Oral sensory disorders

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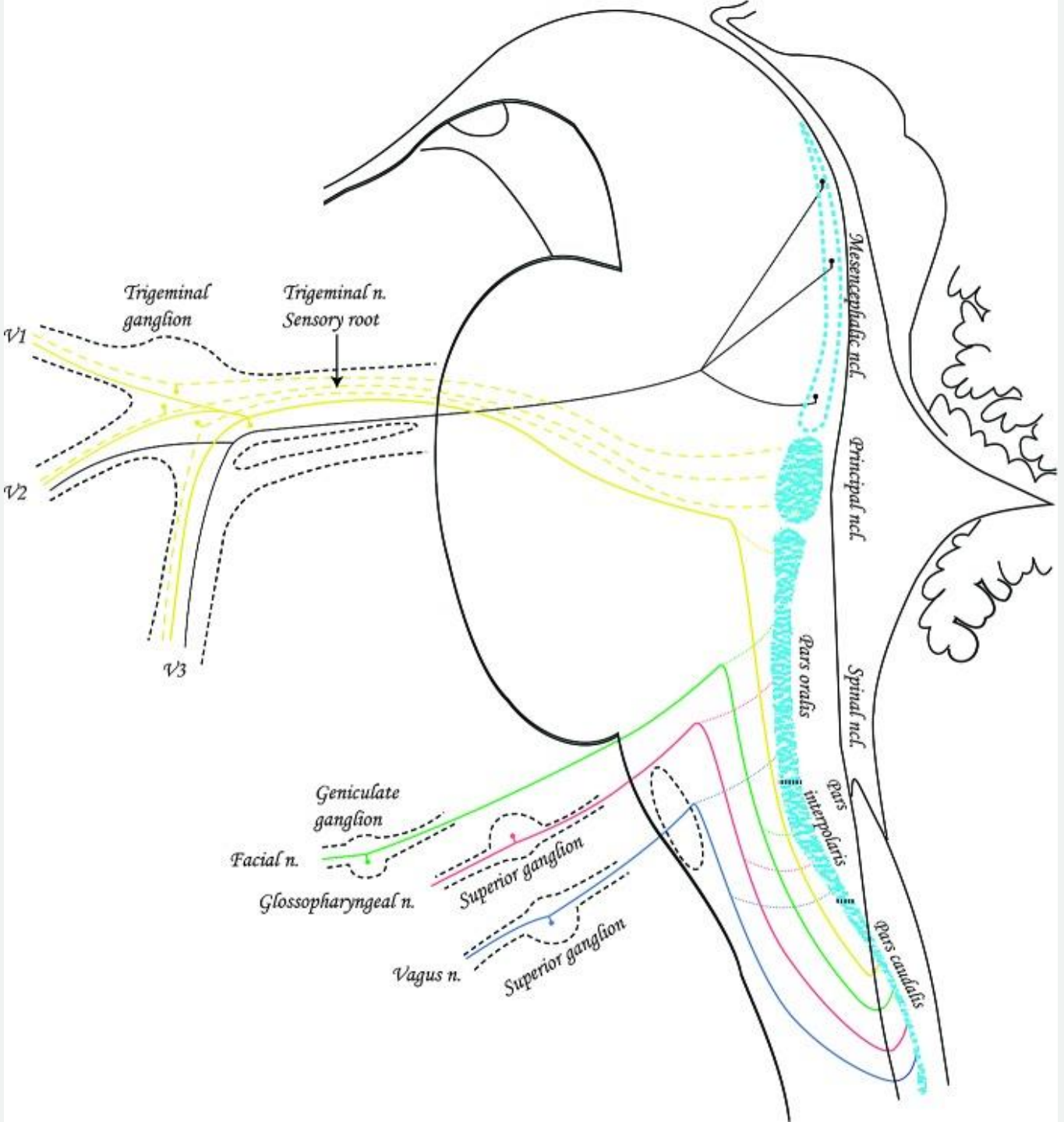
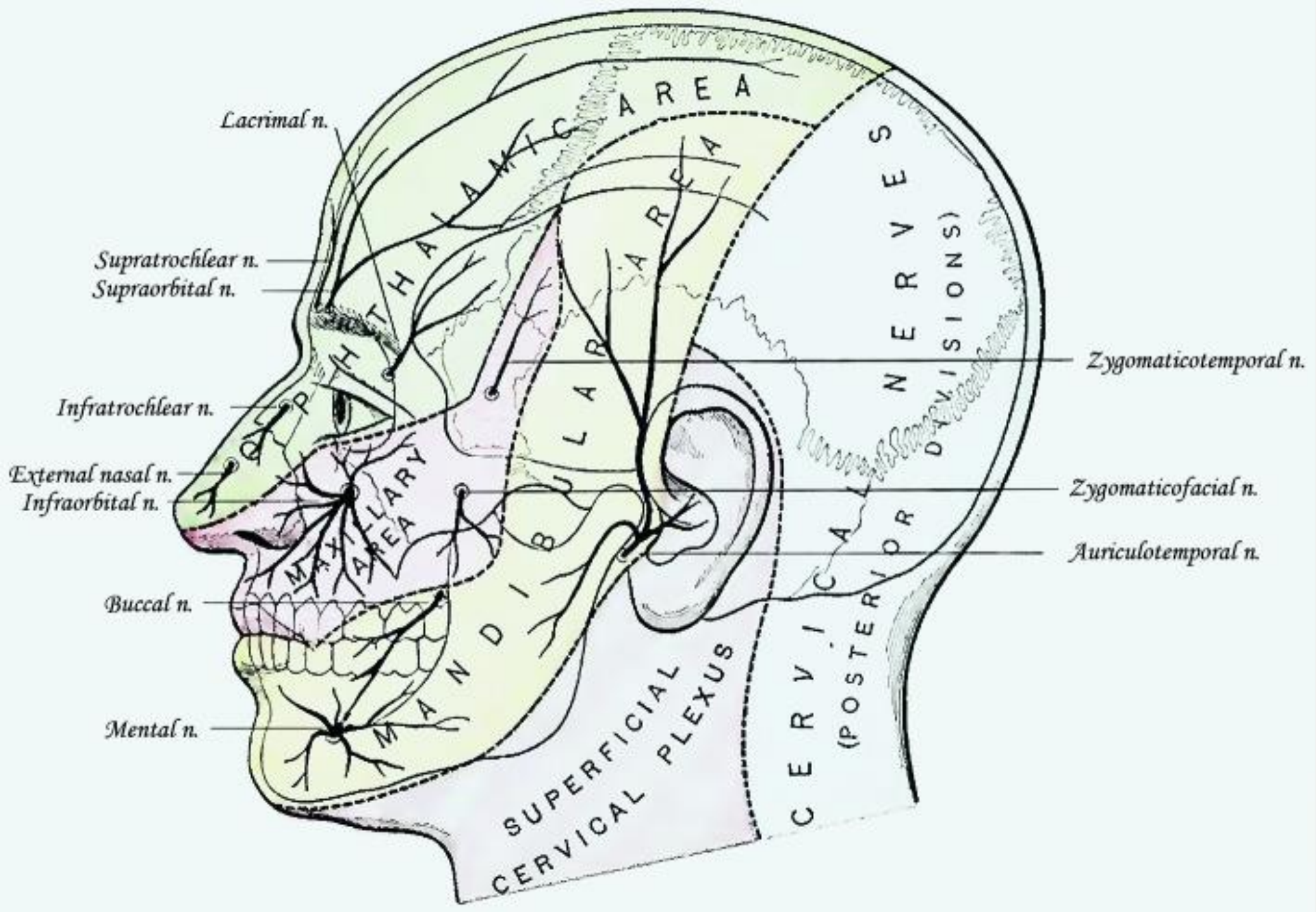
INNERVATION OF THE OROFACIAL REGION


Trigeminal ganglion
Trigeminal n.
Sensory root
V1
V2
V3
Mesencephalic ncl.
Principal ncl.
Spinal ncl.
Pars oralis
Pars interpolaris
Pars caudalis
Geniculate ganglion
Facial n.
Glossopharyngeal n.
Superior ganglion
Vagus n.
Superior ganglion


Lacrimal n.
Supratrochlear n.
Supraorbital n.
Infratrochlear n.
External nasal n.
Infraorbital n.
Buccal n.
Mental n.
Zygomaticotemporal n.
Zygomaticofacial n.
Auriculotemporal n.
OPHTHALMIC AREA
MAXILLARY AREA
MANDIBULAR AREA
SUPERFICIAL CERVICAL PLEXUS
CERVICAL NERVES (POSTERIOR DIVISIONS)

Trigeminal nerve (V)

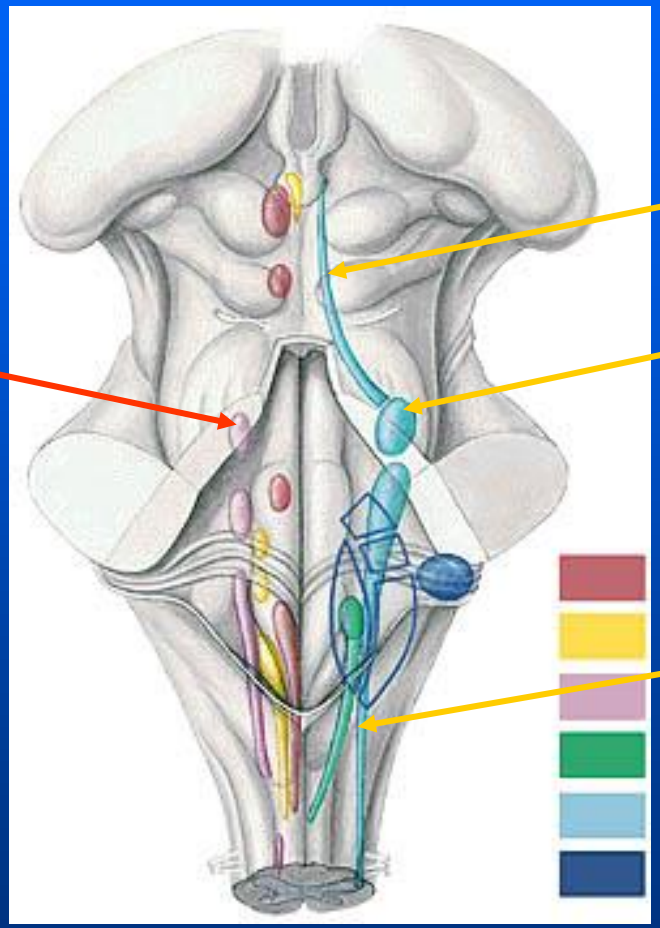
- Mixed nerve: somatomotory and somatosensory fibers
- *Somatomotory* fibers: muscles of mastication
- *Somatosensory* fibers: entire face (form the lower margin of the mandible to the top of the scalp also the anterior wall of the auditory tube

  dura mater

  Mesencephalic n. of V.: is a ganglion
- Autonomic „hitchhikers”: from cranial nerves VII and IX

Trigeminal nerve (V)

Motor nucleus:
pons



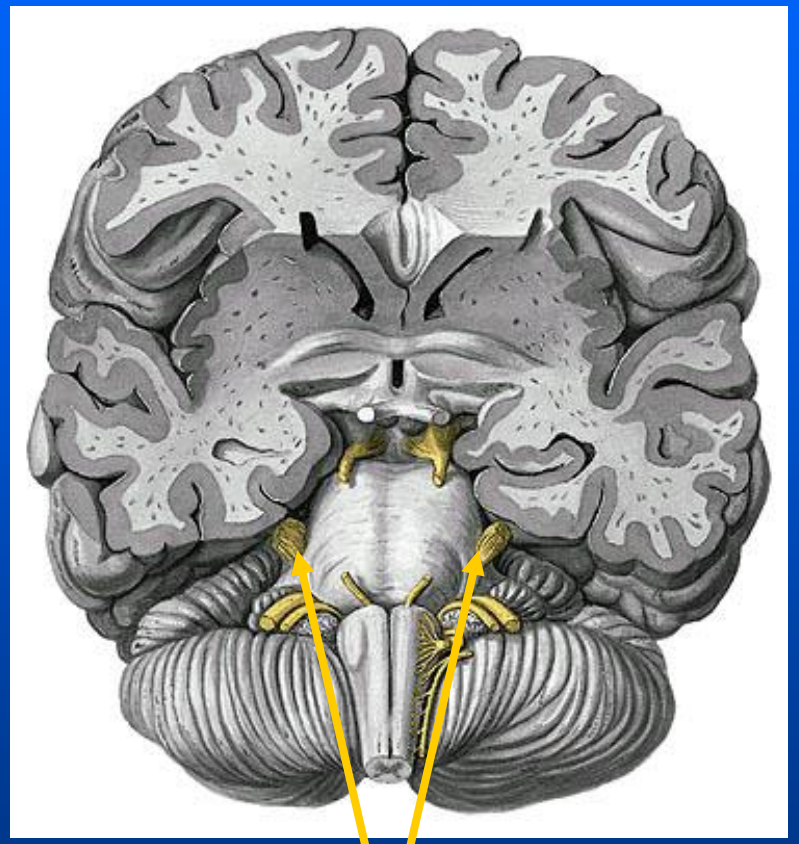
Sensory nuclei:

mesencephalic n.

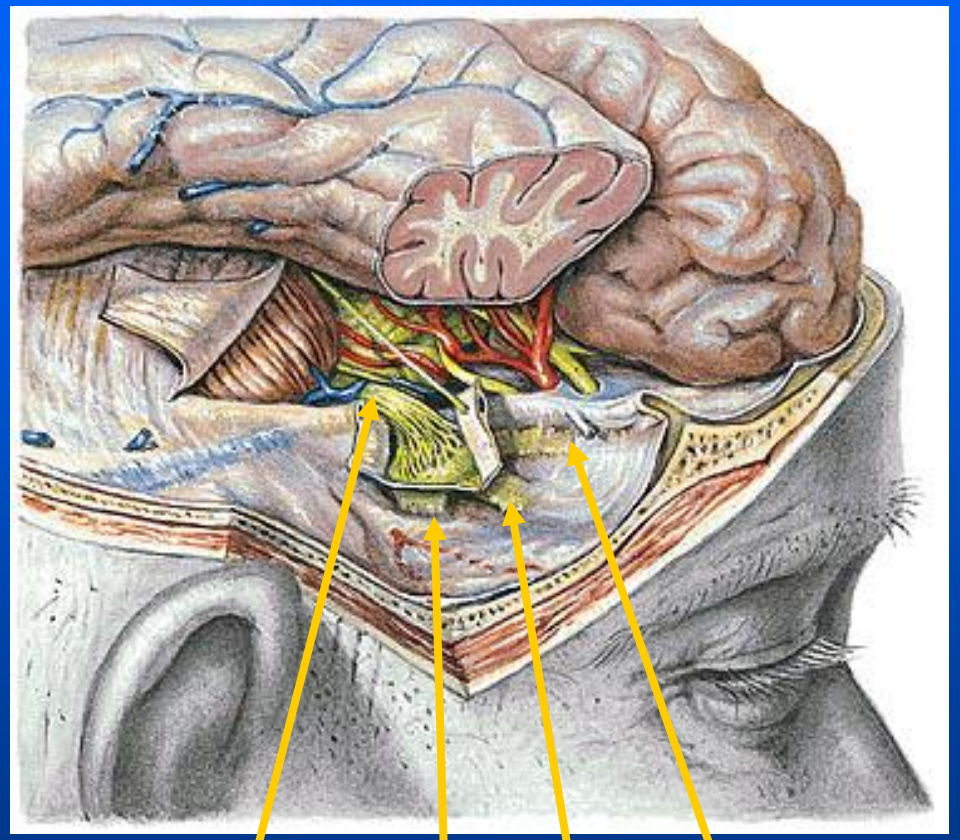
main sensory nucleus
(n. sensorius principalis)
pons

n. spinalis
(n. tractus spinalis)

Trigeminal nerve (V)



trigeminal nerves



ganglion (Gasser) and division of the trigeminal n.

V/3 mandibular

V/2: maxillary

V/1: ophtalmic

Trigeminal nerve (V)

- V/1: ophtalmic n.:

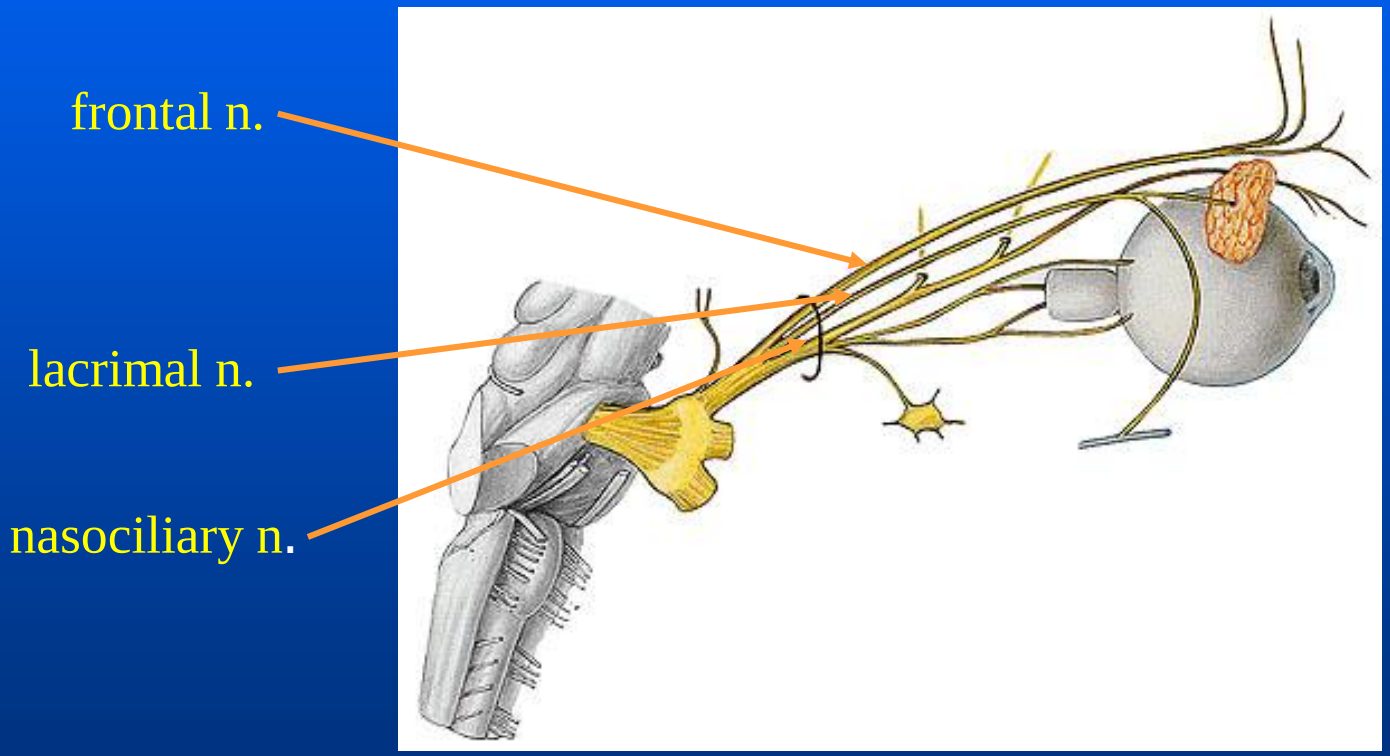
Cavernous sinus ⟶ sup. orbital fissure ⟶ orbit

Branches: frontal n: skin

lacrimal n.: lacrimal gland (sensory fibers)+”hitchhiker” (VII)

nasociliary n.: eye, nasal cavity, dorsal part of the nose

V/1: Ophthalmic nerve



Trigeminal nerve (V)

- V/2: maxillary:

Foramen rotundum

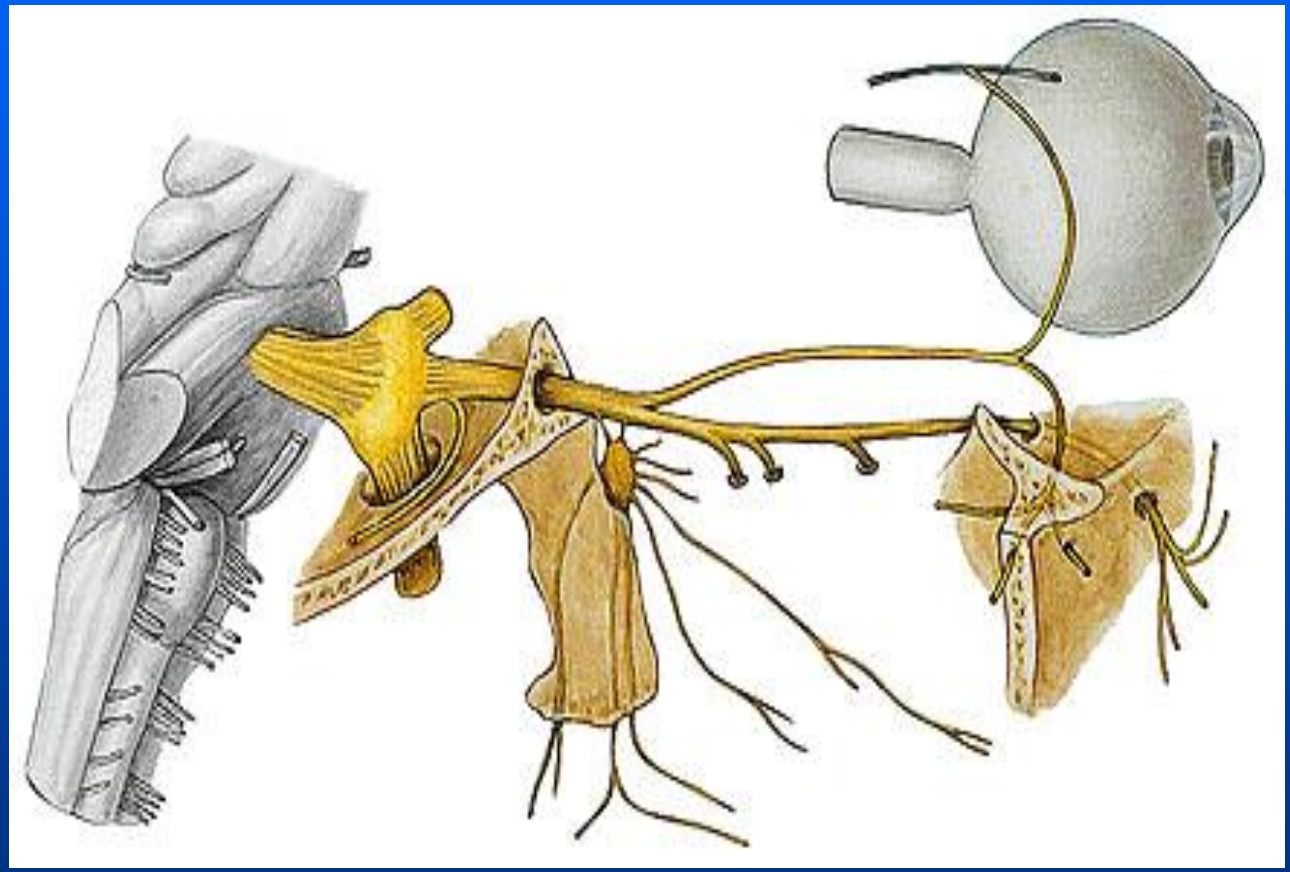
Branches: infraorbital n.: upper row of the teeth

zygomatic n.: face along the zygomatic arch

palatine nn.: oral cavity, palate

post. nasal rr : nasal cavity (septum, lateral wall)

V/2 Maxillary nerve



Trigeminal nerve (V)

V/3 mandibular: (carries mainly the motor fibers of the trigeminal n.)

foramen ovale → infratemporal fossa → mandibular canal →

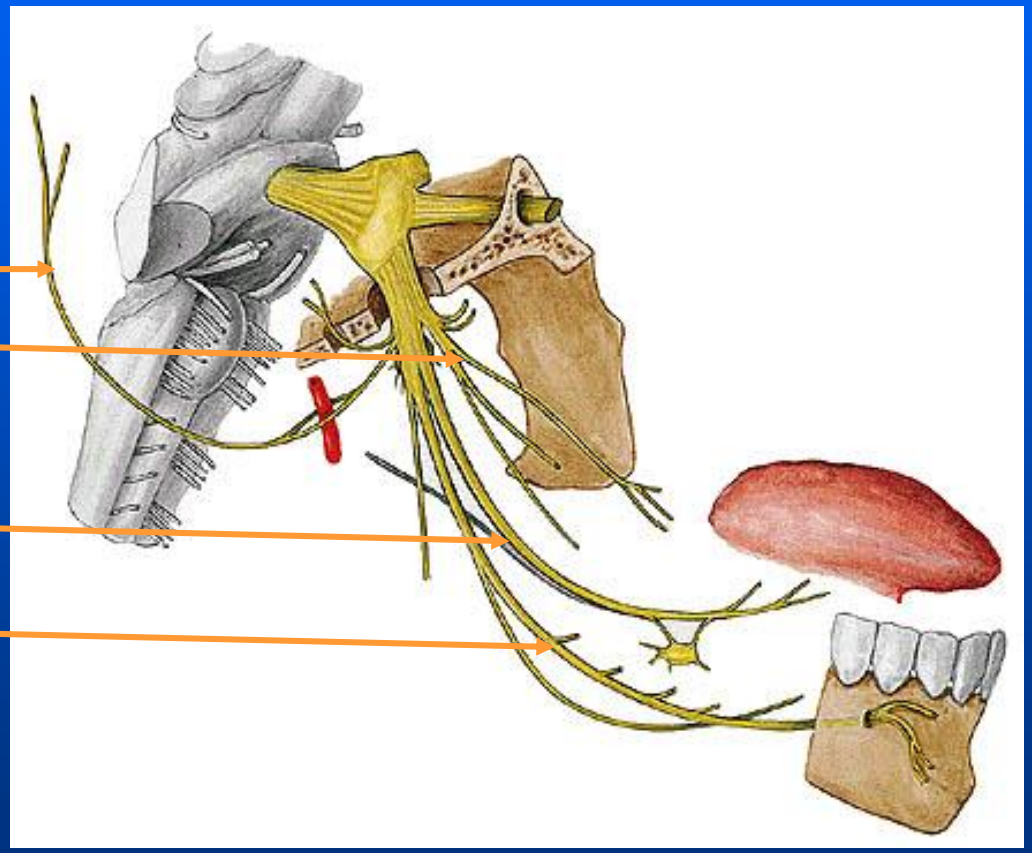
foramen mentale

- Motor branches: to muscles of massication
- Auriculotemporal n.: sensory innervation: temporomandibular joint
  tympanic membrane (ant. part)
  acustic meatus
  parotis
  visceromotor innervation: parotis (fibers from CN IX)

- Inf. alveolar n.: sensory innervation: upper row of the teeth
  lower lip, skin
  motor innervation: mylohyoid, ant. belly of the digastricus m.

- Lingual n.: sensory innervation: general: tongue (ant. 2/3)
  taste: chorda tympany (fibers from CN VII)

V/3 Mandibular nerve



Facial nerve (VII)

- Mixed nerve: somatomotory, viscerosensory, visceromotory fibers
- ***Somatomotory:*** mimetic muscles
- ***Viscerosensory:*** taste sensation of the anterior 2/3 of the tongue
- ***Visceromotory:*** lacrimal gland (V/1 „hitchhicker)
  small salivary glands of the nasal cavity and soft palate
  sublingual and submandibular gland

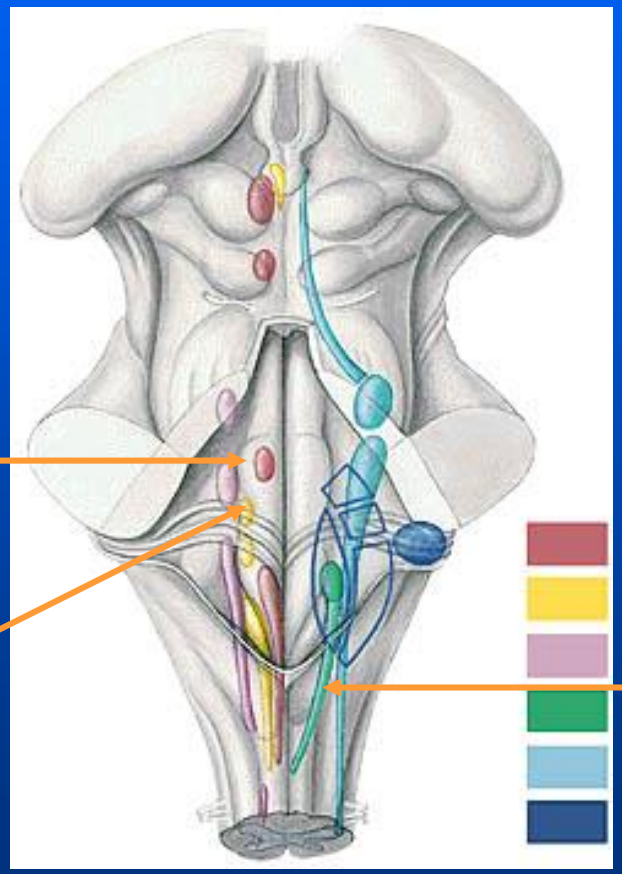
Facial nerve (VII)

somatomotor nucleus:
facial colliculus

visceromotor nucleus:
n. salivatorius sup.

↓

pons

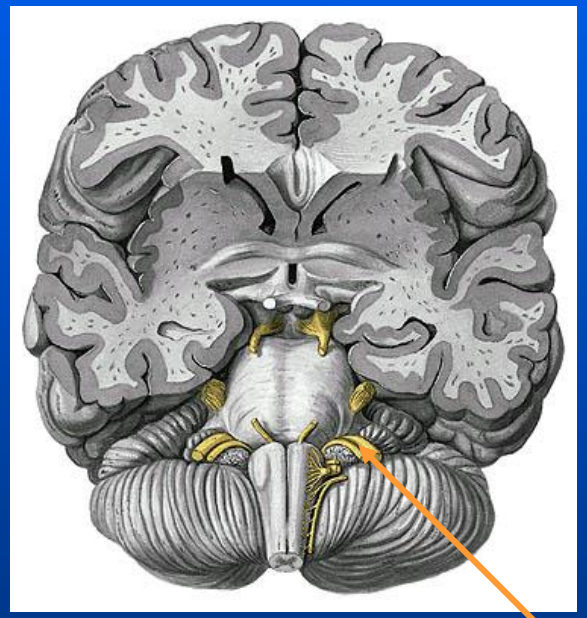


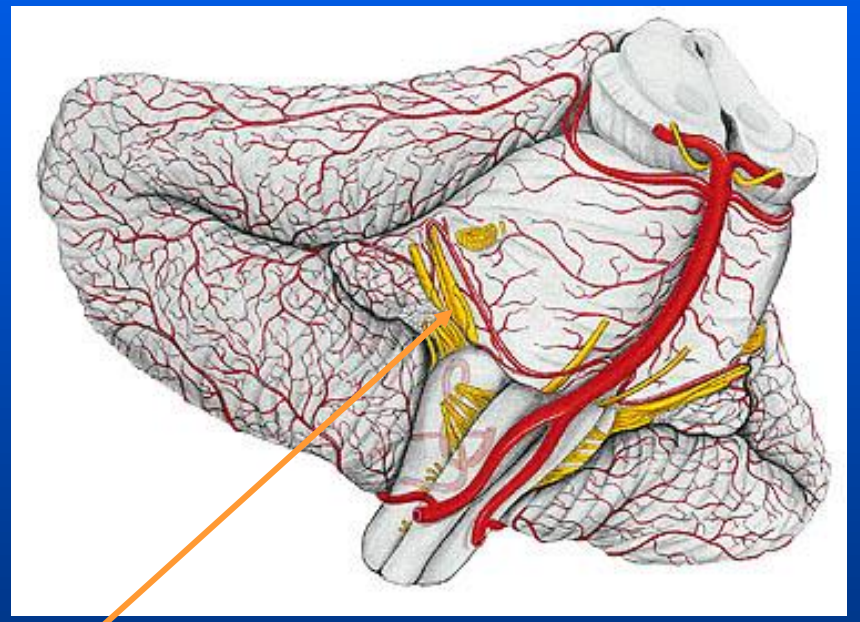
sensory nucleus:
n. solitarius +
n. tractus solitarii

↓

medulla

Facial nerve (VII)





facial nerve

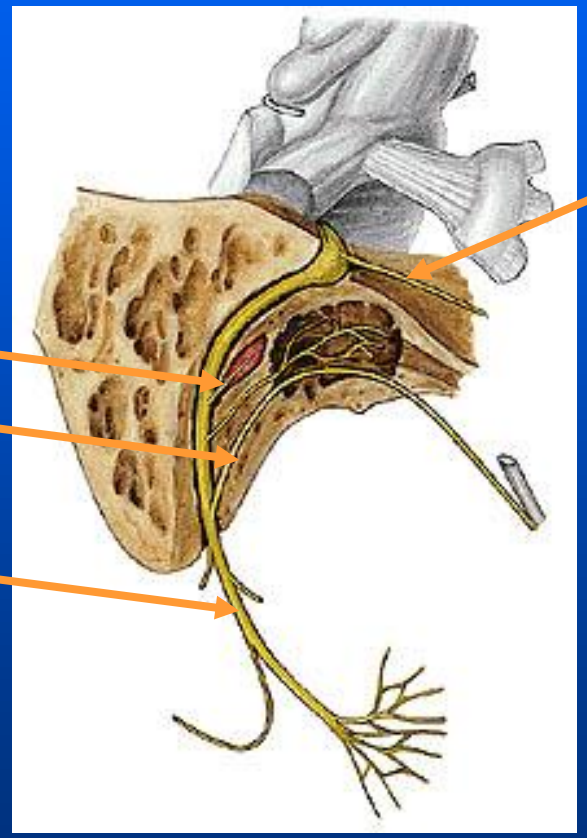
Facial nerve (VII)

- Temporal bone (post. surface): facial canal
  geniculum: greater petrosal n.
  stylomastoid foramen

- Branches: *greater petrosal n.*: lacrimal gland, salivary glands of the nasal cavity and soft palate (with V/1)
  stapedius n.: motor nerve for stapedius m.
  chorda tympany: taste sensory of the ant.2/3 of the tongue (with V/3)

  motor branches to digasticus m. + mimetic muscles

Facial nerve (VII)



Glossopharyngeal nerve (IX)

Mixed nerve: somatosensory, somatomotory, viscerosensory and visceromotory fibers

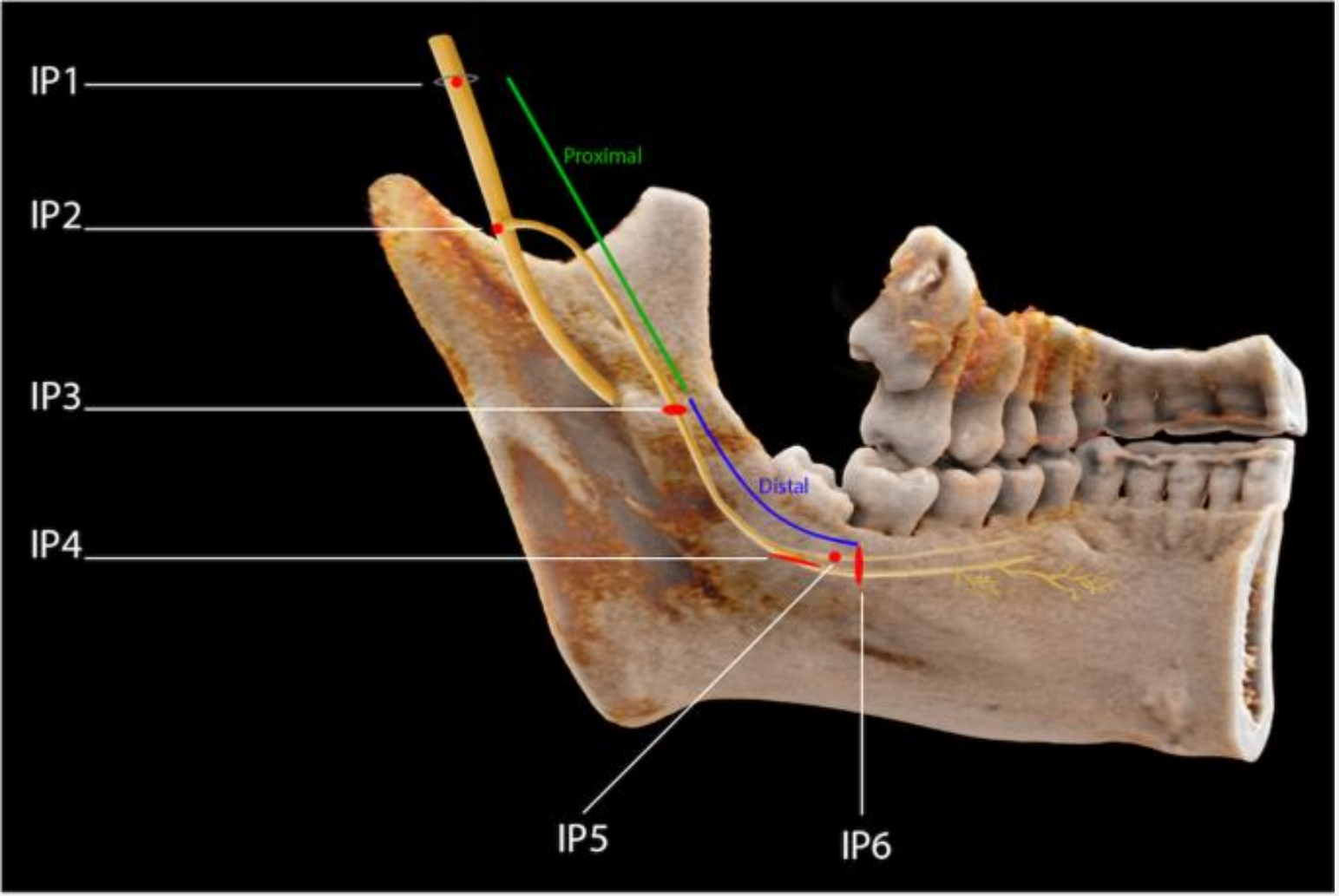
- ***Somatosensory***: general (pain) from tongue (post 1/3) pharynx
- ***Somatomory:*** muscles of the pharynx
- ***Viscerosensory:*** taste (post. 1/3 of the tongue) swalloing reflex carotis sinus
- ***Visceromotory:*** parotis parasympathetic innervation (with V/3)

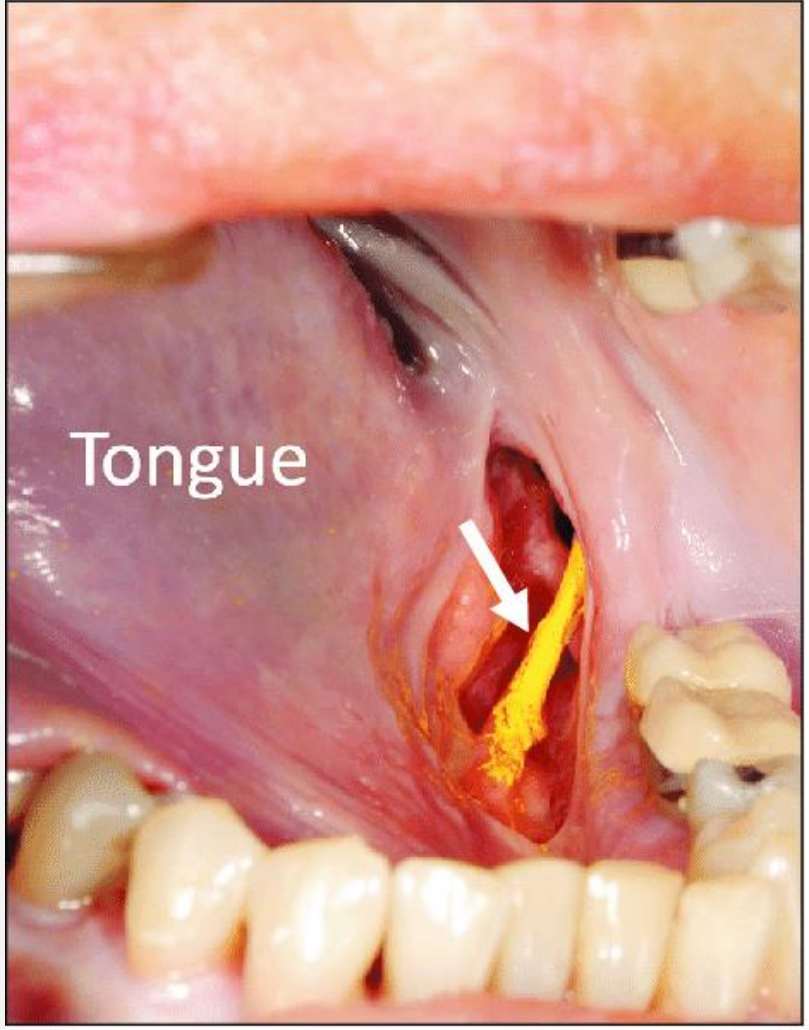
Clinical case 1

21-year-old female

URMH, NKDA

CC: Loss of taste and numbness on the right side of the tongue following extraction of lower right wisdom tooth





0.5% to 8.9% temporary
0 to 1.7% permanent

Taste (gustation) sensation is essential to the acceptability and enjoyment of food and drink, and helps prevent ingestion of toxins. The sense of smell is intimately linked, and it can be difficult to differentiate anomalies of these two senses.

There are five taste senses:

Bitter (detects minute levels of noxious compounds);
Sweet (identifies energy-rich nutrients);
Salt (ensures adequate intake of electrolytes);
Sour (also warns of noxious/poisonous agents); and
Umami (recognizes amino acids).

Taste buds on tongue, soft palate, pharynx, larynx and upper third of esophagus register tastes. Each bud consists of up to 100 taste-receptor cells which have a short lifespan of about 10 days.
Taste-related nerve impulses are transmitted via the trigeminal, facial, glossopharyngeal and vagus nerves to the nucleus of the solitary tract and thereafter via the thalamus to the brain post-central gyrus-facial area and olfactory cortex.

Causes of dysgeusia.

Oral

Radiotherapy
Hyposalivation
Infection
Ulceration
Malignancy

Systemic disease

Respiratory (infection, malignancy)
CNS (temporal lobe tumours and epilepsy)
Gastrointestinal – reflux disorders
Endocrine – diabetes mellitus
Renal – chronic kidney disease
Hepatic – liver failure
Deficiency states (eg zinc)
Psychiatric (including hypochondriasis)
Drugs

Antibiotics	**Anti-inflammatory agents**	**Cardiovascular agents**
Ampicillin	Auranofin	Acetazolamide
Azithromycin	Colchicine	Amiloride
Ciprofloxacin	Dexamethasone	Betaxolol
Clarithromycin	Gold	Captopril
Griseofulvin	Hydrocortisone	Diltiazem
Metronidazole	Penicillamine	Enalapril
Ofloxacin	**Antimania drug**	Hydrochlorothiazide
Tetracycline	Lithium	Nifedipine
Anticonvulsants	**Antineoplastics**	Nitroglycerin
Carbamazepine	Cisplatin	Propranolol
Phenytoin	Doxorubicin	Spironolactone
Antidepressants	Methotrexate	**Decongestants**
Amitriptyline	Vincristine	Pseudoephedrine
Clomipramine	**Antiparkinsonian agents**	**Lipid-lowering agents**
Desipramine	Levodopa	Fluvastatin
Doxepin	**Antipsychotics**	Lovastatin
Imipramine	Clozapine	Pravastatin
Nortriptyline	Trifluoperazine	**Muscle relaxants**
Antihistamines	**Antithyroid agents**	Baclofen
Chlorphenamine	Methimazole	Dantrolene
Loratadine	Propylthiouracil	