Azygos Vein,Hemiazygos Vein, Accessory Hemiazygos Vein,Thoracic Sympathetic Trunk

Azygos Vein

- The **azygos vein** drains the **thoracic wall** and **upper lumbar region** and provides an important connection between the **superior and inferior vena cava**, as well as the **portal** and **vertebral venous systems**.
- **Formation:**
  - Formed by the union of **right subcostal vein** and **right ascending lumbar vein**.
  - Sometimes includes a contribution from the **lumbar azygos vein**.
- **Course:**
  - Enters the thorax through the **aortic opening** of the diaphragm.
  - Ascends on the **right side of the vertebral column** and arches over the **root of the right lung** to join the **superior vena cava**.
- **Relations:**
  - **Anteriorly:** Oesophagus.
  - **Posteriorly:** Lower eight thoracic vertebrae and right posterior intercostal arteries.
  - **Right side:** Right lung and pleura, greater splanchnic nerve.

- **Left side:** Thoracic duct and aorta below, oesophagus and vagus nerve above.

- **Tributaries:**

1. Right superior intercostal vein (from 2nd–4th intercostal spaces).
2. 5th–11th right posterior intercostal veins.
3. Hemiazygos and accessory hemiazygos veins.
4. Right bronchial vein.
5. Oesophageal, mediastinal, and pericardial veins.

- **Clinical Note:**

  - Acts as an important **collateral channel** during **obstruction of the inferior vena cava**

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Hemiazygos Vein

- Also known as the **inferior hemiazygos vein**, it mirrors the **lower part** of the azygos vein on the left side.

- **Formation:**

  - Union of **left ascending lumbar vein**, **left subcostal vein**, and **left lumbar azygos vein**.

- **Course:**

- Enters thorax by piercing the **left crus of diaphragm**, ascends along the **left side of vertebral column** behind the **aorta**, and at the level of the **8th thoracic vertebra**, turns to the right behind the **oesophagus** and **thoracic duct** to join the **azygos vein**.

- **Tributaries:**
  - 9th–11th left posterior intercostal veins.
  - Oesophageal veins.
- **Function:**
  - Provides venous drainage for the **lower left posterior thoracic wall** and connects with the **azygos system** for collateral circulation

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Accessory Hemiazygos Vein

- Also called the **superior hemiazygos vein**, representing the **upper counterpart** of the hemiazygos vein.
- **Formation and Course:**
  - Begins around the **4th or 5th intercostal space**, descends along the **left side of vertebral column**, and at the level of the **8th thoracic vertebra**, crosses to the right behind the **aorta** and **thoracic duct** to join the **azygos vein**.
- **Tributaries:**
  - 5th–8th left posterior intercostal veins.

- Sometimes **left bronchial veins**.

- **Function:**
  - Drains the **upper left posterior thoracic wall** and provides a connection between the **superior intercostal** and **hemiazygos systems**

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Thoracic Sympathetic Trunk

- The **thoracic part of the sympathetic trunk** is a **chain of ganglia** lying on each side of the **vertebral column**.

- **Extent:**
  - Continuous above with the **cervical** and below with the **lumbar sympathetic trunks**.

- **Structure:**
  - Usually **11 ganglia**, corresponding to **T1–T12** spinal nerves.
  - The **first thoracic ganglion** often fuses with the **inferior cervical ganglion** to form the **stellate (cervicothoracic) ganglion**.

- **Course and Relations:**
  - Descends across the **neck of the 1st rib**, heads of 2nd–10th ribs, and bodies of 11th–12th thoracic vertebrae.

- Lies anterior to **posterior intercostal vessels** and **nerves**; continues below behind the **medial arcuate ligament** into the abdomen.

- **Branches:**

1. **Grey rami communicantes** – to all thoracic spinal nerves (T1–T12), carrying **postganglionic fibres** to blood vessels, sweat glands, and arrector pili.

2. **White rami communicantes** – from T1–T12 to corresponding ganglia; T1–T5 ascend to cervical ganglia, T10–L2 descend to lumbar or sacral ganglia.

3. **Visceral branches:**

    - **Cardiac, pulmonary, and oesophageal branches** (from upper 5 ganglia).

    - **Splanchnic nerves** from lower 8 ganglia:

        - **Greater splanchnic nerve (T5–T9)**

        - **Lesser splanchnic nerve (T10–T11)**

        - **Least splanchnic nerve (T12)**

- **Clinical Significance:**

    - Involved in **autonomic control of thoracic viscera**.

    - **Stellate ganglion block** is performed for **relief of vasospasm** or **hyperhidrosis**.

    - Damage can cause **Horner's syndrome** (ptosis, miosis, anhidrosis