

# **Root of the neck and Thyroid Gland**

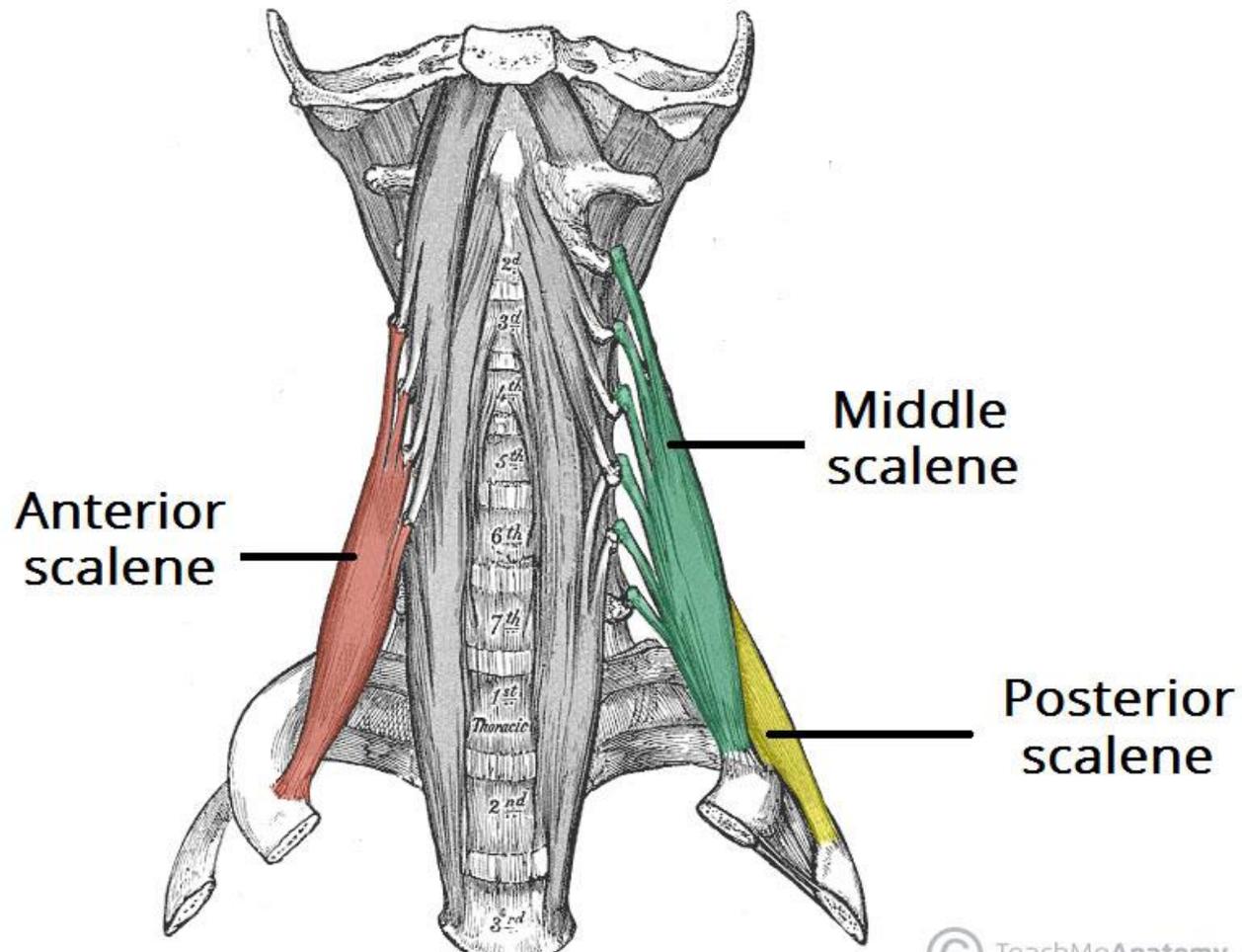
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Embryology**

# Lecture ILOS & Objectives:

**By the end of this lecture the student should be able to:**

- 1. Describe origin , insertion ,nerve supply and action of scalenus anterior muscle.**
- 2. Outline the course parts and branches of subclavian artery .**
- 3. Describe the anatomy and applied anatomy of subclavian vein.**
- 4. Describe the anatomy of the thyroid gland.**

# Scalene Muscles



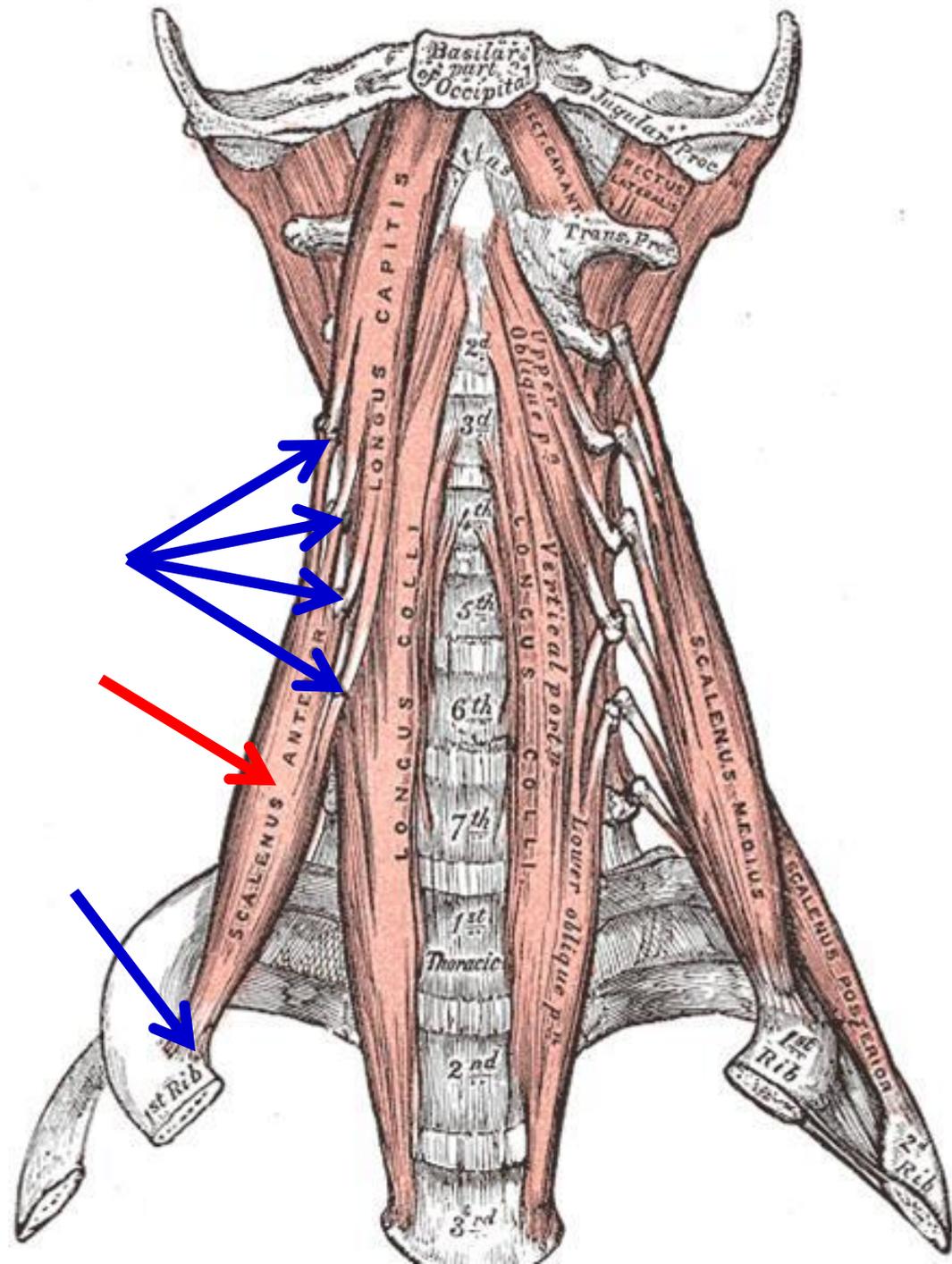
• **Scalenus Anterior:**

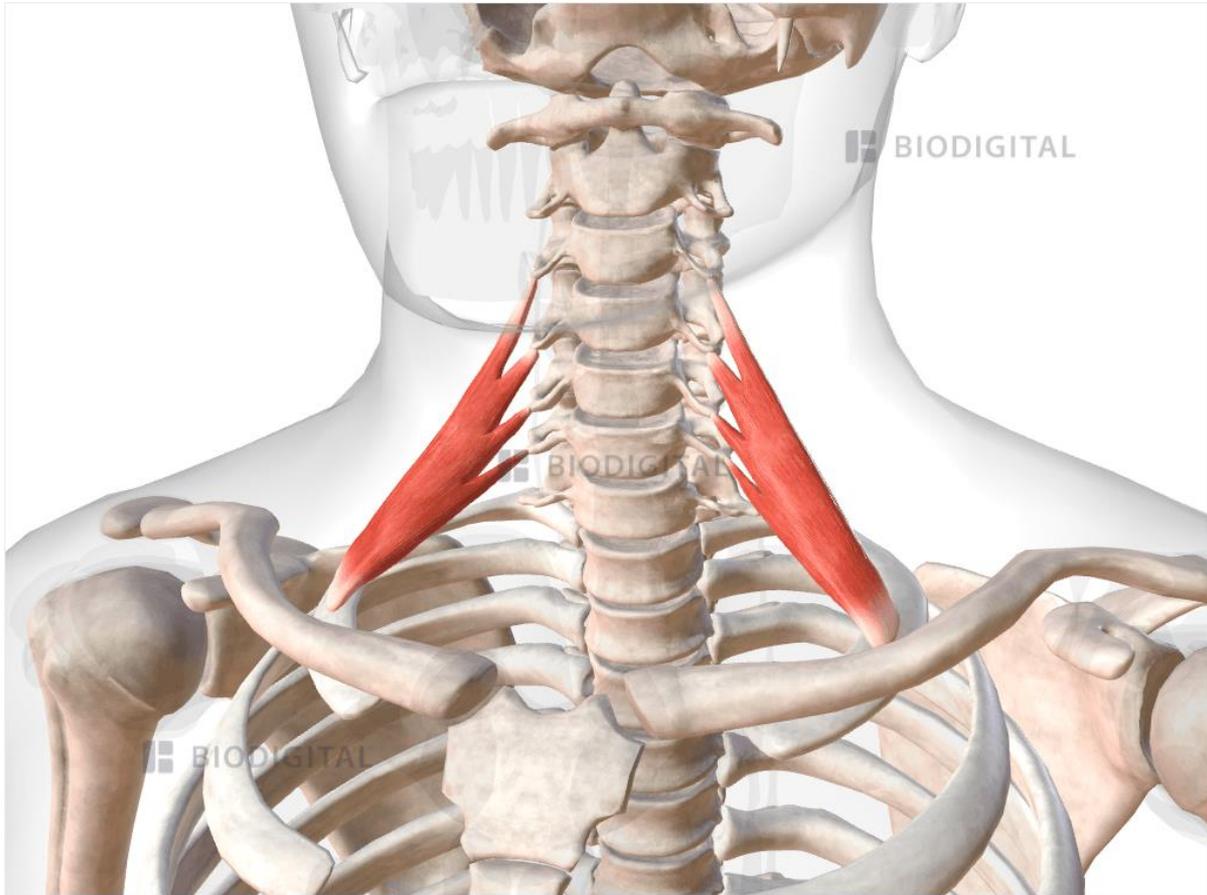
• **Origin:** anterior tubercles of transverse processes of 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> cervical vertebrae.

• **Insertion:** scalene tubercle on the inner border of 1<sup>st</sup> rib.

• **Nerve supply:** anterior rami of 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> cervical nerves.

• **Action:** flexion and lateral rotation of the neck and elevation of 1<sup>st</sup> rib





# Subclavian artery

- **Origin:**

- Right one arises from innominate artery

- Left one arises from arch of aorta

- **Course:**

- It enters the neck behind sternoclavicular joint

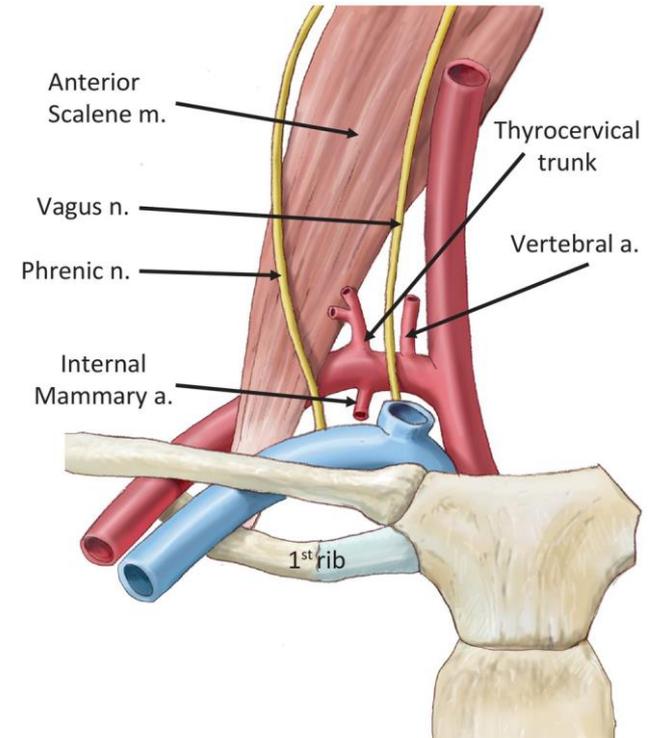
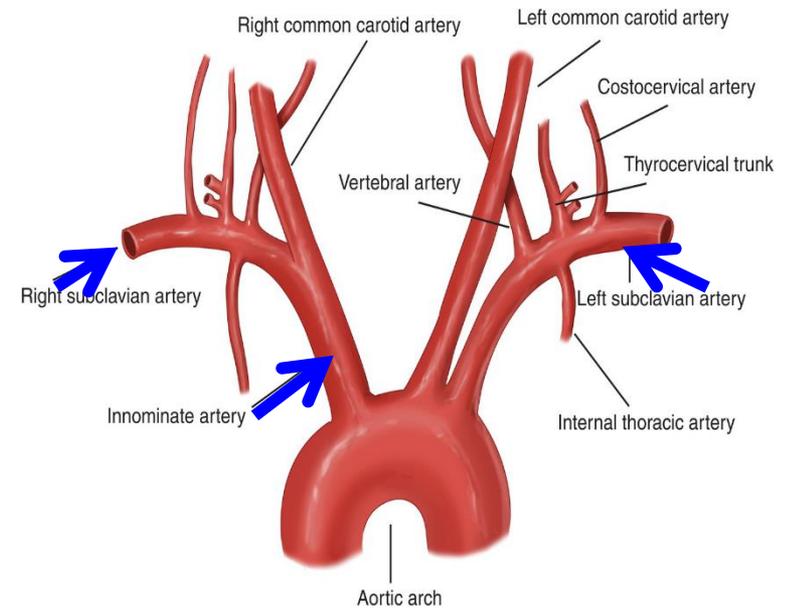
- It arches upwards above root of the neck

- It passes laterally:

- Behind the scalenus anterior muscle

- In front of cervical pleura

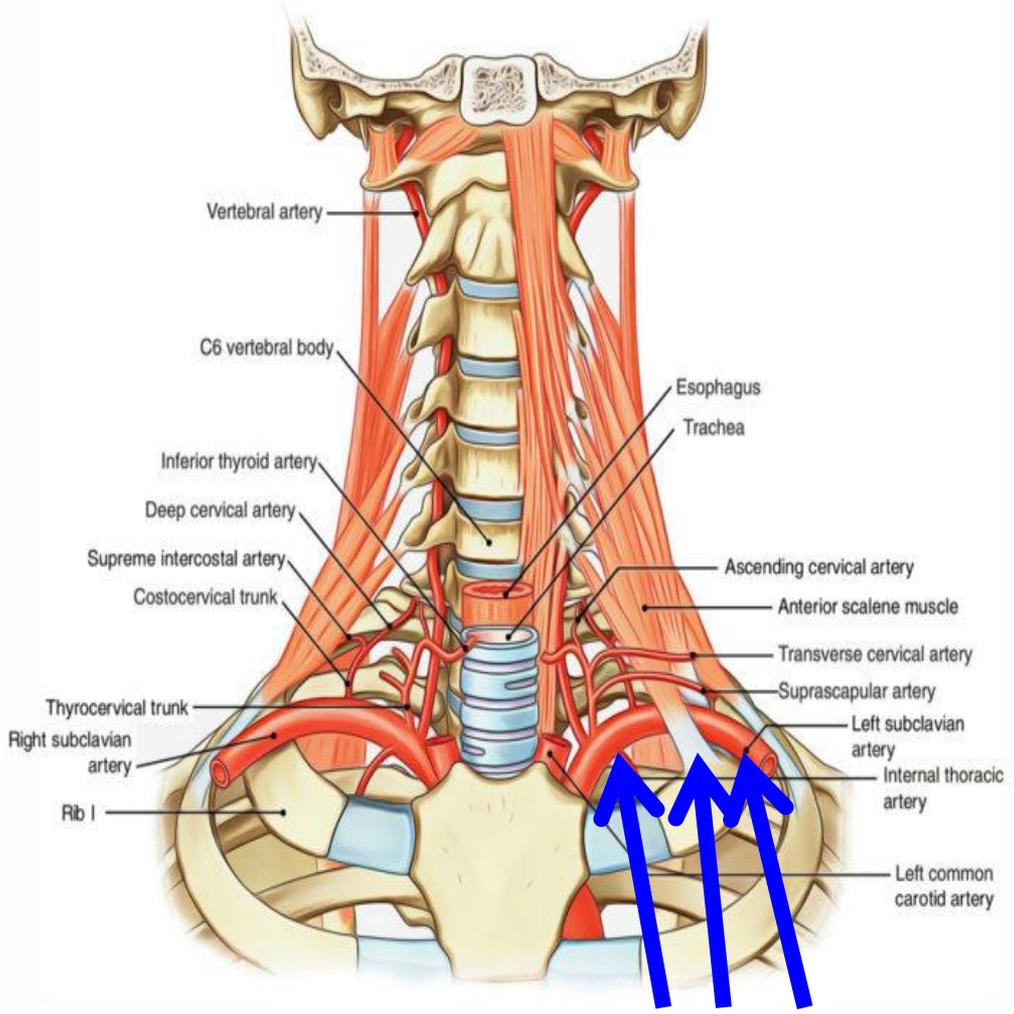
- **End:** at outer border of 1<sup>st</sup> rib by becoming axillary artery.



• Devisions

• It is divided into 3 parts by scalenus anterior muscle:

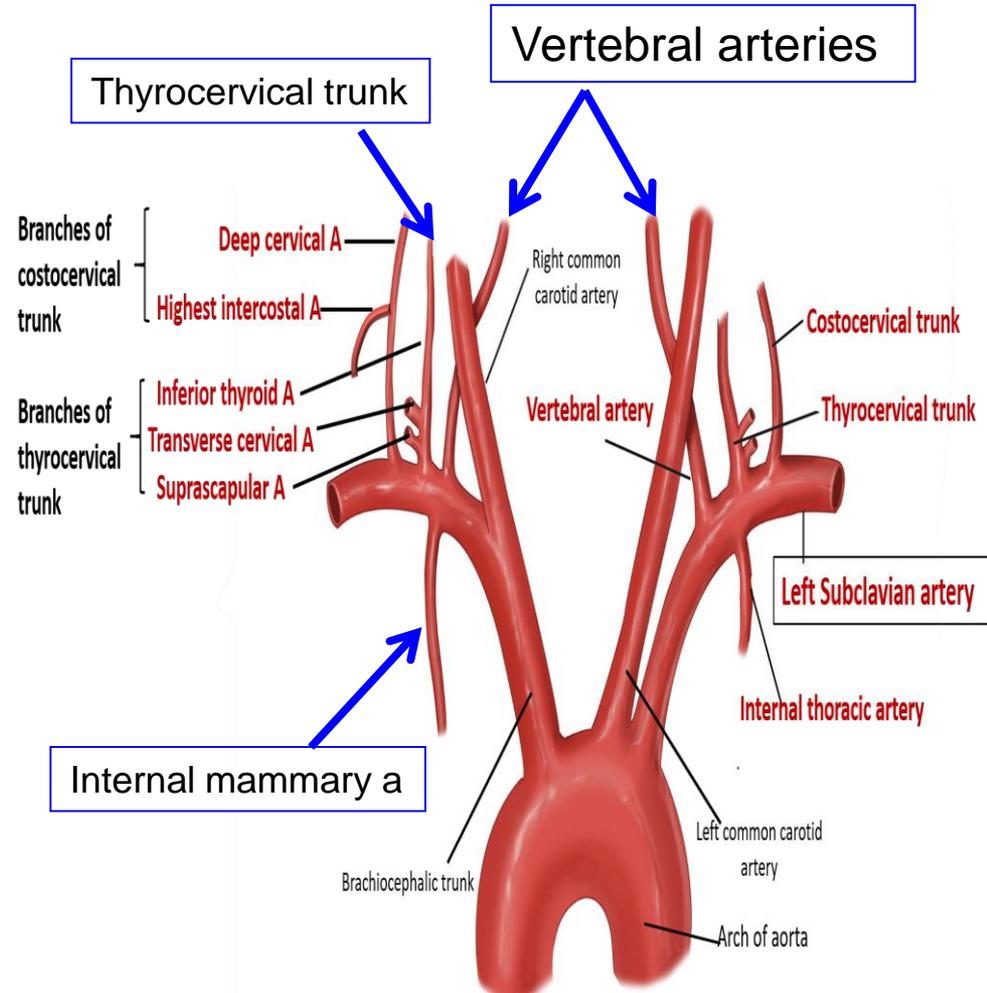
- 1. **First part** medial to scalenus anterior
- 2. **Second part** behind scalenus anterior
- 3. **Third part** lateral to scalenus anterior

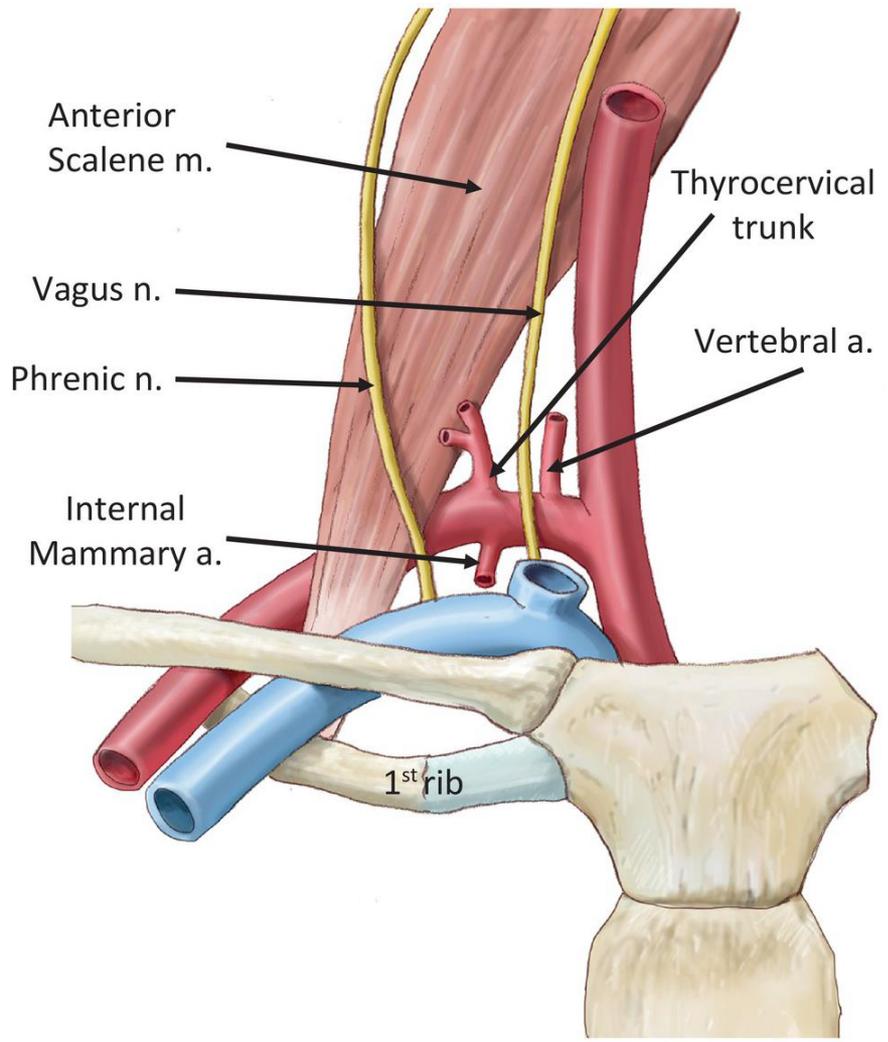


# First Part

## • Branches of 1<sup>st</sup> part:

1. **Vertebral artery** enters foramen transversarium of 6<sup>th</sup> cervical vertebra
2. **Thyrocervical trunk** gives:
  - Suprascapular artery
  - Transverse cervical artery
  - Inferior thyroid artery
3. **Internal mammary artery** descends to the thorax





- **Branches of 1<sup>st</sup> part:**

1. **Vertebral artery** enters foramen transversarium of 6<sup>th</sup> cervical vertebra

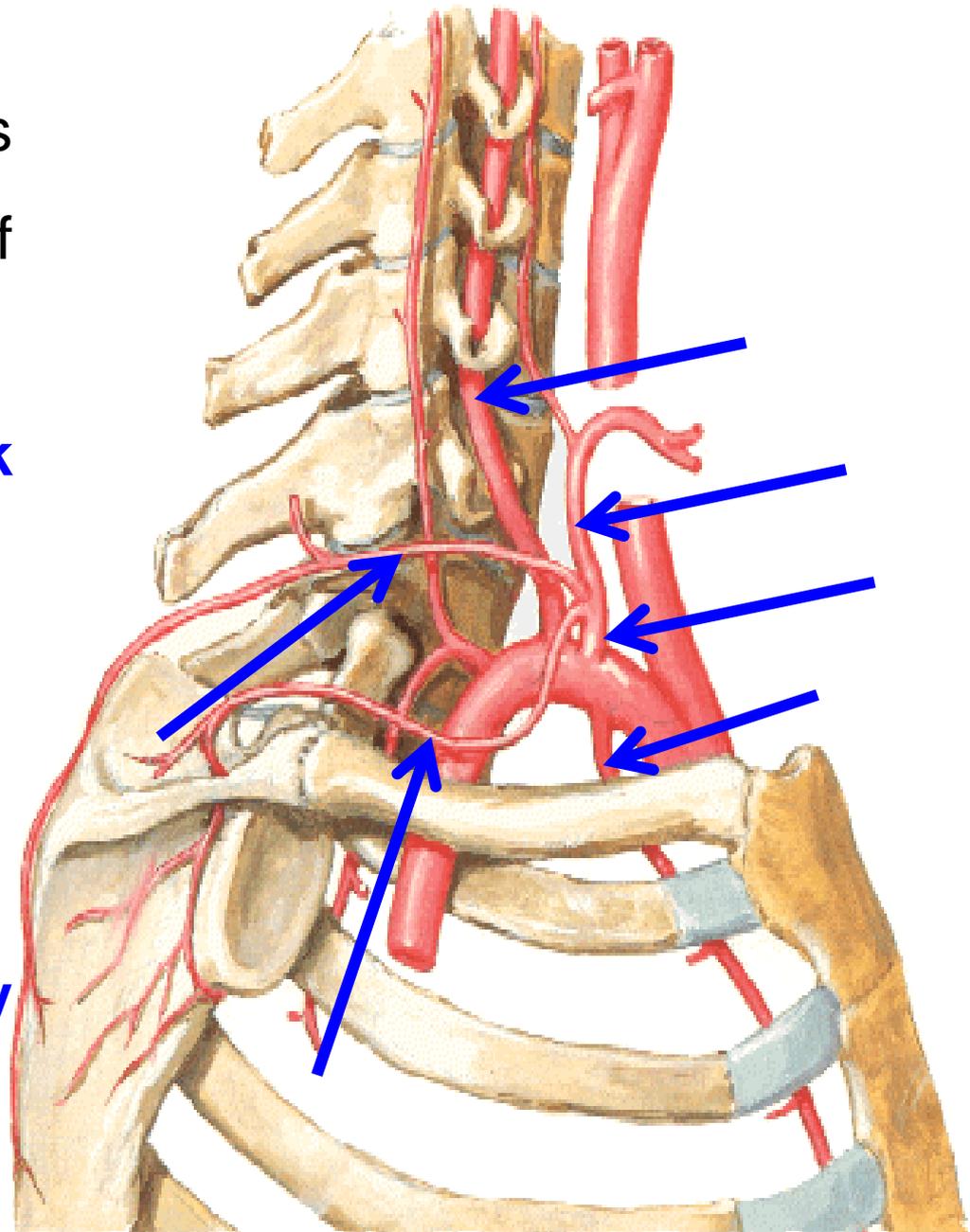
2. **Thyrocervical trunk**

gives:

- Suprascapular artery
- Transverse cervical artery
- Inferior thyroid artery

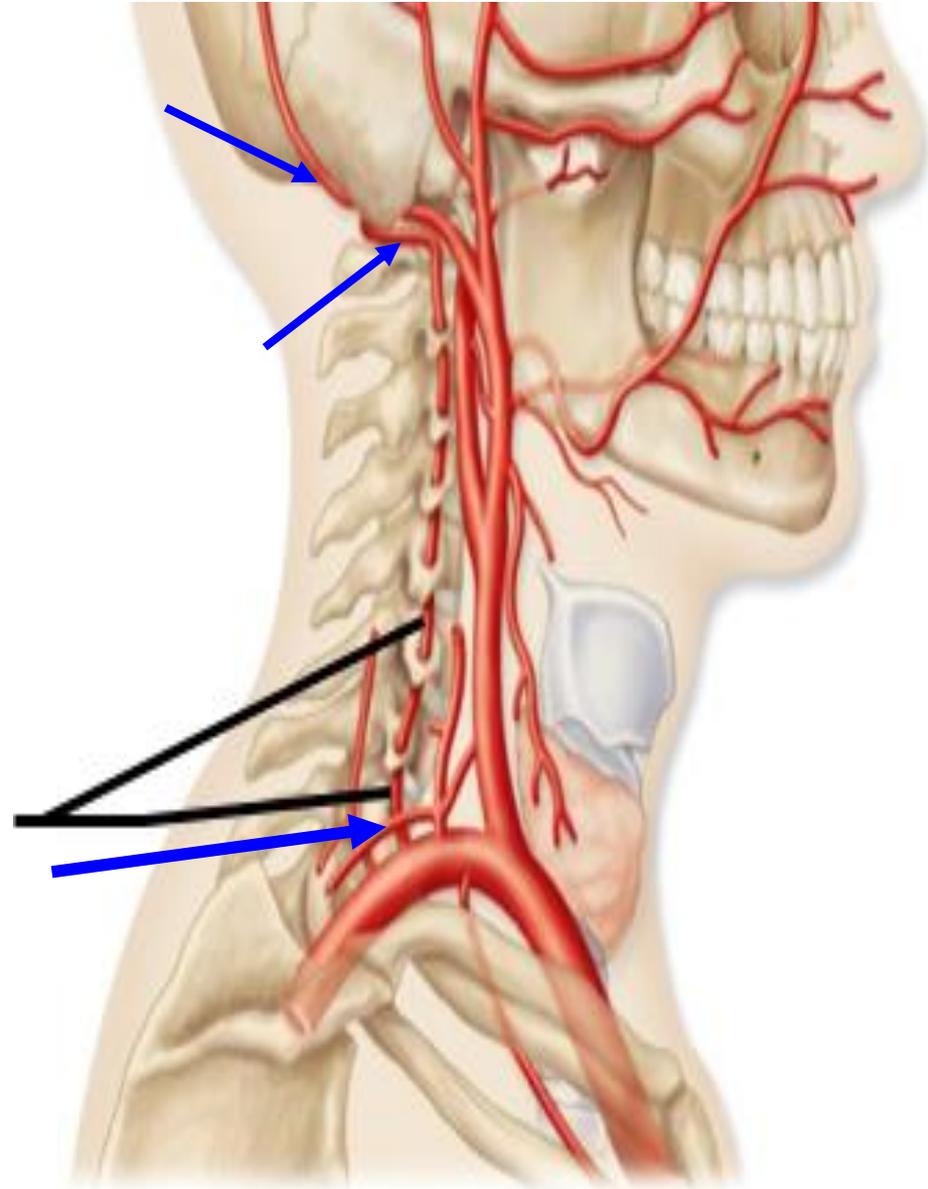
3. **Internal mammary artery**

descends to the thorax



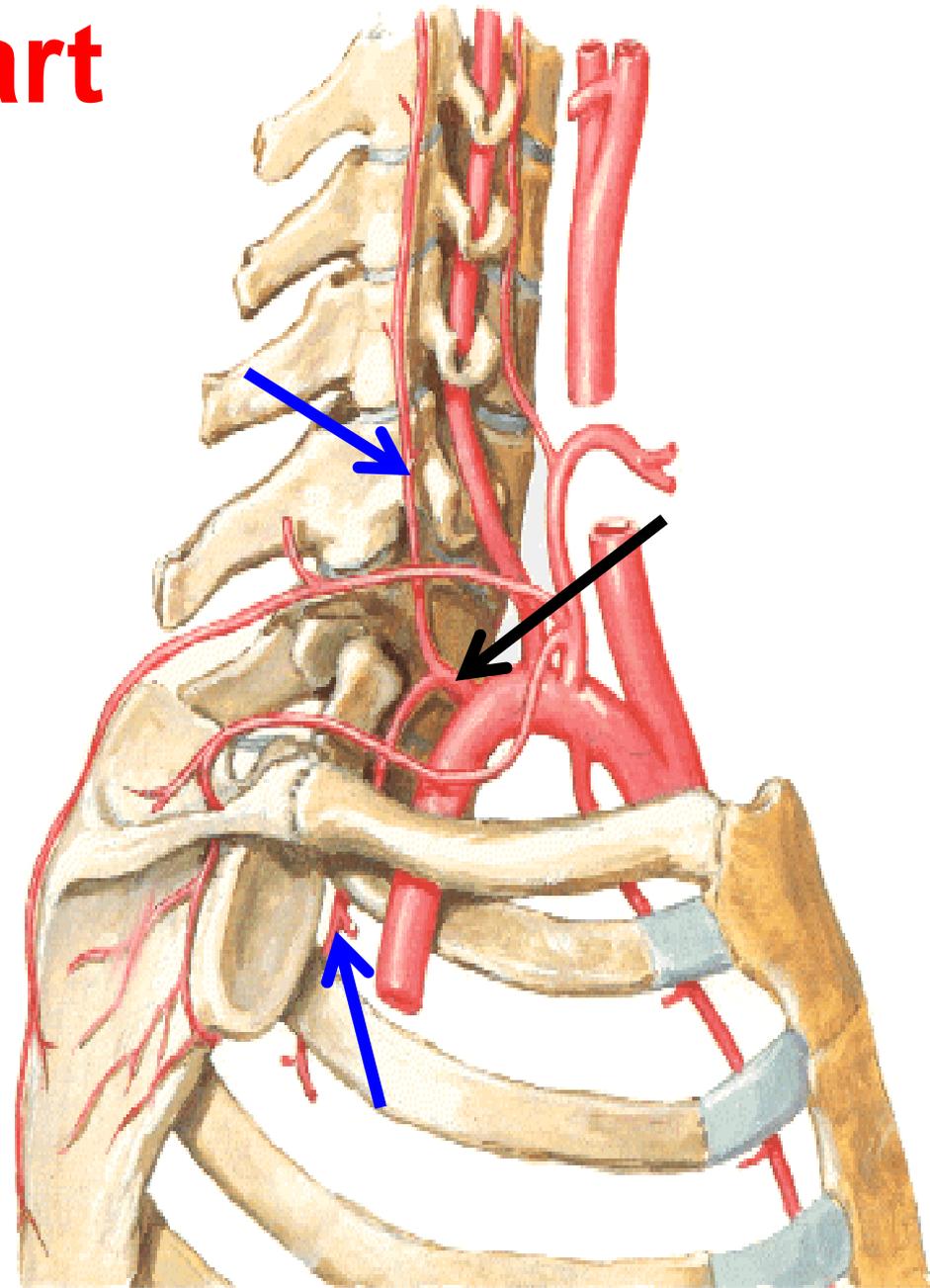
# Vertebral Artery

- It is a branch of 1<sup>st</sup> part of subclavian artery.
- It is divided into 4 parts:
  1. **1<sup>st</sup> part:** from its origin to foramen transversarium of 6<sup>th</sup> cervical vertebra.
  2. **2<sup>nd</sup> part:** runs in foramina transversaria from 6<sup>th</sup> to 1<sup>st</sup> cervical vertebrae.
  3. **3<sup>rd</sup> part:** runs medially on the posterior arch of atlas in suboccipital triangle.
  4. **4<sup>th</sup> part:**
    - Enters foramen magnum to ascend on side of medulla oblongata.
    - At lower border of pons it unites with its fellow to form basilar artery



# Second Part

- **Branches:**
- **Costocervical trunk** divides into:
  1. **Superior intercostal artery** gives 1<sup>st</sup> and 2<sup>nd</sup> posterior intercostal arteries
  2. **Deep cervical** ascends up to the back of the neck

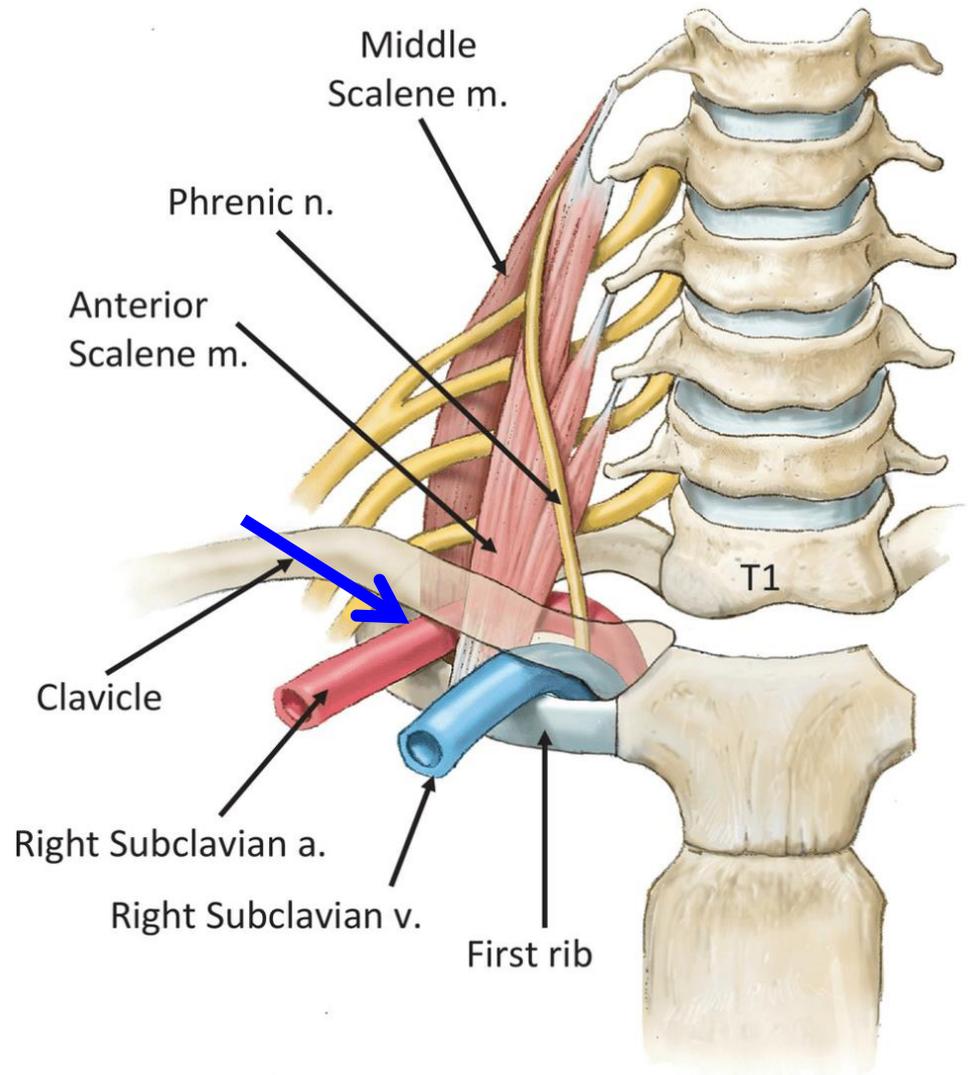


# Third Part

- lies lateral to scalene anterior muscle in front of scalenus medius
- Forms a shallow groove on upper surface of 1<sup>st</sup> rib
- Ends at outer border of first rib by becoming axillary artery

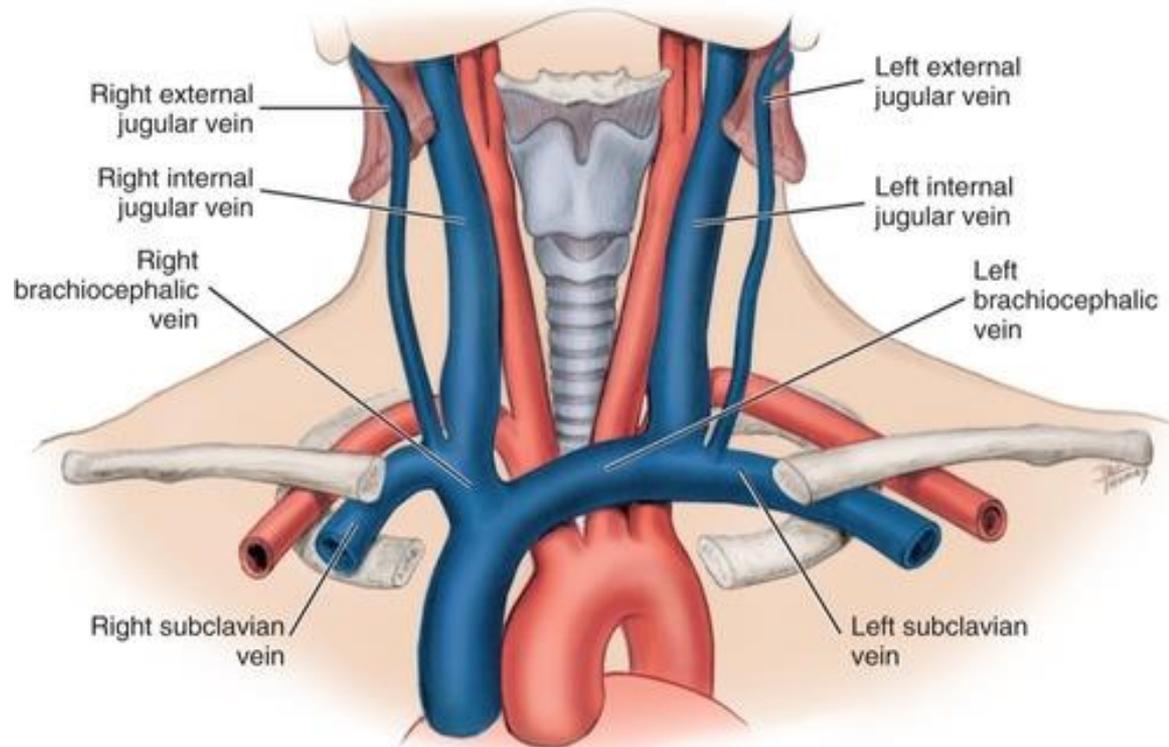
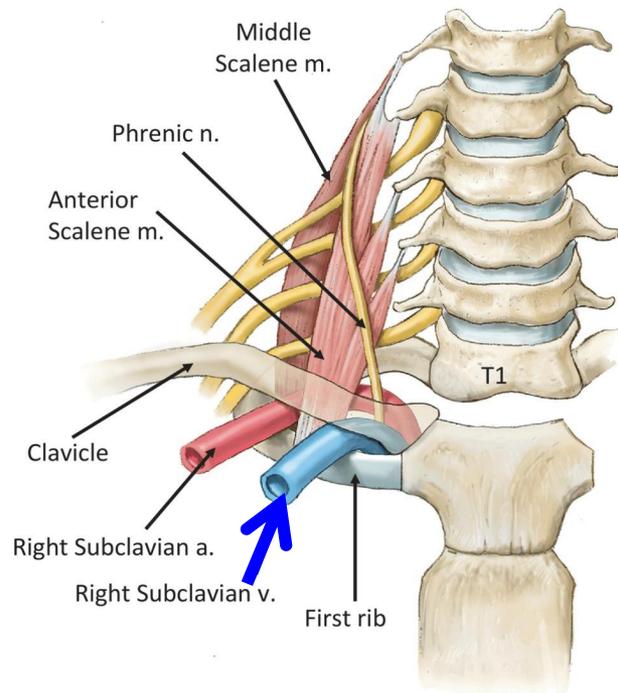
## Branches:

it gives no branches



# Subclavian Vein

- **Begins** at the outer border of 1<sup>st</sup> rib as a continuation of axillary vein
- **Ends by** union with internal jugular vein to form innominate (Brachiocephalic veins)
- Lies below and in front of subclavian artery
- Receives only one tributary, the external jugular vein



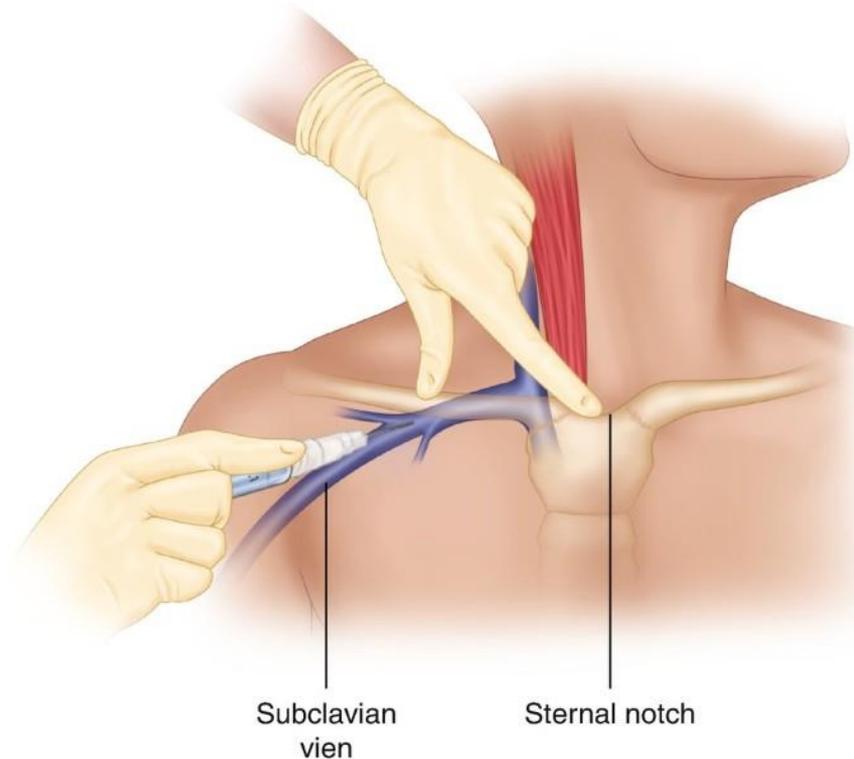
# Subclavian Vein

## Applied anatomy:

As the subclavian vein is large, central and relatively superficial, it is often used to place central venous lines.

It is preferred for central venous access in cases of:

- A patient having cervical spine injury
- long-term need for intravenous line e.g. dialysis, feeding. This site may be more comfortable for the patient.



# Thyroid gland



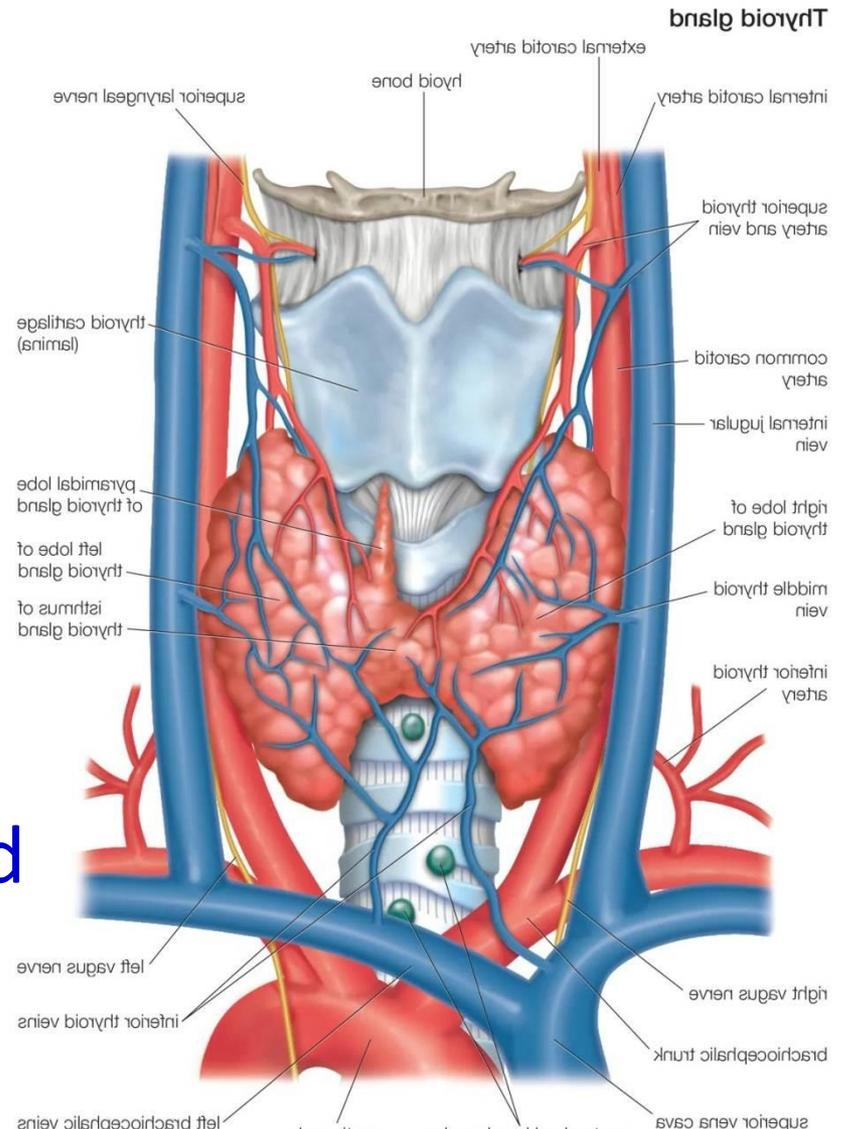
# Thyroid Gland

## Thyroid lobes:

- Cover the anterolateral surfaces of the trachea, the cricoid cartilage, and the lower part of the thyroid cartilage

## Isthmus

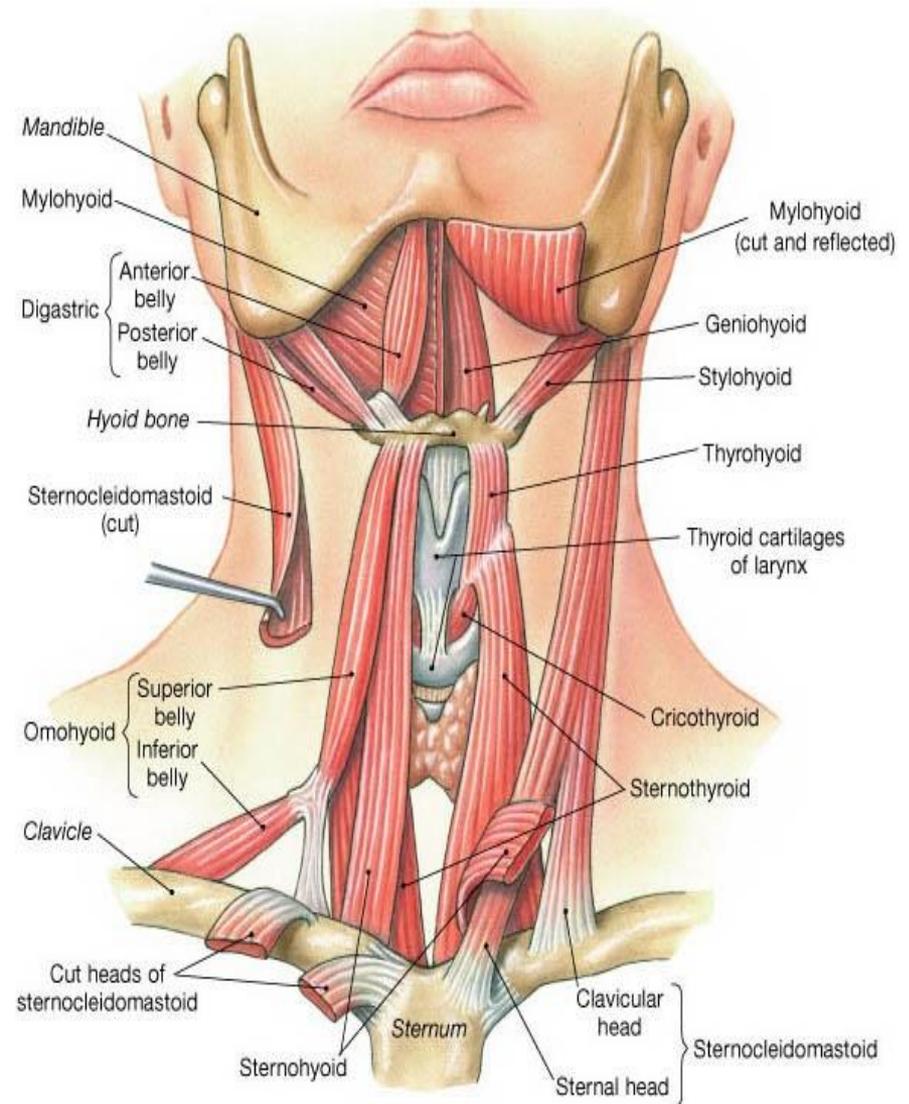
- crosses the anterior surfaces of the second and third tracheal cartilages



# Thyroid Gland

The thyroid gland is in the visceral compartment of the neck.

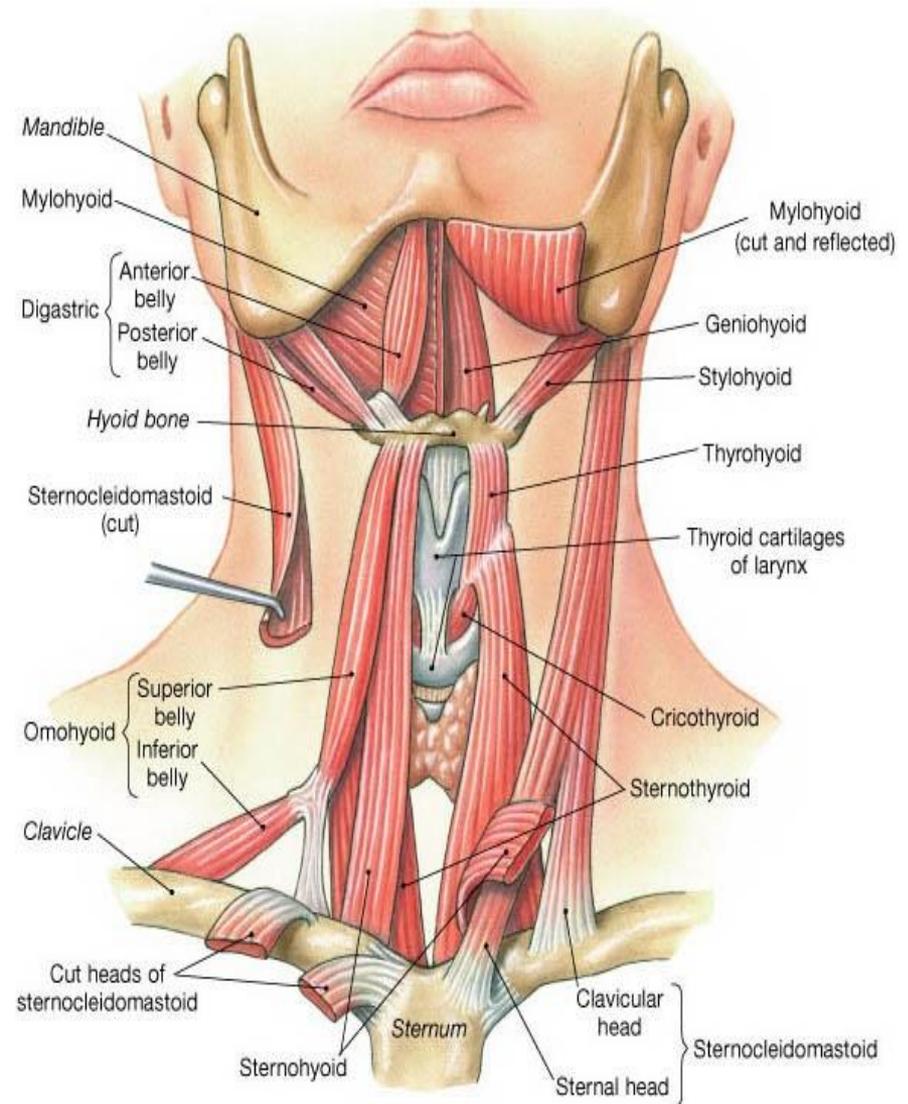
- This compartment also includes the pharynx, trachea, and esophagus
- It is surrounded by the pretracheal layers of deep cervical fascia.



# Thyroid Gland

## Relations:

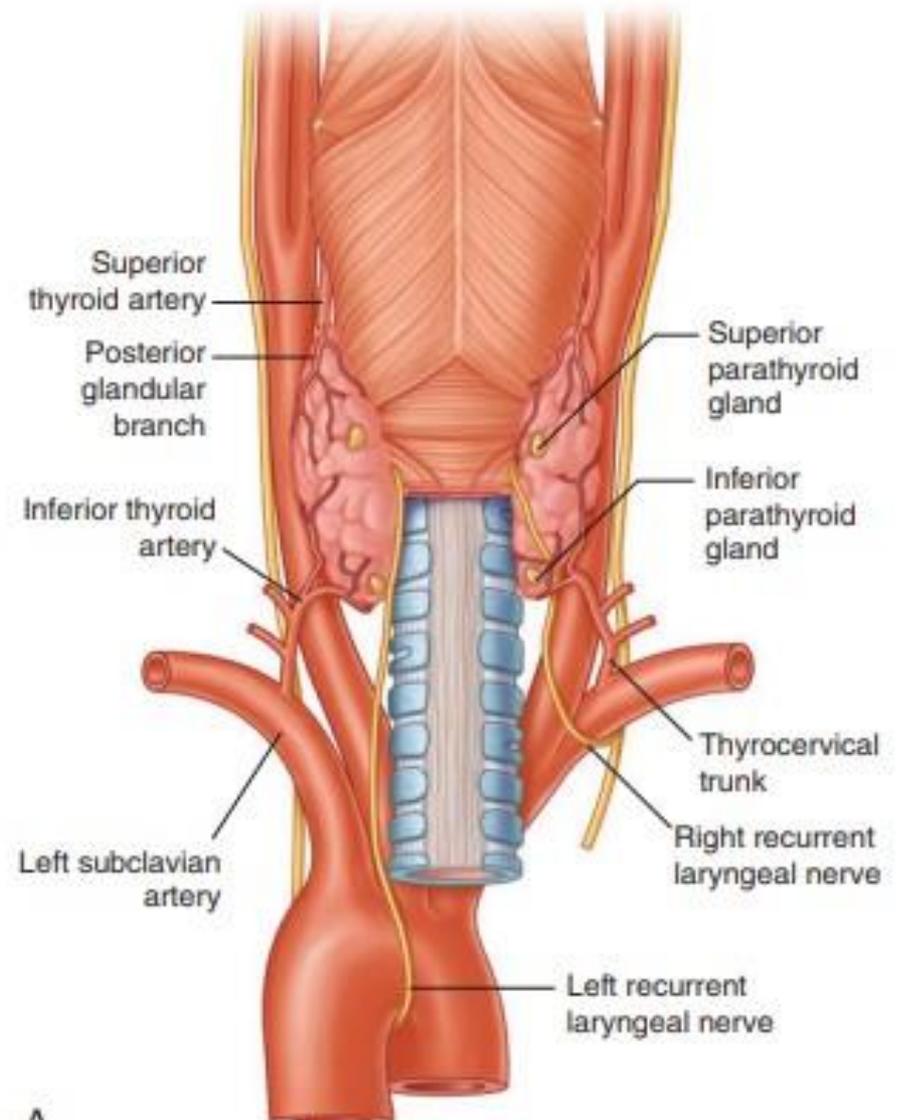
- It is covered by the following muscles:
  - sternohyoid
  - sternothyroid
  - omohyoid muscles
- Medially it is related to:
  - Larynx and trachea
  - Pharynx and esophagus
- The recurrent laryngeal nerve is located in the groove between trachea and esophagus



# Thyroid Gland

## Relations:

- The recurrent laryngeal nerve is closely related to the thyroid gland ascending in the groove between trachea and esophagus



# Thyroid Gland

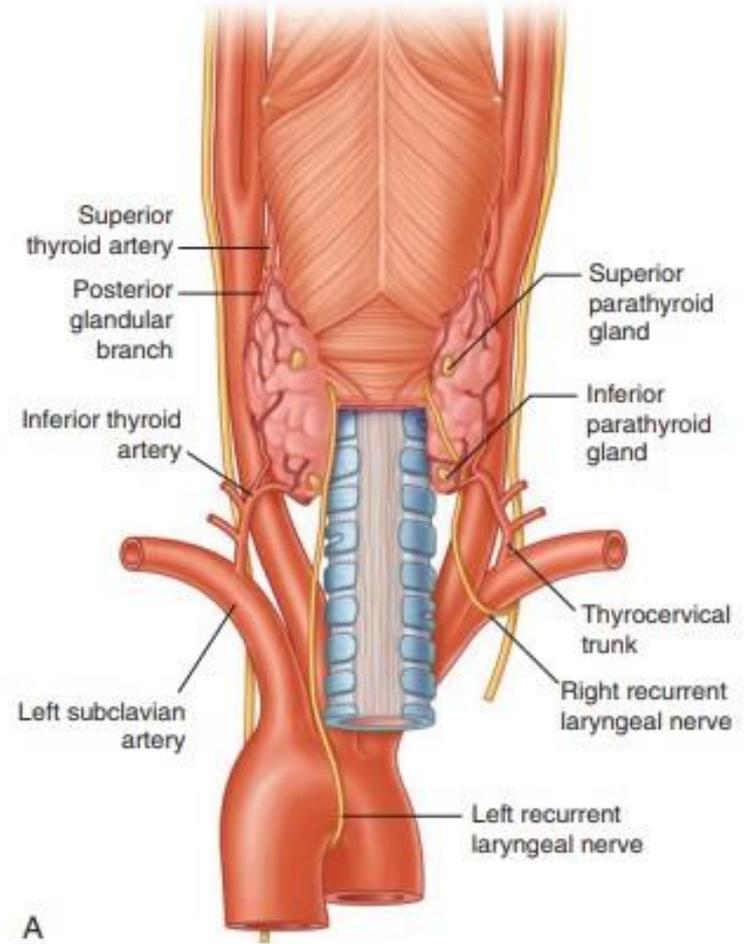
## Arterial supply:

### 1. Superior thyroid artery.

- The superior thyroid artery is the first branch of the external carotid artery
- It descends, to reach the superior pole of the lateral lobe of the gland where it divides into anterior and posterior glandular branches.

### 2. Inferior thyroid artery.

- The inferior thyroid artery is a branch of the thyrocervical trunk, which arises from the first part of the subclavian artery
- it ascends to reach the inferior pole of the lateral lobe of the thyroid gland.

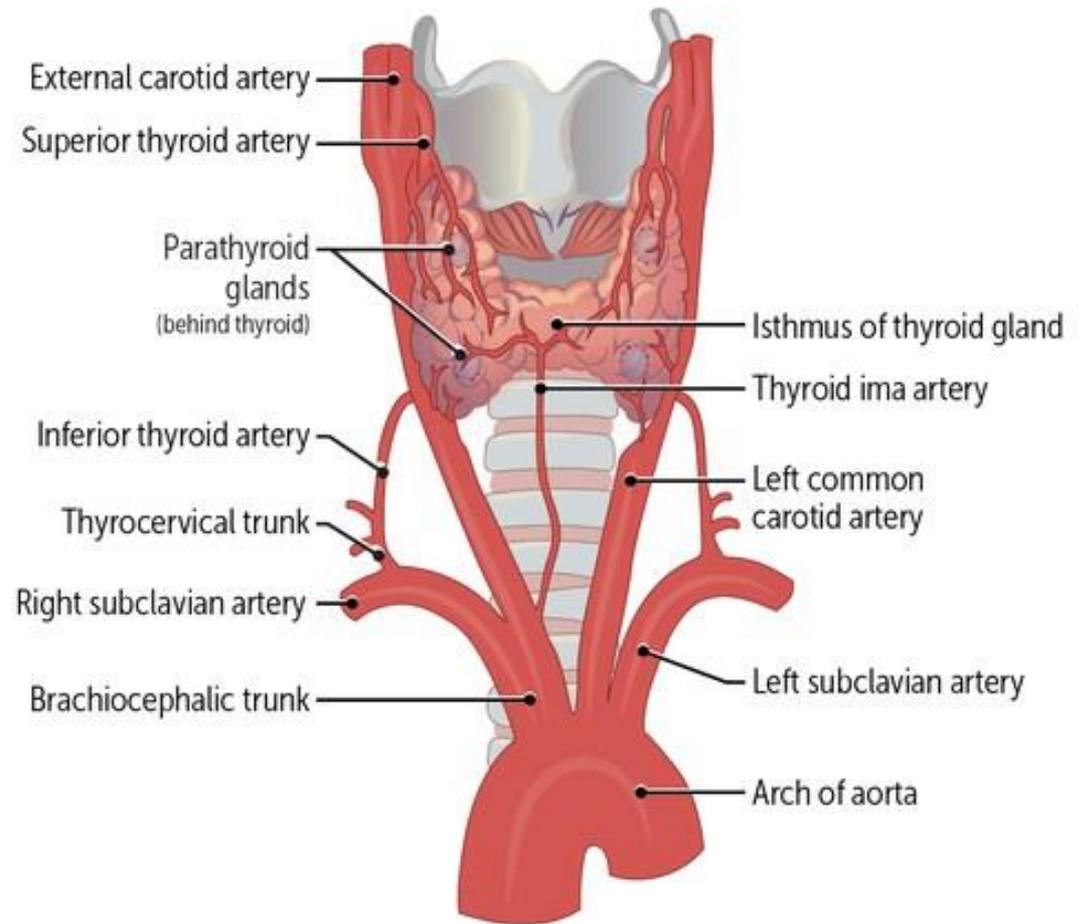


# Thyroid Gland

## Arterial supply:

### 3. Thyroid ima artery

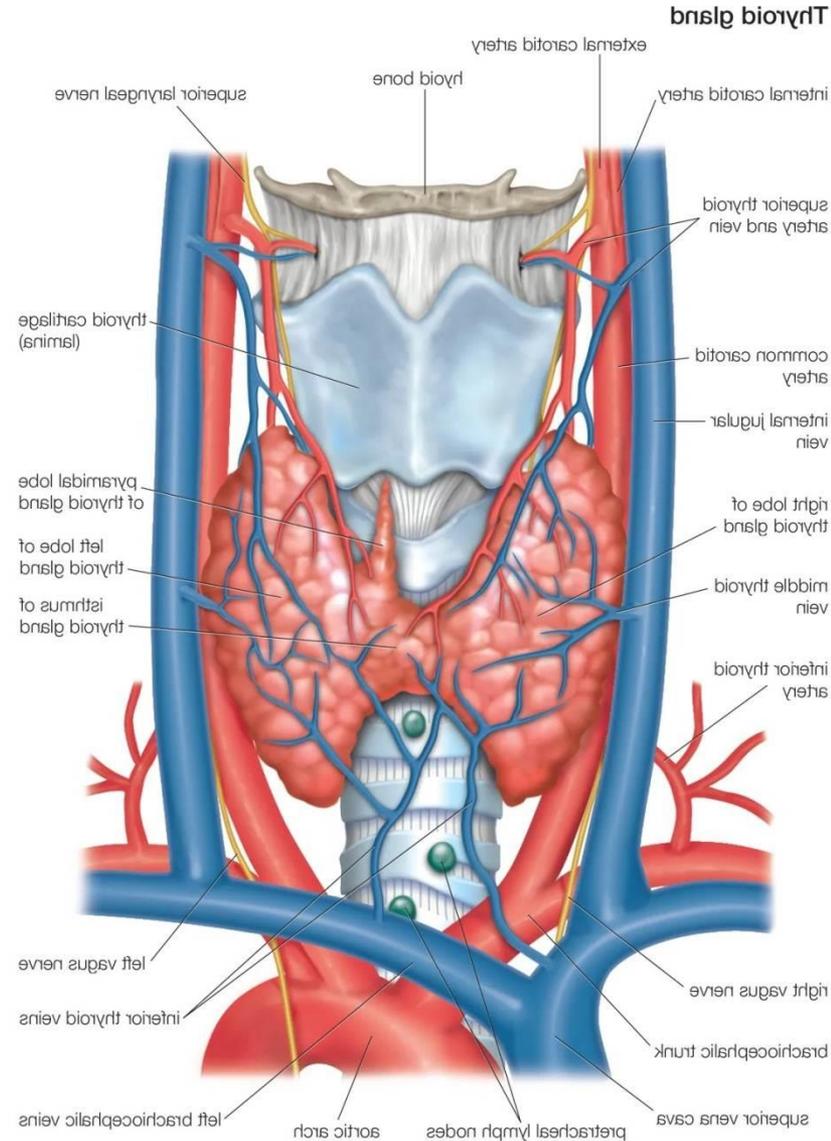
- Arises from the innominate artery or the arch of the aorta
- Ascends on the anterior surface of the trachea to supply the isthmus of thyroid gland.



# Thyroid Gland

## Venous drainage :

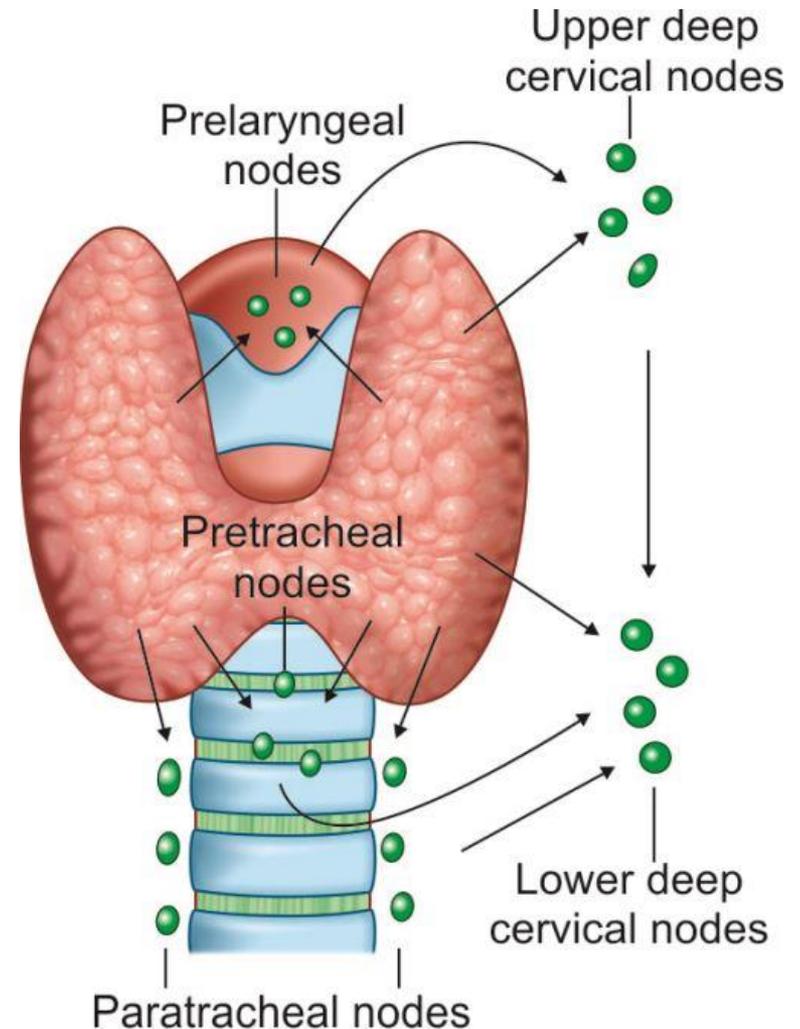
- The superior and middle thyroid veins drain into the internal jugular vein
- The inferior thyroid veins empty into the right and left brachiocephalic veins, respectively



# Thyroid Gland

## Lymphatic drainage;

- To prelaryngeal nodes
- Pretracheal nodes
- paratracheal nodes
- Then to deep cervical nodes along the internal jugular vein.



## **REFERENCES**

- **Snell`s clinical anatomy by regions ,Tenth Edition**
- **Gray`s Anatomy for students, Third Edition**
- **Grant`s Atlas of Anatomy**

Thank  
you

