

"Thyroid Gland"

» Structure

- Right and left lobes connected by a narrow isthmus.
- Surrounded by a sheath from the pretracheal layer of the deep fascia.
- Sheath attaches gland to the larynx and trachea.

» Lobes

> Shape and Position

- Each lobe is pear-shaped.
- Apex: Directed upward, reaching the oblique line on the lamina of the thyroid cartilage.
- Base: Located at the level of the fourth or fifth tracheal ring.

> Isthmus:

- Extends across the midline, in front of the second, third, and fourth tracheal rings.

> Pyramidal Lobe

- Often present, projecting upward from the isthmus, usually to the left of the midline.
- Connected to the hyoid bone by a fibrous or muscular band.
- If muscular, called levator glandulae thyroideae.

» Relations of Lobes

• Anterolateral:

- Sternothyroid
- Superior belly of omohyoid
- Sternohyoid
- Anterior border of sternocleidomastoid.

- Posterolateral:

- Carotid sheath (includes common carotid artery, internal jugular vein, vagus nerve).

- Medial:

- Larynx
- Trachea
- Pharynx
- Esophagus

- Associated with the above mentioned structures are:

- Cricothyroid muscle and its nerve supply (external laryngeal nerve).
- Recurrent laryngeal nerve (in groove between esophagus and trachea).

- Posterior:

- Superior and inferior parathyroid glands.
- Anastomosis between superior and inferior thyroid arteries.

» Isthmus Relations

- Anterior:

- Sternothyroids, sternohyoids, anterior jugular veins, fascia, and skin.

- Posterior:

- Second, third, and fourth tracheal rings.

- Superior:

- Terminal branches of superior thyroid arteries anastomose along the upper border.

» Blood Supply of Thyroid Gland

> Arterial Supply

- Superior Thyroid Artery:

- Branch of the external carotid artery.
- Descends to the upper pole of each lobe with the external laryngeal nerve.

- Inferior Thyroid Artery:

- Branch of the thyrocervical trunk.
- Ascends behind the gland to cricoid cartilage, turns medially and downward to reach the posterior border.
- Recurrent laryngeal nerve crosses it, either in front, behind, or between its branches.

- > Thyroidea Ima (if present):

- May arise from the brachiocephalic artery or the arch of the aorta.
- Ascends in front of the trachea to reach the isthmus.

- > Venous Drainage

- Superior Thyroid Vein: Drains into the internal jugular vein.
- Middle Thyroid Vein: Drains into the internal jugular vein.

- Inferior Thyroid Vein:

- Forms an anastomosis between veins on both sides.
- Drains into the left brachiocephalic vein in the thorax.

» Lymph Drainage

- Lymph flows mainly laterally to the deep cervical lymph nodes.
- Some vessels descend to the paratracheal nodes.

» Nerve Supply

- Provided by the superior, middle, and inferior cervical sympathetic ganglia.

» Functions of the Thyroid Gland

> Hormones:

- Thyroxine and Triiodothyronine: Increase metabolic activity in most body cells.

- Thyrocalcitonin (produced by parafollicular cells): Lowers blood calcium levels.

» Clinical Notes

> Thyroid Gland Swelling & Movement on Swallowing:

- Enclosed in a sheath from pretracheal fascia, attaching it to the larynx and trachea.
- Pathologic neck swellings in the thyroid move upward when swallowing due to this attachment.

» Thyroid Gland and Airway:

- Enlarged thyroid may press on the trachea due to proximity, affecting breathing.

» Retrosternal Goiter:

- Sternothyroid muscle attachment to thyroid cartilage restricts upward growth.
- Enlarged gland may extend downward behind the sternum.

- Can compress the trachea (causing dyspnea) or veins, leading to severe complications.

» Thyroid Arteries and Nerve Relations:

- Superior Thyroid Artery: Close to the external laryngeal nerve, which supplies the cricothyroid muscle.
- Inferior Thyroid Artery: Terminal branches near the recurrent laryngeal nerve.

» Nerve Damage Risks:

- Damage to the external laryngeal nerve affects vocal fold tension and may cause hoarseness.
- Damage to the recurrent laryngeal nerve affects laryngeal function (discussed further in larynx section).

» Thyroidectomy and Parathyroid Glands:

- Parathyroid glands (typically four) are closely related to the posterior thyroid surface.

- In partial thyroidectomy, posterior thyroid is preserved to avoid damaging parathyroid glands.

> Inferior Parathyroid Glands:

- Developmentally associated with the thymus, often found in the superior mediastinum due to thymus influence pulling them into the thorax.