

The Accessory Nerve

Nervus accessorius or the Accessory nerve (cranial nerve XI) is a purely motor nerve. It innervates the sternocleidomastoid muscle and the trapezius muscle. The ramus internus innervates the muscles of the larynx outside the cricothyroideus muscle.

It is composed of two parts radices craniales and radices spinales.

Nervus accessorius is part of the lateral mixed system, where it belongs together with n. IX. and X. The name of the system is derived from their similar exit from the brainstem (they all exit as tiny fila radicularia from the lateral side of the medulla oblongata) and also because they contain all types of fibers (somatomotor, visceromotor, viscerosensitive, somatosensitive).

Origin

- **Nucleus ambiguus** – somatomotor nucleus for nerves IX, X and XI. nerve

Innervation

- from the **radix cranialis** for the muscles of the larynx, except m. cricothyroideus.
- from the **radix spinalis** for the trapezius muscle and the sternocleidomastoid muscle.

Course

- Two main components of the accessory nerve join inside the skull: **radix cranialis** (pars vagalis) – fibers coming from the nucleus ambiguus from the caudal two-thirds, are a split component of the vagus nerve, they go dorsally, first ventrolaterally, after exiting the brainstem they go to the jugular foramen **radix spinalis (pars spinalis)** – is formed by the joining of root fibers from segments of the cervical spinal cord C1–C6 into a single trunk, which then passes into the skull through the foramen magnum, goes upward, and anastomoses with the 1st and 2nd cervical spinal nerves.
- The connection of these two components in the fossa cranii posterior creates a nerve trunk - truncus nervi accessorii and it exits the skull through the jugular foramen, where it transmits: **r. internus** - immediately joins n. X, innervates the muscles of the soft palate and larynx with it, continues to n. laryngeus recurrens **r. externus** - a direct continuation of the trunk on the lateral side of the internal jugular vein, which contains only fibers from the radices spinales, descends behind the internal jugular vein and the transverse process of the atlas continues through the sternocleidomastoid muscle innervated by it and further through the regio coli lateralis to the trapezius muscle, according to its deep surfaces at the medial edge of the scapula
- **trapezius muscle**: its upper and middle parts are innervated only from the accessory nerve, but the lower part also receives fibers from the cervical plexus, which binds sensitive and proprioceptive fibers from C2, C3.

XI Palsy

XI palsy is not common. If the r. internus is damaged, palsy of the soft palate and phonation disorder appear. Palsy of r. externus manifests itself as a disorder of head rotation to the healthy side, the shoulder on the affected side is lowered and abduction above the horizontal is restricted.

Sources

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