

Facial Nerve

Facial Nerve (n. intermediofacialis; n. VII, cheek nerve) consists of two parts ^[1]:

TA A14.2.01.099 (<http://www.unifr.ch/ifaa/Public/EntryPage/TA98%20Tree/Entity%20TA98%20EN/14.2.01.099%20Entity%20TA98%20EN.htm>)

- *nervus facialis* – branchial somatomotor nerve, developmentally the nerve of the 2nd pharyngeal arch;^[2]
- *nervus intermedius* – thinner part, visceromotor, somatosensitive and viscerosensitive fibers.

Cores

- **nucleus nervi facialis** – somatomotor nucleus in pons; innervates facial muscles, facial muscles, galea aponeurotica, platysma
- **nucleus salivatorius superior** – visceromotor, parasympathetic nucleus in the pons; for gl. submandibularis, sublingualis, lacrimalis
- **ncl. spinalis n. trigemini** – somatosensitive nucleus n. V, target of sensitive fibers from the area of the auricle;
- **ncl. gustatorius** – rostral part of the nucleus tractus solitarii, taste nucleus. ^[3]

Progress

The facial nerve first emerges from the nucleus dorsally, wrapping around the *ncl. n. abducentis* and raises the *colliculus facialis* at the bottom of the 4th cerebral ventricle.

It exits the brainstem ventrally, in the *angulus pontocerebellaris*, into the posterior cranial fossa. It continues through the *porus acusticus internus*, *meatus acusticus internus* and *fundus acusticus internus*, in this short intracranial section they go through the cisterna pontocerebellaris.

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

It runs **ventrally**, then turns *dorsolaterally* and forms the bend of the **geniculum nervi facialis**, where the small ganglion geniculi also lies, and finally *caudally* and emerges from the skull in the *foramen stylomastoideum*. It enters the parotid gland posteriorly and forms the *parotideus plexus*. It is divided into upper and lower branches, for facial muscles of the upper and lower halves of the face.^[4]

The **gustatory** ganglion (*ganglion geniculi*) is located in the *geniculum* (transition of ventral and dorsolateral part).

Branches

- **nervus petrosus major** – conducts the parasympathetic component for the lacrimal, nasal, palatine and nasopharyngeal glands. It exits in the geniculus, passing through the *canalis n. petrosi majoris*. After connecting with the sympathetic *n. petrosus profundus*, it passes as *n. canalis pterygoidei* through the *canalis pterygoideus Vidiani* into the *pterygopalatine fossa* and brings the visceromotor component to the *pterygopalatinum ganglion*.^[4]
- *ramus communicans cum plexu tympanico*; ^[1]
- *ramus stapedius* – somatomotor nerve for the stapedius muscle; ^[3]
- **chorda tympani** – conducts the parasympathetic component for the submandibular, sublingual and lingual glands and taste from the anterior 2/3 of the tongue. It passes through the *cavitas tympani* and *fissura petrotympanica* into the *fossa infratemporalis*, where it connects with the lingual nerve (a branch of the mandibularis nerve from the V nerve). Parasympathetic fibers are interconnected in the *submandibular ganglion*; ^[1] viscerosensitive taste fibers from the front 2/3 of the tongue go here from the n. lingualis
- **nervus auricularis posterior** – motor branches for the rudimentary muscles of the auricle, sensitive fibers for the skin of the auricle
- **ramus digastricus** – for the posterior abdomen
- **ramus stylohyoideus** – somatomotor branches for the muscles of the ear, *musculus stylohyoideus* and *venter posterior digastrici muscle*; ^[1]
- **rami musculares** – somatomotor branches for facial muscles:
 - upper branch – yr. temporales (m. orbicularis oculi), rr. zygomatics, rr. buccals;
 - 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 colli ramus colli forms a connection with the superior ramus from the transversus colli nerve (plexus cervicalis) = **ansa cervicalis superficialis**.

Function

Motor Fibres^[1]

The facial nerve innervates:

- facial muscles,
- m.platysma,
- m. stapedius,
- m. epicranius,
- venter posterior digastric muscle,
- m. stylohyoideus.

Parasympathetic Fibres^[1]

- Submandibular Ganglion,
 - sublingual gland,
 - submandibular gland,
 - glands of the tongue,
- Pterygopalatine ganglion,
 - palatine glands,
 - posterior half of the nasal cavity,,
 - lacrimal gland,
 - nasopharyngeal glands.

Sensitive and Sensory Fibres ^[1]

- a small skin area of the auricle and external auditory canal,
- taste receptors of the front two thirds of the tongue.

Disorders

Central Palsy

Fibers from the cerebral cortex for the upper part of the ncl. nervi facialis (corresponding to the upper terminal branch) are both crossed and uncrossed, while for the lower part (lower terminal branch) they are only crossed. Therefore, central palsy of the facial nerve manifests as a decrease in the angle contralaterally, but not as lagophthalmos.

Peripheral Palsy

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

Links

Related Articles

- Facial nerve palsy

Reference

1. PETROVICKÝ, Pavel, et al. *Anatomie s topografií a klinickými aplikacemi III. -- Neuroanatomie, smyslová ústrojí a kůže*. 1. edition. 2002. ISBN 80-8063-048-8.
2. MOORE, Keith L – PERSAUD, T. V. N. *Zrození člověka*. 1. edition. Praha : ISV, 2002. 564 pp. ISBN 80-85866-94-3.
3. KACHLÍK, David. *Hlavové nervy II* [lecture for subject Anatomie, specialization Všeobecné lékařství, 3. lékařská fakulta Univerzita Karlova]. Praha. 21.12.2010. Available from <http://old.lf3.cuni.cz/anatomie/PNS_hlavove_nervy_II.zip>.
4. Ústav anatomie 3. LF UK. *Nervus facialis* [online]. [cit. 2011-06-28]. <http://old.lf3.cuni.cz/anatomie/pns_hn4.htm>.
5. **Cite error: Invalid <ref> tag; no text was provided for refs named 3lf2**

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