

# Venous drainage of the chest wall

## Venous drainage of intercostal spaces

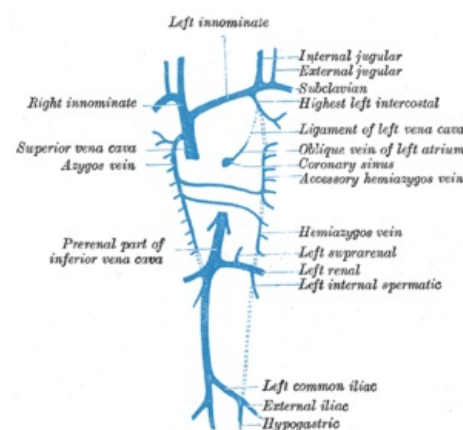
The following are involved in the removal of venous blood from the chest wall:

- **vv.intercostales anteriores dx. et sin.**;
- **vv.intercostales posteriores dx. et sin.** for 2nd to 11th intercostal space;
- **v.intercostalis superior dx. et sin.** - one on each side; blood from the 2nd to 4th posterior intercostal veins flows into them;
- **v.intercostalis suprema dx. et sin.** - from the 1st intercostal space on both sides;
- **v.subcostalis dx. et sin.** - under the 12th. rib.

Most of these veins flows into the azygos vein or hemiazygos vein respectively accessory hemiazygos vein.

In the mediastinum posterius, to the right on the sides of the thoracic vertebrae runs the **v.azygos**, the **v.Hemiazygos** runs on the lower left and the **v. Hemiazygos accessoria** runs on the upper left. Vena azygos arises by confluence of **v.lumbalis ascendens dextra** and **v.subcostalis dextra** (v.hemiazygos arises by the confluence of the veins of the same name on the left).

Vena azygos is located dorsally to the esophagus, to the right of the thoracic duct and aorta thoracica, receives 5th to 11th right intercostal vein and opens as an **arcus venae azygos** to vena cava superior just before its entry into the pericardium. The **hemiazygos vein** is located dorsally to the thoracic aorta, blood flows into it from 9th to 11th intercostal veins on the left and together with **v.hemiazygos accessoria** flows into **v.azygos** most often at the vertebral level of Th8. Vena hemiazygos accessoria drains blood from 5th - 8th intercostal space on the right.



Azygos vein and its tributaries

**First intercostal space** on both sides drains **v.intercostalis suprema**, which flows into the **v.brachiocephalica** on its side. Veins from **2nd to 4th intercostal space** merge on both sides into **v.intercostalis superior dx. et sin.**. This vein on the right side opens into **arcus venae azygos** and on the left into **v.brachiocephalica sinus**.

**Vena subcostalis dx. et sin.** connects with the respective **v.lumbalis ascendens**, and so on the right side arises **v.azygos** or **v.hemiazygos** on the left.

## Outflow of chest veins

- vv.intercostales anteriores -> vv.thoracicae internae

### Right side

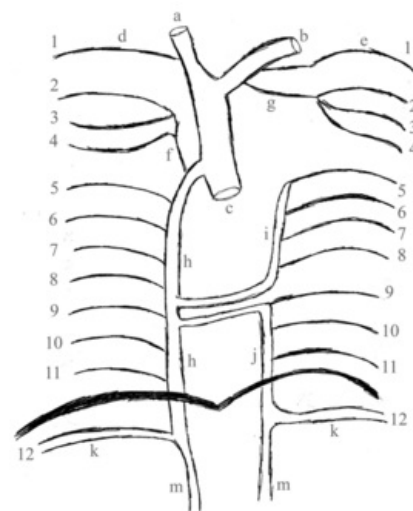
- 1. v.intercostalis posterior dx. = **v.intercostalis suprema dx.** → v.brachiocephalica dx.
- 2. - 4. vv.intercostales posteriores dx. → **v.intercostalis superior dx.** → arcus venae azygos
- 5. - 11. vv.intercostales posteriores dx. → **v.azygos**

V. subcostalis dx. after connection with v.lumbalis ascendens dx. creates v.azygos, which flows into the v.cava superior

### Left side

- 1. v.intercostalis posterior sin. = **v.intercostalis suprema sin.** → v.brachiocephalica sin.
- 2. - 4. vv.intercostales posteriores sin. → **v.intercostalis superior sin.** → v.brachiocephalica sin.
- 5. - 8. vv.intercostales posteriores sin. → **v.hemiazygos accessoria** → at the vertebral level of Th8 together with v.hemiazygos flows into the v.azygos
- 9. - 11. vv.intercostales posteriores sin. → **v.hemiazygos** → v.azygos

V. subcostalis sin. after connection with v.lumbalis ascendens sin. creates v.hemiazygos.



Chest wall veins : a - v. Brachiocephalica dx. b - v. brachiocephalica sin. c - v. cava sup. d - v. intercostalis suprema dx. e - v. intercostalis suprema sin. f - v. intercostalis sup dx. g - v. intercostalis sup sin. h - v. azygos i - v. hemiazygos accessoria j - v. hemiazygos k - v. subcostalis sin. and dx. m - v. lumbalis ascendens dx. et sin.

# References

## Related articles

- Arterial supply of the chest wall
- Chest wall innervation

## Literature

- ČIHÁK, Radomír. *Anatomie III.* 2., upr. a dopl vydání. Praha : Grada Publishing, spol. s. r. o., 2004. 673 s. ISBN 80-247-1132-X