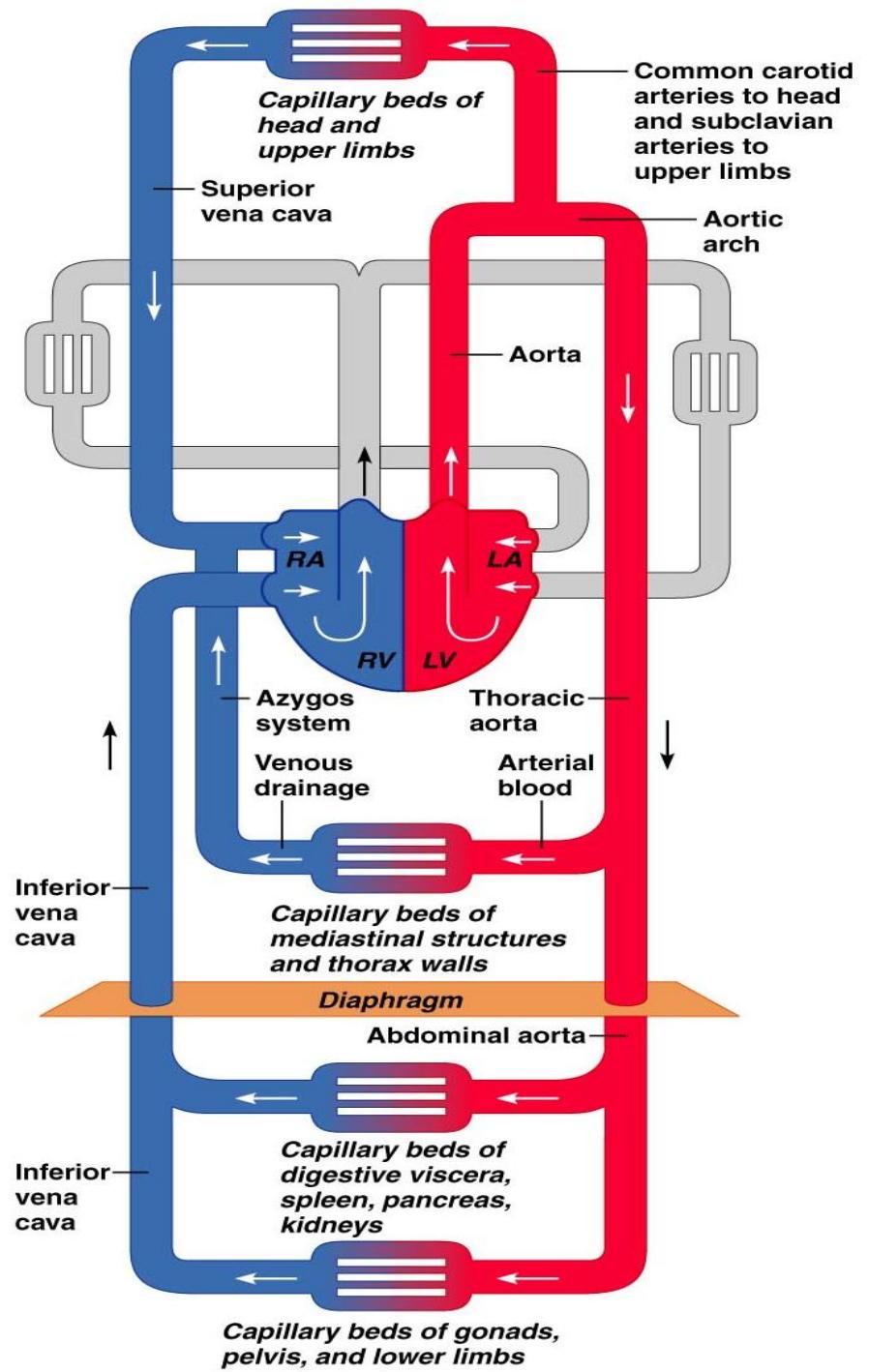
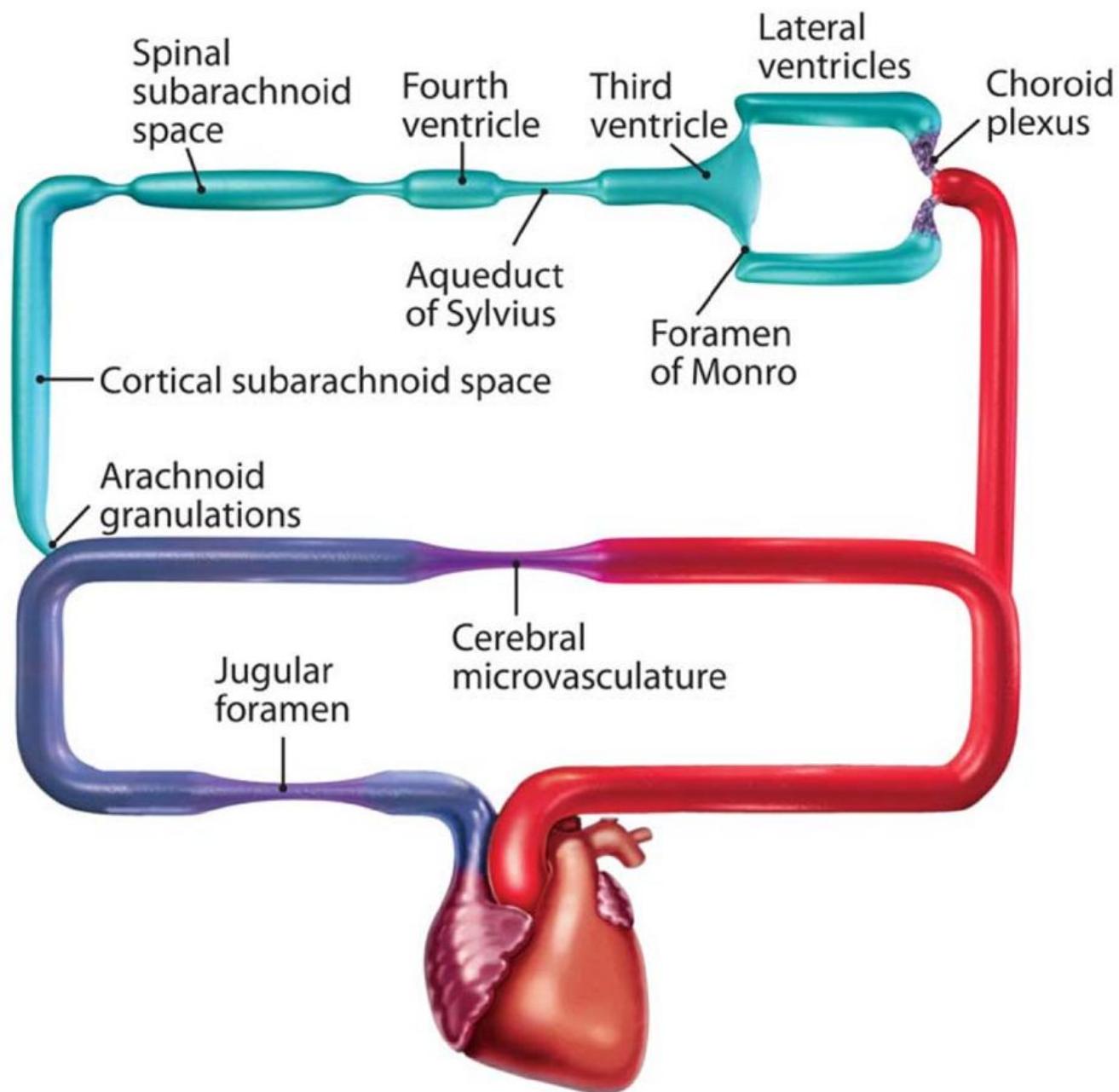
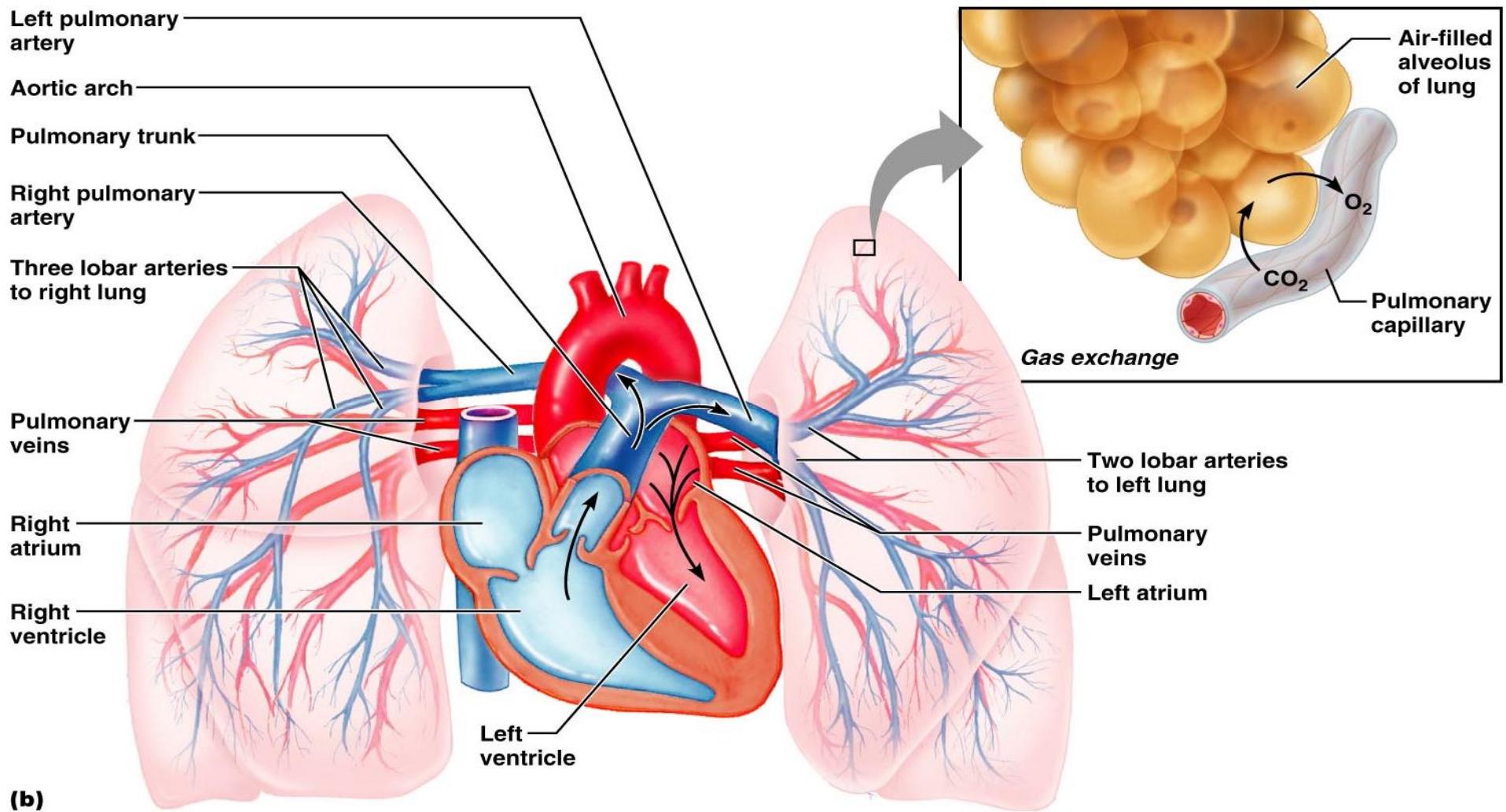


Systemic Circulation



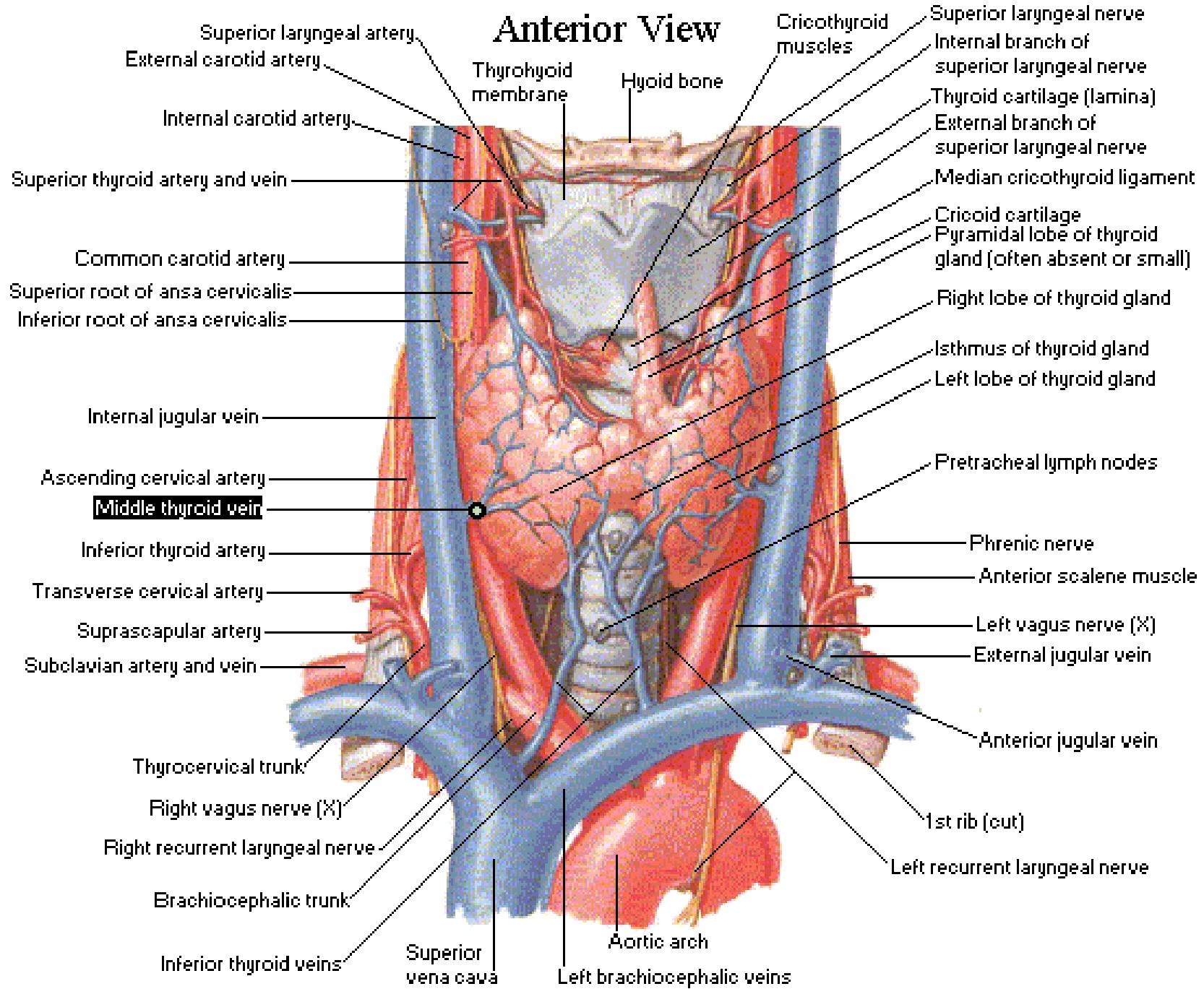


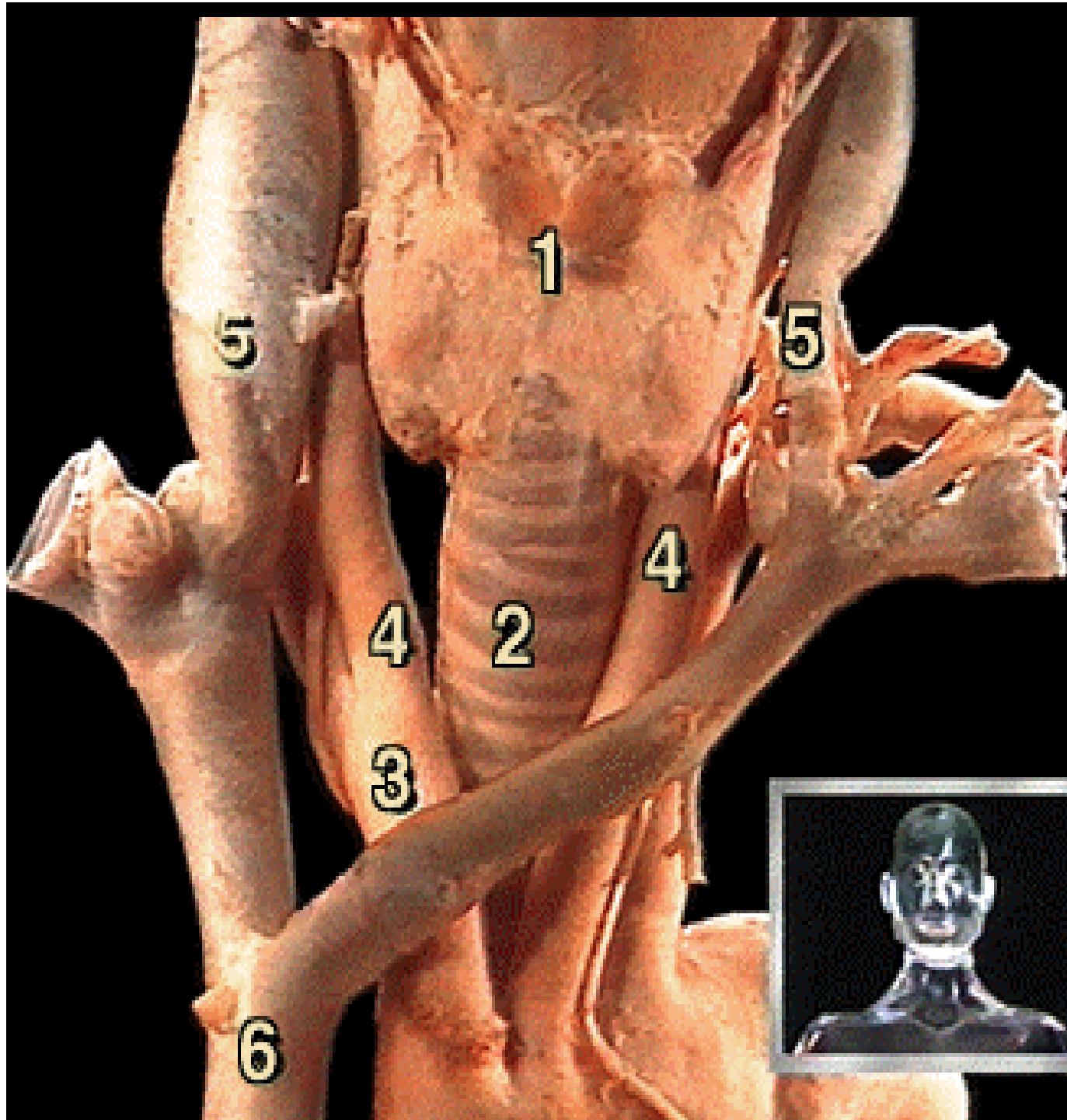
Pulmonary Circulation



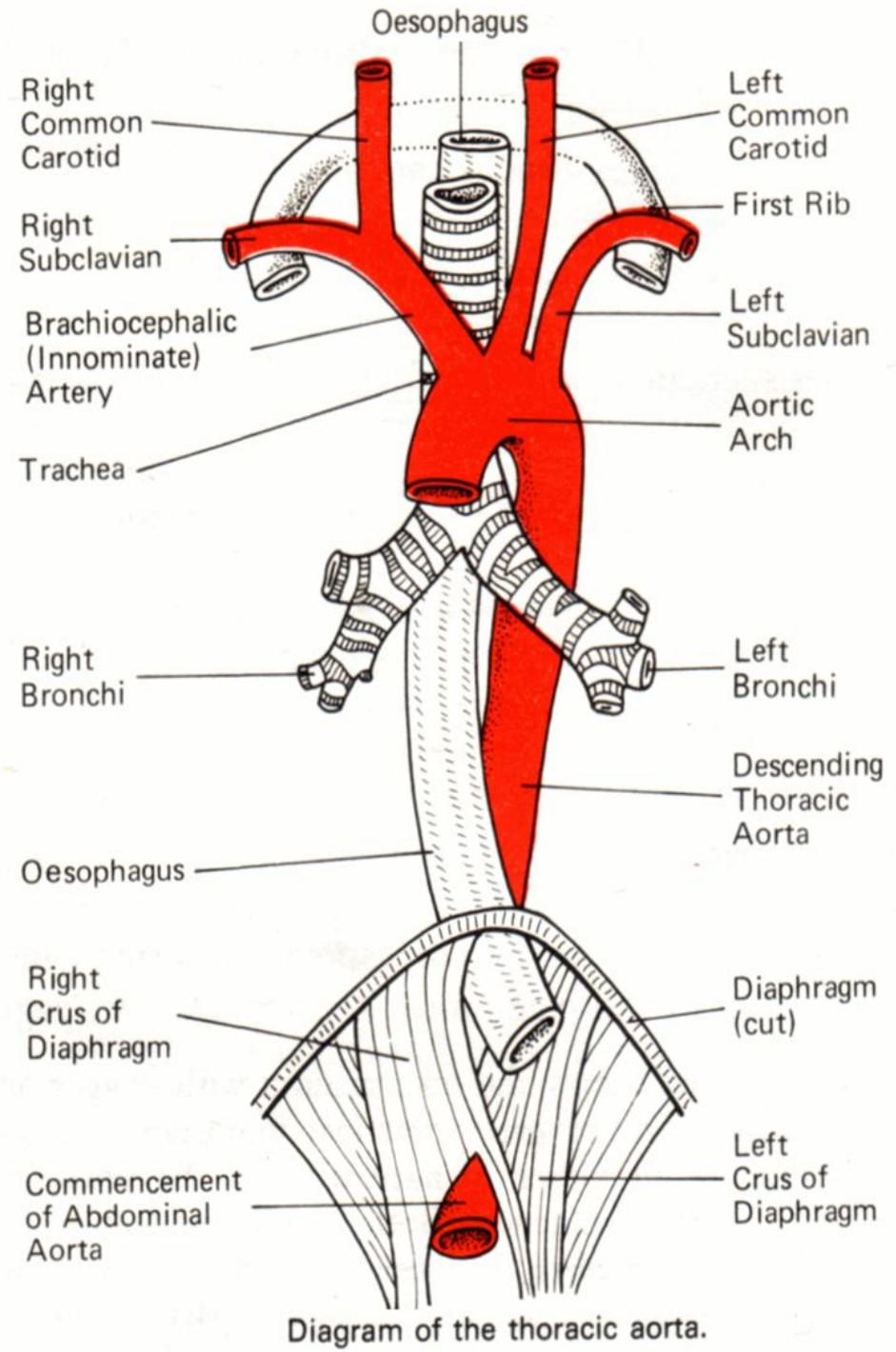
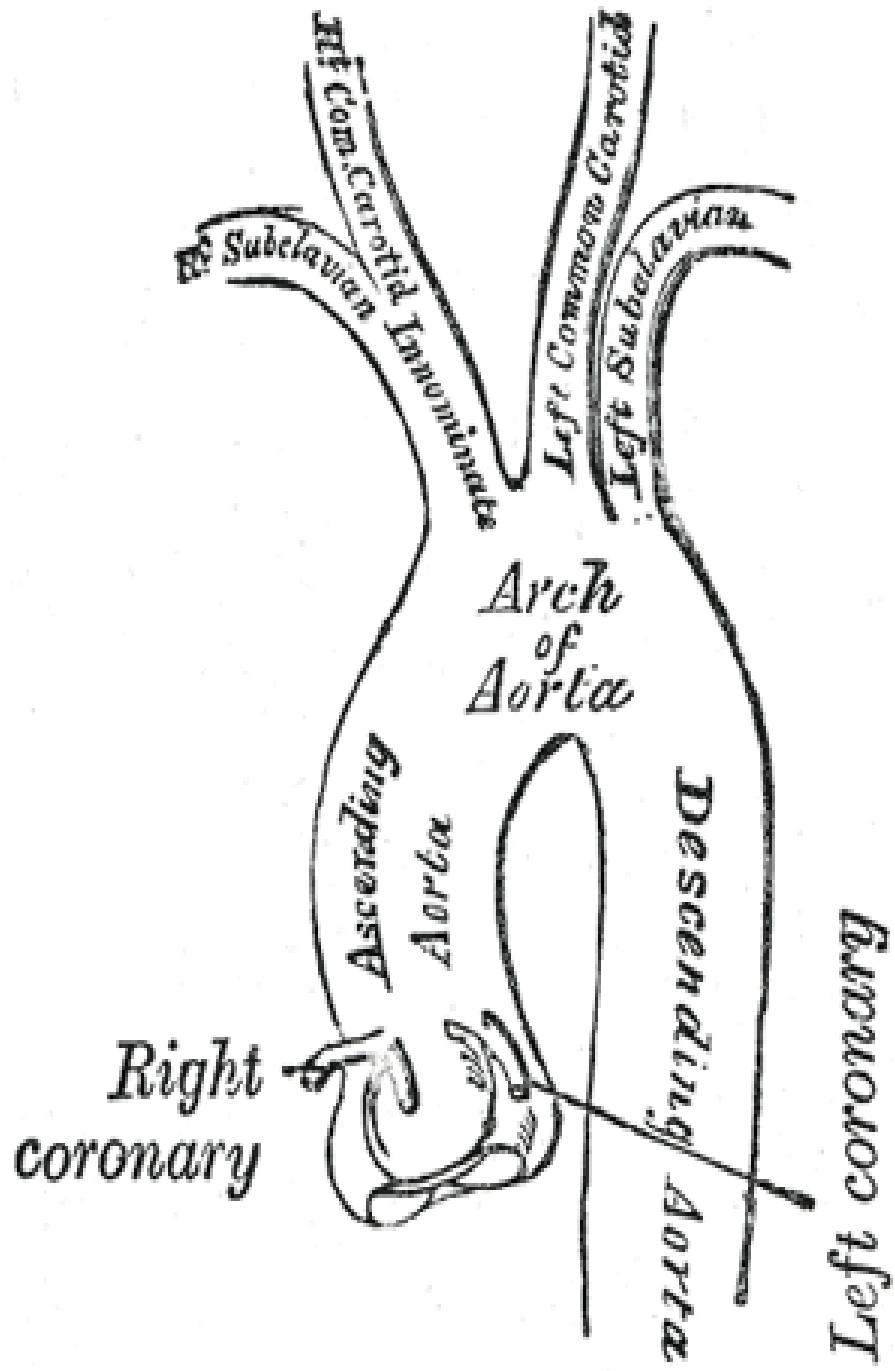
Thyroid Gland

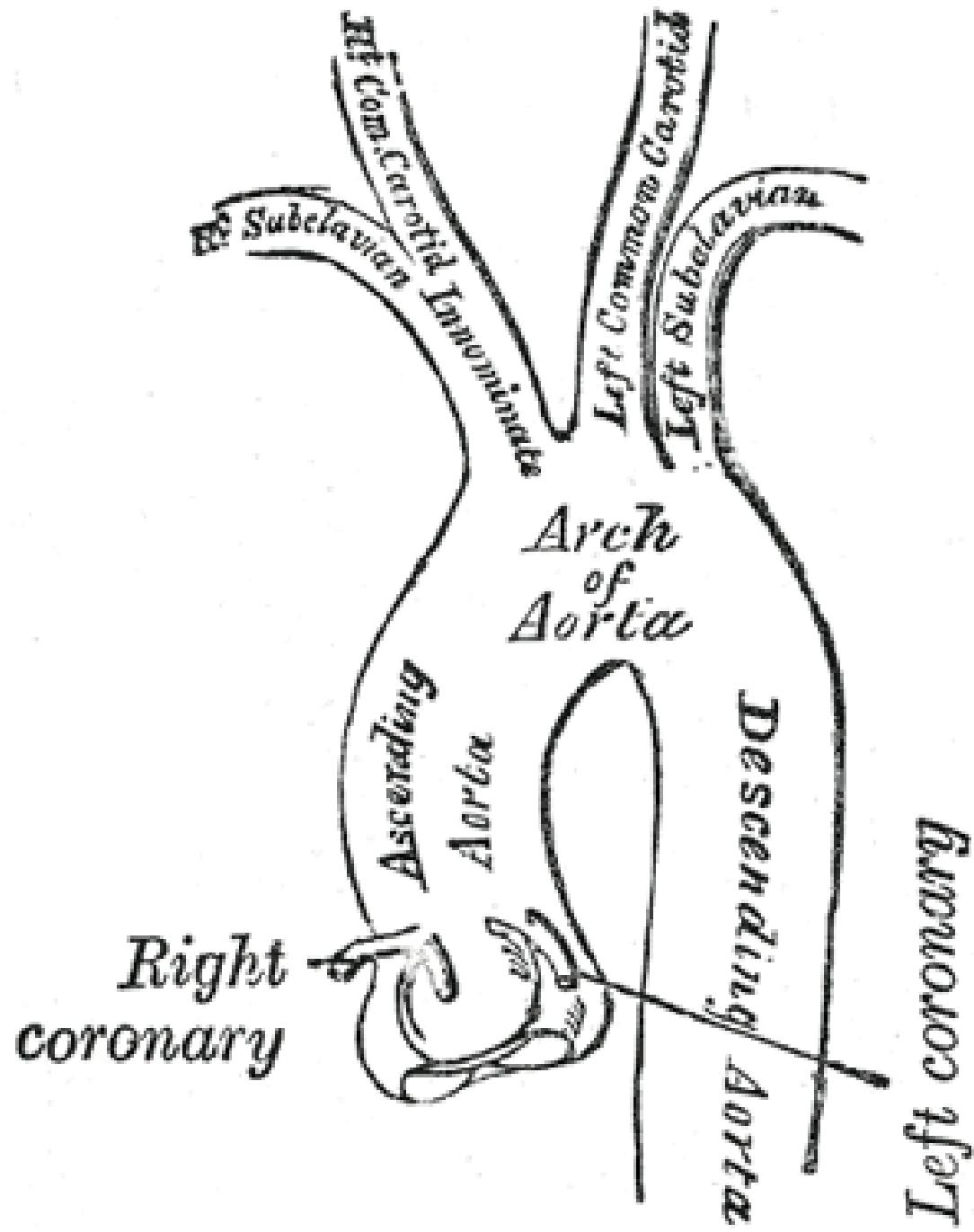
Anterior View



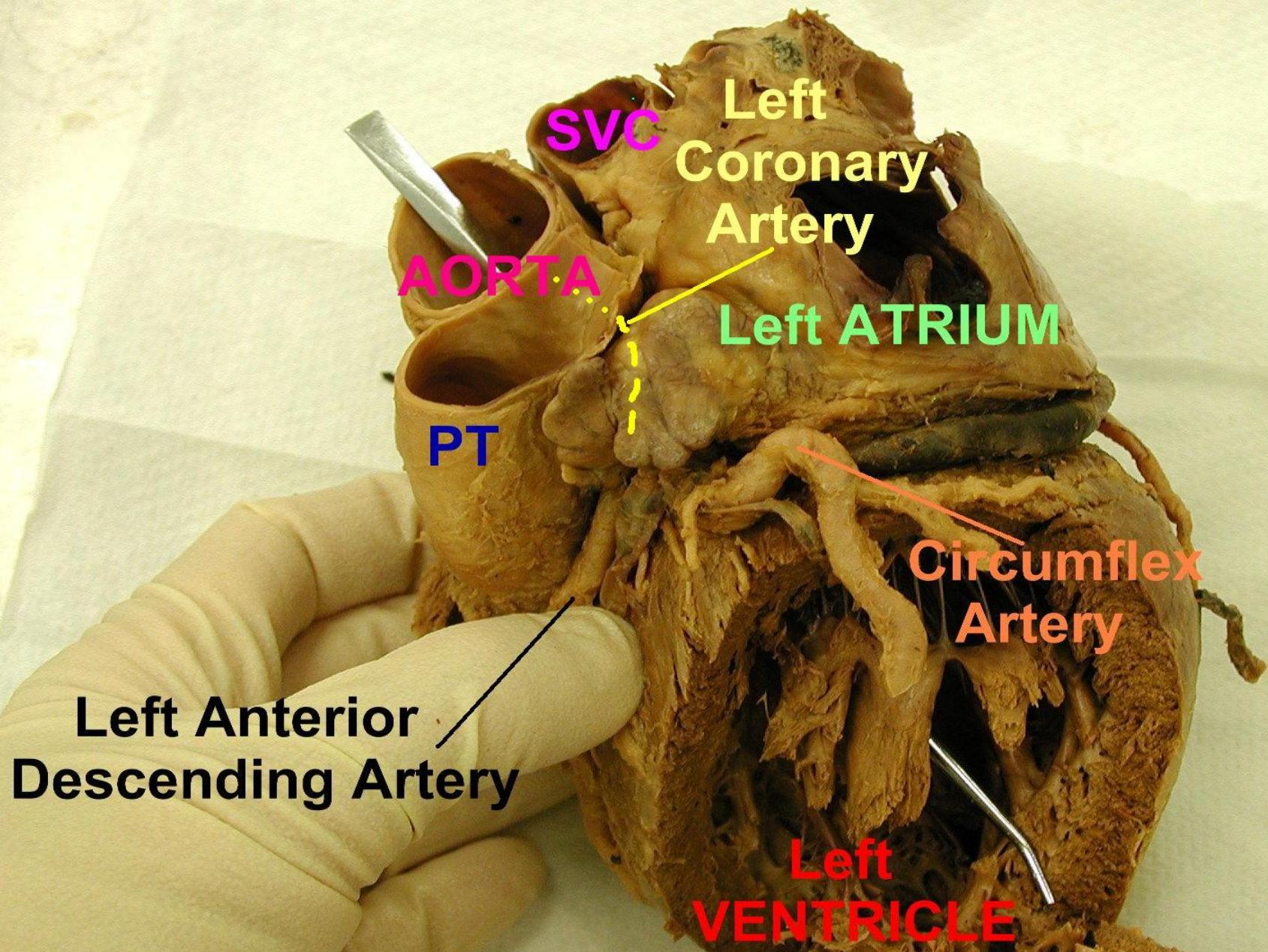


1. Thyroid gland
2. Trachea
3. Brachiocephalic artery
4. Common carotid artery
5. Internal jugular vein
6. Superior vena cava

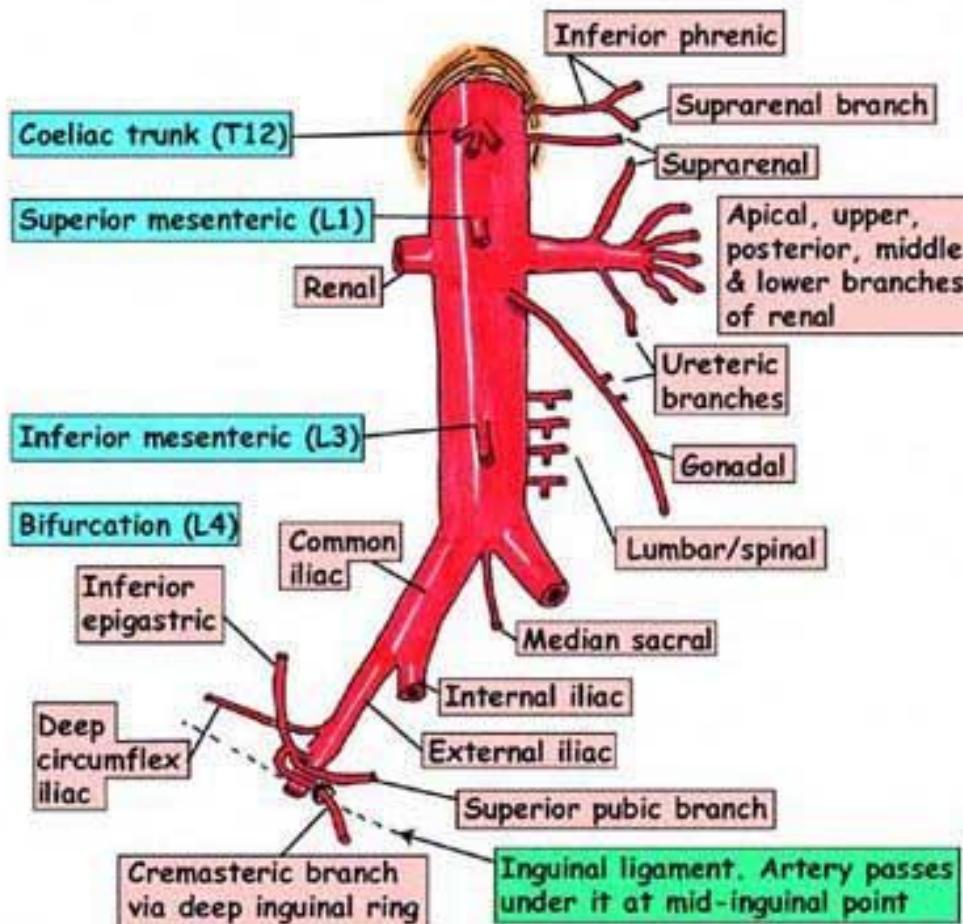




Left ATRIUM



ABDOMINAL AORTA AND RIGHT EXTERNAL ILIAC ARTERY



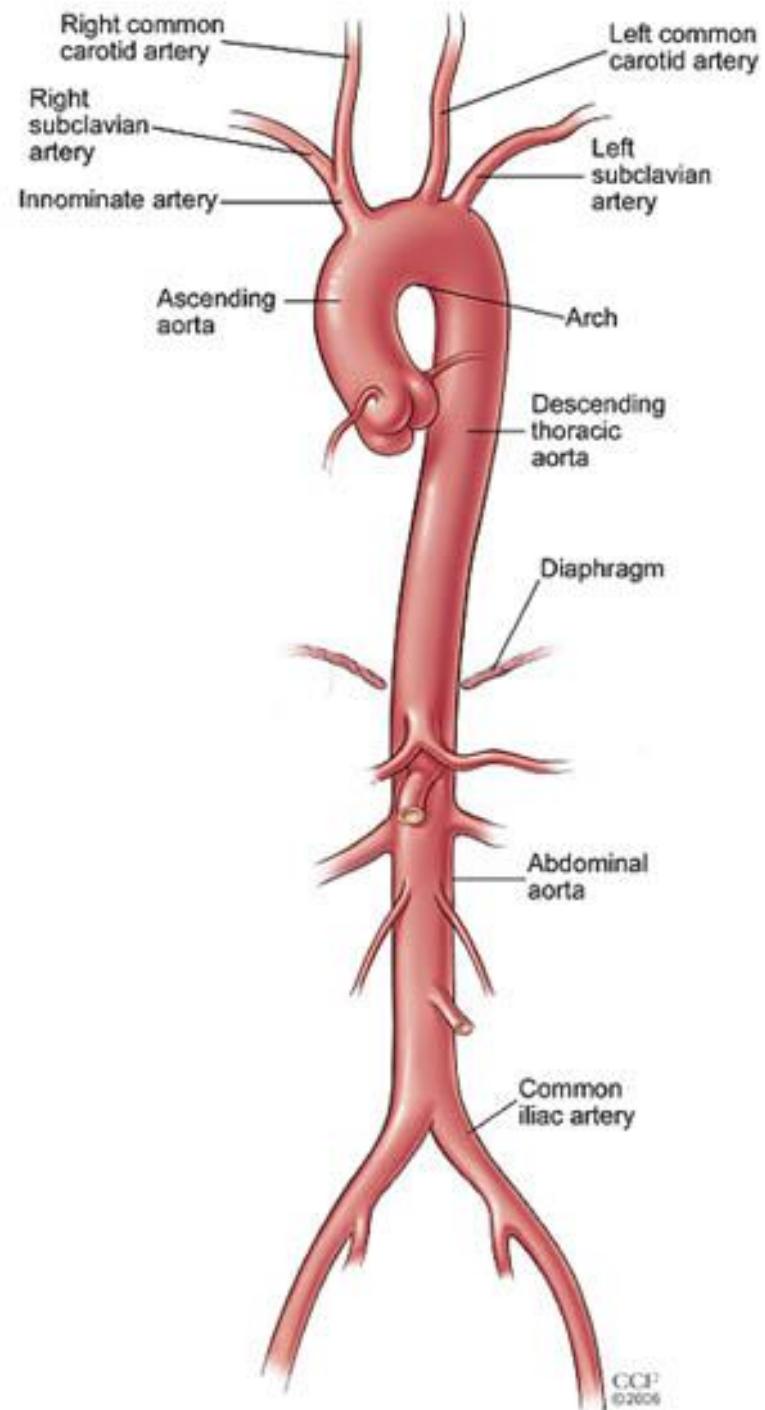
Relations of aorta

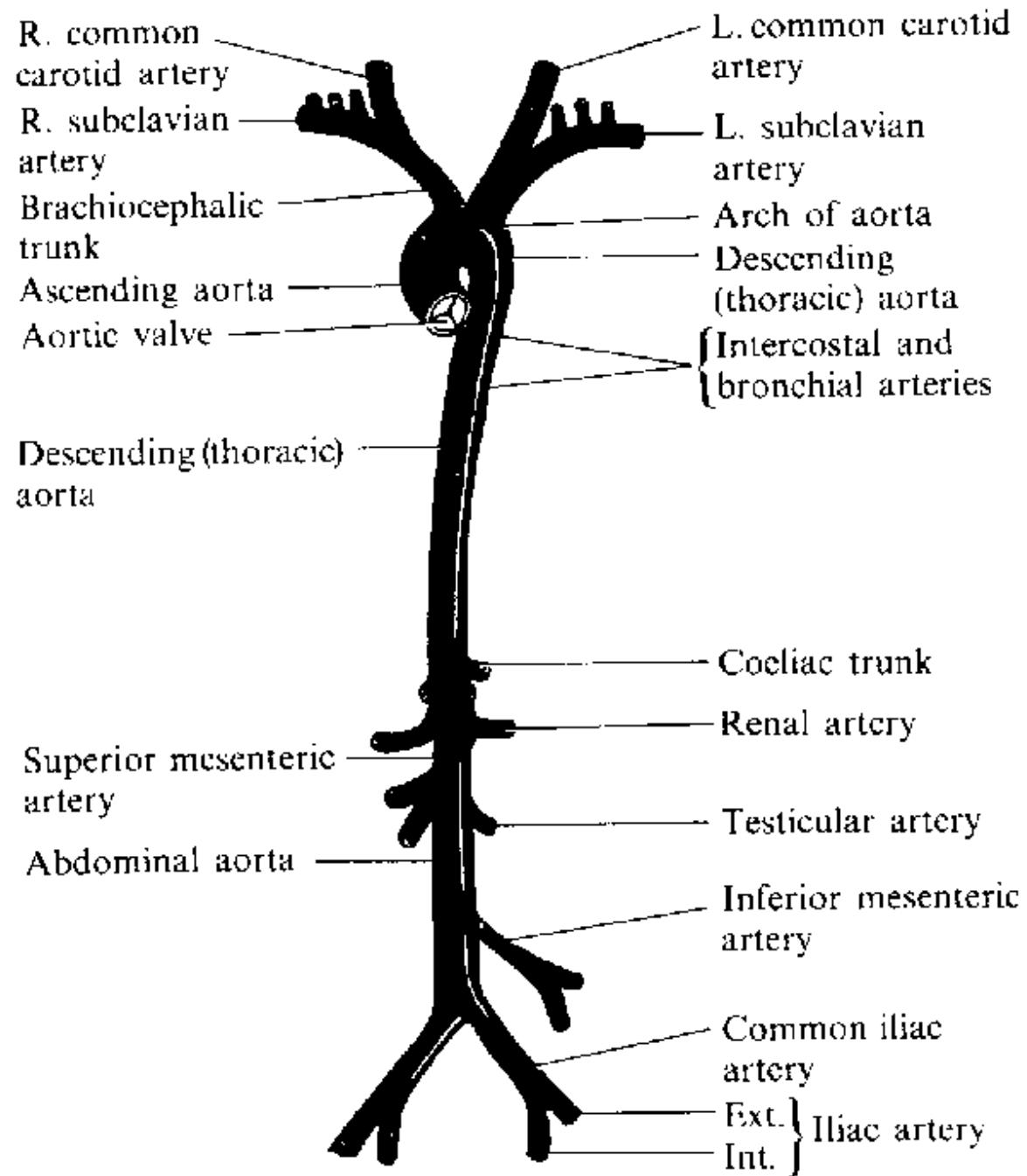
Left lateral: sympathetic chain. Right lateral: IVC, Cysterna chyli

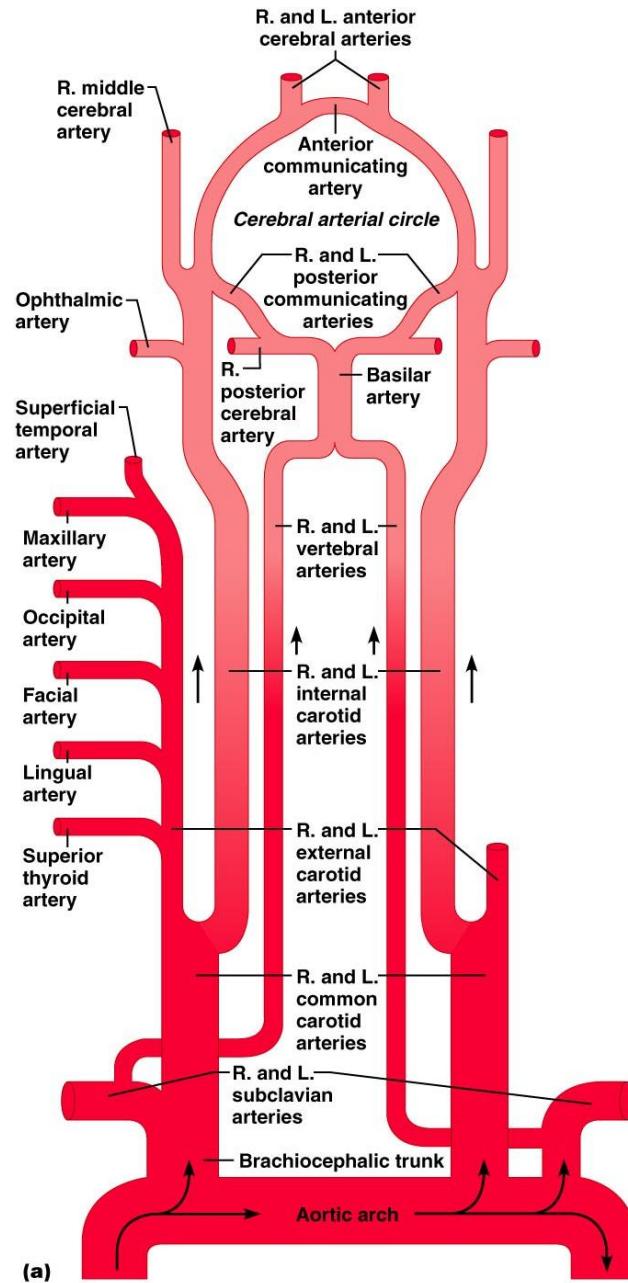
Both lateral: Azygous veins, para-aortic nodes, coeliac ganglia

Anterior: Pancreas, splenic vein, left renal vein, 3rd part duodenum, mesentery, nodes, autonomic plexus, lesser sac, stomach, omentum, small bowel

Posterior: T12-L4, left lumbar veins







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Figure 19.21a

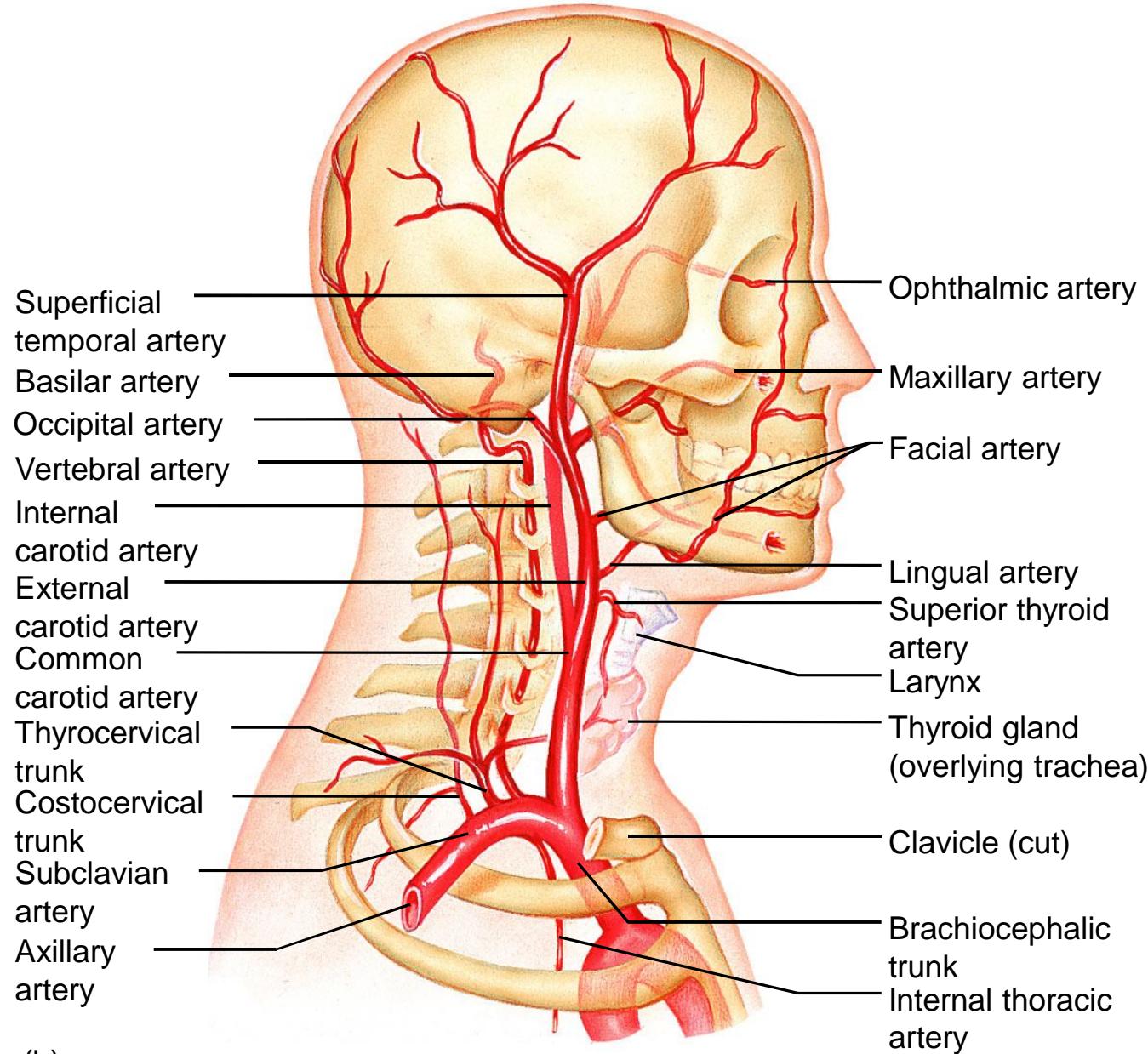


Figure 19.21b

Figure 19.20 Schematic flowchart

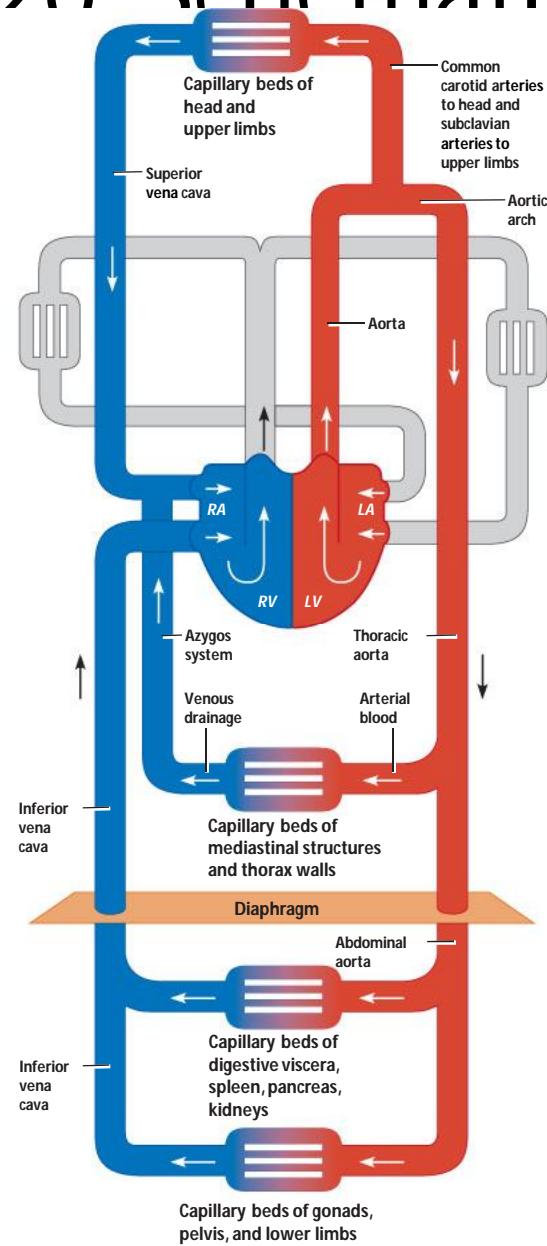


Figure 19.21a Major arteries of the head and neck and trunk

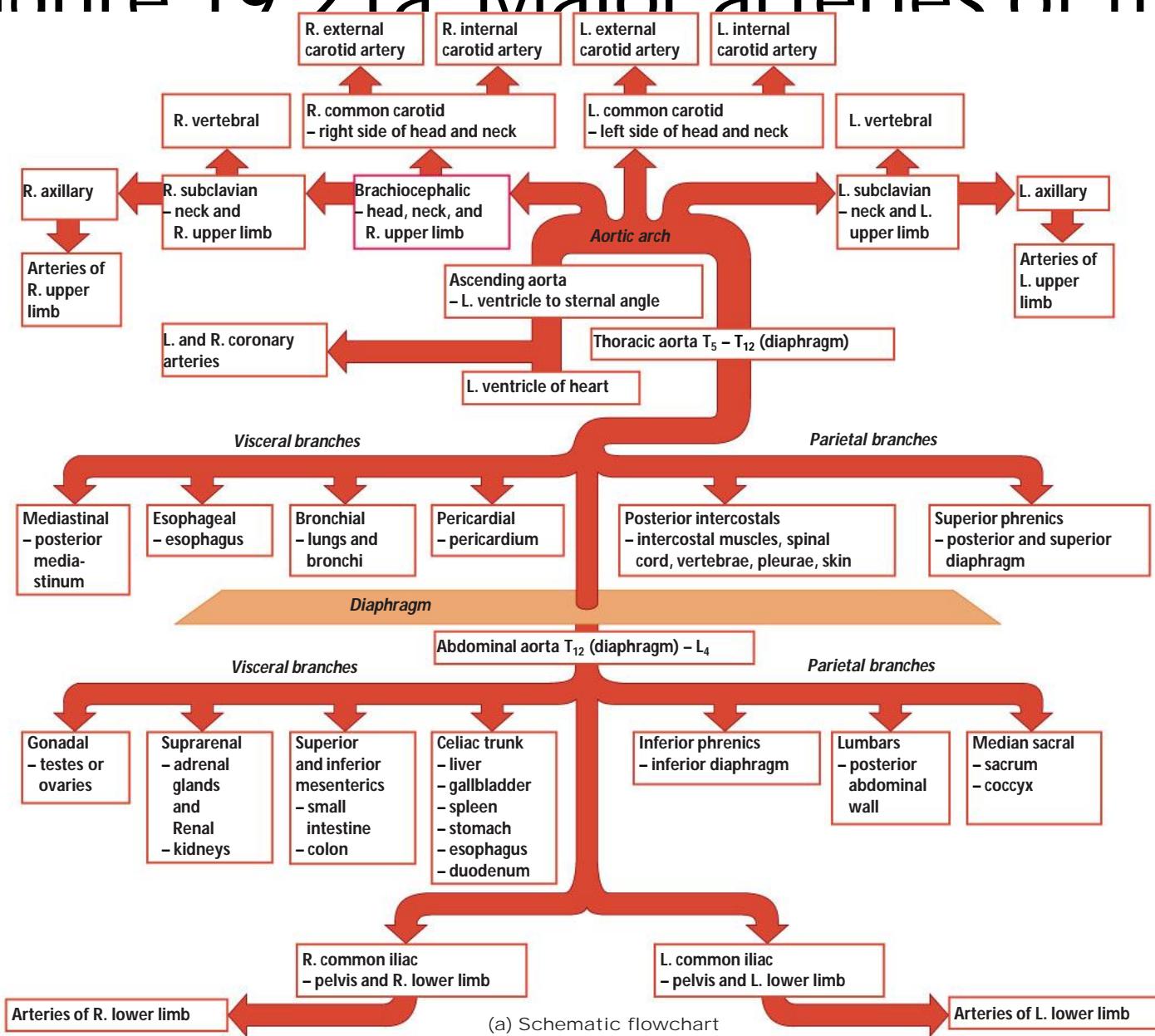
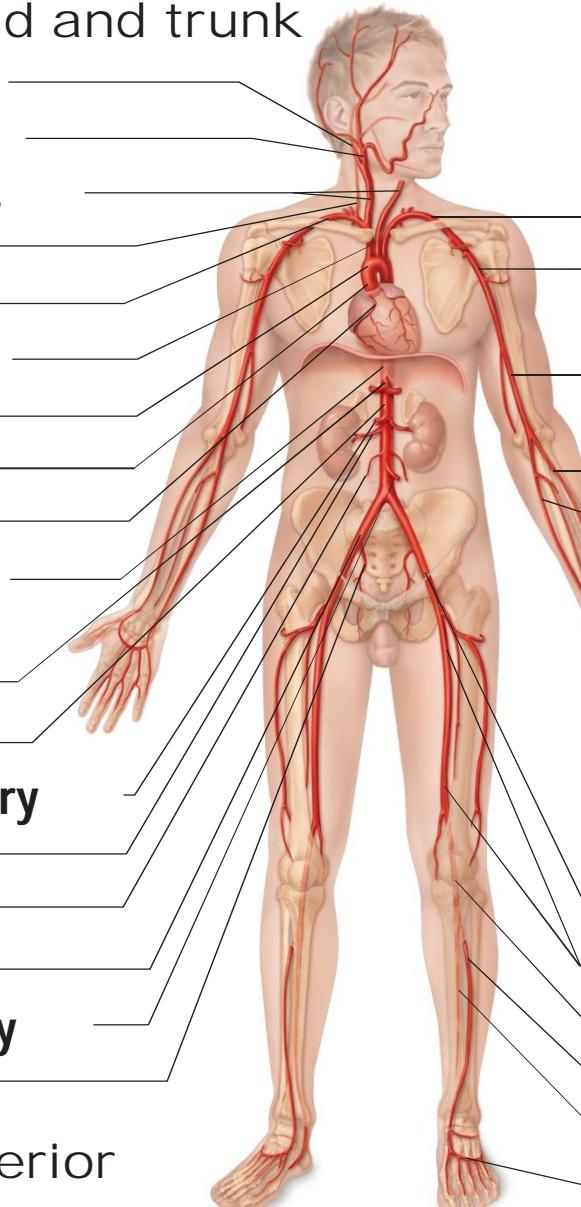


Figure 10.21b Major arteries of the head and trunk

Arteries of the head and trunk

- Internal carotid artery**
- External carotid artery**
- Common carotid arteries**
- Vertebral artery**
- Subclavian artery**
- Brachiocephalic trunk**
- Aortic arch**
- Ascending aorta**
- Coronary artery**
- Thoracic aorta (above diaphragm)**
- Celiac trunk**
- Abdominal aorta**
- Superior mesenteric artery**
- Renal artery**
- Gonadal artery**
- Common iliac artery**
- Inferior mesenteric artery**
- Internal iliac artery**



(b) Illustration, anterior view

Arteries that supply the upper limb

- Subclavian artery**
- Axillary artery**

- Brachial artery**

- Radial artery**

- Ulnar artery**

- Deep palmar arch**

- Superficial palmar arch**

- Digital arteries**

Arteries that supply the lower limb

- External iliac artery**

- Femoral artery**

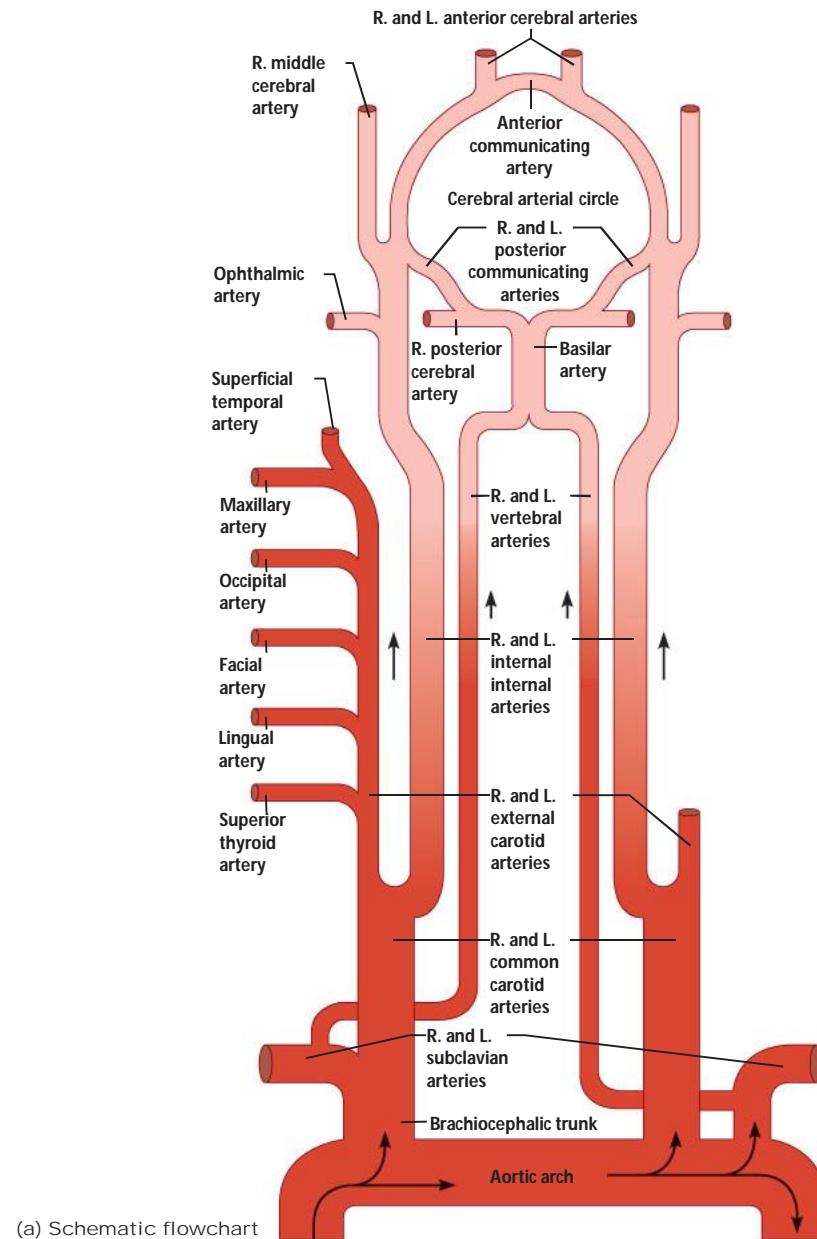
- Popliteal artery**

- Anterior tibial artery**

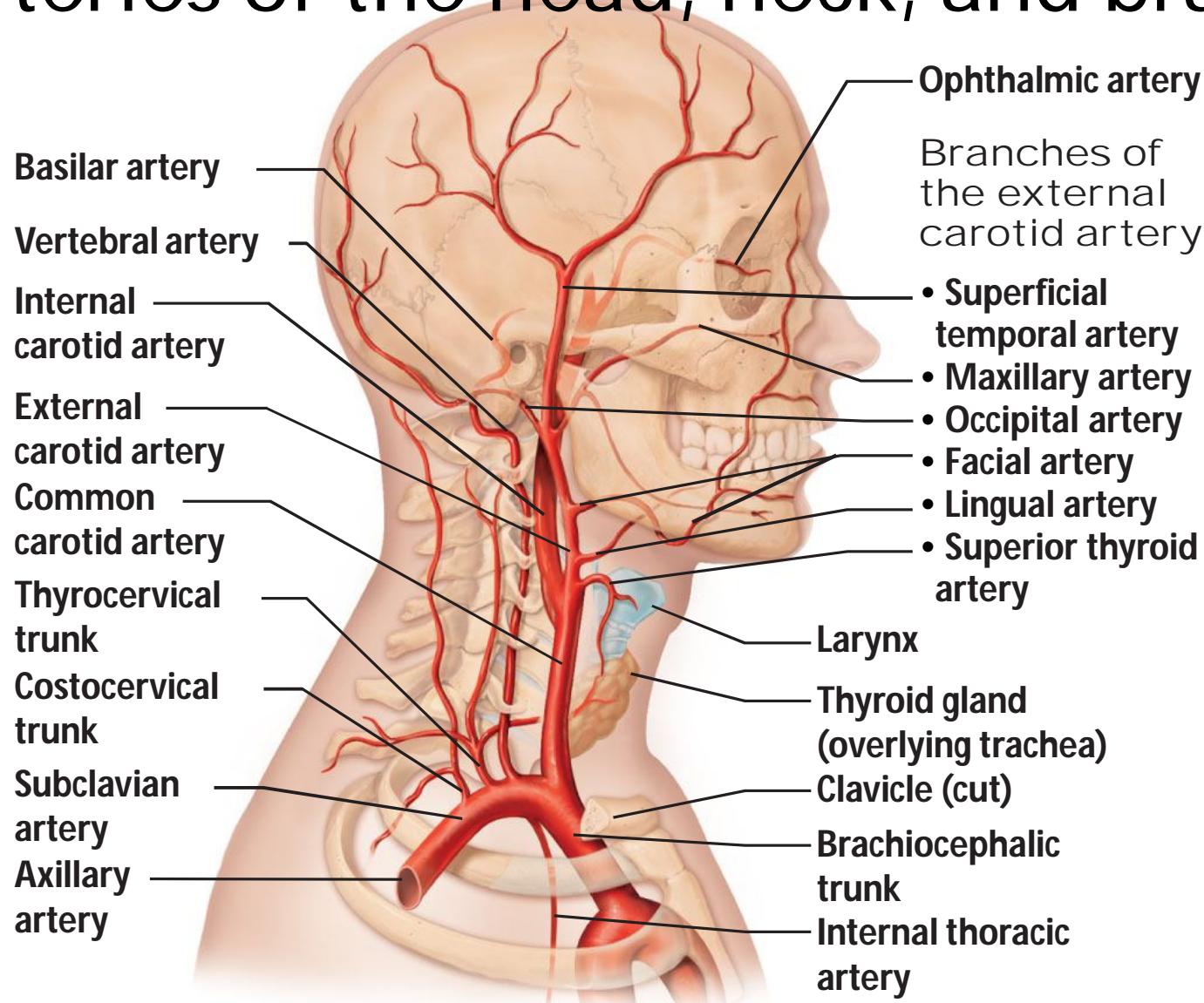
- Posterior tibial artery**

- Arcuate artery**

Arteries of the head, neck, and brain.



Arteries of the head, neck, and brain.



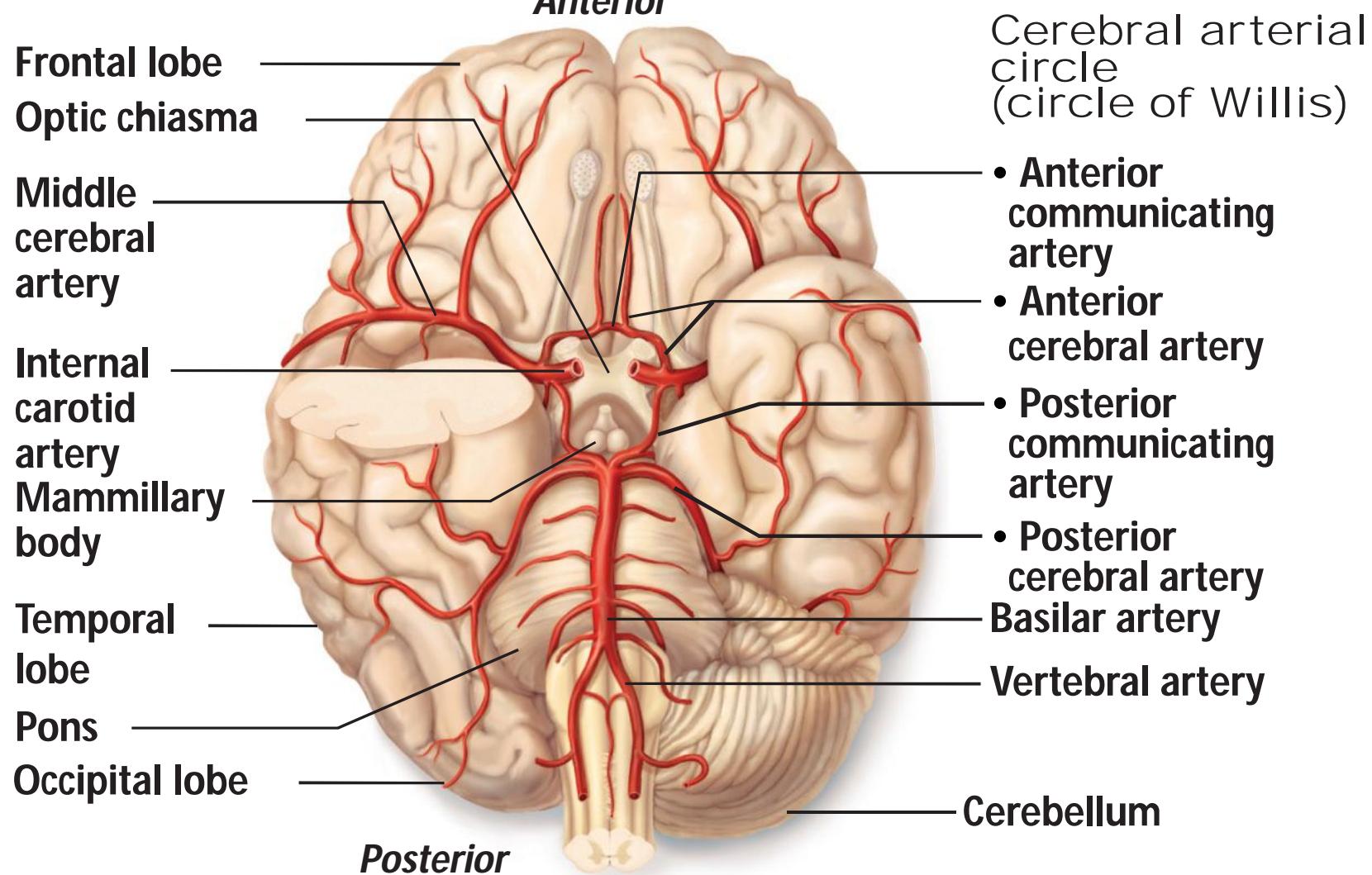
(b) Arteries of the head and neck, right aspect

Arteries of the head, neck, and brain.



(c) Colorized arteriograph of the arterial supply of the brain

Figure 19 22d Arteries of the head neck,



(d) Major arteries serving the brain (inferior view, right side of cerebellum and part of right temporal lobe removed)

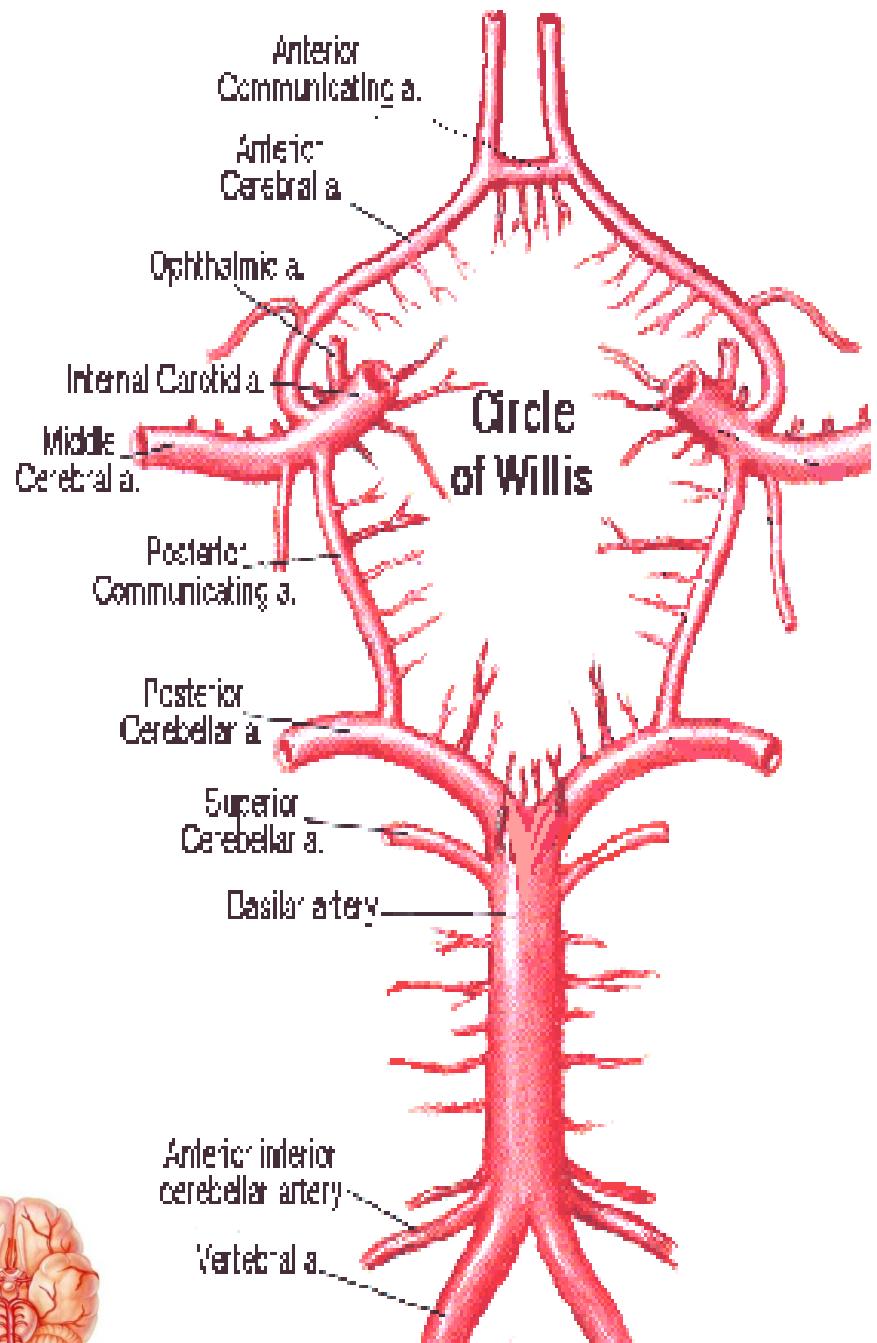
ICA Internal Carotid A & branches (the ICA bifurcates into the ACA & MCA)

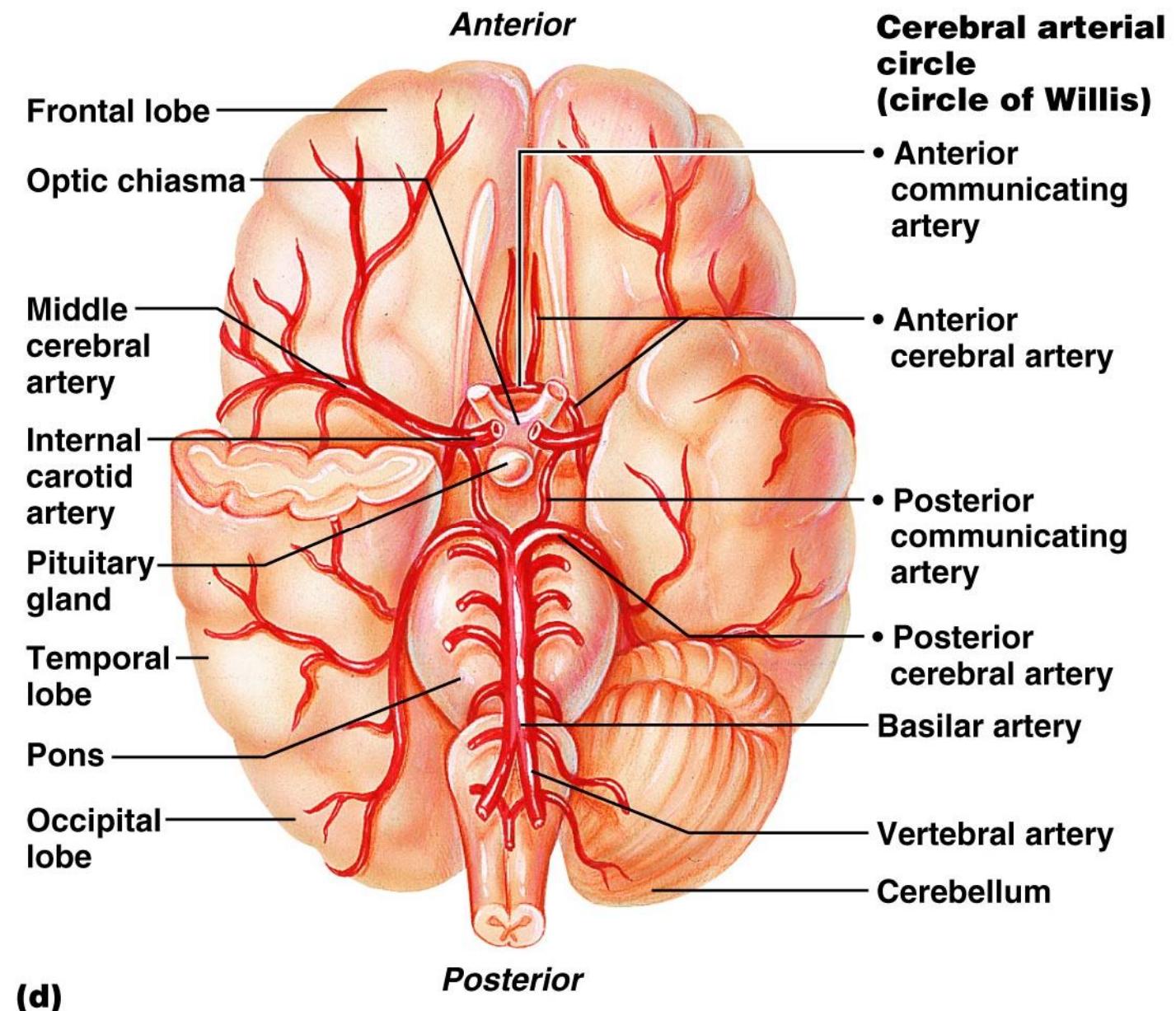
- ACA - Anterior cerebral artery
- A-Com - Anterior communicating Artery
- MCA - Middle cerebral artery
- P-Com - Posterior communicating artery

VA Vertebral artery (the left and right vertebral arteries join to form the basilar artery)

Basilar artery & its branches

- PCA - Posterior cerebral artery
- SCA - Superior cerebellar artery
- PICA - Posterior inferior cerebellar artery

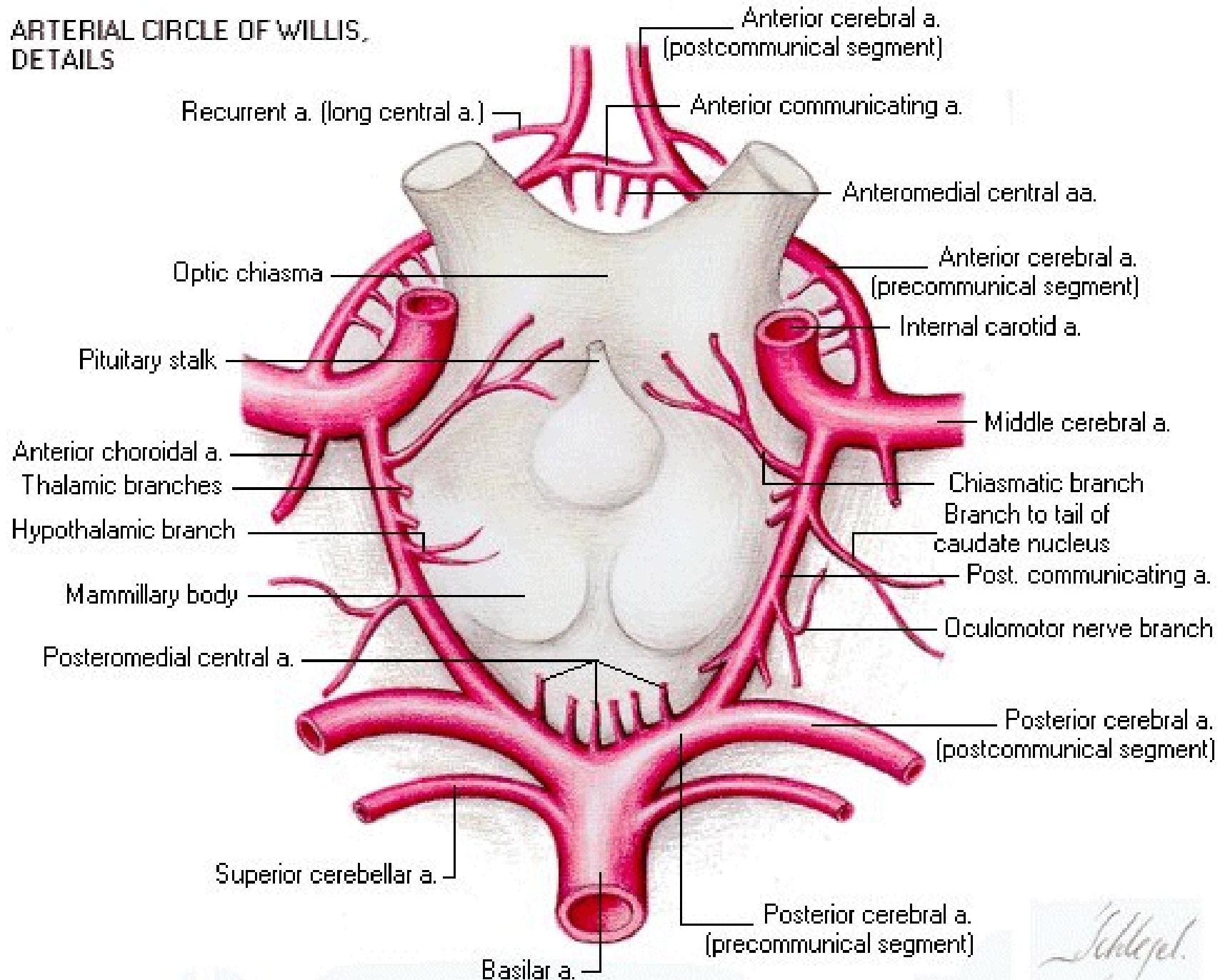




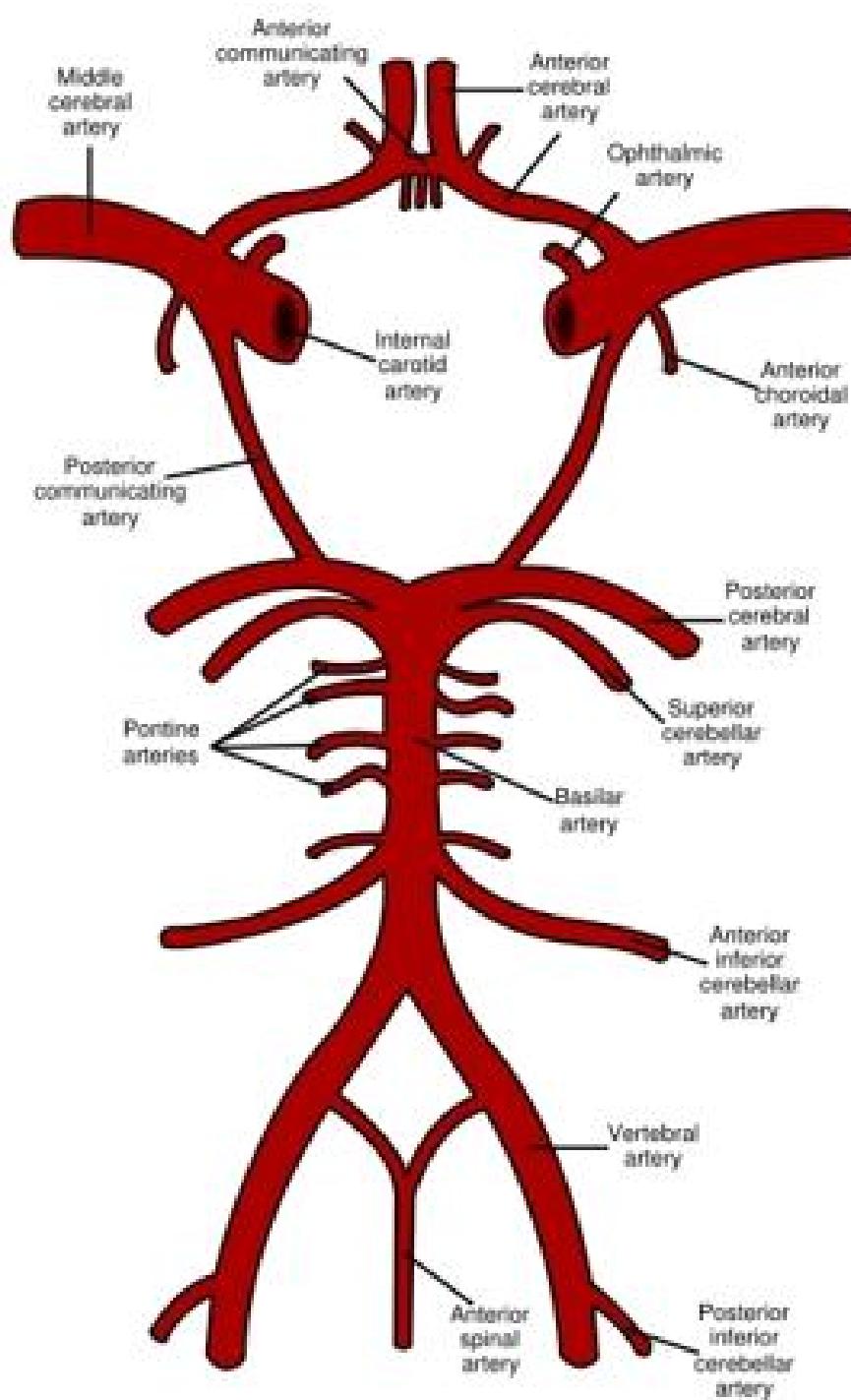
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Figure 19.21d

ARTERIAL CIRCLE OF WILLIS,
DETAILS

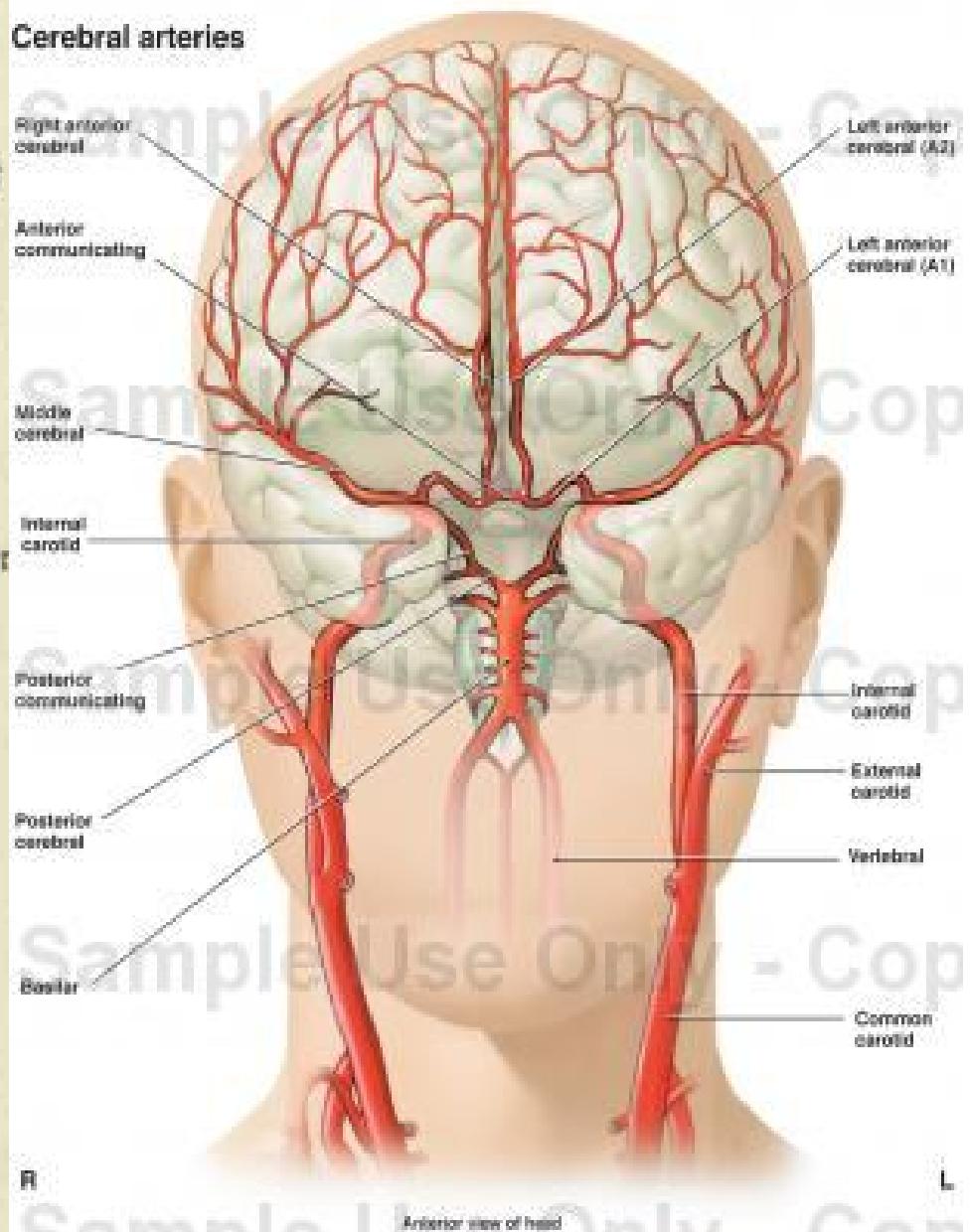
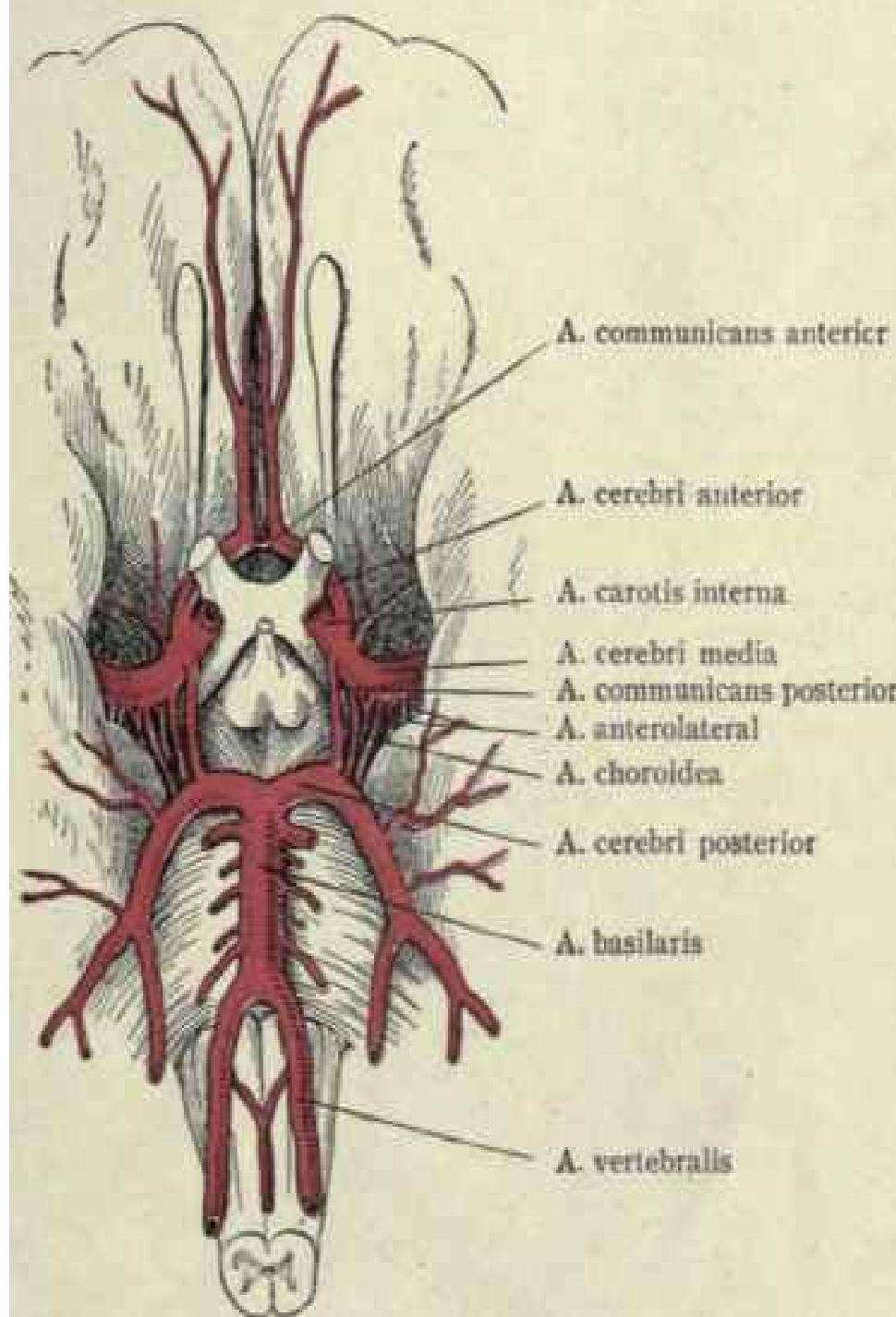


Heegel



Anatomy of Cerebral Vasculature

Anatomy of the Cerebral Vasculature



Veins of the Brain

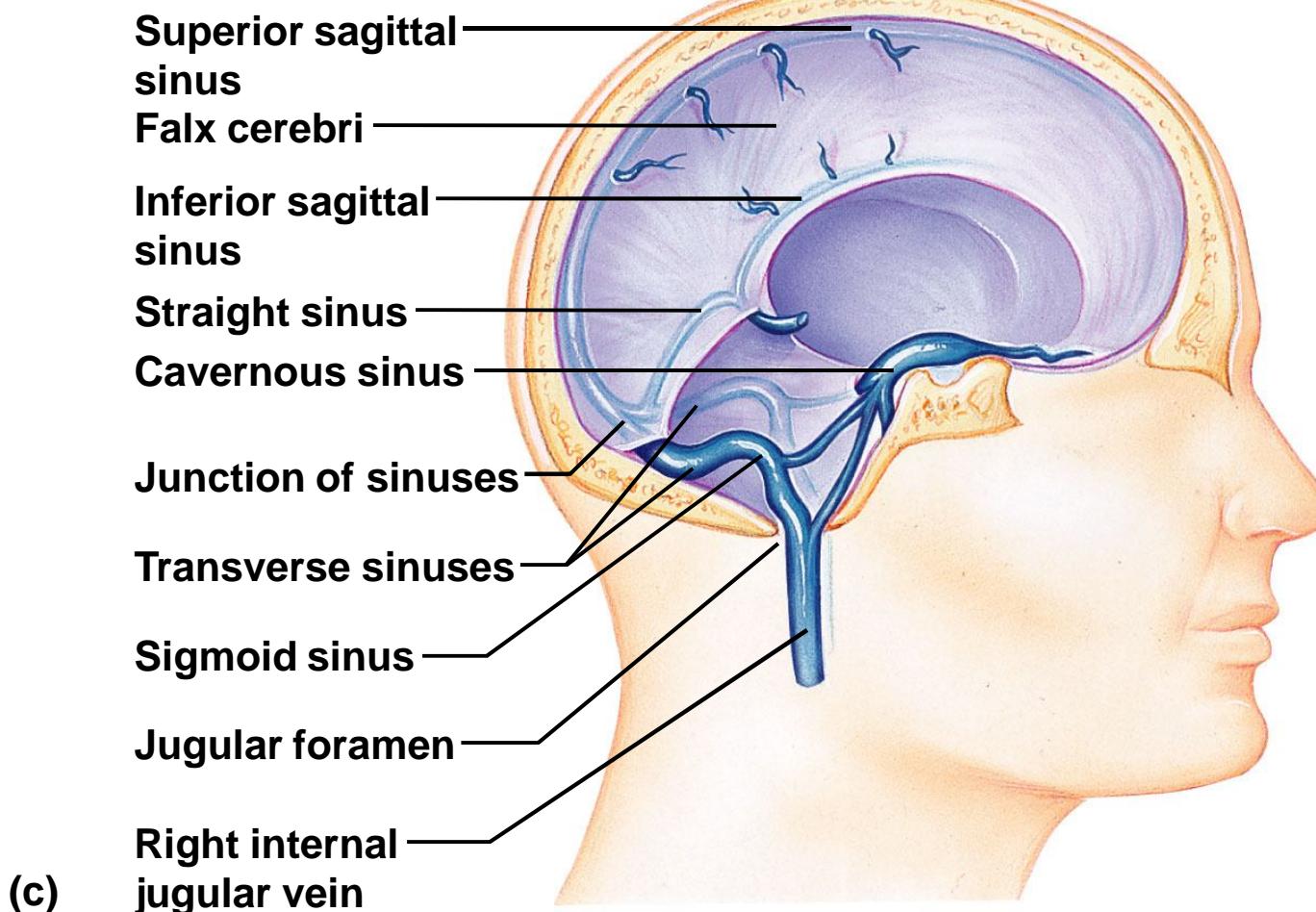


Figure 19.26c

Figure 10.27c Venous drainage of the

Superior sagittal sinus

Falx cerebri

Inferior sagittal sinus

Cavernous sinus

Straight sinus

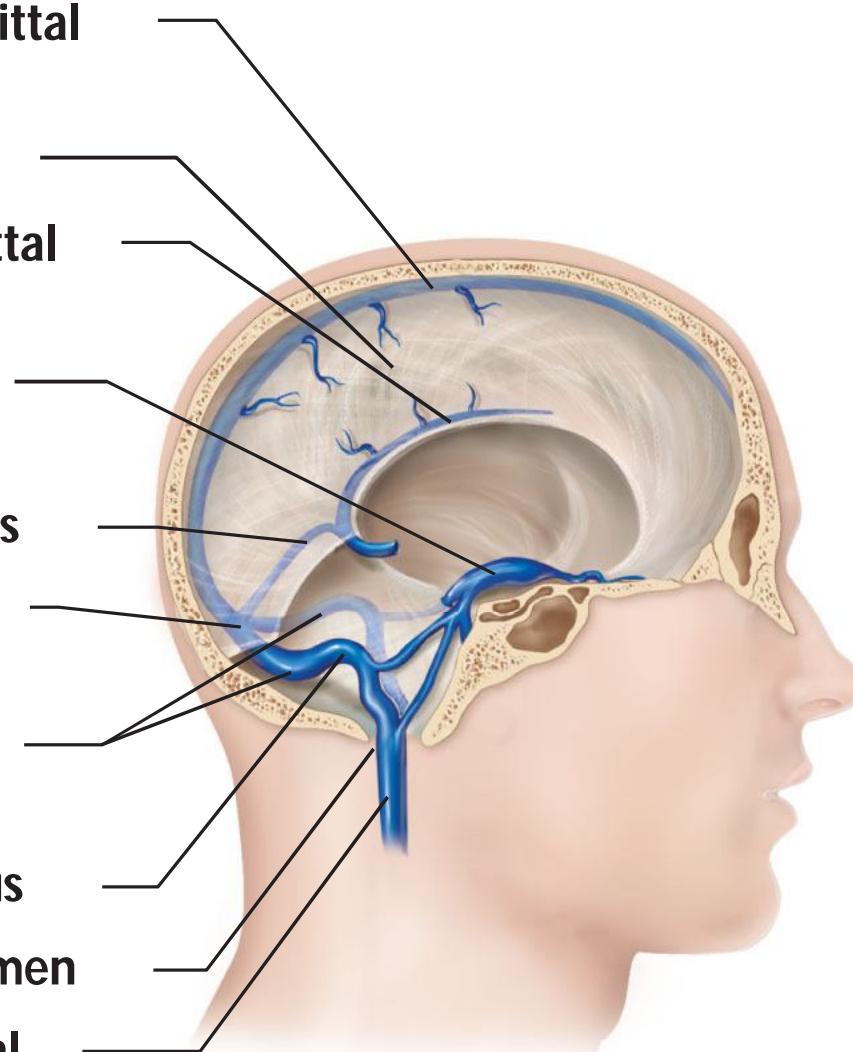
Confluence of sinuses

Transverse sinuses

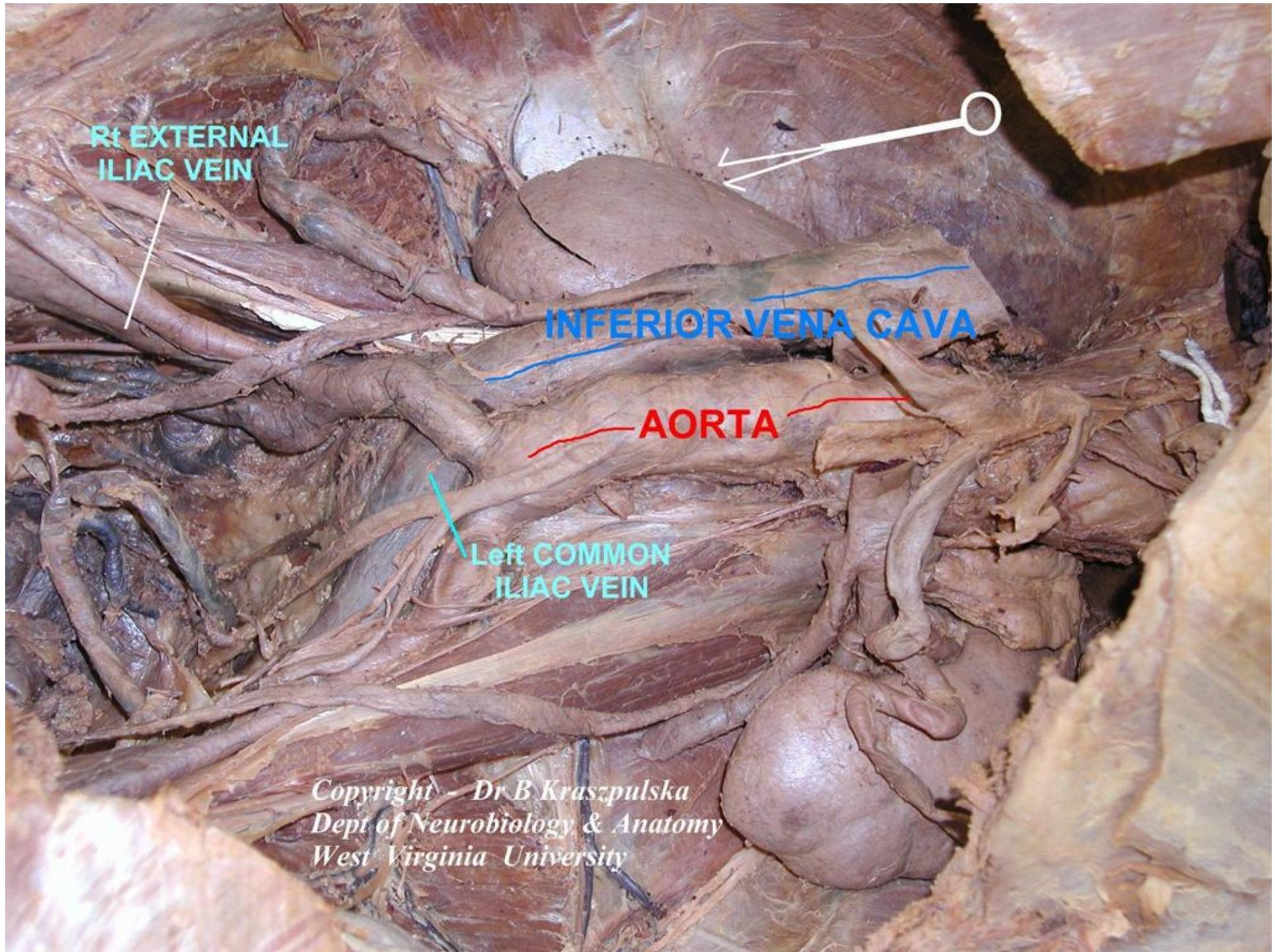
Sigmoid sinus

Jugular foramen

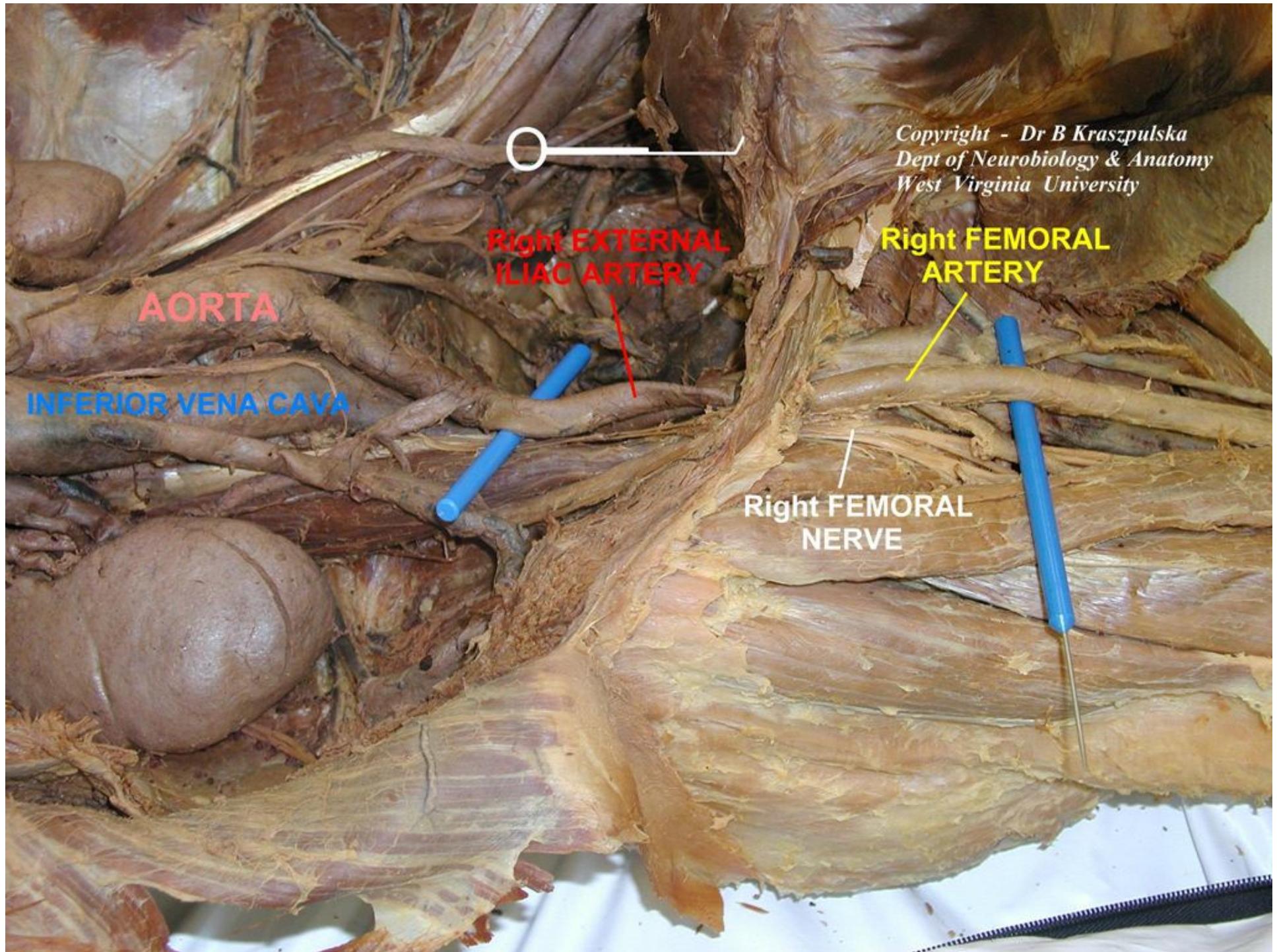
Right internal jugular vein

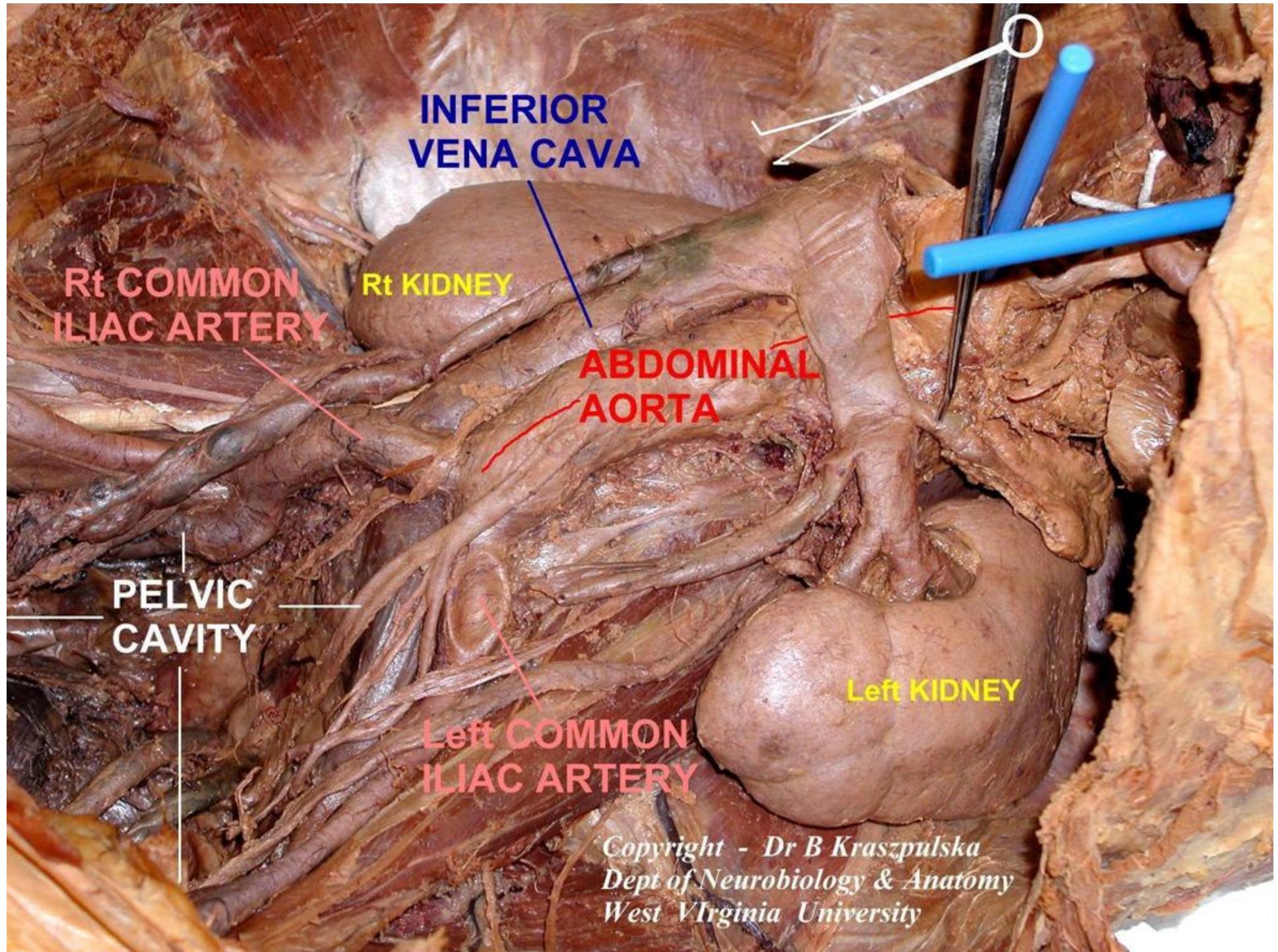


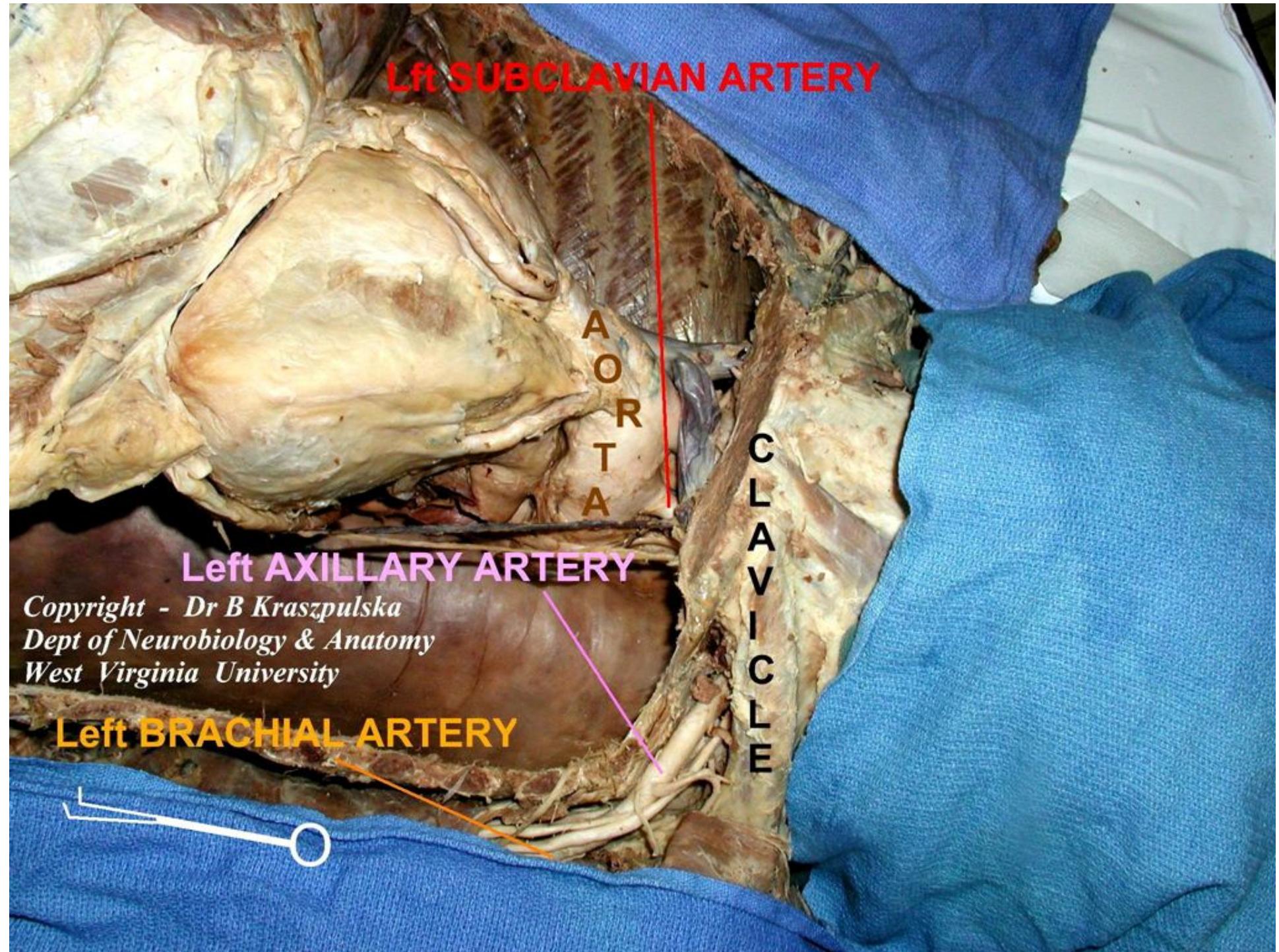
(c) Dural venous sinuses of the brain

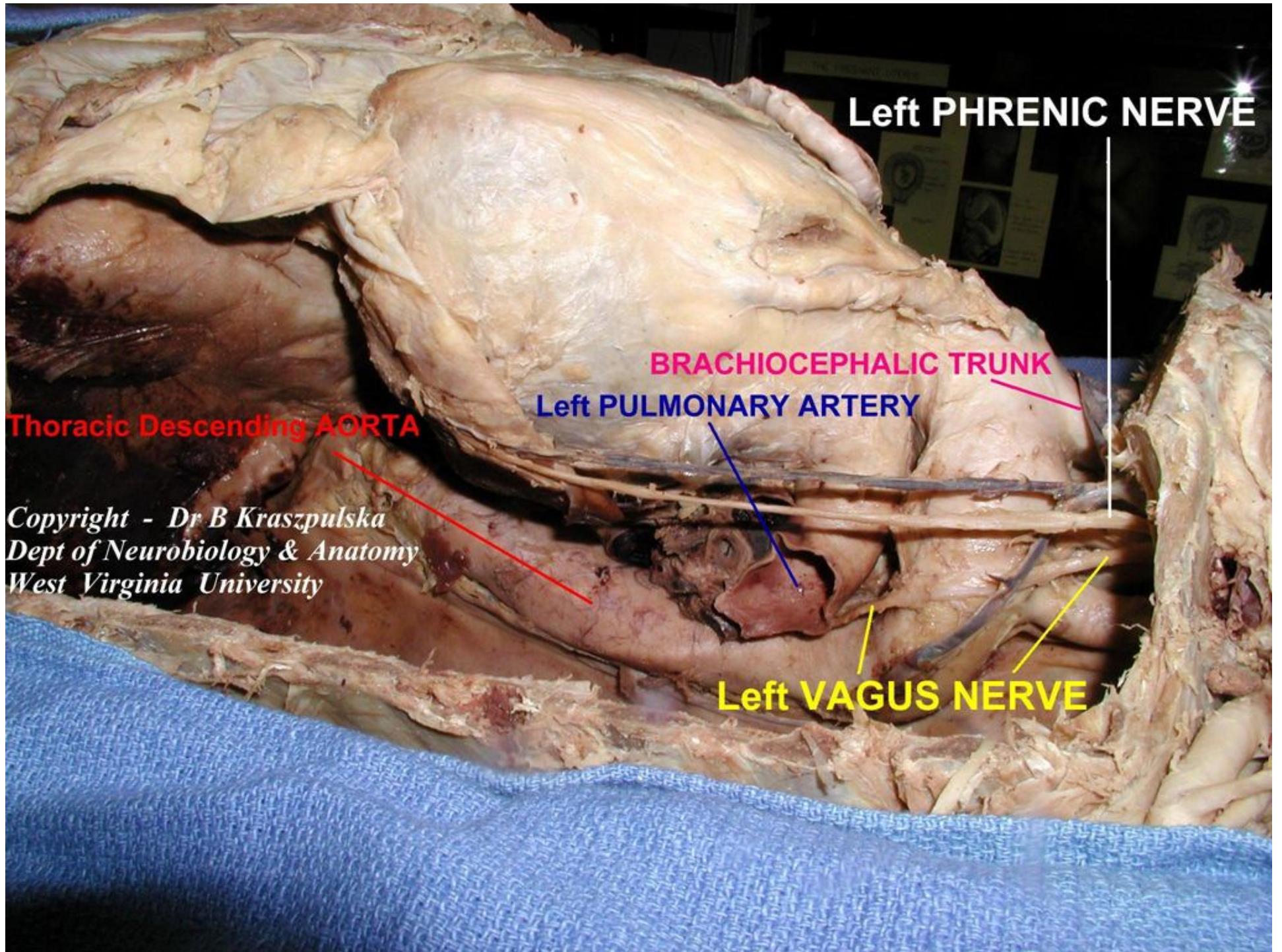


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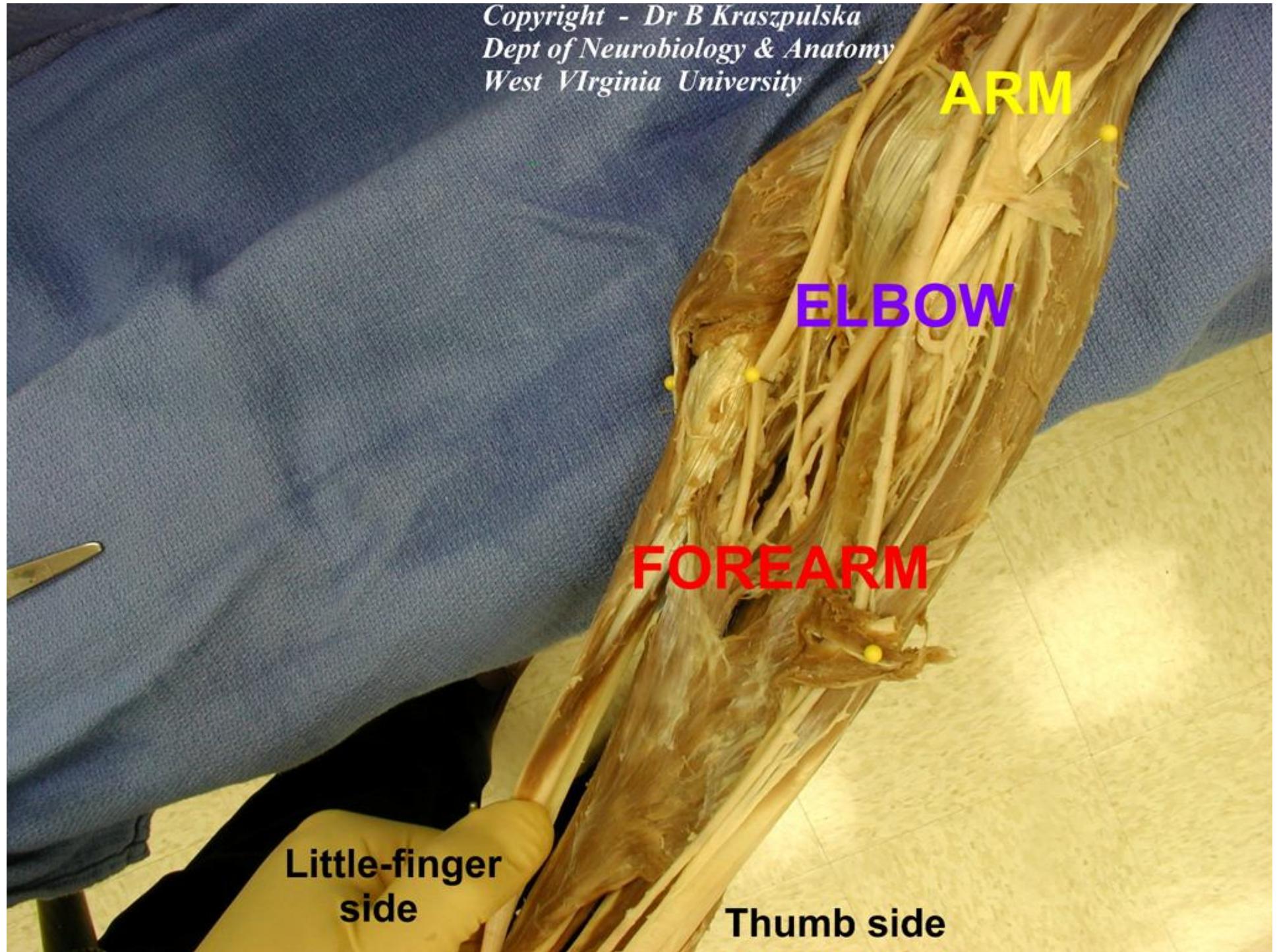








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MEDIAN NERVE

ULNAR ARTERY

BRACHIAL ARTERY

RADIAL ARTERY

Thumb side

Veins of the Upper Limbs and Thorax

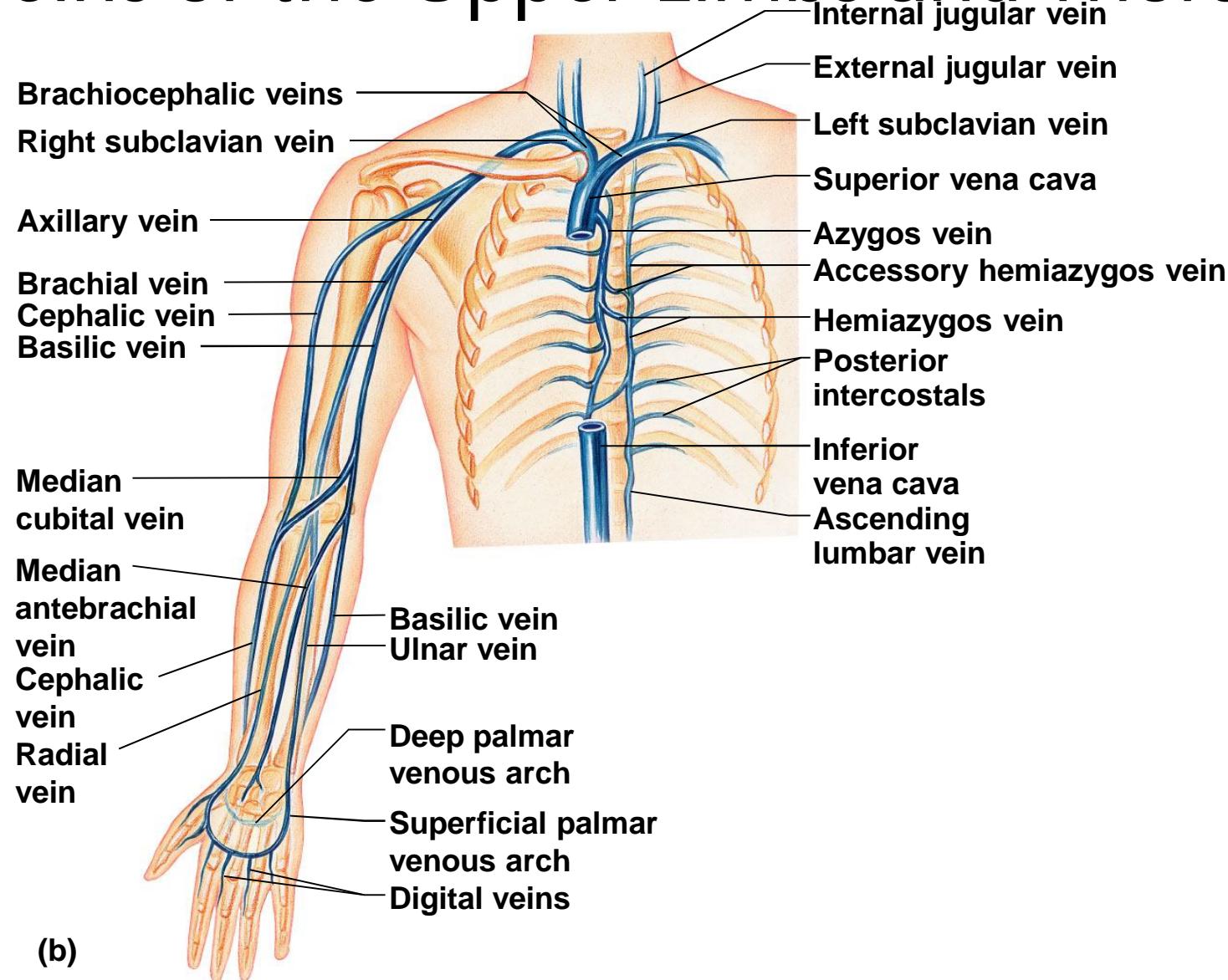


Figure 19.27b

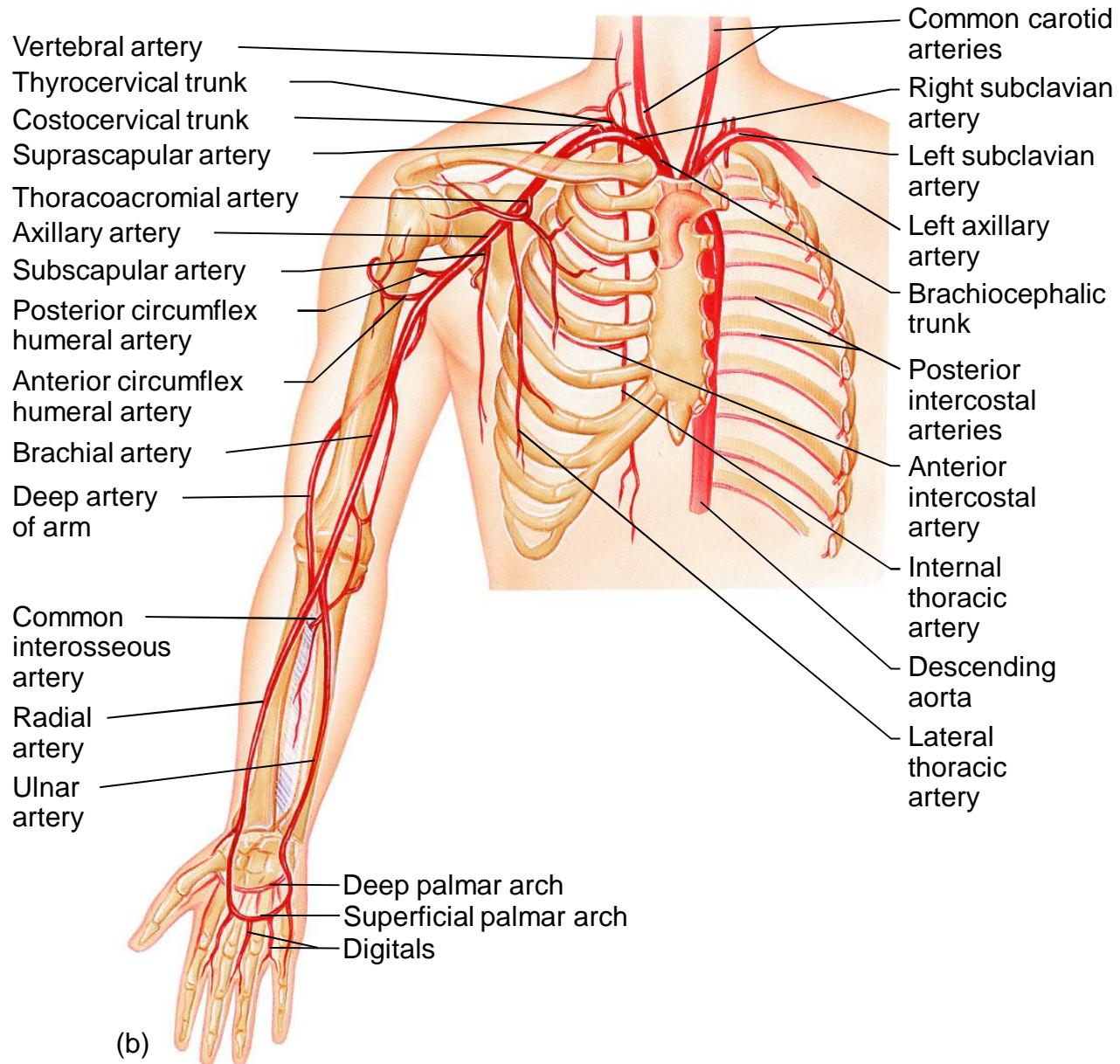


Figure 19.22b

Arteries of the Abdomen

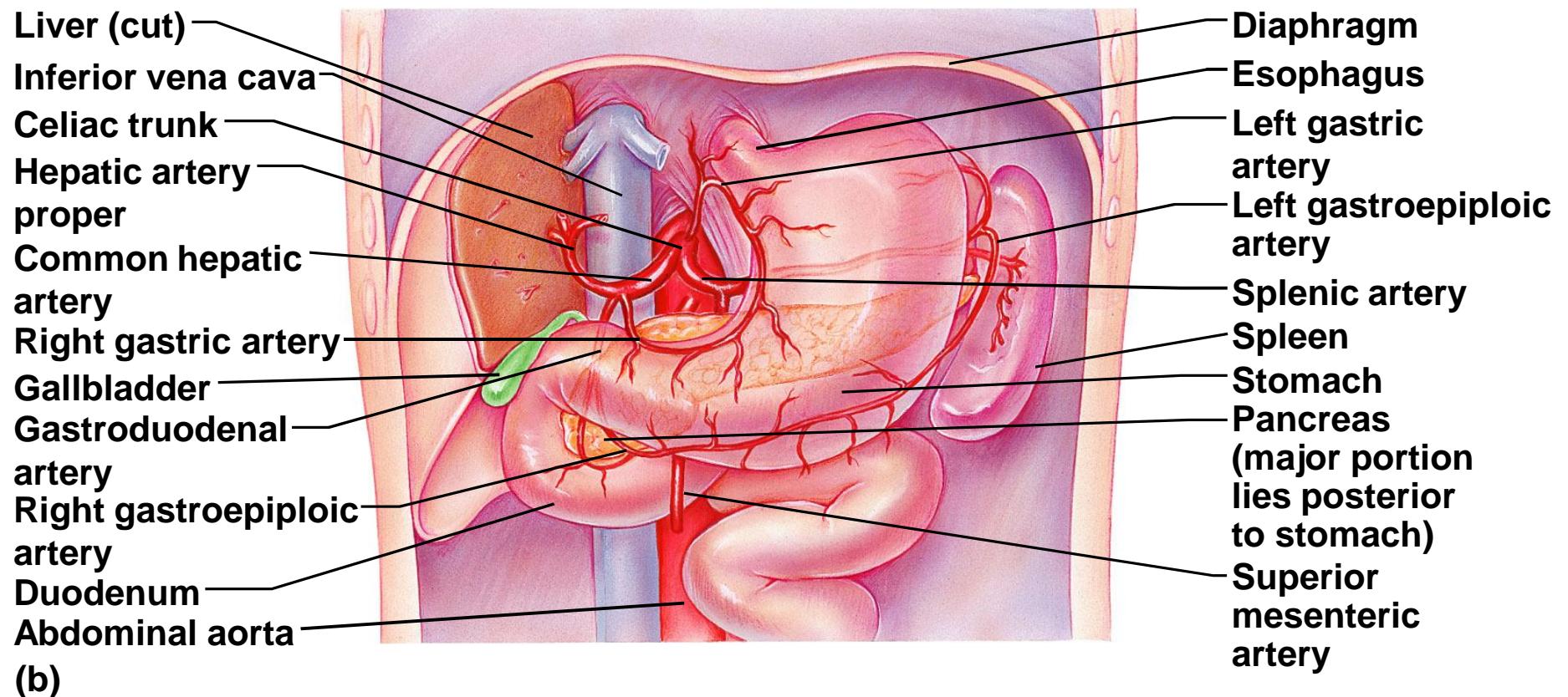
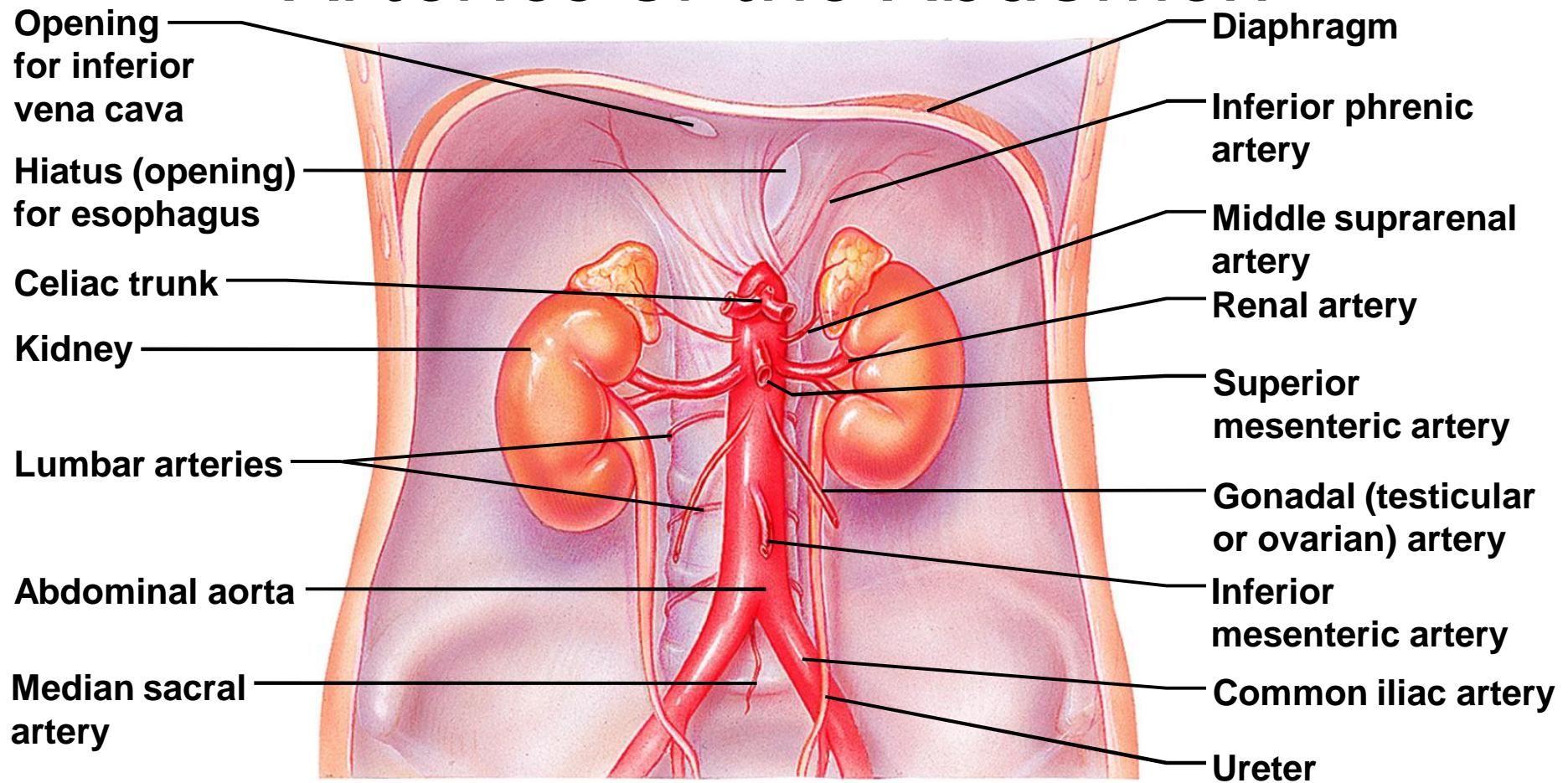


Figure 19.23b

Arteries of the Abdomen



(c)

Figure 19.23c

Arteries of the Lower Limbs

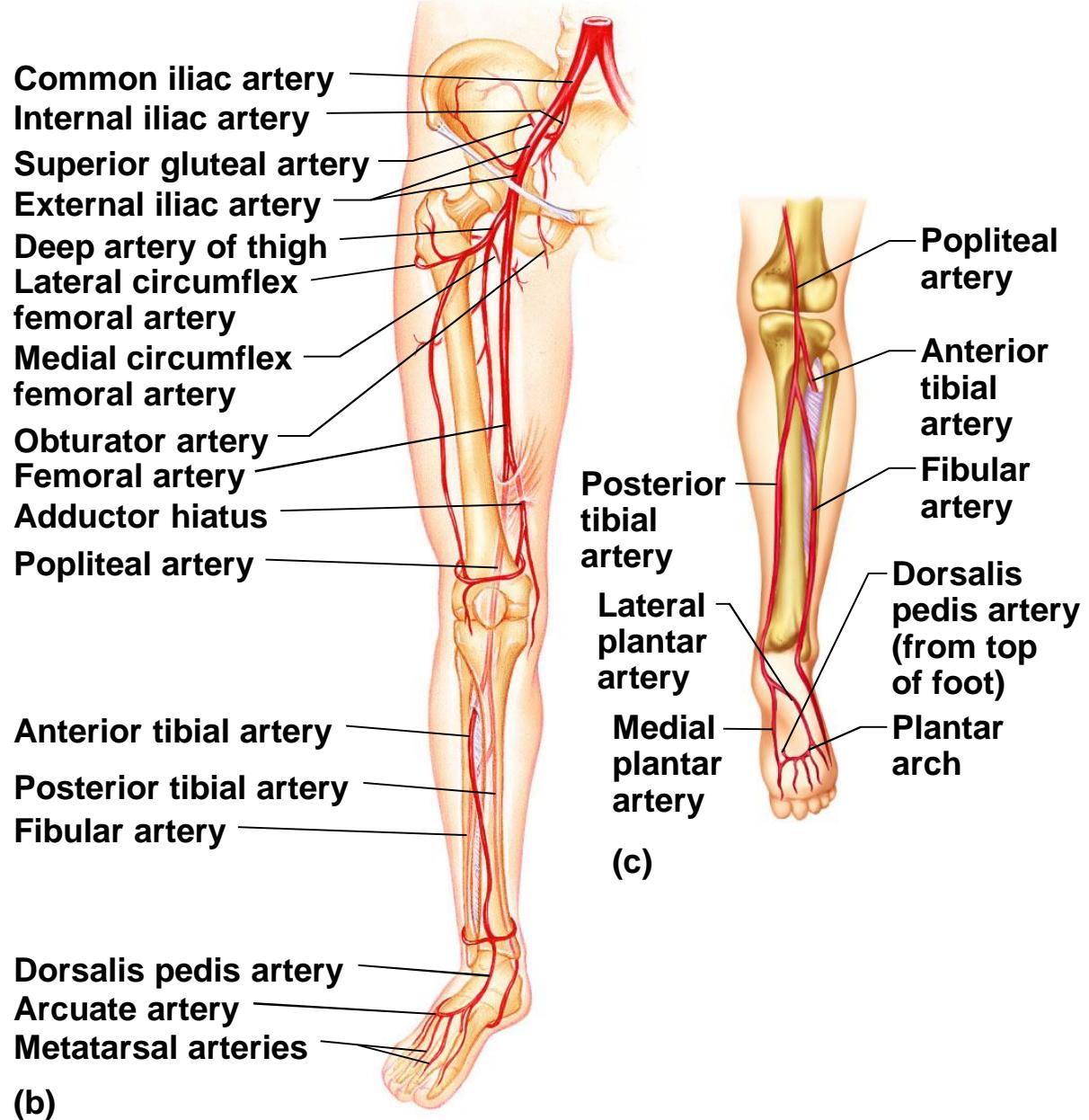


Figure 19.24b, c

Figure 10.23a Arteries of the right upper limb

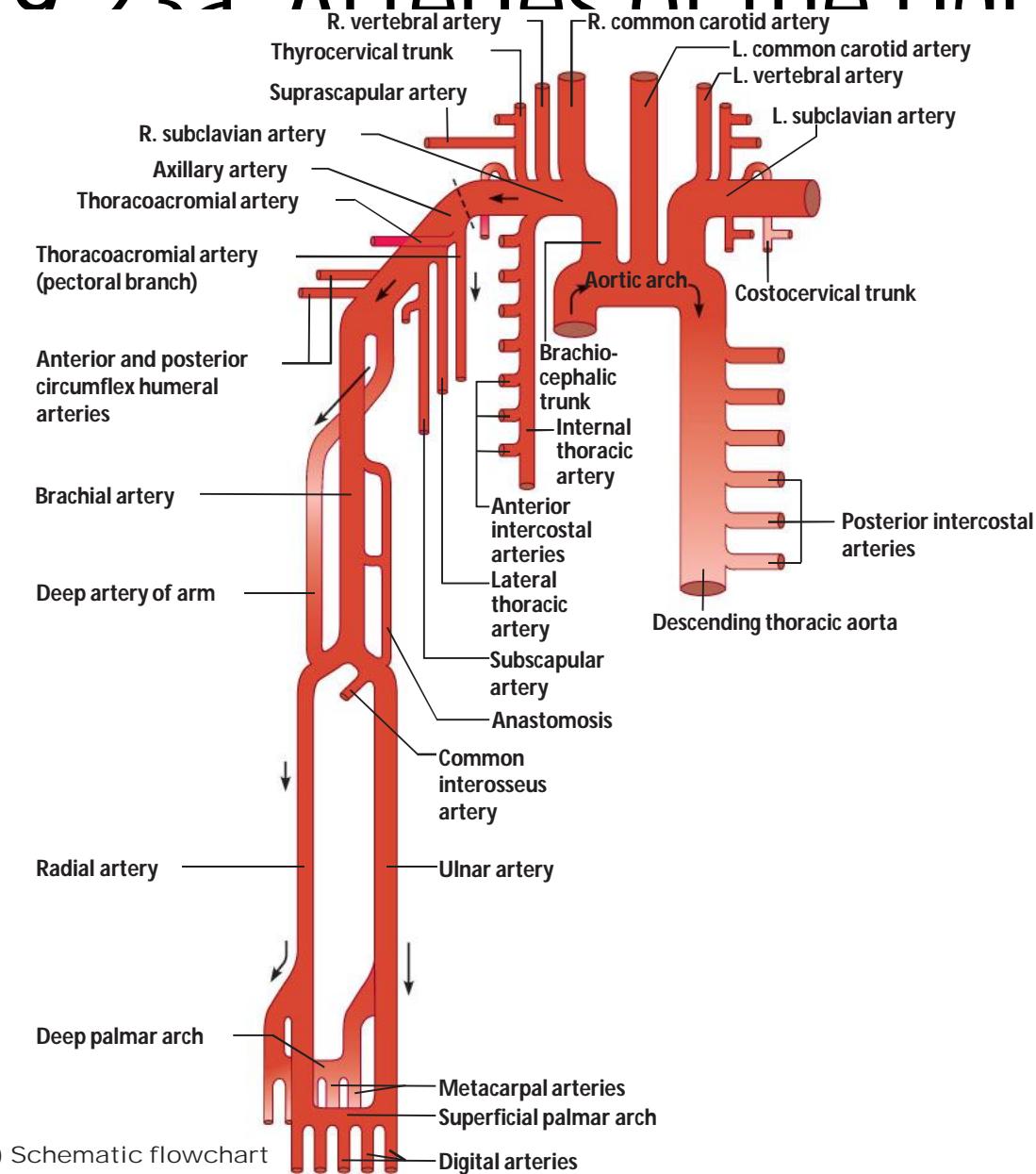
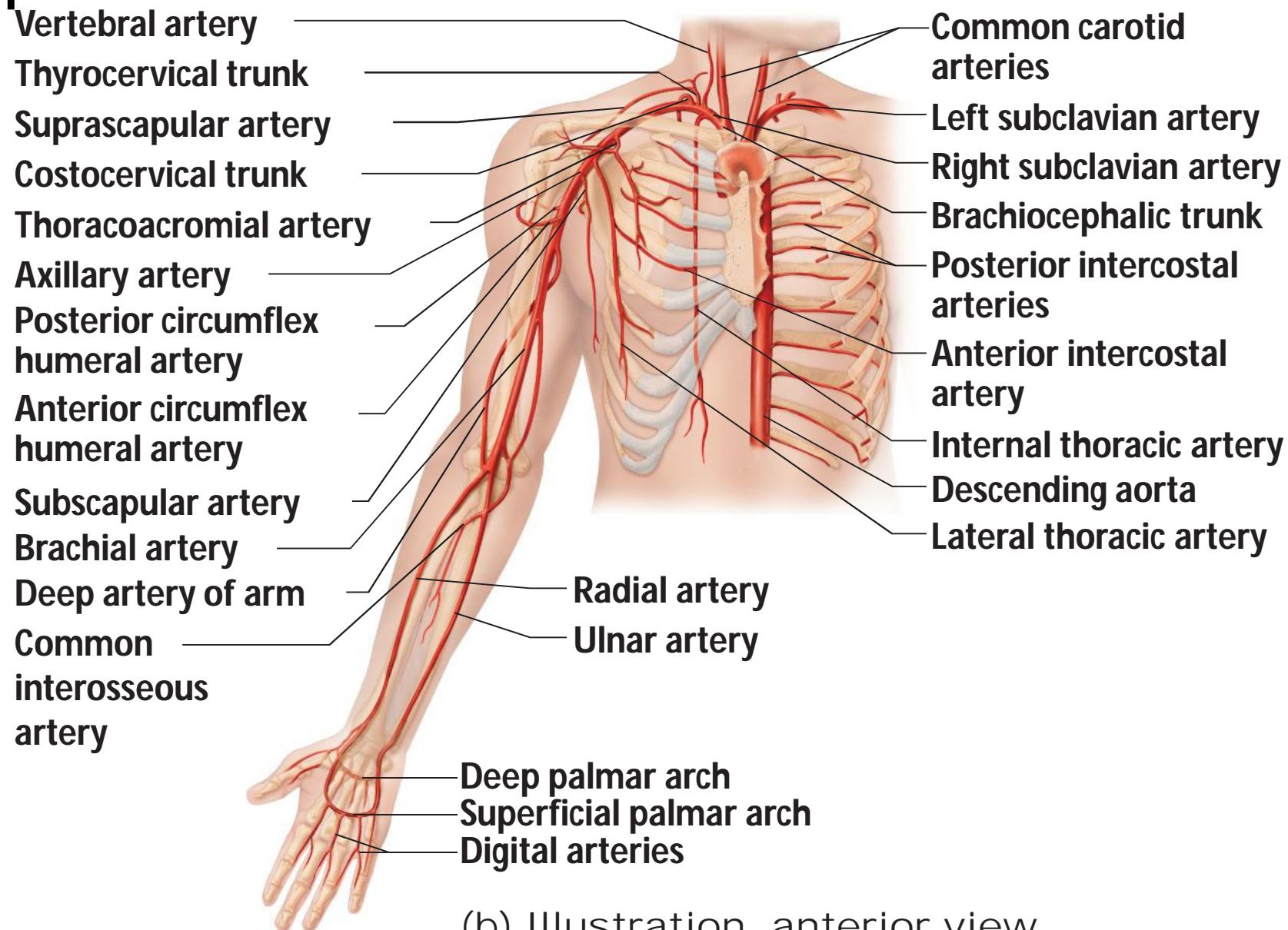


Figure 10.22b Arteries of the right upper limb



(b) Illustration, anterior view

Figure 19 24a Arteries of the abdomen

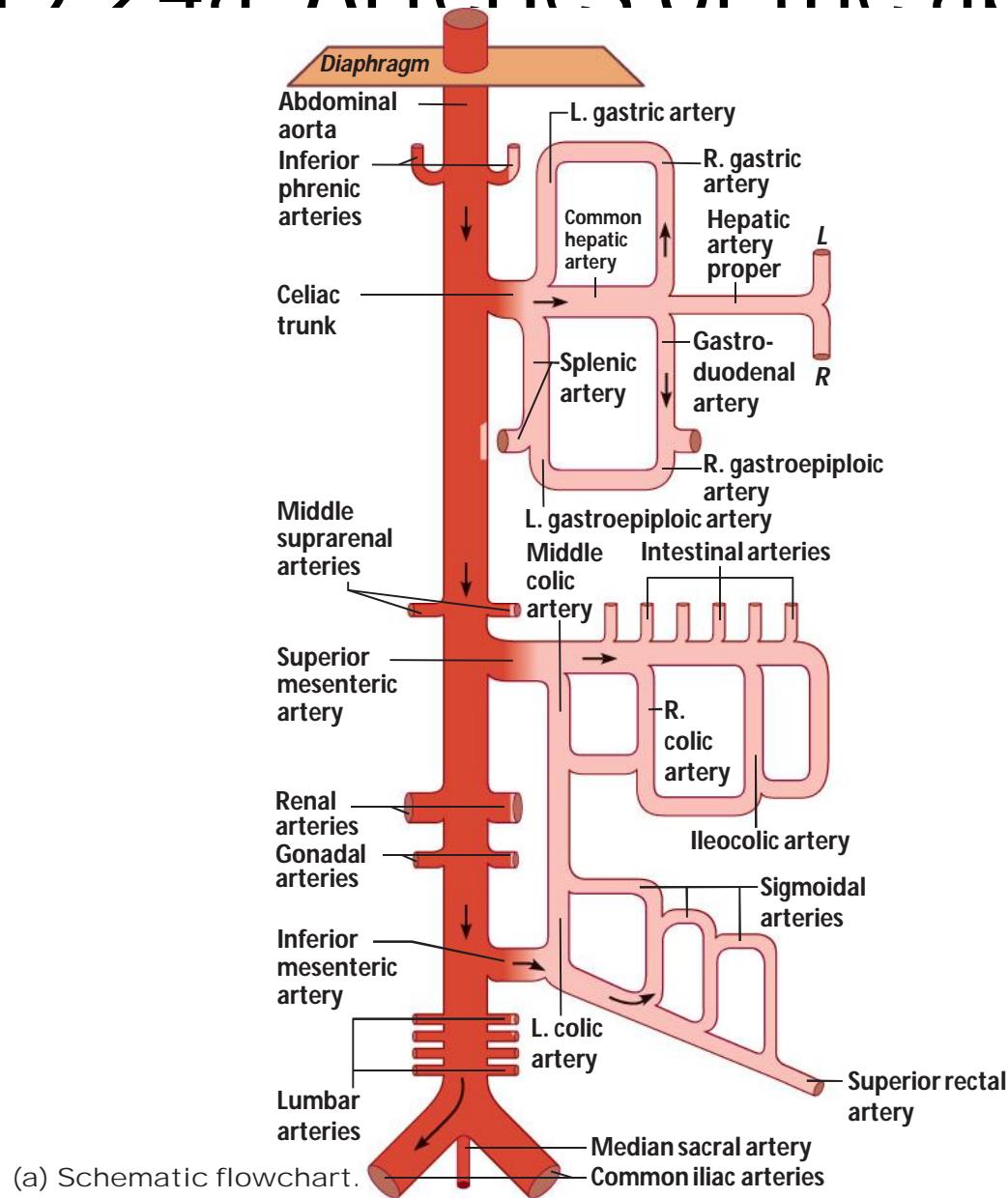
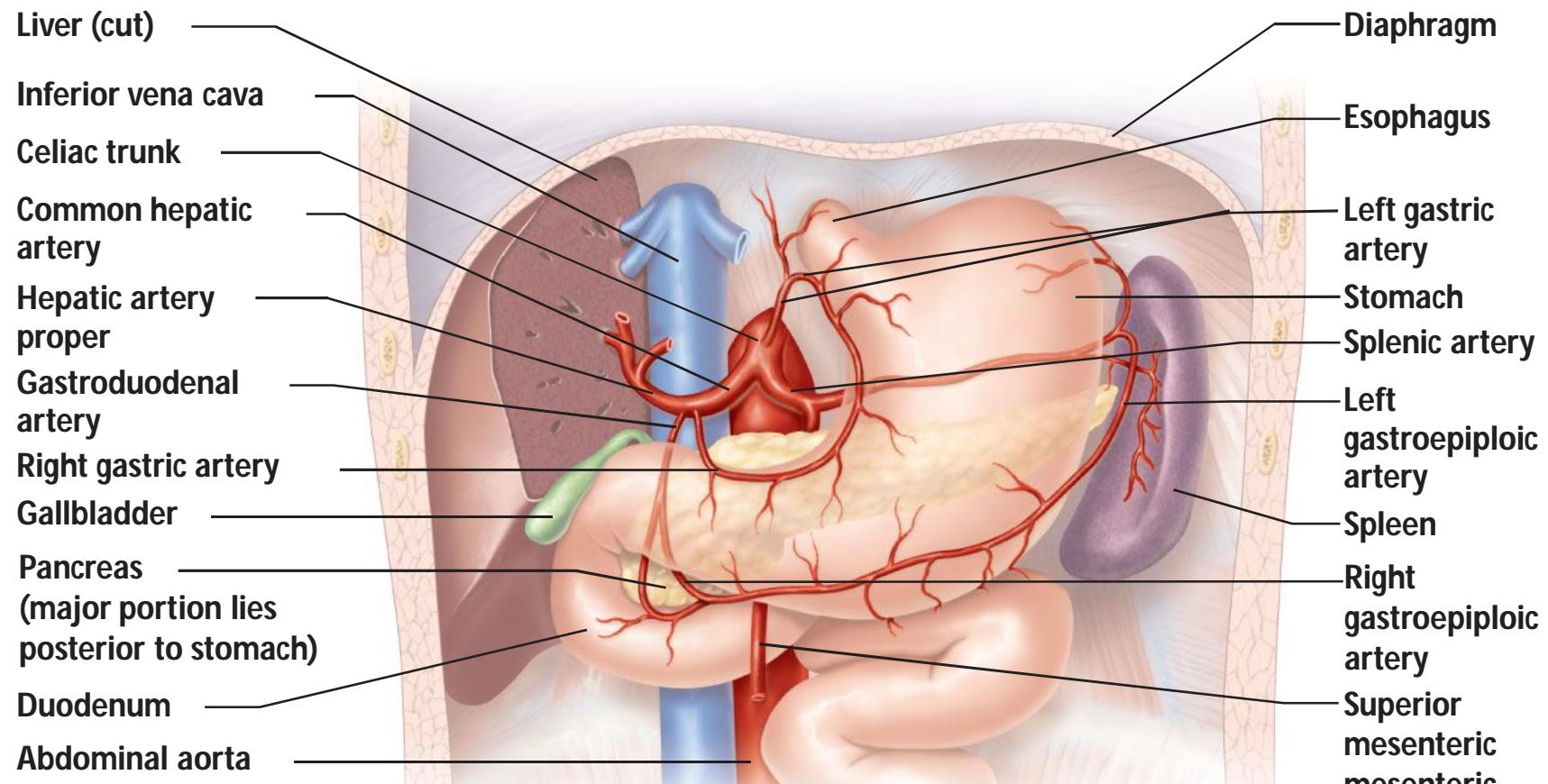
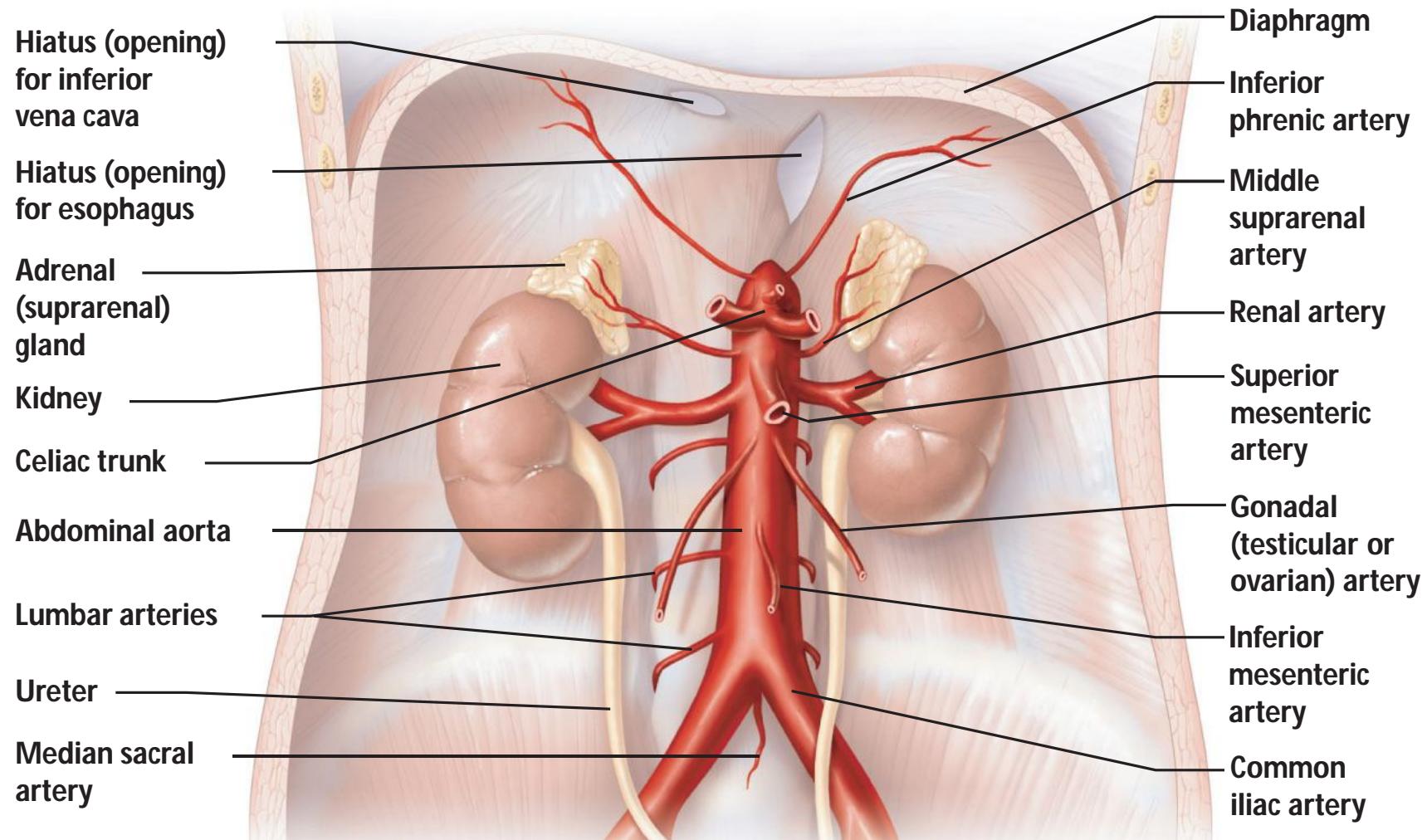


Figure 19.24b Arteries of the abdomen.



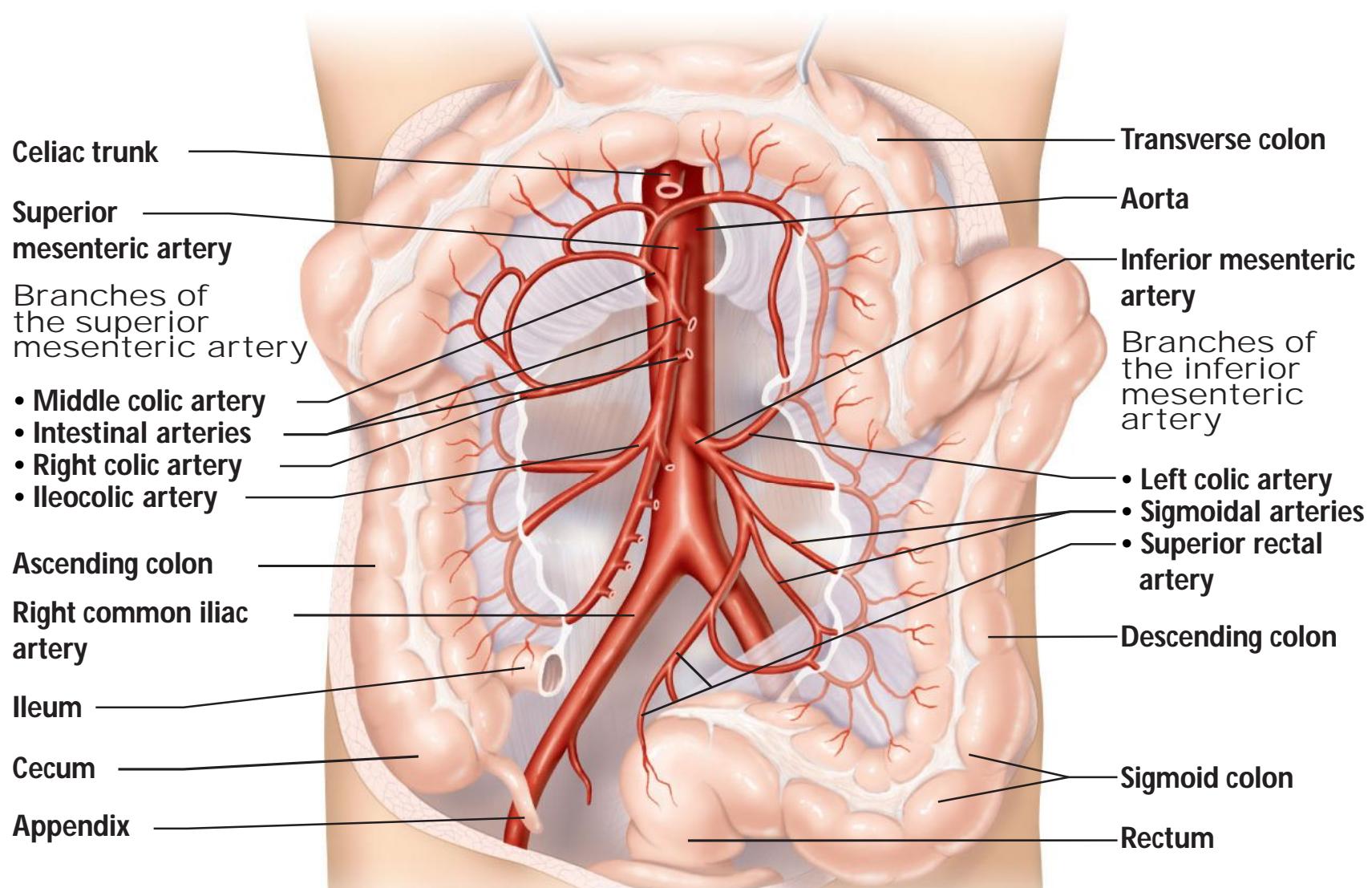
(b) The celiac trunk and its major branches. **The left half of the liver has been removed.**

Figure 10.24c Anterior view of the abdomen



(c) Major branches of the abdominal aorta.

Figure 10.24d Anterior view of the abdomen



(d) Distribution of the superior and inferior mesenteric arteries.
The transverse colon has been pulled superiorly.

Figure 10.25a Arteries of the right pelvis

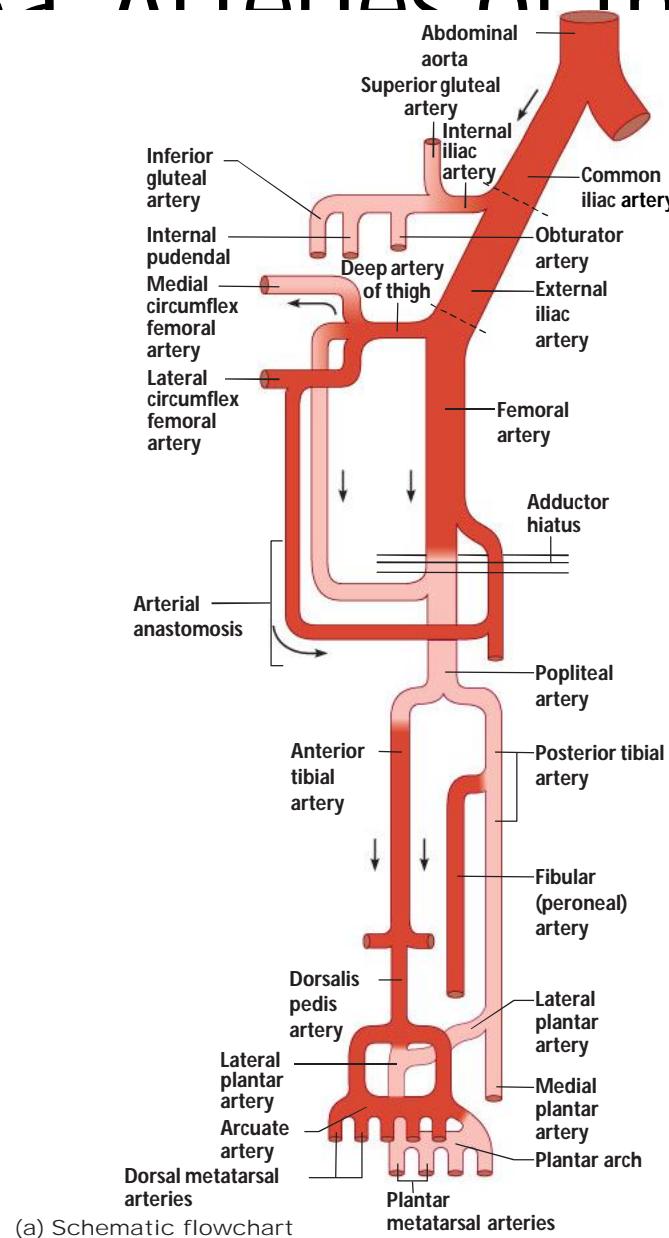


Figure 10.25b Arteries of the right pelvis

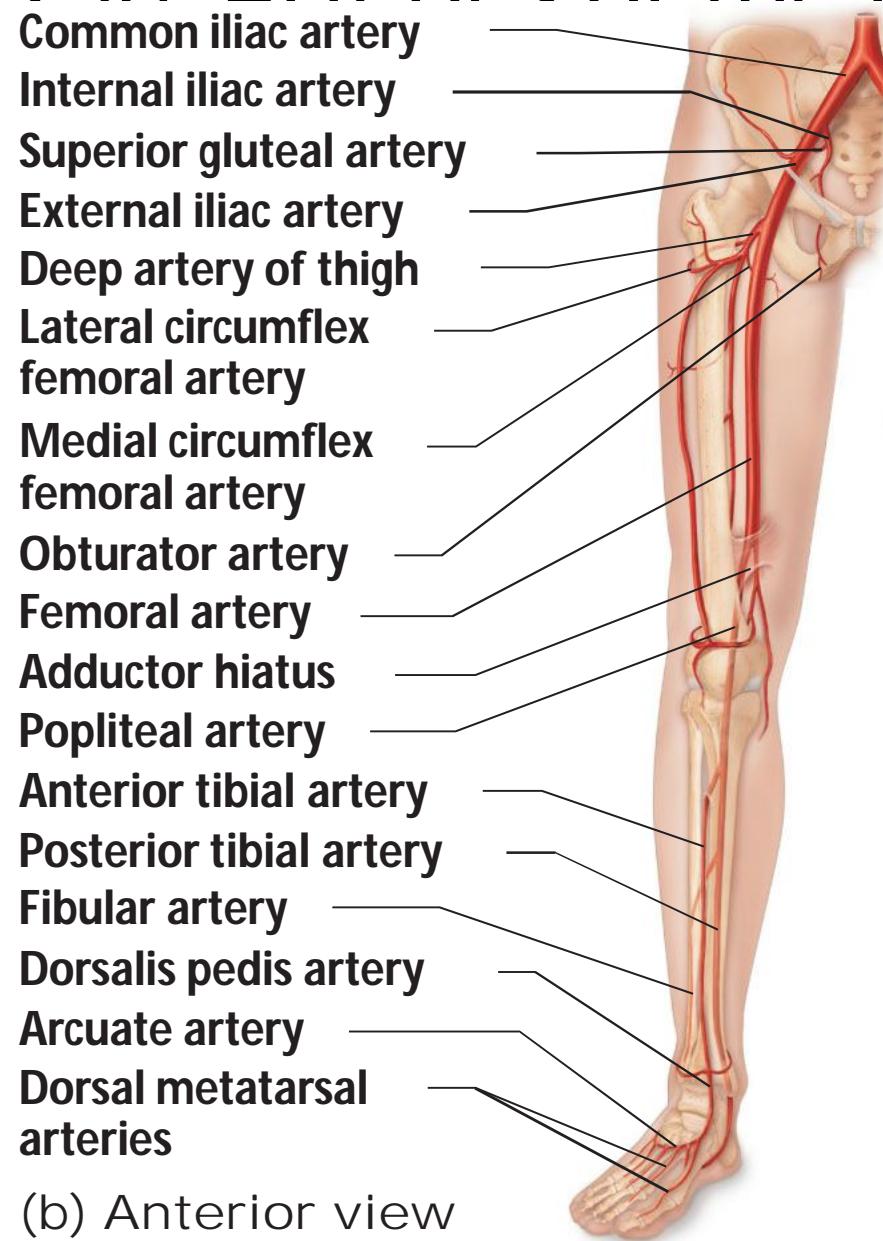


Figure 10.25c Arteries of the right pelvis

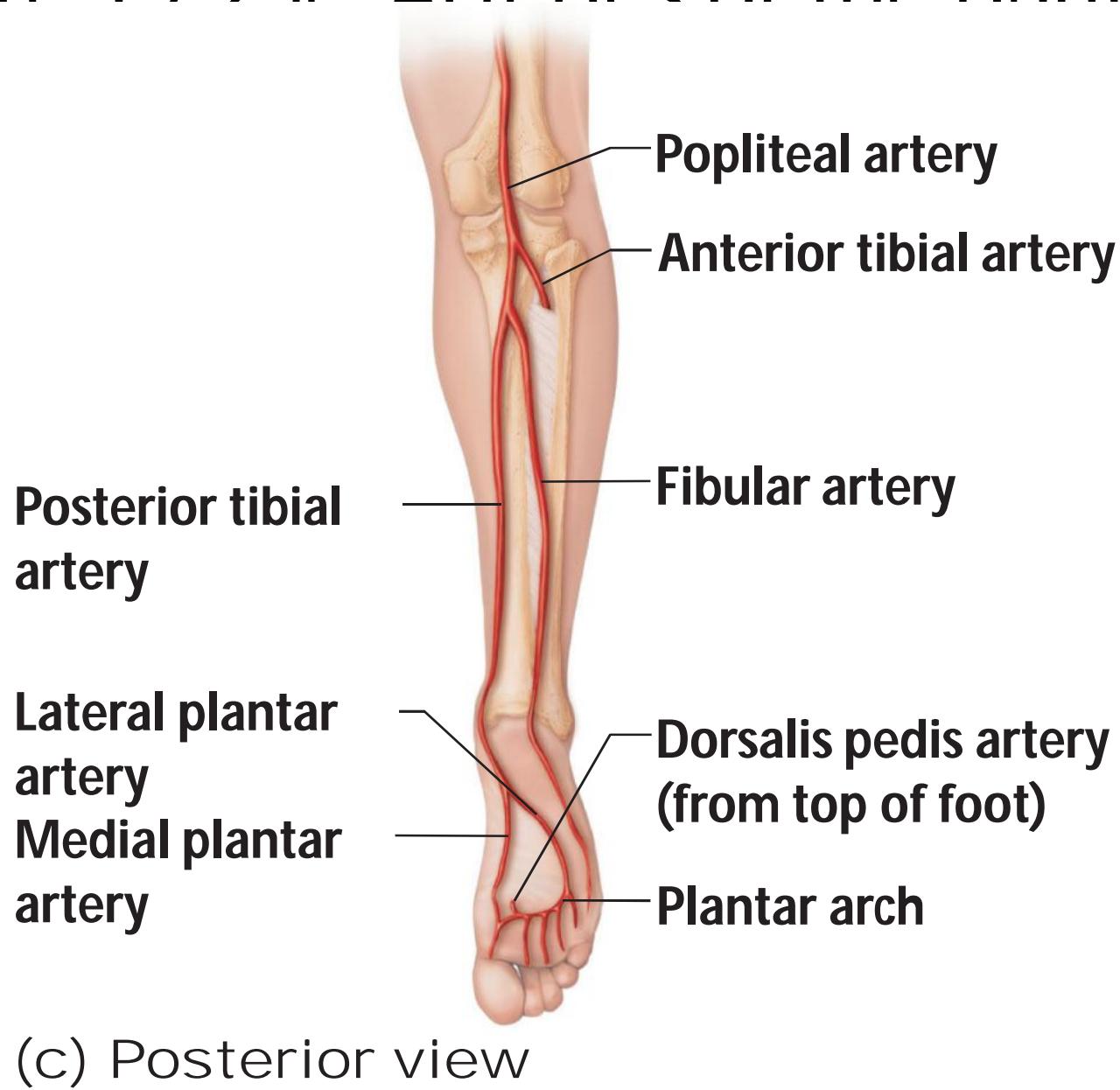


Figure 19.26a Major veins of the systemic

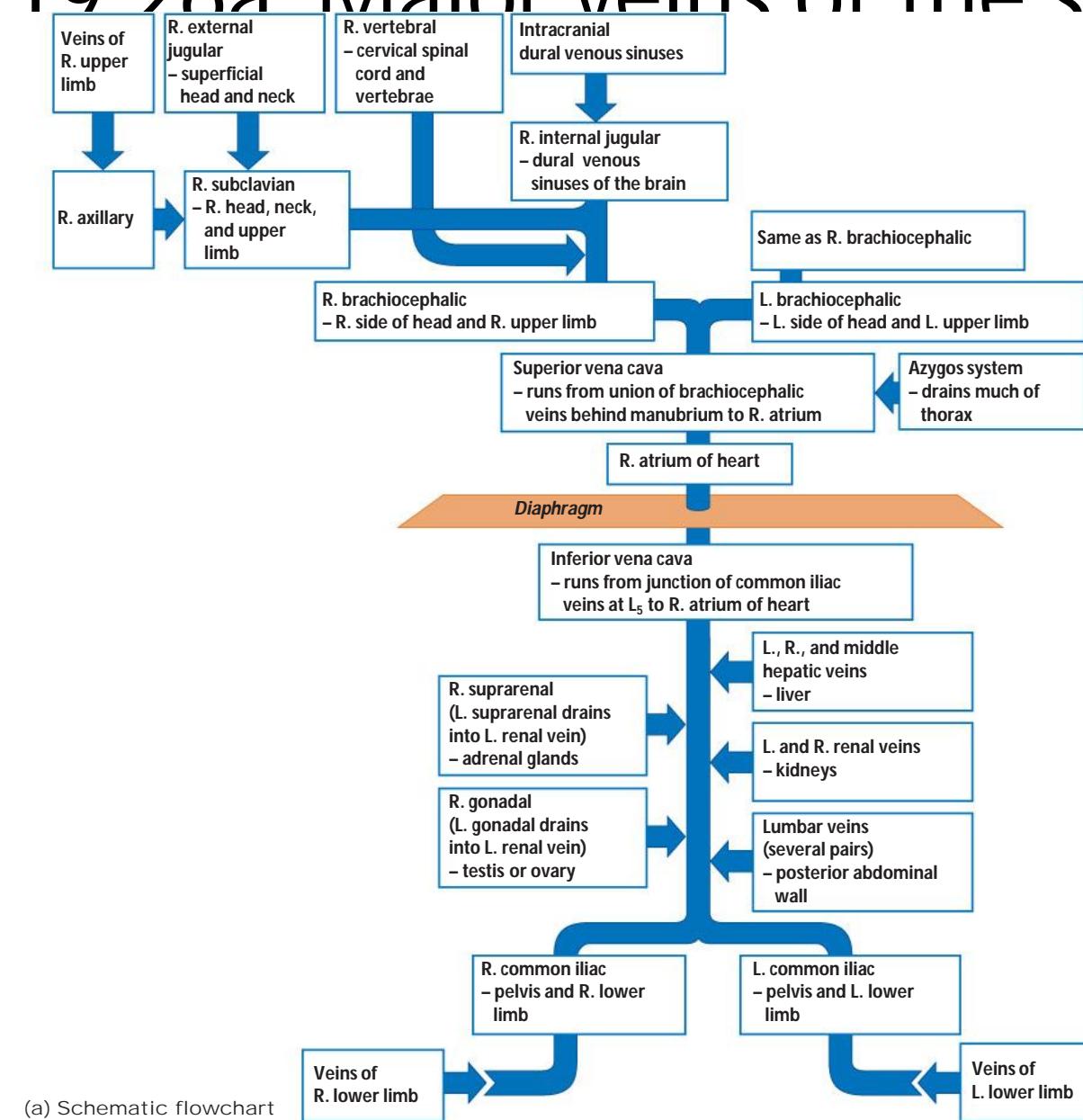


Figure 10.26b Major veins of the head and trunk

Dural venous sinuses

External jugular vein

Vertebral vein

Internal jugular vein

Right and left
brachiocephalic veins

Superior vena cava

Great cardiac vein

Hepatic veins

Splenic vein

Hepatic portal vein

Renal vein

Superior mesenteric
vein

Inferior vena cava

Inferior mesenteric vein

Common iliac vein

Internal iliac vein

(b) Illustration, anterior
view. **The vessels of the
pulmonary circulation
are not shown.**

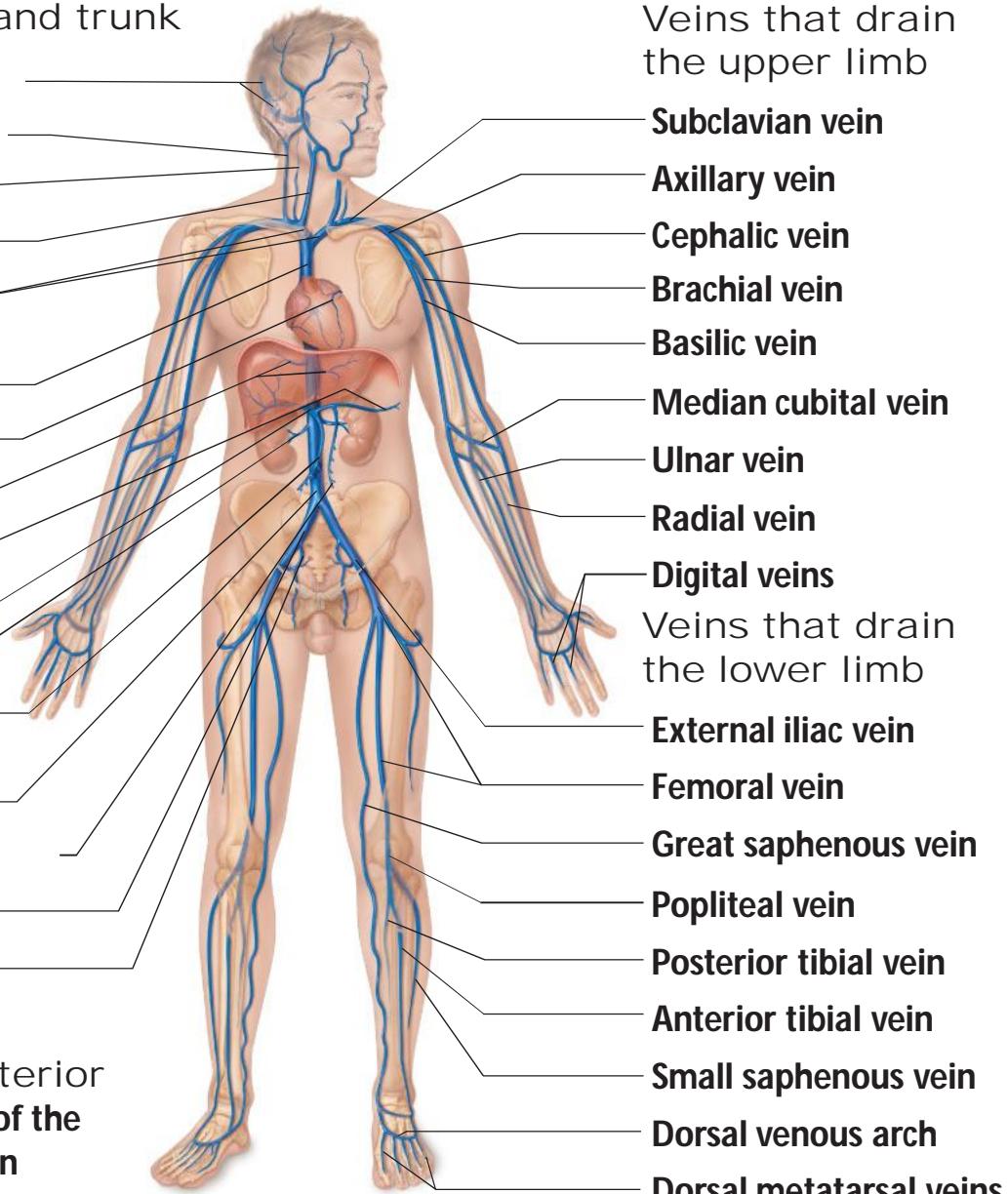


Figure 19 27a Venous drainage of the

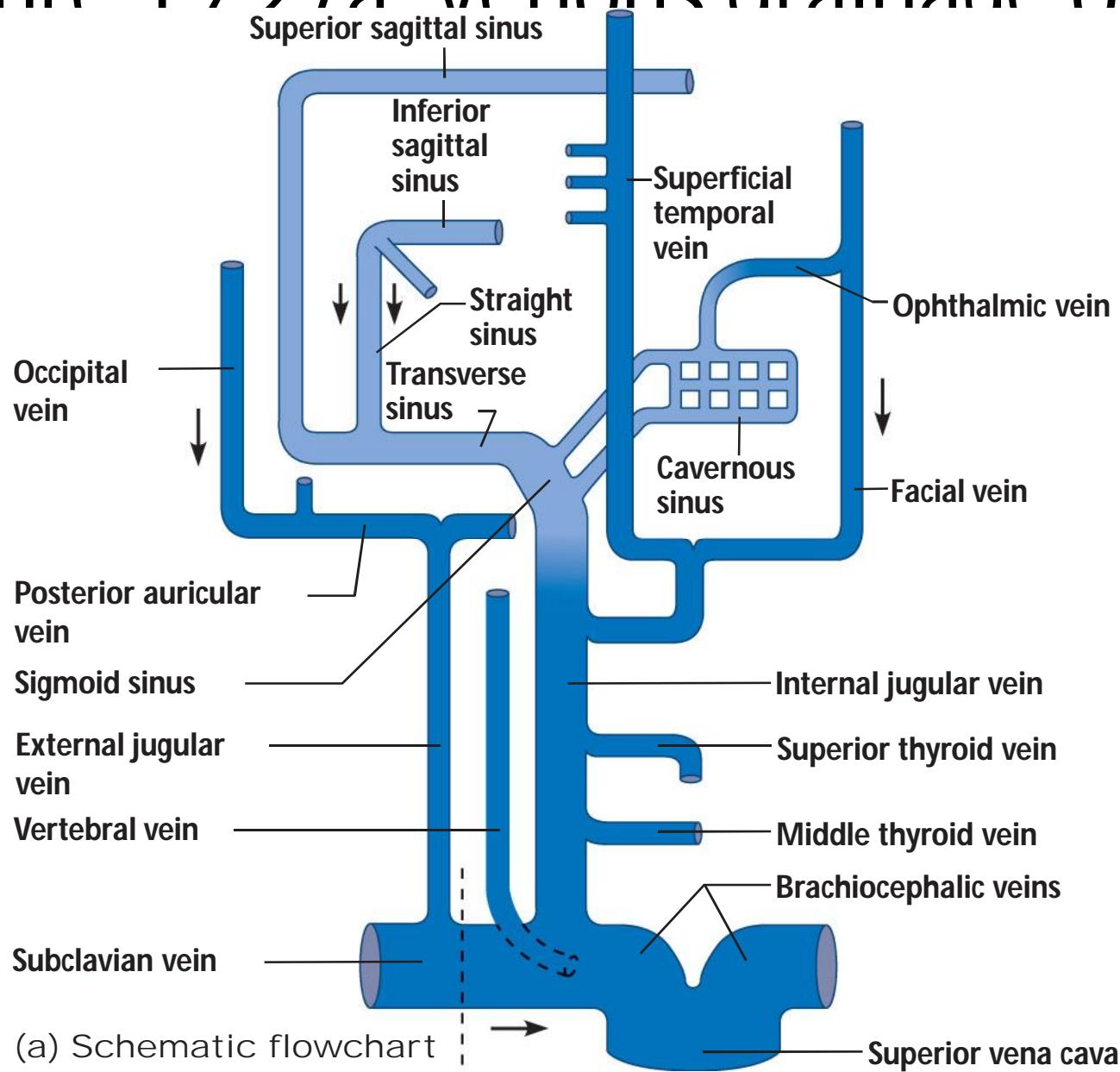
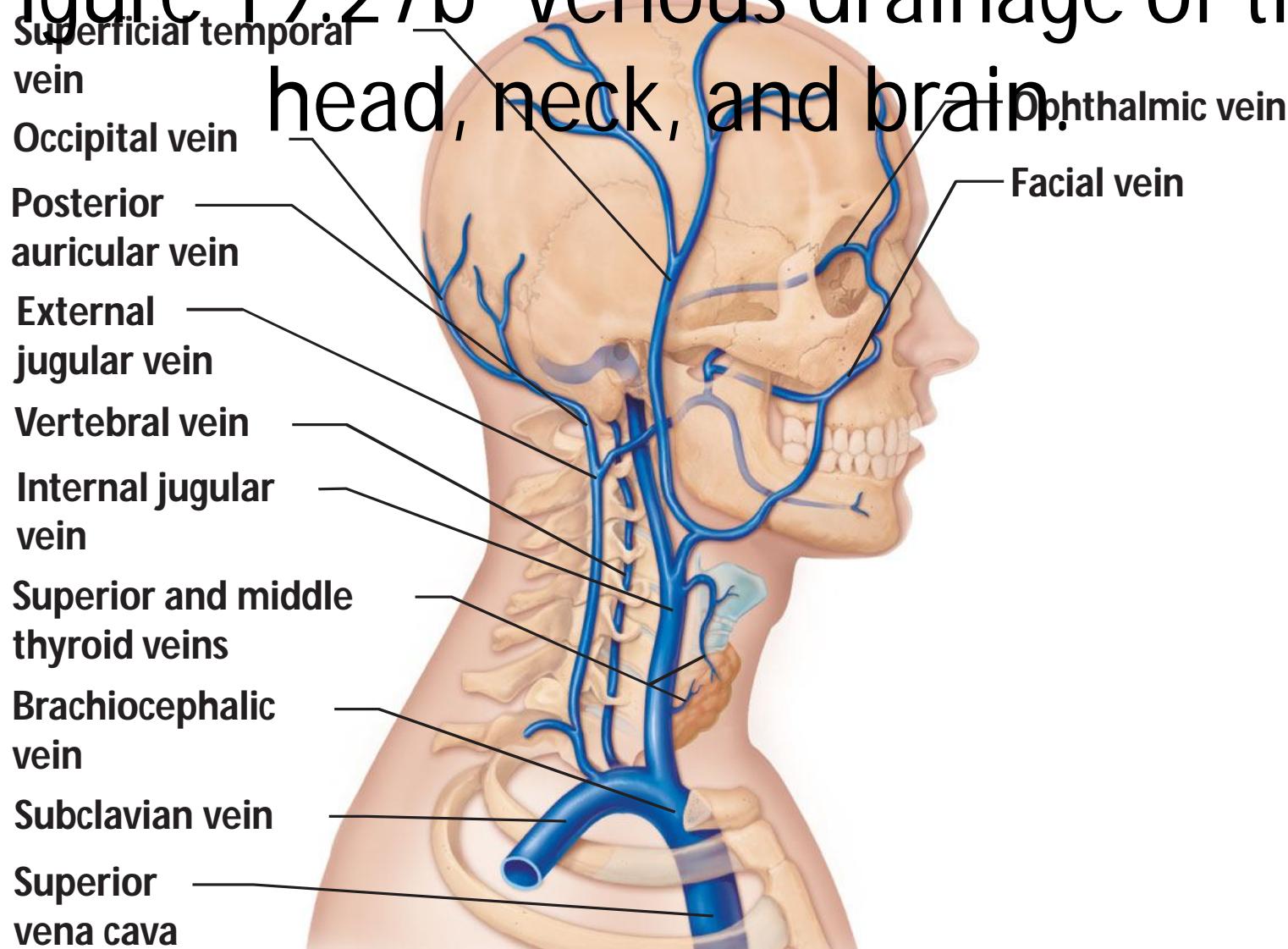


Figure 19.27b Venous drainage of the head, neck, and brain



(b) Veins of the head and neck, right superficial aspect

Figure 19 28a Veins of the thorax and

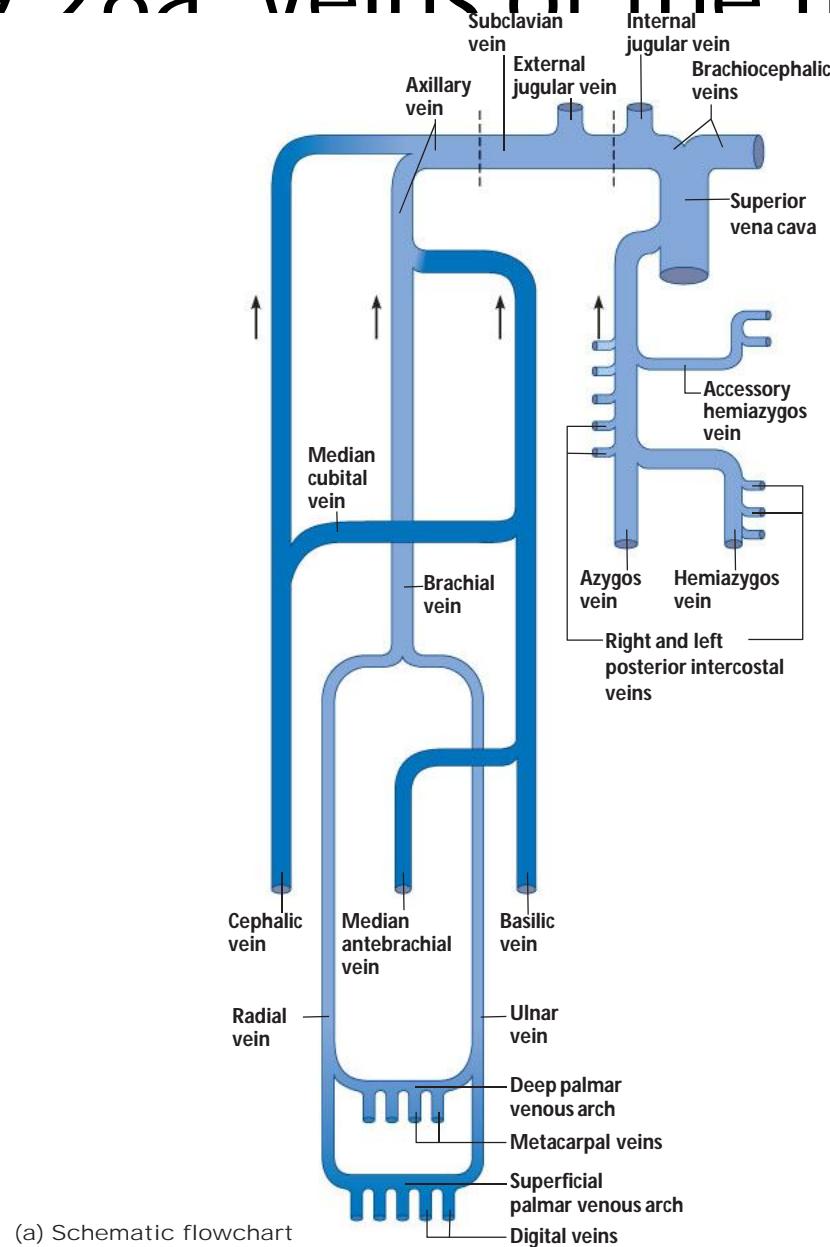


Figure 10.20b Veins of the thorax and

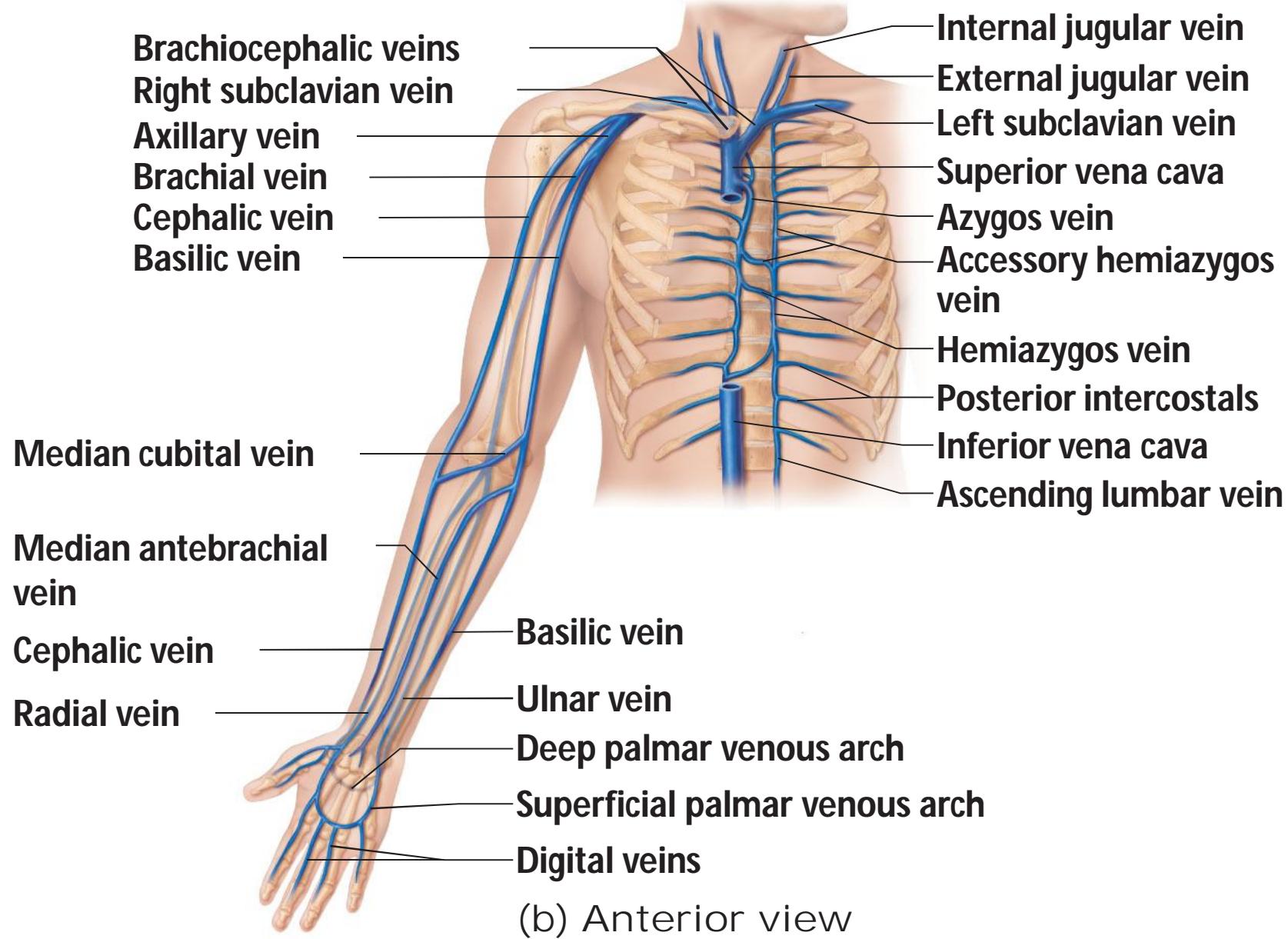


Figure 19 29a Veins of the abdomen

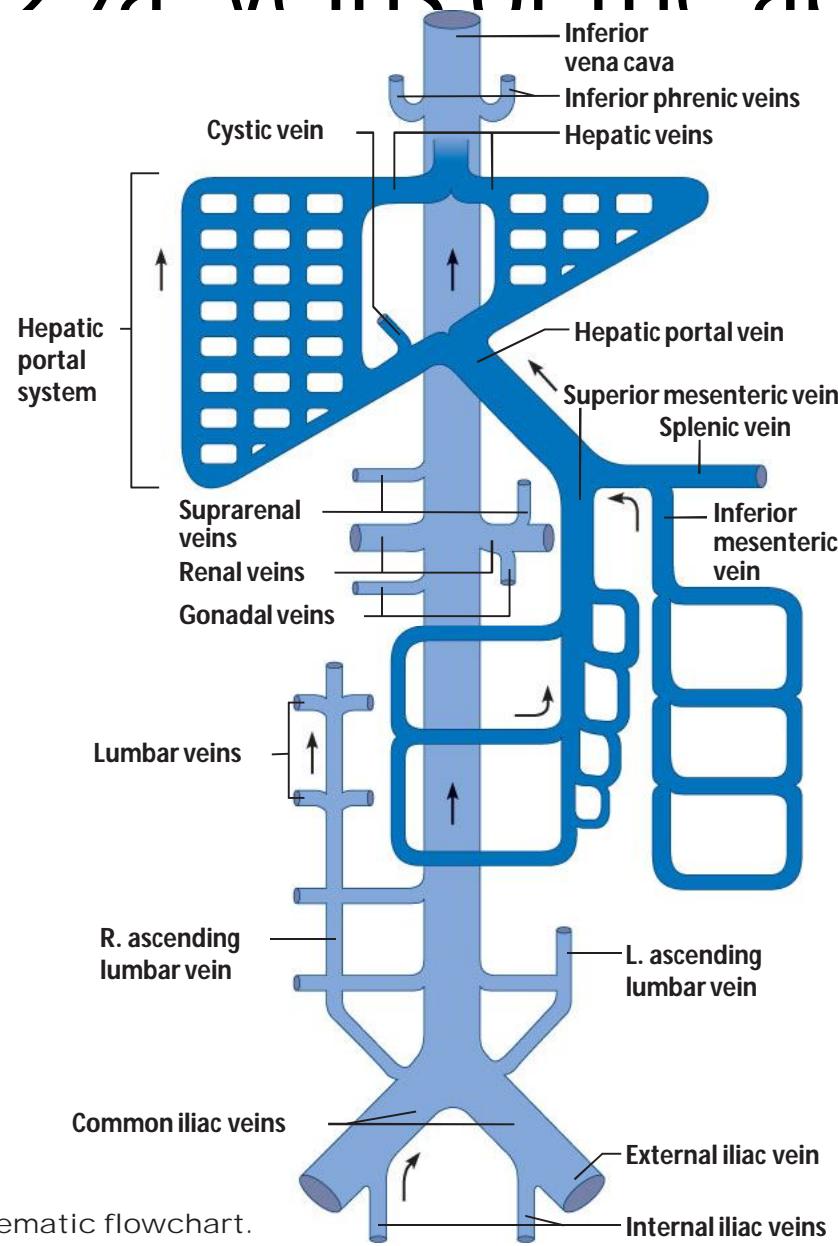
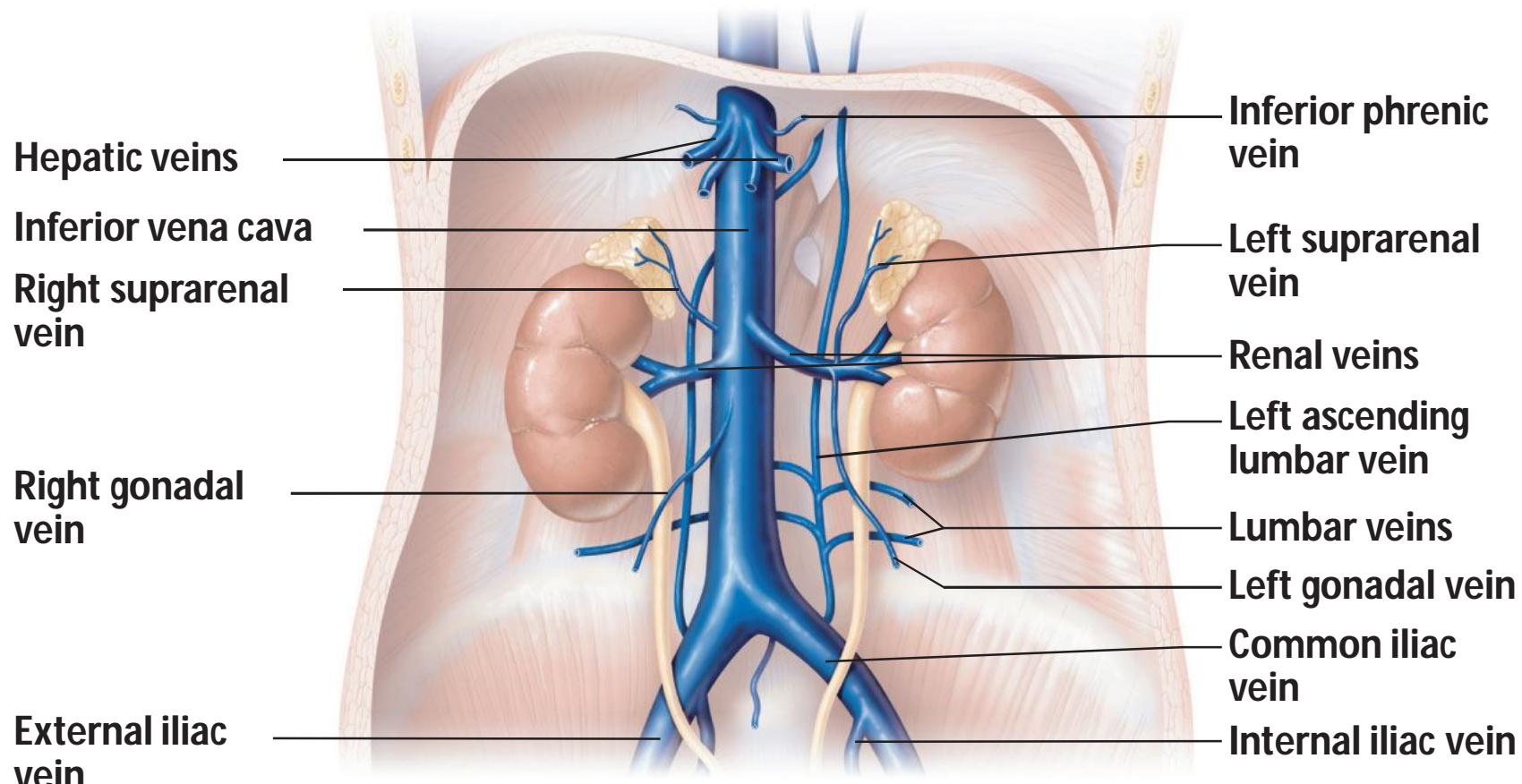
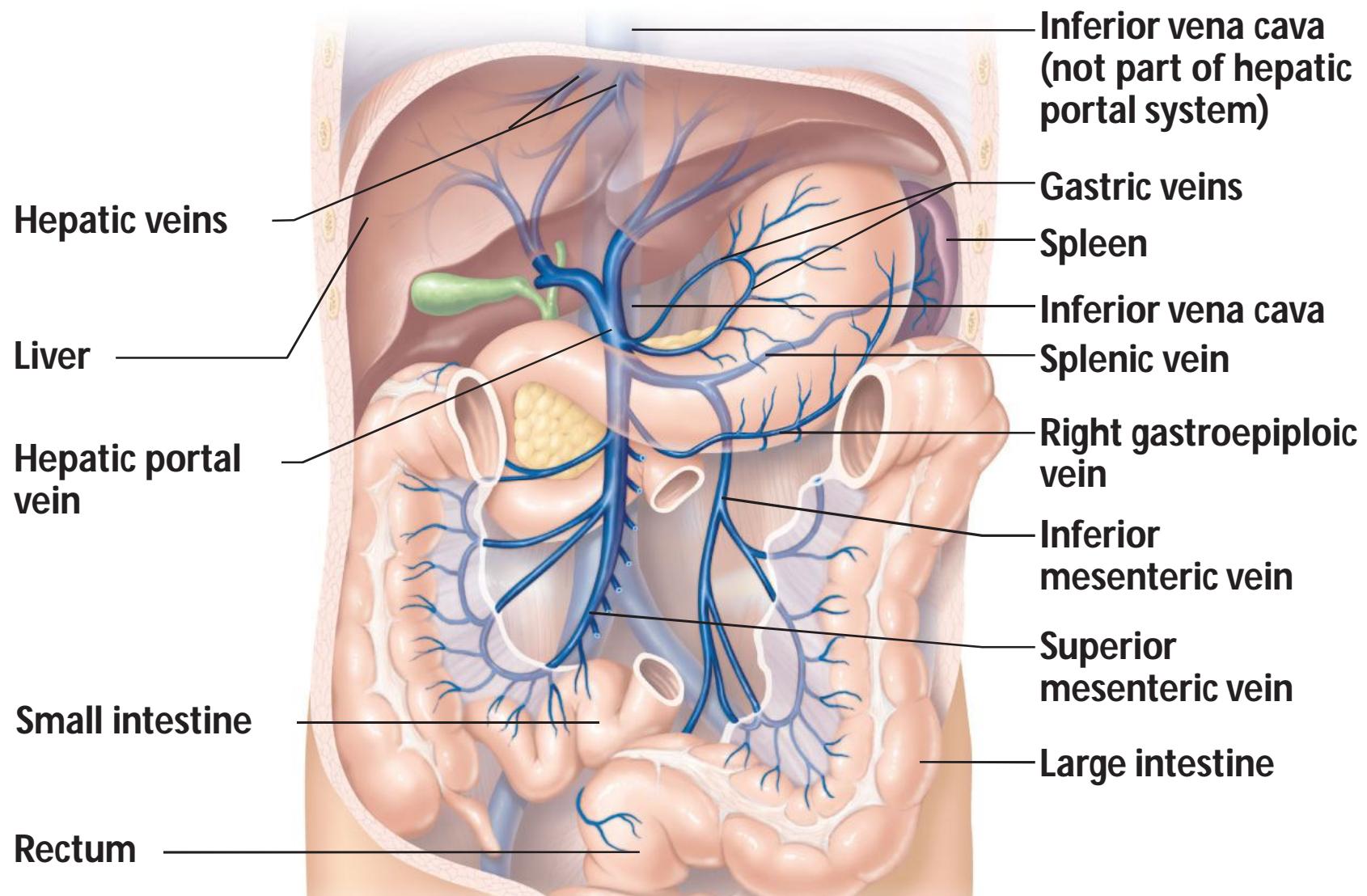


Figure 19.29b Veins of the abdomen.



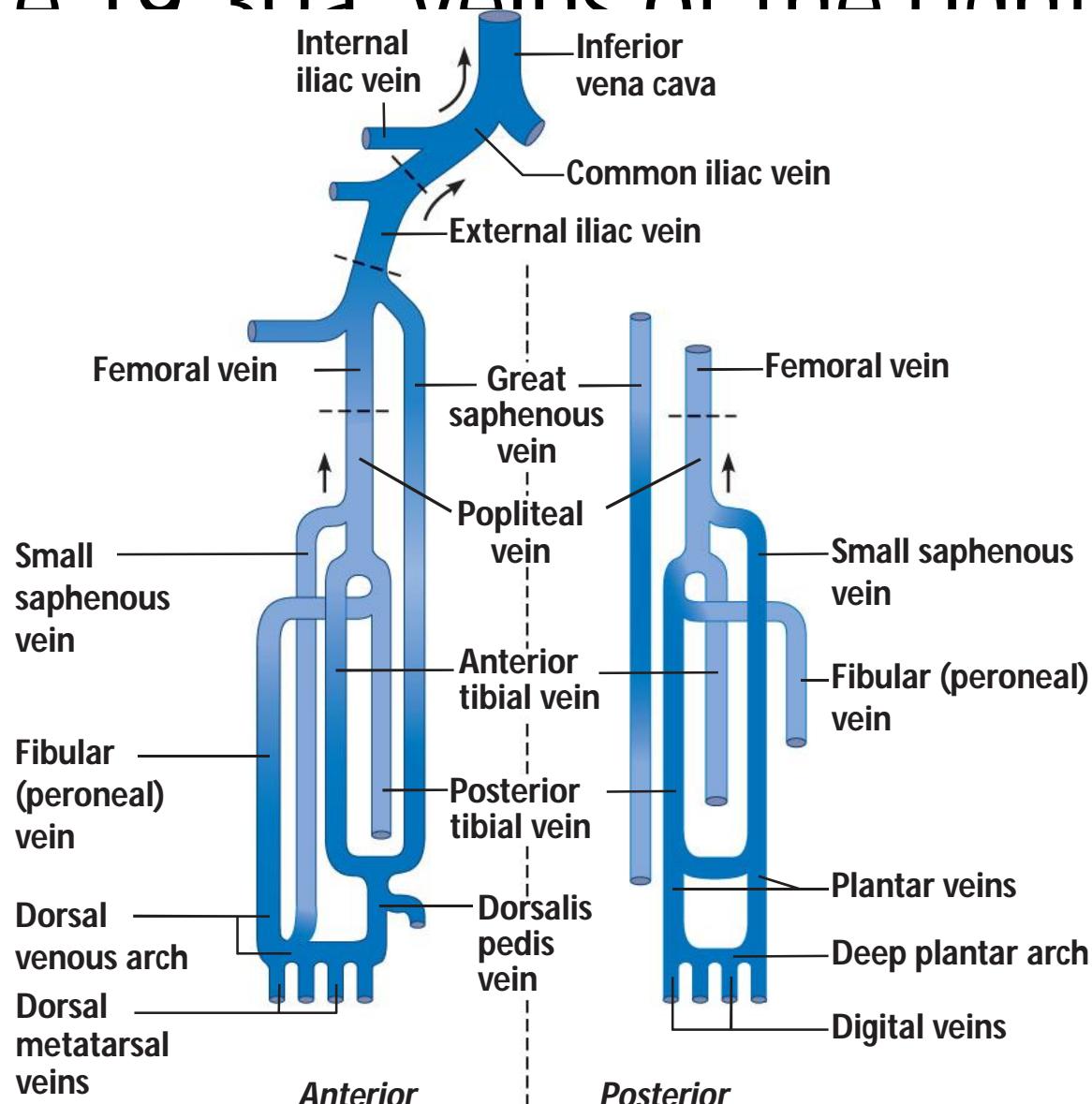
(b) Tributaries of the inferior vena cava. **Venous drainage of abdominal organs not drained by the hepatic portal vein.**

Figure 10.20c Veins of the abdomen



(c) The hepatic portal circulation.

Figure 10.20a Veins of the right lower limb



(a) Schematic flowchart of the anterior and posterior veins

Figure 19.30b Veins of the right lower

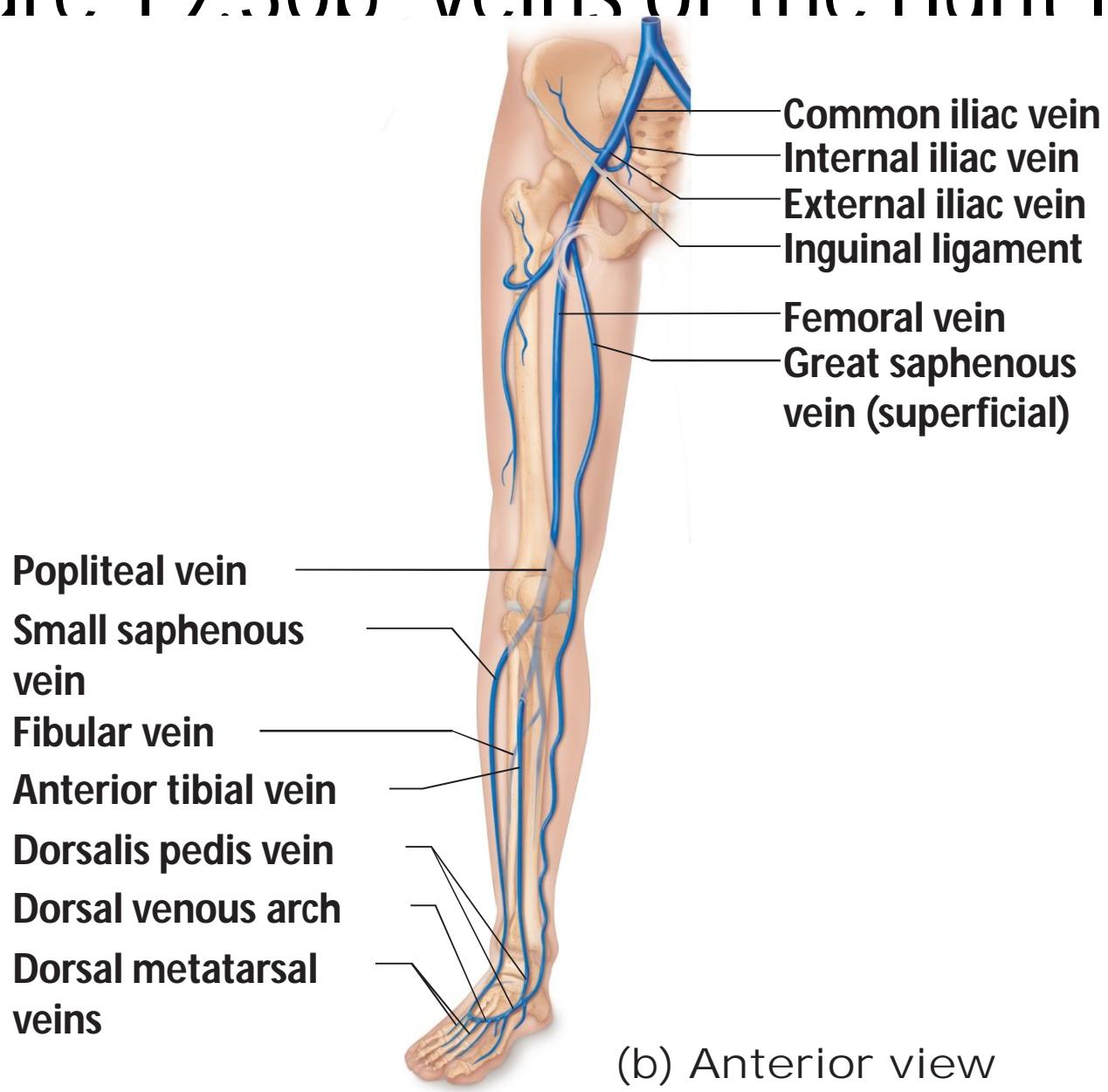


Figure 19.30c Veins of the right lower

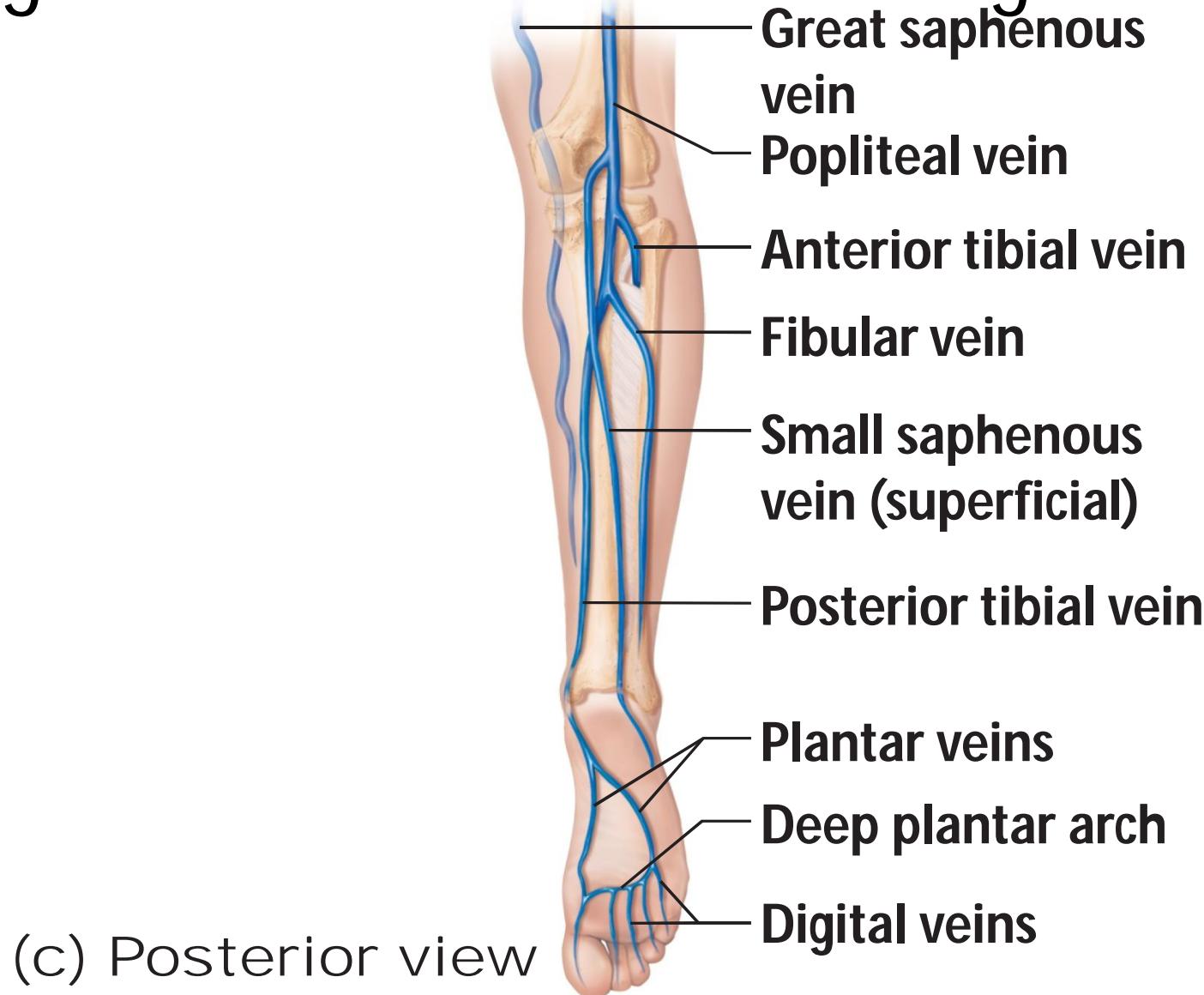
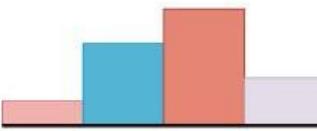
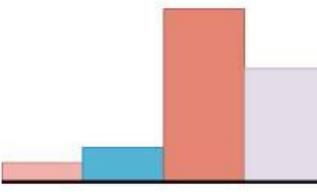


TABLE 19.1

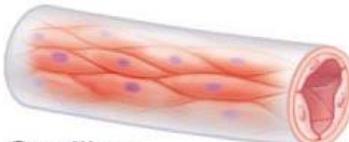
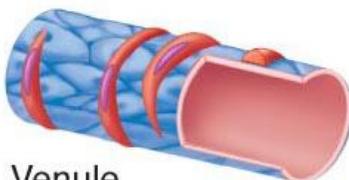
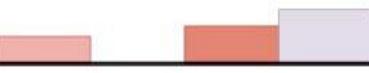
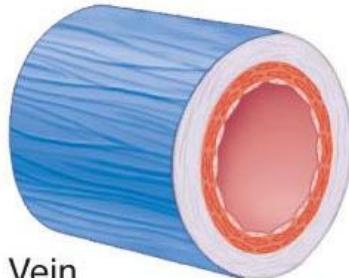
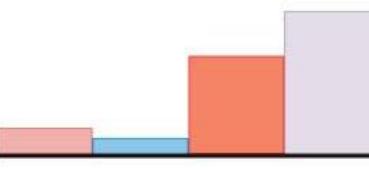
Summary of Blood Vessel Anatomy

VESSEL TYPE/ ILLUSTRATION*	AVERAGE LUMEN DIAMETER (D) AND WALL THICKNESS (T)	RELATIVE TISSUE MAKEUP			
		<i>Endothelium</i>	<i>Elastic Tissues</i>	<i>Smooth Muscles</i>	<i>Fibrous (Collagenous) Tissues</i>
Elastic artery	D : 1.5 cm T : 1.0 mm				
Muscular artery	D : 6.0 mm T : 1.0 mm				
Arteriole	D : 37.0 µm T : 6.0 µm				

*Size relationships are not proportional. Smaller vessels are drawn relatively larger so detail can be seen. See column 2 for actual dimensions.

TABLE 19.1

Summary of Blood Vessel Anatomy

VESSEL TYPE/ ILLUSTRATION*	AVERAGE LUMEN DIAMETER (D) AND WALL THICKNESS (T)	RELATIVE TISSUE MAKEUP			
		<i>Endothelium</i>	<i>Elastic Tissues</i>	<i>Smooth Muscles</i>	<i>Fibrous (Collagenous) Tissues</i>
	D : 9.0 µm T : 0.5 µm				
	D : 20.0 µm T : 1.0 µm				
	D : 5.0 mm T : 0.5 mm				

*Size relationships are not proportional. Smaller vessels are drawn relatively larger so detail can be seen. See column 2 for actual dimensions.

Table 19.2 Influence of Selected Hormones on Variables Affecting Blood Pressure

TABLE 19.2

Influence of Selected Hormones on Variables Affecting Blood Pressure

HORMONE	EFFECT ON BP	EFFECT ON VARIABLE	SITE OF ACTION
Epinephrine and norepi-nephrine (NE)	↑	↑ CO (HR and contractility)	Heart (β_1 receptors)
		↑ Peripheral resistance (vasoconstriction)	Arterioles (α receptors)
Angiotensin II	↑	↑ Peripheral resistance (vasoconstriction)	Arterioles
Atrial natriuretic peptide (ANP)	↓	↓ Peripheral resistance (vasodilation)	Arterioles
		↓ Blood volume (\uparrow water and salt loss)	Kidney tubule cells
Antidiuretic hormone (ADH)	↑	↑ Peripheral resistance (vasoconstriction)	Arterioles
Aldosterone	↑	↑ Blood volume (\downarrow water and salt loss)	Kidney tubule cells
Cortisol	↑	↑ Blood volume (\downarrow water and salt loss)	Kidney tubule cells