Headache history and examination

Dr.Elham Jafari
Neurologist
Iranian headache association

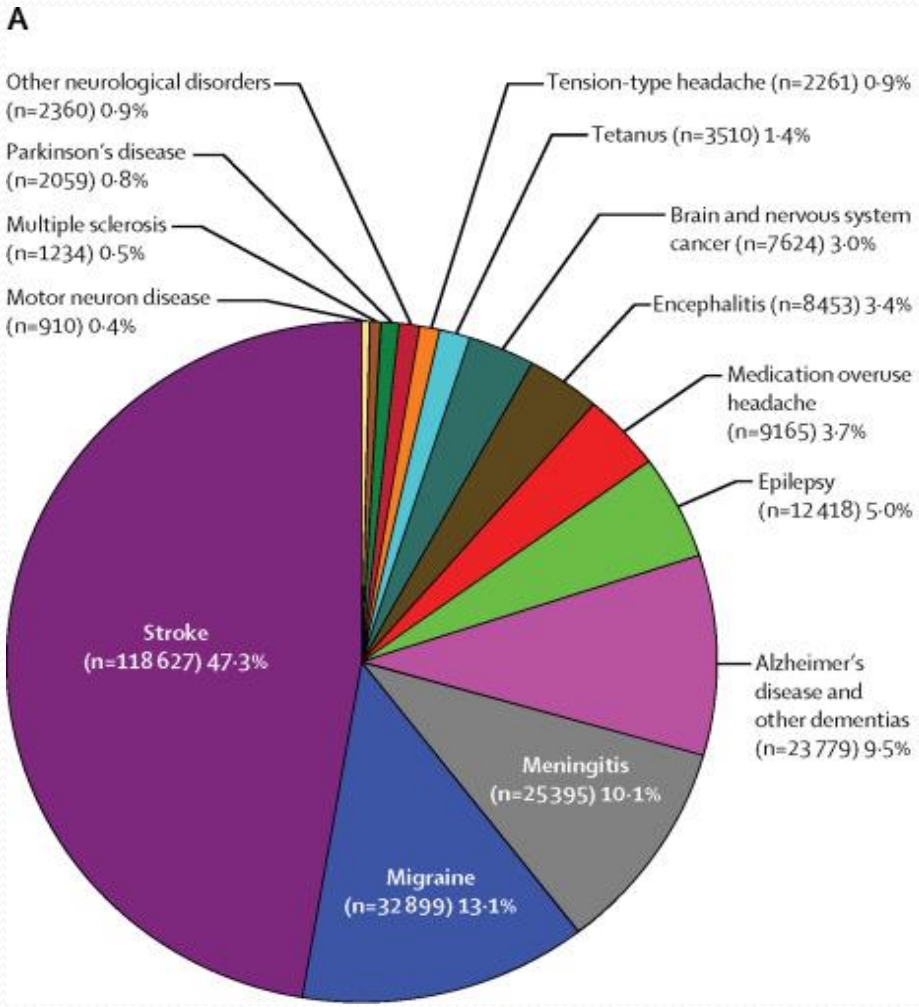
Introduction

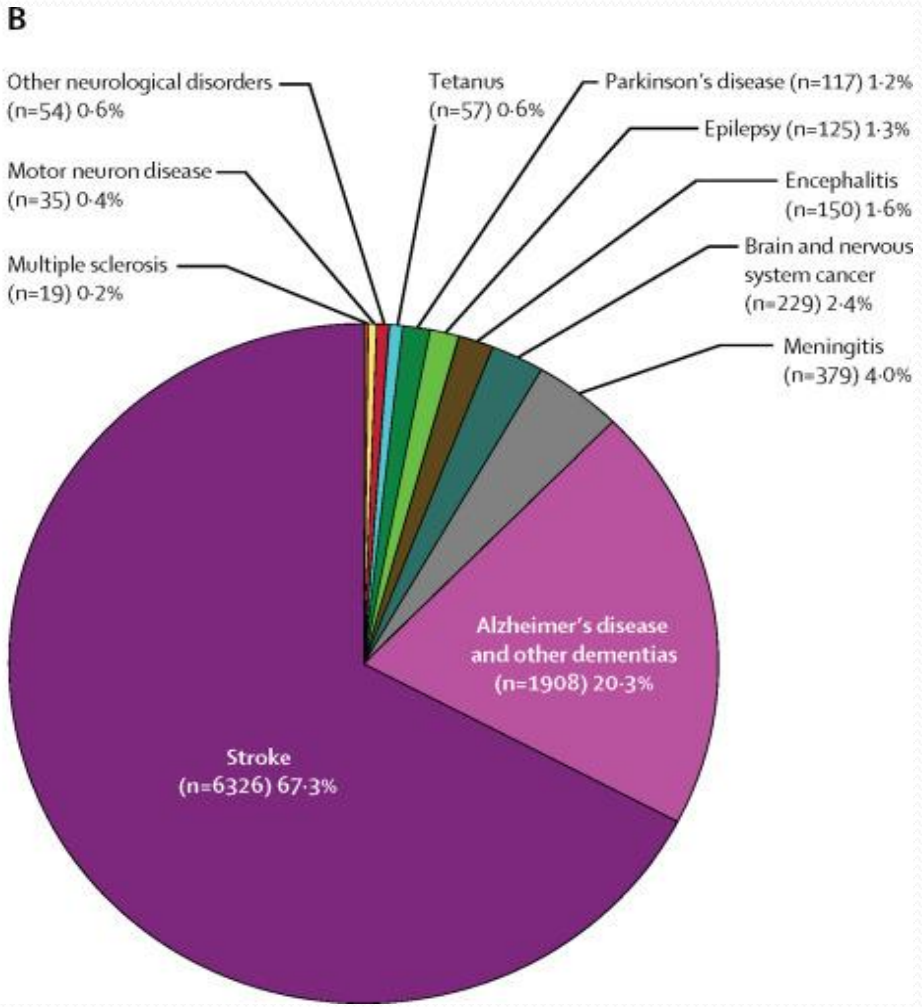
- Around 95% of the general population have experienced headache at some stage in their life
- Headache accounts for 1 in 10 general practitioner consultations,1 in 3 neurology referrals and 1 in 5 of all acute medical admissions.
- The World Health Organization includes headache among the top 10 causes of disability,and in women headache is among the top 5

Global burden of neurological disorders

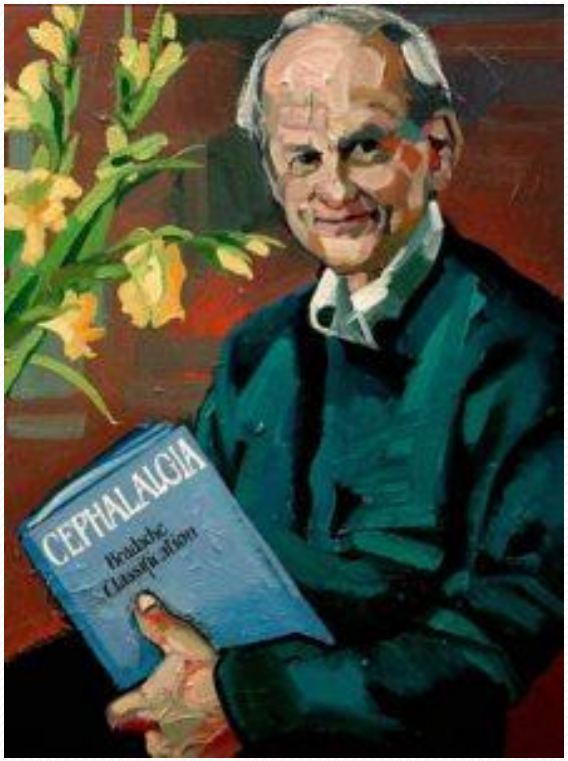
DALYs

Death





The International Classification of Headache Disorders 3rd edition(ICHD3)



Classification

- **Primary headaches:**

1. Migraine
2. Tension type headache
3. Trigeminal autonomic cephalalgias
4. Other primary headaches

- **Neuropathies & Facial Pains and other headaches**

- **Secondary headaches:**

1. Head and neck trauma
2. Cranial vascular disorders
3. Intracranial disorders
4. Substance
5. Infection
6. Homeostasis
7. Other facial and cervical disorders
8. Psychiatric disorders

Introduction

- Primary headache disorders constitute nearly 90% of all headaches.
- Secondary headaches are important to recognize as they are serious and may be life threatening.
- Most of the patients with HA can be diagnosed with history alone.
- Identifying high risk patients for secondary headaches is completely based on the history and physical examination.

Taking a history

Targeted headache history

- The most likely diagnosis
- Recognize red flags for secondary headaches
- Guides the physician as to the order imaging or laboratory investigations
- Select effective treatment plan.

SNNOOP10	
Systemic symptoms	Pattern change Positional headache Precipitated by sneezing, coughing, or exercise Papilledema Progressive headache and atypical presentations Pregnancy or puerperium Painful eye with autonomic features Posttraumatic onset of headache Pathology of the immune system such as HIV Painkiller overuse or new drug at onset of headache
Neurologic deficit or dysfunction Neoplasm in history	
Onset of headache is sudden or abrupt Older age (after 50 years)	

Key points

Chronicity of headaches Age of onset	Family history
Frequency and duration of attacks Onset-to-peak time	Environmental factors
Location, quality , intensity and radiation of pain	Pregnancy and menstruation
Precipitating and relieving factors	Past medical and surgical history
Premonitory symptoms and aura	Past diagnostic tests
Associated symptoms	Past treatments

chronicity

- How many different types of headache do you have?
- When did the headache first start?
- Have you recently noticed a change in the characteristic of your headache?
- Identify ominous changes in a longstanding stable headache
- Recognize new symptoms superimposed on chronic headache symptoms
- What worries you about your headache?

AGE AT ONSET

- The onset of HA in less than 6 years is considered a red flag.
- Migraine most commonly starts at 15-25 years and attenuates after 50.
  - It should not be considered as a first diagnosis in headaches starting after age 50.
- TTH does not respect to any period of life.
  - It is more common in middle-aged people but is also the most common cause of HA in elderly.
- The peak prevalence of cluster headache is 20- 50 years.

- HA in older adults (practically after age 50) is most commonly caused by primary HAs such as TTH or migraine, but the risk of secondary disorders increases in this age group.

Common causes of HA in older adults	
Primary causes	Tension type HA, Migraine, Hypnic HA
Secondary causes	Giant cell arteritis Intracranial hemorrhage, subdural hematoma, ischemic stroke Brain tumors Posttraumatic HA Cervicogenic HA, glaucoma Hypertension, cardiac cephalalgia, sleep apnea Medication overuse HA

The time course of HA

- A recent onset(<6months) HA is more likely to be secondary to a serious disease than a stable pattern of a chronic headache for >12 months.
- Acute HA with maximal severity within seconds to minutes of onset should always be considered serious, particularly if not experienced before.
- Thunderclap headache reaches the peak intensity in <1min.

Causes of thunderclap HA

Vascular causes	Non-vascular causes
SAH	Spontaneous intracranial hypotension
Dissection of cervico-cerebral arteries	Colloid cyst of third ventricle
Cerebral venous **thrombosis**	Cardiac cephalalgia
RCVS	Primary cough HA
Pituitary **apoplexy**	Primary exertional HA
Cerebral **infarct**	Primary HA with sexual activity
Intracranial **hemorrhage**	Primary TCH
PRES	
Acute **hypertensive** crisis	

Onset to peak time of primary HAs

- TACs have the shortest onset to peak time.
- Trigeminal neuralgia, also have a very short onset to peak time.
- Migraine HA usually peaks in 1-2 hour.
- Consider for choosing appropriate analgesic

Morning headaches

- Intracranial hypertension
- Nocturnal hypertension/ hypoglycemia
- Giant cell arteritis
- Sleep apnea headache
- Hypnic headache
- Medication overuse headache
- Cervicogenic headache
- Temporomandibular joint disorders
- Sinus/nose disorders

Frequency and duration of attacks

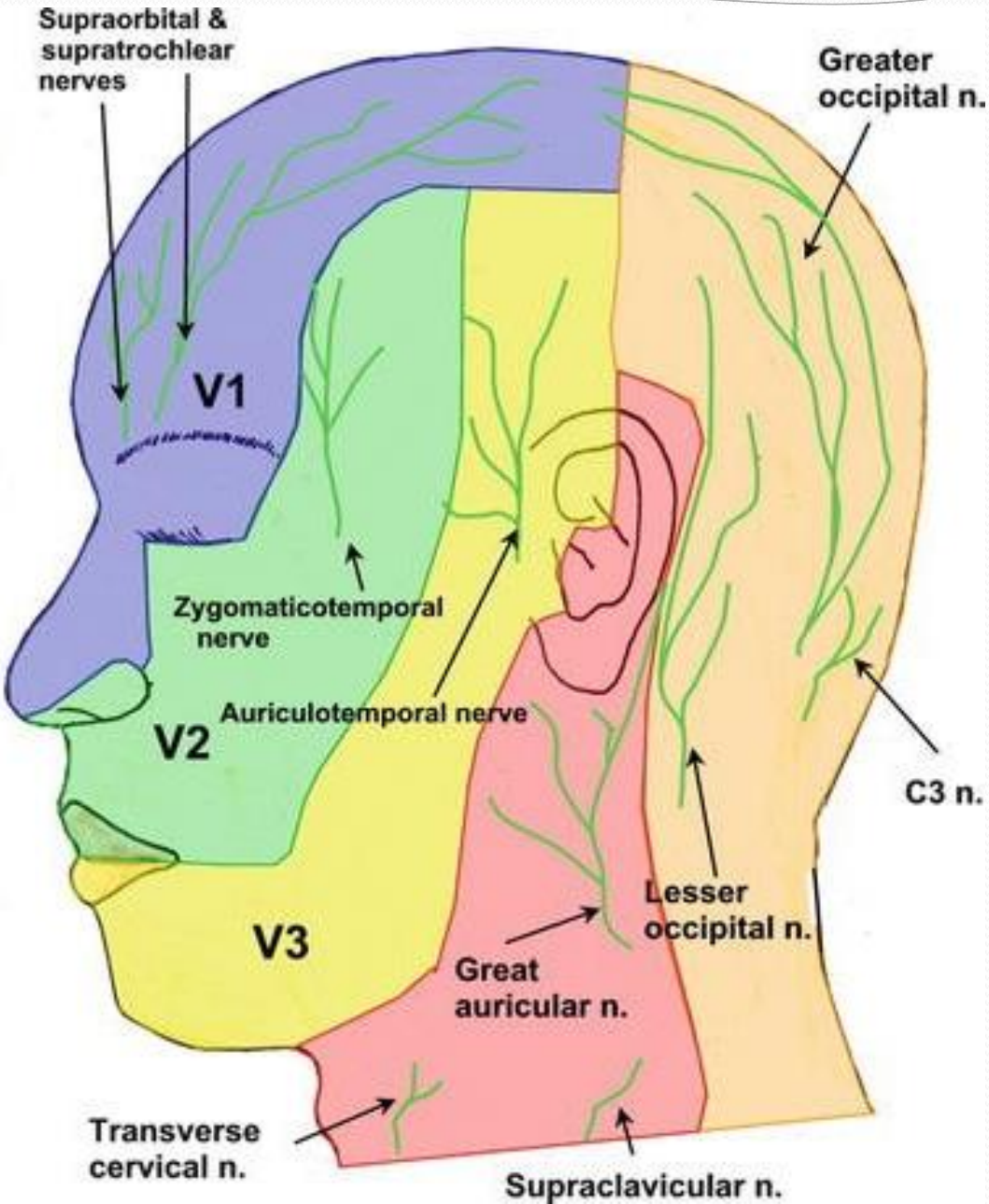
- Headache diary for 2-3 months
- Episodic
- Seasonal
- Continuous
- Progressive
- Daily

Headache diary

Date	Intensity	Duration	Location	Analgesic	Trigger	Mense relation	OCP relation

Headache type	Duration of pain	frequency
Migraine	4-72 hour	variable
Tension type	Minutes to days	variable
Hemicrania continua	Base > 3months Exacerbations: 30 min to 3 days	constant
Cluster	15-180 min	1-8/day
Paroxysmal hemicrania	2-30 min	5-50/day
SUNCT	1 to 600 sec	1 to hundreds/day
Trigeminal neuralgia	10 Sec to 2 minute	3-50/day

Location


Supraorbital & supratrochlear nerves
Greater occipital n.
V1
Zygomaticotemporal nerve
Auriculotemporal nerve
V2
C3 n.
Lesser occipital n.
V3
Great auricular n.
Transverse cervical n.
Supraclavicular n.

location

Pain	Tension-Type	Migraine Without Aura	Migraine With Aura	Cluster	Trigeminal Neuralgia	Atypical Facial Pain
Unilateral		X	X	X	X	X
Bilateral	X				Rare	
Temporal		X	X	X		
Frontal	X	X	X			
Occipital	X	X	X			
Cervical spine	X					X
Ocular				X	X	
Cheek					X	X

CHARACTER AND SEVERITY OF PAIN

	Quality	Severity	patient's attitude
Migraine	Throbbing	Moderate to severe	Rest in a dark, quiet room
Cluster	Deep boring and burning	Severe or very severe	Restless
Tension	Persistent dull aching	Mild or moderate	Active or may need to rest
Trigeminal neuralgia	Paroxysmal shock- like	severe	
Atypical facial pain	Dull aching	Nagging	
SUNCT	Stabbing	Moderate or severe	
Paroxysmal hemicrania		Severe	Restless

Notes

- Non throbbing HA is not uncommon in migraine.
- The throbbing quality of pain is not a reliable symptom to differentiate primary from secondary HAs.
- The severity of HA per se is not a reliable indicator for differentiating benign from serious Has.

Migraine without aura

A. At least five attacks fulfilling criteria B-D

B. Headache attacks lasting 4-72 hr (untreated or unsuccessfully treated)

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)

D. During headache at least one of the following:

1. nausea and/or vomiting

2. photophobia and phonophobia

E. Not better accounted for by another ICHD-3 diagnosis.

Tension-type headache (TTH)

A. At least 10 episodes of headache 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

Trigeminal autonomic cephalalgias

1. Cluster headache
2. Paroxysmal hemicrania
3. Short-lasting unilateral neuralgiform headache attacks
    a. Short-lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing (SUNCT)
    b. Short-lasting unilateral neuralgiform headache attacks with cranial autonomic symptoms (SUNA)
4. Hemicrania continua

Cluster headache

A. At least five attacks fulfilling criteria B-D

B. Severe or very severe unilateral orbital, supraorbital and/or temporal pain lasting 15-180 minutes (when untreated)

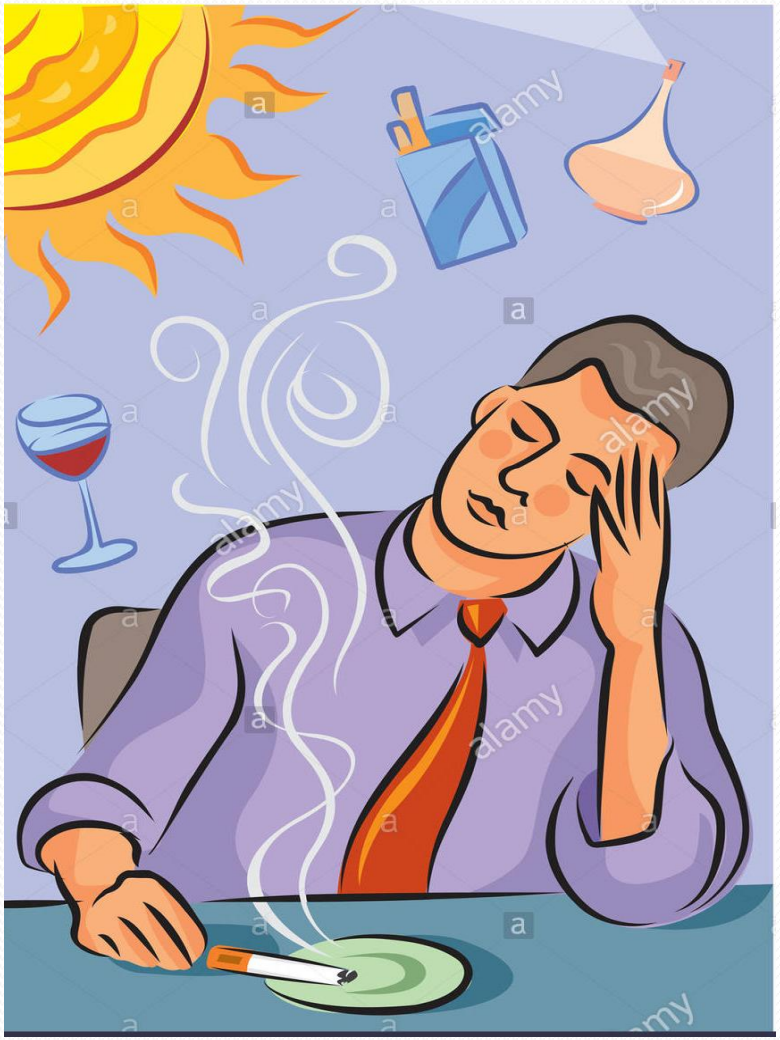
C. Either or both of the following:

1. at least one of the following symptoms or signs, ipsilateral to the HA:
   - conjunctival injection and/or lacrimation
   - nasal congestion and/or rhinorrhea
   - eyelid edema
   - forehead and facial sweating
   - miosis and/or ptosis
2. a sense of restlessness or agitation

D. Occurring with a frequency between one every other day and 8 per day

E. Not better accounted for by another ICHD-3 diagnosis.

Precipitating factors



Migraine triggers	
Diet	Alcohol, Chocolate, Aged cheeses, Monosodium glutamate (MSG) , Aspartame (Nutrasweet), Caffeine, Nuts, Nitrites, Nitrates
Hormones	Menstruation, ovulation, hormone replacement, contraception
Drugs	Dipyridamole , nitroglycerin, PPIs
Sensory stimuli	Strong light, Flickering light , Odors, sounds
Stress	Let-down periods, Times of intense activity , Loss or change (death, separation, divorce, job change), Moving
Changes of environmental or habits	Weather, Travel (crossing time zones) , Seasons, Altitude, Schedule changes ,Sleeping patterns , Dieting , Skipping meals, Irregular physical activity

Other triggers

Headache	Triggers
Cluster	alcohol, high altitude, nitroglycerin, heat, exercise, strong smells, sleep
Tension	environmental or physiologic stress, depression, fatigue and occasionally abnormalities of the cervical spine
Trigeminal neuralgia	Chewing, talking, touching, cold or hot sensations, shaving or wind
Atypical facial pain	stress, bruxism, prolonged dental work, and occasionally, poorly fitting dental appliances
Cervicogenic	Neck movements

Associated symptoms

- TTH lacks associated symptoms and is therefore known as featureless HA.
- Photophobia, phonophobia, nausea, vomiting, aversion to strong odors
- Autonomic symptoms including lacrimation, red eye, rhinorrhea, ear fullness and blanching of the face on the affected side
- Focal neurologic changes
- Visual obscuration
- Miningeal signs
- Tinnitus or hearing loss

Associated symptoms

- Photophobia and phonophobia are not specific for migraine and may be present in many HA disorders such as SAH and meningitis in addition to primary HA disorders.
- Vomiting is most commonly associated with migraine but intracranial lesions should be ruled out by clinical judgment, esp. when it occurs without preceding nausea.
- Tinnitus and transient visual obscuration may herald increased ICP.

Prodromal(PREMONITORY) SYMPTOMS

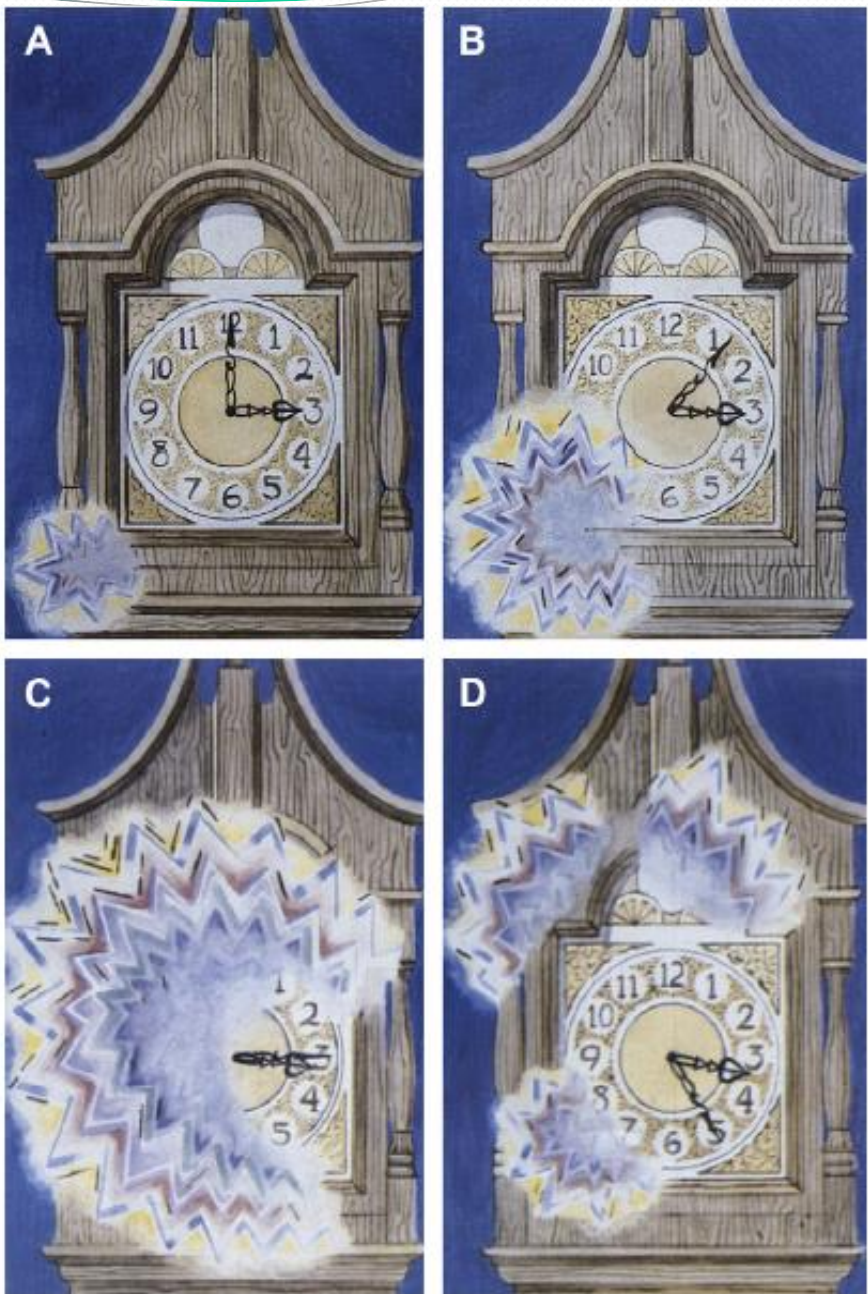
- In about 70-80% of people with migraine.
- 2-48 hour before the onset of headache.
- Fatigue, mood changes, cognitive dysfunction, irritability, craving for certain foods, abnormal hunger, yawning, light sensitivity polyuria and neck stiffness
- Neuroimaging studies have found hypothalamic activation and altered connectivity with other brain and brainstem regions.

Aura

- In about one third of migraineurs.
- Focal cerebral dysfunction
- Visual, sensory, language, motor, retinal or brainstem.
- Spreads gradually over 5 minutes or more.
- Lasts 5-60 minutes.
- Motor symptoms may last up to 72 hours.
- Usually preceding the headache phase; but can overlap with headache, or occur in the absence of headache.

Visual Aura

- The most common
- Usually symmetrical
- Positive C shaped scotoma , with scintillating edges that appear as zigzags



Sensory aura

- Unilateral Positive sensations
- Cheiro-oral distribution
- Typical involvement of the tongue

POSTDROMAL PHASE

- More than 80% of patients
- Non-headache symptoms during the 24 to 48 hours following resolution of headaches
- Being tired, difficulty concentrating, stiff neck, nausea, photophobia, and phonophobia
- Activation of brainstem nuclei
- Global reductions in cerebral blood flow

Family history

- Migraine is familial
- If both parents experience from migraine, a 70% to 75%chance exists that their children will have migraine
- If only one parent has the disease, the incidence in offspring decreases to 45%

Pregnancy and Menstruation

- Migraine may commonly occur with the onset of menses
- Pregnancy may provide some amelioration of migraine headache after the first trimester.
- Migraine headache may disappear or decrease markedly after menopause.
- Hormone replacement therapy may prolong the headache syndrome.
- Some migraine headaches worsen with oral contraceptives
- Many patients may experience a monthly tension-type headache associated with their menses.

Medical / surgical history

- Infection
- previous malignancy
- The use of medications that may cause headaches
- Trauma
- previous cranial surgery
- Recent lumbar puncture or myelogram
- diseases of the eye, ear, nose, throat, and cervical spine
- Anemia
- Thyroid disease
- Travel outside the country

Past treatments

- Adequacy of a trial of a given treatment modality in terms of dosage, duration of treatment, complications and patient compliance
- Medication overuse headache
- Drug interactions

Previous diagnostic tests

- Adequacy , validity, age, and quality of previous testing
- Indications for additional testing:

1. change in a previously stable headache
2. Clearly remembered onset
3. Side locked HA
4. Prolonged aura (>1 h), Motor aura
5. New neurologic findings

Social history

- Alcohol
- Sleep
- Eating behavior
- Smoking
- Illicit drugs
- Occupation
- Shift work
- Headache related disability

examination

Systemic examination

- Brief and thorough
- Temperature, Pulse rate, **Blood pressure**
- Auscultation for bruits at neck, eyes and head
- Temporal arteries, lymph nodes
- Nose, ears, mouth, and temporo-mandibular joints
- Thyroid
- Neck , cervical spine and shoulder
- Chest, breast and abdomen

Neurologic exam

- Assess mental state while taking the history
- **Fundoscopy**
- Cranial nerve exam
- Motor
- Sensory
- Cerebellar
- gait

0 (Normal Optic Disc)

Prominence of the retinal nerve fiber layer at the nasal, superior, and inferior poles in inverse proportion to disc diameter

Radial nerve fiber layer striations, without tortuosity

1 (Minimal Degree of Edema)

C-shaped halo that is subtle and grayish with a temporal gap; obscures underlying retinal details[a]

Disruption of normal radial nerve fiber layer arrangement striations

Temporal disc margin normal

2 (Low Degree of Edema)

Circumferential halo[a]

Elevation (nasal border)

No major vessel obscuration

3 (Moderate Degree of Edema)

Obscuration of ≥1 segment of major blood vessels leaving disc[a]

Circumferential halo

Elevation (all borders)

Halo (irregular outer fringe with finger-like extensions)

4 (Marked Degree of Edema)

Total obscuration on the disc of a segment of a major blood vessel on the disc[a]

Elevation (whole nerve head, including the cup)

Border obscuration (complete)

Halo (complete)

Grade 5 (Severe Degree of Edema)

Obscuration of all vessels on the disc and leaving the disc[a]

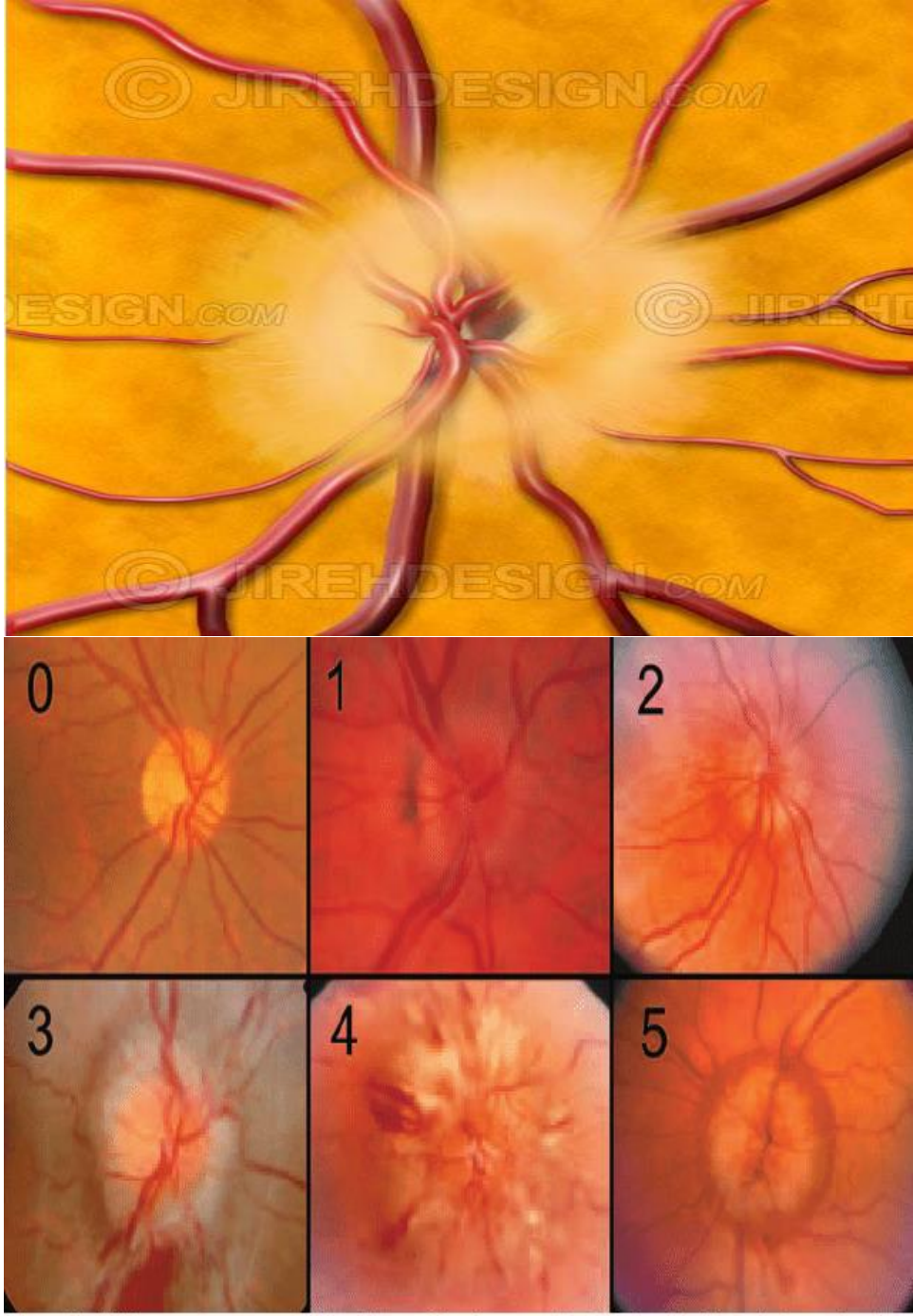
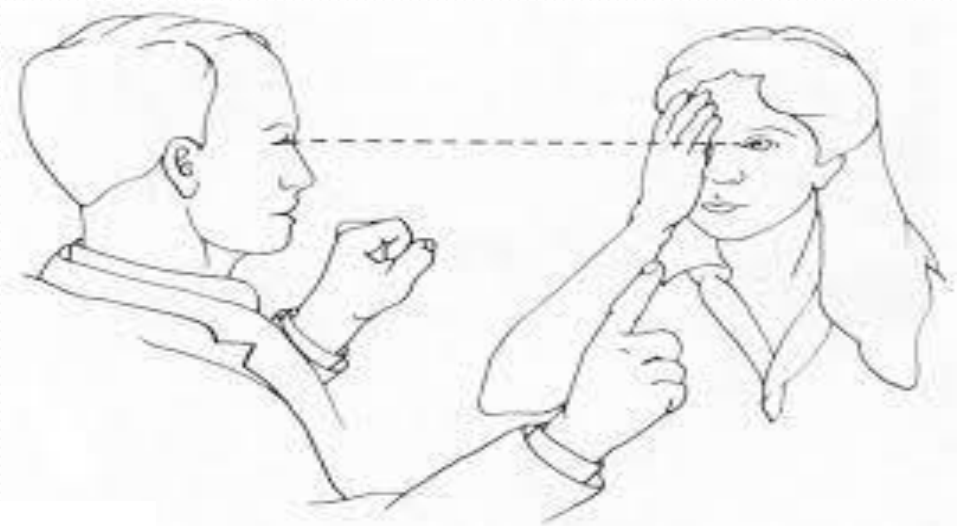
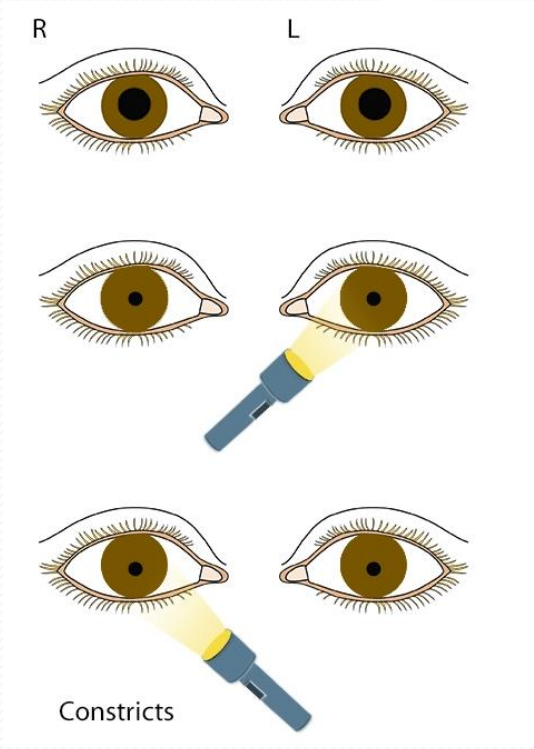


Fig. 1. Frisen stages 0–5 of papilledema. Refer to Table 1 for staging

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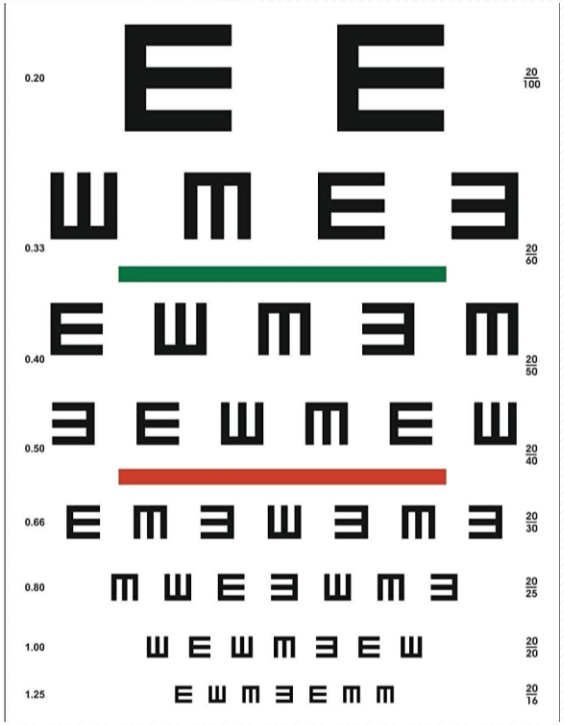
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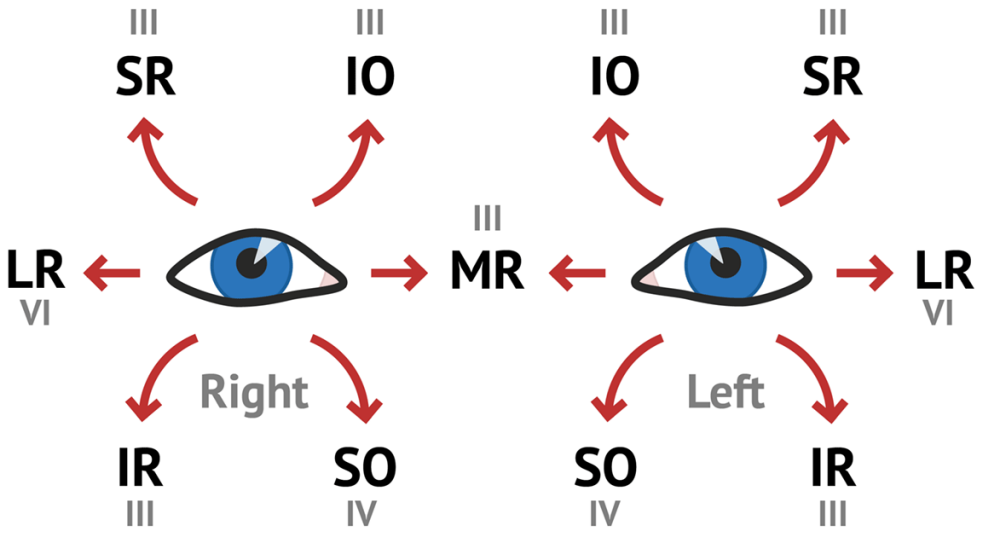
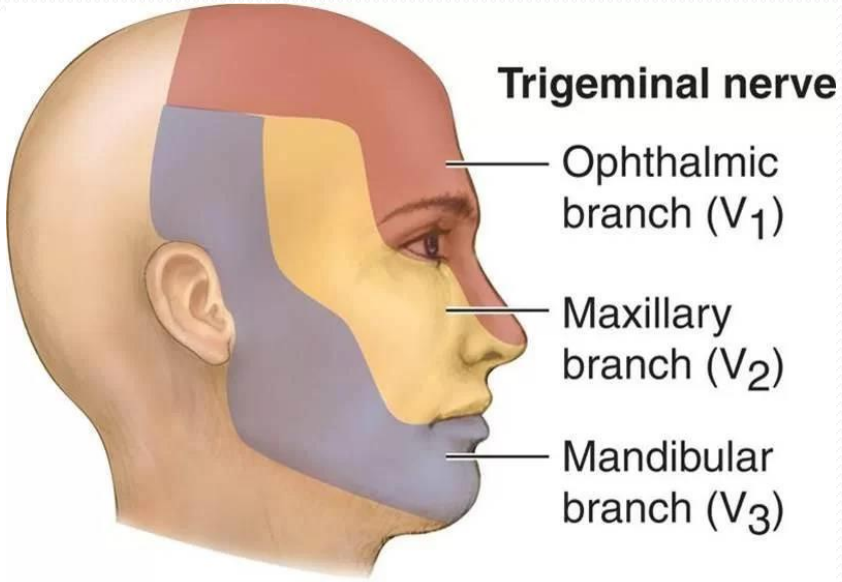
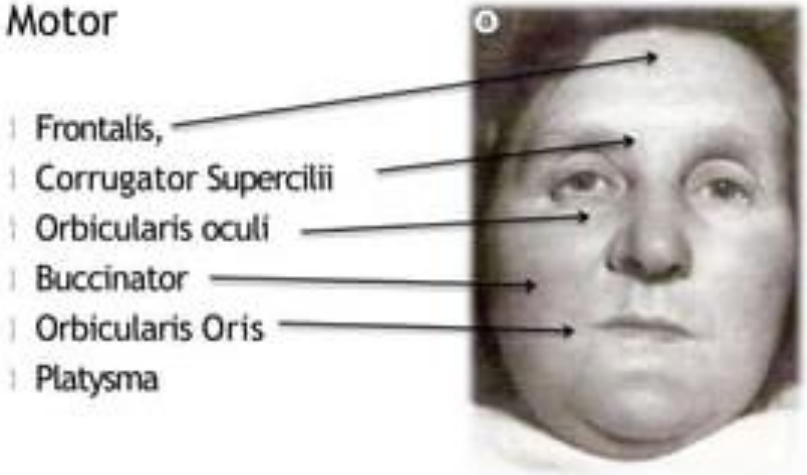
Cranial nerves

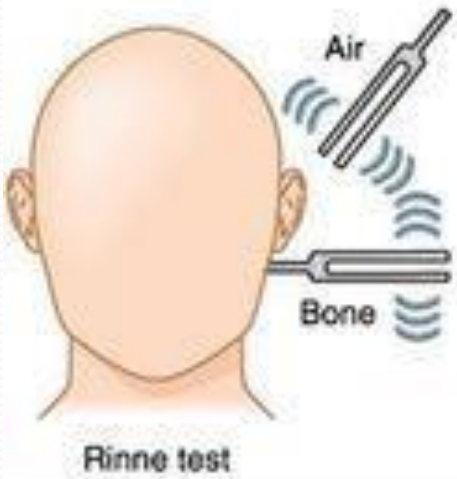


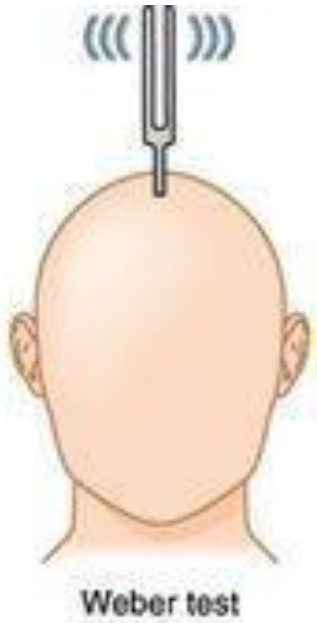


Clinical Examination of the facial nerve

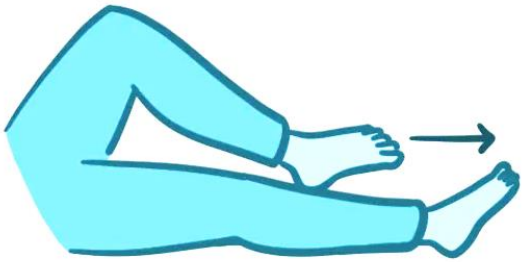
Motor







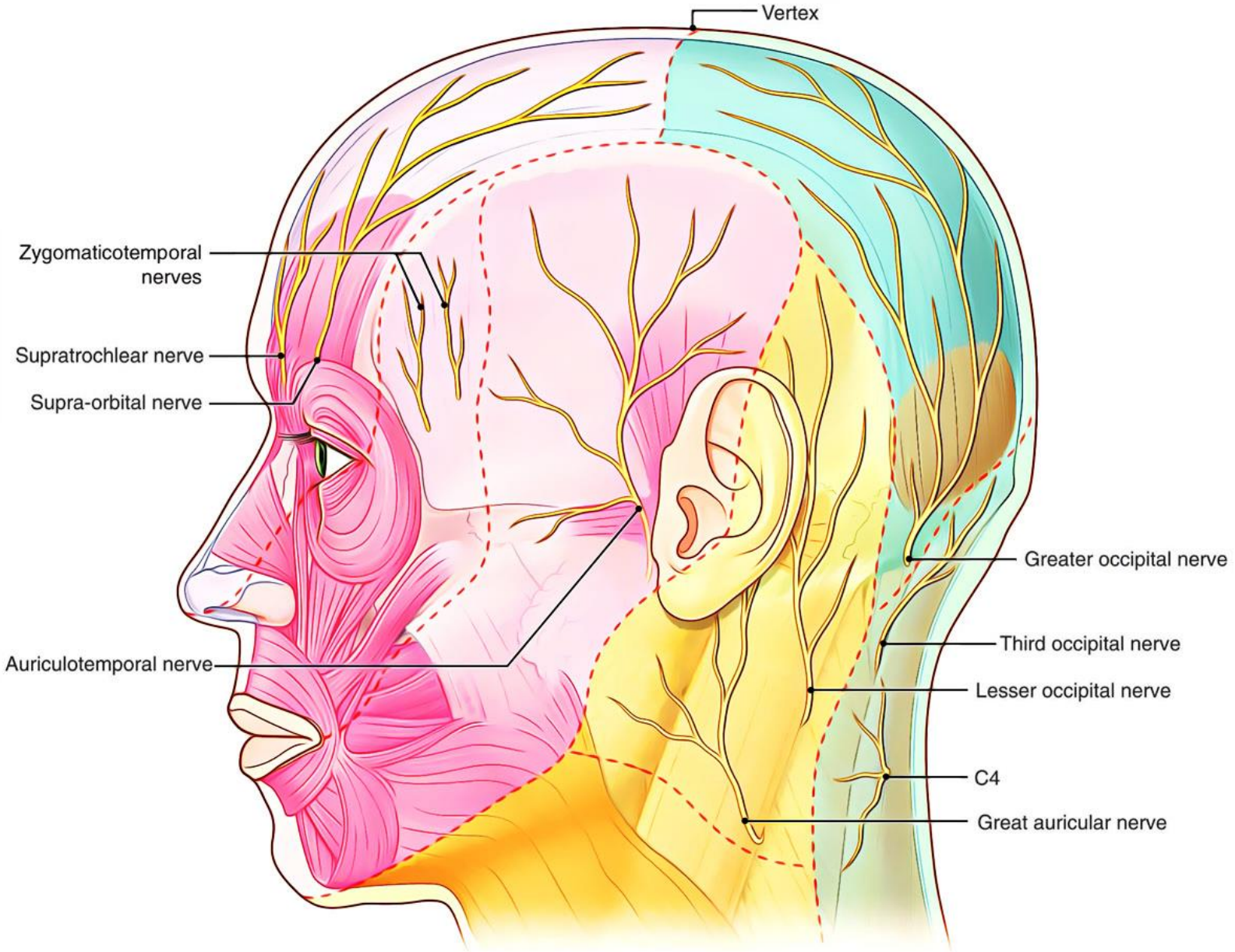
FINGER to NOSE TEST



HEEL to SHIN TEST

Specific abnormalities

- Pericranial muscle tenderness
- Allodynia and hyperalgesia
- Evidence of autonomic activation


Vertex
Zygomaticotemporal nerves
Supratrochlear nerve
Supra-orbital nerve
Auriculotemporal nerve
Greater occipital nerve
Third occipital nerve
Lesser occipital nerve
C4
Great auricular nerve

Case 1

- A 25-year-old woman presents to the emergency department with a severe headache. This is her fifth attack in the past 6 months. Her headaches are unilateral and squeezing and last 8-10 hours. They are associated with neck pain and nausea. Dx?

1. Tension-type headache
2. Migraine
3. Paroxysmal hemicranias
4. Secondary headache

Case 2

- A 40 year old man presented with severe right orbital and temporal headaches that occurred 2-3 times a day. Attacks lasted about 2 hours and were accompanied by Rt. eye redness and tearing. He remembers several weeks of similar headaches last spring. Dx?

1. Sinusitis
2. Migraine
3. Cluster headache
4. Paroxysmal hemicrania

Case 3

- A 23-year-old woman has been referred with longstanding headaches. Her previous headaches were unilateral, frontotemporal, pulsatile with a severity of 8/10 and occured 2-3 times per month. She has experienced new daily headaches since the last month which are diffuse, pressing and throbbing, with a severity of 6/10. These headaches are aggravated by supine position, cough and strain. She complaints of transient visual obscurations. What do you recommend?

1. Abortive migraine treatment
2. Prophylactic migraine treatment
3. Neuroimaging
4. Lumbar puncture

Key points

- The targeted headache history is paramount in the diagnosis of headache and facial pain.
- Through placing symptoms in categories, a clear picture of the headache diagnosis will begin to emerge.
- Failure to obtain a targeted headache history can lead not only to the implementation of an ineffective treatment plan but also, in some situations, to the failure to recognize life-threatening disease.
- The physical examination yields no positive findings in most patients with headache, but is essential to rule out important secondary causes.

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Thanks for your attention