Tikrit University

College of Nursing

Basic Nursing Sciences

First Year [redacted]

Anatomy

First stage

(عنوان المحاضرة)

Blood Vessels of the Neck & Head

by:

Asst. Lecturer:

Noor Mokhlis Hamed

Blood vessels of the Neck & Head :

Artery: Blood is initially pumped from the heart into the aorta, (the biggest artery). It then travels up to the brain through smaller branching arteries. The first branch off of the aorta is the brachiocephalic artery (innominate artery), which provides blood to the right side of the head and neck.

The innominate artery immediately branches into :

1. Right subclavian artery.

2. Right common carotid artery.

The second branch off of the aorta is :

¤ The left common carotid artery.

The third branch off of the aorta is :

¤ The left subclavian artery.

Both the right and left common carotid arteries divide into:

1. External carotid artery. carries blood to the face and scalp.

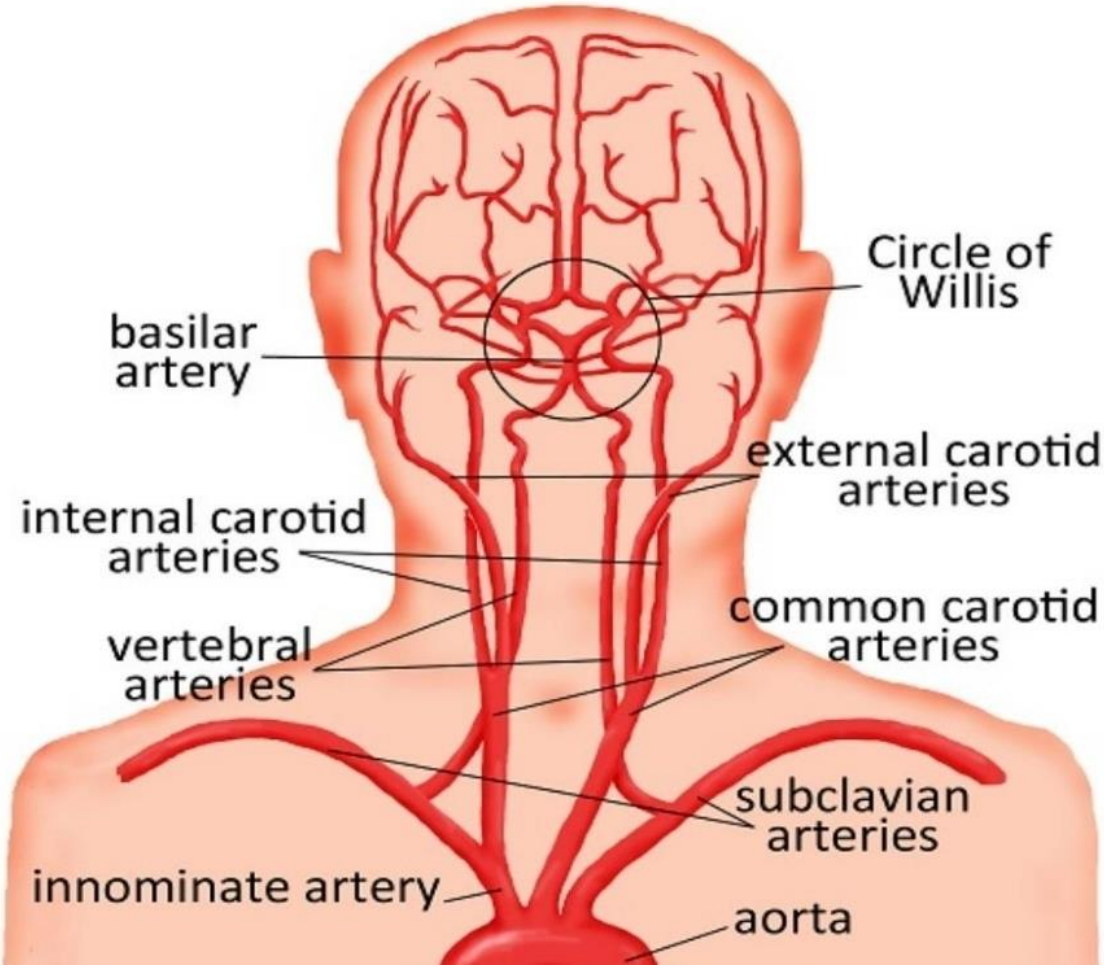
2. Internal carotid artery. carry blood directly to the front and middle parts of the brain.

Both of the subclavian arteries carry blood mainly to the arms, but they also carry blood to the brain.

The vertebral arteries arise as branches of the subclavian arteries and carry blood up toward the brain along the spinal column.

These arteries fuse together and form the basilar artery which supplies blood to the back of the brain. The blood travelling from the back of the head through the basilar artery and the blood traveling from the front of the head through the internal carotid arteries meet at the circle of Willis.

The Circle of Willis is a circular group of arteries that provides a connection for blood flowing from the back to the front of the body.



Veins:

The veins of the head and neck collect deoxygenated blood and return it to the heart. Anatomically, the venous drainage can be divided into three parts:

1. Venous drainage of the brain and meninges: Supplied by the dural venous sinuses.

2. Venous drainage of the scalp and face: Drained by veins synonymous with the arteries of the face and scalp. These empty into the internal and external jugular veins.

3. Venous drainage of the neck: Carried out by the anterior jugular veins.

Jugular Veins:

There are three main jugular veins – external, internal and anterior.

They are ultimately responsible for the venous drainage of the whole head and neck.

1. External Jugular Vein:

The external jugular vein and its tributaries supply the majority of the external face. It is formed by the union of two veins:

● Posterior auricular vein – drains the area of scalp superior and posterior to the outer ear.

● Retromandibular vein (posterior branch) – itself formed by the maxillary and superficial temporal veins, which drain the face.

These two veins combine immediately posterior to the angle of mandible, and inferior to the outer ear, forming the external jugular vein. After formation, the external jugular vein descends down the neck within the superficial fascia. It runs anteriorly to the sternocleidomastoid muscle, crossing it in an oblique, posterior and inferior direction.

In the root of the neck, the vein passes underneath the clavicle, and terminates by draining into the subclavian vein. Along its route down the neck, the EJV receives tributary veins – posterior external jugular, transverse cervical and suprascapular veins.

2. Anterior Jugular Vein :

The anterior jugular veins vary from person to person. They are paired veins, which drain the anterior aspect of the neck. Often they will communicate via a jugular venous arch. The anterior jugular veins descend down the midline of the neck, emptying into the subclavian vein.

3. Internal Jugular Vein:

The internal jugular vein (IJV) begins in the cranial cavity as a continuation of the sigmoid sinus. The initial part of the internal jugular vein is dilated and is known as the superior bulb. It exits the skull via the jugular foramen. In the neck, the internal jugular vein descends within the carotid sheath, deep to the sternocleidomastoid muscle and lateral to the common carotid artery. At the base of the neck, posteriorly to the sternal end of the clavicle, the IJV combines with the subclavian vein to form the brachiocephalic vein. Immediately prior to this, the inferior end of internal jugular vein dilates to form the inferior bulb. It has a valve that stops back-flow of blood. During its descent down the neck, the internal jugular vein receives blood from the facial, lingual, occipital, superior and middle thyroid veins. These veins drain blood from the anterior face, trachea, thyroid, oesophagus, larynx, and muscles of the neck.

4. Dural Venous Sinuses:

The dural venous sinuses are spaces between the periosteal and meningeal layers of dura mater, which are lined by endothelial cells. They collect venous blood from the veins that drain the brain and bony skull, and ultimately drain into the internal jugular vein.