APPROACH TO THE UNDIFFERENTIATED HEADACHE

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Overview

Headache is one of the most common medical complaints affecting 12-16% of people in North America.[3] The differential diagnosis may be divided into primary and secondary causes. A full history and physical should be completed to rule out secondary causes, which are often serious and life-threatening; only once these are excluded should you think about a diagnosis of a primary headache disorder.

Diagnostic Considerations

History	Physical Examination	Red Flags[1,4]
• Age at onset • Prodrome/Aura • Frequency, intensity, duration of headache • # Headache days/month • Quality/location of pain • Associated symptoms • Family history of migraines • Effect of activity/food/alcohol • Recent trauma • Recent change in vision • State of general health • Effect upon work or lifestyle • Change in environment • Change in birth control • Association with menstrual cycle	• Vitals • Cardiac exam • Extracranial exam (sinuses, scalp arteries, cervical and paraspinal muscles, TMJ) • Cervical spine ROM (neck flexion) and pain • Screening neurological exam (bruits over orbits/neck/cranium, fundoscopy, visual fields, pupillary reactions, CN V, corneal reflexes, motor of face and limbs, muscle reflexes, plantar responses, Romberg, gait)	• Onset >50 years old • New or different • Worst ever or maximum severity at onset • Onset with exertion • Subacute and/or progressive over months • Seizures • Unexplained focal neurological signs (meningismus, mental status change, impaired memory, papilloedema, visual field or cranial nerve defects, pronator drift, weakness, sensory deficit, reflex asymmetry, extensor plantar response, gait disturbance) • Concomitant infection • History of head trauma • Occipito-nuchal radiation of headache • History of HIV or other immunosuppressed state

Investigations

Neuroimaging:[5,6]

CT or MRI more likely to reveal abnormalities if the following is present:

- Red Flags
- Atypical headache that does not fulfill strict definition of primary headache disorder
- Rapidly increasing headache frequency
- Dizziness or lack of coordination
- Subjective paresthesias
- Headache causing awakening from sleep
- Headache worsening with Valsalva maneuver
- Unexplained abnormal neurological examination

LP if suspicious of meningitis, encephalitis, SAH or high or low-pressure headache syndromes:

- First or worst headache (if suspect SAH and CT negative, proceed with LP)
- Severe recurrent and rapid onset headache
- Progressive headache without signs of raised ICP
- Atypical chronic and intractable headache
- Associated with fever

ESR if suspect temporal arteritis/GCA

EEG has no role in the routine evaluation of headache[7]

Differential Diagnosis of Common Primary Headache Disorders

(see Migraine/Tension Headache one-pager)

Migraine **Tension** **Cluster**

Other primary headache disorders:[1,2]

Chronic migraine

- Tension type and/or migraine on ≥15d/mos for ≥3 mos
- ≥5 previous attacks of migraine without aura, fulfills criteria for migraine without aura and/or responds to treatment with triptan or ergot on ≥8d/mo
- No medication overuse or other cause

Chronic tension

- Fulfills criteria for tension-type headache but frequency >15 attacks/mo

Medication overuse

- Headache ≥15 d/mo and develops or worsens with medication overuse
- Regular overuse for >3mos of ≥1 of the following treatments:

1) Ergotamine, triptan, opioid or combination on ≥10d/mo for >3mos
2) Simple analgesia or combination of ergotamine, triptan, opioids on ≥15d/mo for >3mos without overuse of any single class alone

Differential Diagnosis of Secondary Headache Disorders[1-3]

Most worrisome etiologies: hypertensive emergency, subarachnoid hemorrhage (SAH), intracerebral hemorrhage, acute ischemic stroke, subdural hematoma, epidural hematoma, ruptured intracranial aneurysm, craniocervical arterial dissection, infection (meningitis, encephalitis), tumour, giant cell arteritis (GCA), angle closure glaucoma, carbon monoxide poisoning, metabolic disorder, CSF leak (usually post-LP), cerebral venous thrombosis (uncommon)

CLINICAL CLUES:

Subacute onset, progressive over weeks to months

- Intracranial lesion: tumour, subdural hematoma, hydrocephalus
  - Investigations: MRI +/- gadolinium more sensitive than CT, but CT may be useful as quick initial screen

New, sudden onset, different or "worst headache of my life"

- SAH, venous sinus thrombosis, bacterial meningitis, spontaneous cerebral spinal fluid leak, carotid dissection, pituitary apoplexy (rare), hypertensive encephalopathy (rare)
  - Investigations: CT without contrast; if high suspicion of SAH, include LP, MRI with and without gadolinium, and neurology consult (+/- MRA and MRV)

Exertional/Valsalva

- Usually primary cough headache
- Intracranial abnormality, usually posterior fossa (e.g., Chiari malformation)
  - Investigations: MRI

New onset >50

- GCA or PMR (fever, scalp tenderness, jaw claudication, firm/nodular temporal arteries, decreased temporal pulses, visual changes), tumour (constitutional symptoms, abnormal neurological examination)
  - Investigations: ESR/CRP, CBC, liver enzymes, serum albumin, temporal artery biopsy, MRI head

Seizures

- Space-occupying lesion, infection, stroke, metabolic abnormalities, drug toxicity
  - Investigations: CBC, electrolytes, calcium, magnesium, serum glucose, renal function tests, liver function tests, toxicology screen, CT if acute head trauma, EEG, MRI
- Secondary to primary headache disorder (diagnosis of exclusion)

Fever

- Intracranial infection (meningitis, encephalitis, brain abscess, subdural empyema), systemic infection, other (SAH, CNS malignancy, rhinosinusitis, etc.)
  - Investigations: LP, CT, MRI, blood cultures

Management

Treatment of secondary causes of headache depends on the underlying cause. For symptomatic treatment of primary headaches, see Migraine/Tension Headache one-pager.

Bottom Line

Headaches are a common presenting complaint for family doctors. The differential is wide and contains both benign and life threatening causes. A complete history and physical examination that seeks to find red flags will identify conditions that require urgent evaluation and treatment. Please see Migraine/Tension Headache one-pager for further management of primary headache disorders.

References can be found online at http://www.dfcm.utoronto.ca/programs/postgraduateprograme/One_Pager_Project_References.htm