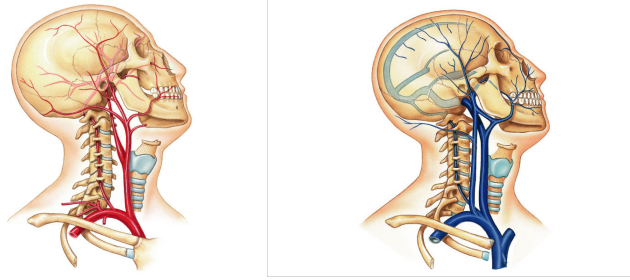


# PTA 106

## Unit 1 Lecture 3



### The Basics

- **Arteries:** Carry blood away from the heart toward tissues. They typically have thicker vessel walls to handle increased pressure. Contain internal and external elastic lamina that allow stretch and recoil (the reason you can feel a pulse clinically).
- On models, arteries are colored **red** if they carry oxygenated blood and **blue** if they carry deoxygenated blood.
- **Veins:** Carry blood back to the heart from tissues. They have thinner vessel walls designed to collapse and one-way valves. They lack elastic lamina. Compression of veins by muscle contraction helps move blood.
- On models, veins are **blue** if they carry deoxygenated blood and **red** if they carry oxygenated blood.

## Elements of the Cardiovascular System found in the head and neck region are the arteries and veins that supply the region

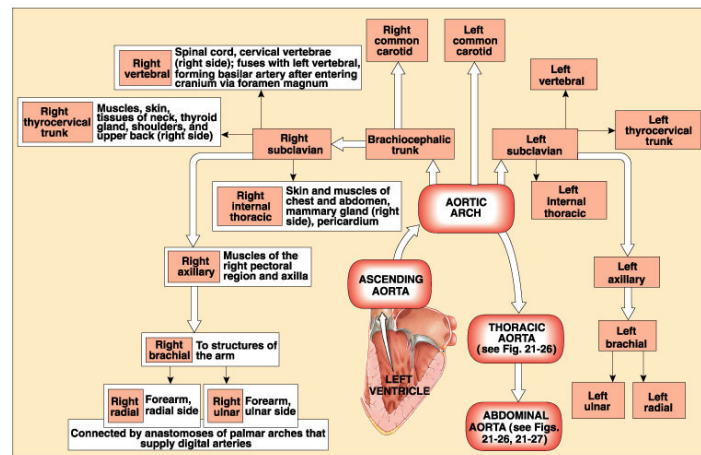
### Major Arteries

Superior Temporal  
Maxillary  
Facial  
Occipital  
Internal Carotid  
External Carotid  
Common carotid  
Vertebral  
Subclavian  
Brachiocephalic Trunk

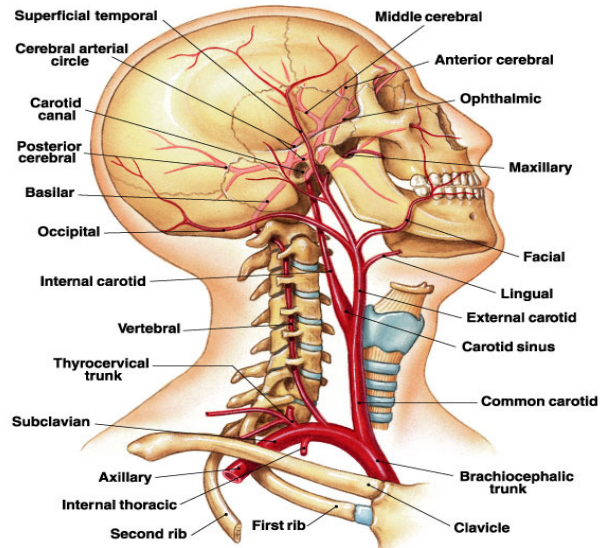
### Major Veins

Superior sagittal Sinus  
Transverse Sinus  
Sigmoid Sinus  
Temporal  
Occipital  
Facial  
Maxillary  
External Jugular  
Internal Jugular  
Vertebral  
Brachiocephalics

## Overview of Arterial Blood flow patterns



## Major Arteries of the Head and Neck

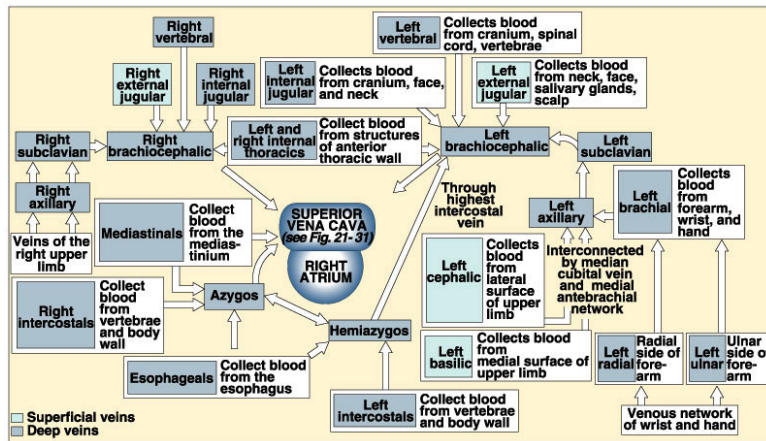


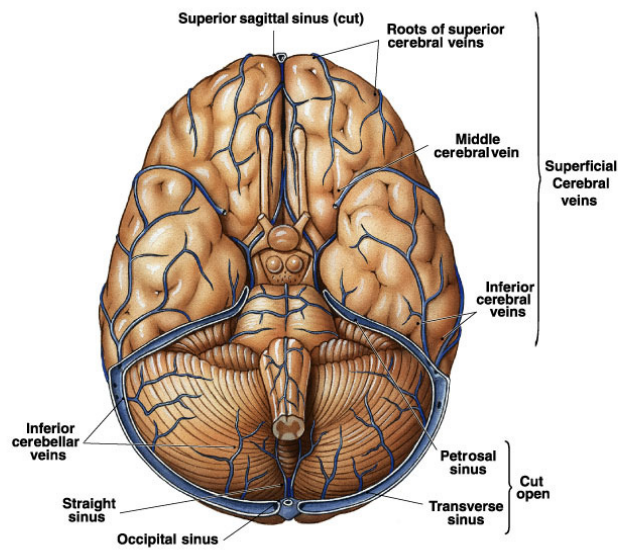
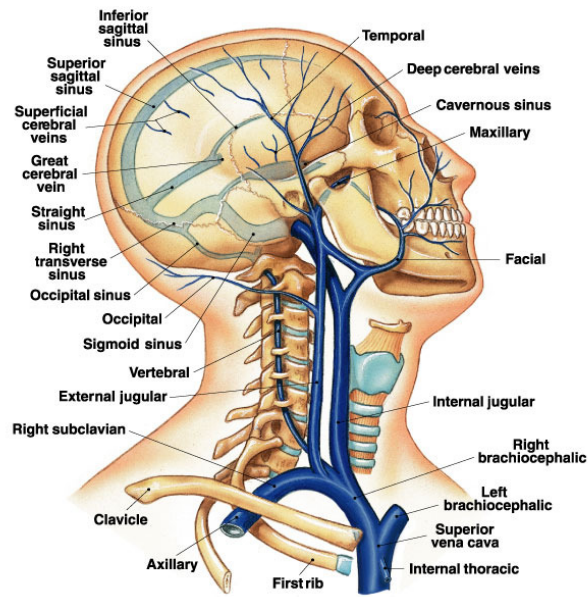
### Distribution of Major Arteries of the Head and Neck

External Carotid	Branches that supply external head area
Maxillary	Upper/Lower jaw, chewing muscles, teeth, nasal cavity, and Dura Mater
Facial	Muscles of the anterior portion of the face
Superficial Temporal	Parotid Salivary glands and most of the superior aspects of the scalp
Occipital	Posterior aspects of the scalp
Internal Carotid	Brain and internal aspects of the skull
Vertebral	Spinal cord in cervical region and Brain
Common Carotid	Supplies the External and Internal Carotids
Subclavian	Gives rise to Vertebral and supplies arms

## Distribution of Major Arteries of the Head and Neck

Anterior cerebral	(IC) supply most of the cerebral hemisphere except the occipital lobes
Middle cerebral	(IC) Supply most of the lateral surface of the cerebral hemispheres
Basilar	Formed by union of the L&R vertebral, Cranial meninges and cerebrum
Posterior cerebral	Terminal branch of the basilar, supply interior aspect of cerebral hemispheres and occipital lobe
Circle of Willis	An anastomosis for the two vertebral and internal carotid arteries. Gives rise to numerous small branches that supply the brain. Important source of collateral circulation in the event of gradual obstructions.





**Areas drained by the Major Veins of the  
Head and Neck**

<b>Superior Sagittal Sinus</b>	Drains all CSF and passes blood on to Transverse Sinuses posterior
<b>Transverse Sinus</b>	Passes blood along to Sigmoid Sinuses
<b>Sigmoid Sinus</b>	Passes blood along to the Internal Jugular
<b>Temporal Vein</b>	Drains Parotid Salivary glands and most of the superior aspects of the scalp. Passes blood along to External Jugular.
<b>Occipital</b>	Drains posterior aspects of the scalp. Passes blood along to External Jugular.
<b>Facial</b>	Drains Muscles of the anterior portion of the face. Passes blood to the Internal Jugular
<b>Maxillary</b>	Drains Upper/Lower jaw, chewing muscles, teeth, nasal cavity, and Dura Mater. Passes blood to the External Jugular

**Areas drained by the Major Veins of the  
Head and Neck**

<b>External Jugular</b>	Passes blood to the Brachiocephalic.
<b>Internal Jugular</b>	Passes blood to the Brachiocephalic
<b>Brachiocephalic</b>	Both Brachiocephalic veins come together to form the Super Vena Cava.

## Clinical Concerns

**Occlusions:** Obstruction of blood flow, result from thrombi, thrombophlebitis, or tumors.

**Cerebral contusions:** brain trauma in which the pia is striped for the brain surface allowing blood to enter the subarachnoid space .

**Cerebral Lacerations:** Damage that results in ruptured blood vessels allowing bleeding into the brain and subarachnoid space, causing intracranial pressure and cerebral compression.

**Ischemic Stroke:** Impaired cerebral blood flow with development of neurological deficits. Most common causes are spontaneous cerebrovascular accidents such as embolism, thrombosis, hemorrhage, subarachnoid hemorrhage.

## Clinical Concerns

**Hemorrhagic Stroke:** Follows the rupture of an artery usually caused by an aneurysm.

**Transient Ischemic Attack (TIA):** Neurological symptoms resulting from temporary ischemia. The symptoms of staggering, dizziness, light-headedness, fainting, and parasthesias last a few minutes, but can persist for up to an hour.