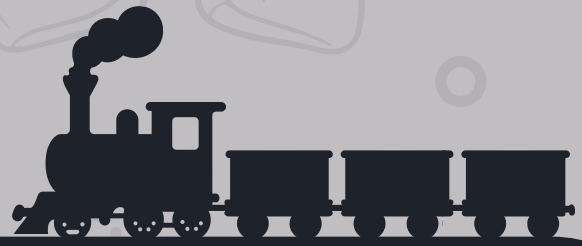




**HISTORY
TAKING
SERIES**

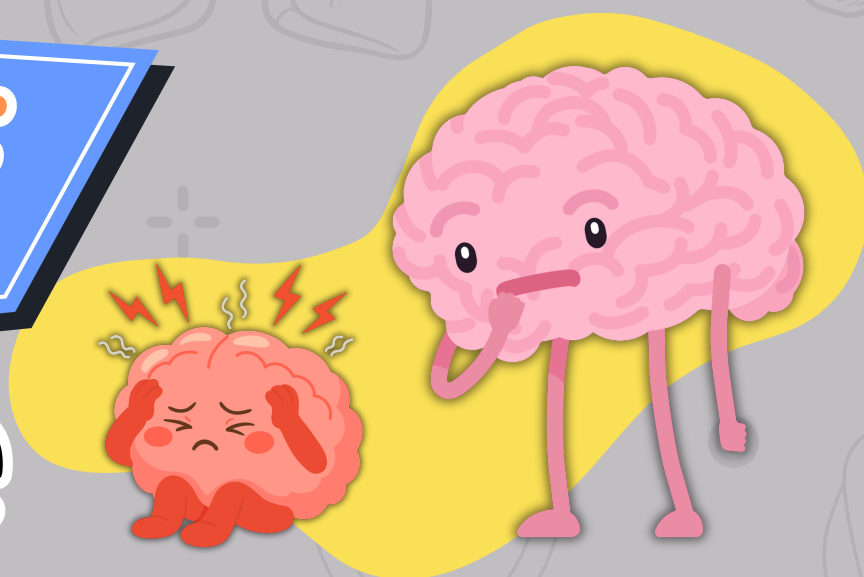


APPROACH TO HEADACHE



**MUM
IM'S**

Causes of Headache



Primary Headache

Secondary Headache

Caused by another underlying condition?

No

Yes

Are they life-threatening?

No (but potentially disabling)

Potentially

New or chronic

This distinction is not perfect

Usually chronic

Usually new-onset

Examples of Primary Headache

Migraine

**Tension-Type
Headache (TTH)**

**Trigeminal autonomic
cephalgia (TAC)**

- Cluster headache
- Paroxysmal hemicrania
- Hemicrania continua

**Other primary
headaches**

- Benign cough headache
- Benign exertional headache
- Postcoital headache
- Primary stabbing headache

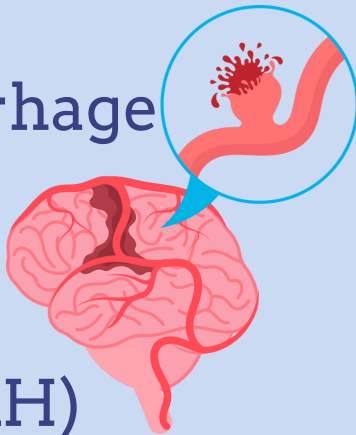
Take Note!

- **Migraine and TTH** are the most common primary headaches.
- **Cluster headache** is the most common type of TAC.

Examples of Secondary Headache

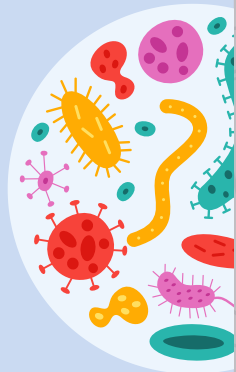
Bleeding

- Epidural hemorrhage
- Subdural hemorrhage
- Subarachnoid hemorrhage (SAH)
- Intracerebral hemorrhage



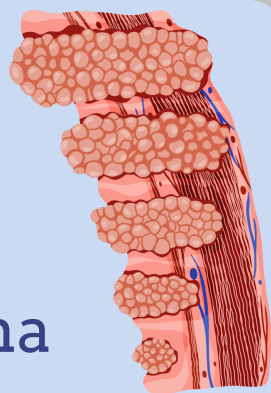
Infectious

- Meningitis
- Encephalitis
- URTI (e.g. influenza)
- Sinusitis



Space-occupying lesion

- Brain tumors
- Subdural hematoma



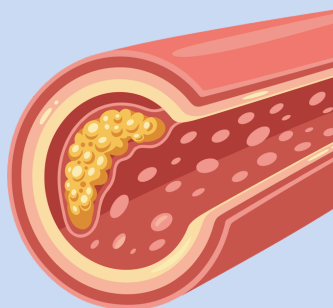
ICP-related

- Increased or decreased intracranial pressure (e.g. hydrocephalus)



Vascular

- Cerebral venous thrombosis
- Stroke, TIA
- Aneurysms
- Carotid artery dissection
- Vertebral artery dissection
- Malignant hypertension
- Temporal arteritis



Neurological

- Trigeminal neuralgia
- Postherpetic neuralgia
- Postictal headache

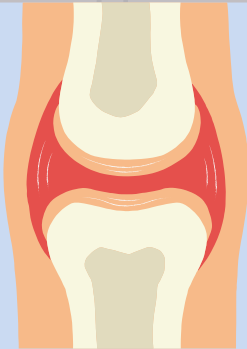


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Examples of Secondary Headache

Extracranial

- Glaucoma
- Refractive errors
- Cervical degenerative joint disease
- Temporomandibular joint syndrome



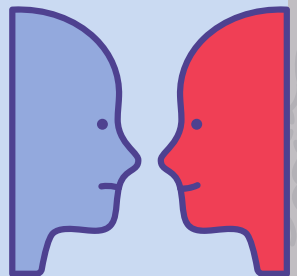
Drug/toxin-related

- Alcohol use or alcohol withdrawal
- Caffeine withdrawal
- Opioid withdrawal
- Food additives (e.g. nitrates)
- Sympathomimetics (e.g. nicotine)
- Carbon monoxide poisoning



Psychiatric

- Somatization disorder
- Psychotic disorder



Metabolic

- Hypoxia and/or hypercapnia
- Hypoglycemia
- Hypothyroidism



Take Note!

- **Medication-overuse headache (MOH)** is the most common secondary headache disorder.

Key Features



of Primary Headache

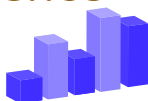
	Migraine headache	Tension headache	Cluster headache
Attack duration 	4 -72 hours	30 minutes - 7 days	15 minutes - 3 hours
Frequency 	Occasionally to several times a month	- Occasionally to daily - Usually at the end of the day	1-3 episodes every 24 hours - Cyclical pattern - Repeats for weeks, then disappears for months/ years
Location	60%: Unilateral	Holicephalic or bifrontal	Unilateral periorbital and/or temporal region
 Character of pain	Pulsating, boring/hammering	Dull, pressing, tightening, band-like	Sudden, burning, piercing (wakes patients up from sleep)
Intensity	Moderate to severe	Mild to moderate	Severe

Continue next page>>>

Key Features



of Primary Headache

	Migraine headache	Tension headache	Cluster headache
 Associated with	• Nausea/vomiting • Hyperacusis • Photophobia • Phonophobia • Preceding aura • Prodrome ◦ Yawning ◦ Difficulty writing or reading ◦ Sudden hunger/lack of appetite ◦ Mood changes	• Either phonophobia or photophobia • Tightness in the posterior neck muscles • Pericranial tenderness	• Ipsilateral autonomic symptoms ◦ Conjunctival injection ◦ Lacrimation ◦ Rhinorrhea ◦ Nasal congestion • Partial Horner syndrome ◦ Ptosis and miosis but no anhidrosis
Prevalence 	• More common in females	• More common in females	• More common in men

Tips



Mnemonics for typical features of migraine headache

P - Pulsatile
O - One-day duration
U - Unilateral
N - Nausea
D - Disabling intensity

Red Flags

SNNNOOP10 !!

Red Flags	May indicate
S ystemic symptoms Fever, myalgia, malaise, weight loss	- Intracranial infections - Pheochromocytoma - SAH
N eoplasm in history	- Neoplasms of the brain - Metastasis
N eurological deficits/dysfunction Altered mental status, seizures	- Ischemic stroke - Neoplasms - Intracranial hemorrhage
O nset of headache is sudden or abrupt	SAH
O lder age at onset (>50 years old)	- Giant-cell arteritis (GCA) - Vascular disorders - Neoplasms
P attern changes of headache/recent onsets	- Neoplasms - Vascular disorders
P ositional headache	Intracranial hypertension/hypotension
P recipitated by sneezing, coughing or exercise	- Neoplasms - Posterior fossa malformations - Chiari malformation

Continue next page>>>

Red Flags

SNNNOOP10 !!

Red Flags 	May indicate
P apilledema and other signs of increased ICP	• Intracranial hemorrhage • Neoplasm • Brain abscess
P rogressive headache and atypical features	• Neoplasms
P regnancy or postpartum period	• Preeclampsia, eclampsia • Pituitary apoplexy • Cerebral sinus thrombosis
P ain of the eye with autonomic features and visual deficits	• Conditions of posterior fossa, pituitary region or cavernous sinus • GCA • AACG
P osttraumatic onset	• Subdural hematoma
P athology of the immune system (immunocompromised)	• Meningoencephalitis • Cerebral abscess • Toxoplasmosis • Cerebral lymphoma
P ainkiller overuse or new drug at onset of headache	• MOH

History Taking

1. History of presenting illness (WWQQAA)

2. Past medical history

- Malignancy
- Infections
- Hypertension
- Past and current headaches and the treatments given
- Hypothyroidism
- Seizures

3. Family history

- Anyone else suffers from recurring headaches

4. Drug history

- Anticoagulants
- Allergies
- Analgesics
- Oral contraceptives (OCPs)

5. Menstrual history

6. Social history

- Caffeine intake
- Sleep
- Alcohol consumption
- Smoking
- Travel
- Stress



Triggers of Migraine

Remember:
CHOCOLATE



Cholocate
Hangover
Orgasm
Caffeine, **C**heese
OCPs
Menstruation
Lie in (Poor sleep)
Alcohol (Red wine)
Travel
Emotional stress

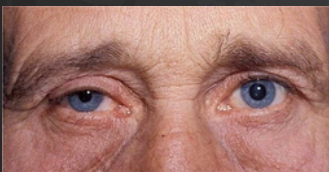
Examination

Vital signs

- Heart rate
- Blood pressure
- Presence of fever

Face

- Inspect
 - Trauma
 - Facial symmetry
 - Horner syndrome
 - Vesicular rash (Herpes zoster)
- Palpation
 - Temporal artery
 - Trigeminal nerve
 - Sinuses
 - Temporomandibular joint



Horner syndrome



Vesicular rash (Herpes zoster)

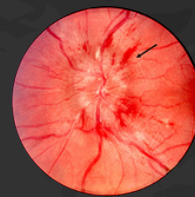
Hand (Skin)

- Skin of drug use (e.g. injection sites)
- Diffuse purpuric rash → Meningococcal infection



Eyes

- Ocular movements
- Fundoscopy for papilledema



Neck

- Palpation
 - Pericranial and neck muscles
- Movement
 - Cervical spine
 - Meningeal signs
- Auscultation
 - Bruits

Heart

- Auscultation

Abdomen

- Signs of pregnancy

Neurological

- Central nervous system
- Peripheral nervous system
- Cerebellar

Investigations

Imaging

- Consider when there is **SNNOOP10** or abnormal physical examination findings
- Initial: Head CT without contrast
- CT vs MRI
 - CT: Faster, more readily available, used in emergency
 - MRI: For detailed evaluation of soft tissue and brain parenchymal structures

Laboratory Studies

1. Full blood count
2. Glucose
3. Lipid profile
4. Renal profile
5. Liver function test
6. Thyroid-stimulating hormone (TSH)

Additional investigations to consider

Investigation	Suspected diagnosis
Lumbar puncture (LP) with CSF analysis	• Meningitis or encephalitis • High SAH suspicion despite negative CT scan • Idiopathic Intracranial Hypertension (IIH)
CT Angiography	• Brain aneurysms
Tonometry	• Increased intraocular pressure
EEG	• Seizures • Complex migraine
Temporal artery biopsy	• GCA

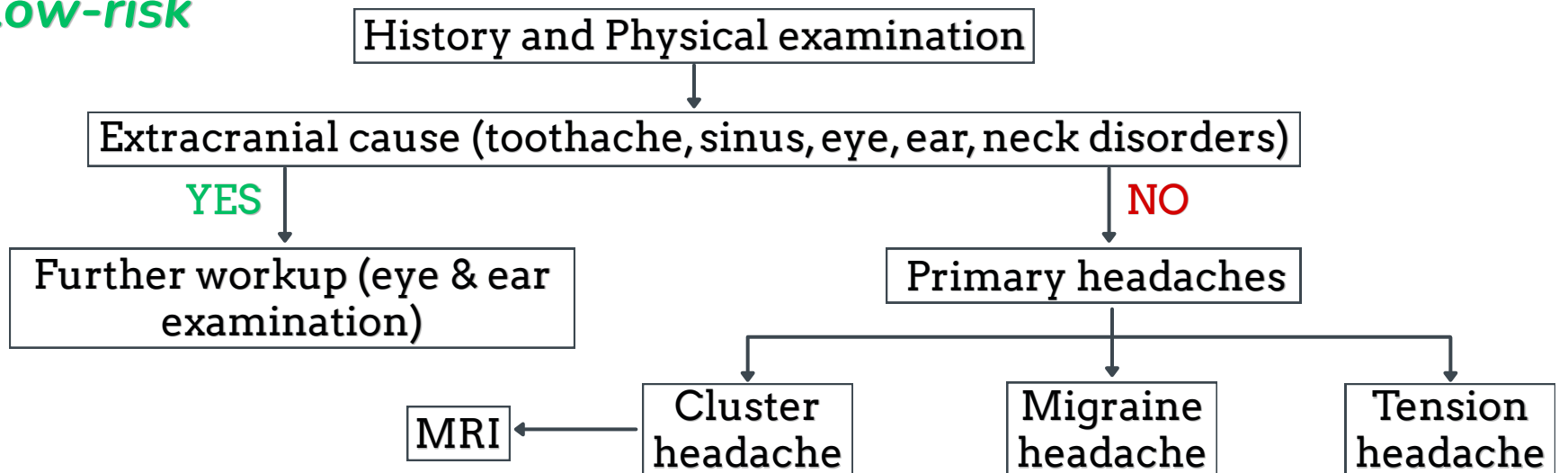
Summary: Diagnostic Approach

Any red flag or life-threatening cause?

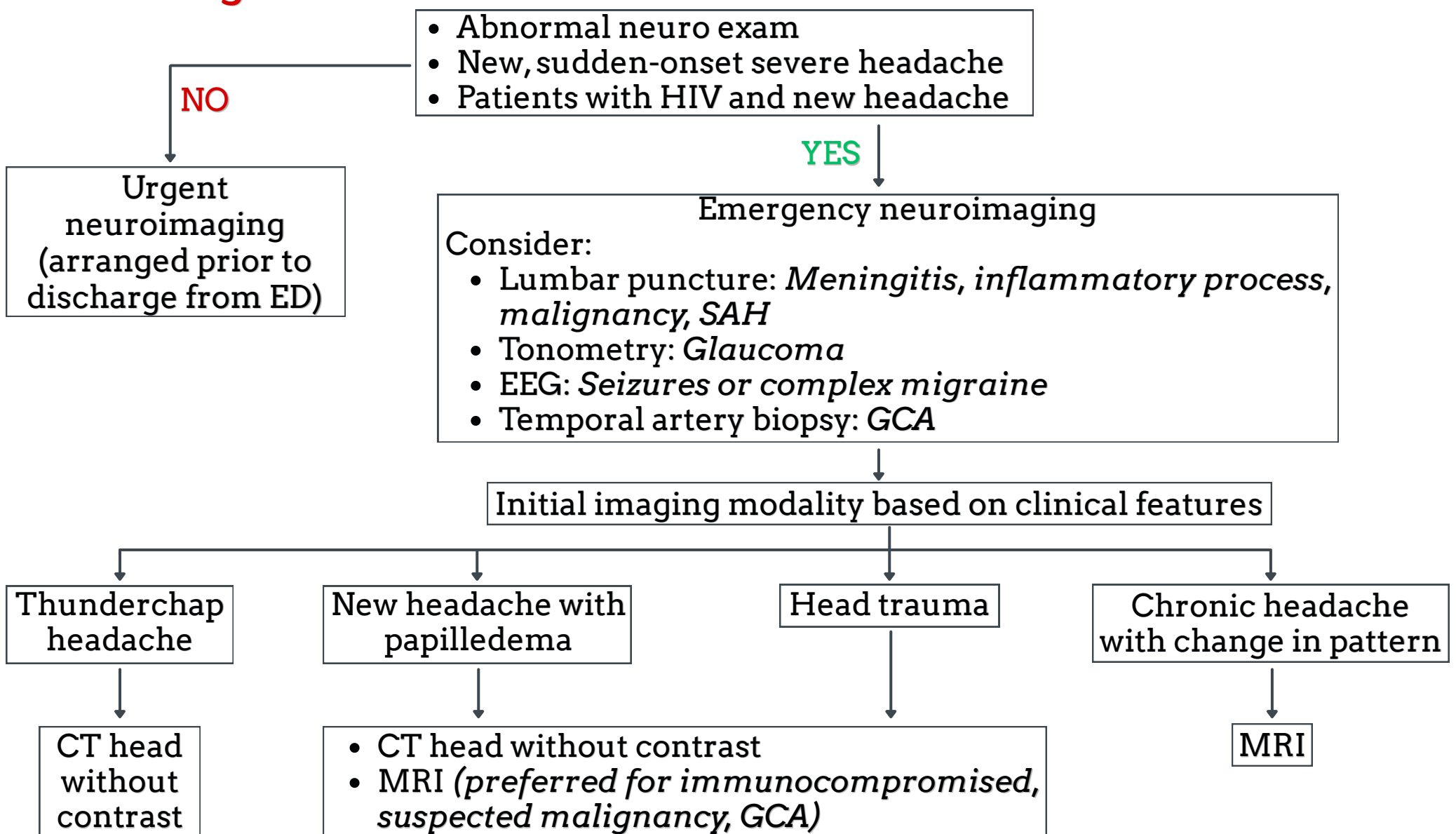


- Red flag → **SNNOOP10**
- Life-threatening causes
 - Stroke, carotid dissection
 - Cerebral venous thrombosis
 - Hemorrhage
 - Hypertensive encephalopathy
 - Space-occupying brain lesion
 - CNS infection (e.g. meningitis)
 - Temporal arteritis
 - AACG
 - Benign intracranial hypertension

If NO = Low-risk



If YES = High-risk



References

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5. Kanagalingam S, Miller NR. Horner syndrome: clinical perspectives. Eye and brain. 2015 Apr 10:35-46.
6. Ting DS, Ghosh N, Ghosh S. Herpes zoster ophthalmicus. bmj. 2019 Jan 17;364.
7. Rambabu L, Edmiston T, Smith BG, Kohler K, Kolas AG, Bethlehem RA, Keane PA, Marcus HJ, Consortium E, Hutchinson PJ, Bashford T. Detecting papilloedema as a marker of raised intracranial pressure using artificial intelligence: A systematic review. PLOS Digital Health. 2025 Sep 2;4(9):e0000783.
8. Riordan FA, Thomson AP, Sills JA, Hart CA. Lesson of the Week: Who spots the spots? Diagnosis and treatment of early meningococcal disease in children. Bmj. 1996 Nov 16;313(7067):1255-6.

Quiz time!

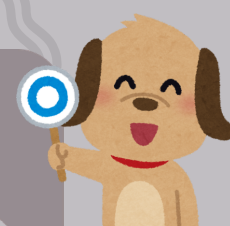
Question 1



A 15-year-old boy presents to the pediatrician with a two-day history of fever and headache. The patient is unable to touch his chin to his chest when asked to do so. He also asks that the lights in the room be turned down. In addition to performing a lumbar puncture to obtain cerebrospinal fluid (CSF), the physician begins empiric treatment. The CSF is sent for analysis and culture. The patient's condition improves over the next week. In the meantime, bacterial and fungal culture results are negative. Which of the following is the most likely result of the CSF analysis?

Choice	Pressure	Lymphocyte count	Protein	Sugar
A	normal	normal	normal	normal
B	normal	normal	normal	↑
C	normal or ↑	↑	normal	normal
D	↑	↑	↑	↓
E	↑	↓	↑	↓

Find the answer in the comment section!



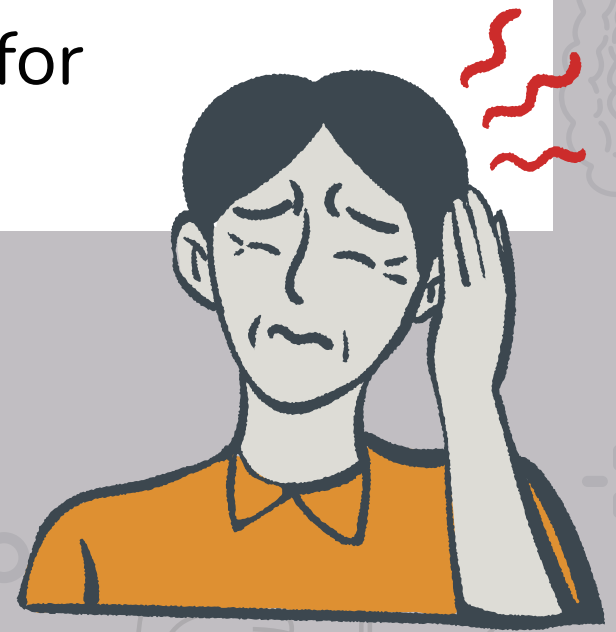
Quiz time!

Question 2

A 32-year-old man comes to the physician because of headaches that occur at night without warning. They begin in his left eye and then generalize to the left side of his face. Alcohol can precipitate the attacks, which last for less than one hour. The patient rates the pain as a 10/10, and multiple over-the-counter analgesics have resulted in minimal benefit. He is given a prescription for sumatriptan to treat his symptoms and is prescribed verapamil for prophylaxis.

Which of the following is the most likely diagnosis?

- A. Cluster headache
- B. Medication-overuse headache
- C. Migraine headache
- D. Temporomandibular joint dysfunction syndrome
- E. Tension headache



Find the answer in the comment section!

