

# **F a c i a l N e r v e P a l s y**

**D O N E B Y :**

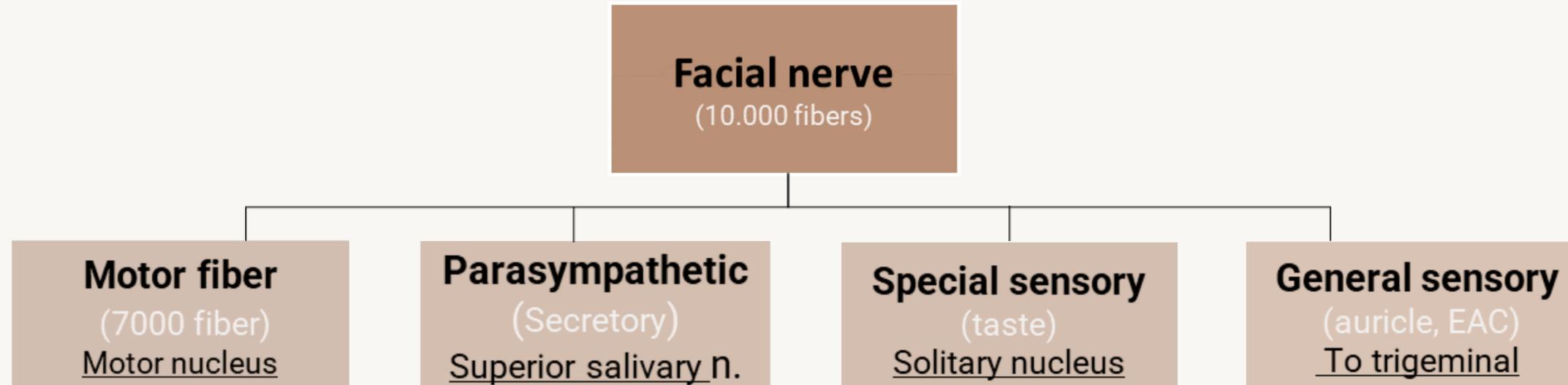
**A M E N A A L D M O U R**

**S A R A M O H A M M A D**

**S U R A M A A I T A H**

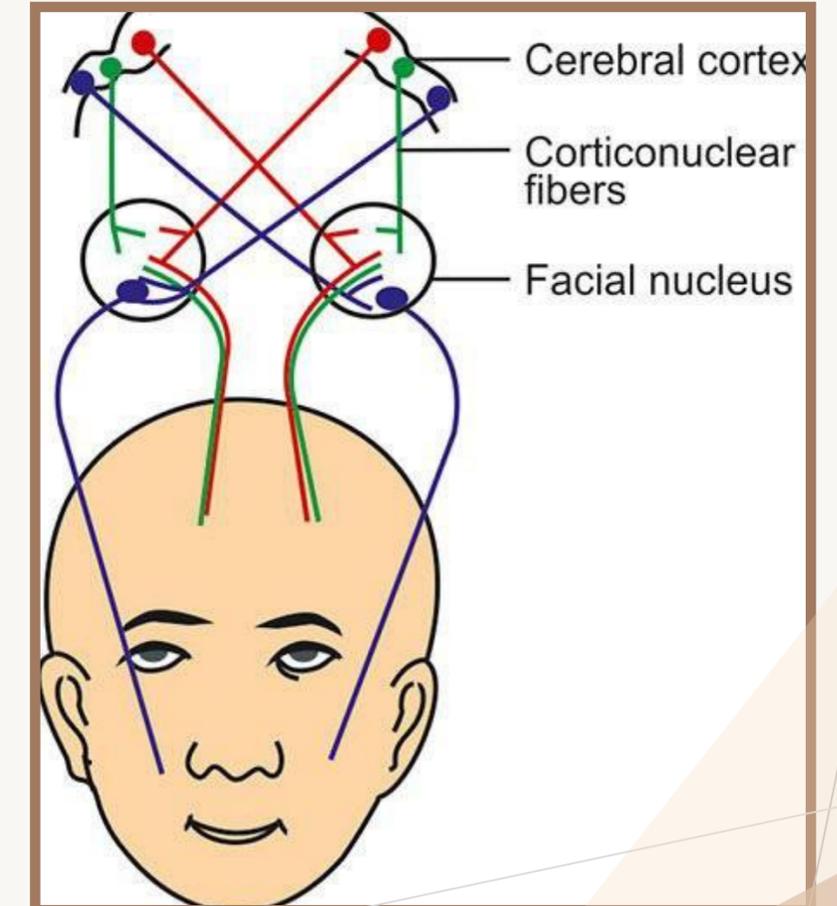
**S U P E R V I S E D B Y : D r A b d u l l a h**

# Anatomy of facial nerve



**The facial motor nucleus:** lies in the pons. It is controlled by:

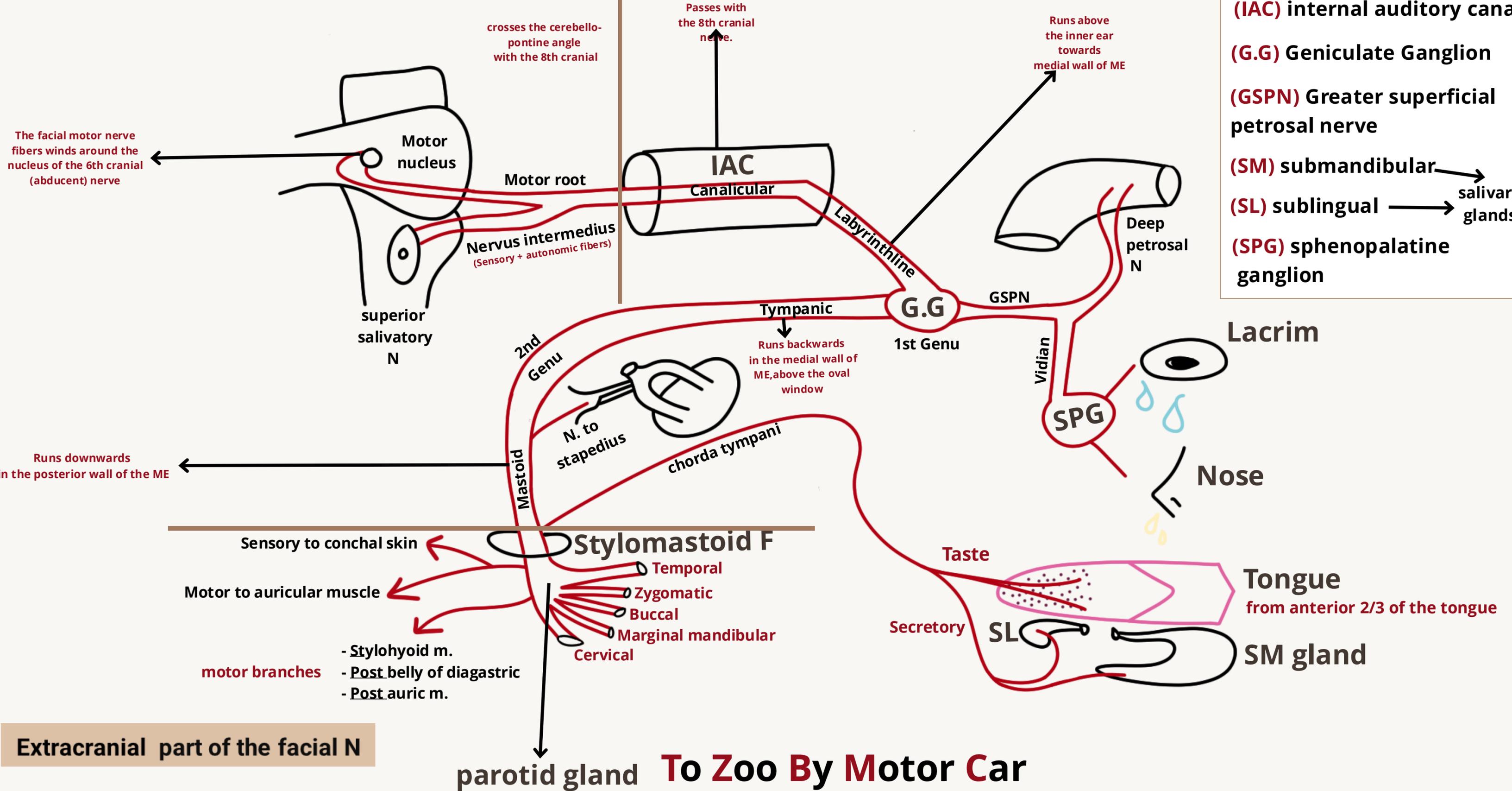
- **Pyramidal fibers** (from the cortical motor area). The upper part of the nucleus receives fibers from both sides, while the lower part of the nucleus receives fibers from only the contralateral side.
- **Extra-pyramidal** for involuntary emotional movements as smiling and crying.



**Intracranial part of the facial N**

**Cranial part of the facial N**

- اختصارات
- (IAC) internal auditory canal
  - (G.G) Geniculate Ganglion
  - (GSPN) Greater superficial petrosal nerve
  - (SM) submandibular salivary glands
  - (SL) sublingual salivary glands
  - (SPG) sphenopalatine ganglion



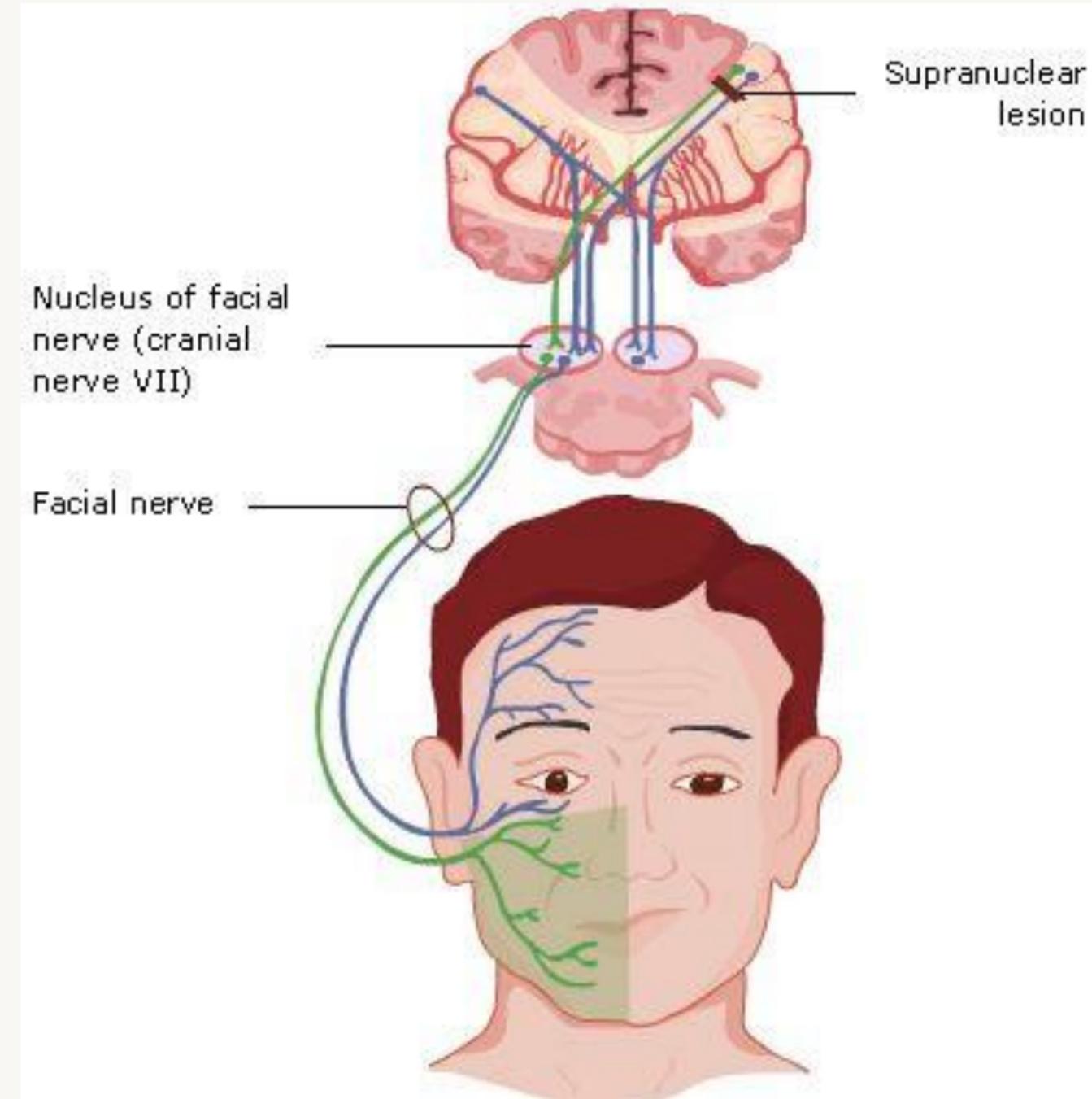
**Extracranial part of the facial N**

**To Zoo By Motor Car**

# Facial nerve palsy

paresis or paralysis of the facial muscles or any structures innervated by the facial n. usually unilateral, due to either a lesion involving the nucleus or the facial nerve or a supranuclear lesion in the cerebrum or upper brainstem.

**The most common causes of the abrupt onset of unilateral facial weakness are stroke and Bell's palsy**

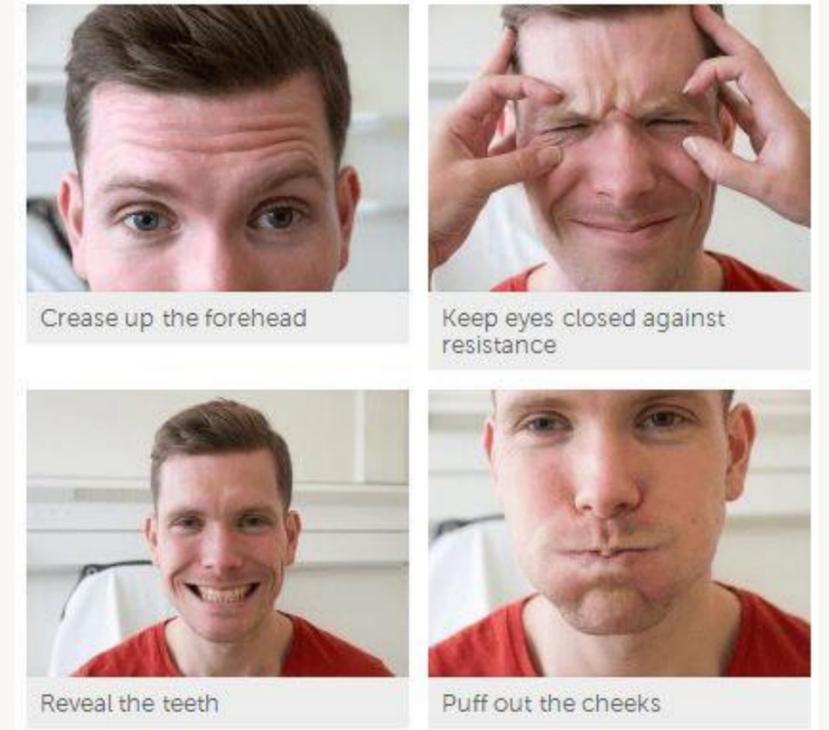


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# Facial nerve

## Motor function:

1. inspection (asymmetry of face , blinking or eye closure).
2. Spontaneous/ involuntary movement .
3. Wrinkling of forehead.
4. Close eyes tightly and try to open them.
5. Bare teeth.
6. Blow out cheeks.



## Sensory function:

### Taste:

1. Sweet (sugar)
2. Sour... ( salt , vinegar)
3. Bitter...(quinine solution).
4. Rinse mouth between each test.

### Hearing

### shirmer's test

# Lesion , Localization , Cause

- **Unilateral** involvement of the **lower** face , with  
near normal eye closure : ( **CONTRALATERAL , SUPRANUCLEAR**

. ( lesion

.Causes : vascular, tumor, demyelination, infection

Spontaneous emotional expression may be unaffected with

. **subcortical lesion**

**Unilateral** involvement of the **upper** and **lower** face (Bell's palsy) -  
with defective eye closure : ( **IPSILATERAL NUCLEAR** or

.( **INFRANUCLEAR** lesion

Spontaneous emotional expression affected

- **Bilateral involvement of the upper and lower face :**

**BILATERAL NUCLEAR** lesions associated with other)

. ( features of pseudobulbar palsy

, Causes : pontine lesions ( infarction , hemorrhage

.demyelination , tumor infection

( **BILATERAL INFRANUCLEAR** lesion )

, Causes : Guillain Barre syndrome , Lyme disease

infectious mononucleosis , sarcoidosis

( **MUSCLE DISEASE** )

Causes : myasthenia gravis , muscular dystrophy

<b>Features</b>	<b>Upper Motor Neuron Palsy</b>	<b>Lower Motor Neuron Palsy</b>
<b>Forehead wrinkling</b>	<b>B/L present</b>	<b>Same side absent</b>
<b>Eye closure</b>	<b>B/L present</b>	<b>Same side absent</b>
<b>Naso-labial fold</b>	<b>Opposite side absent</b>	<b>Same side absent</b>
<b>Drooping of angle of mouth</b>	<b>Opposite side</b>	<b>Same side</b>

# Bell's palsy

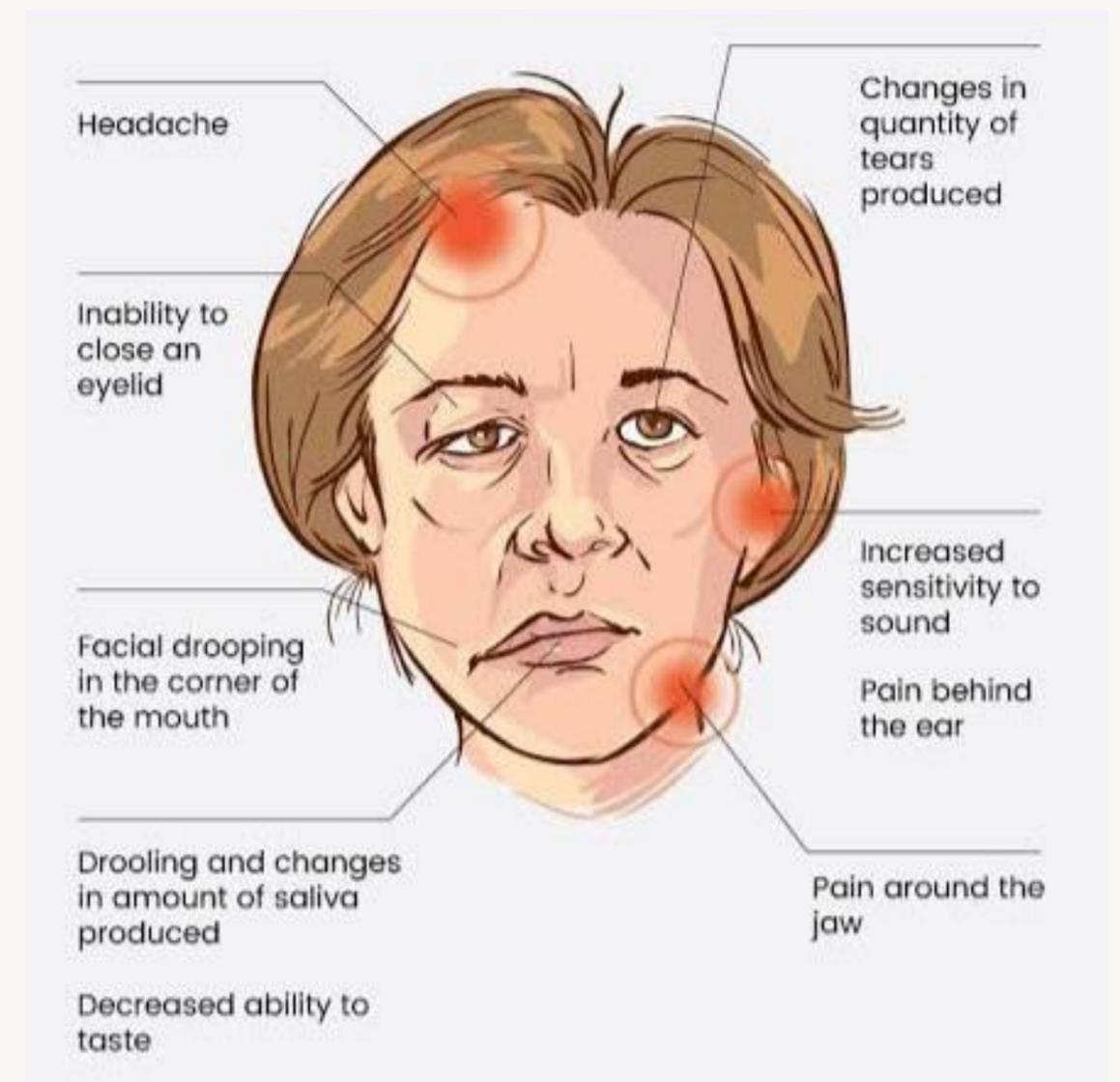
Bell's palsy is a lower motor neuron facial palsy of unknown cause, but thought to be viral

Usually unilateral, rarely bilateral

## Risk factors

- between 15 and 60 years of age
- Herpes simplex.
- Diabetes.
- A common cold.
- The flu.
- High blood pressure.
- Lyme disease (chronic)
- Mononucleosis.
- HIV or another autoimmune disorder.
- Sarcoidosis.
- Head trauma

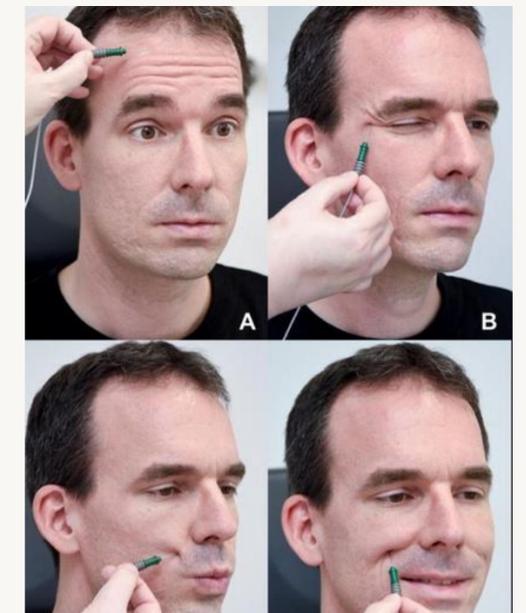
## Signs & Symptoms



## Assessment and investigations of Bell's palsy:

- CT or MRI scanning may be needed if the symptoms persist or a specific cause (i.e. other than Bell's palsy) is suspected

Electrodiagnosis is used in the assessment of the degree of involvement of the nerve and includes nerve conduction tests and electromyography, it's done by percutaneous stimulation of facial nerve



# Management of Bell's palsy

- Prednisolone given orally is the treatment of choice, but it must commence in the first 72 hours.
- An eyepad, a tape over the eyelids at night or in persistent cases a 'tarsorrhaphy' (surgical approximation of the eyelids) may be needed.
- Antivirals such as acyclovir seem to offer little benefit.
- Persistent facial palsy warrants referral and thorough investigation, including CT or MRI scanning.

**Physiotherapy after 2 weeks**

# Prognosis

- 70 % recover in 4 – 8 weeks without treatment .
- Corrective surgery for residual facial asymmetry .
- Incomplete paralysis indicates a good prognosis .

**Bad prognosis in:**  
**Elderly.**

**DM.**

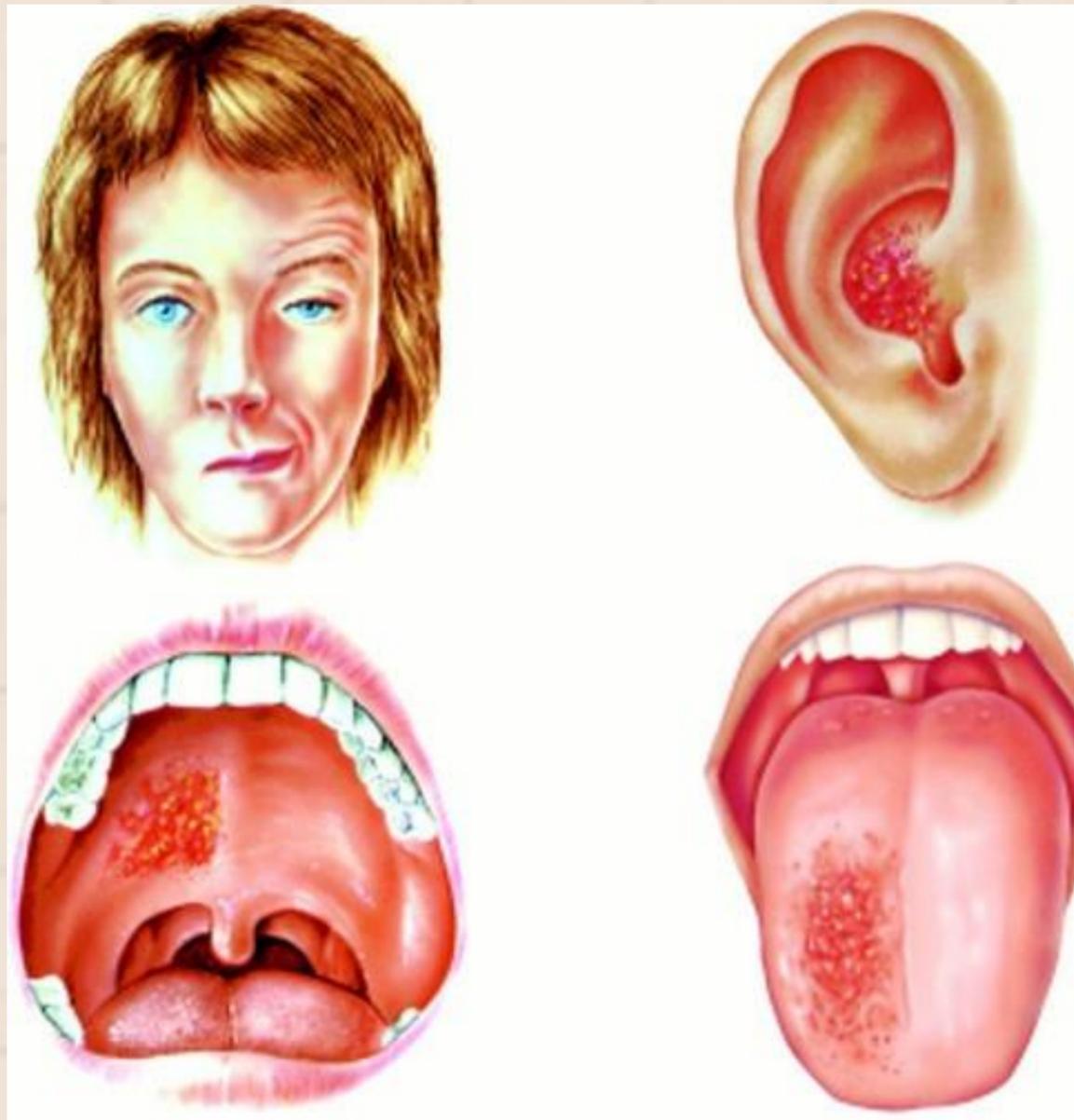
**Progressive (complete).**

**Pregnant.**

# Complications

- 1. Irreversible damage to facial nerve which could lead to weakness**
- 2. Synkinesis: Abnormal regrowth of nerve fibers. This may result in involuntary contraction of certain muscles when the pt is trying to move others**
- 3. Crocodile tears: 6% (lacrimation after salivary stimulus)**  
preganglionic parasympathetic fibers regrow and enter the major superficial petrosal nerve. Such aberrant regeneration may lead to lacrimation after a salivary stimulus
- 4. Partial or complete blindness of the eye that won't close due to excessive dryness and scratching of the cornea.**

# Ramsay Hunt syndrome



**Its an infection of herpes zoster to the geniculate ganglion that could lead to facial weakness with vesicular eruption in the external auditory meatus**

- Pain may precede the facial weakness
- Serosanguinous fluid (blood or serum) may discharge from the ear
- Cranial nerves from 5-12 could be affected; if 8<sup>th</sup> cranial nerve is affected it could lead to deafness

## **Ramsay Hunt syndrome**

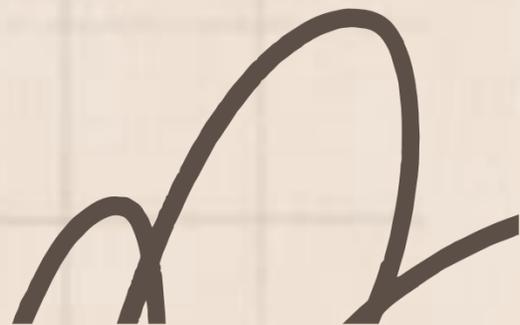
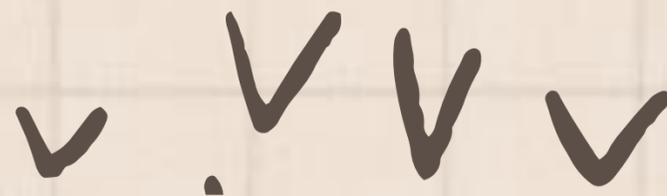
**Can occur to anyone who had chickenpox**  
**The patient is usually elderly comes with :-**

- severe pain precedes the facial palsy and the herpetic eruption in :
- ear.
- tongue.
- palate.
- vertigo.
- hearing impairment

- Antiviral medication : acyclovir
- steroids:prednisone
- physical therapy : warm eyepads and artificial tears
- analgesic medication

# Facial palsy in acute or chronic OM

- **Otitis media** is an infection in the middle ear, which can spread to the facial nerve and inflame it, causing compression of the nerve in its canal.
- Once suspected, there should be immediate surgical exploration to determine if a cholesteatoma has formed as this must be removed if present. Inflammation from the middle ear can spread to the canalis facialis of the temporal bone .
- In the case of inflammation the nerve is exposed to edema and subsequent high pressure, resulting in palsy. This requires immediate expert advise and urgent surgery is usually necessary.



# Neoplasms

**27% of patients with tumors involving the facial nerve develop acute facial paralysis**

- **Most common causes: schwannomas, hemangiomas (usually near geniculate ganglion) & perineural spread such as with head and neck carcinoma, lymphoma & leukemia**

# Schwannoma of the vestibular portion of CN VIII

most common intracranial tumour causing hearing loss starts in the internal auditory canal and expands into cerebellopontine angle (CPA),

## Presentation

- usually presents with unilateral sensorineural hearing loss
- dizziness and unsteadiness may be present, but no true vertigo
- facial nerve palsy and trigeminal (V1) sensory deficit (corneal reflex) late complications

## Diagnosis

- MRI, CT (contrast enhancing mass in CPA)
- audiogram
- BAEP (brainstem auditory evoked potentials)
- if bilateral: neurofibromatosis type II

## Treatment

- conservative "wait and see"
- definitive management is surgical excision
- other options, such as gamma knife

# Traumatic facial palsy

- This may result from: fracture of the temporal bone or from ear surgery (iatrogenic ).
- If the onset is delayed recovery is to be expected but if there is immediate palsy urgent surgical exploration and decompression or grafting will be required .

# Fracture of temporal bone

Facial nerve damage in temporal bone fracture :

Longitudinal fracture :

- 80% (most often temporary and frequently delayed in onset)
- Compression due to the edema .<< steroid << no response < surgery to reduce the compression .
- Patients may present with :
  - Hemorrhage (blood coming out of the external auditory meatus)
  - Tympanic membrane tear
  - Fracture of external auditory canal and conductive hearing loss.

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## Transverse fracture :

- 20% (severe, usually permanent, and immediate in onset)
- cutting of the nerve < suturing or grafting
- Patients may also present with
  - Hemotympanum (blood behind the tympanic membrane).
  - Sensory deafness
  - vertigo
    - the latter two symptoms due to damage to vestibulocochlear nerve (cranial nerve VIII) and the inner ear

# Iatrogenic facial palsy

The most common procedure being performed during the injury was:

Mastoidectomy (55%), Tympanoplasty (14%) Removal of exostoses (14%).

# THANK YOU

