

Cervical Sympathetic System

The cervical sympathetic system is a **visceromotoric** system originating in the CNS. The pars sympathetica has its nuclei in the CNS, which form the *nucleus intermediolateralis* of the lateral columns of the spinal cord. Preganglionic fibers emerge from the spinal cord together with the fibers of the anterior spinal roots, they separate from the spinal nerves as *rr. communicantes albi*. Afterwards they enter the *ganglia trunci sympathici* are connected to postganglionic neurons there.

Cervical ganglia

There are **3 ganglia** in the neck: *ggl. cervicale superius, medium et inferius*. *Ganglion cervicale inferius* usually merges with the 1st thoracic *ggl.* into the common *ggl. cervicothoracicum (ggl. stellatum)*.

Ganglion cervicale superius

It is deposited anterior to the transverse processes of C2–C4. Preganglionic fibers come via *truncus sympathicus* from the junction of the cervical and thoracic spinal cord. The ganglion sends postganglionic fibers (*rr. communicantes grisei*) to 4 cervical nerves:

- **N. jugularis** – branch going into *ggl. inferius nervi glossopharyngei* and into *ggl. superius n. vagi*, sympathetic fibers go further with the branching of n. IX and n. X.
- **N. caroticus internus** – to *a. carotis interna* and forms the *plexus caroticus internus*, on it, from which other nerves branch off along the branches of the *a. carotis interna* in the skull:
 - *nn. caroticotympanici*;
 - *n. petrosus profundus*.
- **Nn. carotici externi** – form a periarterial plexus on the *a. carotis externa*. The plexus continues along all branches of the artery (*plexus facialis, plexus lingualis, plexus temporalis superficialis, plexus maxillaris*, atd.). Separate sympathetic branches depart from the plexus: *radix sympathica ggl. otici* a *radix sympathica ggl. submandibulares*.
- **N. cardiacus cervicalis superius** – descends into plexus cardiacus.

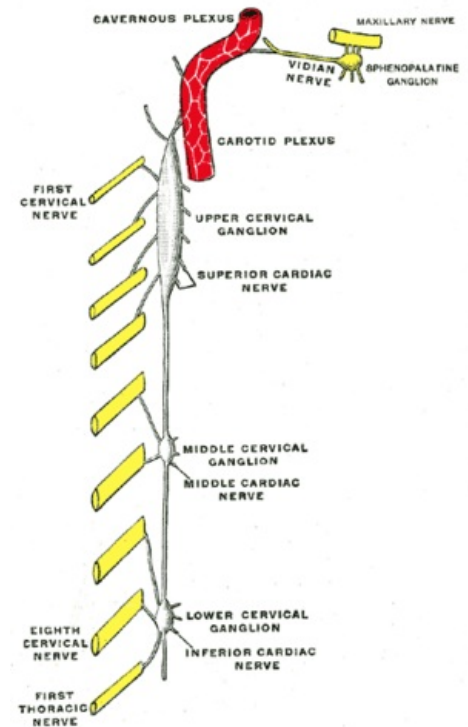


Diagram of the cervical ganglia

Ganglion cervicale medium

It is at the level of the transverse process of C5, usually at the level where the truncus sympathicus crosses with *a. thyroidea inf.* Preganglionic fibers go to the *ggl.* via the sympathetic trunk from the junction of the cervical and thoracic spinal cord. Ganglion sends out postganglionic fibers:

- **rr. communicantes grisei** into the C4 a C5 nerves;
- branches into **plexus thyroideus inferior** for the thyroid gland and parathyroid glands;
- **n. cardiacus cervicalis medius** – descends behind the *a. carotis communis* a afterwards before the *a. subclavia* into plexus cardiacus.

Ganglion stellatum

It is located in front of the transverse process of C7, behind the distance of the *a. vertebralis* from *a. subclavia*. Preganglionic fibers pass from the C8 and Th1–Th3 nerves. Postganglionic fibers go as *rr. communicantes grisei* to spinal nerves C7, C8 and Th1–Th3, both as:

- branches to the **plexus subclavius** – they form a periarterial plexus, which then passes to all the connecting arteries of the upper limb;
- **n. vertebralis** – goes forward to *a. vertebralis* where it forms the *plexus vertebralis*;
- **n. cardiacus cervicalis inferior** – descends behind *a. subclavia* into *plexus cardiacus*.

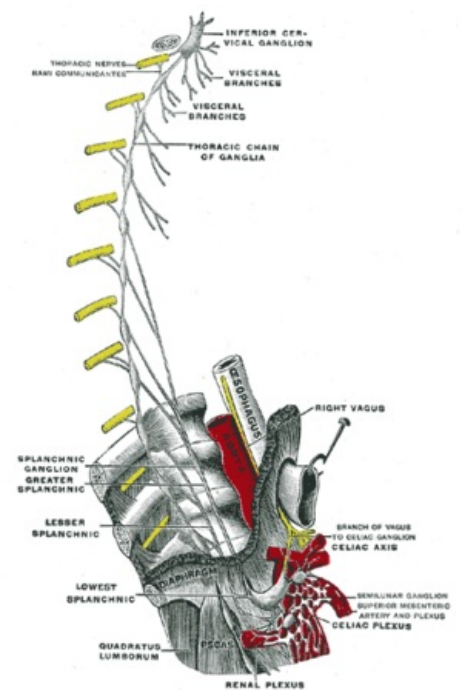
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Related articles

- Sympathetic trunk

Used literature

- MRÁZKOVÁ, Olga – DOSKOČIL, Milan. *Klinická anatomie pro stomatology*. 2. edition. Praha : Triton, 2001. 0 pp. ISBN 8072541722.
- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie*. 2., upr. a dopl edition. Praha : Grada Publishing, spol. s. r. o, 2004. 673 pp. vol. 3. ISBN 80-247-1132-X.



Ganglion stellatum