NONTRAUMATIC HEADACHE IN AN ADULT

IMPORTANT HISTORICAL FINDINGS
- Standard pain descriptors (quality, radiation, severity, timing, provoking/palliating factors)
- Associated symptoms (nausea/vomiting, neck pain, vision changes, seizure activity, neurologic changes)
- Exposure to toxins (i.e. carbon monoxide)
- Lumbar puncture within last 48 hours

IDENTIFY SPECIAL POPULATIONS
- Pregnant, recently post-partum
- Hypercoagulable
- Immunocompromised (HIV/AIDS, cancer)
- History of neurosurgery, presence of ventriculoperitoneal shunt

IDENTIFY HIGH RISK FEATURES OF DANGEROUS SECONDARY HEADACHES
- Sudden onset, thunderclap or maximal intensity at onset
- New onset neurologic deficit or cognitive impairment
- New quality or character to headache in patient with chronic headaches
- Triggered by cough, sneeze or valsalva
- Orthostatic headache
- Symptoms of temporal arteritis or narrow angle glaucoma

CRITICAL PHYSICAL EXAM FINDINGS
- Neurologic: altered mental status, cranial nerve deficits, motor/sensory deficits, cerebellar dysfunction
- HEENT: nodularity/tenderness over temples, poor dentition, meningismus
- Eyes:
  - Funduscopic exam: papilledema
  - Tonometry to assess intraocular pressure if eye pain present
  - Pupillary reactivity/extraocular movements

ACEP Clinical Policy Recommendations

Level B:
1. Patients presenting to the ED with headache and new abnormal findings in a neurologic examination (e.g., focal deficit, altered mental status, altered cognitive function) should undergo emergent noncontrast head computed tomography (CT).
2. Patients presenting with new sudden-onset severe headache should undergo an emergent head CT.
3. Human immunodeficiency virus (HIV)-positive patients with a new type of headache should be considered for an emergent neuroimaging study.
4. In patients presenting to the ED with sudden-onset, severe headache and a negative noncontrast head CT scan result, lumbar puncture should be performed to rule out subarachnoid hemorrhage.
5. Patients with a sudden-onset, severe headache who have negative findings on a head CT, normal opening pressure, and negative findings in cerebrospinal fluid (CSF) analysis do not need emergent angiography and can be discharged from the ED with follow-up recommended.

Level C:
1. Pain response to therapy should not be used as the sole diagnostic indicator of the underlying etiology of an acute headache.
2. Adult patients with headache and exhibiting signs of increased intracranial pressure (e.g., papilledema, absent venous pulsations on funduscopic examination, altered mental status, focal neurologic deficits, signs of meningeal irritation) should undergo a neuroimaging study before having a lumbar puncture.
3. In the absence of clinical findings suggestive of increased intracranial pressure, a lumbar puncture can be performed without obtaining a neuroimaging study. (Note: A lumbar puncture does not assess for all causes of a sudden severe headache).
**IMPORTANT SECONDARY HEADACHE CAUSES AND RED FLAG SYMPTOMS**

with Diagnostic and Treatment/Consultation Tips

<table>
<thead>
<tr>
<th>Condition</th>
<th>Symptoms Description</th>
<th>Dx/Tx:</th>
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</thead>
<tbody>
<tr>
<td><strong>SUBARACHNOID HEMORRHAGE</strong></td>
<td>Thunderclap (sudden, severe onset) headache, focal neurologic deficits</td>
<td>refer to primary guideline</td>
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<tr>
<td><strong>MENINGITIS</strong></td>
<td>Fever, neck stiffness, immunosuppressed, head/neck infection or instrumentation</td>
<td>CT head, Lumbar puncture, Early antibiotics, Corticosteroids</td>
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<tr>
<td><strong>TEMPORAL ARTERITIS</strong></td>
<td>Jaw claudication, vision changes, polynmyalgia rheumatica</td>
<td>ESR/CRP, Systemic corticosteroids, refer to temporal artery biopsy</td>
</tr>
<tr>
<td><strong>CARBON MONOXIDE POISONING</strong></td>
<td>Waxing and waning headache, cluster of cases</td>
<td>arterial co-oximetry, Supplemental oxygen on non-rebreather, consider hyperbaric oxygen therapy</td>
</tr>
<tr>
<td><strong>ACUTE GLAUCOMA</strong></td>
<td>Unilateral vision change, eye pain, and redness, nausea</td>
<td>Measure intraocular pressure, topical ocular therapy, systemic osmotic agents, ophthalmology consult</td>
</tr>
<tr>
<td><strong>CERVICAL ARTERY DISSECTION</strong></td>
<td>Neck pain, trauma, stroke symptoms, Horner syndrome</td>
<td>CT angiography head/neck, Anticoagulation, neurology/neurosurgery consult</td>
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<tr>
<td><strong>VENOUS SINUS THROMBOSIS</strong></td>
<td>Pregnant/postpartum, hypercoagulable, oral contraceptive use</td>
<td>MR head, venography, Anticoagulation, neurosurgery consult</td>
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<tr>
<td><strong>INTRACEREBRAL TUMOR</strong></td>
<td>Chronic progressive headaches, papilledema, history of malignancy, worse in the morning, new-onset &gt;5% y</td>
<td>CT head, ICP lowering if needed (elevate HOB, restrict IVF, mannitol, hyperventilate), consult neurosurgery</td>
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<tr>
<td><strong>CEREBELLAR INFARCTION</strong></td>
<td>Ataxia, dysmetria, vertigo, vomiting</td>
<td>CT head (rule out edema and mass effect), Neurology/neurosurgery consult</td>
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<tr>
<td><strong>IDIOPATHIC INTRACRANIAL HYPERTENSION</strong></td>
<td>Papilledema, worse when lying flat, obesity</td>
<td>Lumbar puncture, CSF drainage, neurology referral</td>
</tr>
<tr>
<td><strong>PITUITARY APOPLEXY</strong></td>
<td>Hypotension, hypoglycemia, hyponatremia, visual field deficit, history of pituitary tumor</td>
<td>CT head, MR brain, Neurosurgery consult</td>
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<tr>
<td><strong>PRE-ECLAMPSIA</strong></td>
<td>Hypertension, proteinuria, non-dependent edema, pregnancy or up to 4 weeks post-partum</td>
<td>CBC, Chemistry panel with LFT's (CMP), Coagulation studies (PT/PTT)</td>
</tr>
<tr>
<td><strong>HYPERTENSIVE ENCEPHALOPATHY</strong></td>
<td>Altered mental status, hypertensive, neurologic signs in a nonanatomic distribution</td>
<td>CT head, EEG, BMP, IV Mannitol, IV Nitroglycerin drip</td>
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<tr>
<td><strong>SUBDURAL HEMATOMA</strong></td>
<td>Head trauma, coagulopathic, elderly</td>
<td>CT head, Neurosurgery consult</td>
</tr>
<tr>
<td><strong>INTRACEREBRAL HEMORRHAGE</strong></td>
<td>Hypertension, cerebral aneurysm, arteriovenous malformation</td>
<td>CT head, Neurology, neurosurgery consult</td>
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<tr>
<td><strong>SPONTANEOUS INTRACRANIAL HYPOTENSION</strong></td>
<td>Thunderclap headache, HA/dizziness with standing, improves when lying flat, connective tissue disorder</td>
<td>CT head, MR brain, Lumbar puncture, Neurology consult, bed rest, oral hydration, caffeine, epidural blood patch</td>
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*Diagnostic/Therapeutic strategies only provide tips for appropriate management and do not provide comprehensive care plans. If you have questions about management seek neurology or neurosurgical consultation for assistance.


Patient presents with headache

Secondary cause? Yes/Unsure

Go to “Additional Workup” for secondary headache considerations

No

Primary Headache

Mild pain

Ibuprofen 400-600 mg PO (Class I)

OR

Aspirin 975 mg PO (Class I)

OR

Aspirin/acetaminophen/caffeine PO (Class I)

CONSIDER

Sumatriptan 100 mg PO or 6 mg SQ (Class I)

If continue pain go to “severe pain” pathway

Severe pain or nausea/vomiting*

Oxygen: 6-10 L facemask (Class I)

AND

Sumatriptan 6 mg SQ (Class I)

* Parallel strategies with evidence supporting either as acceptable.

- Ketorolac 30 mg IV (Class II)

- Diphenydramine 25 mg IV (Class indeterminate)

AND

- Prochlorperazine 10 mg IV (Class II)

- Metoclopramide 20 mg IV (Class II)

- Haloperidol 5 mg IV (Class indeterminate)

OR

- Droperidol 0.625-1.25 mg (maximum cumulative dose 2.5 mg)

CONSIDER

- Dexamethasone 10 mg IV (Class I)

AND

- IV fluid, if vomiting

- Add neuroleptic (Class II) AND

- Opioid (Class indeterminate)

Consider Expert consultation

Medication Contraindications:

Dihydroergotamine (DHE)

Uncontrolled hypertension, coronary artery disease, peripheral vascular disease, basilar or hemiplegic migraine, pregnancy (Category X)

Sumatriptan

Similar to DHE (above)

Pregnancy (Category C).

Cannot be used within 24 hours of ergot usage

Ketorolac

Avoid in elderly and with renal insufficiency
