

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

MAJOR ARTERIES OF THE BODY

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OBJECTIVES

At the end of the lecture, the student should be able to:

- Define the word 'artery' and understand the general principles of the arterial system.
- Define arterial anastomosis and describe its significance.
- Define end arteries and give examples.
- Describe the aorta and its divisions & list the branches from each part.
- List major arteries and their distribution in the head & neck, thorax, abdomen and upper & lower extremities.
- List main pulse points.

“ARTERIES”

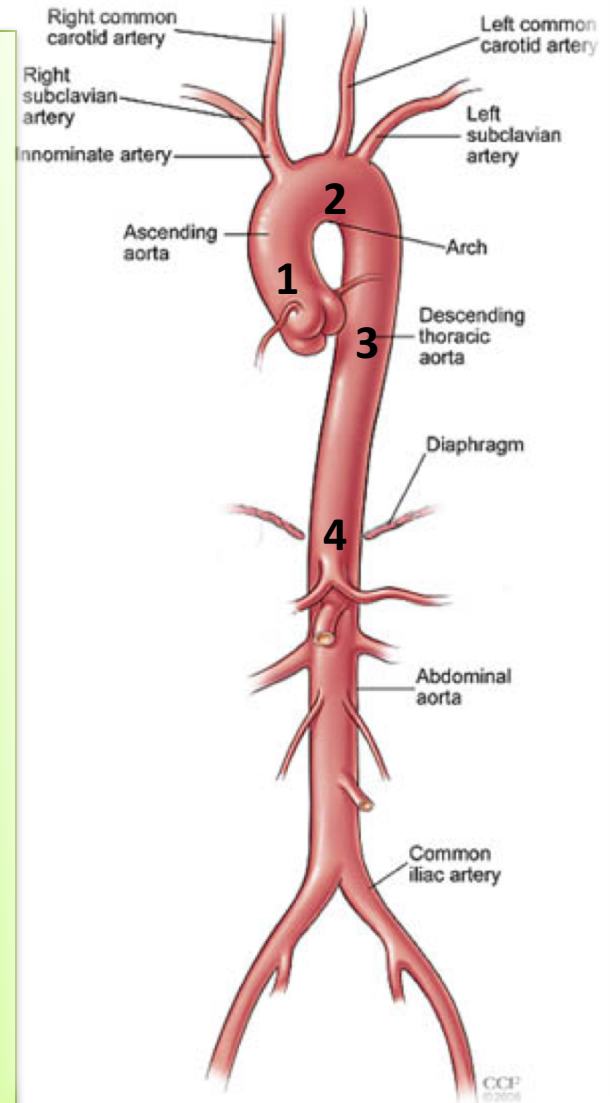
- Blood vessels that carry blood from the heart to the body.
- All arteries, carry **oxygenated blood**, **EXCEPT** the **PULMONARY ARTERY** which carry deoxygenated blood to the lungs.

GENERAL PRINCIPLES OF ARTERIES

- The flow of blood depends on the **pumping action of the heart.**
- Arteries have **ELASTIC WALL** containing **NO VALVES.**
- The branches of arteries supplying adjacent areas normally **ANASTOMOSE** with one another freely providing backup routes for blood to flow if one artery is blocked, e.g. ***arteries of limbs.***
- The arteries whose terminal branches do not anastomose with branches of adjacent arteries are called "**END ARTERIES**". End arteries are of two types:
 - **Anatomic (True) End Artery:** When NO anastomosis exists, e.g. ***artery of the retina.***
 - **Functional End Artery:** When an anastomosis exists but is incapable of providing a sufficient supply of blood, e.g. ***splenic artery, renal artery.***

AORTA

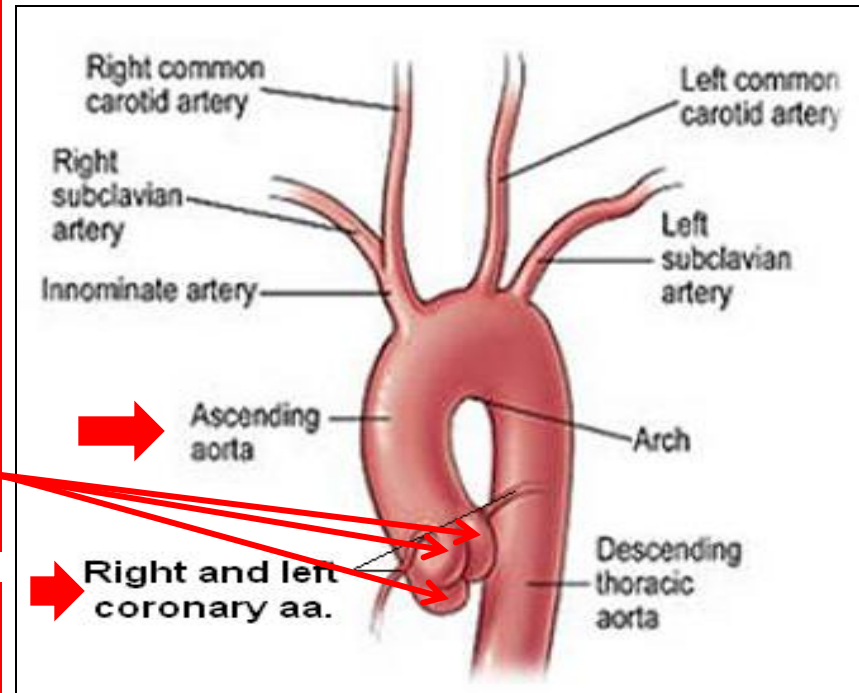
- The **largest** artery in the body
- Carries oxygenated blood to all parts of the body
- Is divided into 4 parts:
 - 1. Ascending aorta**
 - 2. Arch of aorta**
 - 3. Descending thoracic aorta**
 - 4. Abdominal aorta**



ASCENDING AORTA

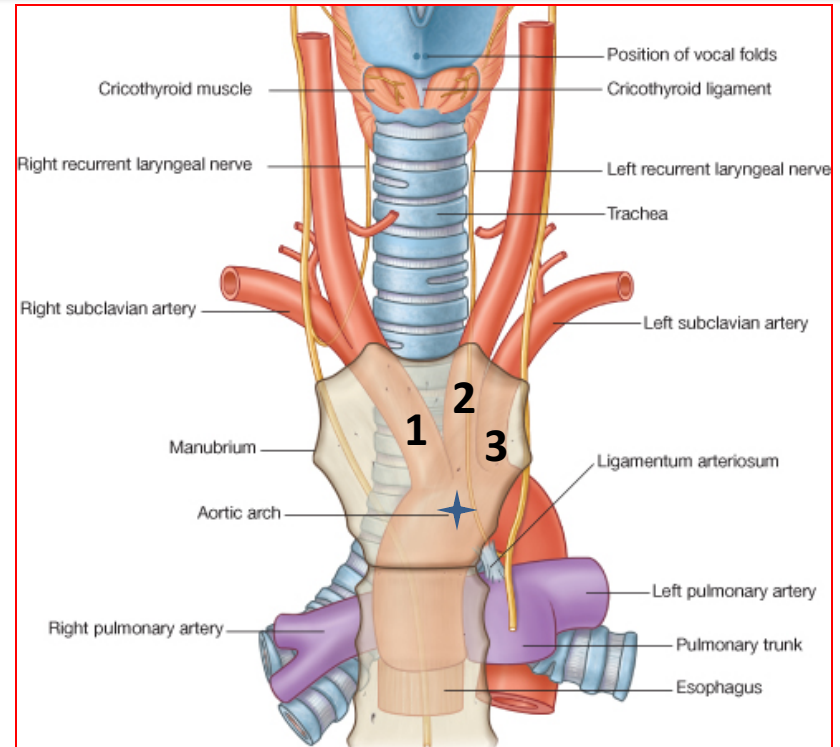
- Originates from left ventricle.
- Continues as the **arch of aorta**
- Has three dilatations at its base, called **aortic sinuses**

- **Branches:**
 - **Right & Left coronary arteries (supplying heart),** arise from aortic sinuses



ARCH OF AORTA

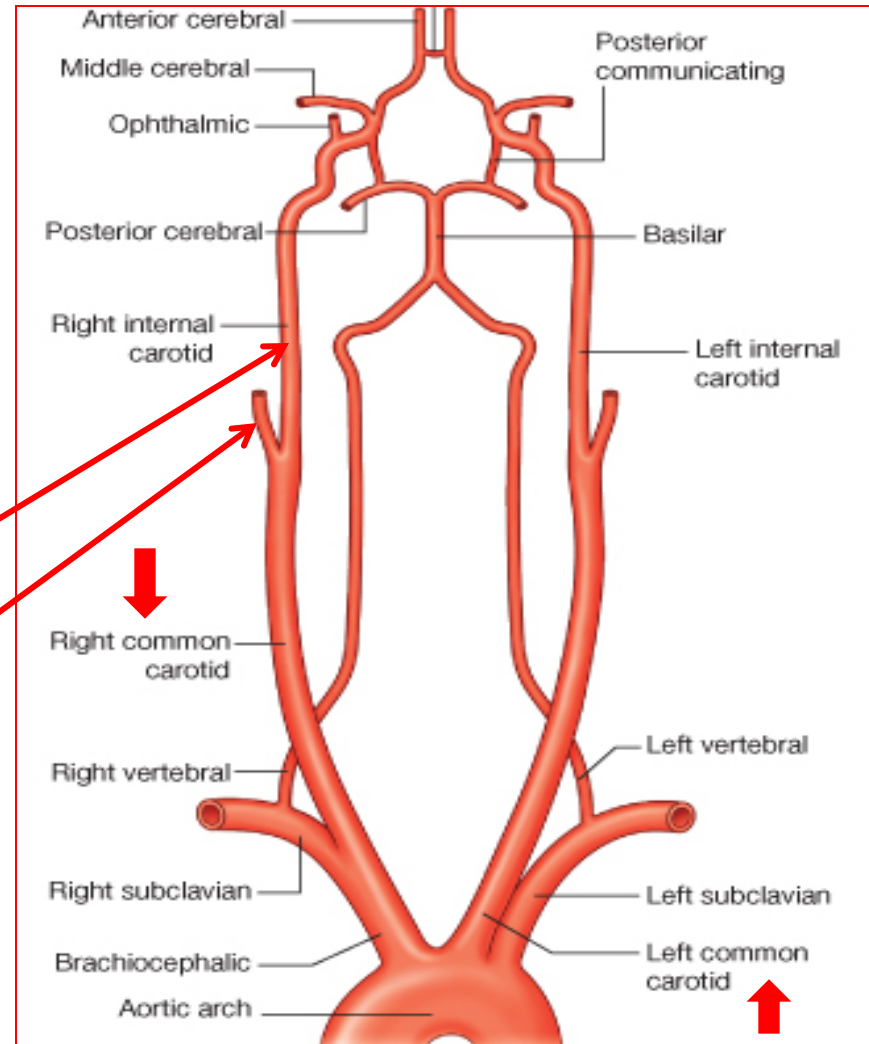
- Continuation of the ascending aorta.
- Leads to descending aorta.
- Located behind the lower part of manubrium sterni and on the left side of trachea.



- **Branches:**
 1. **Brachiocephalic trunk.**
 2. **Left common carotid artery.**
 3. **Left subclavian artery.**

COMMON CAROTID ARTERY

- Origin:
 - **LEFT** from **aortic arch**.
 - **RIGHT** from **brachiocephalic trunk**.
- Each common carotid divides into two branches:
 - **Internal carotid**
 - **External carotid**

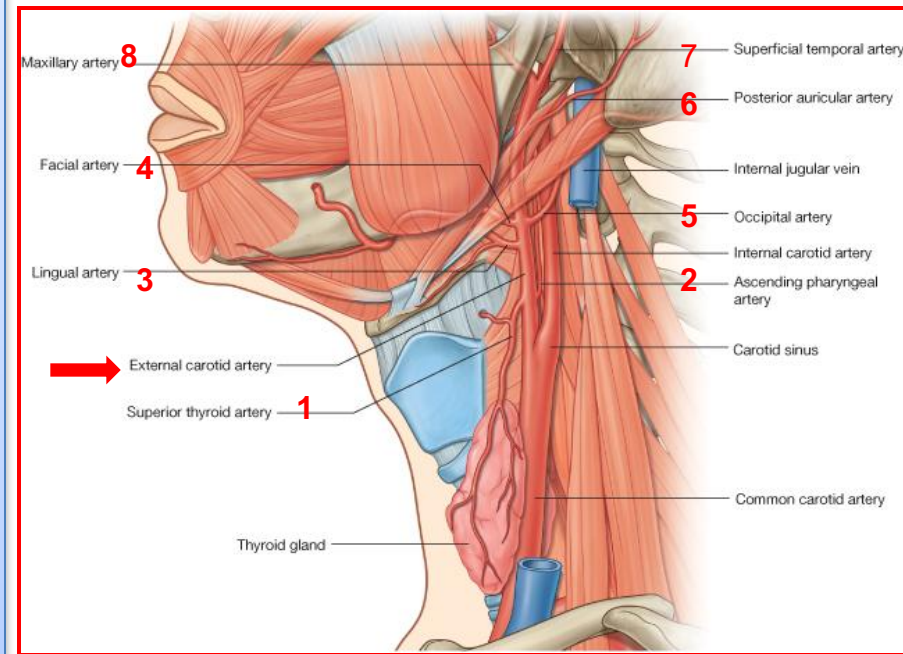


EXTERNAL CAROTID ARTERY

It divides behind neck of mandible into: **Superficial temporal & maxillary arteries**

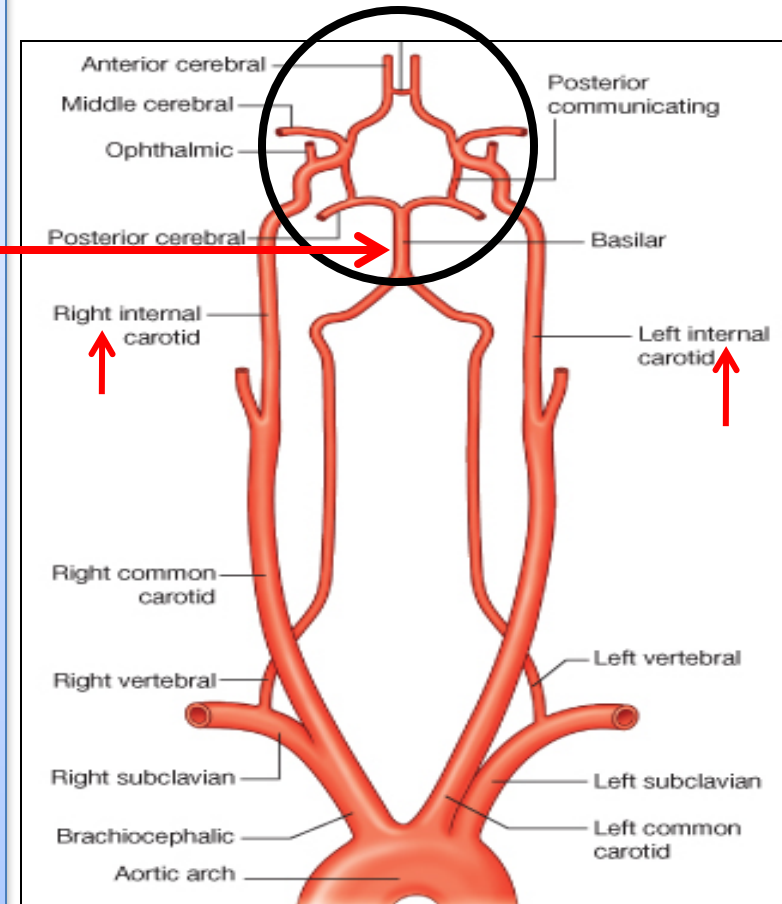
It supplies:

- **Scalp:** Superficial temporal, occipital, & posterior auricular arteries
- **Face:** Facial artery
- **Maxilla & mandible:** Maxillary artery
- **Tongue:** Lingual artery
- **Pharynx:** ascending pharyngeal artery
- **Thyroid gland:** Superior thyroid artery



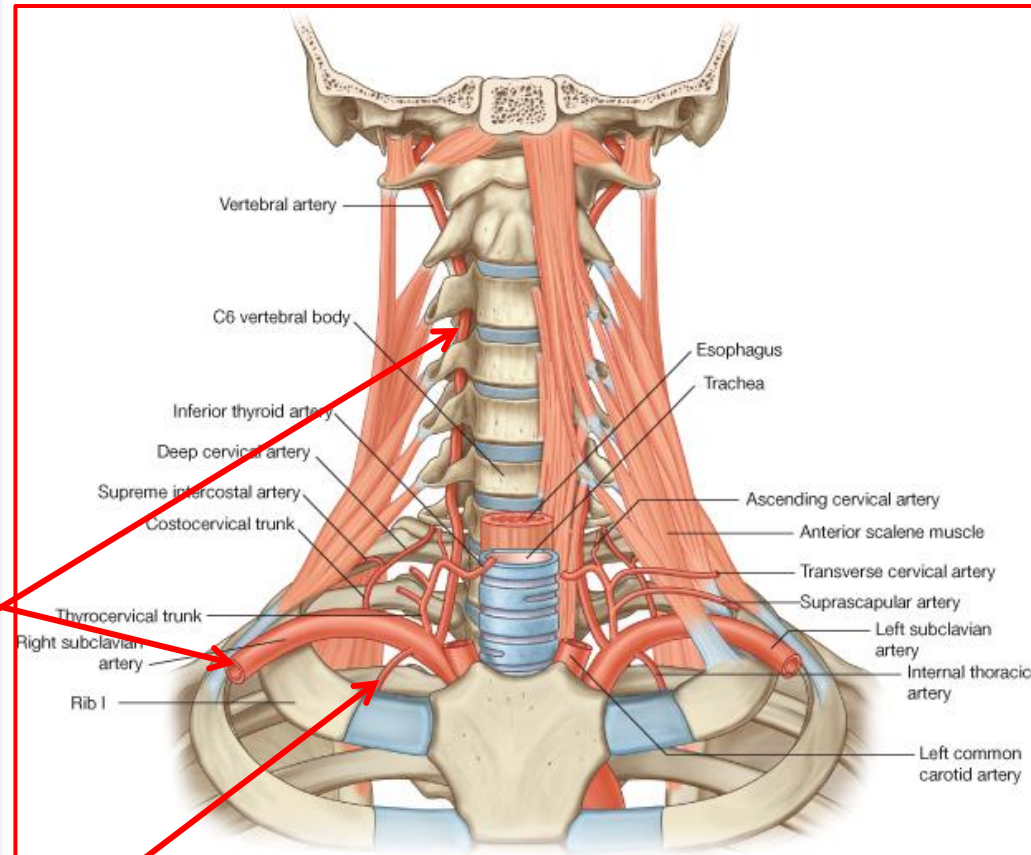
INTERNAL CAROTID ARTERY

- Has **NO** branches in the neck
- Enters the cranial cavity, joins the **basilar artery** (formed by the union of two vertebral arteries) and forms '**arterial circle of Willis**' to supply brain.
- In addition, it supplies
 - **Nose**
 - **Scalp**
 - **Eye**

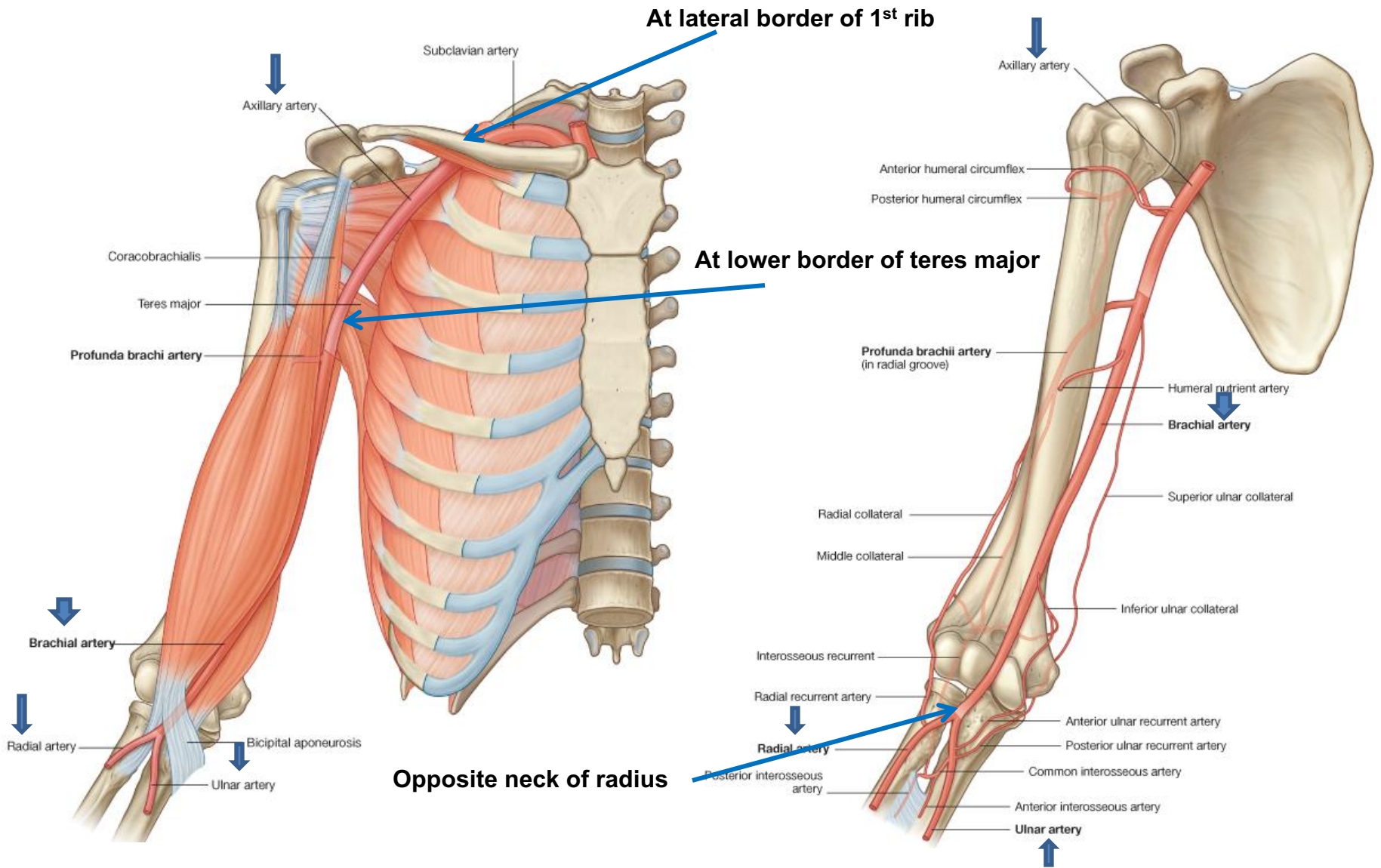


SUBCLAVIAN ARTERY

- **Origin:**
 - **LEFT:** from **arch of aorta**
 - **RIGHT:** from **brachiocephalic trunk**
- It continues, at lateral border of first rib, as **axillary artery: artery of upper limb**
- **Main branches:**
 - **Vertebral artery:** supplies **brain & spinal cord**
 - **Internal thoracic artery:** supplies **thoracic wall**



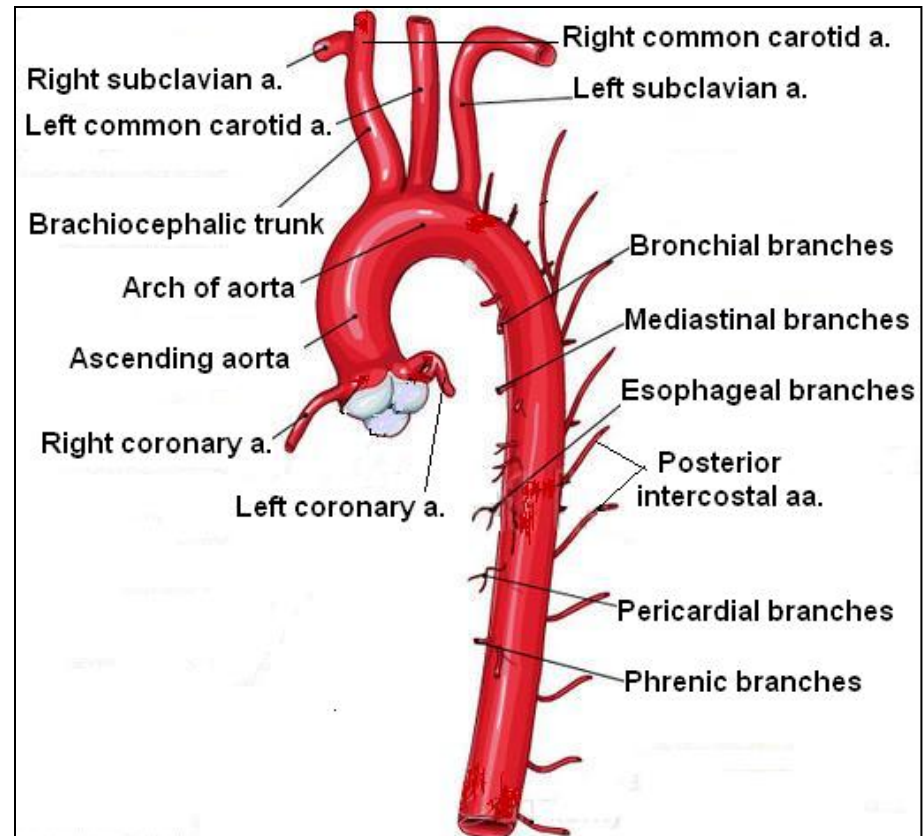
ARTERIES OF UPPER LIMB



DESCENDING THORACIC AORTA

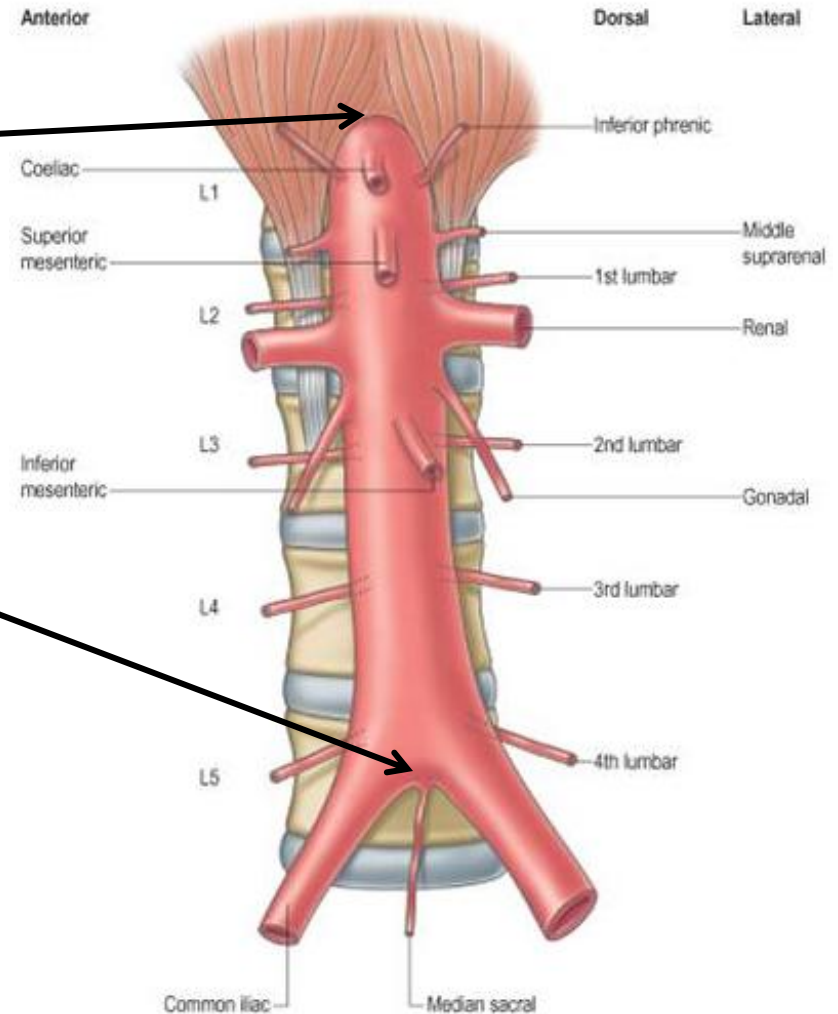
- It is the continuation of aortic arch
- At the level of the 12th thoracic vertebra, it passes through the diaphragm and continues as the abdominal aorta

- **Branches:**
 - **Pericardial**
 - **Esophageal**
 - **Bronchial**
 - **Posterior intercostal**

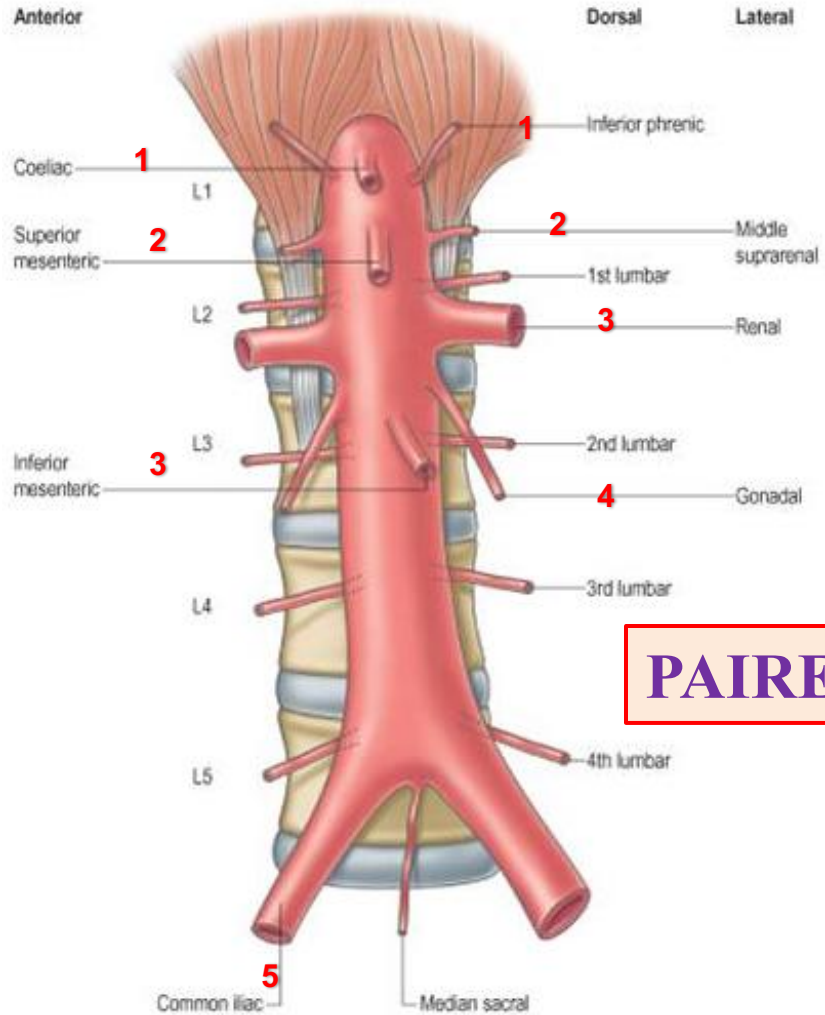


ABDOMINAL AORTA

- It enters the abdomen through the **aortic opening of diaphragm**.
- At the level of lower border of L4, it divides into **two common iliac arteries**.
- **Branches:** divided into two groups:
 - Single branches
 - Paired branches



MAIN BRANCHES OF ABDOMINAL AORTA

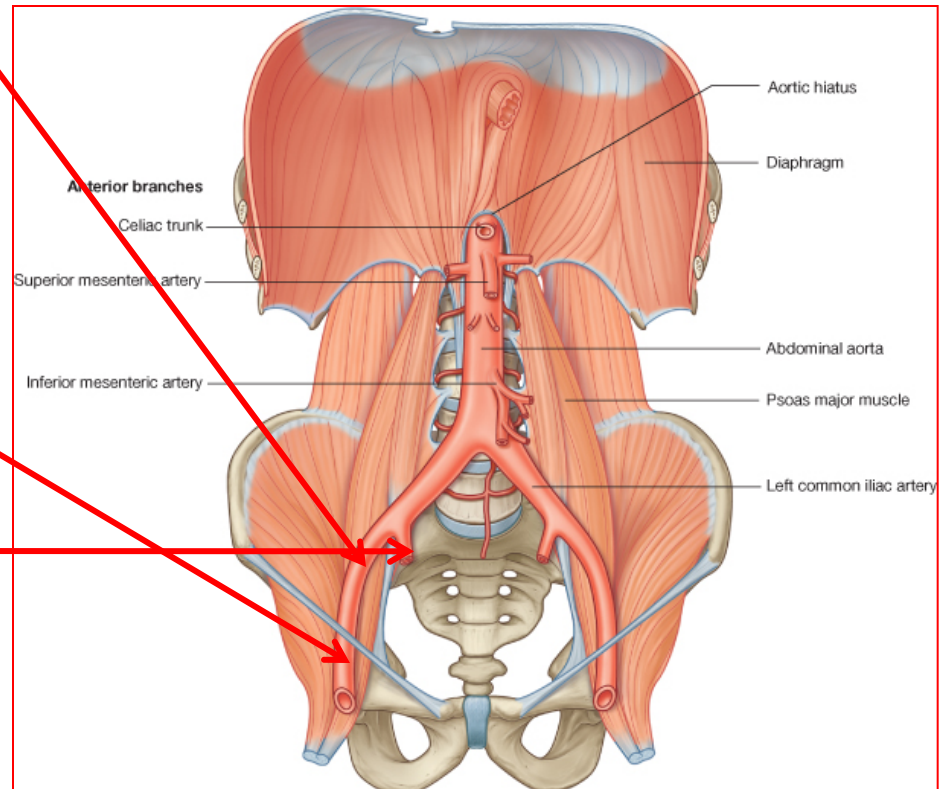


**SINGLE
BRANCHES
SUPPLYING
GASTROINTESTINAL
TRACT**

PAIRED BRANCHES

BRANCHES OF COMMON ILIAC ARTERY

- **EXTERNAL ILIAC ARTERY:**
continues (*at midpoint of inguinal ligament*) as **femoral artery** the main supply for **lower limb**
- **INTERNAL ILIAC ARTERY:**
supplies **pelvis**



ARTERIES OF LOWER LIMB

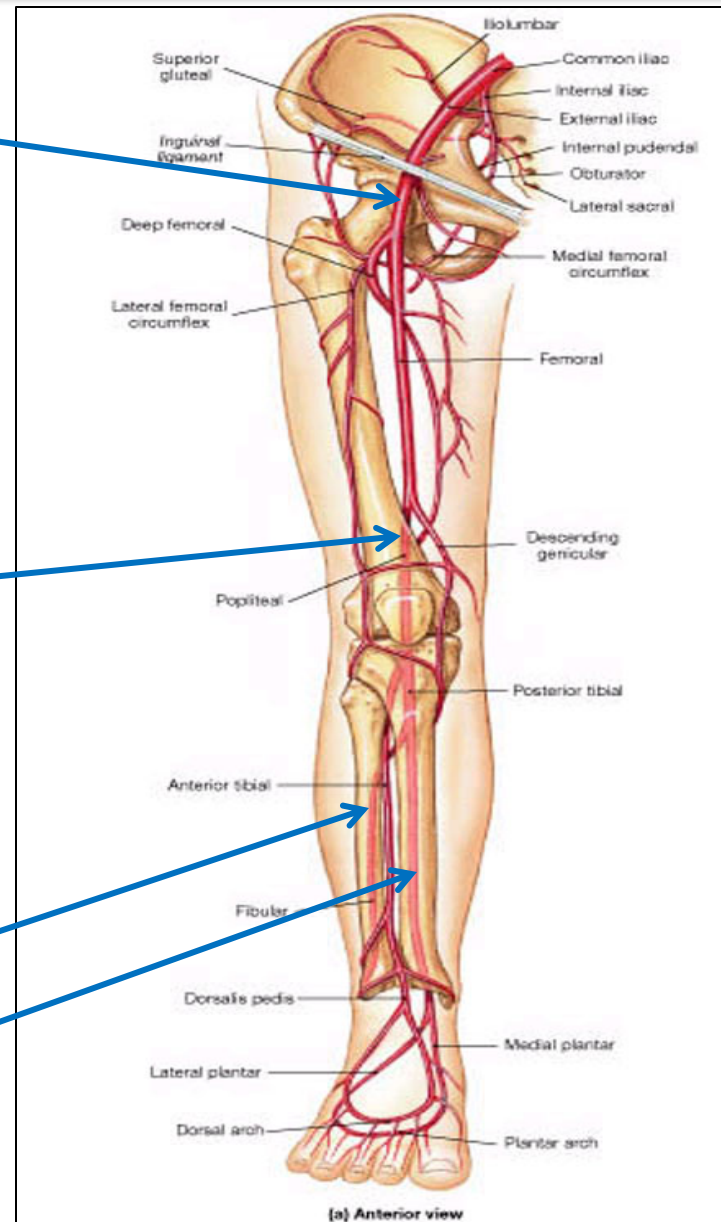
❖ Femoral Artery

- Is the main arterial supply to lower limb
- Is the continuation of external iliac artery **behind the midpoint of the inguinal ligament**
- Passes **through adductor hiatus** and continues as:

❖ Popliteal Artery

- Deeply placed **in the popliteal fossa.**
- Divides, **at lower end of popliteal fossa** into:

- 1-Anterior Tibial Artery**
- 2-Posterior Tibial Artery**



[a] Anterior view

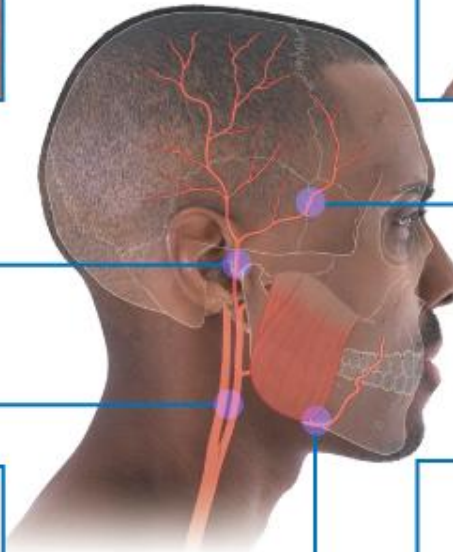
PULSE POINTS IN HEAD & NECK



Temporal pulse
(superficial temporal artery)



Temporal pulse
(anterior branch of
superficial temporal artery)



Carotid pulse



Facial pulse



PULSE POINTS IN UPPER LIMB



PULSE POINTS IN LOWER LIMB



Femoral pulse



Popliteal pulse



Posterior tibial pulse



Dorsalis pedis pulse



THANK YOU