



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة ساوة الأهلية

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SAWA UNIVERSITY

Department of Radiology

Headache

الطبيب الاختصاص
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المرحلة الرابعة

المحاضرة الأولى

Definition

- Pain in the head or neck region, potentially affecting daily activities.

- Epidemiology: Common across all demographics; significant contributor to healthcare costs and disability.

1. Primary Headaches

- Migraine

- Characteristics: Unilateral, pulsating, moderate to severe intensity, often accompanied by nausea, photophobia, or phonophobia.

- Subtypes:

- Migraine with aura

- Migraine without aura

- Tension-Type Headache (TTH)

- Characteristics: Bilateral, pressing/tightening quality, mild to moderate intensity, not aggravated by routine physical activity.

- Subtypes:

- Episodic

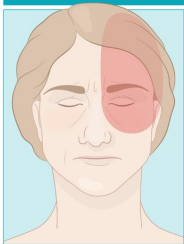
- Chronic

1. Primary Headaches

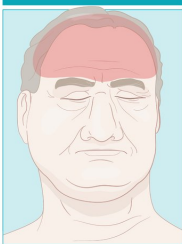
- Cluster Headache

- Characteristics: Severe, unilateral pain around the eye, occurring in clusters over weeks or months.
- Autonomic symptoms: Lacrimation, nasal congestion.

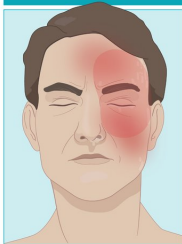
Migraine headache



Tension headache



Cluster headache



2. Secondary Headaches

- Causes :-

- Intracranial: Tumors, hemorrhages, infections (e.g., meningitis).
- Extracranial: Cervical spine disorders, systemic illnesses (e.g., hypertension).

Pathophysiology

- **Migraine** : Involves neurogenic inflammation and altered pain processing.
- **Tension-Type**: Associated with muscle tension and psychosocial factors.
- **Cluster** : Linked to hypothalamic activation and autonomic dysfunction.

Diagnosis

- Clinical Assessment:

- History: Detailed account of headache characteristics, triggers, and associated symptoms.

- Physical Examination: Neurological evaluation; look for signs of secondary causes.

- Diagnostic Criteria:

- Use ICHD classification for accurate categorization.

- Investigate red flag symptoms indicating secondary headaches.

Imaging technology

Plays a crucial role in diagnosing the underlying causes of headaches. Here are some key imaging methods used in headache evaluation :

1. CT (Computed Tomography) Scan

- Use:** Often the first imaging test performed in emergency settings.
- Purpose:** To quickly rule out serious conditions like hemorrhages, tumors, or structural abnormalities.

Imaging technology

2. MRI (Magnetic Resonance Imaging)

- **Use:** Provides detailed images of brain structures.
- **Purpose:** Useful for diagnosing conditions like multiple sclerosis, tumors, or other central nervous system diseases that may cause headaches.

3. MRA (Magnetic Resonance Angiography)

- **Use:** A specialized MRI technique focusing on blood vessels.
- **Purpose:** Helps in identifying vascular issues, such as aneurysms or arteriovenous malformations.

Imaging technology

4. Ultrasound

- **Use:** Primarily used to evaluate the neck arteries.
- **Purpose:** Can help identify blood flow issues or structural abnormalities in the carotid arteries that may contribute to headaches.

5. X-rays

- **Use:** Less commonly used for headaches.
- **Purpose:** Can reveal structural problems in the skull or spine but are not typically the first choice for headache evaluation.

Imaging technology

When to Use Imaging?

- **Red Flags:** Imaging is often recommended when headaches are sudden, severe, or accompanied by neurological symptoms (e.g., vision changes, weakness).
- **Chronic Headaches:** For chronic or persistent headaches that don't respond to treatment, imaging can help identify underlying causes.

Management Strategies

1. Acute Treatment:

- Migraine: Triptans, NSAIDs, ergots; consider antiemetics
- Tension-Type: OTC analgesics, muscle relaxants for chronic cases.
- Cluster: High-flow oxygen, triptans, preventive options during cluster phases.

Preventive Treatment:

- Migraine: Beta-blockers, anticonvulsants (e.g., topiramate), CGRP inhibitors.
- Tension-Type: Antidepressants for chronic cases, behavioral therapies.
- Cluster: Verapamil, corticosteroids during active clusters.

Non-Pharmacological Approaches :

- Lifestyle modifications: Stress management, regular sleep patterns, hydration.
- Cognitive-behavioral therapy (CBT) and biofeedback techniques.