

# Topographic formations of the neck

From an anatomical point of view, the neck can be divided into the anterior region of the neck (*regio cervicalis anterior*), the lateral region of the neck (*regio cervicalis lateralis*) and the sternocleidomastoid region. There are several triangular topographical areas in these regions.

## Anterior cervical region

- *Submental triangle*
- *Submandibular triangle*
- *Carotid triangle*
- *Muscular triangle (median region of the neck, omotracheal triangle)*

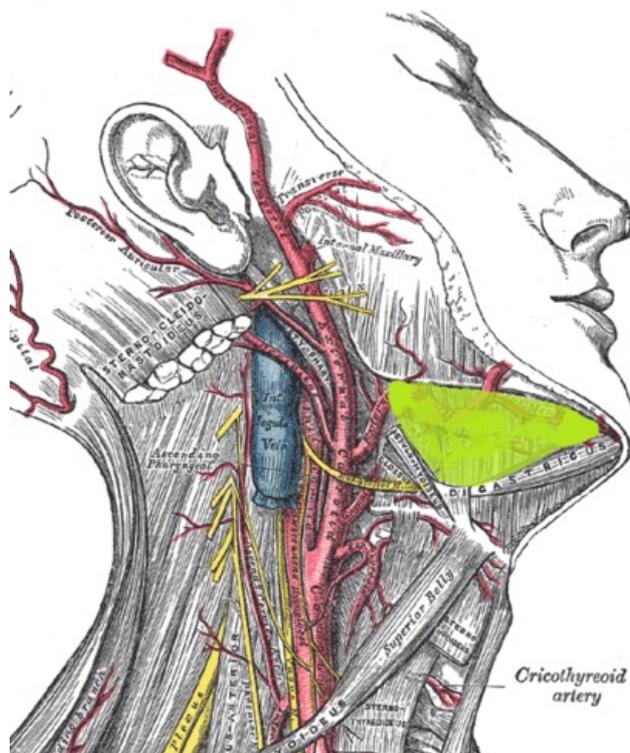
## Sternocleidomastoid region

- *lesser supraclavicular fossa*
- *Scalenovertbral triangle*

## Lateral cervical region

- *Omoclavicular triangle*
- *Omotrapezoid triangle*

## Submandibular triangle



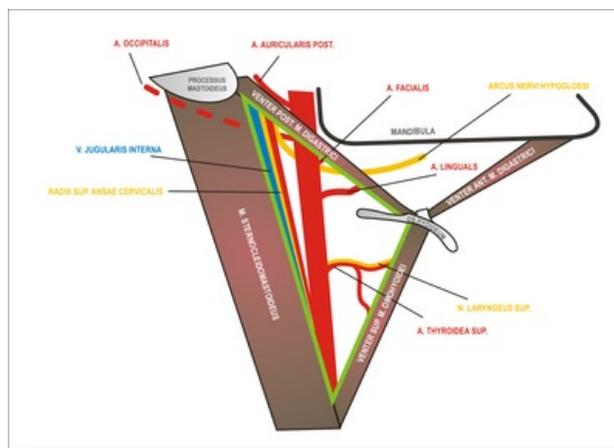
## Boundary

The submandibular triangle belongs to the anterior cervical region. It is bordered caudally by the **body of the mandible** and both bellies of the **digastric muscle** (*anterior and posterior bellies*). In the subcutaneous layer lies the **platysma muscle**, under which there is a thin fibrous subcutaneous layer. Below it is the cervical fascia (its *lamina superficialis*), which is fixed to the edge of the mandible. At the angle of the mandible, the fascia is strengthened into a fibrous band (*angular tract/tractus angularis*), which separates the parotid and submandibular spaces. The base of the triangle is formed by the **mylohyoid muscle**, with the **hyoglossus** and **styloid muscles** located dorsal to them. This group of muscles separates the triangle from the sublingual region.

## Submandibular space

The main content of the space is the submandibular gland, ***glandula submandibularis***. Externally, it touches both bellies of the digastric muscle, medially it extends over the posterior edge of the mylohyoid muscle into the sublingual space. Here, **the submandibular duct, *ductus submandibularis***, emerges forward from the gland, which is interposed between the mylohyoid muscle and the hyoglossus muscle.





## Boundary

The triangular landscape is defined dorsolaterally by the **sternocleidomastoid muscle**, above by the **posterior belly of the digastric muscle** and below by the **superior belly of the omohyoid muscle**.

## Relationship to other spaces of the neck

In the deeper layers, this region smoothly transitions upwards into the parapharyngeal space (*spatium parapharyngeum*), continuing in the caudal direction into the scalenovertebral triangle.

## Cranially located structures

There is a palpable pulsation of the **common carotid artery**. In the subcutaneous tissue lies the platysma muscle, below which are the branches of the nerve *transversus colli* and variably arranged superficial veins (described with other vessels below).

## Veins

Superficially in this triangle is the **retromandibular vein**, which may connect with the **facial vein**. The facial vein pierces the fascia and usually opens into the **internal jugular vein**. Under the *lamina superficialis fasciae cervicalis*, it is the most superficially located vein that receives venous tributaries from the face and neck in the area of the carotid triangle. Lymph nodes (***nodii lymphatici profundi superiores***) are located along it.

## Arteries

Medial to the internal jugular vein runs the **common carotid artery**, which branches in the middle of the triangle (C4 level) into the **external carotid artery** (located ventromedially) and the **internal carotid artery** (located dorsolaterally). The **external carotid artery arises from the carotid sheath**.

From the external carotid artery, most caudally leaves the **superior thyroid artery**, above it, at the level of the greater horns of the hyoid bone, the **lingual artery** and a little higher the **facial artery**, which continues to the submandibular triangle.

**Ascending pharyngeal artery** departs medially and **occipital artery** dorsally. The lingual artery passes through the **angle of Béclard**, which forms the posterior belly of the digastric and the greater horns of the hyoid bone. It goes under the hyoglossus muscle and continues into the tongue.

## Nerves

Of the nerve structures running in the carotid triangle, the **deep cervical ansa** (*ansa cervicalis profunda*) is the most superficially located. It is an arcuate junction between the hypoglossal nerve (from its upper root) and the cervical plexus (from its lower root), from which motor branches to the infrahyoid muscles emerge.

The **hypoglossal nerve** runs through the arc of the hypoglossal nerve, *arcus nervi hypoglossi*, in the upper part of the triangle between the internal jugular vein and the internal carotid artery, then continues inwards from the posterior belly of the digastric and the stylohyoid muscle to the topographic area of the submandibular triangle, where it sinks under the mylohyoid muscle and heads forward towards the sublingual region.

**Vagus nerve** runs between the internal carotid artery, the common carotid artery and the internal jugular vein, dorsal to them. Together with the mentioned vessels, the tenth cranial nerve forms a cervical **neurovascular bundle** surrounded by a fibrous sheath (*vagina carotica*). In the upper part, the **superior laryngeal nerve** departs from this nerve and runs mediocaudally.

The deepest is the **sympathetic trunk** taken into the *lamina prevertebralis fasciae cervicalis*. In the upper part of the carotid triangle, the **superior cervical ganglion** is formed on it, in the lower area it is expanded in the **middle cervical ganglion**.

Another junction of nerves and vessels in this topographical area is the ***glomus caroticum***. It lies in the bifurcation of the common carotid artery and receives thin branches from the cervical sympathetic nerve, from the glossopharyngeal nerve and from the vagus nerve.

## Links

### Related Articles

- Trigonum submandibulare
- Musculus digastricus
- Neck muscles

### References

- GRIM, Miloš – DRUGA, Rastislav – STINGL, Josef, et al. *Základy anatomie, 5. Anatomie krajín těla*. 1. edition. Galén, Karolinum, 2008. 119 pp. ISBN 978-80-246-0573-9.