



MOD 31: APPROACH TO PATIENTS WITH HEADACHE

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Trans Group/s: 10B

OUTLINE

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I. HEADACHE

- Headache is among the **most common reasons** patients seek medical attention and is responsible on a global basis for more disability than any other neurologic problem.
- Worldwide, almost **3 billion people** have a headache disorder, roughly 40% of the world's population.
- Because headache is a **ubiquitous symptom** in the general population, it is common and often a **cardinal manifestation** of a myriad of diseases and maybe a disease unto itself.
- A disciplined and systematic diagnostic approach is required.
- A classification developed by the International Headache Society characterizes headache as: **primary or secondary**.

Primary	Secondary
Headache and its associated features are the disorder itself.	Caused by exogenous disorders .
Ex. Migraine, tension type headache	Ex. Systemic infections, brain tumors and infections, stroke, head injury

A. HEADACHE: ANATOMY & PHYSIOLOGY

- Pain is when the **peripheral nociceptors** are stimulated in response to tissue injury, visceral distension or other factors.
- In such situations, **pain perception** is a normal physiologic response mediated by a healthy nervous system.
- Pain can also result in **pain producing pathways** of the **peripheral or central nervous system** and damage are activated inappropriately.

Pain-Sensitive Cranial Structure	Pain-Insensitive
<ul style="list-style-type: none"> • Scalp • Meningeal arteries • Dural sinuses • Falx cerebri • Proximal segments of the large pia maters 	<ul style="list-style-type: none"> • Ventricular ependyma • Choroid plexus • Pial veins • Brain parenchyma

II. EVALUATION OF A PATIENT WITH ACUTE-NEW ONSET HEADACHE

1	History Taking <ul style="list-style-type: none"> • Identify the red flags.
2	Physical and Neurologic Examination

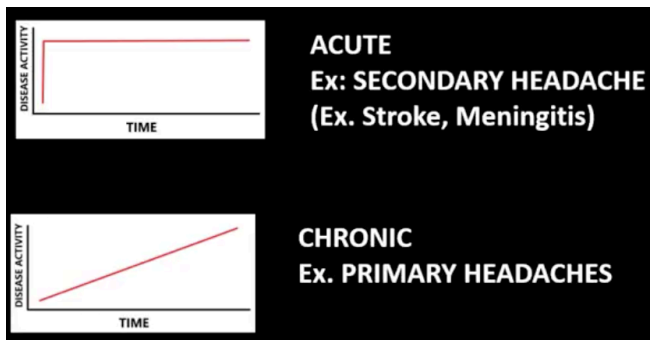
A. HISTORY TAKING

- For the history of present illness (HPI) use the:
 - Mnemonic Guide: **OLD CARTS**

O	Onset
L	Location
D	Duration
C	Character
A	Aggravating Factors
R	Relieving Factors
T	Temporal Profile
S	Symptoms associated

Onset

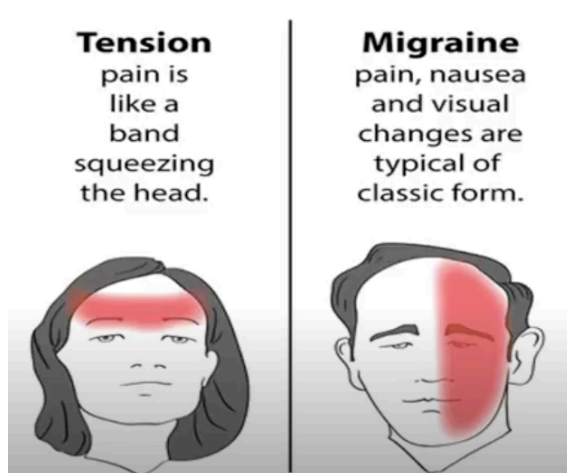
- Sudden or acute headache correlates to a secondary headache which may be due to a stroke or meningitis.
- Gradually progressive or chronic it is most probably a primary headache such as in migraines and/or tension headaches.



Graphical Representation of Acute and Chronic Headaches

Location

- Some secondary headaches will not have a specific location
- While, primary headaches are localized
 - Tension headache - squeezing band pain
 - Migraine - unilateral pain associated with nausea and visual changes



Localization of Primary Headaches or Chronic Type headaches

Duration

- "How long have the symptoms been occurring? In seconds, in minutes, days, weeks or months"
- "Are the symptoms persistent? or intermittent?"
- "How often does the headache occur?"
- It is important to note if there are changes from the baseline to the present.
- If chronic headaches, for 2-3 years or so, what prompted the consultation? Note any change in severity, frequency, or character.

Character

- Specific characteristics of primary headaches:
 - Migraine - **Throbbing**
 - Tension-type headache - dull and aching
- A critical character that should be remembered is the **thunderclap headache**, indicative of a subarachnoid hemorrhage.
 - A sudden onset of severe headache that would occur within a few seconds.

Aggravating factors

- What factors worsen the headache?
 - Environmental changes
 - Stressors
 - Work
 - Specific activities (eg. exercise, sex)
 - Food (eg. alcohol, coffee, cheese, chocolate)
 - Sleeping problem
 - Position (eg. lying supine)

Relieving factors

- Medications that the patient took or is taking
 - Specific medication (Generic name, dosage, frequency, and efficacy)
- Non-pharmacologic measures (eg. sleep, eating)

Temporal profile

- Is the headache worse at night?
- Does the headache come in the morning?
- Does the headache appear later in the day?

Symptoms associated

- Run through the list of review of systems (ROS)
- **General**
 - Decrease in sensorium
- **EENT**
 - Blurring of vision
 - Diplopia
 - Difficulty of swallowing
 - Tinnitus
 - Hearing problems
- **Musculoskeletal**
 - Weakness in the arms, legs, and face
- **Gastrointestinal**
 - Vomiting
 - Abdominal distension
- **Skin**
 - Enlarged palpable masses (if looking for associated cancers)

Professor's Notes: Apart from the HPI, also ask for

- Past medical history: cancer, diabetes, hypertension
- Personal and social history: smoking, alcohol intake
- Family history: migraine in the family (since migraine can be familial)

B. PHYSICAL AND NEUROLOGIC EXAMINATION

1. Physical Examination

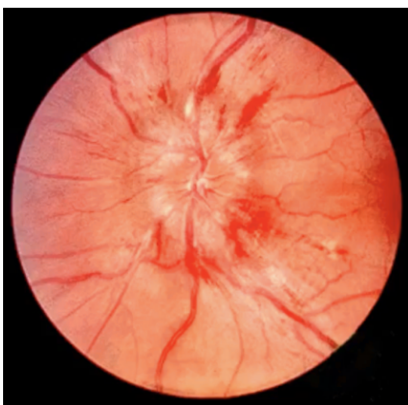
- The physical examination is as important as your neurologic exam, as there can be systemic illnesses that are associated with your headaches
- Systemic PE: Check for associated systemic illnesses
 - Enlarged lymph nodes: checking for an infection that spread to the brain.
 - Palpable masses: Cancer or brain metastasis.
 - Heart murmurs or sounds: Heart problem that is associated with the patient's headache, for example, the patient is having a stroke.



Inflamed, firm, tender temporal artery in Giant Cell Arteritis

2. Neurologic Examination

- Systemic neurologic examination aims to determine if it might be a **secondary cause of headache — presence of an abnormal/ focal neurologic finding.**
 - Requires proper and standard technique
 - Outline of the examination:
 - Mental status exam
 - Cranial nerves
 - Motor
 - Sensory
 - Reflexes
 - Cerebellar
 - Meningeals
 - Autonomics



Papilledema on funduscopy secondary to increased intracranial pressure (ICP)

III. WARNING SIGNALS TO RAISE SUSPICION OF SECONDARY CAUSES OF HEADACHE USING SNOOP4

- If a red flag sign is identified on a patient that is presenting with a headache, think of a systemic illness that needs immediate treatment.

Warning signals to Raise Suspicion of Secondary Causes of Headache Using the Mnemonic SNOOP			
	Warning Signal	Features	Differential Diagnoses
S	Systemic symptoms	Fever, night sweats, chills, weight loss, jaw claudications usually seen in patients with arthritis or fever.	Metastases, giant cell arteritis, infection (central nervous system, systemic)
	Secondary disease	Cancer, immunosuppression, chronic infection (human immunodeficiency virus [HIV], tuberculosis)	
N	Neurologic symptoms/signs	Confusion, focal neurologic symptoms/signs, diplopia, transient visual obscurations, pulsatile tinnitus	Mass lesion, structural lesion, stroke, hydrocephalus
O	Onset	Thunderclap	Reversible cerebral vasoconstriction syndrome (RCVS), stroke, subarachnoid hemorrhage, cerebral venous sinus thrombosis, arterial dissection, pituitary apoplexy, idiopathic intracranial hypertension
O	Older age (>50 years)	New onset, persistent/progressive headache	Mass lesion, giant cell arteritis
P1	Positional	Orthostatic, recumbent, or worsens with change in position	Low intracranial pressure (CSF leak, mass lesion, cerebral sinus thrombosis, sinus pathology)
P2	Prior history	New onset or change to persistent/daily headache	Mass lesion, infection (central nervous system/systemic)
P3	Pregnancy/Postpartum	New onset during pregnancy	Cerebral venous sinus thrombosis, preeclampsia, RCVS, pituitary lesion, stroke
P4	Precipitated by Valsalva	Cough, sneeze, bending, straining	Intracranial/posterior fossa mass, Chiari malformation

S: SYSTEMIC SYMPTOMS & SECONDARY DISEASE

1. SYSTEMIC SYMPTOMS

1	Fever	Seen in patients with infection, sometimes in patients with cancer.
2	Night Sweats	
3	Chills	
4	Weight loss	
5	Jaw claudication	Seen in patients with giant cell arteritis

- If these symptoms occur with headache, think of a SECONDARY CAUSE.

2. SECONDARY DISEASES

1	Cancer
2	immunosuppression
3	Chronic infection (HIV, tuberculosis)

- These diseases predispose patients to secondary headaches because of CNS infection or brain metastasis.

N: NEUROLOGIC SYMPTOMS

- Neurologic symptom or sign occurring with the headache think of a primary neurologic problem, such as:

1	Mass lesions
2	Structural lesions in the brain
3	Stroke
4	Hydrocephalus

- Patient will usually present with:

1	Confusion
2	Focal neurologic signs
3	Diplopia
4	Transient visual obscurations
5	Pulsatile tinnitus

O: ONSET

- Thunderclap Headache
 - Occurs like a thunder
 - Very sudden that comes from 0 to 10 in severity in a second.
 - DOES NOT OCCUR over a few minutes.
- **When you hear thunderclap headache, think of SUBARACHNOID HEMORRHAGE.**

O: OLDER AGE (>50 YEARS)

- If there's a new onset of headache at or after 50 years old and there's a persistent/progressive headache after this age, think of something like:
 - Mass lesions
 - Giant cell arteritis

P1: POSITIONAL

- This is an orthostatic, recumbent, or a headache that becomes worse with change in position.
- Usually seen in patients with past lesions in the brain or other cerebral venous sinus thrombosis or sinus headaches.

P2: PRIOR HISTORY

- If the patient had a previous headache but then when he/she came into the clinic, and the headache characters became more persistent, daily, or increased in frequency, and is different from the prior history of headache, think of something else.
- Think about:
 - Mass lesion
 - Infection

P3: PREGNANCY

- A new onset of headache during pregnancy should raise
- suspicion of an underlying problem such as:
 - Cerebral venous sinus thrombosis
 - Preeclampsia
 - RCVS (reversible cerebral vasoconstriction syndrome)
 - Pituitary lesion
 - Stroke

P4: PRECIPITATED BY VALSALVA

- If headache is precipitated by coughing, sneezing, bending, or straining, think of:
 - Intracranial mass
 - Posterior fossa mass
 - Chiari malformation

IV. COMMON CAUSES OF HEADACHE

A. PRIMARY HEADACHE

Causes of Primary Headache	
Type	%
Tension Type	69
Migraine	16
Idiopathic stabbing	2
Exertional	1
Cluster	0.1

B. SECONDARY HEADACHE


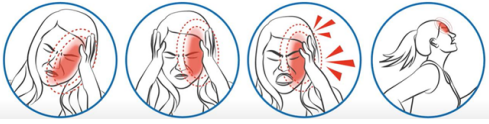
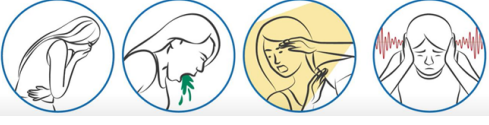
Causes of Secondary Headache	
Type	%
Systemic Infection	63
Head Injury	4
Vascular Disorders	1
Subarachnoid Hemorrhage	<1
Brain Tumor	0.1

Note: the most common type is **tension headache**, but the most common type of headache that presents in the clinic is **migraine**

V. MIGRAINE


A. DIAGNOSIS

1. ICHD 3 DIAGNOSTIC CRITERIA FOR MIGRAINE WITHOUT AURA

A	At least five attacks fulfilling criteria B-D 	5
B	Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated).	4-3
C	Headache has at least two of the following four characteristics: 1. Unilateral location 2. Pulsating quality 3. Moderate or severe pain intensity 4. Aggravation by or causing avoidance of routine physical activity (eg, walking or climbing stairs) 	2
D	During headache at least one of the following: 1. Nausea and/or vomiting 2. Photophobia and phonophobia 	1
E	Not better accounted for by another ICHD-3 diagnosis.	

- CAVEAT: Patient meets EITHER pain or associated symptom criteria = PROBABLE MIGRAINE

2. ICHD 3 DIAGNOSTIC CRITERIA FOR MIGRAINE WITH AURA

A	At least two attacks fulfilling criteria B and C
B	One or more of the following fully reversible aura symptoms: 1. Visual (colorful lights with blind spots - scintillating scotoma) 2. Sensory 3. Speech and/or language 4. Motor 5. Brainstem 6. Retinal 

C	At least three of the following six characteristics: 1. At least one aura symptom spreads gradually over ≥ 5 minutes 2. Two or more aura symptoms occur in succession 3. Each individual aura symptom lasts 5-60 minutes 4. At least one aura symptom is unilateral 5. At least one aura symptom is positive 6. The aura is accompanied, or followed within 60 minutes, by headache
D	Not better accounted for by another ICHD-3 diagnosis

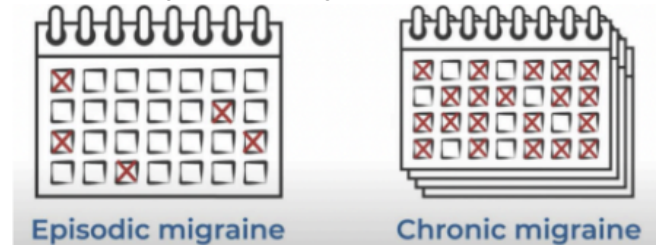
Symptoms by Location

1	Face/Head	<ul style="list-style-type: none"> • Unilateral or bilateral head pain • Throbbing, stabbing, dull, burning or pulsating head pain • Facial or pressure behind eyes, across the forehead, on the cheeks or behind the eyes • Sharp pain on one side of the face • Pale skin color • Scalp tenderness
	2	Nose
3	Mouth	<ul style="list-style-type: none"> • Burning tongue or mouth • Tooth or jaw pain • slurred speech • Dry mouth
	4	Eyes
5	Ears	<ul style="list-style-type: none"> • Persistence pressure or the feeling of blockage in one or both ears • A feeling of water or something crawling in the ear canal • Sound sensitivity • Hearing a hissing, ringing, or other noise that is not actually there (tinnitus) • Persistent sense of imbalance (ataxia) • Stabbing pain around and deeper in the ear • Discomfort when your ears are exposed to wind or cold • Vertigo or dizziness

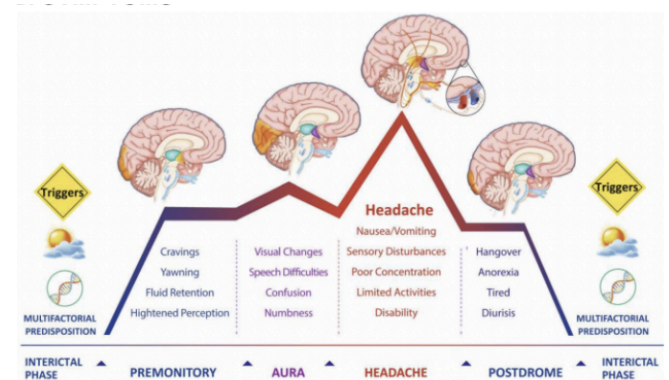
6	Brain
	<ul style="list-style-type: none"> Mood changes (i.e., anxiety, irritability) Problems sleeping “Brain fog” - reduced cognitive function and concentration, short term memory loss, inability to recall words or to multi-task Difficulty in understanding what people are saying, despite having normal hearing test (central auditory processing disorder) Frequent yawning Difficulty with talking (aphasia) Confusion
7	Abdomen
	<ul style="list-style-type: none"> Nausea and/or vomiting Abdominal pain Bloating Constipation or diarrhea Belching (burping) Inconsolable crying, tense abdominal muscles, clenched fists and curled legs, often after eating in babies (colic). Abdominal cramps
8	Pelvis
	<ul style="list-style-type: none"> Frequent need to urinate may or may not be associated with pelvis pain
9	Whole Body
	<ul style="list-style-type: none"> Hypersensitivity to stimuli such as touch, wind, cold, etc. (allodynia) Fatigue Temperature dysregulation or fever An unexplained dry persistent cough (neurogenic cough) Muscle stiffness Neck and/or shoulder pain Numbness and/or tingling Sensitivity to motion or motion sickness Sweating Food cravings

3. ICHD 3 DIAGNOSTIC CRITERIA FOR CHRONIC MIGRAINE

- Episodic: migraine occurs intermittently (one a week/ twice a week); 2-3% will have chronic migraine
- Chronic: Headache on ≥ 15 days/month for >3 months, and fulfilling criteria for migraine with/without aura



Symptoms



- Activation of different brain centers = MIGRAINE OCCUR IN DIFFERENT PHASES

1	Premonitory (Prodromal)
a	Neck discomfort
b	Higher center <ul style="list-style-type: none"> Cognitive impairment (brain “fog”) Mood change Fatigue
2	Aura
a	Neurological disturbance, such as scintillating scotoma
3	Headache Phase
a	Pain
b	Nausea/Vomiting
c	Sensory sensitivity <ul style="list-style-type: none"> Photophobia Phonophobia Osmophobia Allodynia Vertigo
4	Postdrome
a	Tiredness
b	Weariness
c	Concentration impairment

VI. TENSION-TYPE HEADACHE

- Chronic head-pain syndrome characterized by **bilateral tight, bandlike discomfort**
- Main differential diagnosis from migraine

ICHD 3 DIAGNOSTIC CRITERIA FOR INFREQUENT EPISODIC TENSION-TYPE HEADACHE

A	At least 10 episodes of headache occurring on <1 day/month on average (<12 days/year) and fulfilling criteria B-D
B	Lasting from 30 minutes to 7 days
C	At least two of the following four characteristics: 1. Bilateral location 2. Pressing or tightening (non-pulsating) quality 3. Mild or moderate intensity 4. Not aggravated by routine physical activity such as walking or climbing stairs
D	Both of the following: 1. No nausea or vomiting 2. No more than one of photophobia or phonophobia
E	Not better accounted for by another ICHD-3 diagnosis

VII. SUMMARY

- Headache as a symptom is ubiquitous and may be primary or secondary to an underlying pathology.
- Thorough history and physical examination are key to the diagnosis of headache disorders.
- Awareness of the red flags will alert the physician of the immediate need to treat the patient.

BUZZWORDS (Batch 2026)

Thunderclap headache, "worst headache of my life"	Subarachnoid hemorrhage
Headache with jaw claudication , onset > 50 y/o	Giant cell arteritis
Unilateral, throbbing headache	Migraine
Dull, aching band-like headache	Tension-type headache

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