

Sympathetic trunk

The central part is formed by the nuclei of the lateral horns of the spinal cord: *nc. intermediomedialis* and *intermediolateralis* within T1-L2.

The superior sympathetic centers in the central nervous system are the formation reticularis, the hypothalamus and the limbic system.

Adrenal medulla can also be classified as sympathetic.

The sympathetic trunk (**Truncus sympathicus**) forms two types of sympathetic ganglia:

1. **paravertebral** – paired *truncus sympathicus* (*dx. et sin.*) – a chain of ganglia on the sides of the spine from the cranial base to the sacral bone (*os sacrum*),
2. **prevertebral** – ganglia as part of the abdominal aortic plexus (*plexus aorticus abdominalis*) (in front of the aorta at the distance of the large vessels – *ggl. coeliaca*, *ggl. aorticorenalia*, *ggl. mesentericum superius et inferius*)

Unlike the sympathetic ganglia, the **parasympathetic ganglia** are stored either in plexuses very close to target organs or directly in their wall (intramural ganglia).

Cervical sympathetic trunk

3 types of sympathetic fibers:

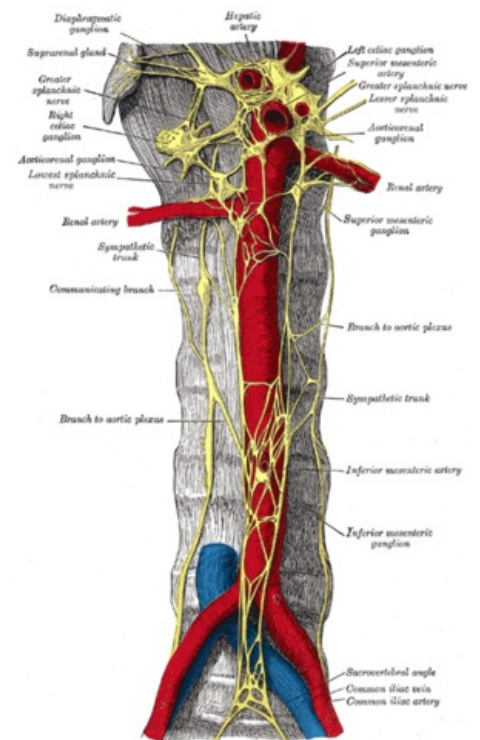
a) Rami communicantes grisei - they return back to the spinal nerve, mostly postganglionic fibers

b) Rami viscerales a vasculares - they leave the ganglia and go to the periphery along the blood vessels

c) Fibers to autonomic nerve plexuses and ganglia of internal organs - they meet with the parasympathetic

Thoracic sympathetic trunk

- 10 to 12 pairs of ganglia connected by rami interganglionares, paravertebral to the posterior inner surface of the thorax
- it lies on the sides of the spine before the heads of the ribs, covered by parietal pleura, the splanchnic nerves (*nervi splanchnici* (*major, minor, imus*)) come from it, which then go through the diaphragm and enter the abdominal aortic plexus (*plexus aorticus abdominalis*)
- ***rr. communicantes grisei*** for the thoracic spinal nerves
- ***rr. pulmonales thoracici, rr. oesophageales, r. renalis***
- ***n. splanchnicus major*** - by connecting 5.-9. ganglion thoracicum, contains preganglionic fibers - axons of perikarya from the spinal cord
- ***n. splanchnicus minor*** - by connecting 10.-11. ganglion and reaches the celiac plexus
- ***n. splanchnicus imus*** - from the 11th (12th) ganglia to the renal plexus



Truncus sympathicus (view of the ventral side of the spine)

Lumbar sympathetic trunk

- 4 ganglia connected by rami interganglionares
- preganglionic fibers from sympathetic perikarya 2.-3. lumbar segment
- postganglionic continue as:
 - ***rr. communicantes grisei***
 - ***rr. vasculares*** into the aortic plexus
 - ***nn. splanchnici lumbales*** connected with the aortic plexus, mesentericus inferior and hypogastricus from where they go to the inside of the pelvis
- Lies inside of the *psaos major muscle* (left - between the muscle and the aorta, right - behind the *vena cava inferior*), The *nn. splanchnici pelvici* come from it into the *abdominal aortic plexus*

Sacral sympathetic trunk

- 4-6 small ganglia
- at the height of the coccygeum axis, they connect into **ansa sacralis**, where an unpaired ganglion impar occurs

- innervation of the pelvic viscera from the *inferior and superior hypogastric plexuses*

Prevertebral plexus

- It is divided into 3 contiguous strands located in the retroperitoneum in front of the aorta and continuing into the small pelvis:
1. **plexus aorticus abdominalis** – in front of the abdominal aorta, it is divided into two plexuses (they contain the prevertebral ganglia – coeliaca, aorticorenalia, mesentericum superius et inferius):
 - *plexus coeliacus* – around the *truncus coeliacus* – the so called *plexus solaris*,
 - *plexus mesentericus* – between *a. mesenterica sup. et inf.*
 2. **plexus hypogastricus superior** – it goes from the bifurcation of the aorta to the pelvis in front of the "sacral bone", it has two parts:
 - *n. praesacralis* – a strip of fibers going from the bifurcation of the aorta in front of the promontory to the pelvis where it divides into:
 - *n. hypogastricus dx. et sin.* – streaks of fibers arising from the division of *n. praesacralis*.
 3. **plexus hypogastricus inferior** – the continuation of the *nn. hypogastrici* on the sides of the rectum and further forward, externally from the pelvic organs (they form plexes around them – *plexus rectalis, uterovaginalis, vesicalis...*)

Types of fibers in individual plexes

- The above-mentioned plexes contain a **sympathetic** component coming from the spinal sympathetic nuclei (level C8–L3), **parasympathetic** it comes through conjunctions from *n. vagus* (nucleus of the *n. vagus* in the brainstem) – into the *plexus aorticus abdominalis*, as well as from the sacral parasympathetic system (spinal parasympathetic nuclei at the S2–S4 level) – into the *plexus hypogastricus inferior*, meaning:
 - *plexus aorticus abdominalis* and *hypogastricus inferior* – Mixed plexes (sympathetic and parasympathetic);
 - *plexus hypogastricus superior* – only sympathetic.

Sources

Connected articles

- Paraganglia
- Head parasympathetic trunk
- Sacral parasympathetic trunk

Sources

- PASTOR, Jan. *Langenbeck's medical web page* [online]. ©2nd edition. [cit. 08.04.2009]. <<https://langenbeck.webs.com/>>.