NEUROLOGY

HEADACHE , SYNCOPE, CRANIAL NERVE DISORDERS, DISORDERS OF THE VISUAL PATHWAY

International Headache Society Classification

Primary

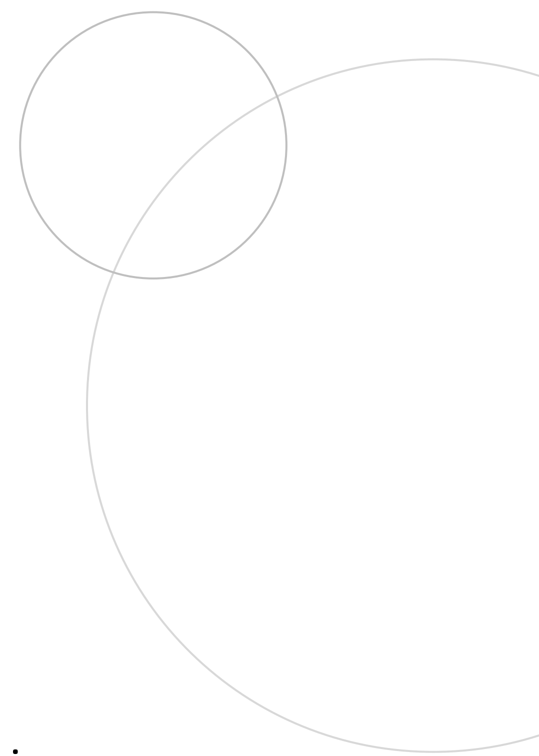
The 2 most common types

① Migraine
② Tension headache
③ Trigeminal autonomic cephalgias
- Cluster headache
- Paroxysmal or continuous hemicrania
- Short-lasting u/l neuralgiform HA attacks w/conjunctival injection and tearing (SUNCT)
- " " w/cranial autonomic sx (SUNA)

④ Other
- Physical activity-triggered
- Physical stimuli " "
- Primary stabbing HA
- Other

Secondary

① Trauma
② Vascular disorder
③ Nonvascular CNS disorder — 0.5%
④ Substance/withdrawal
  - Medication overuse
⑤ Infection
⑥ Disorder of homeostasis — Fasting up to 19%
⑦ Head cause excluding CNS
⑧ Psychiatric
⑨ Cranial nerve



TENSION HEADACHES

- **Muscular pain**

- Primary type headache
- The most common type of headache
- It can be infrequent, episodic or chronic

Risk factors

- Stress
- Hunger
- History of teeth grinding or jaw clenching
- Anxiety
- Depression
- Sleep apnea or sleep disruption
- Eyestrain
- Poor posture
- Injuries or arthritis of the neck area
- Temporomandibular joint disease (TMJ)
- Medications
- Low physical activity
- Obesity
- Smoking

Simptoms

- dull ache, like a 'tight pressure feeling', 'heavy weight
- almost daily
- hours (can last days)
- Onset: after rising, gets worse during day

- Physical examination: muscle tension (e.g. frowning), scalp often tender to touch, 'invisible pillow' sign may be positive

Treatment: NSAIDs or acetaminophen

CLUSTER HEADACHE

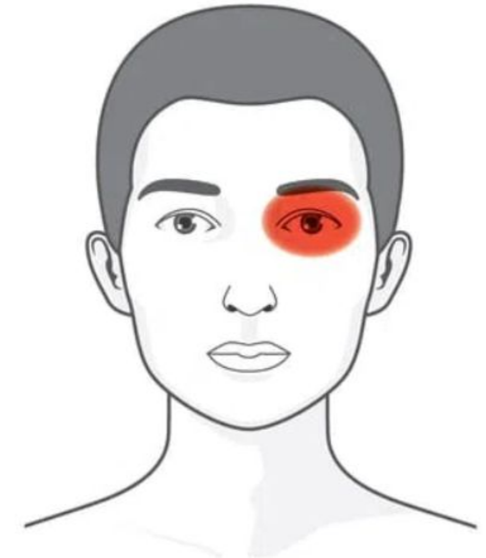
- Site: over or about one eye
- Horner’s syndrome
- Radiation: frontal and temporal regions
- Frequency: one every other day and 8 per day for more than half the time
- Duration: 15–180 minutes (average 30 minutes); the clusters last 4–6 weeks (can last months)
- Onset: suddenly during night (usually), same time about 2–3 hours after falling asleep; the ‘alarm clock’ headache
- Offset: spontaneous

Diagnosis

- retro-orbital headache + rhinorrhoea + lacrimation ➜ cluster headache

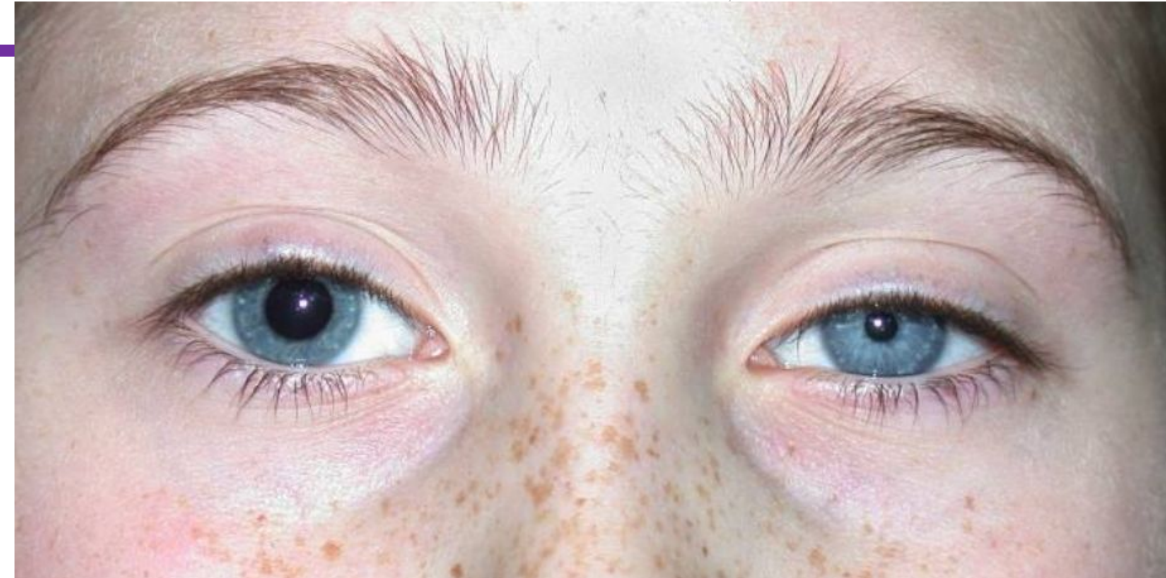
Treatment

- O2
- Triptants
- Prophylaxis: verapamil



HORNER’S SYNDROME

- Miosis
  - a persistently small pupil. Denervation of dilatator pupillae m.
- Ptosis
  - dropping of the upper eyelid. Denervation of smooth mm. serving palpebra
- Pseudo-enophtalmos
  - sunken globe. Appearance based on ptosis.
- Hyperemia
  - flushed skin. Denervation of vasomotor fibers
- Anhydrosis
  - lack of sweating. Denervation of sudomotor fibers



MIGRANE

- Site: temporofrontal region (unilateral) can be bilateral
- Radiation: retro-orbital and occipital
- Quality: intense and throbbing
- Frequency: 1 or 2 per month
- Duration: 4–72 hours (average 6–8 hours)
- Onset: paroxysmal, often wakes with it
- Offset: spontaneous (often after sleep)

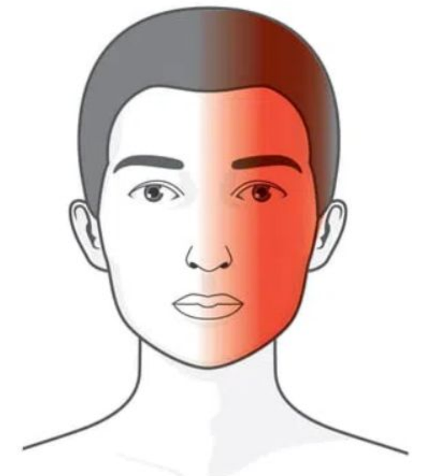
- Aggravating factors: tension, activity
- Relieving factors: sleep, vomiting
- Associated factors: nausea, vomiting (90%) irritability aura

Diagnosis

- headache + vomiting + visual aura ➜ migraine with aura (classic)

Treatment

- Mild: NSAIDs
- Severe or refractory: Triptans, ergots
- Prophylaxis:
  - Beta blocker – propranolo
  - Valproic acid or topiramate



IDIOPATHIC INTRACRANIAL HYPERTENSION

Clinical features

- Change in LOC
- Pupillary changes
- Headache
- ↑ BP + widening pulse pressure
- Bradycardia
- Fever
- Focal neurologic deficit
- Nausea
- Vomiting

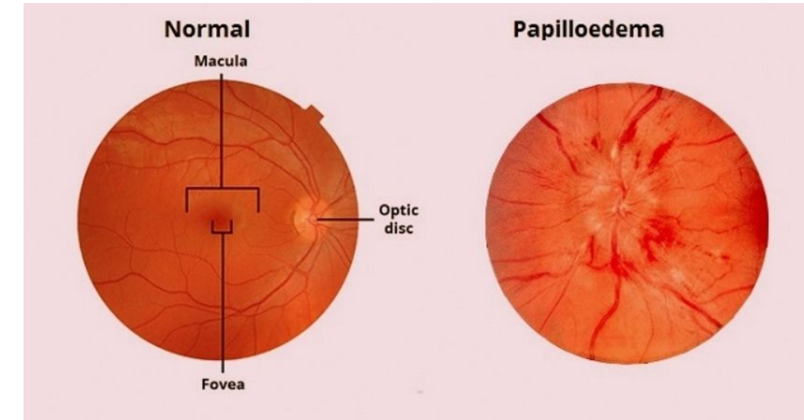
Usually woman

Diagnosis

- Lumbar puncture
- OP>25 cm H2O

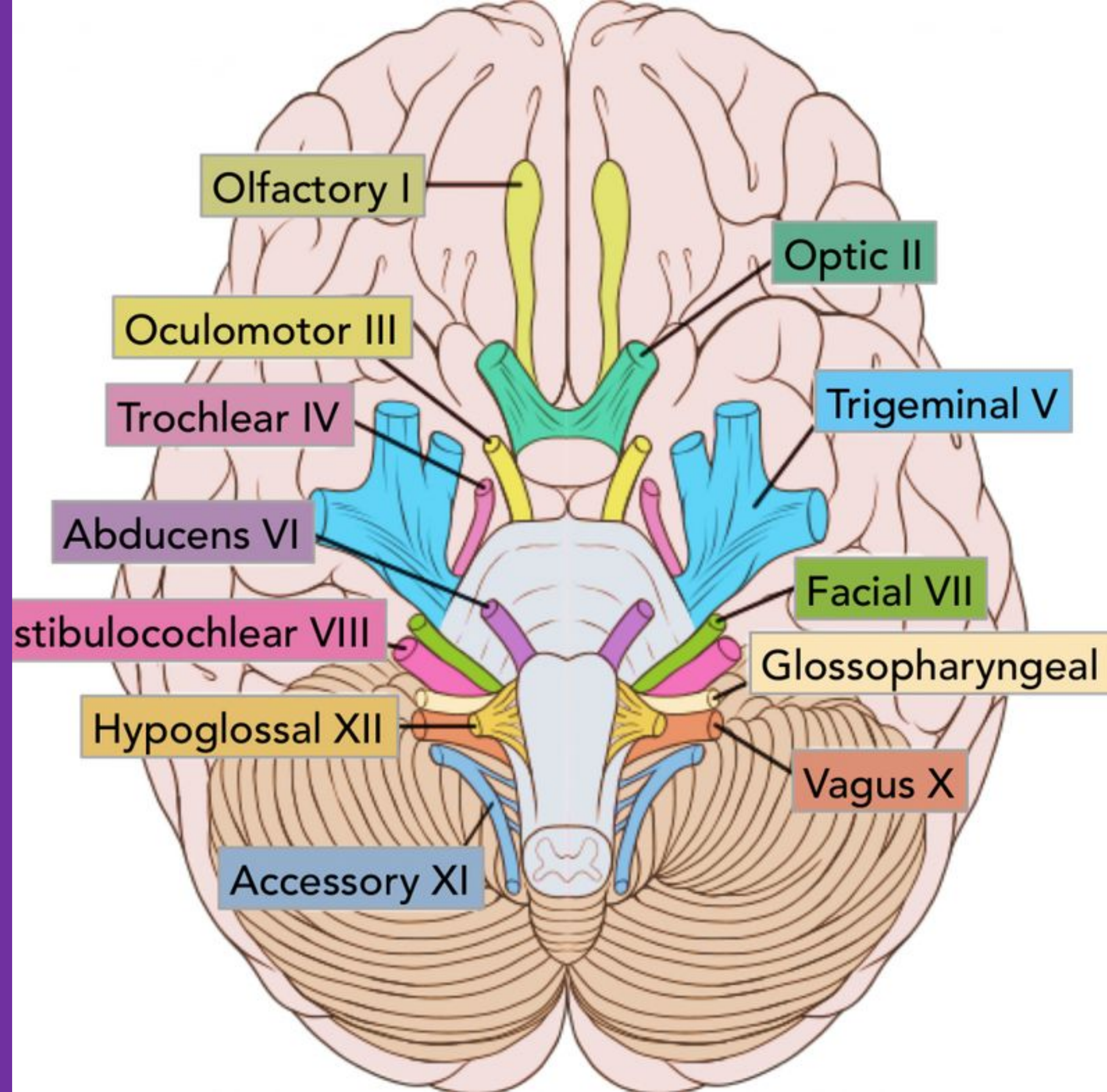
Treatment

- Acetazolelamide
- Serial lumber
- VP shunt



CRANIAL NERVE PALSIES

I	Olfactory nerve
II	Optic nerve
III	Oculomotor nerve
IV	Trochlear nerve
V	Trigeminal nerve
VI	Abducens nerve
VII	Facial nerve
VIII	Vestibulocochlear nerve
IX	Glossopharyngeal nerve
X	Vagus nerve
XI	Accessory spinal nerve
XII	Hypoglossal nerve



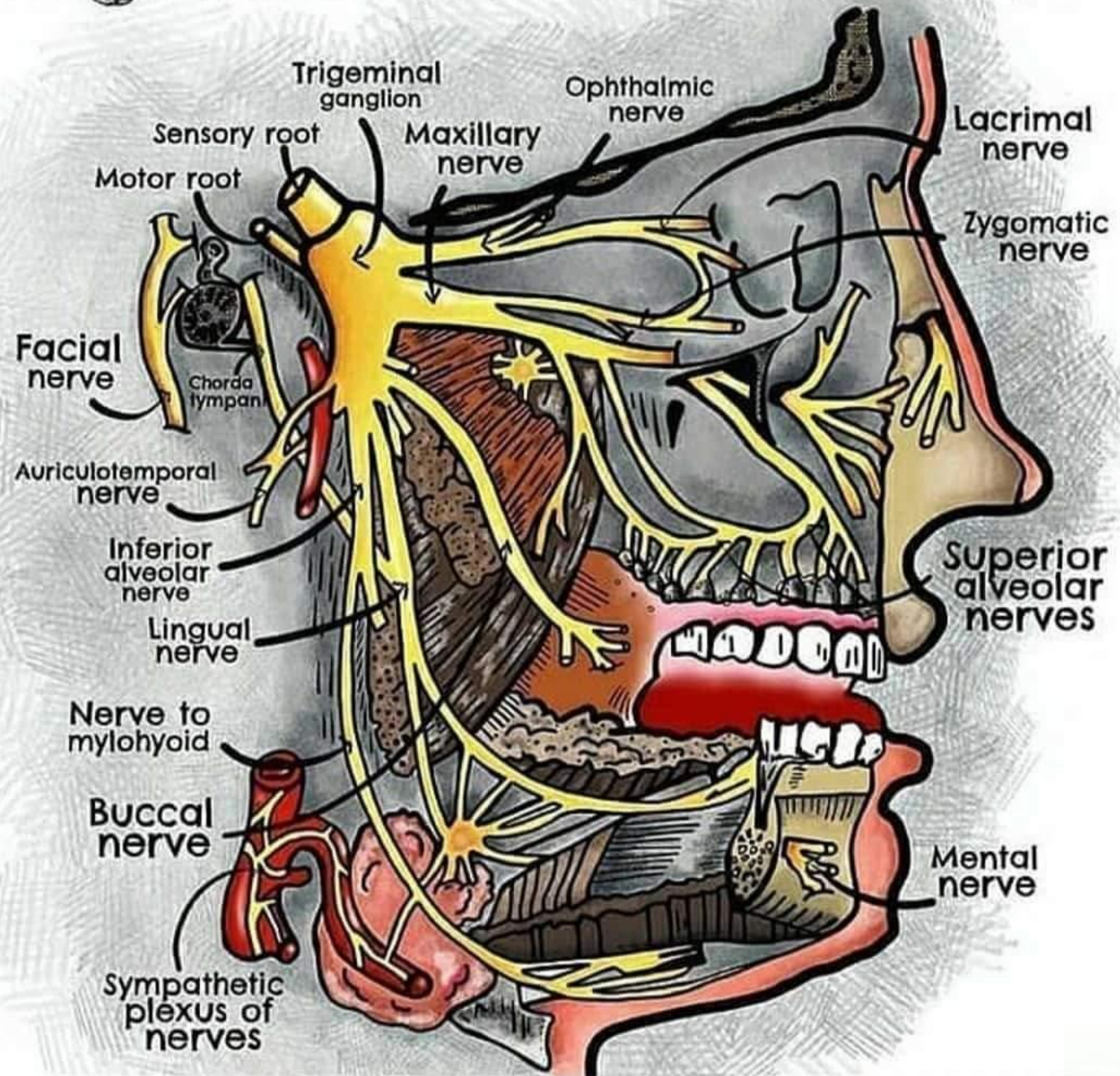
TRIGEMINAL NERVE

CN-V

V1- Ophthalmic

V2- Maxillary

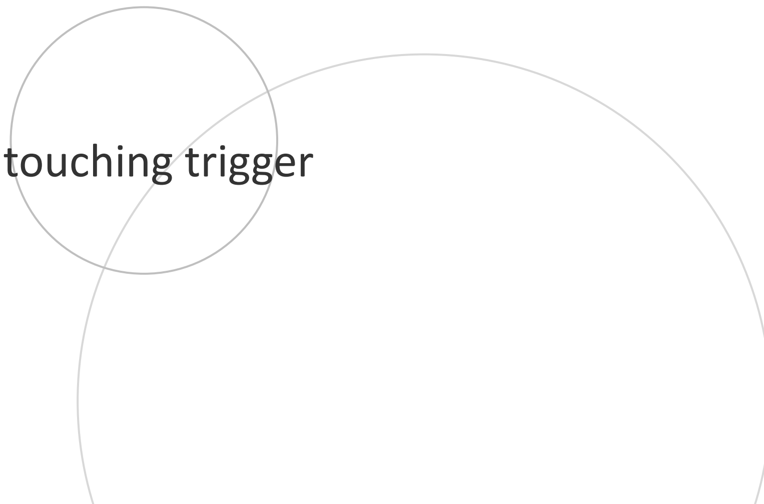
V3- Mandibular



TRIGEMINAL NEURALGIA

- unilateral
- excruciating, searing jabs of pain like a burning knife or electric shock
- Duration of pain is variable
- Seconds to 1–2 minutes (up to 15 minutes)
- Onset: spontaneous or trigger point stimulus
- Offset: spontaneous
- Madibular affected most often

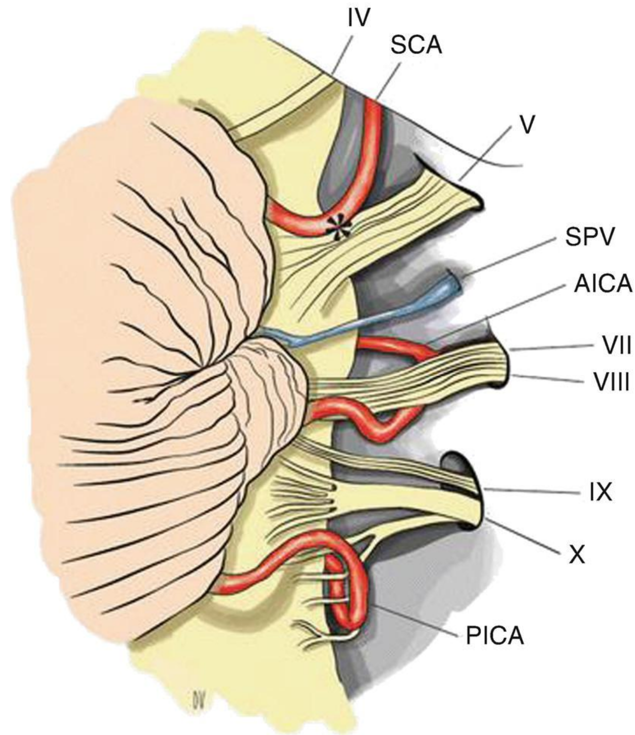
- Precipitating factors: talking, chewing, touching trigger areas on face



Causes

- Idiopathic or compression of the TN
- Local pressure on the nerve root entry zone by vessels (probably up to 75%)
- Multiple sclerosis
- Neurosyphilis
- Tumours of the posterior fossa

TRIGEMINAL NEURALGIA



IV :The Trochlear Nerve
V: The Trigeminal Nerve
VII: Facial Nerve
VIII: The Vestibulocochlear nerve
IX: The Glossopharyngeal Nerve
X: The Vagus Nerve
SCA: Superior cerebellar artery
SPV: Superior Petrosal Vein
AICA: Anterior Inferior Cerebellar Artery
PICA: Posterior Inferior Cerebellar Artery

Diagnosis

- Clx
- MRI to rule out secondary causes

Treatment

- Carbamazepine
- Oxcarbazepine
- Baclofen
- Lamotrigine
- Surgical

FACIAL NERVE

CN – 7

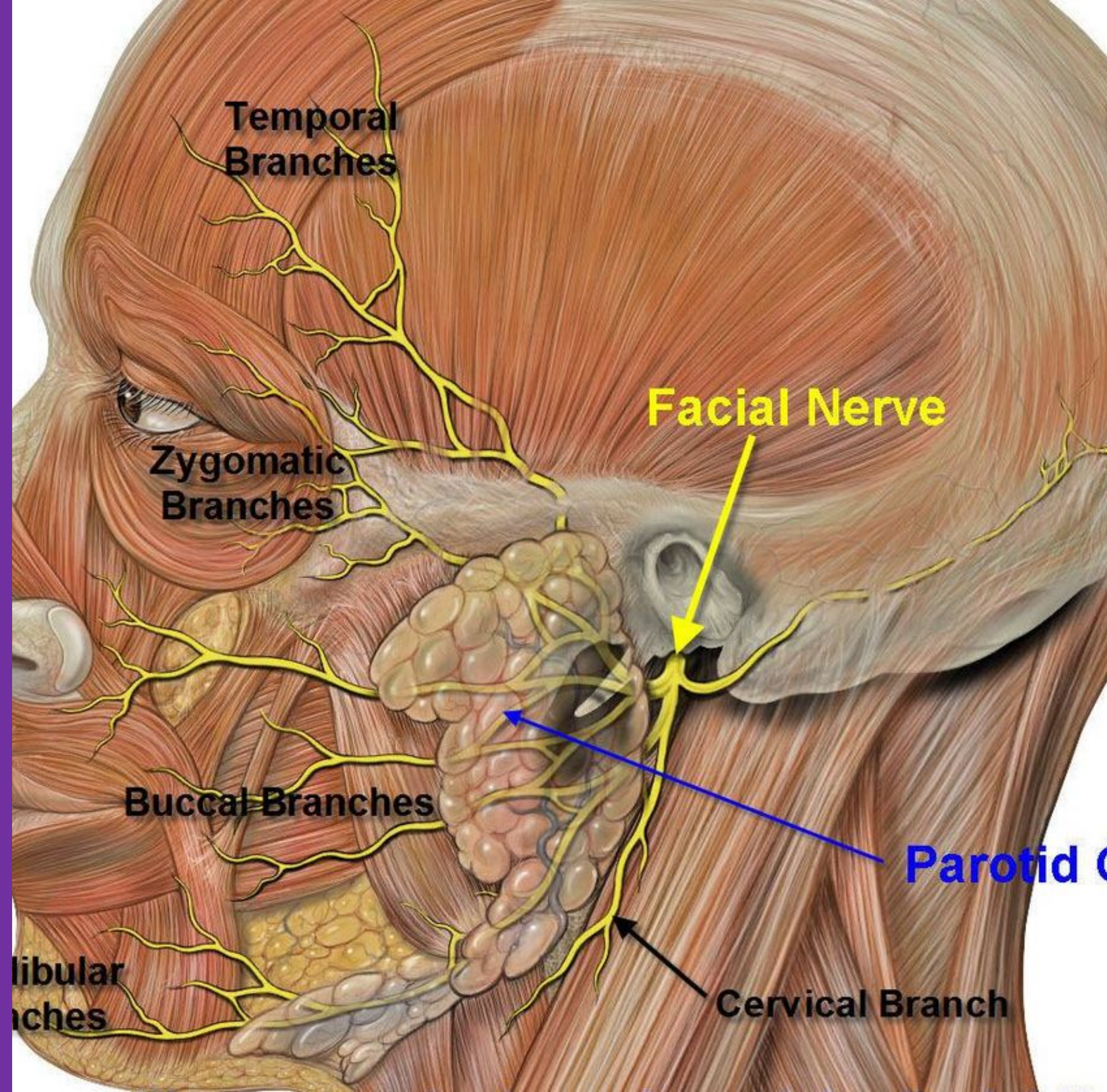
frontal (or temporal)

zygomatic

buccal

marginal mandibular

cervical



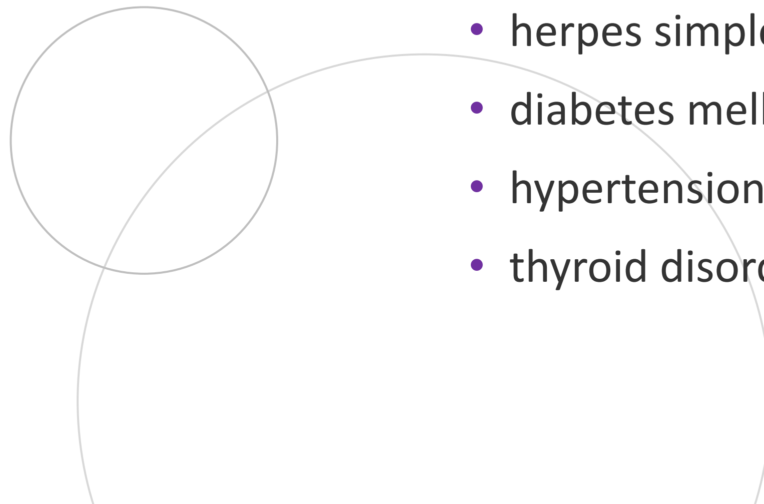
BELL’S PALSY

- Abrupt onset (can worsen over 2–5 days)
- Weakness in the face (complete or incomplete)
- Preceding pain in or behind the ear
- Impaired blinking
- Bell phenomenon—when closing the eye it turns up under the half-closed lid

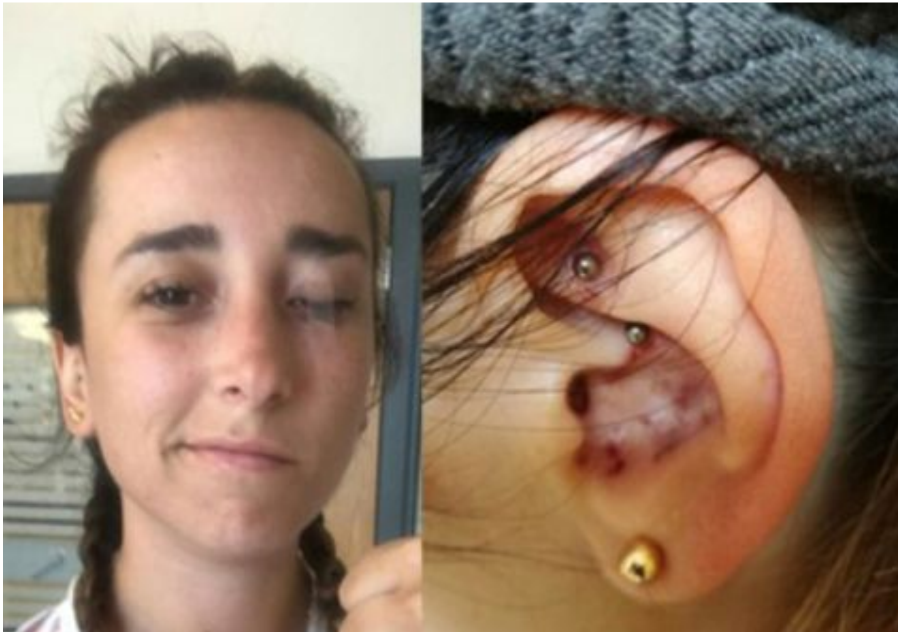
Causes

- infection or inflammation of the facial nerve
- head trauma
- head or neck tumor
- stroke

- Associations:
- herpes simplex virus (postulated)
- diabetes mellitus
- hypertension
- thyroid disorder



BELL'S PALSY



Diagnosis

- Clx

Treatment

- Supportive:
  - Artificial tears if eye is dry and at bedtime
  - Massage and facial exercises during recovery
- Prednisone taper
- Virus infection: acyclovir, valacyclovir

LUMBAR PUNCTURE

- Bleeding in the brain (intracranial hemorrhage).
- Dementia.
- Leukemia or other cancers.
- Meningitis and encephalitis (brain and spinal cord infections).
- Multiple sclerosis or other autoimmune disorders.
- Myelitis (spinal cord inflammation).
- Excess cerebrospinal fluid.

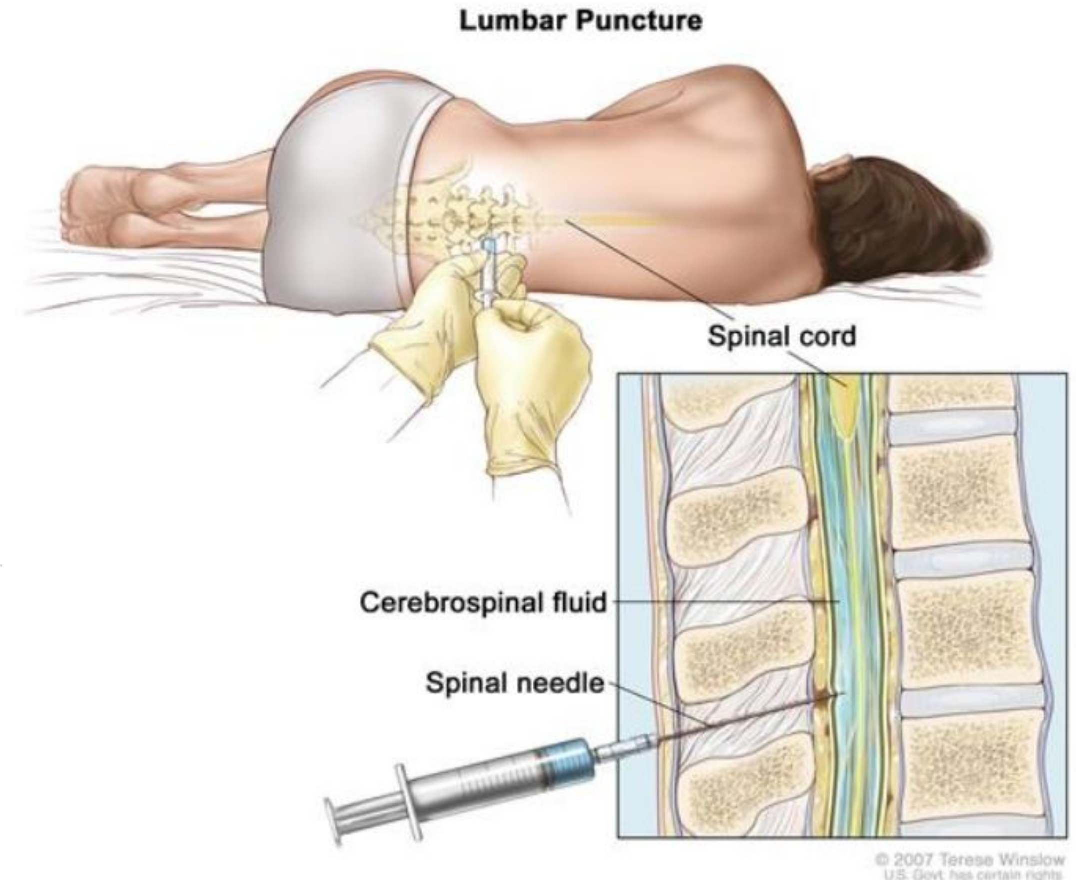
- Administer regional anesthesia, such as an epidural to block pain in the lower part of the body.
- Inject dye for an X-ray diagnostic test (myelogram).
- Inject cancer medications or muscle relaxers.
- Relieve intracranial (head) pressure.

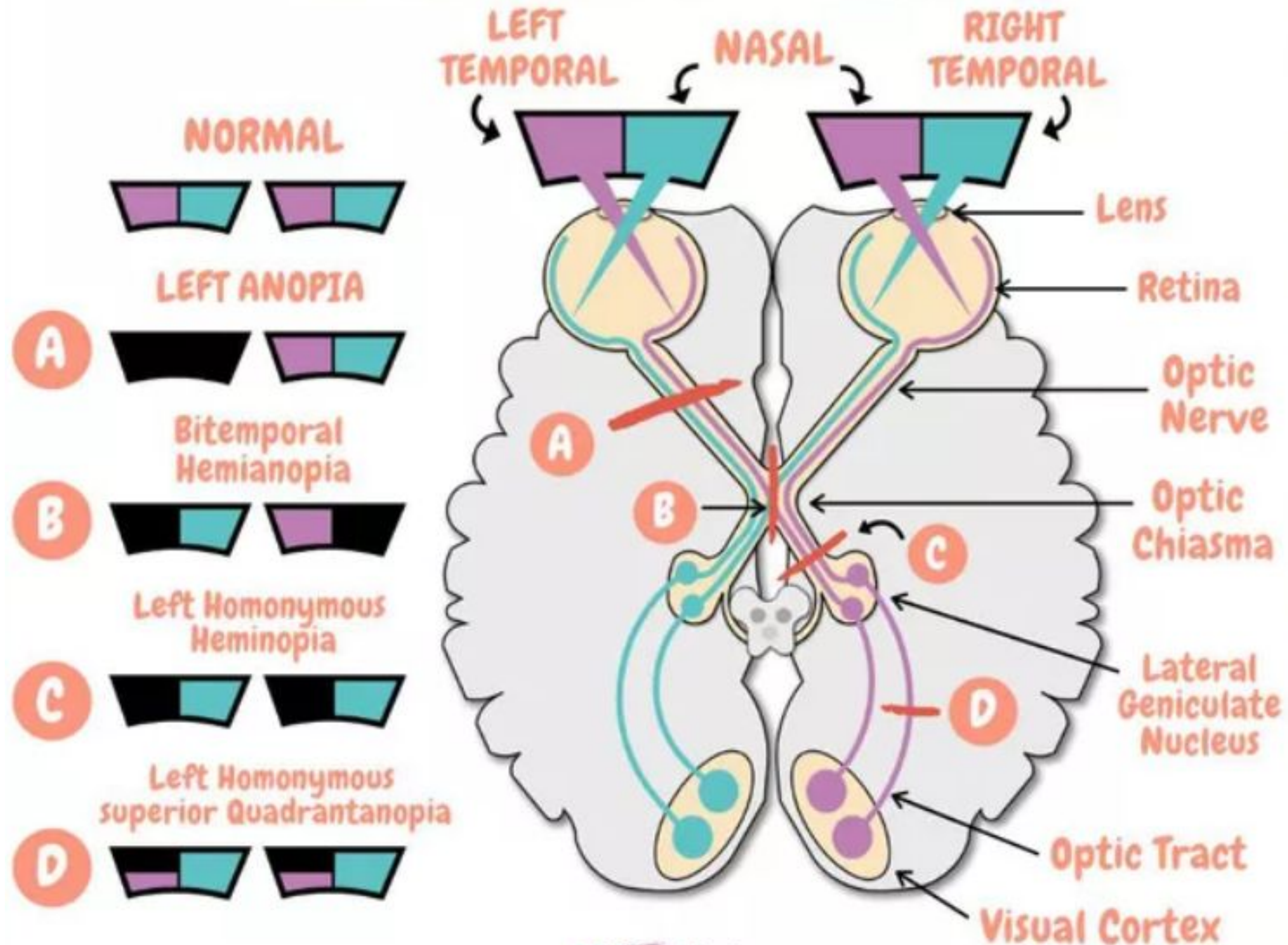
Preparing

- Stop taking blood-thinning medications, such as aspirin and warfarin.
- Tell your doctor if you’re allergic to povidone-iodine (an antiseptic) or procaine (an anesthetic).

LUMBAR PUNCTURE

- Cleans your skin with an antiseptic.
- Injects a local anesthetic into your lower back to numb the area. You might feel a slight burning sensation.
- Inserts a thin, hollow needle between two vertebrae (spinal bones) in the lower part of the spine. You may feel some pressure.
- Draws fluid into the needle or injects medication or dye.
- Gently withdraws the needle.
- Cleans the skin again with an antiseptic and covers the puncture site with a bandage.





VISUAL PATHWAY
LESIONS
LEFT TEMPORAL
NASAL
RIGHT TEMPORAL
NORMAL
LEFT ANOPIA
A
Bitemporal Hemianopia
B
Left Homonymous Heminopia
C
Left Homonymous superior Quadrantanopia
D
Lens
Retina
Optic Nerve
Optic Chiasma
Lateral Geniculate Nucleus
Optic Tract
Visual Cortex
REV Med

DISORDERS OF THE VISUAL PATHWAY

Central scotoma	Monocular vision loss	Bitemporal hemianopia	Contralateral homonymous hemianopia	Contralateral superior quadrantanopia ("pie in the sky")	Contralateral inferior quadrantanopia ("pie on the floor")	Homonymous heminanopia with macular sparing
Macular degeneration Retinal infarction hemorrhage degeneration infection	Optic neuritis Anterior ischemic optic neuropathy Optic glioma	Pituitary adenoma Craniopharyngioma Hypothalamic glioma	Optic tract lesions Optic radiation lesions Lesion involving the entire primary visual cortex	Temporal lobe lesions Lesions involving the lower bank of the calcarine fissure	Parietal lobe lesions Lesions involving the superior bank of the calcarine fissure	Posterior cerebral artery infarction

APPROACH TO SYNCOPE

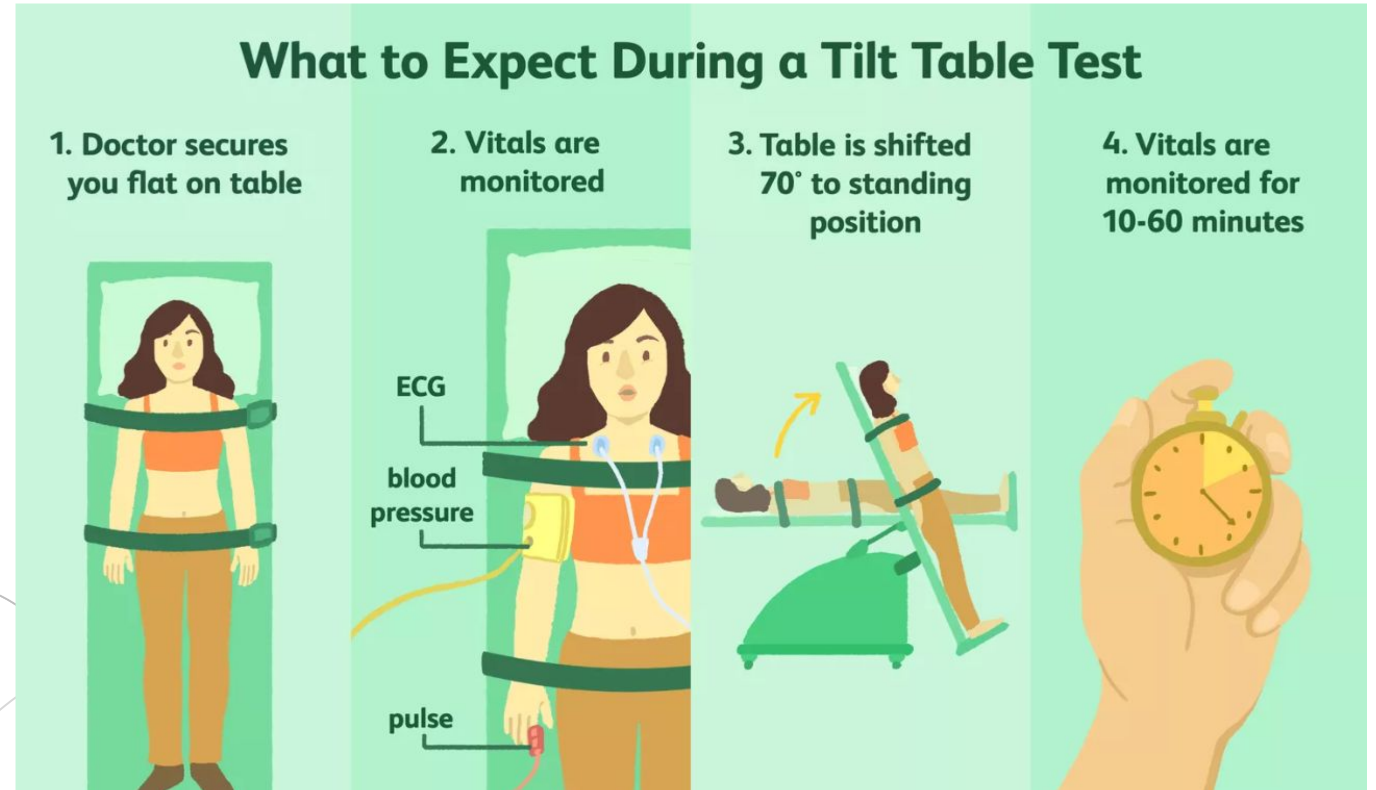
	Seizure	Syncope
Jerking motions	>20	<10
	Bilateral	Unilateral
Postictal State	> 5 min	<10
	Gradually	Rapidly
	Tongue biting and Loss of bowel and bladder	

APPROACH TO SYNCOPE

W vasovagal

- Visceral
- Baroreceptors
- Psychogenic

- Situational and recurrent
- Drop 50 points in the SBP
- Dx: tilt table
- Tx: betablockers



APPROACH TO SYNCOPE

Orthostatic hypotension

- Volume down: dehydration, diarrhea, diaresis and hemorrhage
- Dysfunctional autonomic nervous system: old and Parkinson

- Dx: orthostatic vital signs
- Tx: IVF

Orthostatic Meds

Have patient Lie for 5 minute take BP

then Sit Up - Stand (BP 1 & 3 min) 20/10/20

Systolic (fall) 20 -Diastolic (fall) 10 Pulse (rise) 20

"513 Dehydrated Sand Fan"

Dehydrated
(other cause)
S-"Sin's" Tamsulosin
A- Ace Inhibitors
N- Nitro
D- Dexosin

5 Min
1 Min
3 Min

F-First Dose BP meds
A-ARBS "Sartan"
N-Nitroprusside

APPROACH TO SYNCOPE

Mechanical cardiac – a structural heart disease

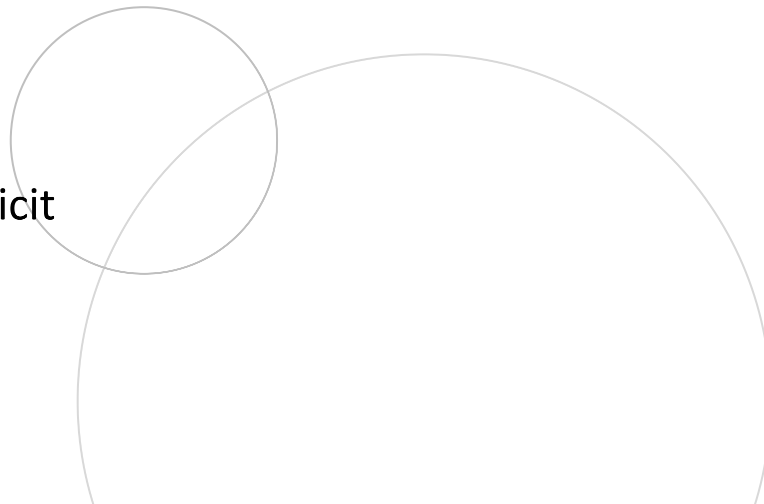
- Exertional syncope, a murmur
- Dx: Echo
- Tx: surgery the valves

Arrhythmia

- Sudden onset
- Dx: Holter monitor

Neurogenic (rare)

- Sudden onset and focal neurologic deficit
- Dx: U/S



Psych

- Dx: face-palm maneuver

Electrolytes

- Dx: BMP
  - Na, Ca – mental status
  - K, Mg - weakness

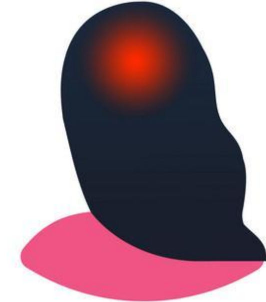
SYNCOPE
(FAINTING)

* WHEN a PERSON **LOSES CONSCIOUSNESS** & **MUSCLE STRENGTH** *

- COMES on QUICKLY
- DOESN'T LAST LONG
- SPONTANEOUS RECOVERY
  (no resuscitation)

Tension Headache

Migraine

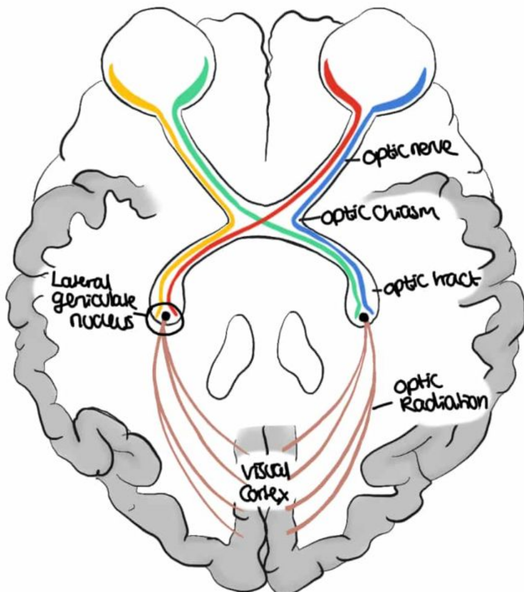


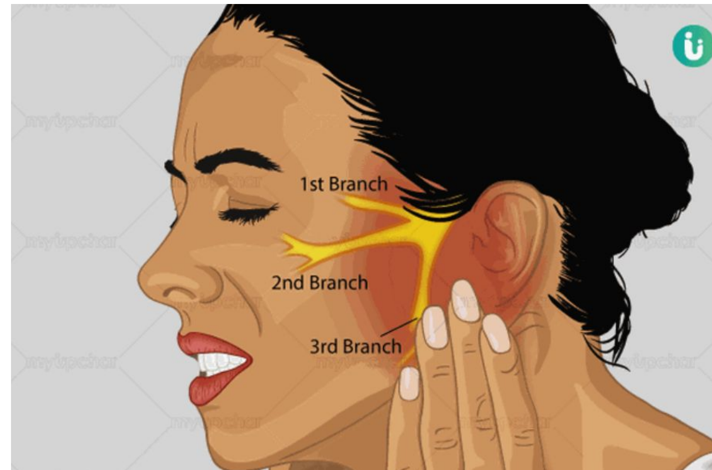
Hypertension

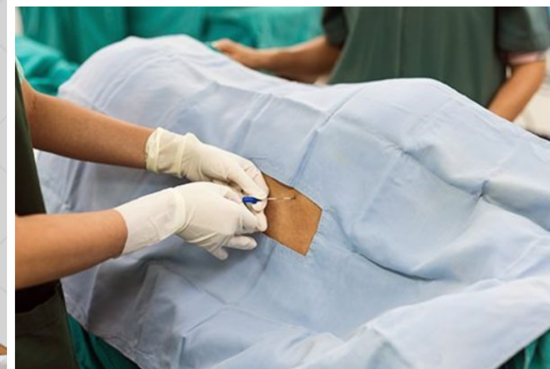
Cluster

Temporal

Sinus







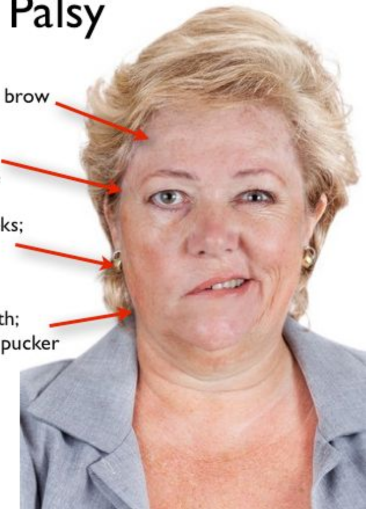
Bell's Palsy

Inability to wrinkle brow

Drooping eyelid; inability to close eye

Inability to puff cheeks; no muscle tone

Drooping mouth; Inability to smile or pucker



NEUROLOHY