

In this lecture we will talk about a clinical case and connect it with the anatomy, physiology, patho-physiology and management via pharmacology.

- **The case:**

A **27** years old **FEMALE** patient visited the clinic complaining of **HEADACHE**.

Note: If we do a survey about patients who visit clinics we will find that:

1. Most of them will come complaining of upper respiratory tract infections like sore throat (most common).
2. **Headache is the second most common presentation in general practitioners' clinics.**
**Headache is a neurological symptom.
3. Third most common presentation: low back pain.

- **Things we ask about while taking history from the patient:**

GOOD HISTORY TAKING → GOOD DIAGNOSIS → GOOD MANAGEMENT ;)

Since we entered the medical school everyone started to call us doctors :3 so let's suppose that your neighbor or your cousin told you that she has a headache (the case aforementioned)

1. The first question you ask → when did it start? (i.e. **Duration of symptoms** regarding headache→very important)

→ Why do we have to ask this question?

Because we have to differentiate between Acute and Chronic headache (different cases → different causes).

2. **Progression:** if the pain is increasing/decreasing/same intensity.
3. **Nature of headache:** Our job as doctors to convert the patient's words into medical or scientific terms so when a patient describes for you what he/she feels, they might tell you (عم ينبض) or throbbing (characteristic of migraine) or band-like/tension type or numbness/parasthesia.
4. **A) Aggravating factors:**
For example:
 - Exposure to light (photophobia) e.g. Headache secondary to migraine (or it might be secondary to meningitis).
 - Coffee or chocolates ☹ (contains tyramine derivatives)→ increase migraine.
 - Stress ; related to tension headache.

B) Relieving factors:

If relieved with analgesia → simple diagnosis (not tumor).

5. Associated symptoms (very important):

- 1- Dizziness, blurring of vision → space occupying lesions.
- 2- Vomiting → migraine.
- 3- Convulsions.

6. **Other: Age** (we don't see a 3 years old with migraine or a 30 years old with a congenital malformation which just started to appear), **Gender**.

** Note: Benign conditions more in females, Malignant conditions more in males.

• **Types and patho-physiology of headache:**

1. **Primary:** No specific reason usually stretching of pain sensitive structures by release of local neurotransmitters (migraine, tension –like headache and cluster) → visit a neurologist.

** **Pain sensitive structures:**

1. Dura matter.
2. Periostium.
3. Vessels.

****Remember:** Brain parenchyma is pain insensitive.

****Awake craniotomy:** Craniotomy for an awake person we just do analgesia for the periostium (and for dura matter by infiltration) and the rest we won't feel them.

2. **Secondary:** Usually space occupying lesions i.e. brain tumors which result in increase in intra-cranial pressure → visit a neurosurgeon.

** Space occupying lesions: increase in venous drainage and CSF → symptoms: headache, vomiting, neurological deficit depends on the location of lesion.

• **Anatomy:**

The doctor showed us a picture about the pain sensitive structures (skull i.e. periostium, dura matter and vessels).

** Anything supplied by sensory nerves will give sensation so pain will be expressed as sensation feeling of abnormality inside the cranium.

• **Role of extra cranial vessels in headache:**

- A major type of headache called: giant cell arteritis or temporal arteritis .
→ Vessel: Superficial temporal artery (the terminal part of external carotid)

- A patient might come with a headache but the cranium is fine → so it's trigeminal nerve (supply the face), this type of headache called: trigeminal neuralgia, it's very severe pain especially in females → abnormal feeling sensation received by the trigeminal ganglion expressed in the brain as pain.
- In clinical practice, we search for good diagnosis in order to know how to deal with the illness, and for good diagnosis we need to:
 1. Take the **history** of the patient (like what we did with the case aforementioned)
 2. **Clinical examination:** If we found any neurological deficit like facial nerve palsy, weakness in right upper limb, etc → it indicates that we're dealing with a serious type of headache.
 - Sinusitis can cause headache although it's not related to intracranial cavity
 - Toothache can cause headache, too.
 - Focal neurological deficit is always a result of a lesion → like secondary type of headache i.e. space occupying lesions → press on the optic nerve and result in loss of vision, but primary type → no lesions → no focal neurological deficits.
 - **Another example: is facial palsy and headache → a lesion (secondary headache) is compressing on the facial nerve.
 3. **Investigation:** MRI or CT scan (it should be the last step)

اي دكتور ممكن مباشرة يحكي للمريض روح اعمل صورة رنين مغناطيسي للدماغ او صورة طبقية و يعرف شو السبب..يس الافضل انه يعمل اول خطوتين لانه ممكن يكتشف شو السبب بدون ما يعرض المريض للصورة و يخسره مصاريه ونحننا وظيفتنا كأطباء انه نريج المريض ☺

- **Management:**

If it was secondary headache: we have to remove the underlying cause brain tumor, we can give the patient analgesia temporarily but you can't only use them in these cases and that's the problem of primary health care in Jordan → they solve symptoms but leave the cause.

→ Choices for management:

1. Medical treatment.
2. Reassurance.
3. Surgical.
 - depends on the pathology.

- **Questions asked by our colleagues**

- 1) One of them once visited the dentist he described his pain: in every step he took he felt the pain, Dr. Shdaifat explained it: heels increase the stress on spinal cord → increase the pressure in CSF → increase in intra-cranial pressure and stimulate the trigeminal ganglia.
- 2) The second Q. was about knee jerk:
 - Hypo-reflex: indicates muscle weakness.
 - Hyper-reflex: indicates upper motor neuron.
- 3) One of our colleagues' cousins had an increase in intra-cranial pressure and the first thing she complained of pain in her neck's muscles and then blurring in vision and she had bulging eyes and loss of vision and for sure she complained of headache, the doctor said it's idiopathic intracranial hypertension or benign intracranial hypertension (BIH) and it's common in obese females.
 - ➔ What happens is loss of elasticity in brain tissue and the solution is a shunt from the spinal cord to the abdominal cavity → reduction in CSF → improvement, but the loss of vision is irreversible.
- 4) What is the treatment of migraine:
Symptomatic treatment, avoid the aggravating factors like stress, coffee → result in 50% improvement, acute management like IV drugs.

Sorry for any mistake ☺

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