

Arterial supply of the chest wall

Arterial supply of intercostal spaces

On the blood supply of the intercostal spaces are involved mainly branches originating from the thoracic aorta , Subclavian and Axillaris .

1st and 2nd intercostal space

The first and second intercostal spaces are supplied in the rear part by respective branches **aa. posterior intercostales** , which originate from the **intercostalis suprema (from the costocervical trunk)** . In the anterior part, the 1st and 2nd intercostal space is supplied mainly by branches of the **superior thoracic artery**, which is a branch of the axillary artery. These branches anastomosis with the branches of the **internal thoracic artery** for the 1st and 2nd intercostal space. In the adjacent area are also **rr. pectorales (from a. thoracoacromialis)** .

3-11 intercostal space

The majority of 3. – 11. The intercostal space is supplied with blood originating from the thoracic aorta , whose parietal branches **aa. intercostales posteriores** supplies blood to the intercostal space from the junction of the ribs with the spine to the anterior third. These arteries run in the same way in each intercostal space - together with the vein and nerve, always under the higher rib (in the sulcus costae) in the order of vein, artery, nerve and its transition from mm. intercostales interni separate the nearest component of the intercostal muscles - mm. intimae intercostales. Below the 12th rib is the **subcostal artery** .

Each posterior intercostal artery emits typical branches. In the place of the collum costae, it is the **r. Dorsalis** for the skin in the area of the spine and the autochthonous muscles of the back. Ramus dorsalis releases **r. Spinalis** for the spinal cord and its sheaths . **The ramus collateralis** separates from the posterior intercostalis posterior region of the angulus costae and passes forward along the upper edge of the caudal rib and anastomoses with the respective anterior intercostalis artery (from the internal thoracic artery). It penetrates the subcutaneous tissue of the **lateral ramus**, which sends one branch dorsally and one ventrally. From the anterior branches at the height of the glandula mammae emerge in women **rr. lateral mammae** . In addition to parietal branches, the thoracic aorta also issues visceral branches. At the height of bifurcatio tracheae they are rr. bronchiales, rr. oesophagei, for posterior wall of pericardium rr. pericardial and minor rr. mediastinales. The last branch before its passage through the diaphragm through the opening of the hiatus aorticus at the height of Th12 is the **a. Phrenica superior** , which supplies the dorsal part of the diaphragm.

Anterior thirds of 3.-11. intercostal spaces

To the anterior thirds **3. – 6.** intercostal space, blood is supplied via **rr. intercostales anteriores** , which are the parietal branches of the internal thoracic artery (from the subclavian artery). For **7. – 11.** intercostal space retire rr. intercostales anteriores from a. musculophrenica (branches of a. thoracica interna; see below). Z rr. intercostales anteriores resign **rr. perforantes** , which further issue rr. musculares, rr. cutanei au women from the 2nd and 5th intercostal space rr . **medial mammae** .

The **internal thoracic artery** separates from the **subclavian artery** against the **vertebral artery** , passes caudally covered by the fascia of the endothoracica and the transversus thoracis muscle (therefore it does not belong to the mediastinum). Just above the diaphragm , a branch of the **musculophrenic artery** , which extends laterally from the sternum, extends around the perimeter of the diaphragm. After the transition to the abdominal cavity, the internal thoracic artery changes its name to the **superior epigastric artery** . In the thoracic cavity it sends visceral branches: a. Pericardiophrenica, aa. thymicae, rr. sternales, rr. bronchiales. Arteria pericardiophrenica dx. et sin. takes place together with n. phrenicus dx. et sin.

Thoracica lateralis also contributes to the blood supply to the chest wall . It descends together with the thoracic longus nerve after the anterior serratus muscle, which also supplies and also sends rr. lateral mammae to gl. mammae in women.

Overview of branches

- r. dorsalis (from r.spinalis), r. collateralis, r. cutaneus lateralis (from mammarii laterales) ← **aa.posterior intercostalis + a.subcostalis** ← thoracic aorta;
- rr. musculares, rr. cutanei, rr. mammarii mediales ← rr. perforantes ← **rr. intercostales anteriores** ← a. thoracica interna ← a. subclavia;
- **aa. intercostales posteriores** pro 1. a 2. mezižebří ← **a. intercostalis suprema** ← **truncus costocervicalis** ← **arteria subclavia**;
- **a. thoracica superior** ← arteria axillaris;
- rr. pectorales ← a. thoracoacromialis;
- rr. mammarii laterales ← a. thoracica lateralis.

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References

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