

Nervus facialis

Nervus facialis (n. intermediofacialis; n. VII) consists of two parts^[1]:

- *nervus facialis* - the brachial somatomotor nerve, developmentally a nerve of the 2nd pharyngeal arch;^[2]
- *nervus intermedius* - thinner part, visceromotor, somatosensory and viscerosensory fibers.

Nuclei

- **nucleus nervi facialis** - somatomotor nucleus in the pons;^[1] innervates the facial muscles, mimic, galea aponeurotica, platysma
- **nucleus salivatorius superior** - visceromotor, parasympathetic nucleus in the bridge;^[1] for gl. submandibularis, sublingualis, lacrimalis
- **ncl. spinalis n. trigemini** - somatosensory nucleus n. V, target of sensory fibers from the auricle region;^[1]
- **ncl. gustatorius** - **rostral part of the** nucleus tractus solitarii, **gustatory nucleus**.^[3]

Procedure

The facial nerve exits the nucleus first dorsally, wraps around the *ncl. n. abducentis* and **emerges at the base of the 4th ventricle colliculus facialis**^[3]

It emerges ventrally from the brain stem, in the *angulus pontocerebellaris*, into the posterior cranial fossa. It continues through the **porus acusticus internus, meatus acusticus internus** and **fundus acusticus internus**, passing through the cisterna pontocerebellaris in this short intracranial section.

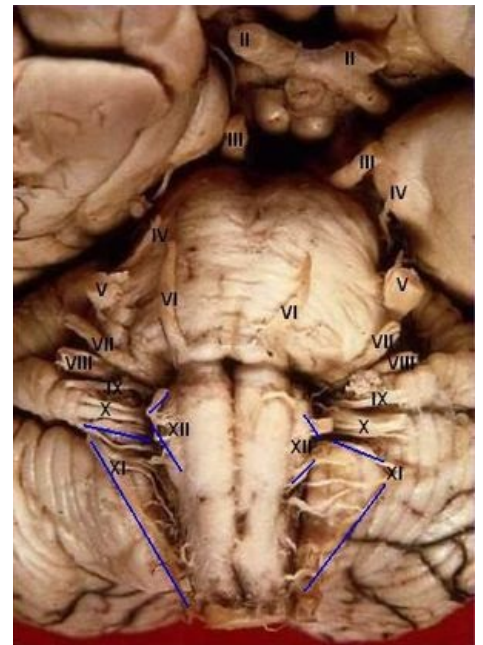
It then passes through the **canalis nervi facialis Falloppi**.

It passes *ventrally*, then *dorsolaterally* curves to form a bend in the *geniculum nervi facialis* where the small ganglion geniculi also lies, and finally *caudally* and exits the skull in the *foramen stylomastoideum*. It enters posteriorly into the **glandula parotis** to form the **plexus parotideus**.^[1] It divides into upper and lower branches, for the mimic muscles of the upper and lower half of the face.^[4]

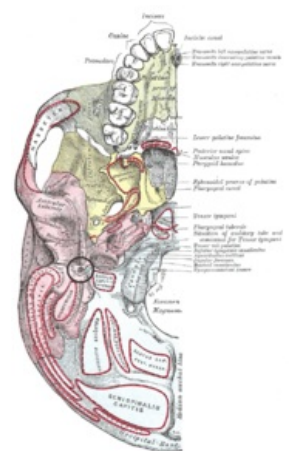
The **geniculum** (the junction of the ventral and dorsolateral parts) houses the **gustatory ganglion (ganglion geniculi)**.^[1]

Branches

- **nervus petrosus major** - leads the parasympathetic component for the lacrimal, nasal, palatine and nasopharyngeal glands. It branches off at the geniculate, passing through the *canalis n. petrosi majoris*. After joining with the sympathetic *n. petrosus profundus*, it passes as **n. canalis pterygoidei** through the *canalis pterygoideus* Vidii into the *fossa pterygopalatina*, bringing the visceromotor component into the *ganglion pterygopalatinum*.^[4]
- *ramus communicans cum plexus tympanico*.^[1]
- *ramus stapedius* - somatomotor nerve for m. stapedius;^[3]
- **chorda tympani** - conducts parasympathetic component for submandibular, sublingual and lingual glands and taste from anterior 2/3 of tongue. It passes through the *cavitas tympani* and the **fissura petrotympanica** to the **fossa infratemporalis**, where it joins the n. lingualis (a branch of the n. mandibularis of the n. V). Parasympathetic fibers are reconnected in the *ganglion submandibulare*.^[1] from n. lingualis here go viscerosensitive taste fibers from the anterior 2/3 of the tongue
- **nervus auricularis posterior**- motor branches for the rudimentary muscles of the auricle, sensory fibers for the skin of the auricle
- **ramus digastricus**- for the posterior abdomen
- **ramus stylohyoideus**- somatomotor branches for ear muscles, *musculus stylohyoideus* and *venter posterior m. digastrici*.^[1]
- **rami musculares** - somatomotor branches for the mimic muscles:^[3]
 - upper branch - rr. temporales (m. orbicularis oculi) , rr. zygomatici, rr. buccales;
 - lower branch - r. marginalis mandibulae (m. orbicularis oris, mentalis, depressor anguli oris, depressor labii inferioris) , r. colli (platysma)
 - between the platysma and the lamina superficialis fasciae coli the ramus coli forms a junction with the



Cranial nerve exit at the base of the IV ventricle



N. VII exits the skull through the for. stylomastoideum

Function

Motor fibres^[1]

Nervus facialis motor innervates:

- mimic muscles,
- m. platysma,
- m. stapedius,
- m. epicranius,
- venter posterior m. digastrici,
- m. stylohyoideus.



Parasympathetic fibers^[1]

- ganglion submandibulare,
 - sublingual gland,
 - submandibular gland,
 - glands of the tongue,
- ganglion pterygopalatinum,
 - glands of the palate,
 - the posterior half of the nasal cavity,
 - tear gland,
 - glands of the nasopharynx.

Sensory and sensory fibers^[1]

- small cutaneous region of auricle and external sound duct,
- the olfactory receptors of the anterior two-thirds of the tonguea.

Disorders

Central palsy

The cortical fibers for the upper part of the ncl. nervi facialis (corresponding to the upper terminal branch) are both crossed and uncrossed, while those for the lower part (lower terminal branch) are only crossed. Therefore, central palsy of the n. facialis manifests itself by a decrease in the angle contralaterally, but not as lagophthalmos.^[5]

Peripheral palsy

Peripheral palsy can arise when there is a breach at any point during the course of the facial nerve. The most common is called Bell's palsy. It is manifested by involvement of both the upper and lower branches, so one entire half of the face is affected. ^[5]

 For more information see *Facial nerve palsy*.

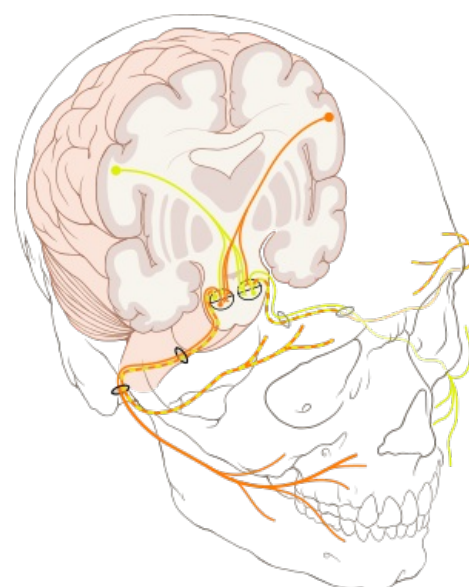


Image of the crossing of the cortical fibers of the n. facialis

Links

Related articles

- Facial nerve defense

Reference

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