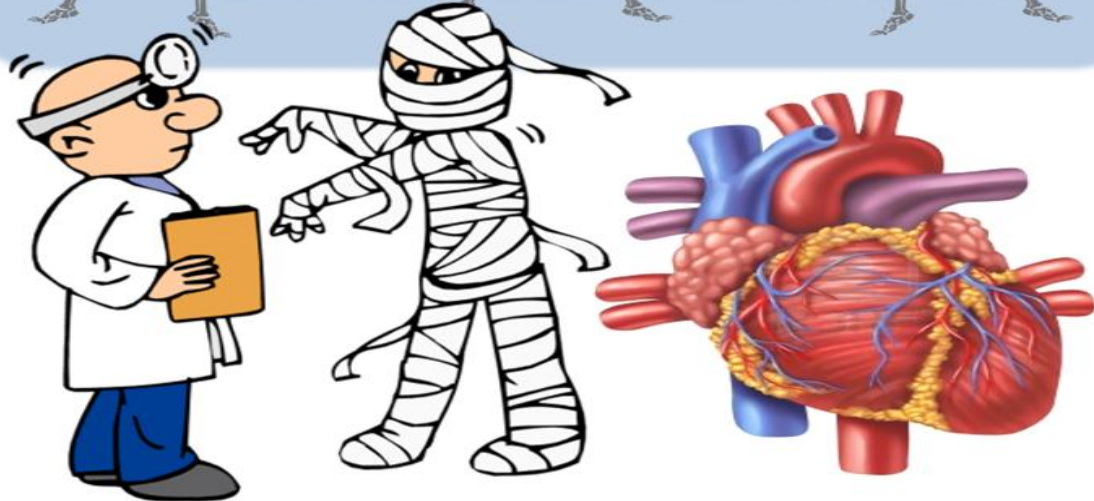




Anatomy Team 432

Cardiovascular Block



LECTURE (2)

MAJOR ARTERIES

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Revised by: May H. Alorainy.

تنويه : هذا العمل لا يعتبر مصدر رئيسي للمذاكرة وإنما هو للمراجعة فقط

If there is any mistake please feel free to contact us:

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OBJECTIVES

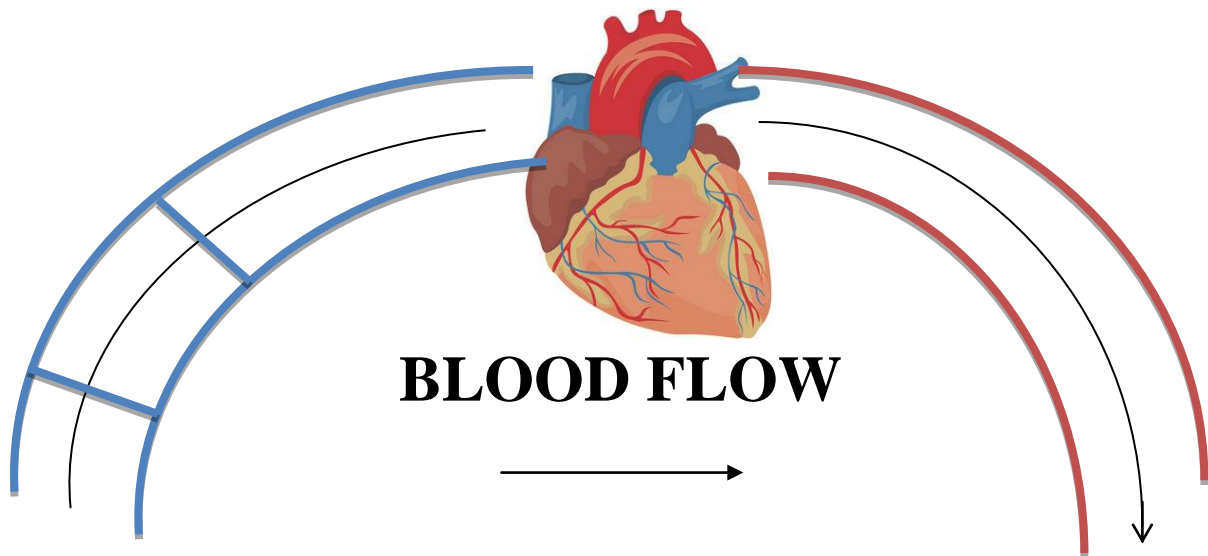
At the end of the lecture, the student should be able to:

- 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.



*deoxygenated *oxygenated *pulmonary artery carries deoxygenated blood.

*presence of valves *No valves



*Why the arteries are elastic?

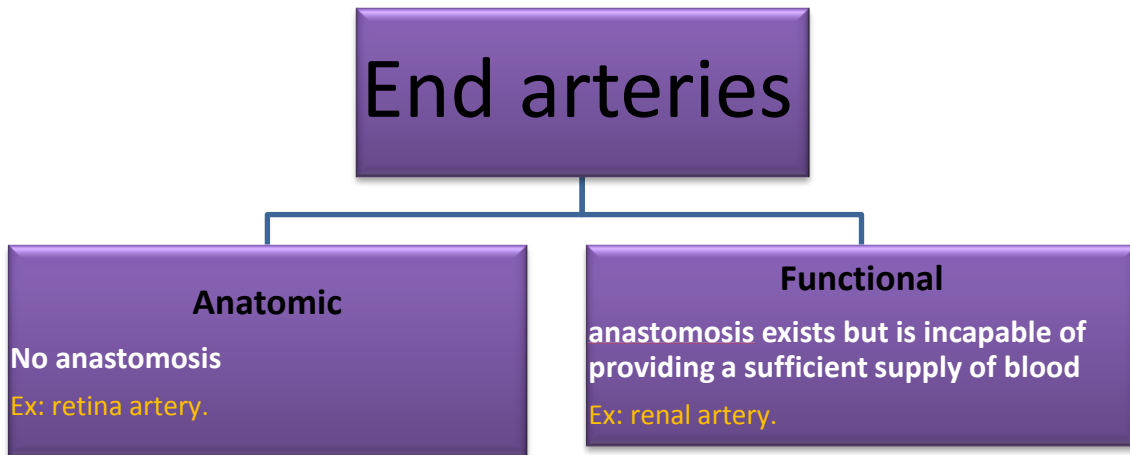
- To give it the ability to stretch in response to each pulse.

*The arteries differ from veins by the presence of **Anastomosis**.

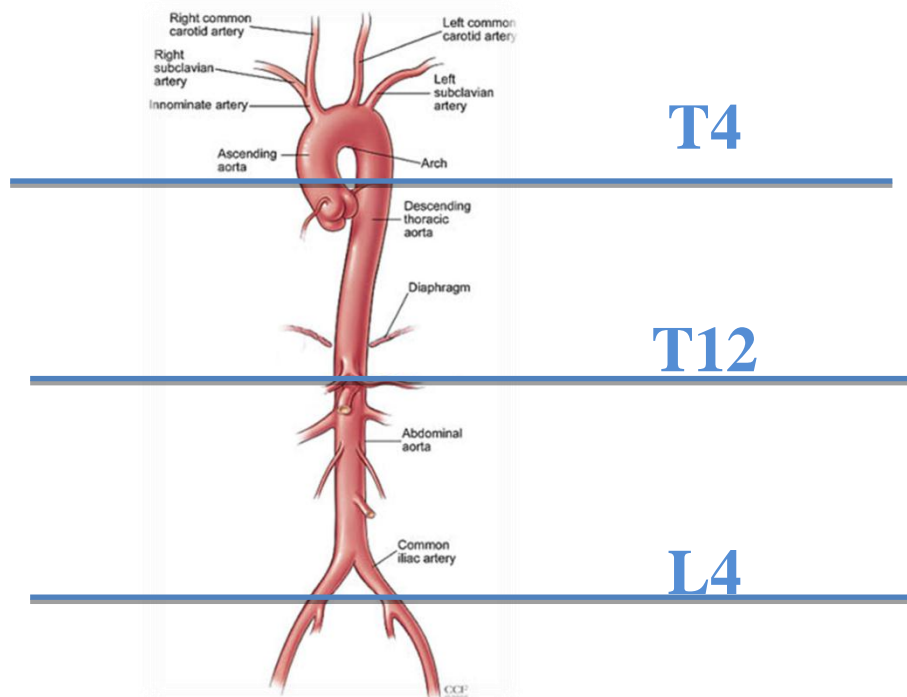


***Anastomosis:** the union of parts or branches (as of streams, blood vessels, or leaf veins) so as to intercommunicate or interconnect.

***End arteries “terminal arteries”:** arteries whose terminal branches do not anastomose.

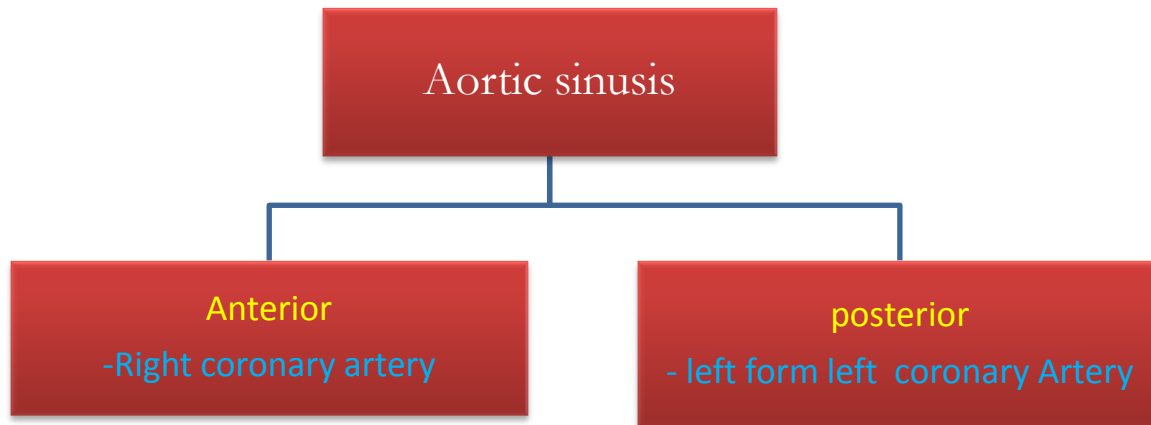


Aorta :





1- Ascending Aorta:



2- Arch of Aorta:

- **Site of arch of aorta:** behind manubrium and left to trachea.

3- Descending Aorta: divided into:

- **Descending thoracic aorta supply all the thoracic region except the heart.**

- **Descending abdominal aorta which gives branches:**

1- Single branches: supply GIT

A-Celiac artery “celiac trunk”

B-Superior mesentric artery

C-Inferior mesentric arter

2- Paired branches:

A-Inferior phrenic arteries → diaphragm



B-Suprarenal arteries → suprarenal glands



C-Renal arteries → kidneys

D-Gonadal arteries → testes or ovaries

E-Common iliac arteries “terminal branches”

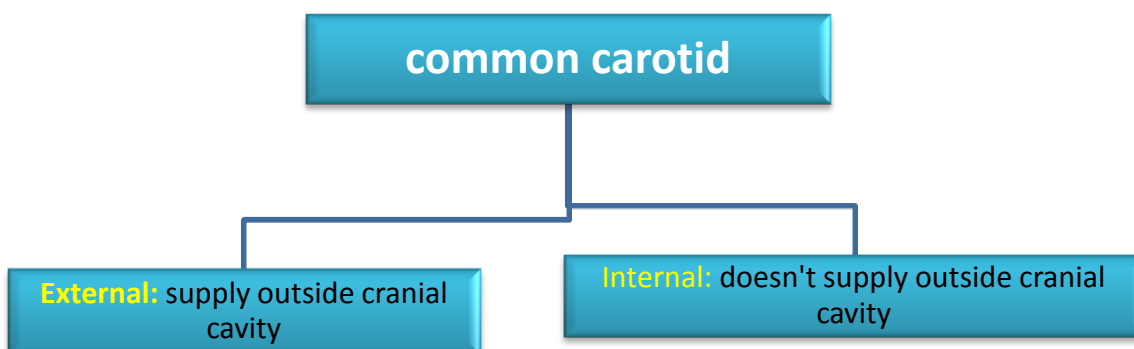
-Internal iliac supply pelvis & perineum.

-External continue in midpoint of inguinal ligament as femoral artery.

-When femoral artery passes through adductor hiatus it's called popliteal artery which is divided into anterior and posterior

*Common Carotid artery:

-Common carotid supply mainly head and neck.





1-External Carotid (branches): Two easy ways to memorize it:

1- Some American Ladies Found Our Piramids So Magnificence:

Some = Superior thyroid

American = Ascending pharyngeal

Ladies = Lingual

Found = Facial

Our = Occipital

Piramids = Posterior auricular

So = Superior temporal

Magnificence = maxillary

2- Some Angry Lady Figured Out PMS:

Some = Superior thyroid

Angry = Ascending pharyngeal

Lady = Lingual

Figured = Facial

Ot = Occipital

P = Posterior auricular

M = Maxillary

S = Superior temporal



2-Internal Carotid:

- It joins to basilar Artery to form **circle of Willis**

-**Circle of willis**: is a circulatory anastomosis that supplies blood to the brain and surrounding structures.

*Branches:

-Easy way to memorize it (**B**ader **E**at **S**weet **N**oodle):

Bader = **B**rain

Eat = **E**ar

Sweet = **S**calp

Noodle = **N**ose

-**Ophthalmic artery supply** = nose + ear + part of scalp + retina

*Subclavian artery:

-**Subclavian artery supply mainly upper limb.**

1- vertebral branch: supply spinal cord

-Two vertebral arteries = Basilar artery in the brain

- Basilar artery + Right and Left internal carotid arteries = **Circle of willis**

2-Internal thoracic branch: supply thoracic wall & breast

3-Thyrocervical trunk: supplies thyroid gland & neck .')



* upper limb:

1- Axillary artery:

Begins at lateral border of 1st rib

2- Brachial artery:

Begins at the lower border of teres major

3- Radial and Ulnar arteries:

Begin opposite of neck of radius

Arteries	Site of Pulsation
Superficial Temporal	Pulse in front of the ear
Facial	Pulse at the lower border of the mandible
Carotid	Pulse at the upper border of thyroid cartilage
Subclavian	Pulse as it crosses the 1 st rib
Radial	Pulse in front of the distal end of the radius
Femoral	artery midway between Anterior Superior Iliac spine & symphysis pubis
Popliteal	artery in the depths of popliteal fossa
Dorsalis Pedis	artery in front of ankle (between the 2 malleoli)



Notes: from Dr. Zeenat's lecture

- All arteries carry oxygenated blood except the
 1. **pulmonary artery** → carries **deoxygenated** blood to the lungs (postnatal).
 2. **Umbilical artery** → carries **deoxygenated** blood to the placenta (prenatal).
- Ascending aorta turns on itself to form arch of aorta.
- Main function of aorta is to supply oxygen to all body parts.
- **Aortic sinuses** are found at the beginning of aorta.
- **Brachiocephalic trunk** runs slightly upwards in the neck then gives rise to two branches: **1-Right subclavian artery. 2-Right common carotid artery.**
- Left common carotid → branches directly from aorta
- Right common carotid → branches from brachiocephalic trunk.
- Internal carotid: main artery of the **brain**.
- External carotid: main artery of the **head and neck** “outside the cranium”.
- Two vertebral arteries “branches of subclavian” form **basilar artery** which combines with **internal carotid** to form **Arterial circle of Willis** to supply the **brain**.
- **Vertebral artery + vertebral artery = basilar artery → basilar artery + internal carotid = circle of Willis.**
- Circle of Willis is also called “circulus arteriosus”.
- Once the subclavian artery reaches the outer border of the 1st rib, it is called axillary artery → Line of demarcation: outer border of the first rib.
- Descending thoracic aorta turns into descending abdominal aorta once it reaches 12th thoracic vertebra. → Line of distinction: T12.
- Branches of descending thoracic aorta: pericardial, esophageal, bronchial which supplies bronchial tree and posterior intercostals which supplies the posterior thoracic wall.
- Branches of descending abdominal aorta:
 1. **Single: come out of the anterior aspect of aorta.**



2. Paired: come out from right and left sides of aorta.

- Common iliac arteries descend downwards and laterally.
- **Why do we need to know the location of arteries?** To palpate and in case we have a hemorrhage or a bleeding in a certain region we can compress the vessel to control the bleeding.
- **Why do we need to palpate?** Because if we suspect that some areas of the body are not getting sufficient blood supply, we can feel the pulsation and detect any problems. It also can tell us which vessels are obstructed and which are not.
- **Brachial artery** is commonly used for measuring blood pressure because it is superficial and can be easily felt just above the elbow joint.
- Pulse points:
 1. Facial pulse → lower border of mandible.
 2. Popliteal pulse → it is deep in the popliteal fossa, so the patient should flex their knee.
 3. Femoral pulse → mid-inguinal point.
 4. Posterior tibial pulse → behind the medial malleolus.



3D anatomy, Major vessels of the heart

<http://www.youtube.com/watch?v=IGYhPa2W2yQ>

<http://www.youtube.com/watch?v=iKBD28Y9Cc>



Quiz:

0-Which of the following is functional end artery:

- A- Central retinal artery.
- B- Coronary artery.
- C- Coeliac artery.
- D- Facial artery.

1- One of the following is branch of ascending aorta:

- A- Right brachiocephalic a.
- B- Left common carotid a.
- C- Left coronary a.
- D- Right common carotid a.

2- At T4 level which of the following is true:

- A- Beginning of ascending aorta.
- B- Termination of aortic arch.
- C- Beginning of abdominal aorta.
- D- Termination of descending aorta.

3- Which one considered as branch of external carotid a:

- A- Maxillary a.
- B- Vertebral a.
- C- Ophthalmic a.
- D- Internal thoracic a.

4- Posterior auricular a supplies:

- A- Tongue.
- B- Face.
- C- Scalp.
- D- Pharynx.

5- Basilar artery formed by union of:

- A- Vertebral arteries.
- B- Internal carotid arteries.
- C- External carotid arteries.
- D- Internal thoracic artery

**6- Thyroid gland is supplied by:**

- A- Internal carotid a.
- B- Vertebral a.
- C- Thyrocervical trunk.
- D- Maxillary a.

7- Arterial circle of willis formed by:

- A- Internal carotid a + thyrocervical trunk.
- B- Vertebral a+ maxillary a.
- C- Internal carotid a+ external carotid a.
- D- Vertebral a+ internal carotid a.

8- Which of the following is true for axillary a:

- A- Begins at lateral 1st rib.
- B- Begins at lateral 3rd rib.
- C- Terminates at lower border of teres minor.
- D- Terminates at neck of radius.

9- Abdominal aorta will begin at:

- A- T12.
- B- L4.
- C- S4
- D- T7

10- Celiac artery is :

- A- Paired abdominal a.
- B- Branch of left brachiocephalic a.
- C- Single abdominal artery.
- D- Branch of renal a.

11- Gonads are supplied by branches of:

- A- Descending aorta.
- B- External iliac a.
- C- Abdominal aorta.
- D- Femoral a.



12- The main supply of lower limb is:

- A- Internal iliac a.
- B- Femoral a.
- C- Abdominal aorta.
- D- Brachial a.

13- Dorsalis pedis artery is a continuation of:

- A- Anterior tibial a.
- B- Posterior tibial a.
- C- Internal iliac a.
- D- Inferior mesenteric

14- The best area to palpate the femoral artery is:

- A- Popliteal fossa.
- B- Adductor hiatus.
- C- Midpoint of the inguinal ligament.
- D- Cubital fossa.

15- In the snuff box you can palpate:

- A- Brachial a.
- B- Radial a.
- C- Ulnar a.
- D- Axillary a.



ANSWERS

0	B
1	C
2	B
3	A
4	C
5	A
6	C
7	D
8	A
9	A
10	C
11	C
12	B
13	A
14	C
15	B

**GOOD
LUCK!**

Anatomy team leaders:

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