



# *Endocrine Block*

*Anatomy Team*

*430*

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# \*thyroid & parathyroid\*

-What are the parts of the deep cervical fascia of the neck?

1- Investing layer. 2- Pretracheal layer. 3- Prevertebral layer.

## Thyroid gland (Endocrine gland)

- ✗ Consists of **right & left lobes**.
- ✗ The **2 lobes** are connected to each other by a narrow **isthmus**, which overlies the **2<sup>nd</sup> 3<sup>rd</sup> & 4<sup>th</sup> tracheal rings**.

- ✗ Each lobe is pear shaped, with its **apex** reaches up to the **oblique line** of the **thyroid cartilage**.
- ✗ Its **base** lies at the level of **4<sup>th</sup> or 5<sup>th</sup> tracheal rings**.

- ✗ It is surrounded by a sheath derived from the **pretracheal layer of cervical fascia**.

- ✗ Inside the pretracheal facial capsule, there is another capsule. So, it is surrounded by 2 membranes

A small **pyramidal lobe** is often present which projects from the **upper border of the isthmus** usually to left of middle line.

**Pyramidal lobe** is connected to **hyoid bone** by a fibrous or muscular band called **levator glandulae thyroideae**.

This represents the **fibrosed & obliterated thyroglossal duct**.

## Relation Of The Thyroid

### Anterolaterally: (4 S).

1. Sternothyroid.
2. Sternohyoid.
3. Superior belly of omohyoid
4. Sternomastoid.

### Medially:

#### Above:

Larynx & pharynx .

#### Below:

- Trachea & esophagus.
- Recurrent laryngeal nerve in between.
- Cricothyroid muscle & external laryngeal nerve

### Posteriorly:

Carotid sheath & its contents.

- ✘ The rounded posterior border is related to the superior & inferior Parathyroid glands.
- ✘ It is also related to the anastomosis between superior & inferior thyroid arteries.

## arterial supply

### 1-Superior thyroid artery:

From the external carotid artery

It descends to the upper pole of the lobe, with the external laryngeal nerve.

It runs along the upper border of the isthmus to anastomosis with its fellow.

### 2- Thyroidea ima artery:

If present, it arises from aortic arch or from brachiocephalic artery.

It ascends in front of the trachea to reach the isthmus.

### 3-Inferior thyroid artery

From the thyrocervical trunk of 1<sup>st</sup> part of subclavian artery, ascends behind the gland to the level of cricoid cartilage.

It curves medially behind the carotid sheath.

Then it reaches the posterior aspect of the gland & descends

## Veins of Thyroid Gland

- 1-Superior thyroid vein which drains in to internal jugular vein
- 2- Middle thyroid vein which drains in to internal jugular vein
- 3- Inferior thyroid vein which drains in to left brachiocephalic vein

## Lymph Of the Thyroid Gland:

Deep cervical & paratracheal

### PARATHYROID GLAND

4 small ovoid bodies, about 6 mm. long.

**They lie within the facial capsule of the gland, (between the 2 membranes).**

**2 superior parathyroid** has a constant position at the middle of posterior border of the gland.

**2 inferior parathyroid** usually at the level of the inferior pole.

**They lie within the thyroid tissue or sometimes outside the facial capsule.**

### The Supply

✗ They are supplied by **superior & inferior thyroid arteries.**

Their veins are drained to superior, middle and inferior thyroid veins

✗ **Lymph nodes :**  
✗ **Deep cervical & paratracheal lymph nodes.**

**Nerve supply :**  
✗ **Superior & middle cervical sympathetic ganglia.**

## *Clinical notes*

- **The two main arteries** supplying the thyroid gland are closely related to important nerves that may be damaged **during thyroidectomy operations**.
- **Superior thyroid artery** on each side is related to the external laryngeal nerve, which supplies the cricothyroid muscle. Damage to external laryngeal nerve results in an inability to tense the vocal folds and in hoarseness.
- **Inferior thyroid artery** is closely associated with the **recurrent laryngeal nerve**.
- This nerve can be found in a triangle bounded laterally by the **common carotid artery**, medially by the **trachea**, and superiorly by the **thyroid lobe**.
- The relationship of the recurrent laryngeal nerve and the inferior thyroid artery is highly variable in that the **nerve** can lie deep to the artery, superficial to the artery, or between the branches of the **artery**, and be different on either side of the neck.
- Consideration of this nerve and its branches must be given during dissection and thyroidectomy or its lesion may result in impaired breathing & speech.

## summary

- ✓ Thyroid gland is an endocrine gland which Consists of right & left lobes.
- ✓ The 2 lobes are connected to each other by a narrow isthmus, which overlies the **2<sup>nd</sup> 3<sup>rd</sup> & 4<sup>th</sup> tracheal rings**.
- ✓ Thyroid gland is surrounded by a sheath derived from the **pretracheal layer of cervical fascia**.
- ✓ A small pyramidal lobe is often present and it's connected to hyoid bone by a fibrous or muscular band called **levator glandulae thyroideae which represents the fibrosed & obliterated thyroglossal duct** .
- ✓ Thyroid gland is related :-
  - Anterolaterally** to **sternothyroid , Sternohyoid, Superior belly of omohyoid , Sternomastoid**.
  - Posteriorly** to Carotid sheath & its contents (**the internal jugular vein ,the internal & external carotid arteries and the vagus nerve**)
  - Medially** (Above) to **Larynx & pharynx** (Below) to **Trachea & esophagus** (Recurrent laryngeal nerve in between) . **Cricothyroid muscle & external laryngeal nerve** .
- ✓ The rounded **posterior border** is related to the **superior & inferior Parathyroid glands** , It's also related to the anastomosis between superior & inferior thyroid arteries.
- ✓ The thyroid gland is supplied by 3 arteries : **Superior thyroid artery, Thyroidea ima artery and inferior thyroid artery**
- ✓ Veins of thyroid gland are : **Superior , middle and inferior thyroid veins** . The lymph nodes are **Deep cervical & paratracheal**.
- ✓ Parathyroid gland is **4** small ovoid bodies , They lie within the facial capsule of the gland, (between the 2 membranes) or sometimes outside the facial capsule .
- ✓ Parathyroid gland consist of **2 superior parathyroid and 2 inferior parathyroid** .They are supplied by **superior & inferior thyroid arteries**.

- ✓ Veins of parathyroid gland drained to **superior, middle and inferior thyroid veins** . The lymph nodes are **deep cervical & paratracheal lymph nodes**.
- ✓ Parathyroid gland nerve supply is by **Superior & middle cervical sympathetic ganglia**.
- ✓ Superior thyroid artery on each side is related to **the external laryngeal nerve**, which supplies **the cricothyroid muscle**. Damage to external laryngeal nerve results in **an inability to tense the vocal folds and hoarseness**.
- ✓ Inferior thyroid artery is closely associated with **the recurrent laryngeal nerve** . Damage to recurrent laryngeal nerve results in **impaired breathing & speech**.

**★ Good Luck ★**