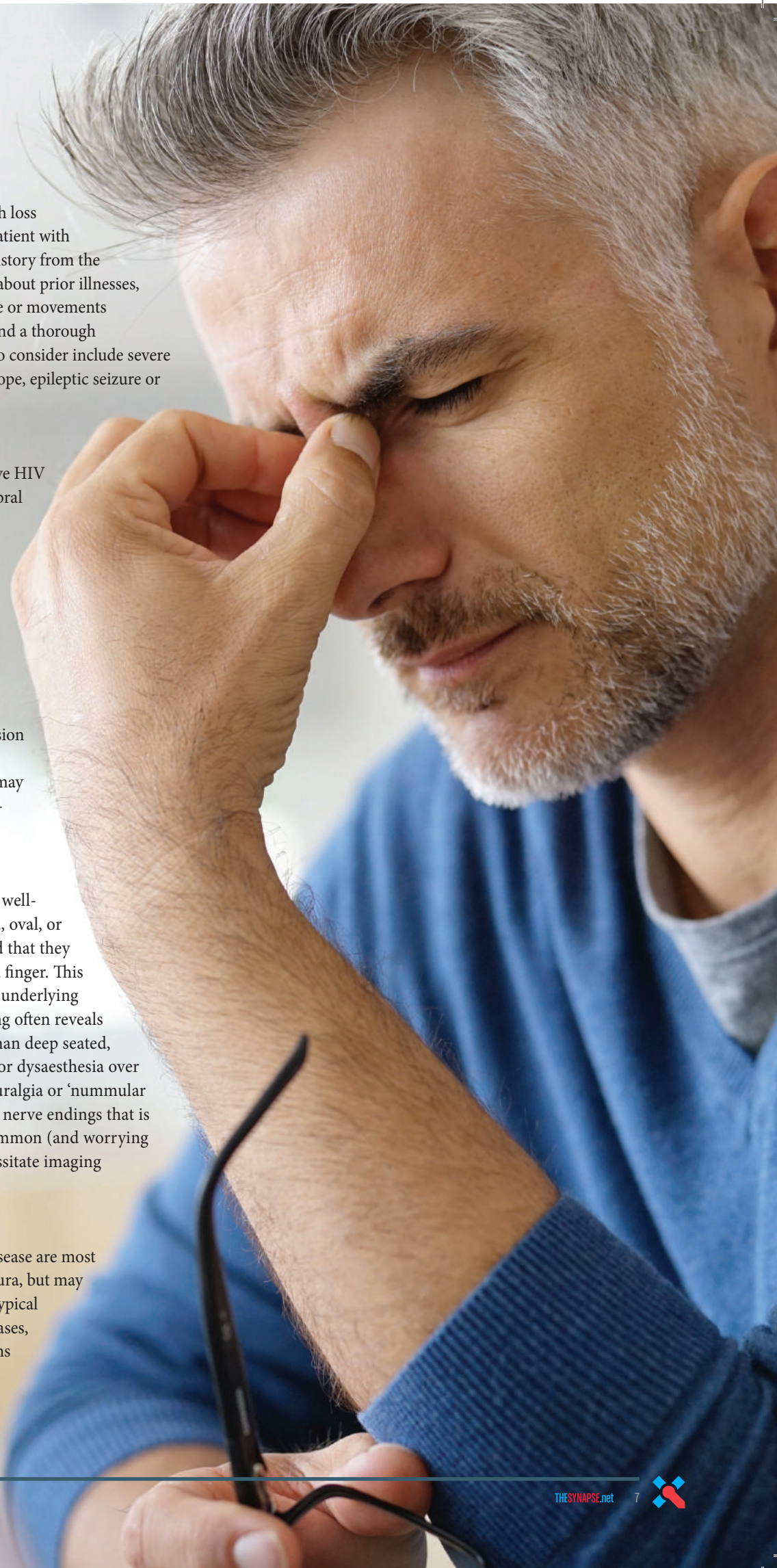
frequency and severity of headache may be due to an enlarging mass lesion or subdural haematoma (especially when eliciting a history of falls). It may also be an indication of medication-overuse headache.

'JUST HERE DOC'

Sometimes patients will describe a well-circumscribed pain within a round, oval, or elliptical-shaped region of the head that they can point to or trace around with a finger. This may raise concern about a directly underlying lesion. However further questioning often reveals that the pain is superficial rather than deep seated, and patients may report allodynia or dysaesthesia over the area. This is a form of scalp neuralgia or 'nummular headache' due to damaged sensory nerve endings that is benign, although sufficiently uncommon (and worrying for the patient) to sometimes necessitate imaging for reassurance.

LOCALISED...

neurologic signs or symptoms of disease are most often features of migraine-related aura, but may fail to be recognised as such if not typical of the patient's headache. In these cases, mass lesions, vascular malformations including aneurysms and stroke must be excluded as possible differential causes.





HEADACHE IS ALSO BY FAR THE MOST COMMONLY EXPERIENCED NEUROLOGICAL SYMPTOM, OCCURRING AS EITHER A PRIMARY DISORDER OR SECONDARY TO ANOTHER SYSTEMIC ILLNESS

MULTIPLE PERSONS WITH HEADACHE

It is helpful to ask quickly if other family members or friends residing at the same address are also suffering from headache, as this may suggest an environmental cause, in particular carbon monoxide poisoning.

NEOPLASM

A history of previous or current malignancy should always lead to evaluation for possible intracranial metastases, especially when associated with signs of raised intracranial pressure (such as vomiting or blurred vision), seizures, neurological signs on examination or cognitive changes. Cancers of the lung, colon, breast and kidney, as well as melanoma, all have a proclivity for spreading to the brain and must be excluded via brain imaging.

OBESITY

Constant or very frequent generalised headache in young overweight women that worsens on bending forward should raise the suspicion of idiopathic intracranial hypertension, especially when patients report episodes of visual obscuration or blurring. While fundoscopy is necessary, papilloedema is not invariably present in early stages and investigations or referral to a neurology service must be considered.

POSITION

Headaches that **substantially increase** in intensity when changing from erect to supine position suggest raised intracranial pressure secondary to mass lesions or hydrocephalus. Very occasionally, patients with spontaneous intracranial hypotension report headache that resolves on lying down.

PREGNANCY...

may be complicated by headache during any trimester. Prior migraineurs may experience either improvement or aggravation of their usual headache pattern. Lack of sleep and stress later in pregnancy due to discomfort, restless legs or carpal tunnel syndrome are frequent causes of headache. Headaches in the third trimester may also result from pre-eclampsia (so remember to check for hypertension, low platelet count and proteinuria) and uncommonly from cerebral venous sinus thrombosis.

RASHES OR NUCHAL RIGIDITY

Headache, a non-blanching rash and nuchal rigidity form the classical presenting triad for bacterial meningitis, and patients should be immediately started on broad spectrum intravenous antibiotics as per local protocols while awaiting investigations with blood cultures, CSF analysis and imaging. When occurring in the returning traveller, other infections to consider include Dengue fever, Zika virus, enteric fever and acute HIV infection.



SUDDEN ONSET

A headache which is instantaneous or peaks within seconds should be assumed to be due to a vascular event until proved otherwise, such as subarachnoid haemorrhage, pituitary apoplexy, haemorrhage into a mass lesion or vascular malformation. Patients should be referred immediately for brain imaging which if normal should be followed by lumbar puncture for CSF analysis for xanthochromia.

TRAVEL

Many illnesses with headache in returned travelers are caused by mundane, self-limiting infections but unusual infections ought to be considered too, especially contagious diseases of public health interest that may need notification and isolation of the patient. The geographic area of travel helps narrow the list of possible infections based on local prevalence. Ask about vaccinations before travel, details about activities while abroad such as freshwater exposure (which may lead to schistosomiasis in endemic areas), animal bites, sexual activity or tattoos, and accommodations in areas with malaria (enquire about the use of bed nets, window screens and air conditioning) during travel.

UNREMITTING HEADACHE...

that never goes away, is featureless and present even when a patient wakes up at night generally necessitates investigation to exclude structural intracranial causes before attempting treatment.

VALSALVA

Intense head pain (classically in the occipital region but may occur anywhere in the head) that is triggered by straining, coughing, sneezing, laughing or physical exertion (such as when lifting weights at the gym) are usually benign, but may occur due to a Chiari malformation or less commonly subarachnoid haemorrhage. A complete neurological examination should be performed to look for loss of retinal venous pulsations (raised intracranial pressure), loss of pain and temperature sensation of the upper torso and arms, and weakness in the hands and arms (due to an associated syrinx in the spinal cord). Ask about a history of associated symptoms such as neck pain, gait imbalance, loss of fine motor skills in the hands, sensory disturbances in the hands, dizziness, visual disturbances, difficulty in swallowing or changes in speech.

WORST EVER HEADACHE

Despite what is suggested in many medical textbooks, asking a patient the leading question whether they are suffering their “worst ever headache” is not particularly helpful in formulating a differential diagnosis. However, the tenet that a very severe or worst ever headache of dramatic onset should automatically lead to the suspicion of a subarachnoid haemorrhage still generally holds in practice.

X, Y, ZZZZ

There is a strong association between sleep quality and headache. Regular, adequate sleep leads to fewer headaches, while both sleep loss and oversleeping are common headache triggers. Repeatedly waking from sleep with headache is a potential sign of obstructive sleep apnoea, especially if the patient is a habitual snorer. Hypnic headache is a rare, primary headache disorder where headache only develops during sleep and wakes the sufferer 1-4 hours after falling asleep, usually at the same time. ❄️

FURTHER READING

1. Becker WJ, Findlay T, Moga C, et al. Guideline for primary care management of headache in adults. *Can Fam Physician* 2015;61(8):670-9.
2. International Headache Society. The International Classification of Headache Disorders, 3rd edition. *Cephalalgia* 2018, 38(1):1-211.
3. NICE 2015. Headaches in over 12s: diagnosis and management. Available from: www.nice.org.uk/guidance/CG150.

