

FACIAL NERVE NEUROANATOMY

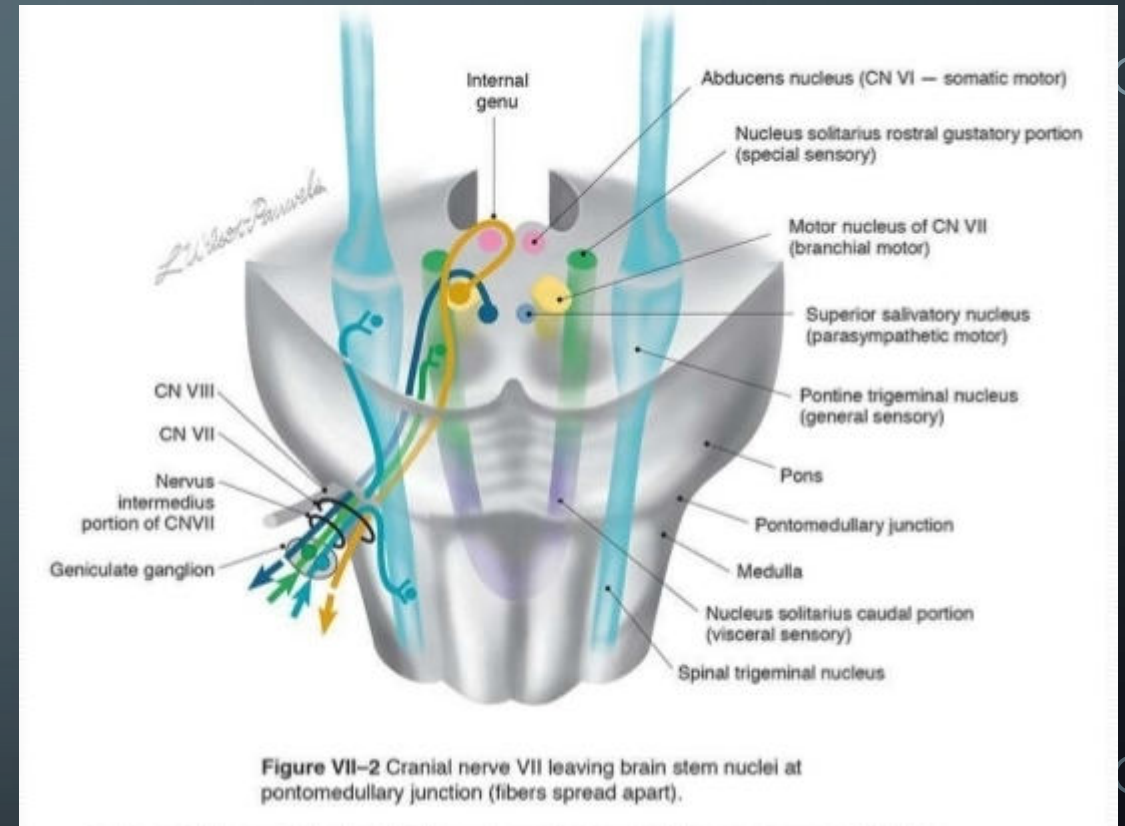
C J ABDUL KALAM

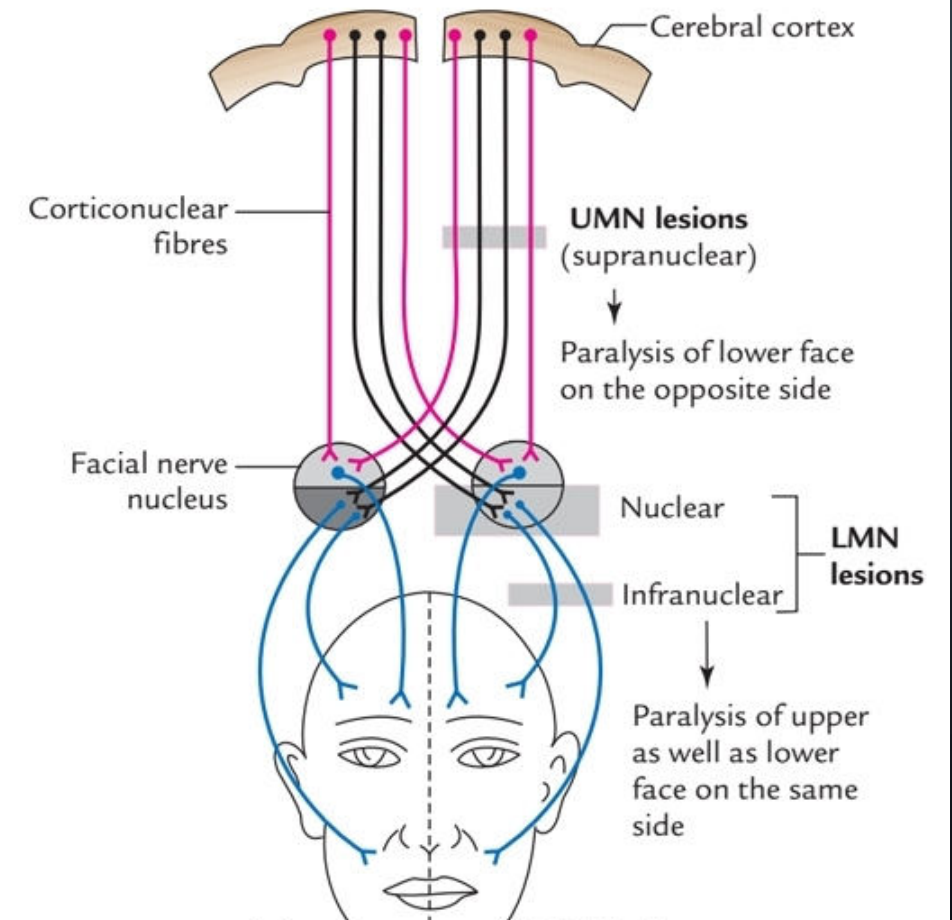
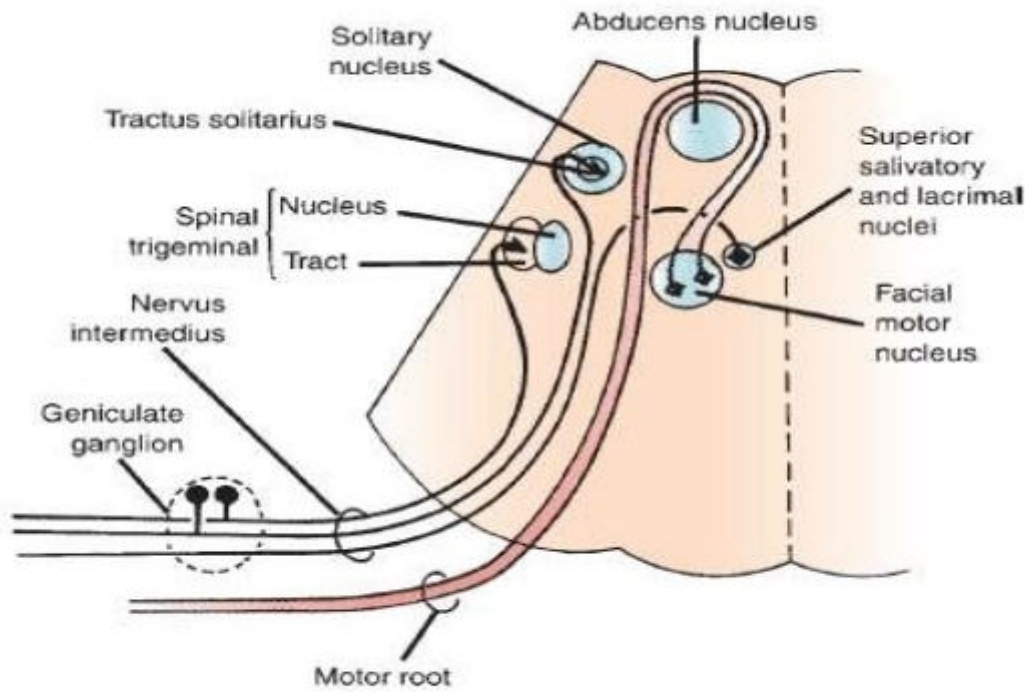
- Facial nerve is the nerve of second branchial arch
- It's a mixed nerve, contains motor , sensory & autonomic fibres
- Motor – muscles of facial expression , platysma ,post belly of digastric , stylohyoid
- Sensory –taste sensation from anterior 2\3rd of tongue , small area around concha of ear
- Autonomic – lacrimal , sublingual & submaxillary glands

NUCLEI

- All four nuclei lie in lower pons

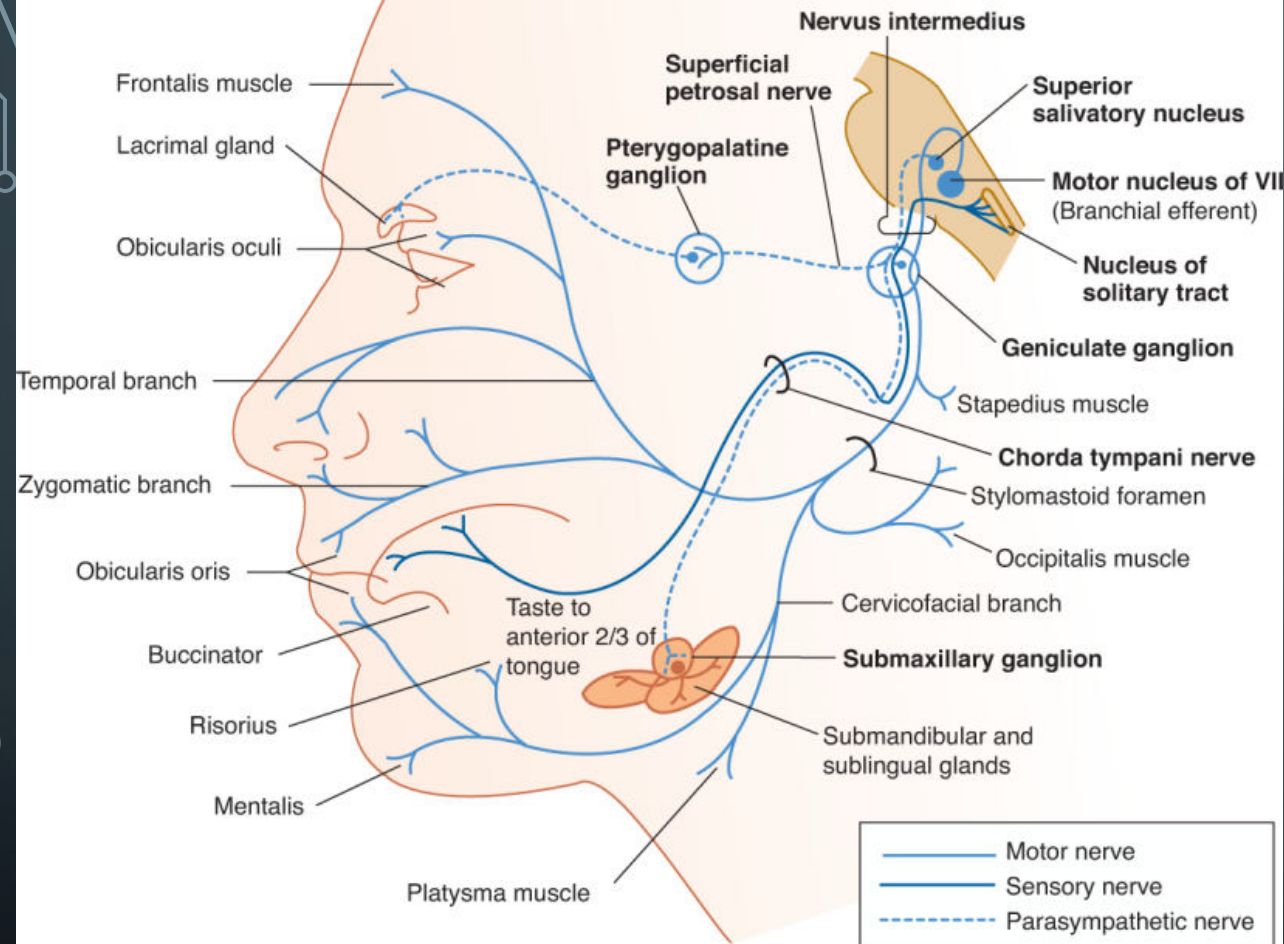
1. Motor nucleus/branchiomotor
2. Superior salivary nucleus
3. Lacratory nucleus
4. Nucleus of tractus solitarius



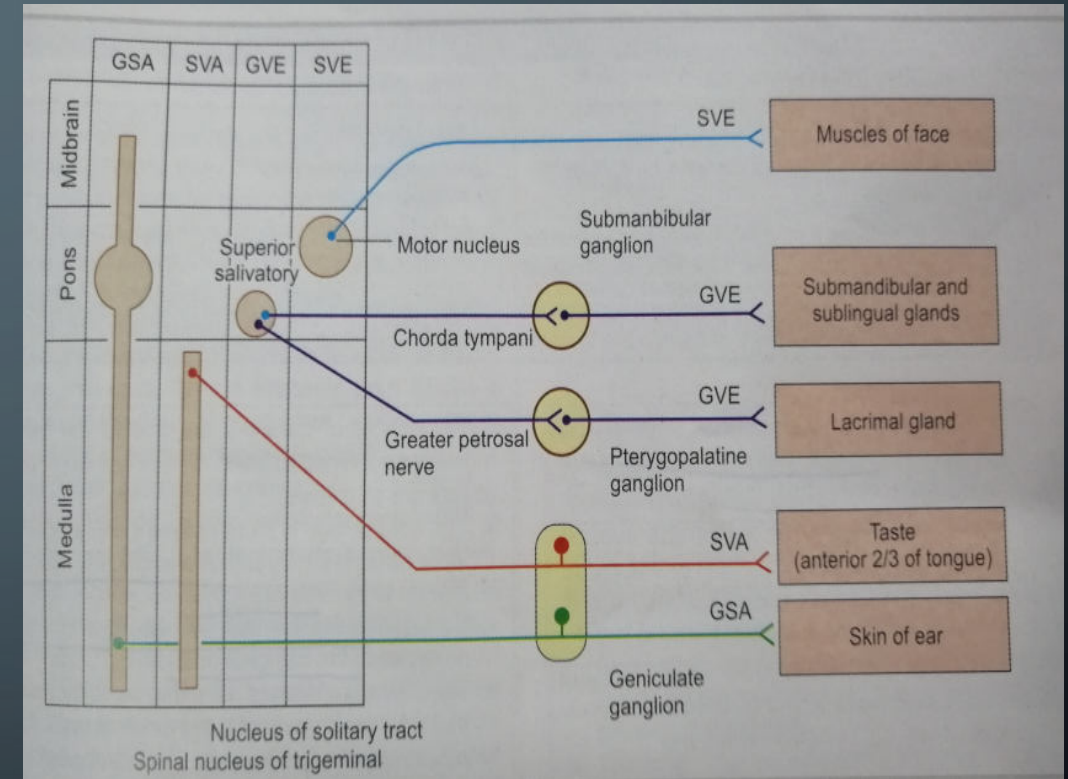


FUNCTIONAL COMPONENTS

- Special visceral /branchial efferent → muscles
- General visceral efferent → salivary glands , palatal , nasal & pharyngeal glands
- General visceral afferent → afferent impulse from above glands
- Special visceral afferent → ant 2/3rd of tongue, soft palate
- General somatic afferent → skin of ear



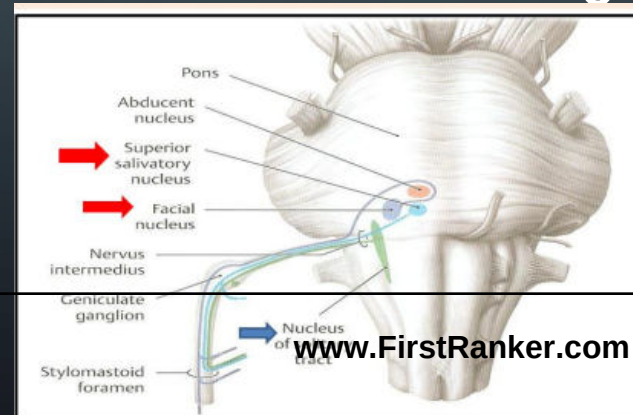
Source: Waxman SG: Clinical Neuroanatomy: Twenty-Seventh Edition:
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COURSE OF FACIAL NERVE

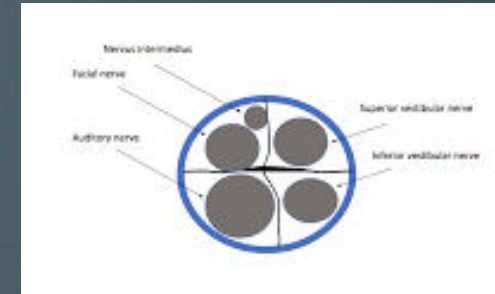
INTRACRANIAL PART

- Attached to brainstem by two roots motor & sensory(nerve of Wrisberg) at the lower border of pons medial to eighth nerve in the cerebellopontine angle
- 15 – 17 mm in length
- It reach internal acoustic meatus along with vestibulocochlear nerve

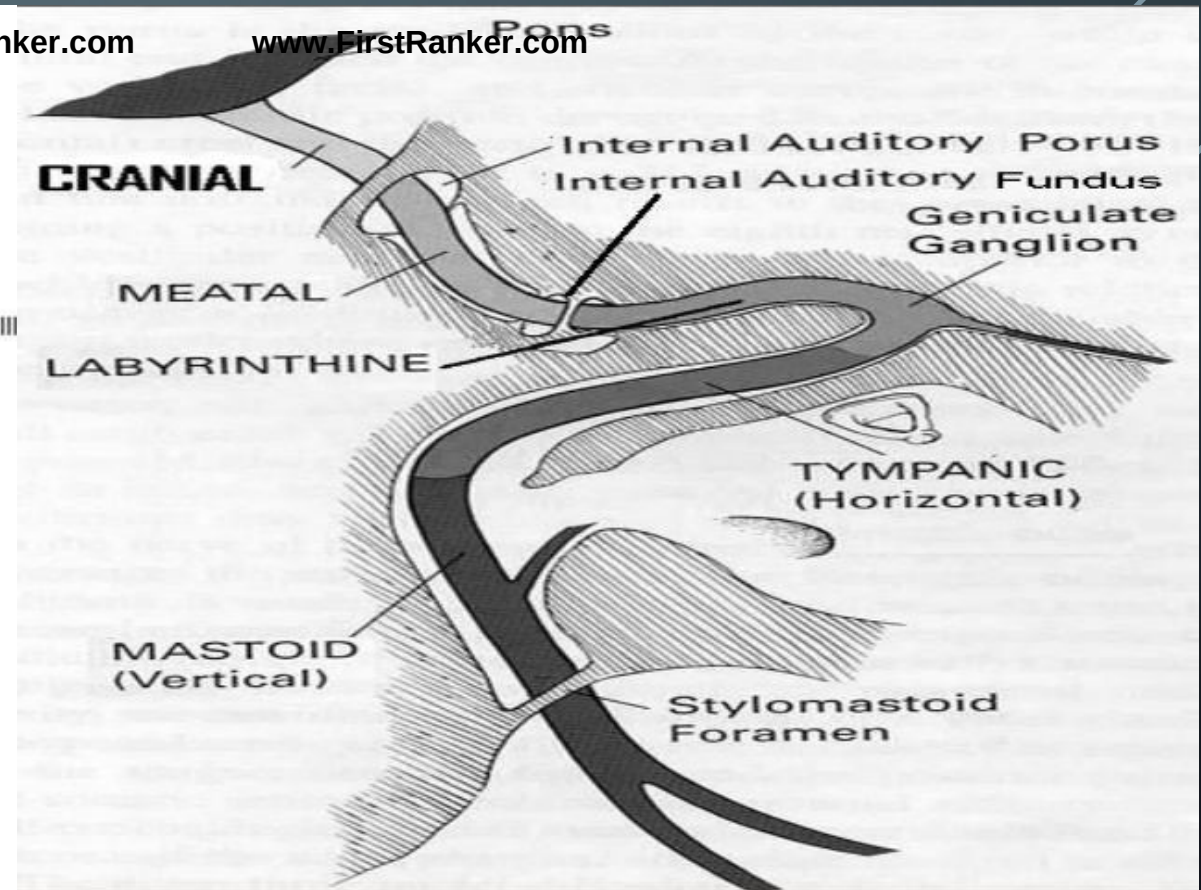
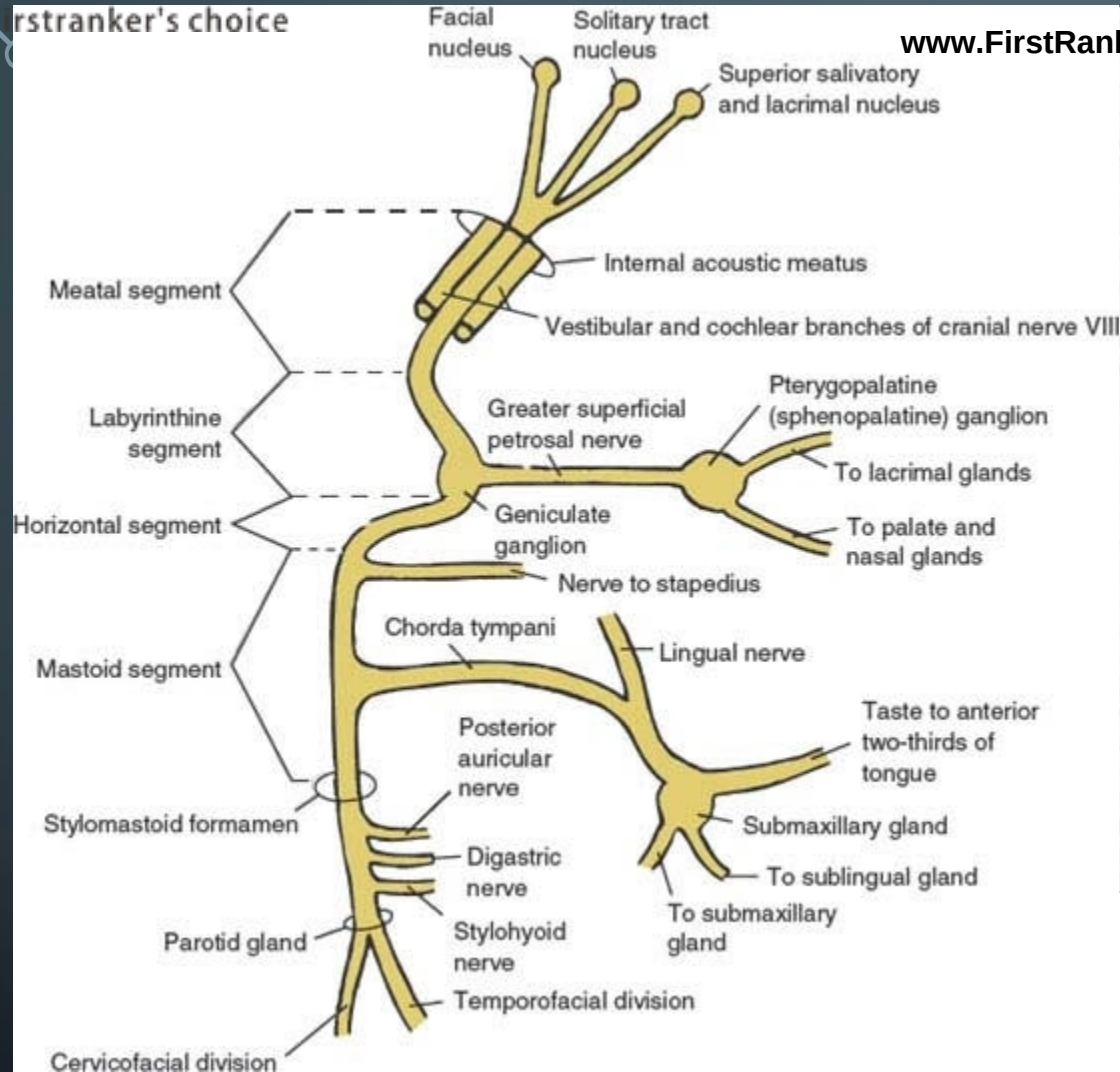


INTRA TEMPORAL PART

- MEATAL SEGMENT(15 – 17 mm)
- LABRYNTHINE SEGMENT(4 mm)
 - Narrowest segment & thin bony canal
 - First genu
- TYMPANIC / HORIZONDAL SEGMENT (11 mm)
 - From geniculate ganglion to pyramidal eminence
 - Above oval window & below lateral semi-circular canal
- MASTOID/VERTICAL SEGMENT (13 mm)
 - Pyramid to stylomastoid foramen
 - Second genu lies between mastoid & tympanic segment



EXTRACRANIAL PART

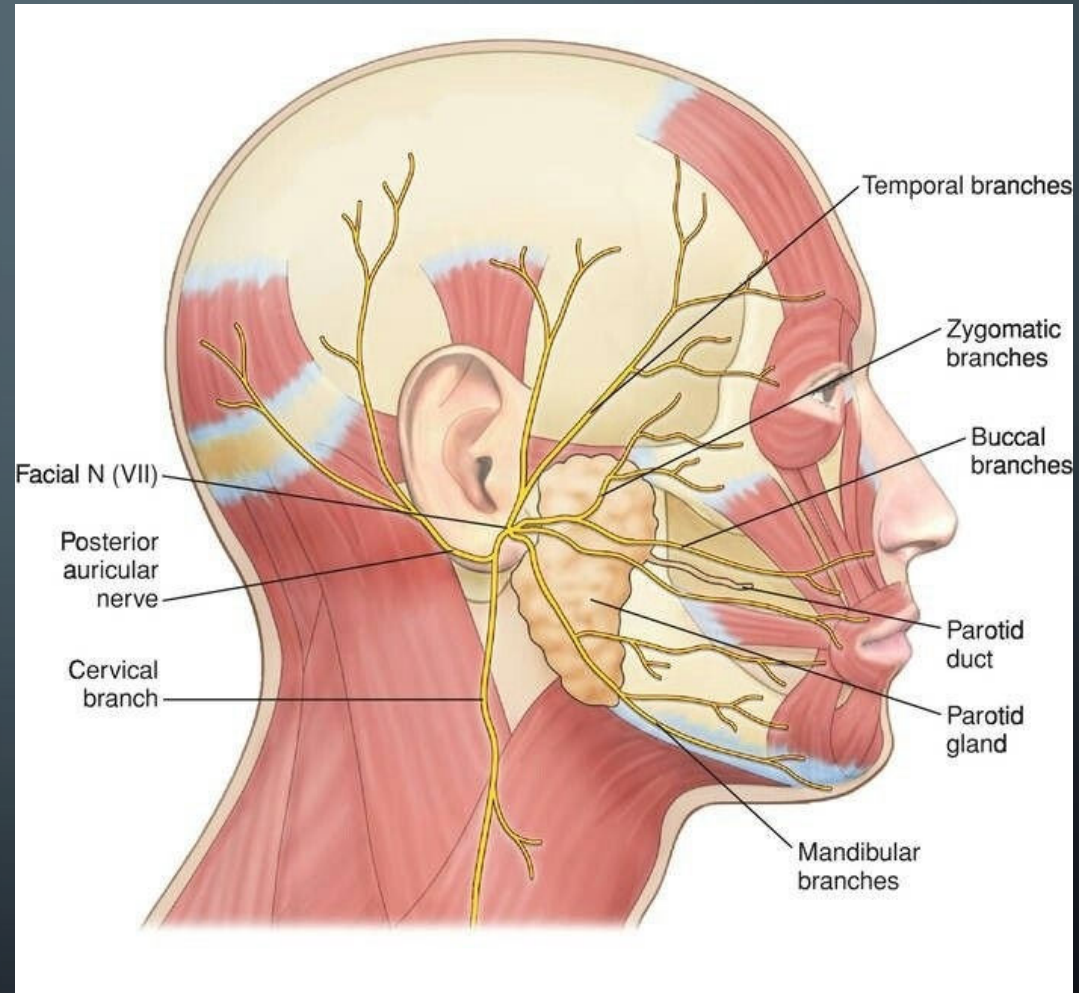


BRANCHES

- Greater superficial petrosal nerve
 - Arises from geniculate ganglion & carries secretomotor fibres to lacrimal gland & gland of nasal mucosa & palate
- Nerve to stapedius
 - Arises from second genu & supplies stapedius
- Corda tympani
 - Arises from vertical segment , passes between incus & stapes ,leaves tympanic cavity through petro tympanic fissure, supplies to submandibular , sublingual , brings taste from ant 2/3rd of tongue

- Communicating branch
 - Joins auricular branch of vagus & supplies concha ,outer surface of tympanic membrane, posterior meatus
- Posterior auricular nerve
 - Supplies muscles of pinna , occipital belly of occipitofrontalis ,communicates with auricular branch of Vagus
- Muscular branches
 - Stylohyoid ,posterior belly of digastric
- Peripheral branches
 - Upper temporofacial
 - Lower cervicofacial

- Peripheral branches (pes anserinus)
- Temporofacial
 - Temporal
 - Auricularis anterior
 - Auricularis superior
 - Frontalis
 - Orbicularis oculi
 - Corrugator supercilia
 - Zygomatic
 - Orbicularis oculi



- Cervicofacial

- Buccal

- Two branches – upper & lower buccal ,supplies muscles in vicinity mainly buccinator

- Marginal mandibular

- Muscles of lower lip – orbicularis oris , mentalis ,depressor labi anguli etc

- Cervical

- Platysma