

# Cervical plexus

The cervical plexus (*plexus cervicalis*) is formed by the ventral branches (*rr. ventrales nervorum spinalium*) of the first four cervical nerves *C1–C4* and their connections. This plexus is located on the *scalenus medius* muscle and on the *levator scapulae* muscle under the *sternocleidomastoid* muscle. It is covered by deep cervical fascia (lamina praevertebralis). The plexus gives rise to sensitive and motor nerves for the muscles and skin of the neck and for the diaphragm.

## Sensitive nerves

They come to the surface in the middle of the back edge of the *sternocleidomastoid* muscle in a place called the *punctum nervosum*. They come to the surface very close to each other. From there, the sensitive nerves diverge to the respective innervation areas.

### N. Minor occipital nerve (C2, C3)

**Course:** rises along the posterior edge of the *sternocleidomastoid* muscle to the lateral part of the occipital region.

**Innervation:** skin of the lateral part of the occipital region

### N. N. Auricularis magnus (C2, C3)

**Course:** runs along the surface of the *sternocleidomastoid* muscle up under the bolt, giving off two branches:

- *r. anterior* – often has a connection with n. facialis
- *r. posterior*

**Innervation:**

- *r. anterior* – a skin of the front side of the auricle (except for areas innervated by the IX. and X. cranial nerves), skin of the *regio parotideomasseterica*
- *r. posterior* – a skin of the back of the auricle, skin of the *mastoid* region

### N. transversus colli (C3)

**Course:** it goes forward medially through the *sternocleidomastoid* muscle under the skin of the neck muscle (*platysma*), it is divided into two branches:

- *r. superior* – has a connection with *r. colli nervi facialis* – the so-called *ansa colli superficialis*
- *r. inferior*

**Innervation:**

- *r. superior* – skin in the *suprahyoid* region
- *r. inferior* – skin in the *infrahyoid* region

### Nn. supraclaviculares

They are made up of a variable number of thin sensitive nerves, which, after exiting the *punctum nervosum* descend in a fan-like fashion over the clavicle.

It creates 3 groups:

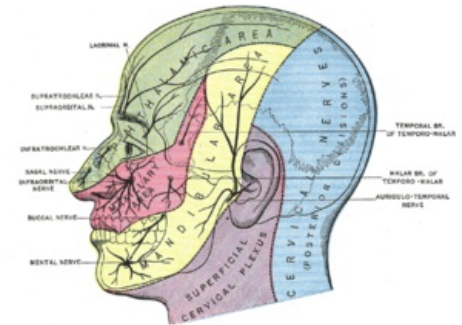
- *nn. supraclaviculares mediales* – go caudally and medially, innervate the skin in the *fossa jugularis* and above the *manubrium sterni*
- *nn. supraclaviculares intermedii* – descend caudally and innervate the skin in the lower part of the neck and in the clavicular and infraclavicular region (in the range of the pectoralis major muscle)
- *nn. supraclaviculares laterales* – descend caudally and backwards, innervating the skin of the acromial region

## Motor nerves

Short nerves: *rr. musculares*

Long nerve: n. phrenicus

### Rr. musculares



The sensitive innervation of the head, the blue and violet areas are innervated from the cervical plexus

They resign from all yrs. *rr. ventrales* cervical plexus.

### Innervation:

- C1 – m. rectus capitis lateralis
- C1, C2 – m. rectus capitis anterior
- C2, C3 – m. longus capitis
- C2–C4 – m. longus colli

### N. phrenicus (C4, secondary fibers from C3 and C5)

N. phrenicus is a relatively strong, mixed nerve with a predominance of motor fibers.

**Course:** it emerges from the cervical plexus at the lateral edge of the *scalenus anterior muscle*, and converges on its front surface through the *apertura thoracis superior* (placed in front of the n. vagus) caudally into the mediastina.

- *N. phrenicus dexter*: descends further between *a. et v. subclavia*, along the right edge of *v. brachiocephalica dextra* and *v. cava superior*.
- *N. phrenicus sinister*: descends between *a. et v. subclavia*, attaches to the left side of the *arcus aortae* (in the front of n. vagus sinister)

Both nerves then run caudally along the sides of the pericardium between the pericardium and the mediastinal pleura ventral to the pulmonary hilae. Part of the fibers passes to the right through the *foramen venae cavae* and part to the left through the *hiatus oesophageus* to the abdominal surface of the diaphragm.

### Innervation:

#### Motor fibers:

- *rr. phrenici* – innervate the diaphragm

#### Sensitive fibers:

- *rr. pericardia* – fibers for the pericardium, mediastinal and diaphragmatic pleura
- *rr. phrenicoabdominales* – innervates the peritoneum below the diaphragm up to the level of the gallbladder and pancreas

**N. phrenicus accessorius** – accessory fibers usually from C5 conducted as a separate branch from the brachial plexus

#### Clinical notes:

n. Phrenicus damage dx. or son causes paralysis of the corresponding part of the diaphragm. Irritation of the nerve causes twitching of the diaphragm, which may be a sign of inflammation of the peritoneum or brain damage. In the common case, it is a hiccup (singultus).

## Links

## References

- DYLEVSKÝ, Ivan – DRUGA, Rastislav – MRÁZKOVÁ, Olga. *Functional Human Anatomy*. 1. edition. Grada Publishing, 2000. 664 pp. ISBN 80-7169-681-1.
- ČIHÁK, Radomír. *Anatomy III. 2.*, edit and add edition edition. Grada, 2004. 673 pp. ISBN 80-247-1132-X.

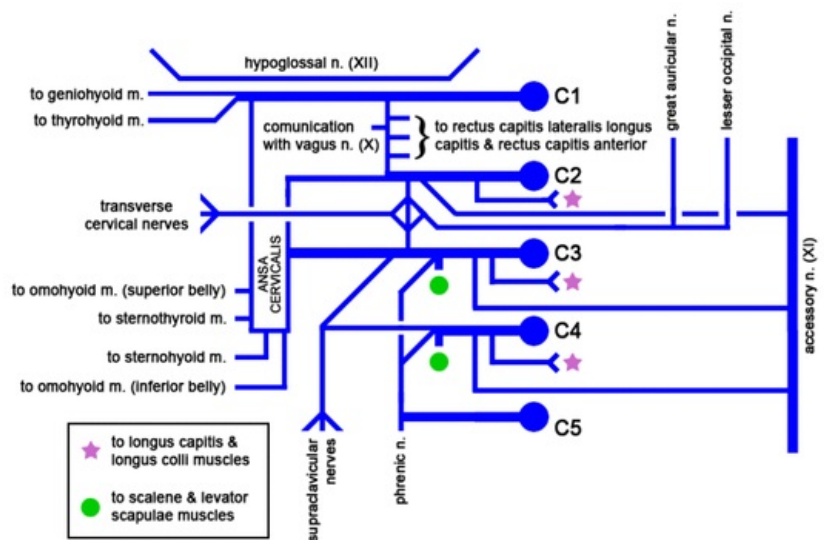


Diagram of the cervical plexus