

FRANK H. NETTER, MD

Atlas of
**Human
Anatomy**

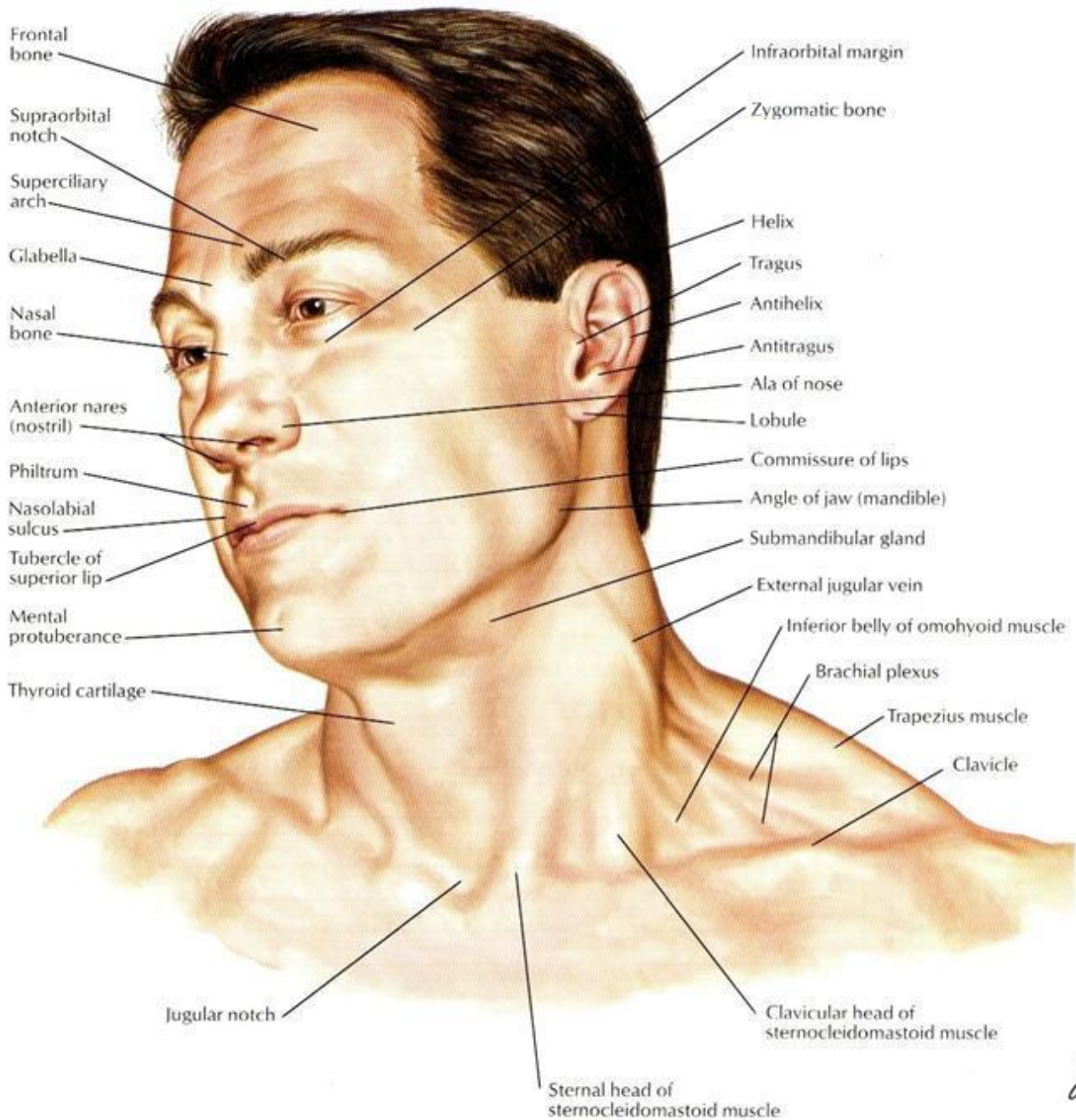
4th Edition

International Edition

*F. Netter
M.D.*

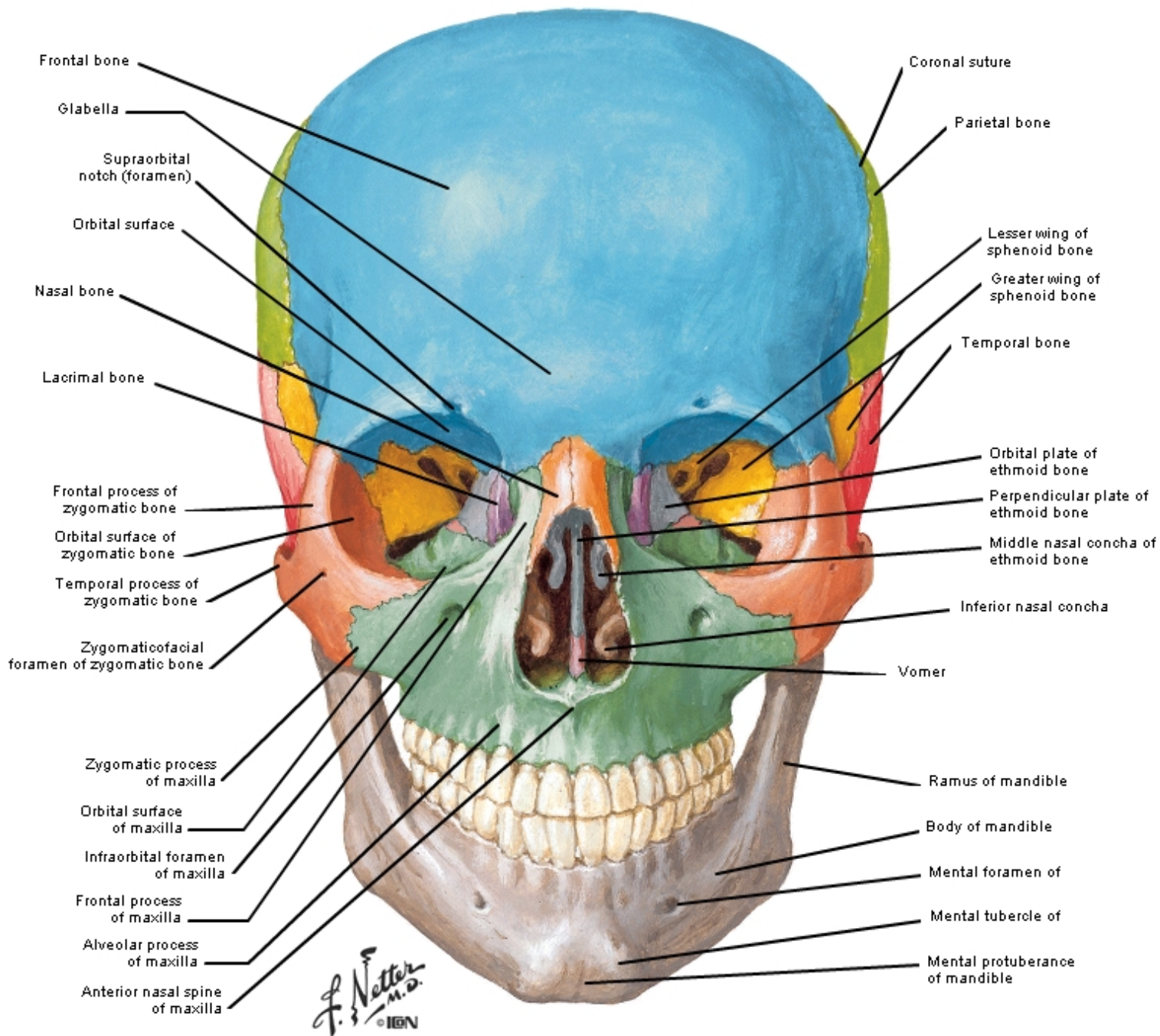
Section 1 Head and Neck

Head and Neck

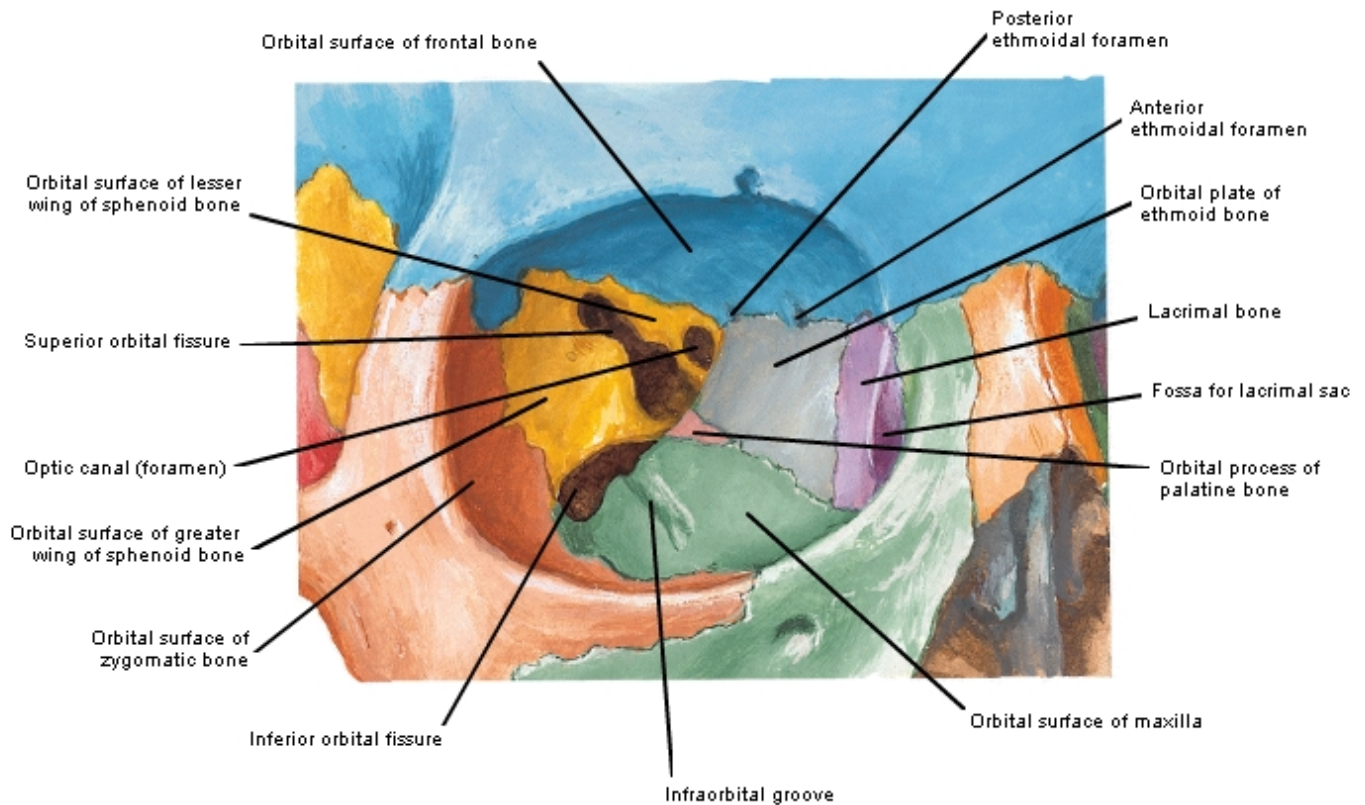


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Skull: Anterior View

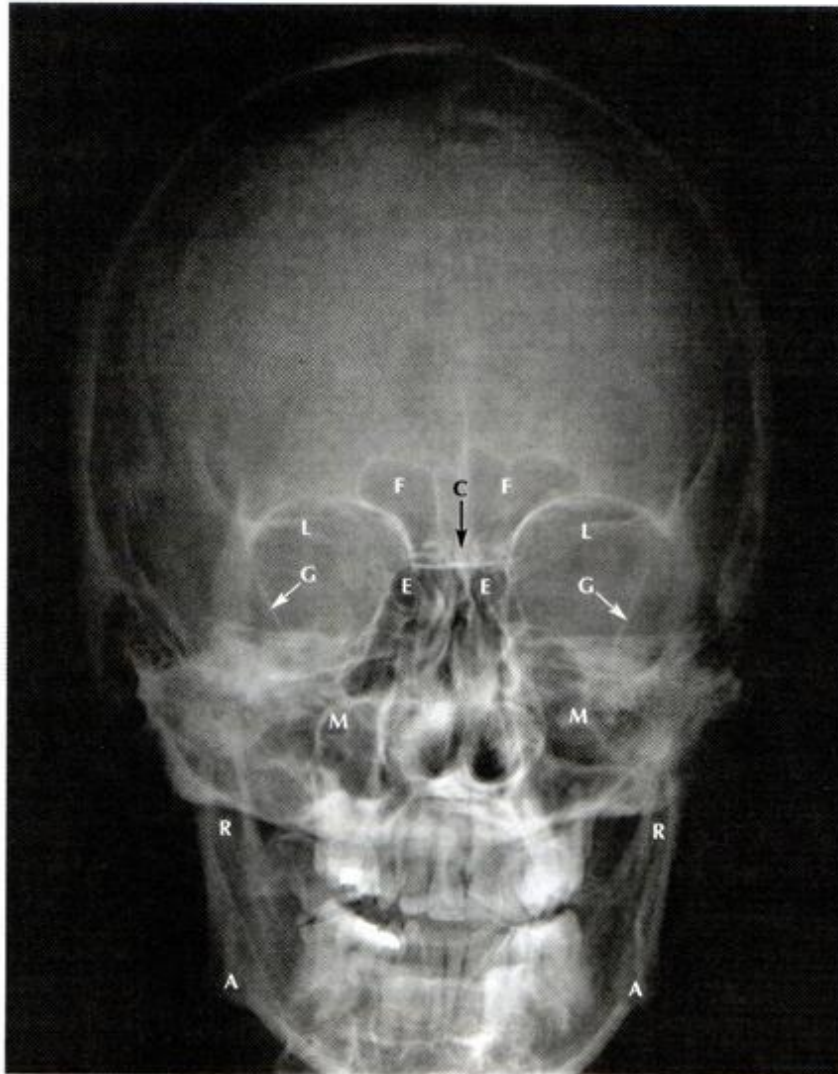


Skull: Anterior View Right Orbit: Frontal and Slightly Lateral View



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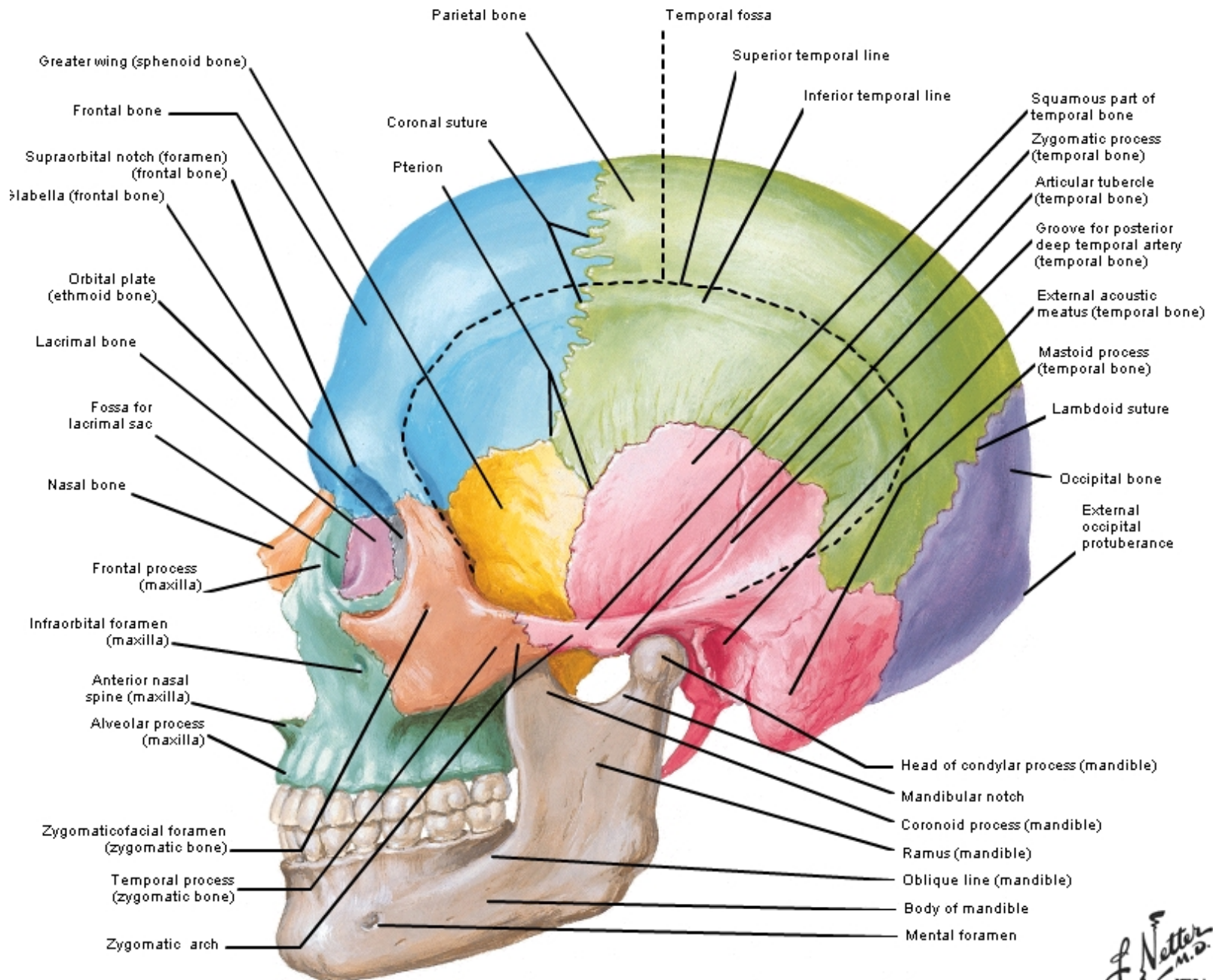
Skull: Anteroposterior Radiograph



- A Angle of mandible
- C Crista galli
- E Ethmoid air cells (sinuses)
- F Frontal sinus
- G Greater wing of sphenoid
- L Lesser wing of sphenoid
- M Maxillary sinus
- R Ramus of mandible

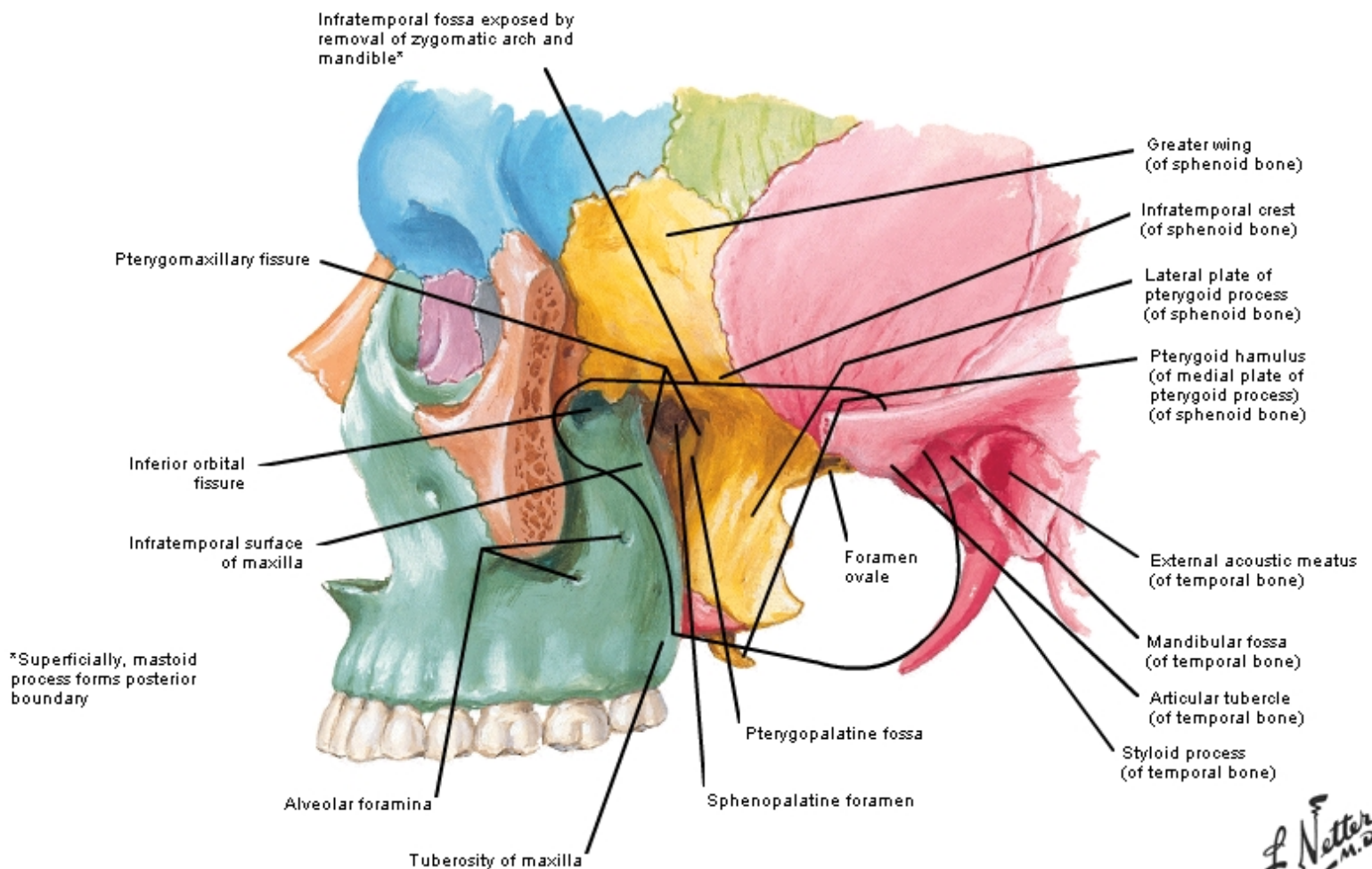
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Skull Lateral View

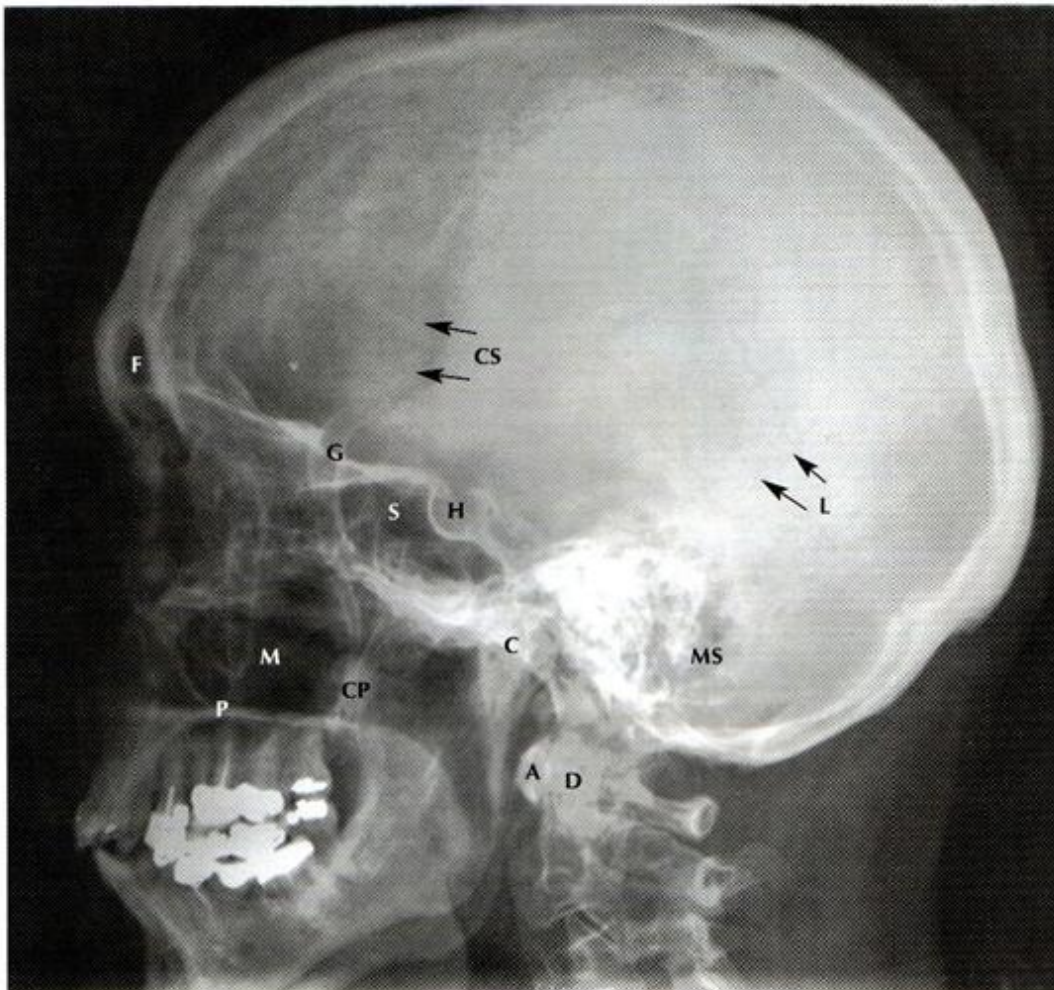


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Skull - Infratemporal Fossa Exposed Lateral View



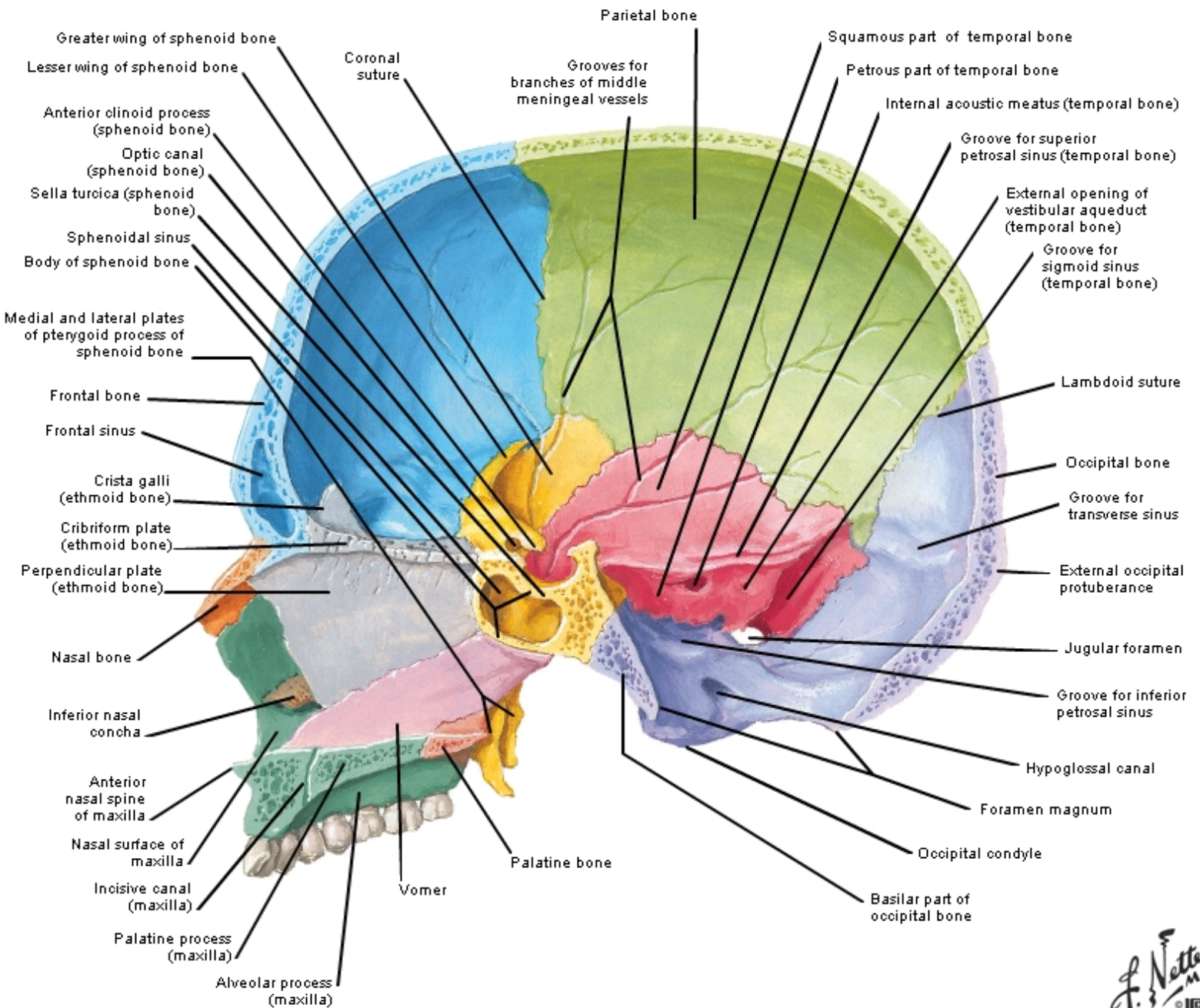
Skull: Lateral Radiograph



- | | | | |
|----|--------------------------------------|----|-----------------------------------|
| A | Anterior arch of atlas (C1 vertebra) | G | Greater wing of sphenoid |
| C | Condyle of mandible | H | Hypophyseal fossa (sella turcica) |
| CP | Coronoid process of mandible | L | Lambdoid suture |
| CS | Coronal suture | M | Maxillary sinus |
| D | Dens of axis (C2 vertebra) | MS | Mastoid air cells |
| F | Frontal sinus | P | Palatine process of maxilla |
| | | S | Sphenoid sinus |

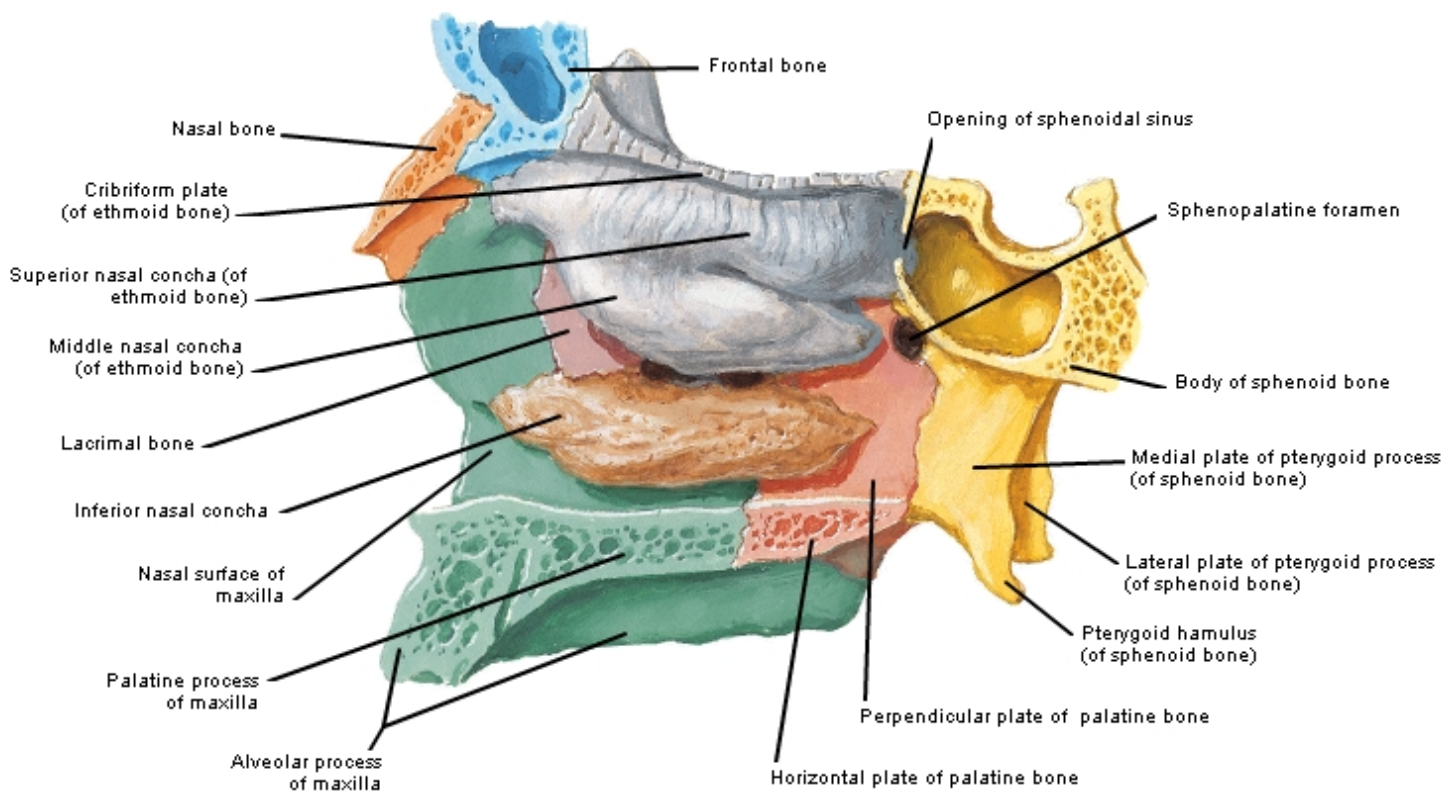
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Skull Midsagittal Section

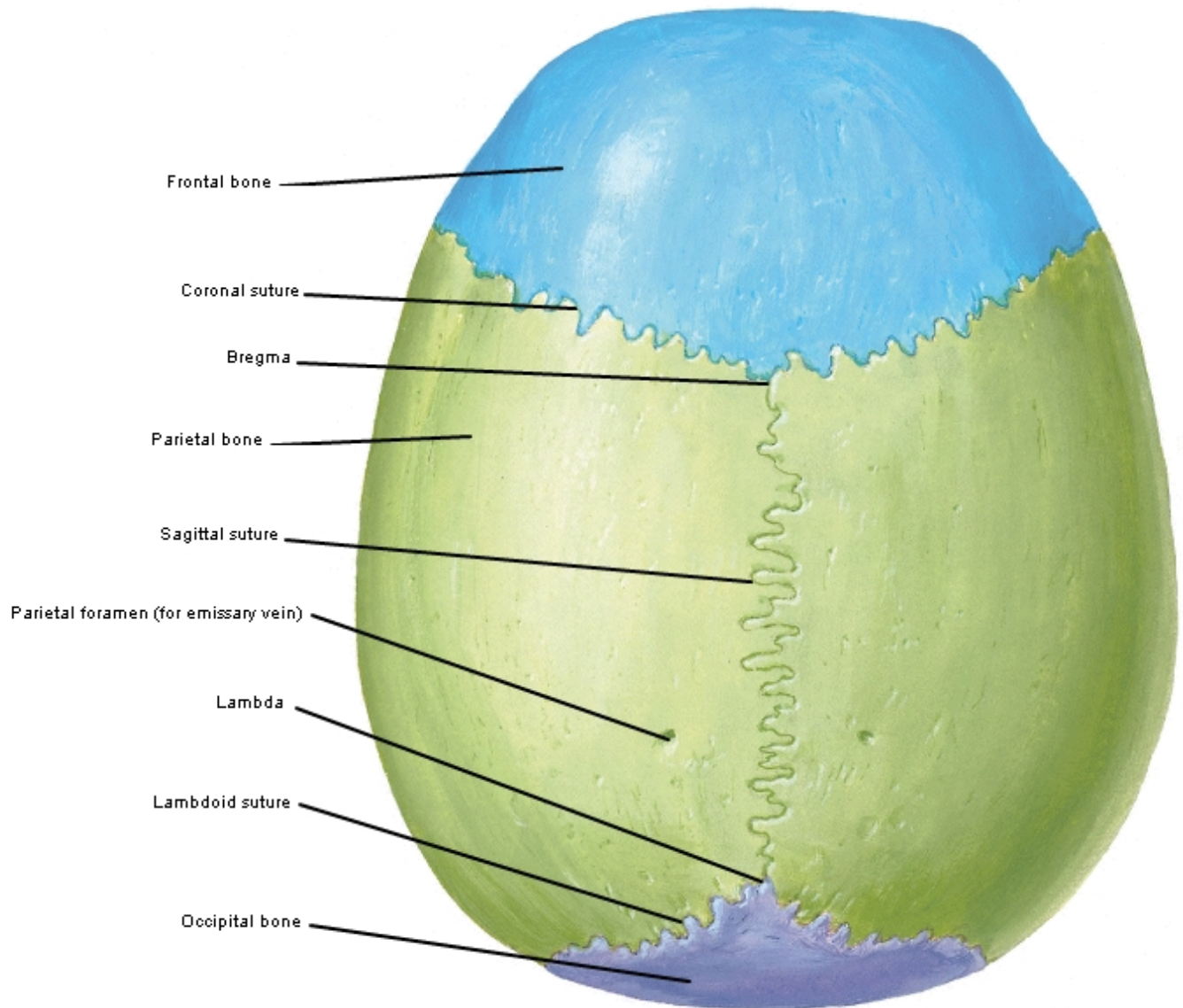


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Skull - Nasal Conchae Exposed Sagittal Section

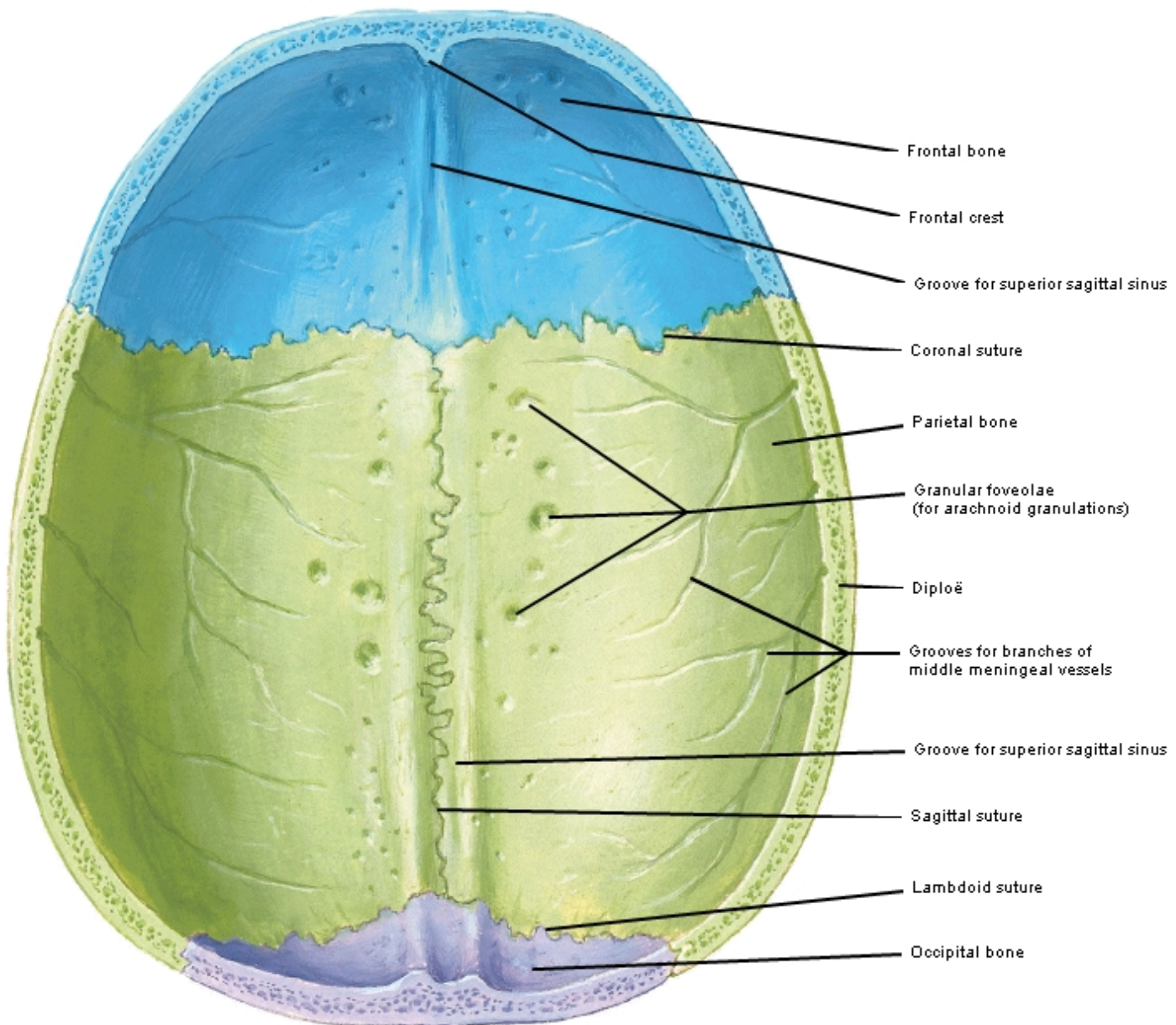


Calvaria Superior View



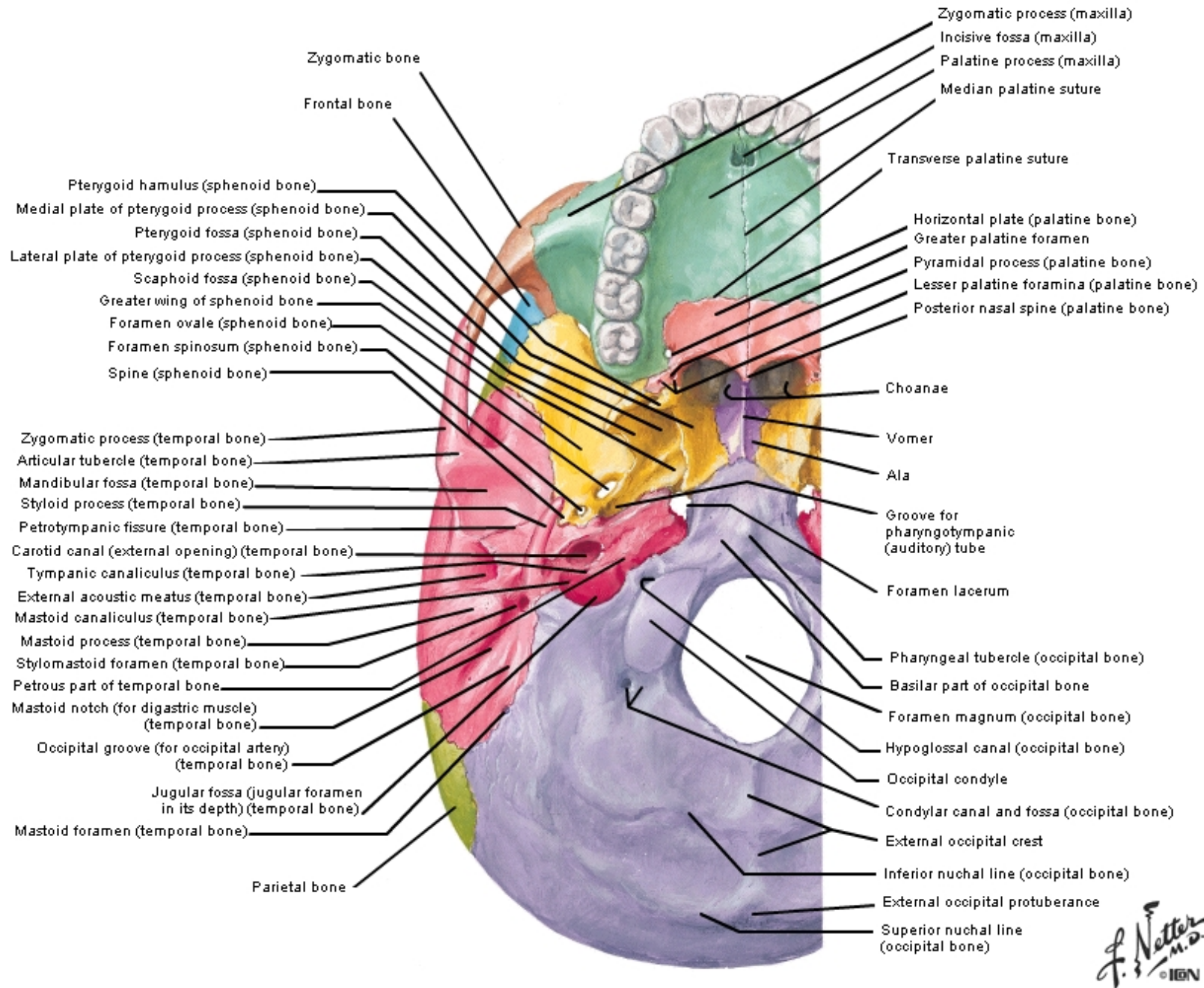
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Calvaria Inferior view

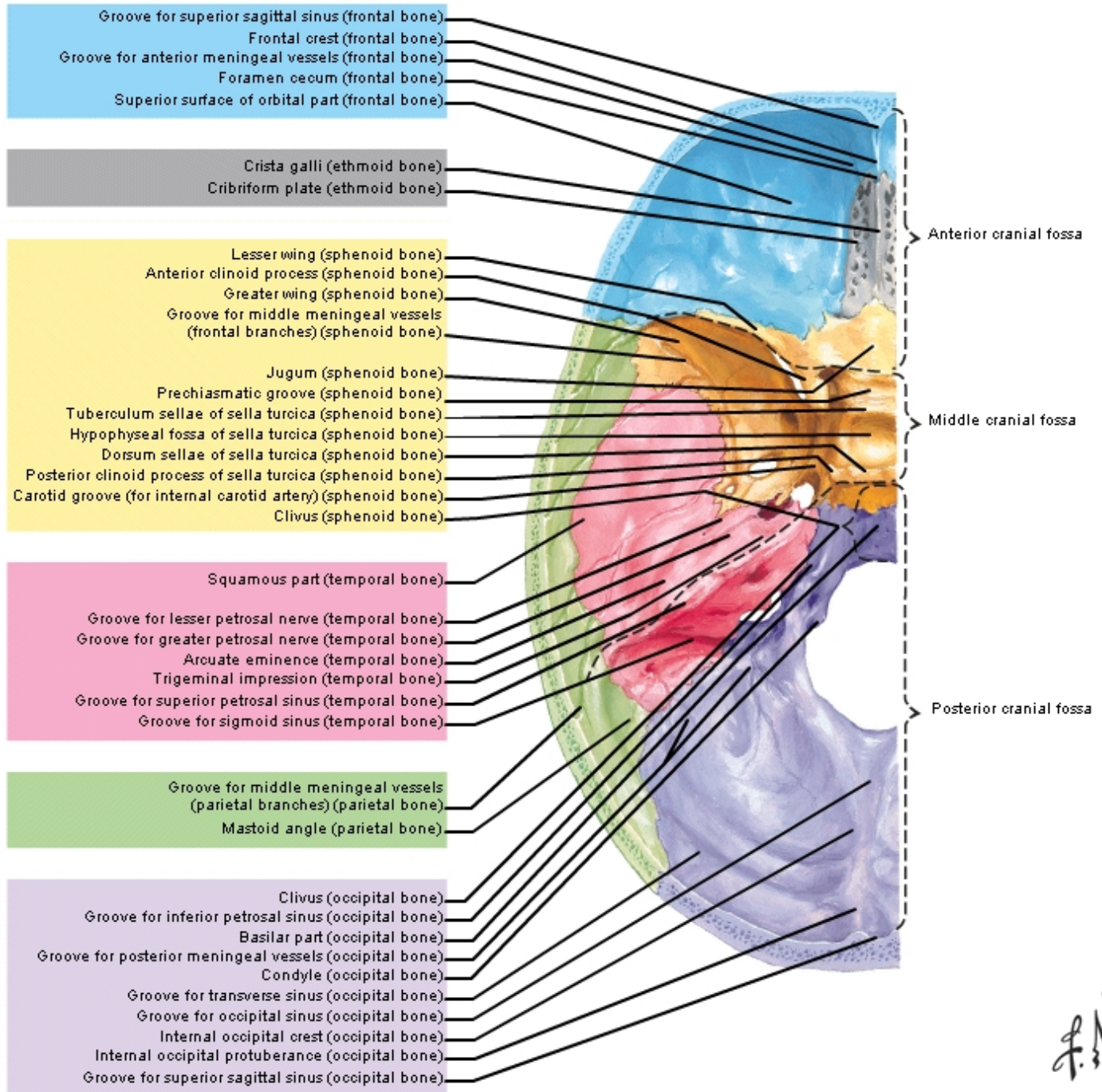


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Cranial Base Inferior View

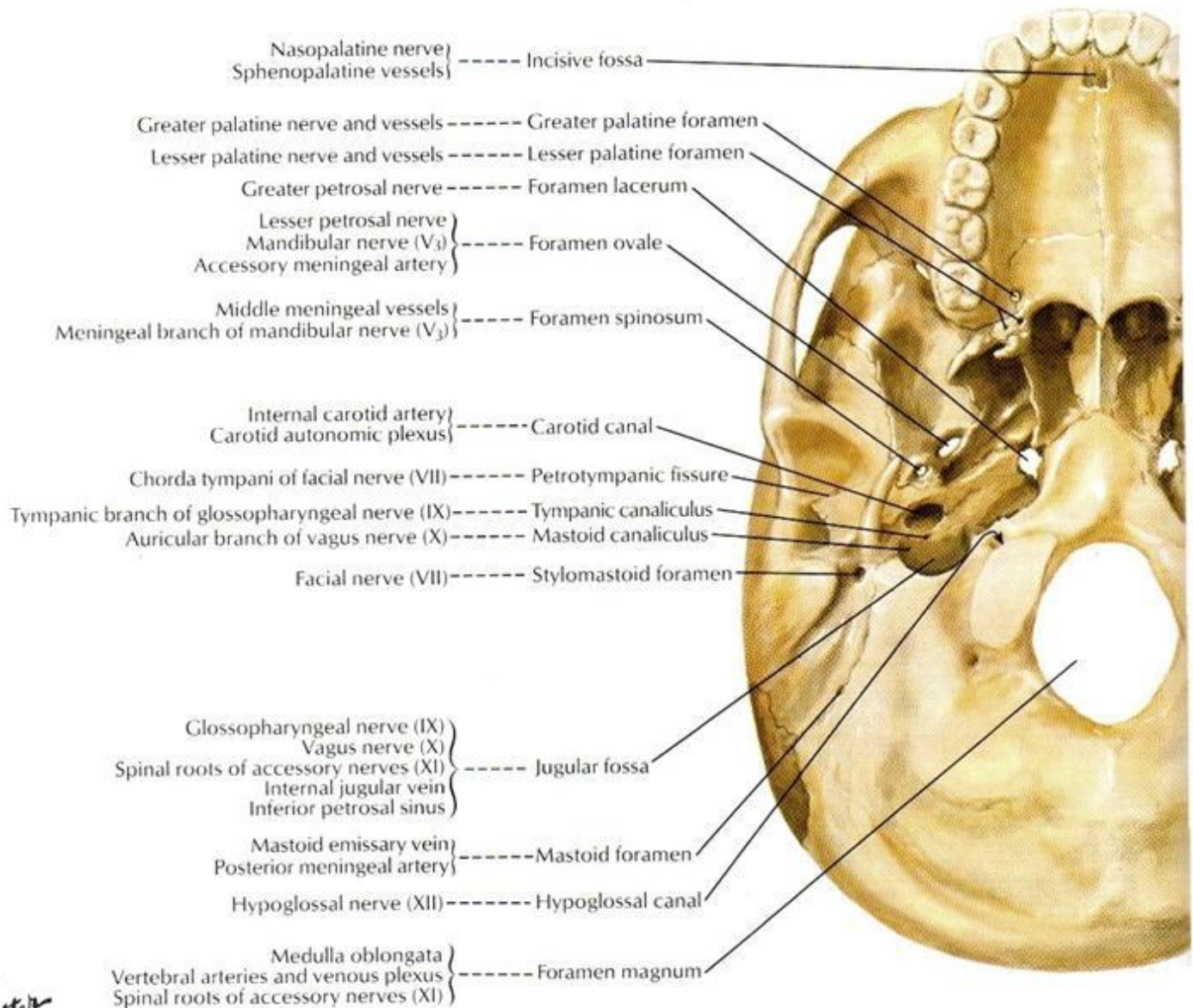


Bones of Cranial Base: Superior View



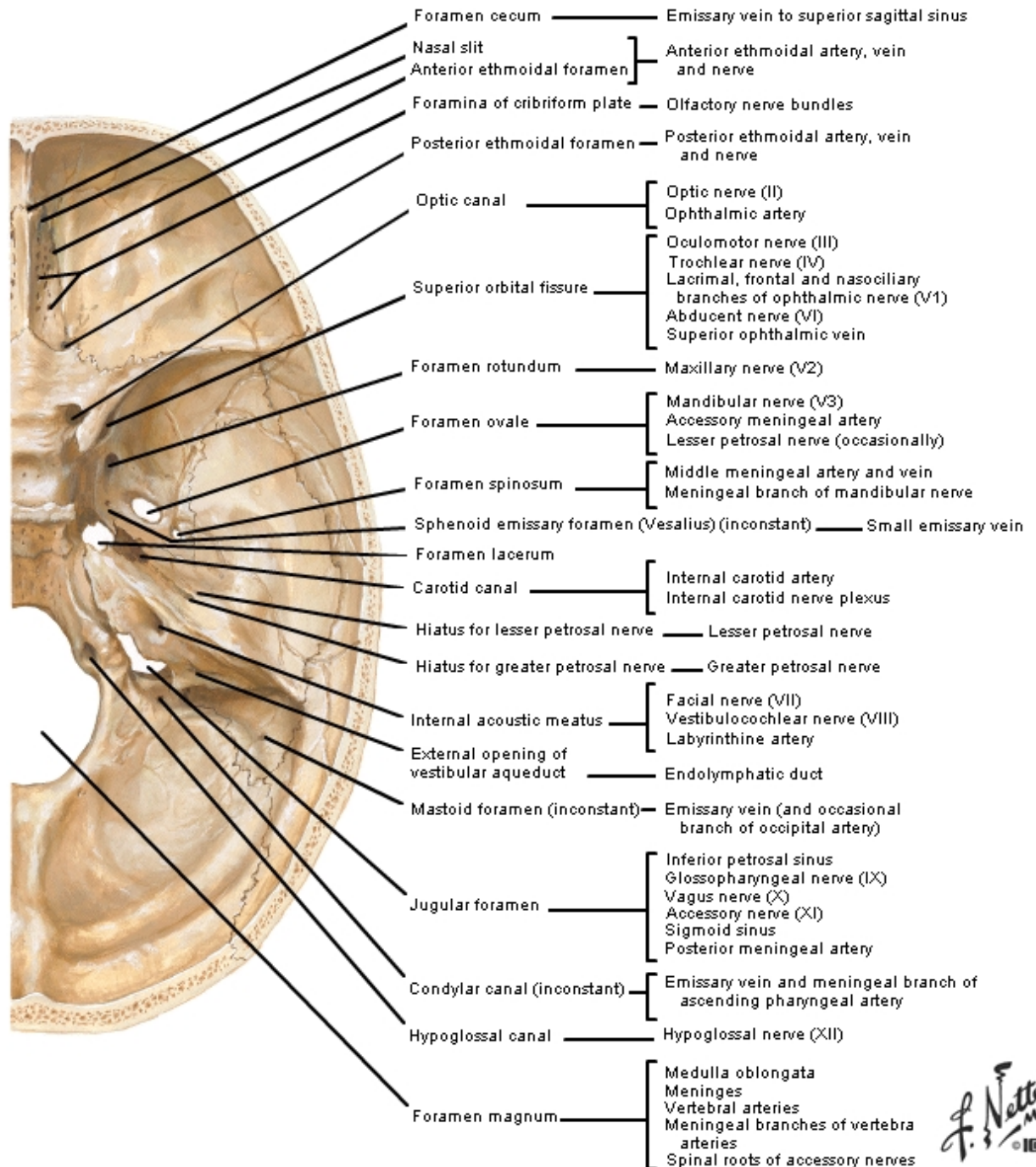
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Foramina of Cranial Base: Inferior View



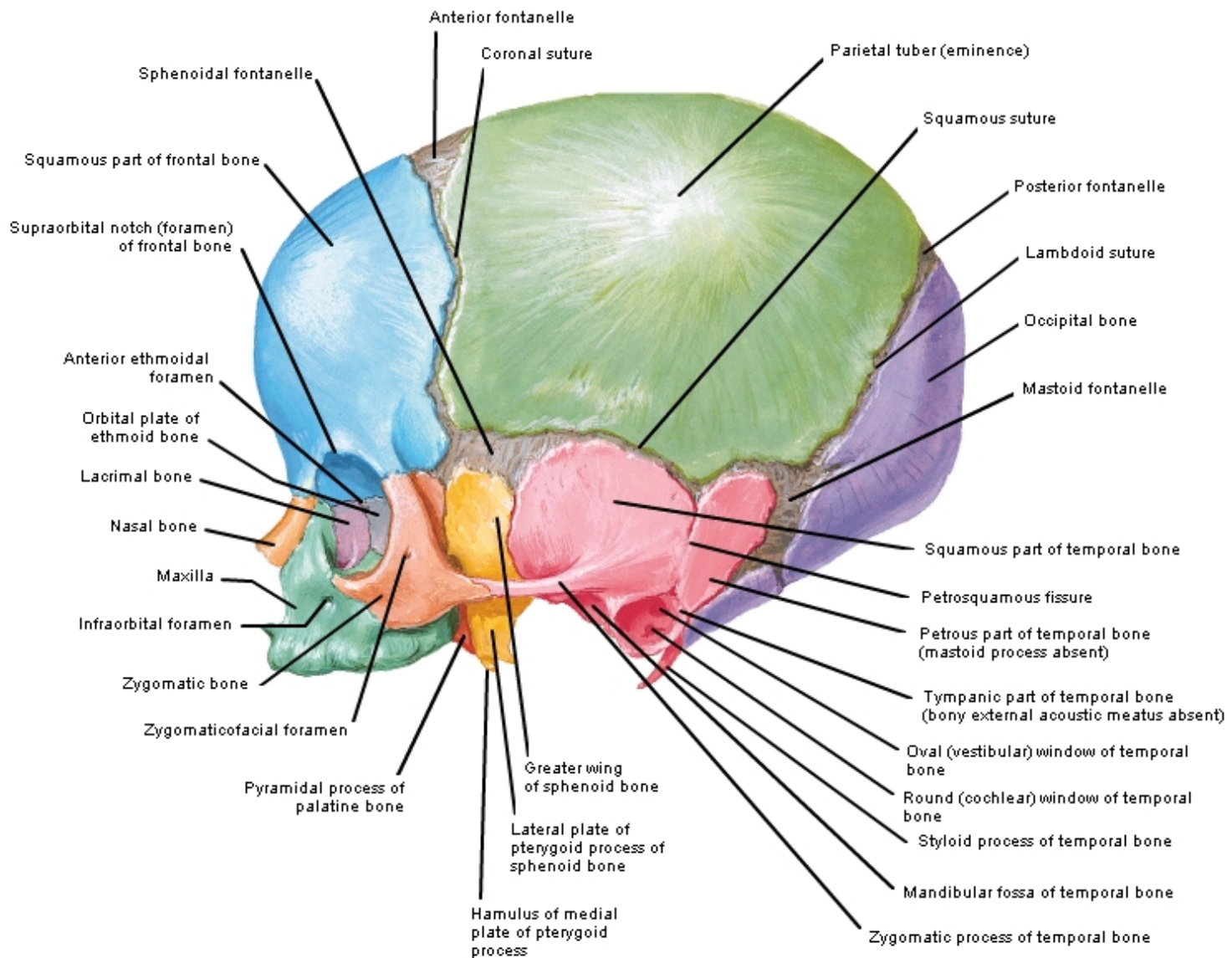
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Foramina of Cranial Base: Superior View



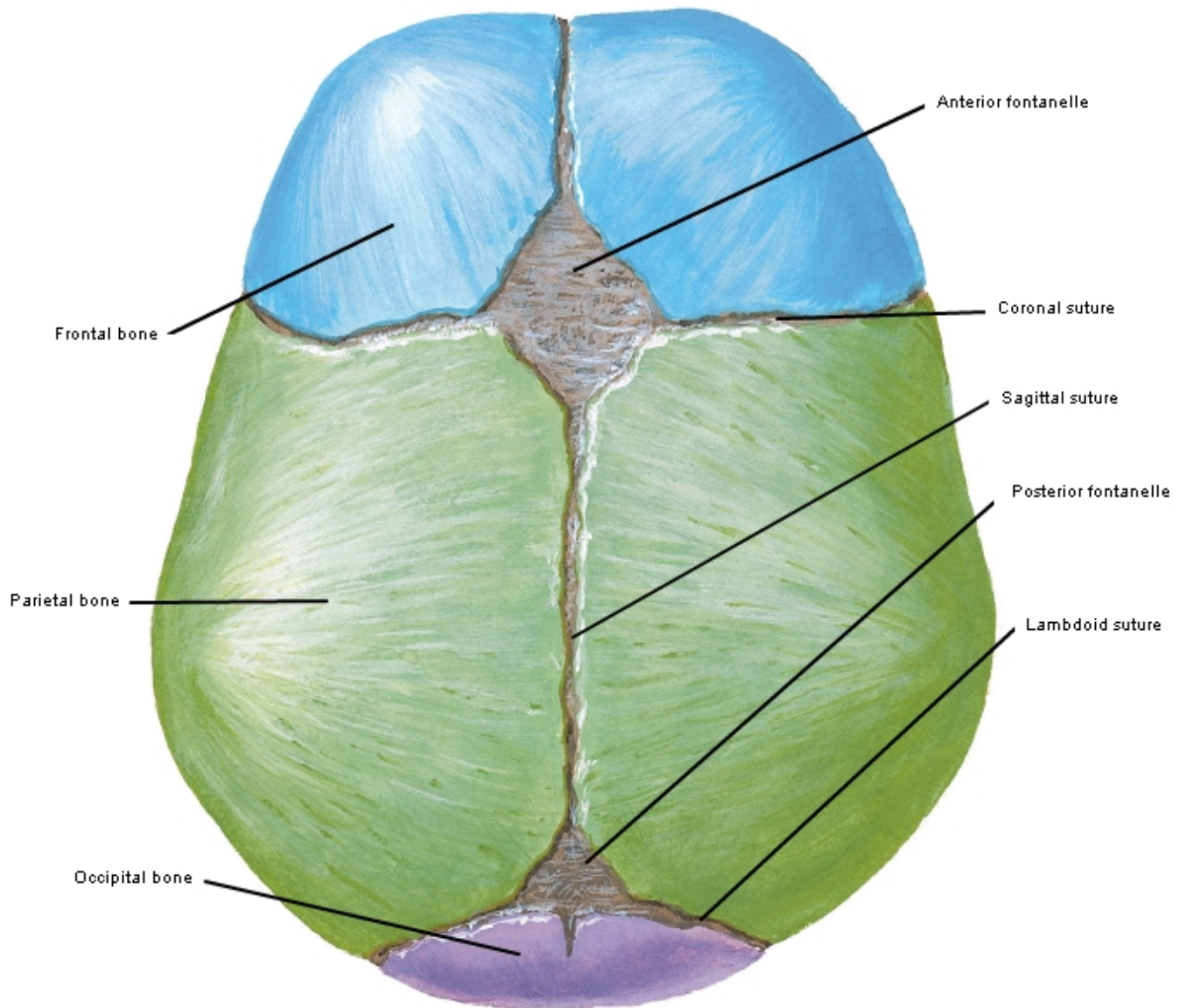
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Skull of Newborn Lateral View



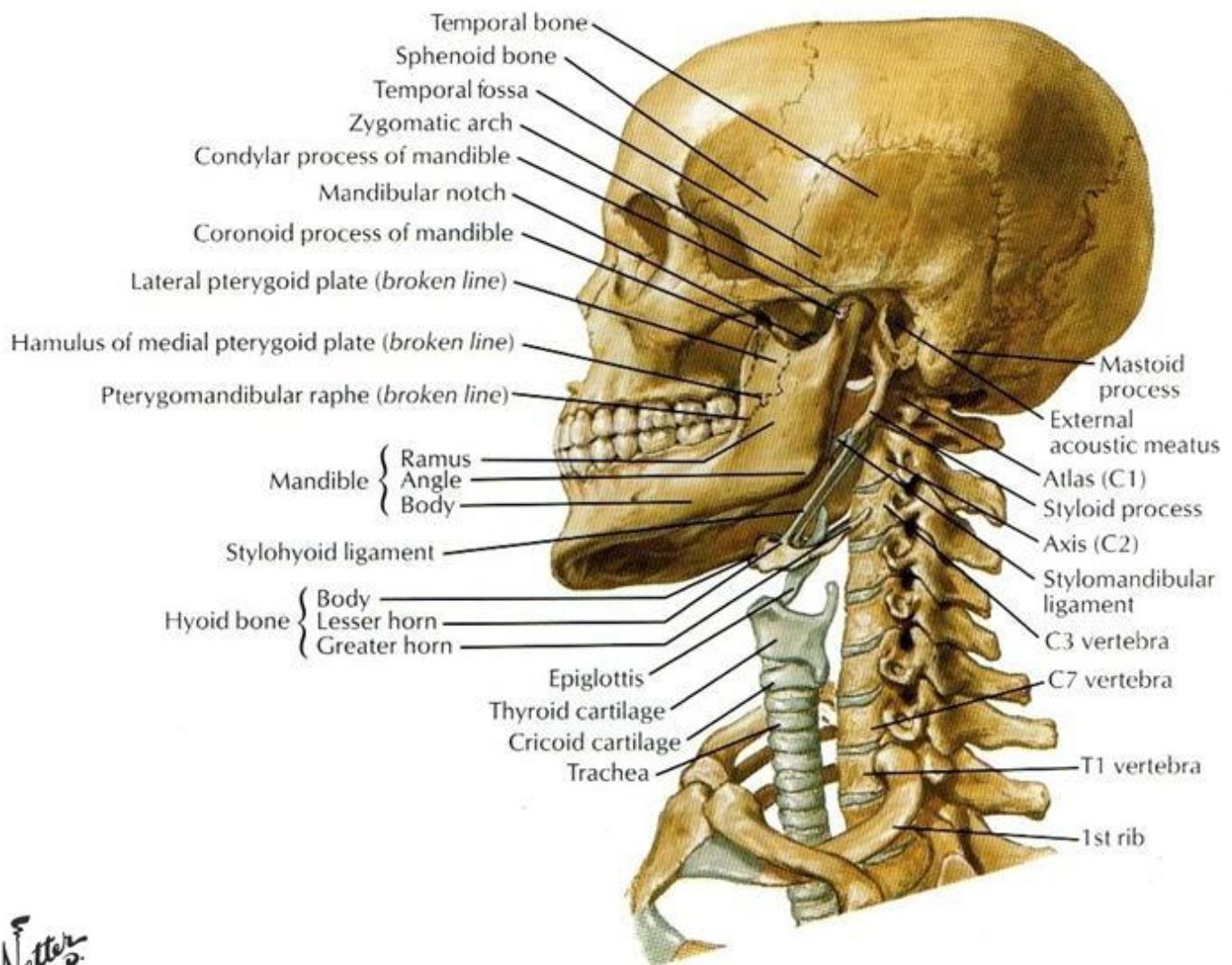
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Skull of Newborn Superior View



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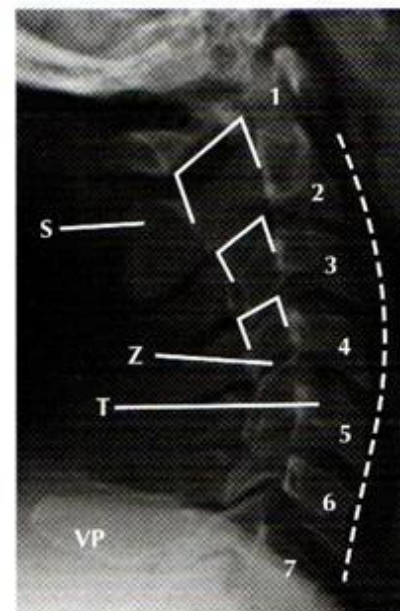
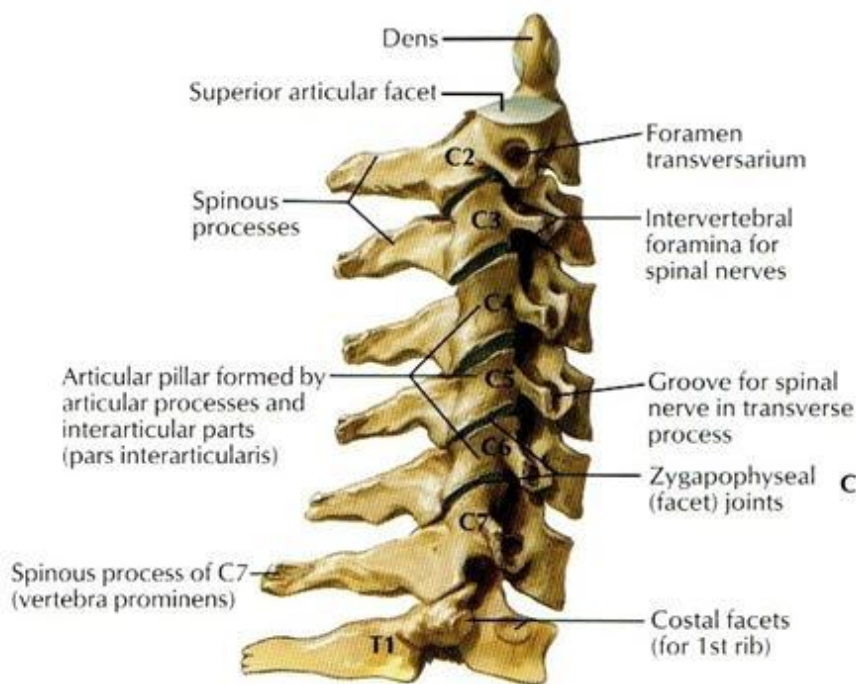
Bony Framework of Head and Neck



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Bony Framework of Neck

2nd cervical to 1st thoracic vertebrae:
right lateral view



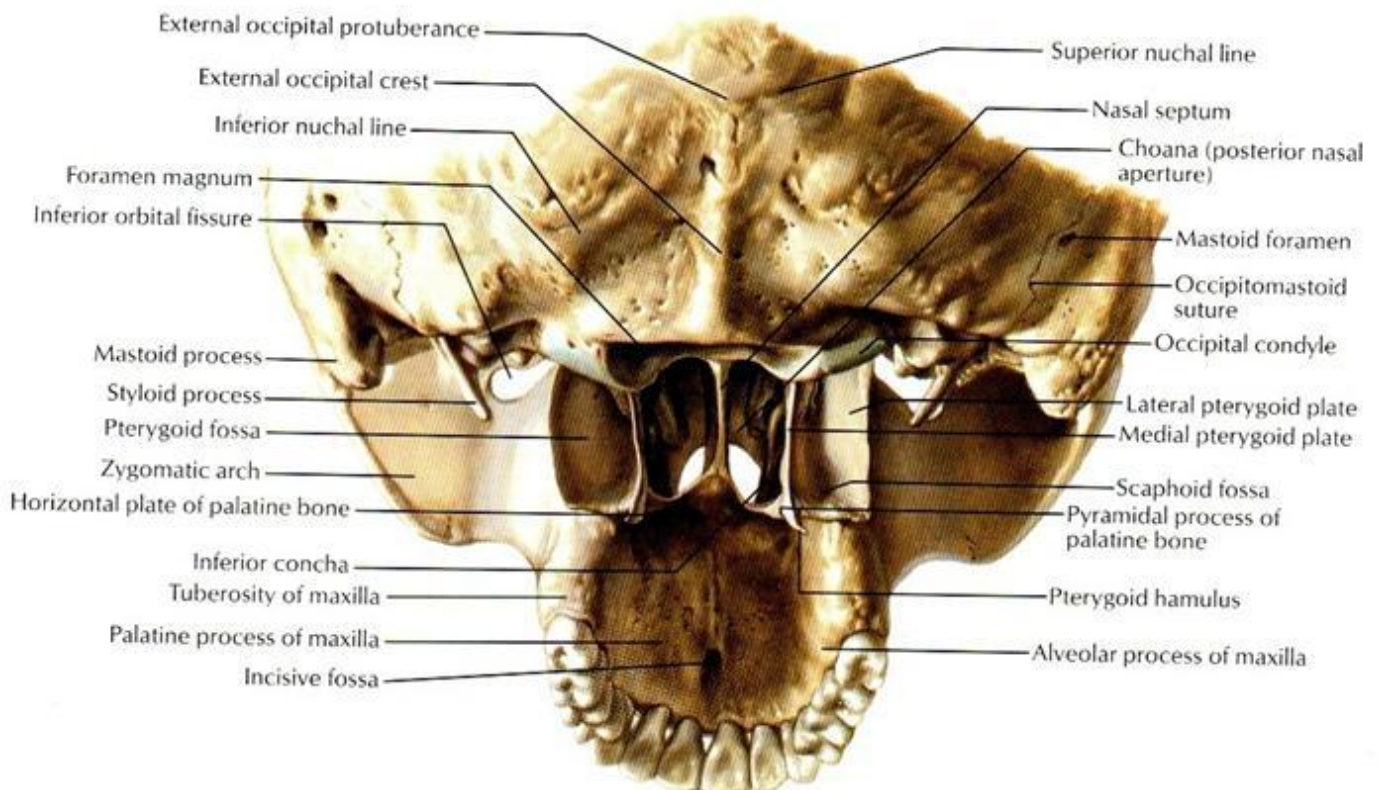
Cervical vertebrae (spine): lateral radiograph

- S Spinous process (axis)
- T Transverse process
- VP Spinous process of C7 (vertebra prominens)
- Z Zygapophyseal (facet) joint
- 1-7 Bodies of cervical vertebrae
- ... Cervical curvature
- [] Vertebral canal

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Cranial Base: Pterygoid Fossae Posterior View

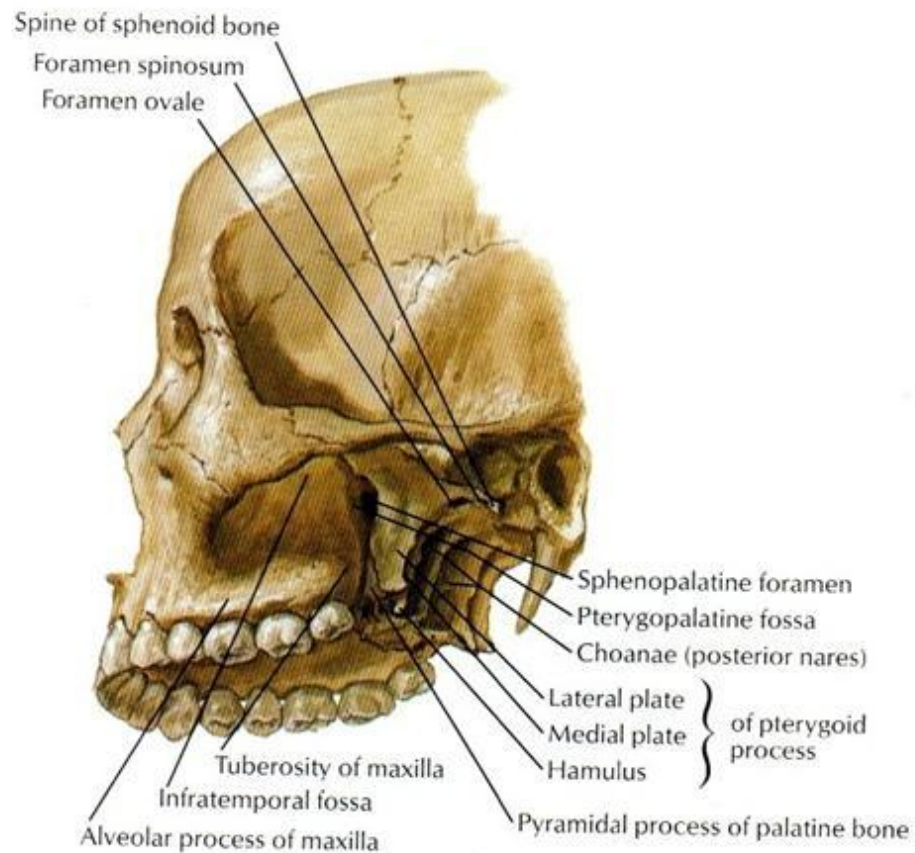
Posterior view



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Cranial Base: Pterygoid Fossae Inferolateral View

Inferolateral view



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This anatomical diagram illustrates the human mandible (lower jawbone) in two stages: infant and adult. The infant mandible is shown in the upper left corner, while the adult mandible is shown in the lower right, with a detailed view of its internal structure.

Labels for the Mandible of infant:

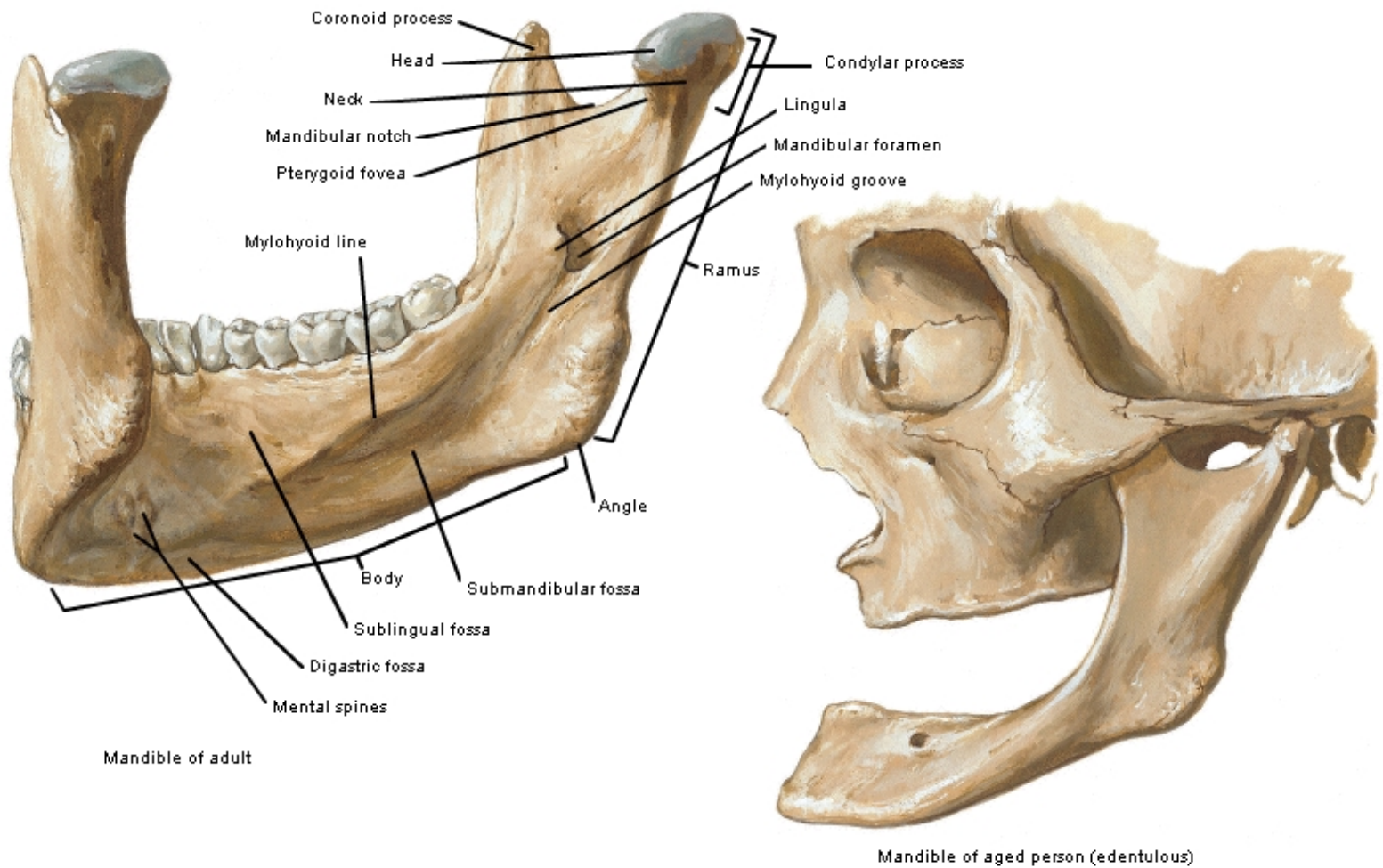
- Mandible of infant

Labels for the Mandible of adult:

- Condylar process
- Coronoid process
- Head
- Pterygoid fovea
- Neck
- Mandibular notch
- Lingula
- Mandibular foramen
- Mylohyoid groove
- Oblique line
- Submandibular fossa
- Mylohyoid
- Sublingual fossa
- Interalveolar septa
- Alveolar part (crest)
- Mental foramen
- Mental protuberance
- Mental tubercle
- Base of mandible
- Body
- Ramus
- Angle

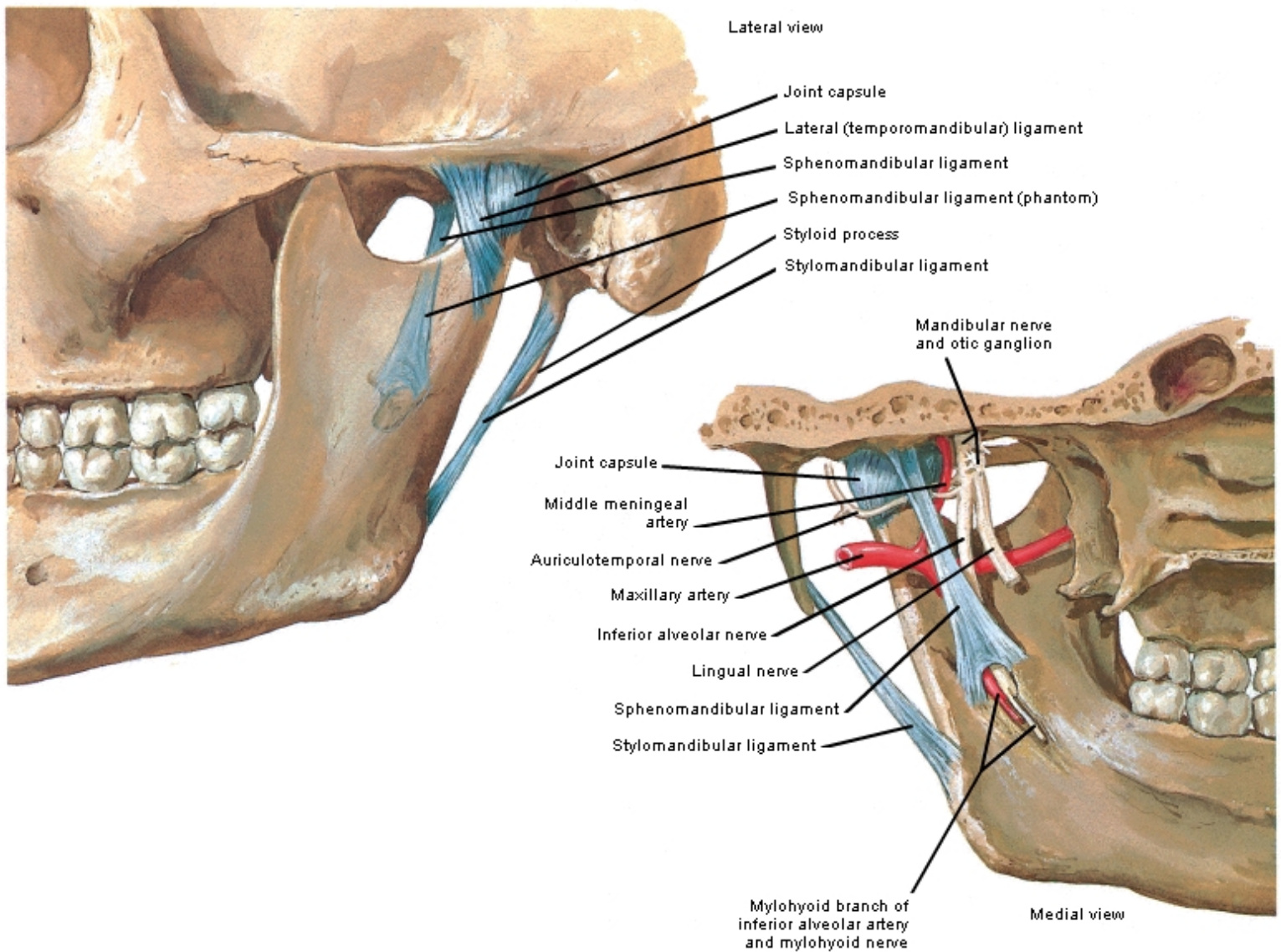


Mandible - Left Posterior View



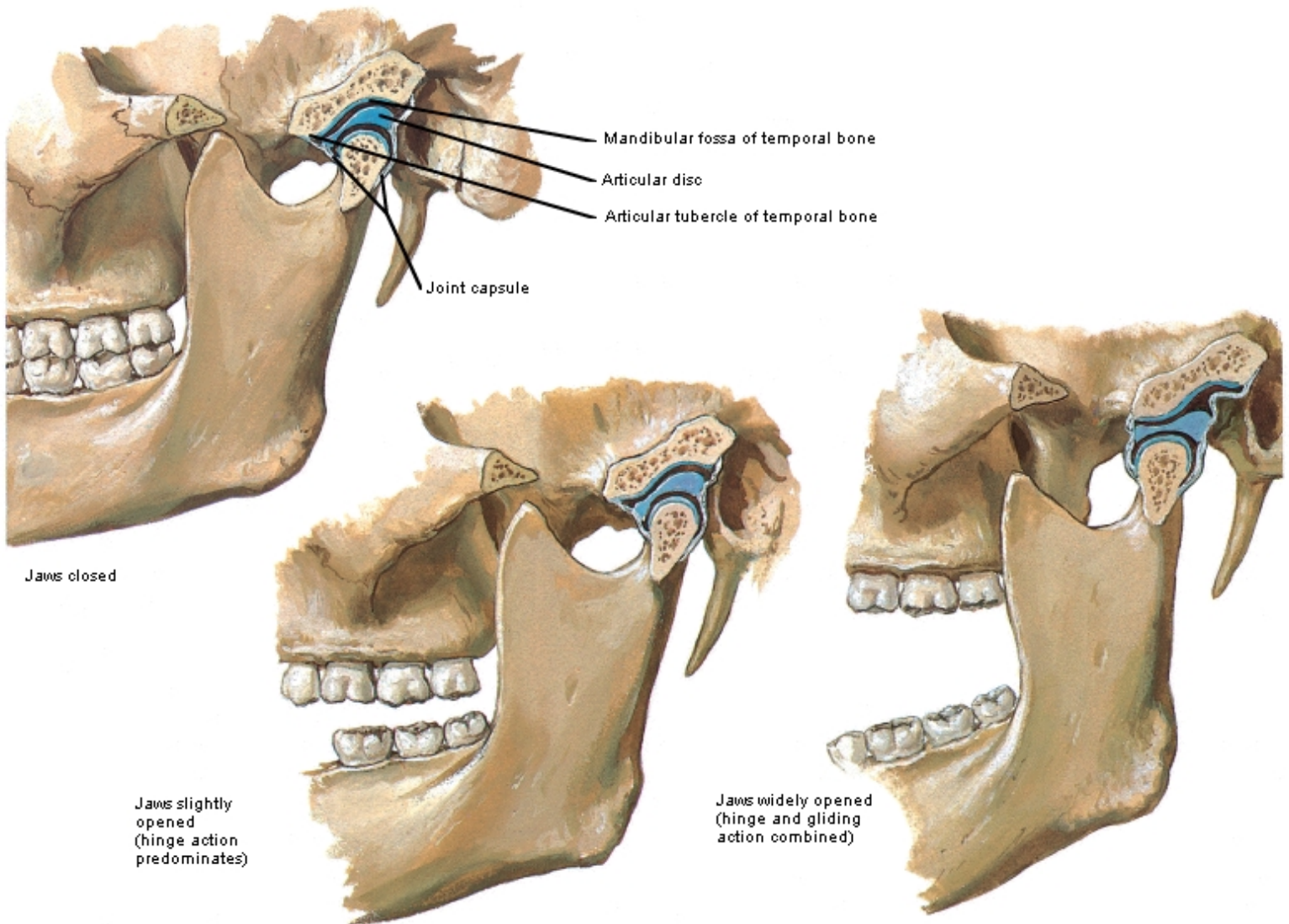
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Temporomandibular Joint Lateral and Medial Views



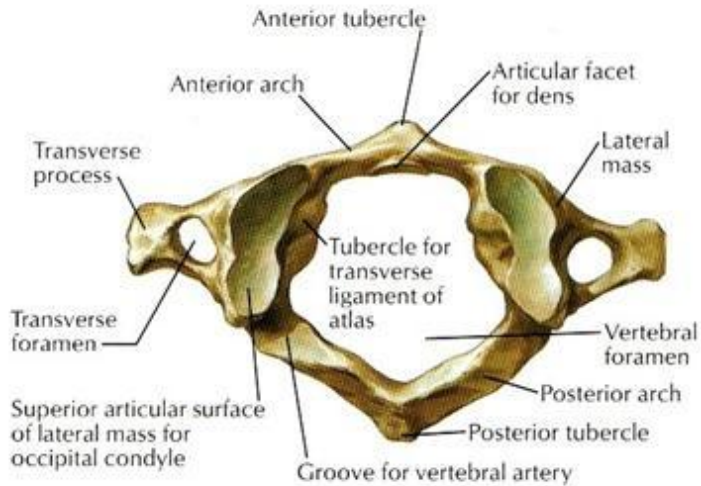
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Temporomandibular Joint Joint Action

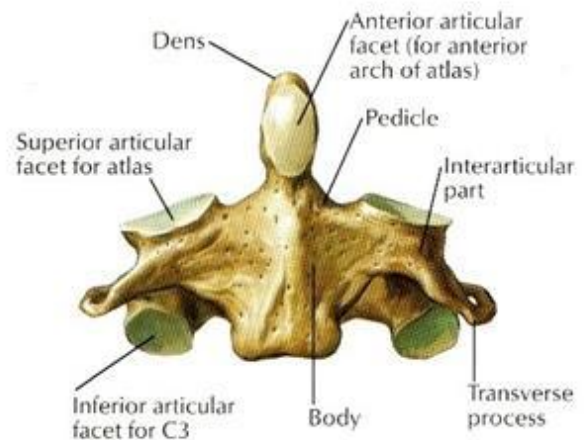


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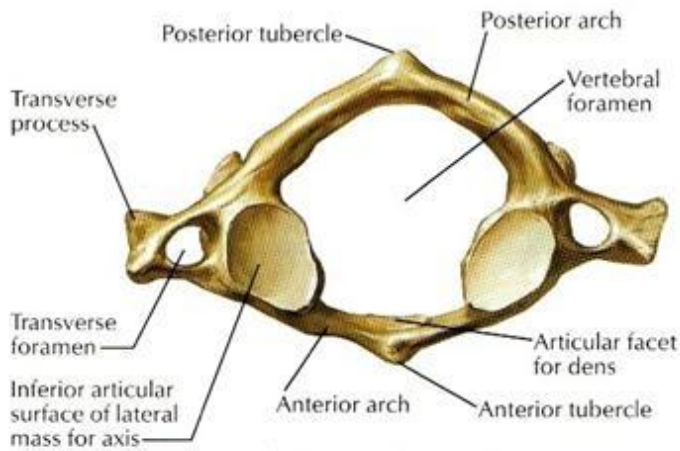
Cervical Vertebrae: Atlas and Axis



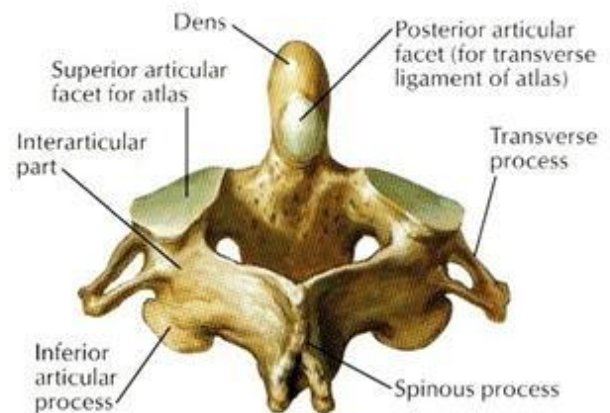
Atlas (C1): superior view



Axis (C2): anterior view



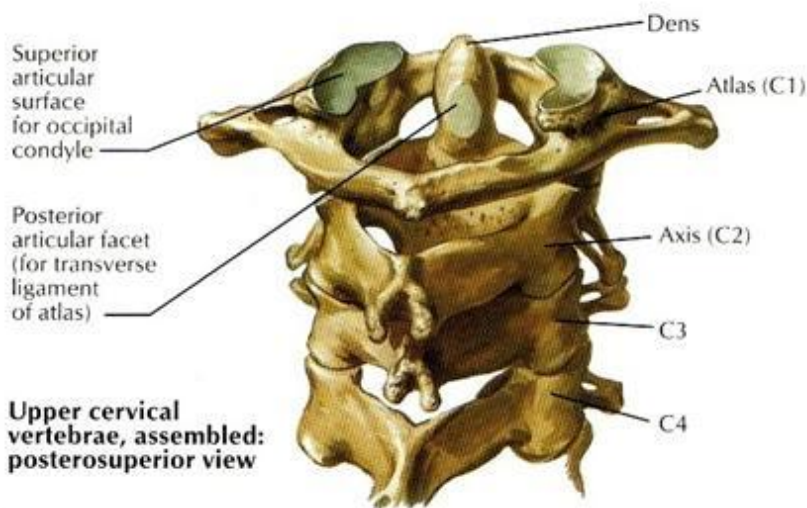
Atlas (C1): inferior view



Axis (C2): posterosuperior view

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Upper Cervical Vertebrae and Atlantoaxial Joint



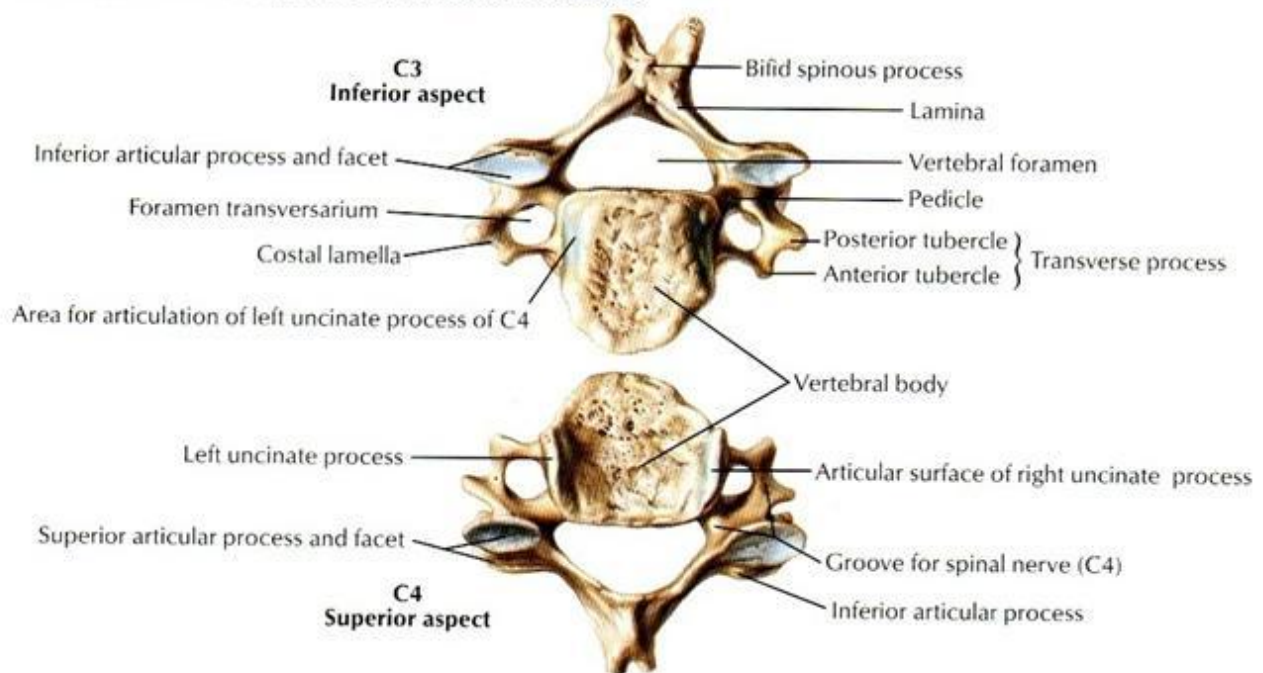
Radiograph of atlantoaxial joint (open mouth odontoid view)

- A Lateral masses of atlas (C1 vertebra)
- D Dens of axis (C2 vertebra)

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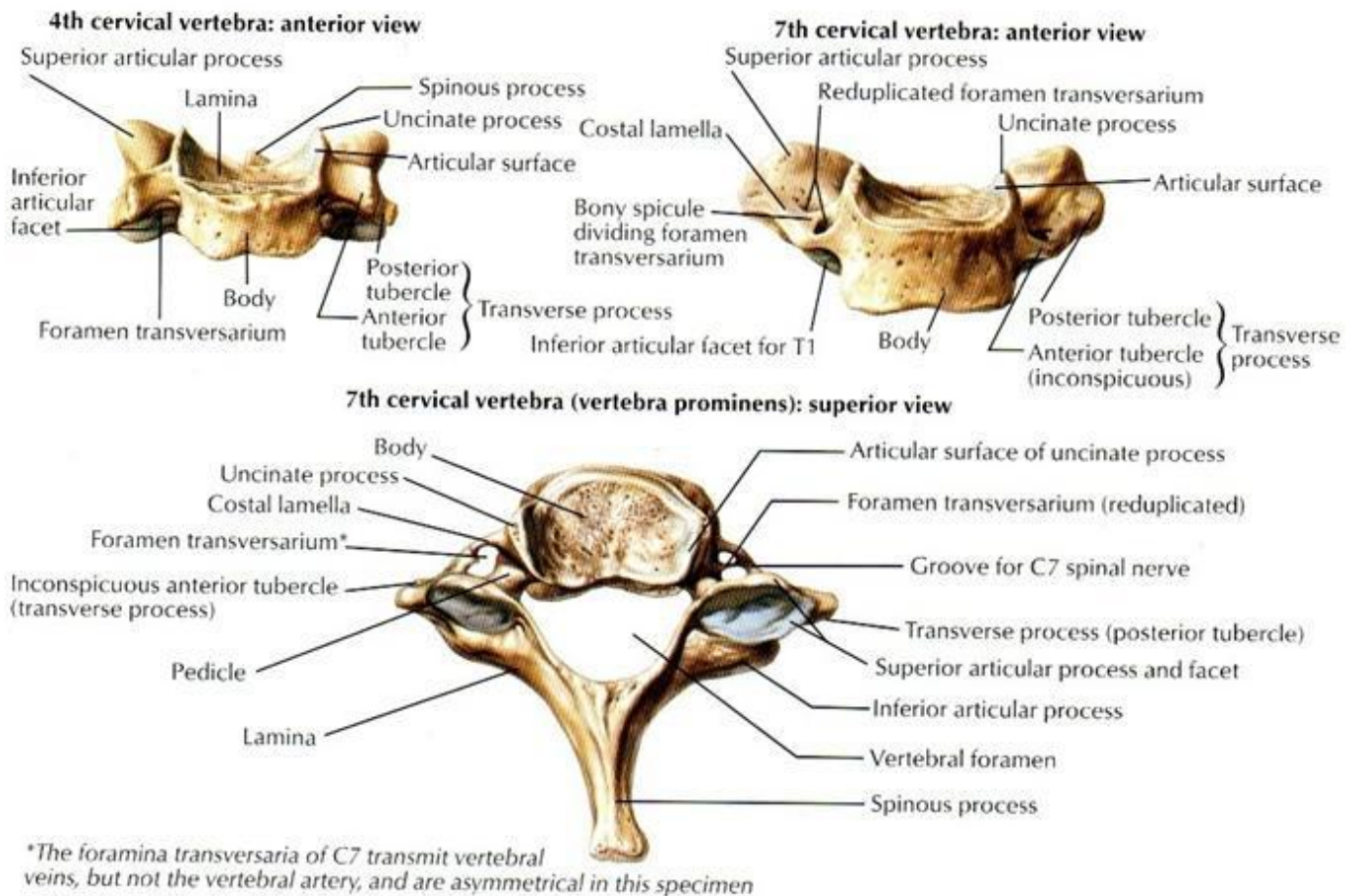
Cervical Vertebrae: C3 and C4

Inferior aspect of C3 and superior aspect of C4 showing the sites of the facet and uncovertebral articulations



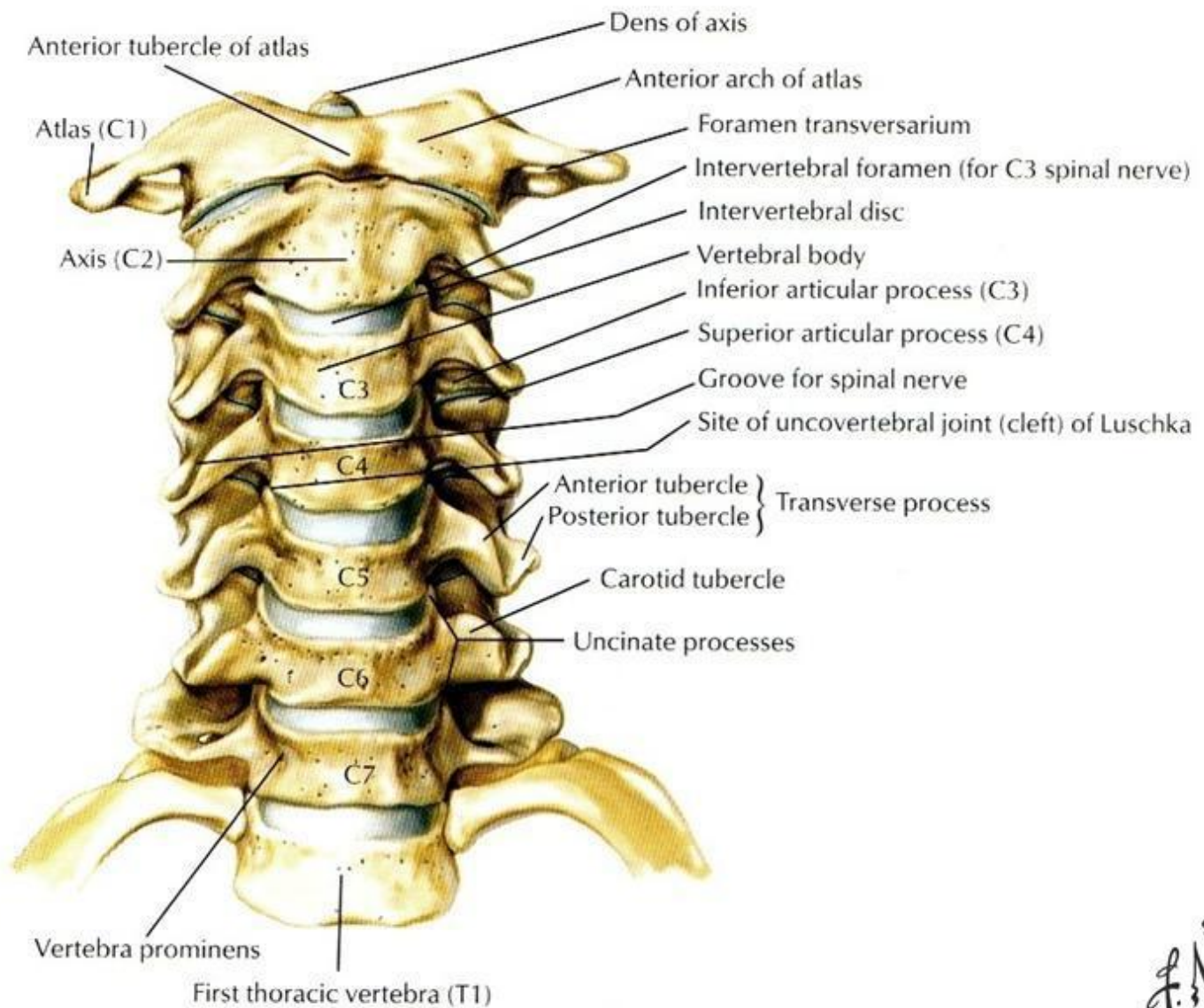
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Cervical Vertebrae: C4 and C7



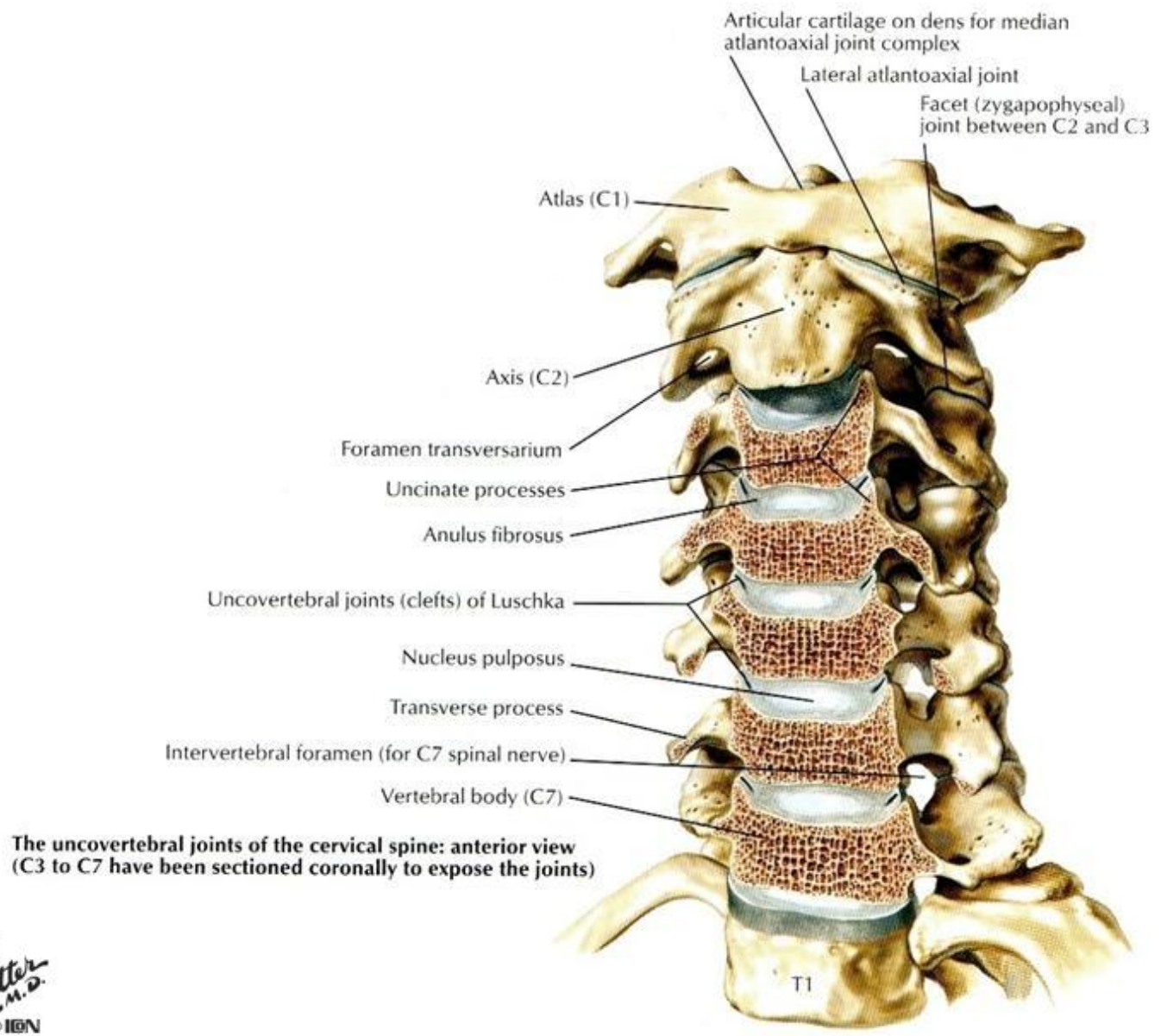
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Cervical Vertebrae: Uncovertebral Joints Anterior View

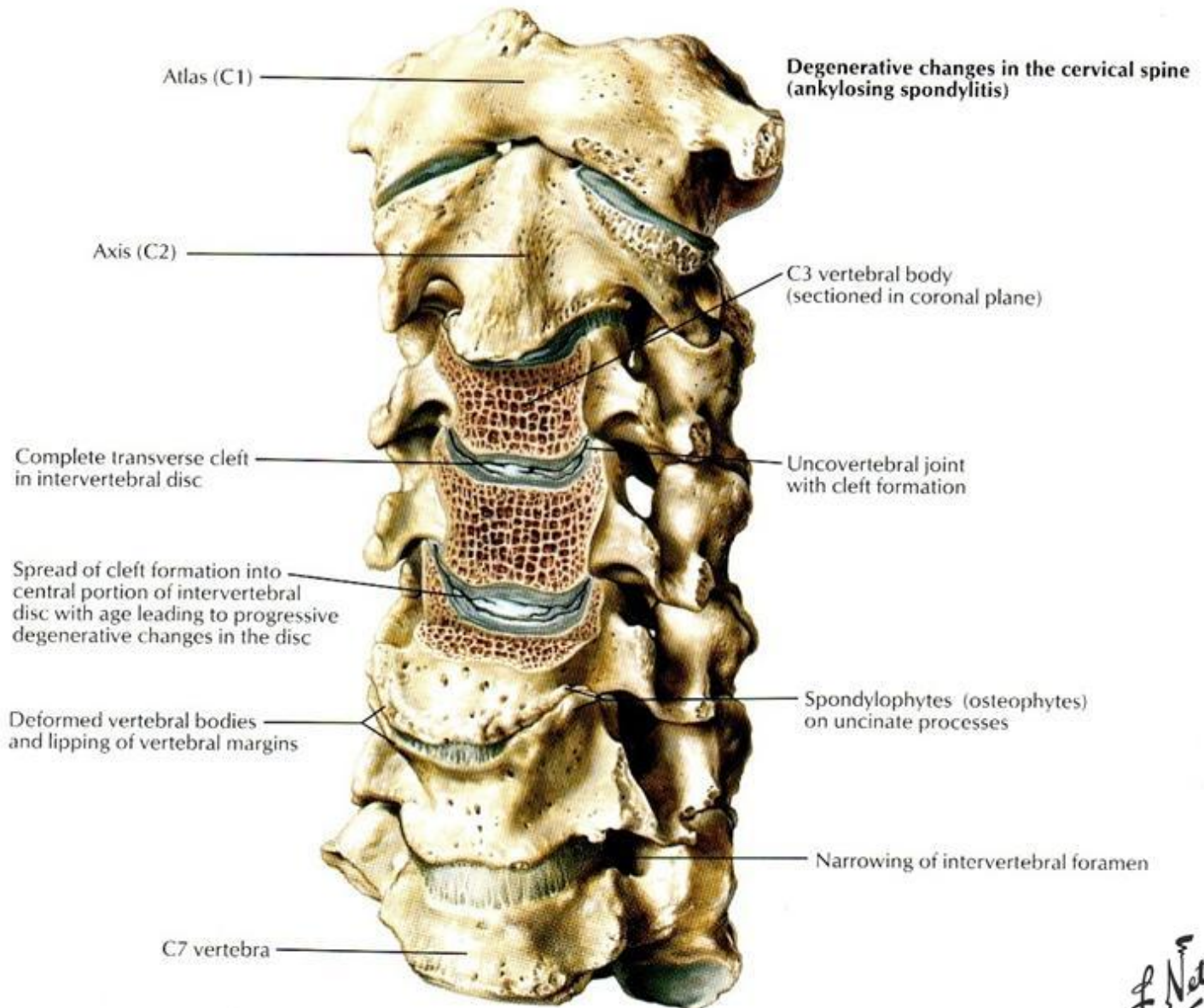


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Cervical Vertebrae: Uncovertebral Joints C3 to C7 Sectioned

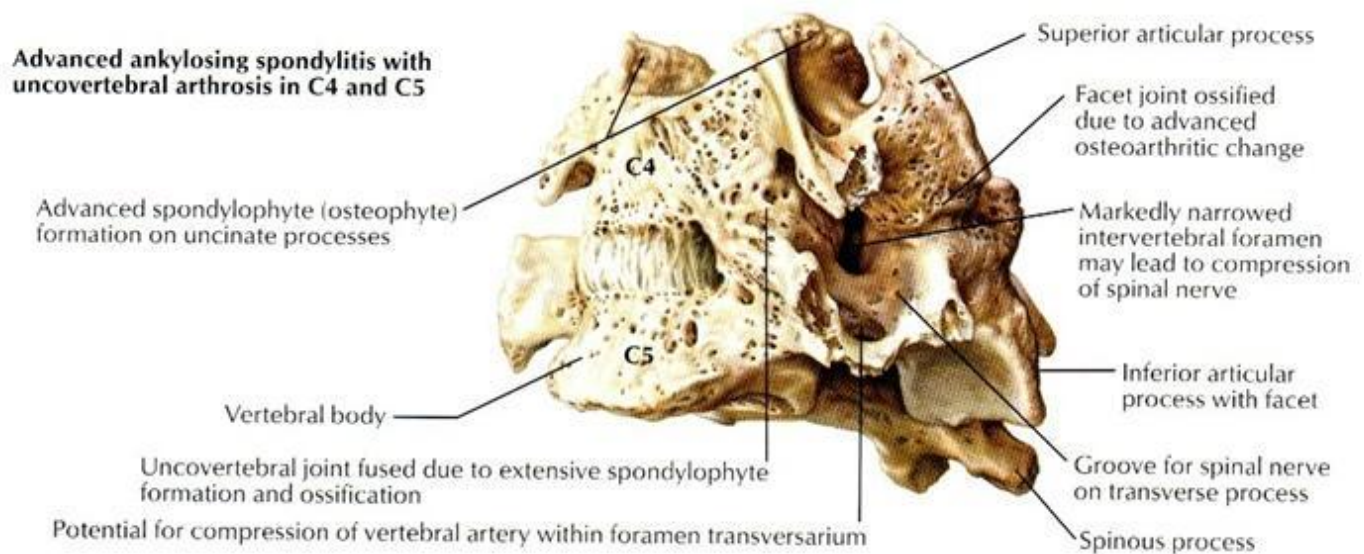


Degenerative Changes in the Cervical Vertebrae



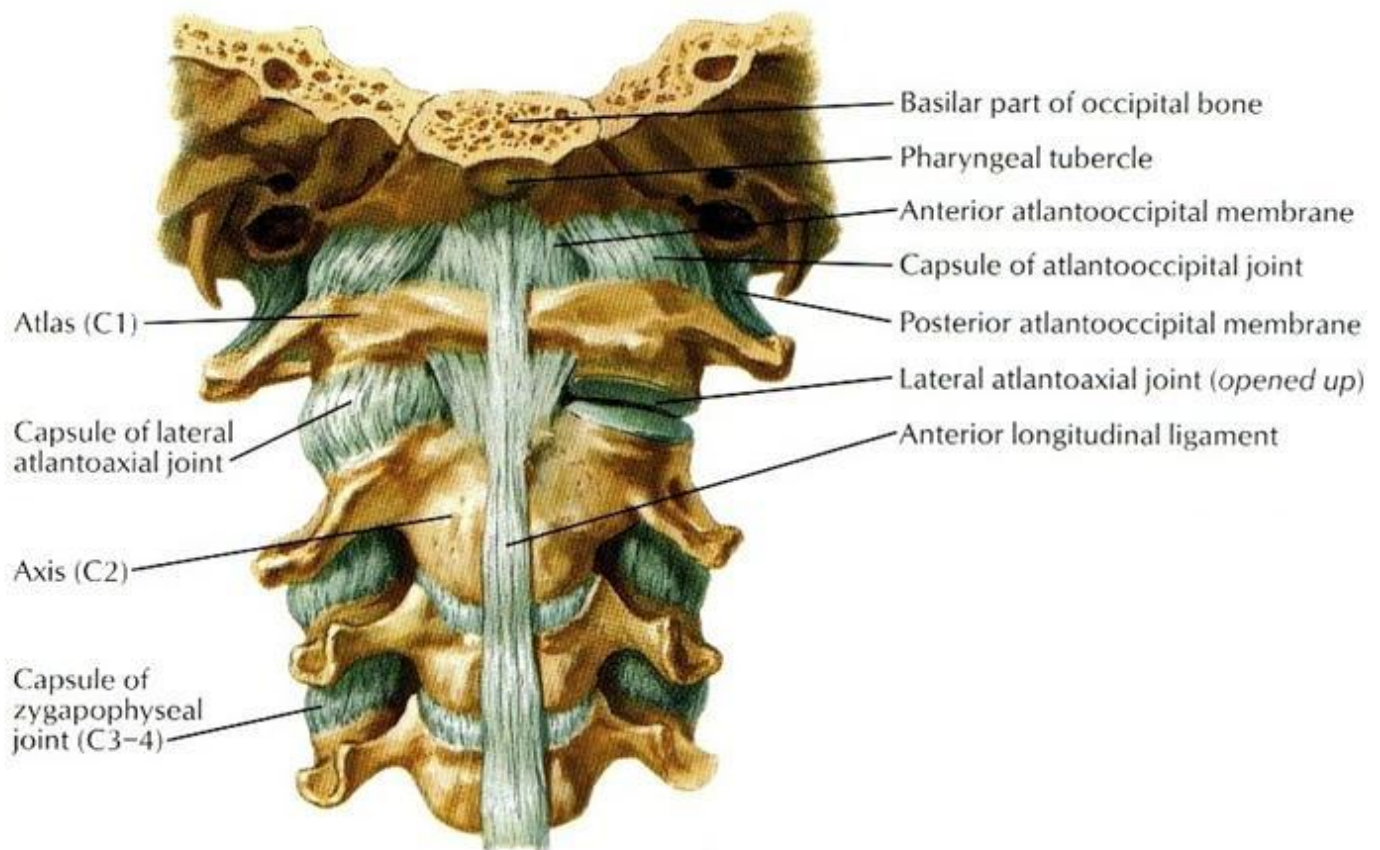
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Degenerative Changes in Cervical Vertebrae: C4 and C5



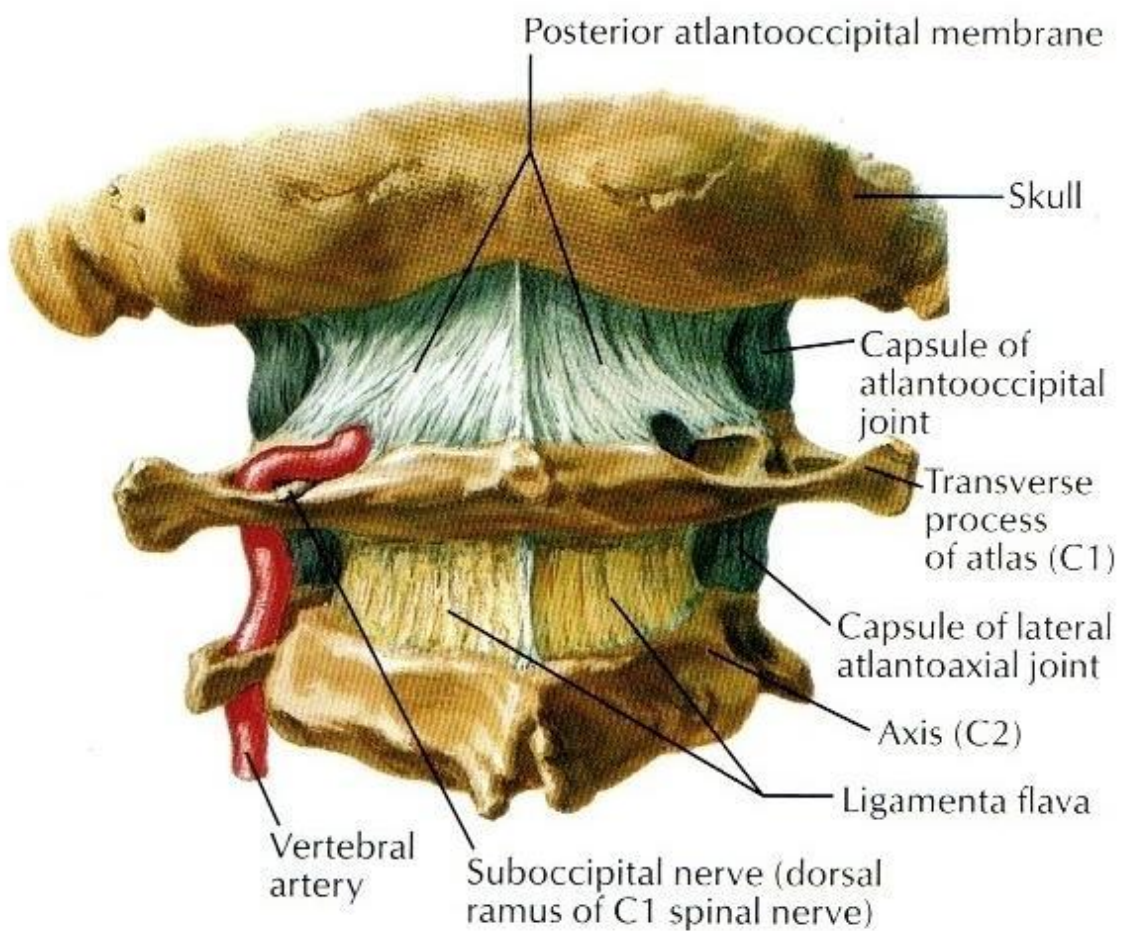
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External Craniocervical Ligaments: Anterior View



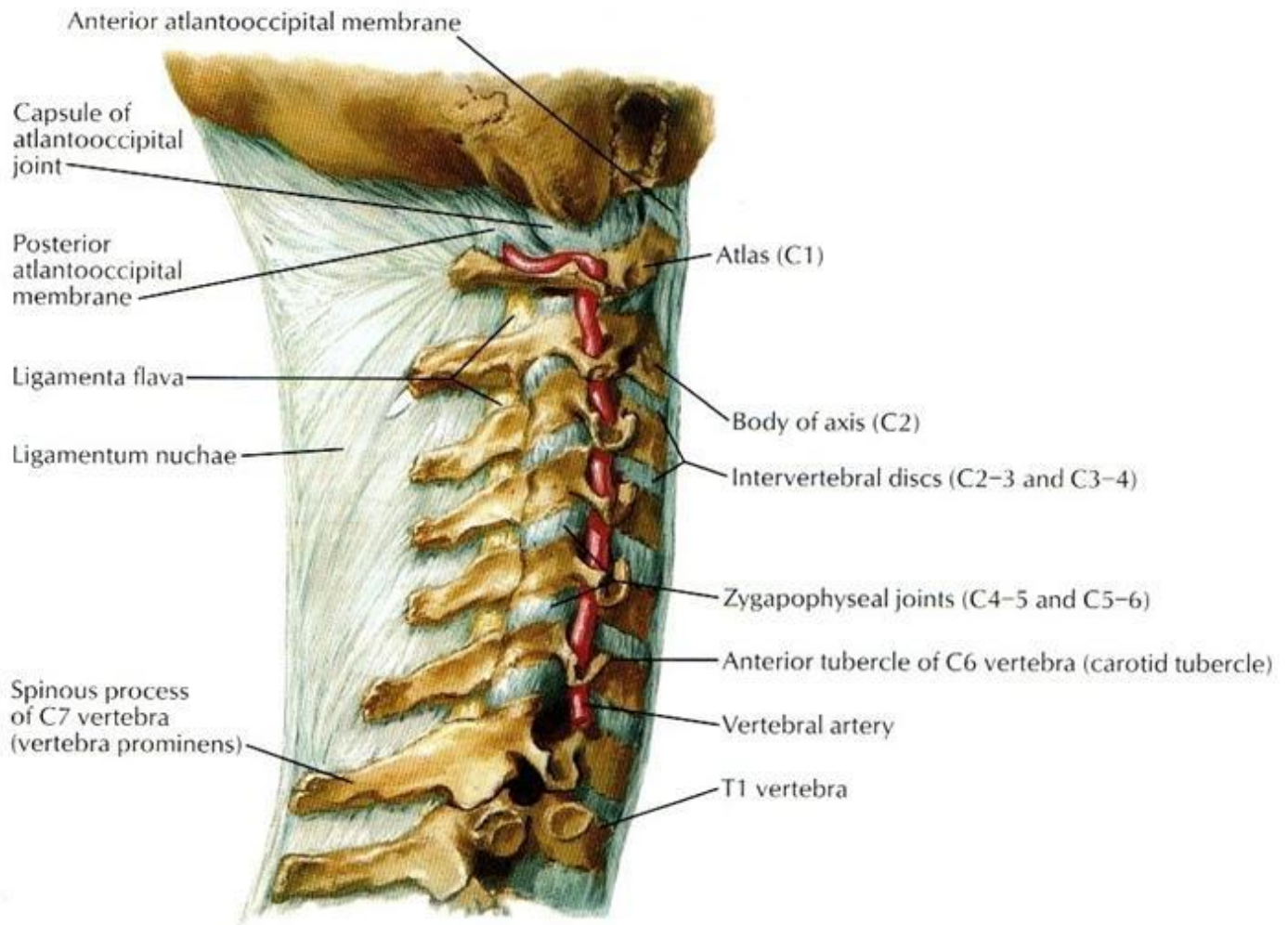
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External Craniocervical Ligaments: Posterior View



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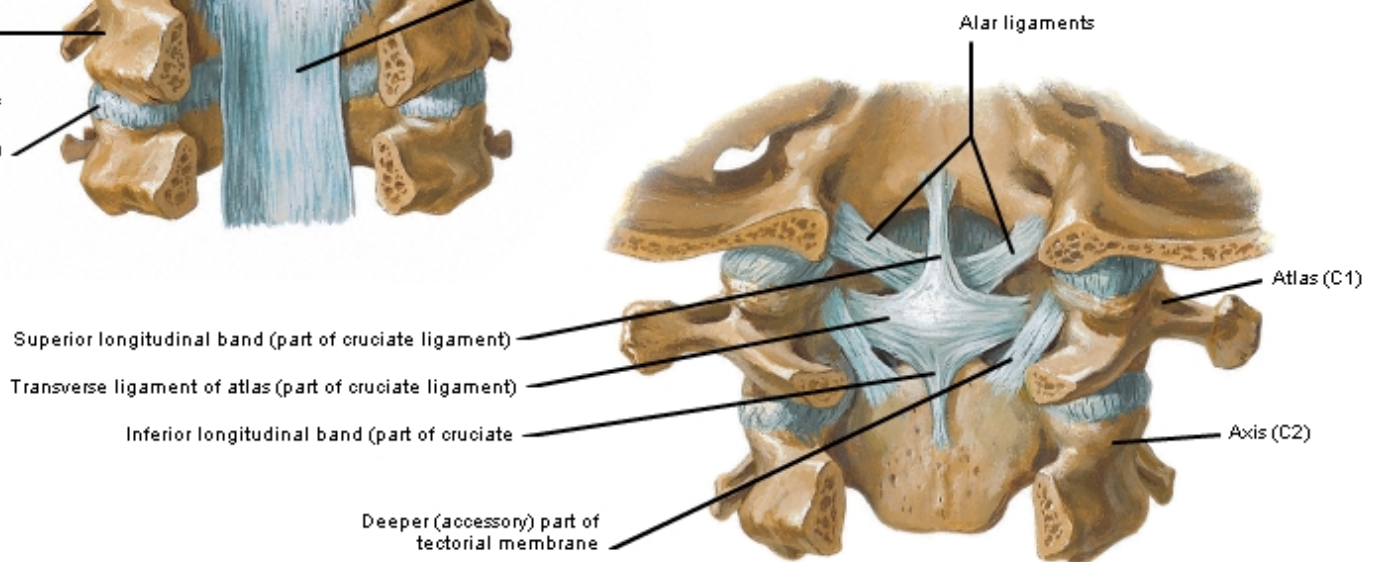
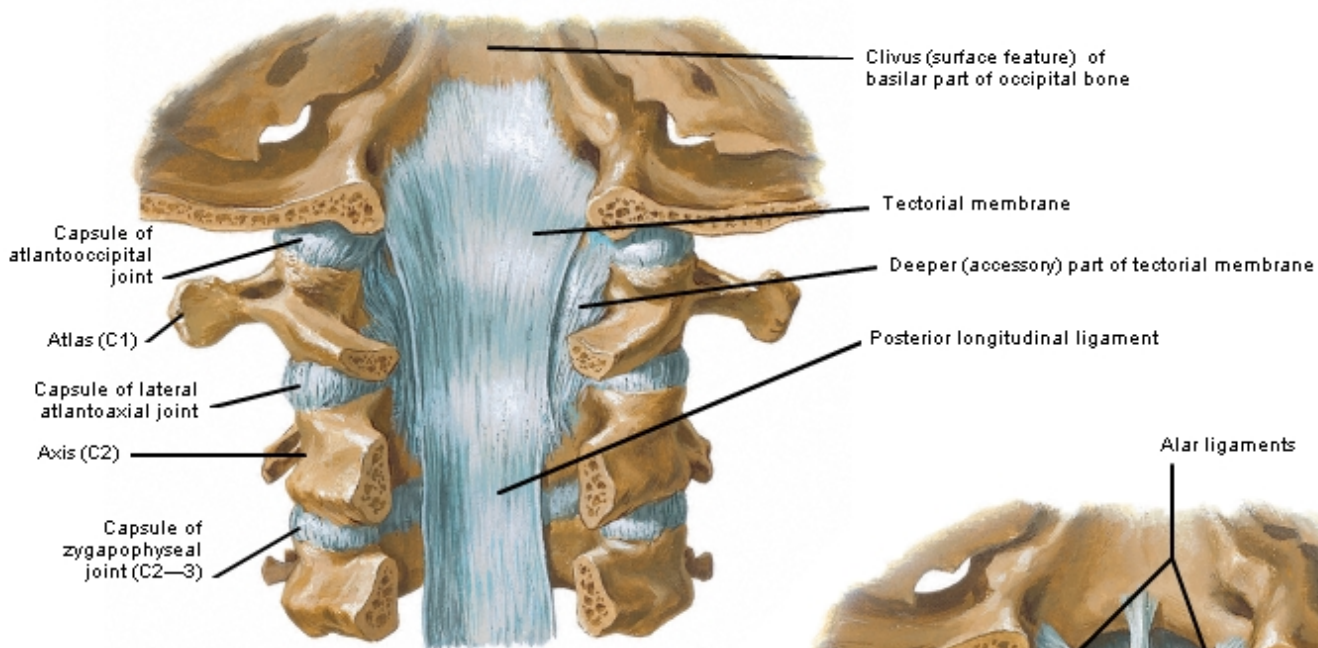
External Craniocervical Ligaments: Right Lateral View



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Internal Craniocervical Ligaments

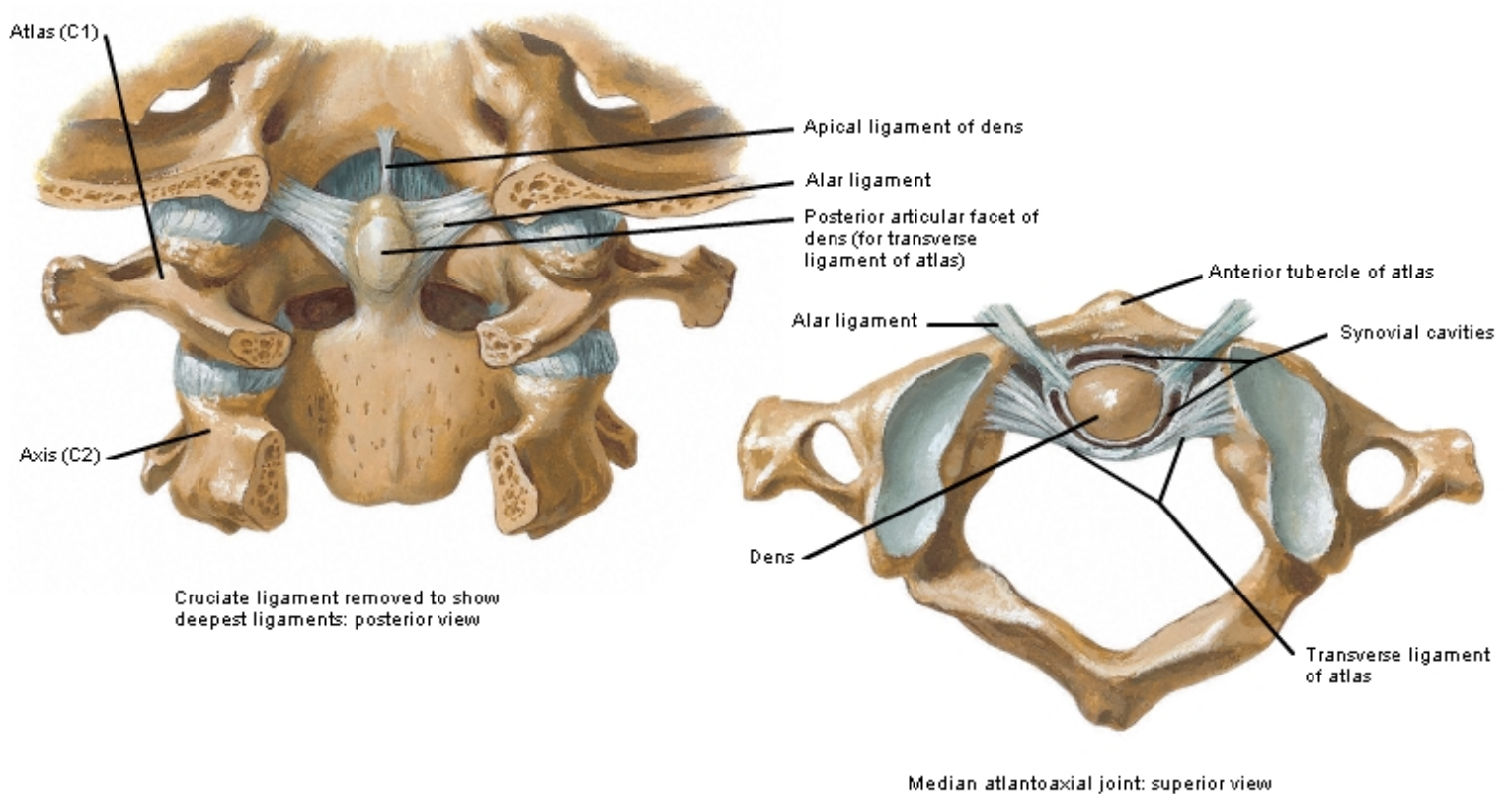
Upper part of vertebral canal with spinous processes and parts of vertebral arches removed to expose ligaments on posterior vertebral bodies: posterior view



Principal part of tectorial membrane removed to expose deeper ligaments: posterior view

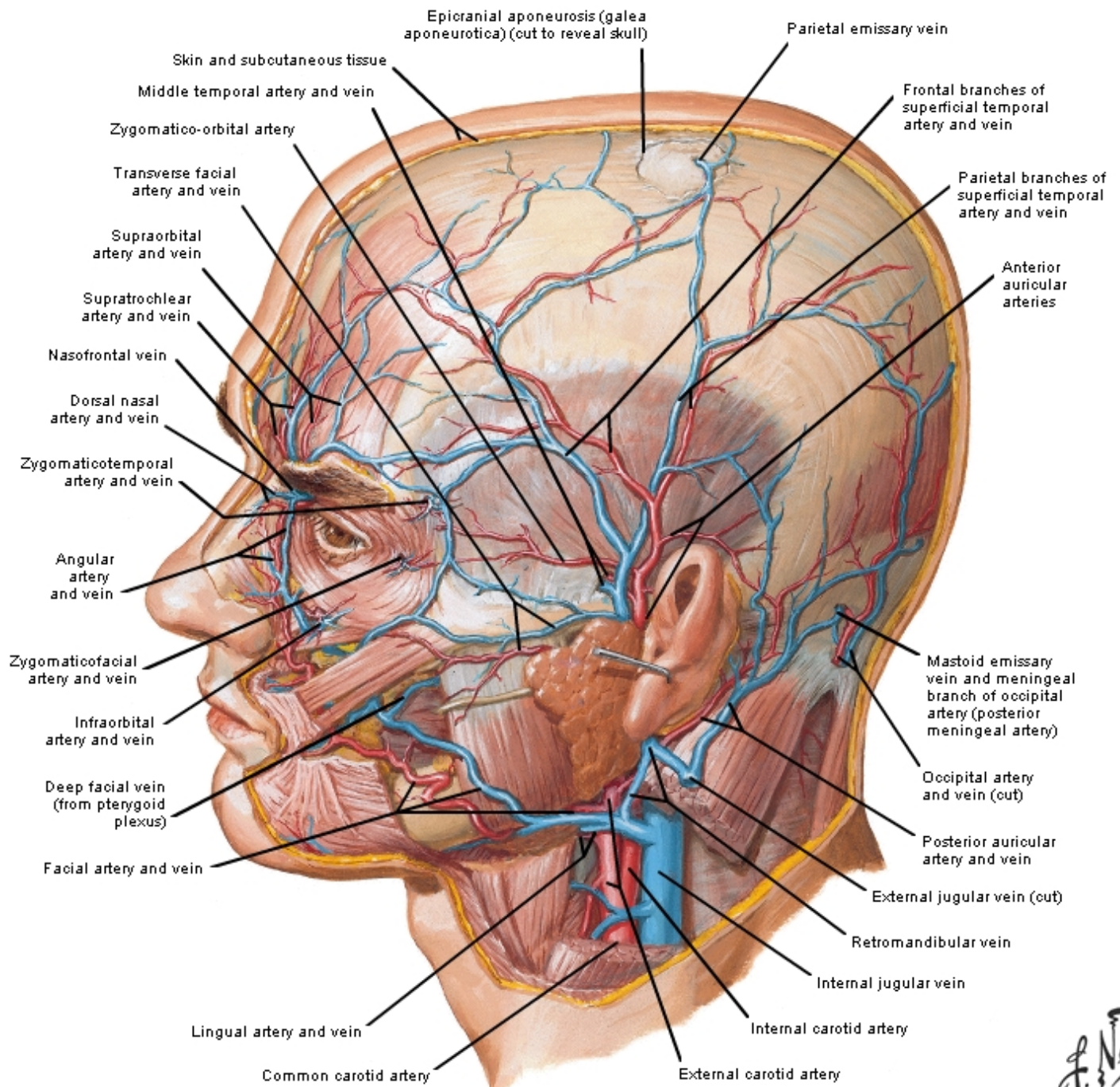
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Internal Craniocervical Ligaments



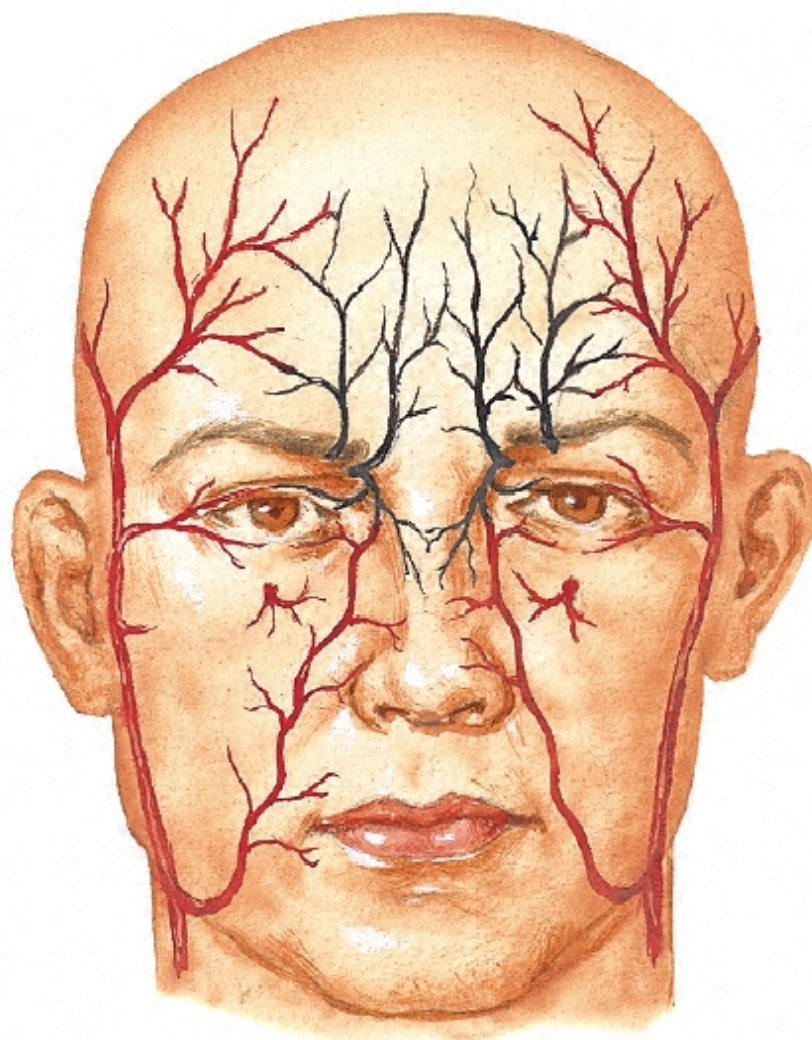
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Superficial Arteries and Veins of Face and Scalp



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Superficial Face Sources of Arterial Supply

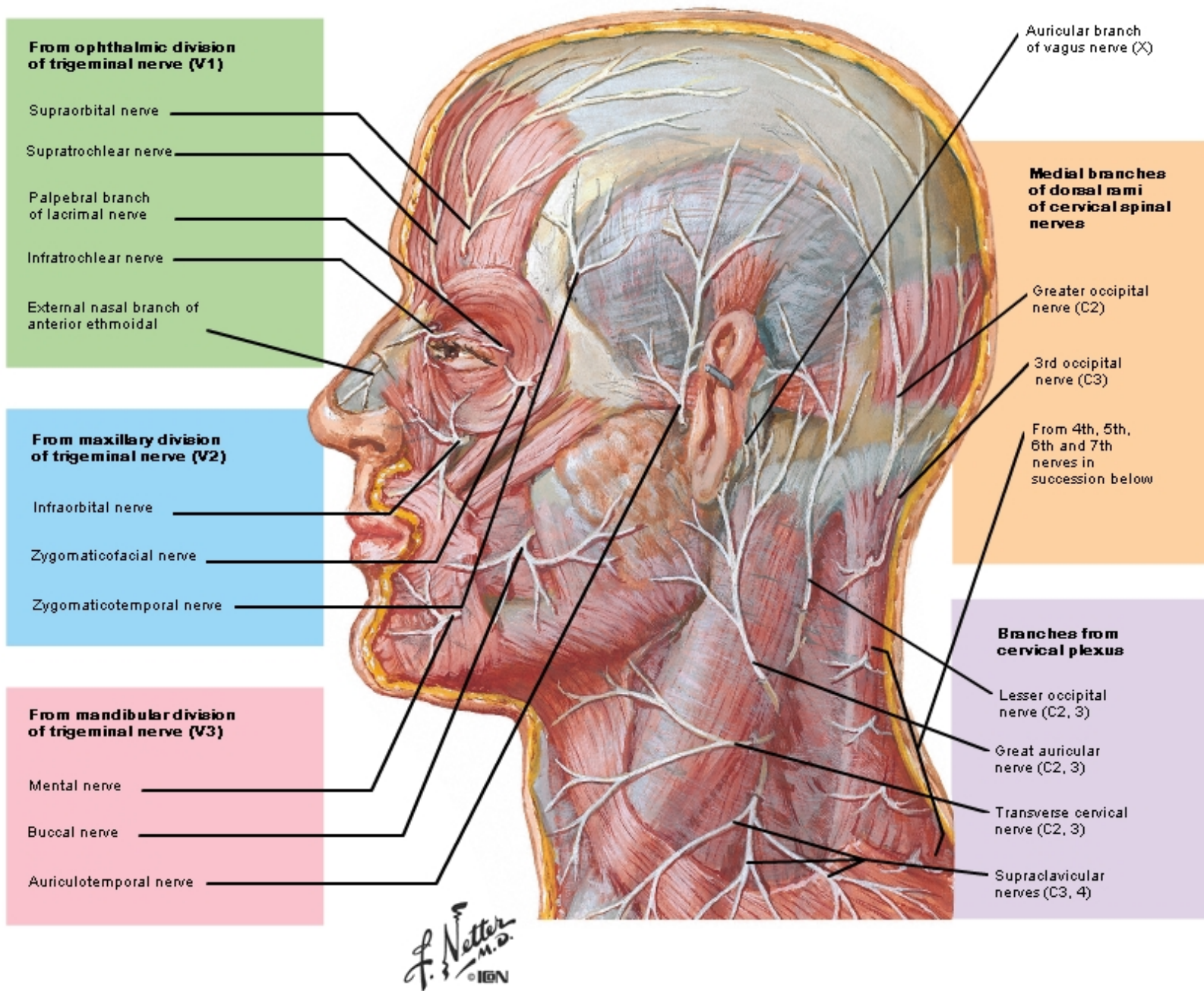


Black: from internal carotid artery (via ophthalmic artery)

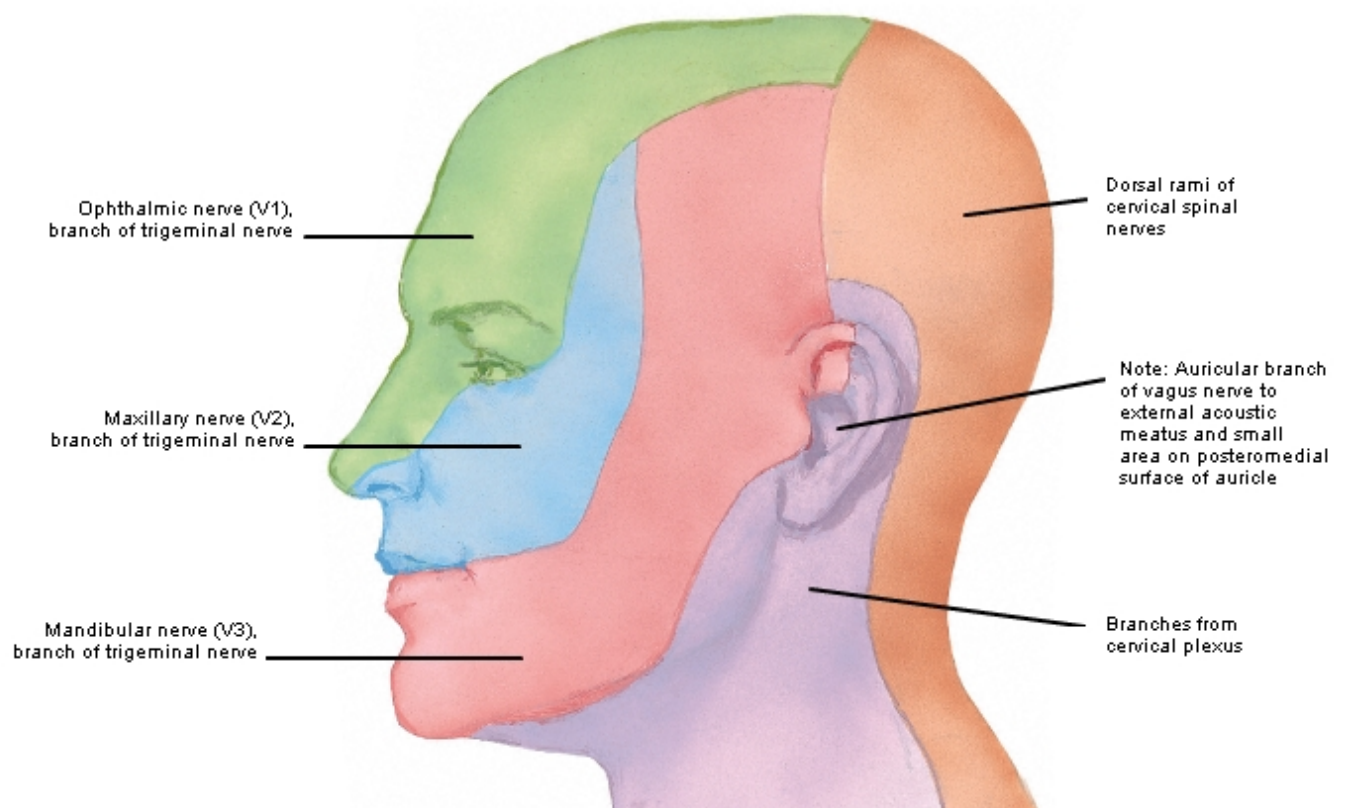
Red: from external carotid artery

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Cutaneous Nerves of Head and Neck

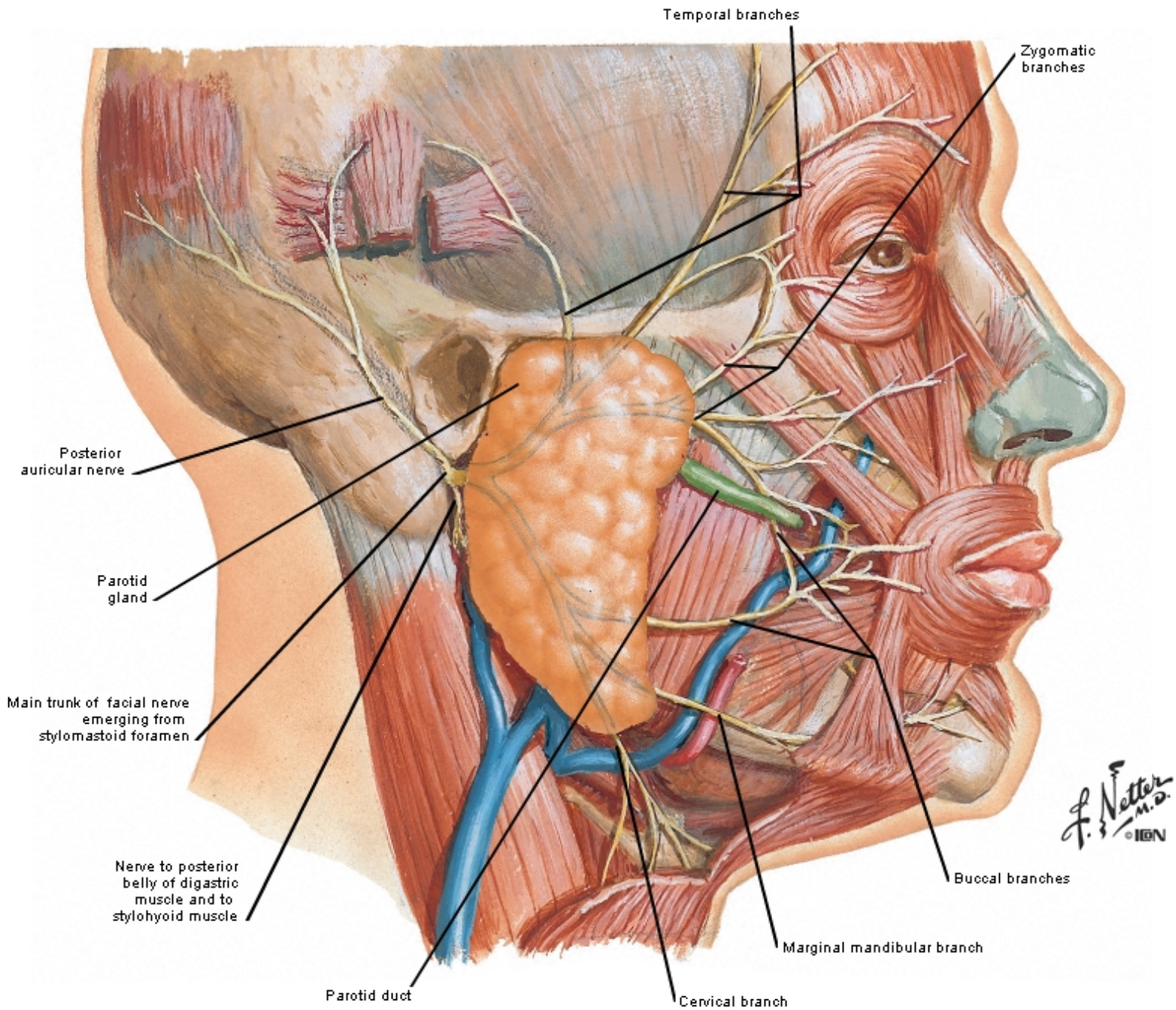


Dermatomes of Head and Neck



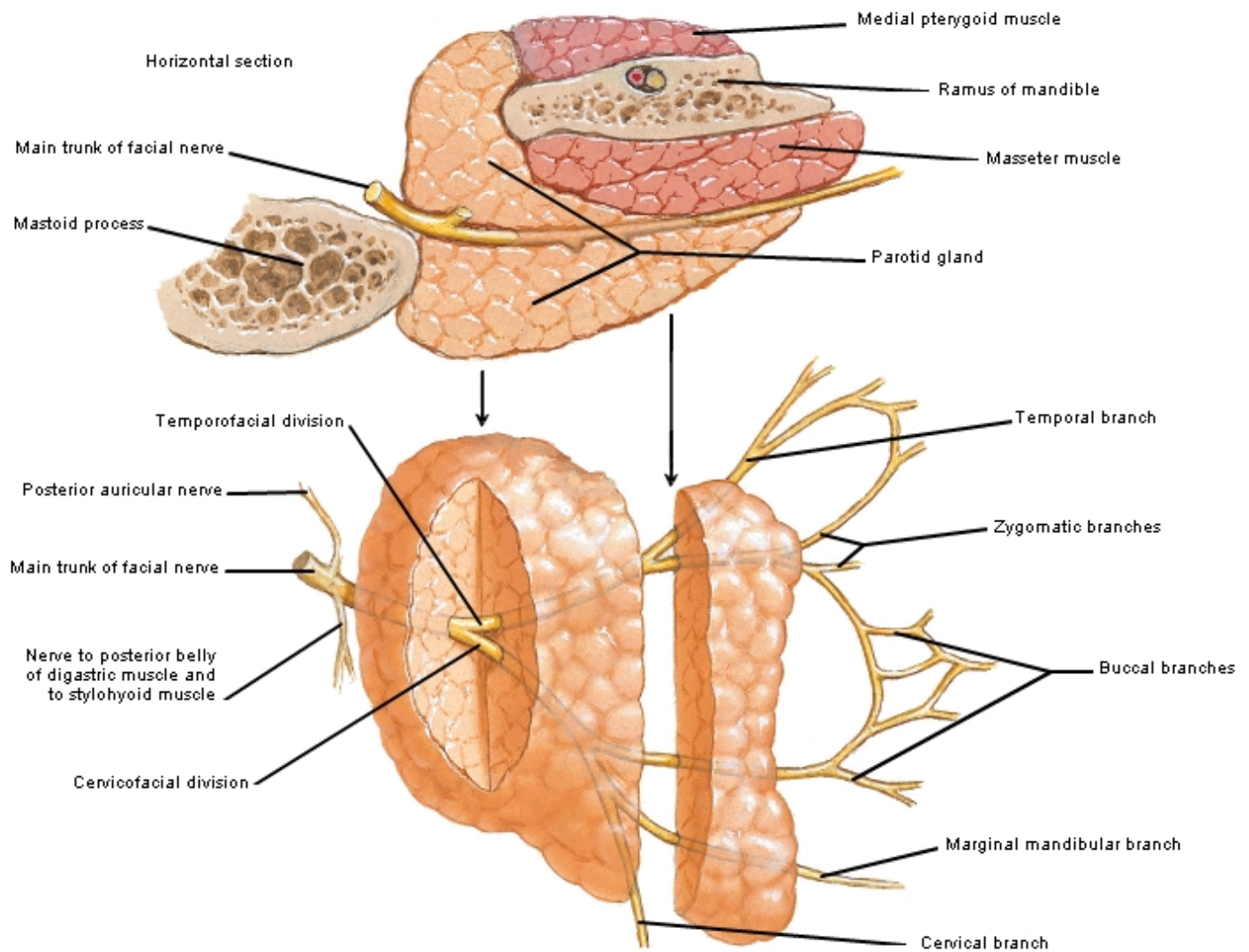
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Facial Nerve Branches and Parotid Gland in Situ



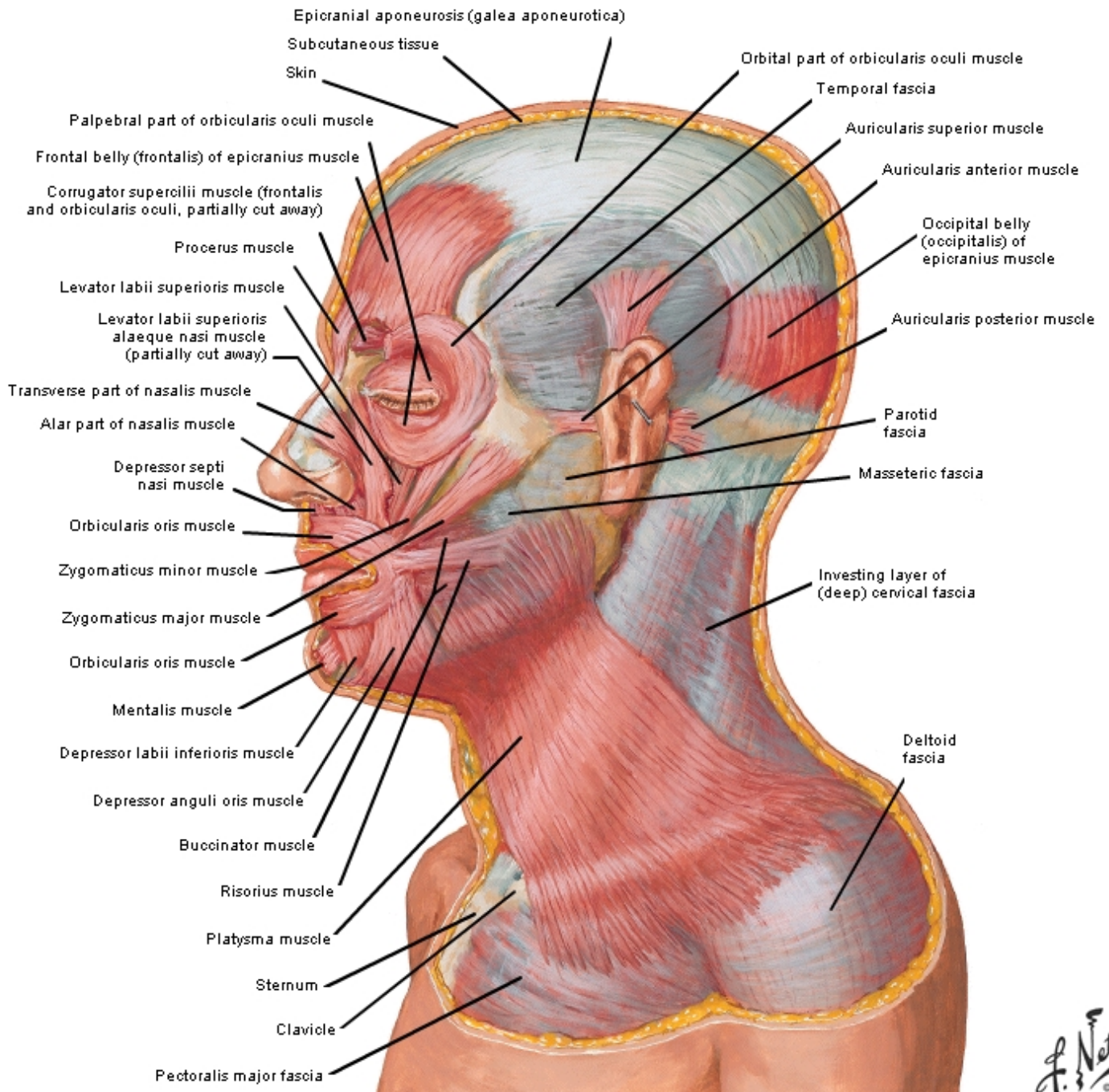
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Facial Nerve Branches and Parotid Gland Sectioned



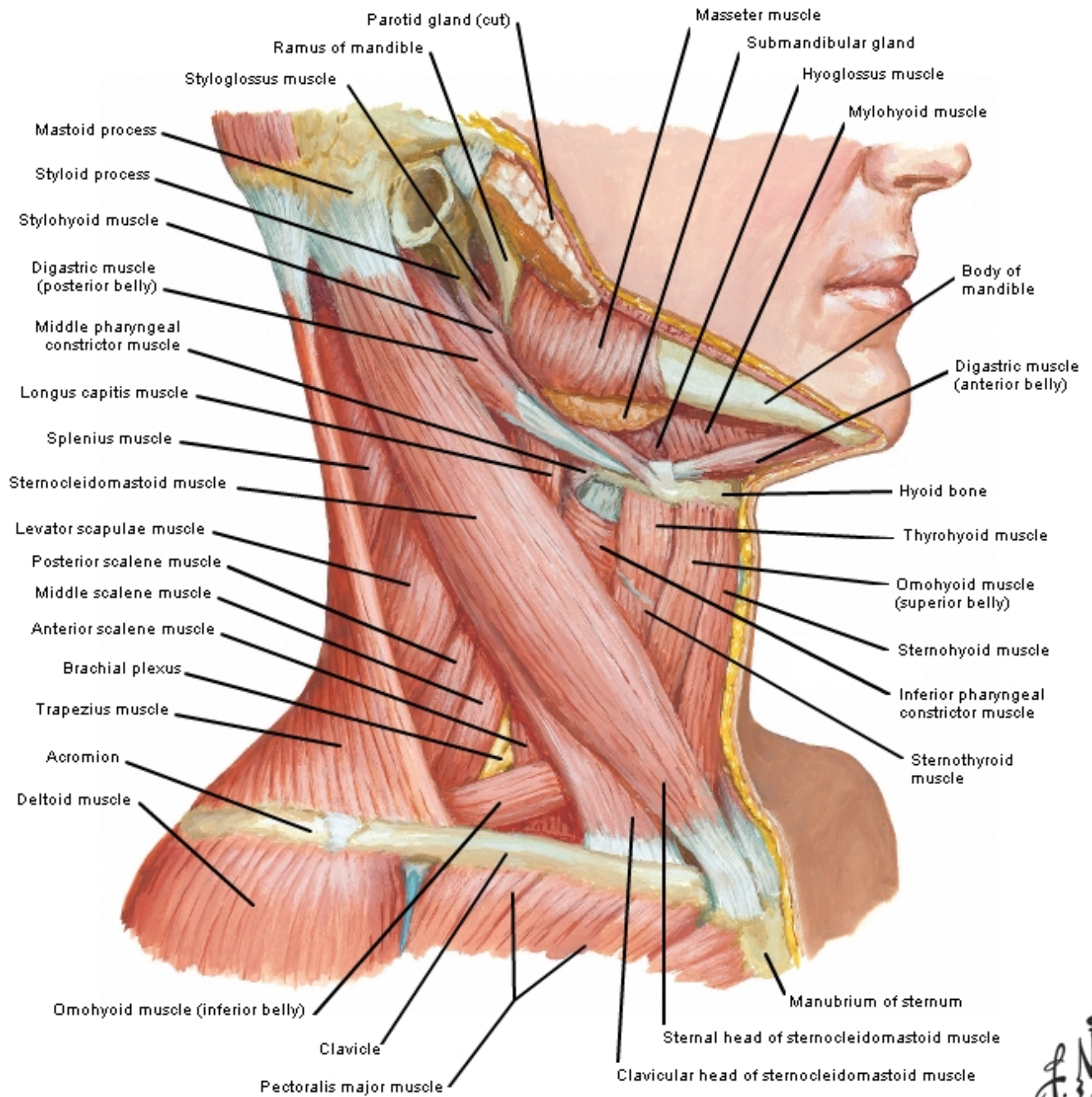
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Muscles of Facial Expression: Lateral View



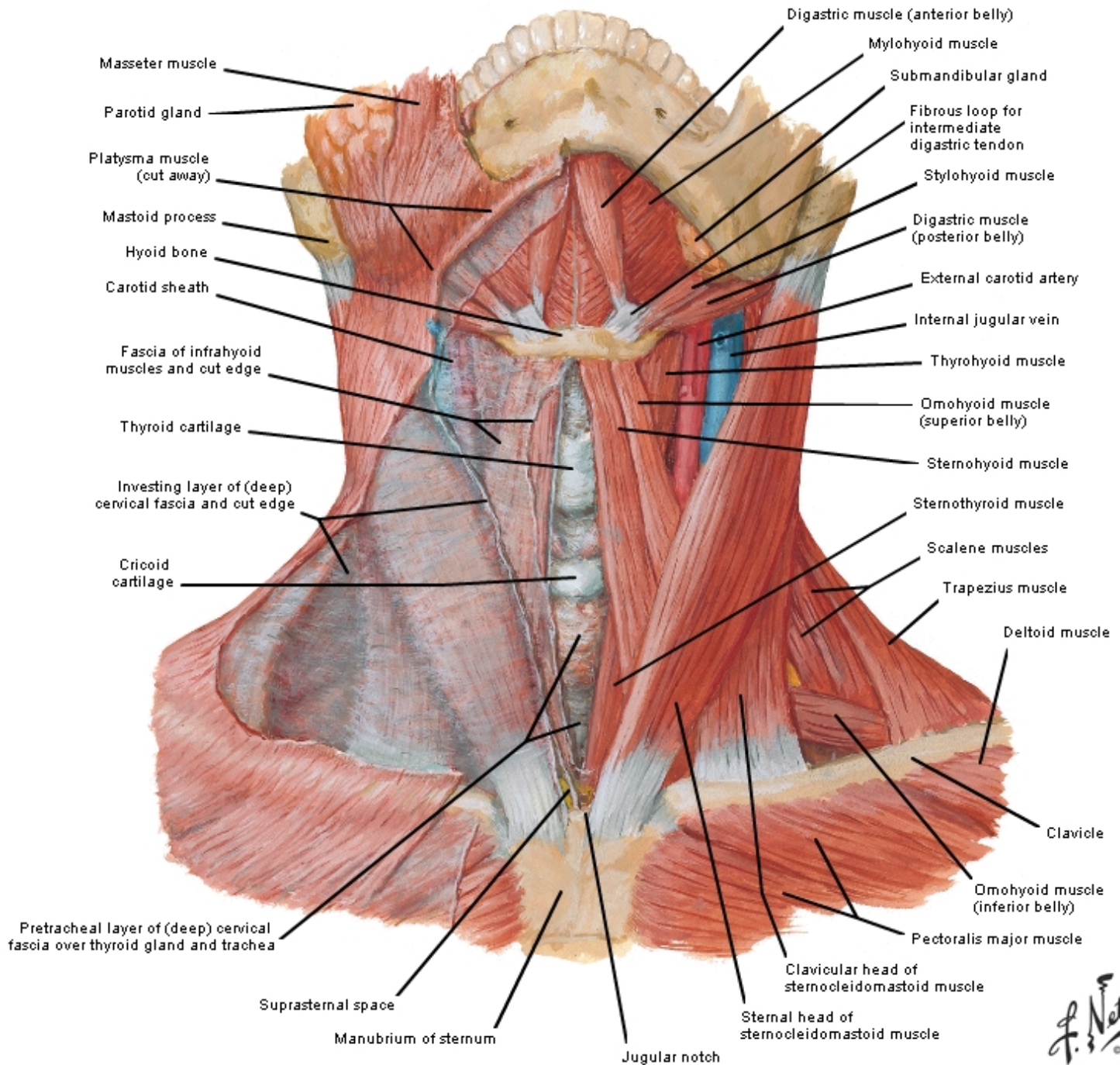
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Muscles of Neck Lateral View



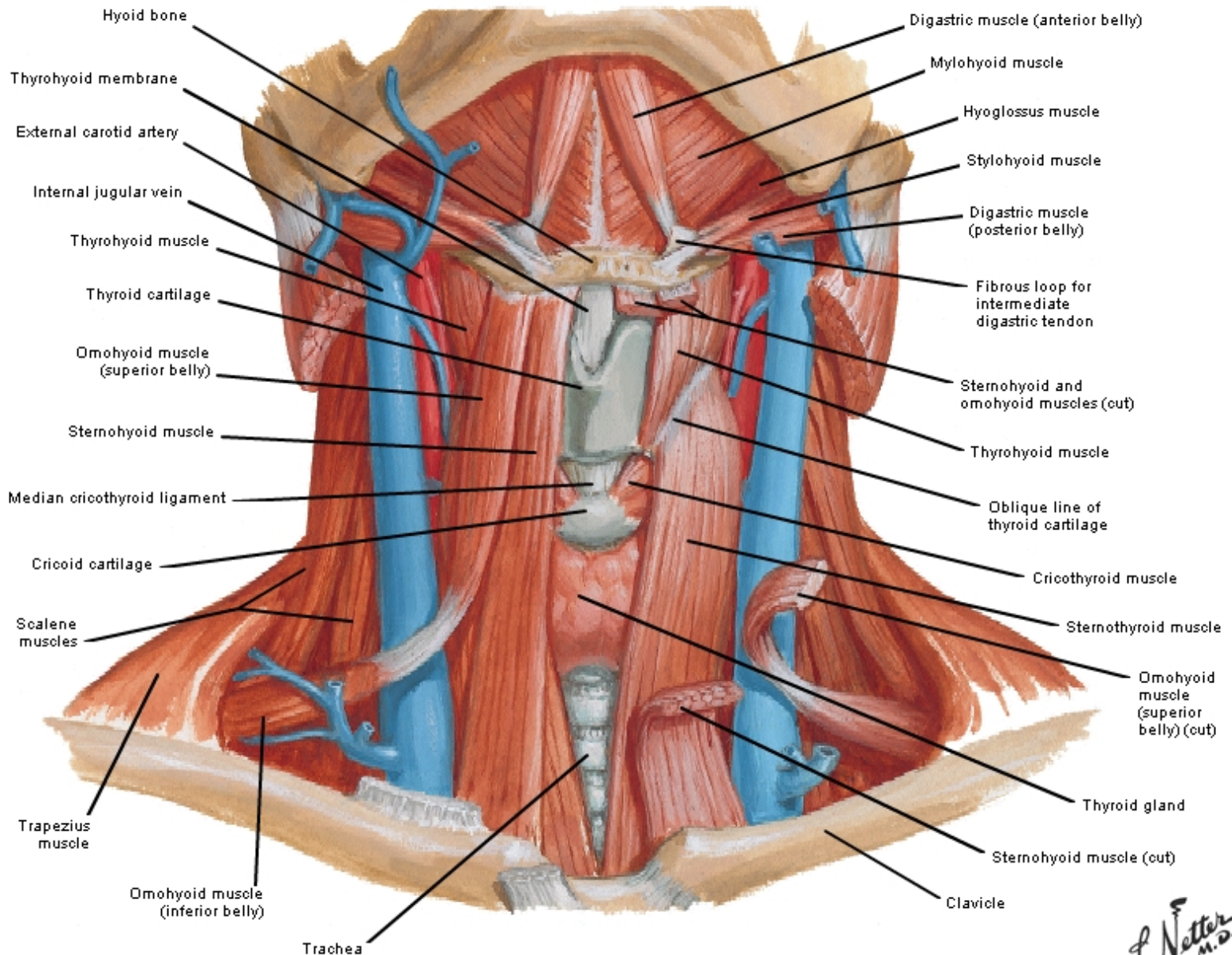
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Muscles of Neck: Anterior View



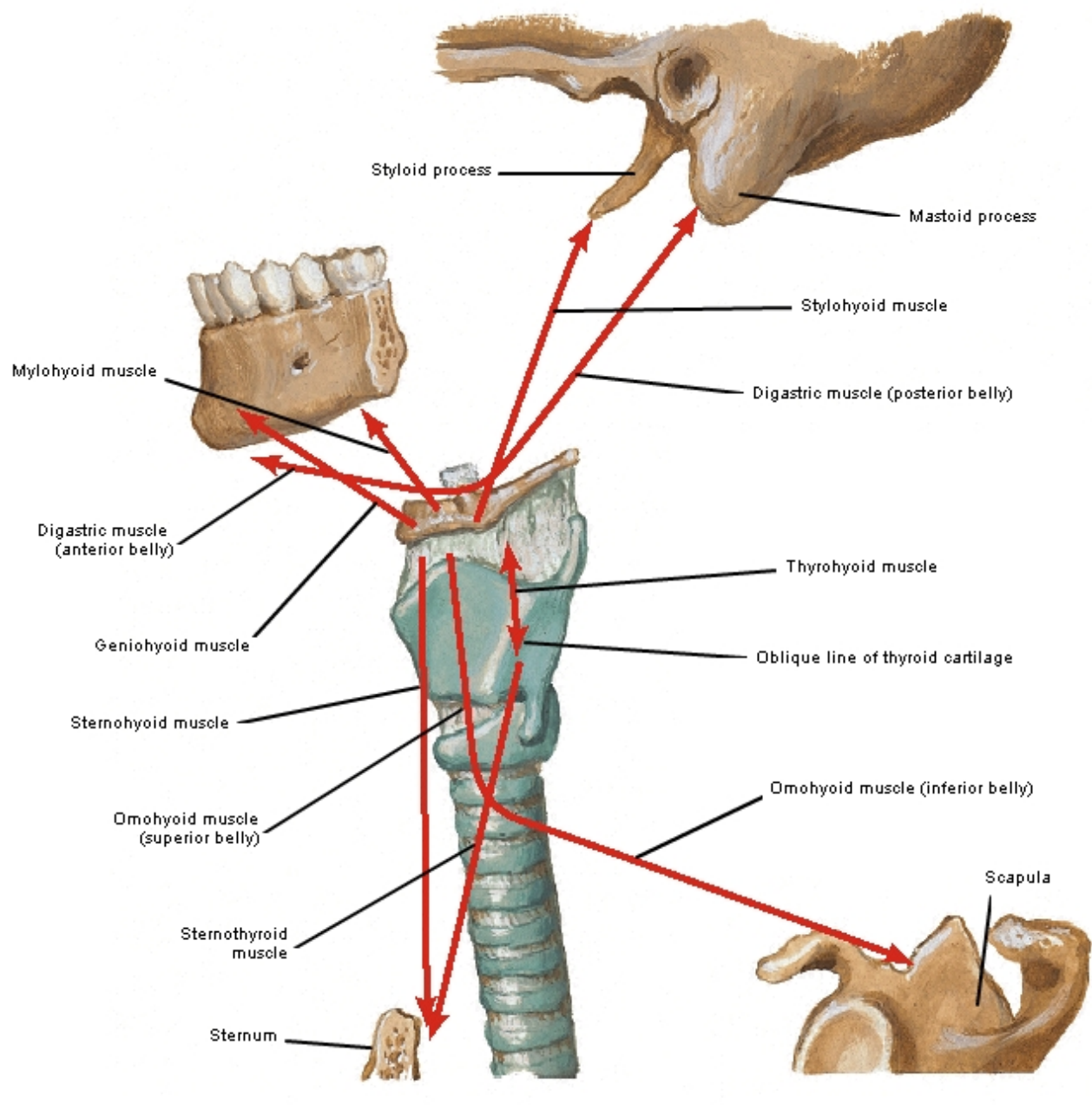
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Infrahyoid and Suprahyoid Muscles



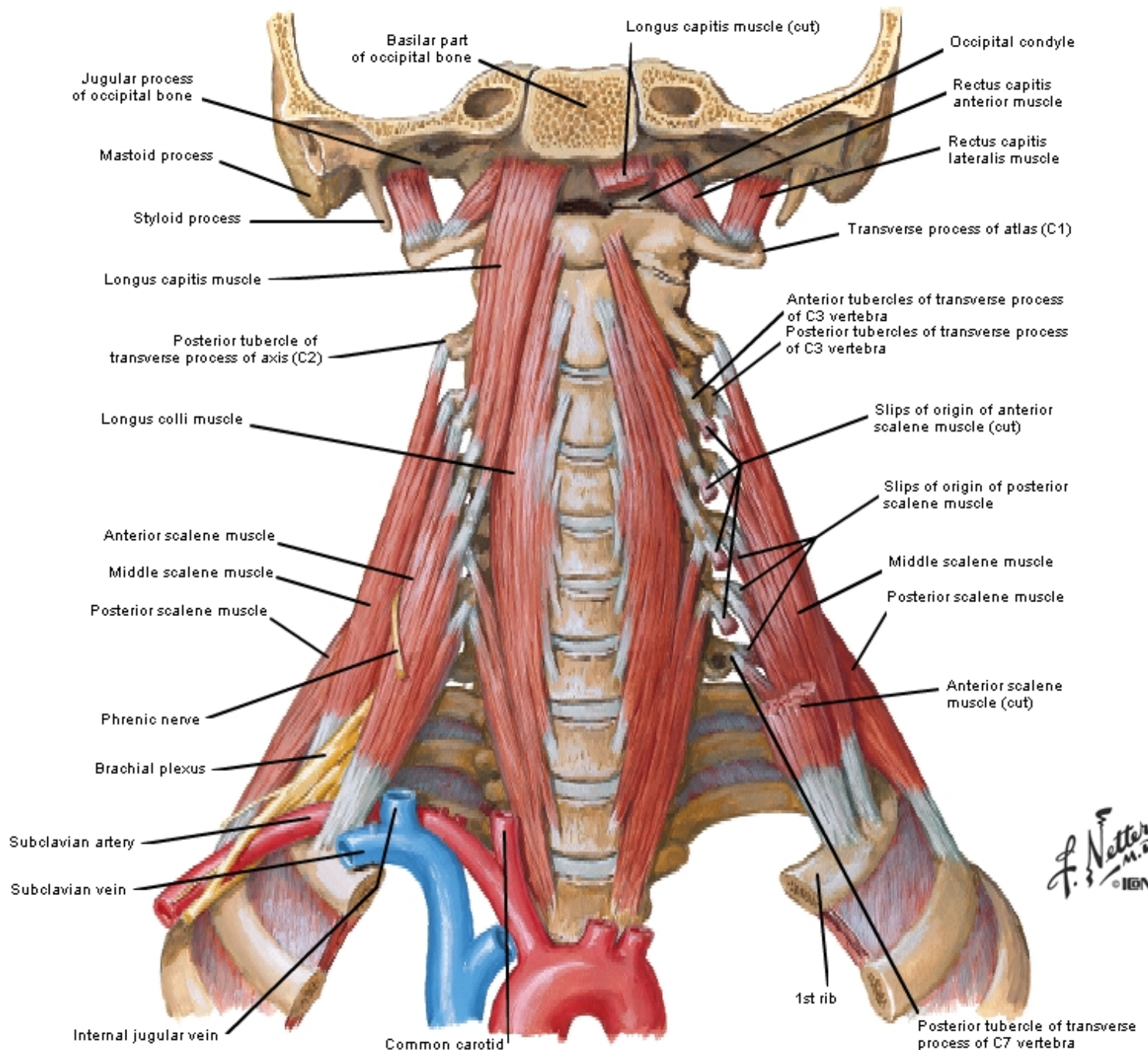
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Infrahyoid and Suprahyoid Muscles and their Action Schema

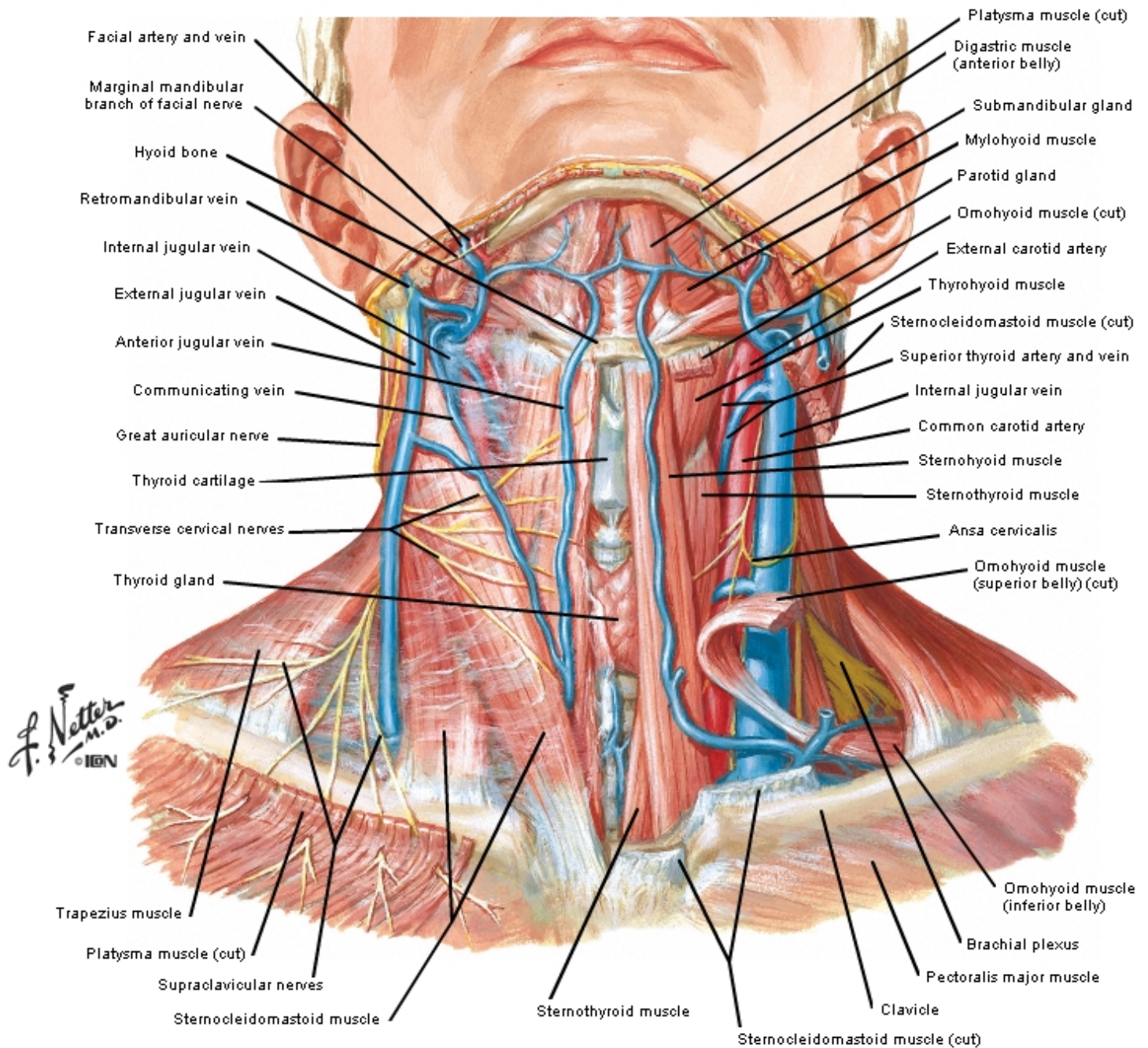


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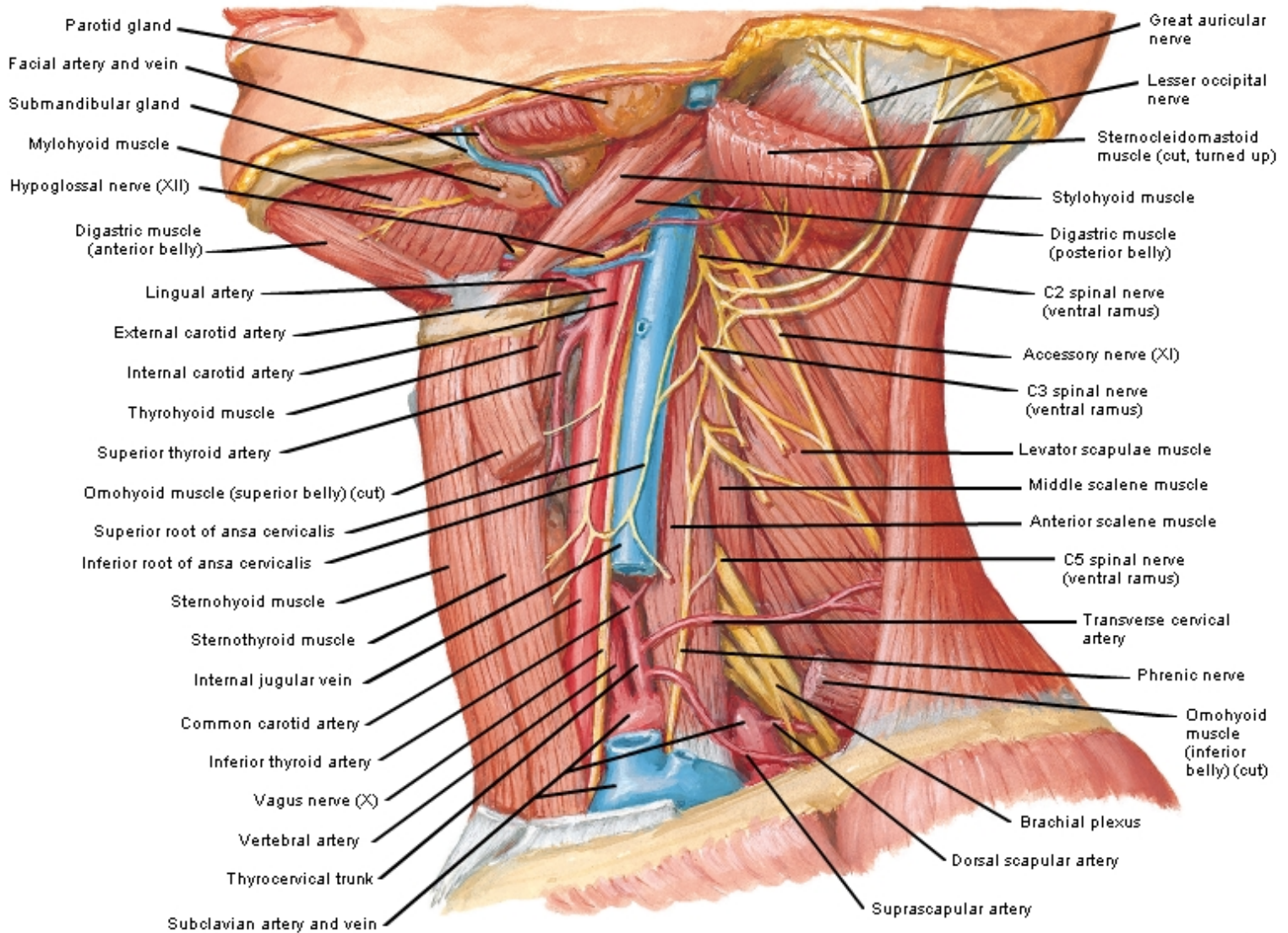
Scalene and Prevertebral Muscles



Superficial Veins and Cutaneous Nerves of Neck

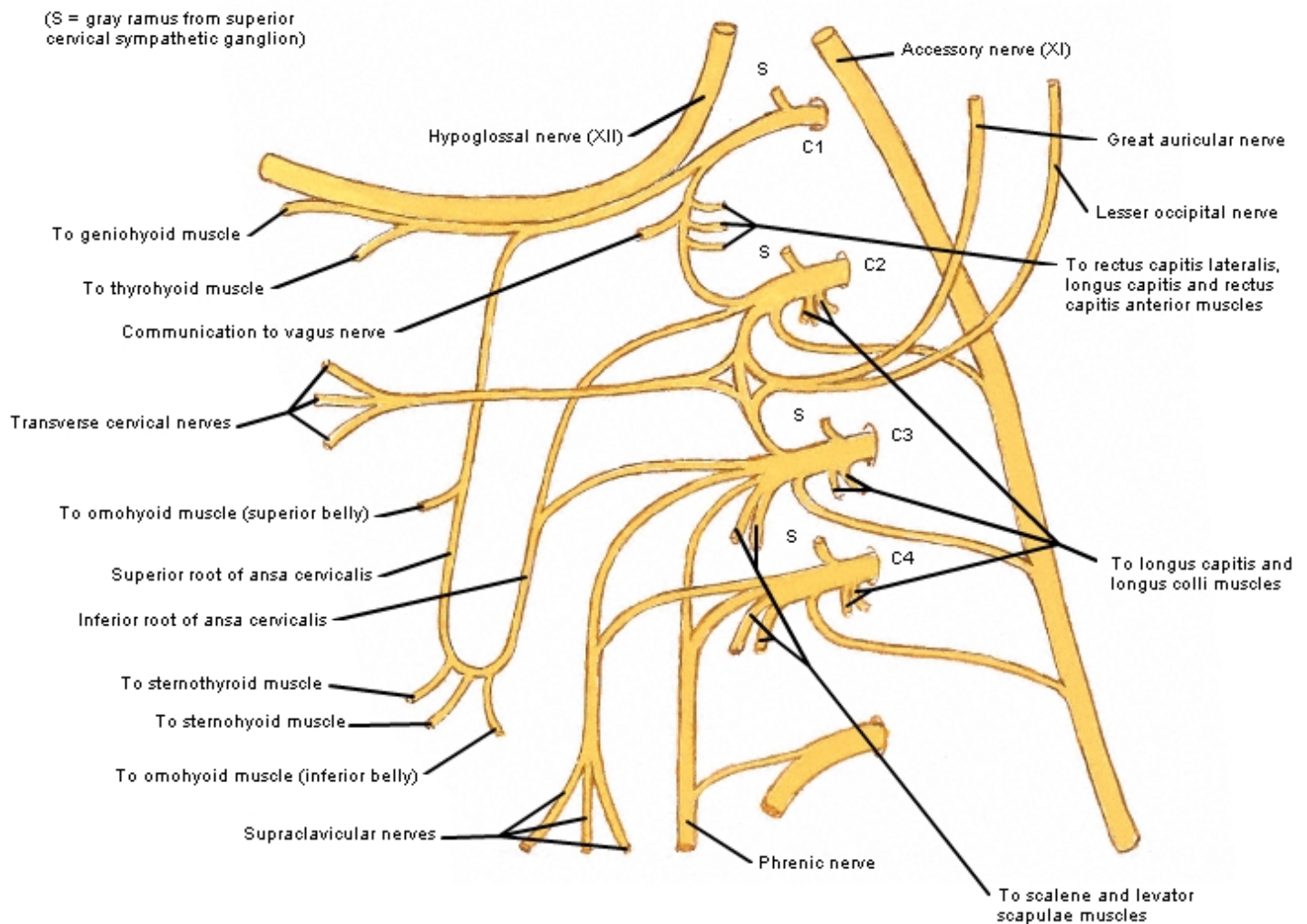


Cervical Plexus In Situ



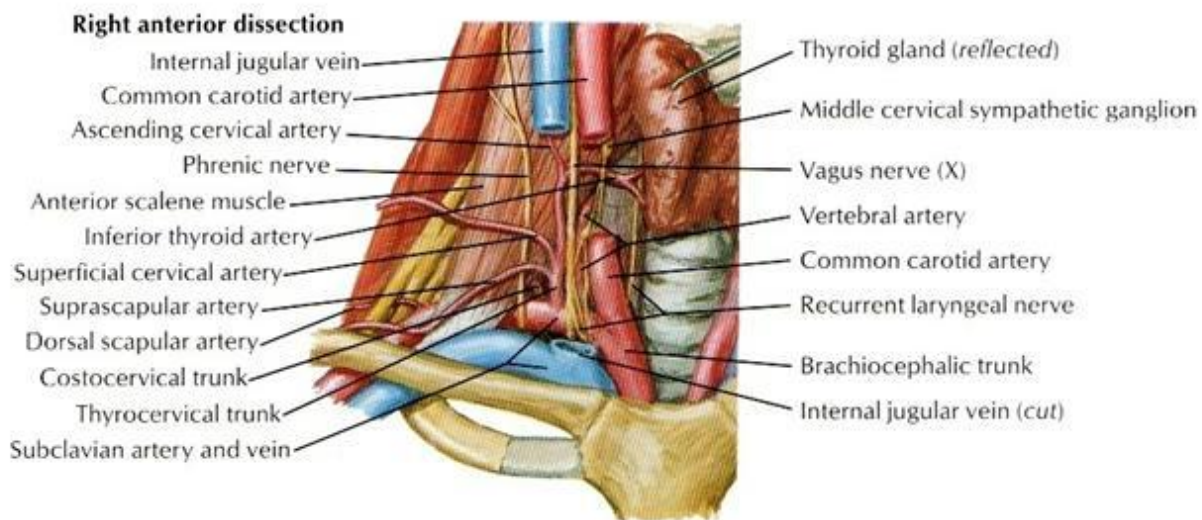
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Cervical Plexus Schema

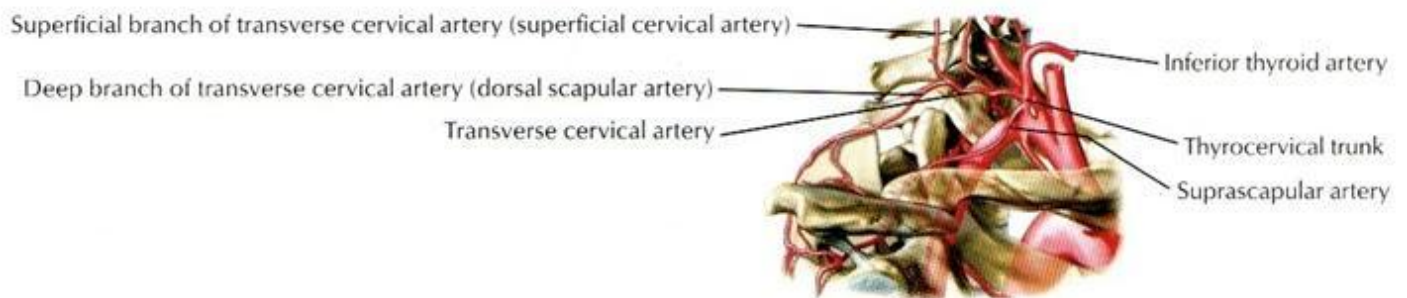


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Subclavian Artery: Right Anterior Dissection

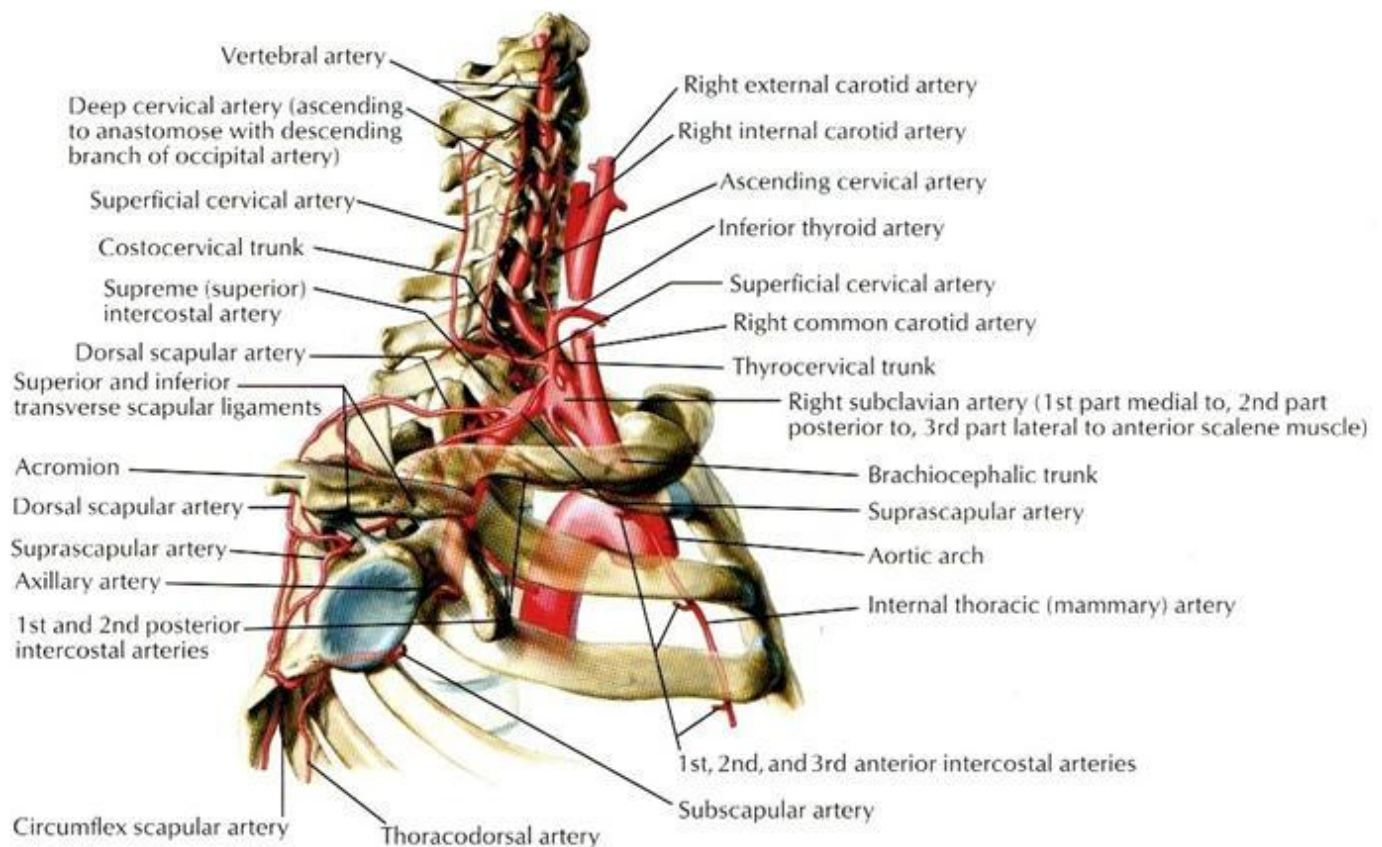


Common origin of superficial cervical and dorsal scapular arteries from transverse cervical artery (~30%)



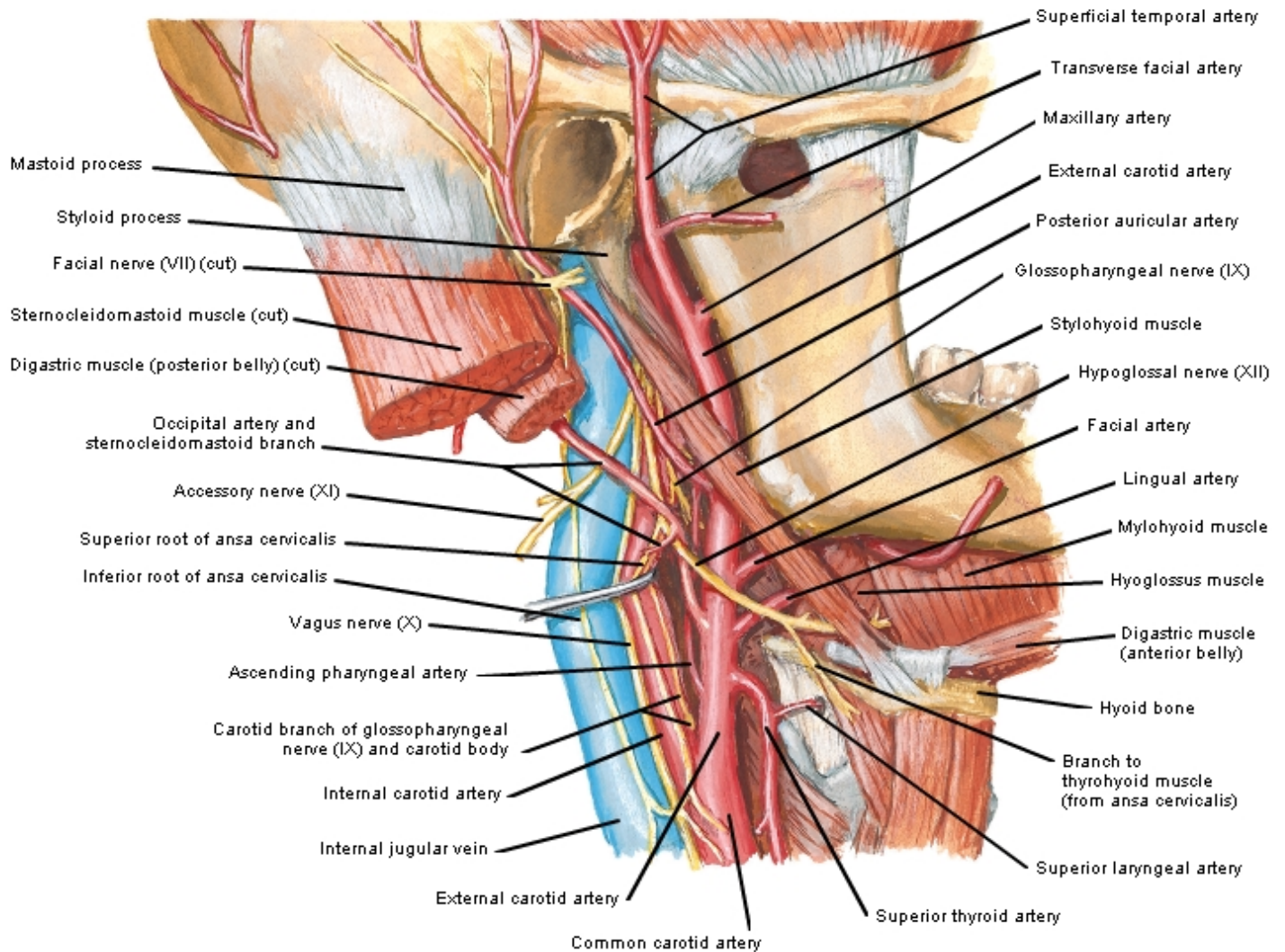
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Subclavian Artery: Right Oblique Schematic View



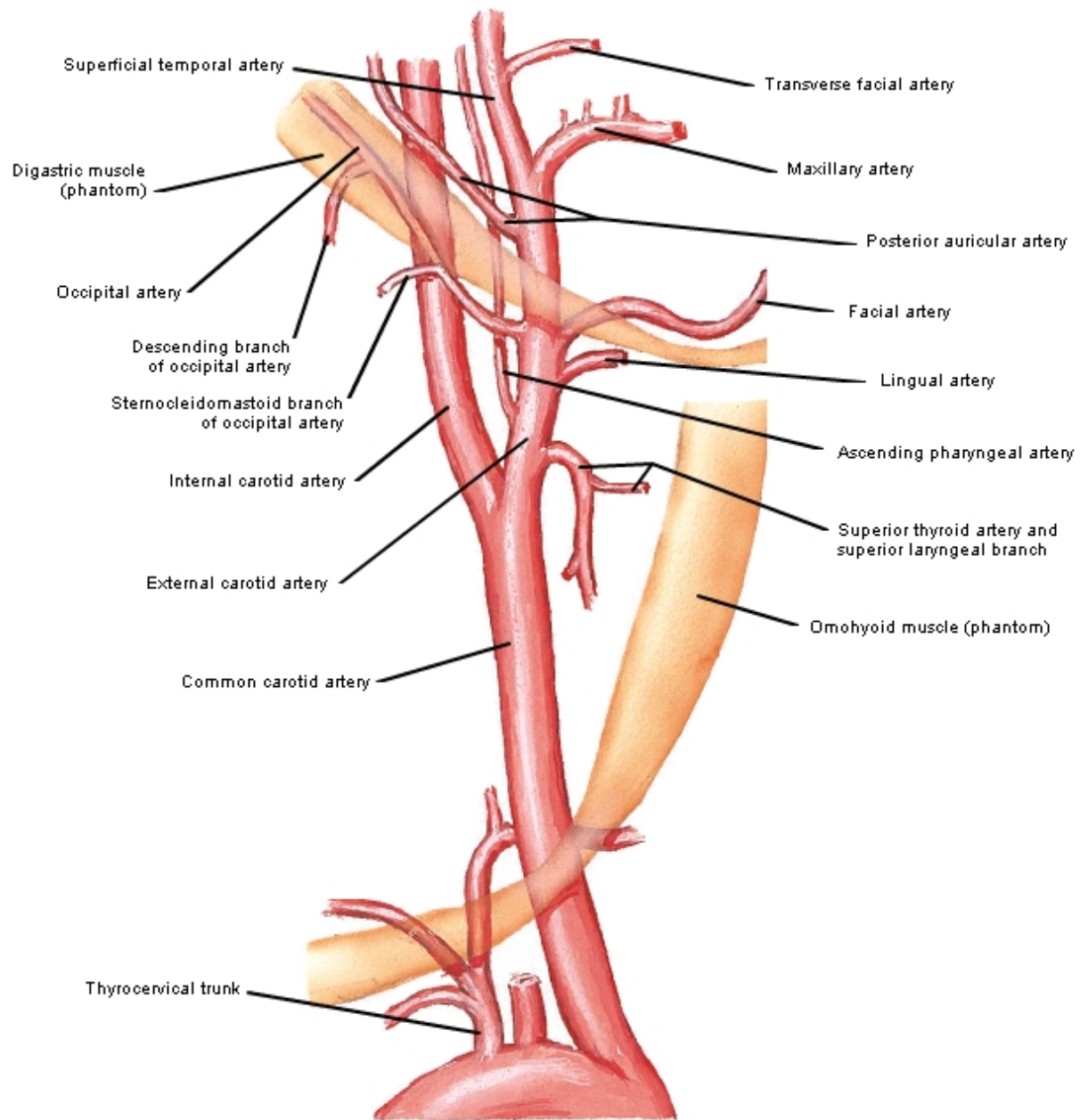
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Carotid Arteries - Parotid Space (Bed) Right Lateral Dissection



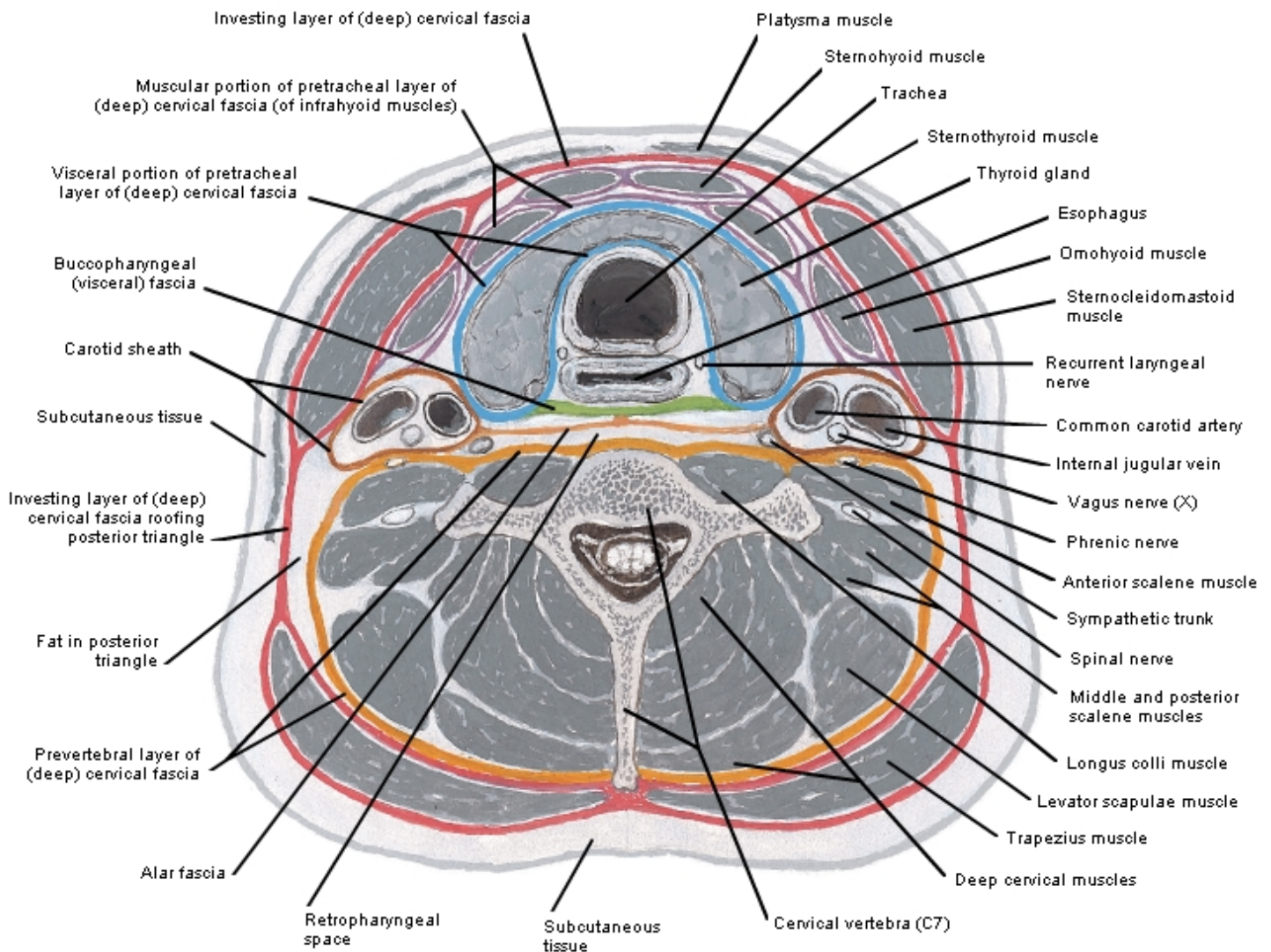
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External Carotid Artery and Branches Schema



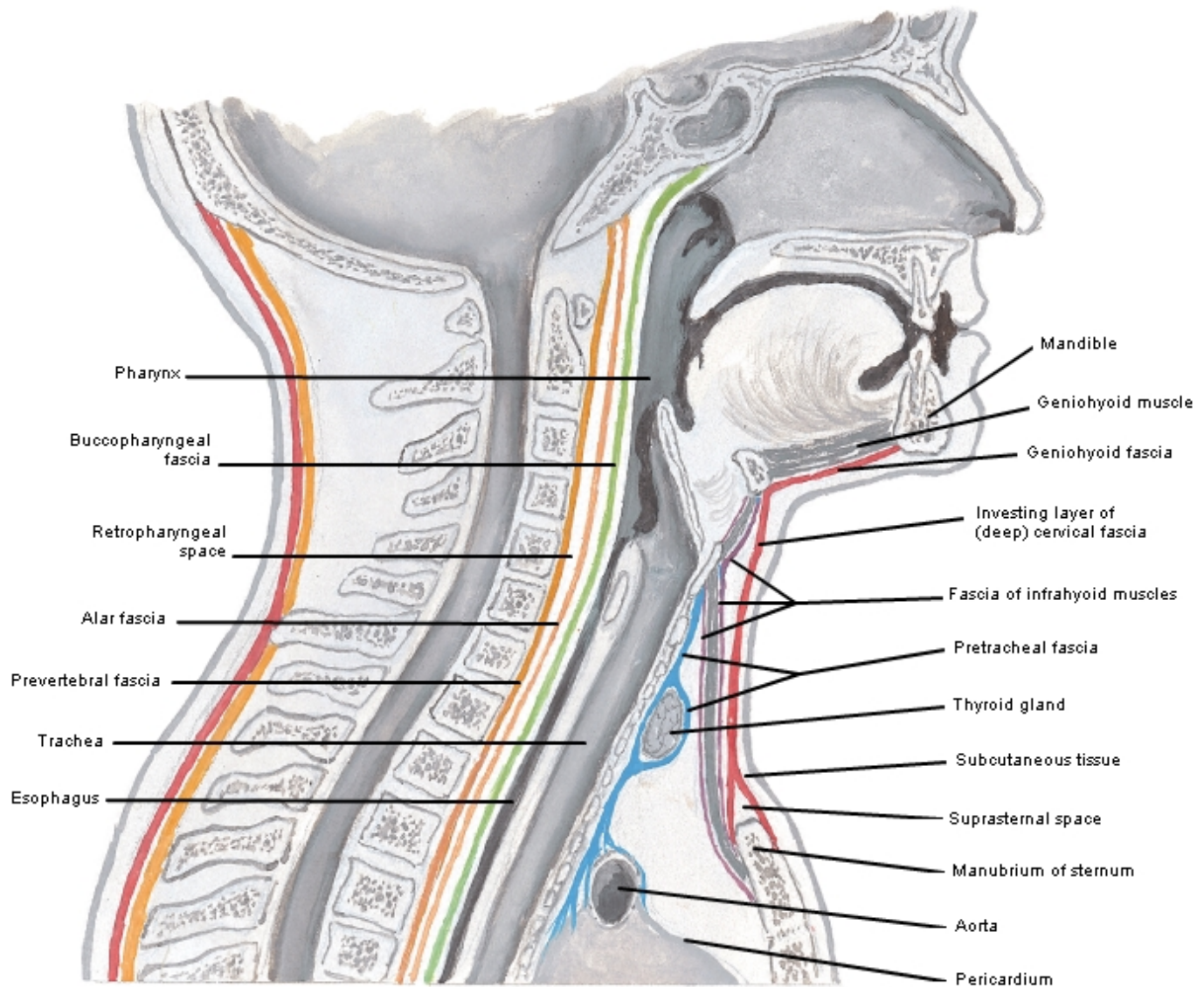
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Fascial Layers of Neck Cross Section



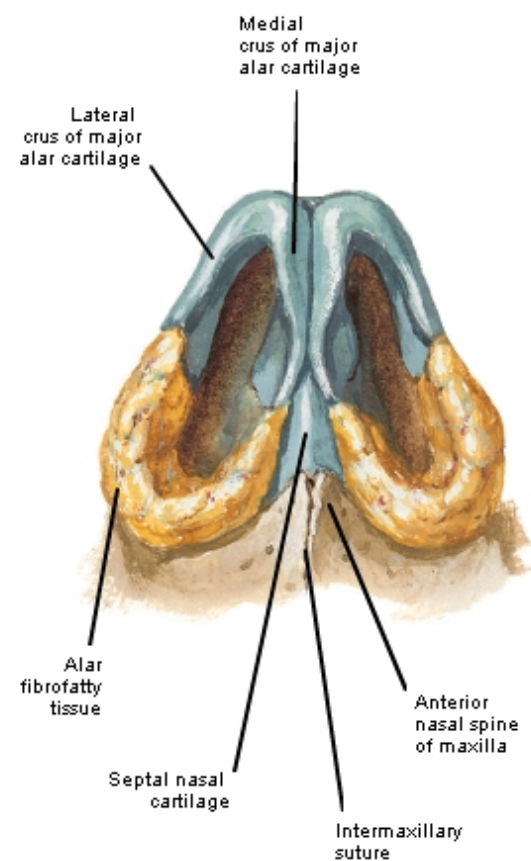
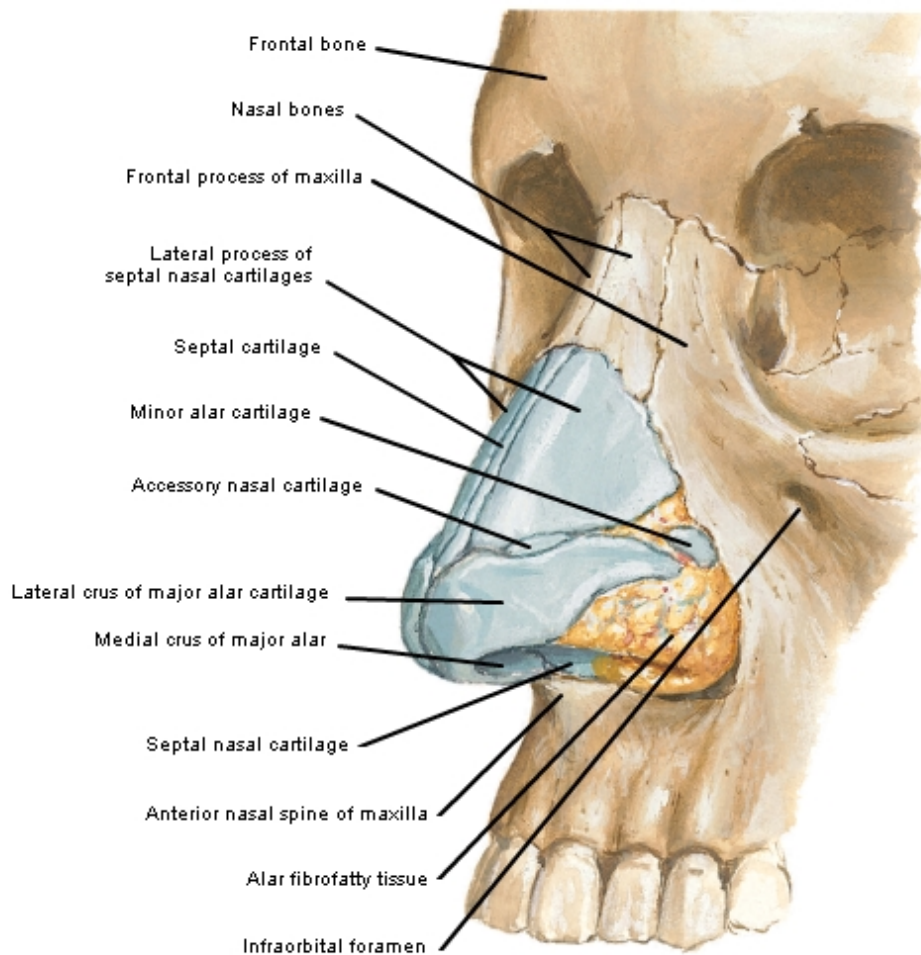
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Fascial Layers of Neck Sagittal Section



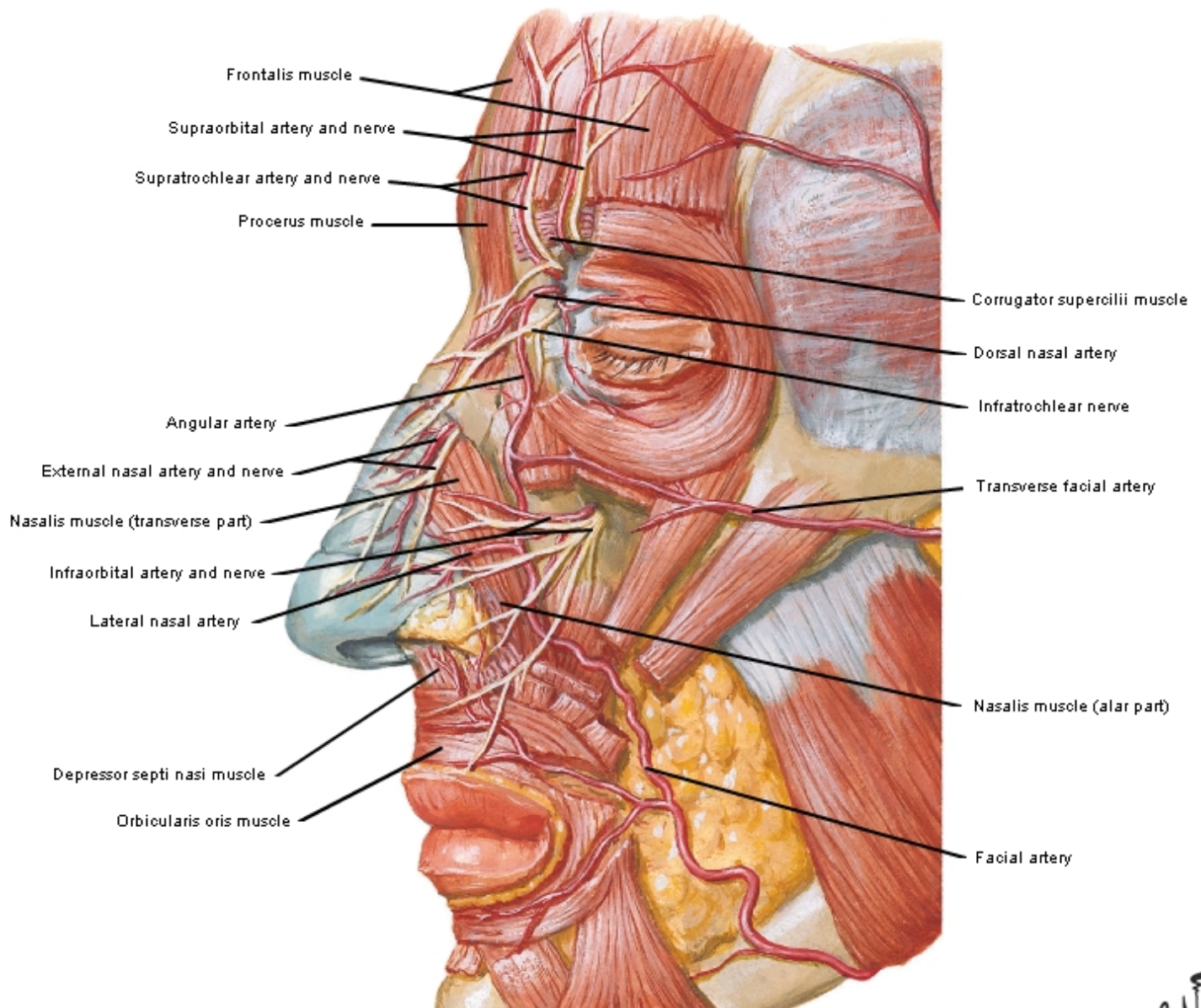
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Nose (Skeleton) Anterolateral and Inferior Views



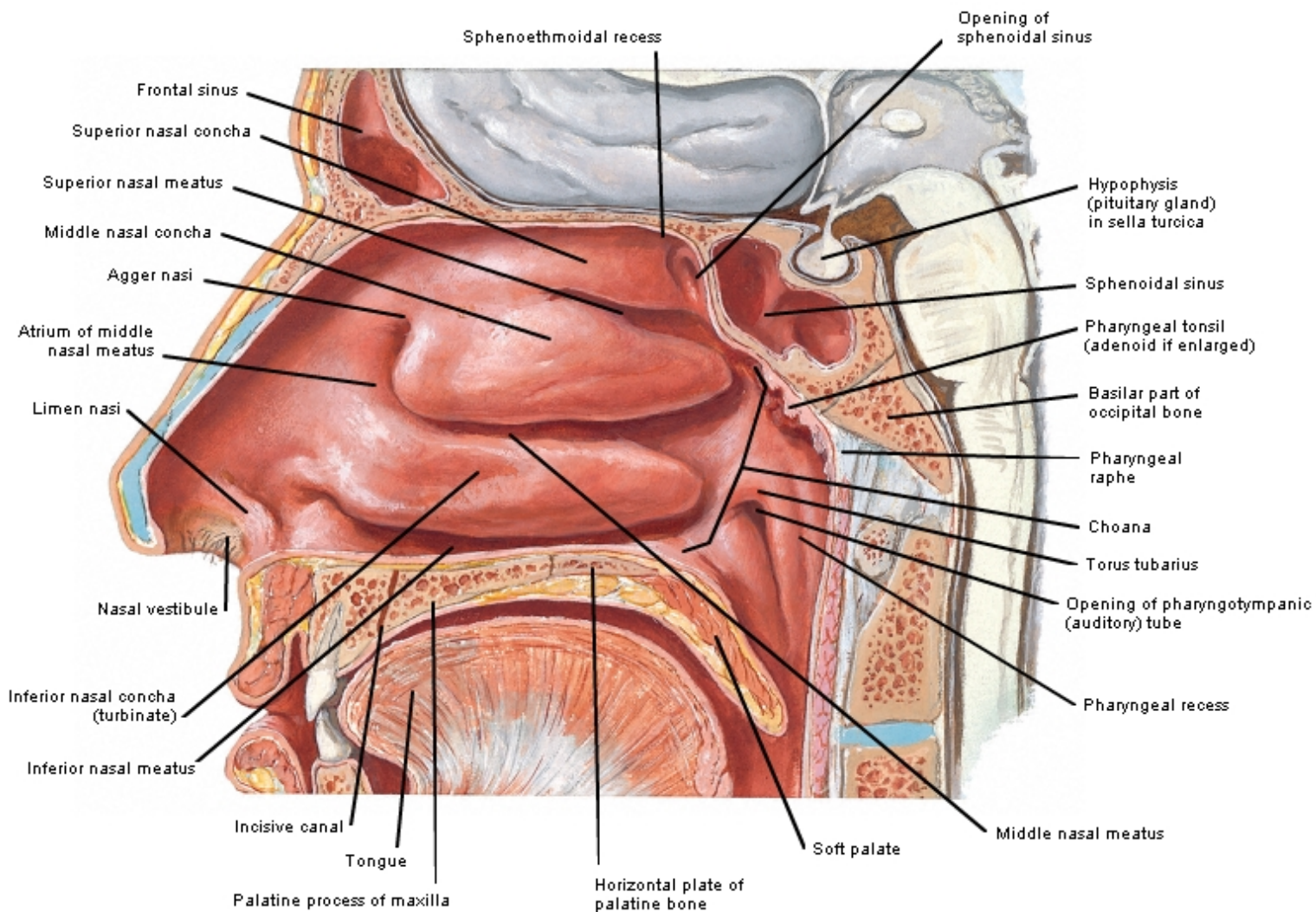
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Nose (Skeleton) In Situ Lateral View



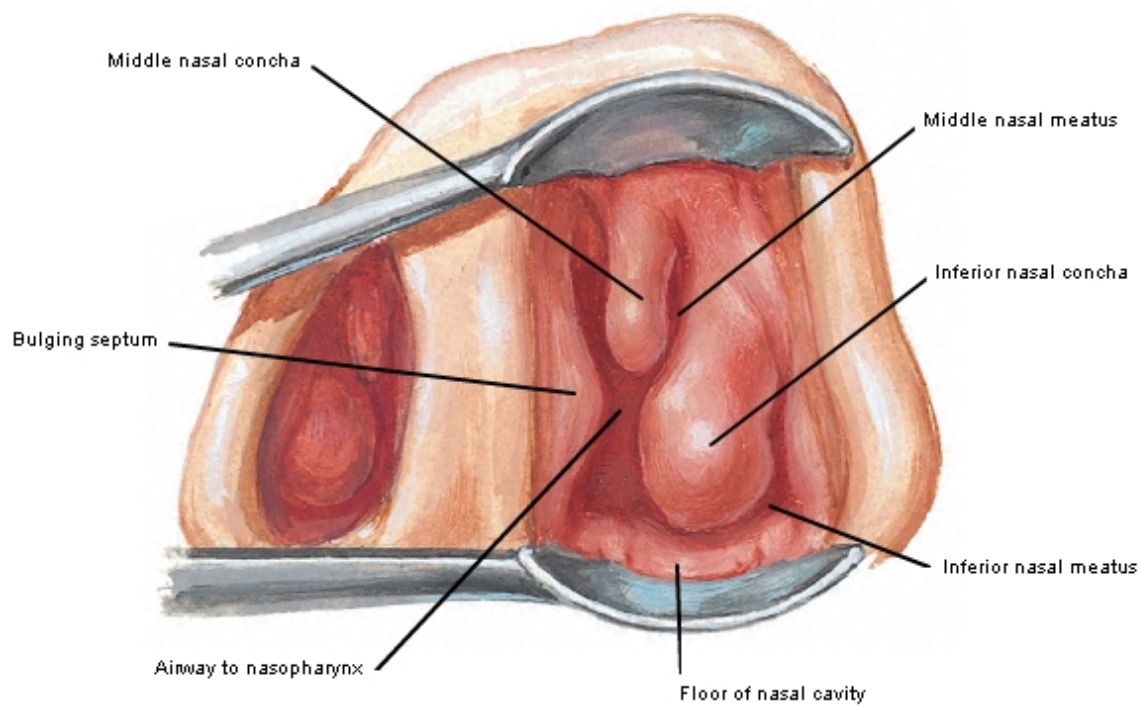
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Lateral Wall of Nasal Cavity



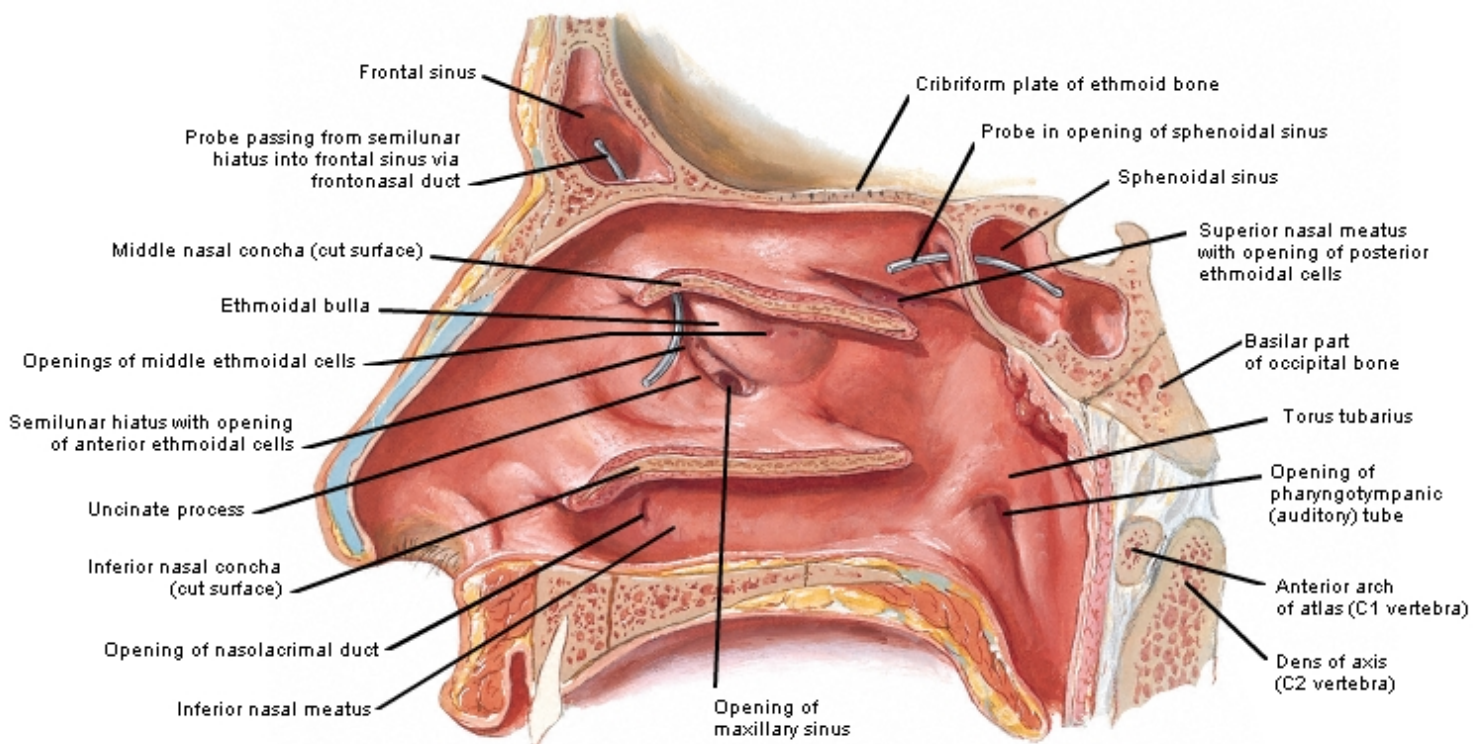
F. Netter M.D.
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Nasal Cavity Speculum View



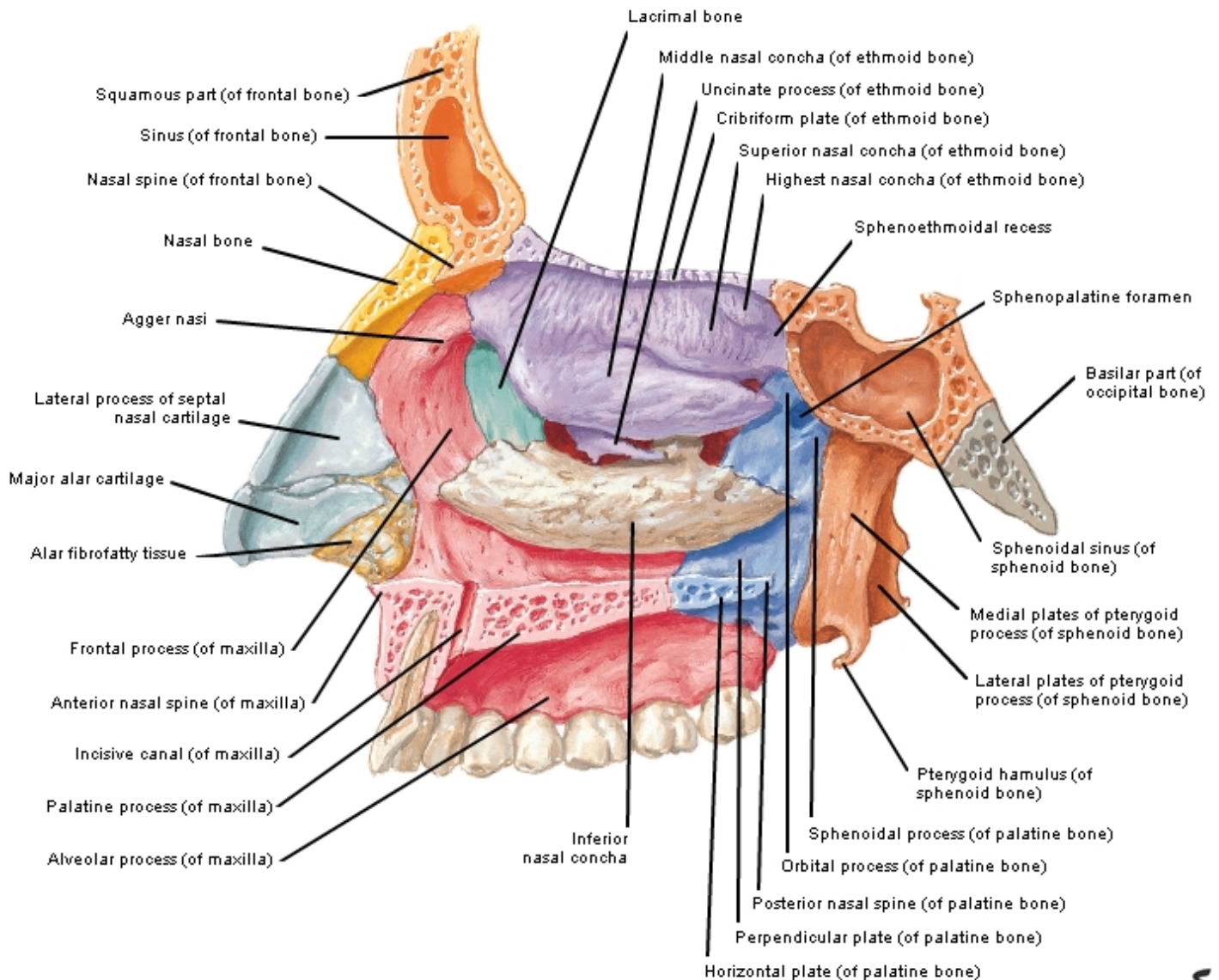
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Lateral Wall of Nasal Cavity - Nasal Conchae Removed



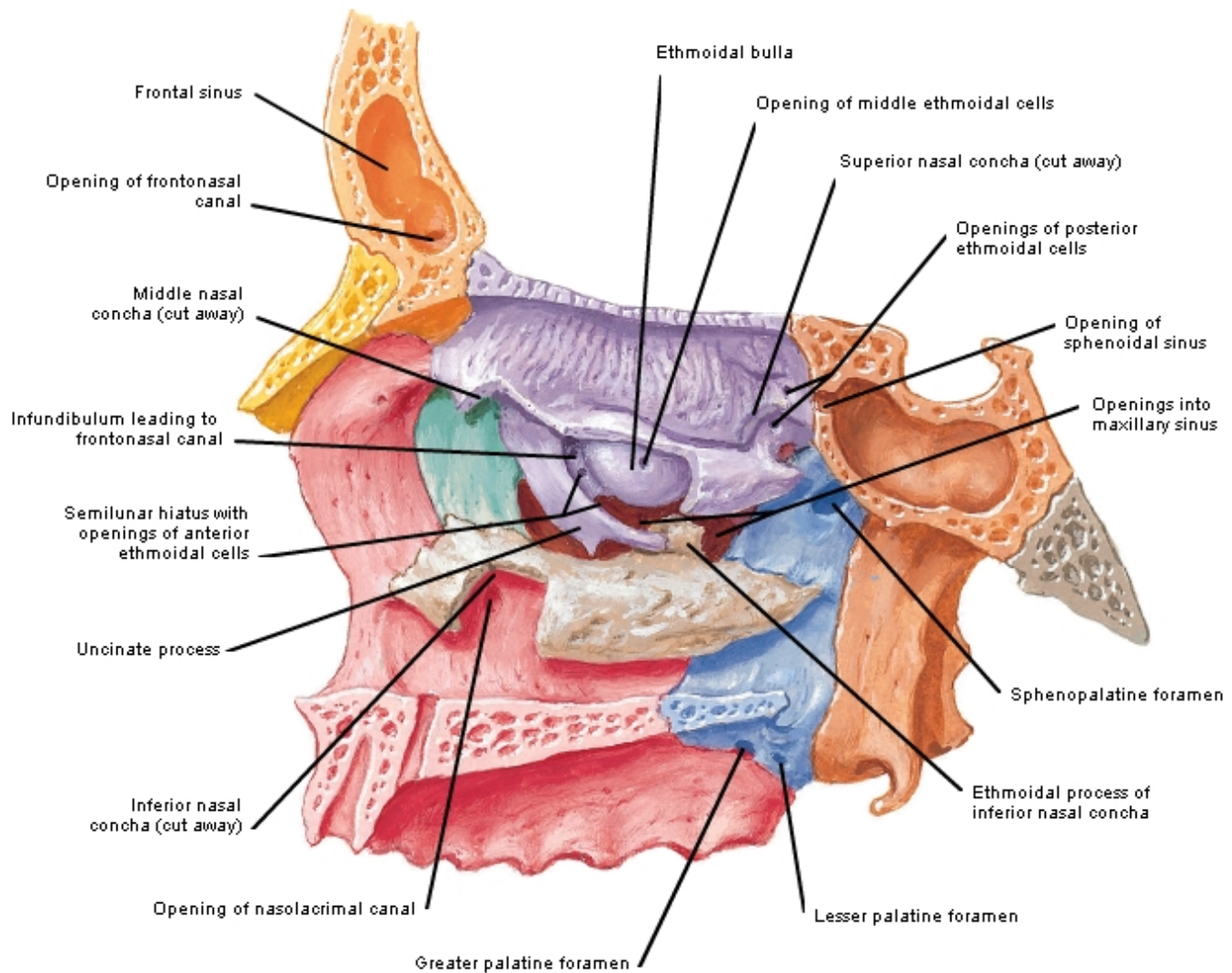
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Lateral Wall of Nasal Cavity - Bony Structure



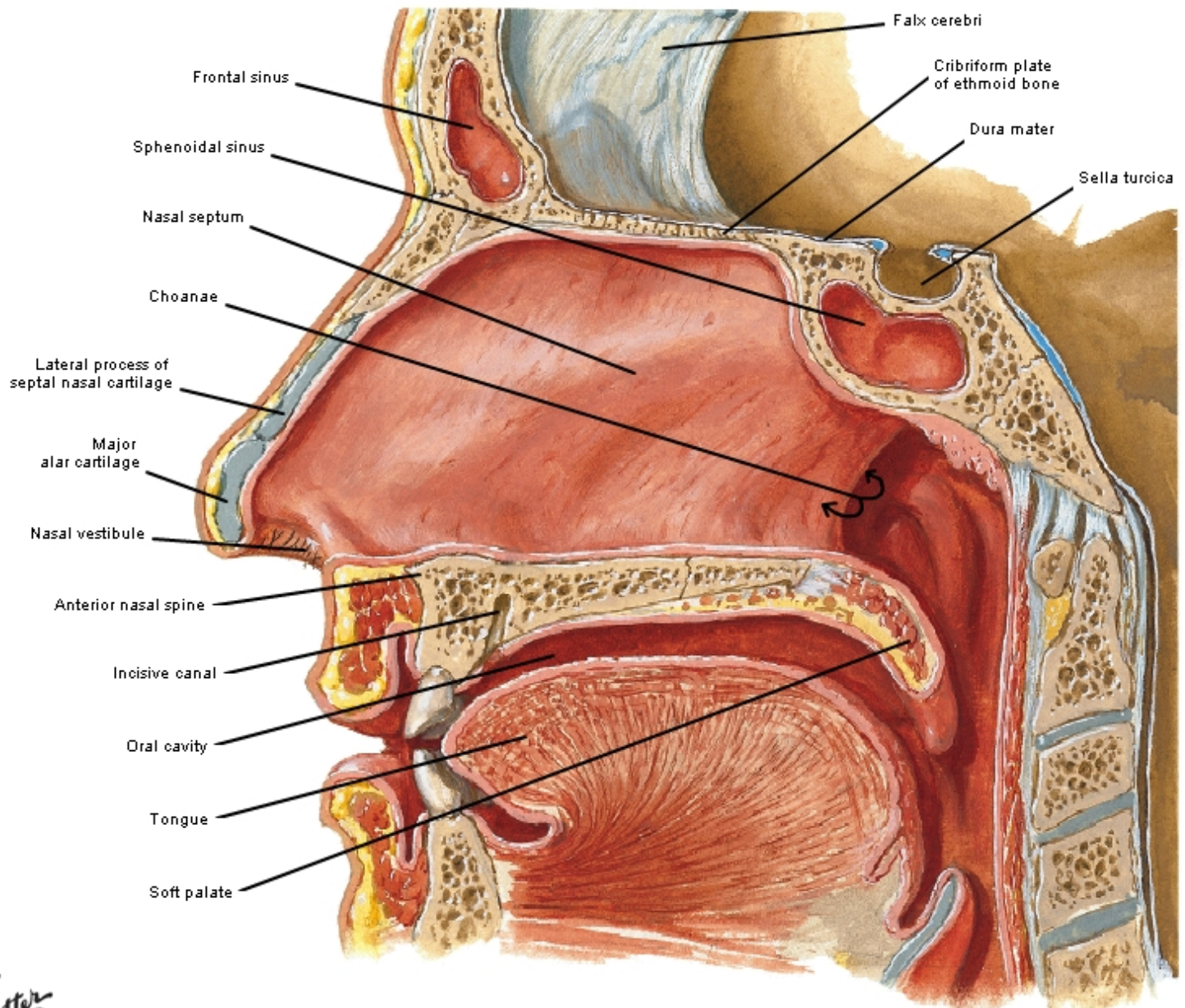
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Lateral Wall of Nasal Cavity - Bony Structure Nasal Conchae Partly Removed



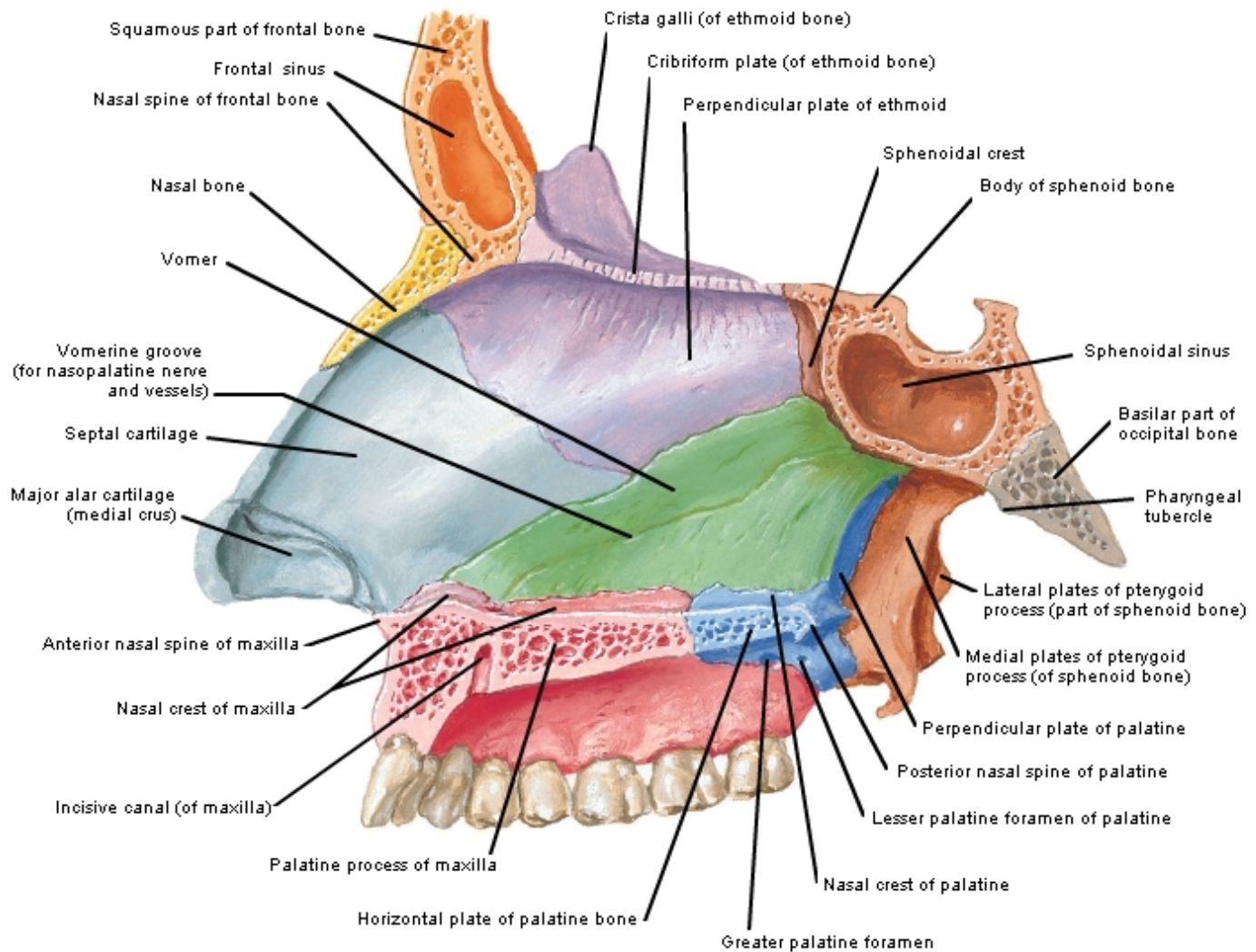
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Medial Wall of Nasal Cavity (Nasal Septum)



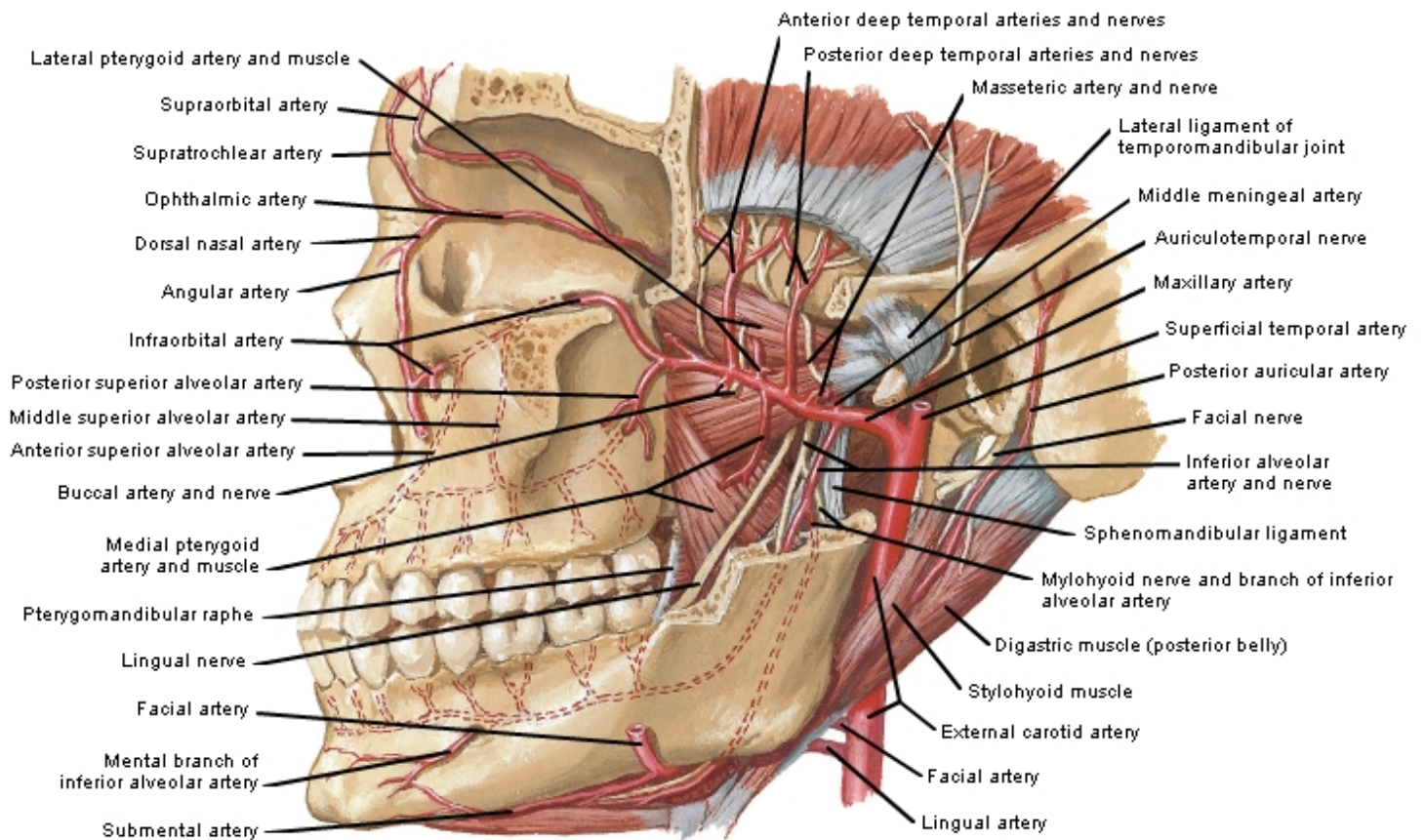
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Medial Wall of Nasal Cavity (Nasal Septum) Bones and Cartilages



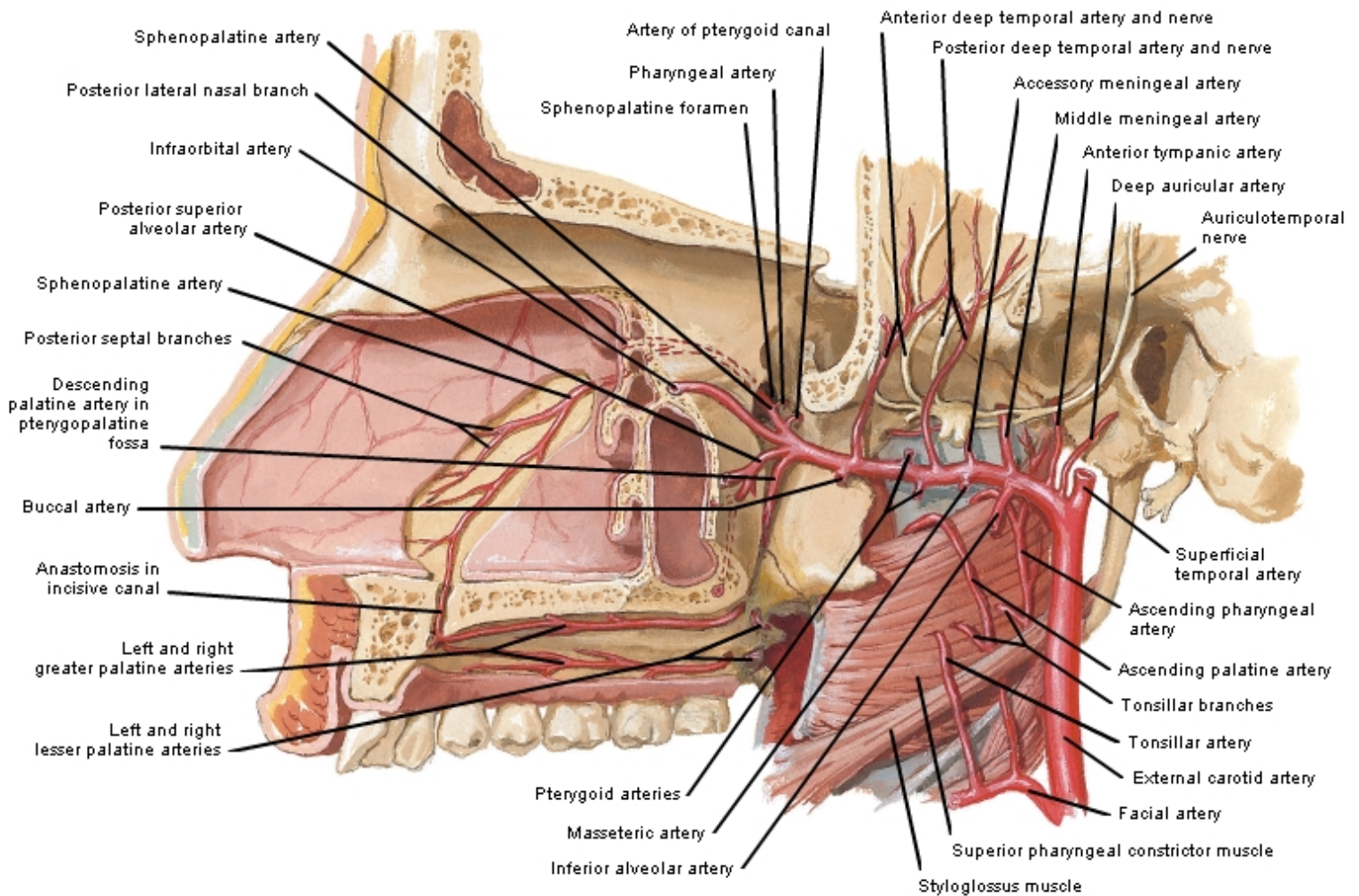
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Maxillary Artery Orbitomaxillary Distribution



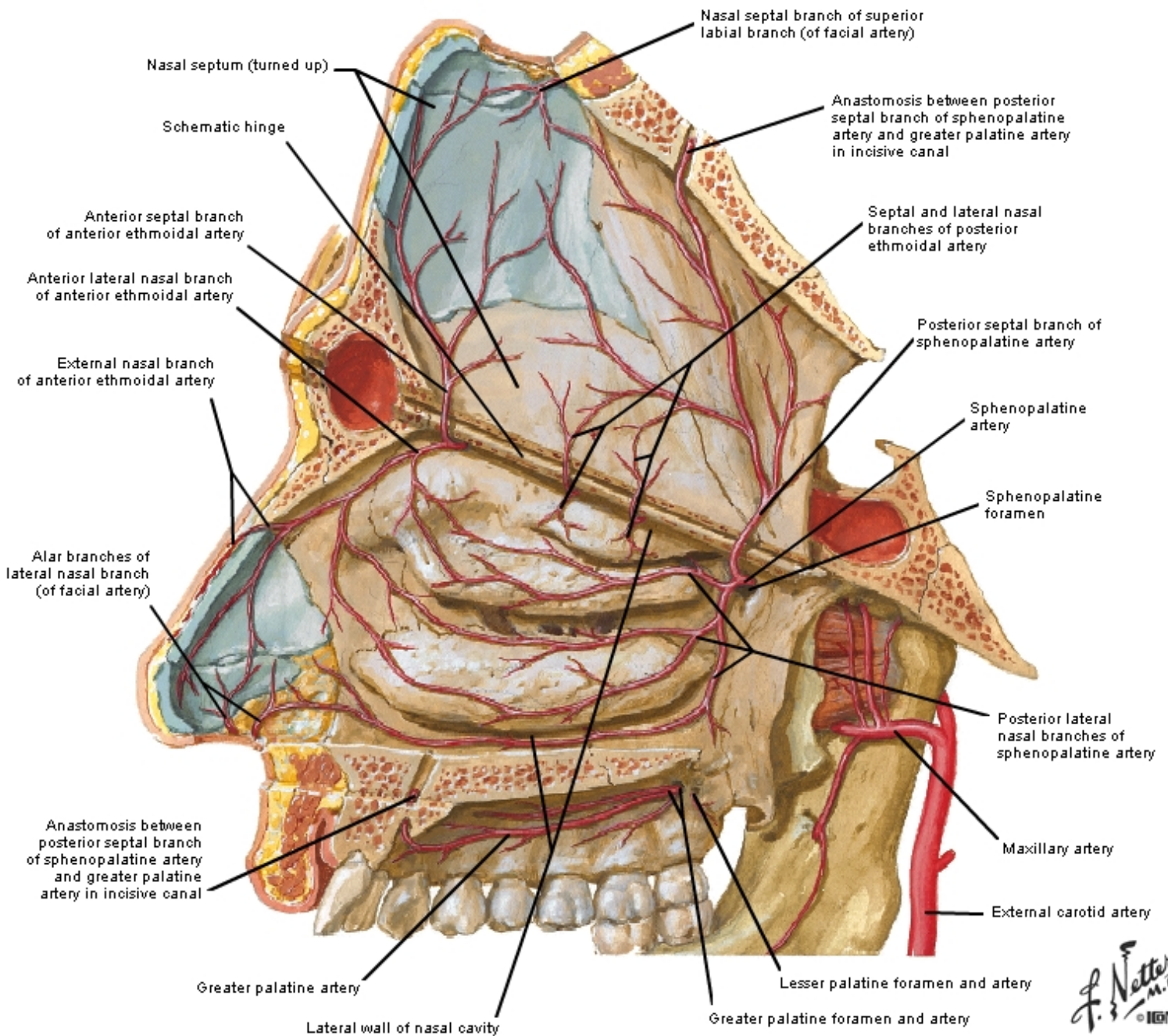
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Maxillary Artery Nasopalatine Distribution



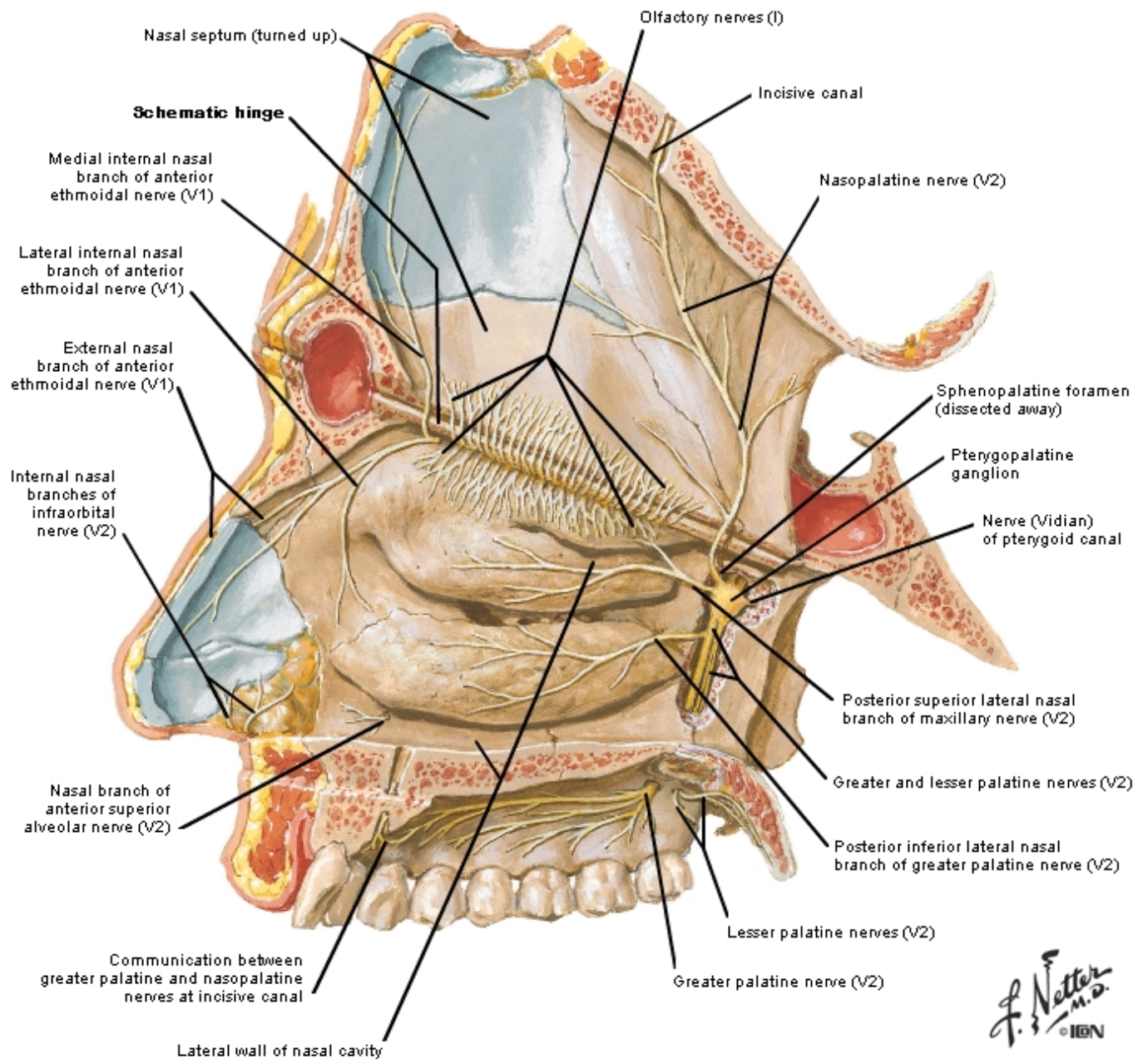
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Arteries of Nasal Cavity Nasal Septum Turned Up

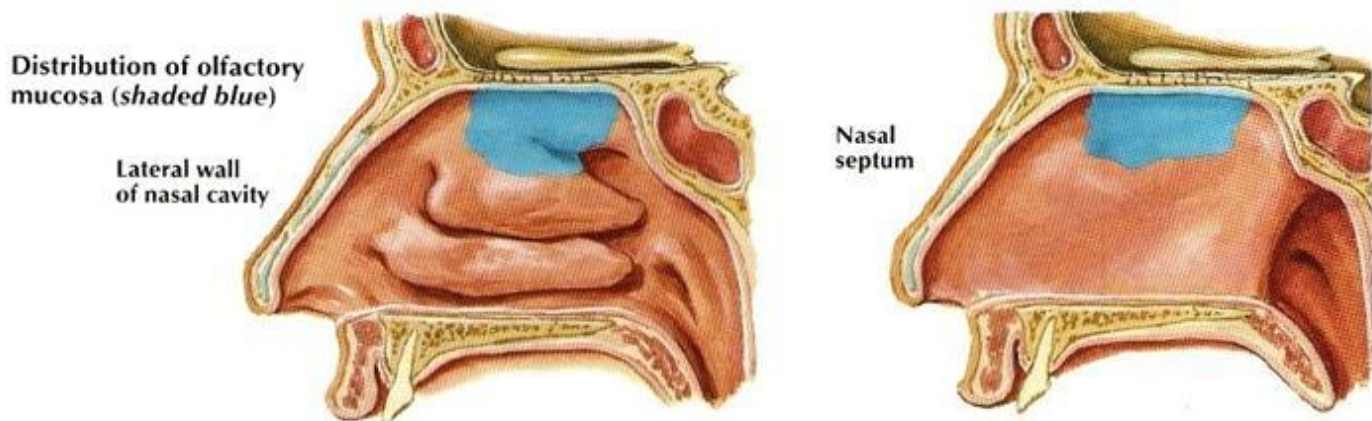


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Nerves of Nasal Cavity Nasal Septum Turned Up

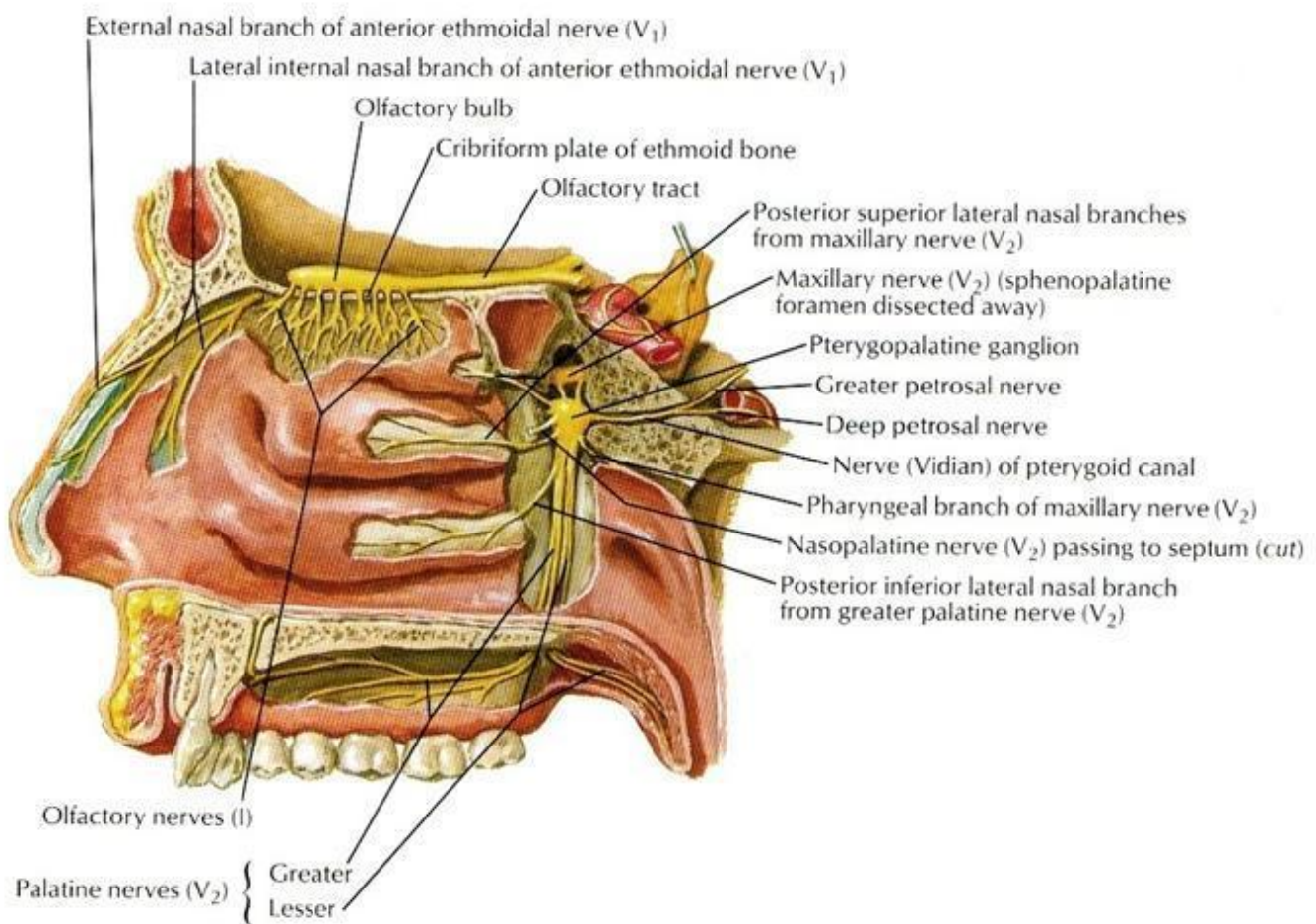


Nerves of Nasal Cavity: Distribution of Olfactory Mucosa



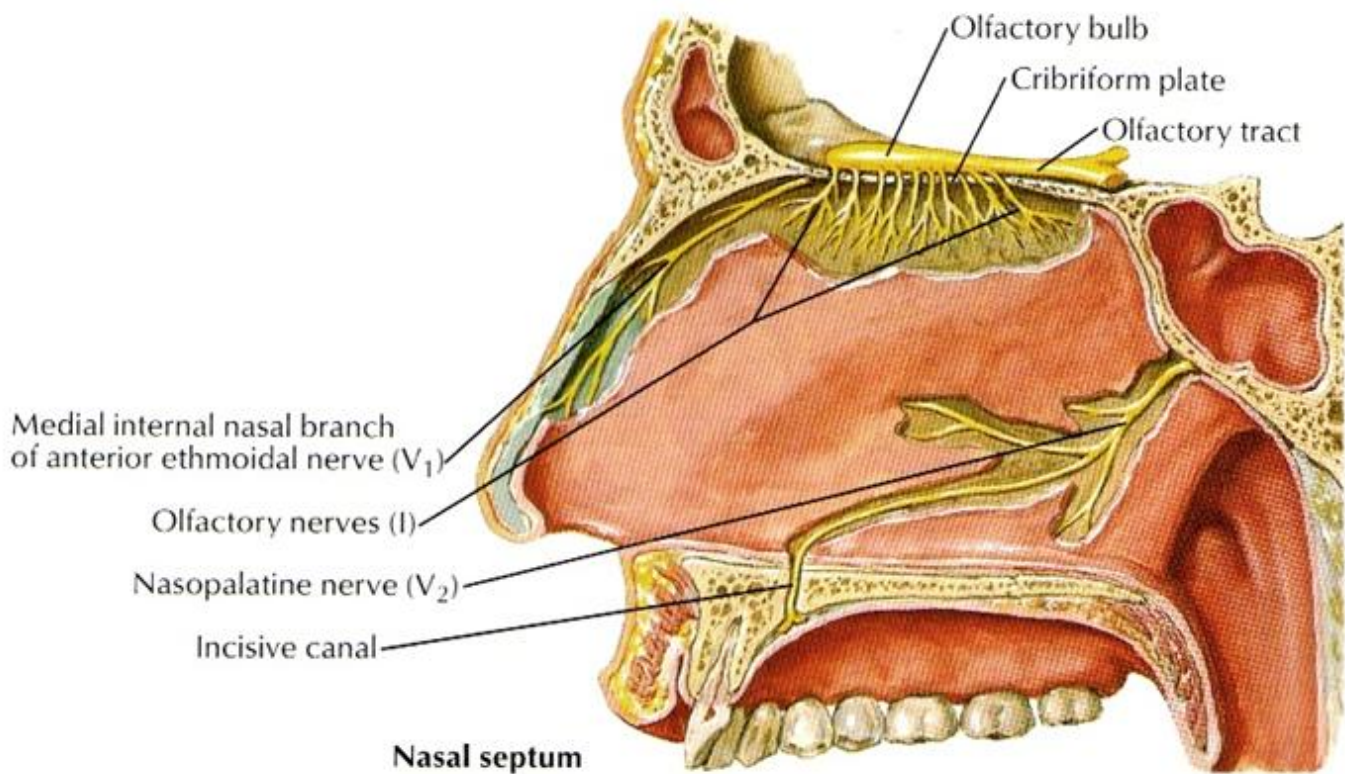
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Nerves of Nasal Cavity: Lateral Wall of Nasal Cavity



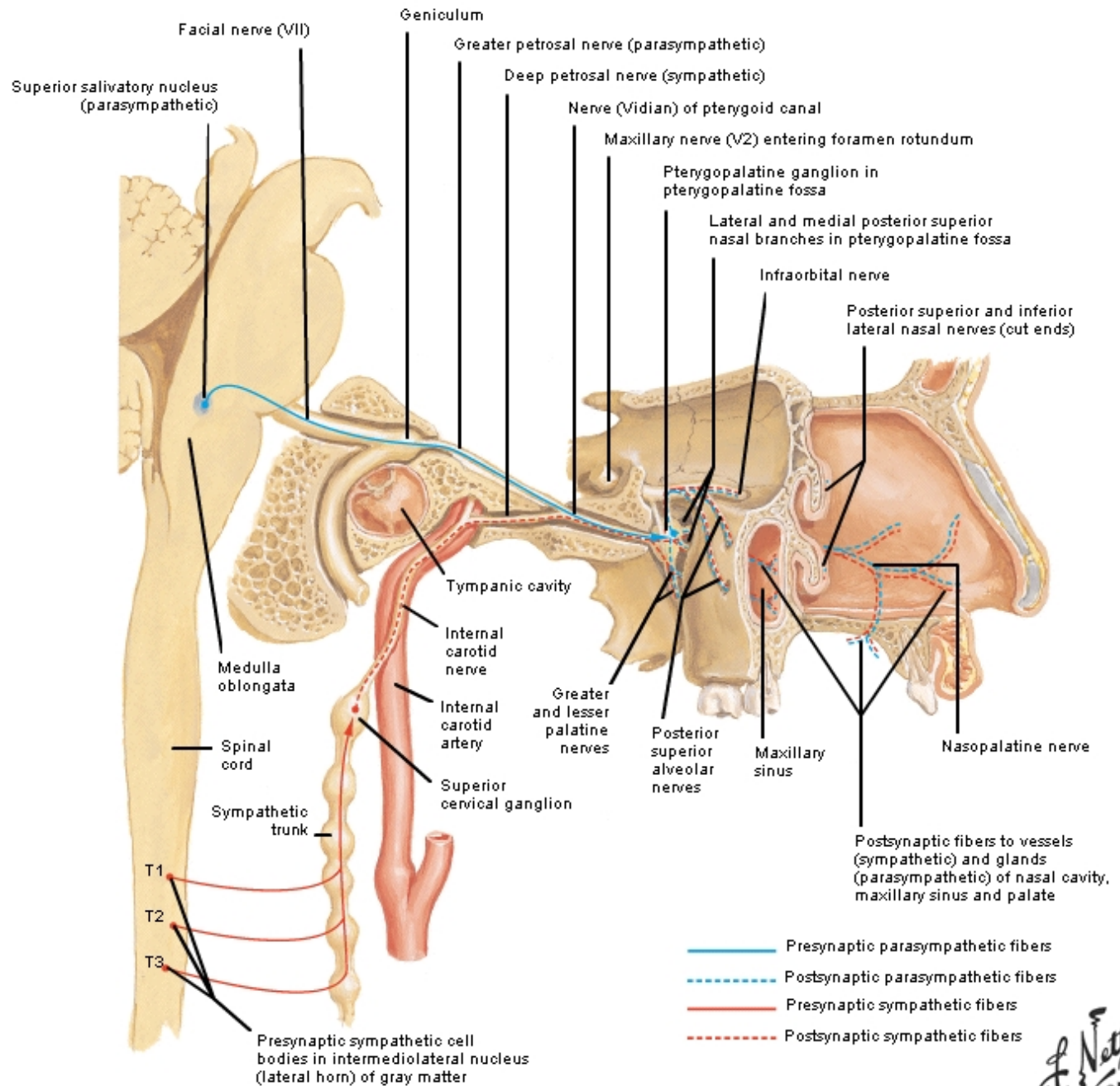
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Nerves of Nasal Cavity: Nasal Septum



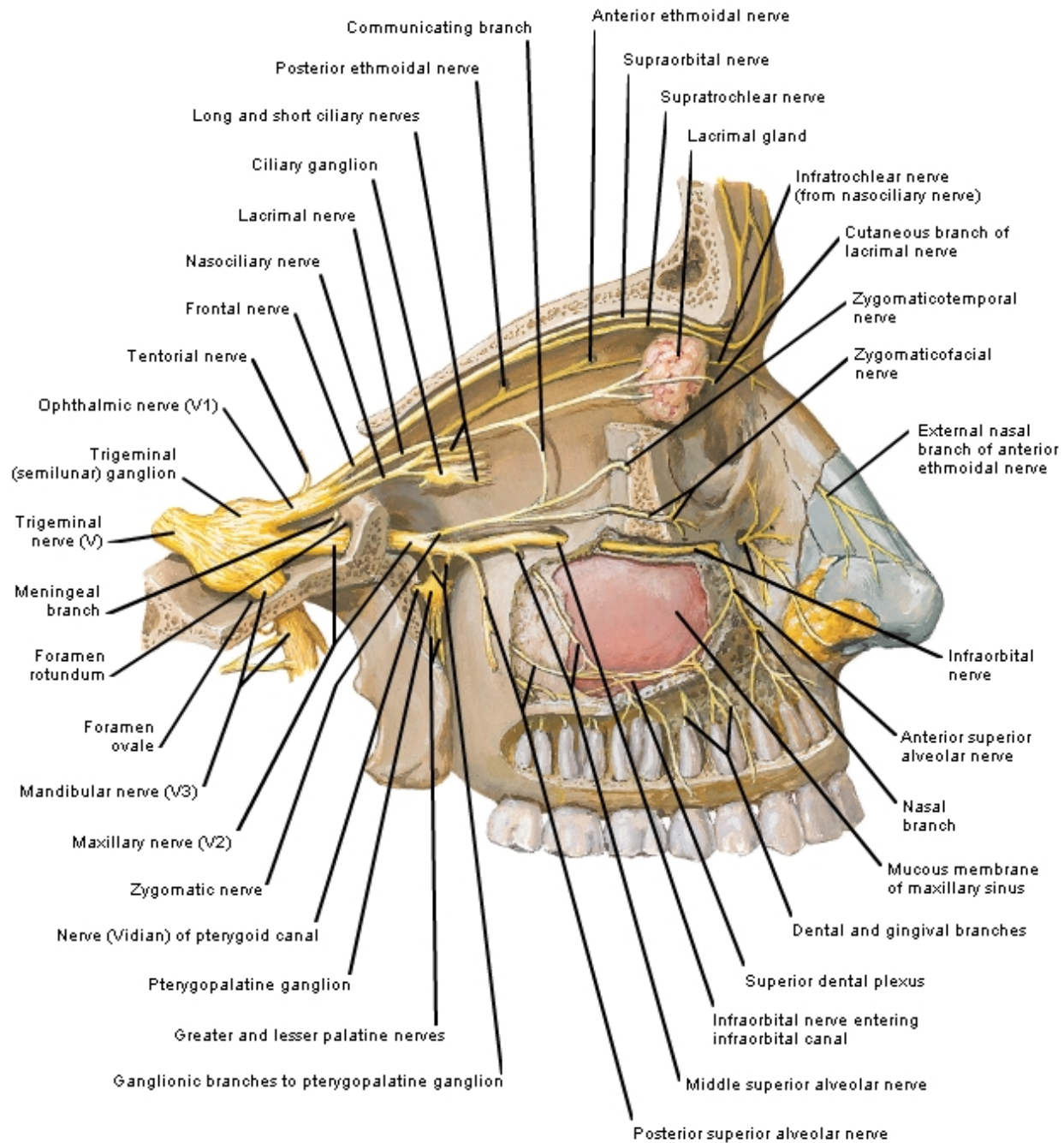
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Autonomic Innervation of Nasal Cavity



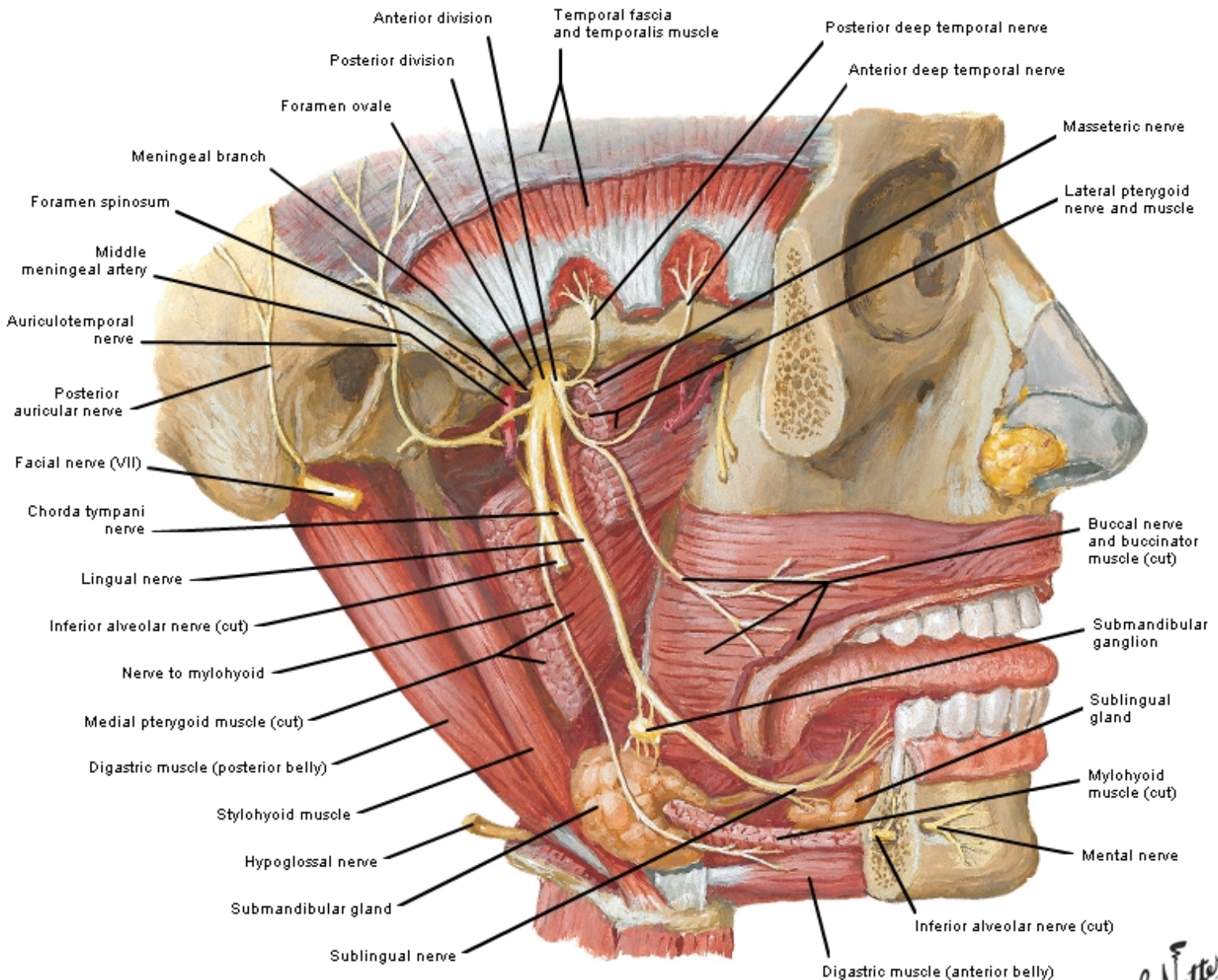
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Ophthalmic (V1) and Maxillary (V2) Nerves



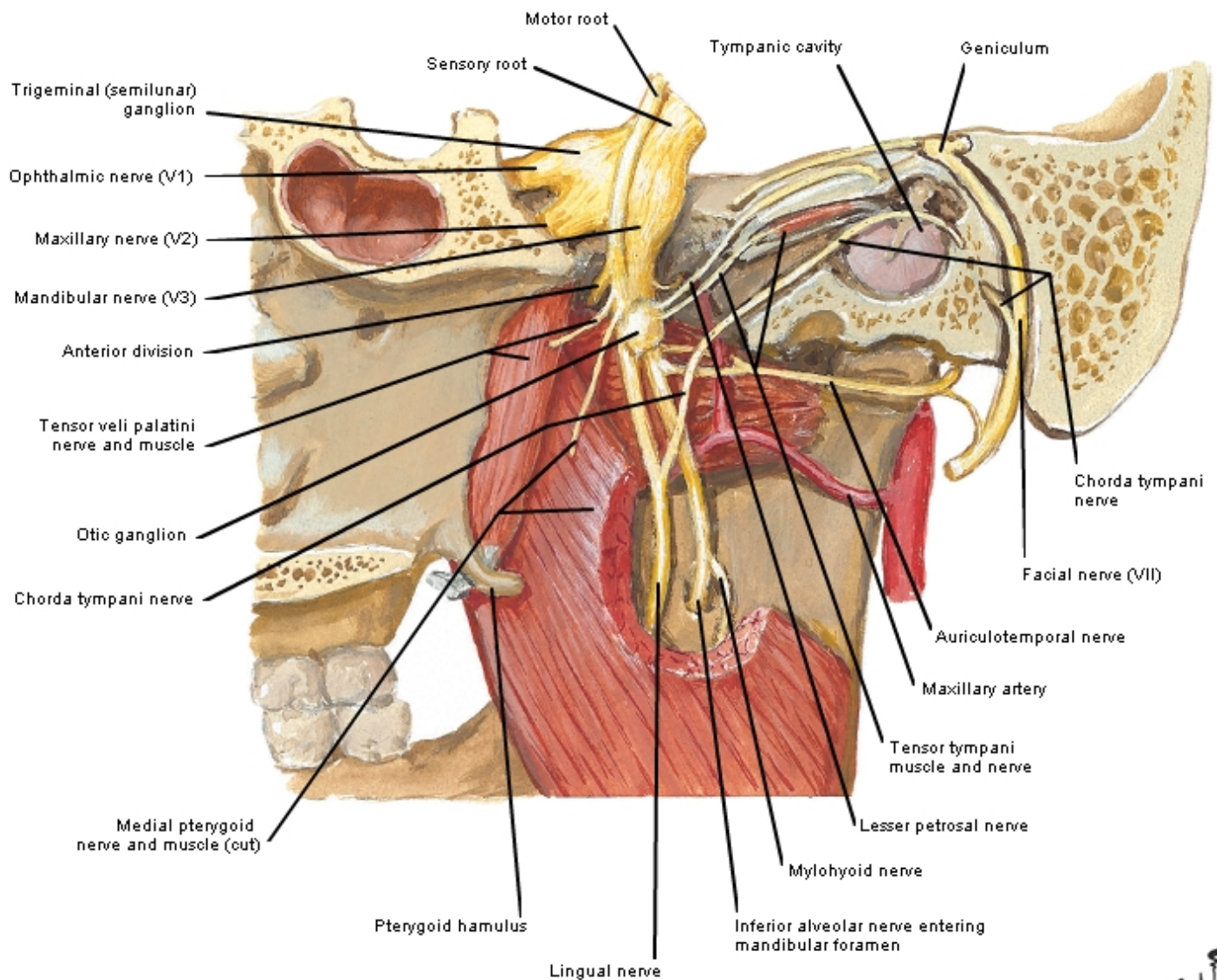
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Mandibular Nerve (V3) Lateral View



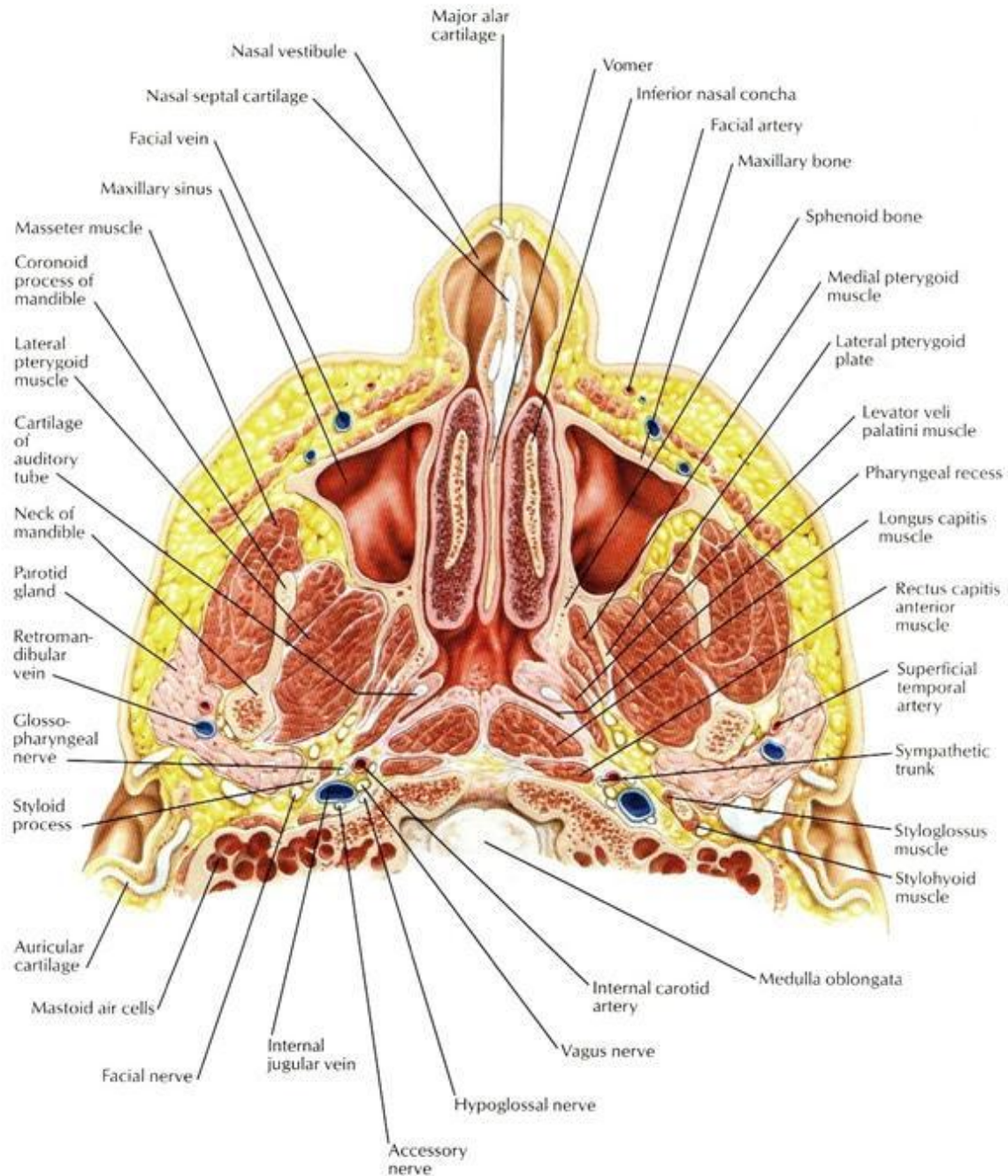
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Mandibular Nerve (V3) Medial View



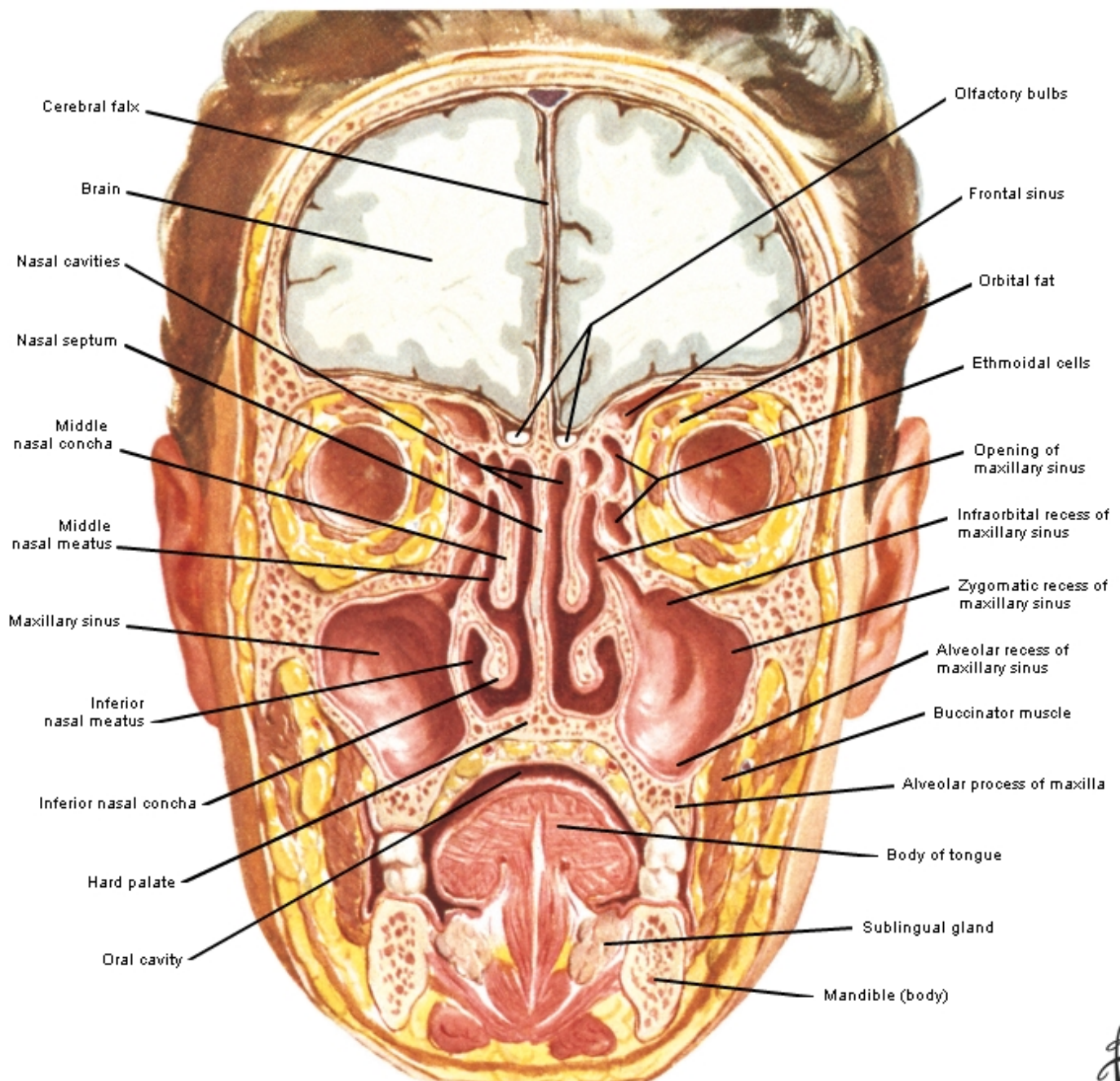
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Nose and Paranasal Sinuses: Cross Section



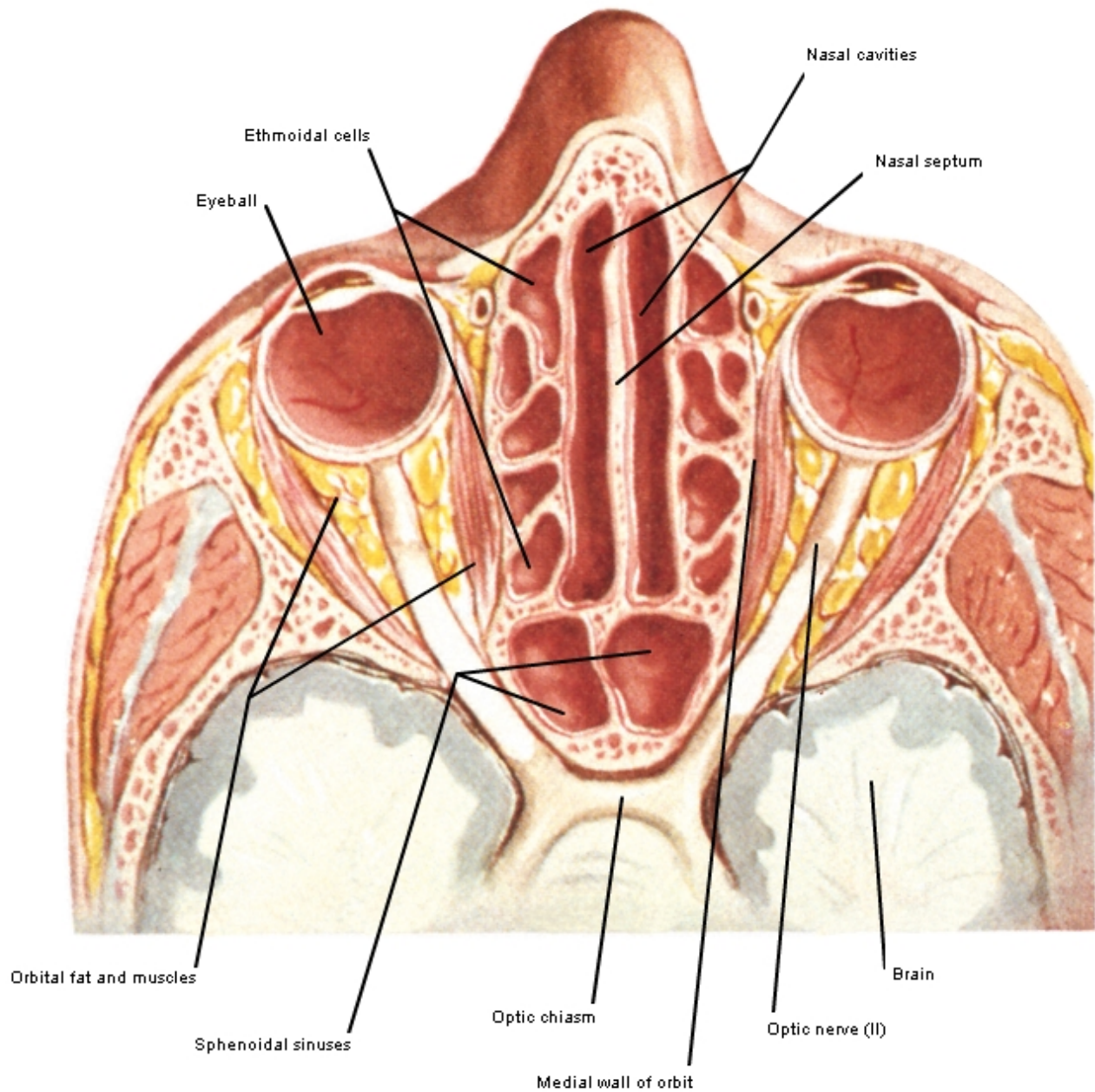
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Paranasal Sinuses Coronal Section



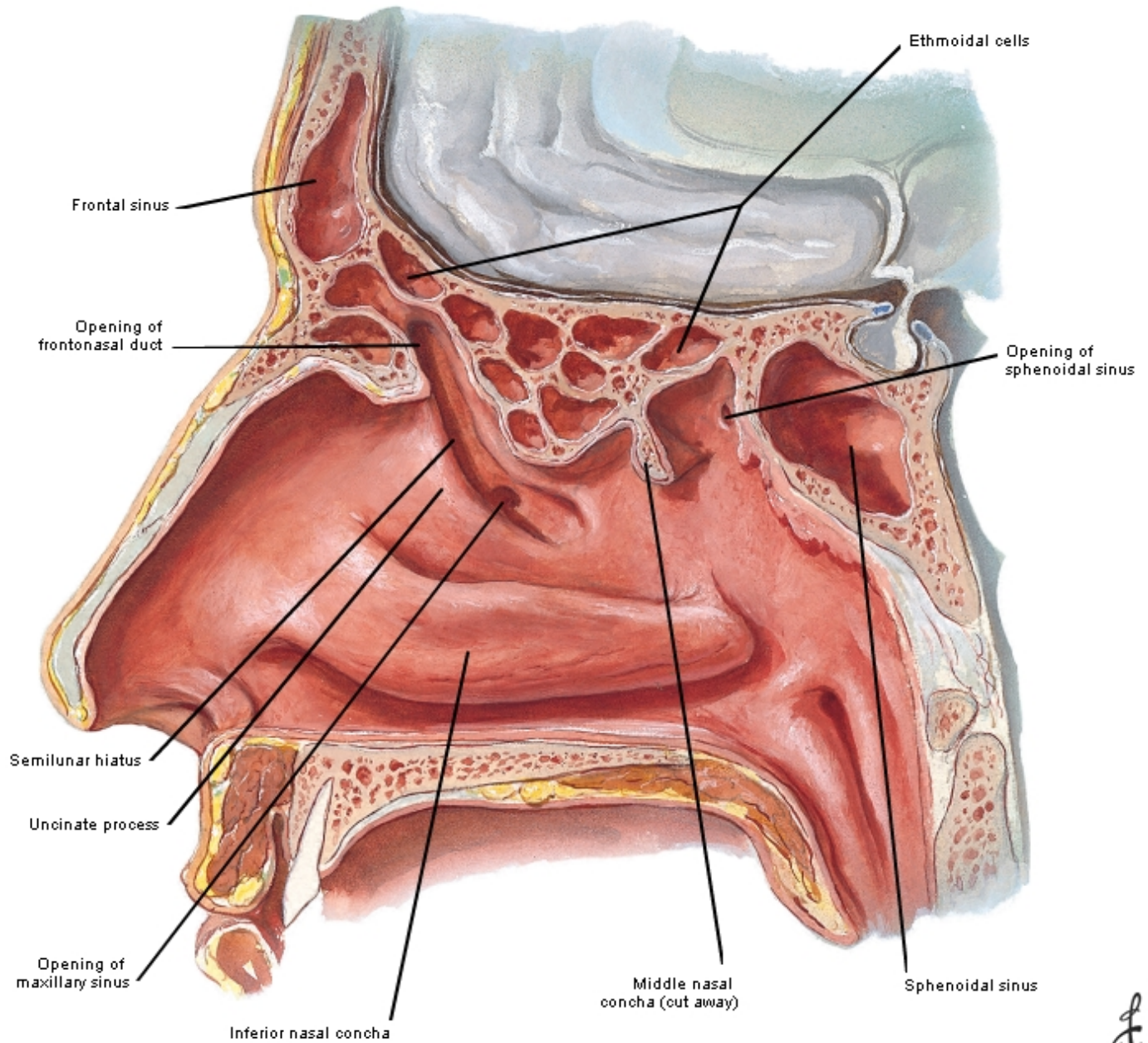
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Paranasal Sinuses Horizontal Section



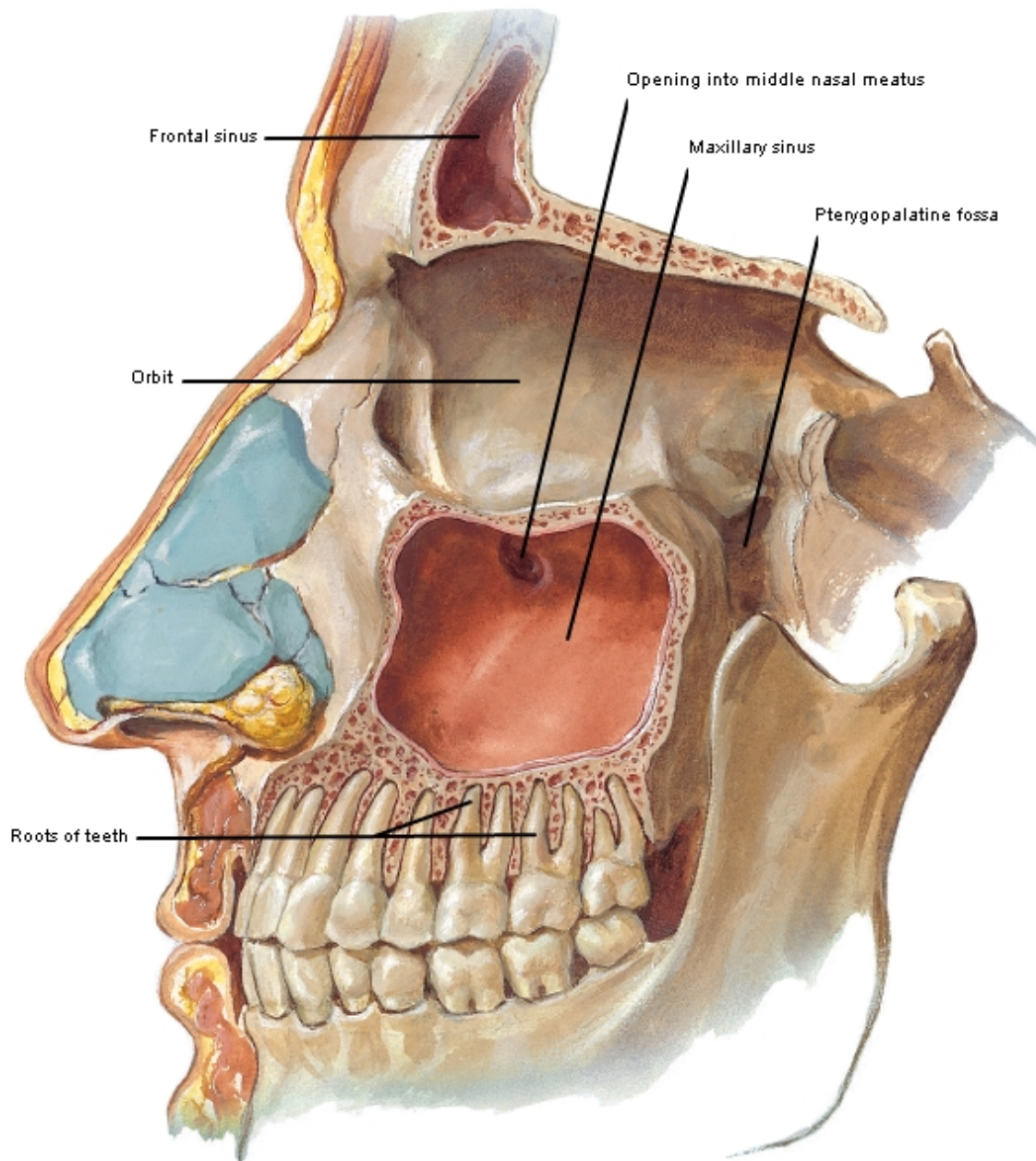
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Paranasal Sinuses Sagittal Section



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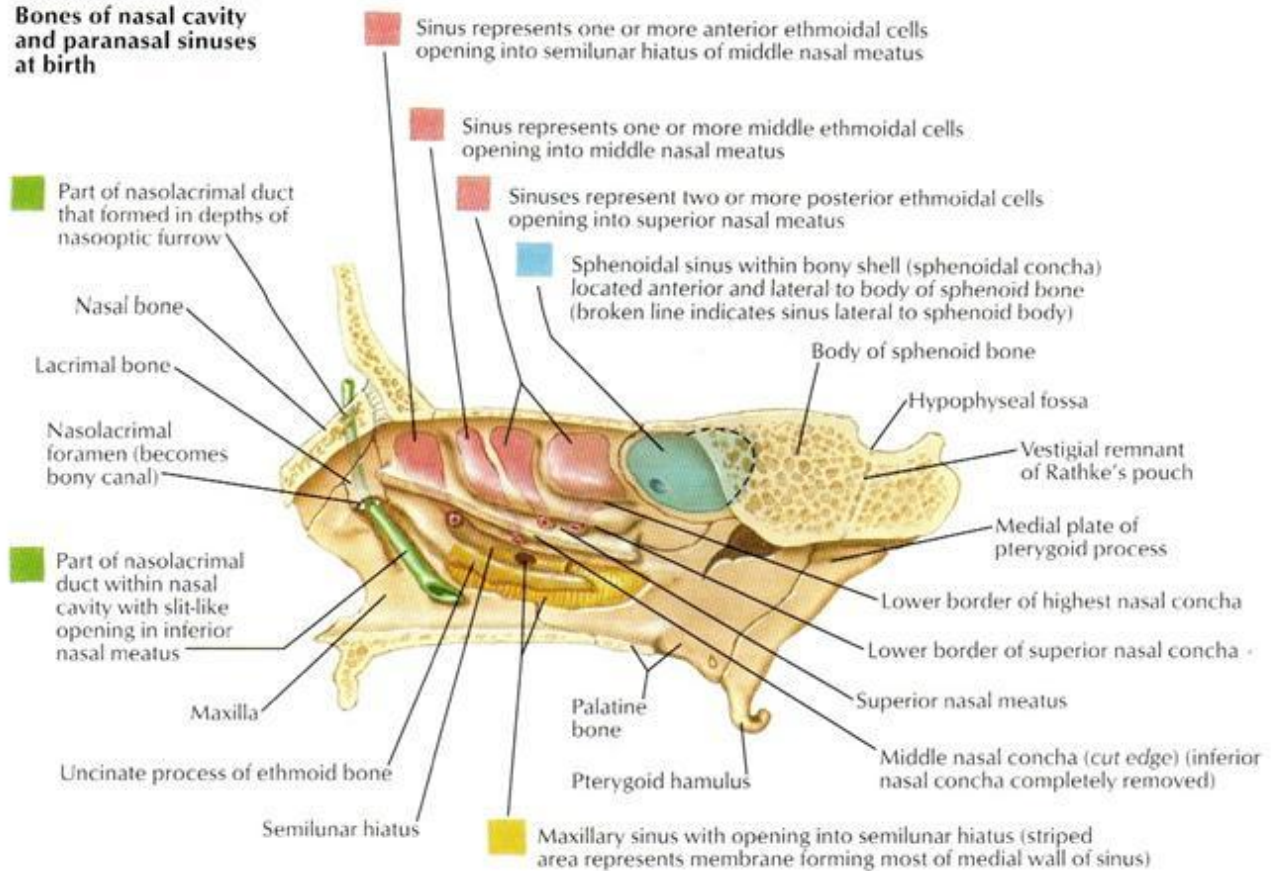
Paranasal Sinuses Lateral Dissection



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Paranasal Sinuses: Bone of Nasal Cavity and Paranasal Sinuses at Birth

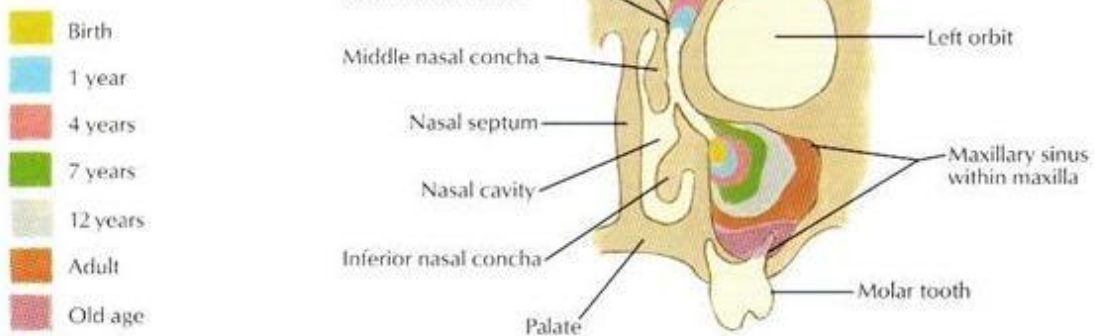
Bones of nasal cavity and paranasal sinuses at birth



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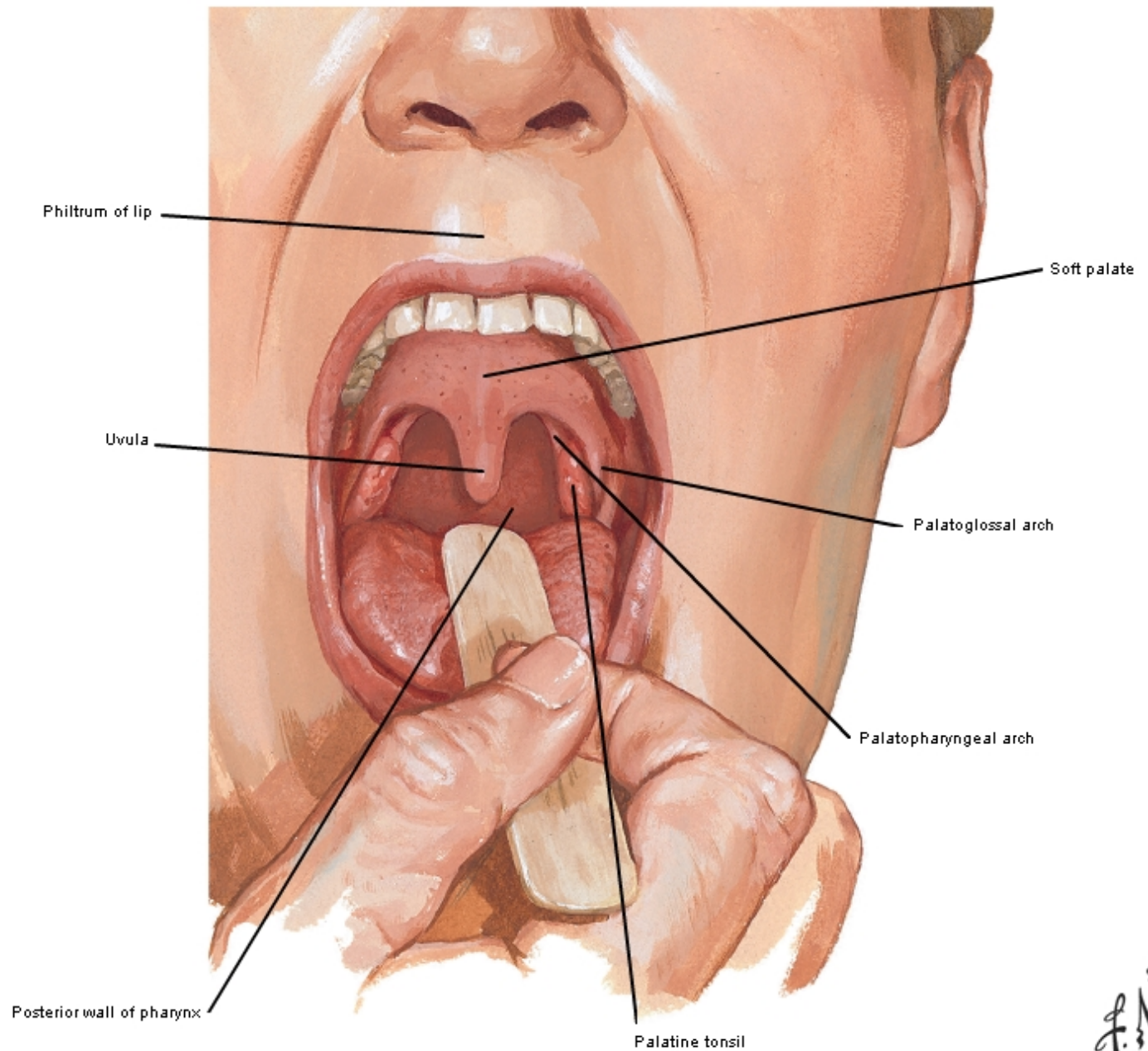
Paranasal Sinuses: Growth of Frontal and Maxillary Sinuses

Growth of frontal and maxillary sinuses throughout life



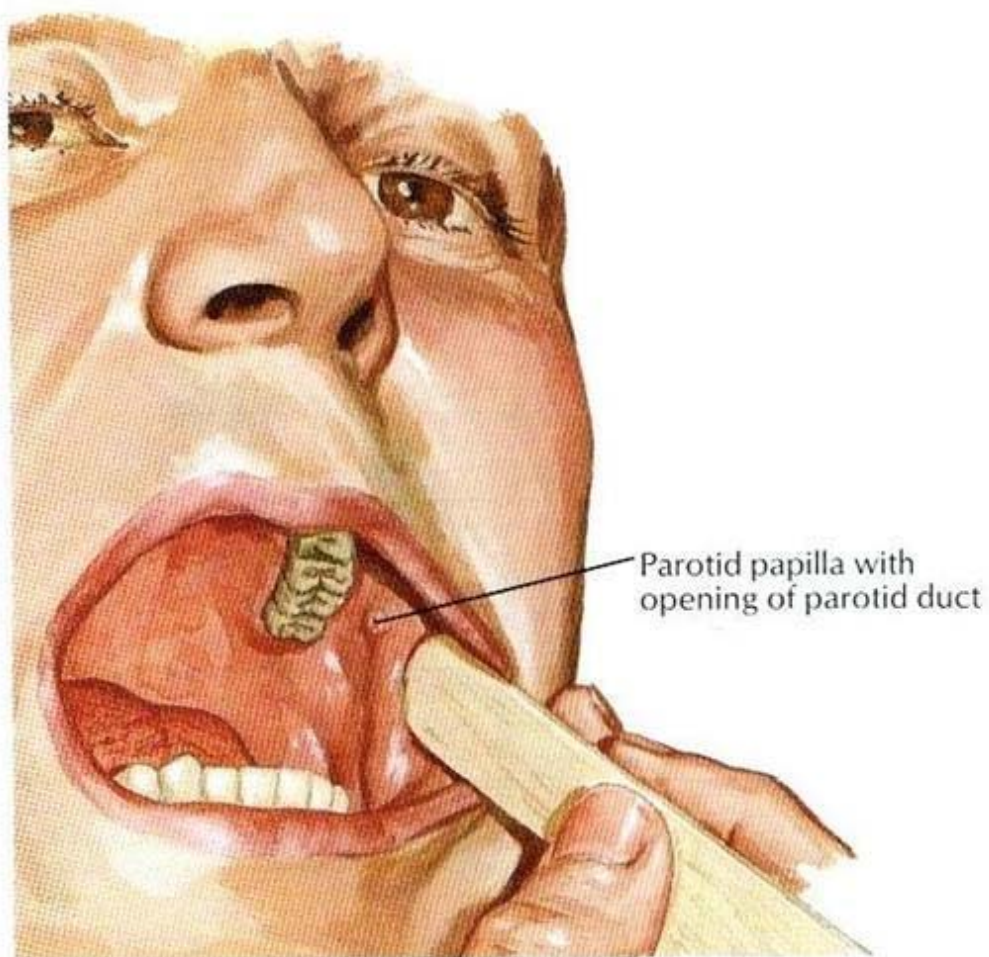
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Inspection of Oral Cavity Dorsum of Tongue and Palate



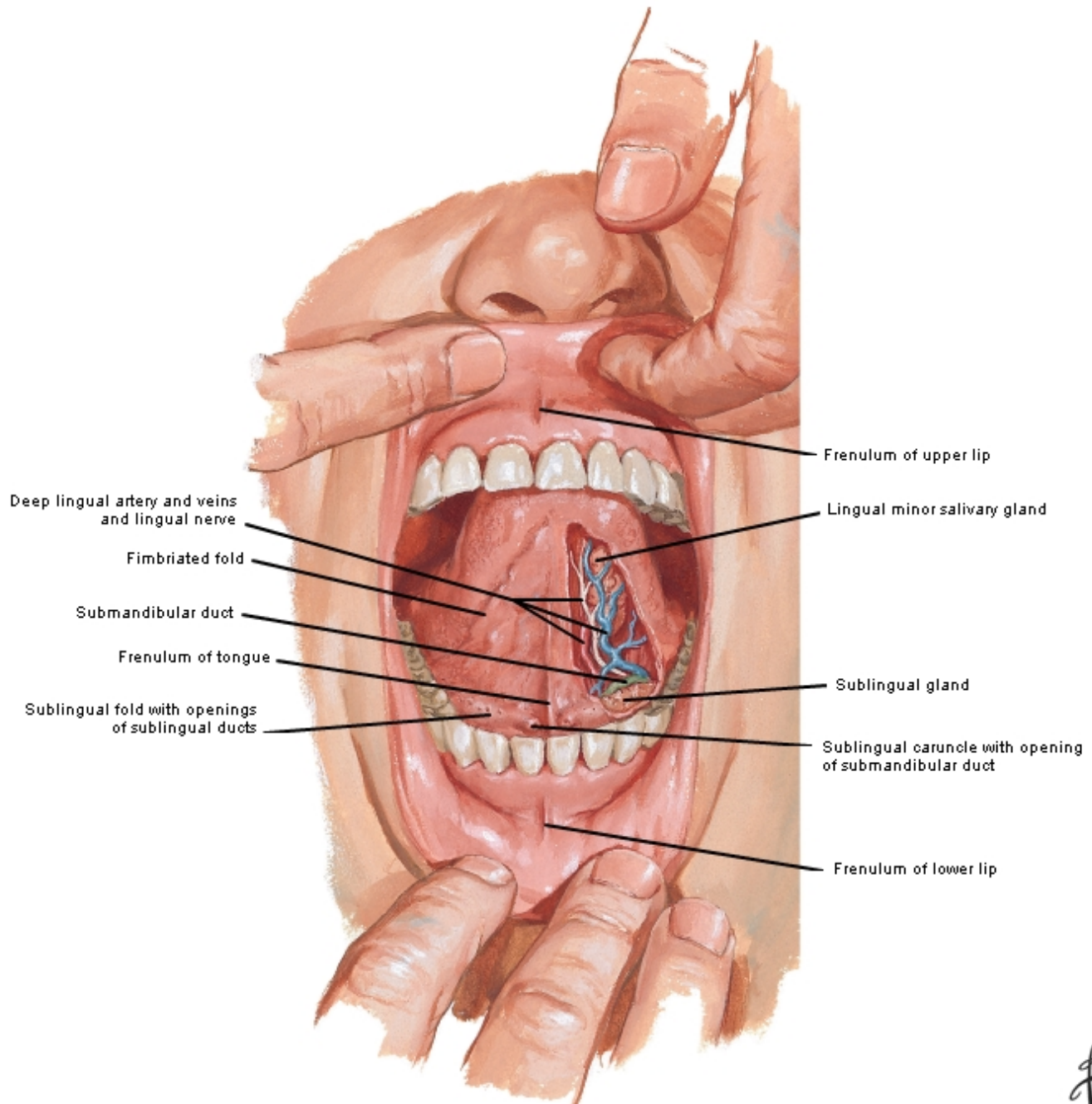
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Inspection of Oral Cavity: Parotid Papilla



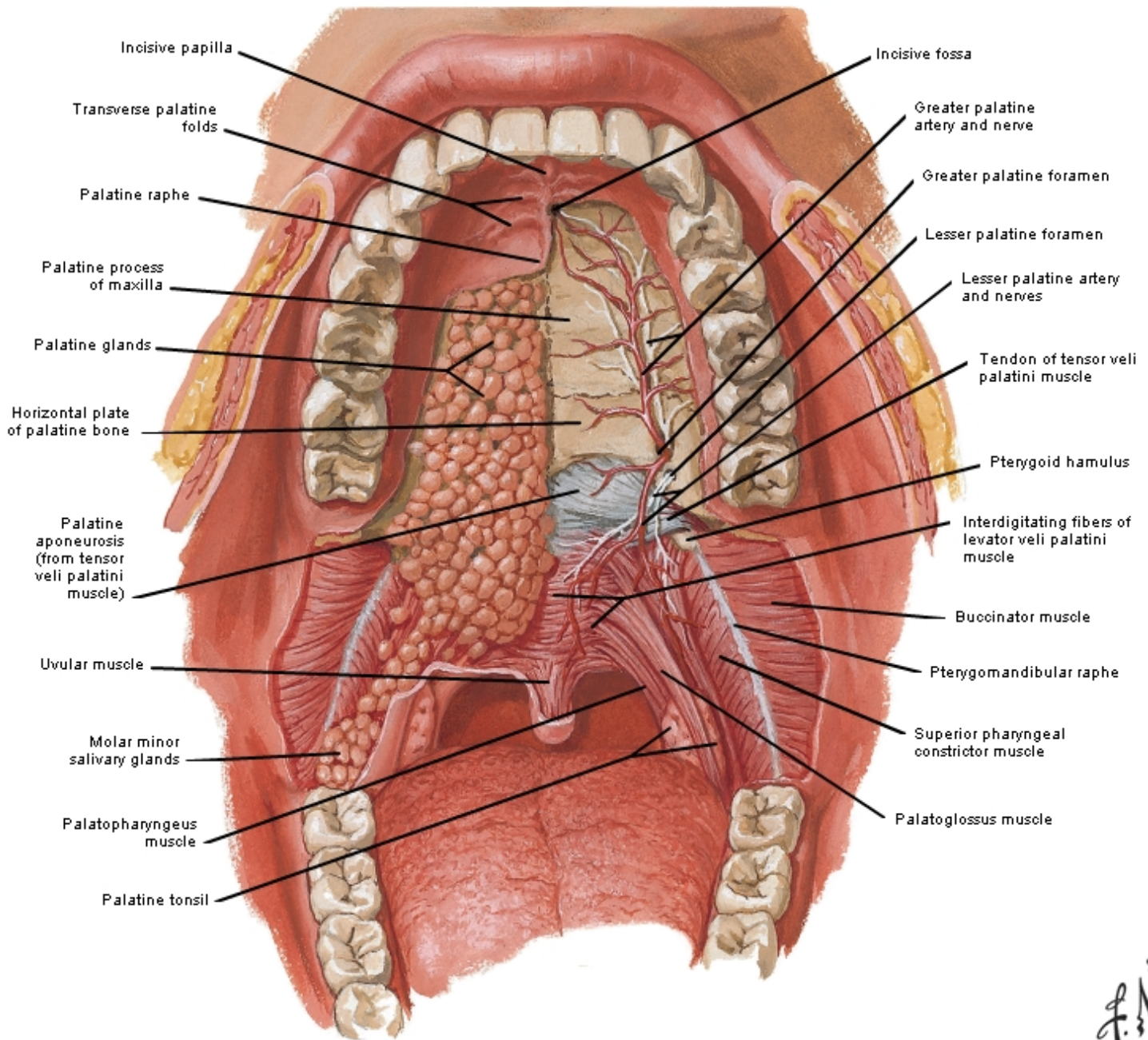
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Inspection of Oral Cavity Sublingual Region - Anterior Vestibule



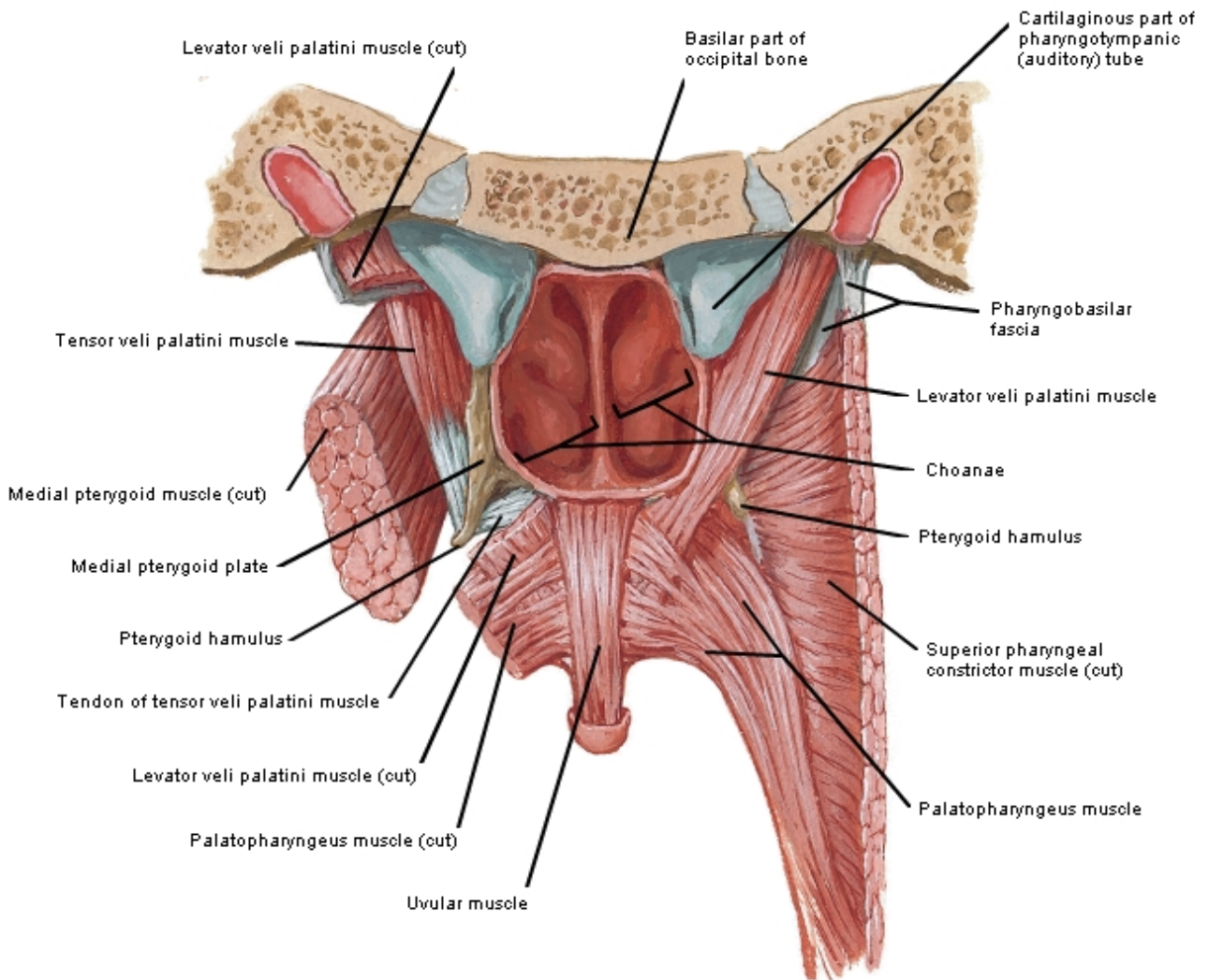
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Roof of Mouth - Hard and Soft Palates Anterior View



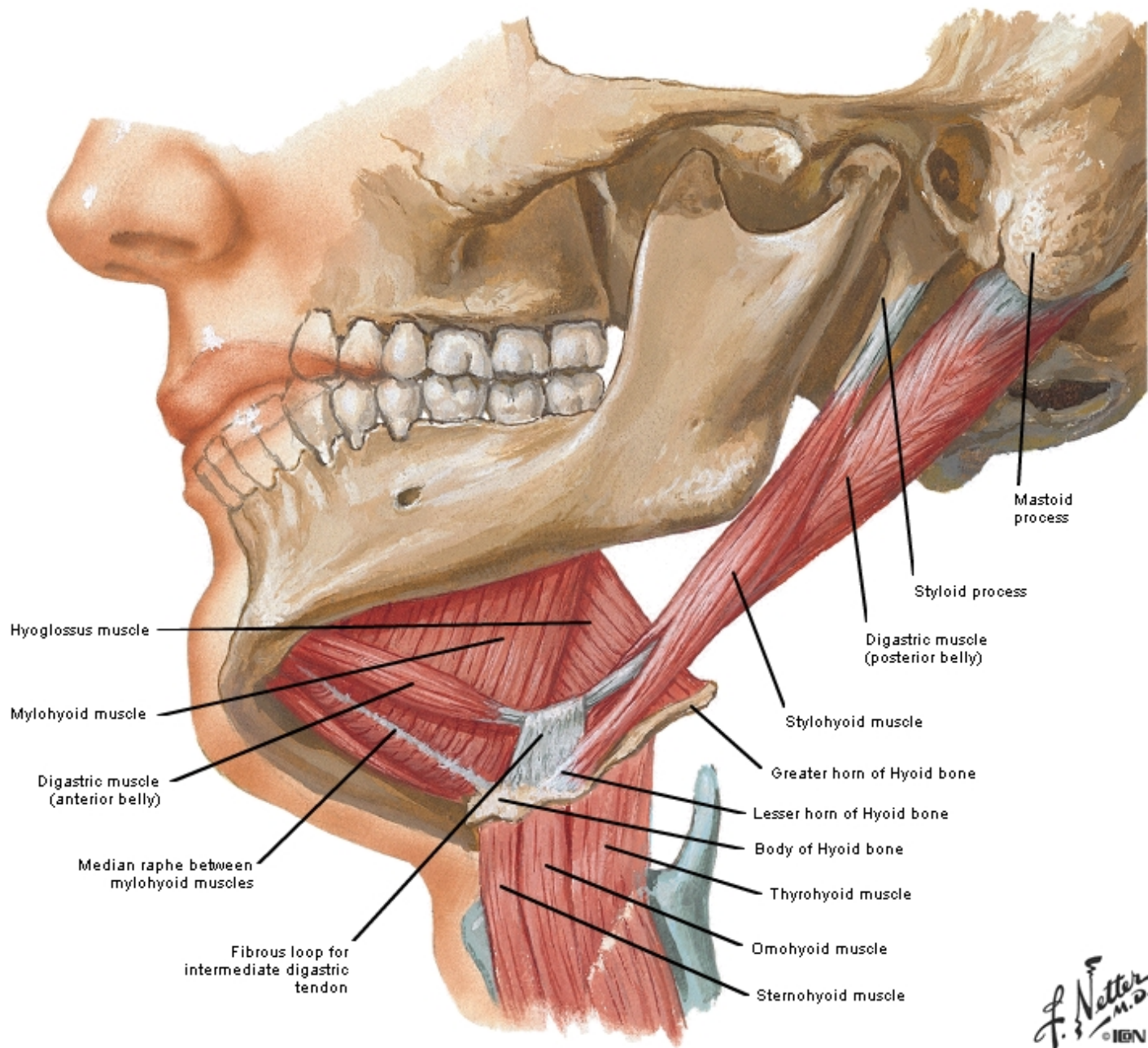
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Roof of Mouth - Soft Palate Posterior View

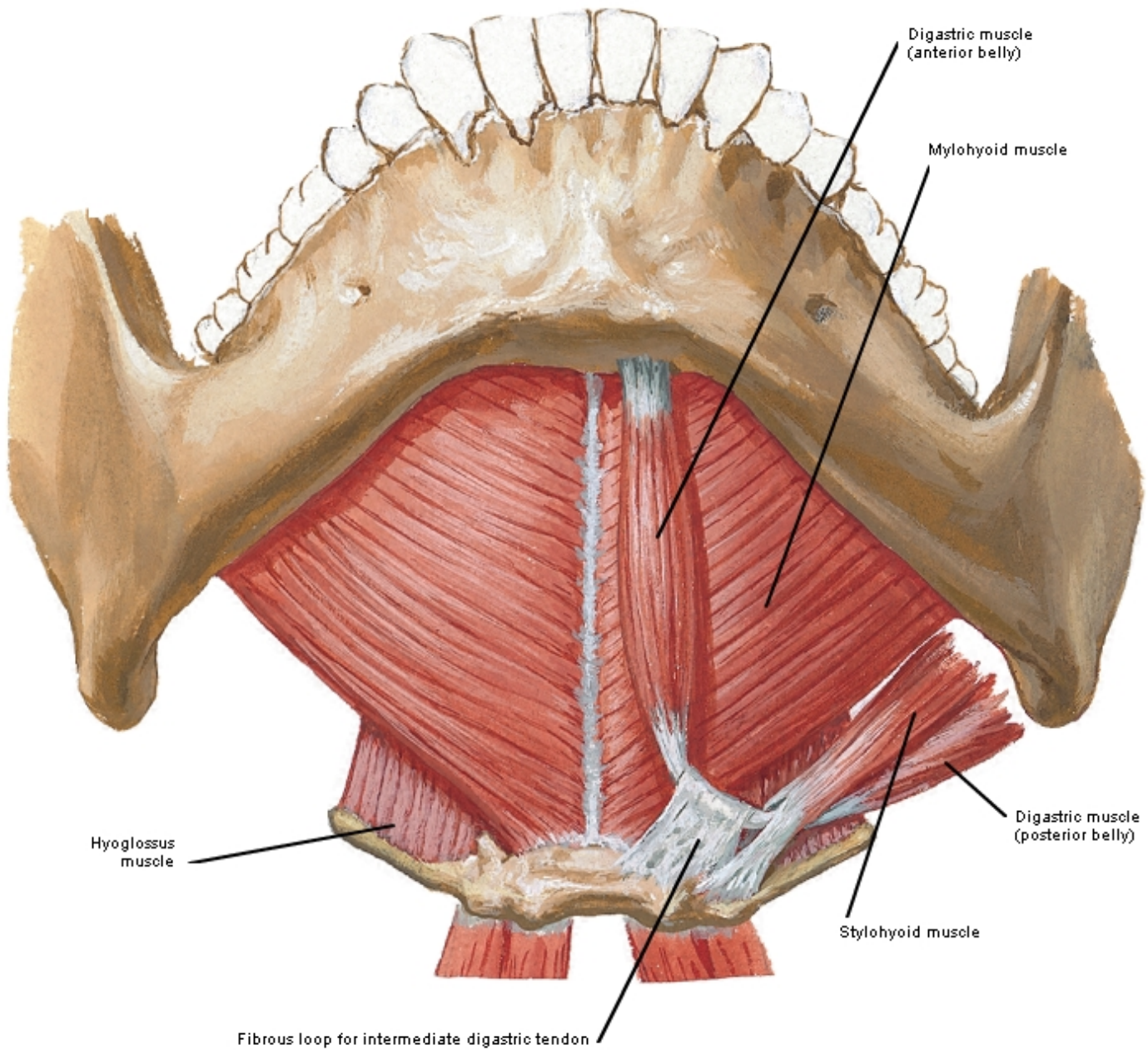


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Floor of Mouth - Musculature Lateral, Slightly Inferior View

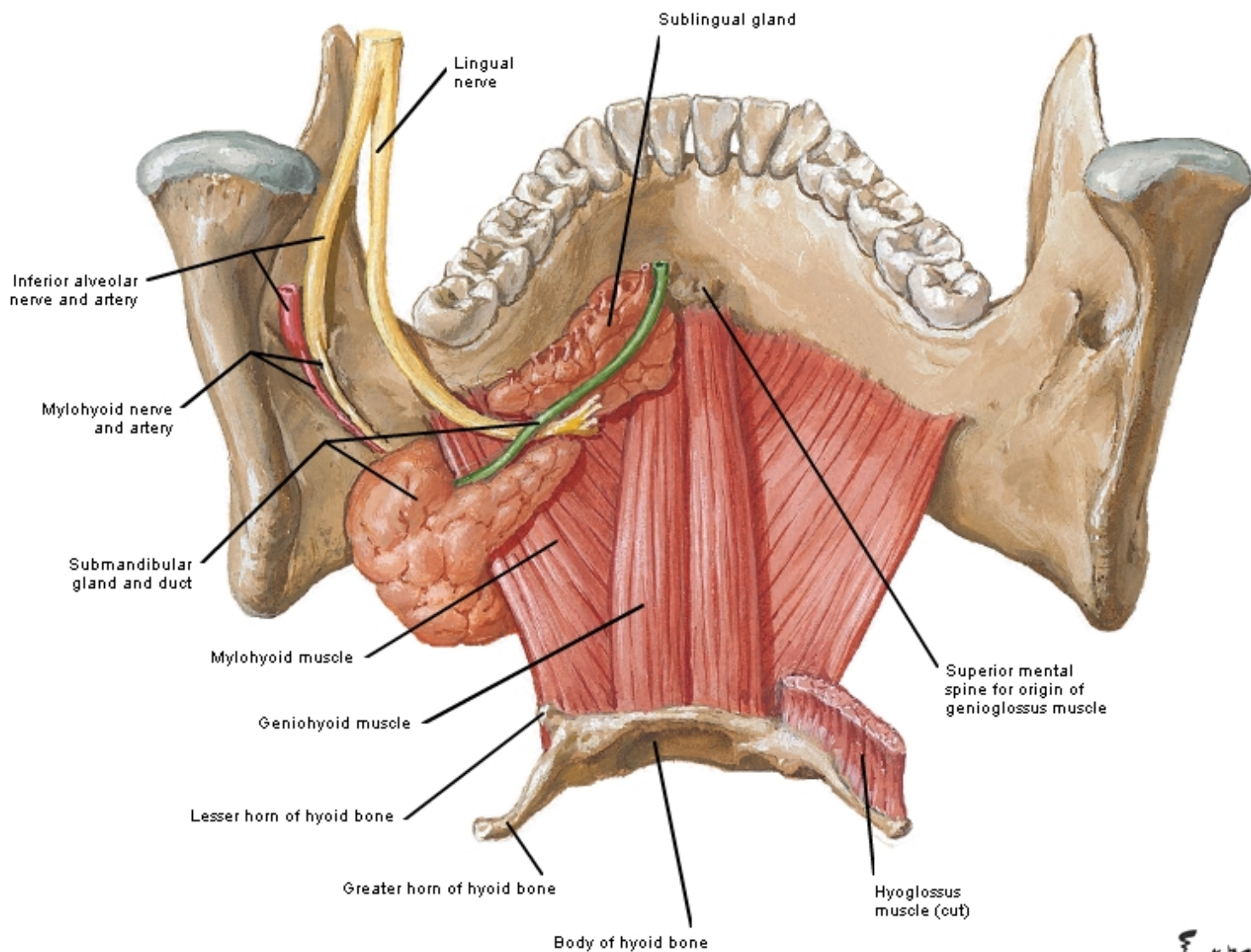


Floor of Mouth - Musculature Anteroinferior View



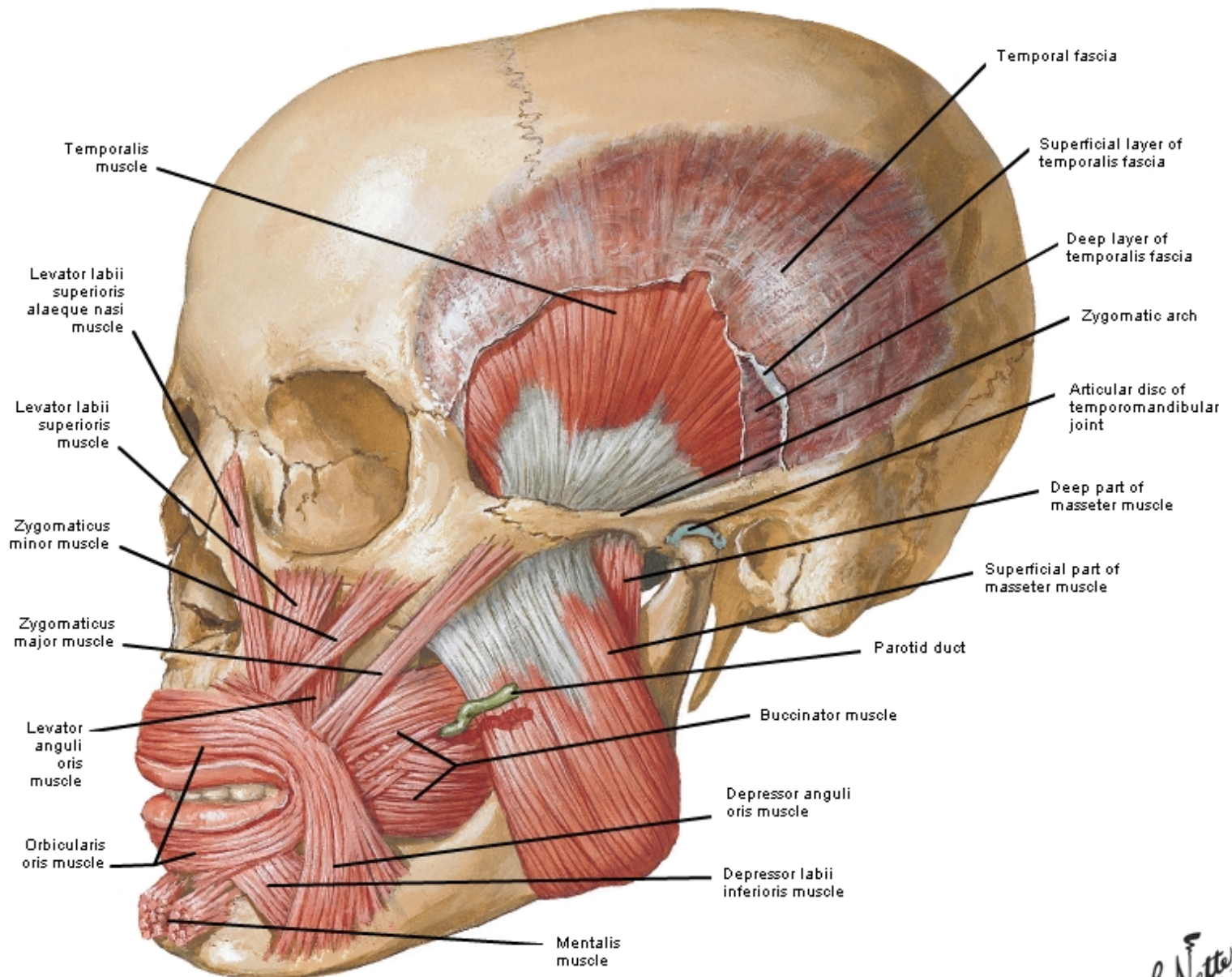
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Floor of Mouth - Musculature Posterosuperior View



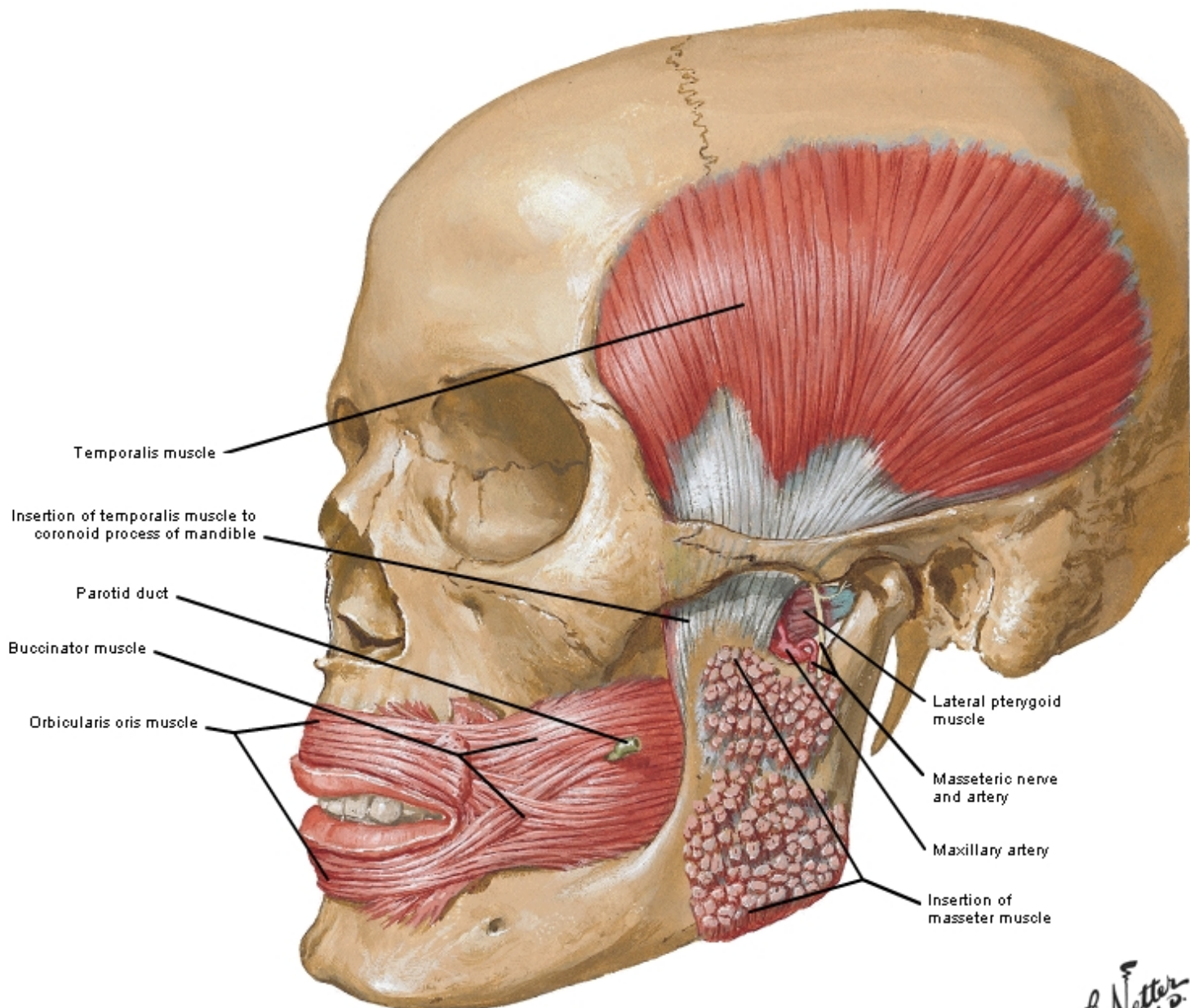
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Muscles Involved in Mastication Lateral View



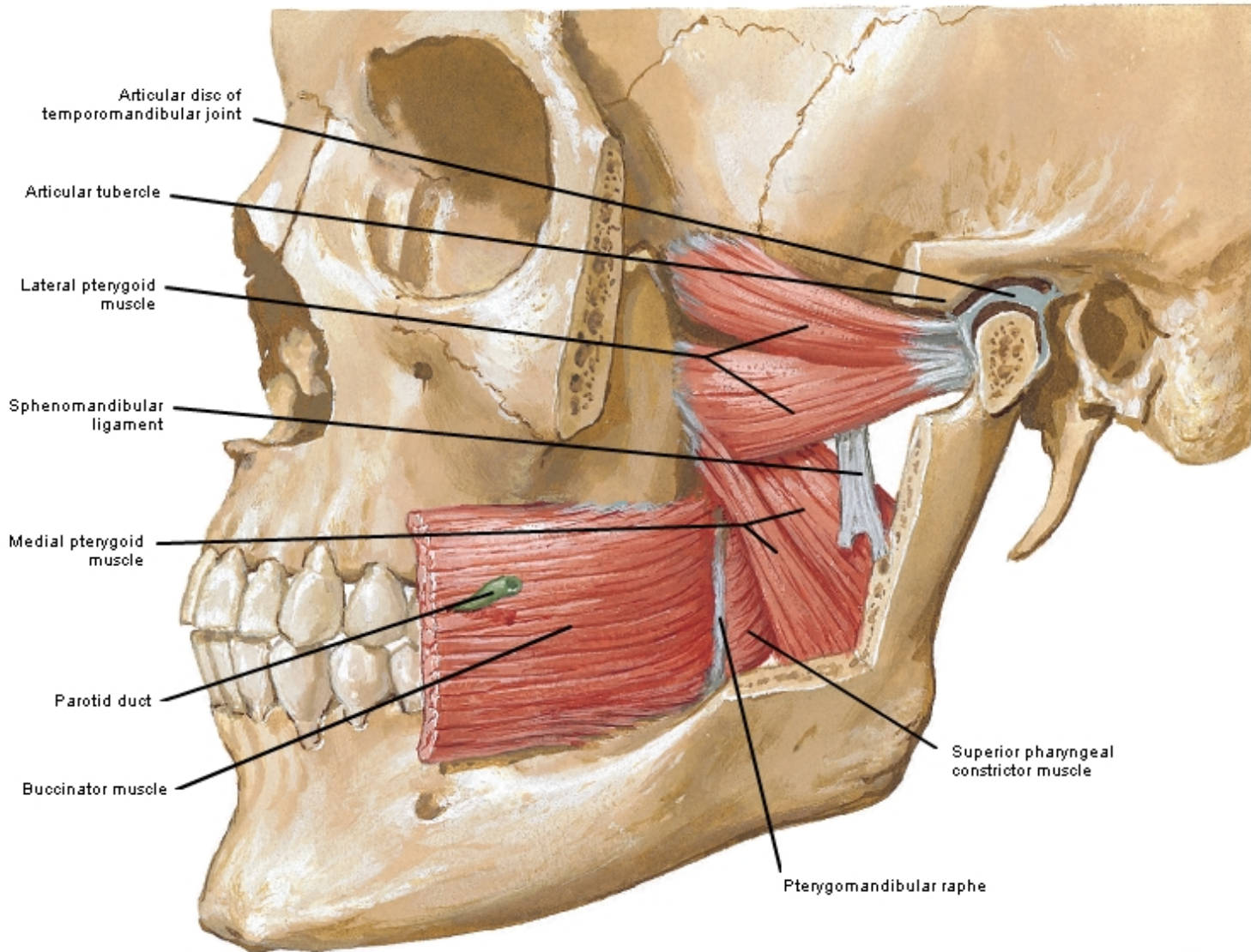
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Muscles Involved in Mastication - Masseter Removed Lateral View



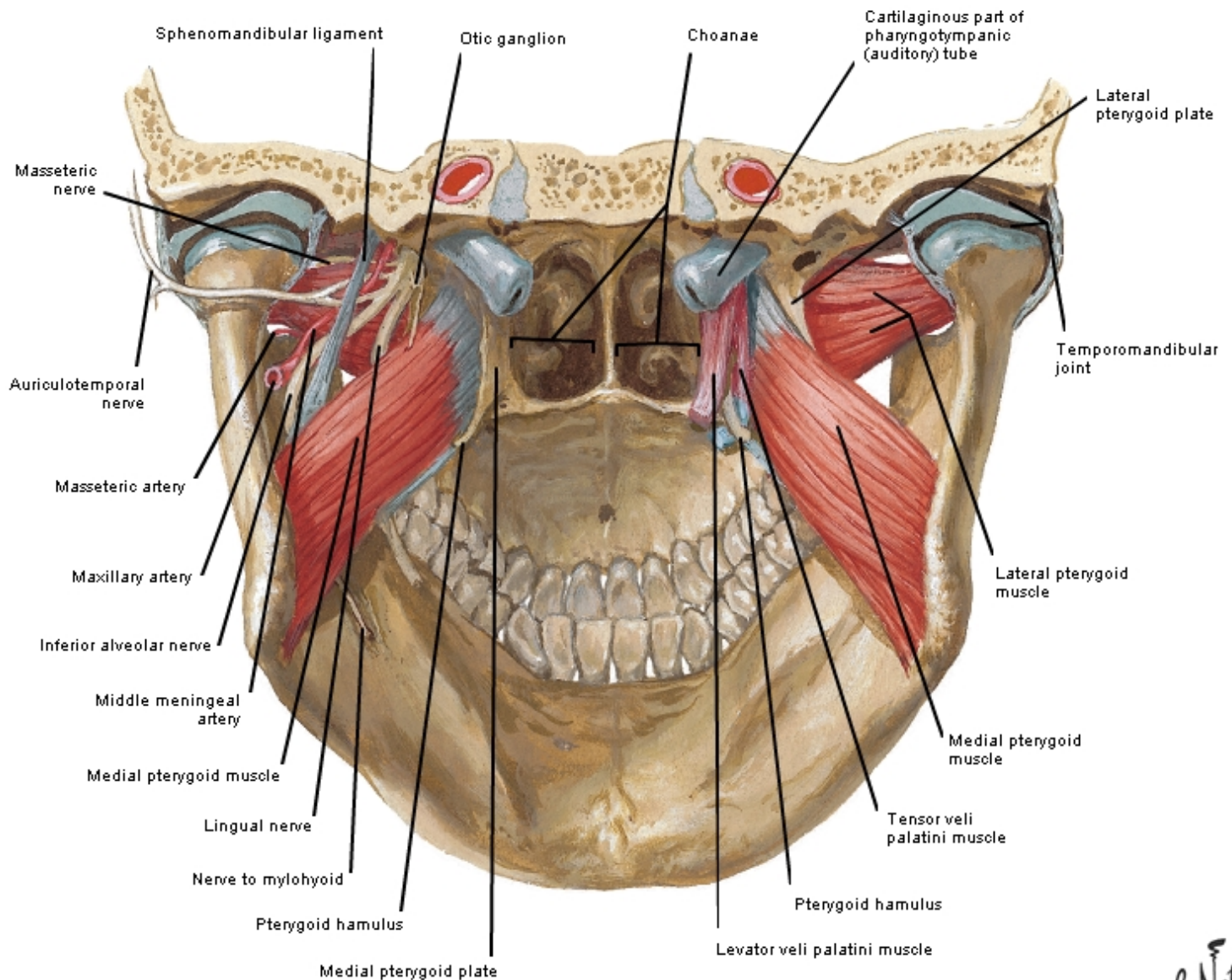
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Muscles Involved in Mastication (Deep) Lateral View



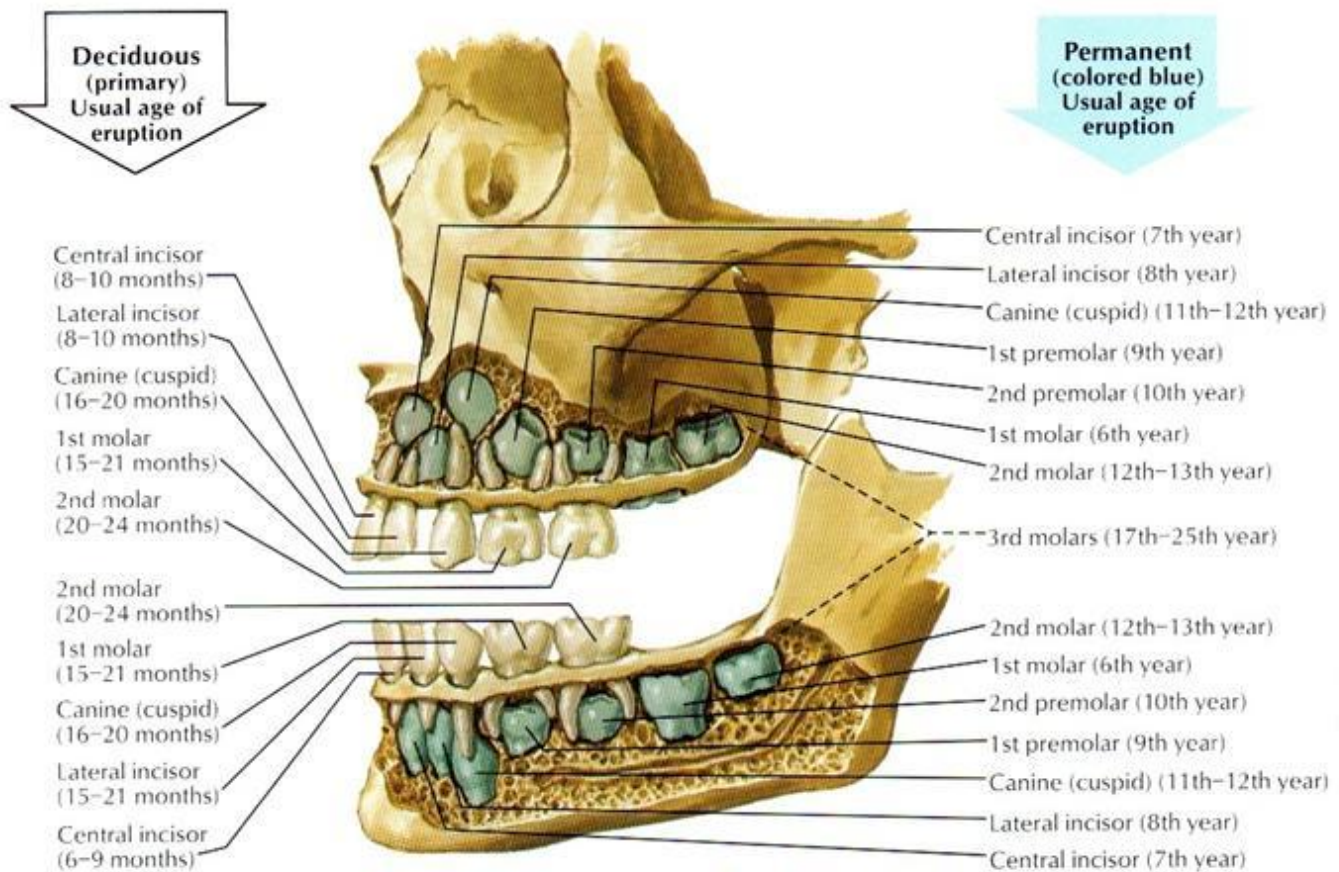
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Muscles Involved in Mastication (Deep) Posterior View



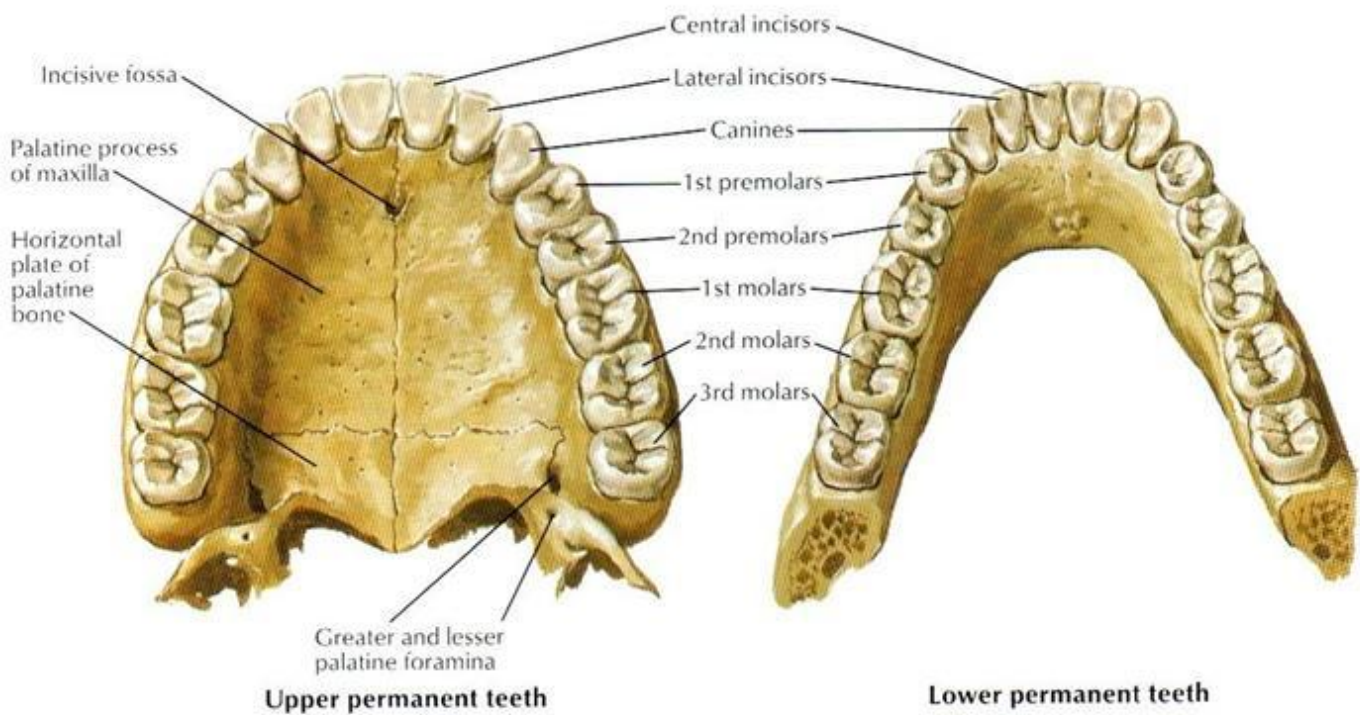
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Teeth: Deciduous and Permanent



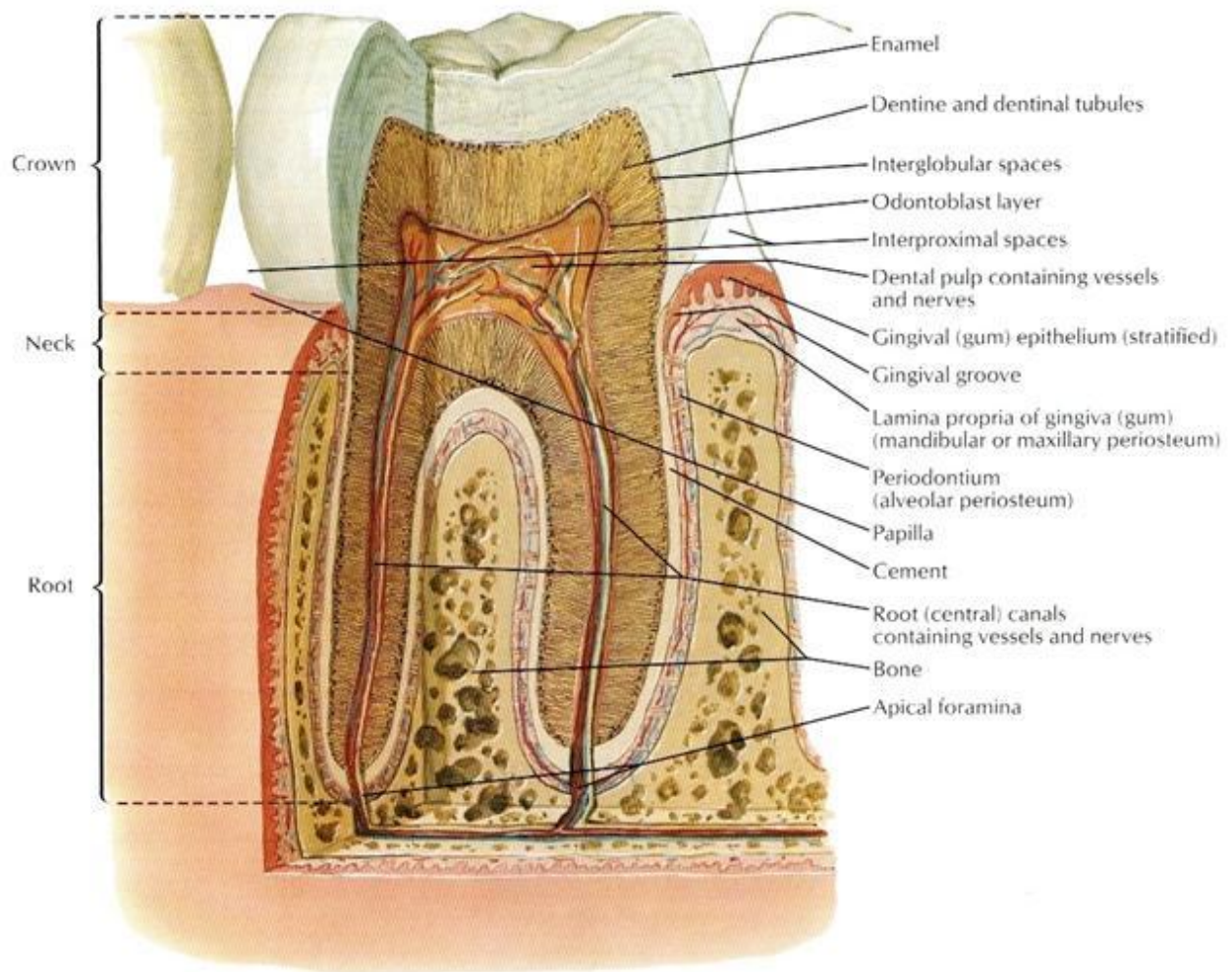
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Teeth: Upper and Lower Permanent Teeth



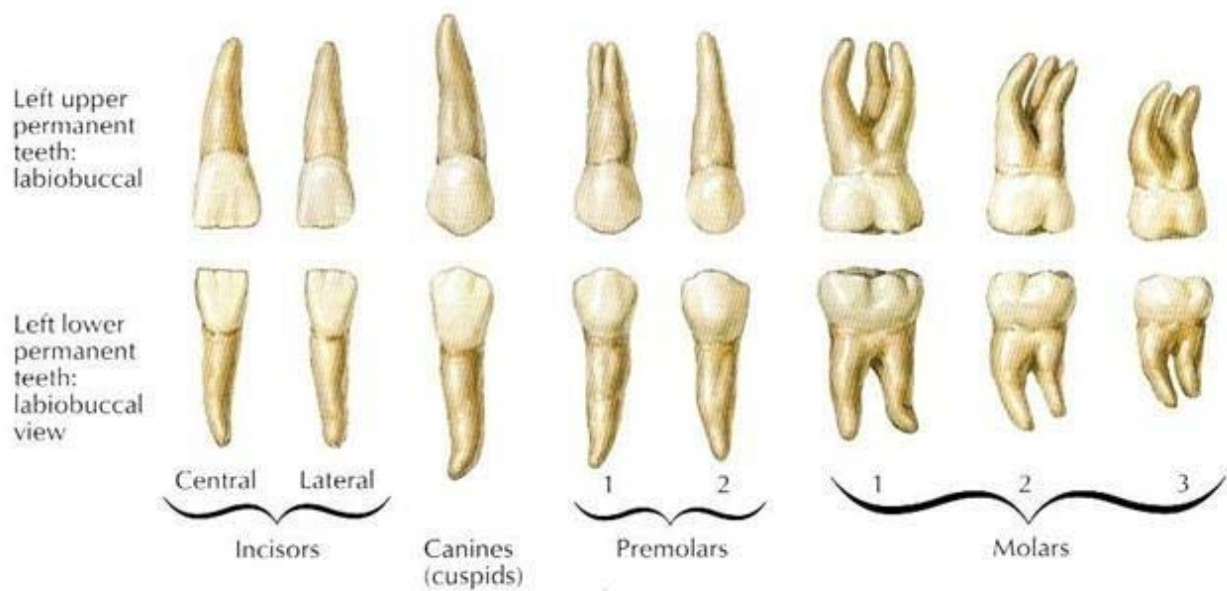
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Teeth



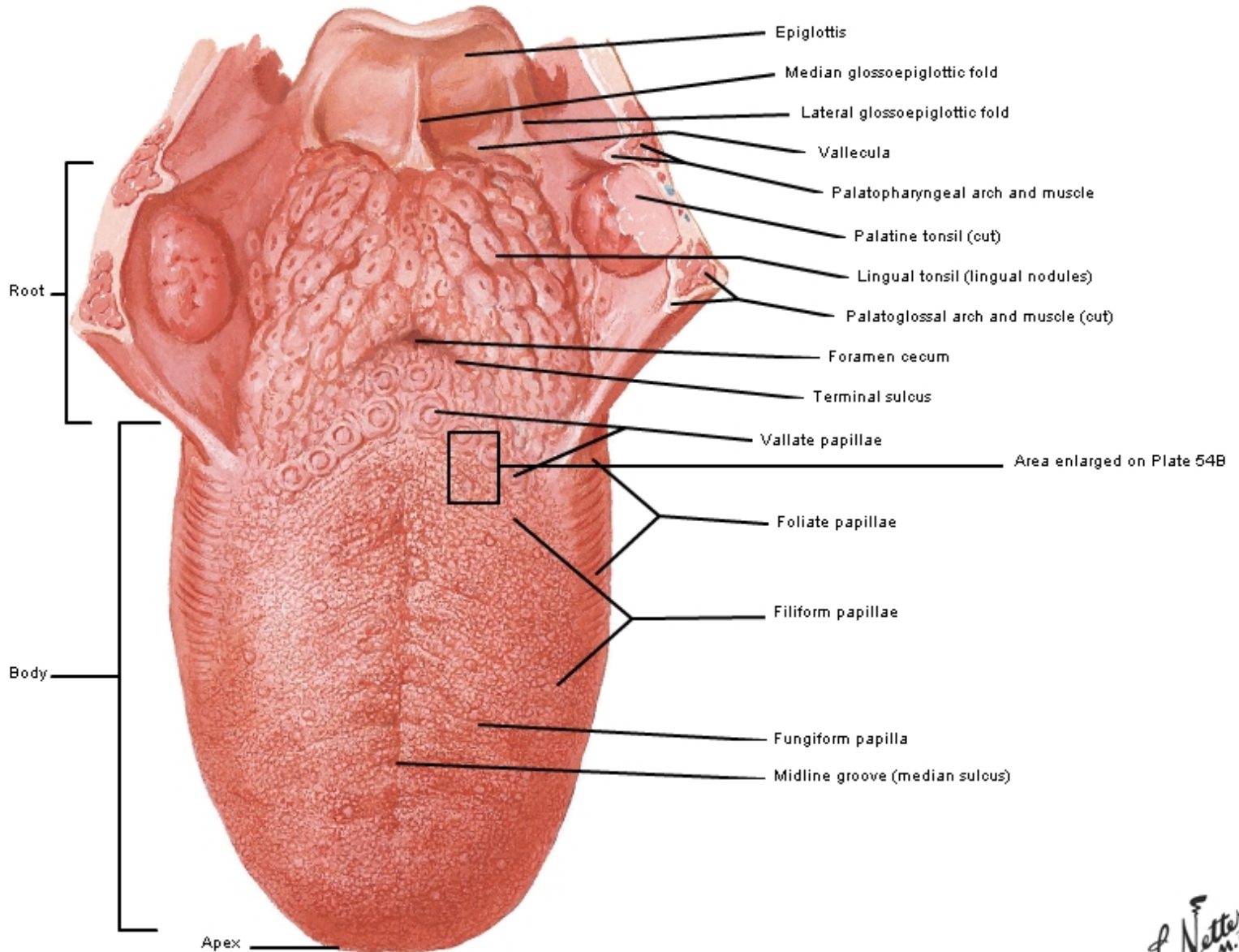
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Teeth: Left Upper and Lower Permanent Teeth (Labiobuccal View)



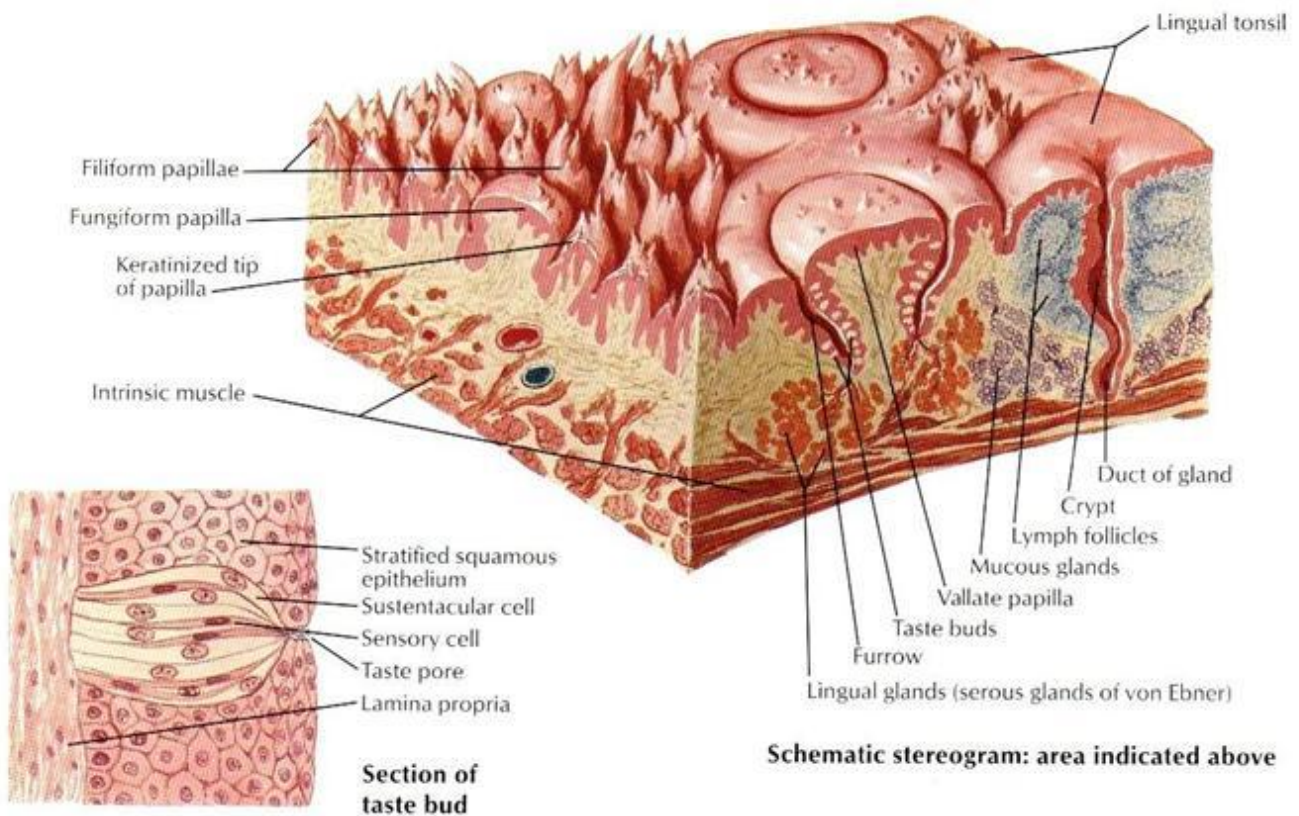
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Tongue Dorsum



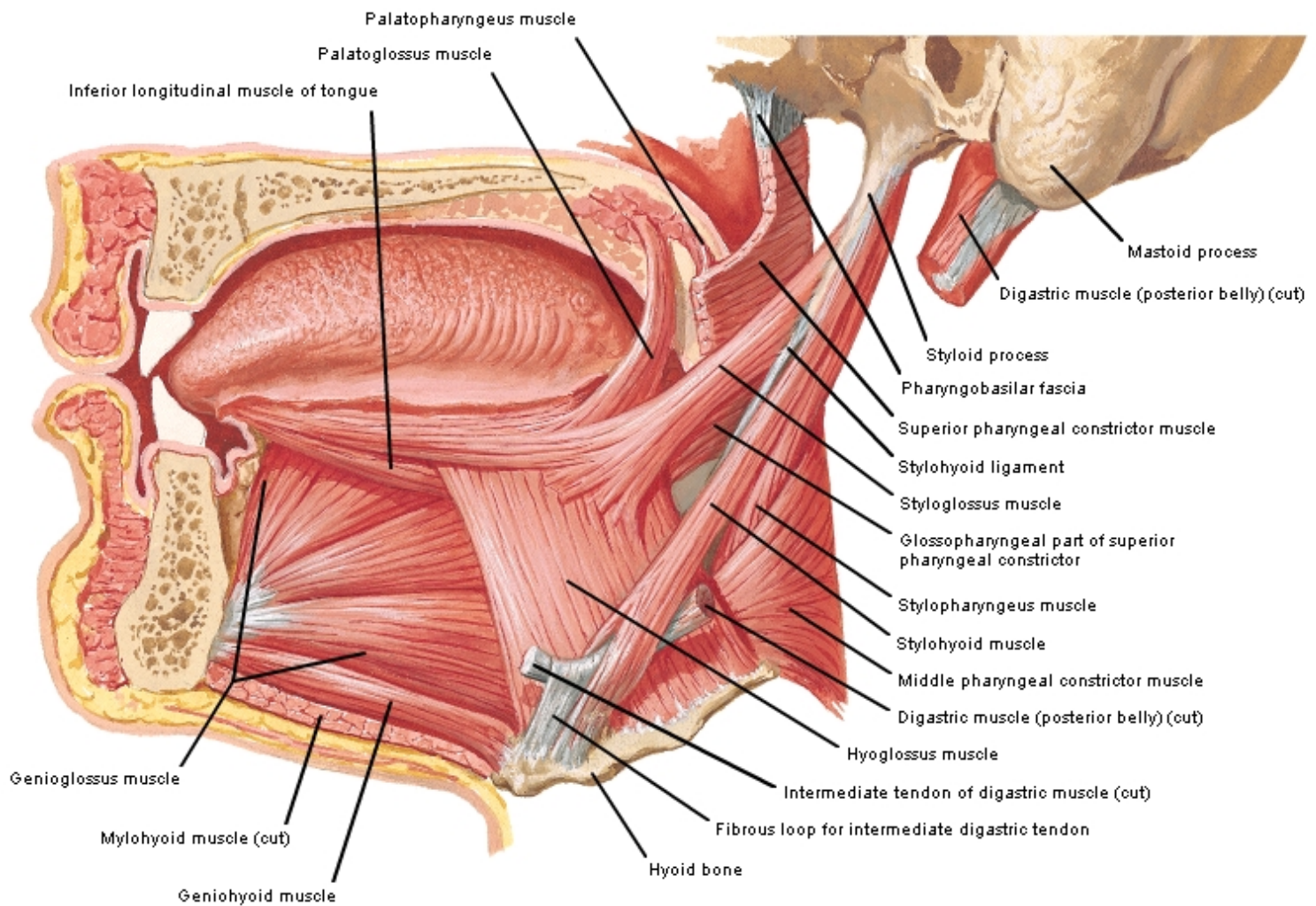
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Tongue: Section of Taste Bud



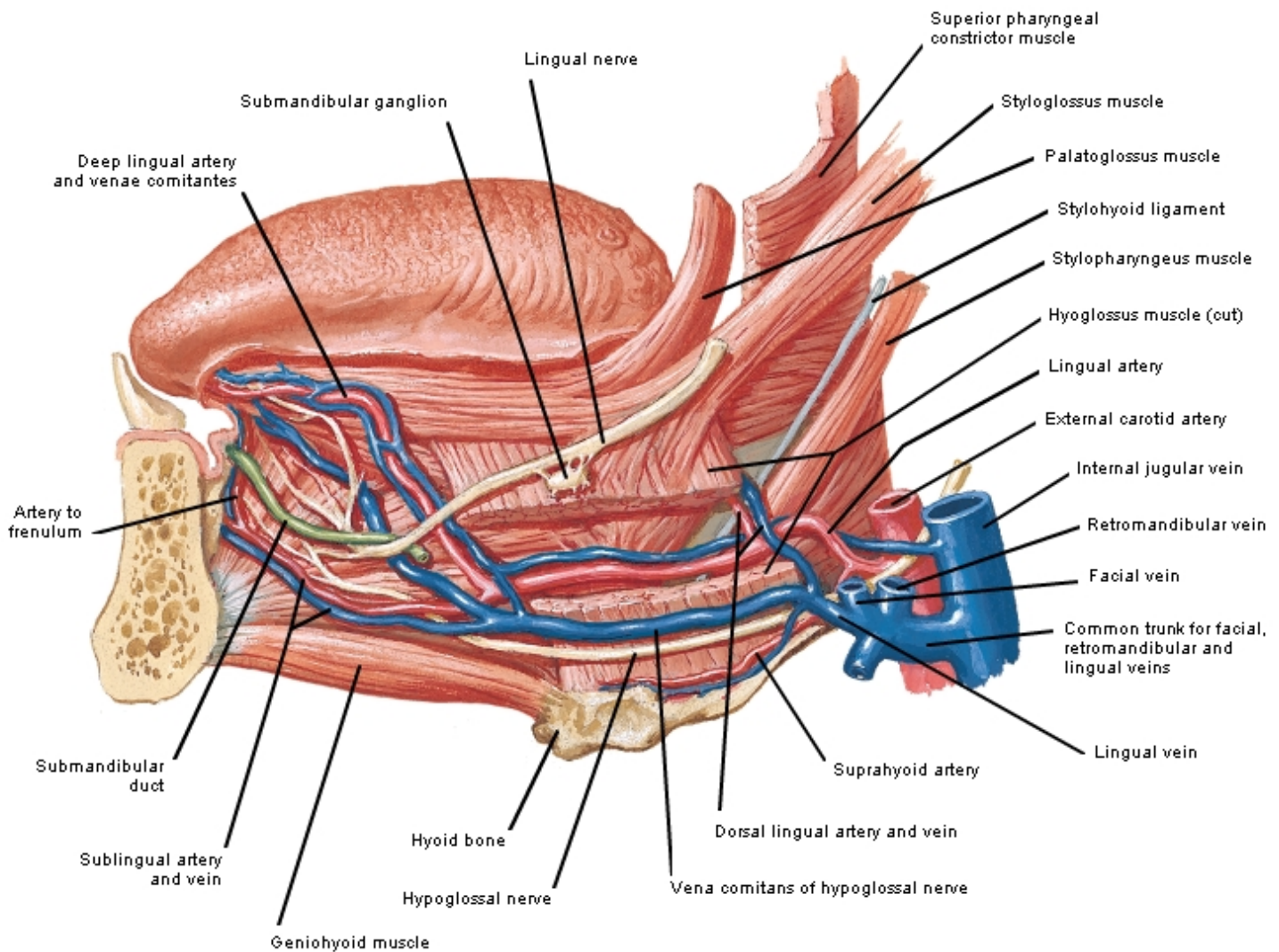
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Muscles of Tongue Sagittal Section



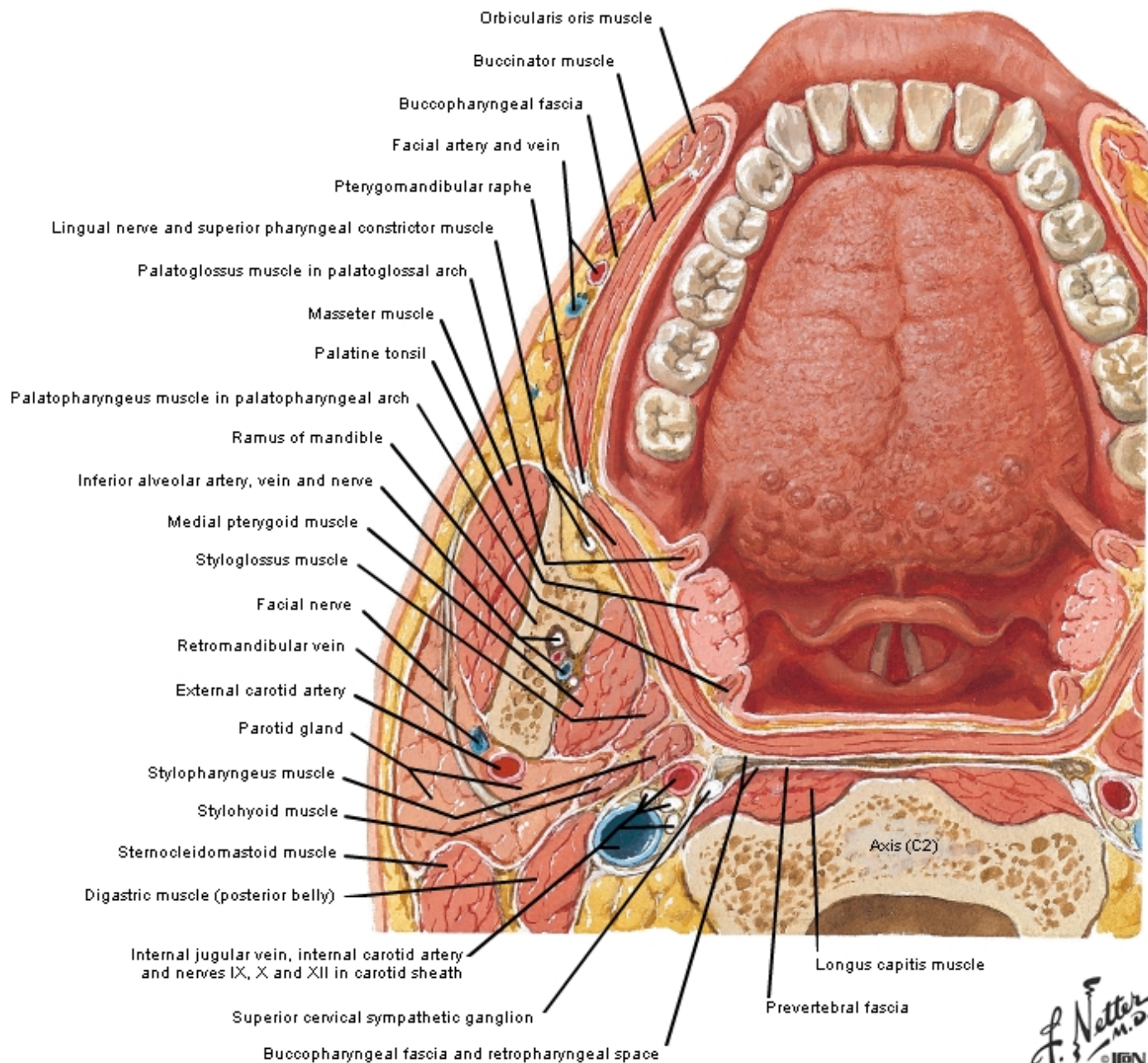
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Tongue and Related Structures Sagittal Section



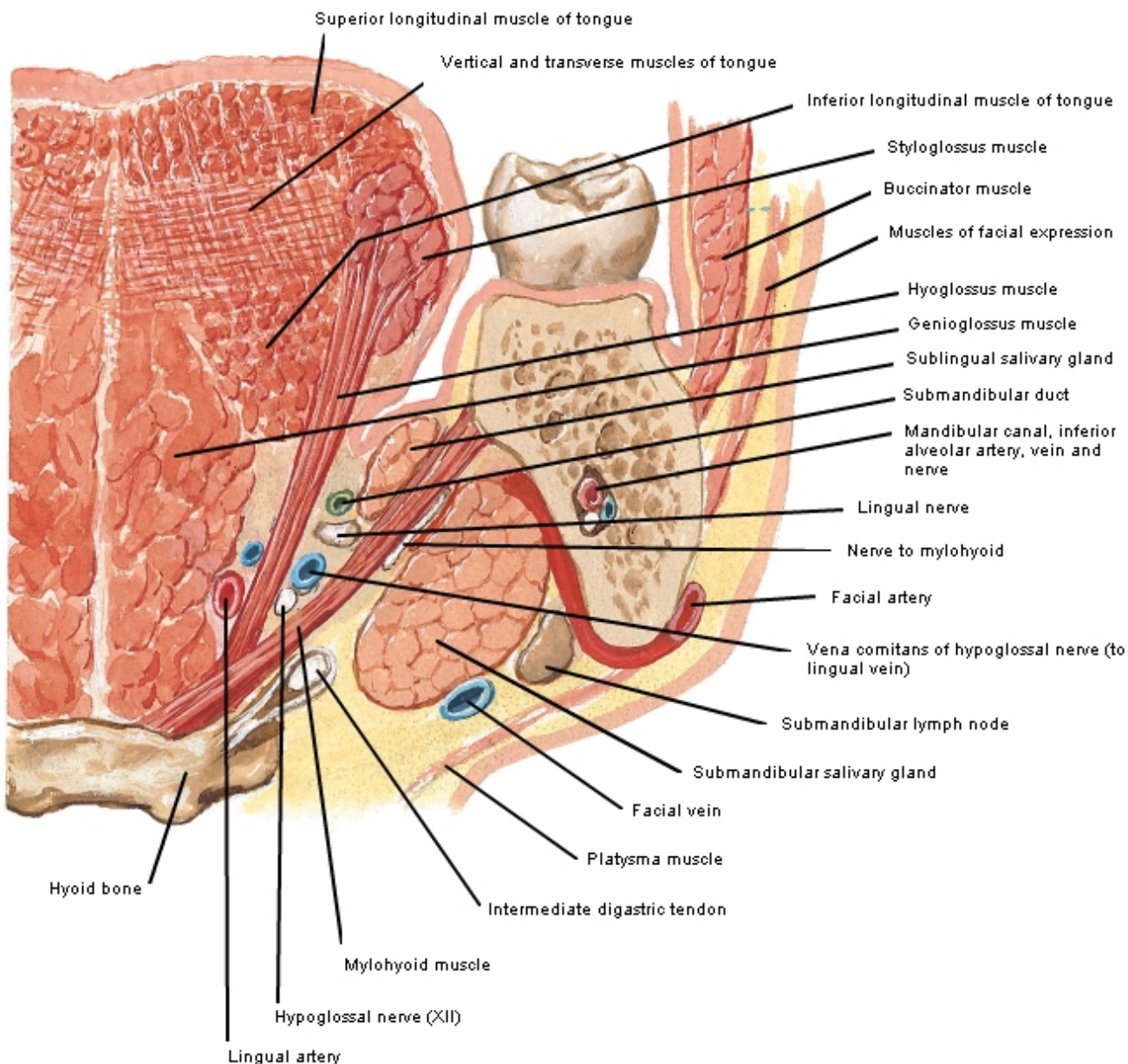
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Tongue and Salivary Glands Horizontal Section - Superior View



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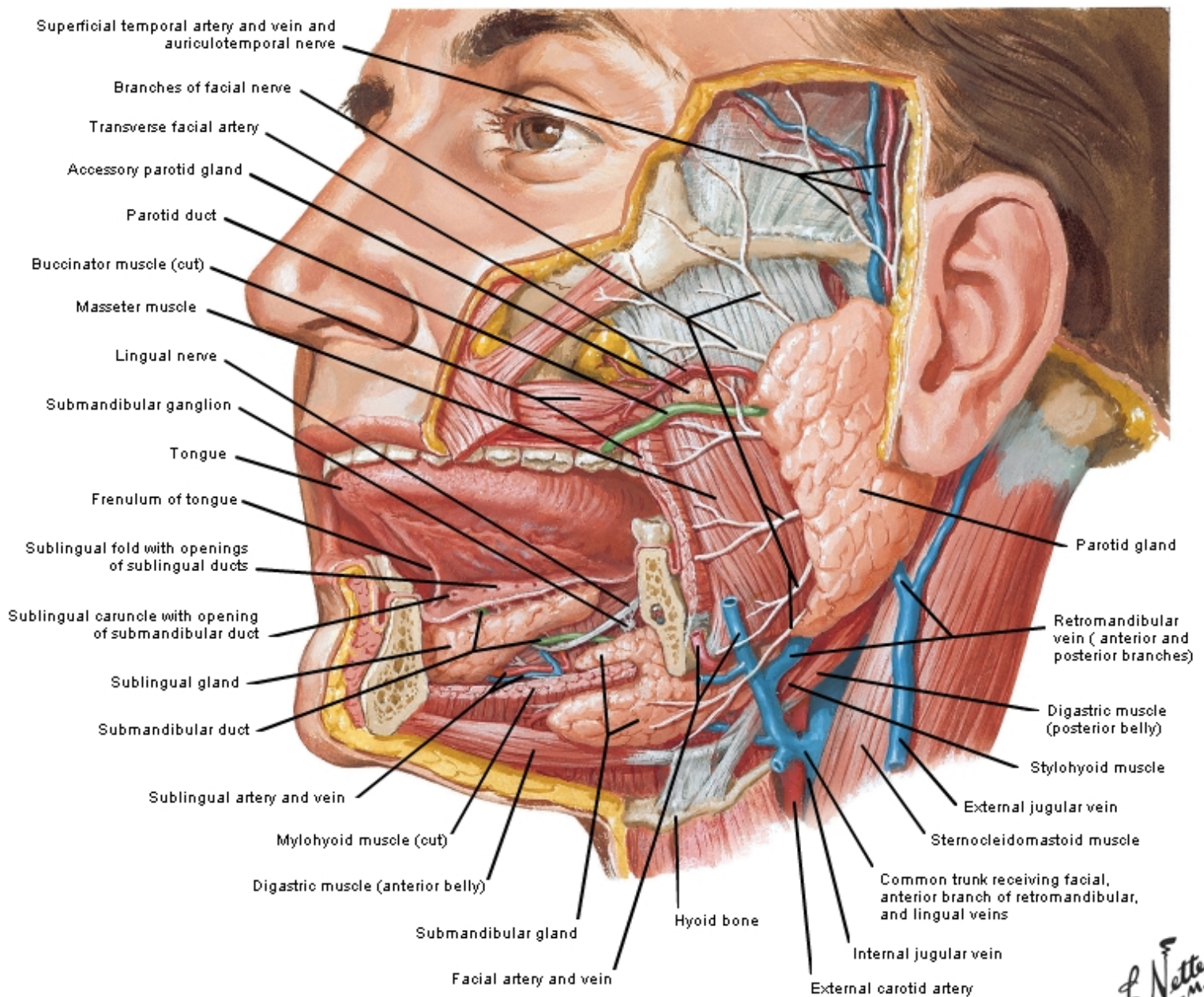
Tongue and Salivary Glands Frontal Section - Anterior View



Section behind 1st molar tooth demonstrating beds of sublingual and submandibular glands

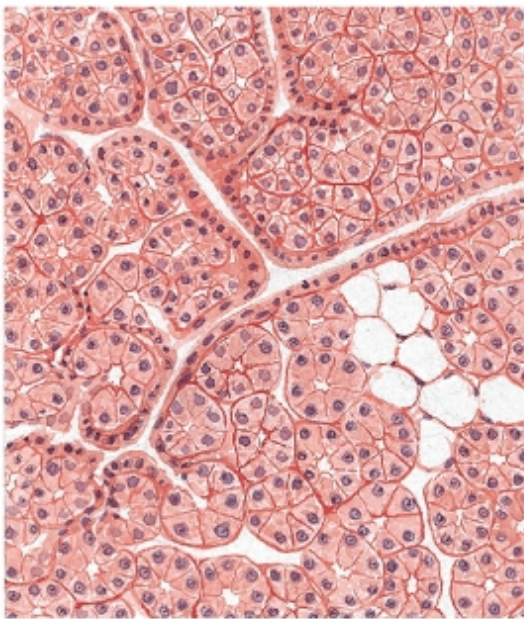
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Salivary Glands Dissection

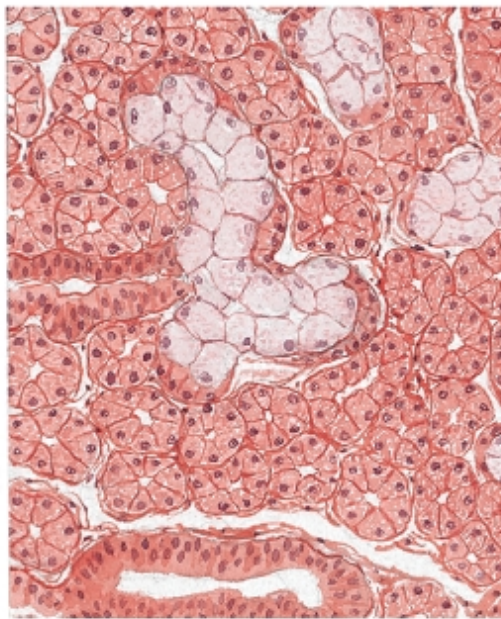


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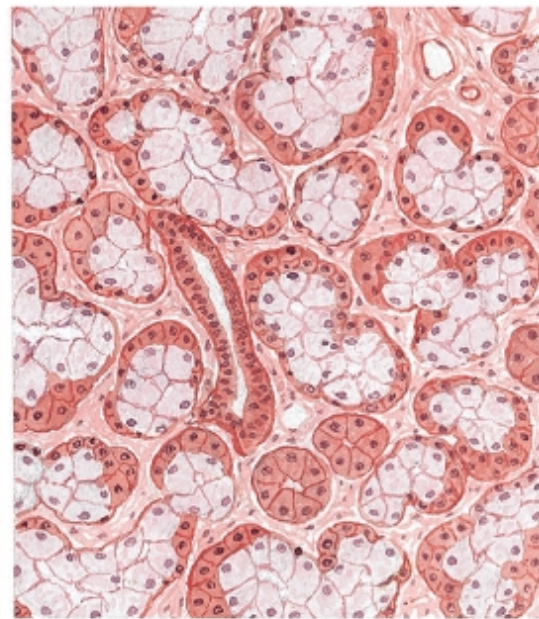
Salivary Glands Histology



Parotid gland:
totally serous



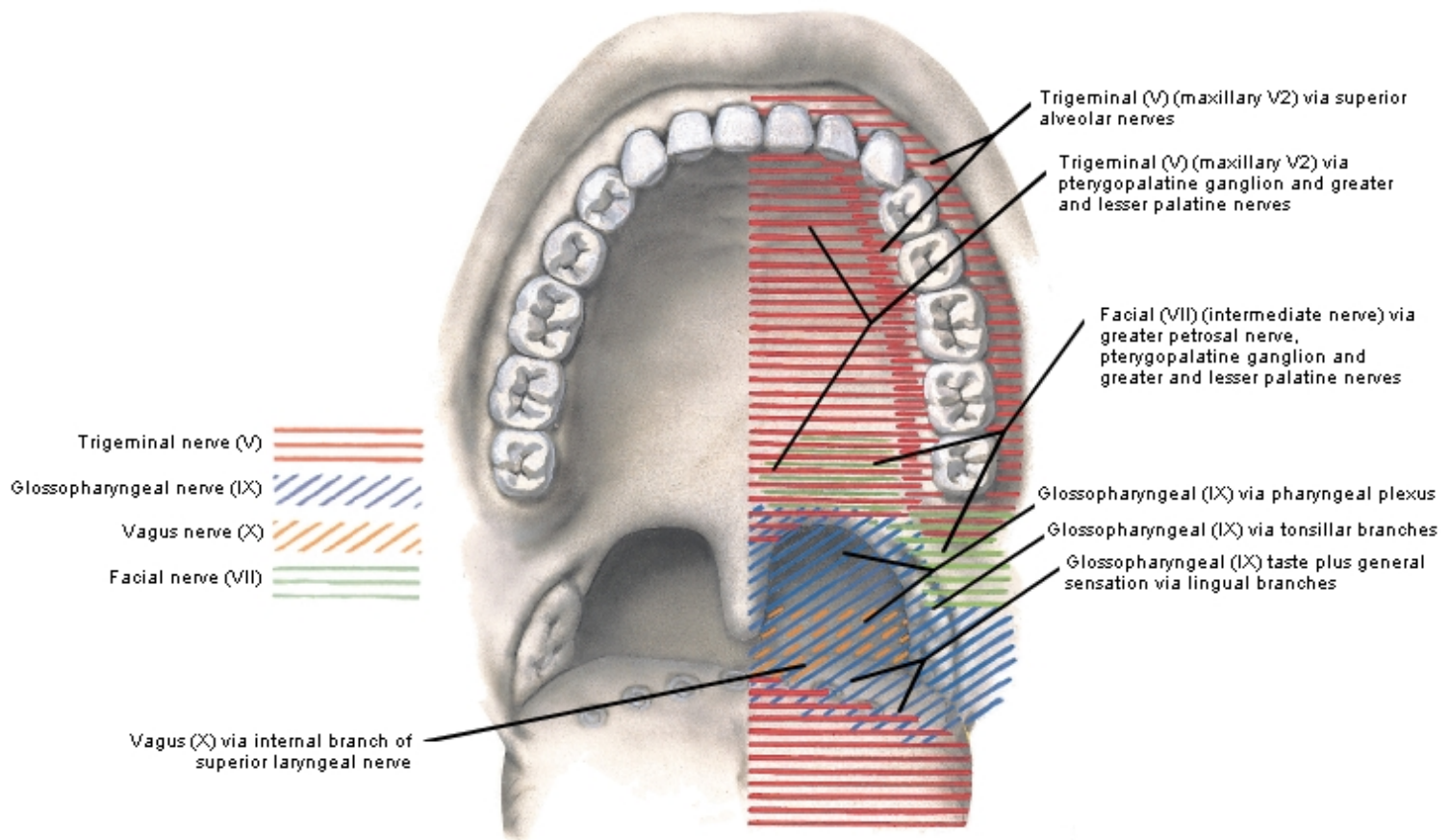
Submandibular gland:
mostly serous, partially mucous



Sublingual gland:
almost completely mucous

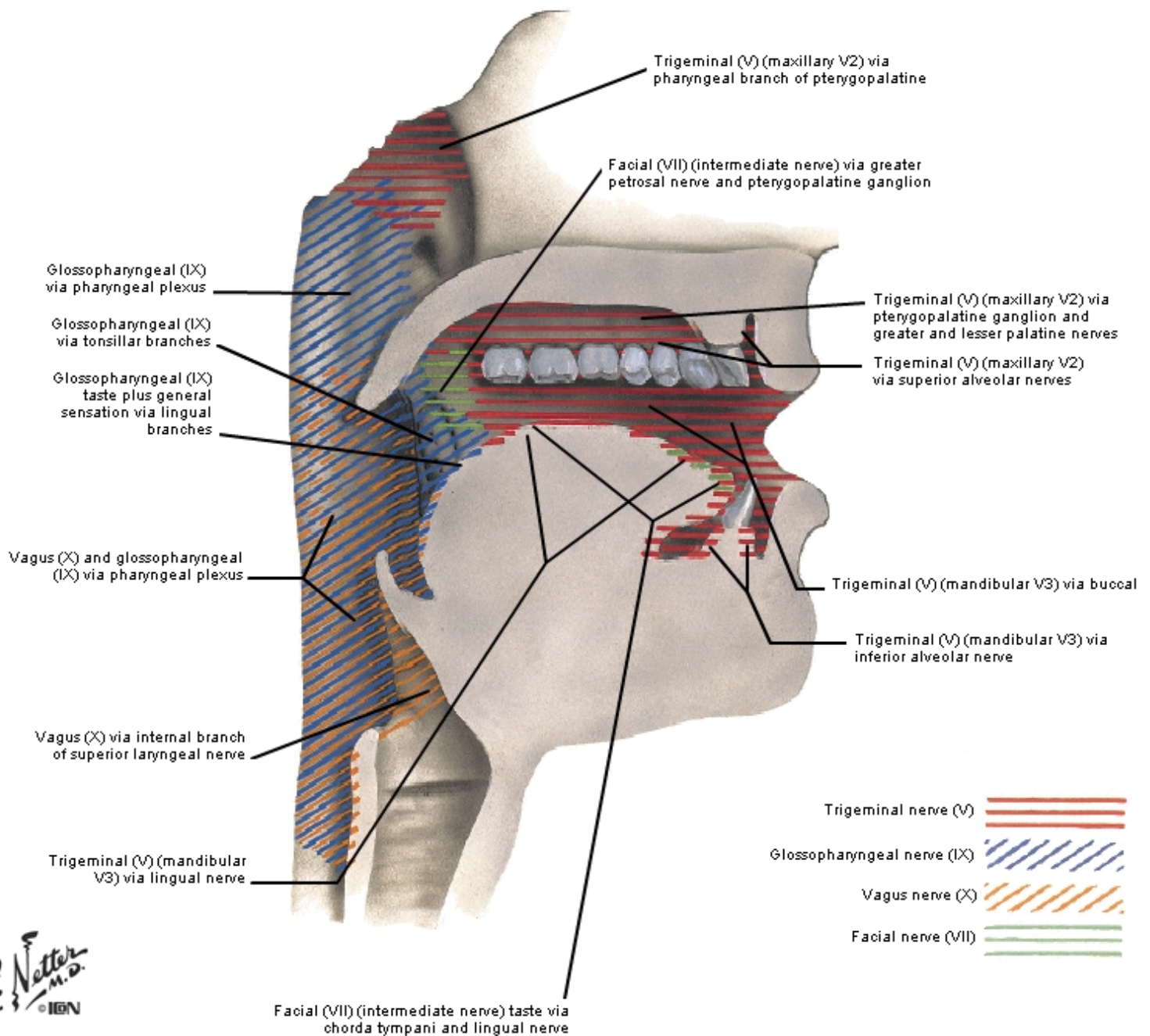
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Afferent Innervation of Mouth and Pharynx Anterior View

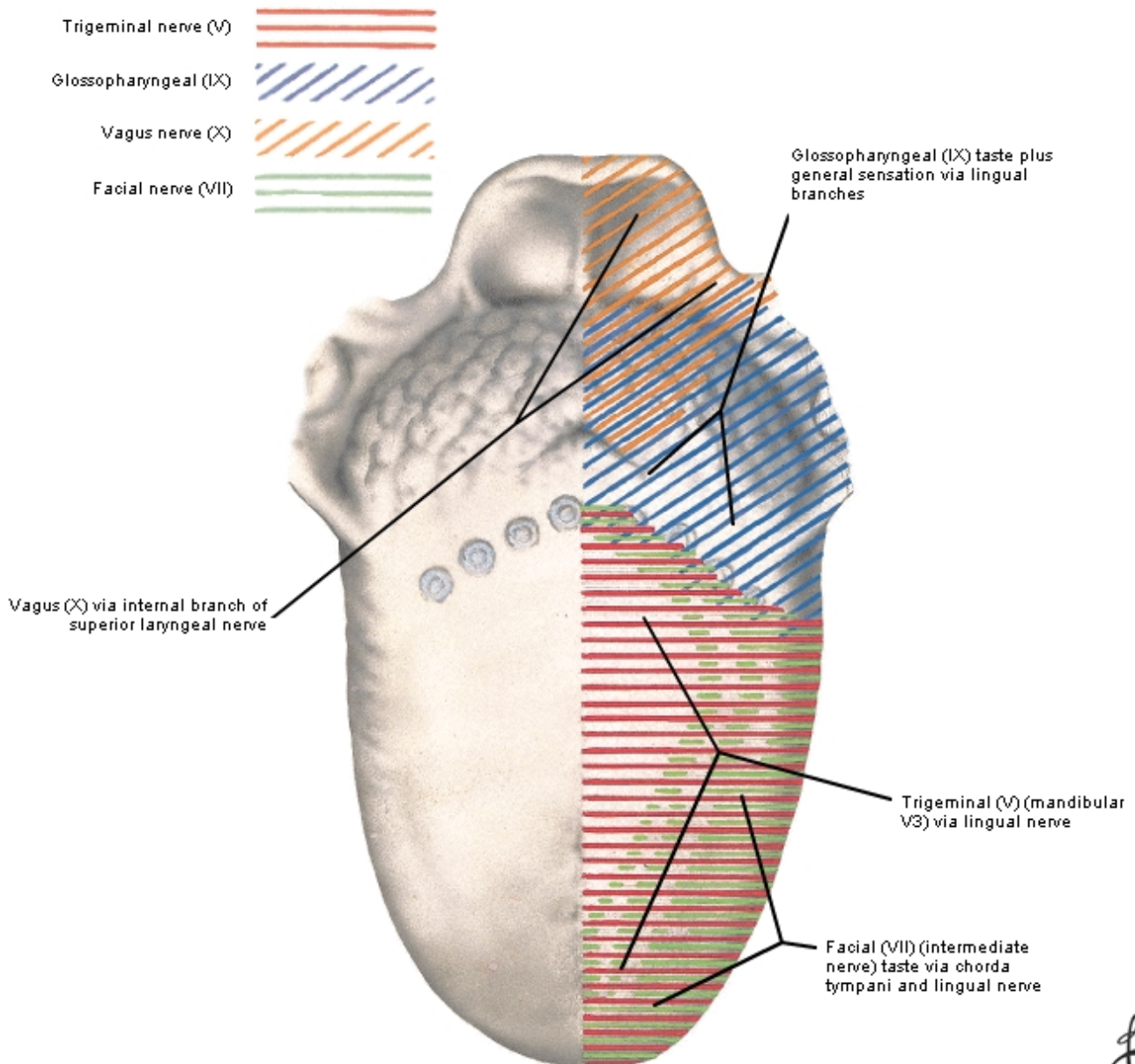


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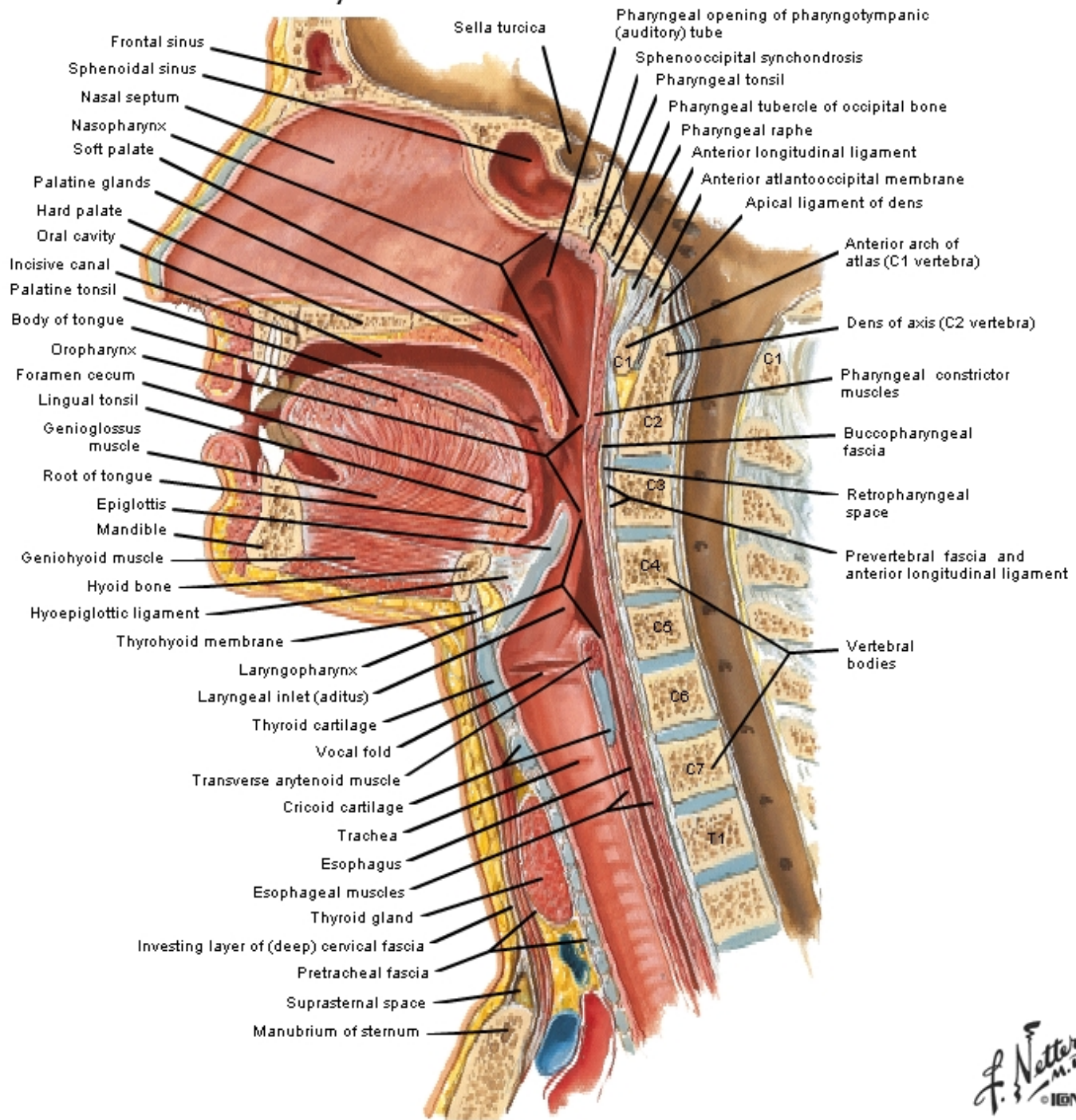
Afferent Innervation of Mouth and Pharynx Lateral View



Afferent Innervation of Mouth and Pharynx Dorsum of Tongue

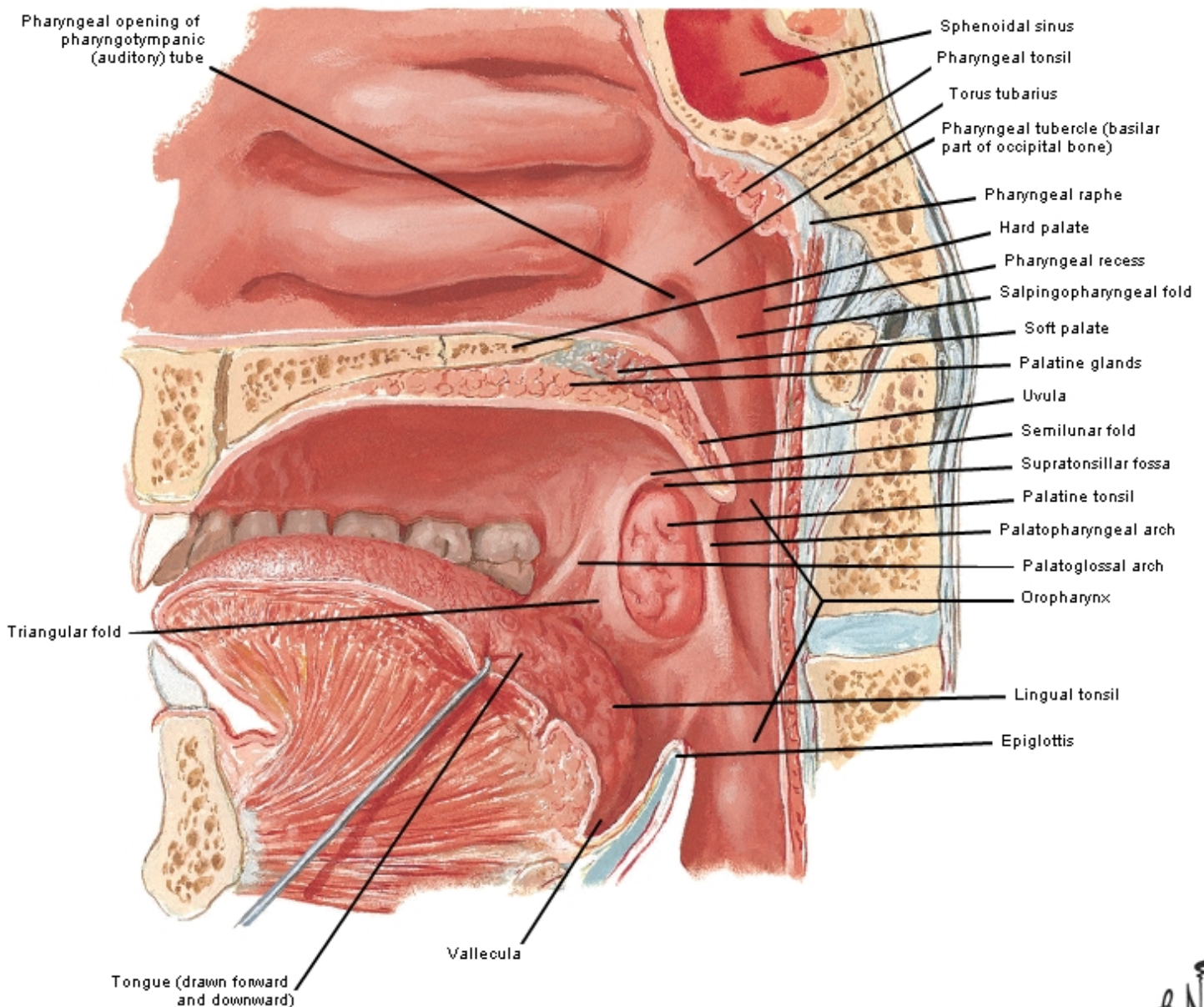


Pharynx: Median Section



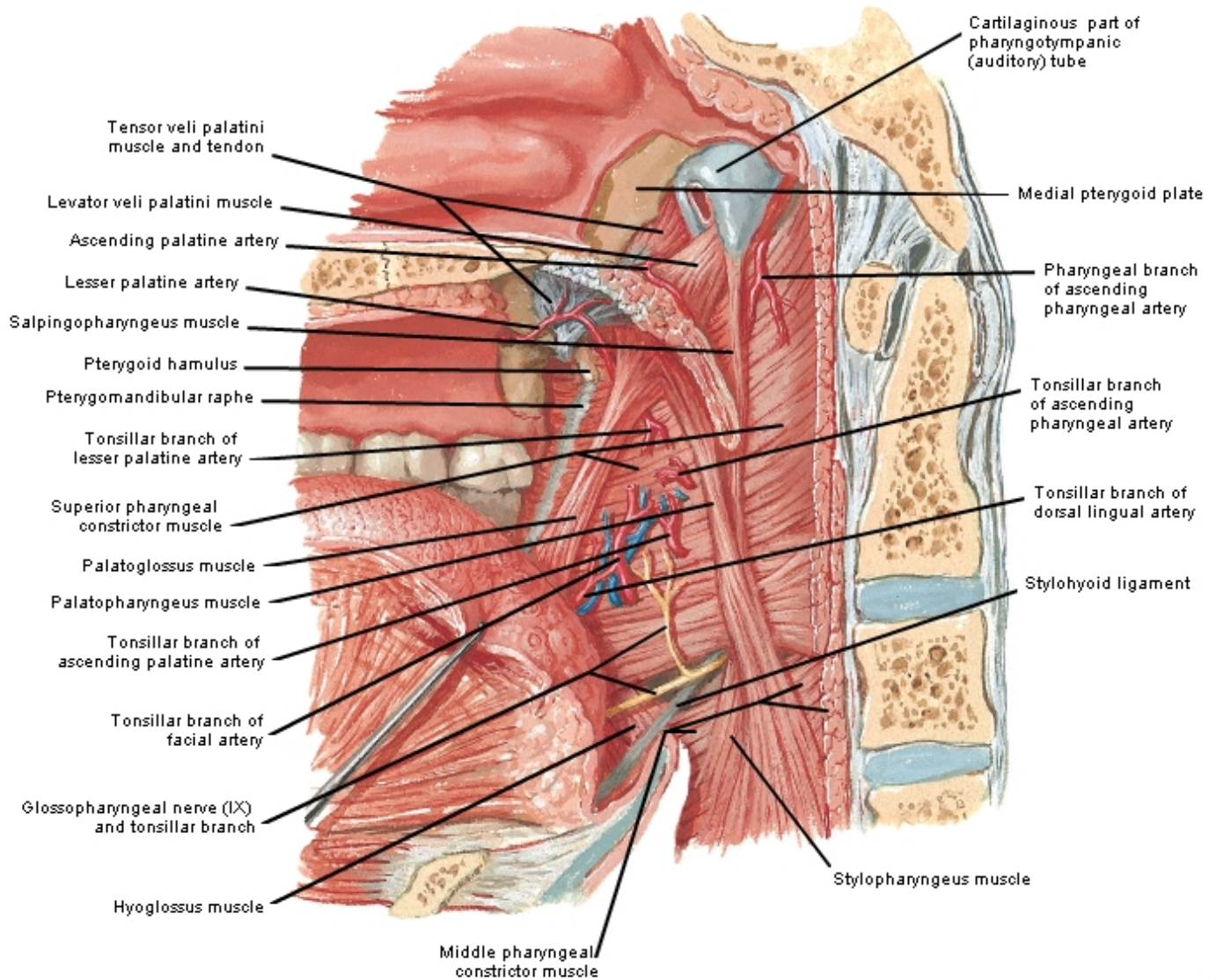
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Fauces Medial View Median (Sagittal) Section



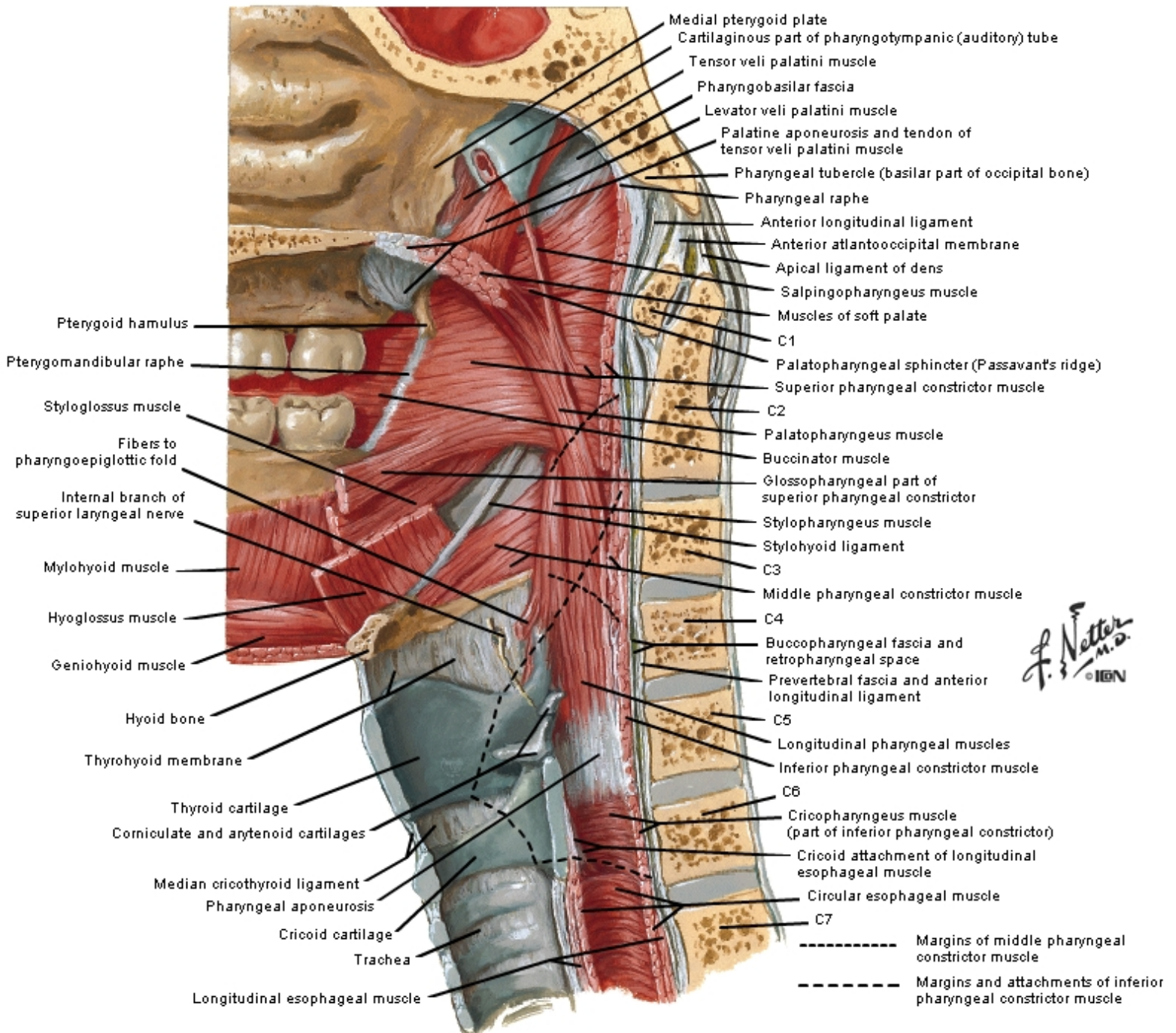
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Fauces: Pharyngeal Mucosa Removed Medial View Pharyngeal Mucosa Removed



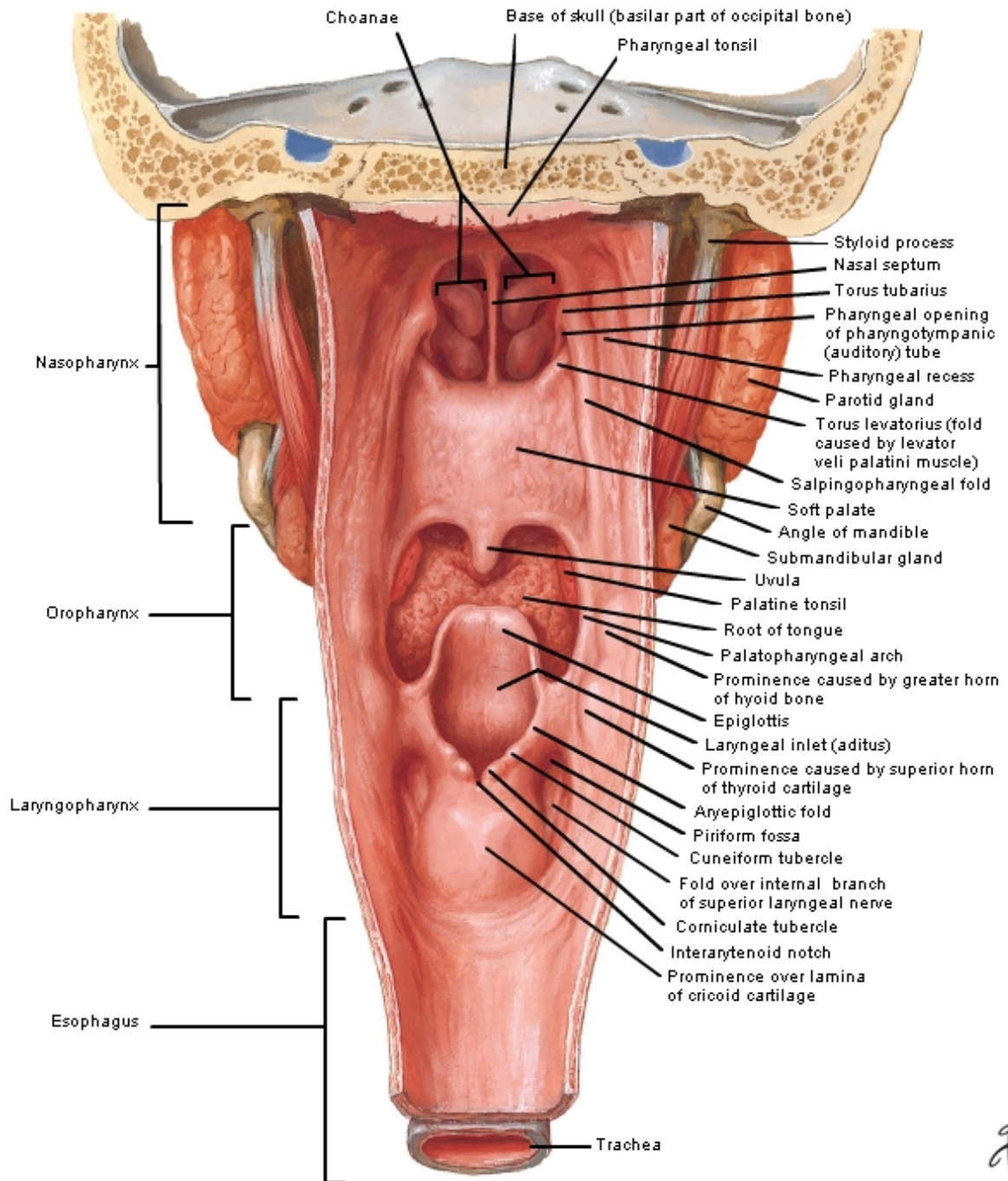
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Muscles of Pharynx: Median (Sagittal) Section



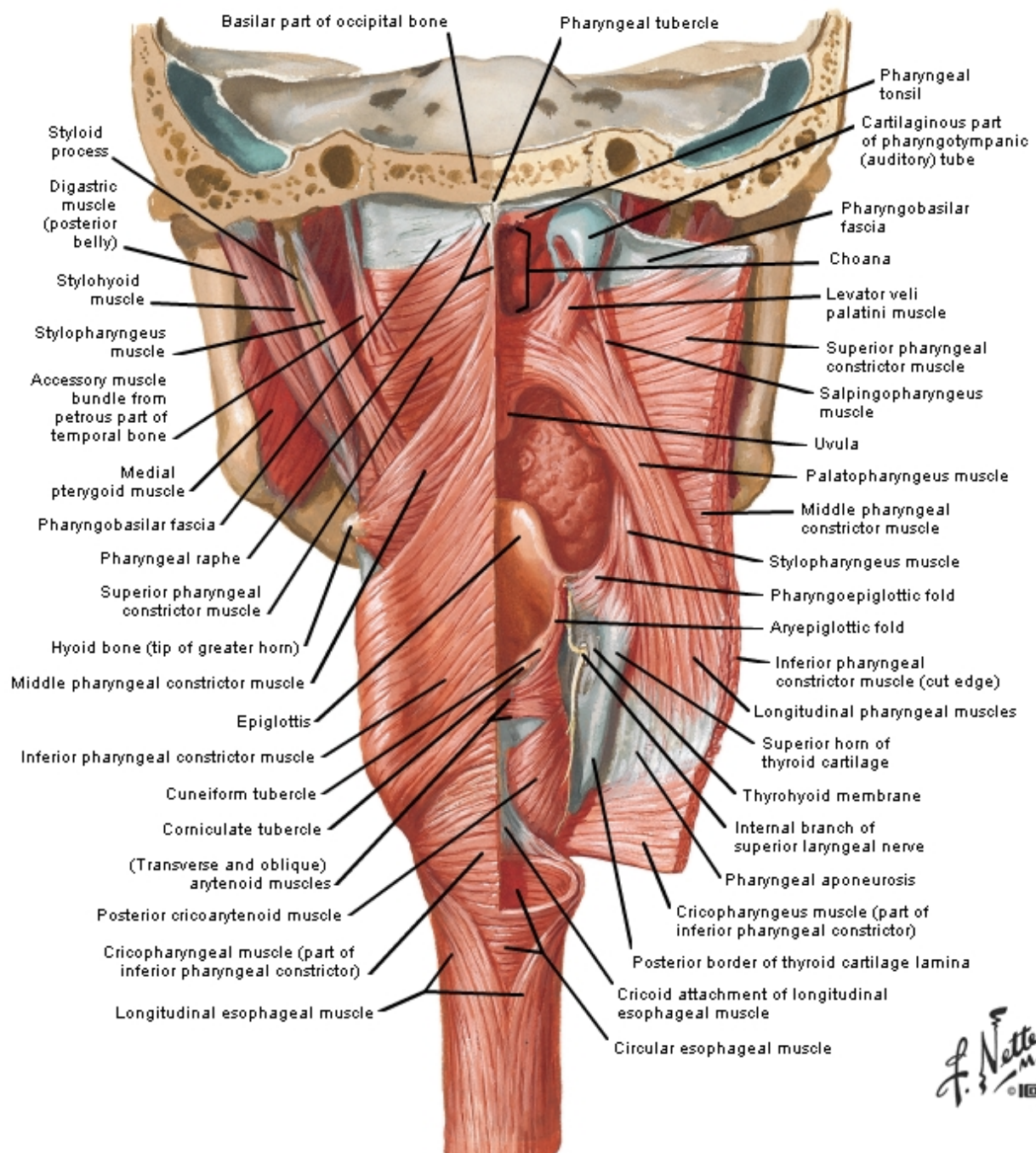
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Pharynx: Opened Posterior View



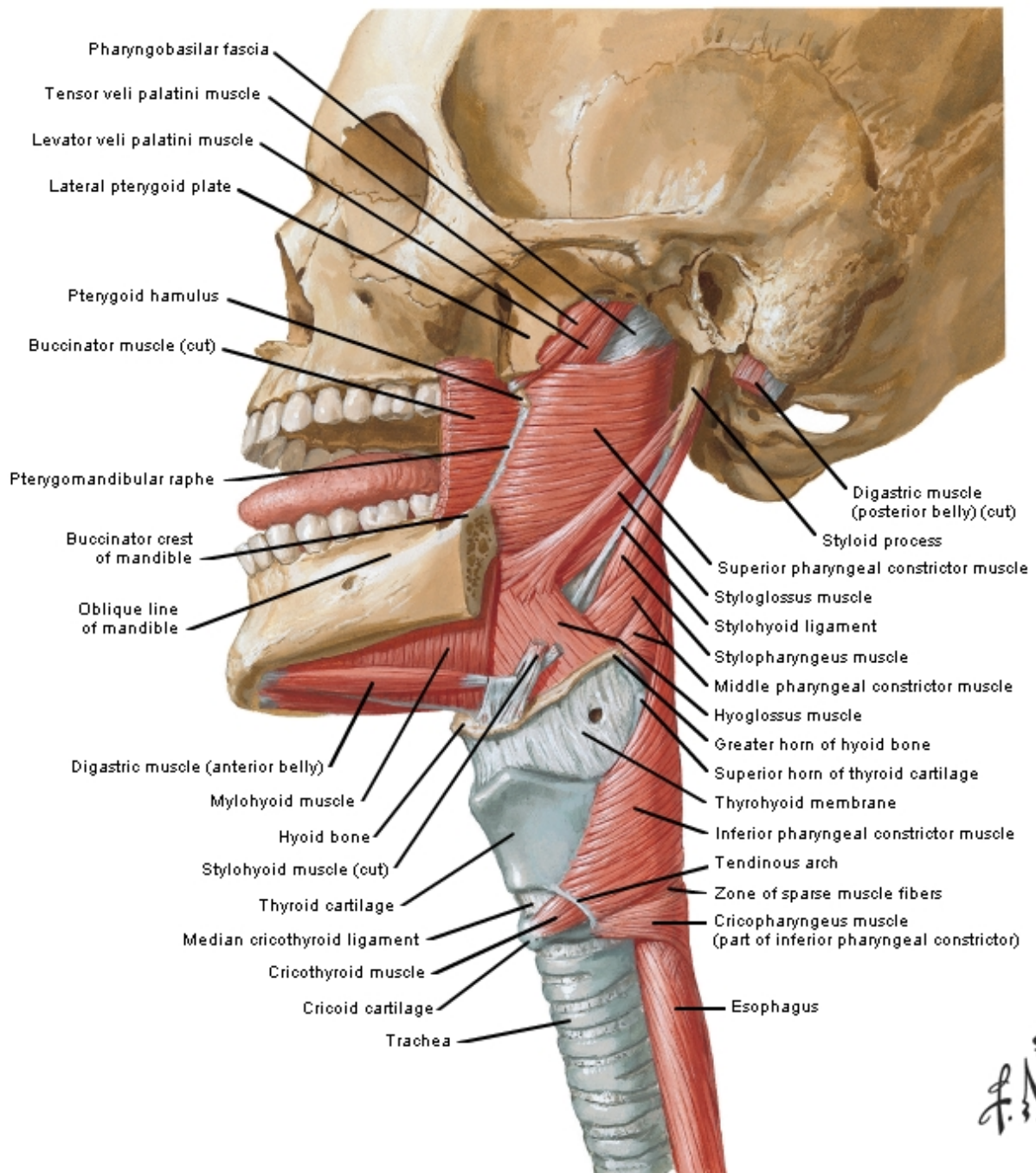
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Muscles of Pharynx: Partially Opened Posterior View

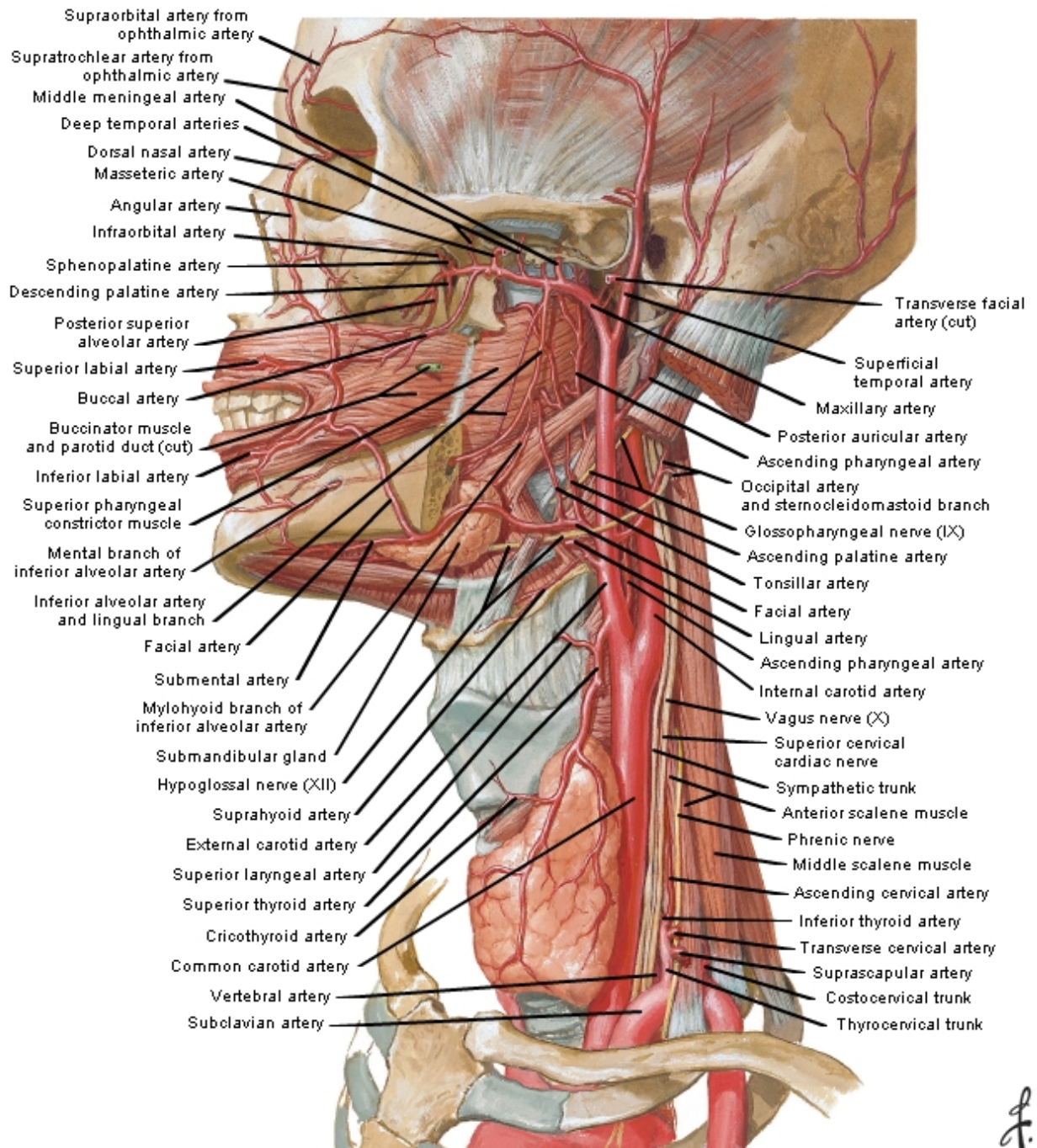


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Muscles of Pharynx: Lateral View

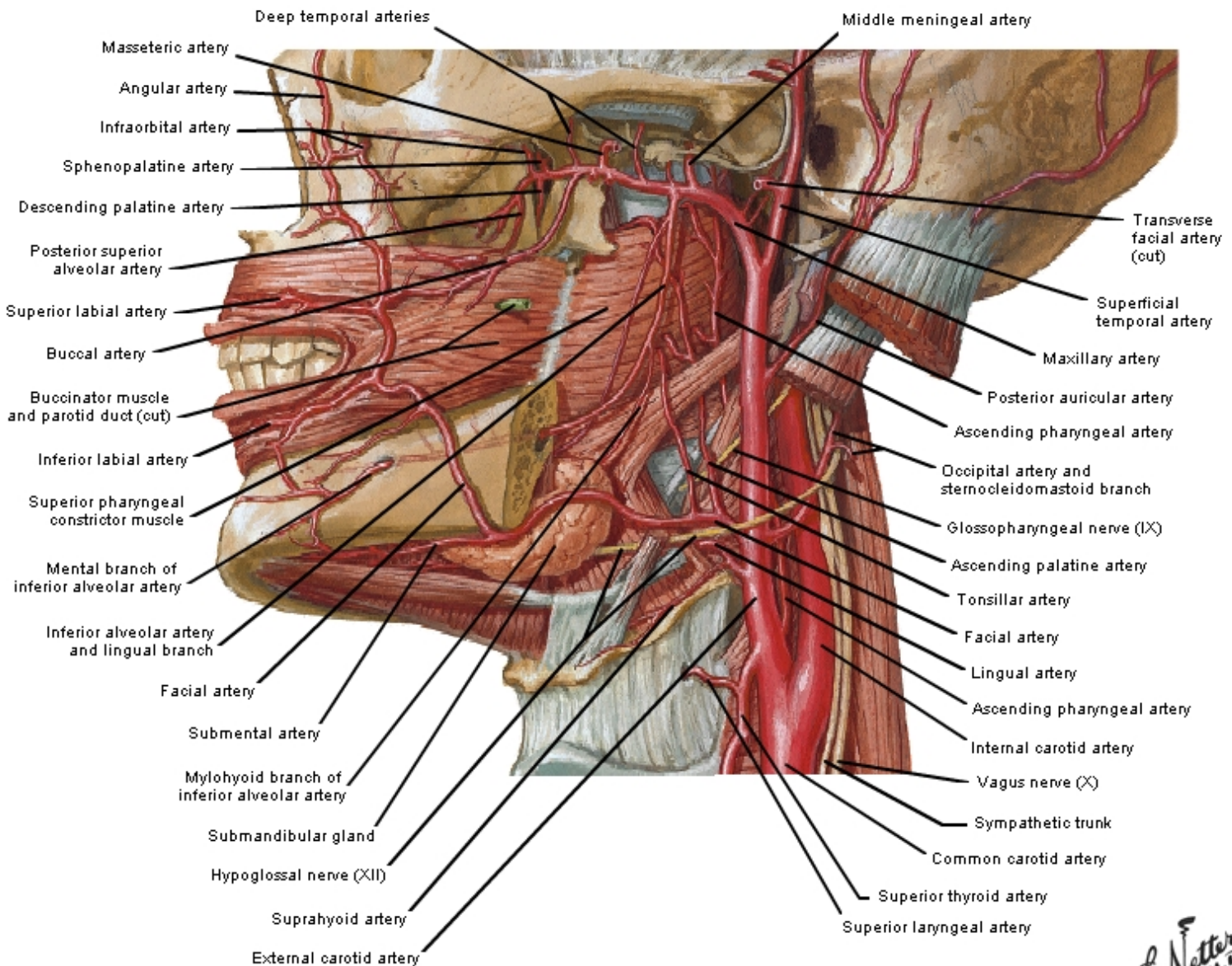


Arteries of Oral and Pharyngeal Regions



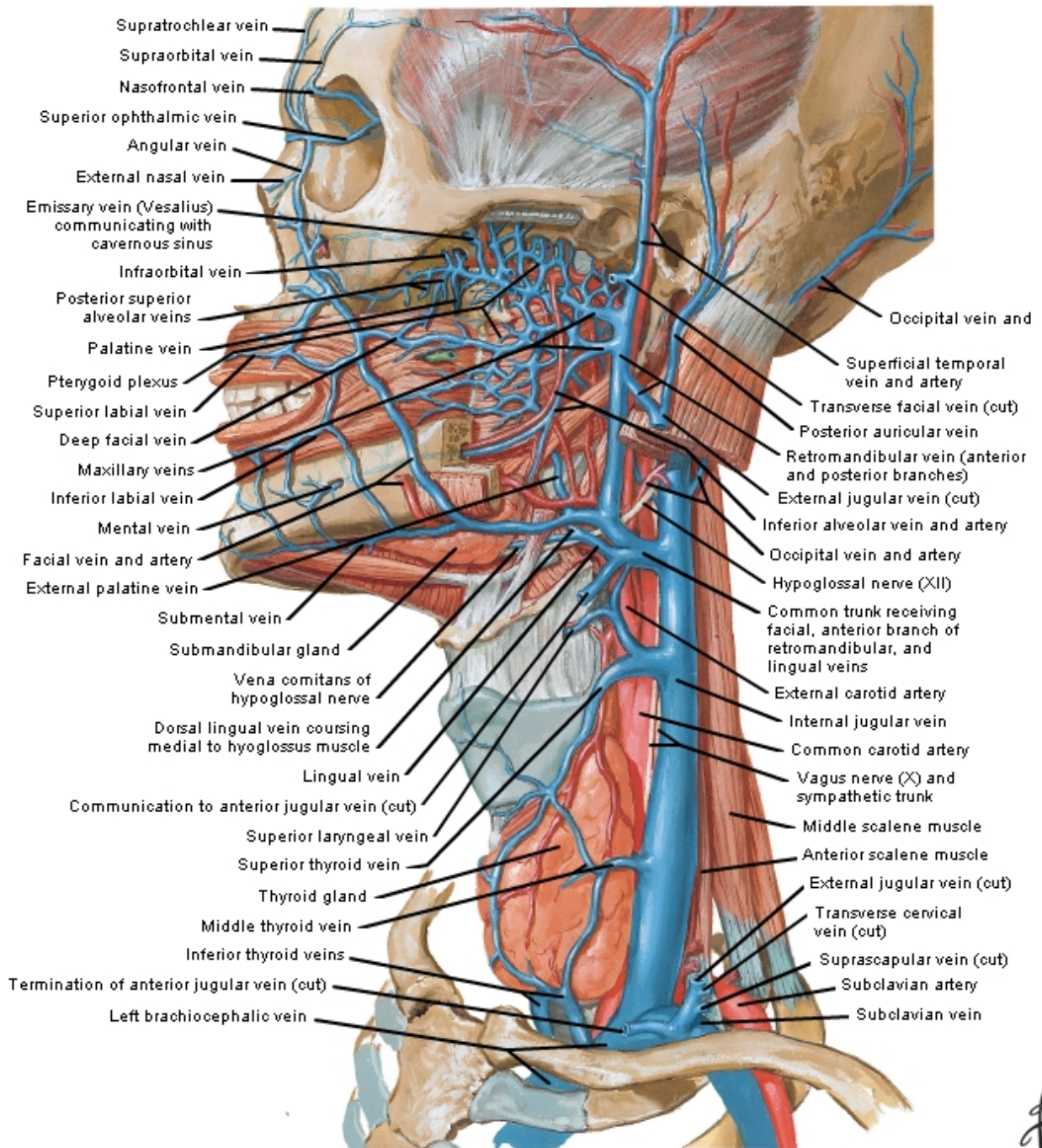
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Arteries of Oral and Pharyngeal Regions Enlarged View of Head and Upper Neck Portion



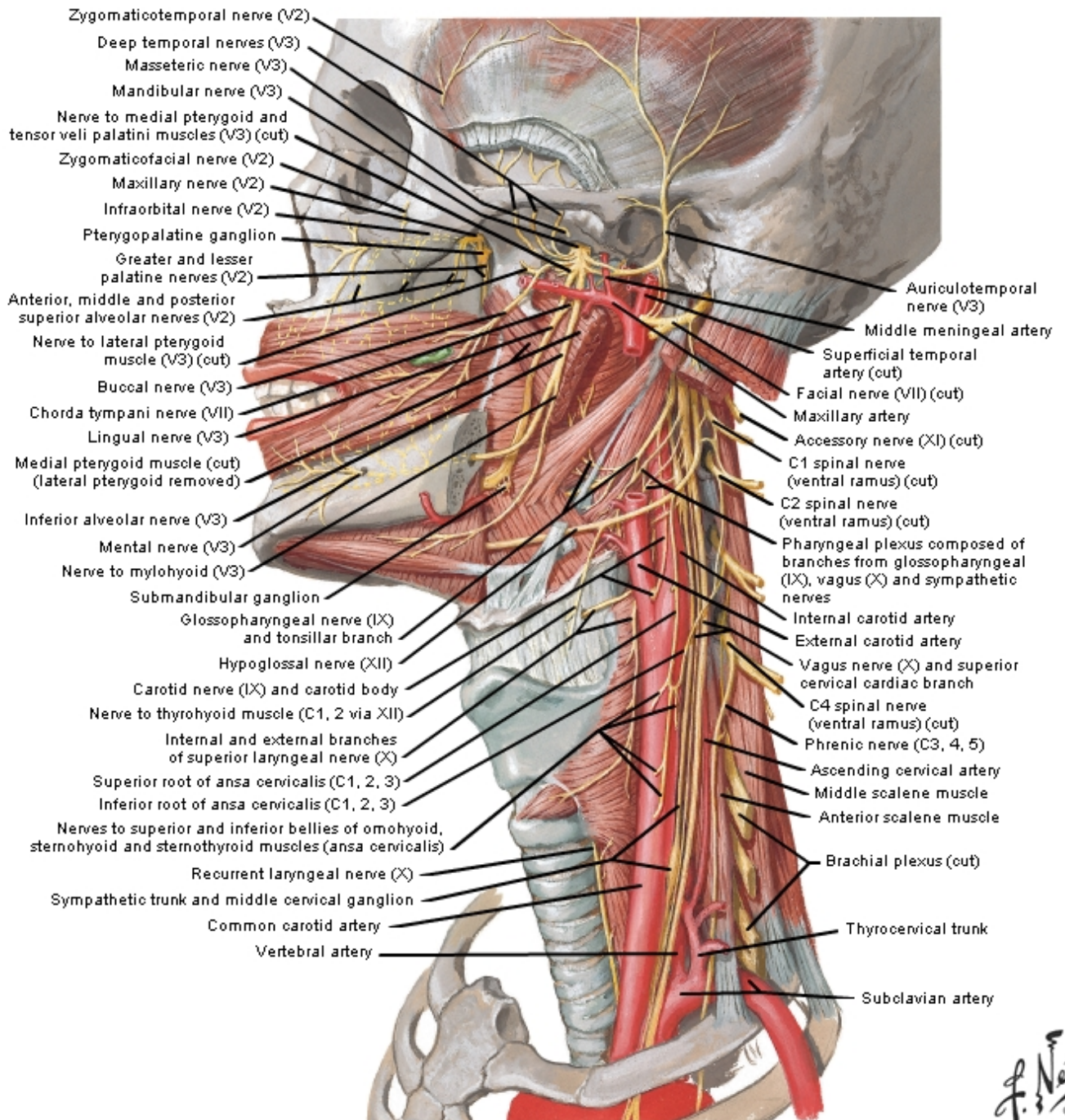
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Veins of Oral and Pharyngeal Regions



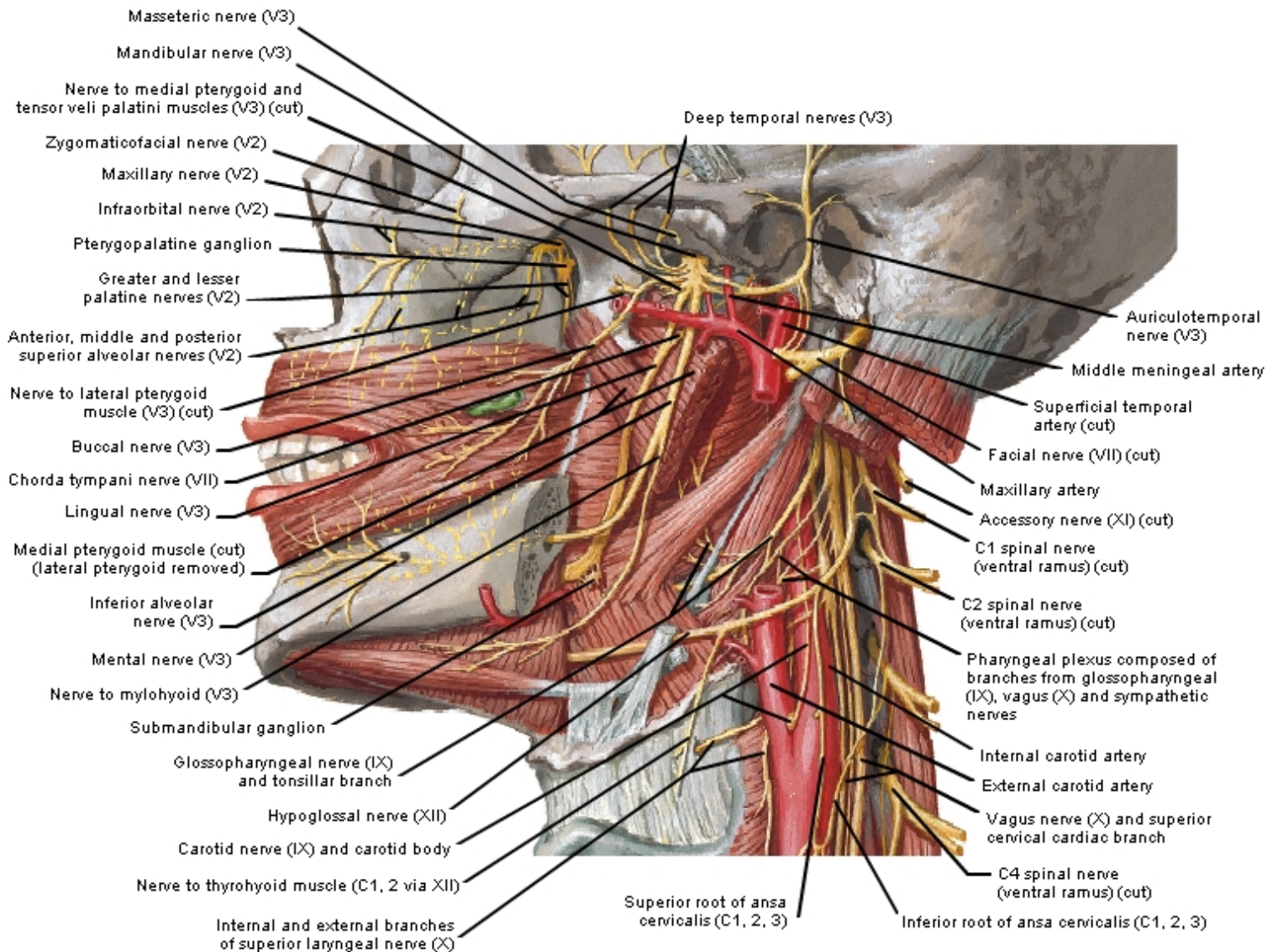
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Nerves of Oral and Pharyngeal Regions



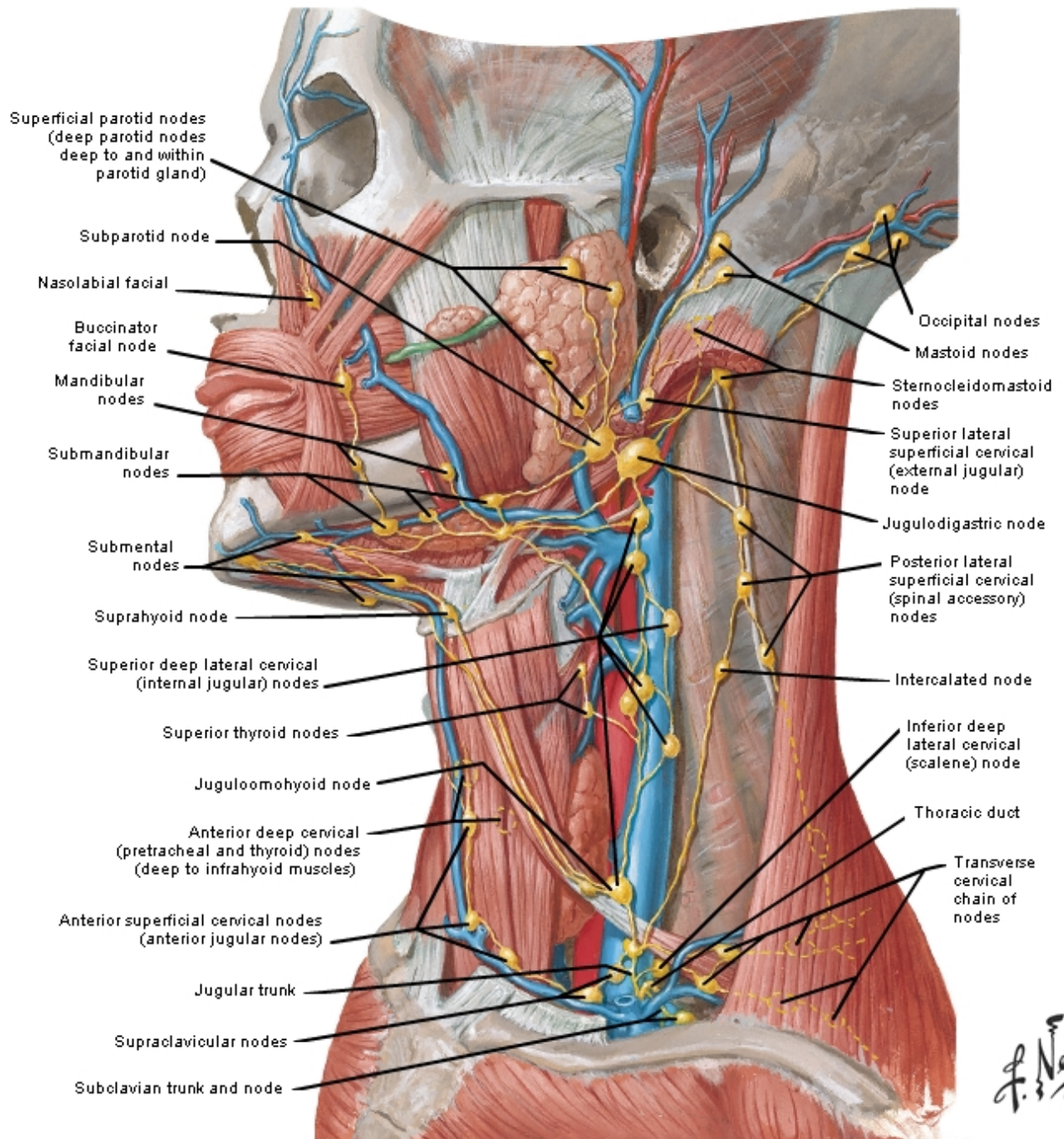
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Nerves of Oral and Pharyngeal Regions Enlarged View of Head and Upper Neck Portion



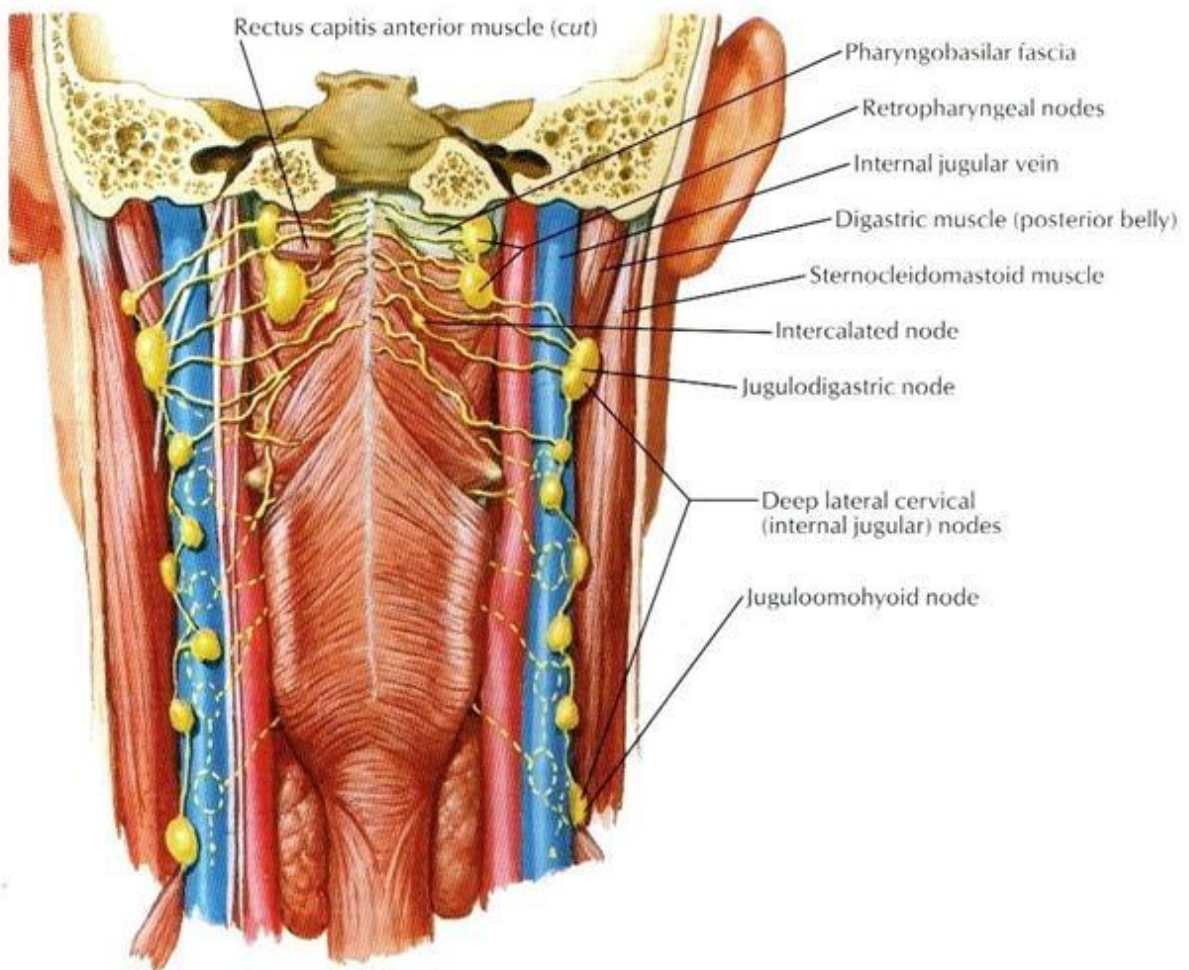
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Lymph Vessels and Nodes of Head and Neck



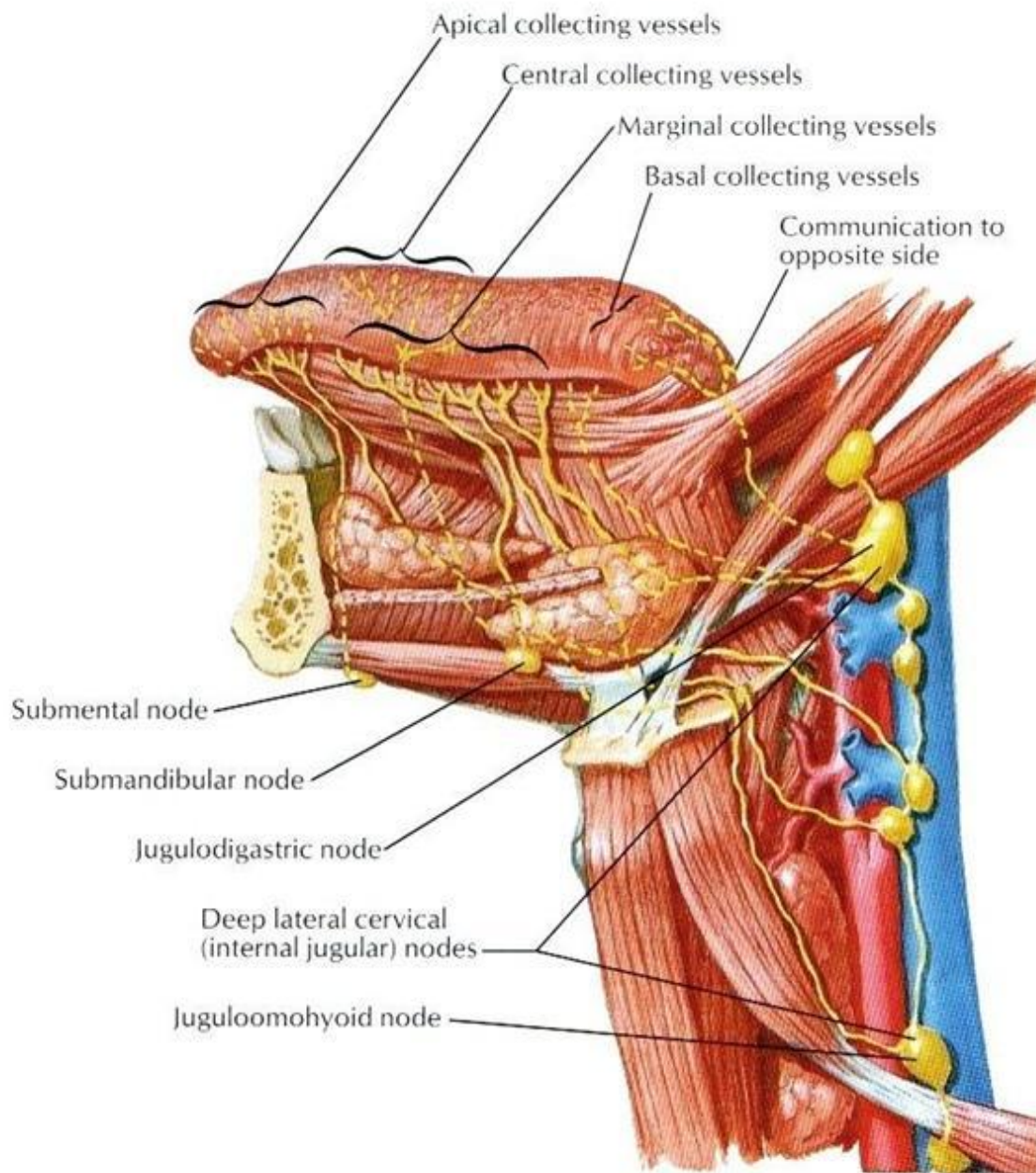
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Lymphatic Drainage of Pharynx: Posterior View



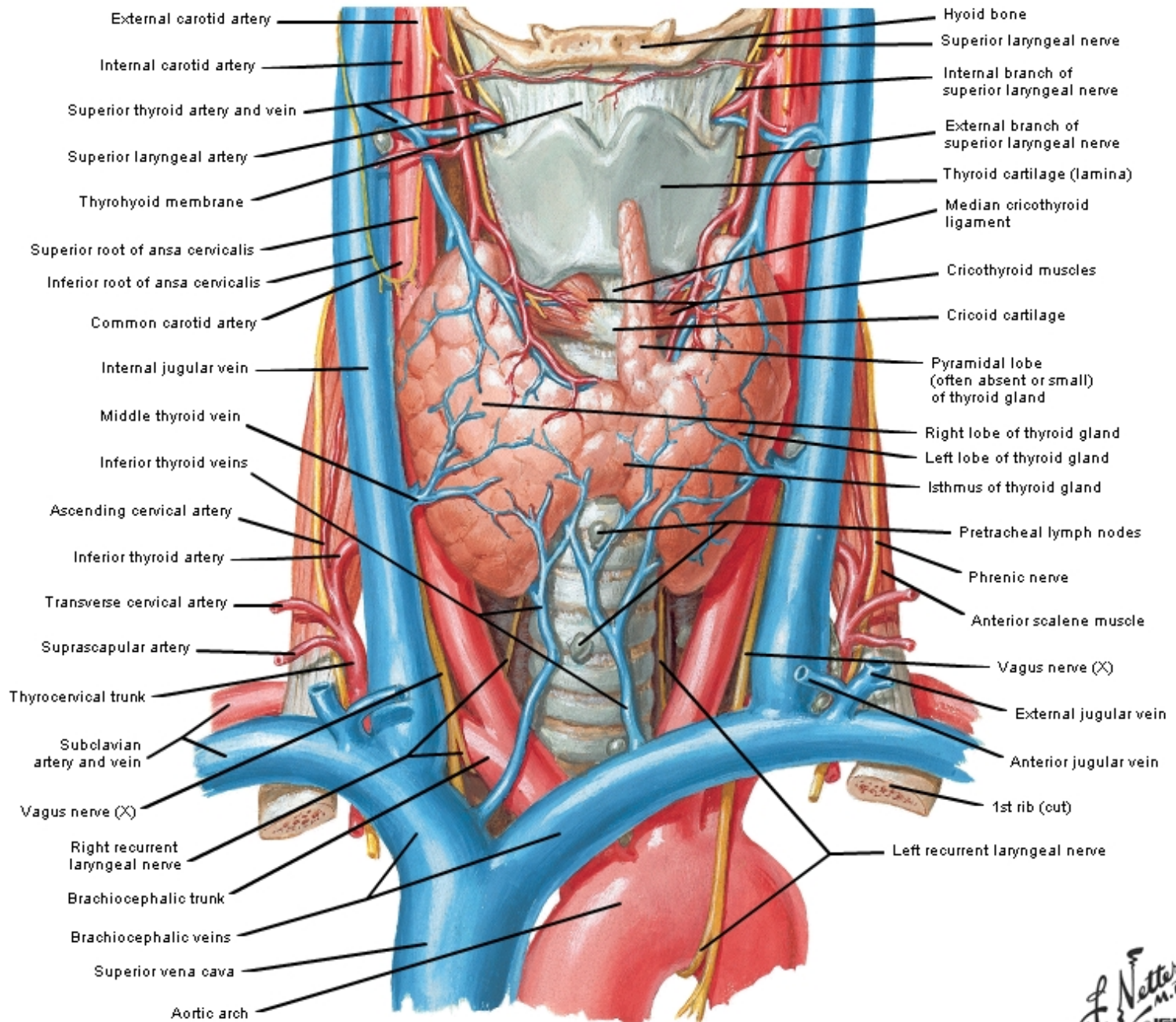
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Lymphatic Drainage of Tongue



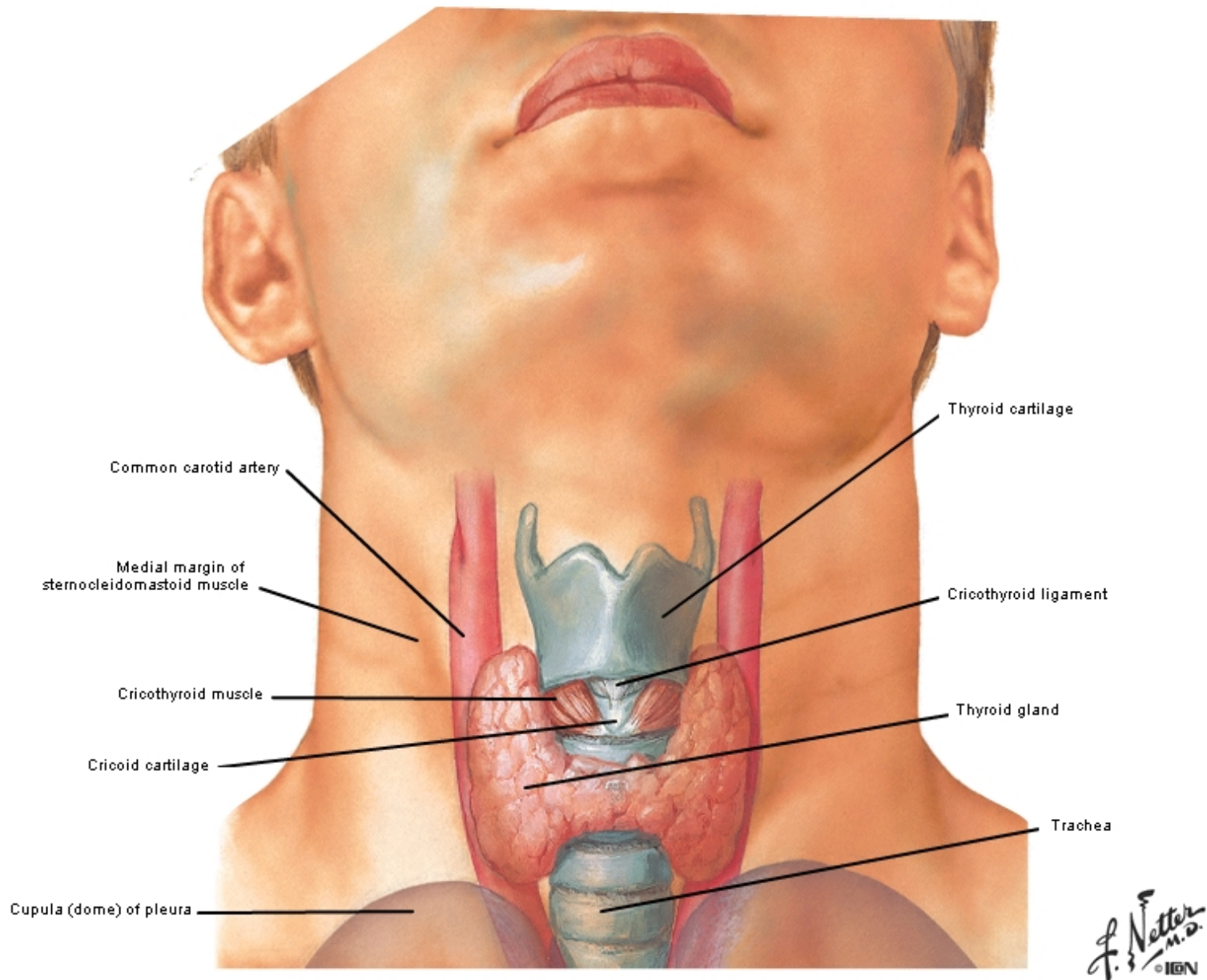
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Thyroid Gland Anterior View

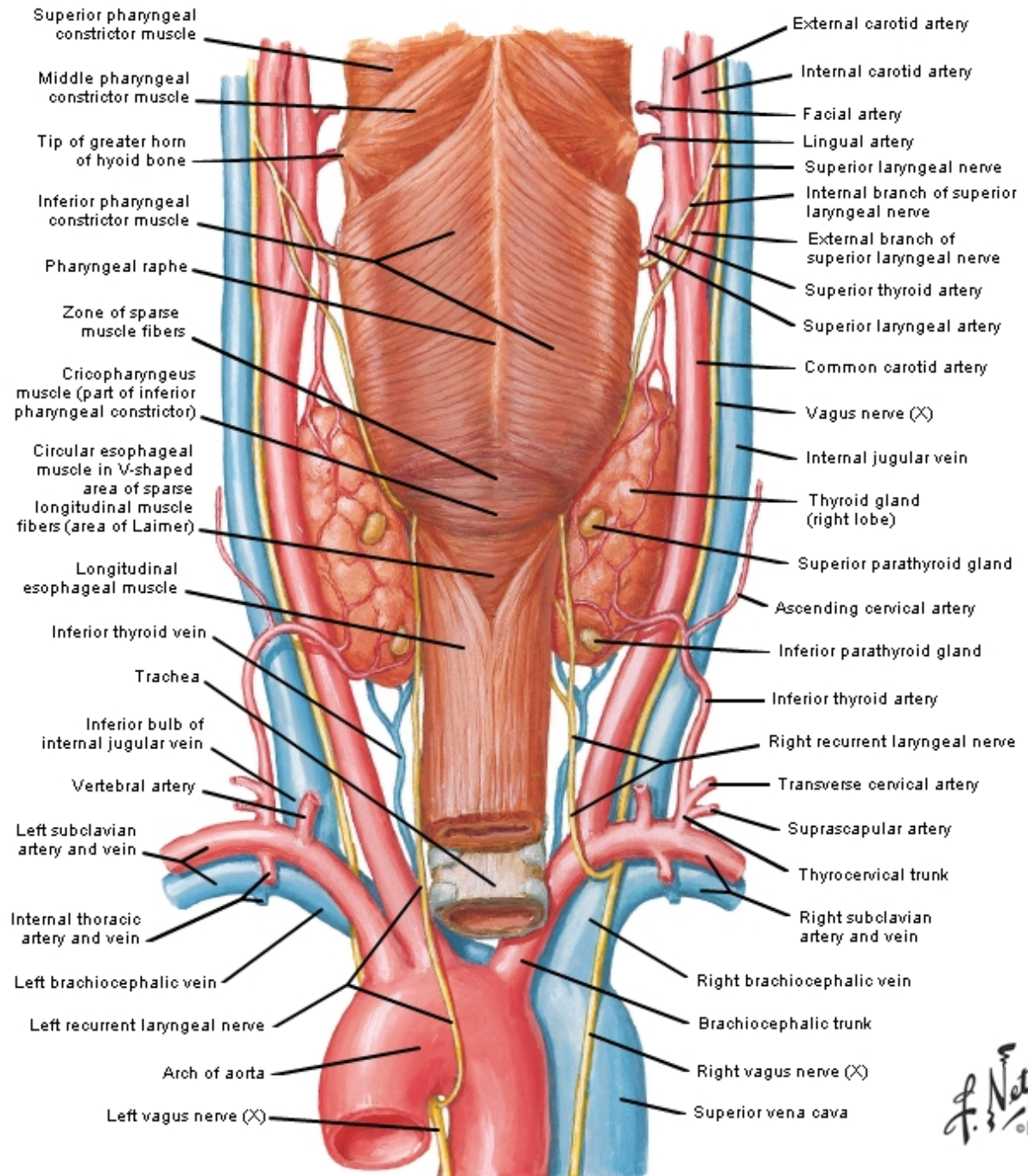


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Thyroid Gland In Situ Anterior View

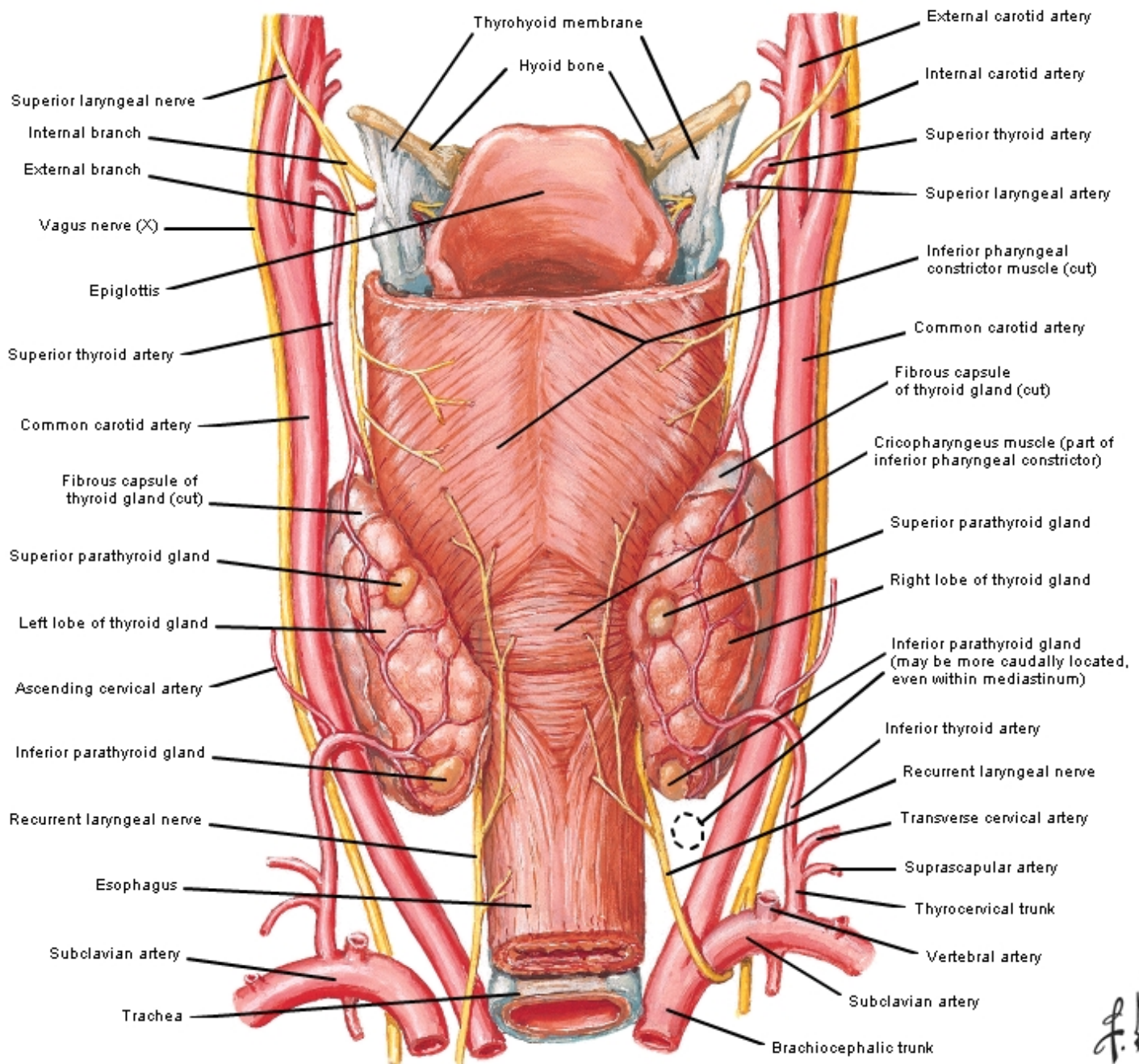


Thyroid Gland and Pharynx: Posterior View



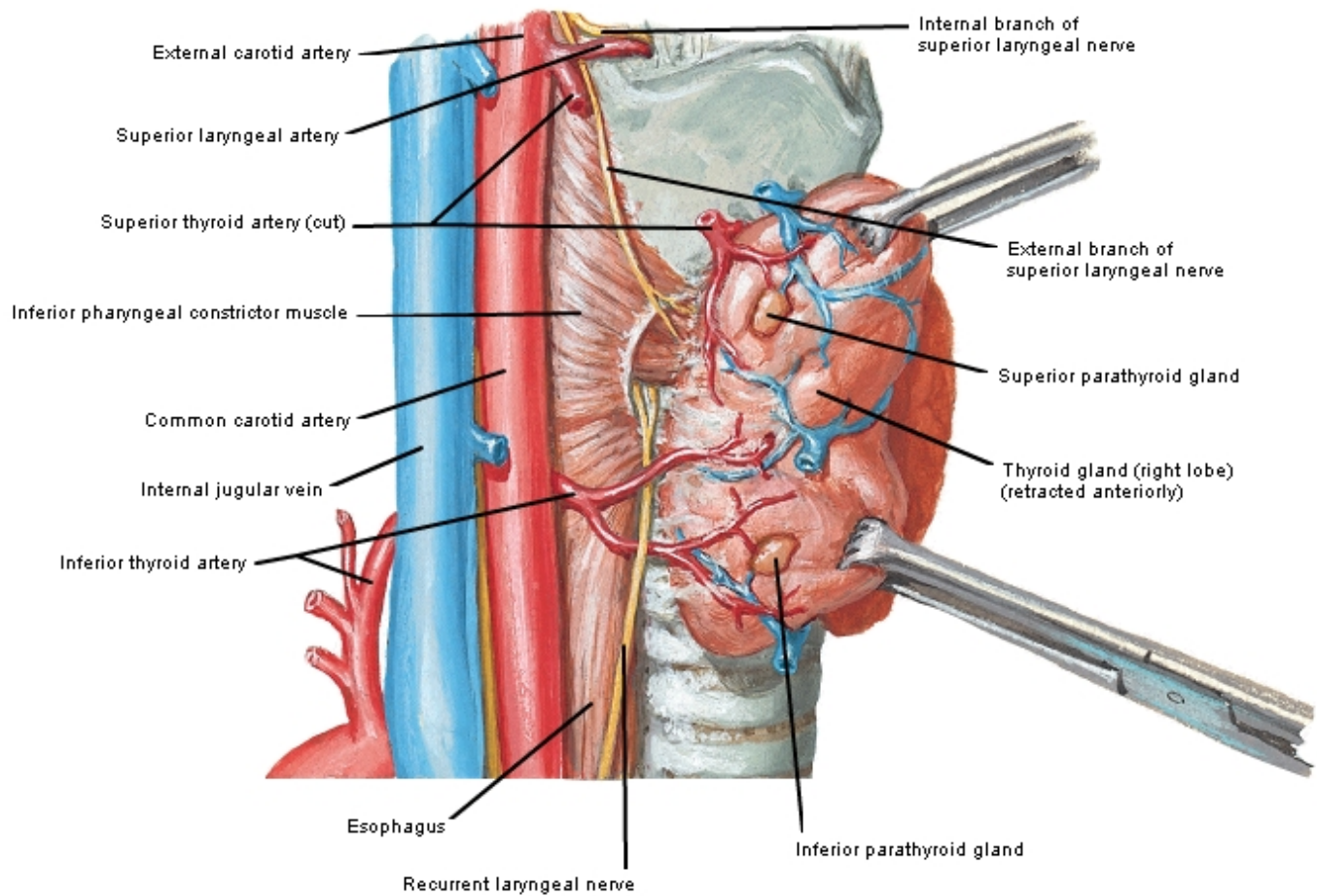
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Parathyroid Glands Posterior View



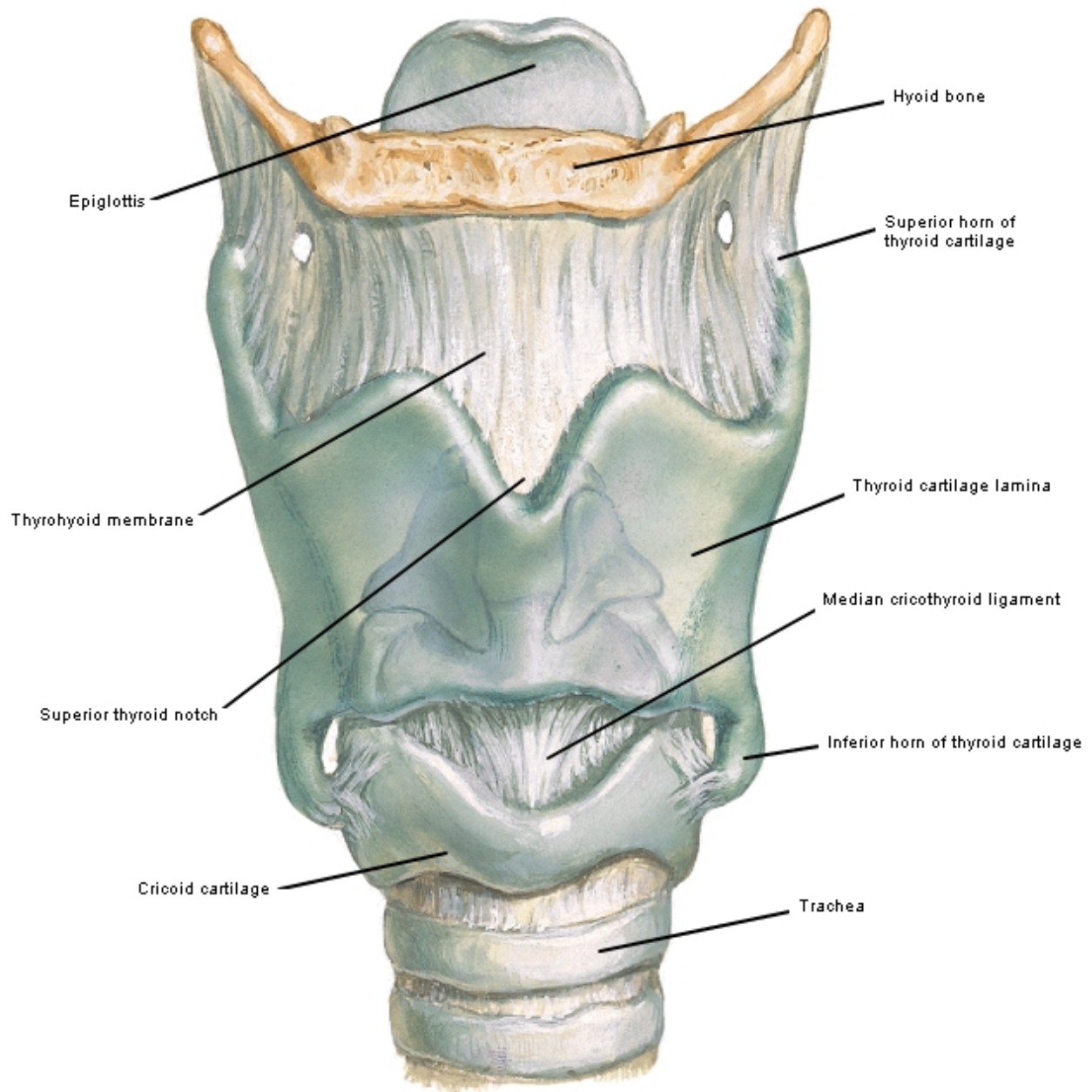
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Parathyroid Glands Right Lateral View



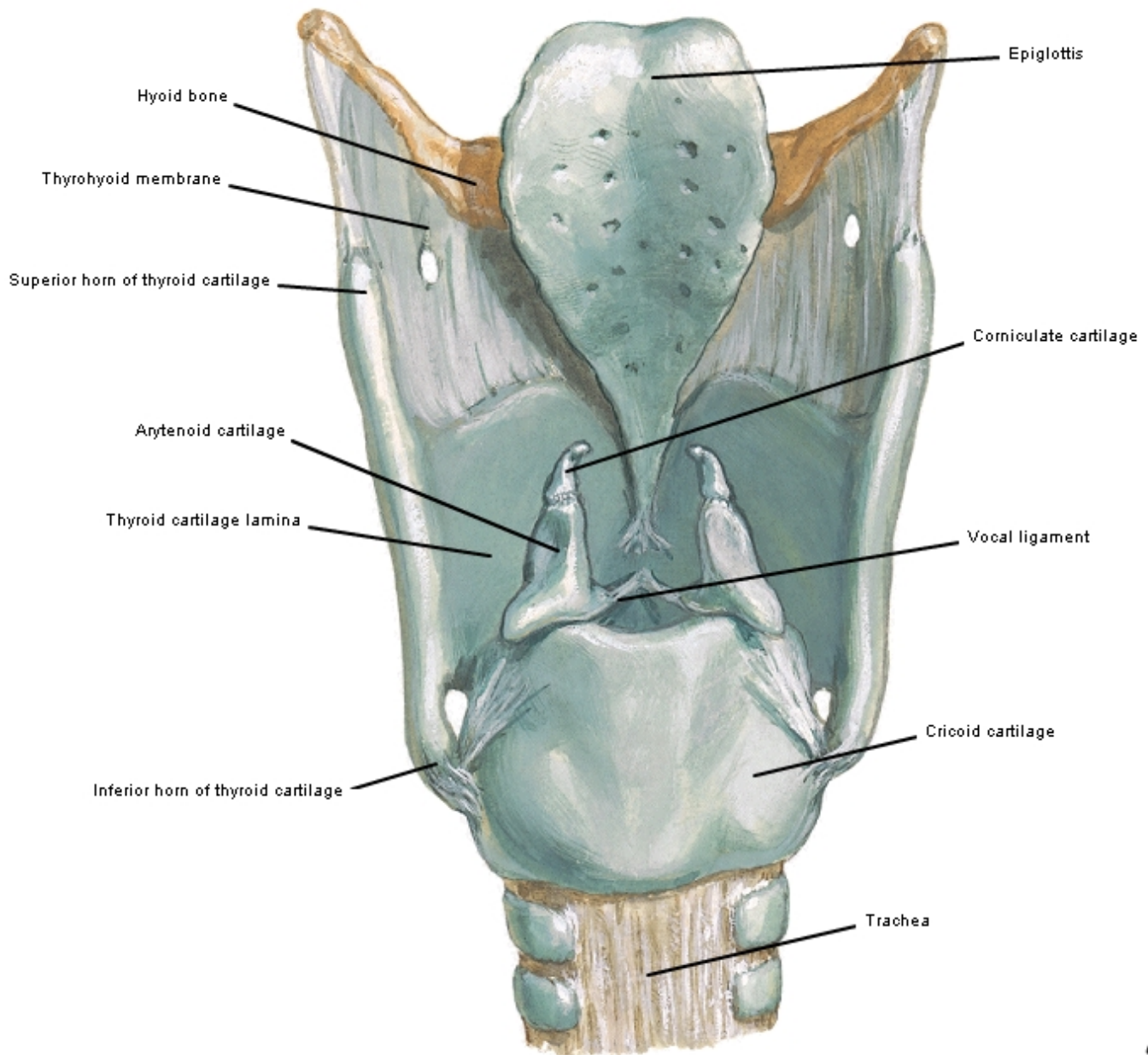
F. Netter M.D.
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Cartilages of Larynx Anterior View



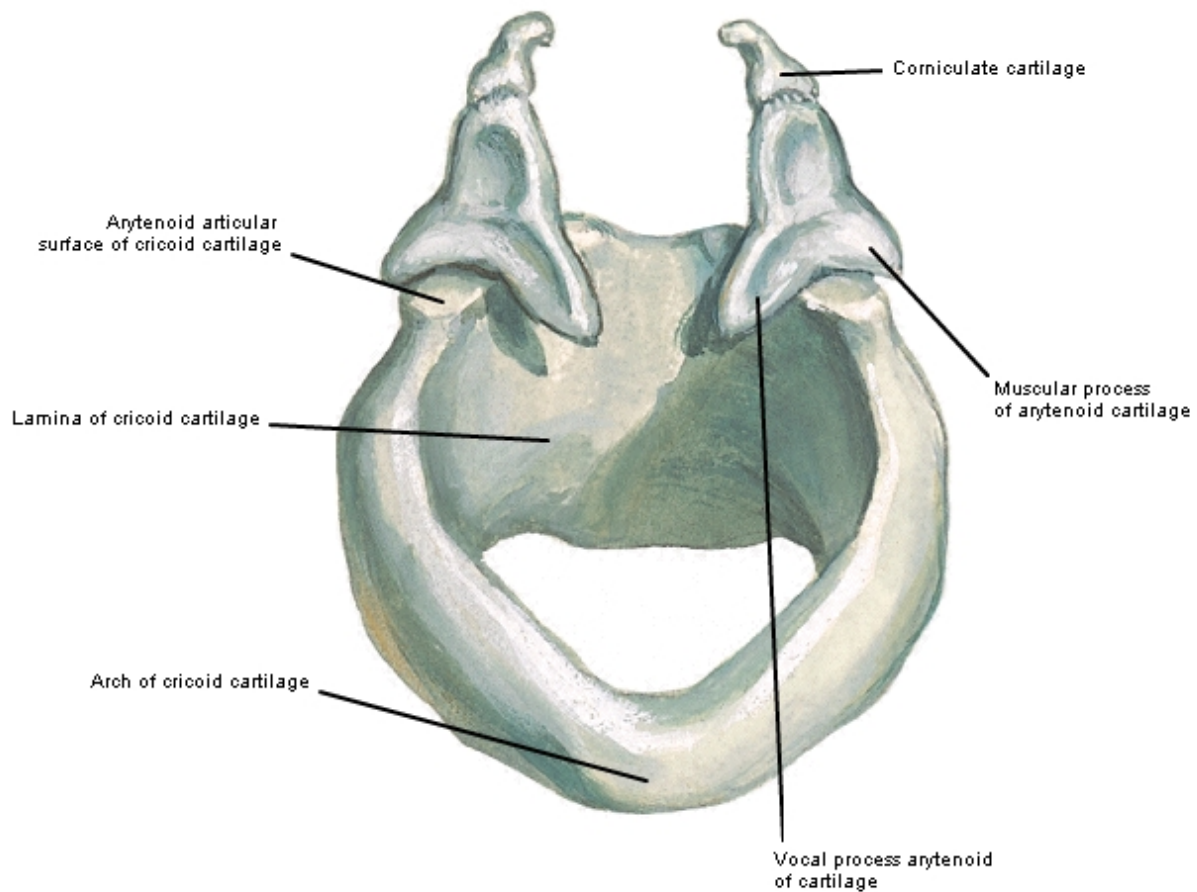
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Cartilages of Larynx Posterior View



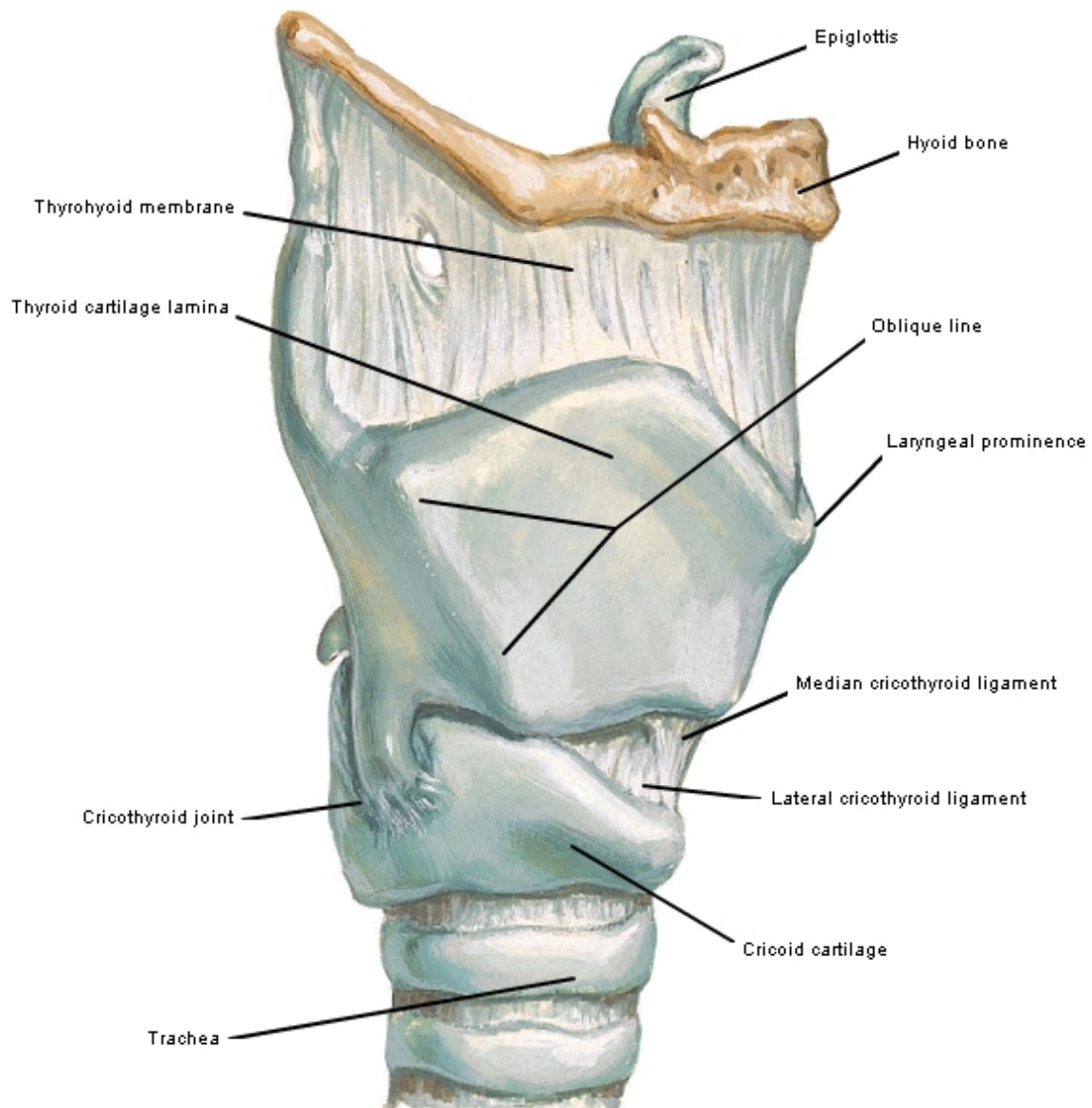
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Cartilages of Larynx Anterosuperior View



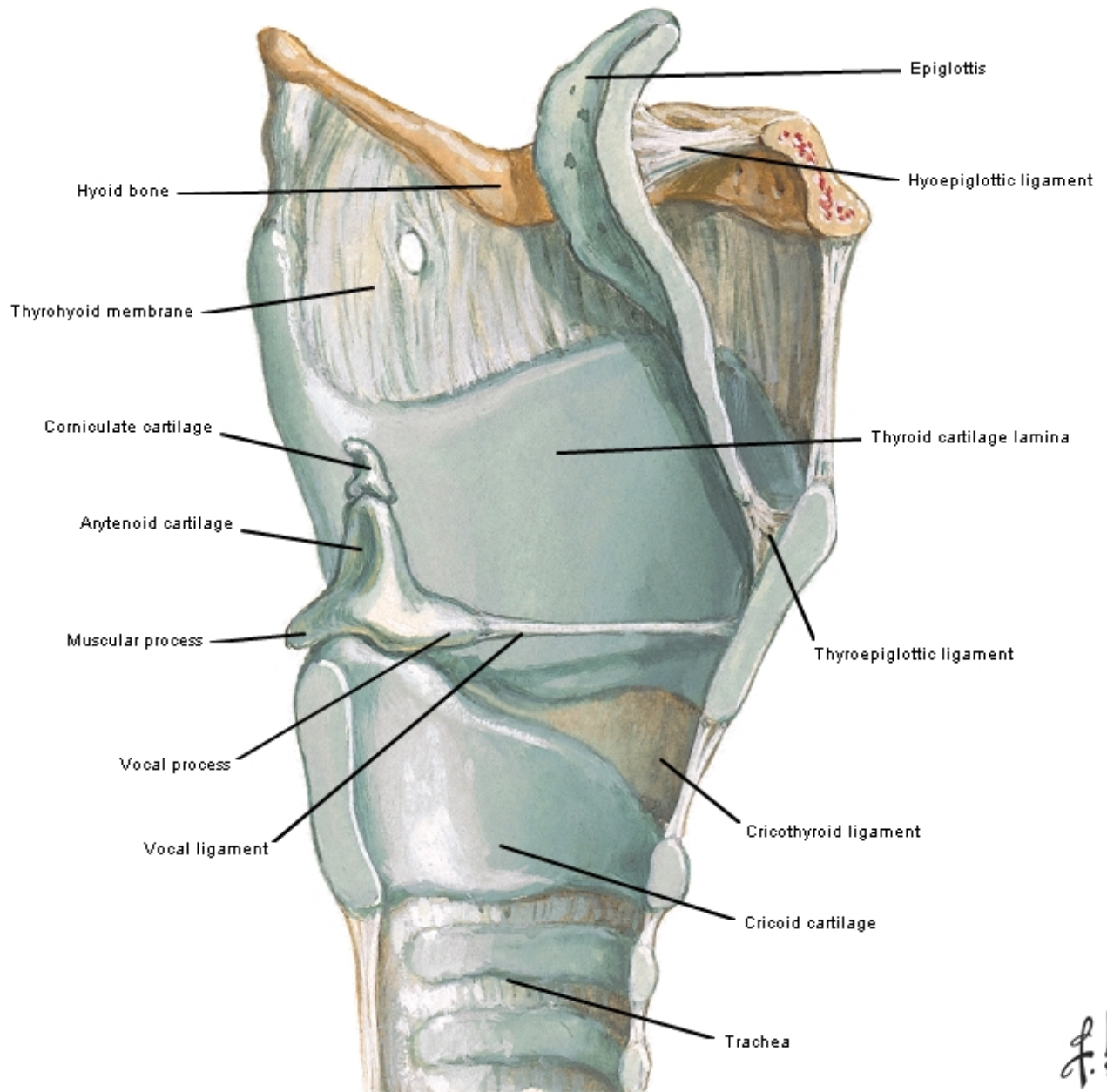
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Cartilages of Larynx Right Lateral View



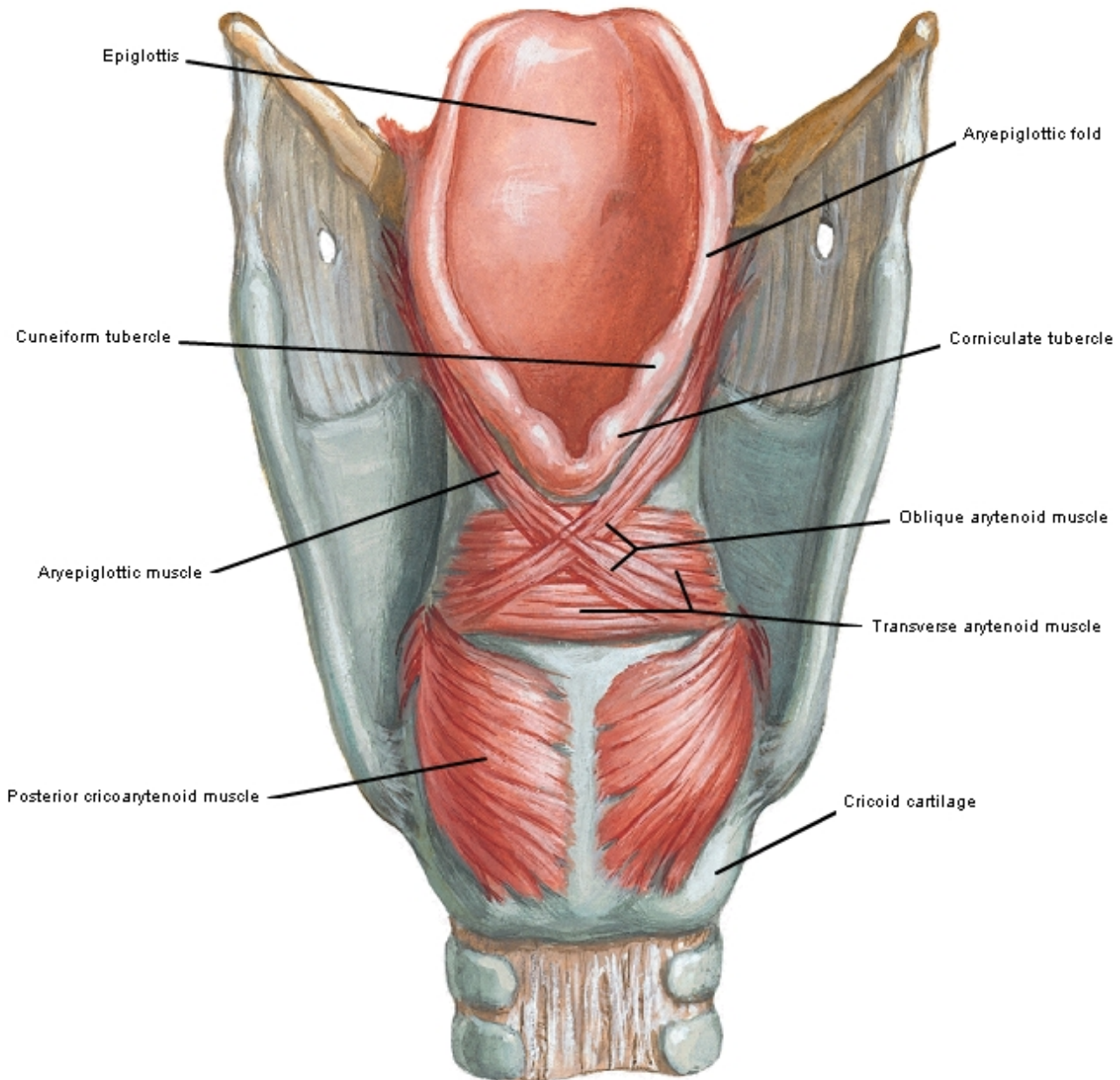
F. Netter M.D.
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Cartilages of Larynx Medial View (Sagittal) Section



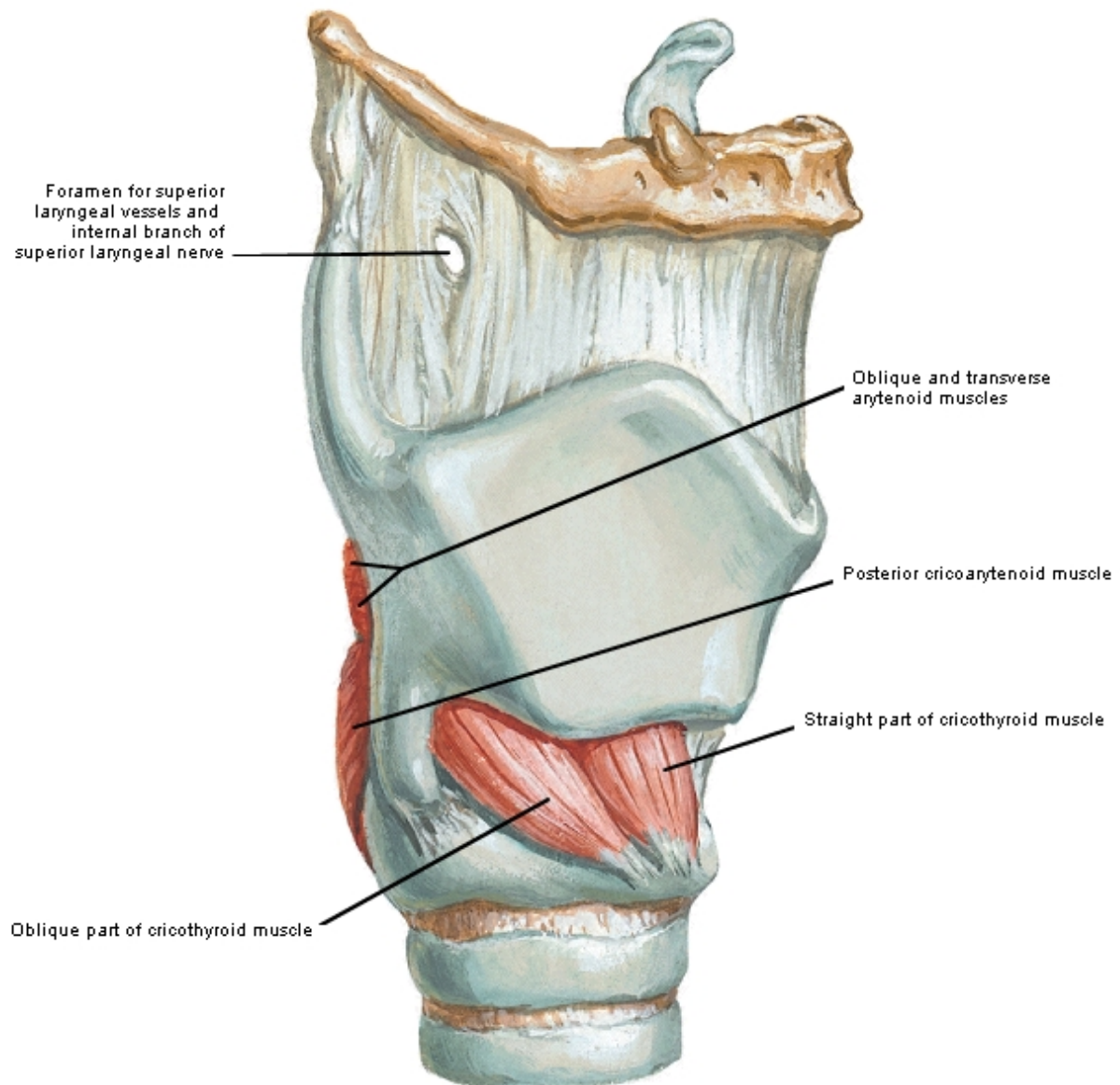
F. Netter M.D.
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Intrinsic Muscles of Larynx Posterior View



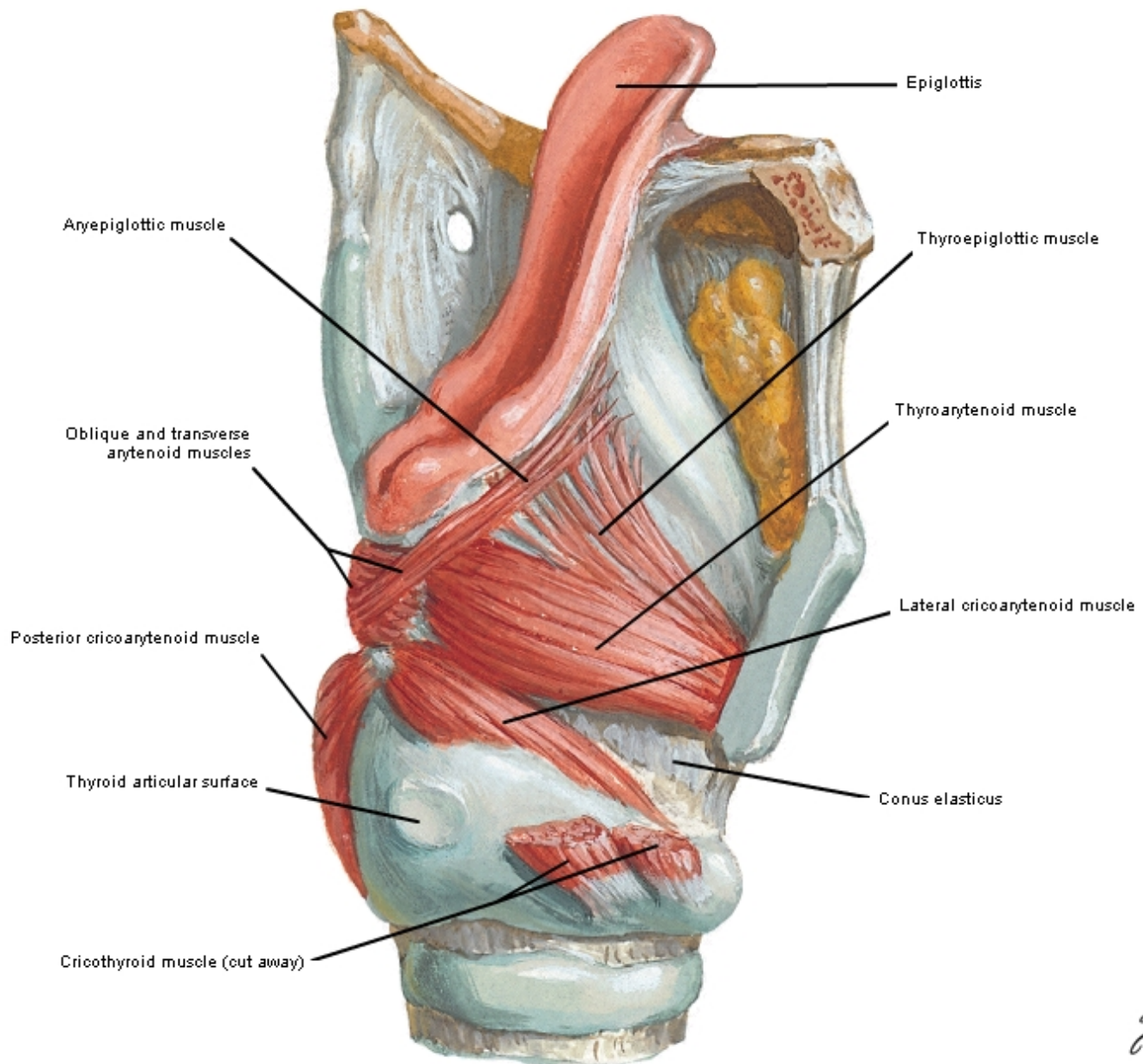
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Intrinsic Muscles of Larynx Right Lateral View



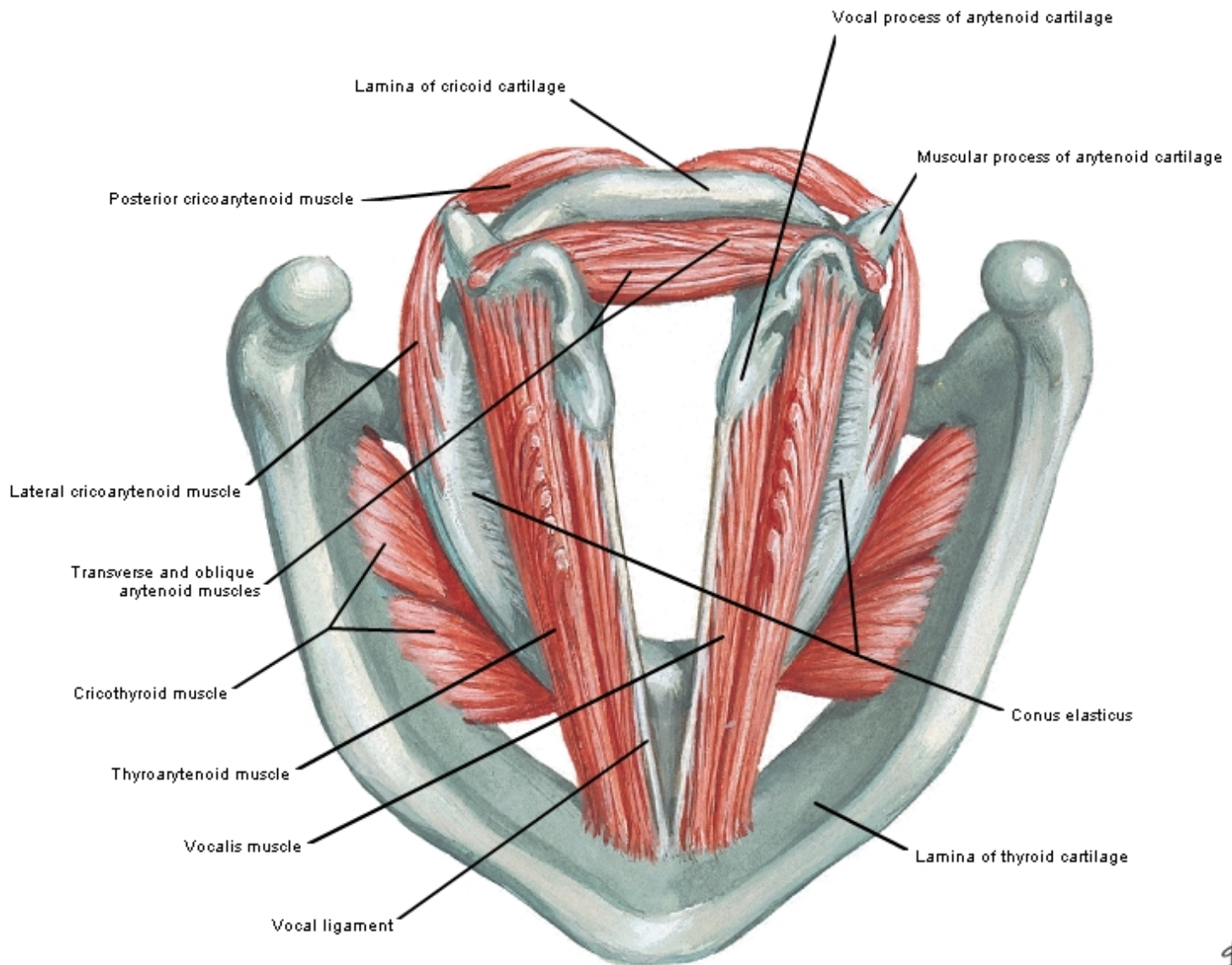
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Intrinsic Muscles of Larynx Lateral Dissection



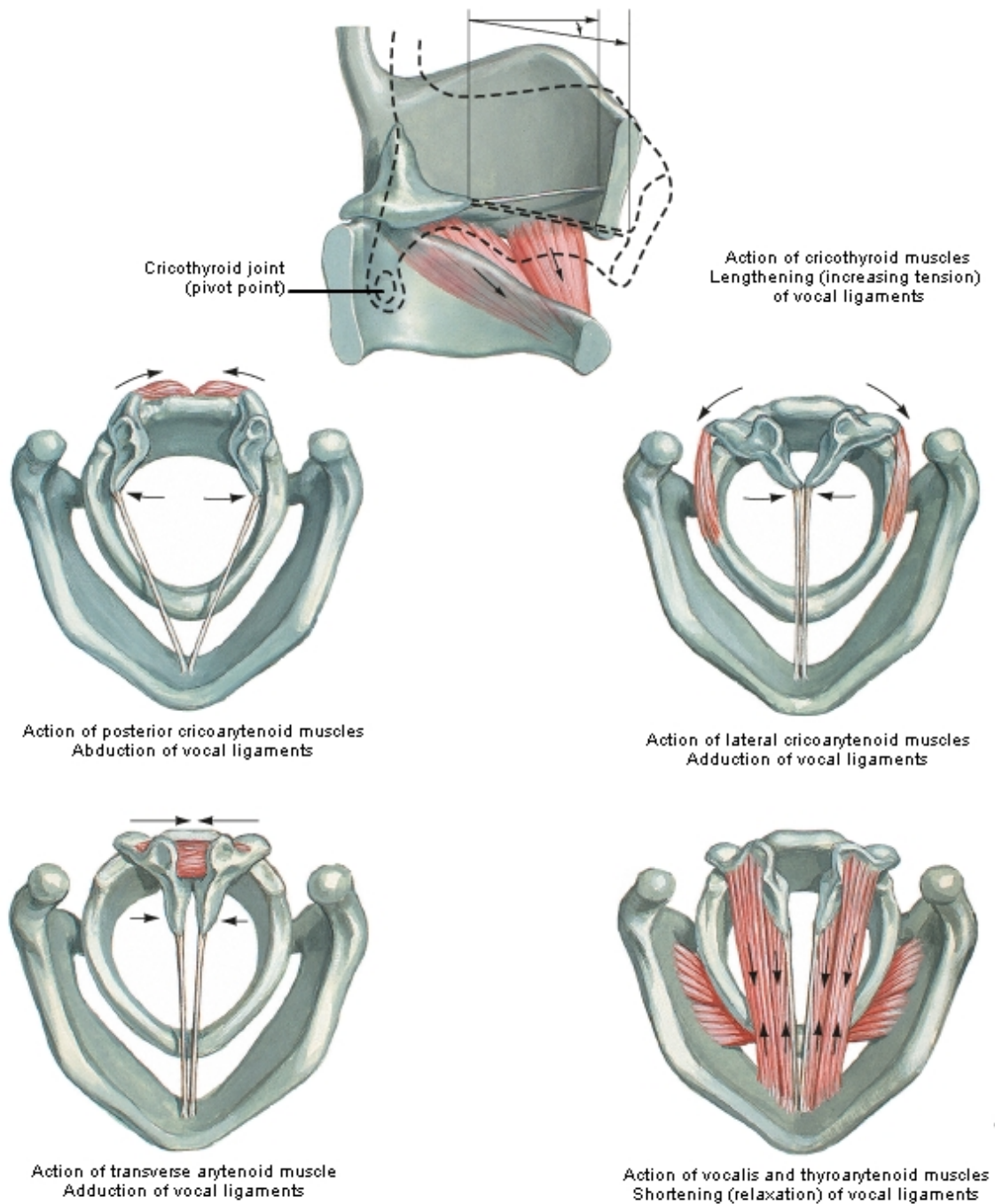
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Intrinsic Muscles of Larynx Superior View

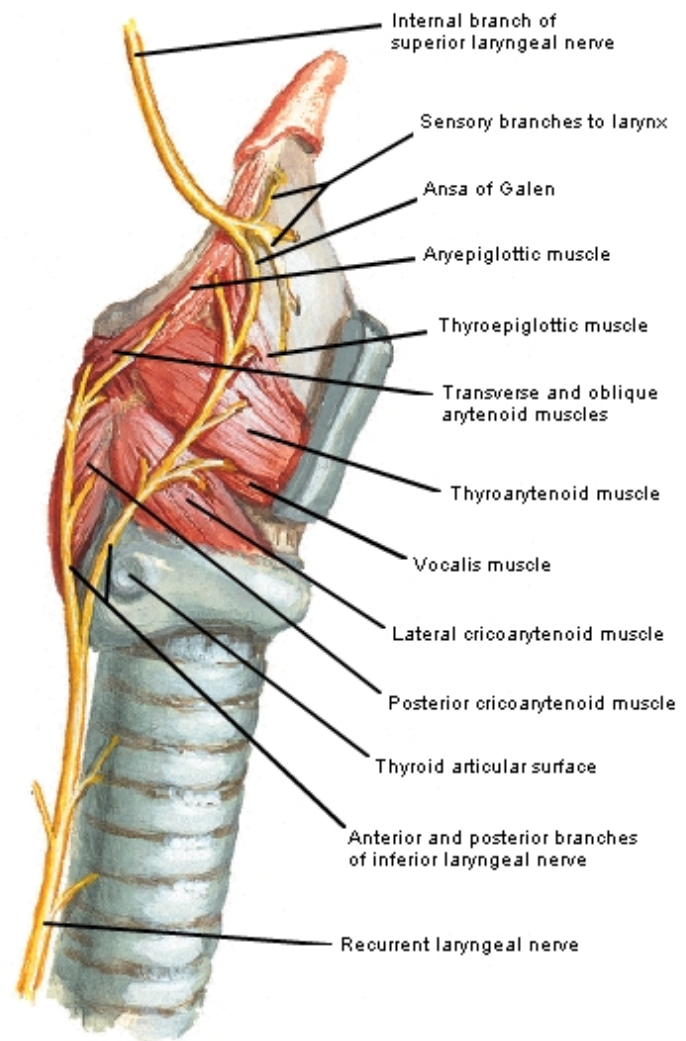
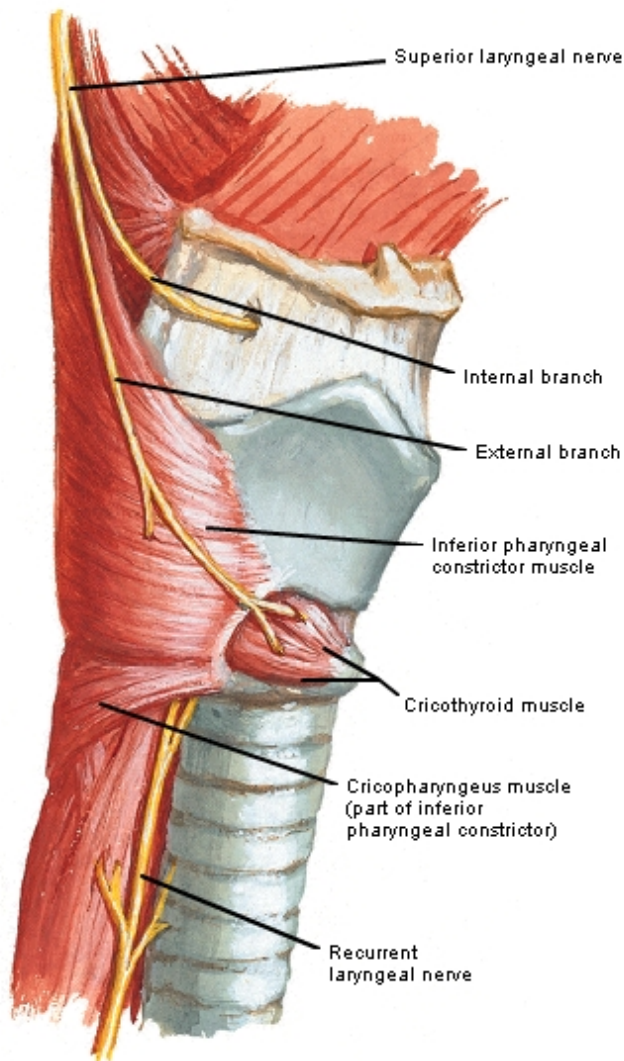


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Action of Intrinsic Muscles of Larynx



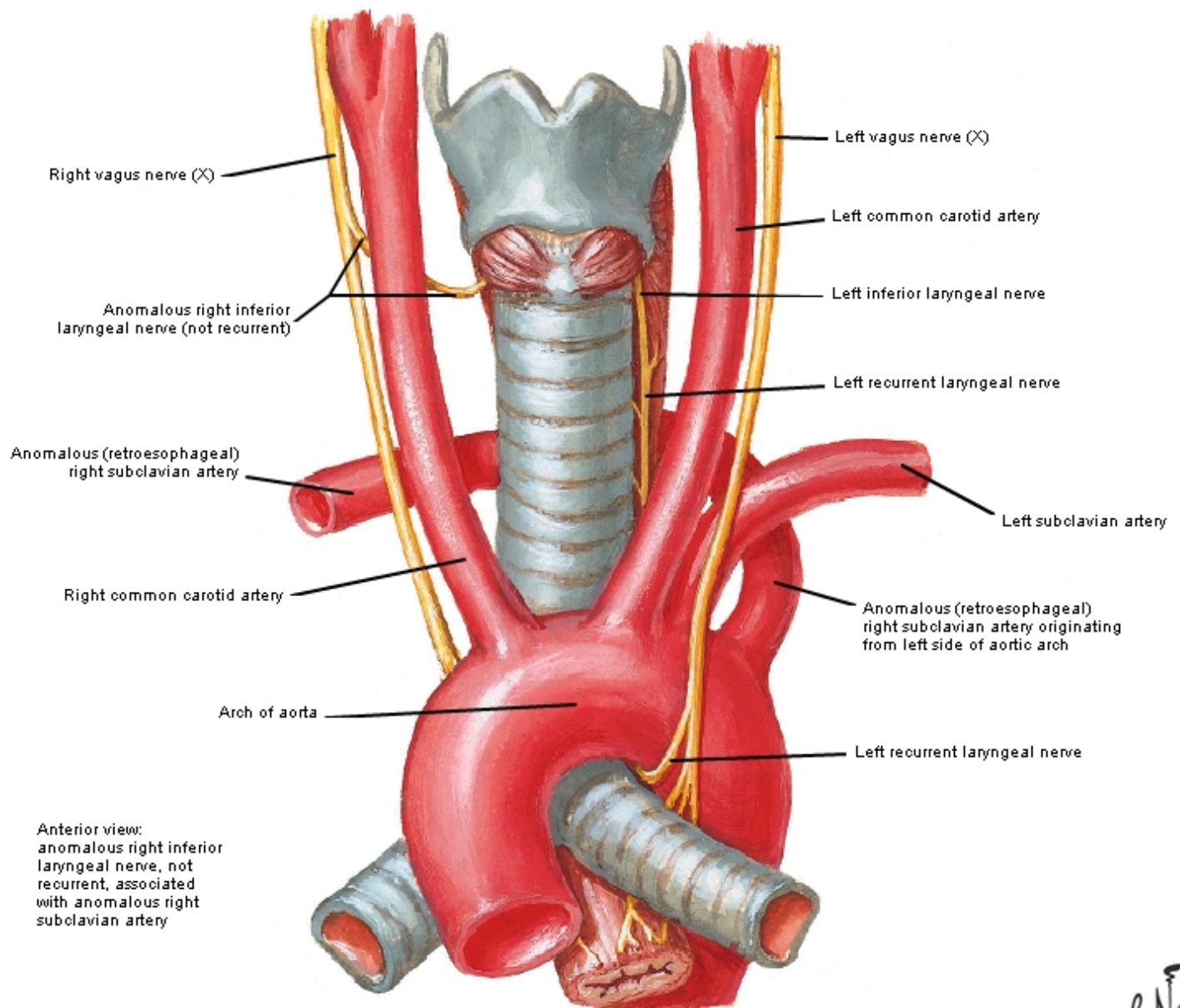
Nerves of Larynx Right Lateral Views



Thyroid cartilage lamina removed

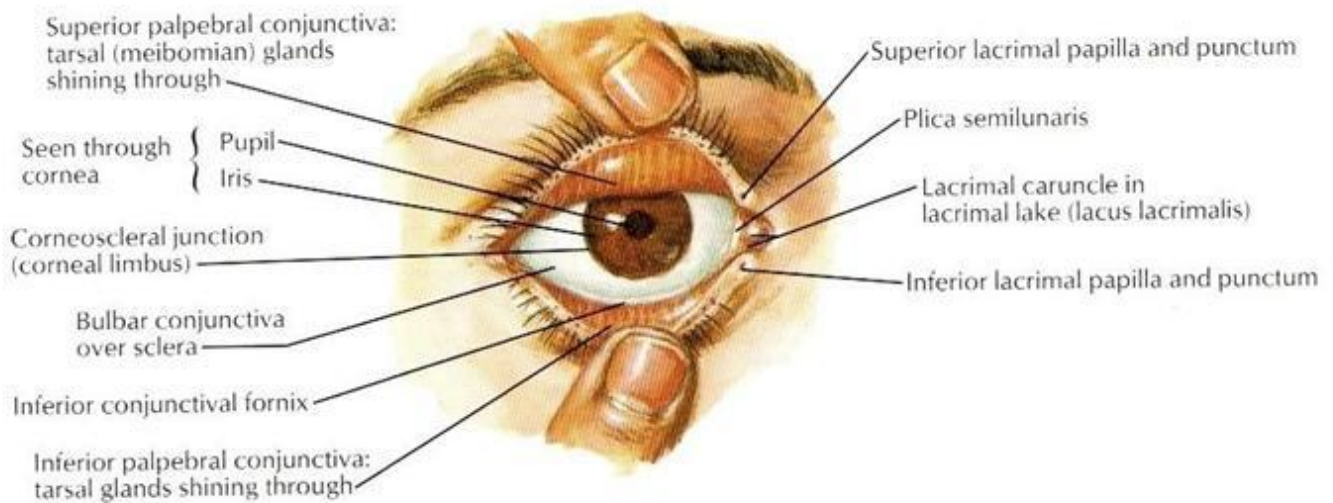
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Nerves of Larynx Anterior View



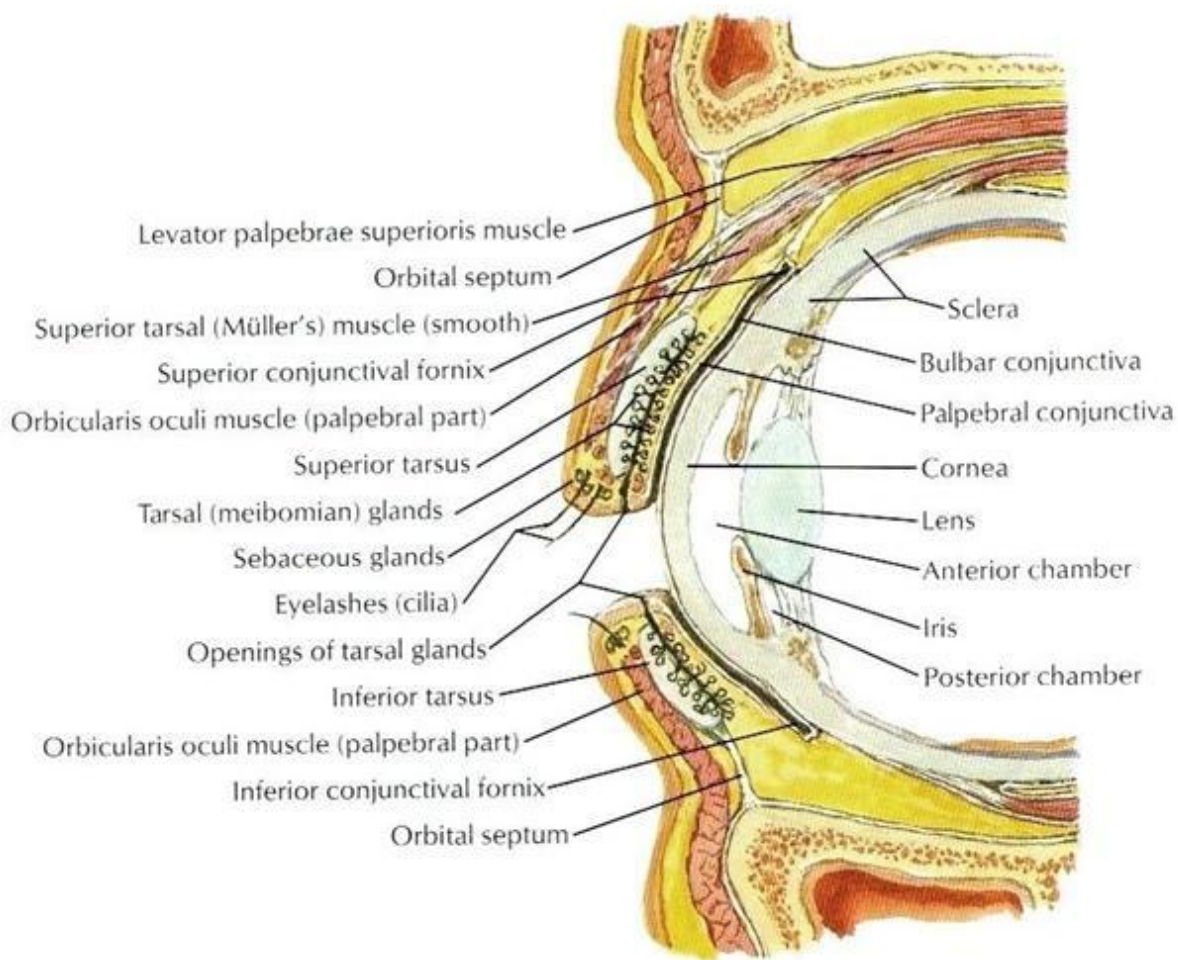
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Eyelids



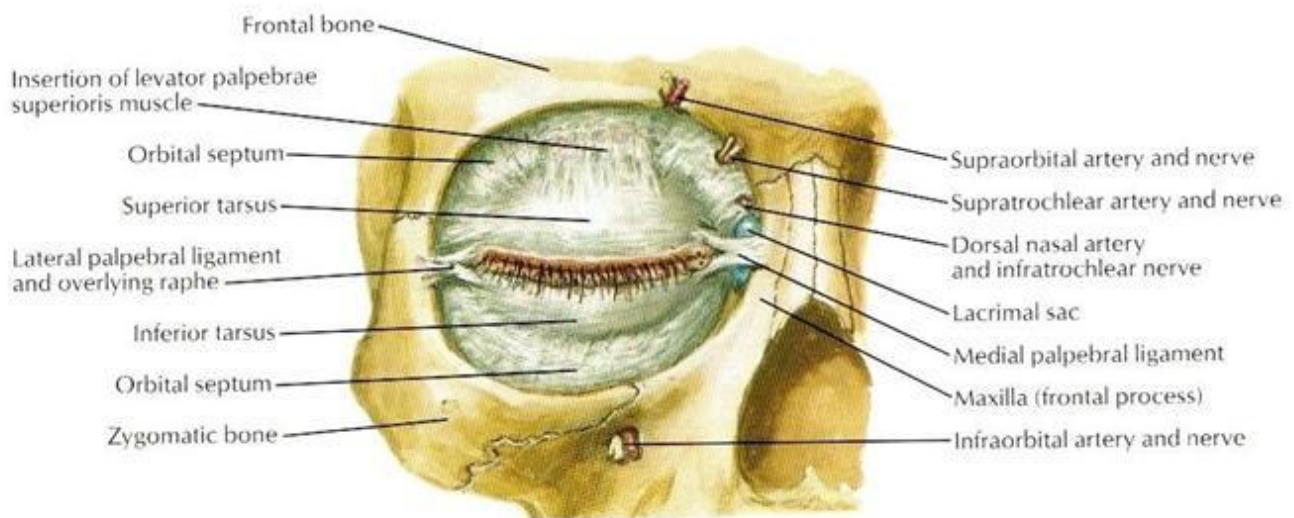
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Eyelids: Sagittal Section



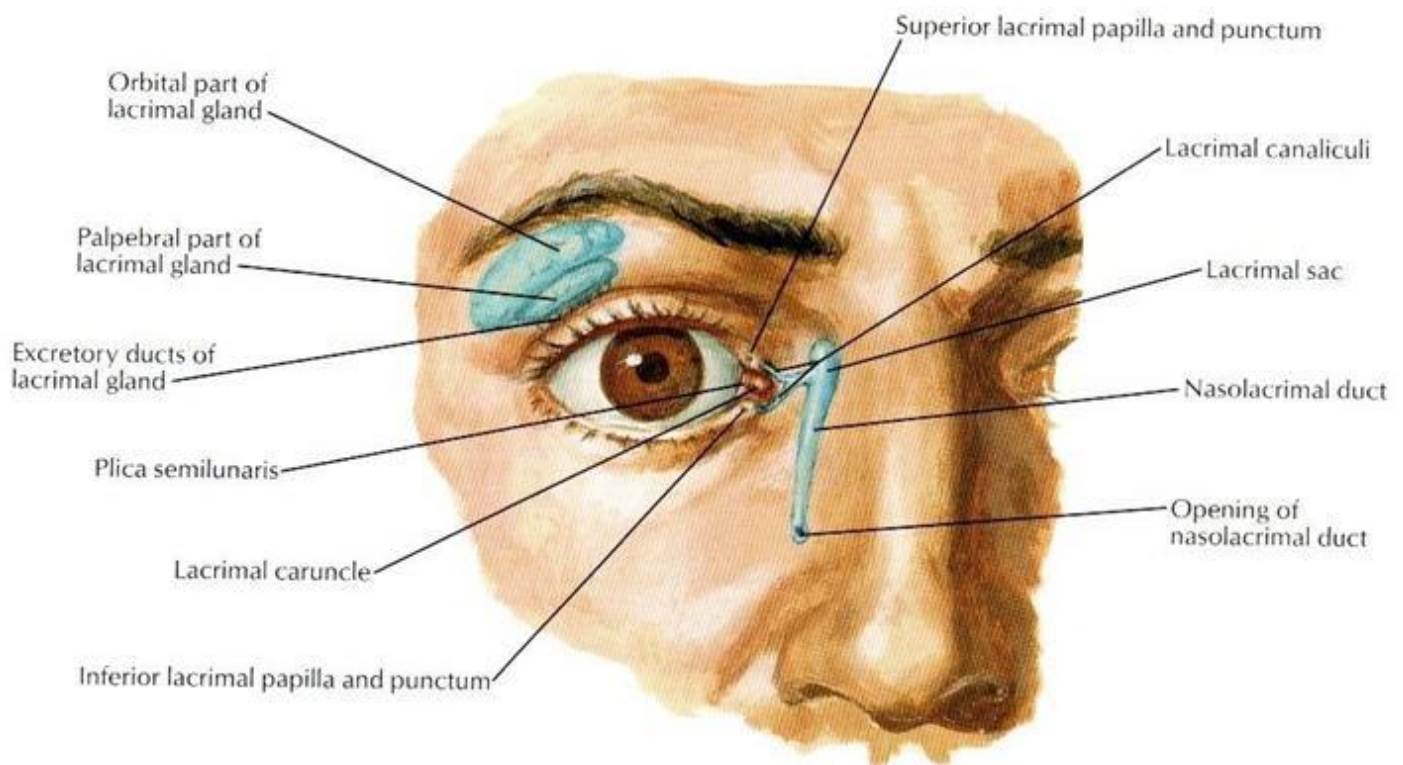
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Eyelids: Deep Section



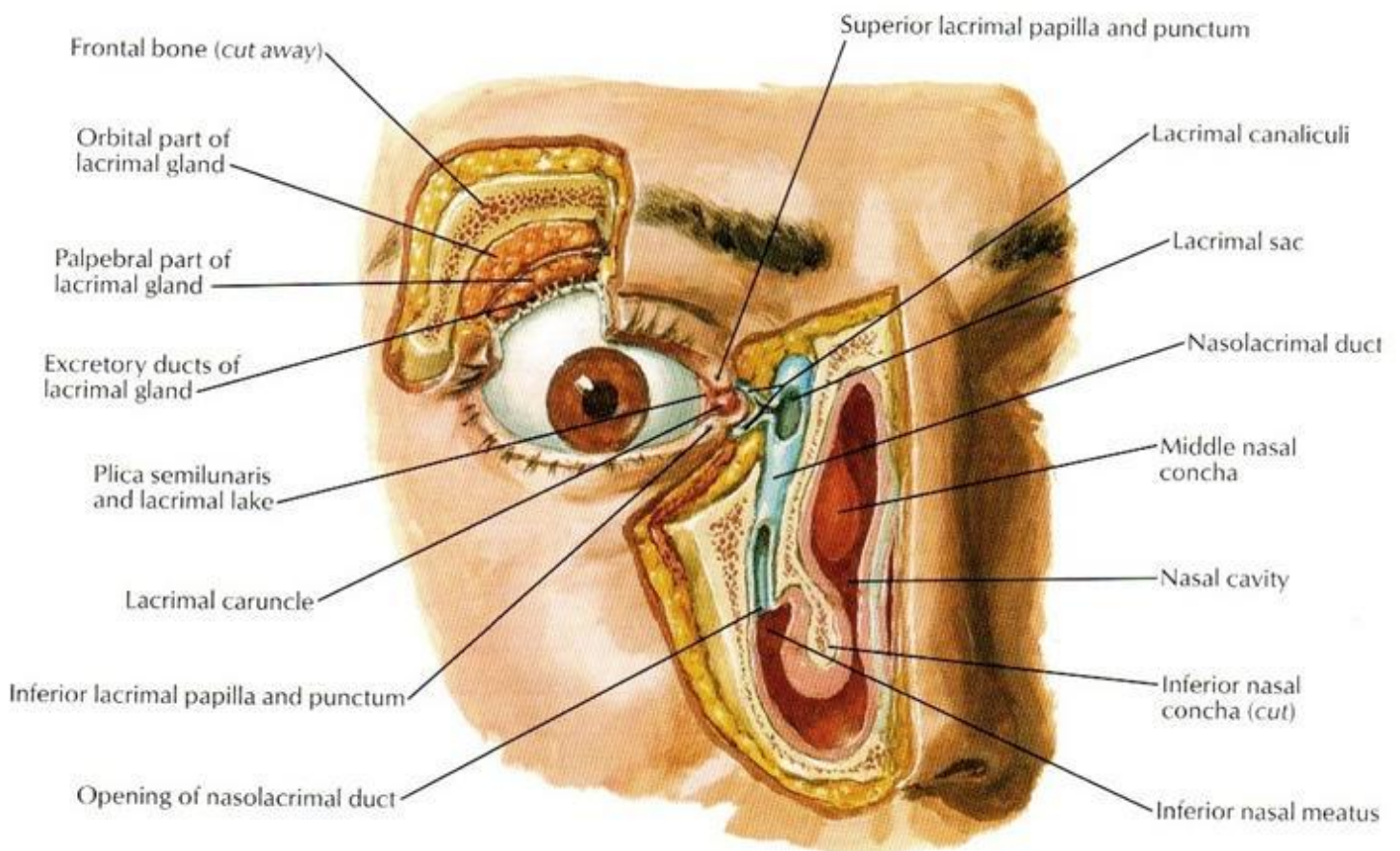
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Lacrimal Apparatus



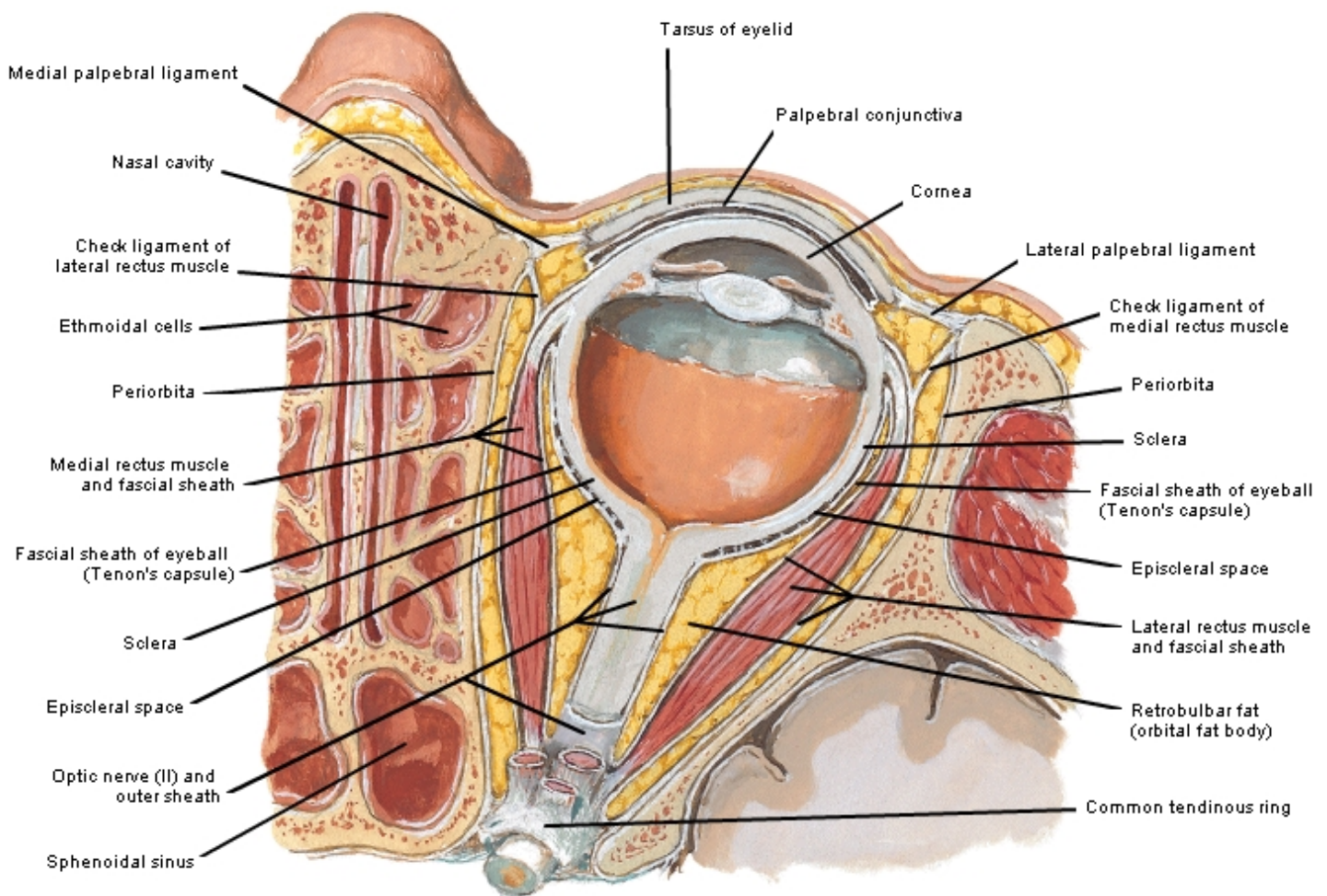
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Lacrimal Apparatus: Deep Section



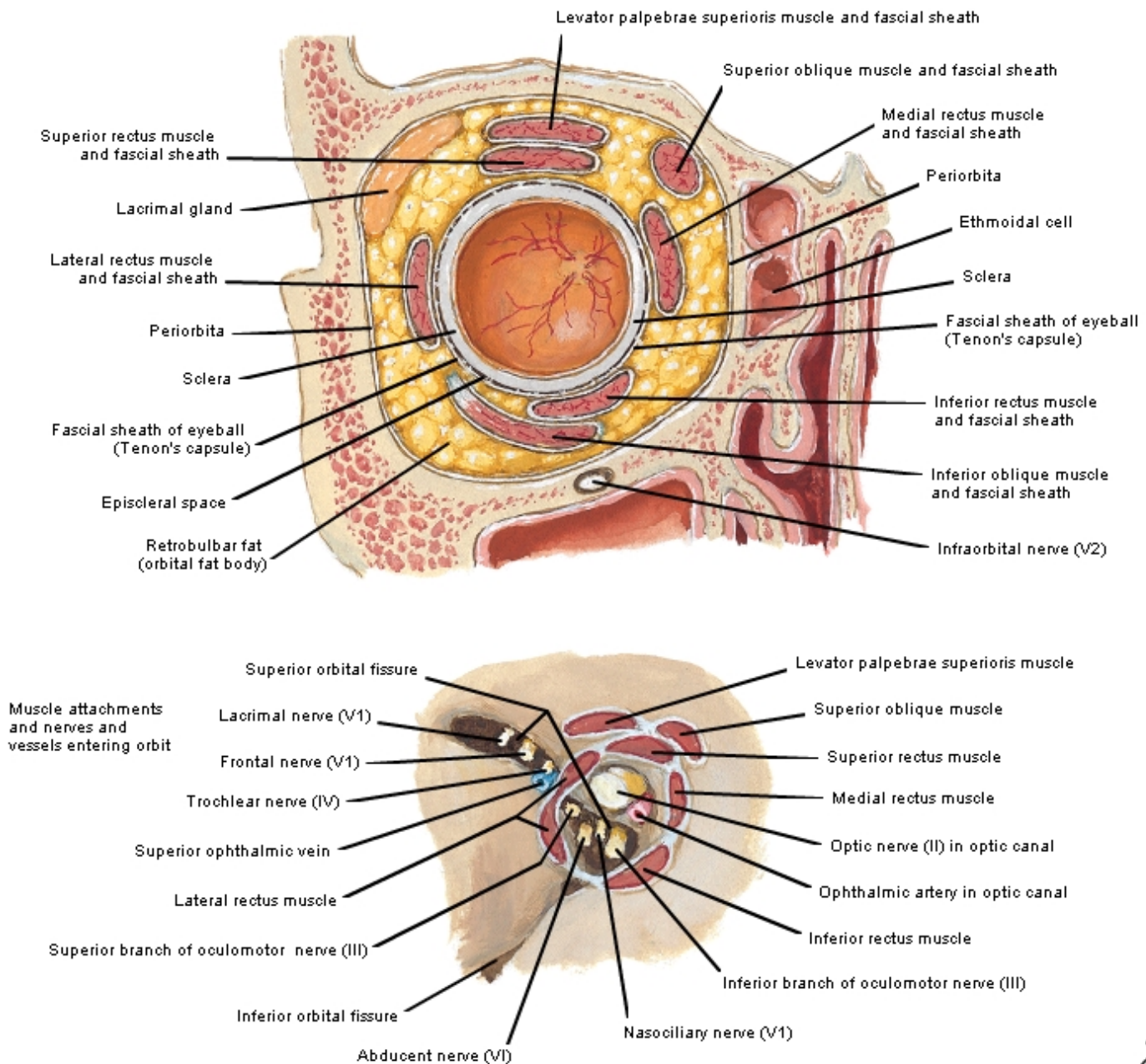
F. Netter M.D.
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Fascia of Orbit and Eyeball Horizontal Section



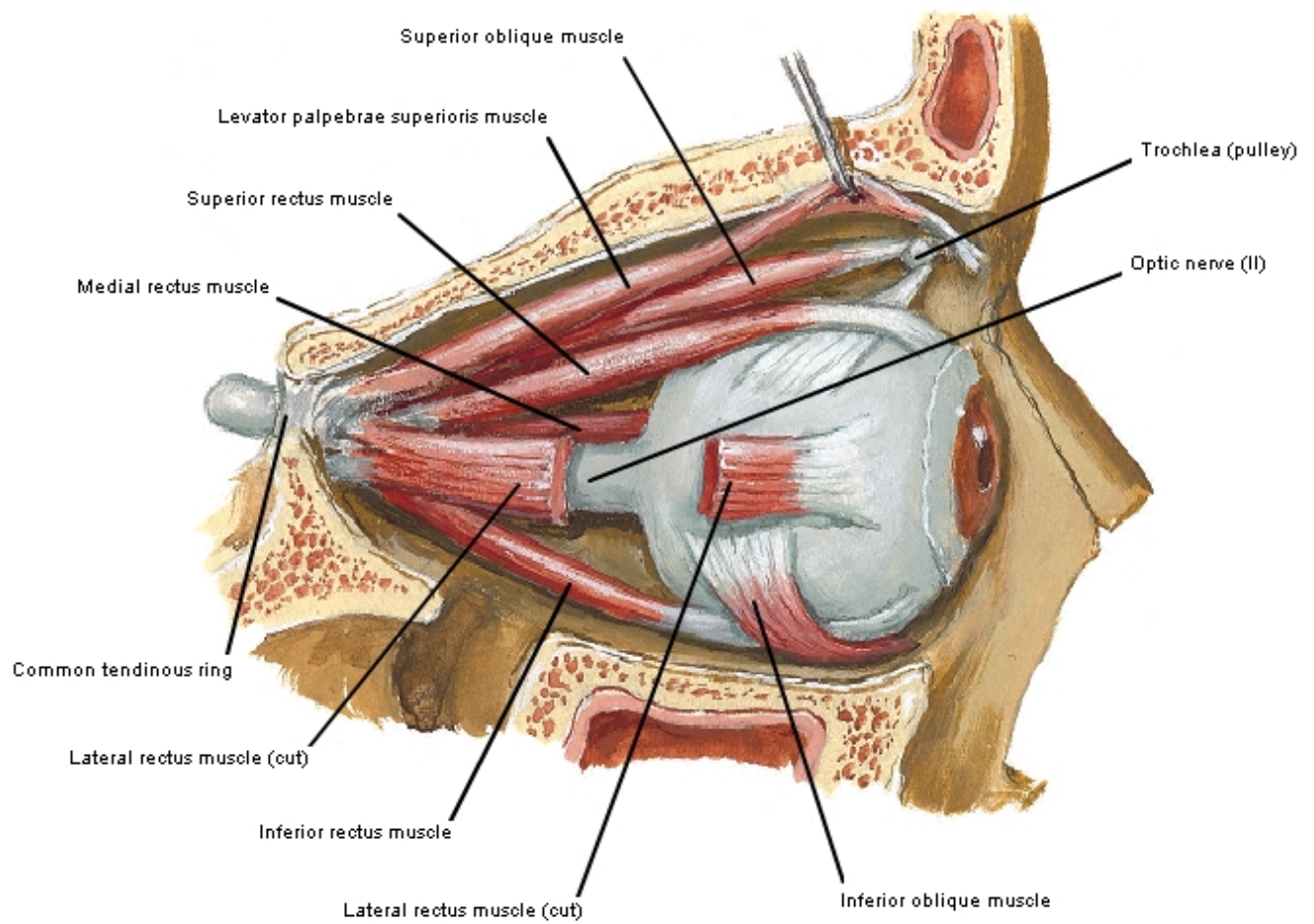
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Fascia of Orbit and Eyeball Frontal Section and Entering Structures



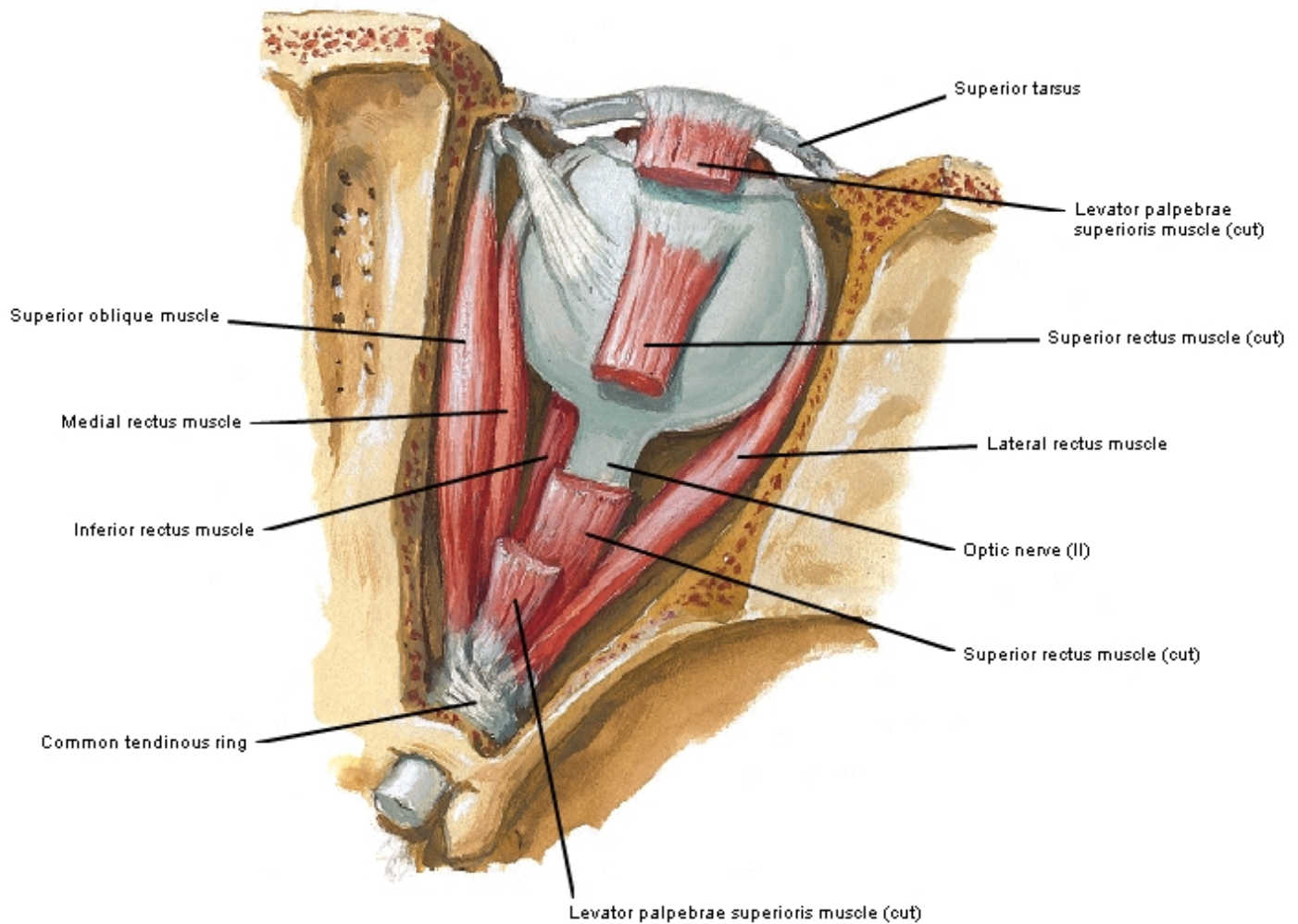
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Extrinsic Eye Muscles Right Lateral View



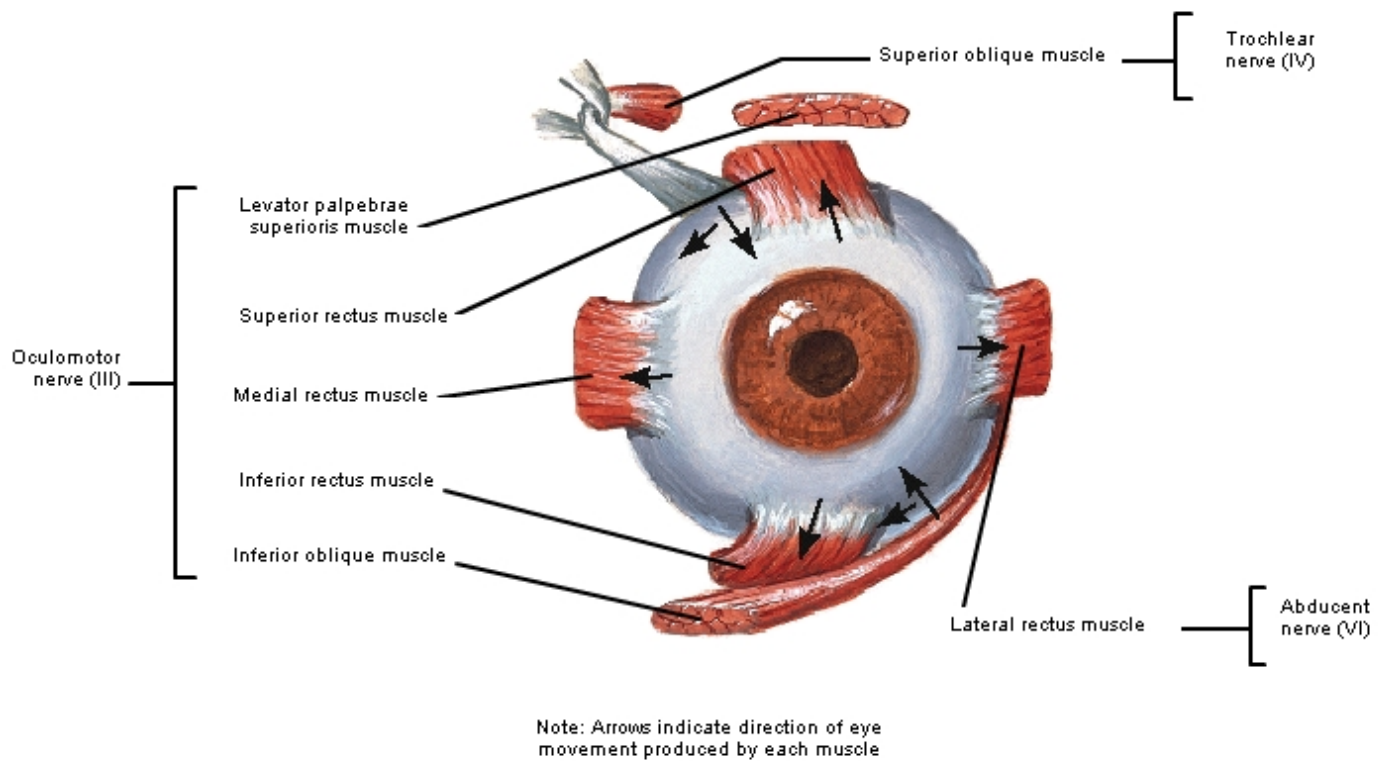
F. Netter M.D.
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Extrinsic Eye Muscles Superior View



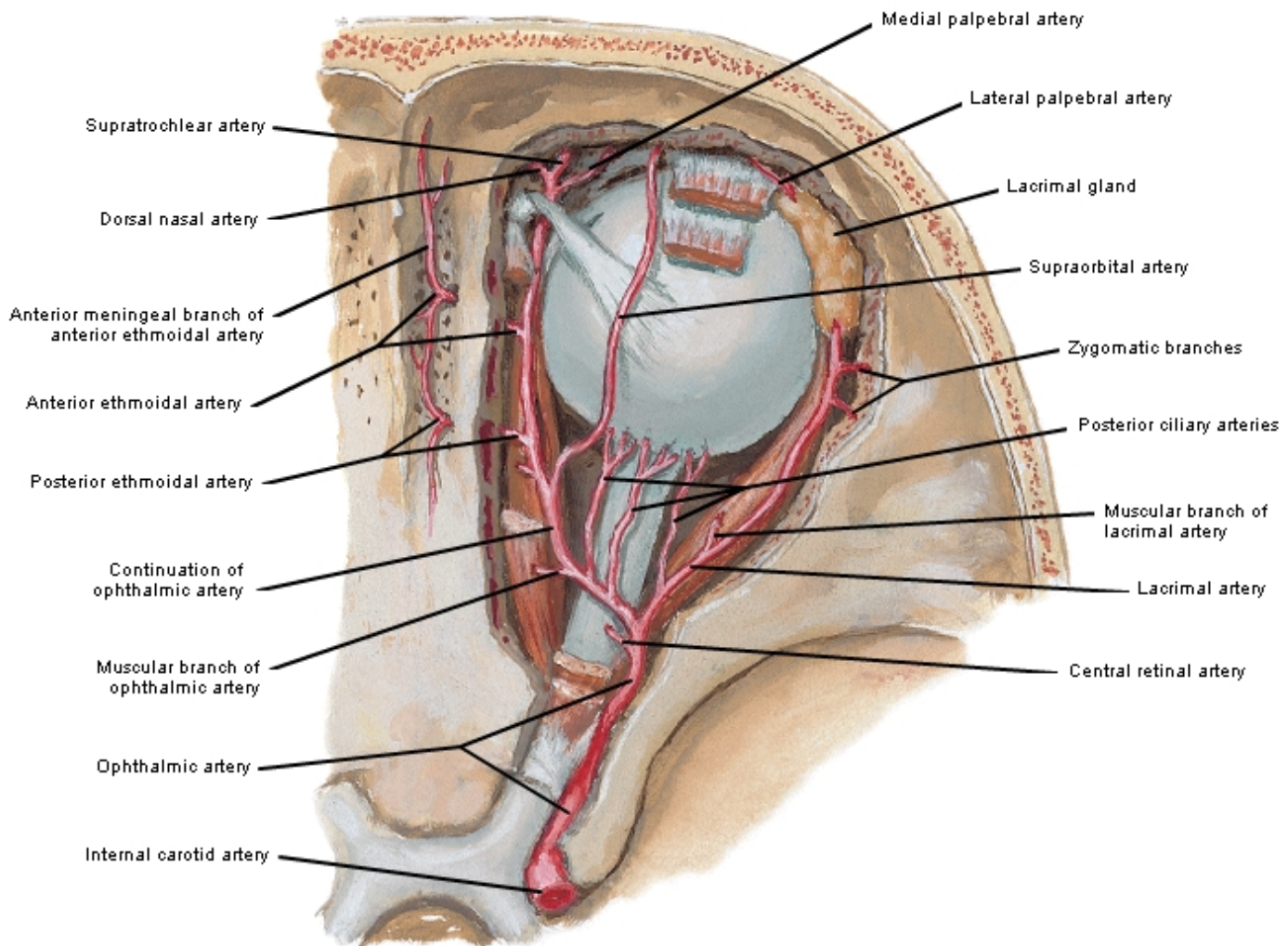
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Extrinsic Eye Muscles - Innervation and Action Anterior View of Left Eye



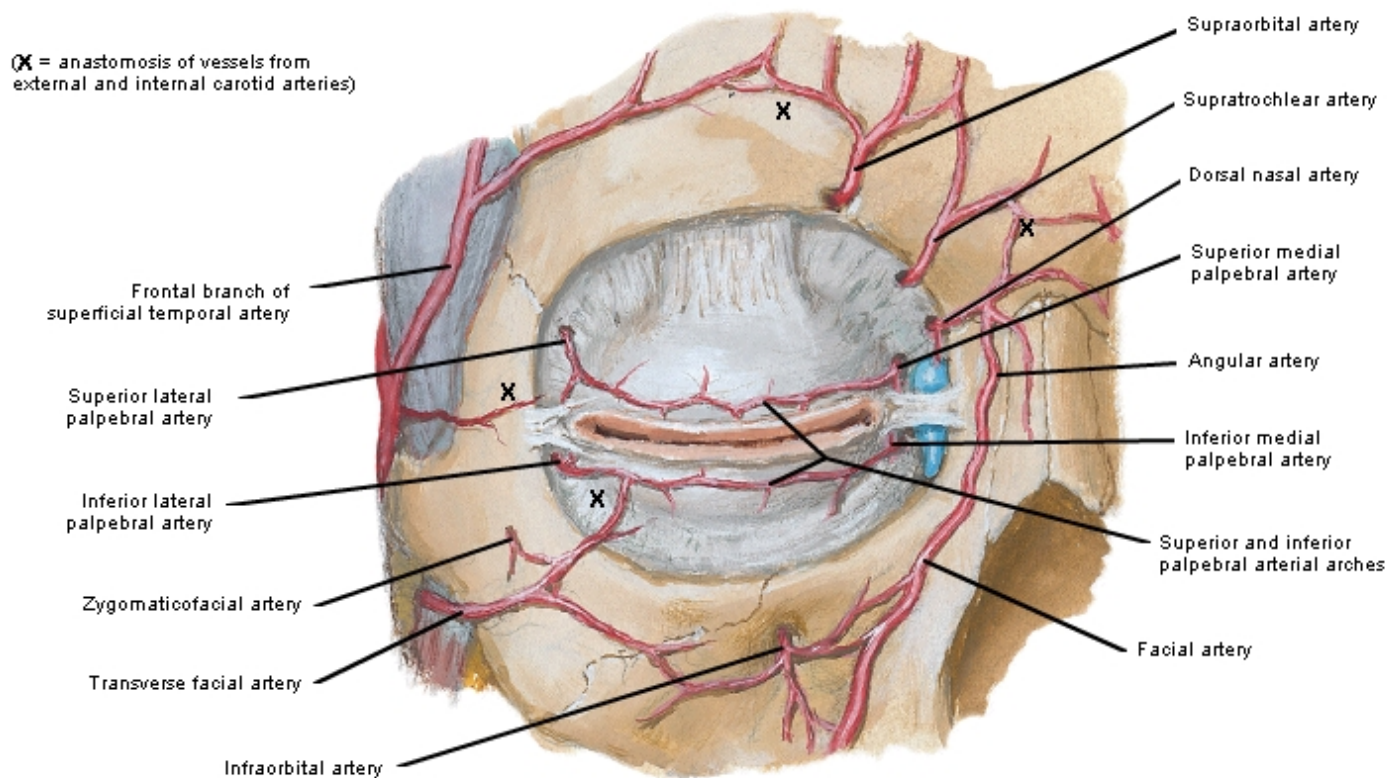
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Arteries of Orbit and Eyelids Superior View



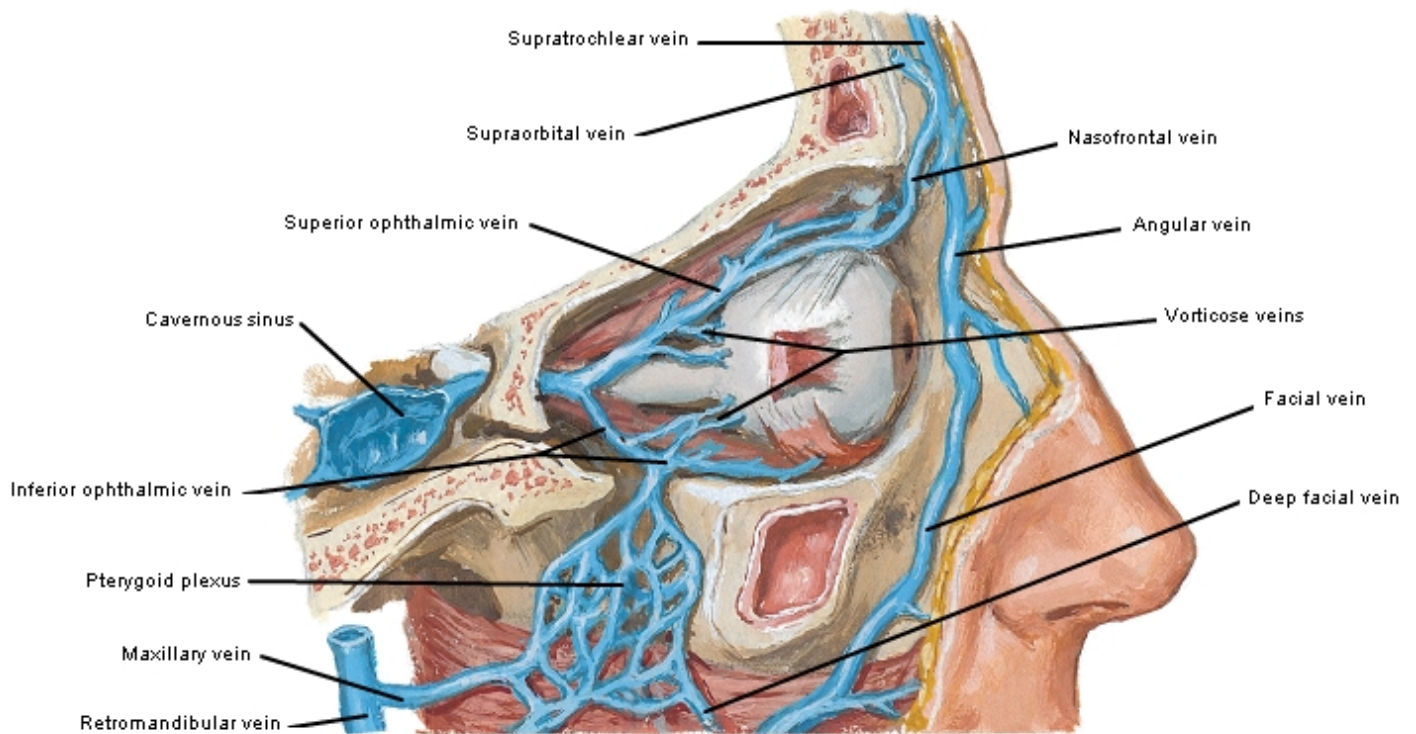
F. Netter M.D.
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Arteries of Eyelids Anterior View



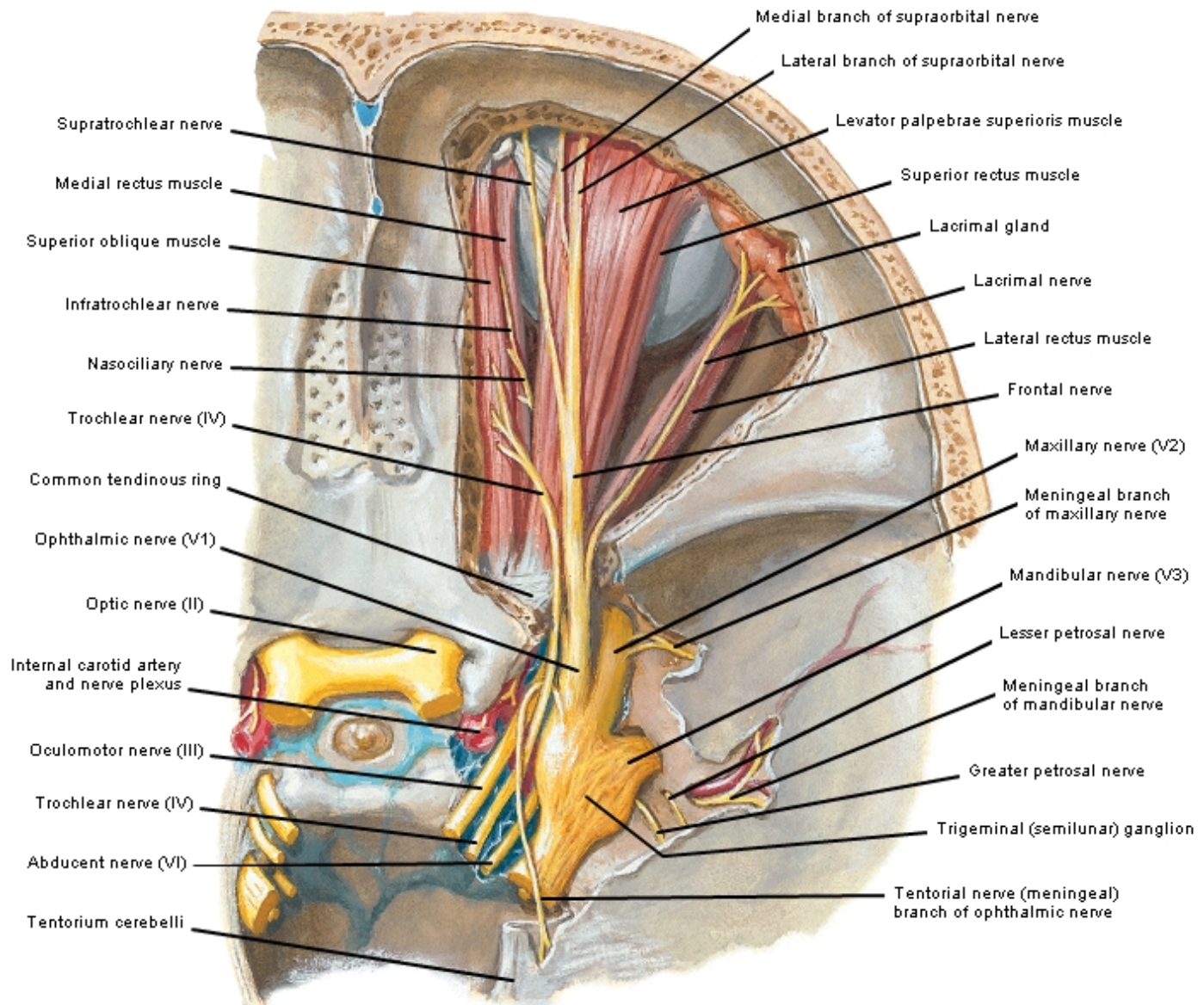
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Veins of Orbit Lateral View



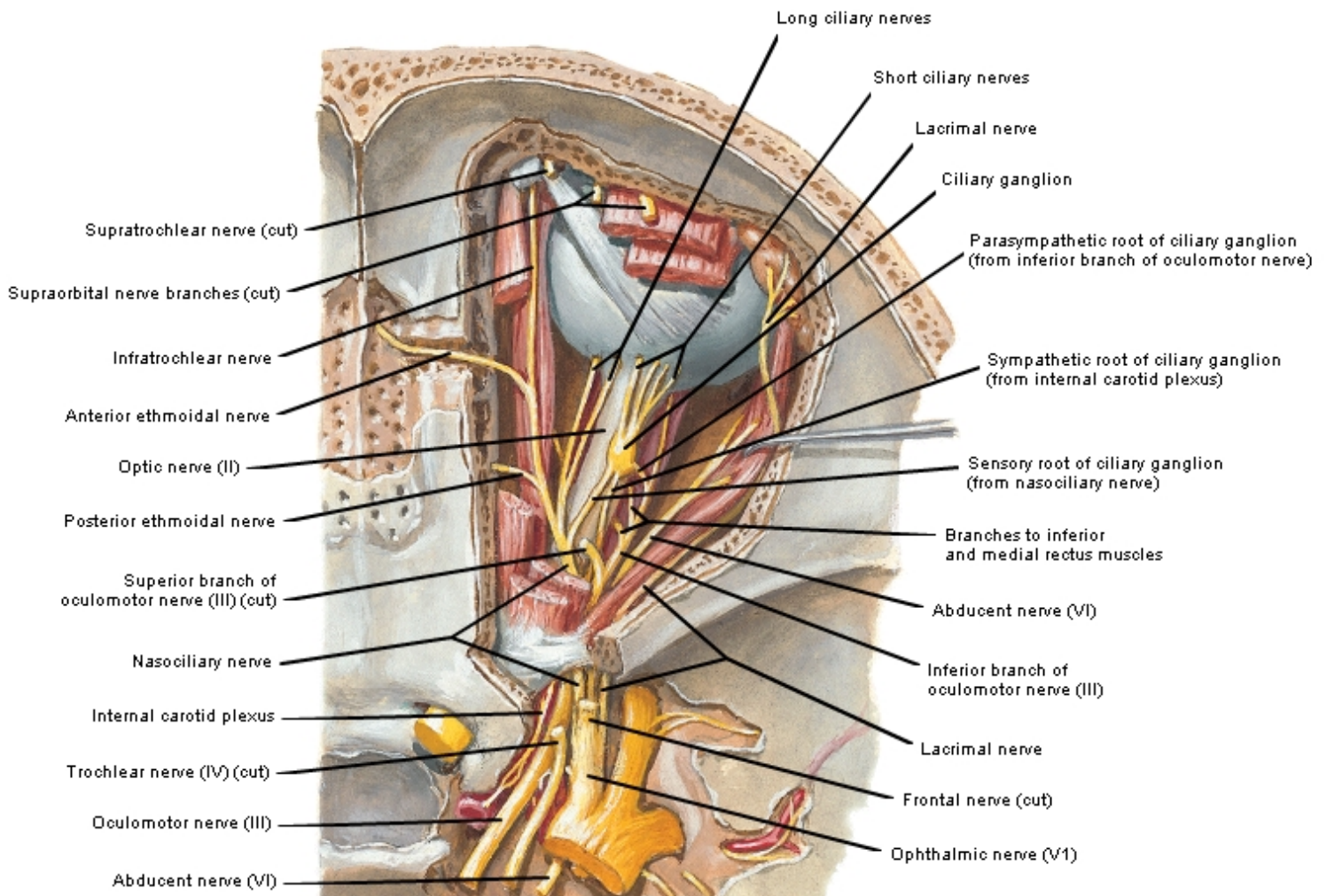
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Nerves of Orbit Superior View



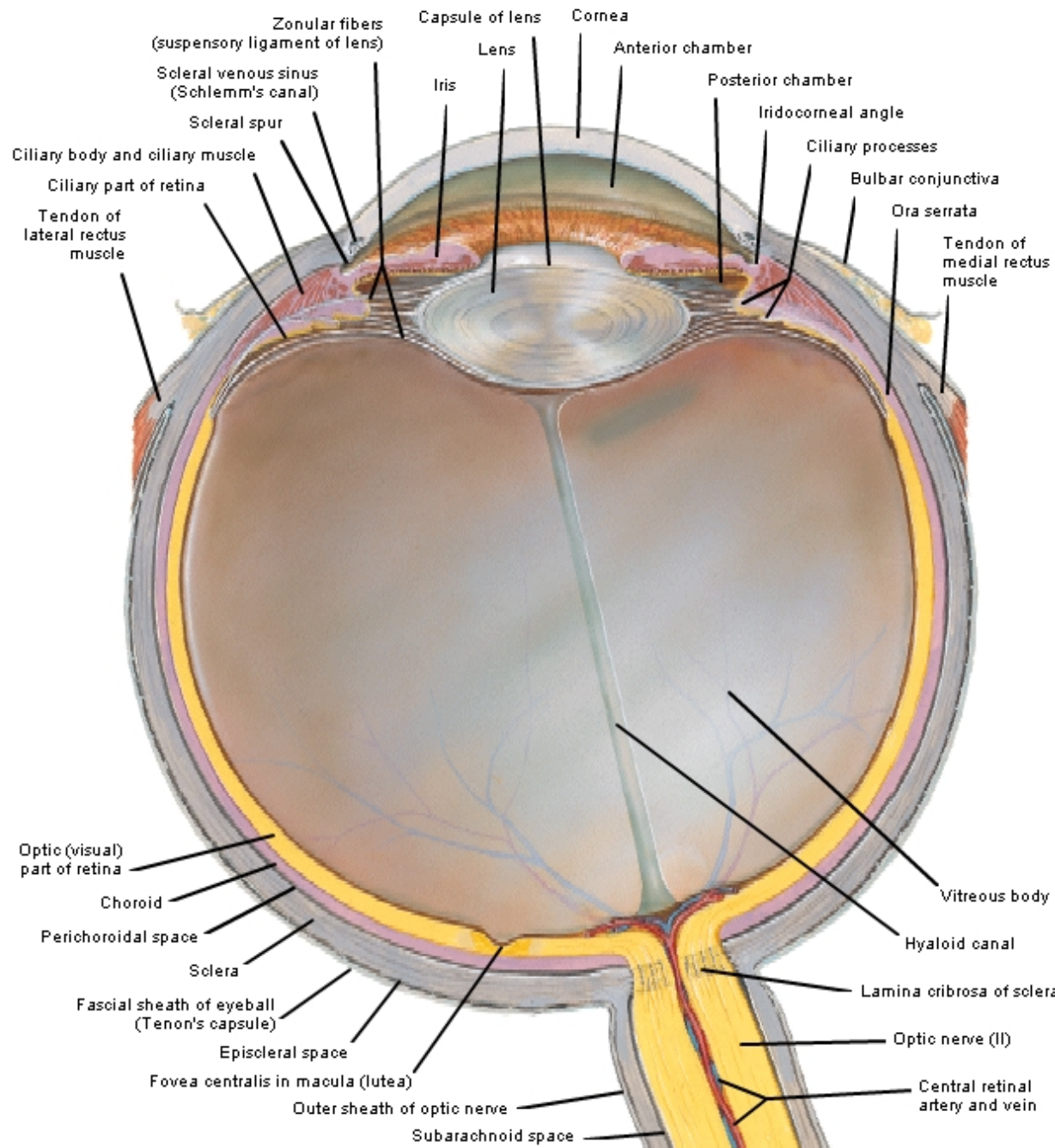
F. Netter M.D.
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Nerves of Orbit - Muscles Partially Cut Away Superior View

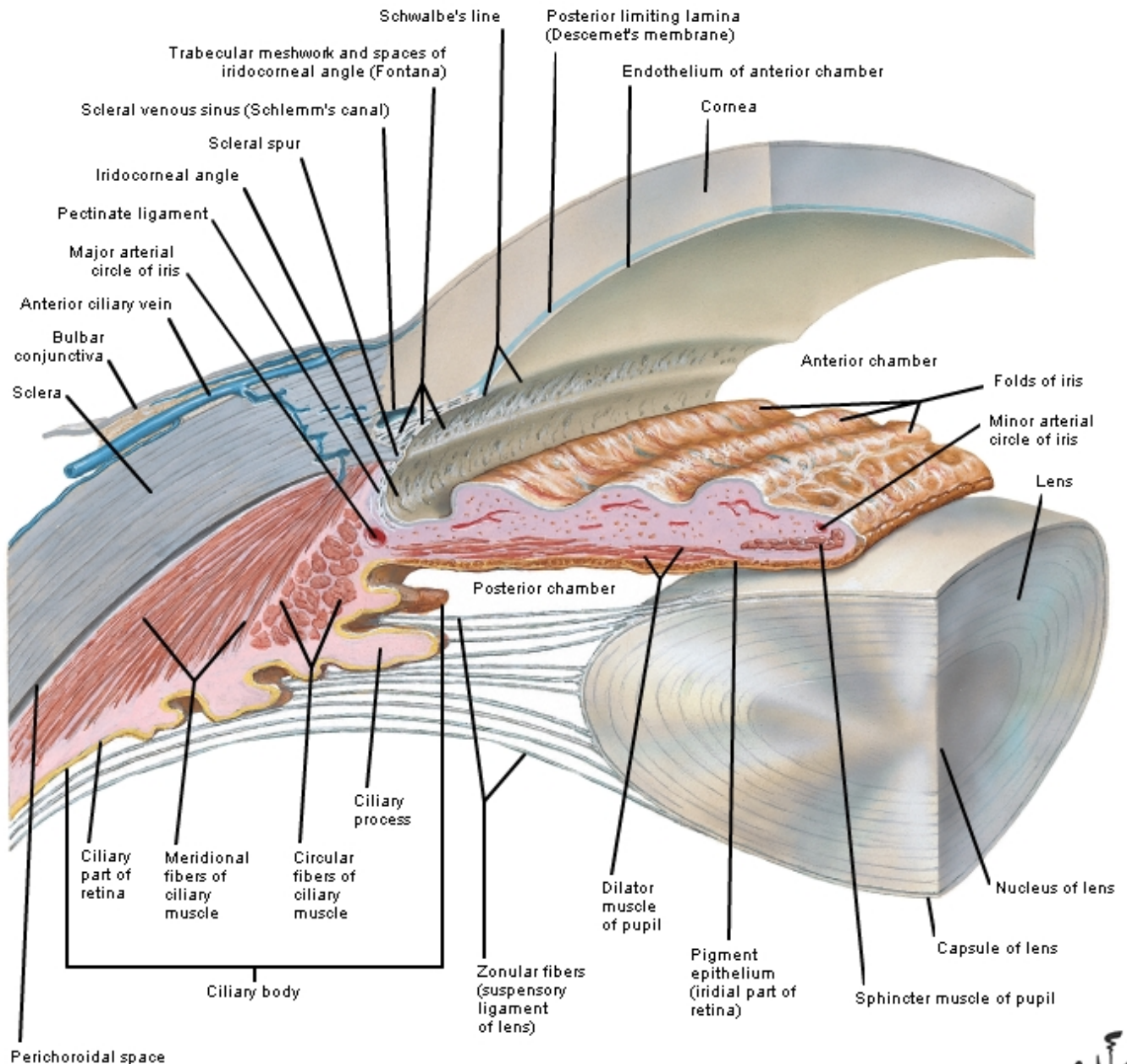


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Eyeball Cross Section



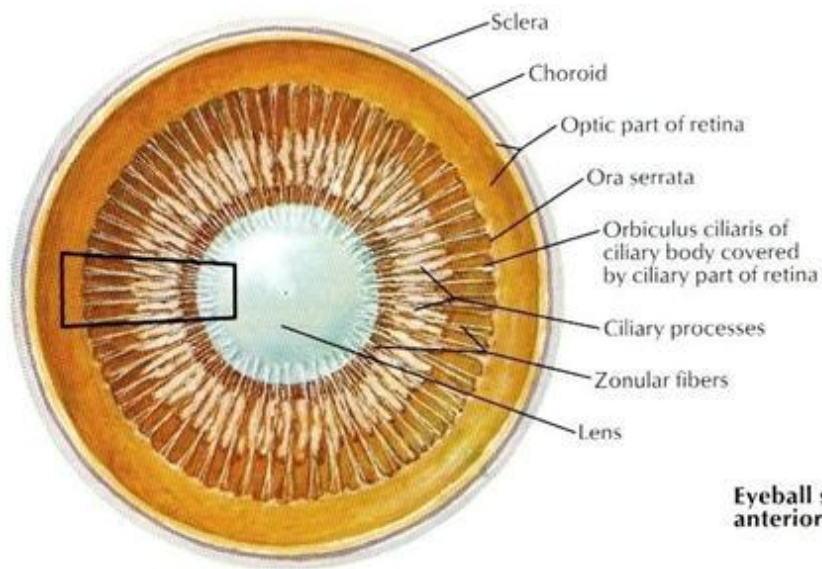
Anterior and Posterior Chambers of Eye



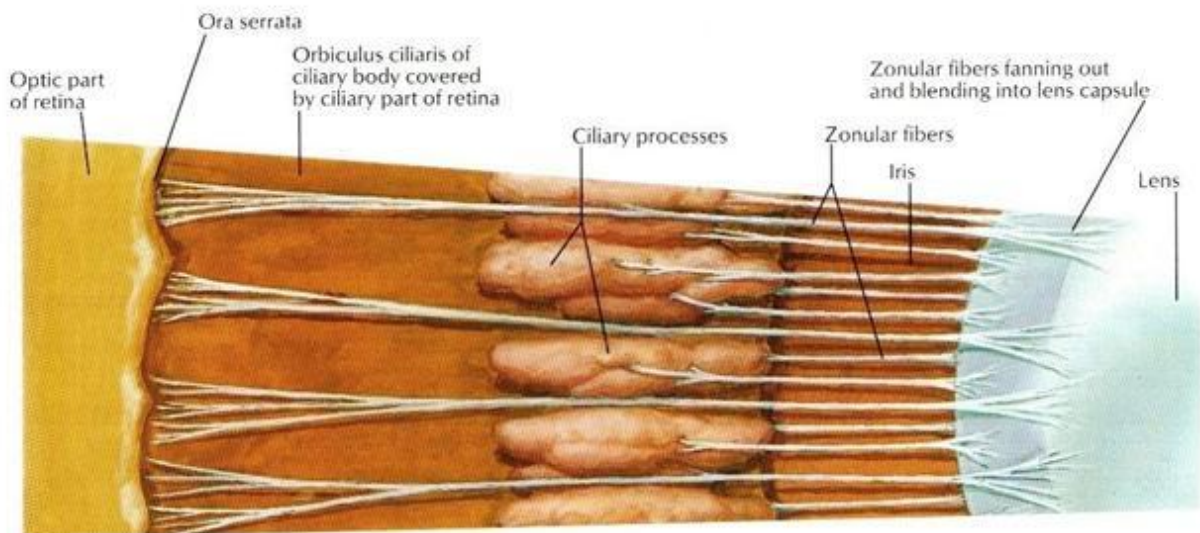
Note: For clarity, only single plane of zonular fibers shown; actually, fibers surround entire circumference of lens

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Lens and Supporting Structures

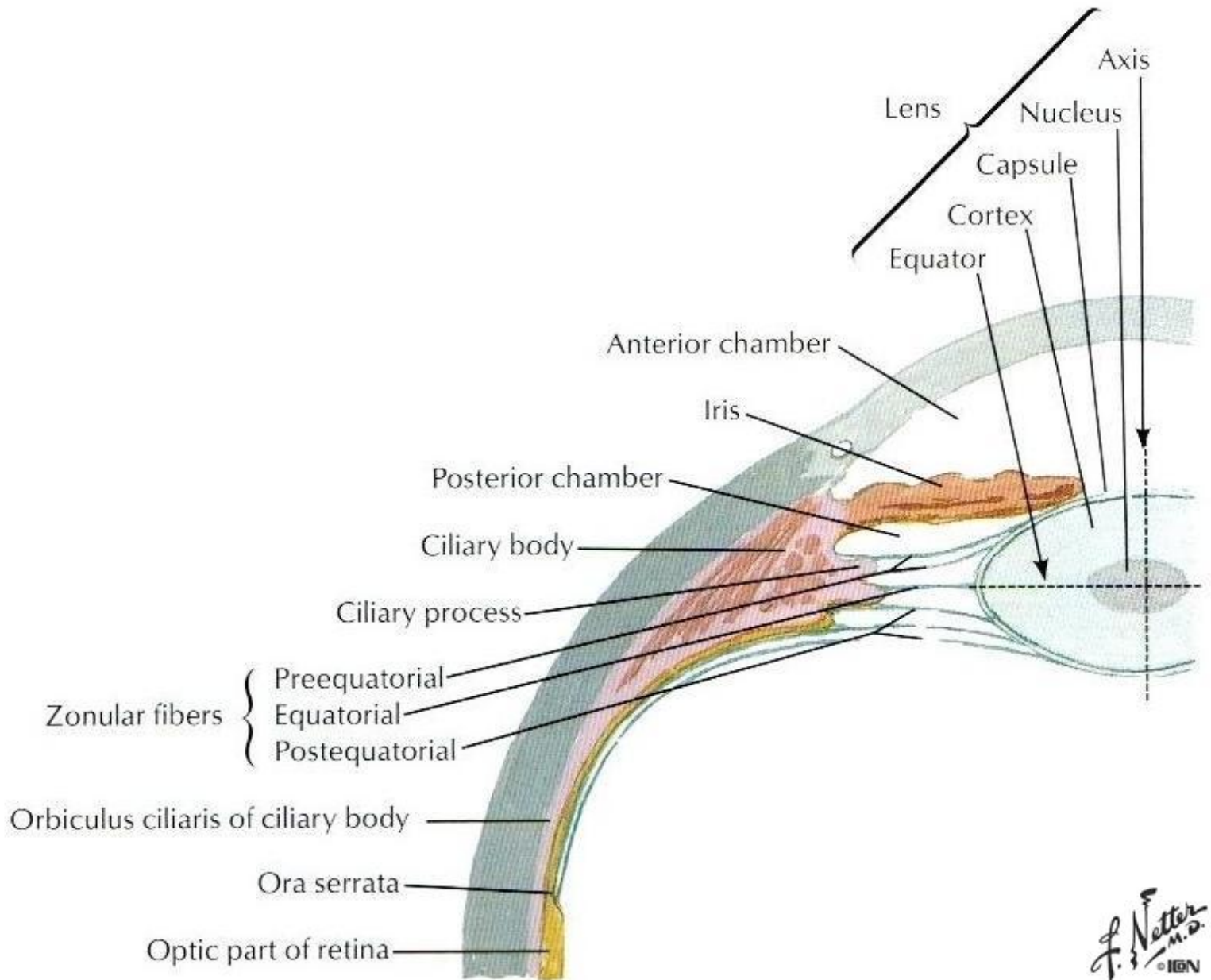


Eyeball sectioned in frontal plane:
anterior segment viewed from behind



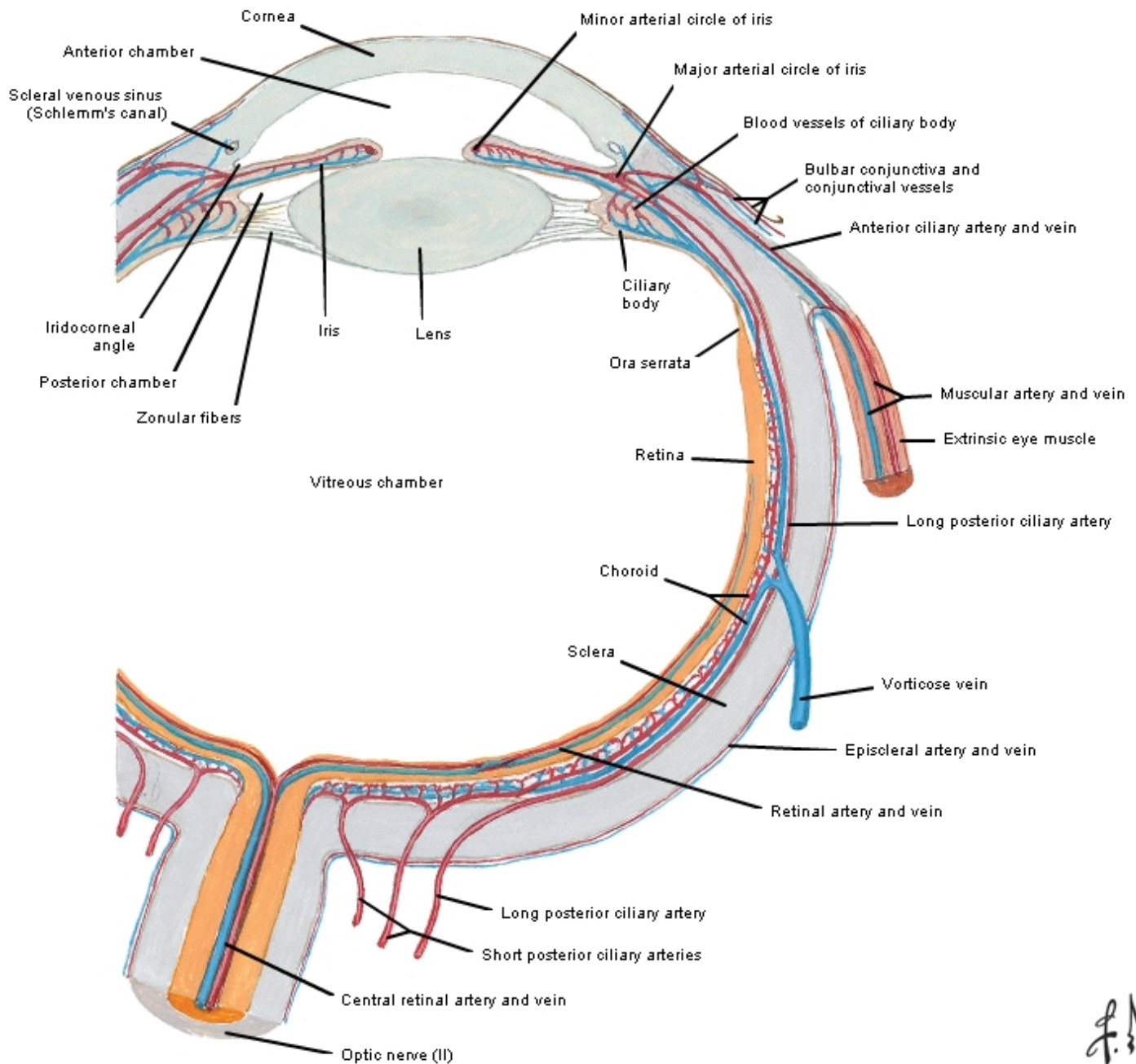
Enlargement of segment outlined in top illustration (semischematic)

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Lens and Supporting Structures: Horizontal Section

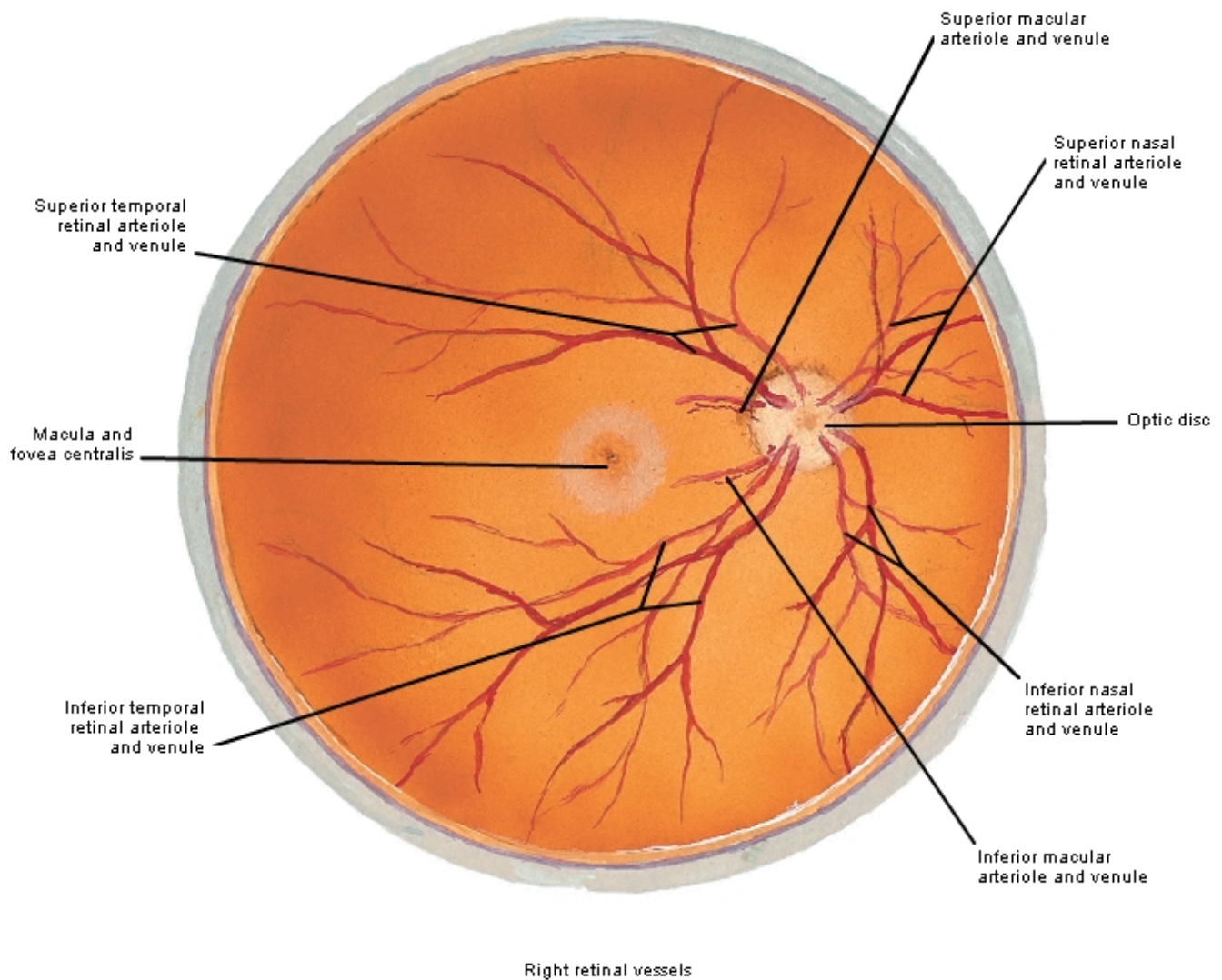
J. Netter M.D.
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Intrinsic Arteries and Veins of Eye Horizontal Section



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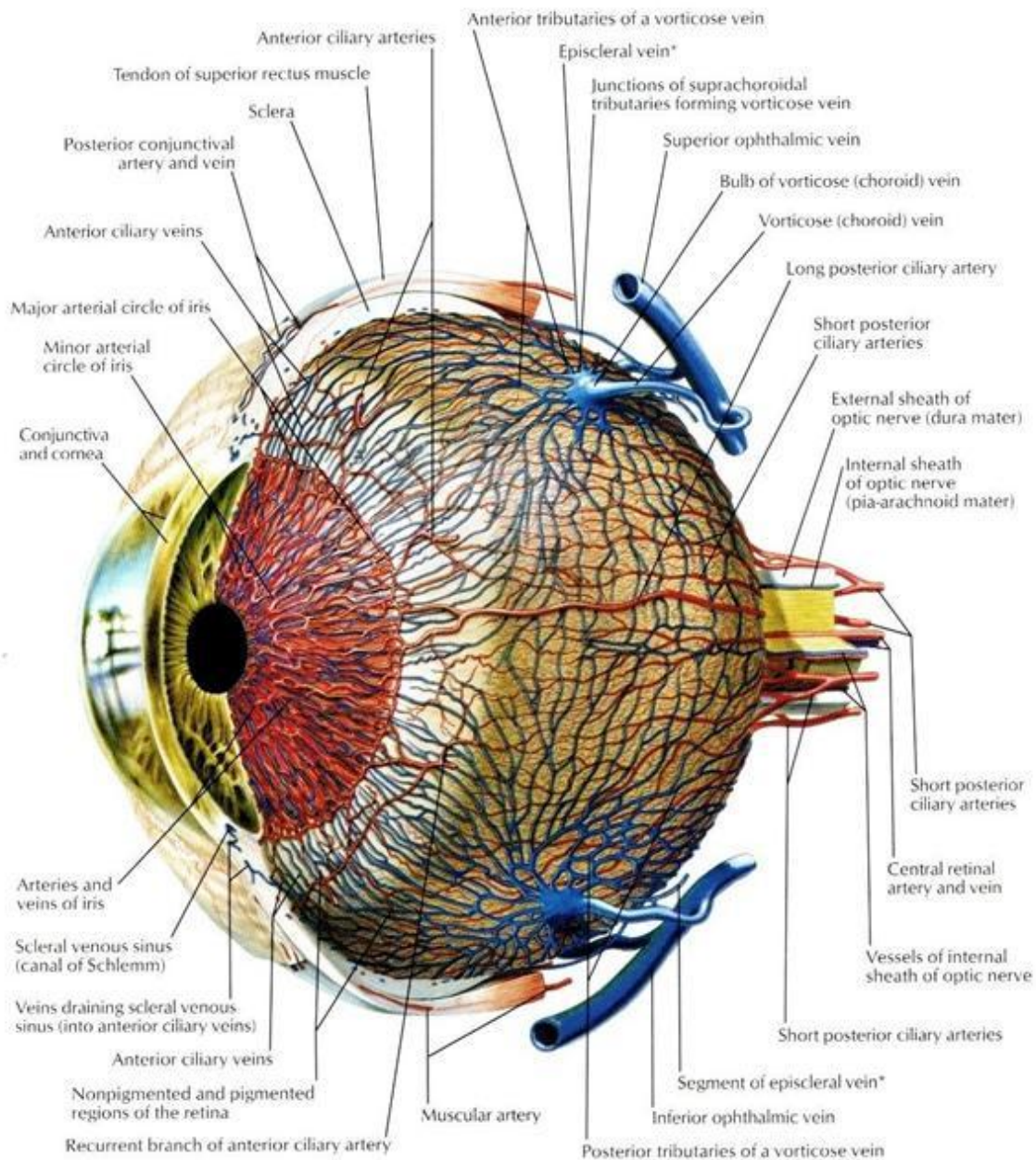
Intrinsic Arteries and Veins of Eye Ophthalmoscopic View



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Vascular Supply of Eye

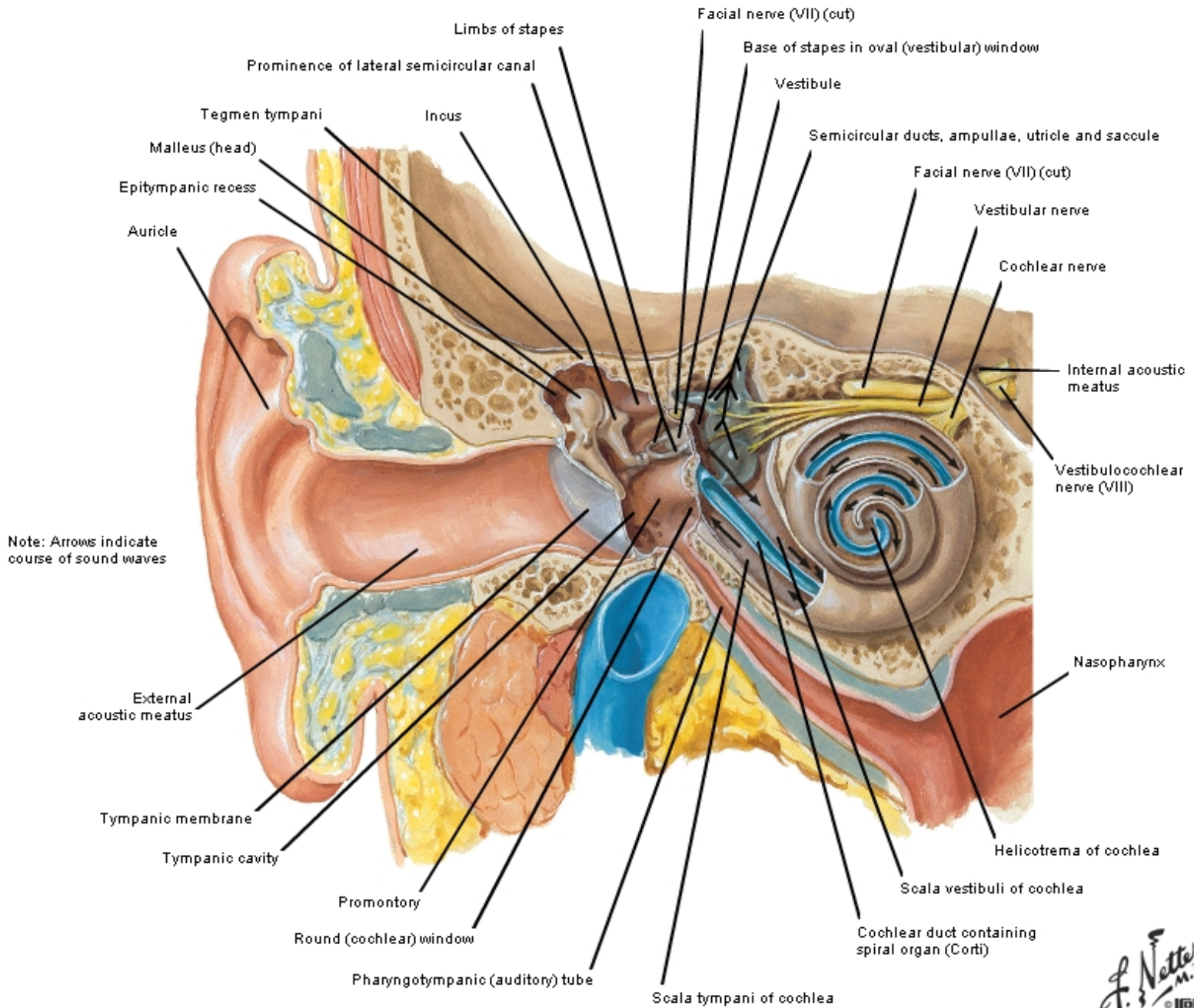
Vascular arrangements within the choroid (vascular tunic) of the eyeball



*The episcleral veins are shown here anastomosing with the vorticos veins, which they do; however they also drain into the anterior ciliary veins.

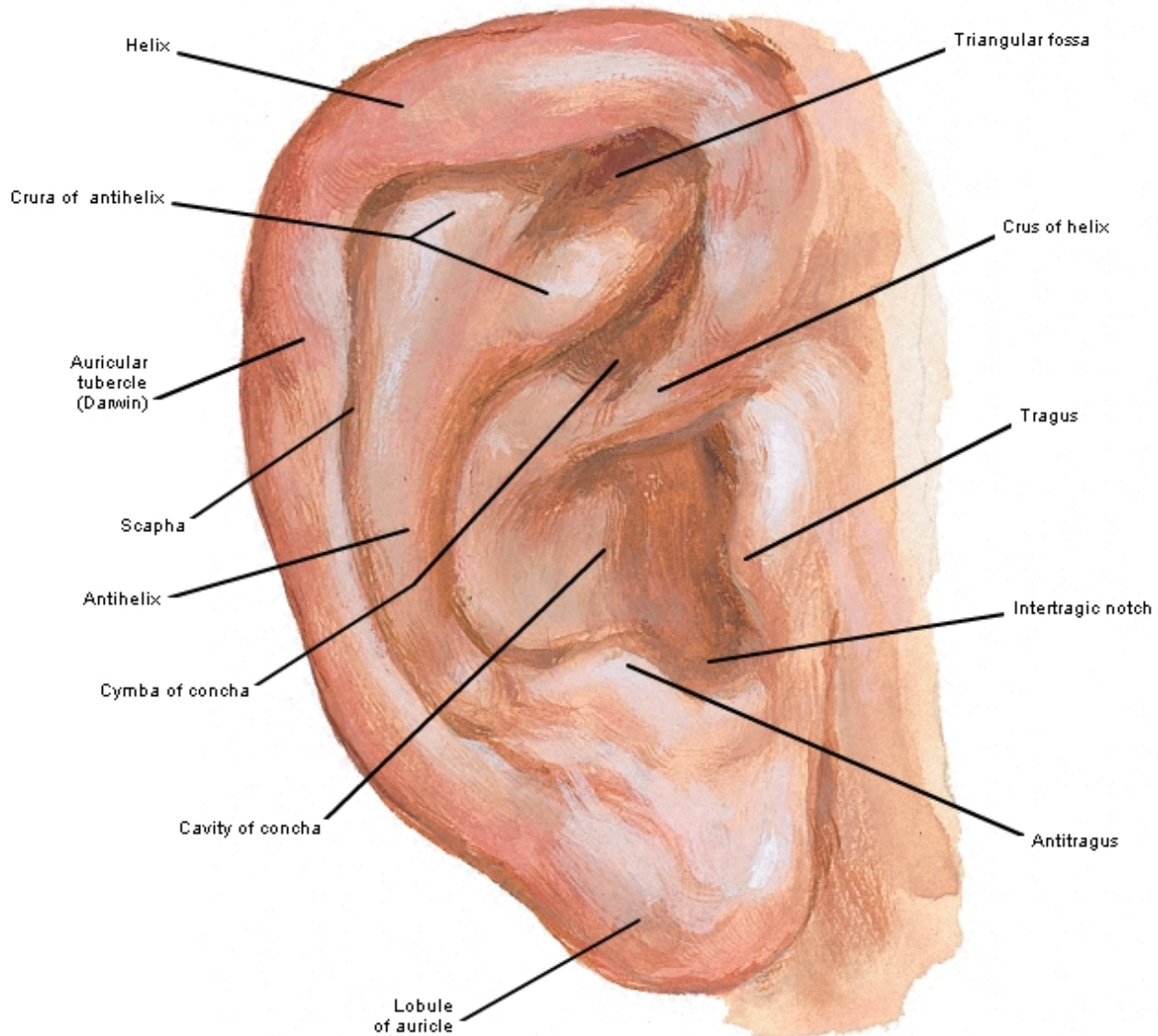
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Pathway of Sound Reception Schematic Frontal Section



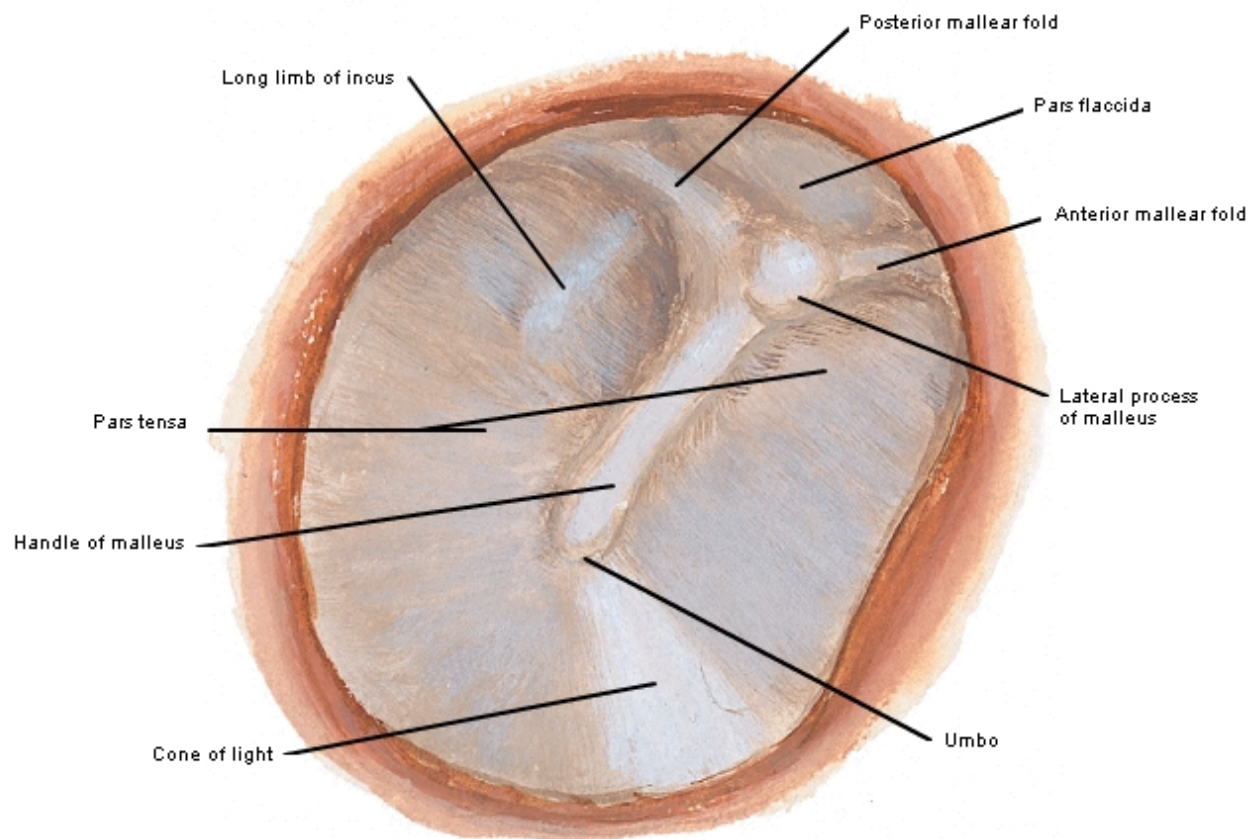
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External Ear Right Auricle



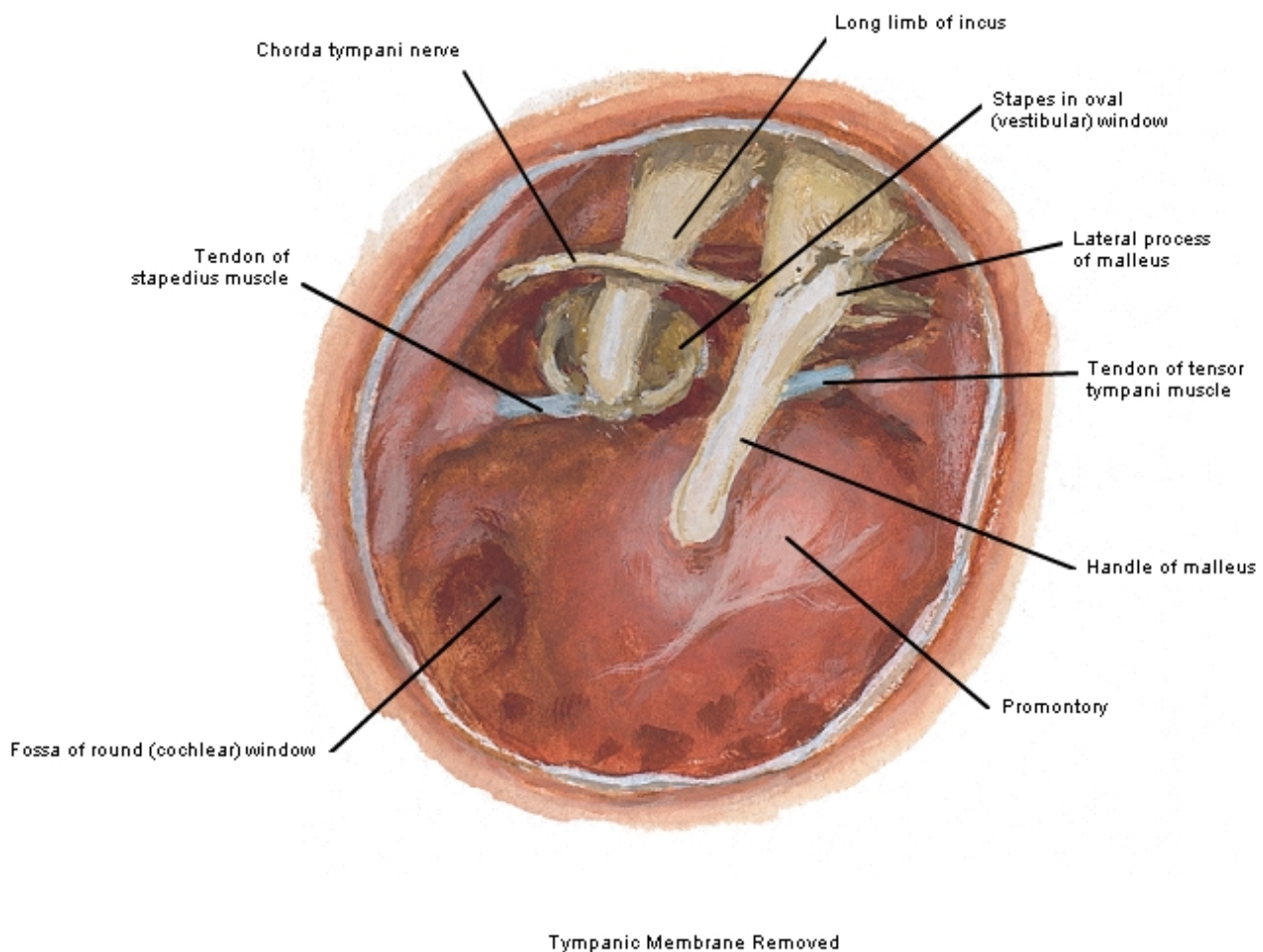
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External Ear: Right Tympanic Membrane Viewed Through Speculum



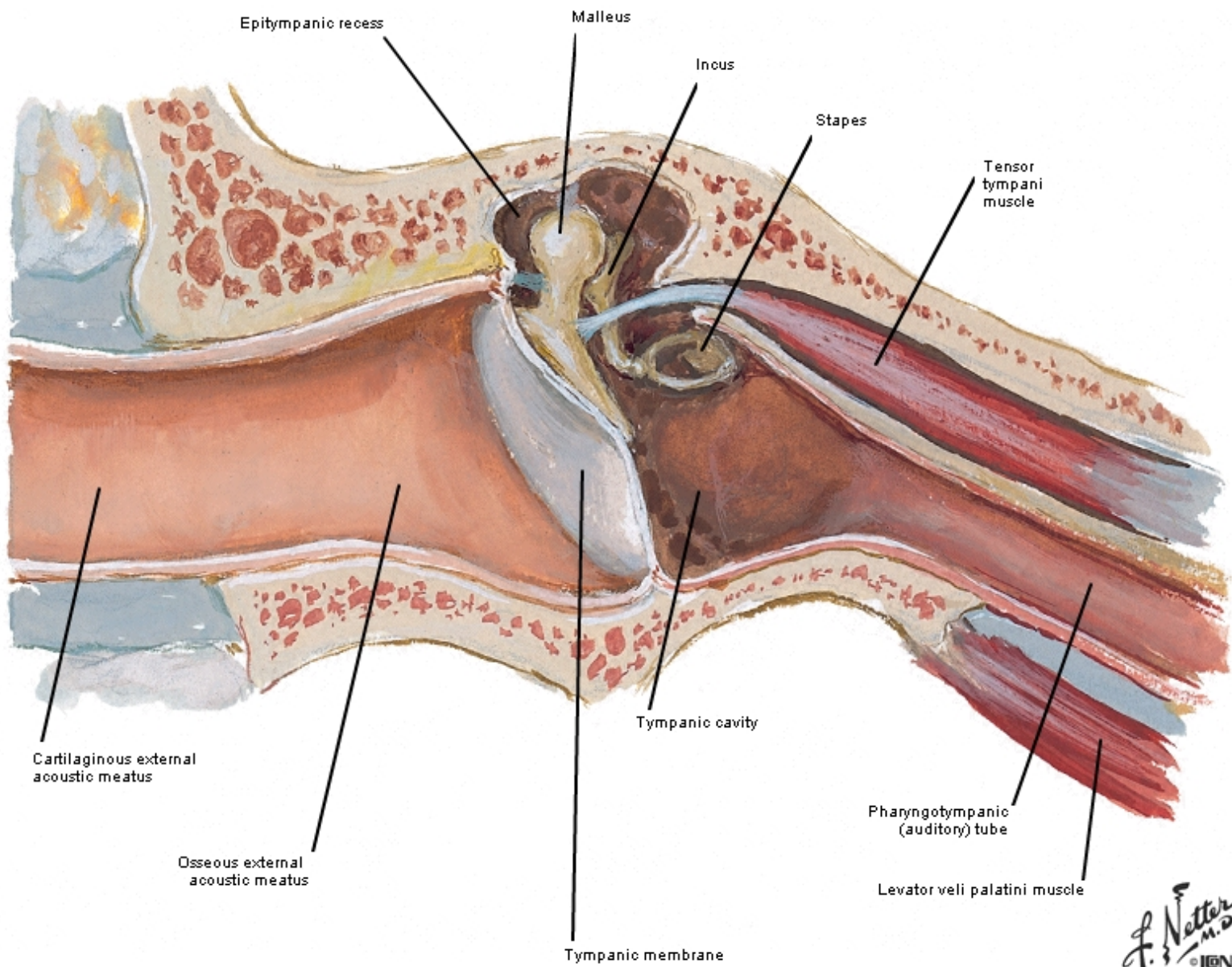
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Tympanic Cavity Viewed from External Acoustic Meatus



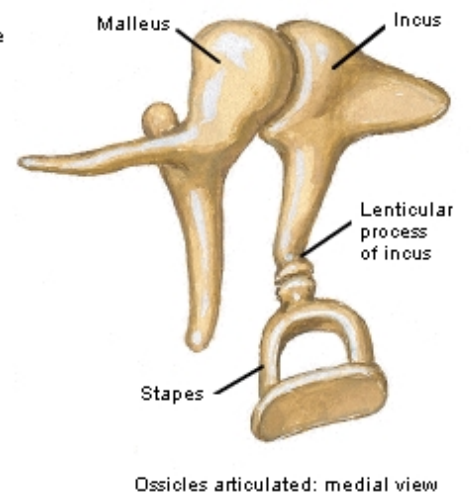
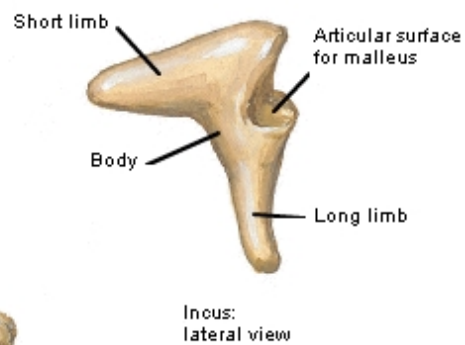
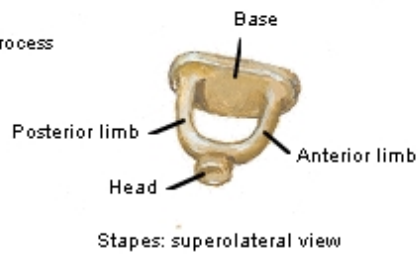
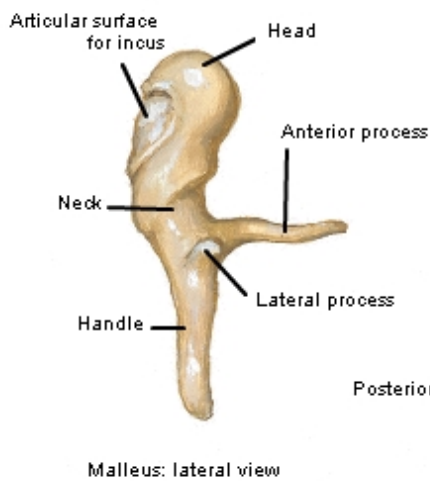
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External Ear and Tympanic Cavity Coronal Oblique Section



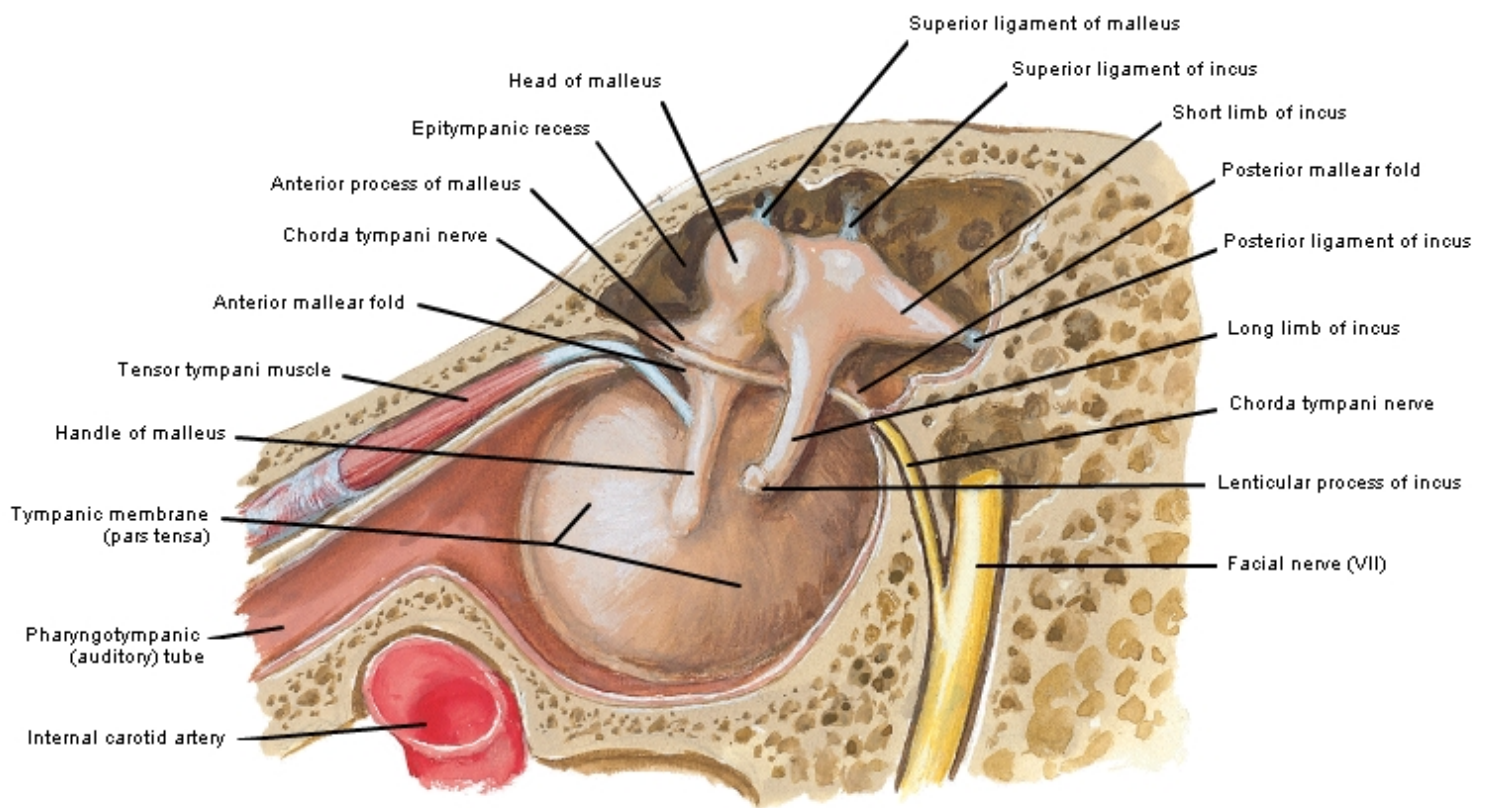
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Tympanic Cavity Auditory Ossicles



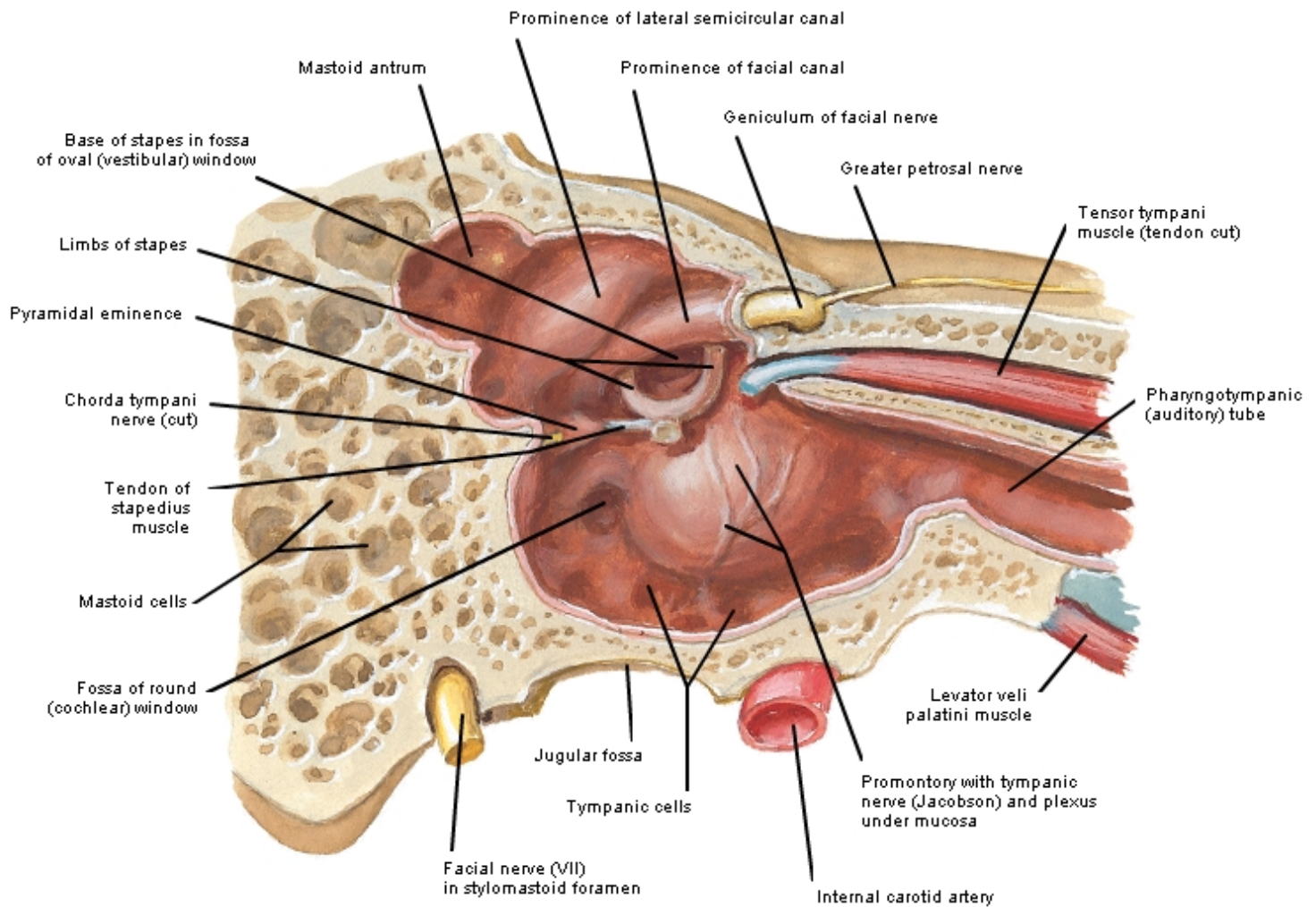
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Tympanic Cavity - Lateral Wall Medial View



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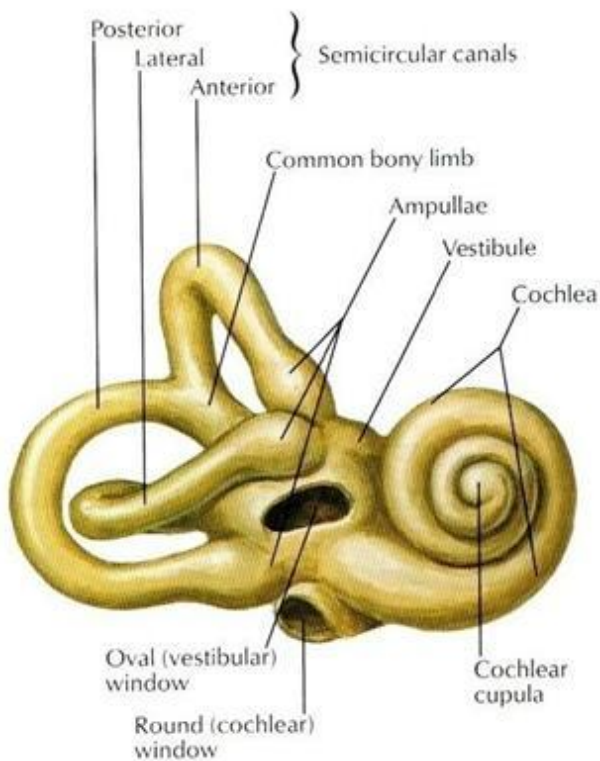
Tympanic Cavity - Medial Wall Lateral View



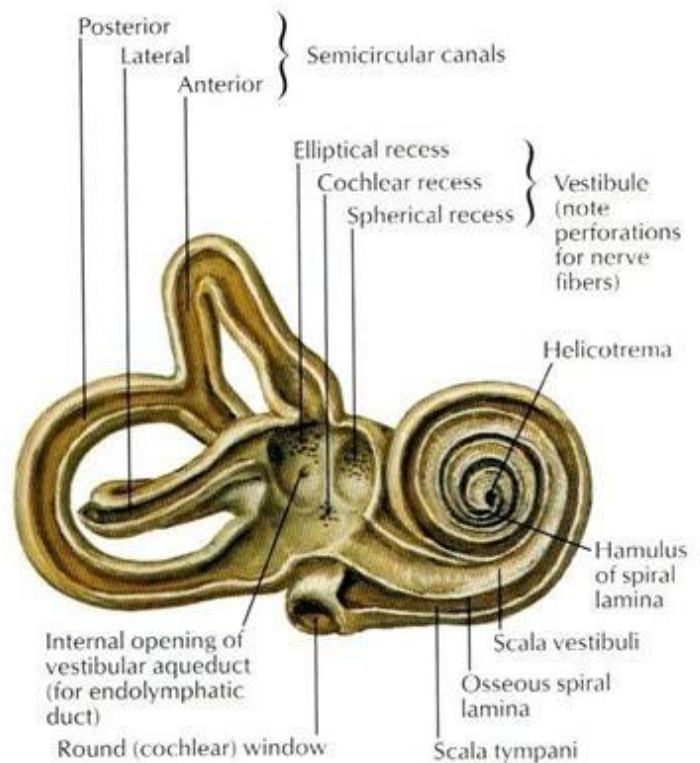
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Bony Labyrinths

**Right bony labyrinth (otic capsule), anterolateral view:
surrounding cancellous bone removed**



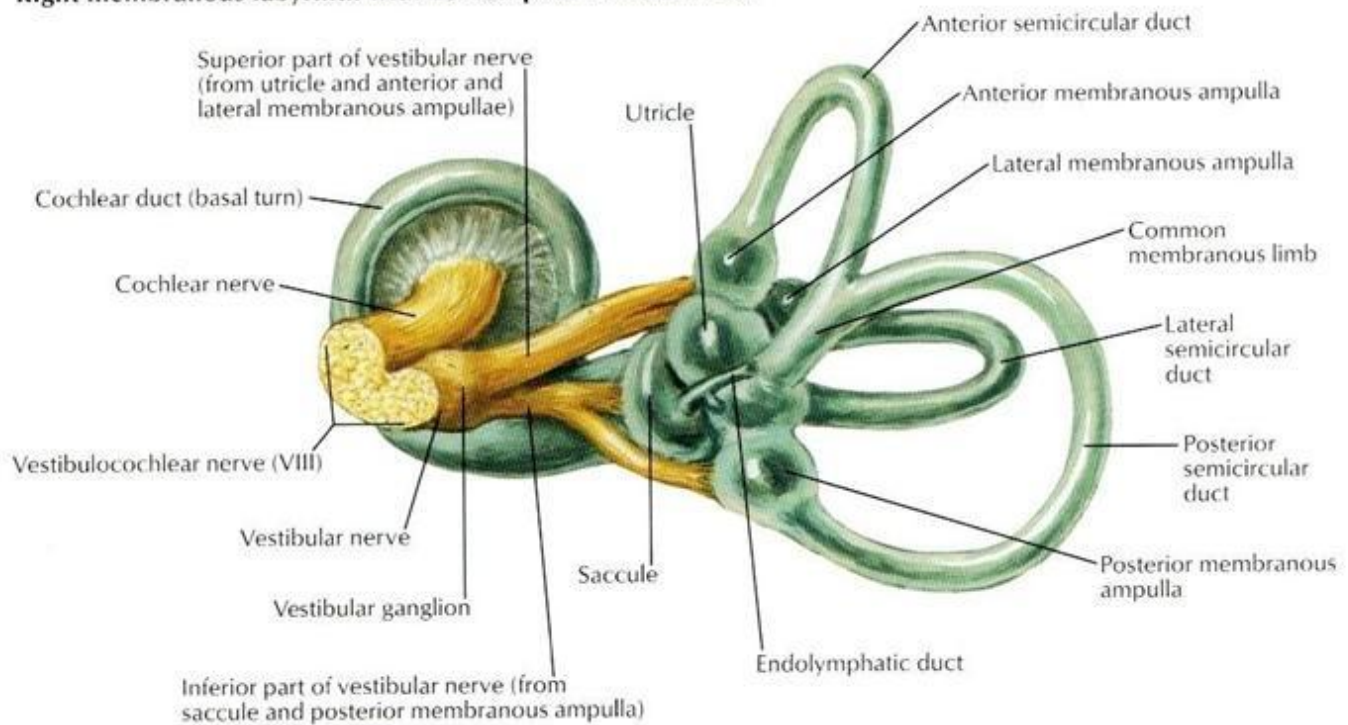
**Dissected right bony labyrinth (otic capsule):
membranous labyrinth removed**



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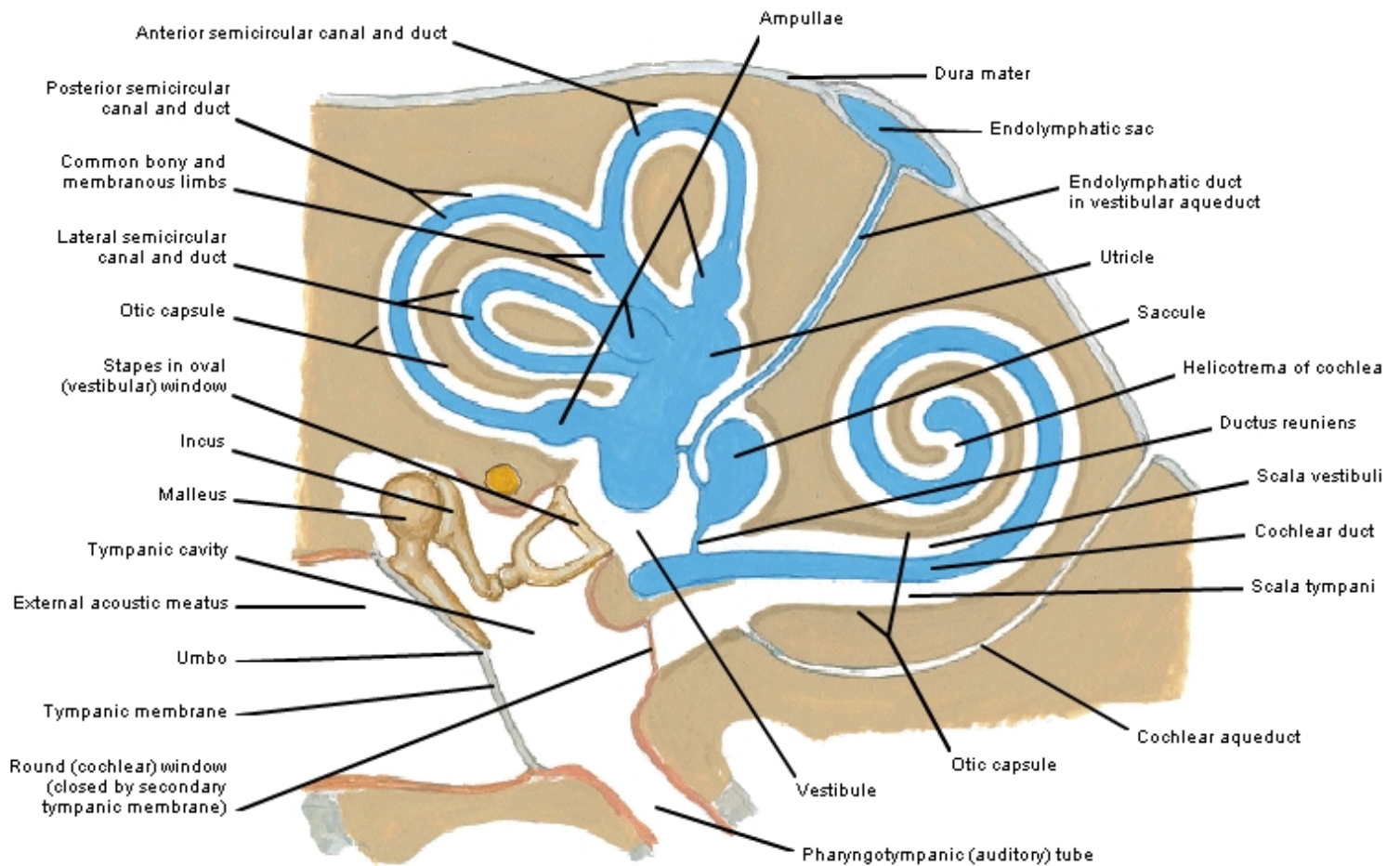
Membranous Labyrinth

Right membranous labyrinth with nerves: posteromedial view



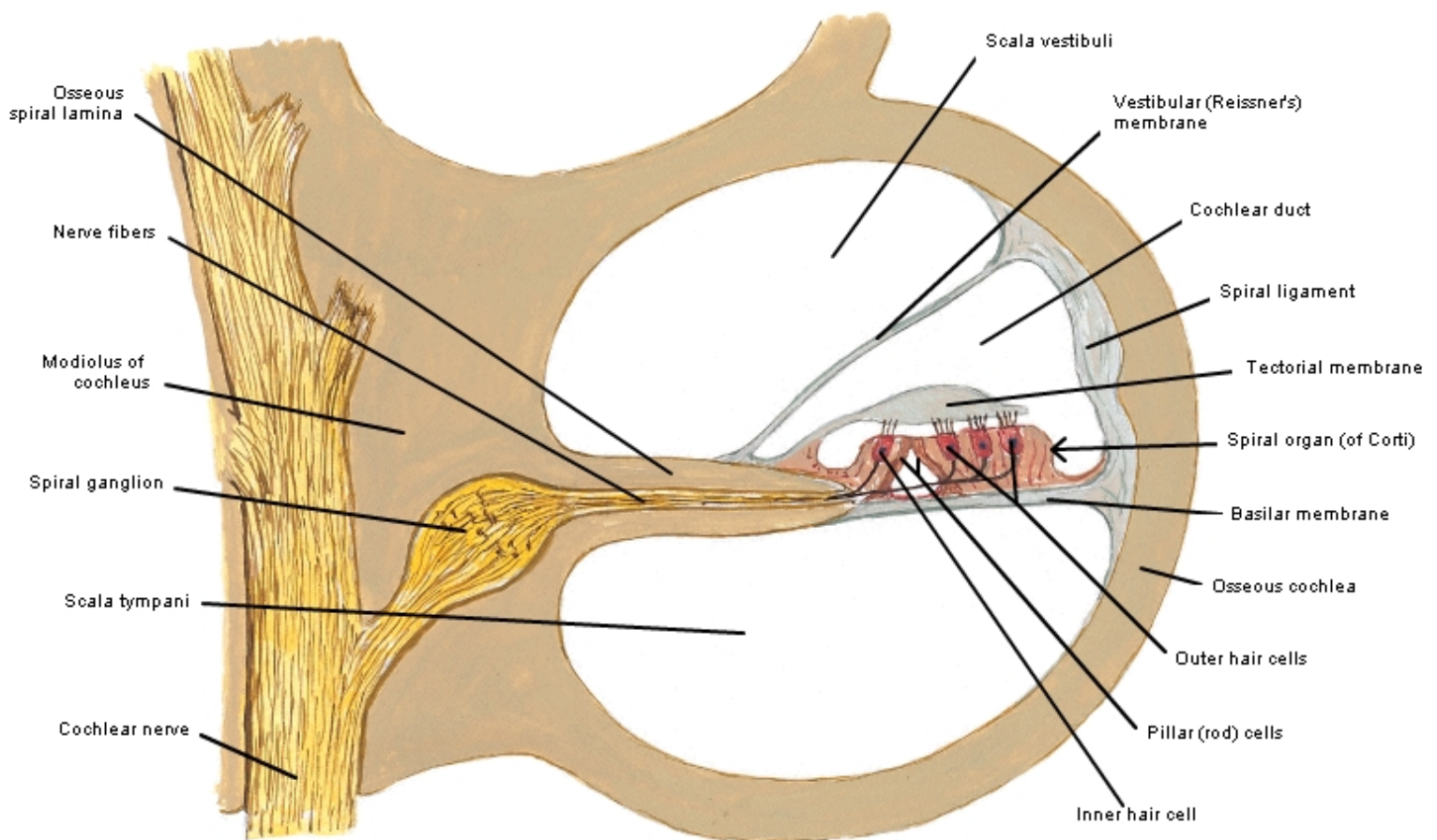
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Bony and Membranous Labyrinths Schema



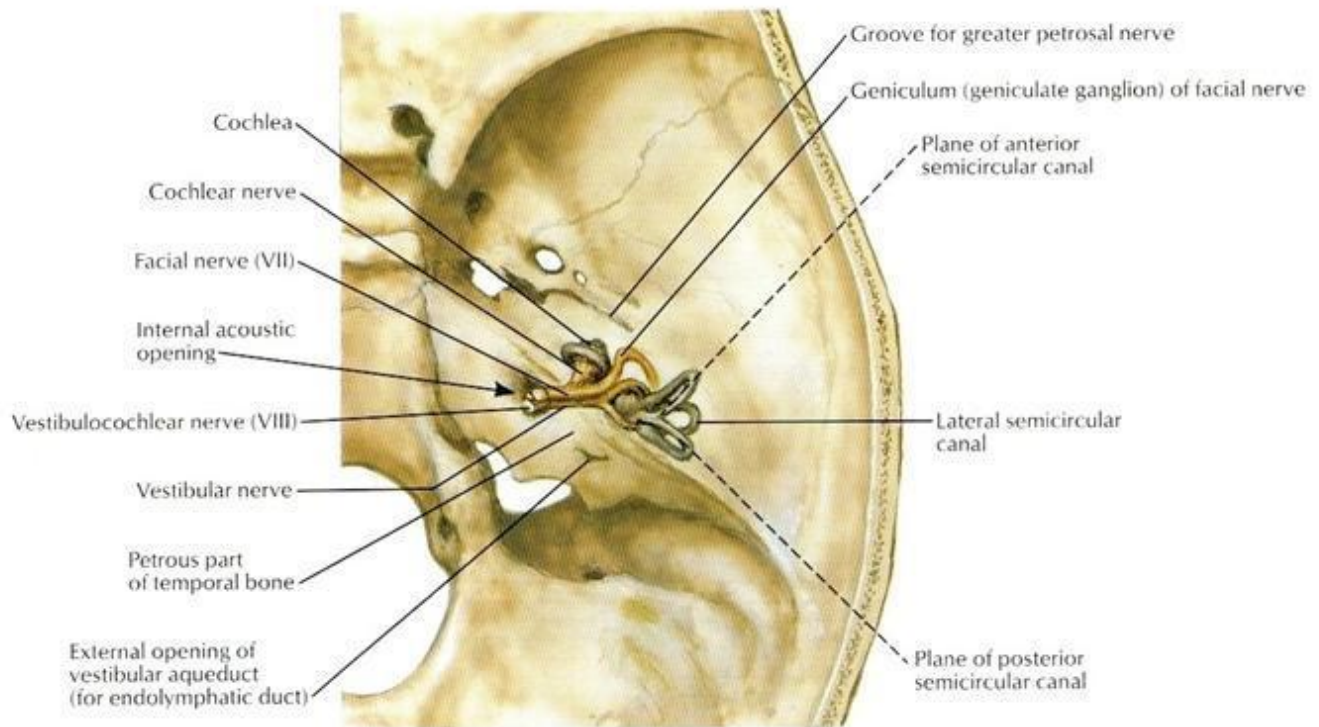
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Bony and Membranous Labyrinths Section Through Turn of Cochlea



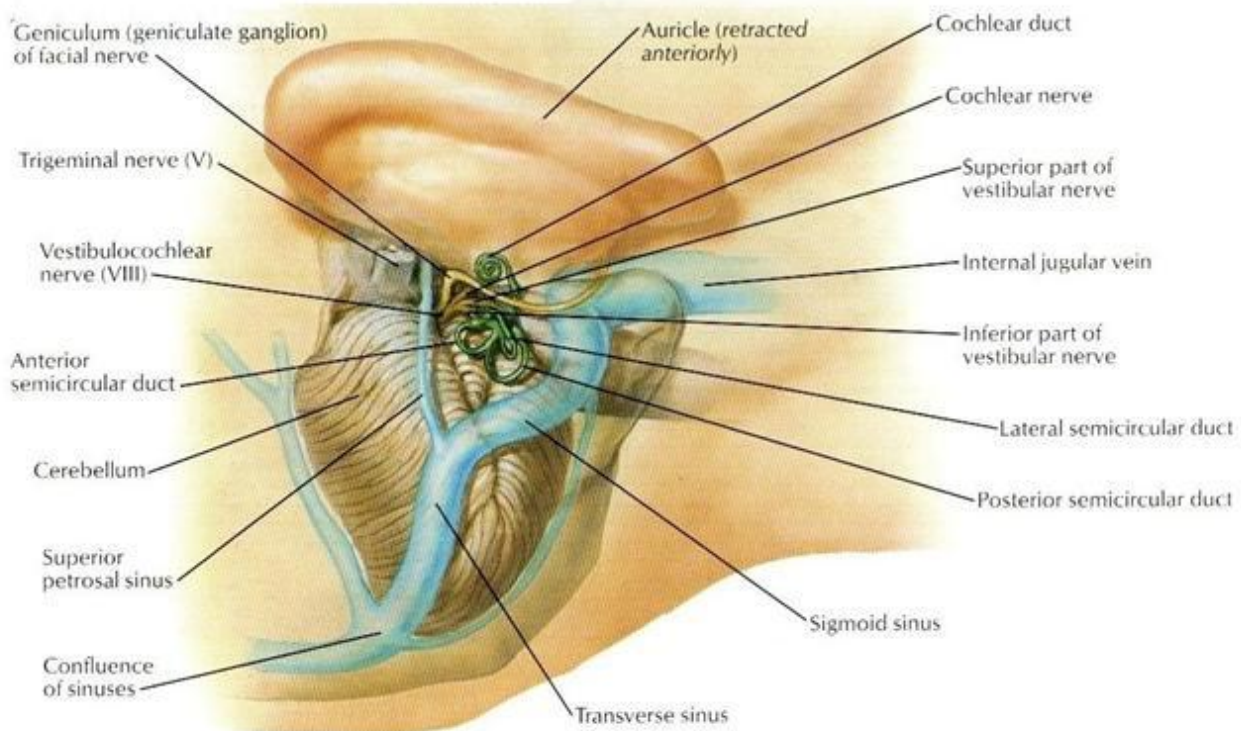
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Superior Projection of Right Bony Labyrinth on Floor of Skull



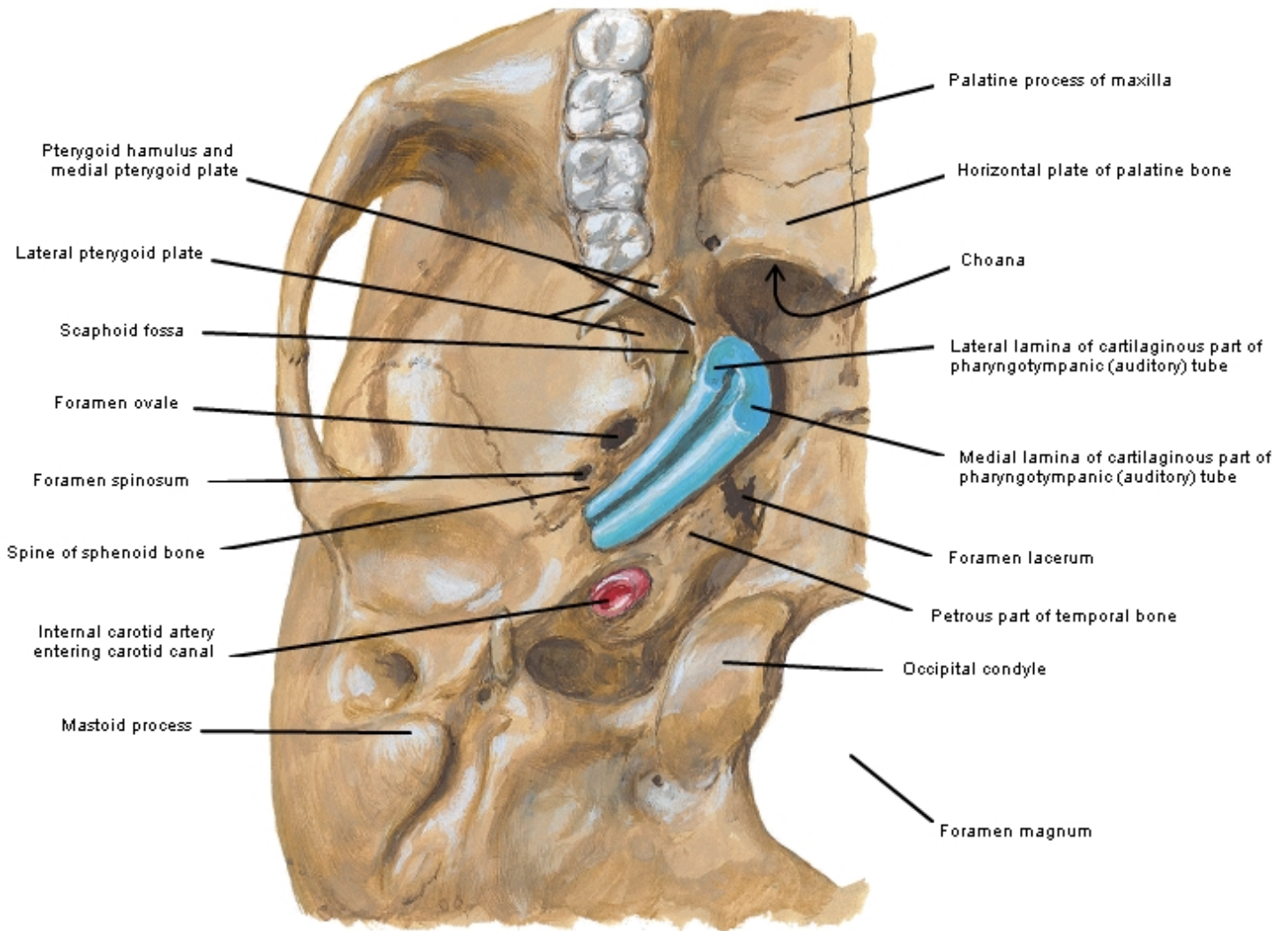
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Lateral Projection of Right Membranous Labyrinth

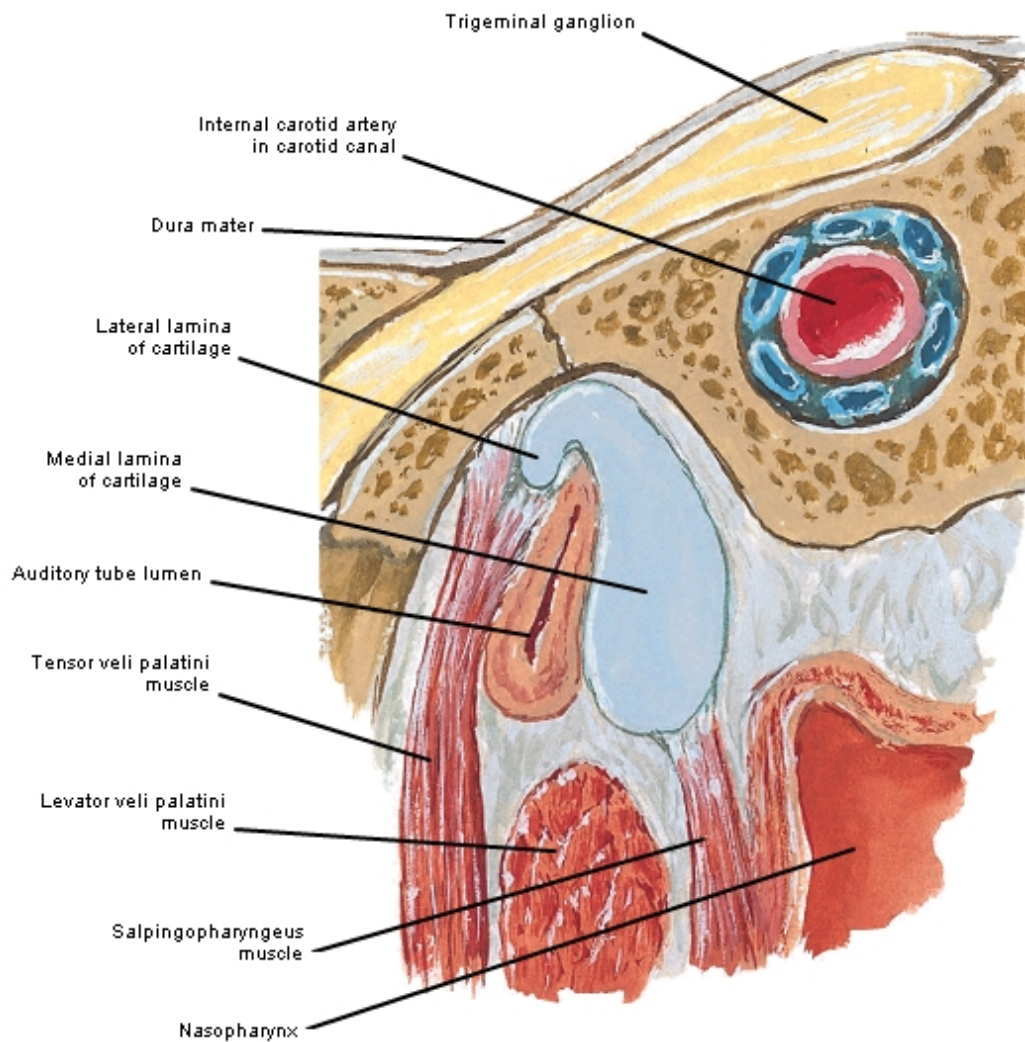


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Pharyngotympanic (Auditory) Tube



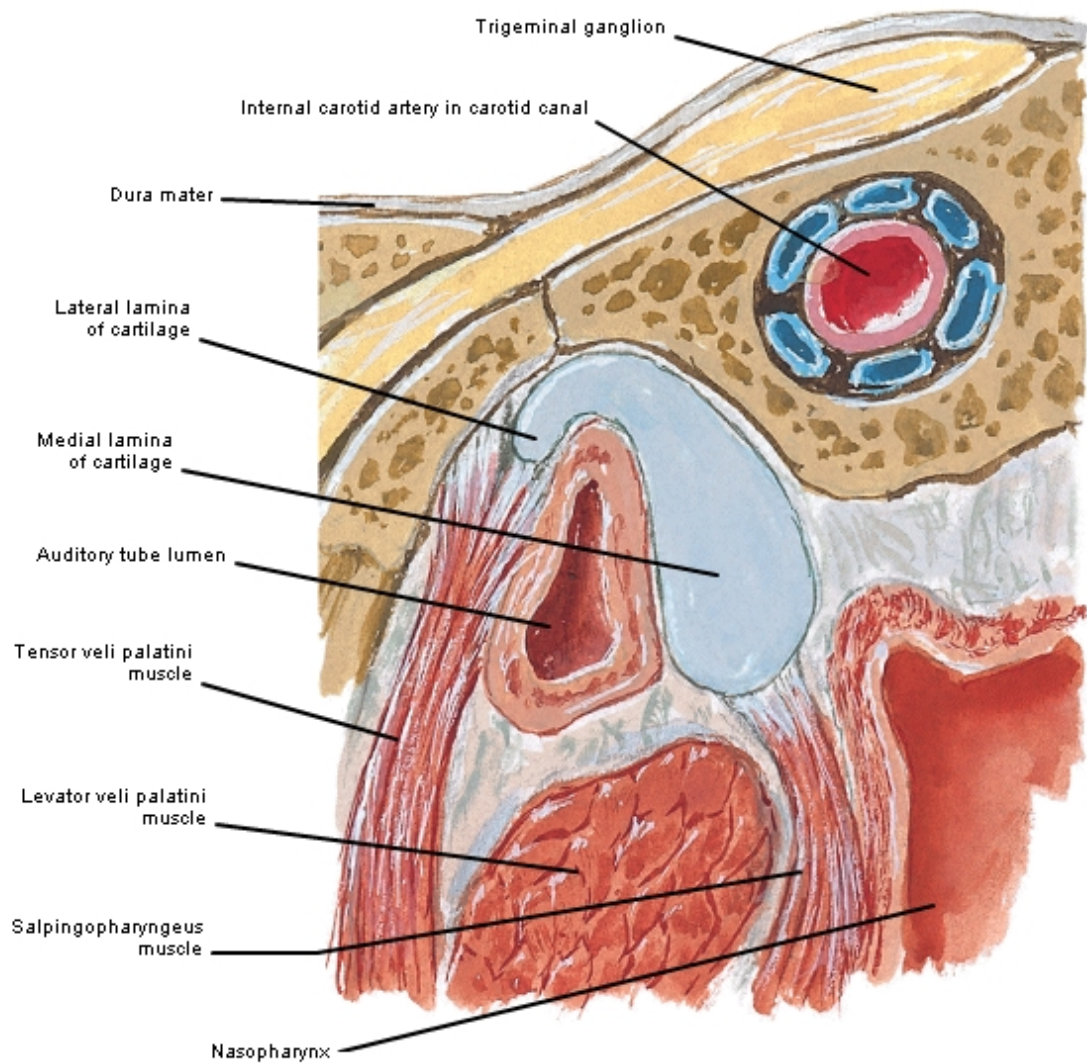
Pharyngotympanic (Auditory) Tube Section through Cartilaginous - Tube Closed



Pharyngotympanic (auditory) tube closed by elastic recoil of cartilage, tissue turgidity and tension of salpingopharyngeus muscles

F. Netter M.D.
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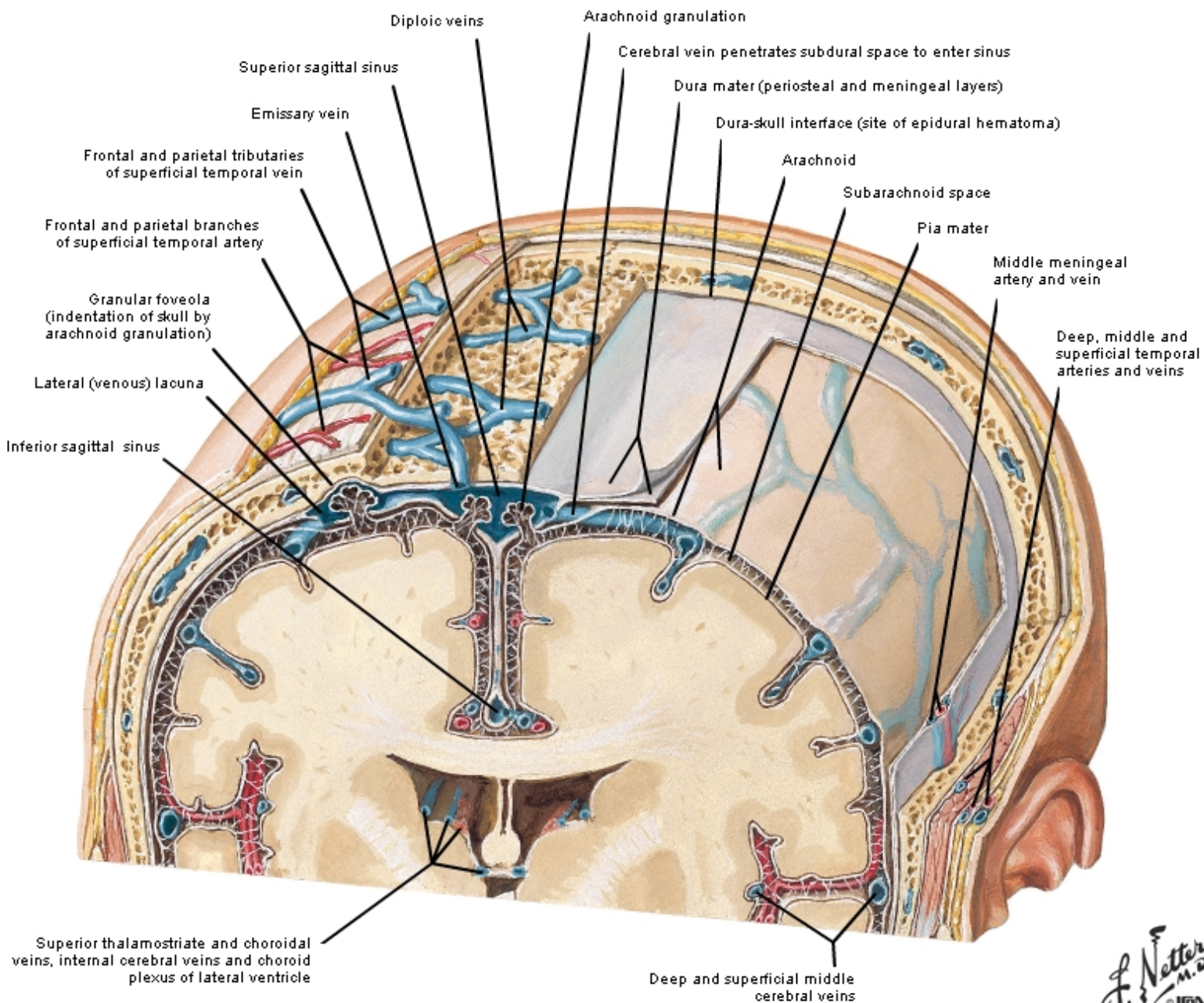
Pharyngotympanic (Auditory) Tube Section through Cartilaginous - Tube Open



Lumen opened chiefly when attachment of tensor veli palatini muscle pulls wall of tube laterally during swallowing

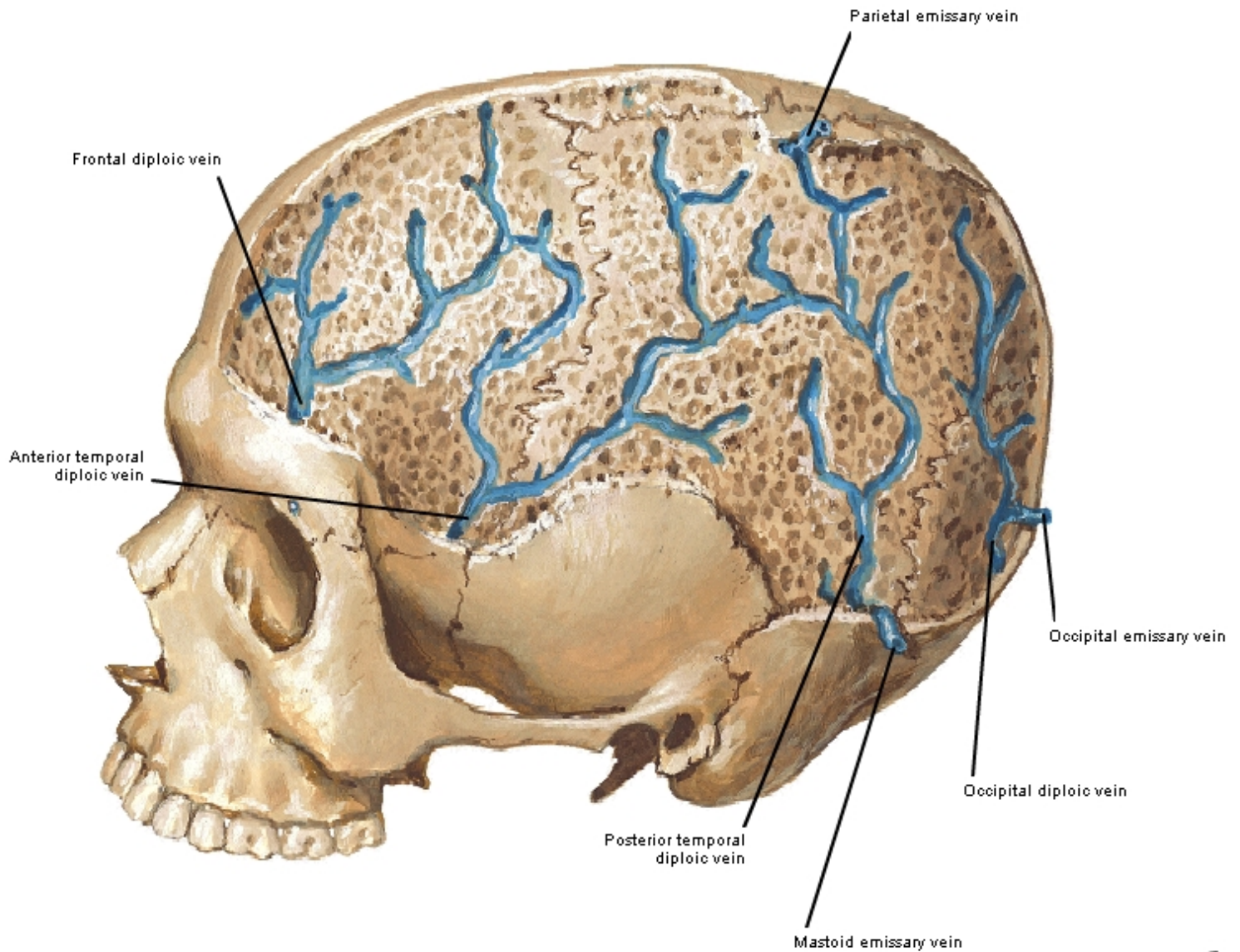
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Meninges and Diploic Veins Coronal Dissection



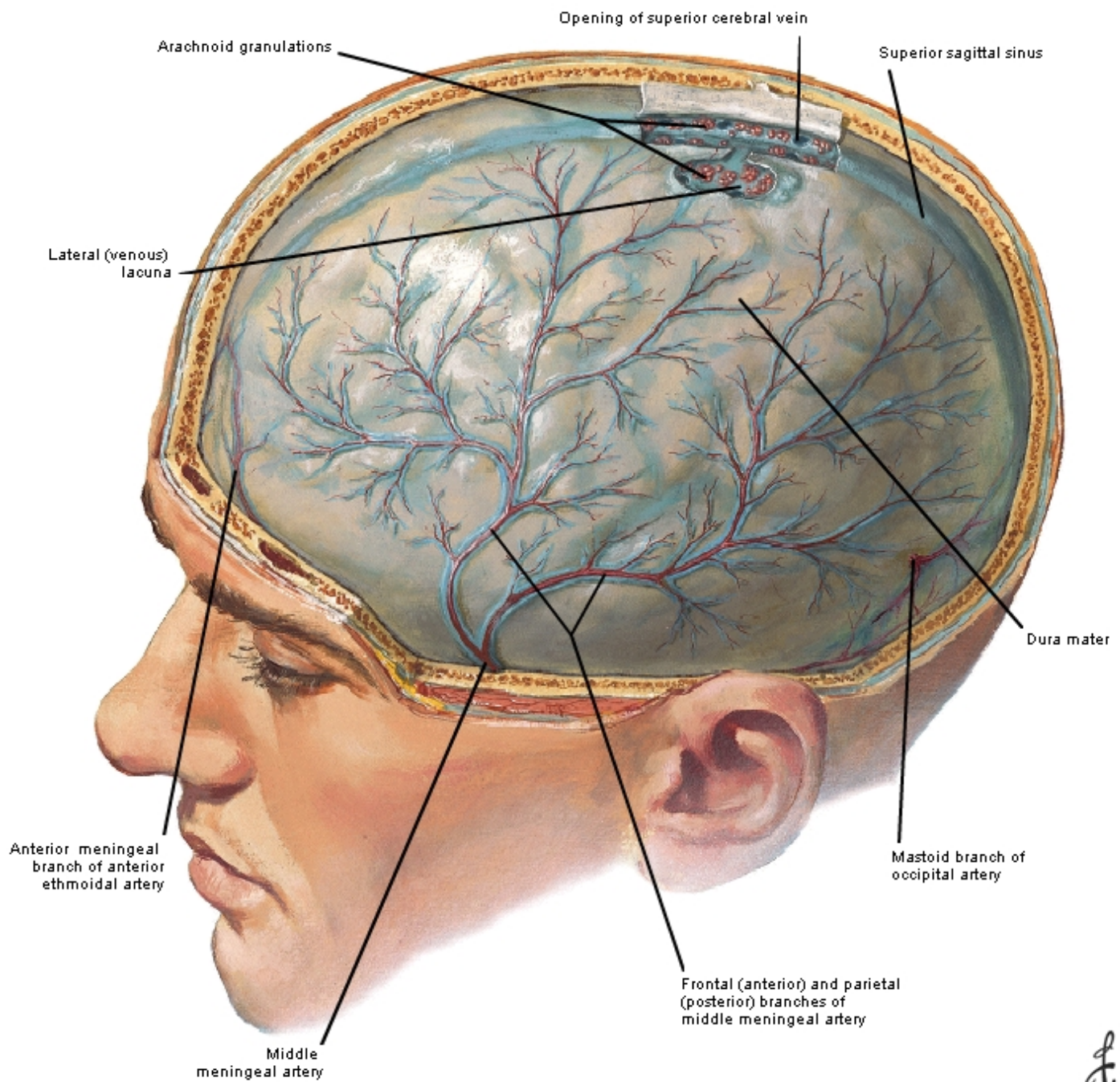
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Diploic and Emissary Veins of Skull



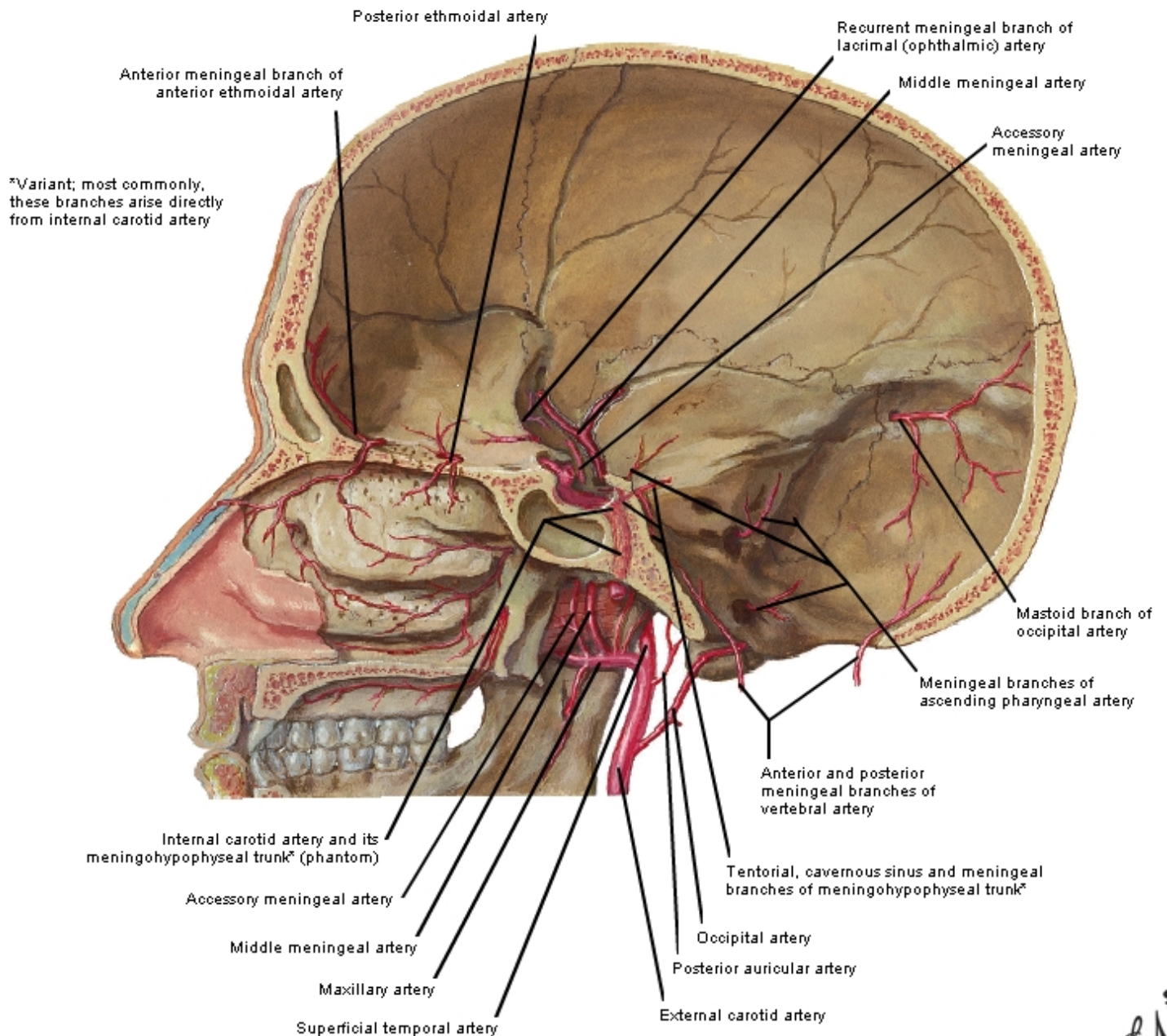
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Meningeal Arteries



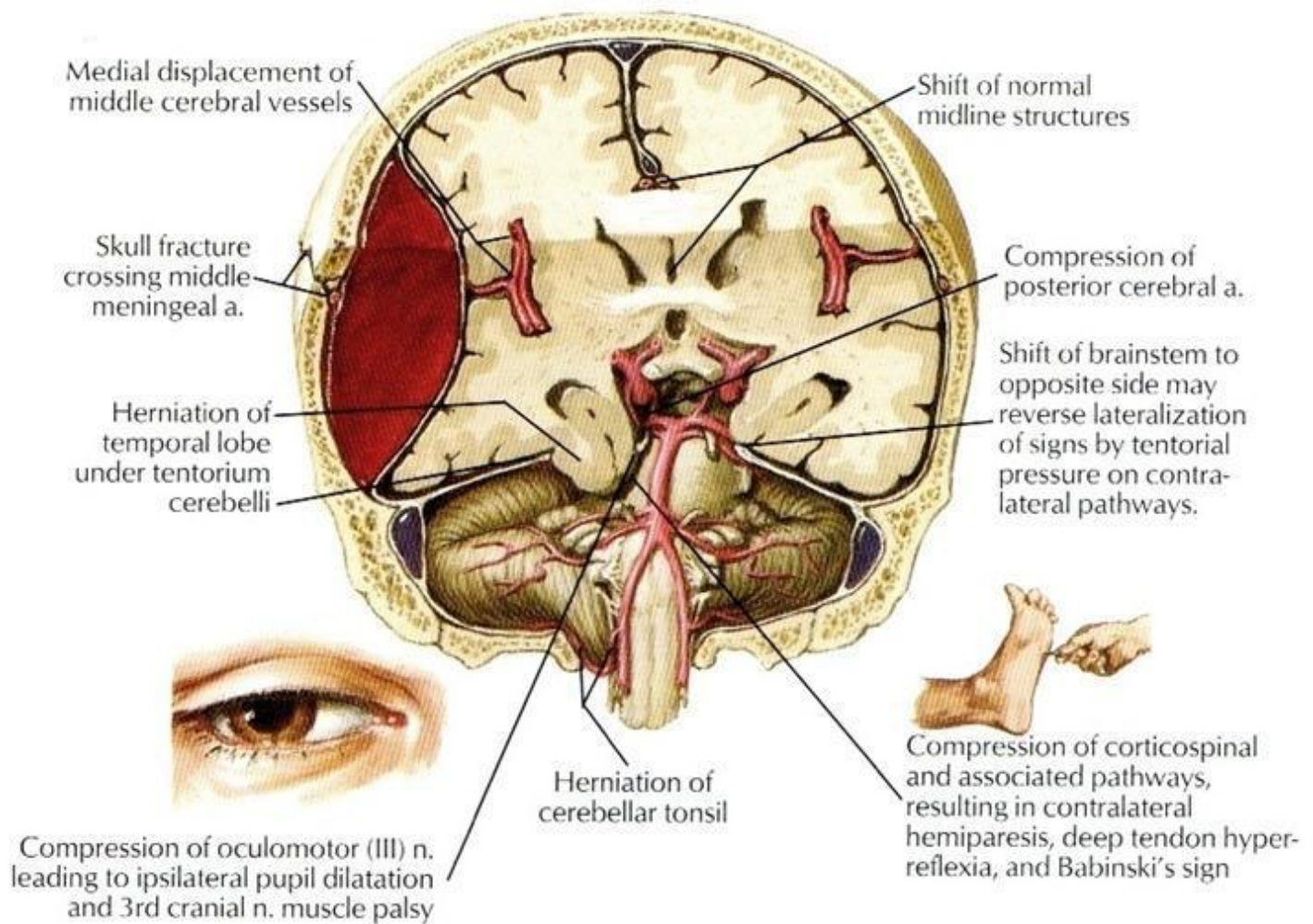
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Meningeal Arteries



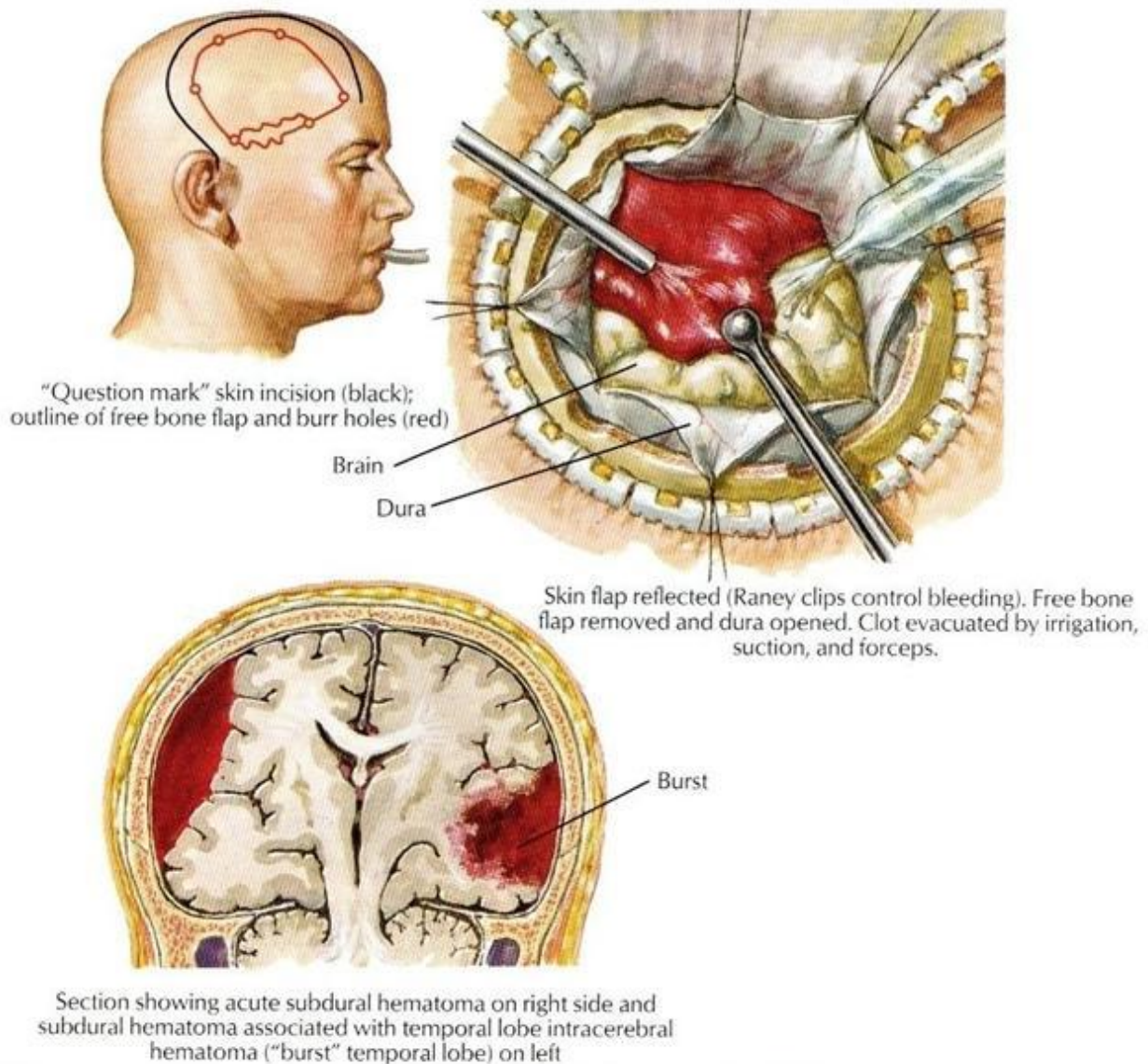
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Temporal Fossa Hematoma



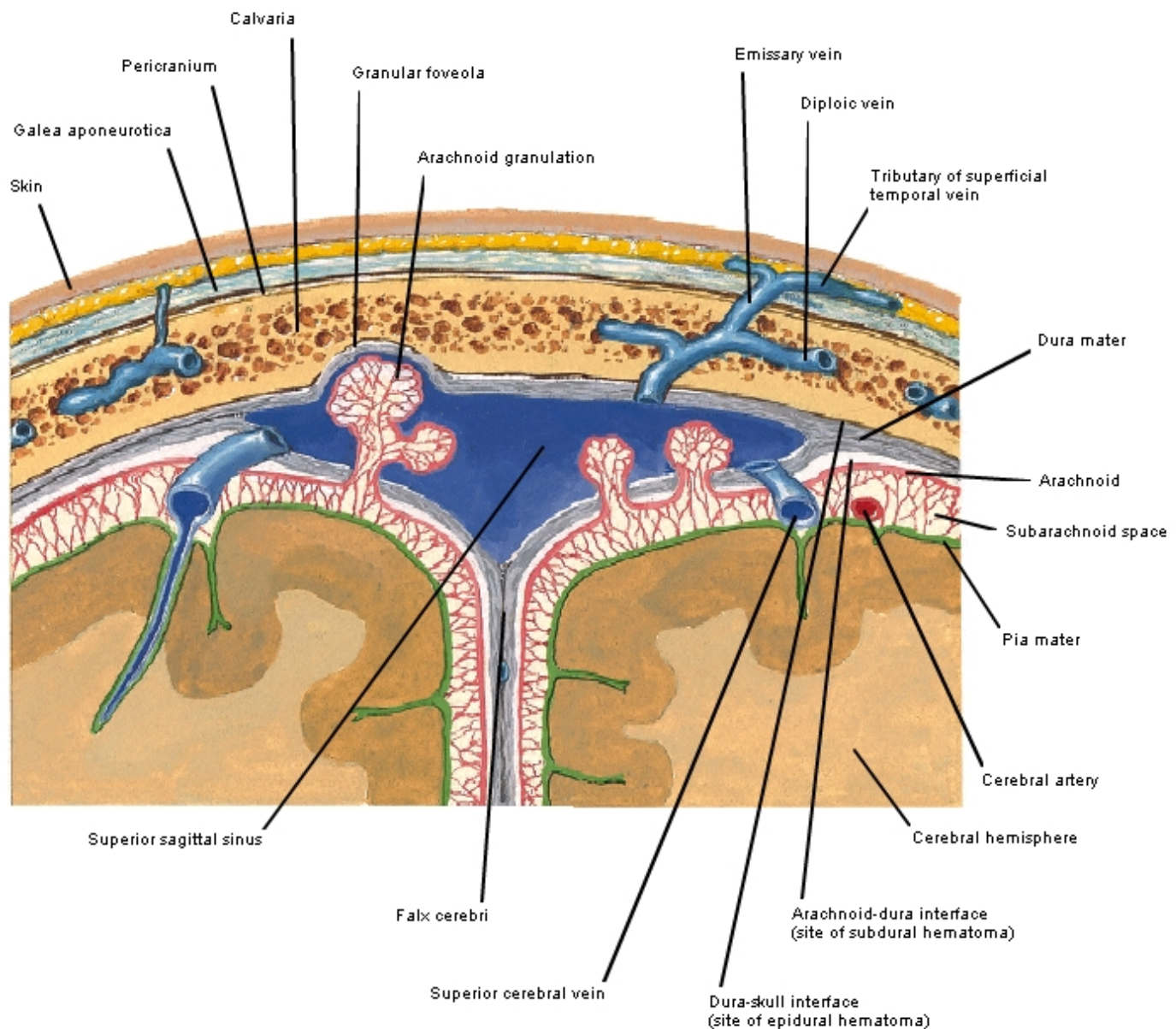
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Subdural Hematoma



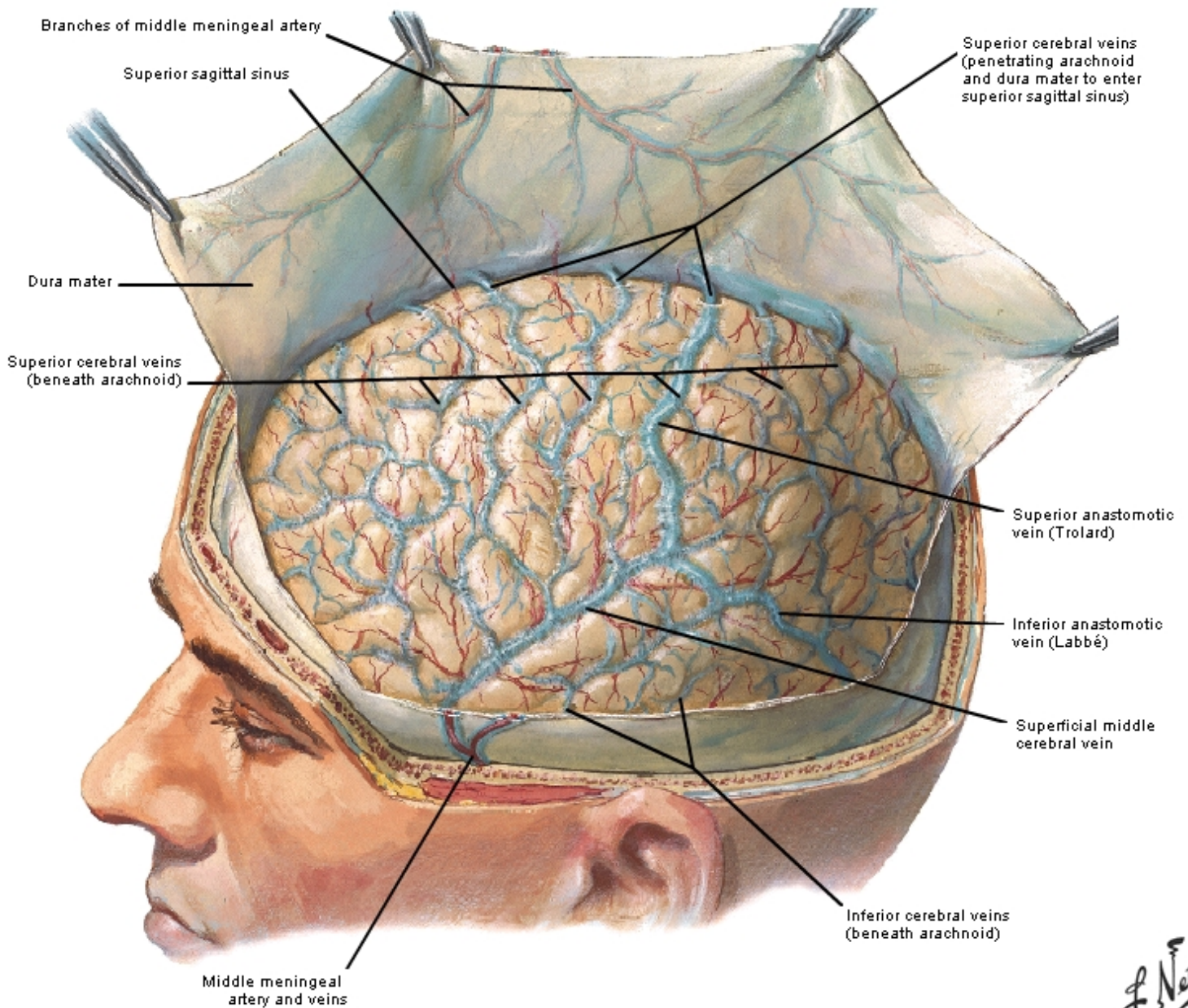
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Meninges and Superficial Cerebral Veins Frontal Section



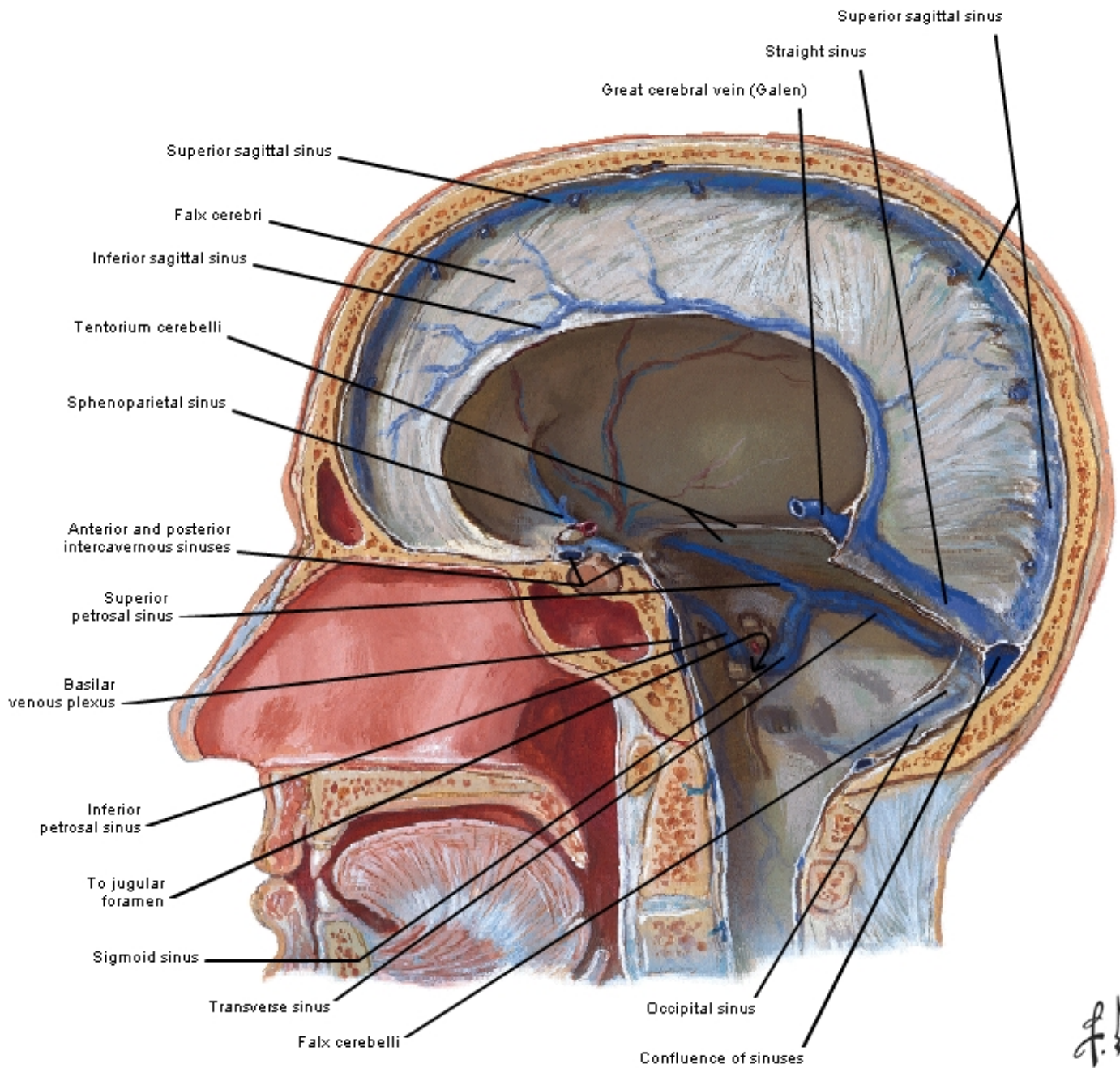
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Meninges and Superficial Cerebral Veins Dura Mater Lifted

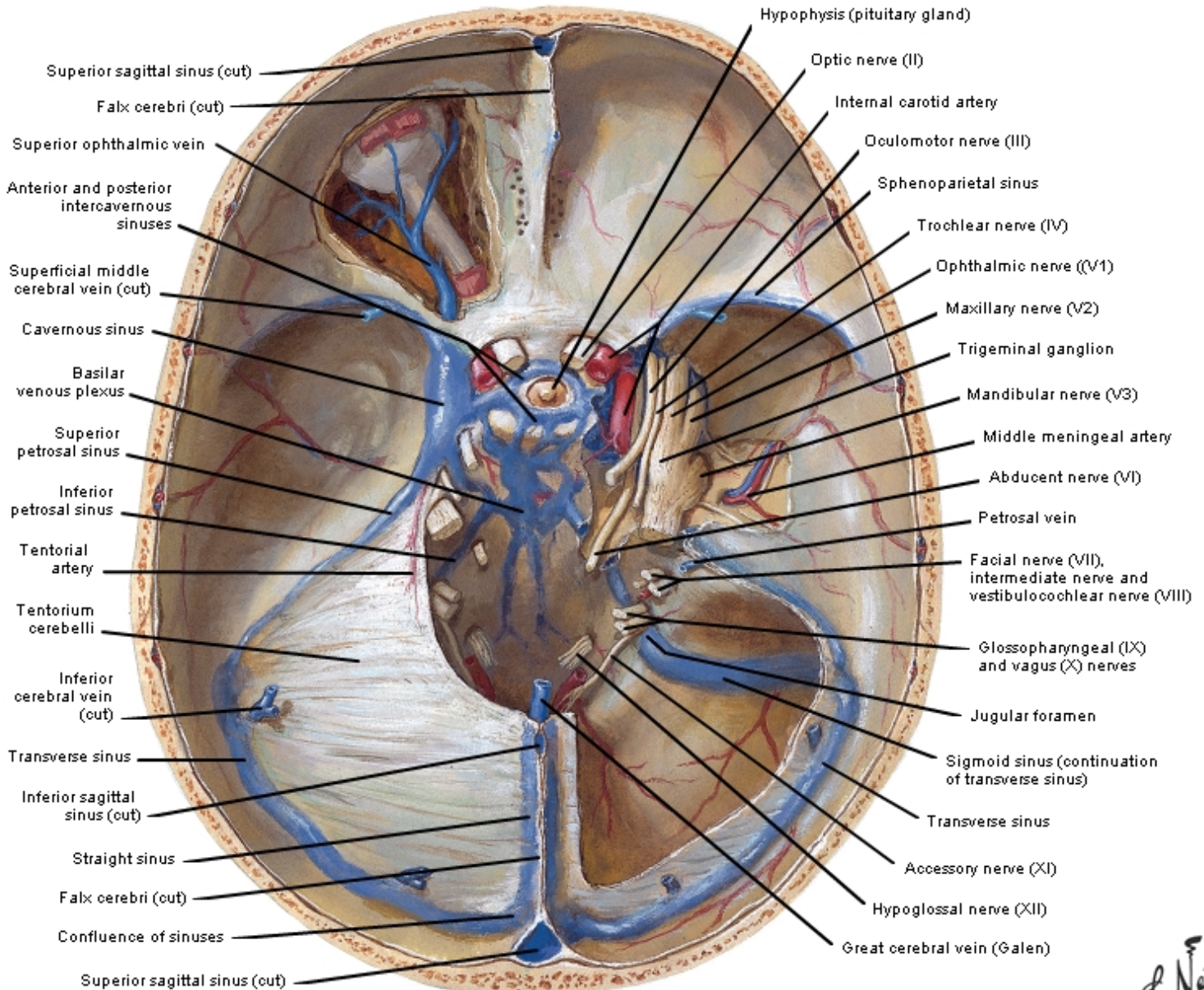


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Dural Venous Sinuses Sagittal section

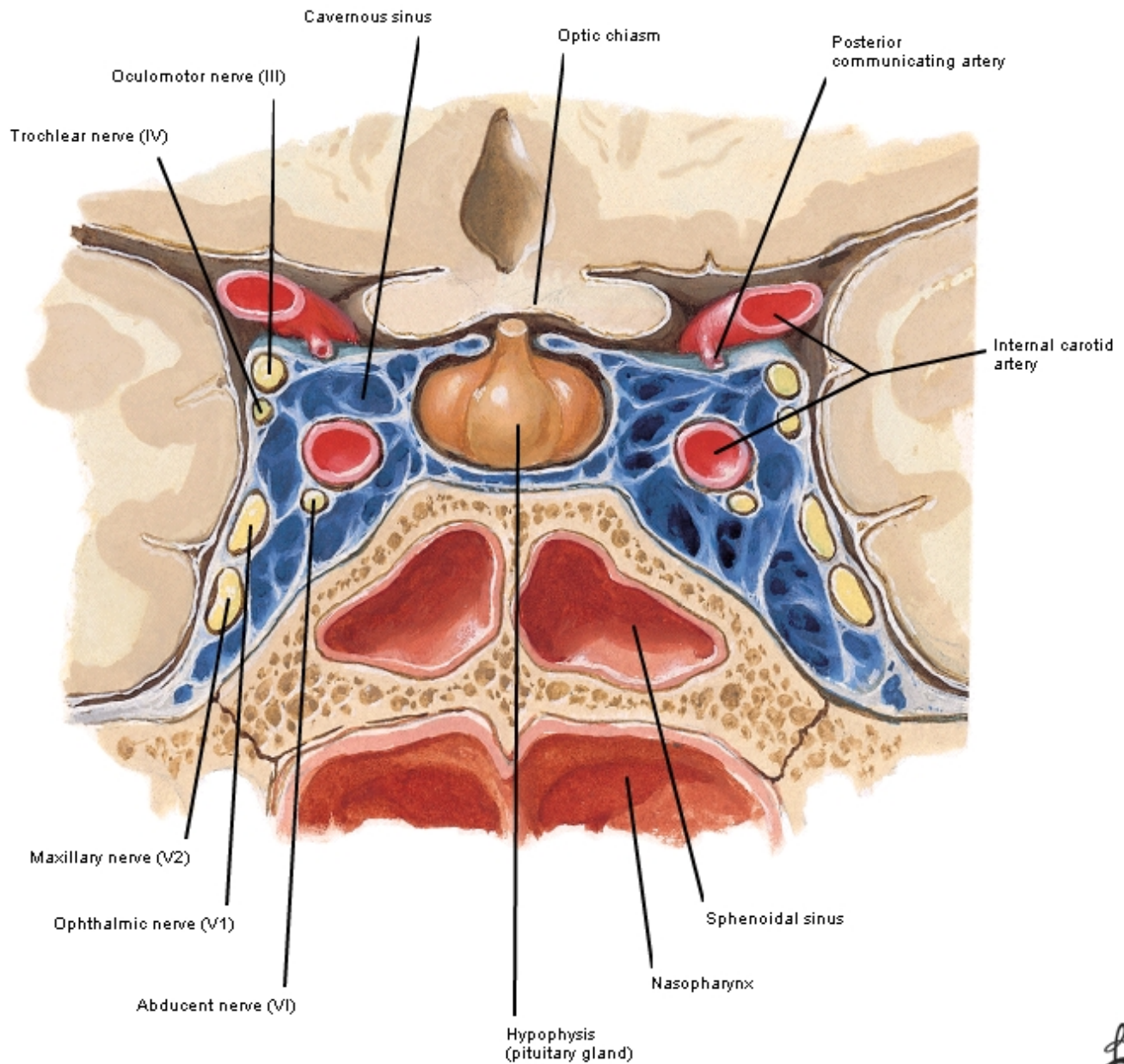


Dural Venous Sinuses Cranial Floor - Superior View



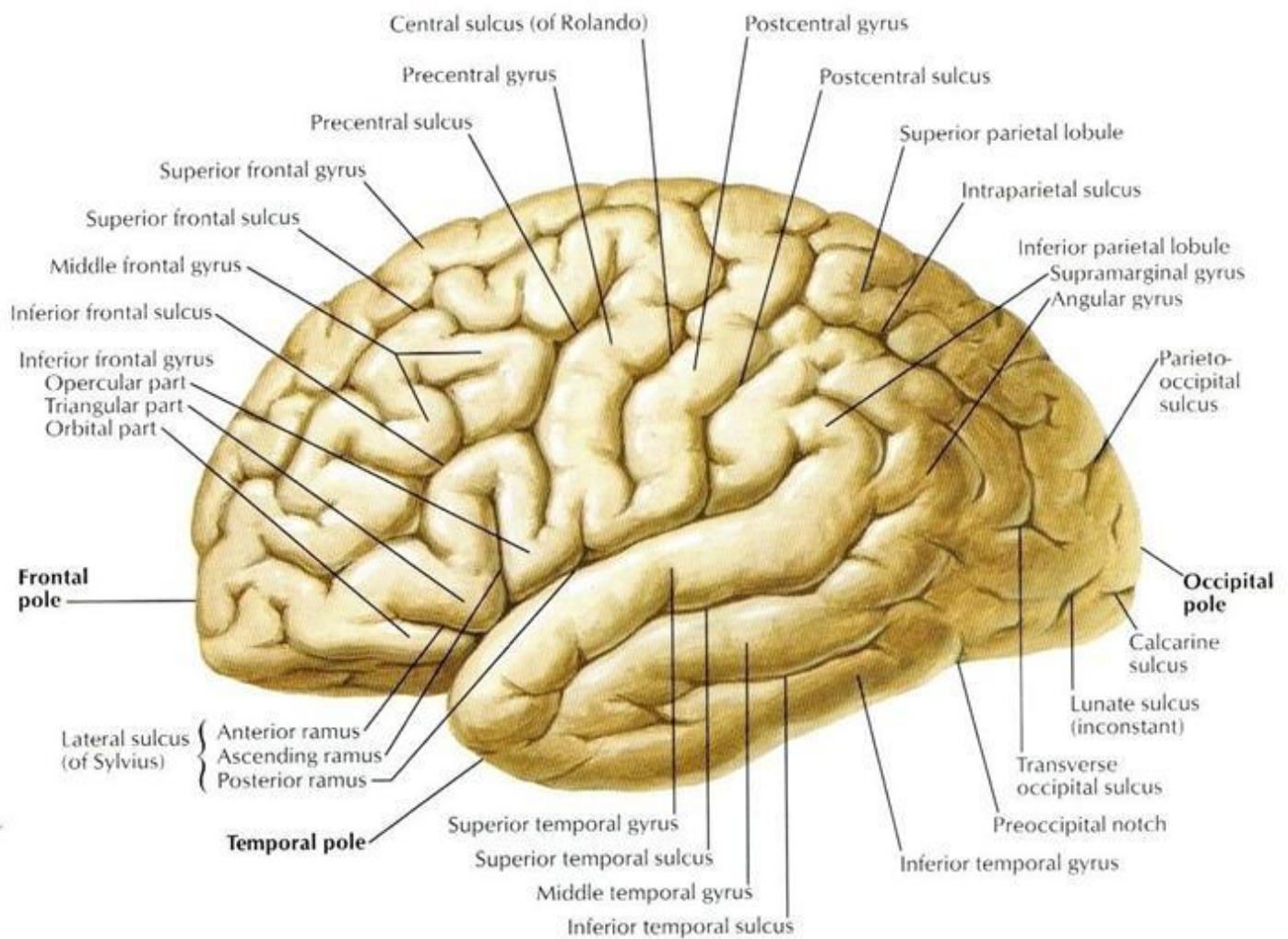
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Dural Venous Sinuses Coronal Section Through Cavernous Sinus

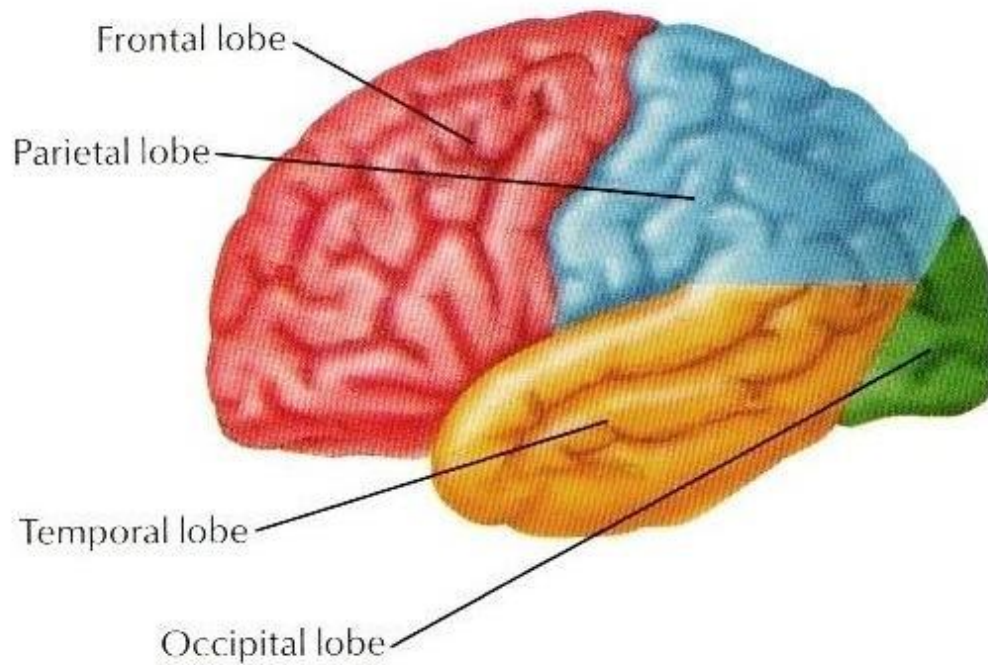


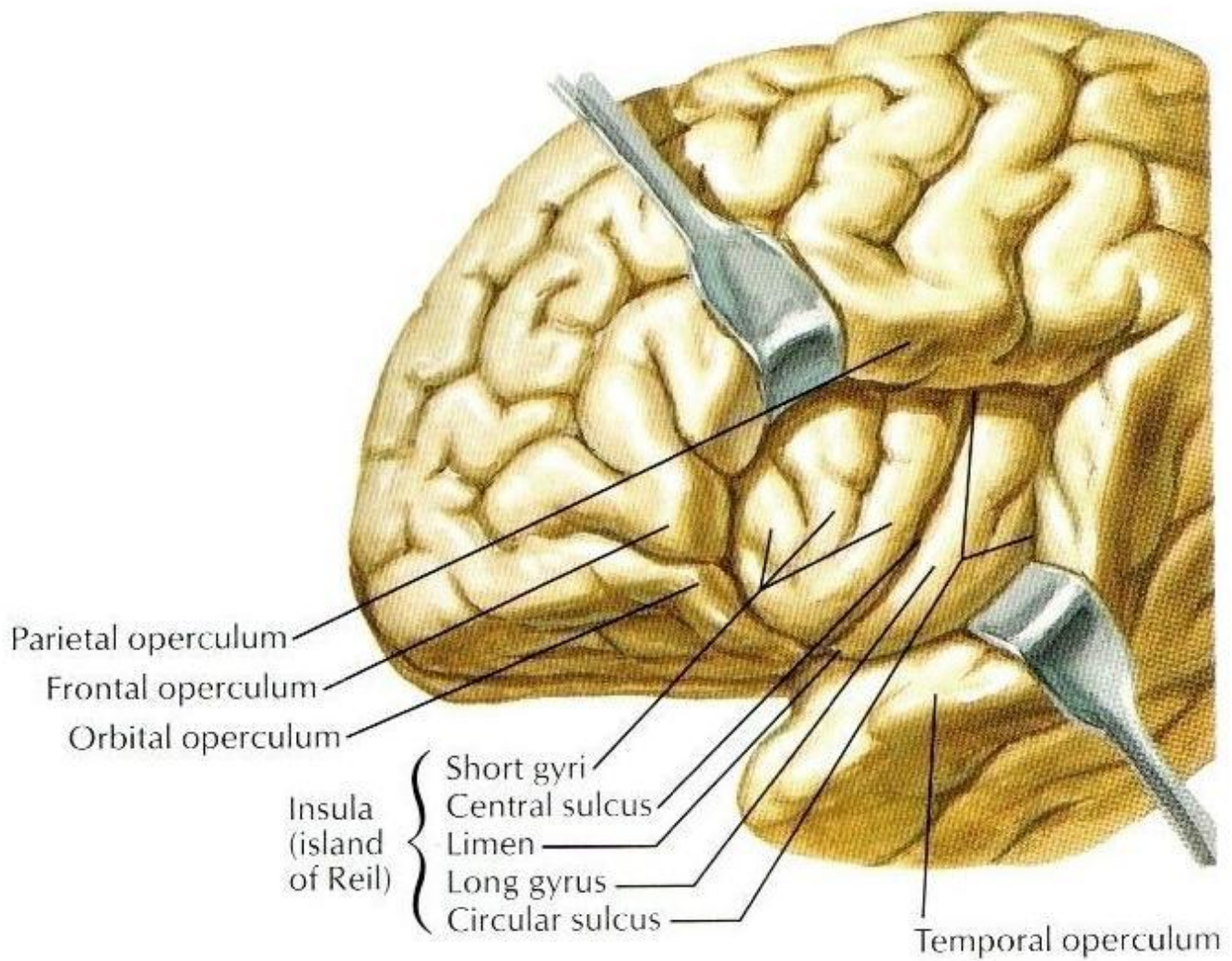
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Cerebrum: Lateral View

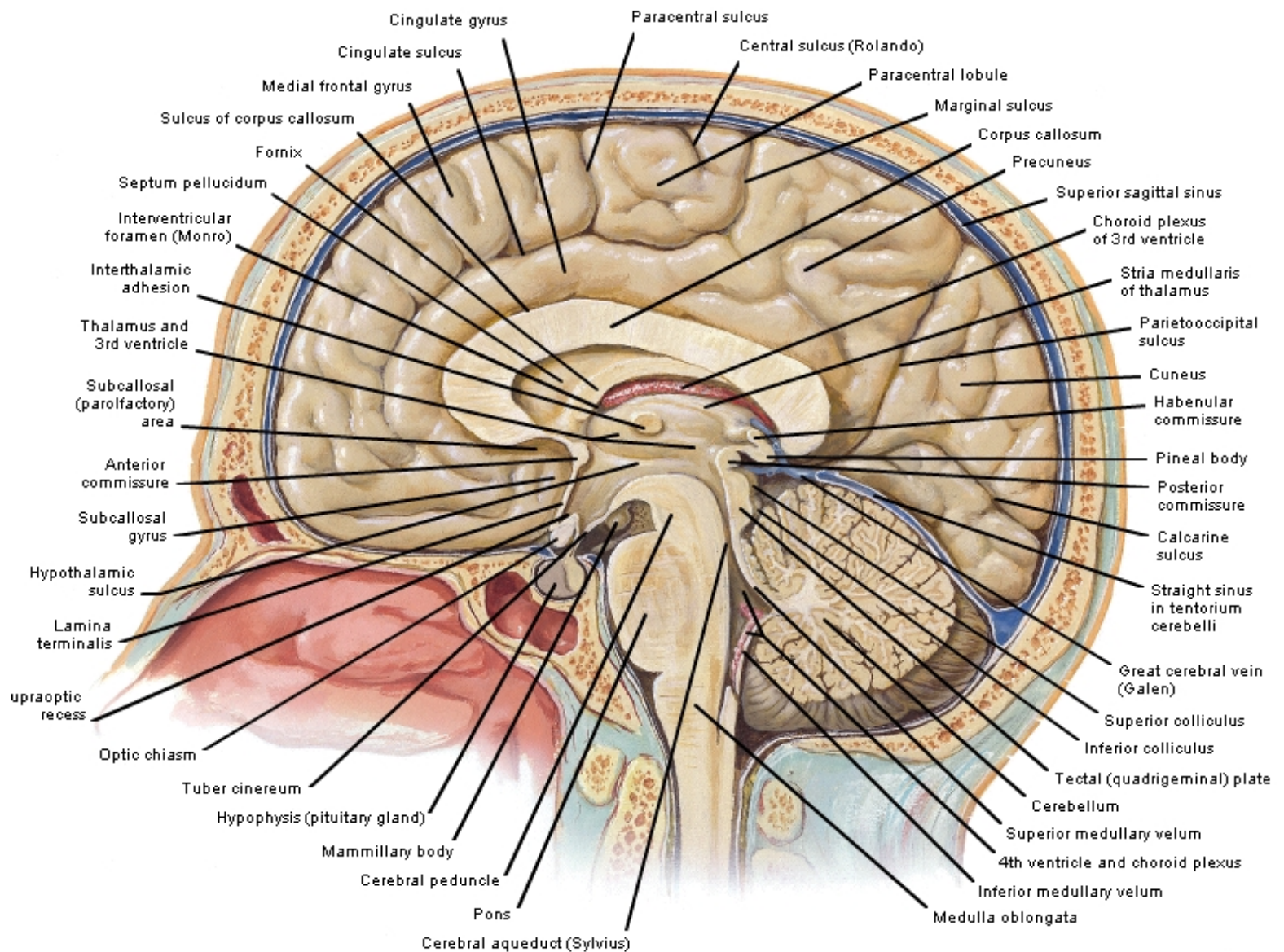


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Cerebrum: Lobes*F. Netter M.D.*
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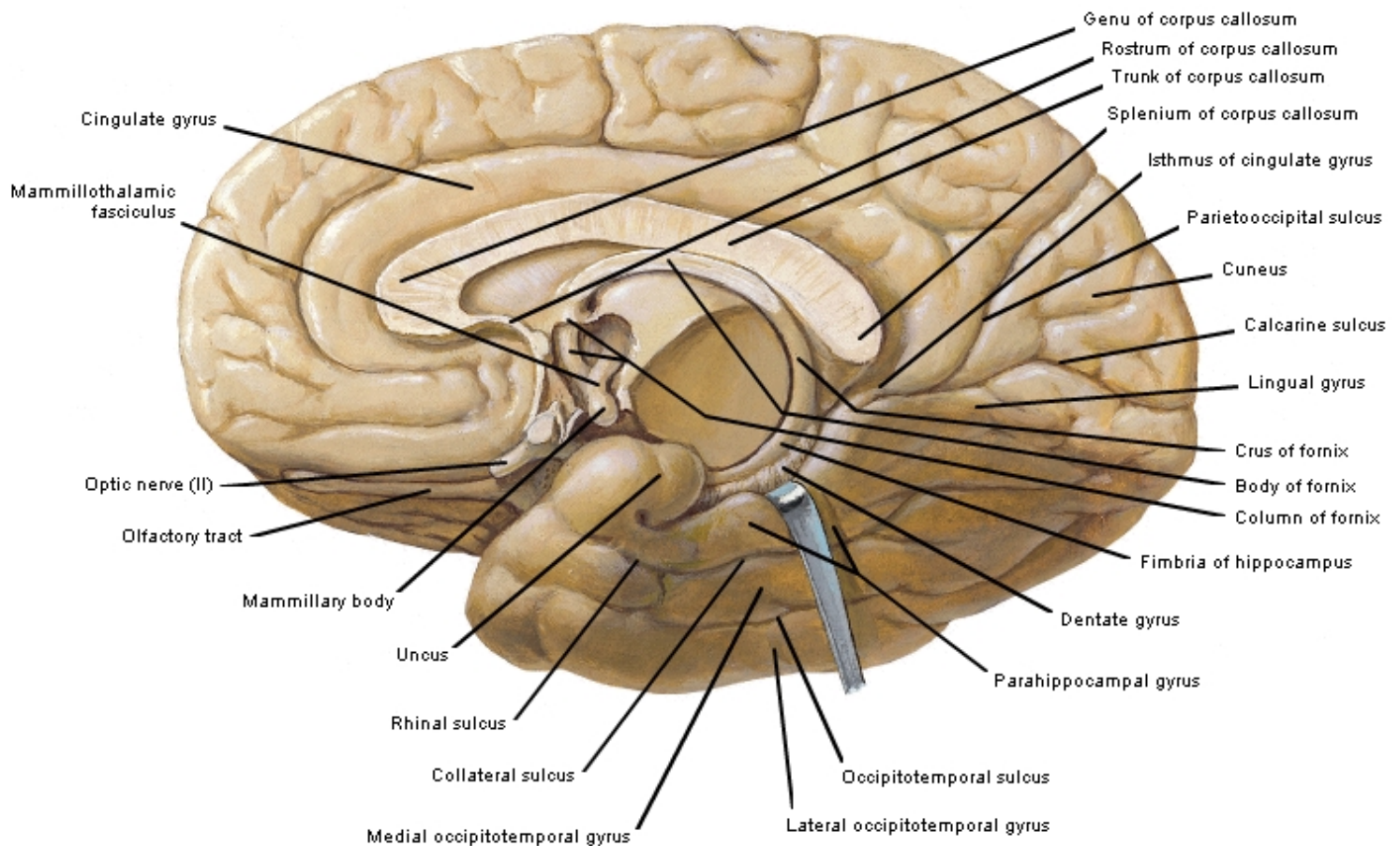
Cerebrum: Insula

Cerebrum - Brain In Situ Sagittal Section - Medial View



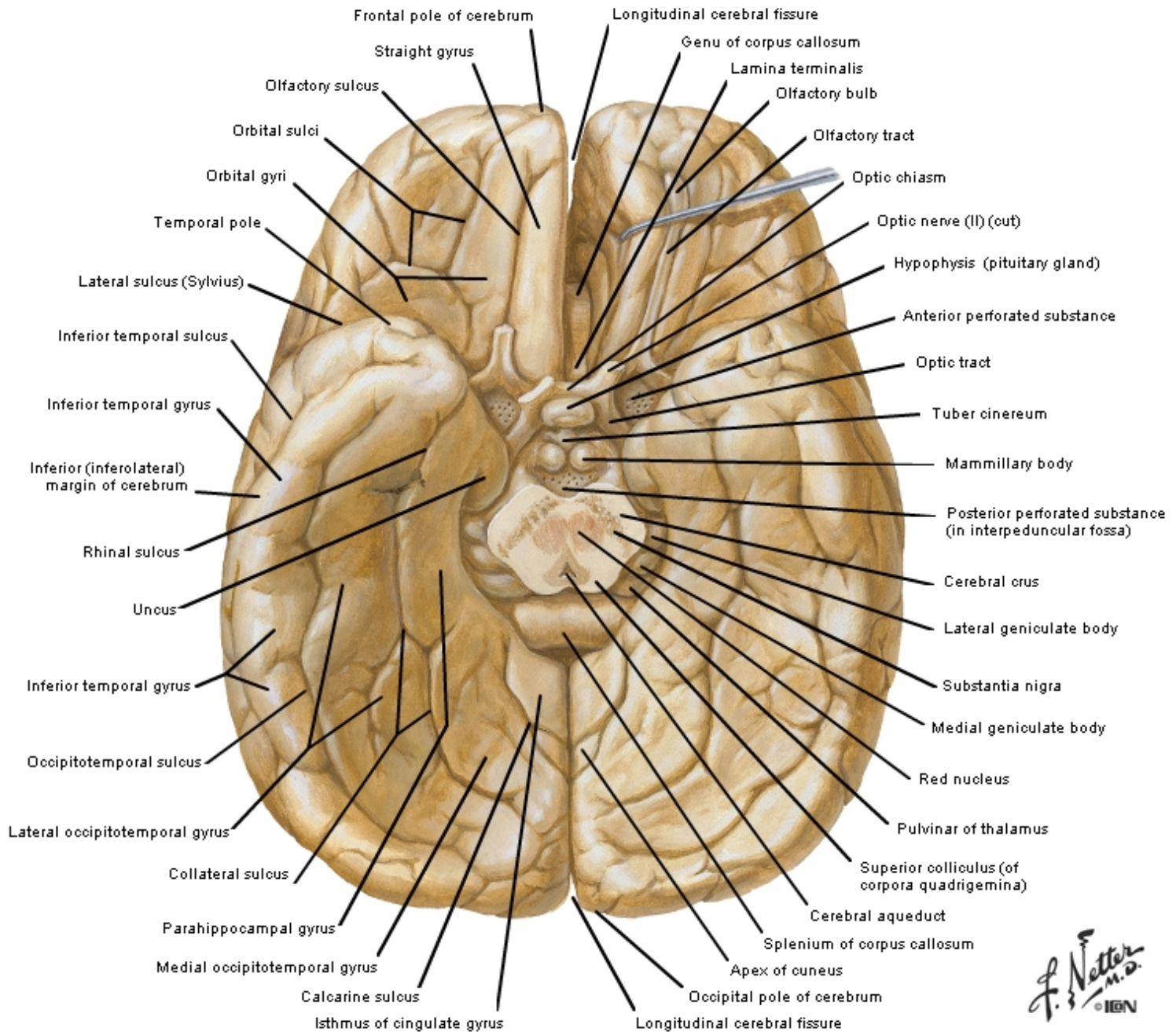
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Cerebrum - Hemisphere with Brainstem Excised Medial View



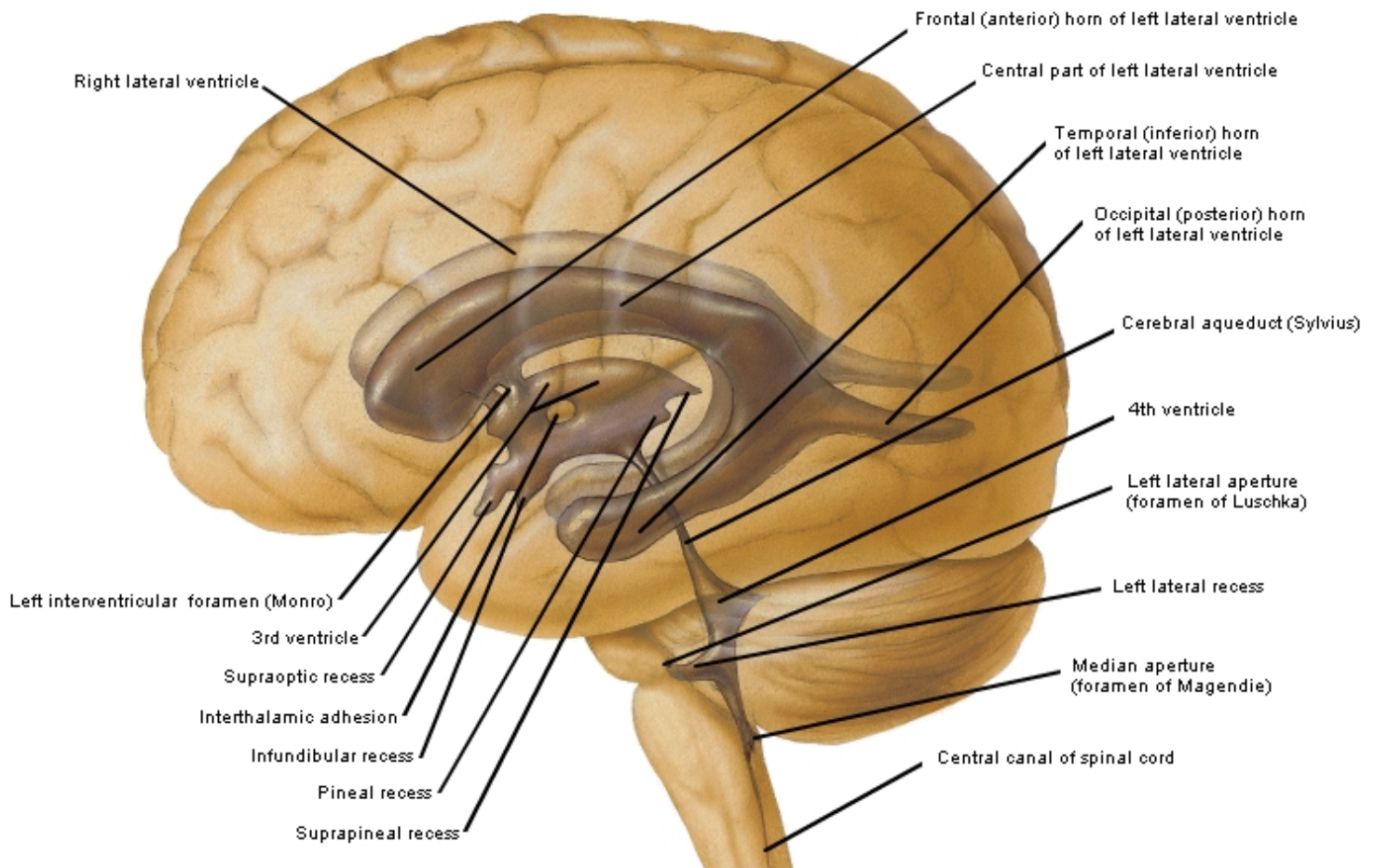
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Cerebrum Inferior View



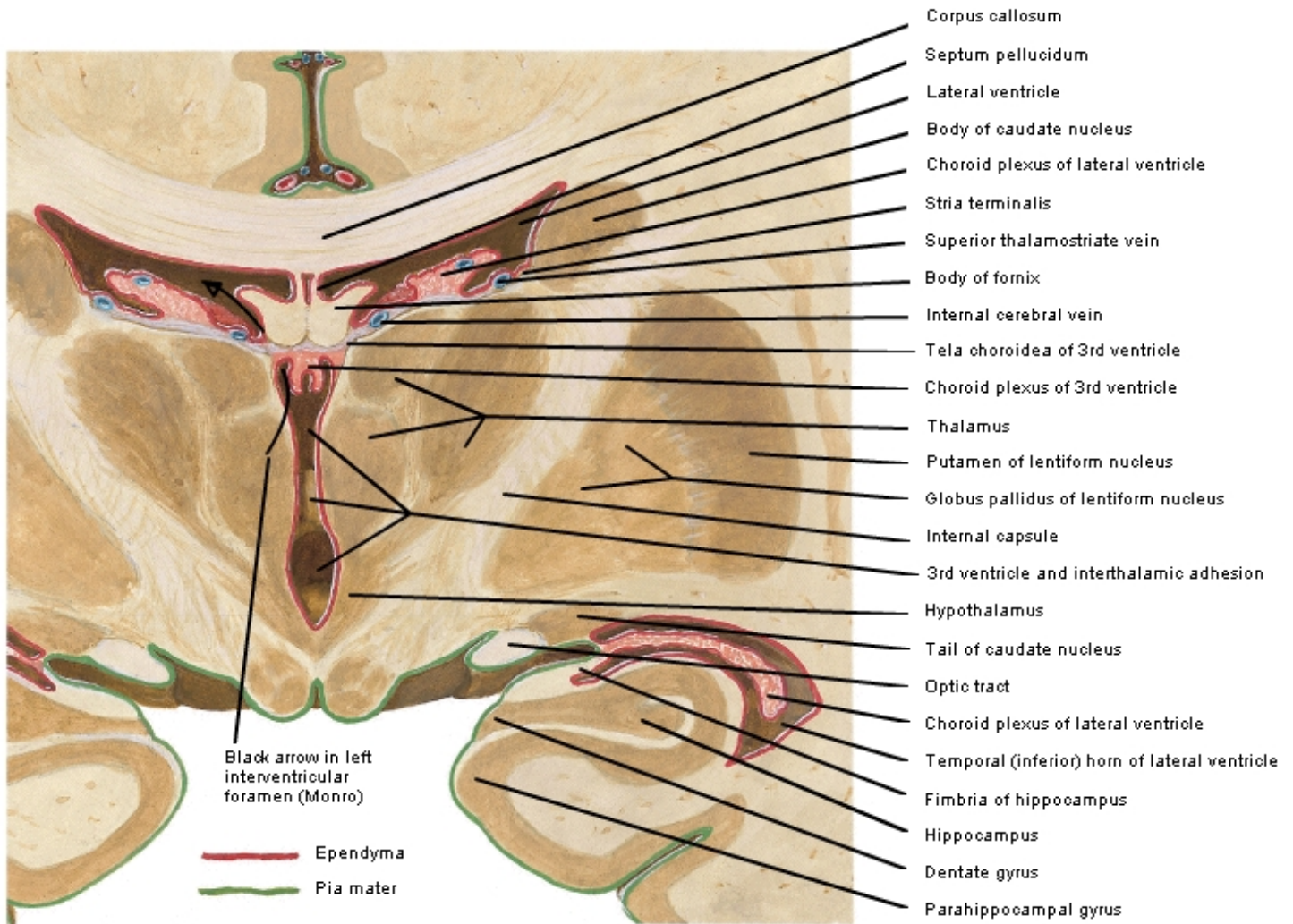
F. Netter M.D.
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Ventricles of Brain Left Lateral Phantom View



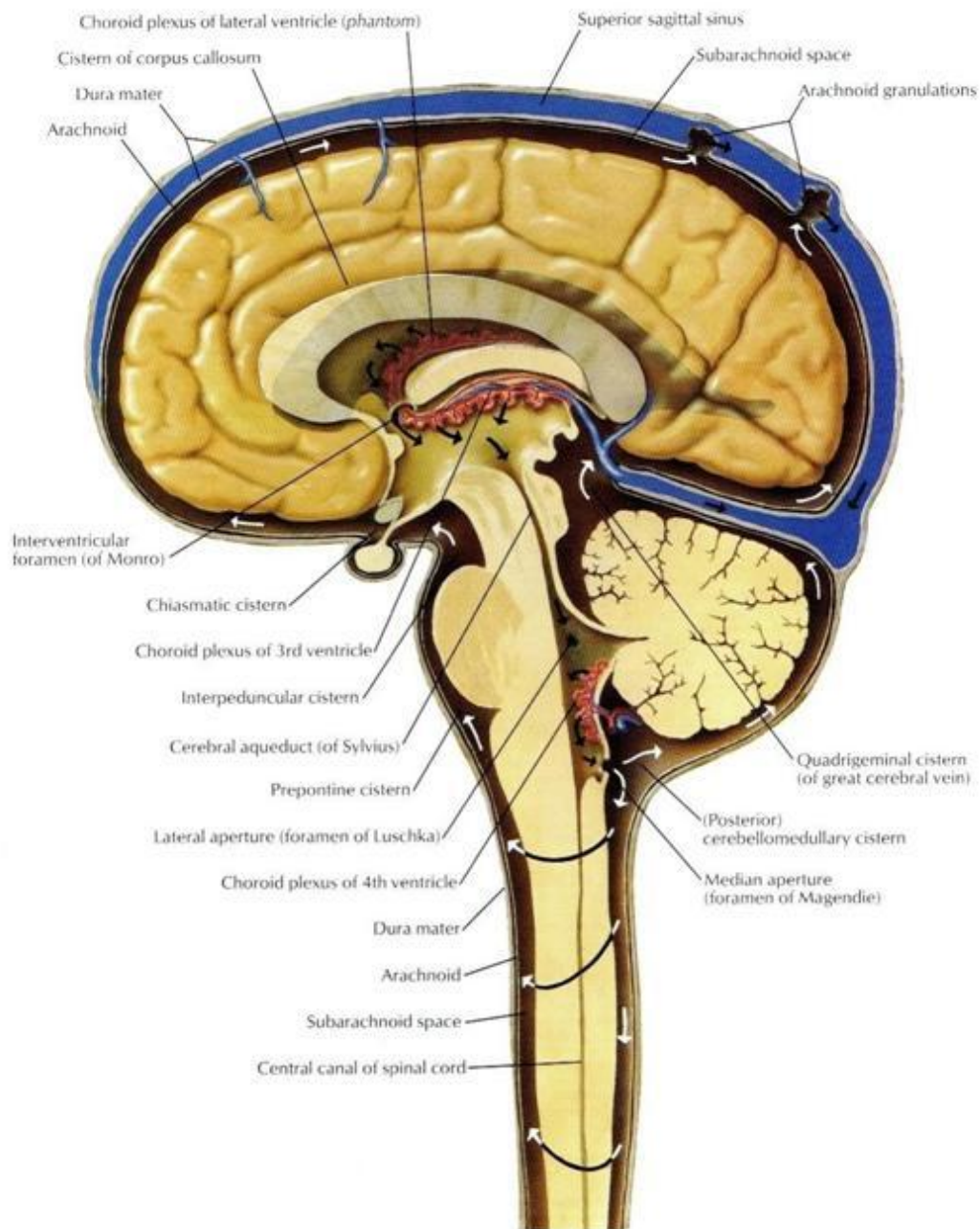
F. Netter M.D.
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Ventricles of Brain Coronal Section: Posterior View



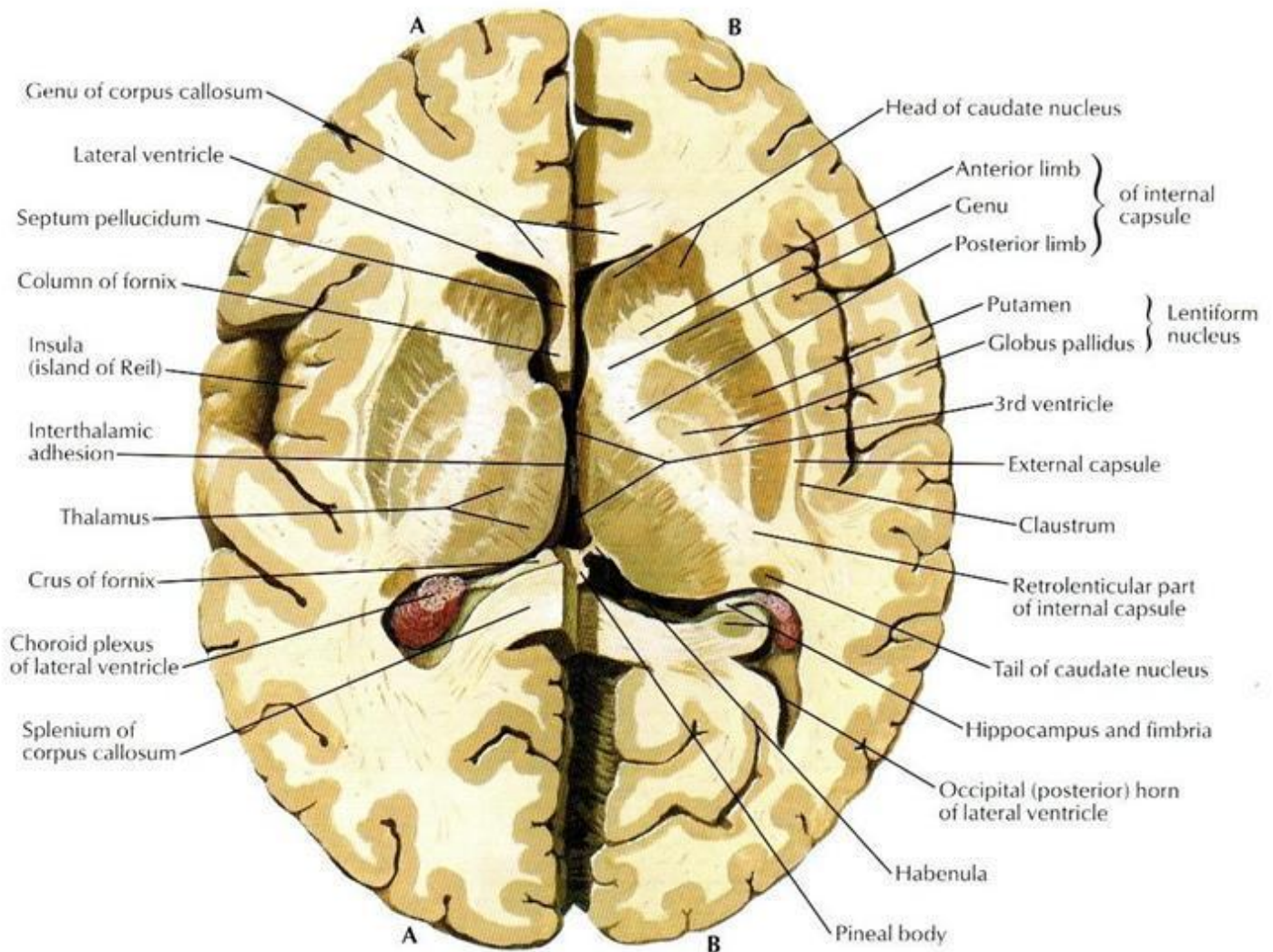
F. Netter M.D.
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Circulation of Cerebrospinal Fluid



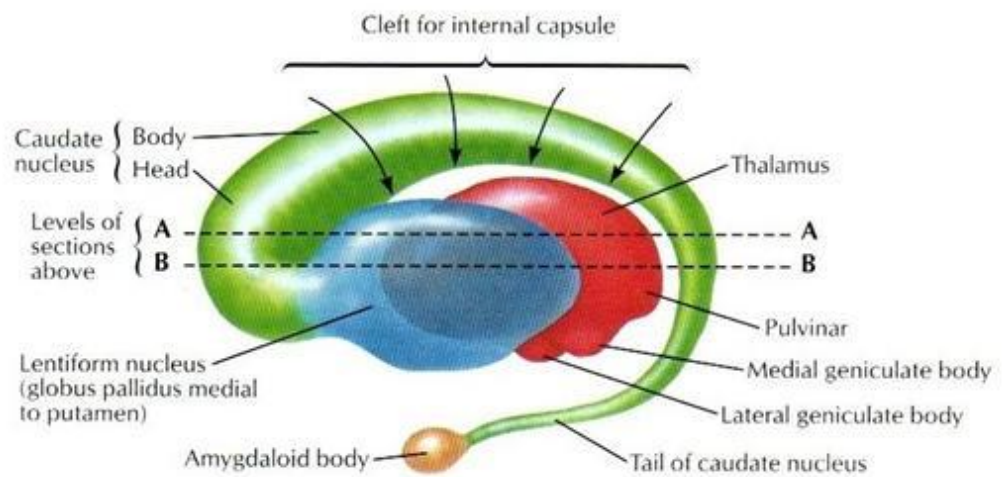
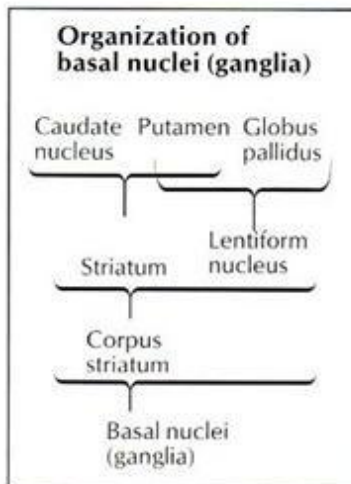
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Basal Nuclei: Horizontal Section Through Cerebrum



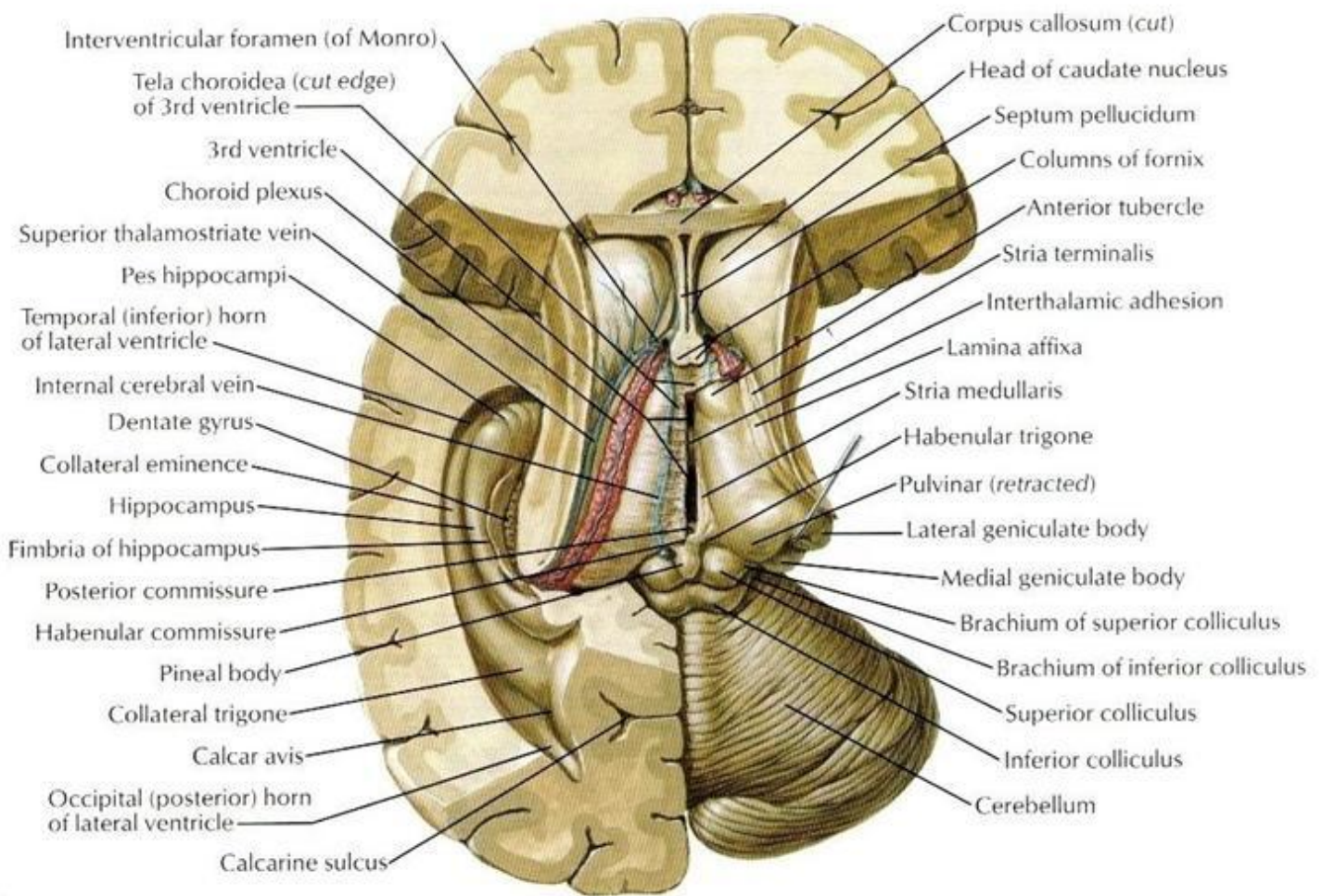
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Basal Nuclei: Organization of Basal Ganglia



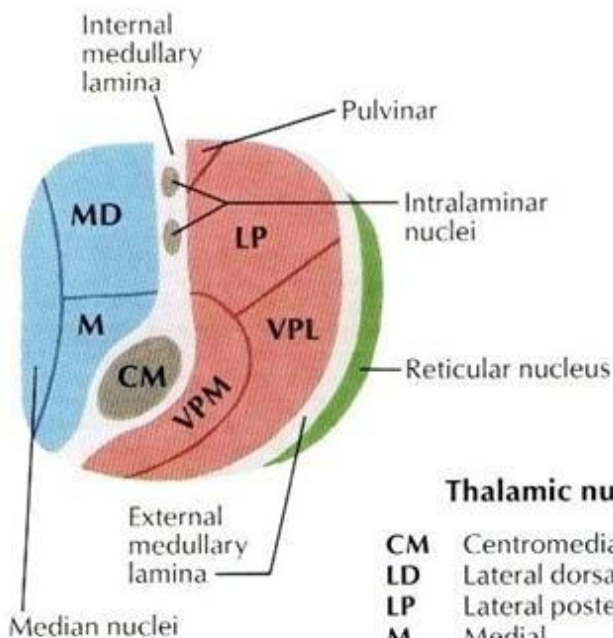
Interrelationship of thalamus, lentiform nucleus, caudate nucleus, and amygdaloid body (schema): left lateral view

Thalamus



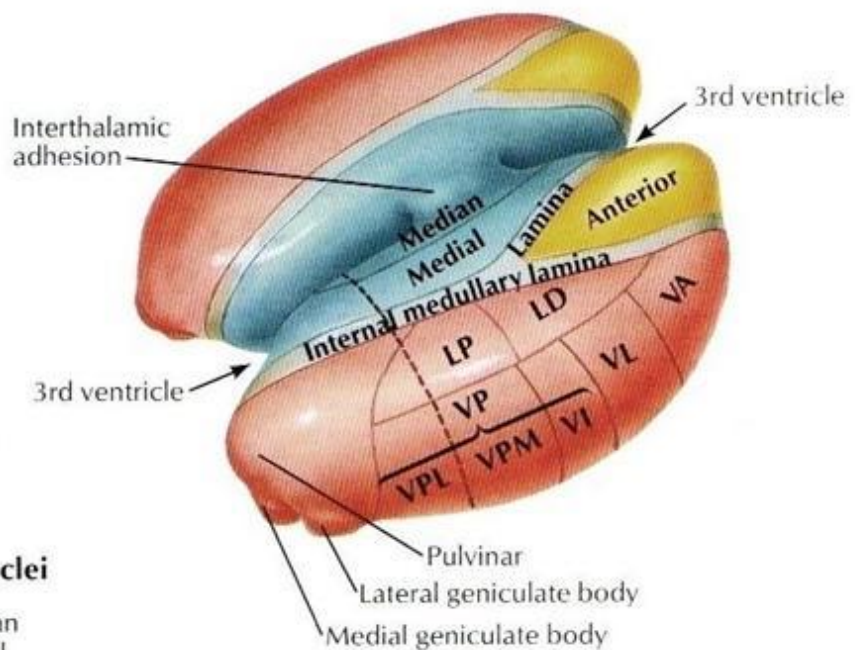
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Thalamic Nuclei



Schematic section through thalamus
(at level of broken line shown in figure at right)

Thalamic nuclei	
CM	Centromedian
LD	Lateral dorsal
LP	Lateral posterior
M	Medial
MD	Medial dorsal
VA	Ventral anterior
VI	Ventral intermedial
VL	Ventral lateral
VP	Ventral posterior
VPL	Ventral posterolateral
VPM	Ventral posteromedial



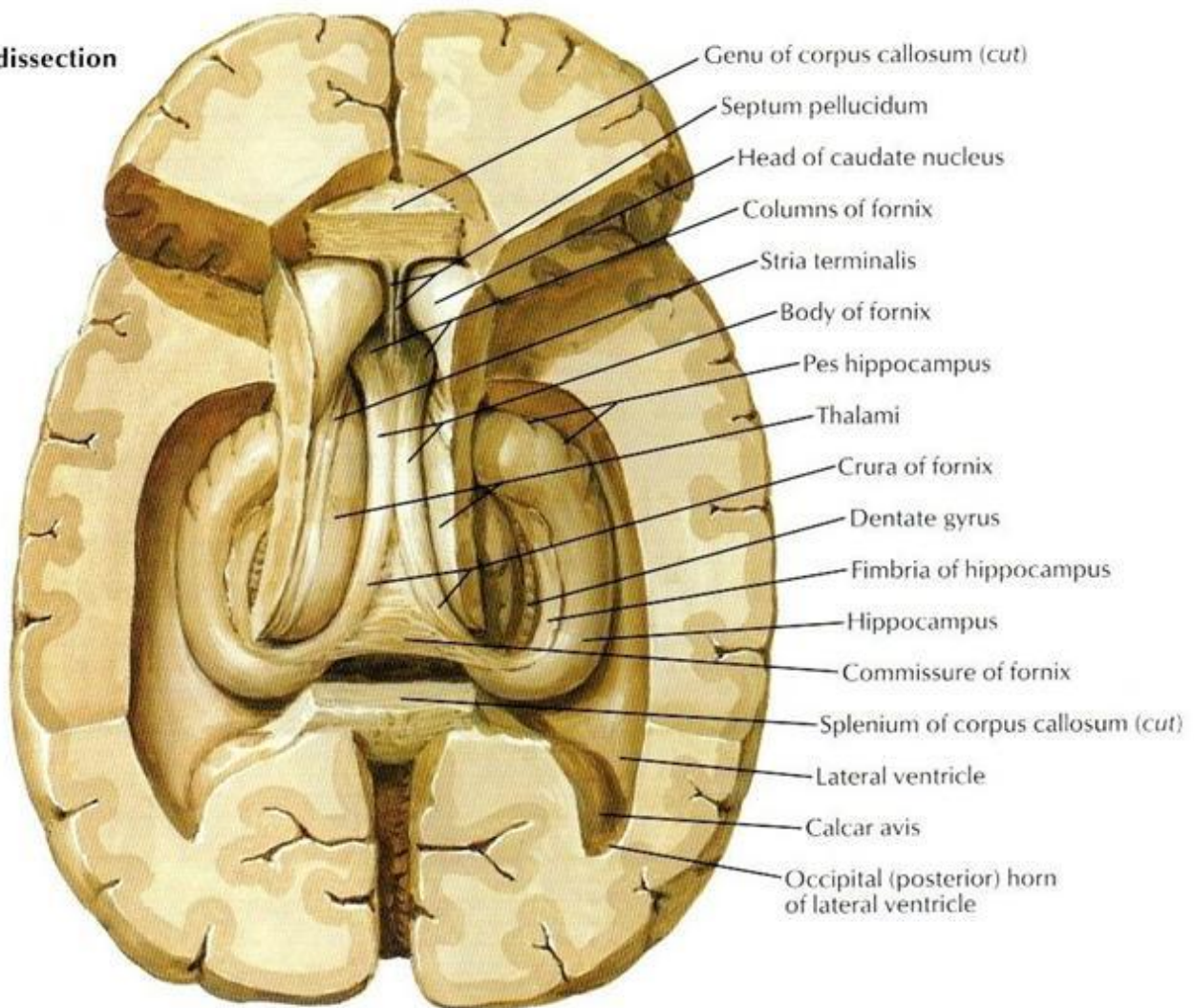
Schematic representation of thalamus
(external medullary lamina and reticular nuclei removed)

- Lateral nuclei
- Medial nuclei
- Anterior nuclei

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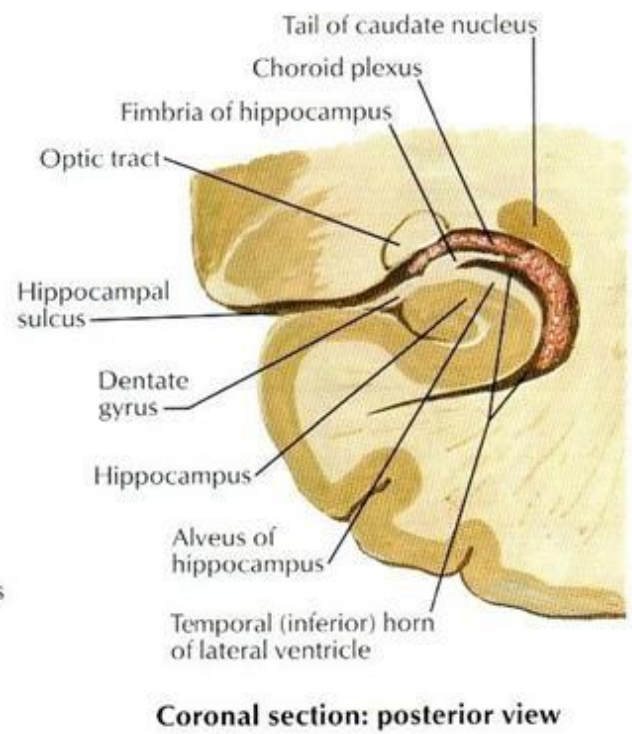
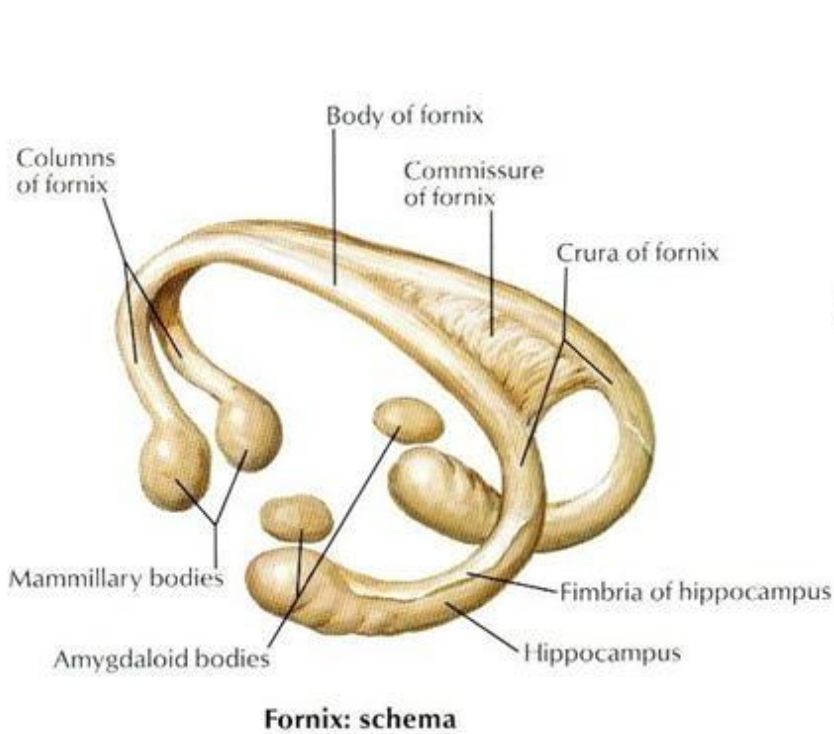
Hippocampus and Fornix

Superior dissection



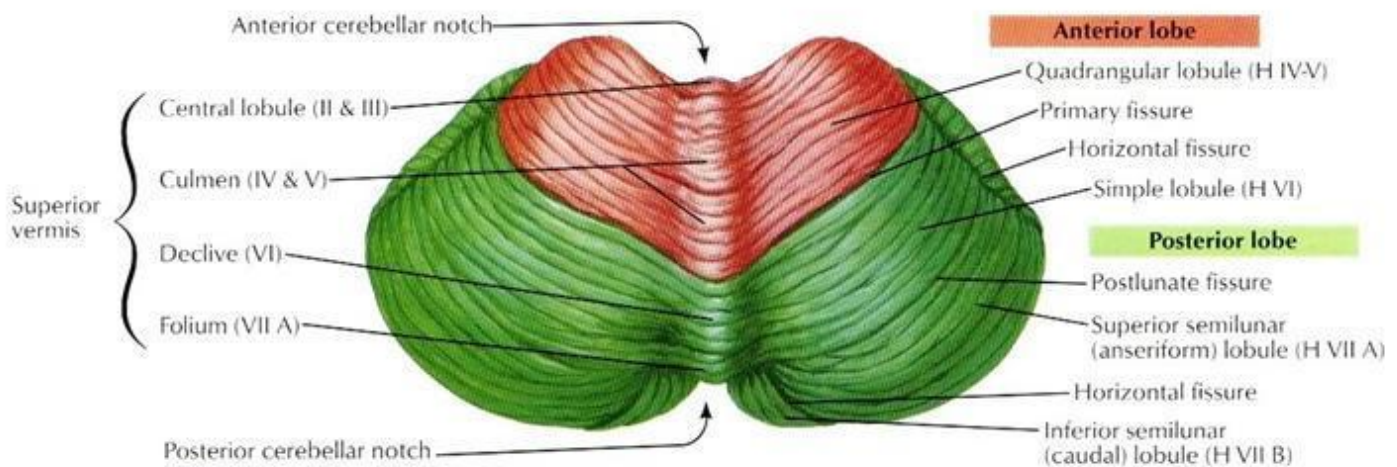
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Hippocampus and Fornix Schema



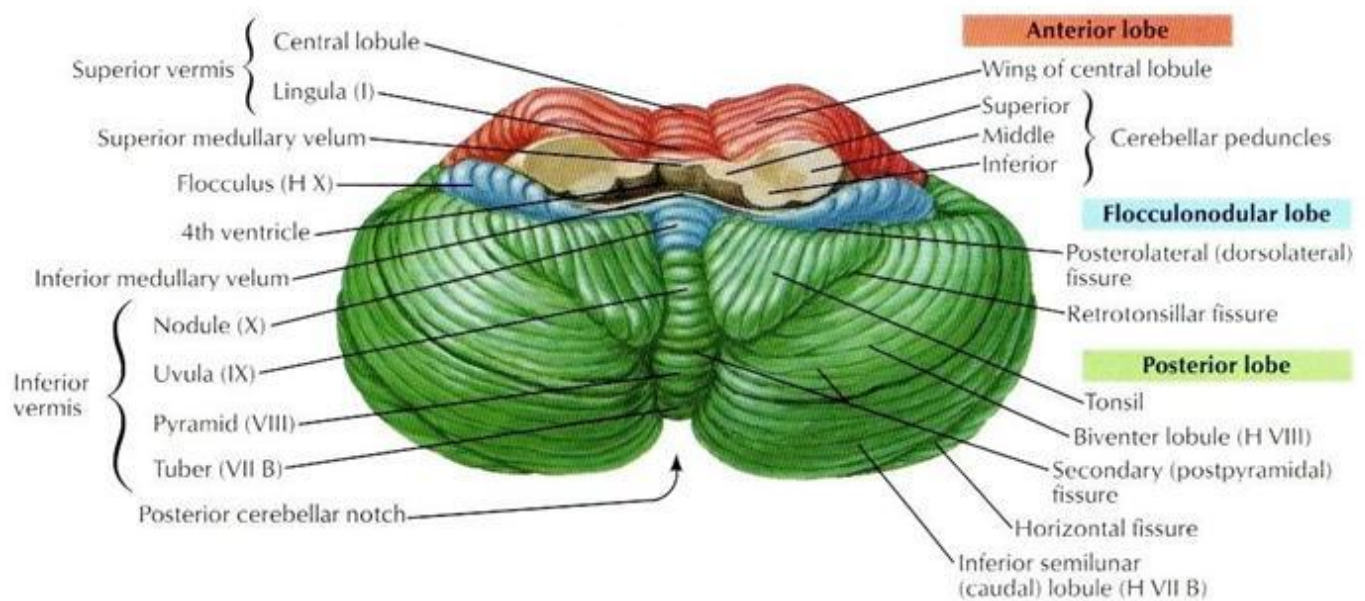
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Cerebellum: Superior Surface

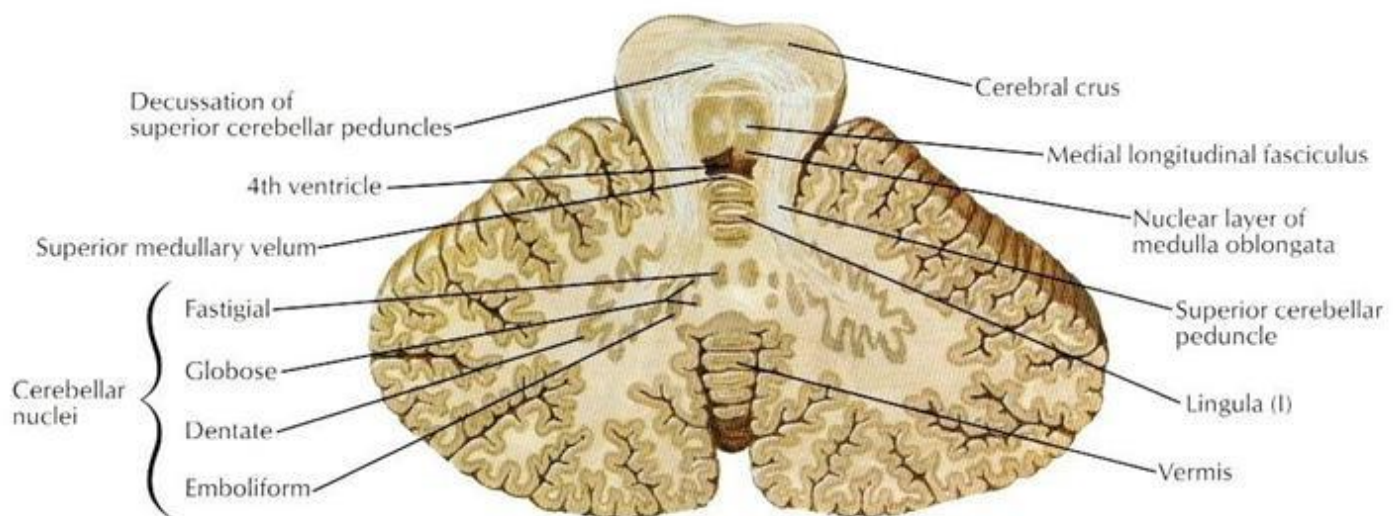


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Cerebellum: Inferior Surface

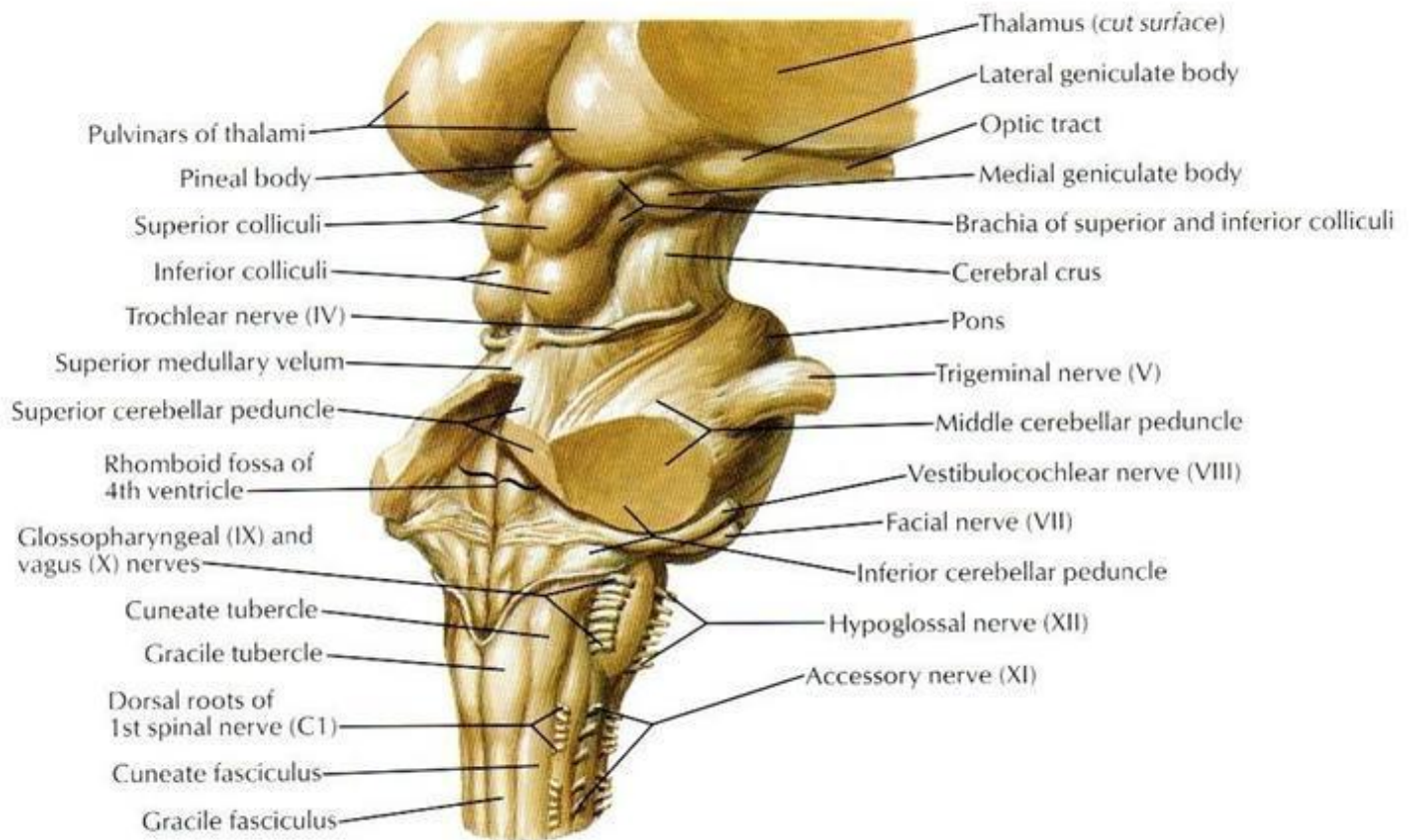


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Cerebellum: Section in Plane of Superior Cerebellar Peduncle

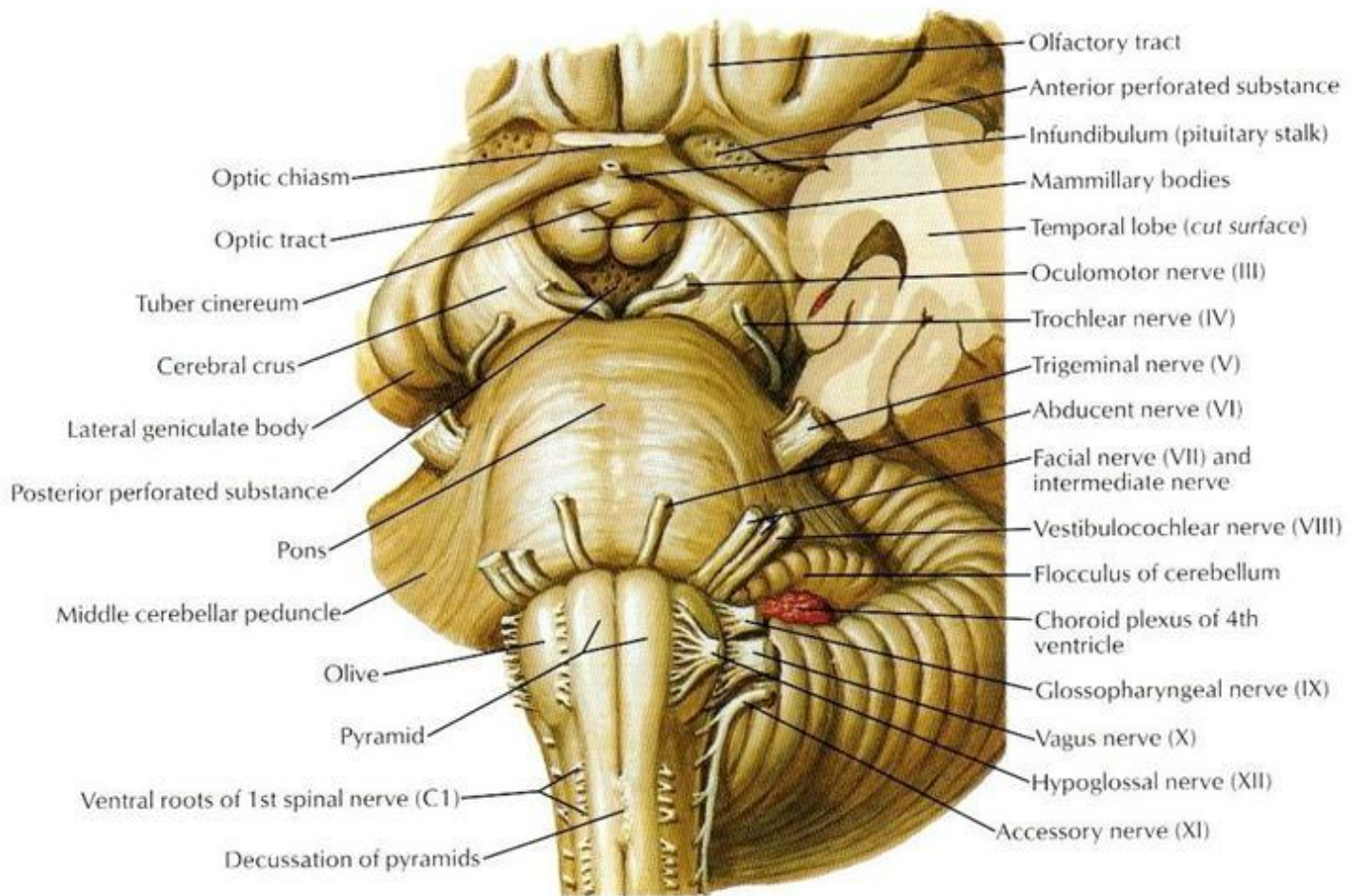
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Brainstem: Posterolateral View



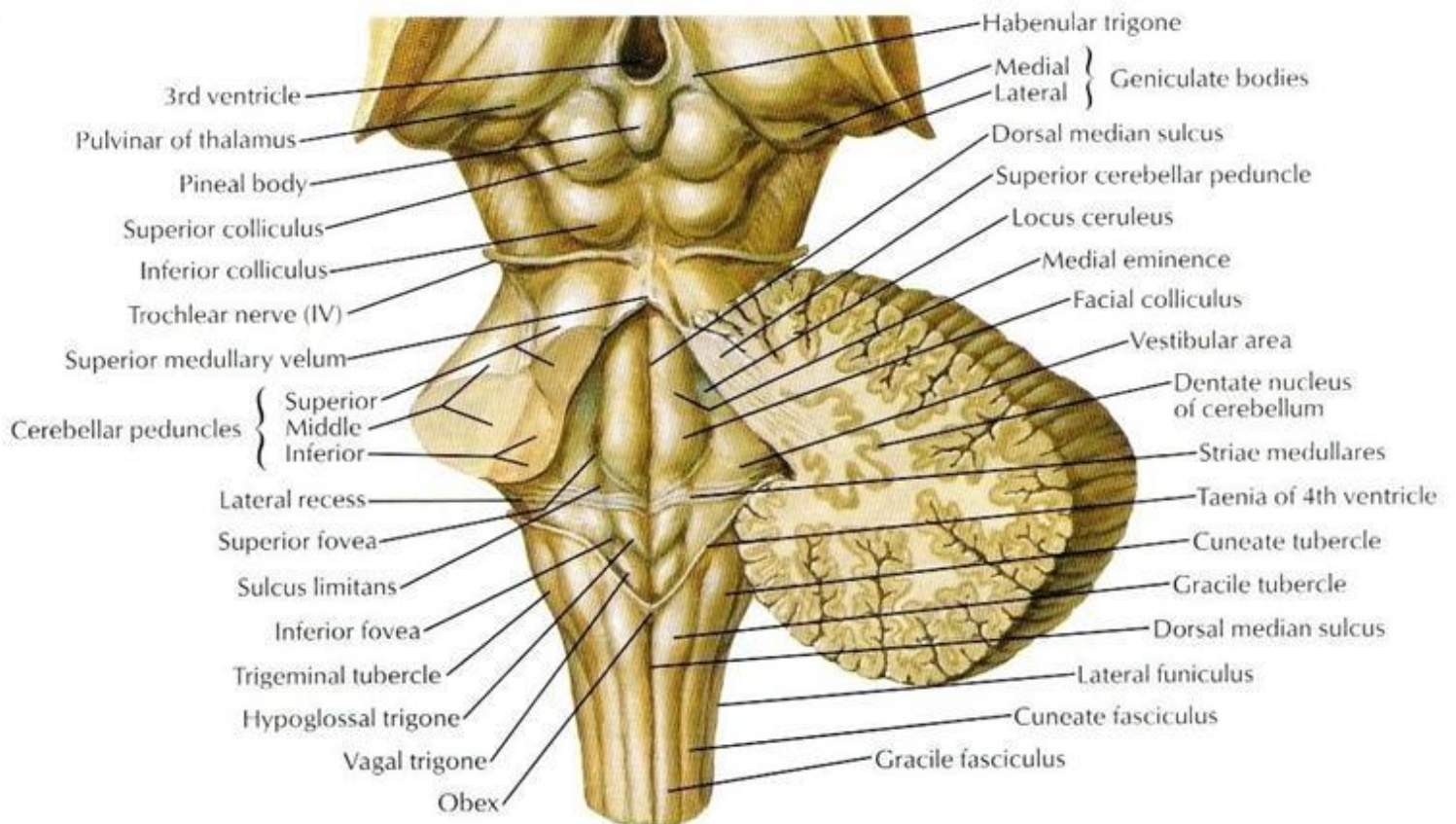
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Brainstem: Anterior View



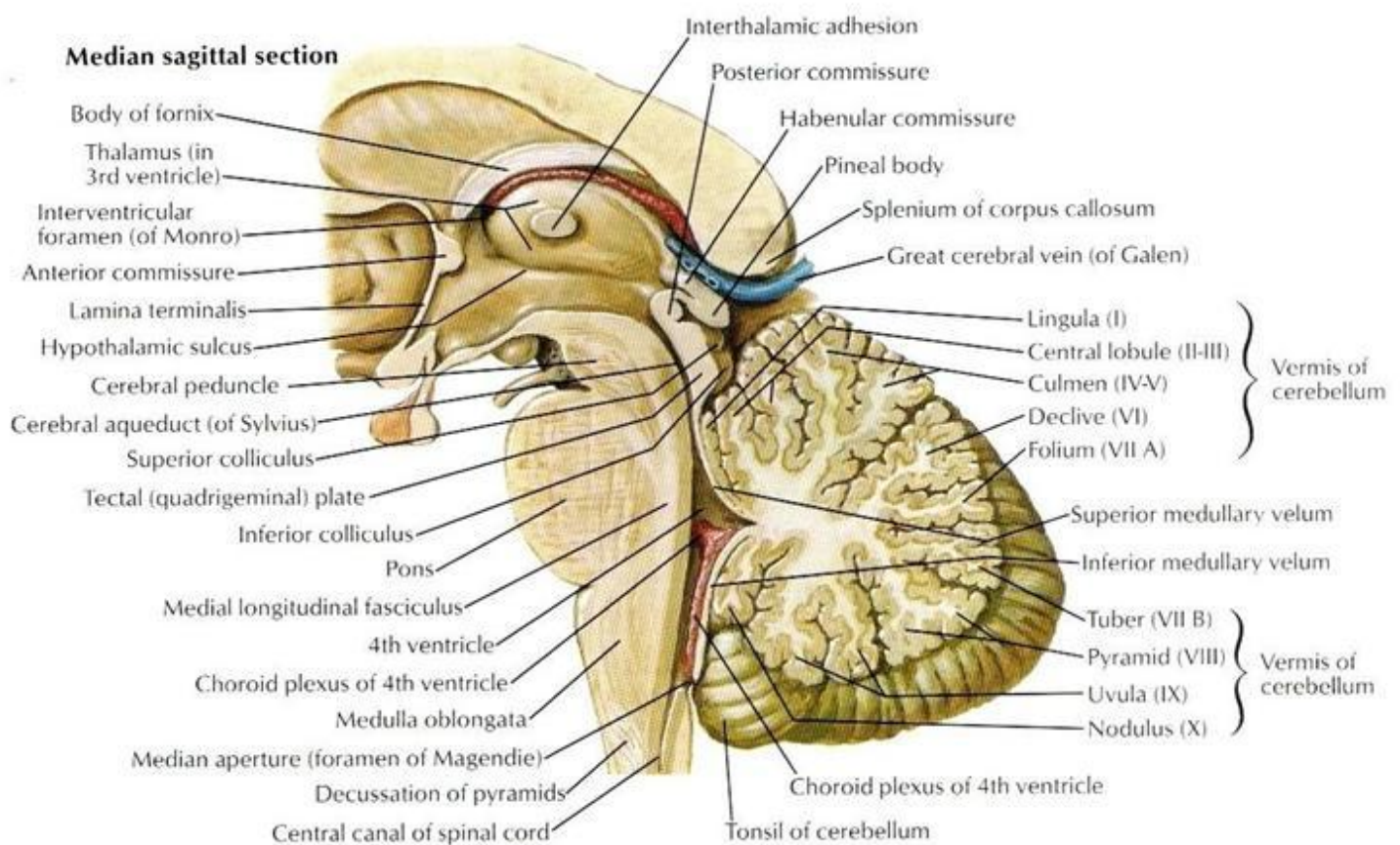
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Fourth Ventricle and Cerebellum: Posterior View



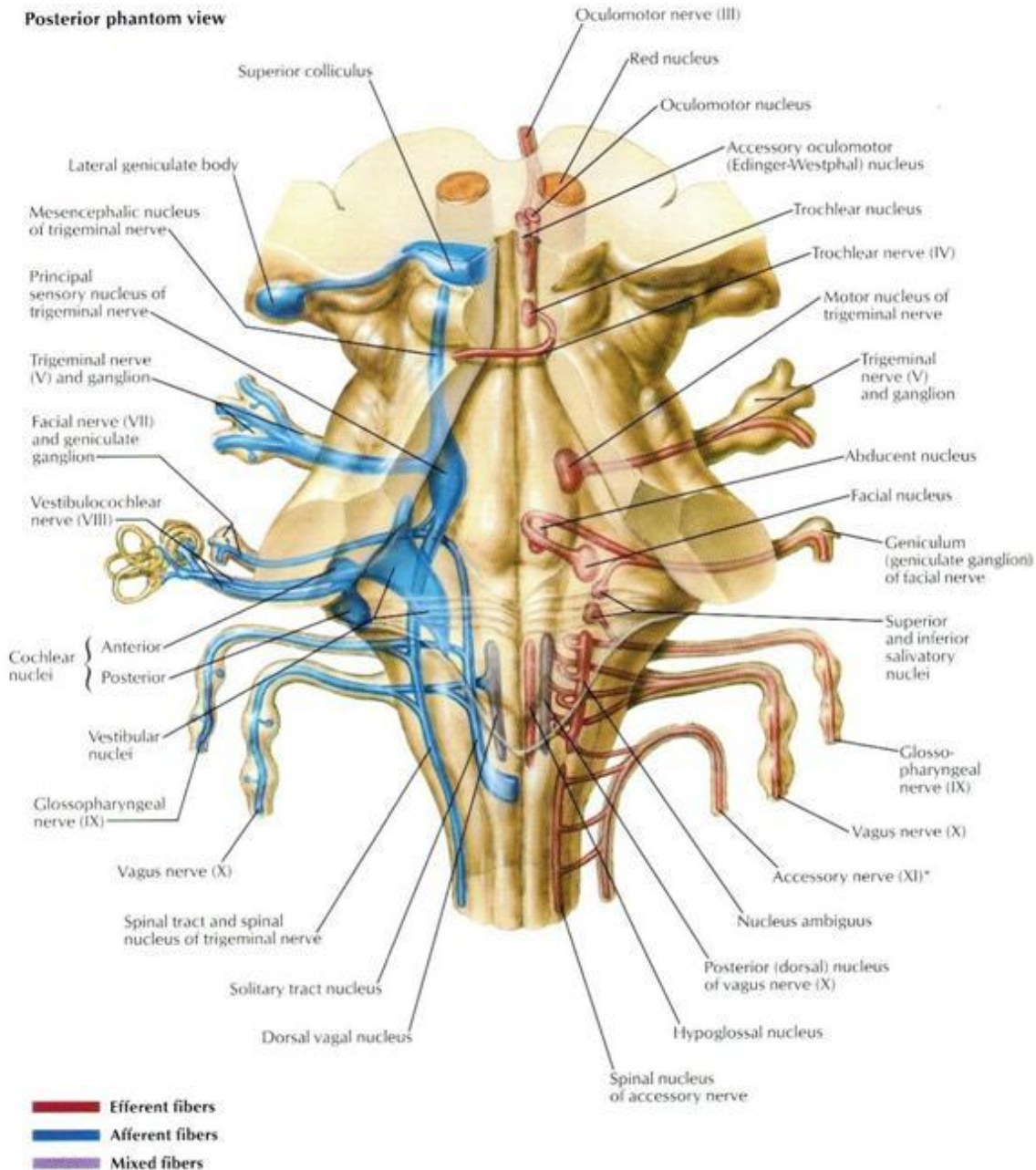
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Fourth Ventricle and Cerebellum: Median Sagittal Section



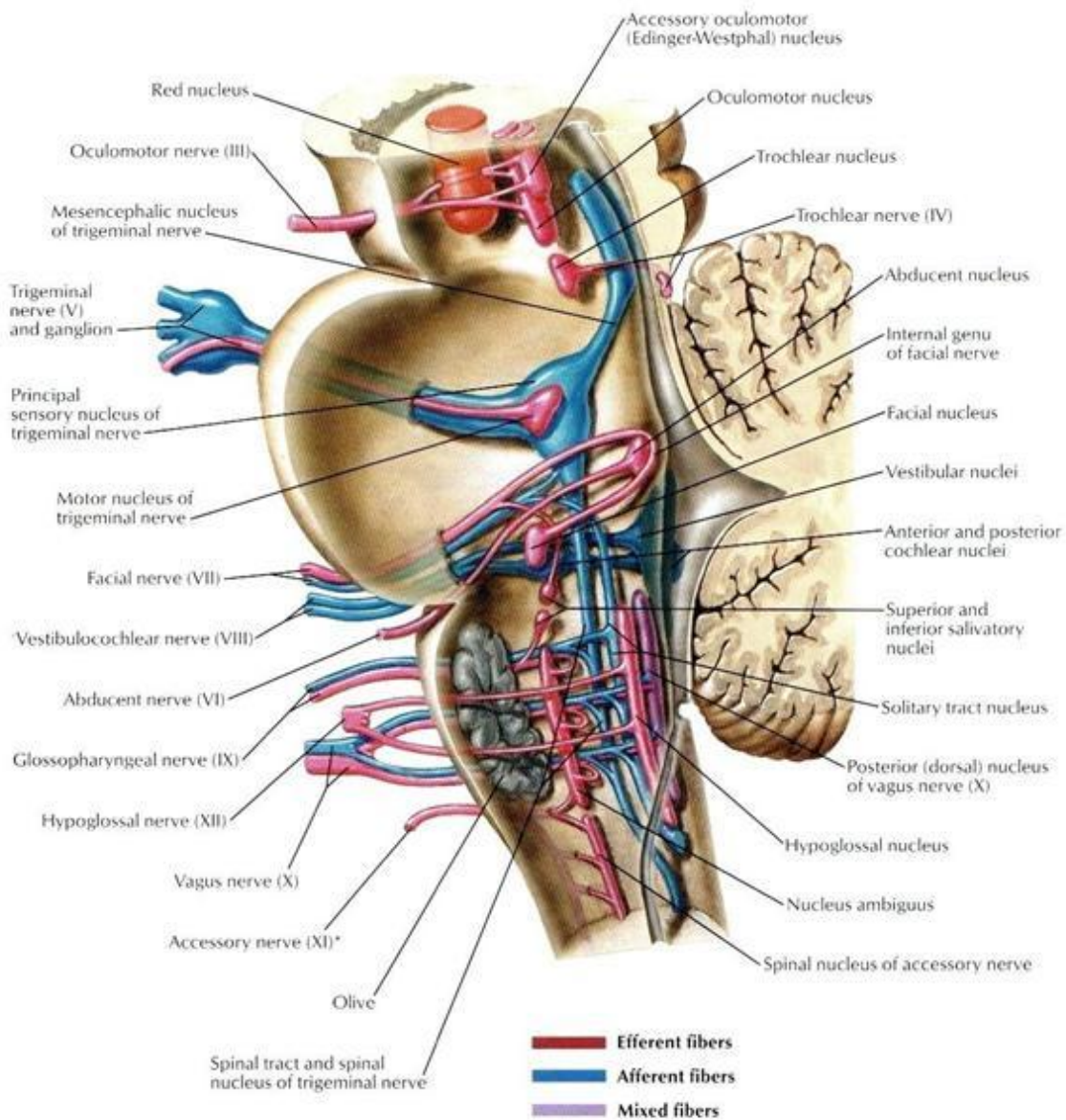
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Cranial Nerve Nuclei in Brainstem: Schema



*Recent evidence suggests that the accessory nerve lacks a cranial root and has no connection to the vagus nerve. Verification of this finding awaits further investigation.

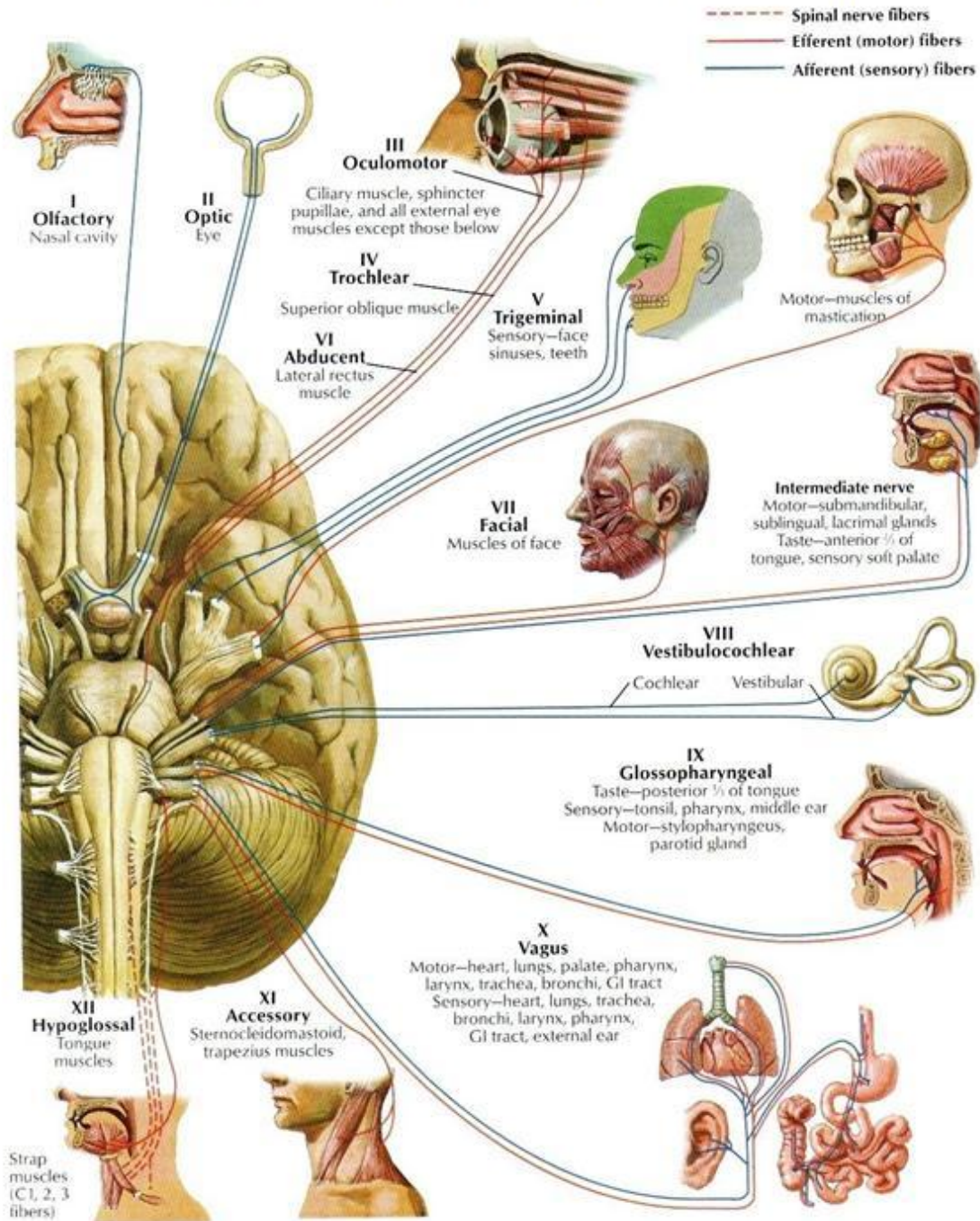
Cranial Nerve Nuclei in Brainstem: Schema Medial Dissection



*Recent evidence suggests that the accessory nerve lacks a cranial root and has no connection to the vagus nerve. Verification of this finding awaits further investigation.

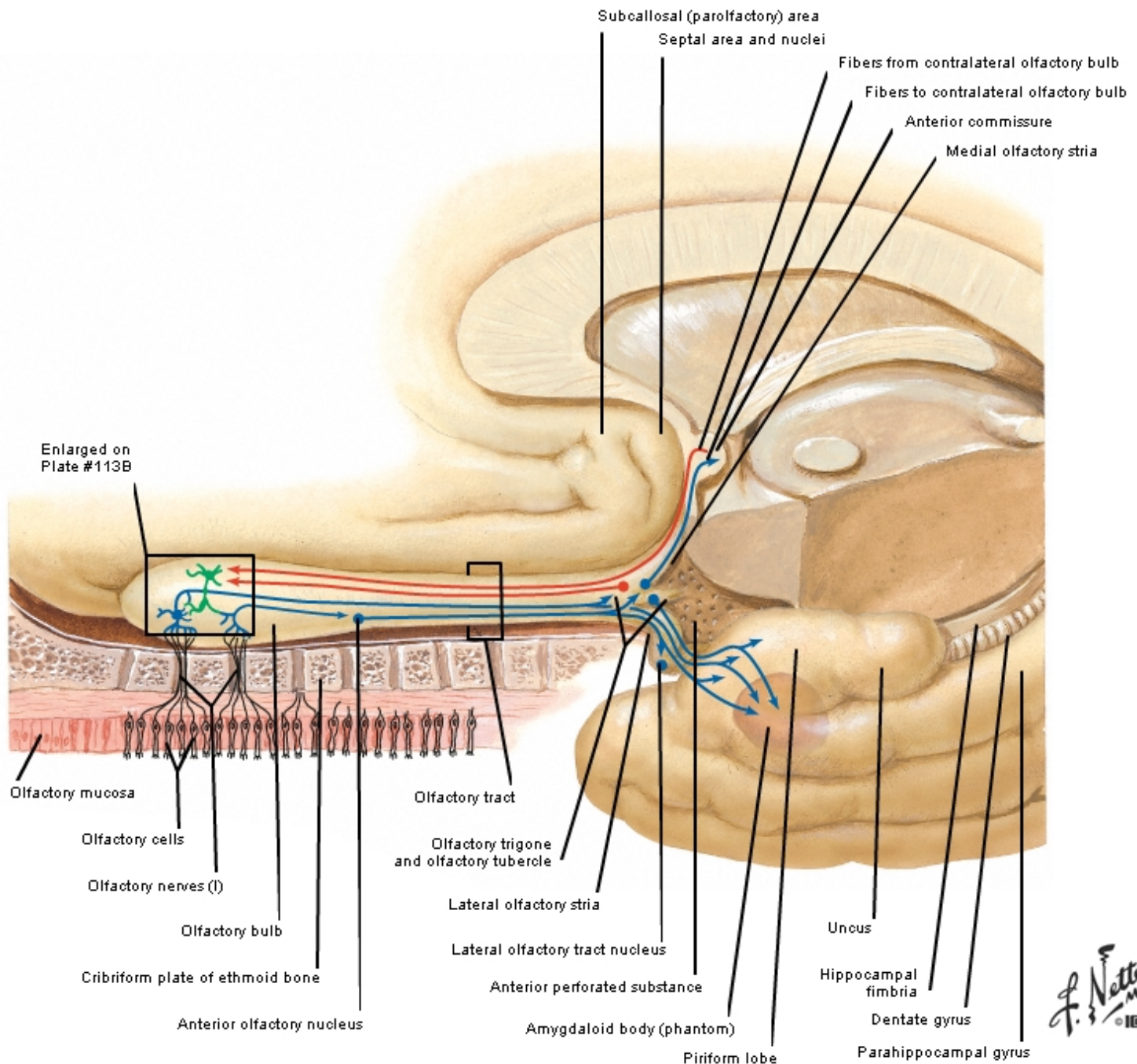
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Cranial Nerves (Motor and Sensory Distribution): Schema



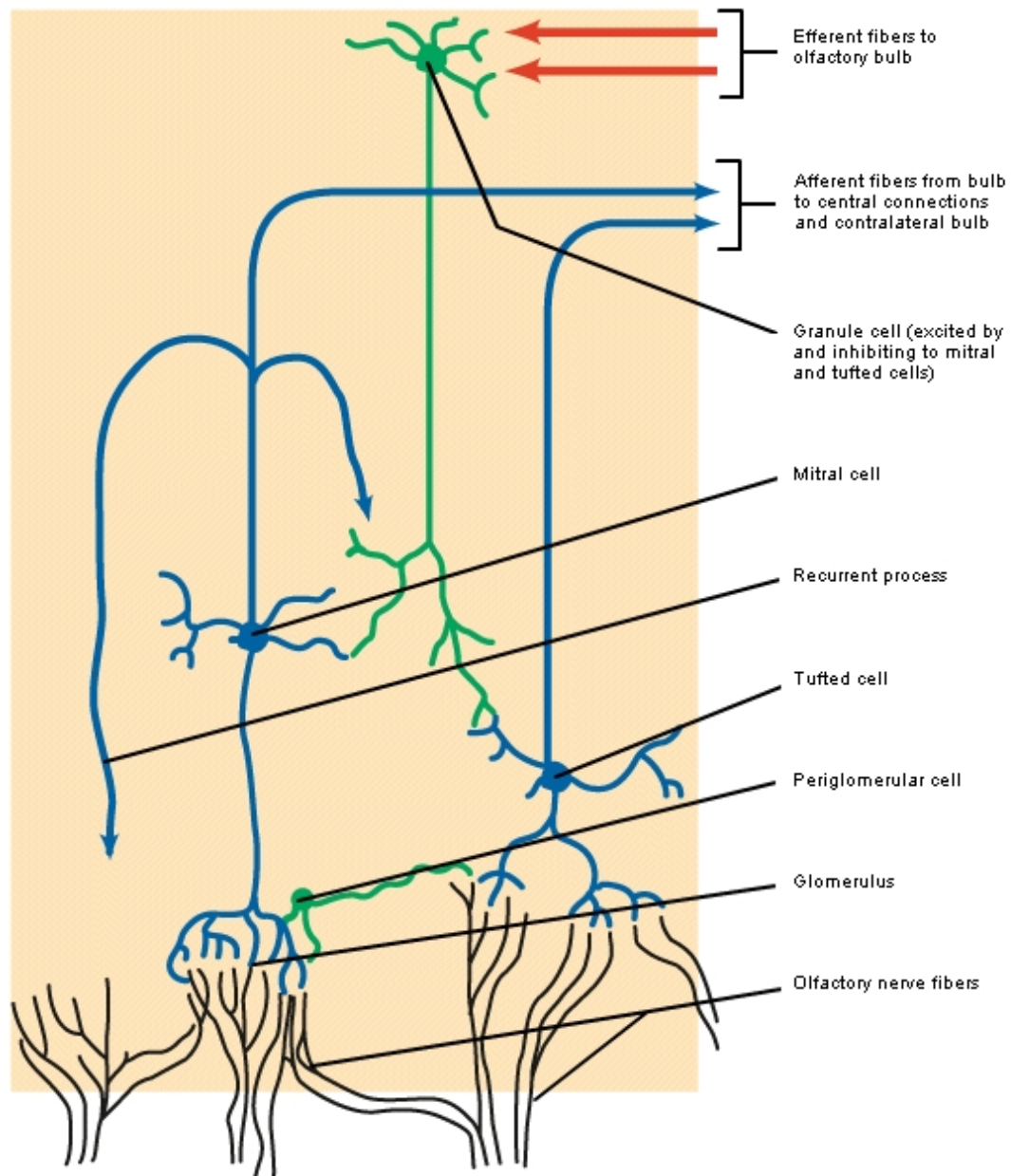
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Olfactory Nerve (I): Schema



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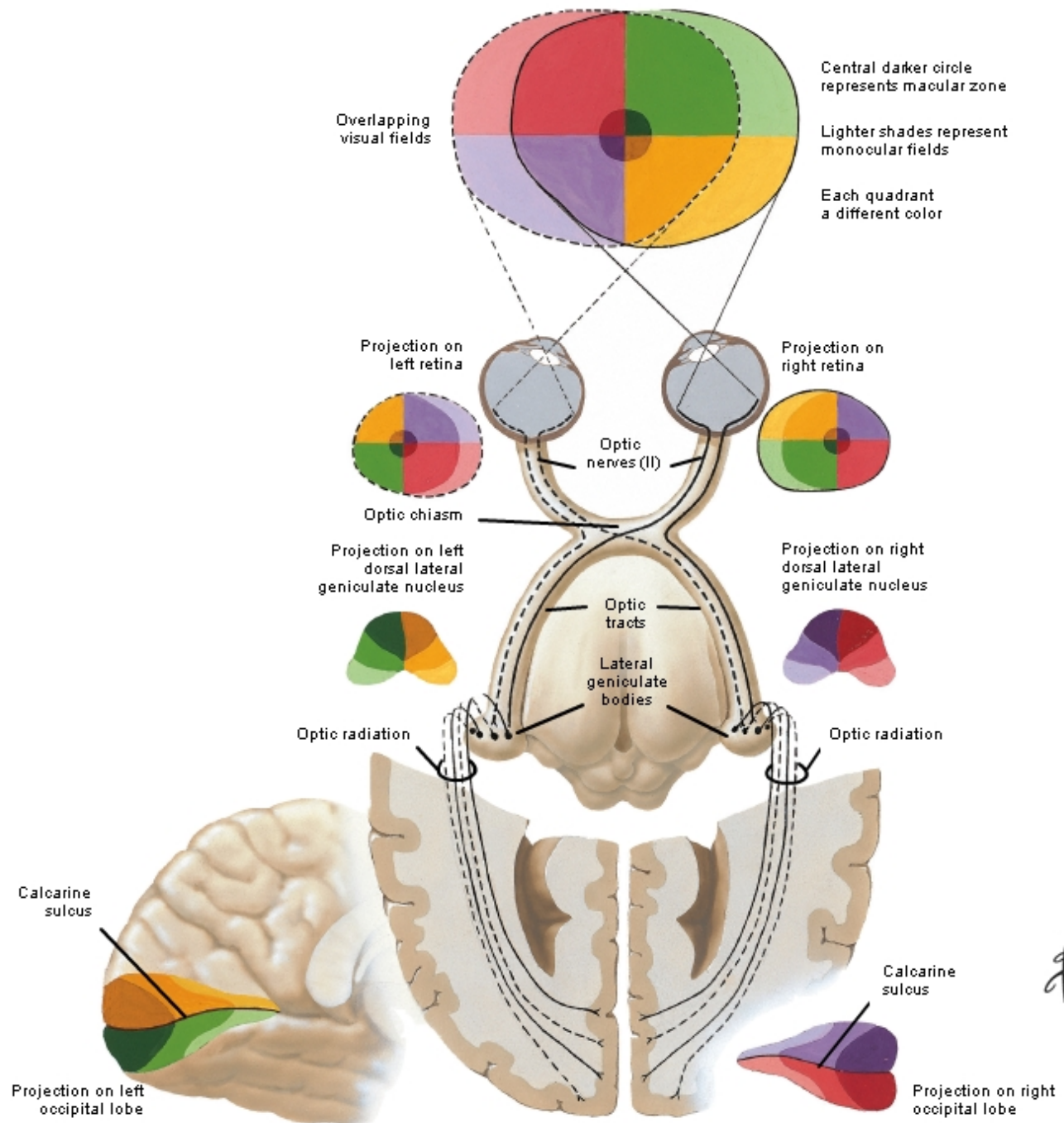
Olfactory Nerve (I) - Olfactory Bulb Cells Schema



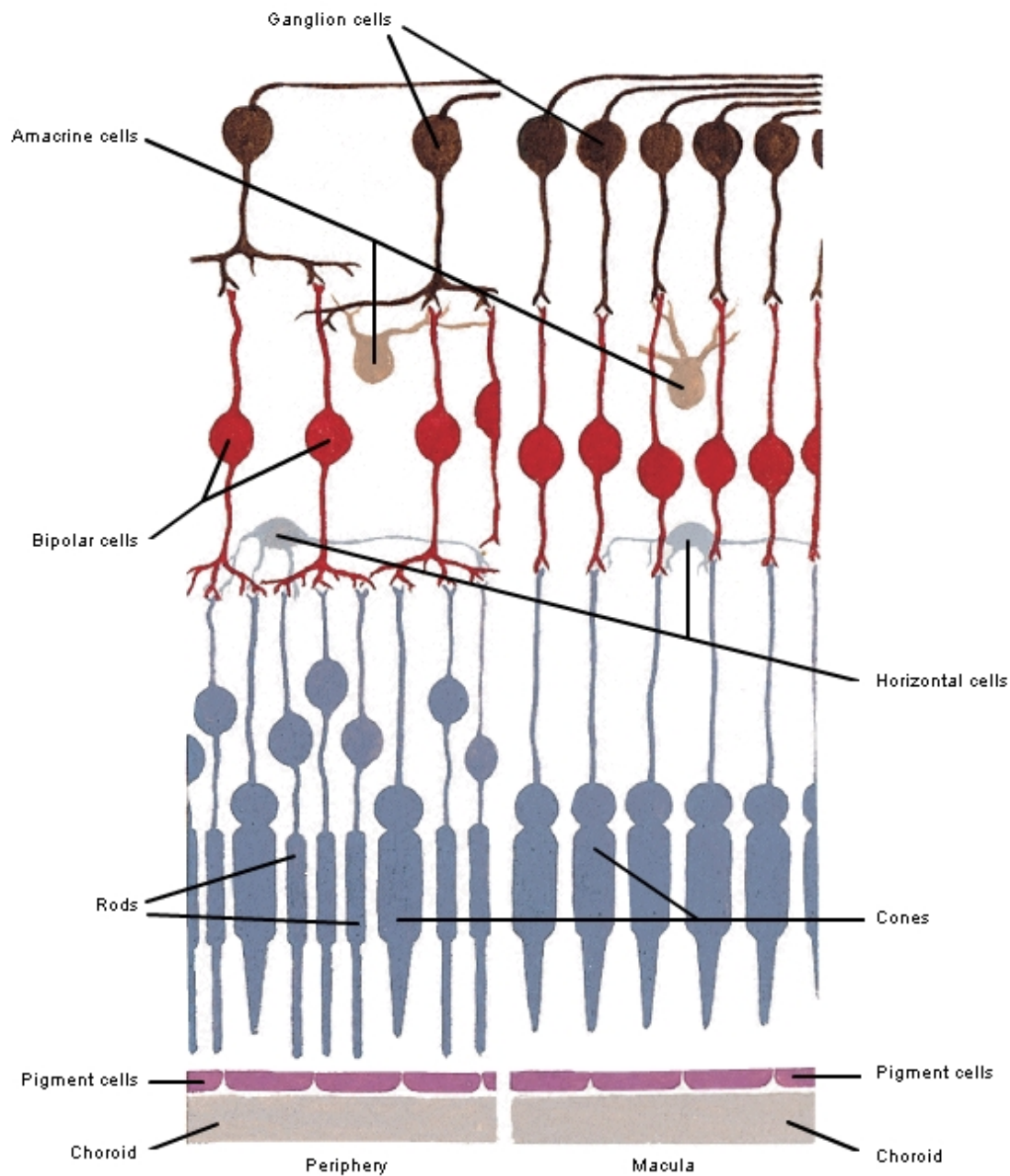
Schema of outlined area on Plate #113A

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Optic Nerve (II) (Visual Pathway): Schema

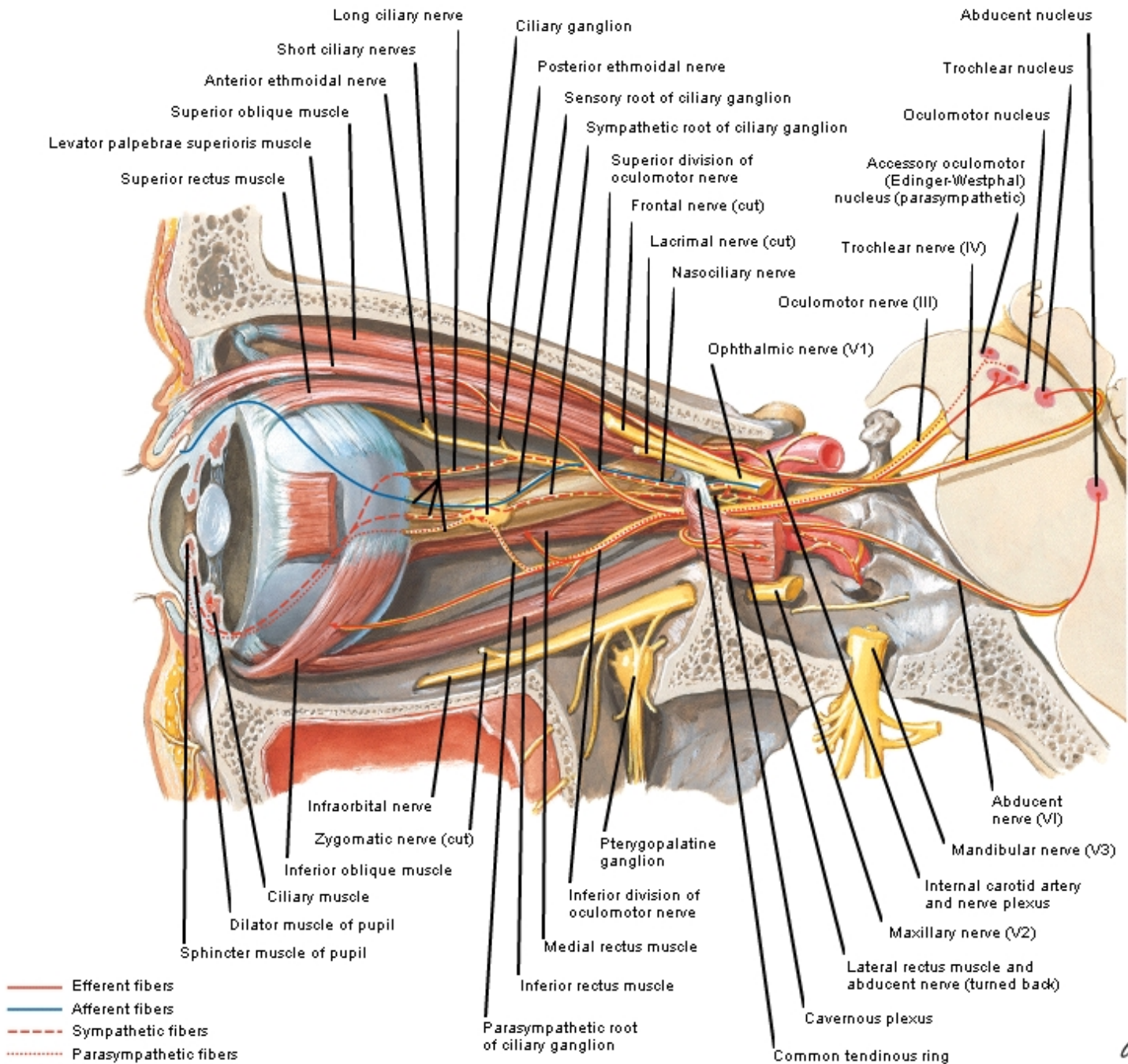


Optic Nerve (II) - Structure of Retina Schema

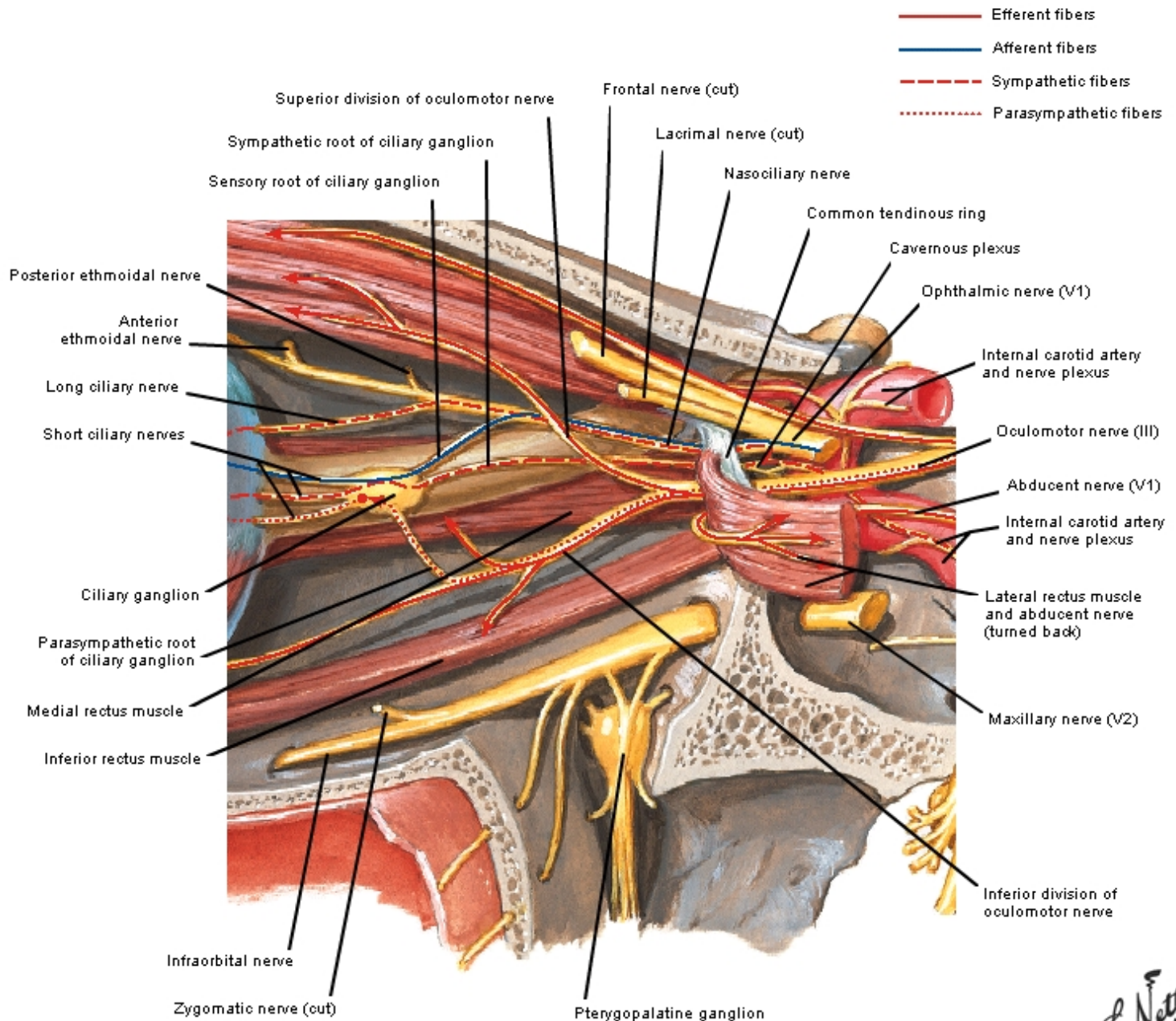


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Oculomotor, Trochlear and Abducent Nerves (III, IV, VI) Schema

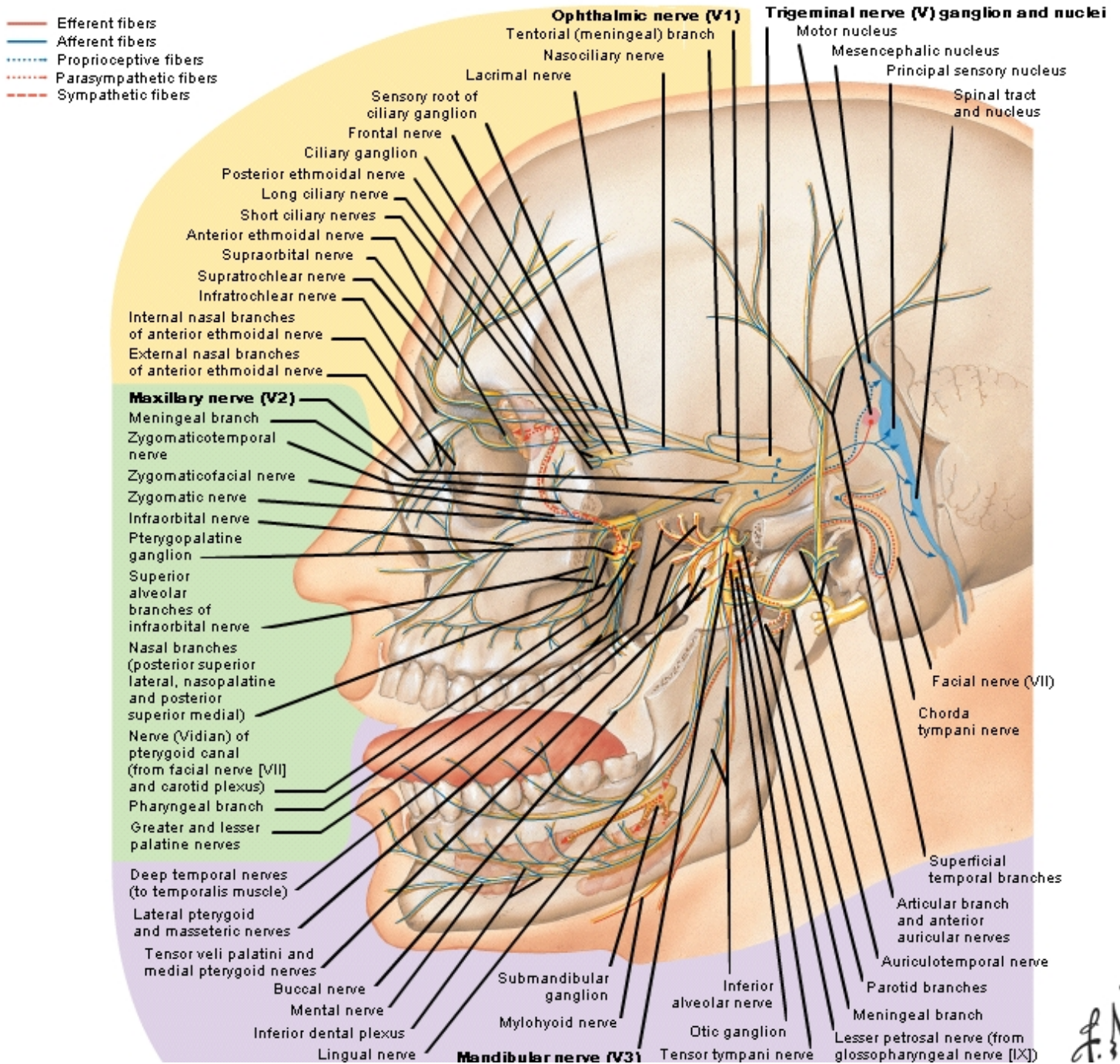


Oculomotor, Trochlear and Abducent Nerves (III, IV, VI) Schema - Enlargement of Retrobulbar Portions



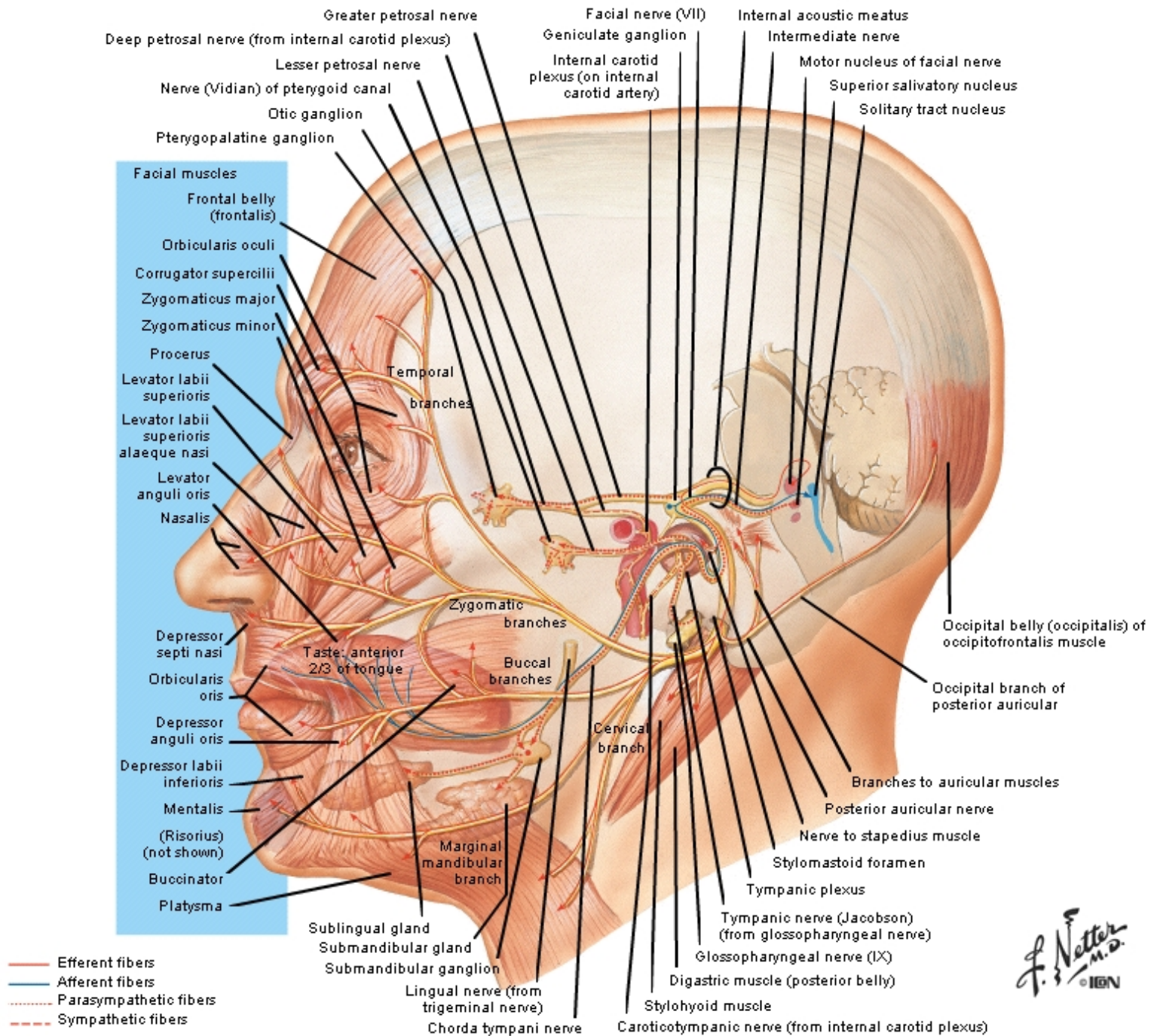
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Trigeminal Nerve (V): Schema



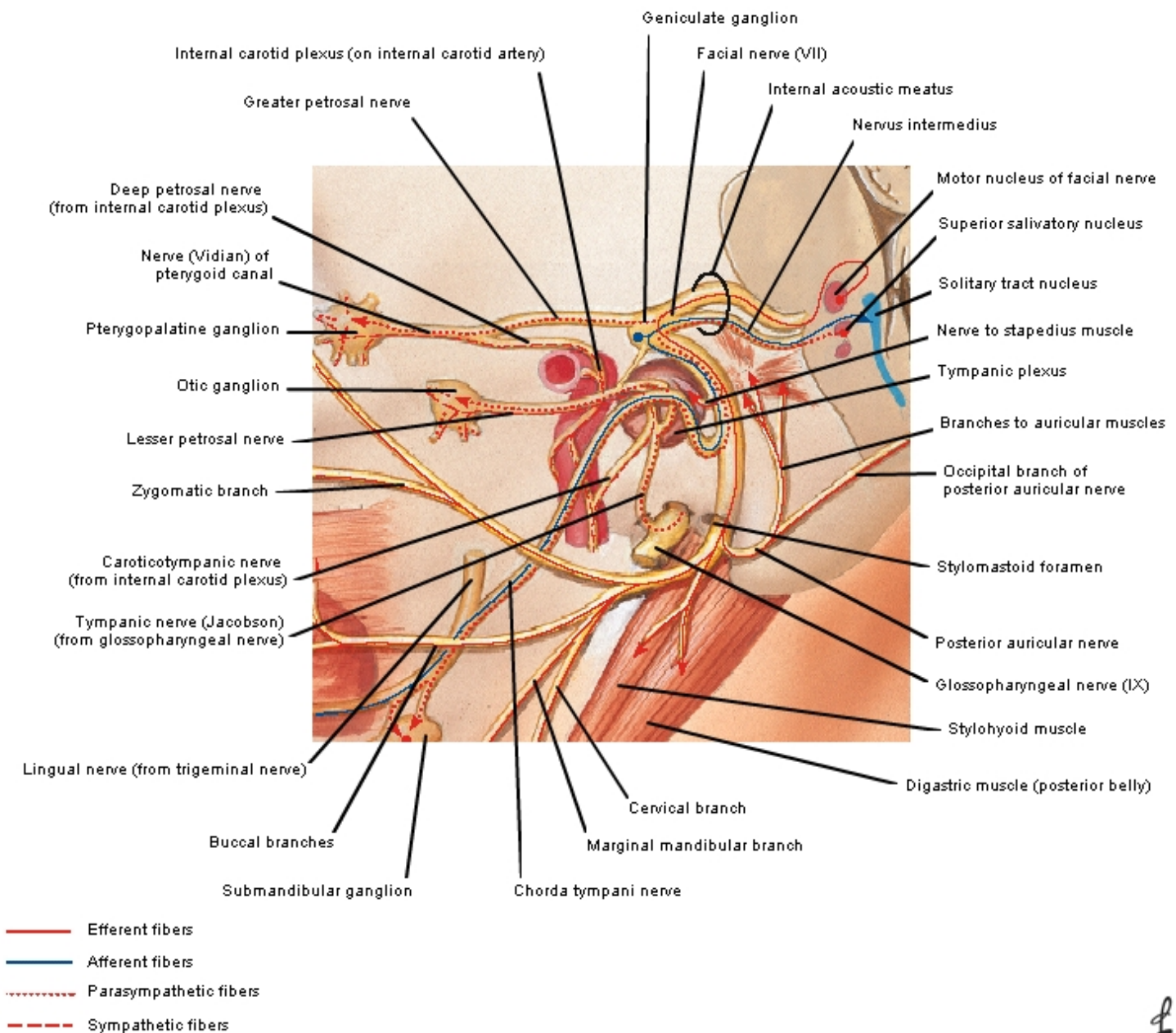
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Facial Nerve (VII): Schema



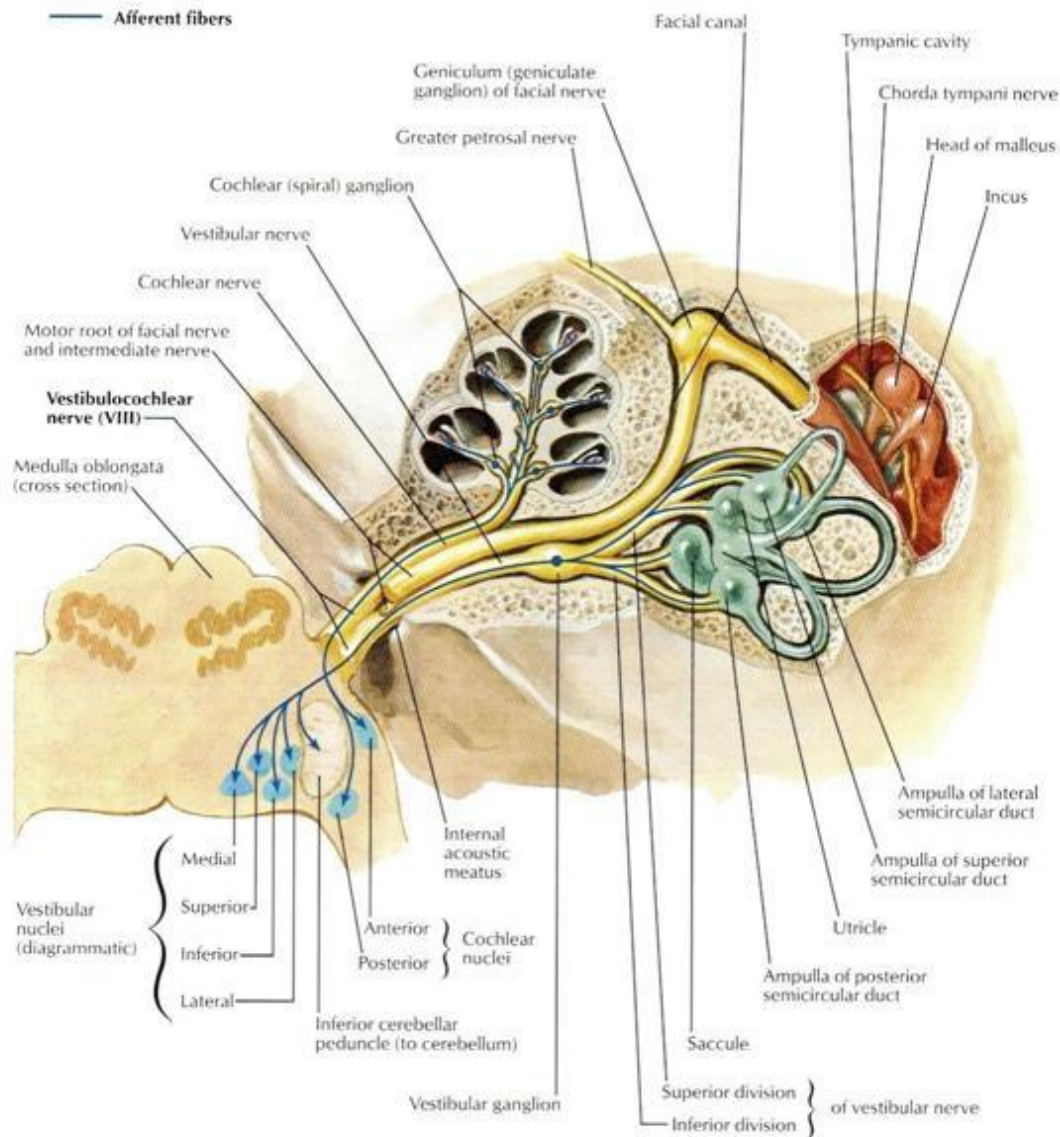
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Facial Nerve (VII) Schema - Enlargement of Proximal Portions



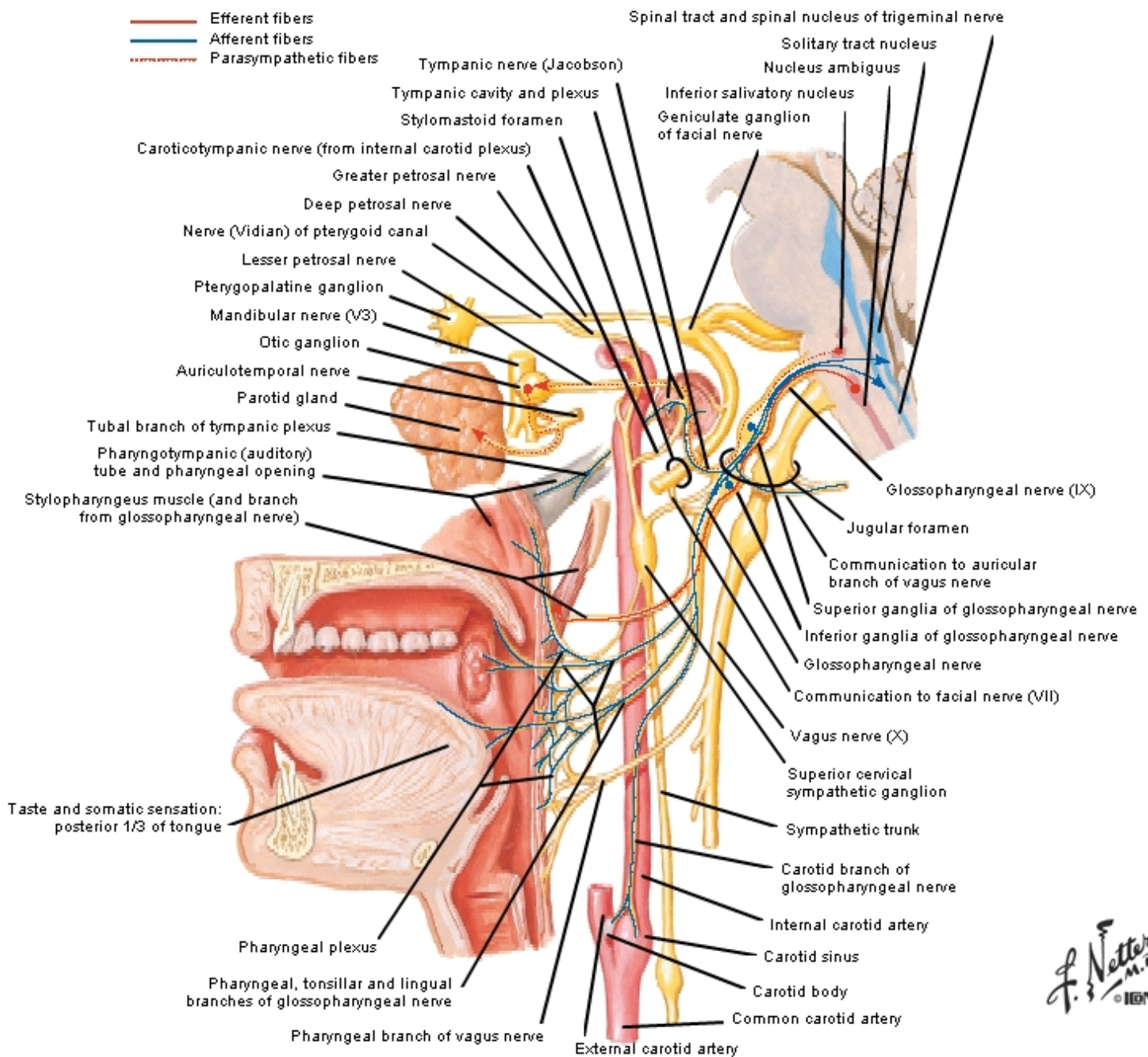
F. Netter M.D.
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Vestibulocochlear Nerve (VIII): Schema



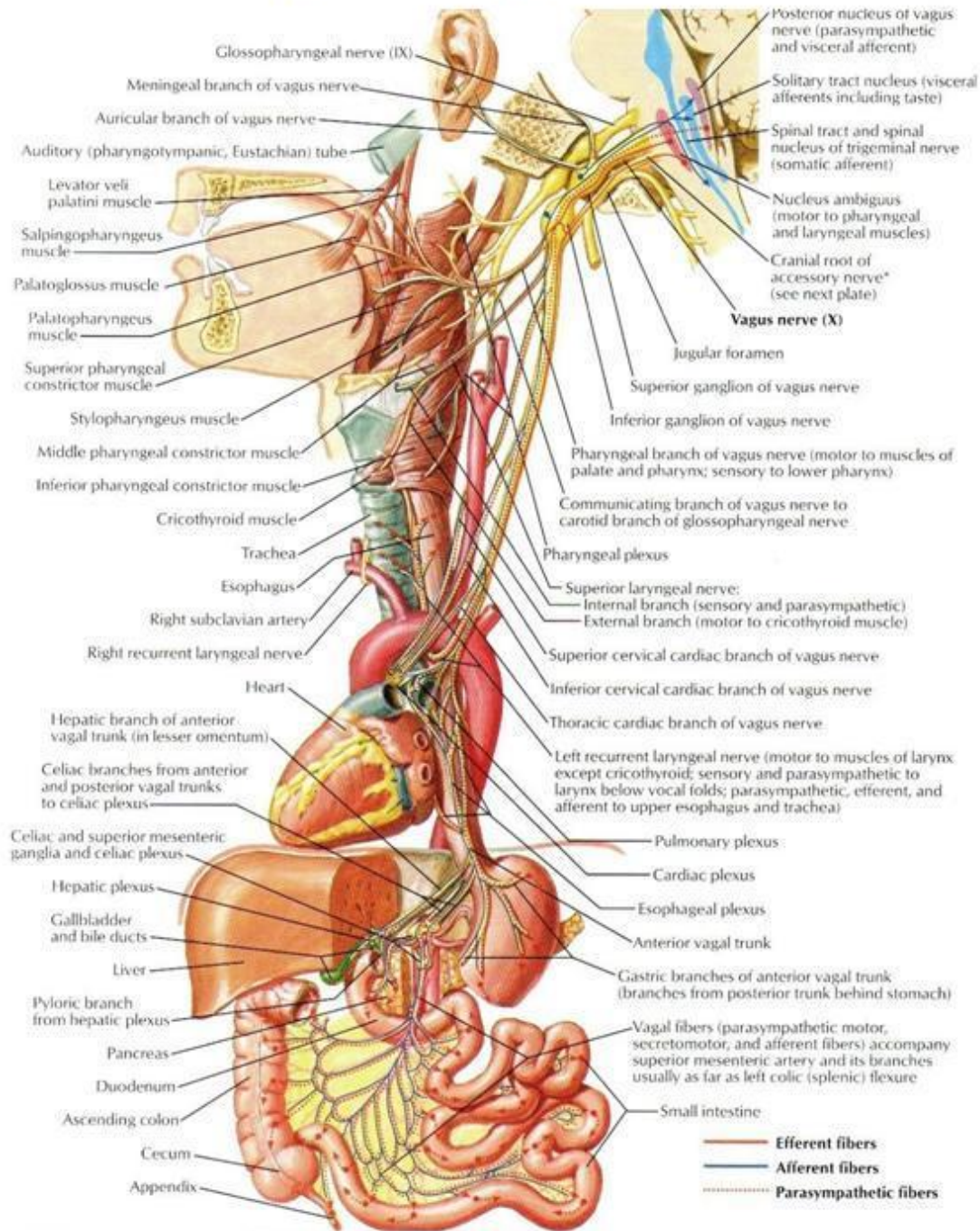
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Glossopharyngeal Nerve (IX) Schema



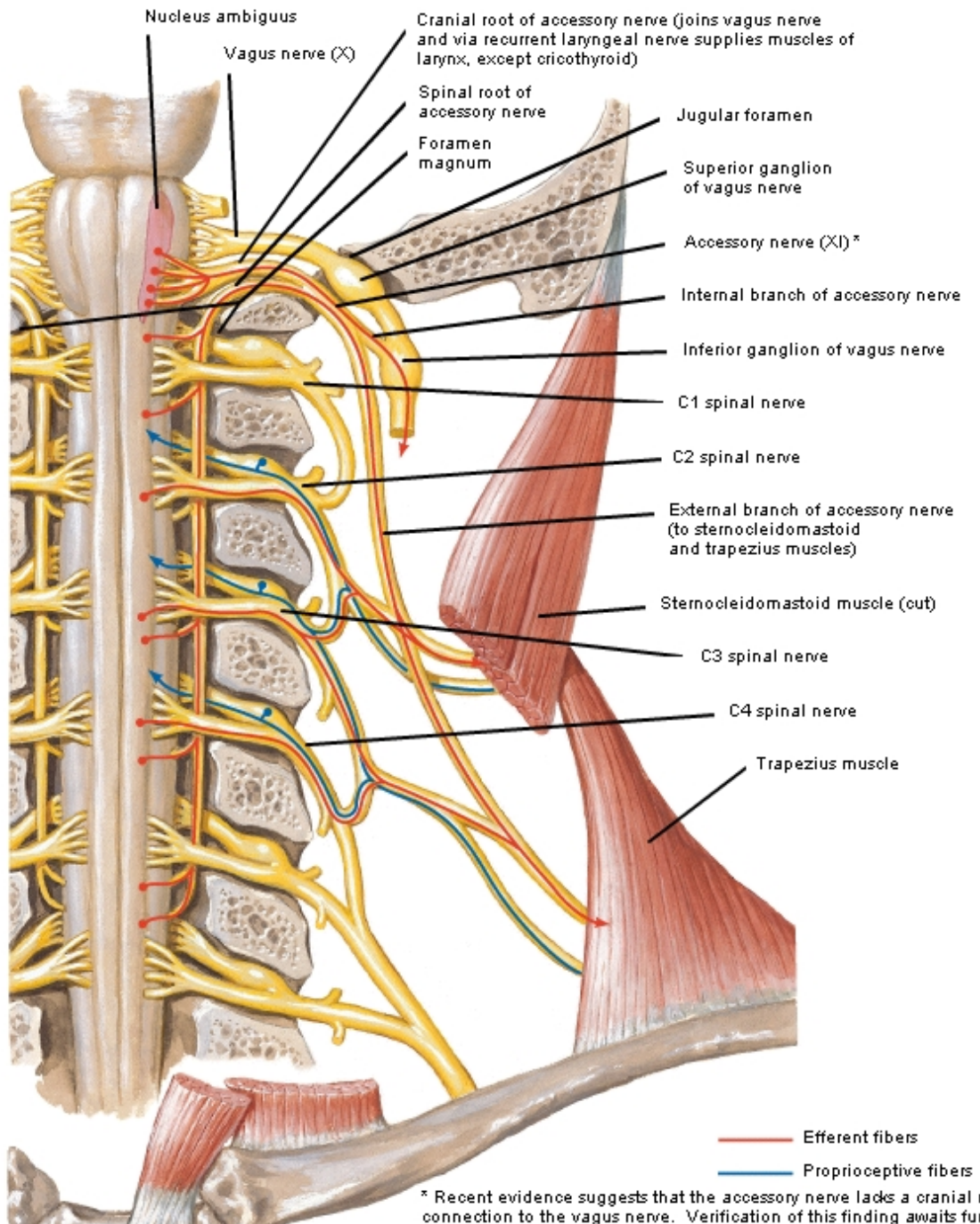
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Vagus Nerve(X): Schema



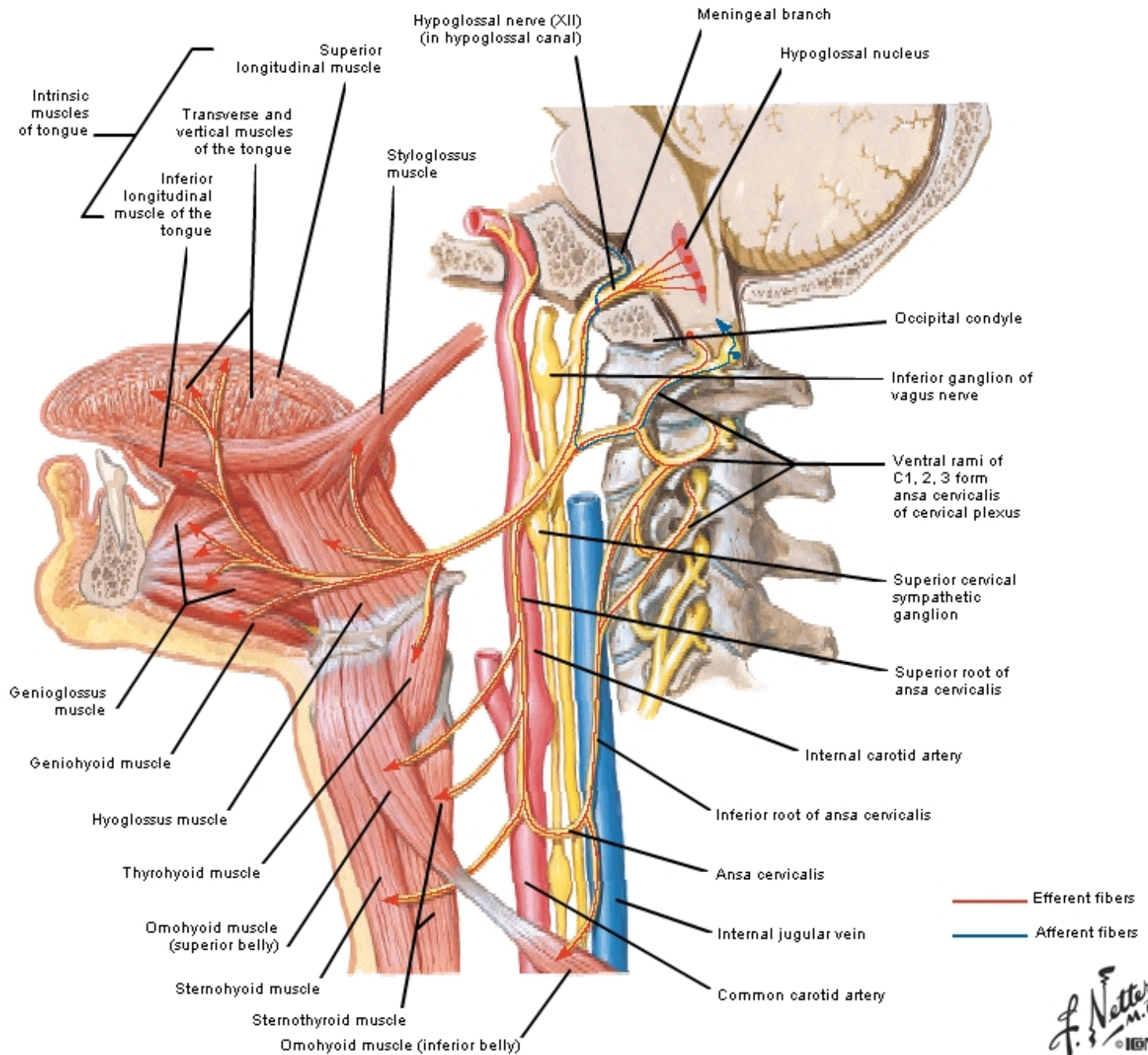
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Accessory Nerve (XI): Schema

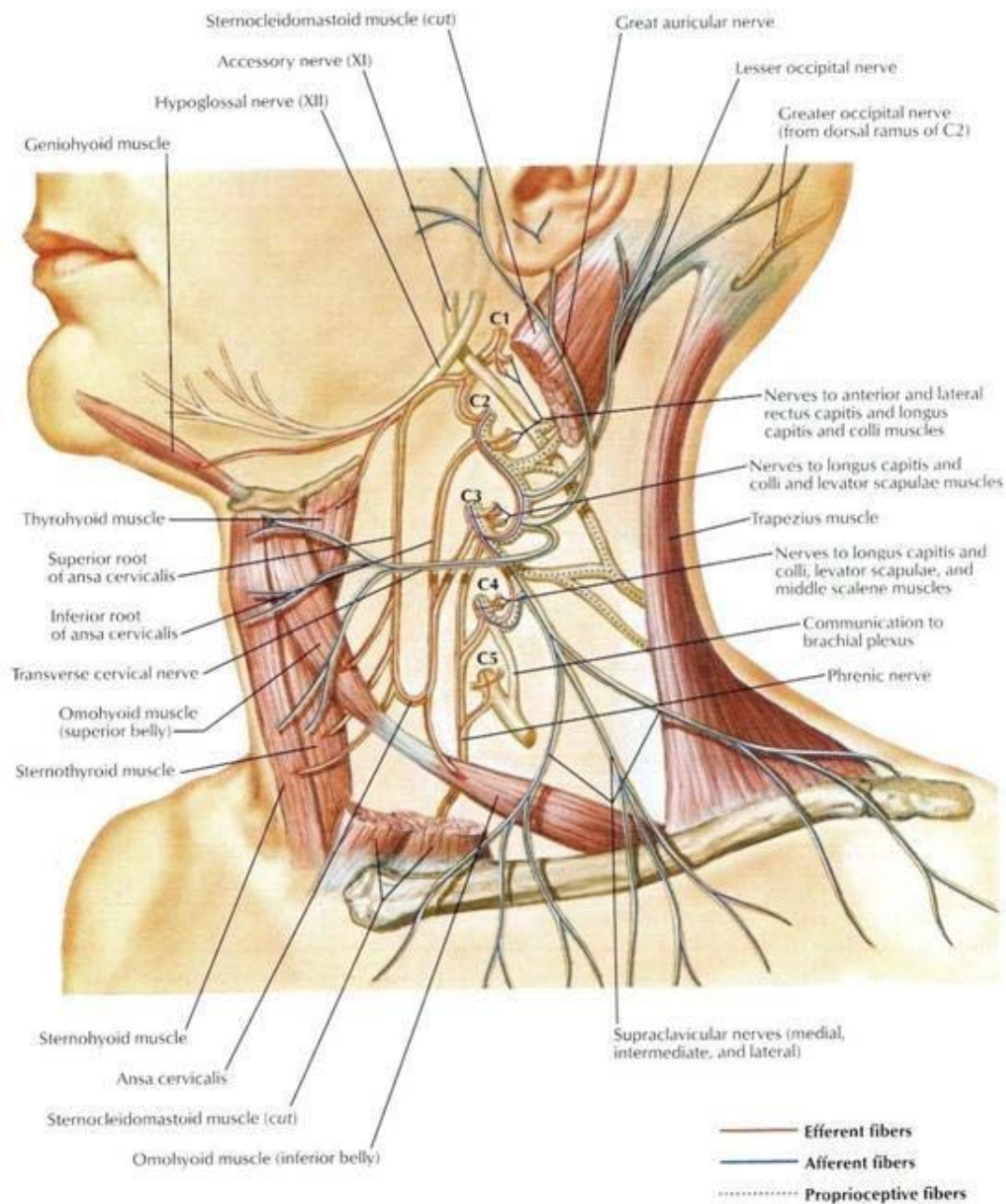


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Hypoglossal Nerve (XII) Schema

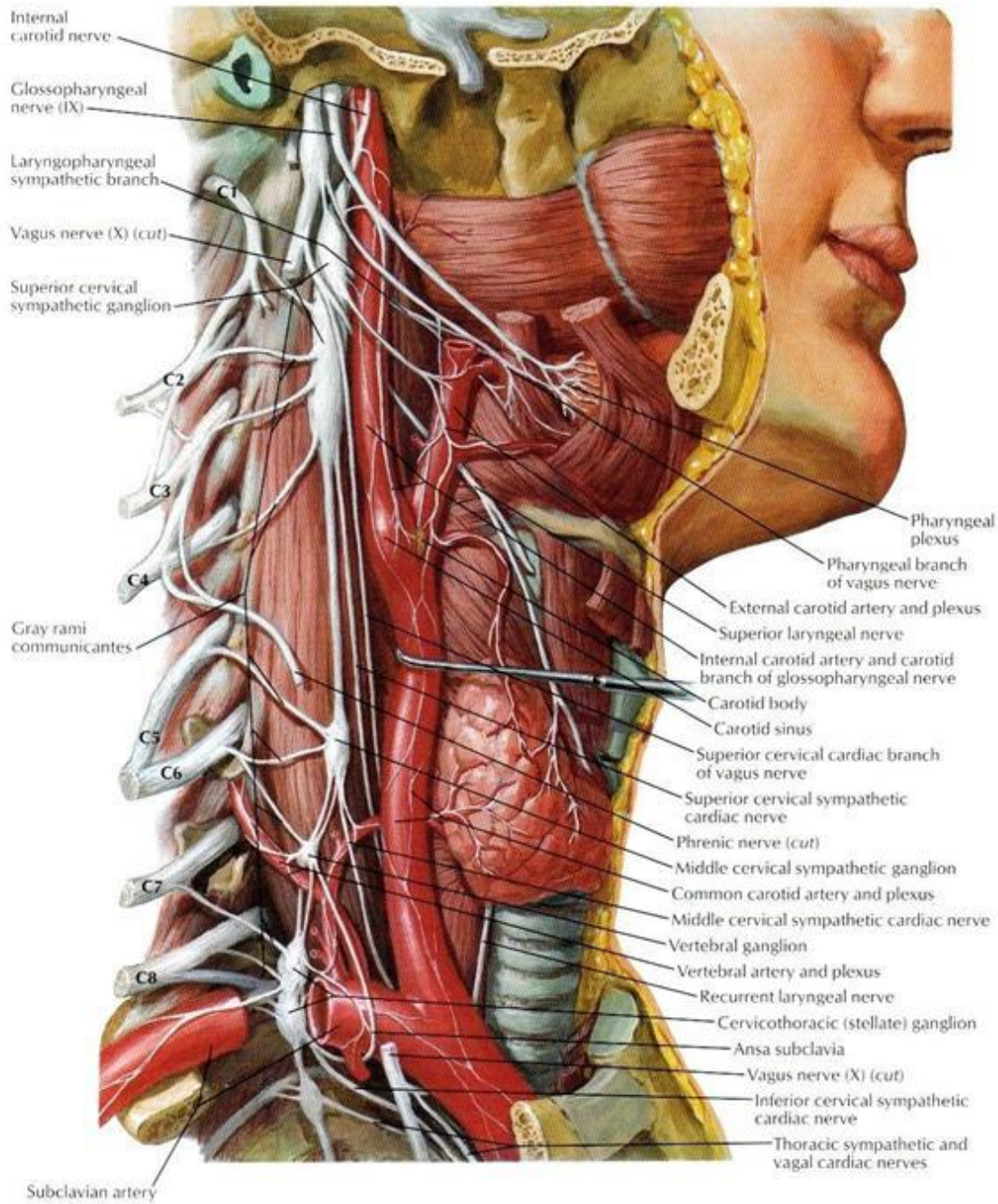


Cervical Plexus: Schema



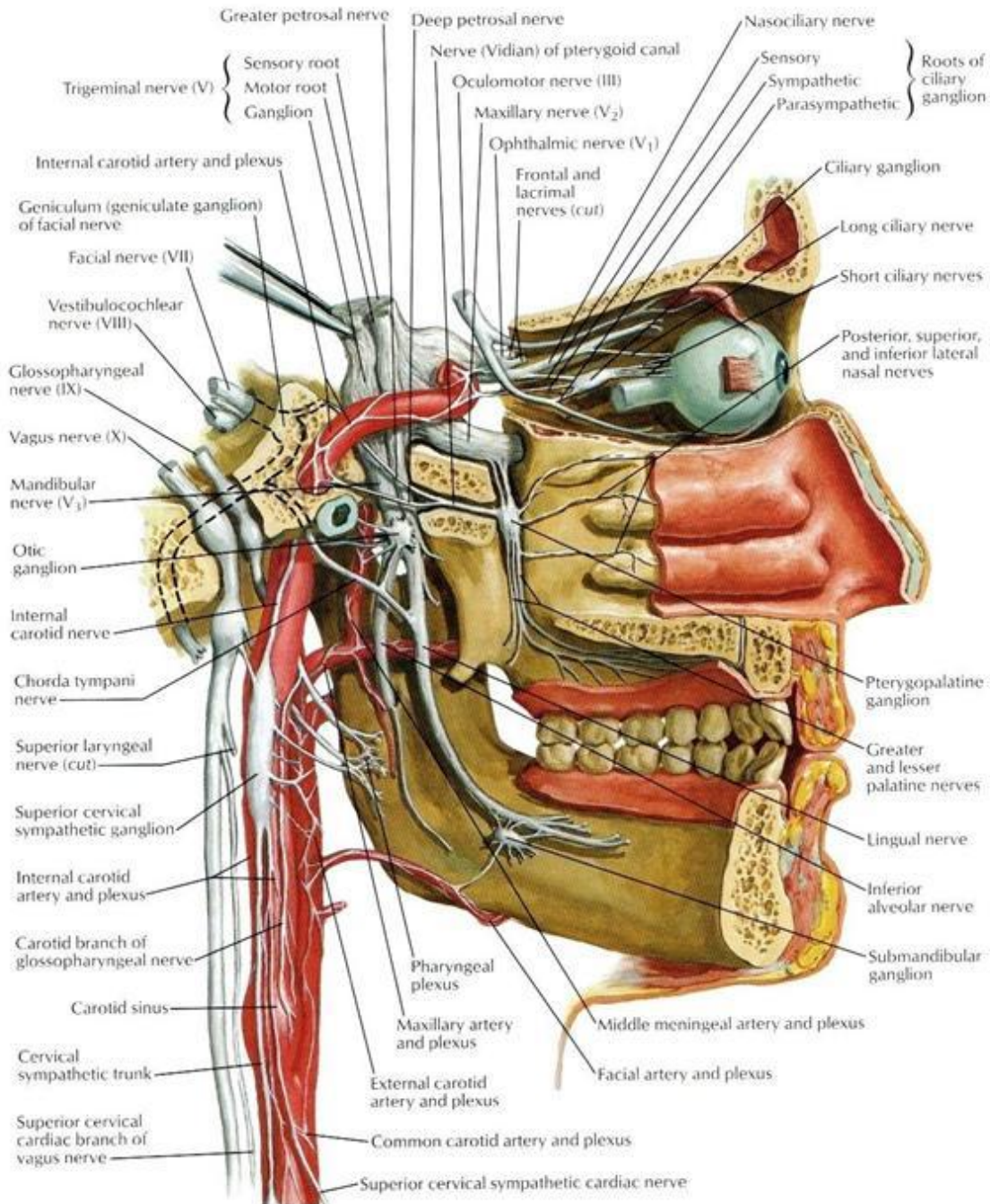
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Autonomic Nerves in Neck



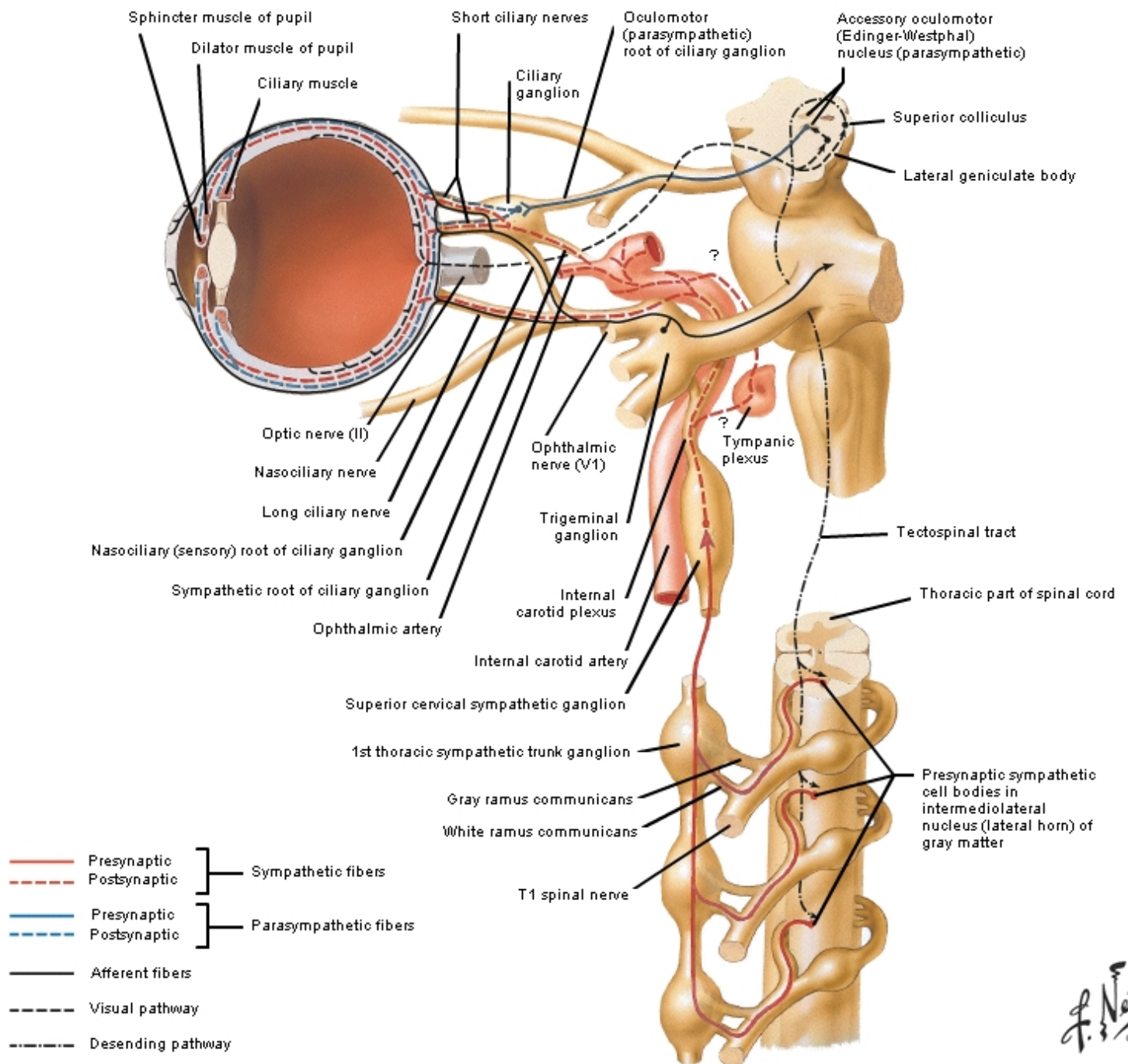
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Autonomic Nerves in Head



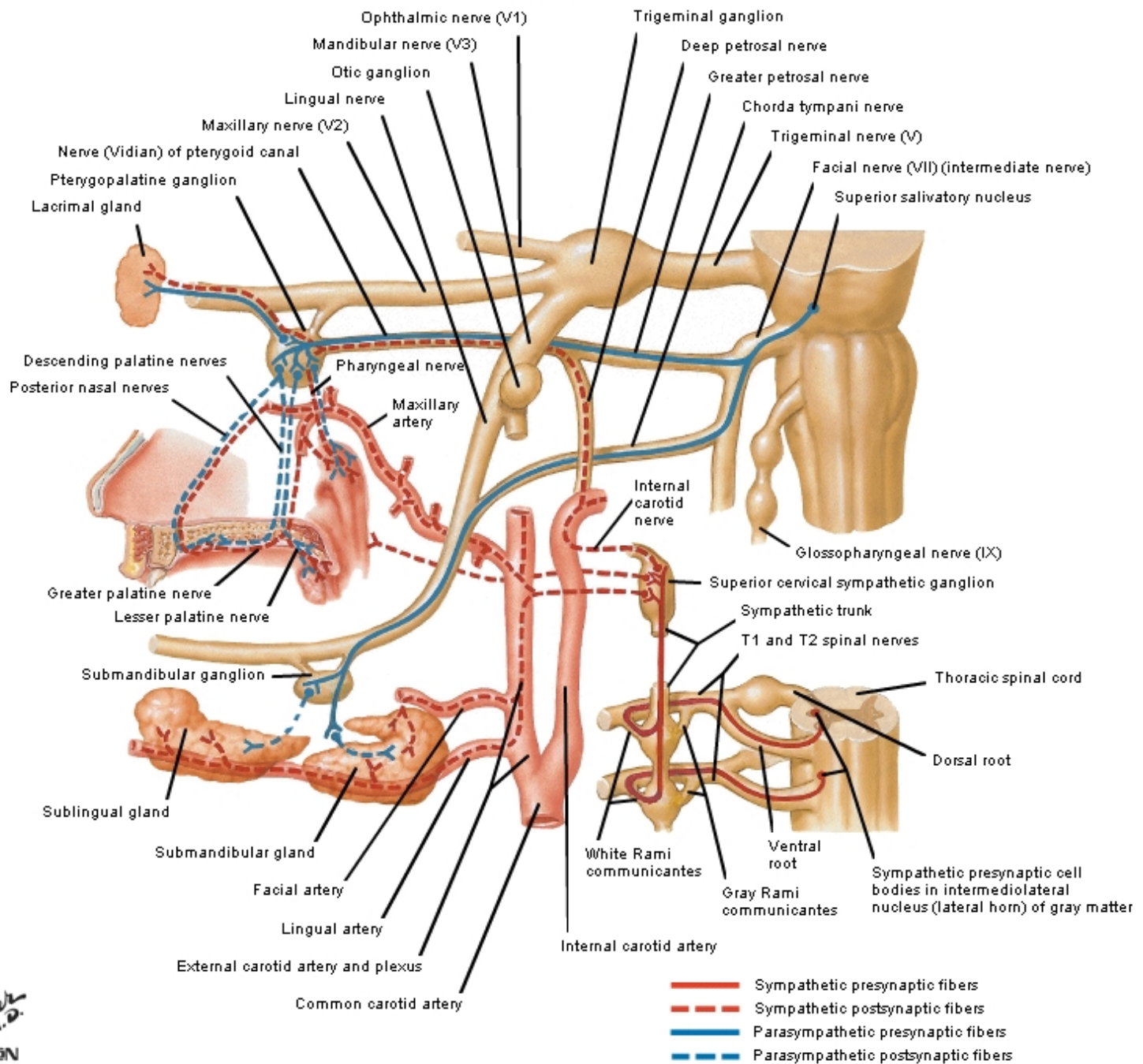
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Ciliary Ganglion Schema



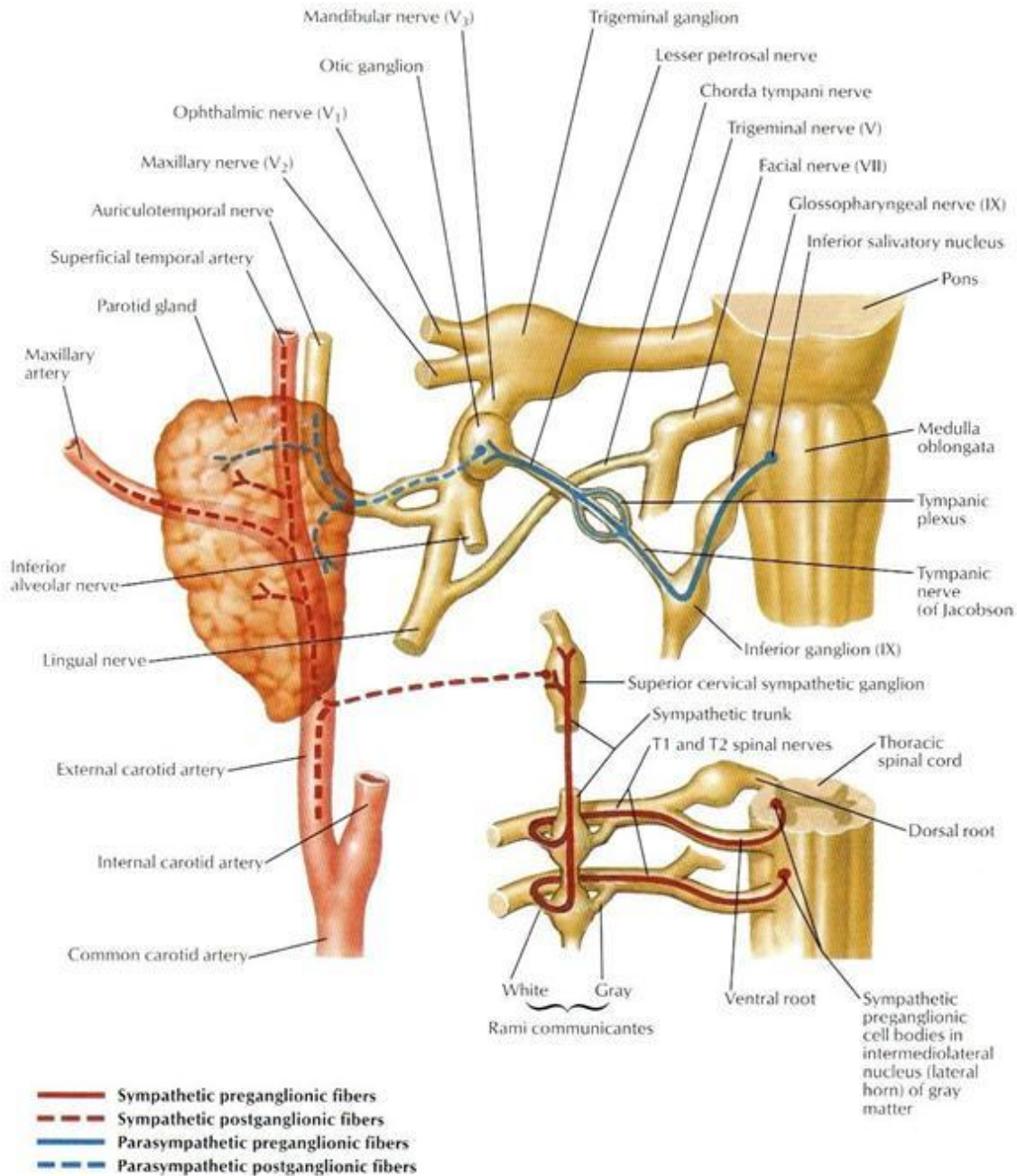
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Pterygopalatine and Submandibular Ganglia Schema



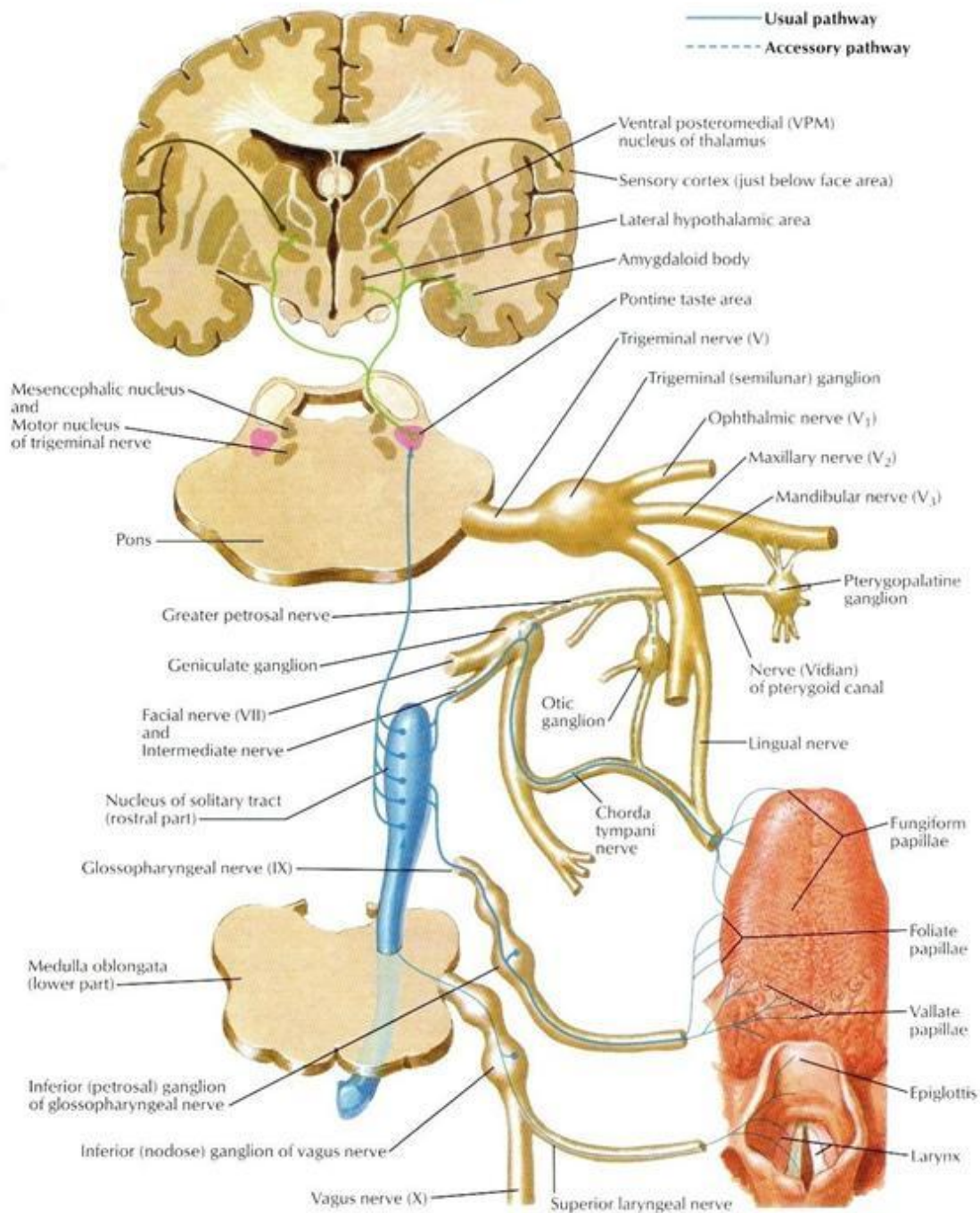
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Otic Ganglion: Schema



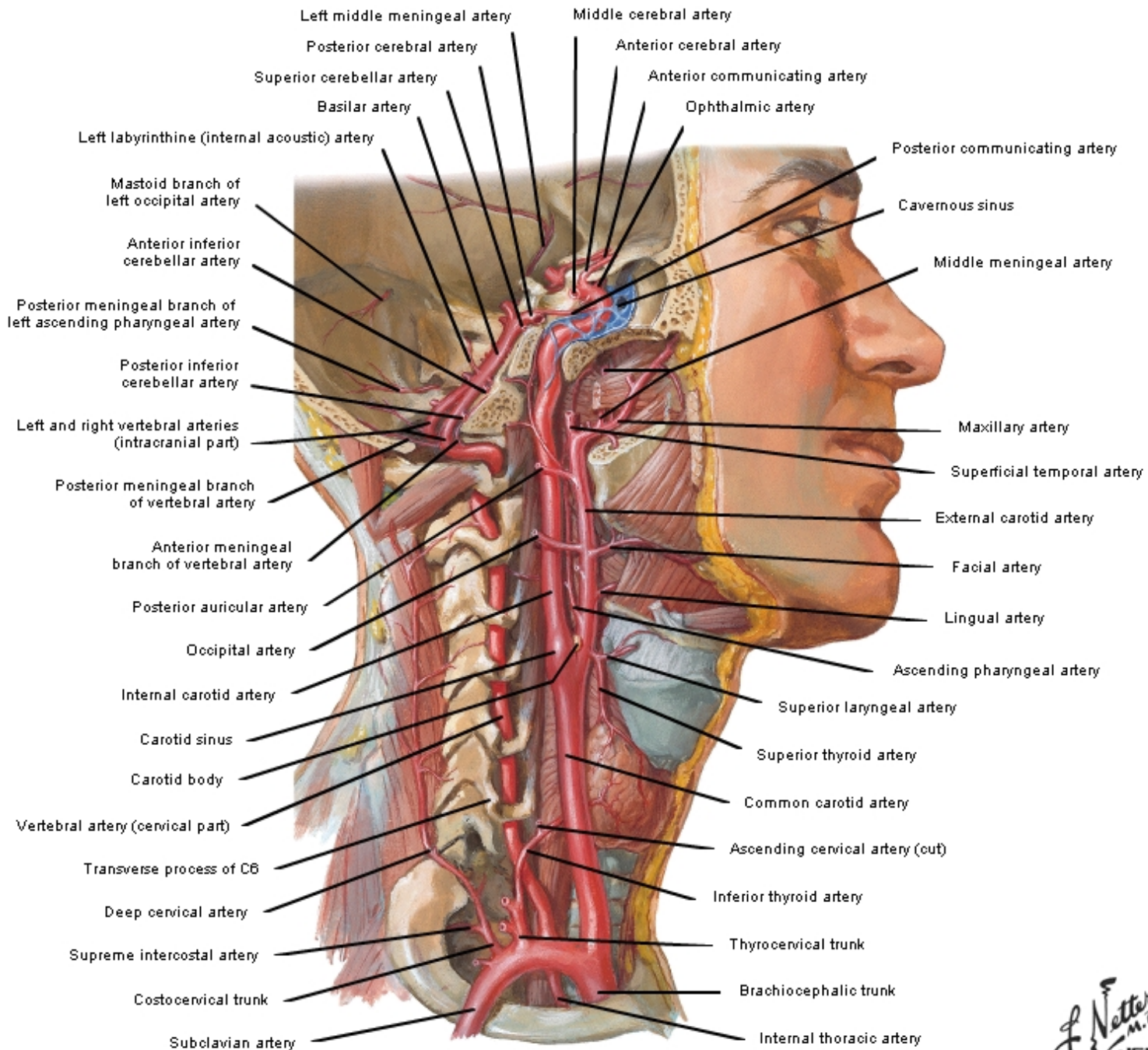
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Taste Pathways: Schema



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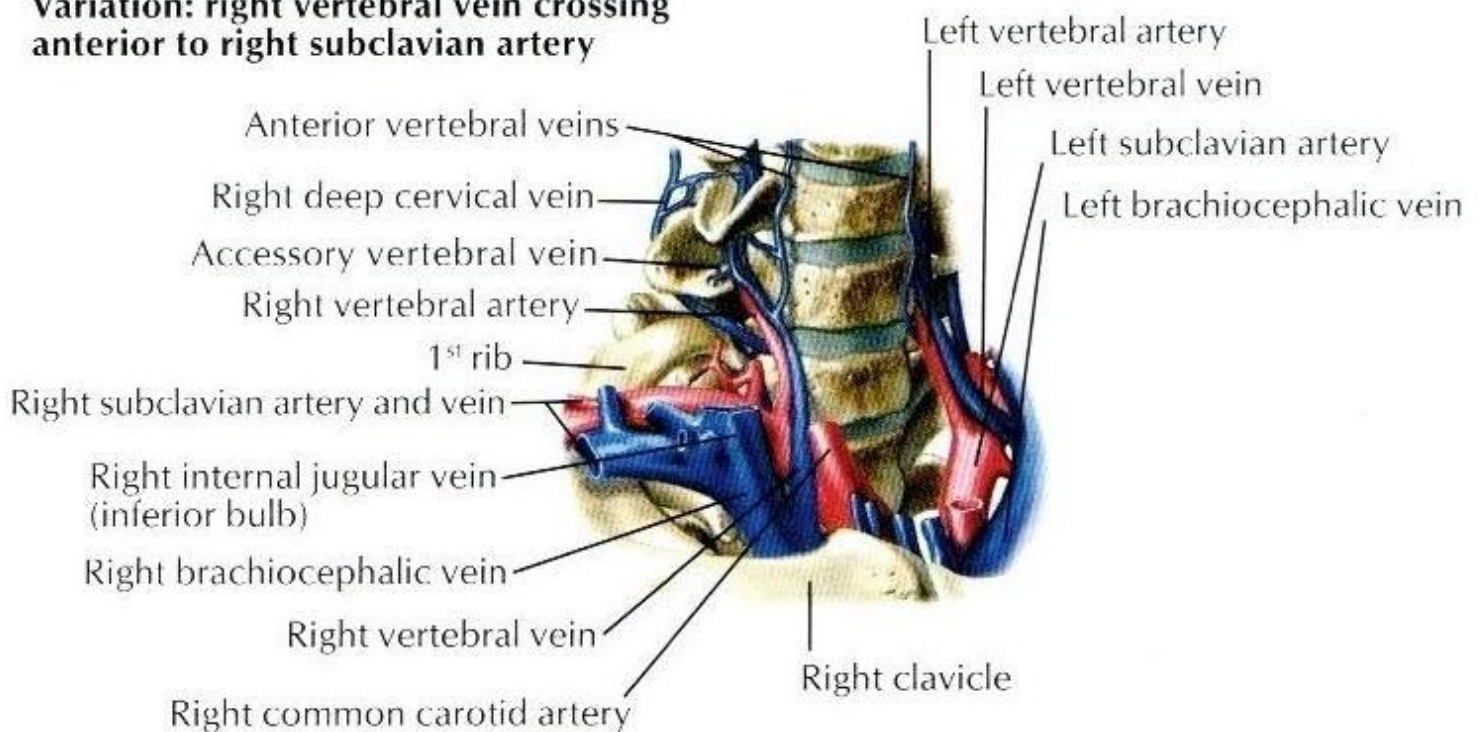
Arteries to Brain and Meninges



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Veins of the Vertebral Column: Vertebral Veins Variation

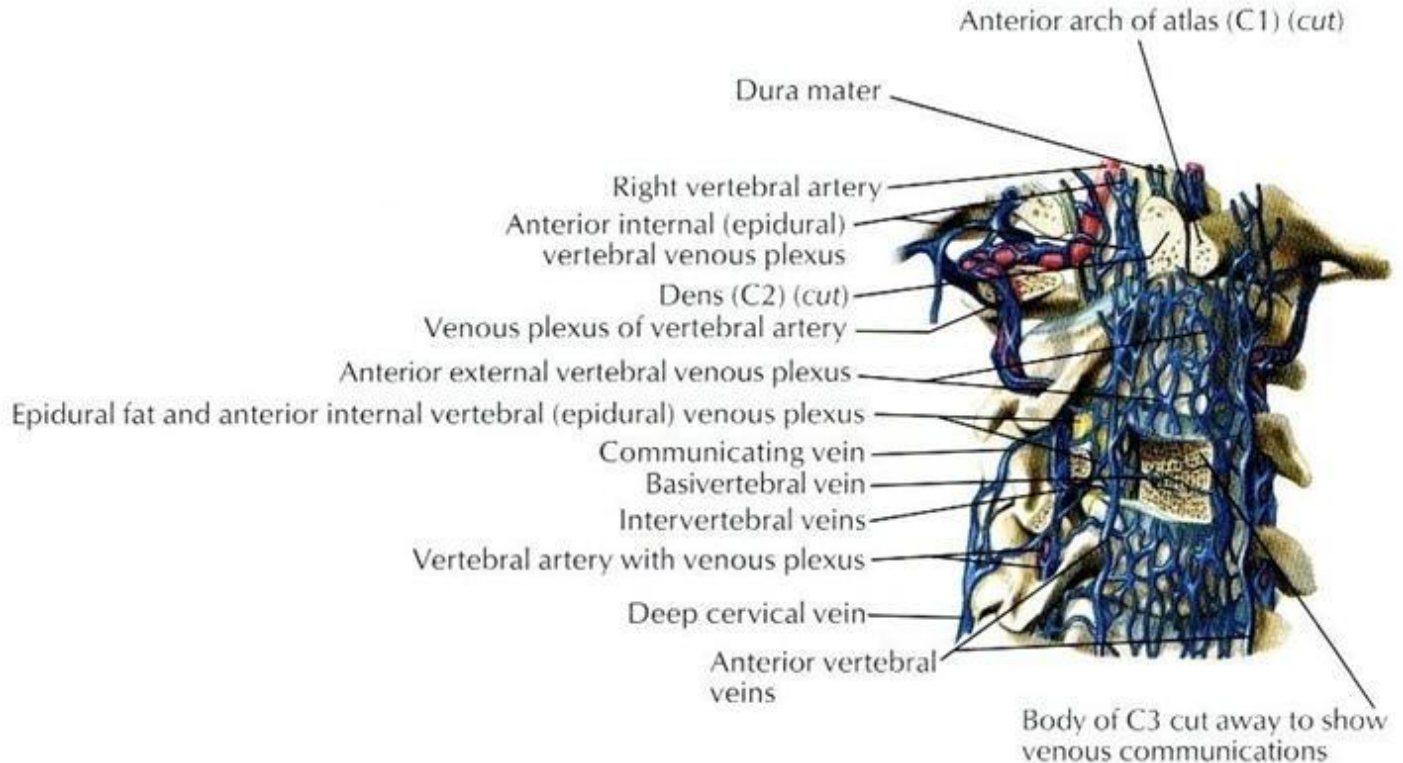
Variation: right vertebral vein crossing anterior to right subclavian artery



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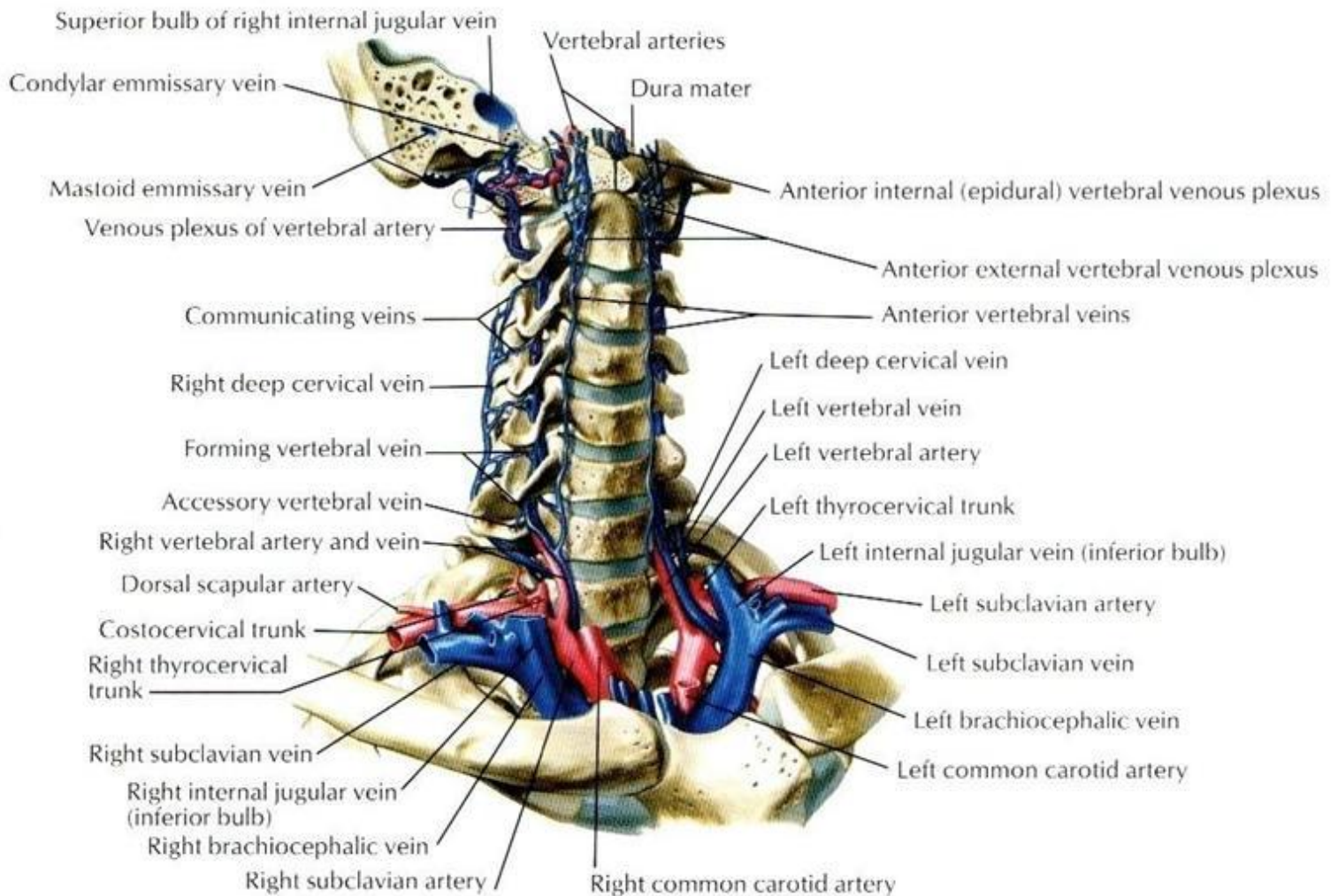
Veins of the Vertebral Column: Vertebral Veins

Vertebral veins: detail showing venous communications



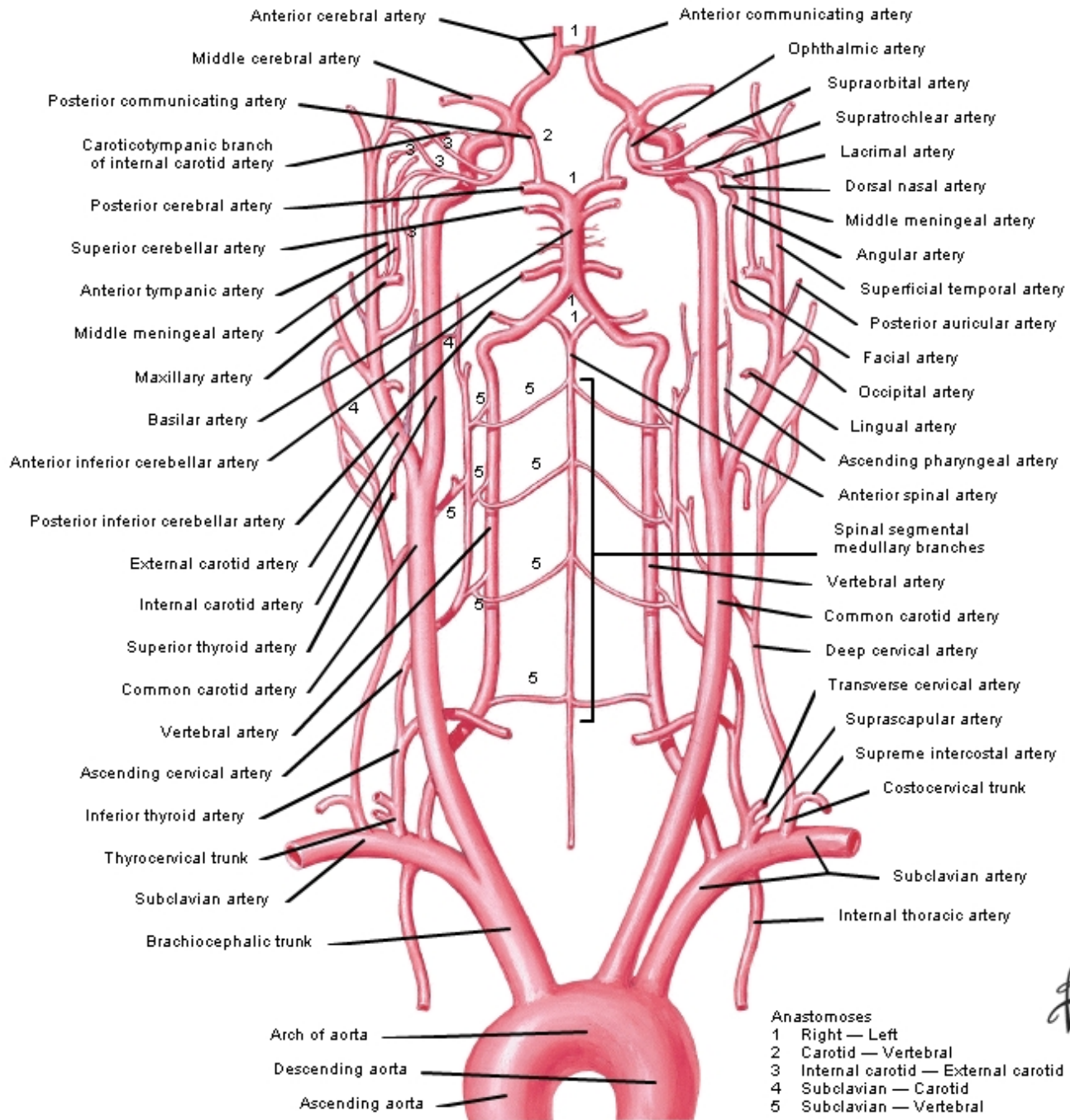
Veins of the Vertebral Column: Vertebral Veins

Veins of the vertebral column: vertebral veins



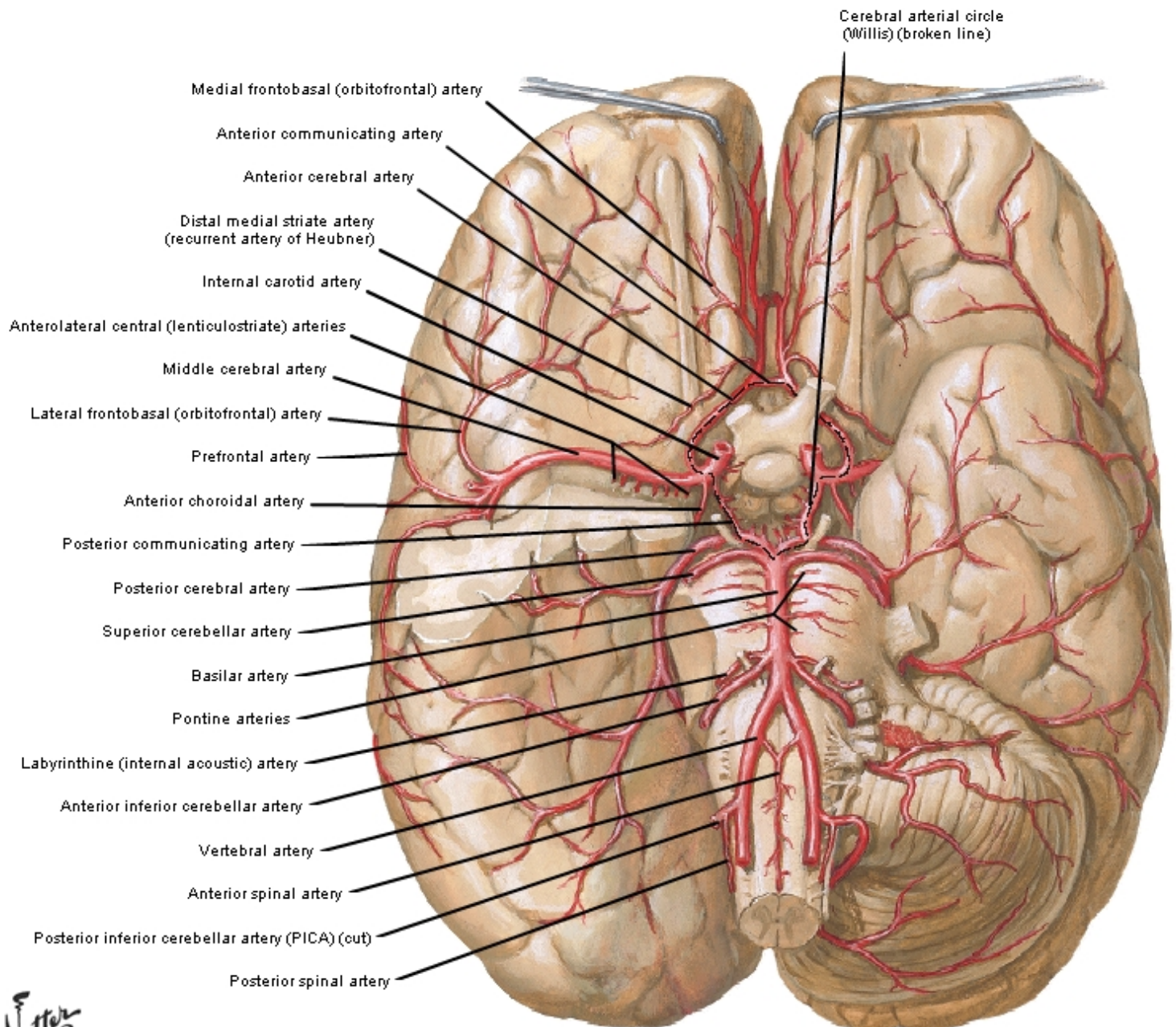
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Arteries to Brain: Schema



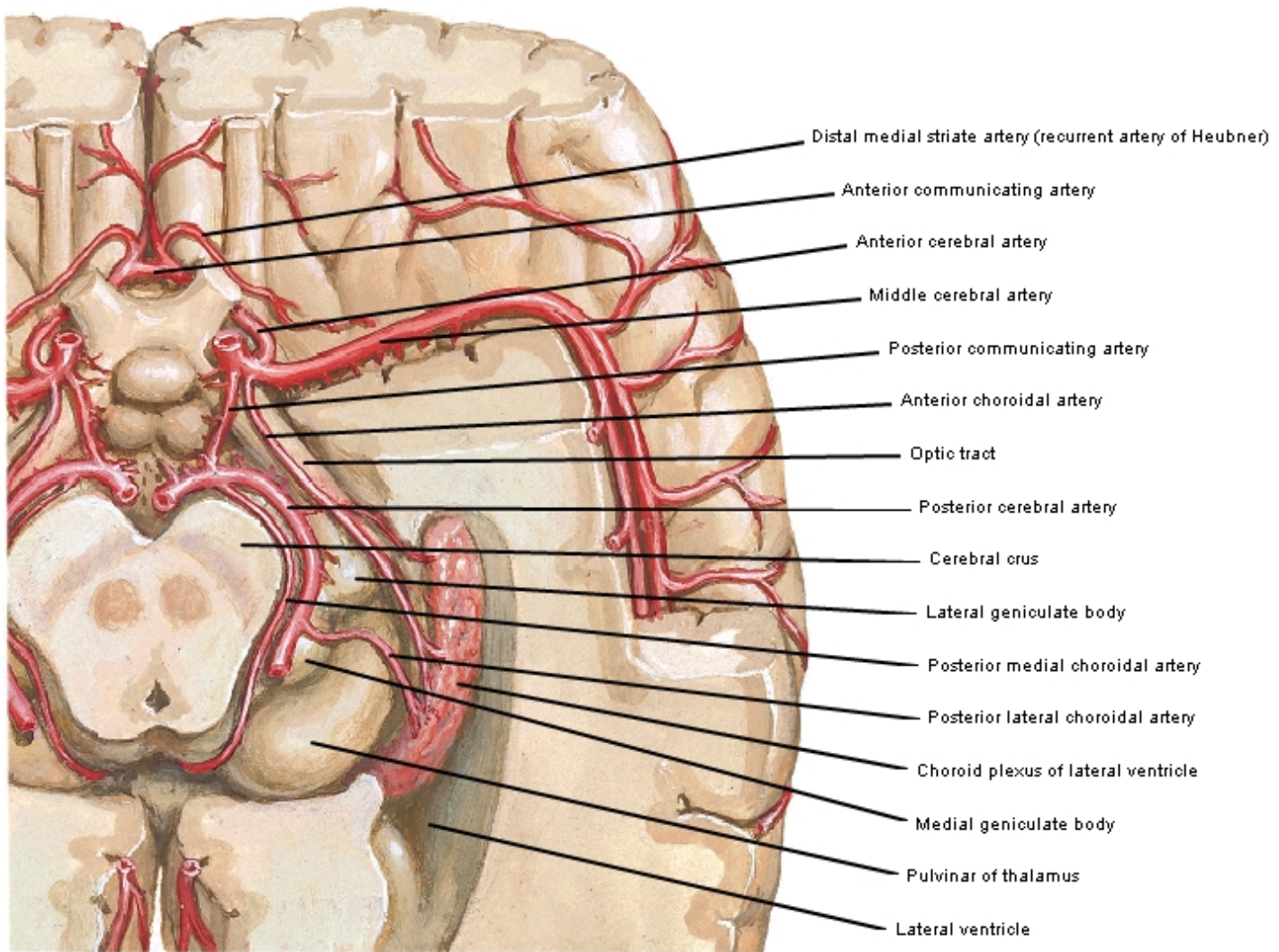
F. Netter M.D.

Arteries of Brain Inferior View



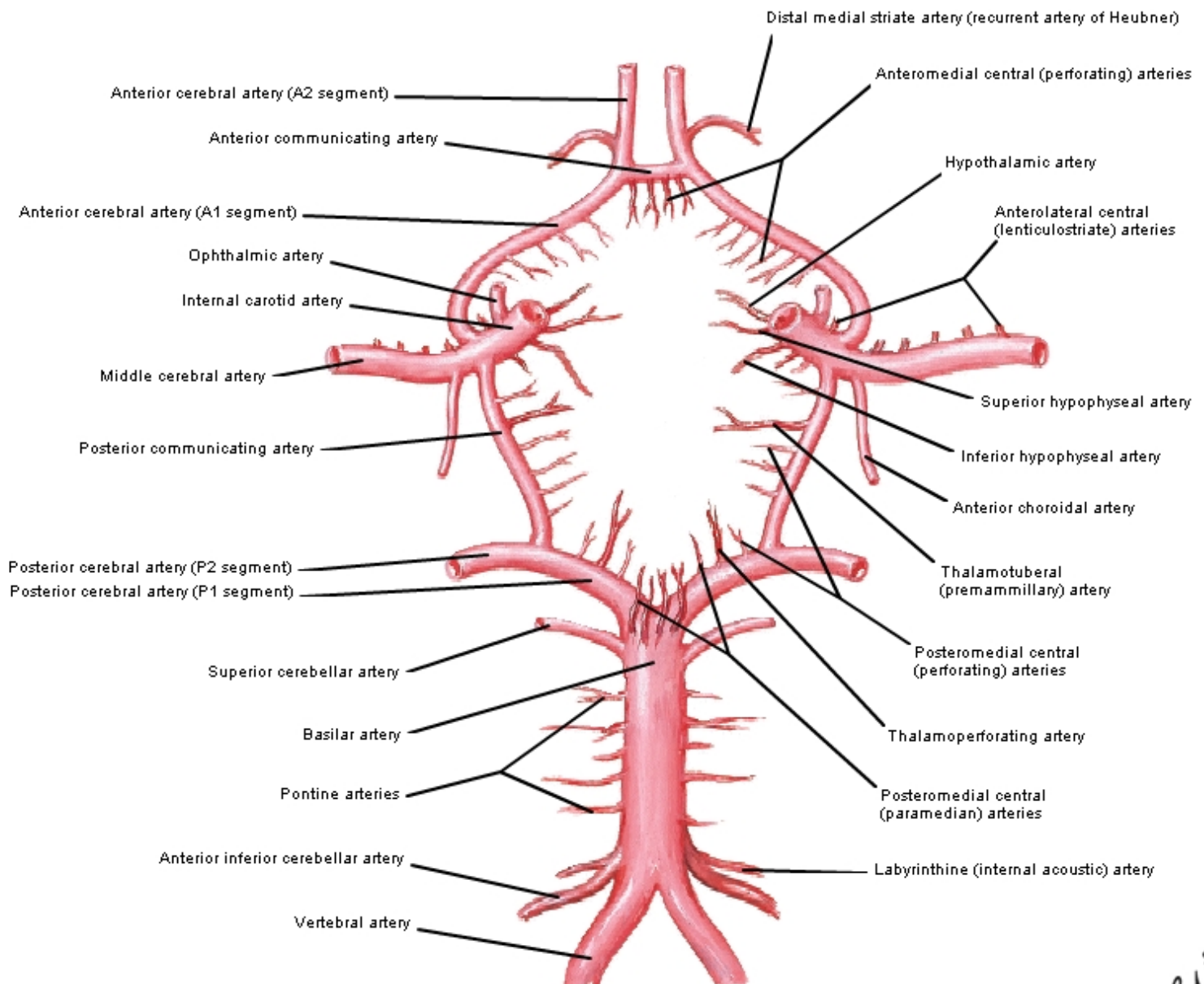
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Arteries of Brain Inferior View



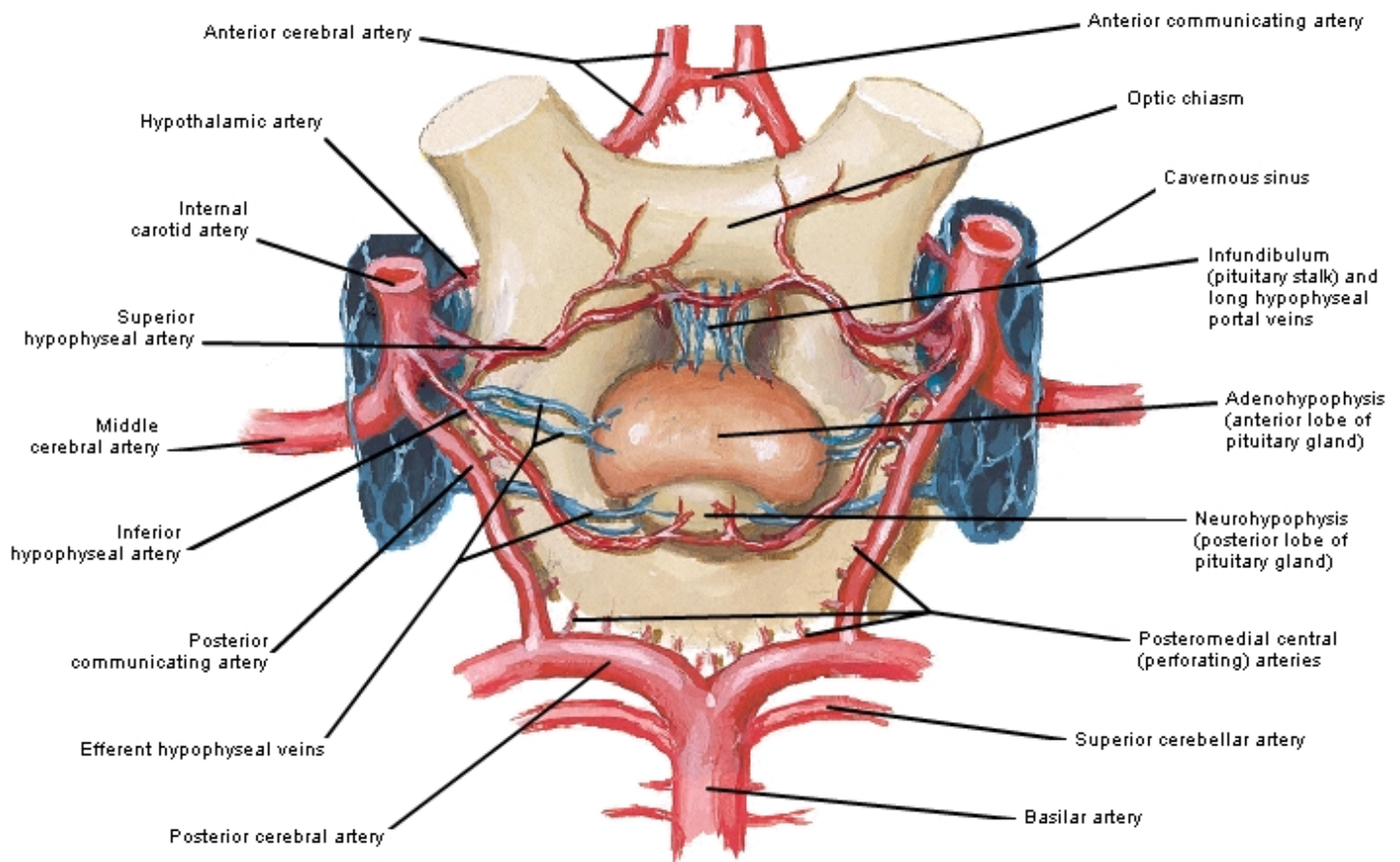
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M.D.
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Cerebral Arterial Circle (Willis) - Vessels Dissected Out Inferior View



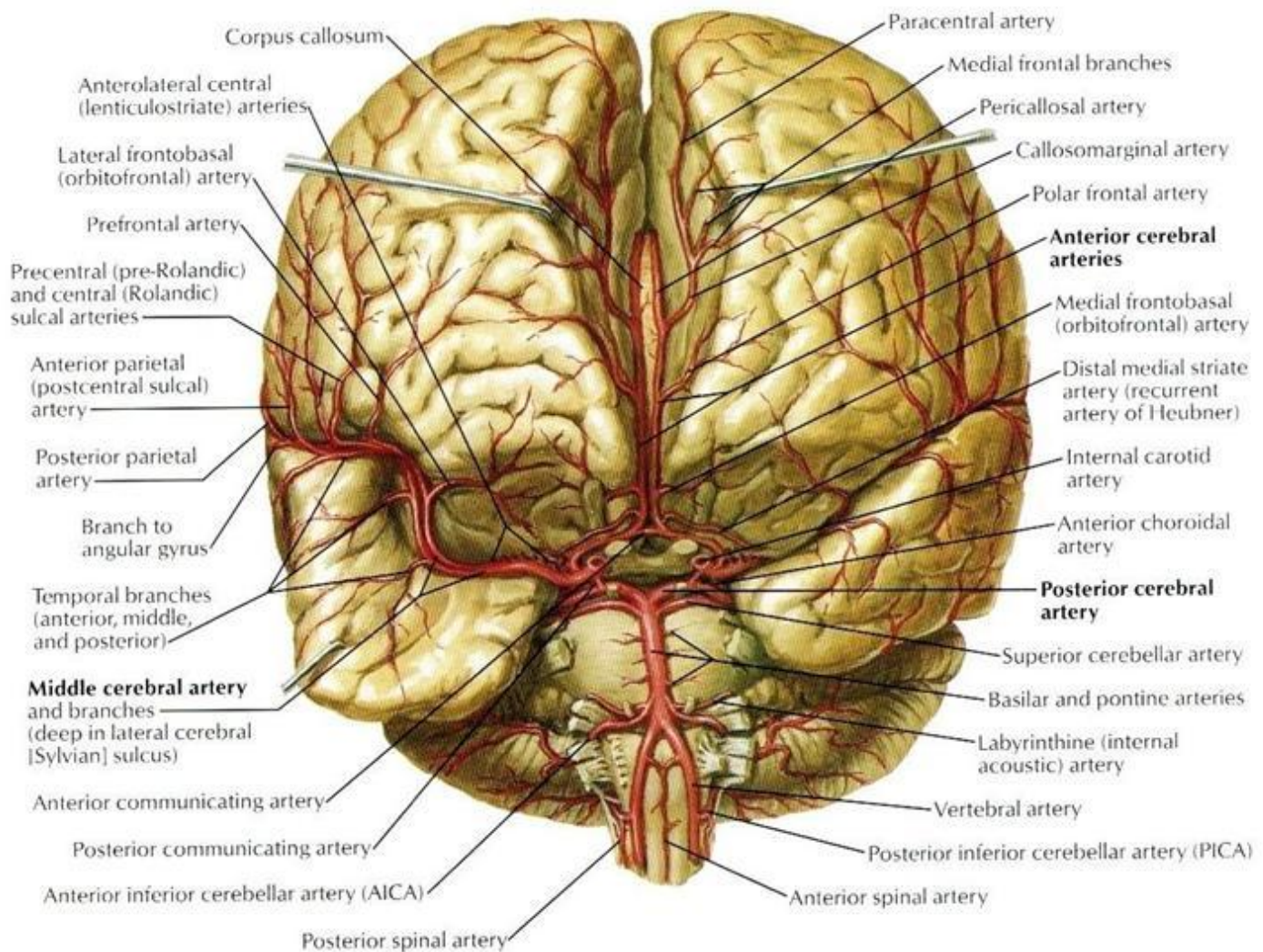
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Cerebral Arterial Circle (Willis) - Vessels In Situ Inferior View



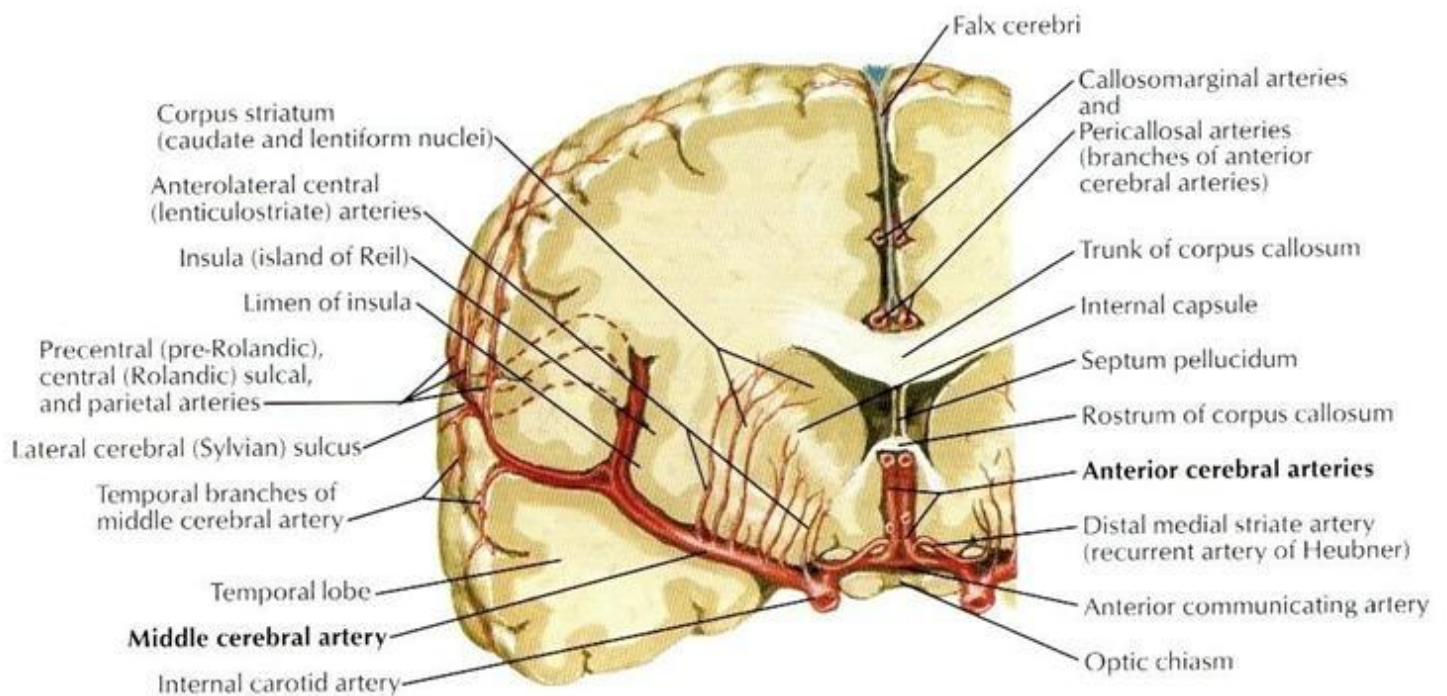
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Arteries of Brain: Frontal View



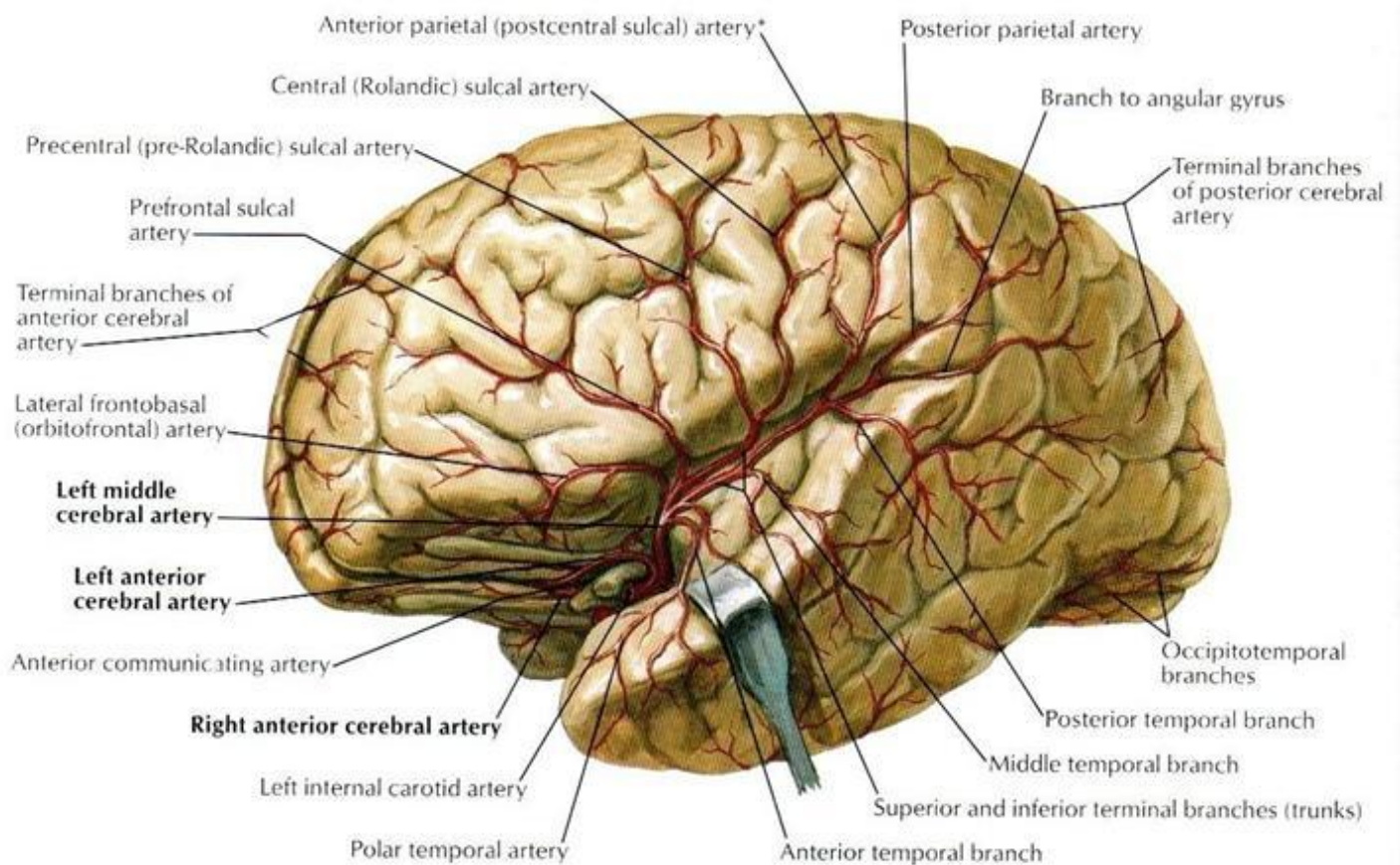
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Arteries of Brain: Section



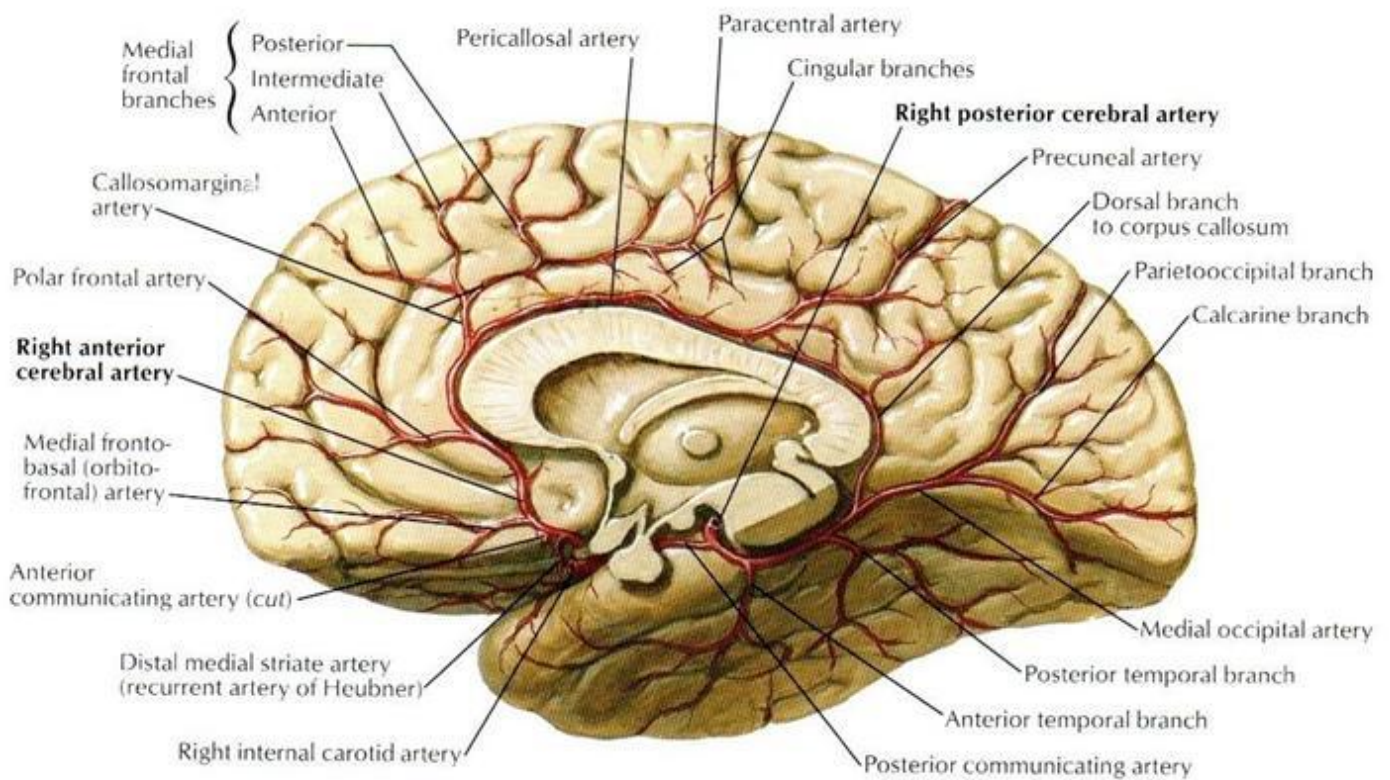
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Arteries of Brain: Lateral View



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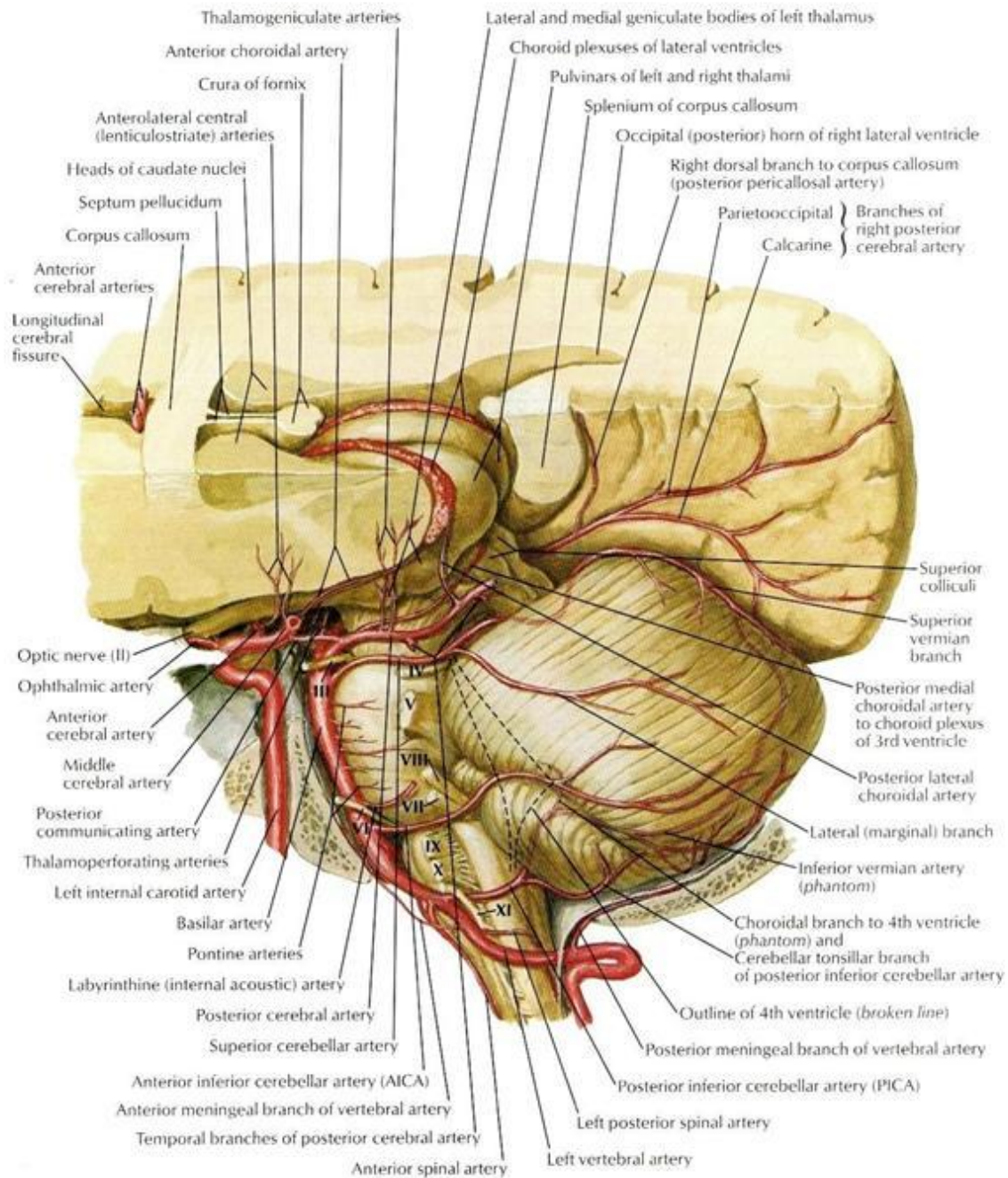
Arteries of Brain: Medial View



*Note: Anterior parietal (postcentral sulcal) artery also occurs as separate anterior parietal and postcentral sulcal arteries.

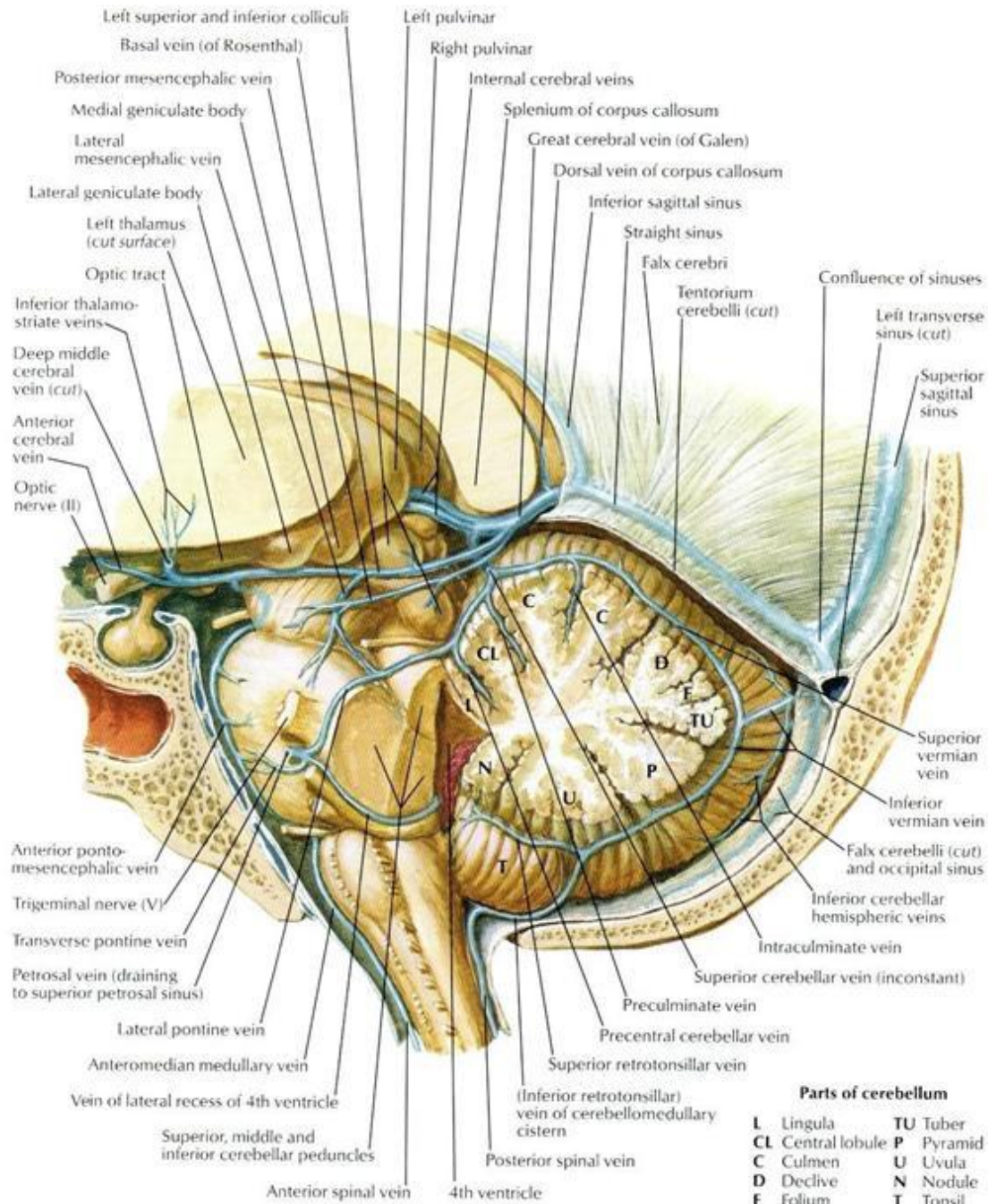
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Arteries of Posterior Cranial Fossa



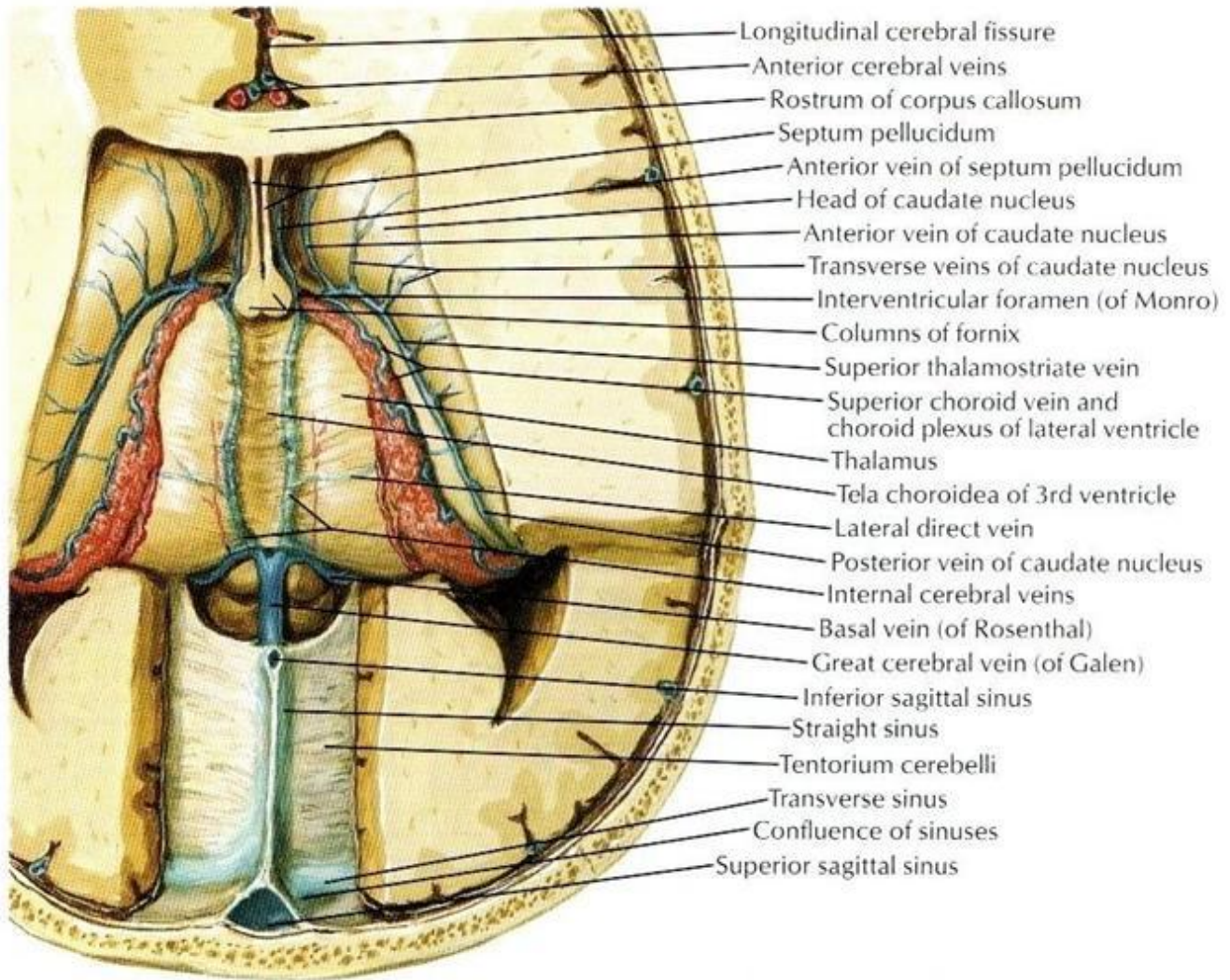
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Viens of Posterior Cranial Fossa



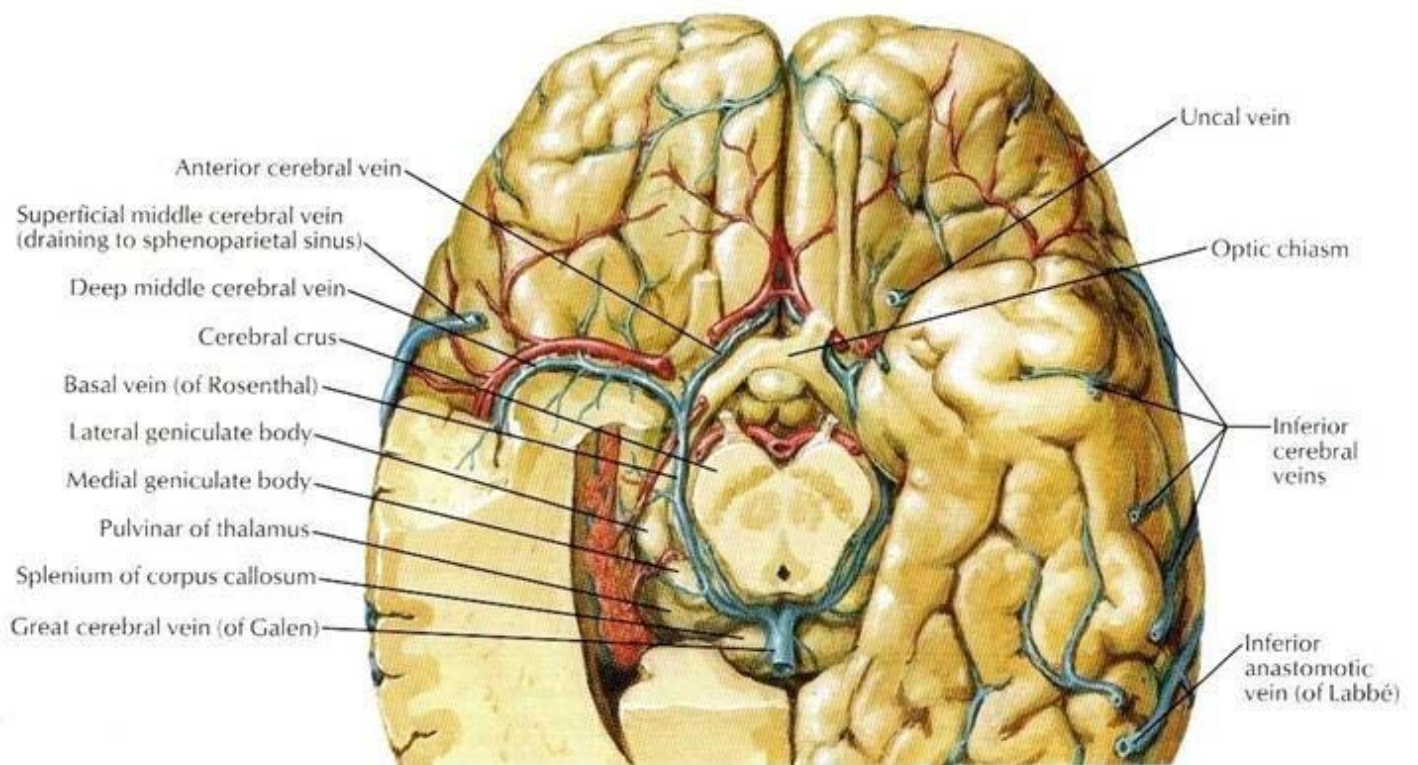
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Deep Viens of Brain: Superior View



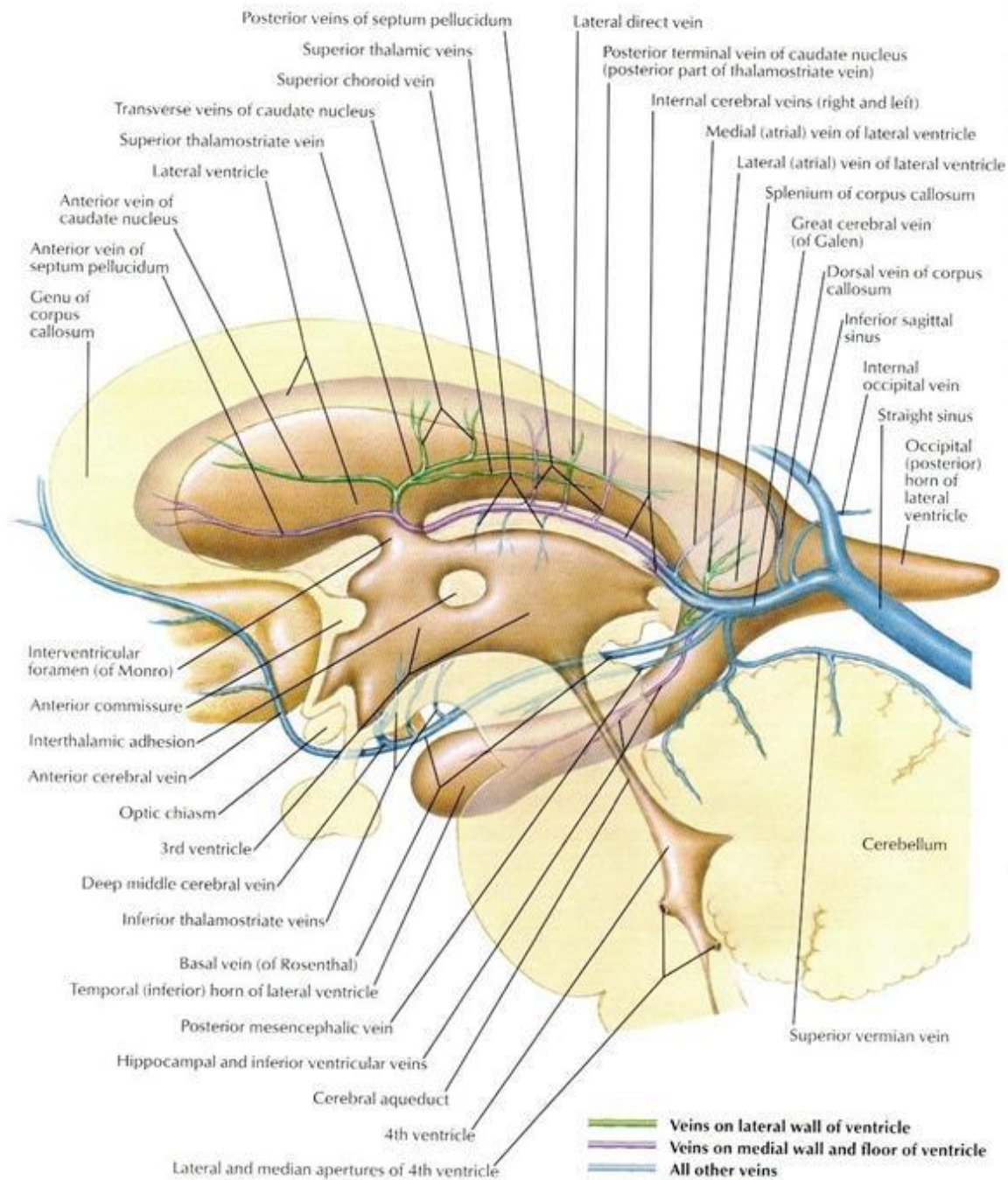
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Deep Veins of Brain: Inferior View



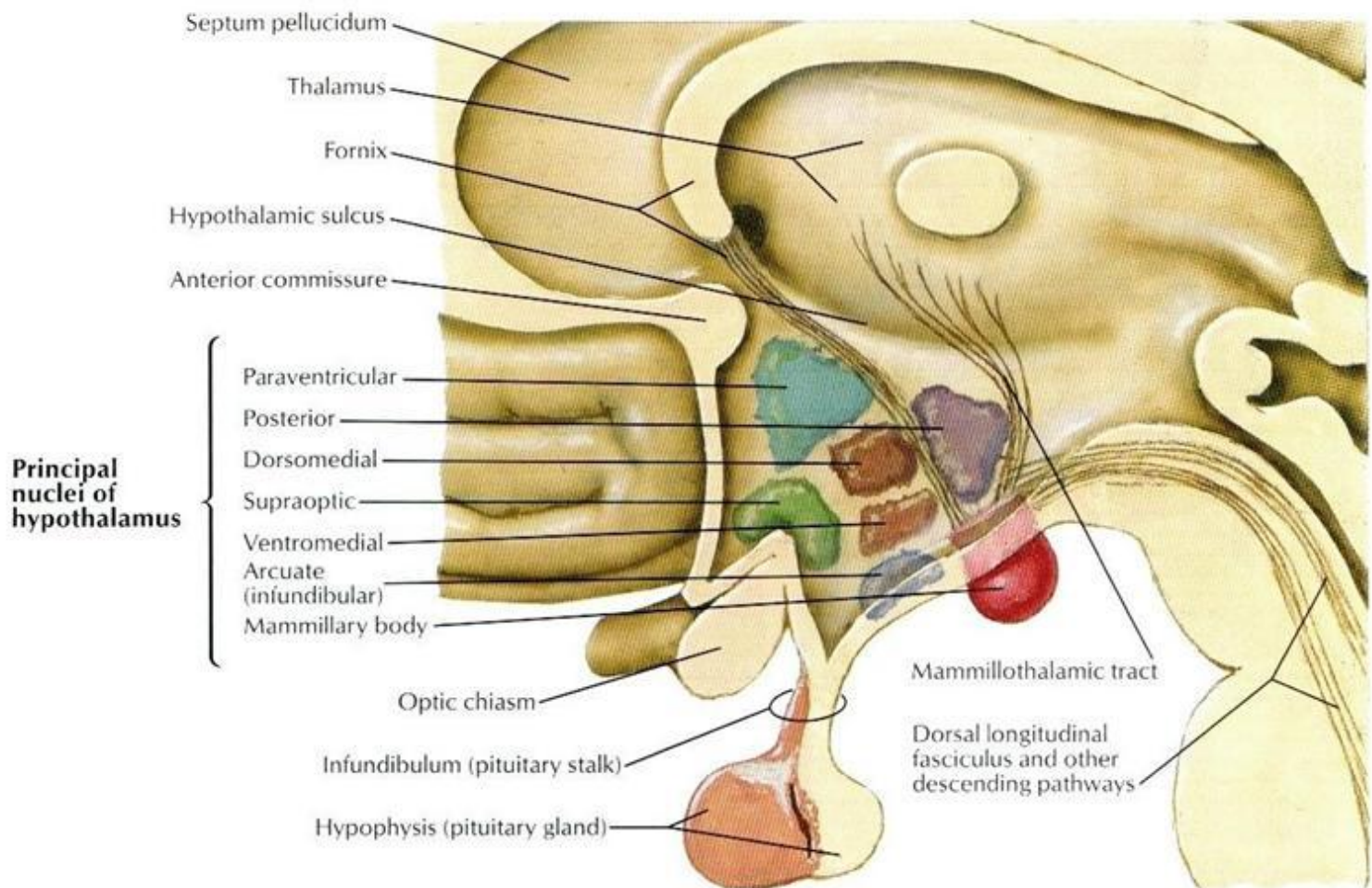
F. Netter M.D.
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Subependymal Veins of Brain



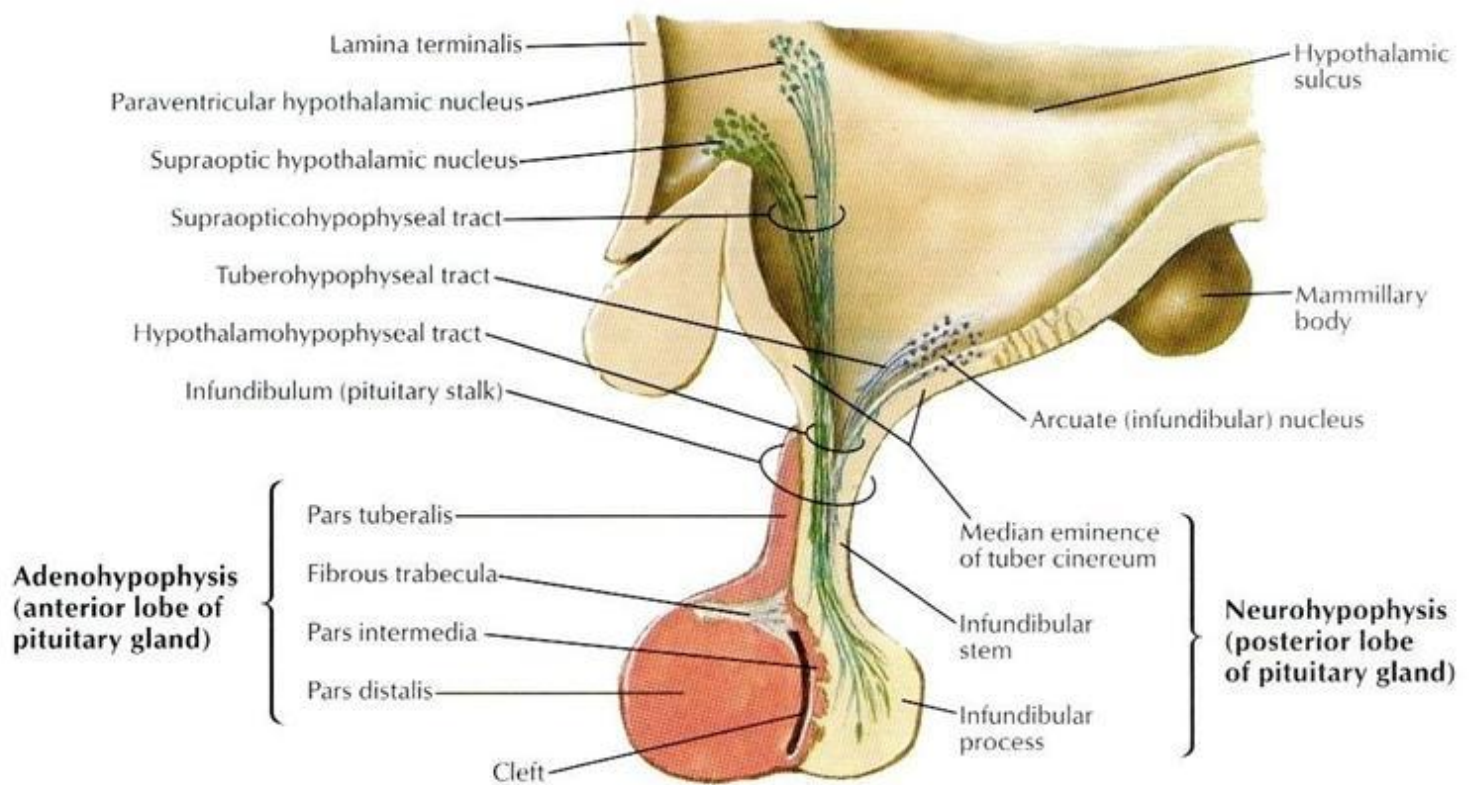
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Hypothalamus



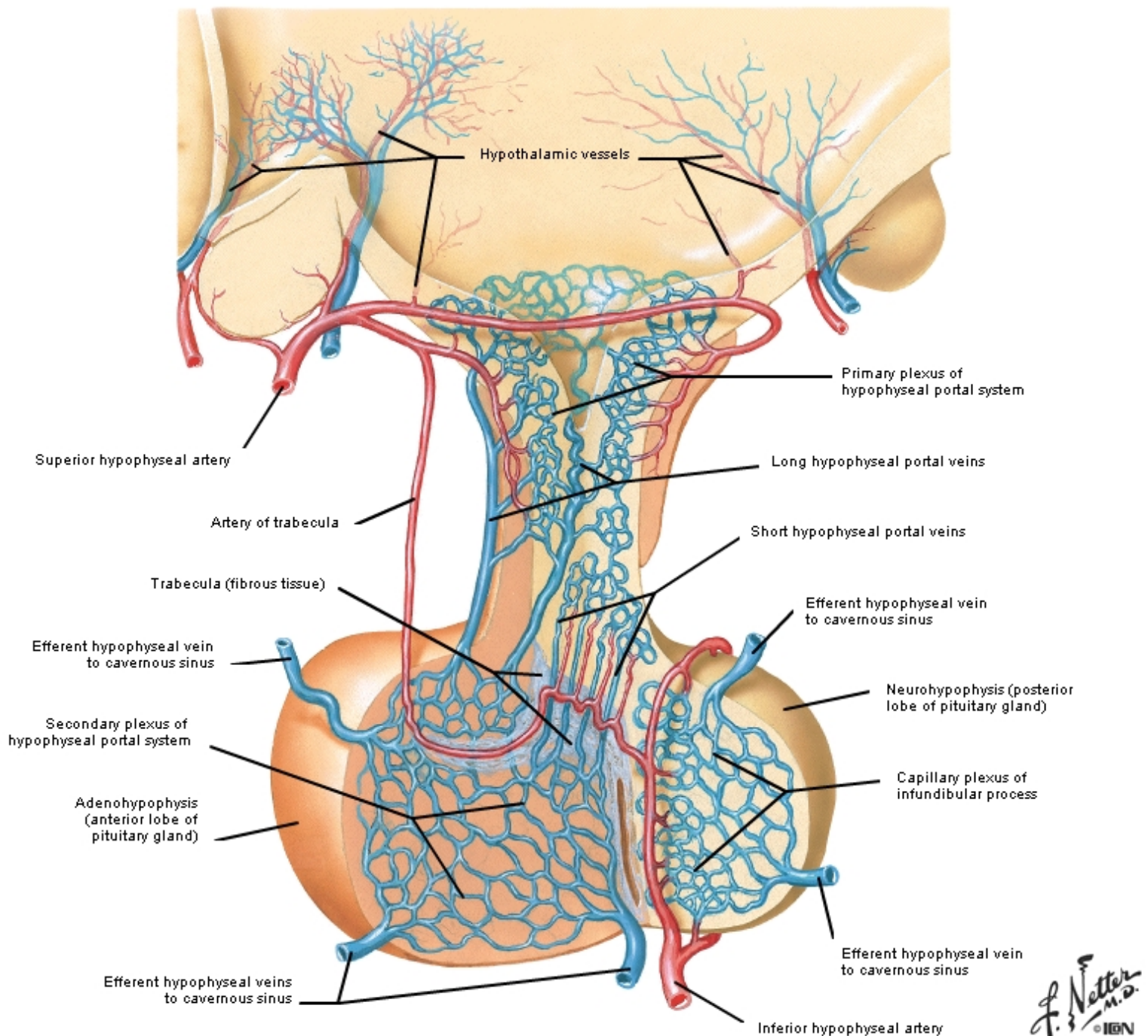
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Hypophysis



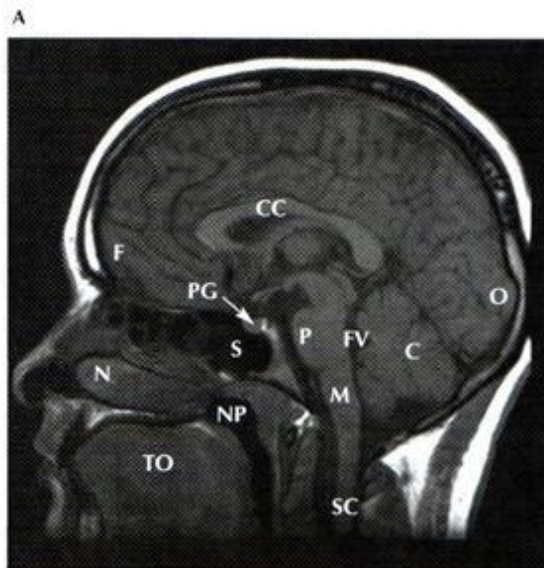
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Arteries and Veins of Hypothalamus and Hypophysis

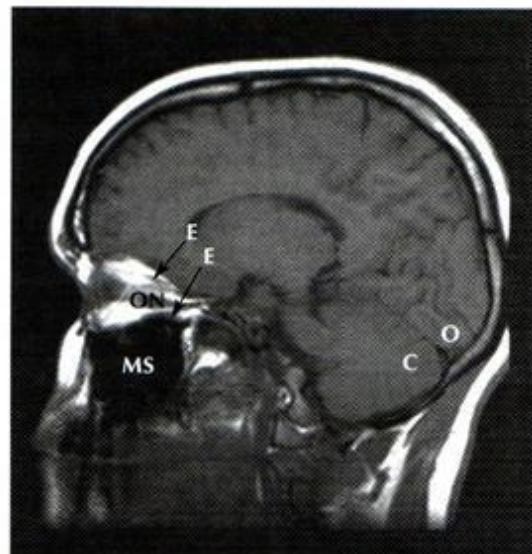
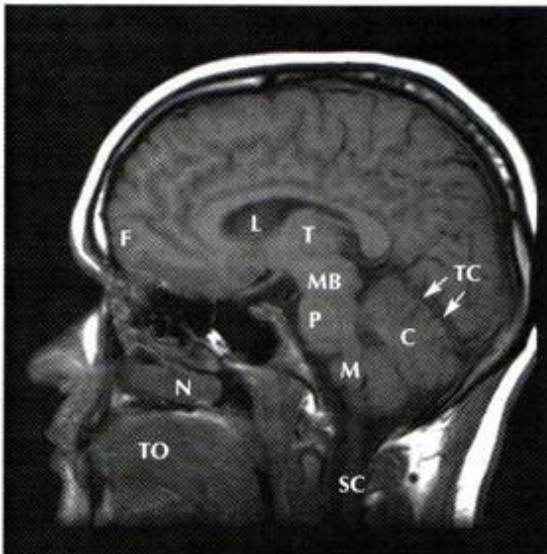


Head Scans: Sagittal MR Images

Median (A) and paramedian (B, C) sagittal MR images



C	Cerebellum	N	Inferior nasal concha
CC	Corpus callosum	NP	Nasopharynx
E	Extraocular muscles	O	Occipital pole
F	Frontal pole	ON	Optic nerve
FV	Fourth ventricle	P	Pons
L	Lateral ventricle	PG	Pituitary gland
M	Medulla oblongata	S	Sphenoid sinus
MB	Midbrain	SC	Spinal cord
MS	Maxillary sinus	T	Thalamus
		TC	Tentorium cerebelli
		TO	Tongue

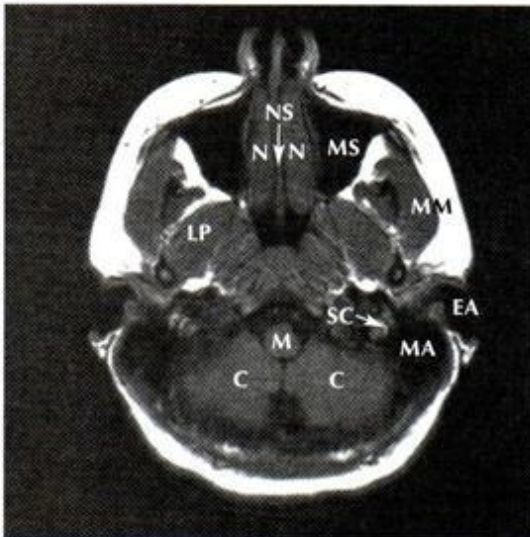


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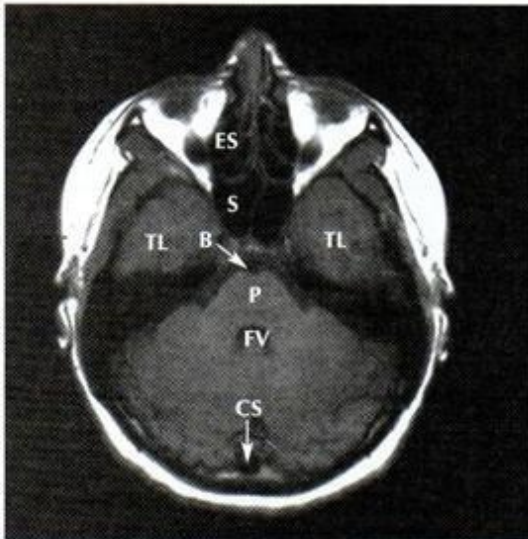
Head Scans: Axial CT Images

Axial CT images of the head from inferior (A) to superior (C)

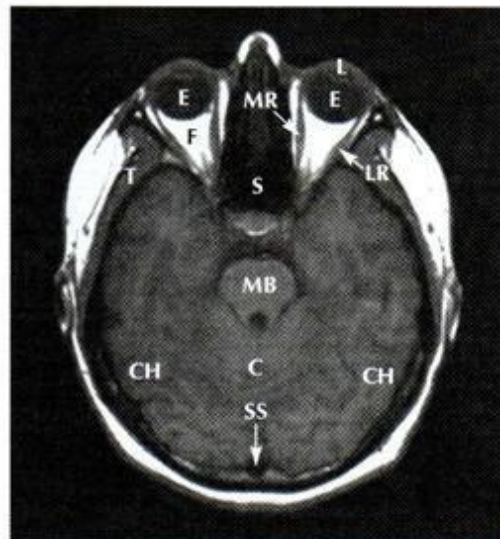
A



- | | | | |
|----|--------------------------|----|-------------------------|
| B | Basilar artery | M | Medulla oblongata |
| C | Cerebellum | MA | Mastoid air cells |
| CH | Cerebral hemisphere | MB | Midbrain |
| CS | Confluence of sinuses | MM | Masseter muscle |
| E | Eye | MR | Medial rectus muscle |
| EA | External acoustic meatus | MS | Maxillary sinus |
| ES | Ethmoid sinus | N | Nasal concha |
| F | Fat in orbit | NS | Nasal septum |
| FV | Fourth ventricle | P | Pons |
| L | Lens | S | Sphenoid sinus |
| LP | Lateral pterygoid muscle | SC | Semicircular canals |
| LR | Lateral rectus muscle | SS | Superior sagittal sinus |
| | | T | Temporalis muscle |
| | | TL | Temporal lobe |



B

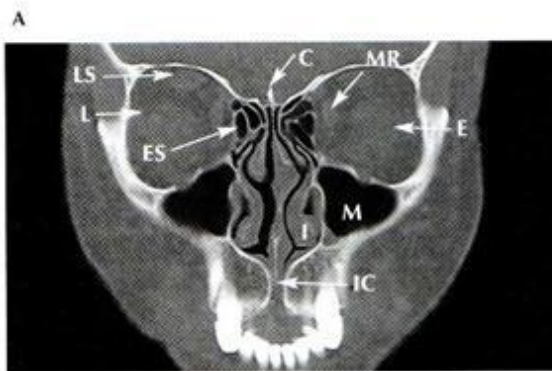


C

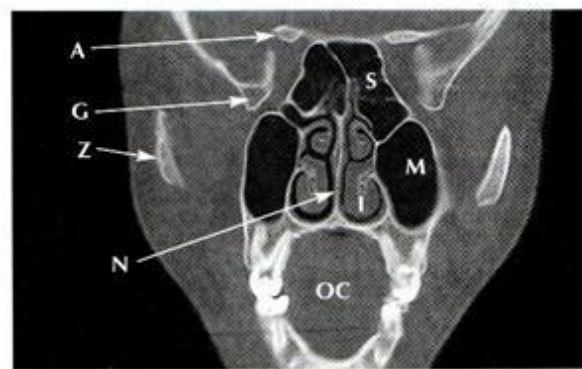
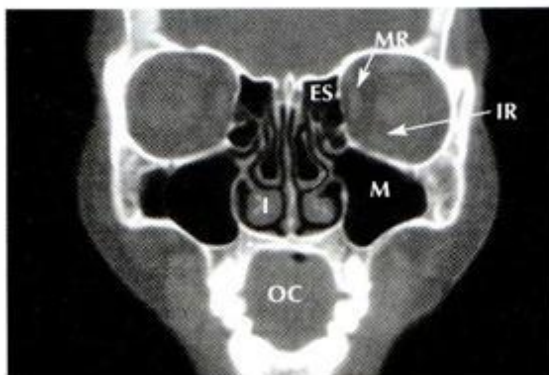
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Head Scans: Coronal CT Images

Coronal CT images of the head from anterior (A) to posterior (C)



- | | | | |
|----|------------------------------|----|--|
| A | Anterior clinoid process | L | Lateral rectus muscle |
| C | Crista galli | LS | Levator palpebrae superioris and superior rectus muscles |
| E | Eye (vitreous chamber) | M | Maxillary sinus |
| ES | Ethmoid sinus | MR | Medial rectus muscle |
| G | Greater wing of the sphenoid | N | Nasal septum |
| I | Inferior nasal concha | OC | Oral cavity |
| IC | Incisive canal | S | Sphenoid sinus |
| IR | Inferior rectus muscle | Z | Zygomatic arch |

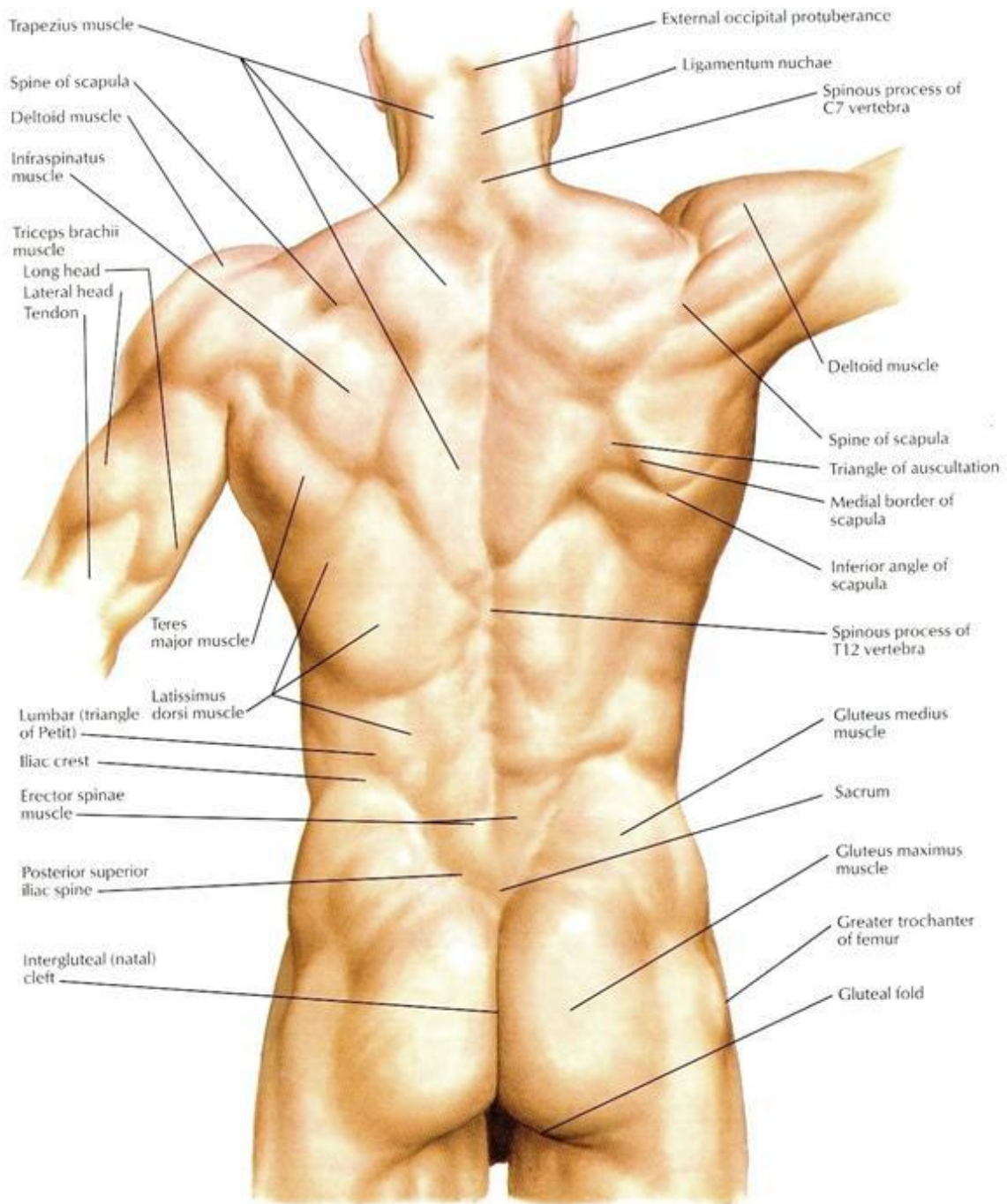


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Section 2 Back and Spinal Cord

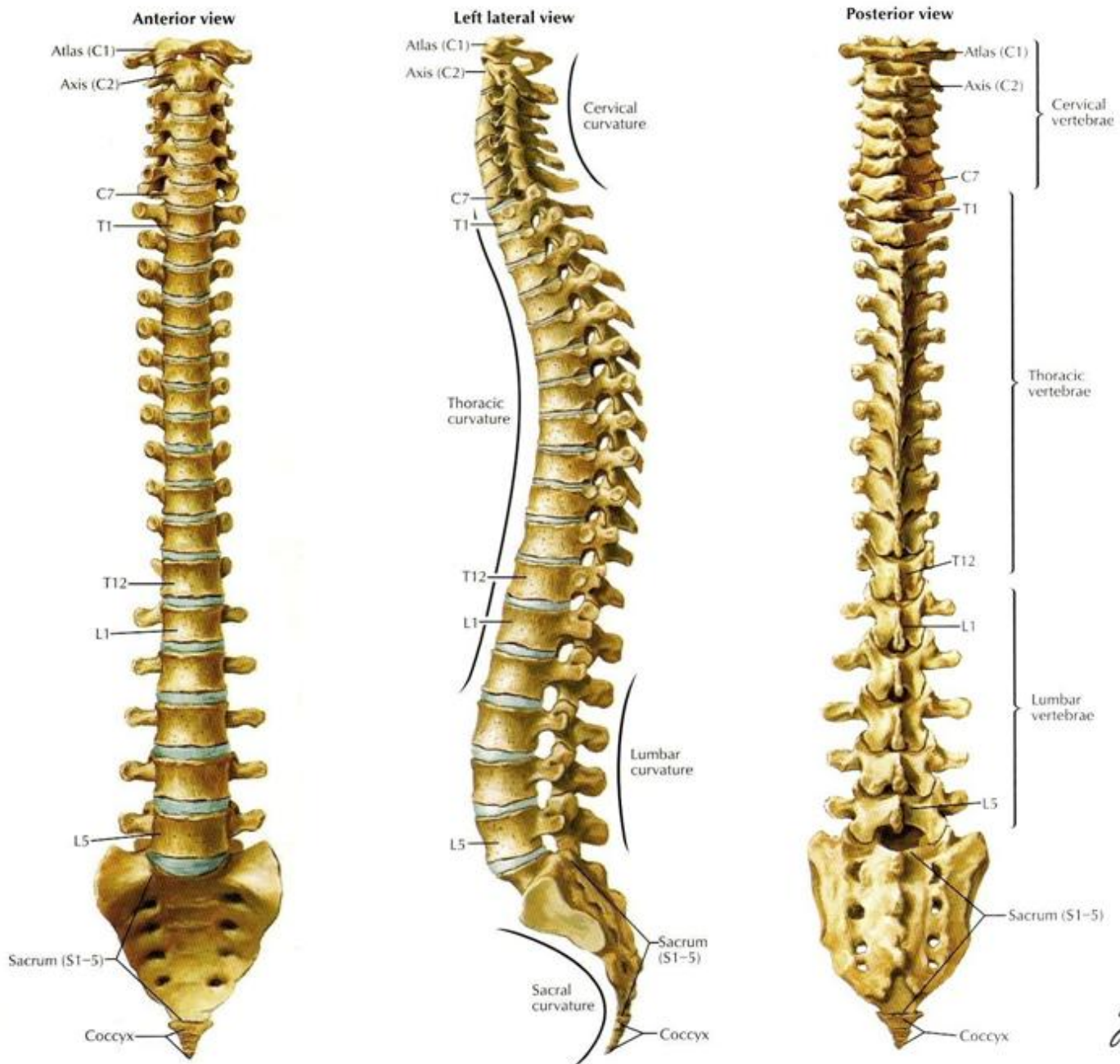
BACK AND SPINAL CORD

Back

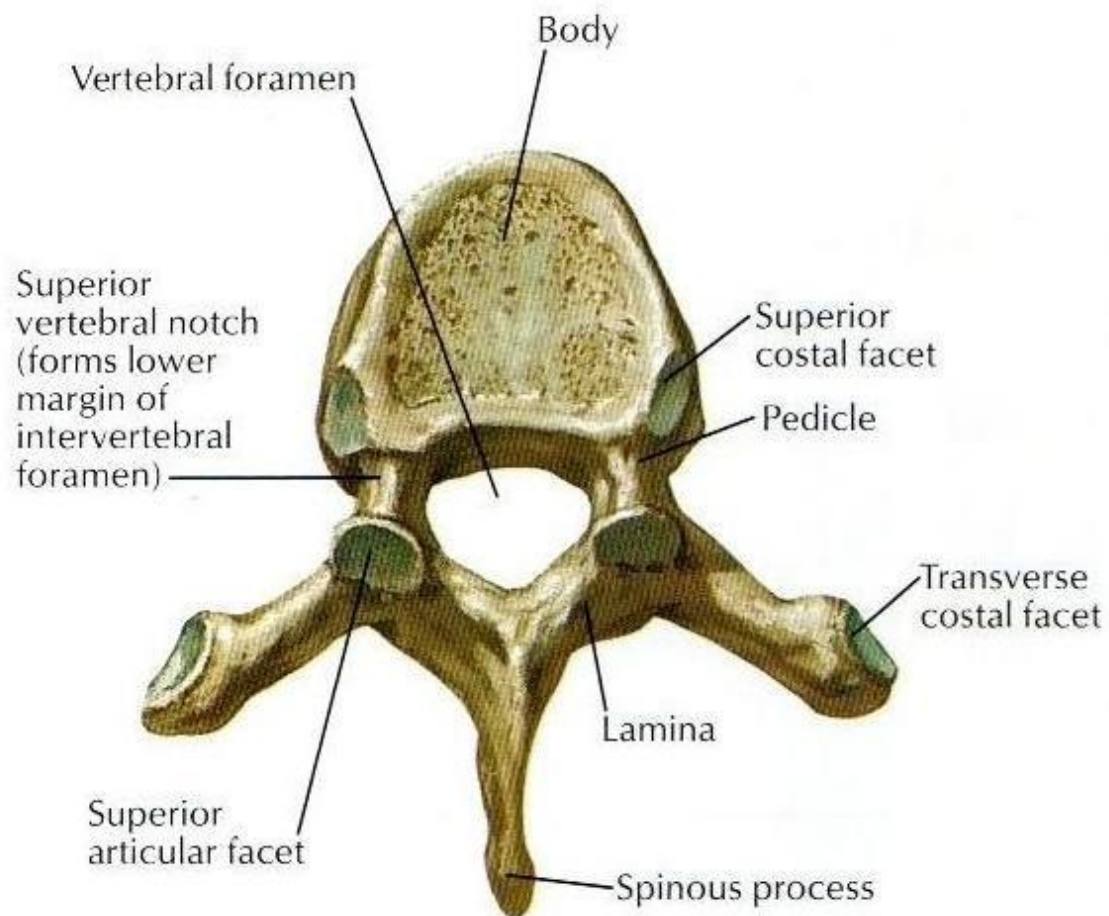


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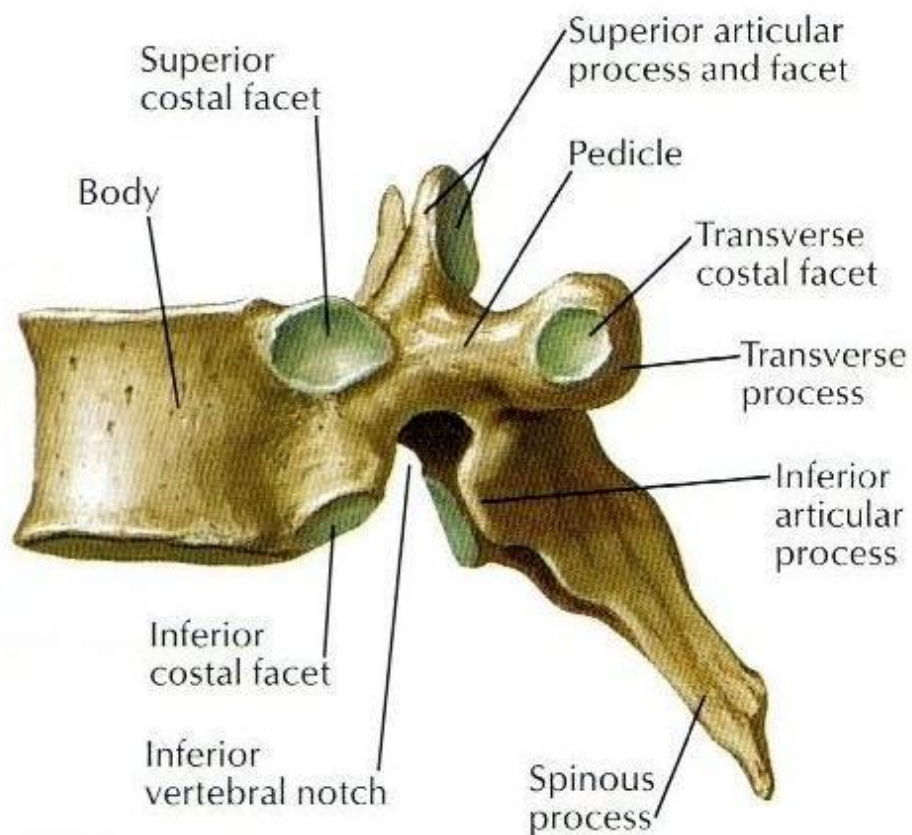
Vertebral Column



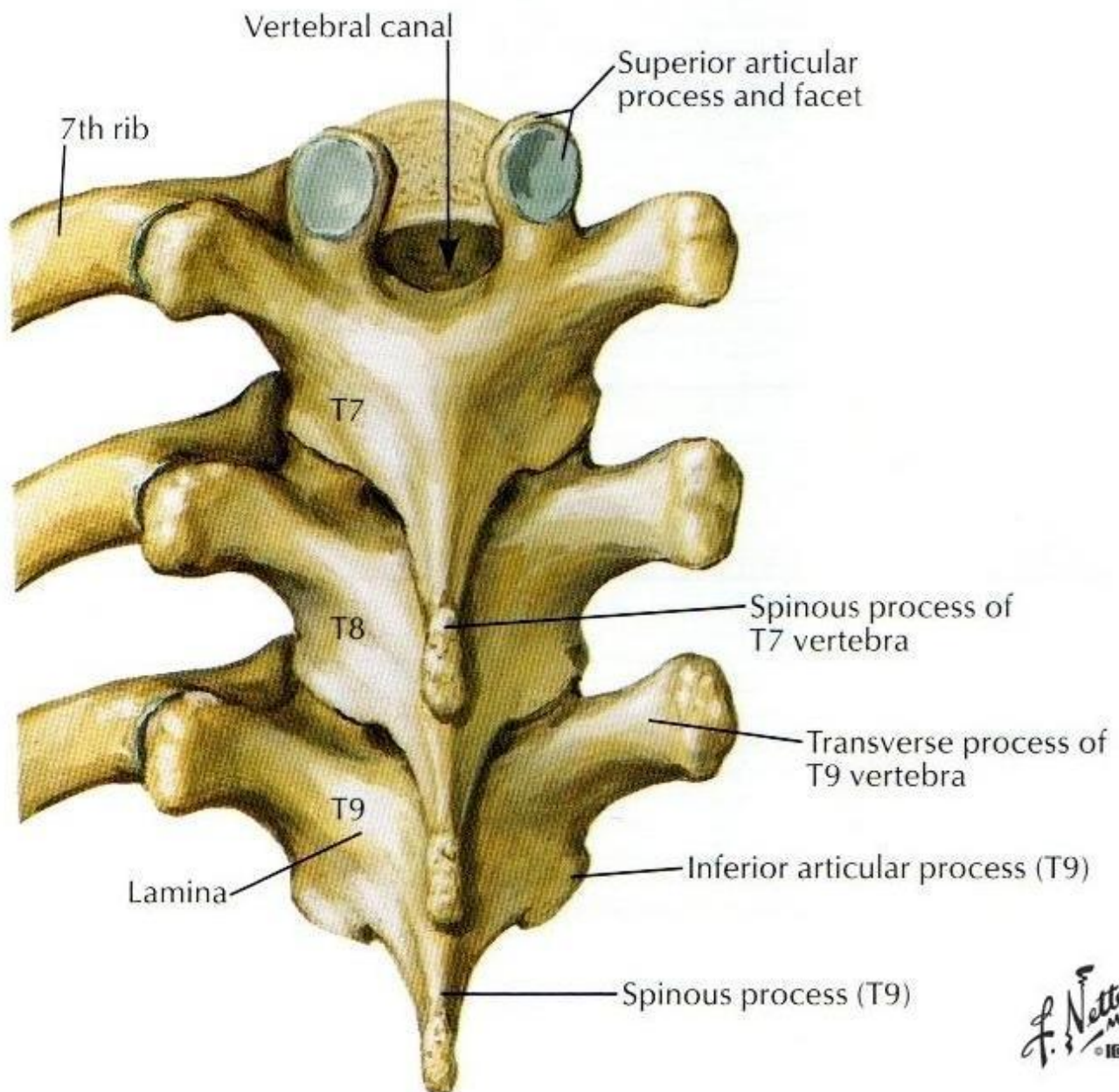
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Thoracic Vertebrae: T6 Vertebrae Superior View

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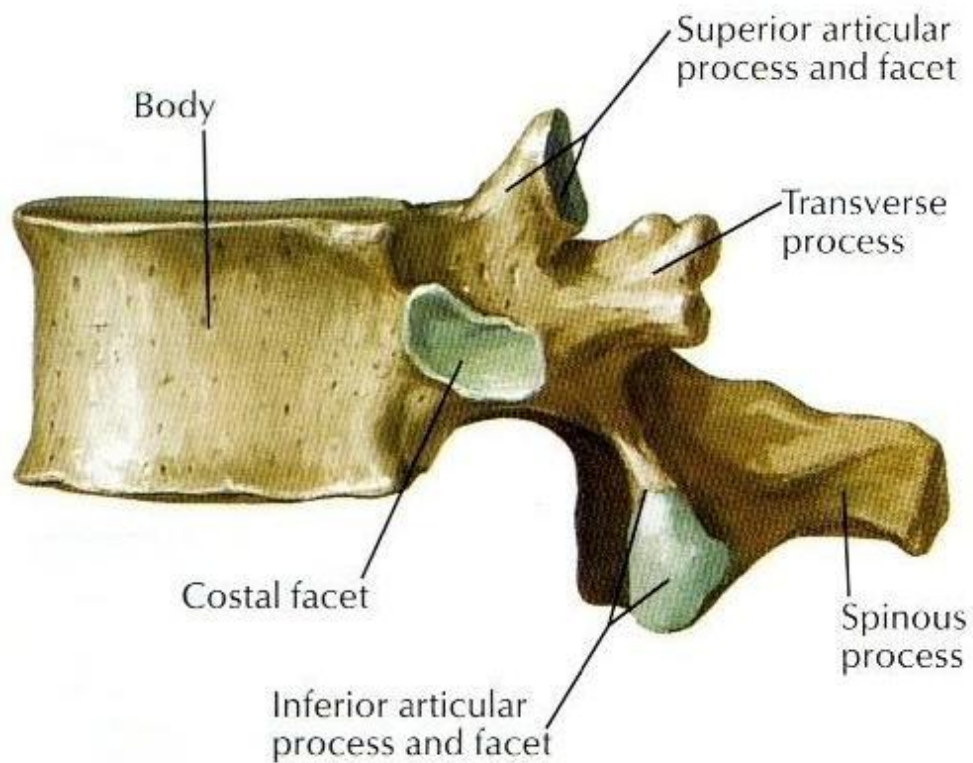
Thoracic Vertebrae: T6 Vertebra Lateral View

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Thoracic Vertebrae: T7, T8 and T9 Vertebrae Posterior View

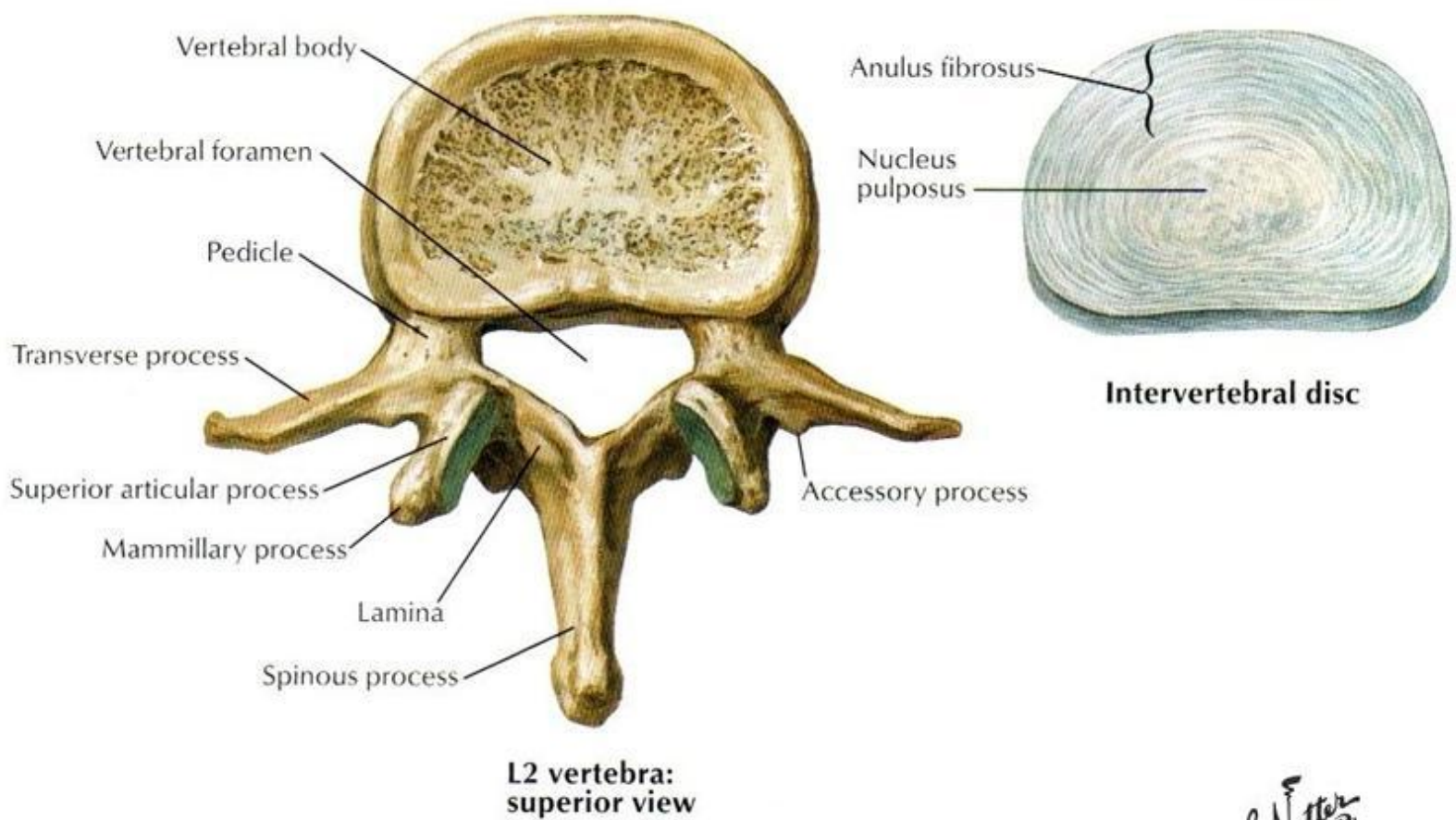
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Thoracic Vertebrae: T12 Vertebra Lateral View



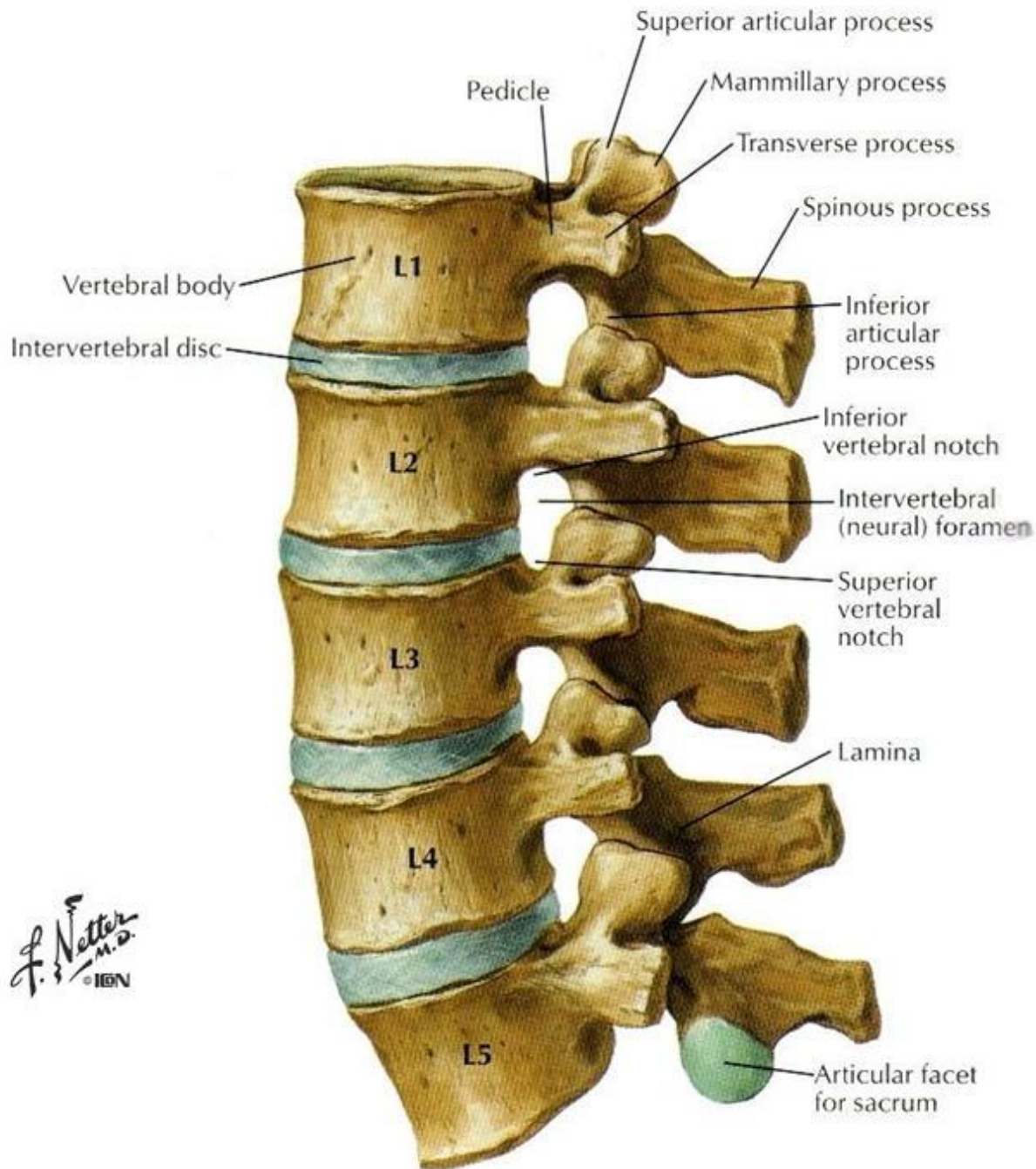
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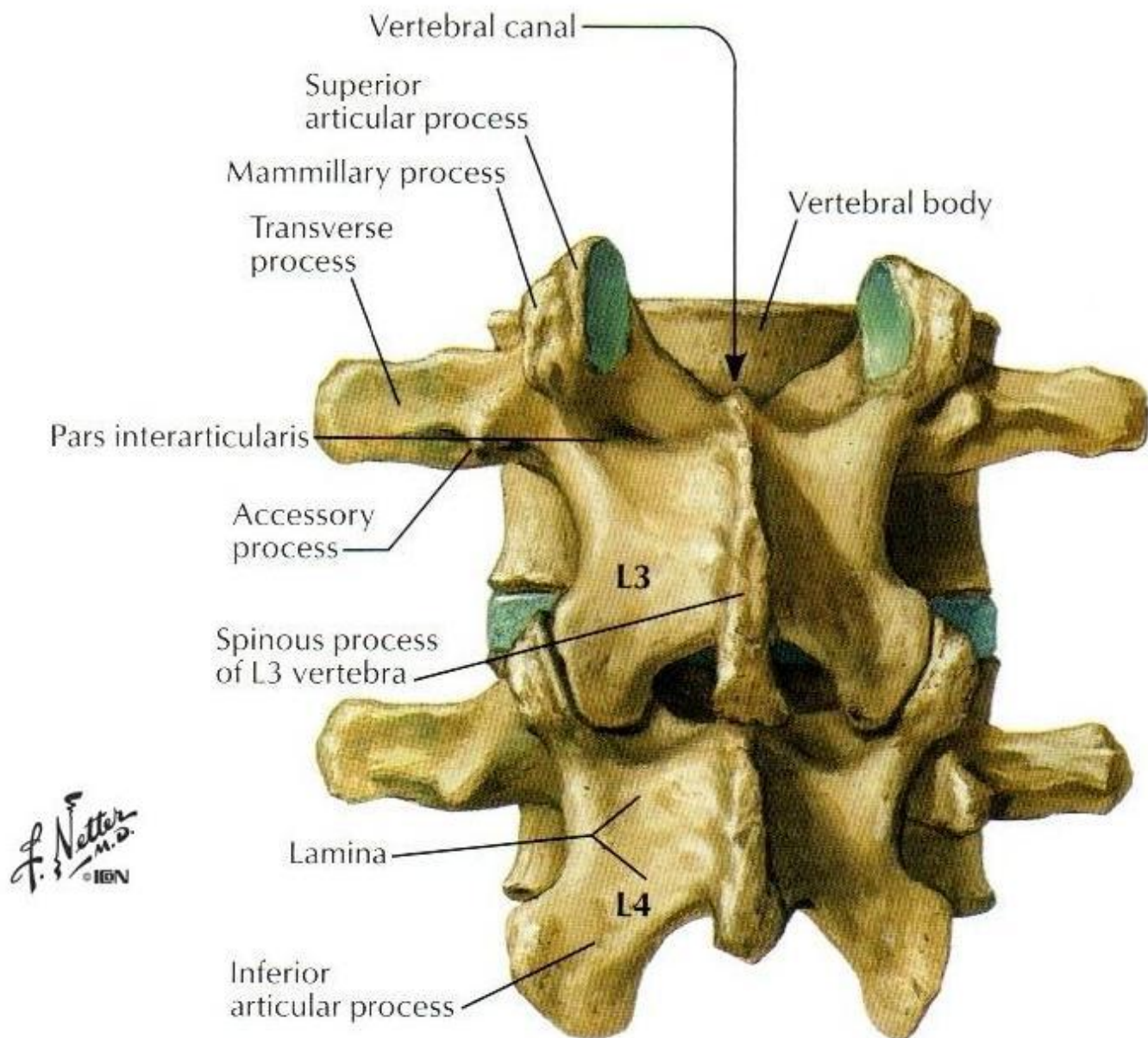
Lumbar Vertebrae



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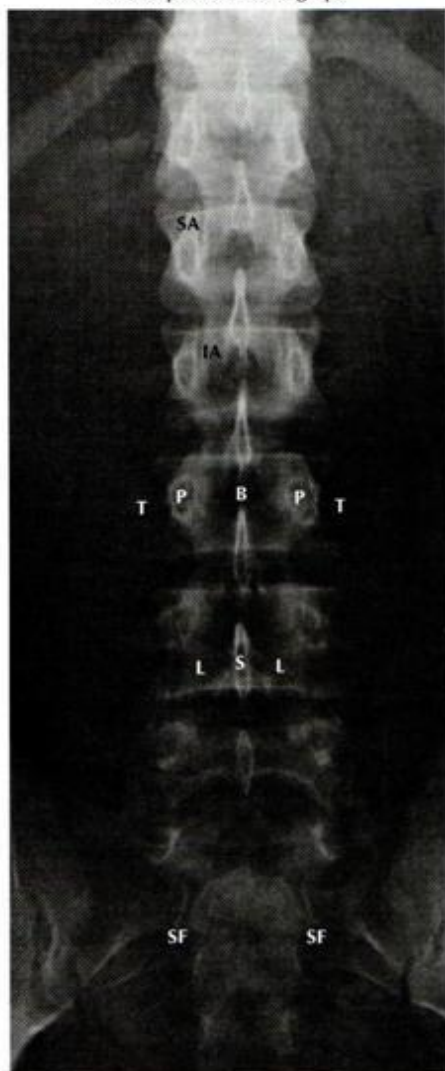
Lumbar Vertebrae, Asssembled: Left Lateral View



L3 and L4 Vertebrae: Posterior View

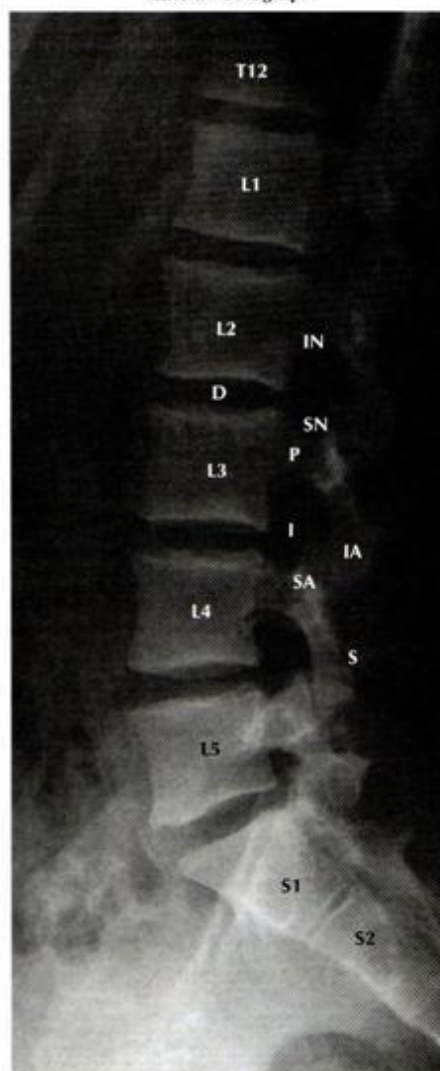
Lumbar Vertebrae: Radiographs

Anteroposterior radiograph



- B** Body of L3 vertebra
- IA** Inferior articular process of L1 vertebra
- L** Lamina of L4 vertebra
- P** Pedicle of L3 vertebra
- S** Spinous process of L4 vertebra
- SA** Superior articular process of L1 vertebra
- SF** Sacral foramen
- T** Transverse process of L3 vertebra

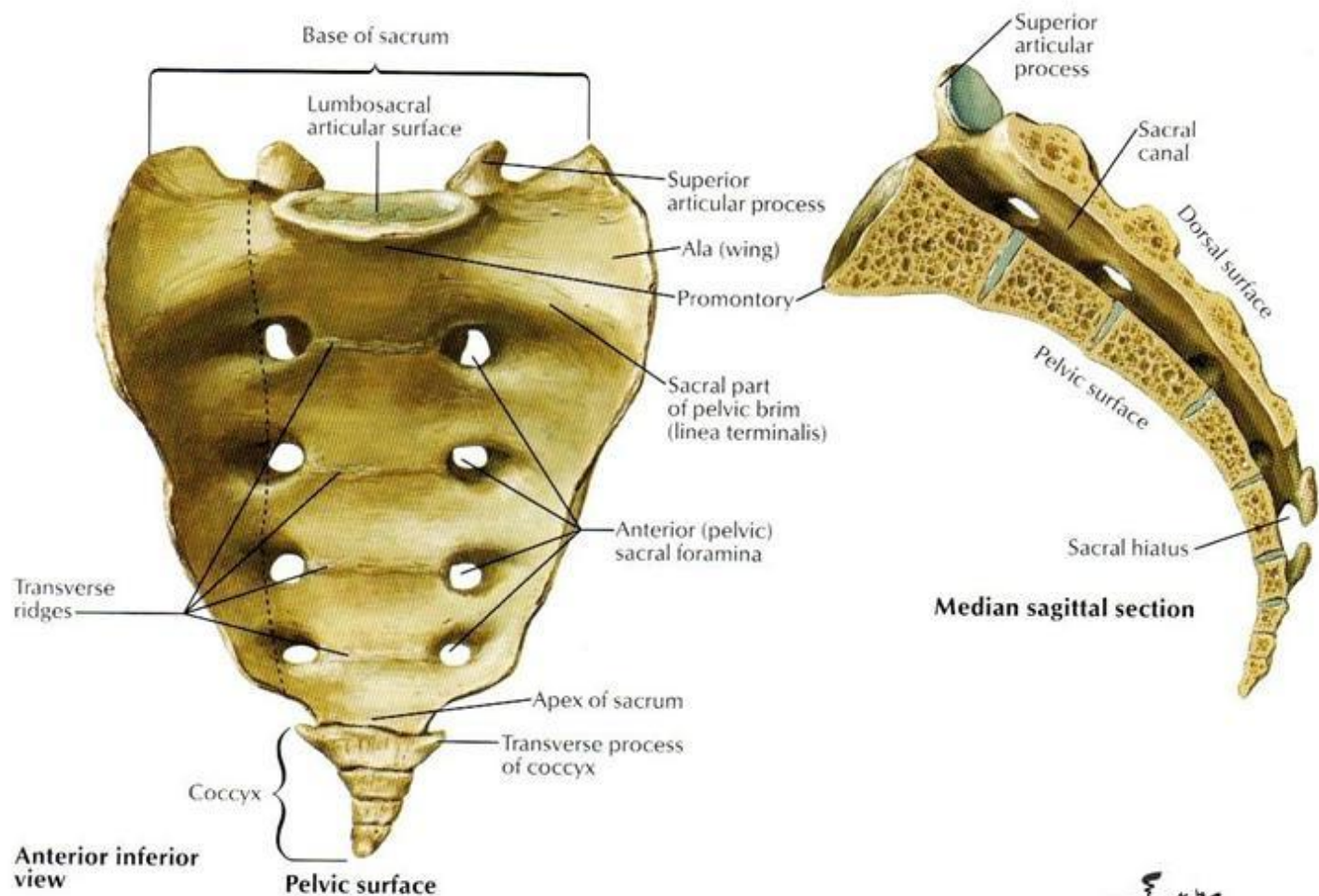
Lateral radiograph



- D** Intervertebral disc space
 - I** Intervertebral foramen
 - IA** Inferior articular process of L3 vertebra
 - IN** Inferior vertebral notch of L2 vertebra
 - P** Pedicle of L3 vertebra
 - S** Spinous process of L3 vertebra
 - SA** Superior articular process of L4 vertebra
 - SN** Superior vertebral notch of L3 vertebra
- Note:** The vertebral bodies are numbered

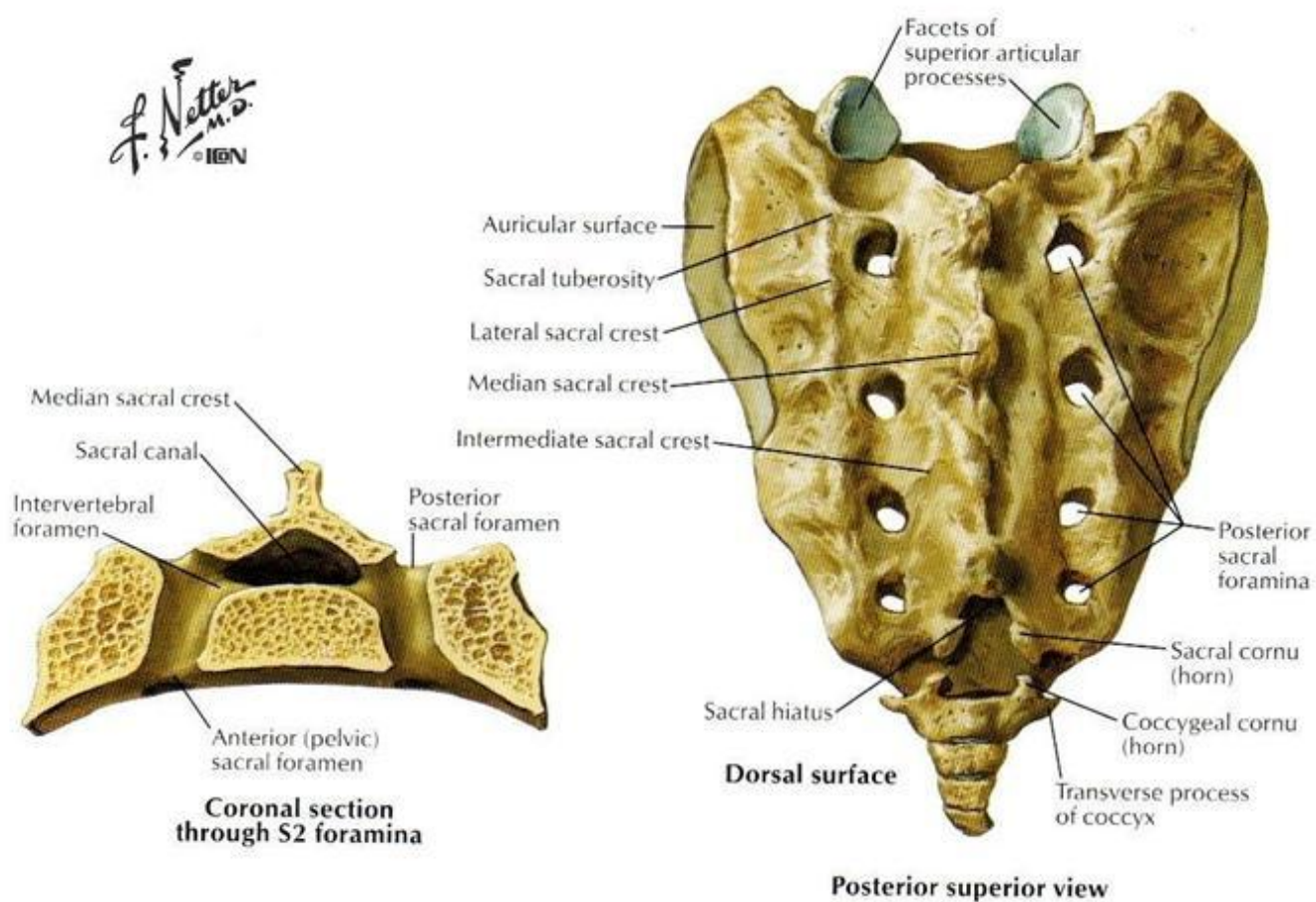
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Sacrum And Coccyx: Anterior Inferior View And Median Sagittal Section

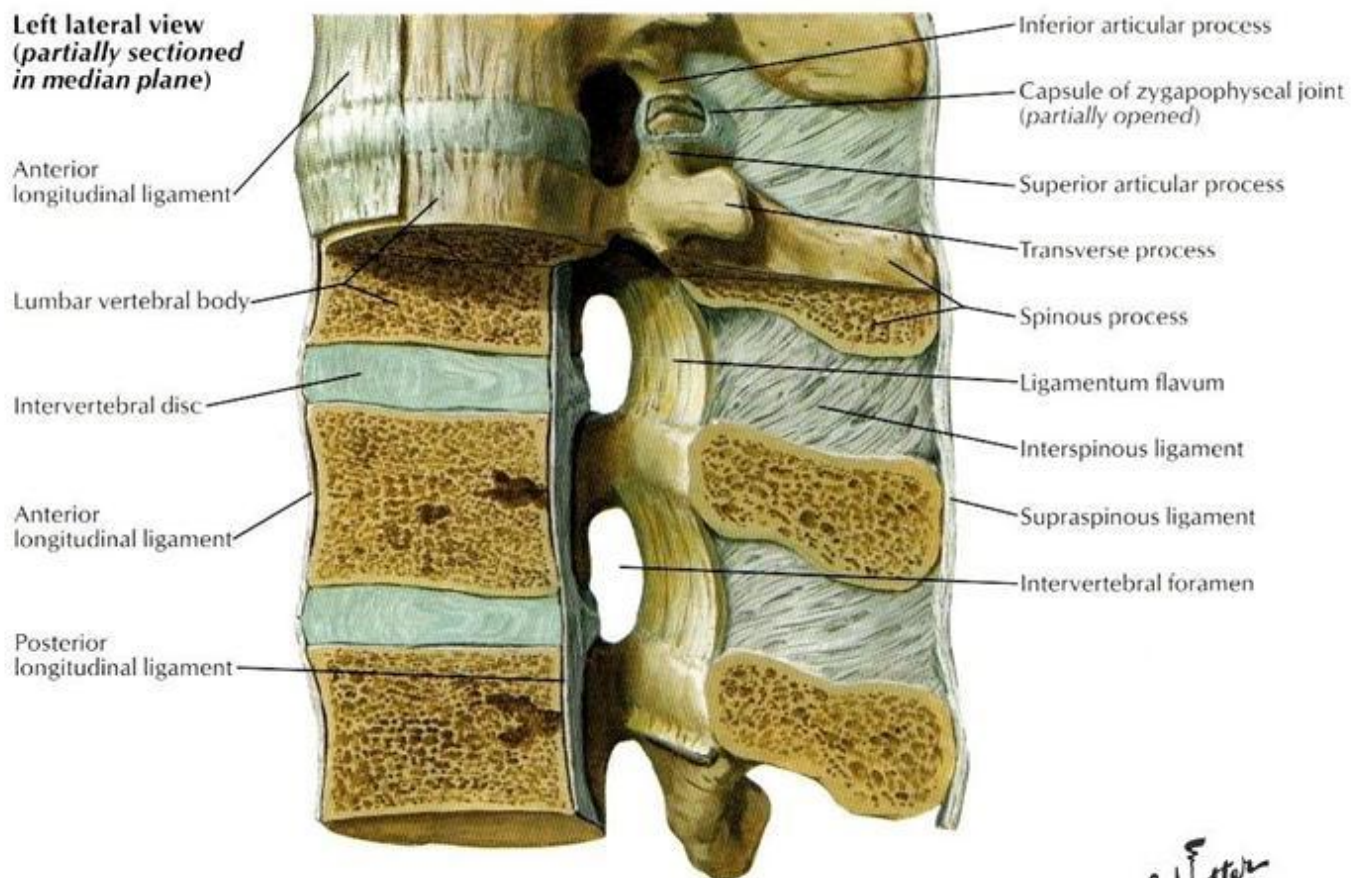


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Sacrum And Coccyx



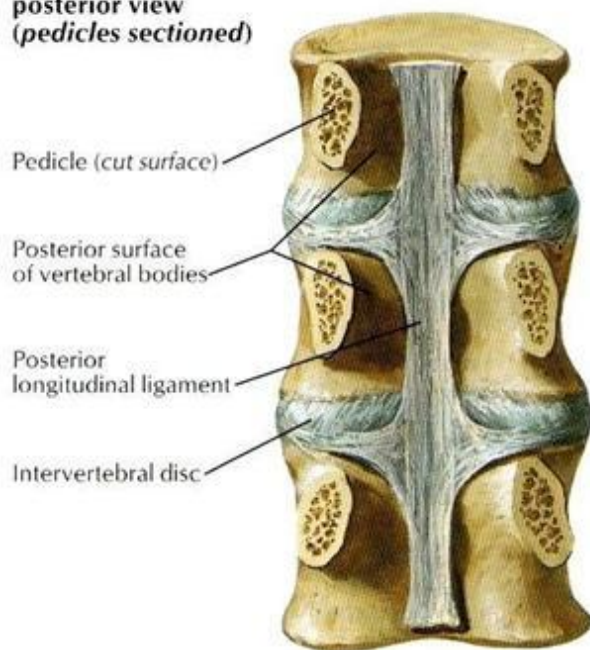
Vertebral Ligaments: Lumbar Region Left Lateral View



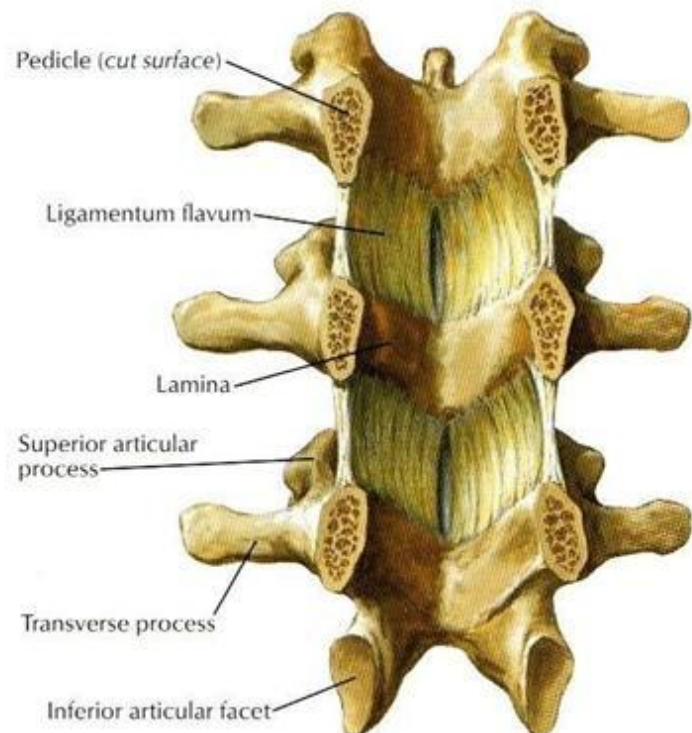
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Vertebral Ligaments: Lumbar Region

**Anterior vertebral segments:
posterior view
(pedicles sectioned)**



**Posterior vertebral segments:
anterior view**



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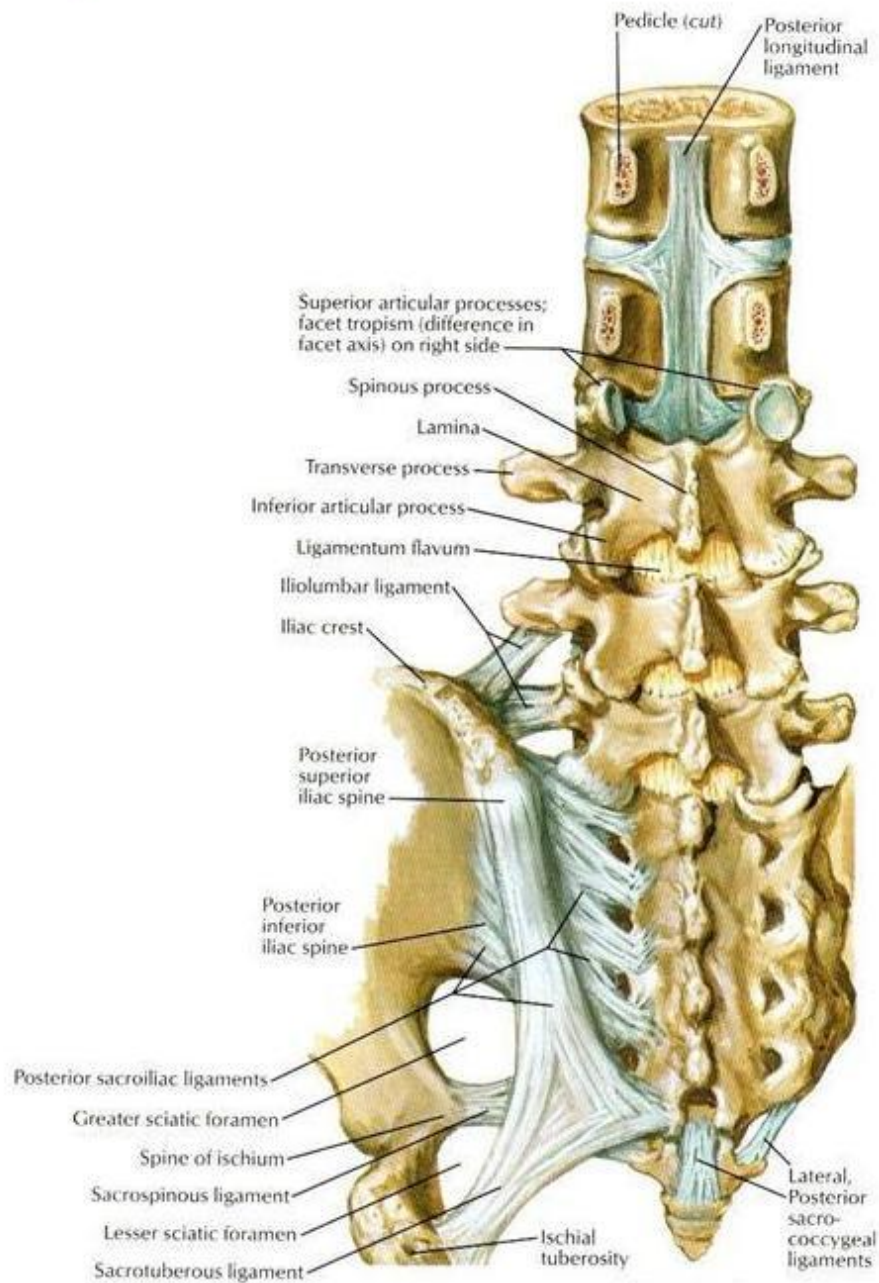
Vertebral Ligaments: Left Lateral View Lumbosacral Region



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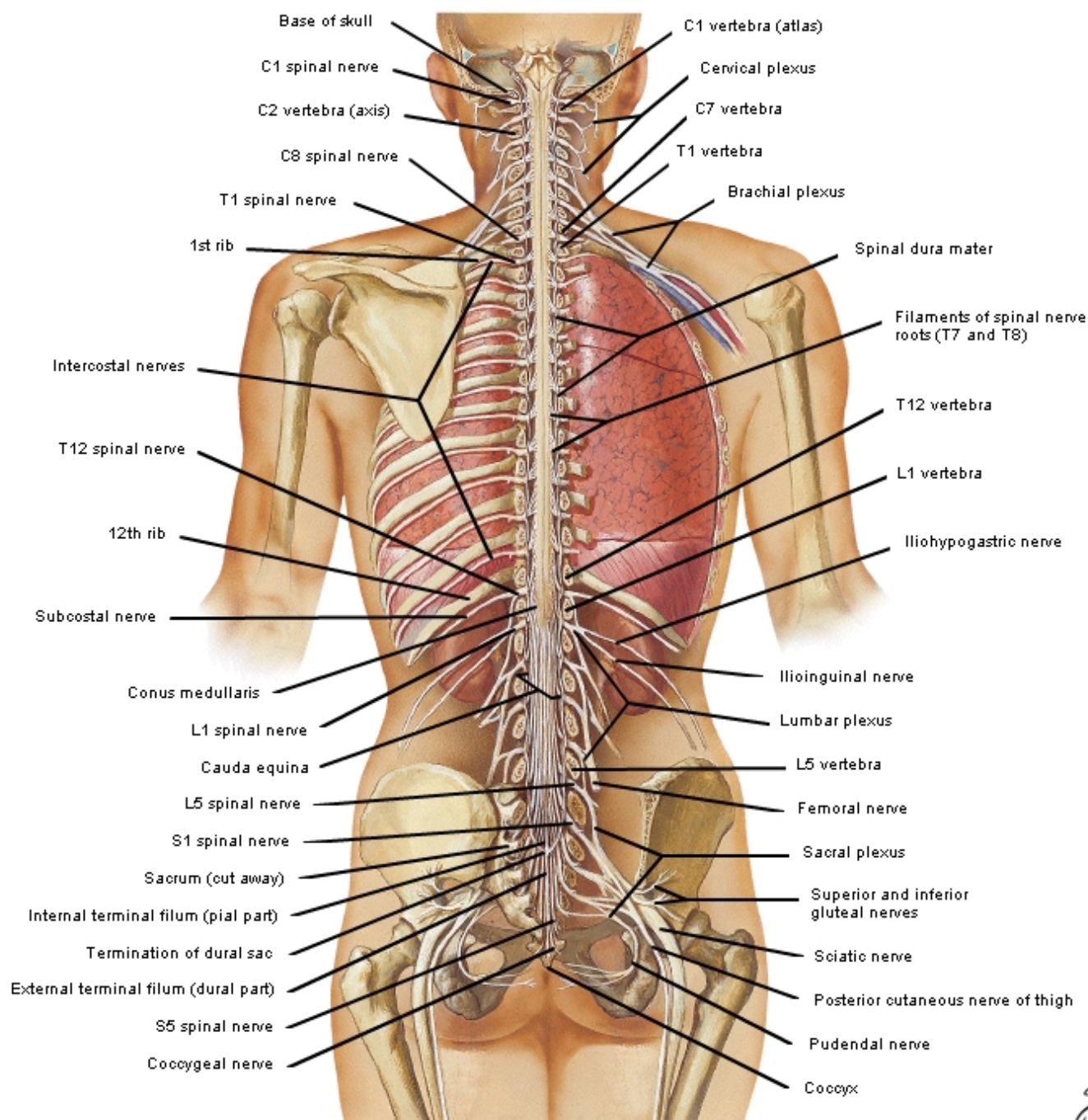
Vertebral Ligaments: Posterior View Lumbosacral Region

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BACK AND SPINAL CORD

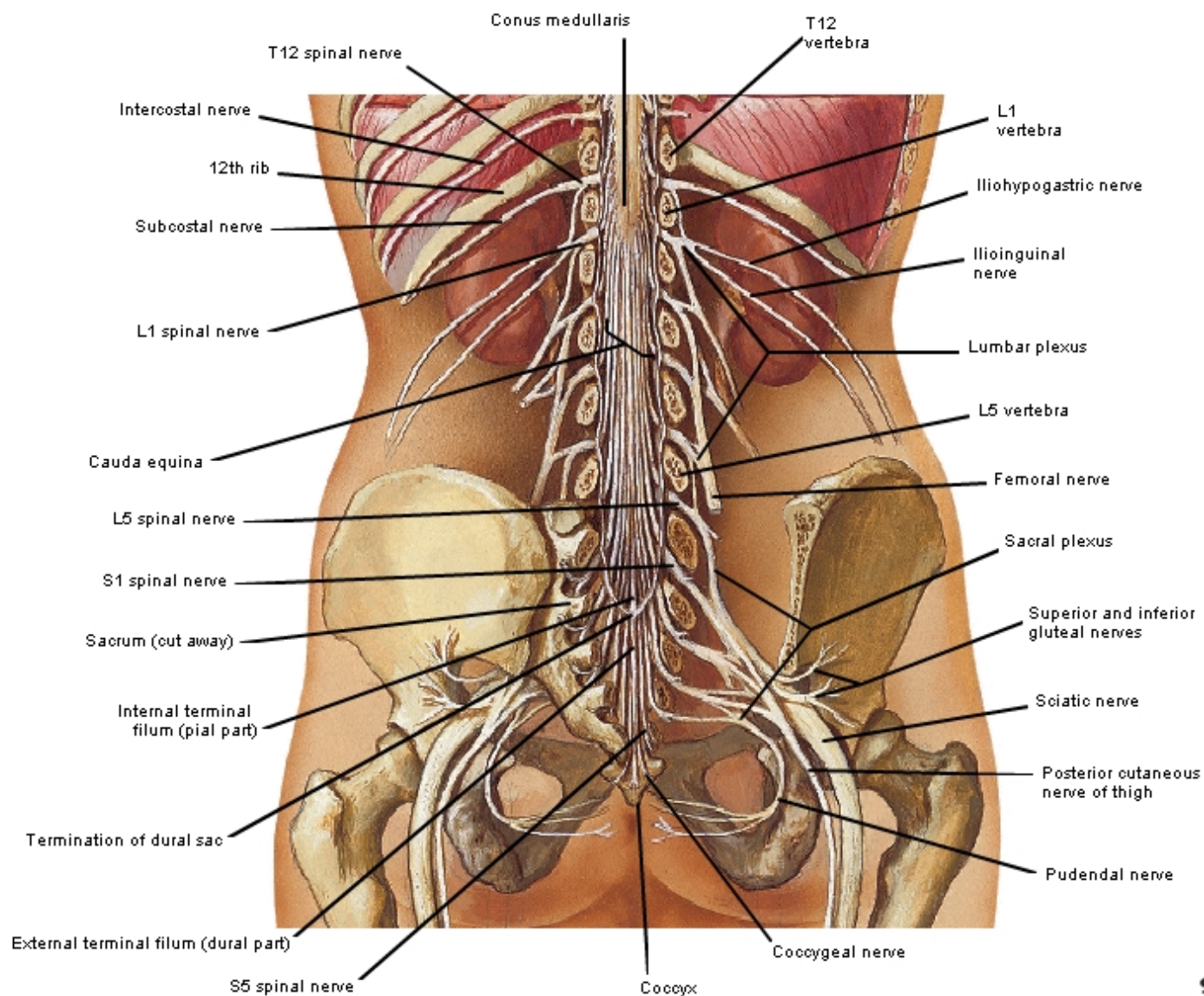
Spinal Cord and Ventral Rami In Situ



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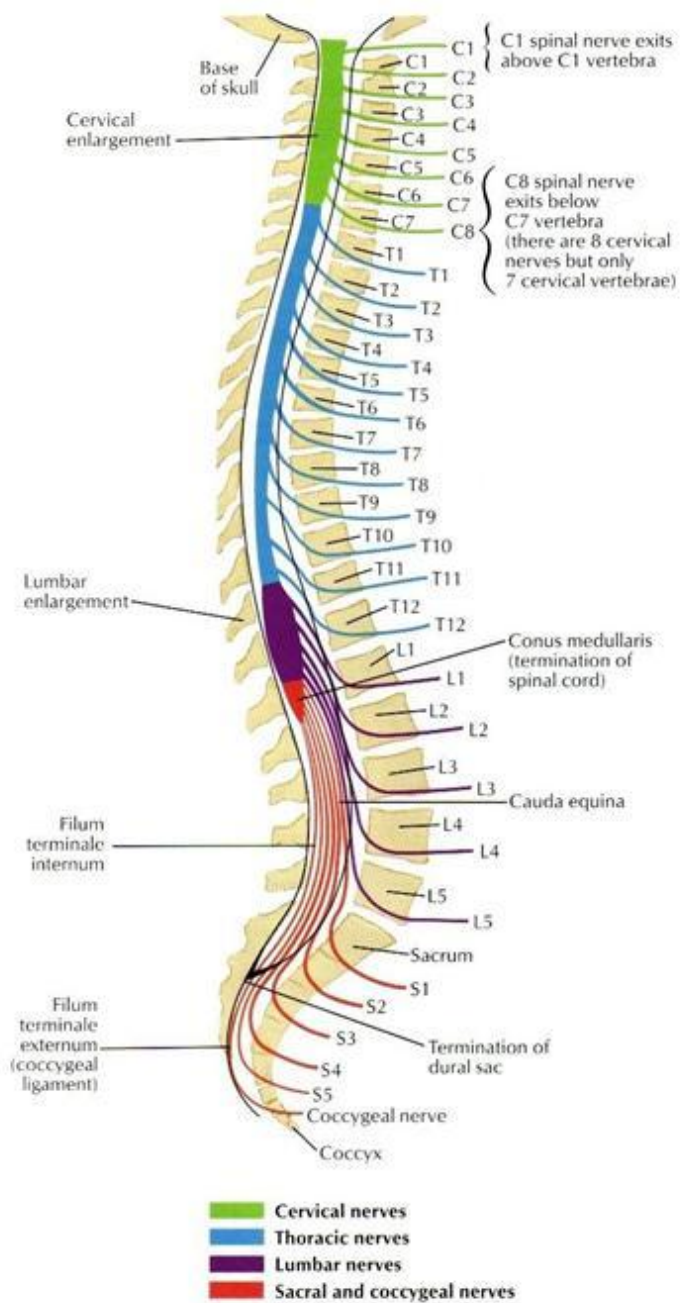
BACK AND SPINAL CORD

Spinal Cord In Situ Enlargement of Cauda Equina



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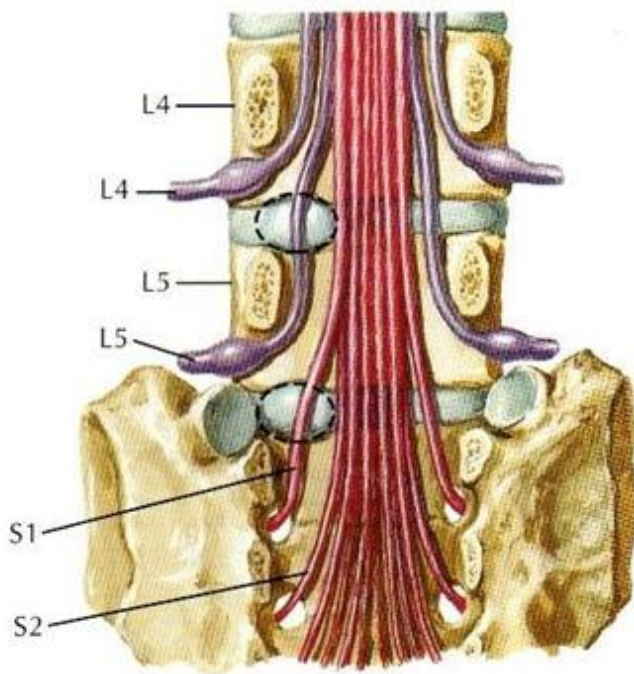
Relation of Spinal Nerve Roots to Vertebrae



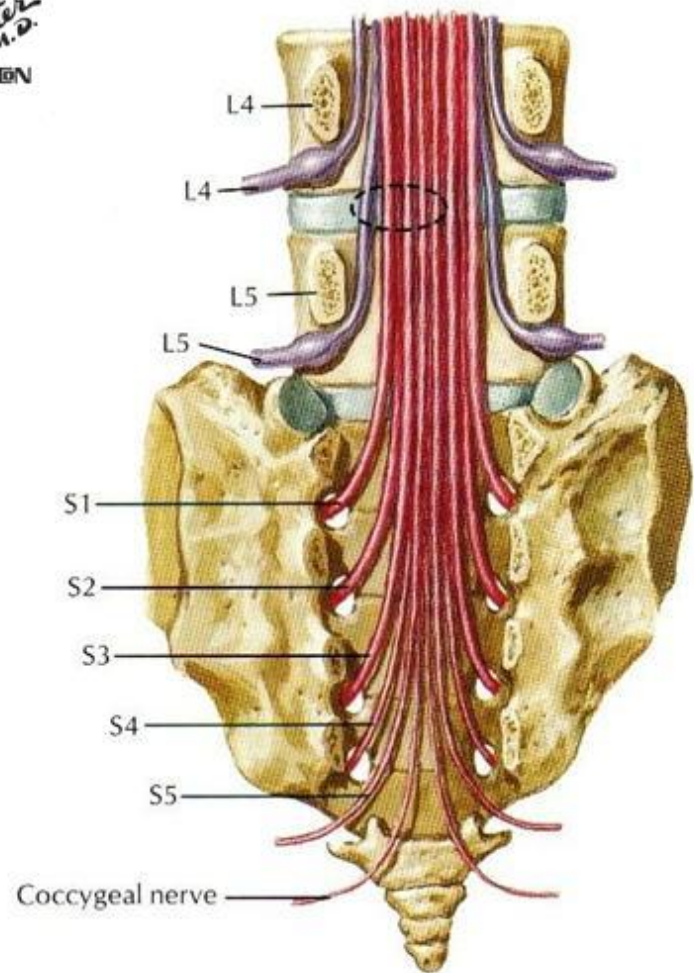
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Relation of Spinal Nerve Roots to Vertebrae

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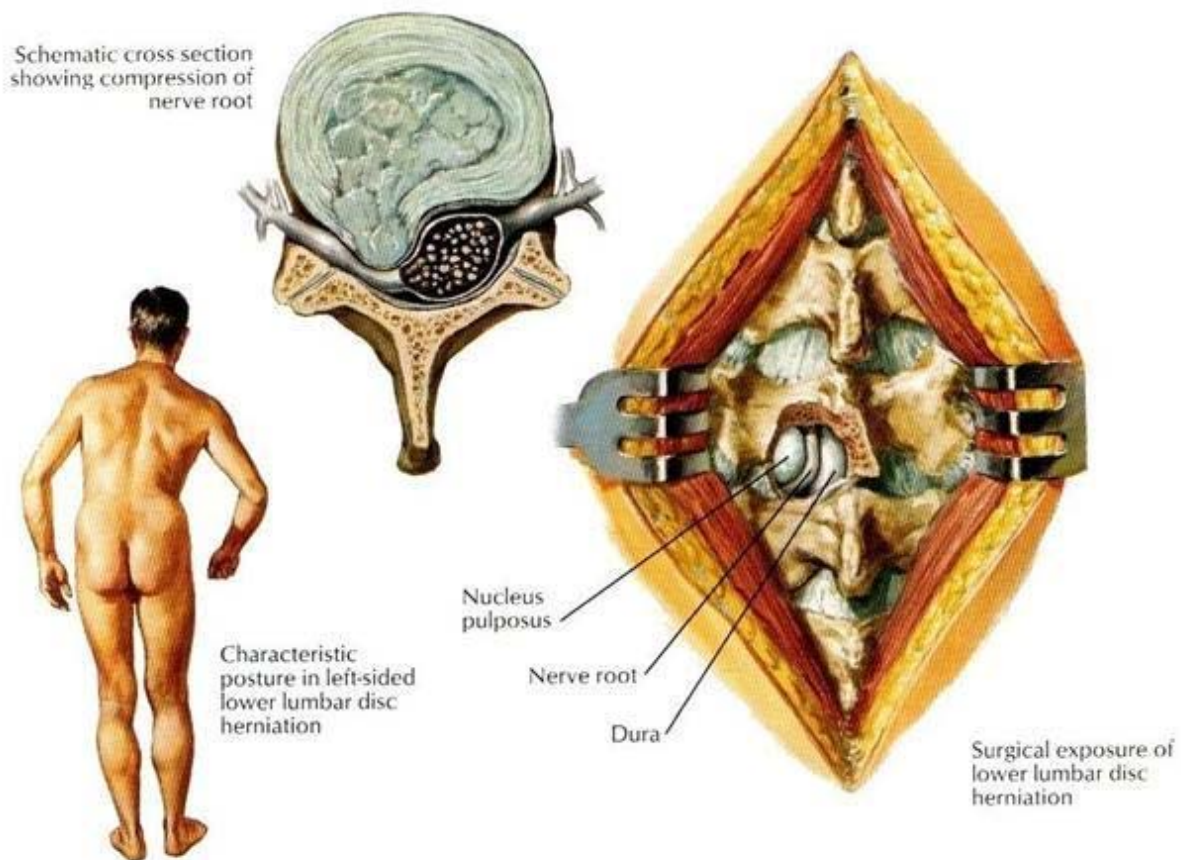


Lumbar disc protrusion does not usually affect nerve exiting above disc. Lateral protrusion at disc level L4-5 affects L5 spinal nerve, not L4 spinal nerve. Protrusion at disc level L5-S1 affects S1 spinal nerve, not L5 spinal nerve.



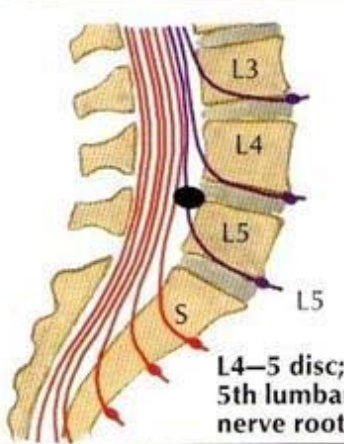
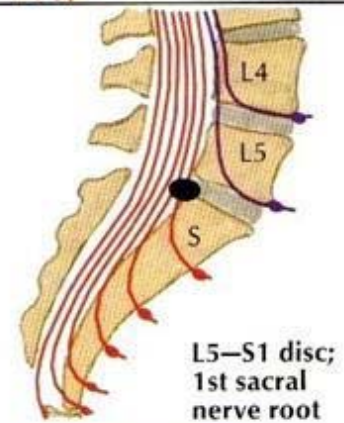
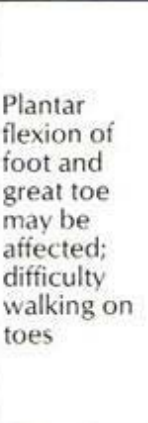
Medial protrusion at disc level L4-5 rarely affects L4 spinal nerve but may affect L5 spinal nerve and sometimes S1-4 spinal nerves.

Lumbar Disc Herniation: Clinical Manifestations



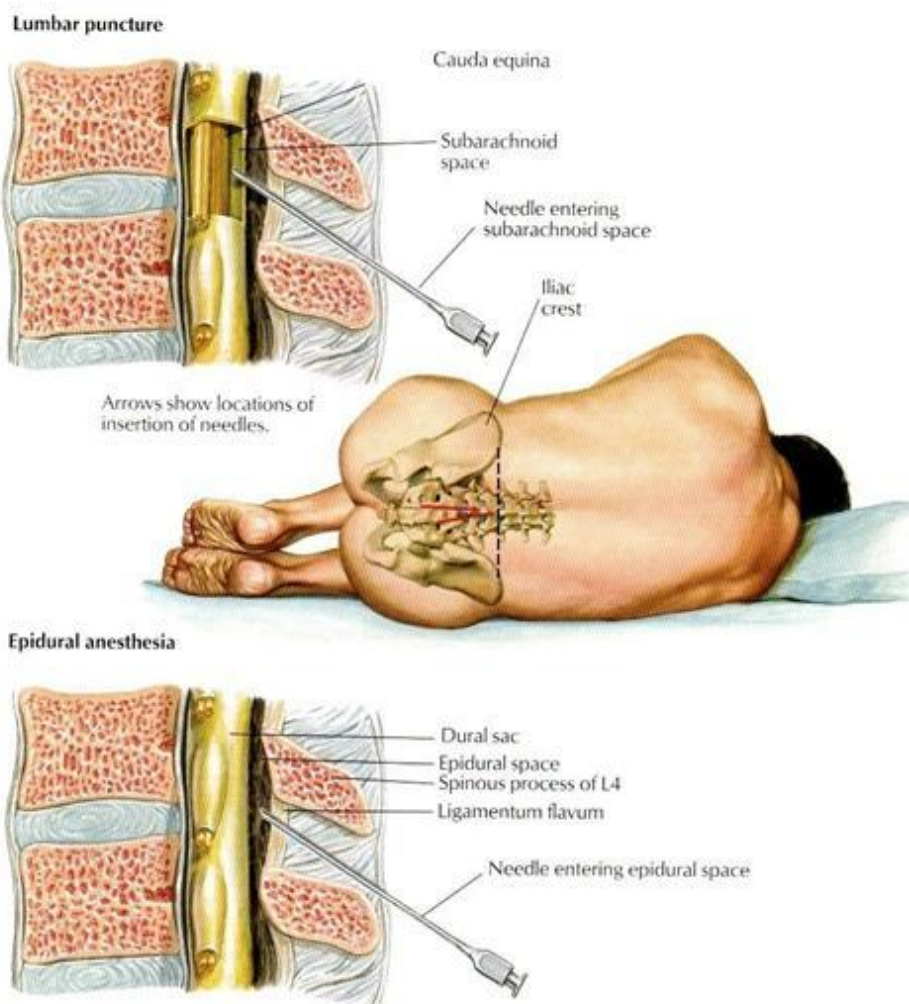
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Clinical Features of Herniated Lumbar Nucleus Pulposus

Clinical features of herniated lumbar nucleus pulposus					
Level of herniation	Pain	Numbness	Weakness	Atrophy	Reflexes
 L4—5 disc; 5th lumbar nerve root	 Over sacro-iliac joint, hip, lateral thigh and leg	 Lateral leg, first 3 toes	 Dorsiflexion of great toe and foot; difficulty walking on heels; foot drop may occur	Minor	Changes uncommon in knee and ankle jerks, but internal hamstring reflex diminished or absent
 L5—S1 disc; 1st sacral nerve root	 Over sacro-iliac joint, hip, postero-lateral thigh and leg to heel	 Back of calf, lateral heel, foot to toe	 Plantar flexion of foot and great toe may be affected; difficulty walking on toes	 Gastrocnemius and soleus	 Ankle jerk diminished or absent

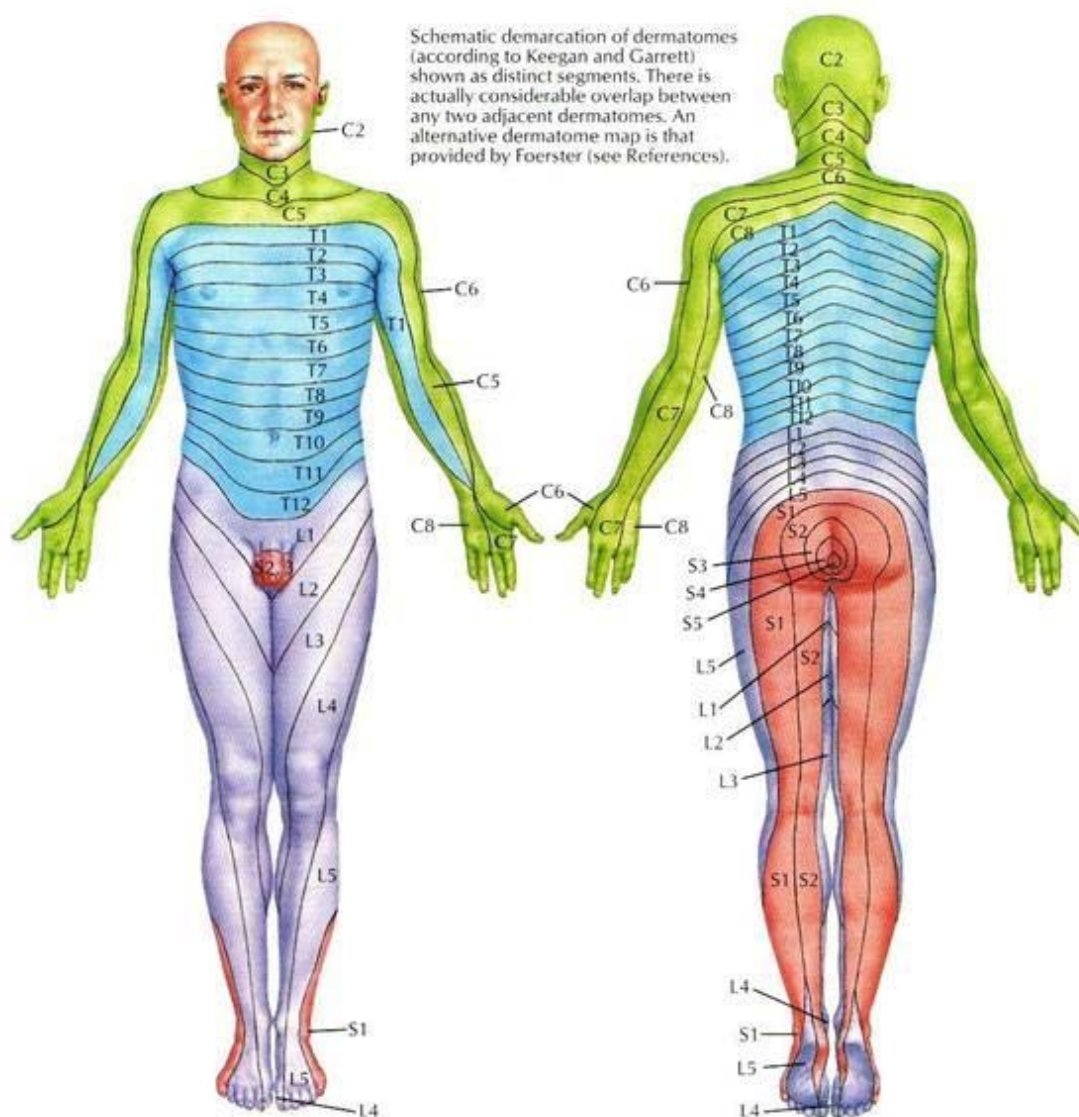
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Lumbar Puncture and Epidural Anesthesia



Epidural anesthesia and lumbar puncture are performed by inserting a needle above or below the L4 vertebral spine, which lies at the level of the iliac crest. For epidural anesthesia, the needle passes into the epidural space, and anesthetic agent bathes the nerve roots in proximity. Lumbar puncture, on the other hand, is performed in order to collect a sample of cerebrospinal fluid (CSF) or to introduce an anesthetic agent into the CSF (spinal anesthesia), so therefore the needle penetrates the dural sac to enter the subarachnoid space.

Dermatomes



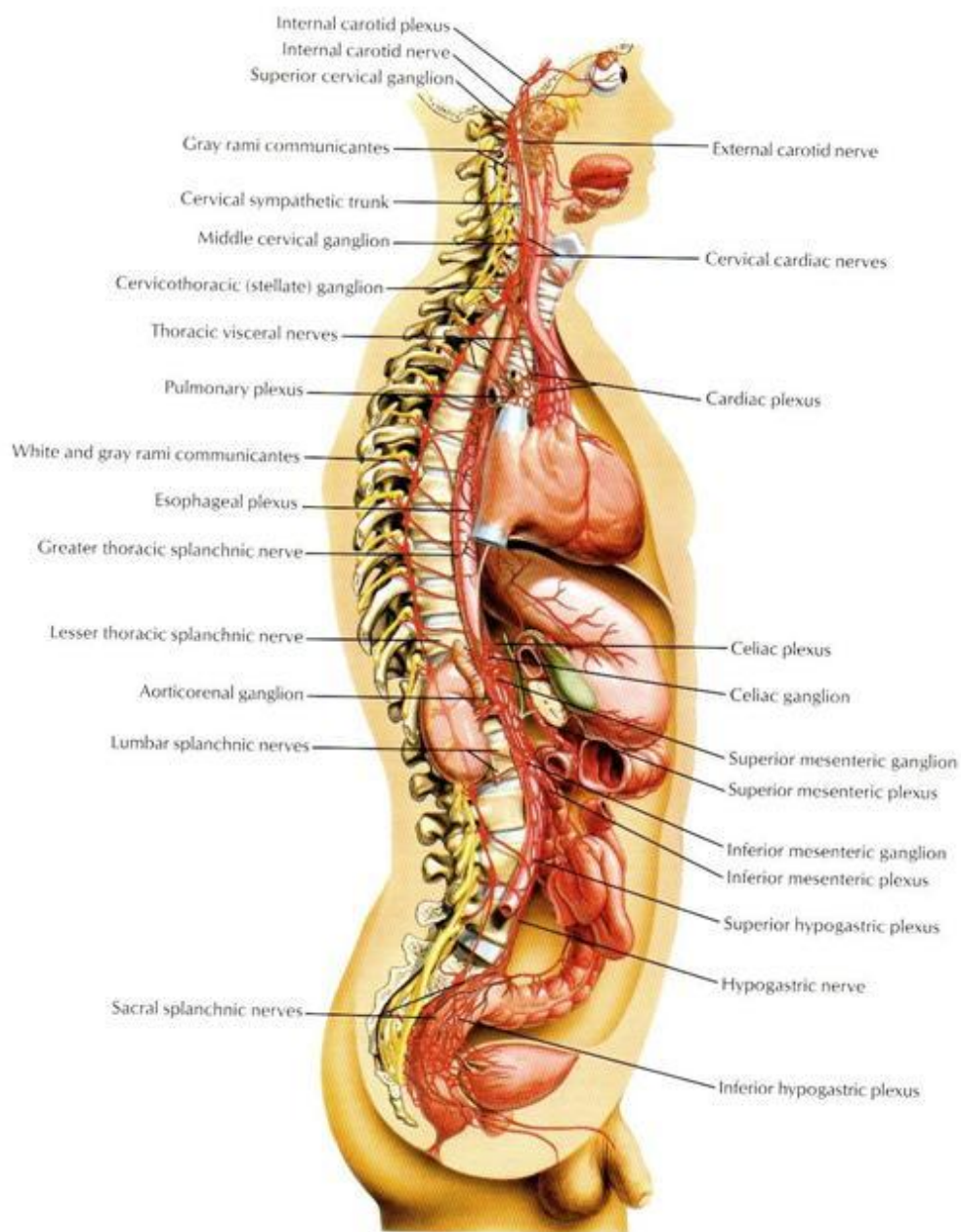
Levels of principal dermatomes

C5	Clavicles
C5, 6, 7	Lateral parts of upper limbs
C8, T1	Medial sides of upper limbs
C6	Thumb
C6, 7, 8	Hand
C8	Ring and little fingers
T4	Level of nipples

T10	Level of umbilicus
L1	Inguinal or groin regions
L1, 2, 3, 4	Anterior and inner surfaces of lower limbs
L4, 5, S1	Foot
L4	Medial side of great toe
S1, 2, L5	Posterior and outer surfaces of lower limbs
S1	Lateral margin of foot and little toe
S2, 3, 4	Perineum

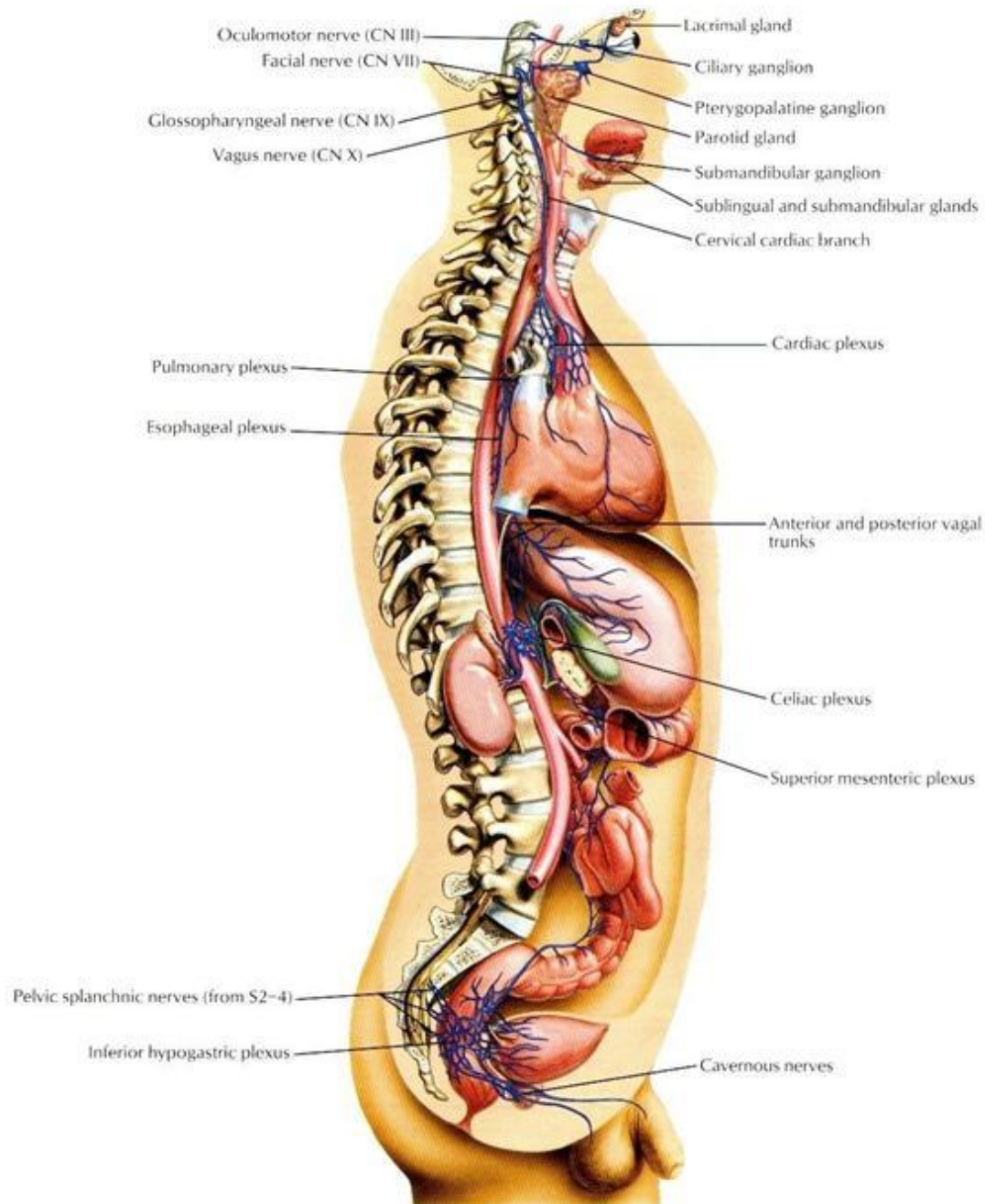
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Sympathetic Nervous System: General Topography



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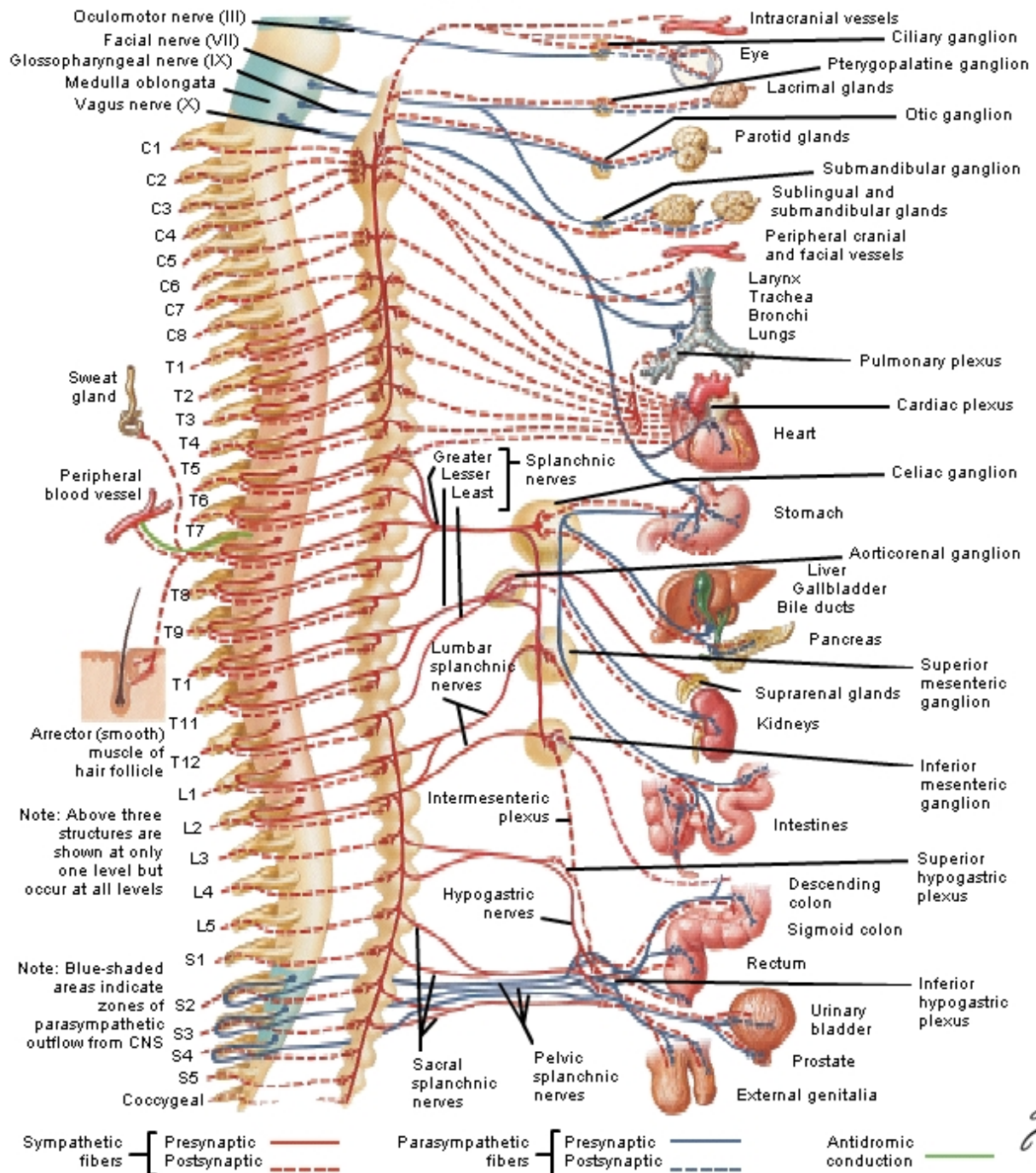
Parasympathetic Nervous System: General Topography



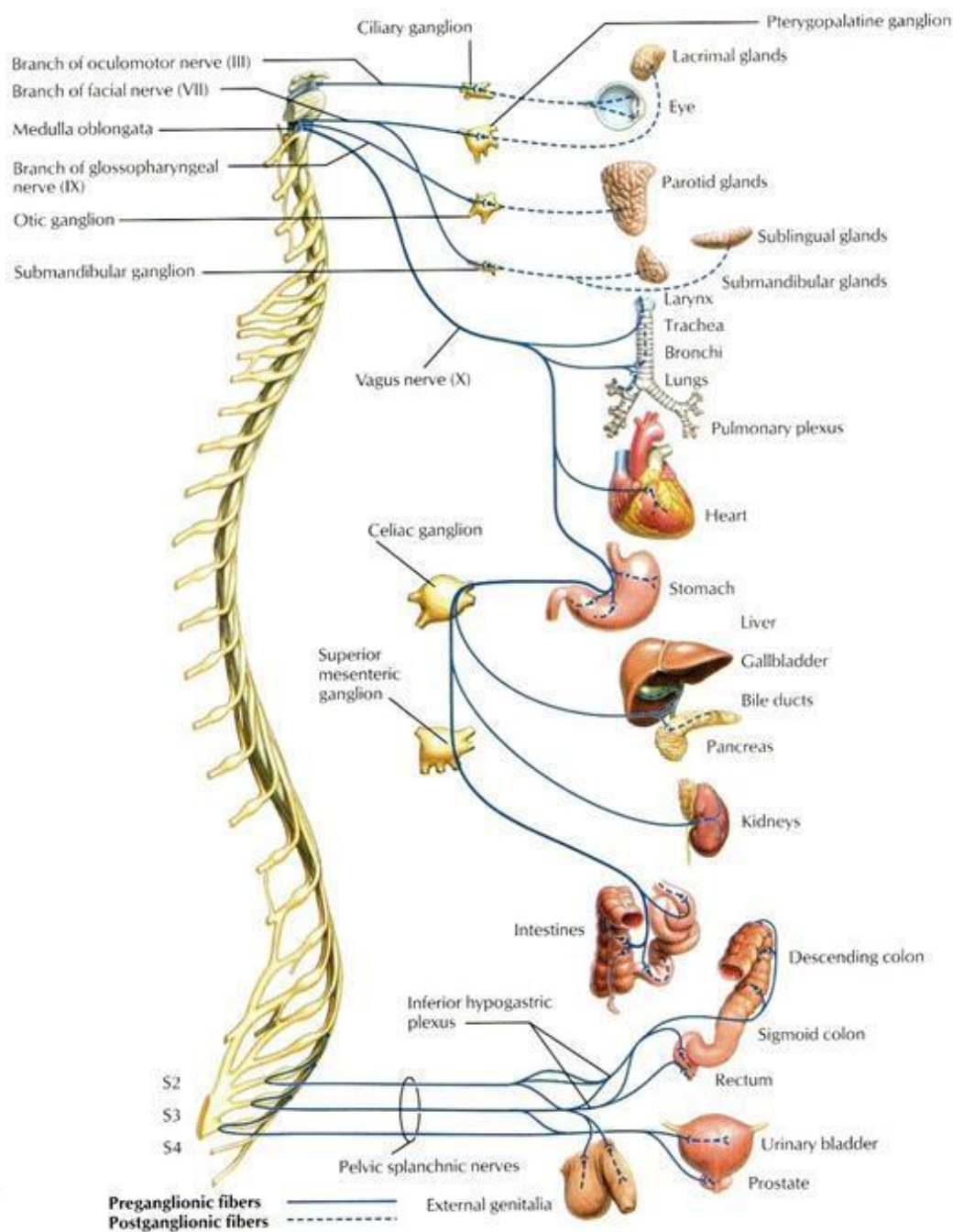
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BACK AND SPINAL CORD

Autonomic Nervous System Schema

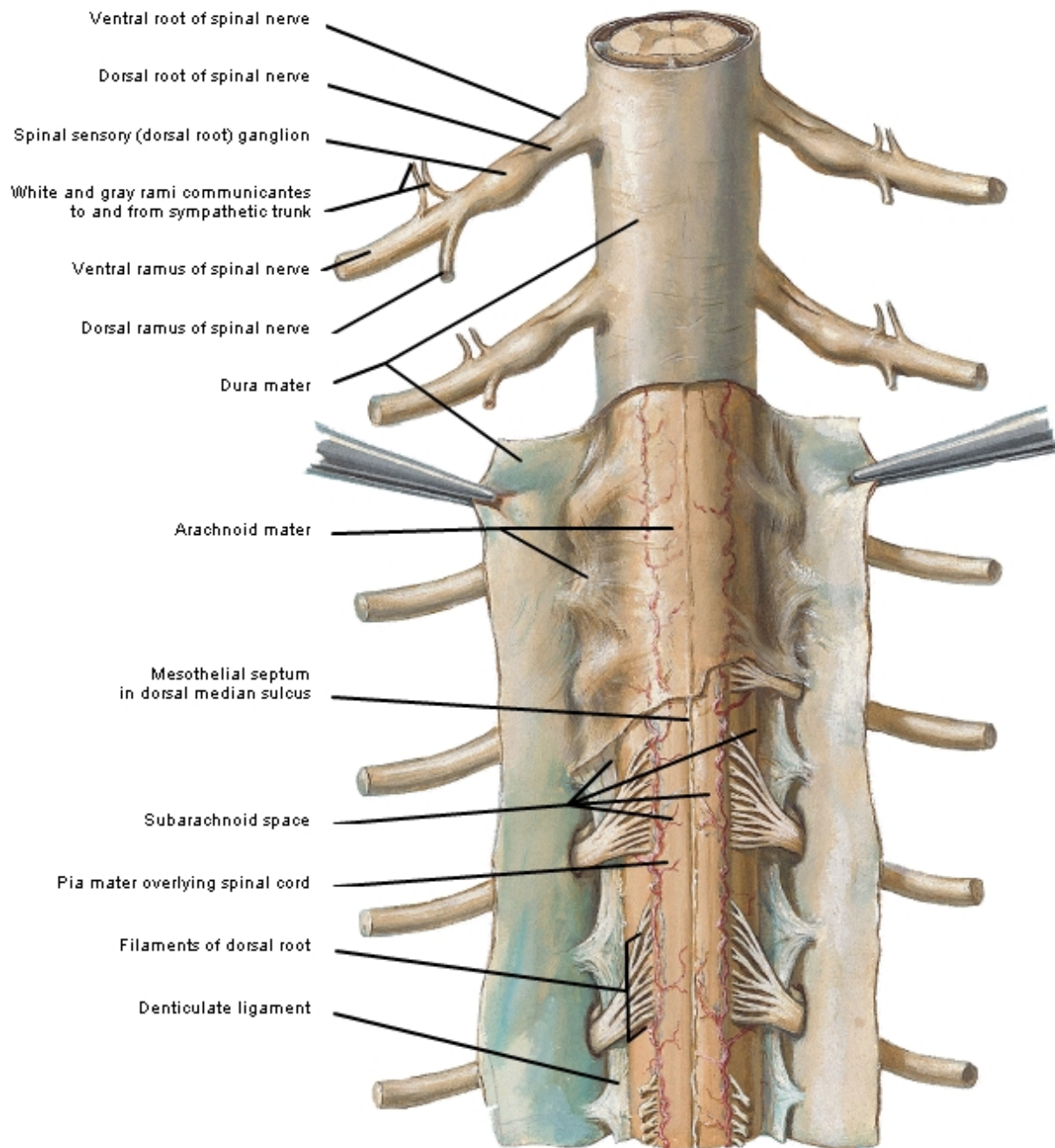


Parasympathetic Nervous System: Schema



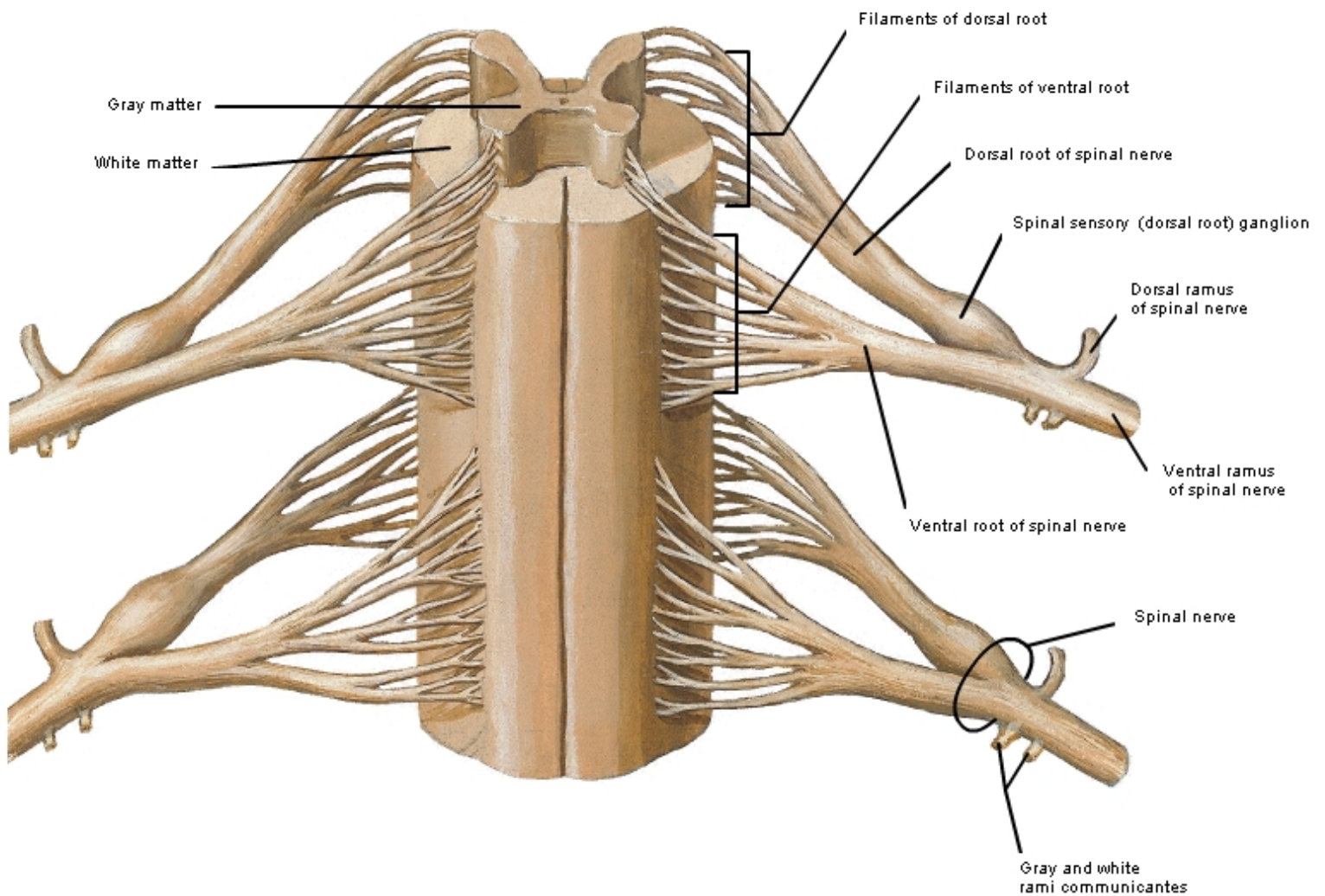
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Spinal Membranes and Nerve Roots Posterior View



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Spinal Membranes and Nerve Roots Anterior View

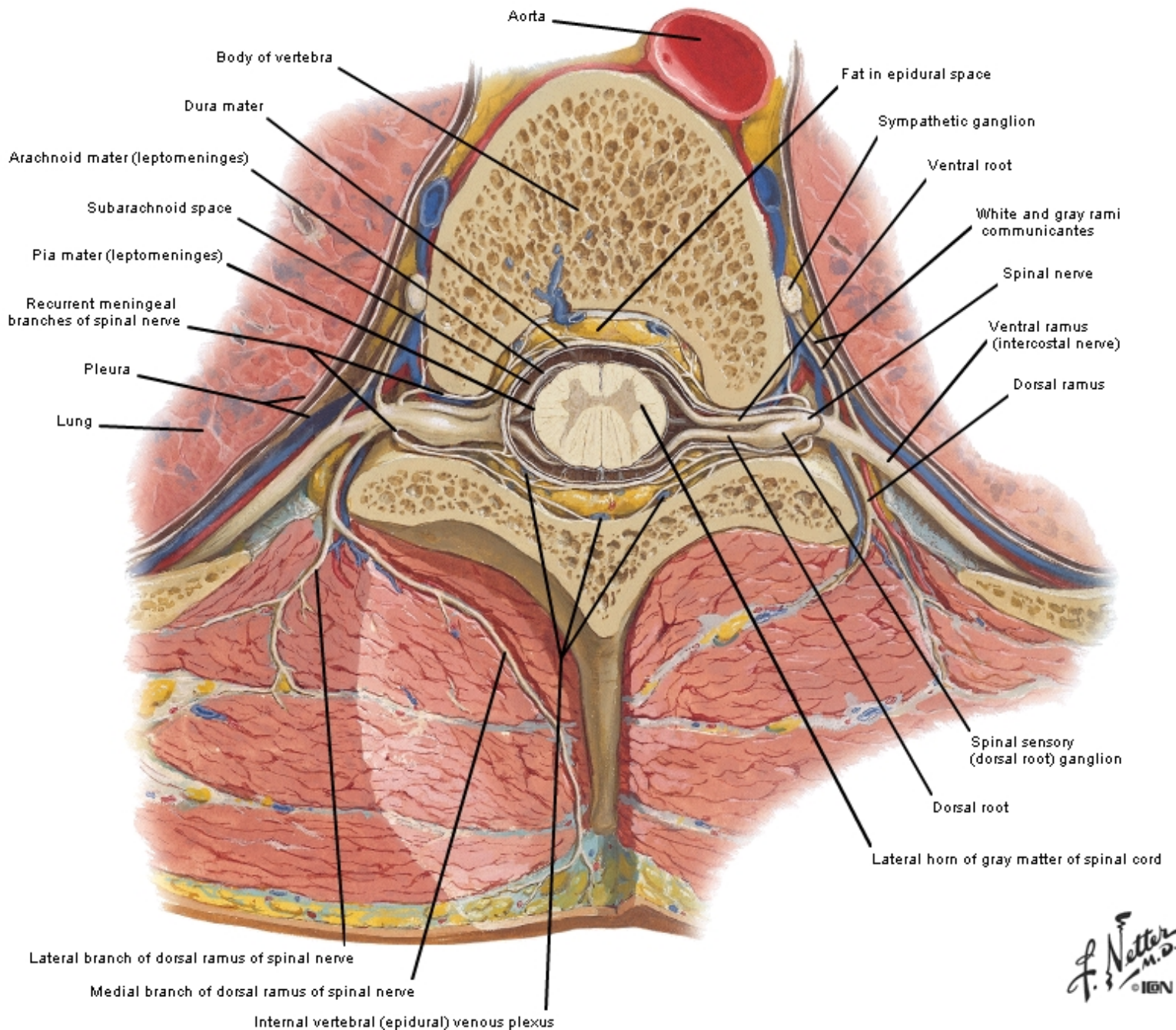


Membranes removed (greatly magnified)

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BACK AND SPINAL CORD

Spinal Nerve Origin Cross Section through Thoracic Vertebra



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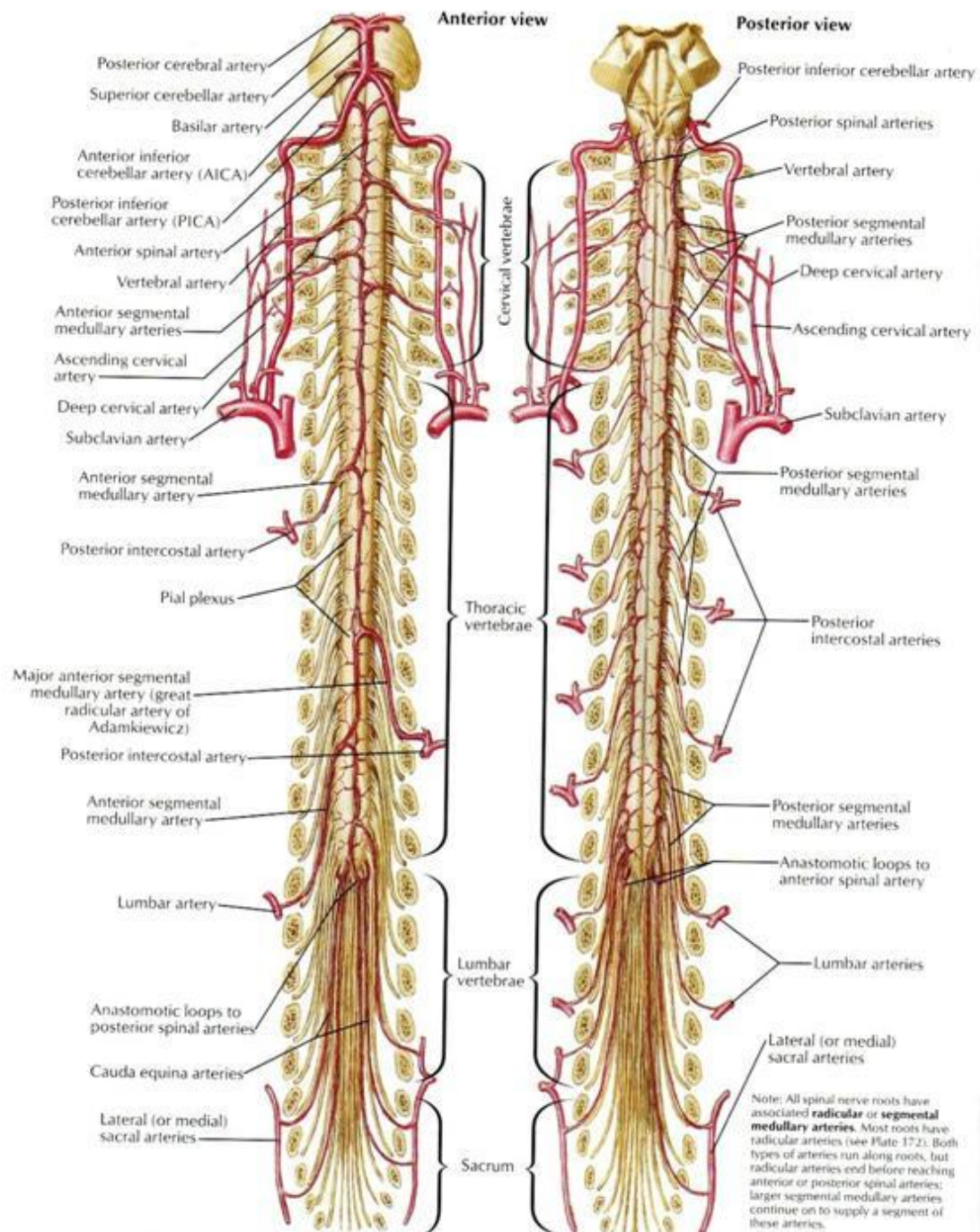
This anatomical diagram illustrates a cross-section of a lumbar vertebra and the spinal cord within it. The central feature is the spinal cord, which is surrounded by three layers of meninges: the innermost pia mater, the middle arachnoid mater, and the outermost dura mater. The spinal cord itself is composed of gray matter (darker, butterfly-shaped) and white matter (lighter, surrounding the gray matter). The dorsal and ventral roots of the spinal nerve are shown emerging from the spinal cord. The dorsal root is associated with the spinal sensory (dorsal root) ganglion. The ventral root is associated with the sympathetic ganglion. The spinal nerve is formed by the union of these two roots. The diagram also shows the gray rami communicans, which connect the sympathetic ganglion to the spinal nerve. The fat in the epidural space is visible between the dura mater and the vertebral foramen. The conus medullaris is shown at the bottom of the spinal cord. The dorsal and ventral roots of the lumbar and sacral spinal nerves are shown forming the cauda equina.

Labels in the diagram include:

- Sympathetic ganglion
- Gray ramus communicans
- Fat in epidural space
- Dura mater
- Arachnoid mater
- Ventral root
- Spinal nerve
- Ventral ramus (contributes to lumbar plexus)
- Dorsal ramus
- Spinal sensory (dorsal root) ganglion
- Dorsal root
- Conus medullaris
- Dorsal and ventral roots of lumbar and sacral spinal nerves forming cauda equina

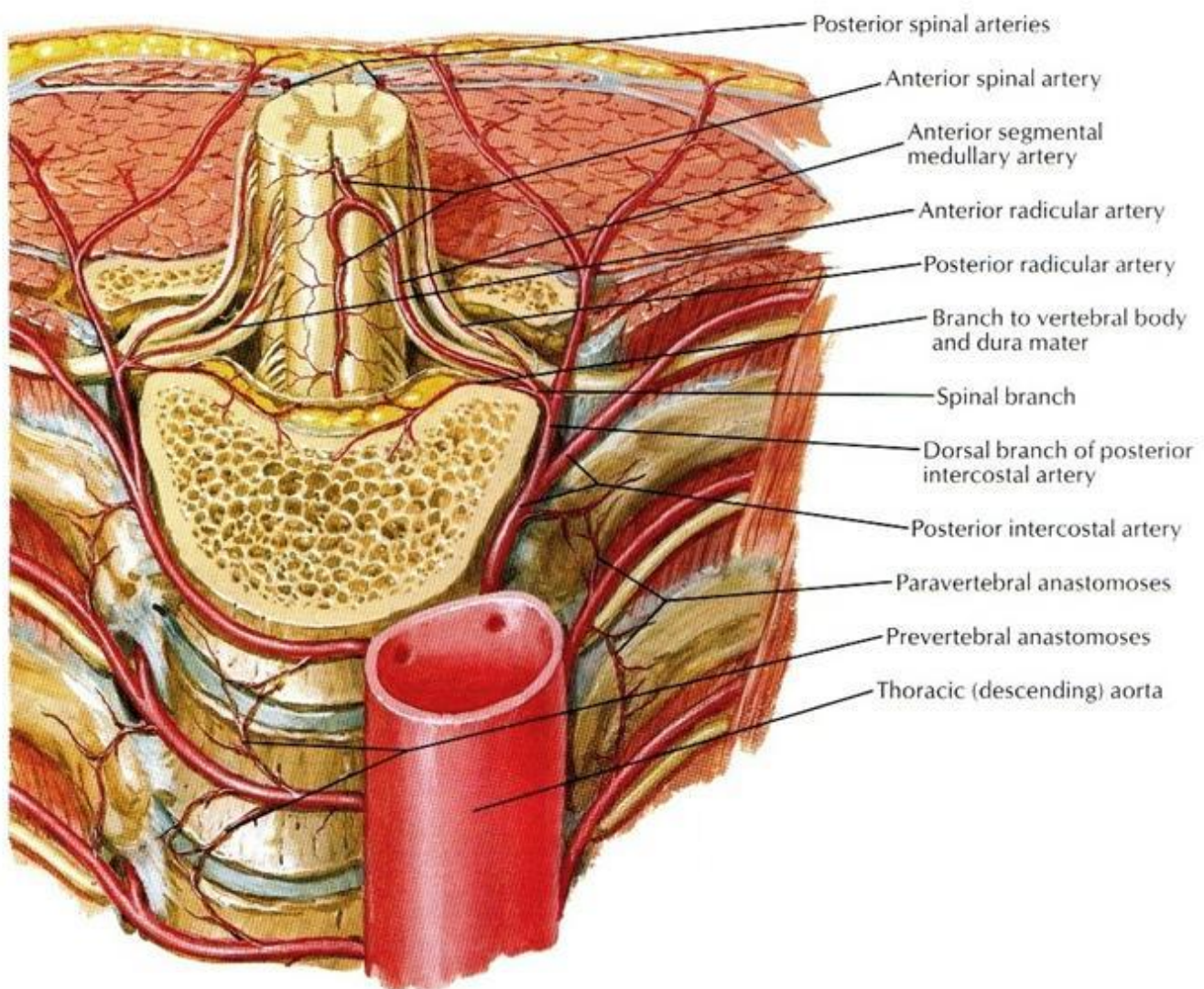


Arteries of Spinal Cord: Schema



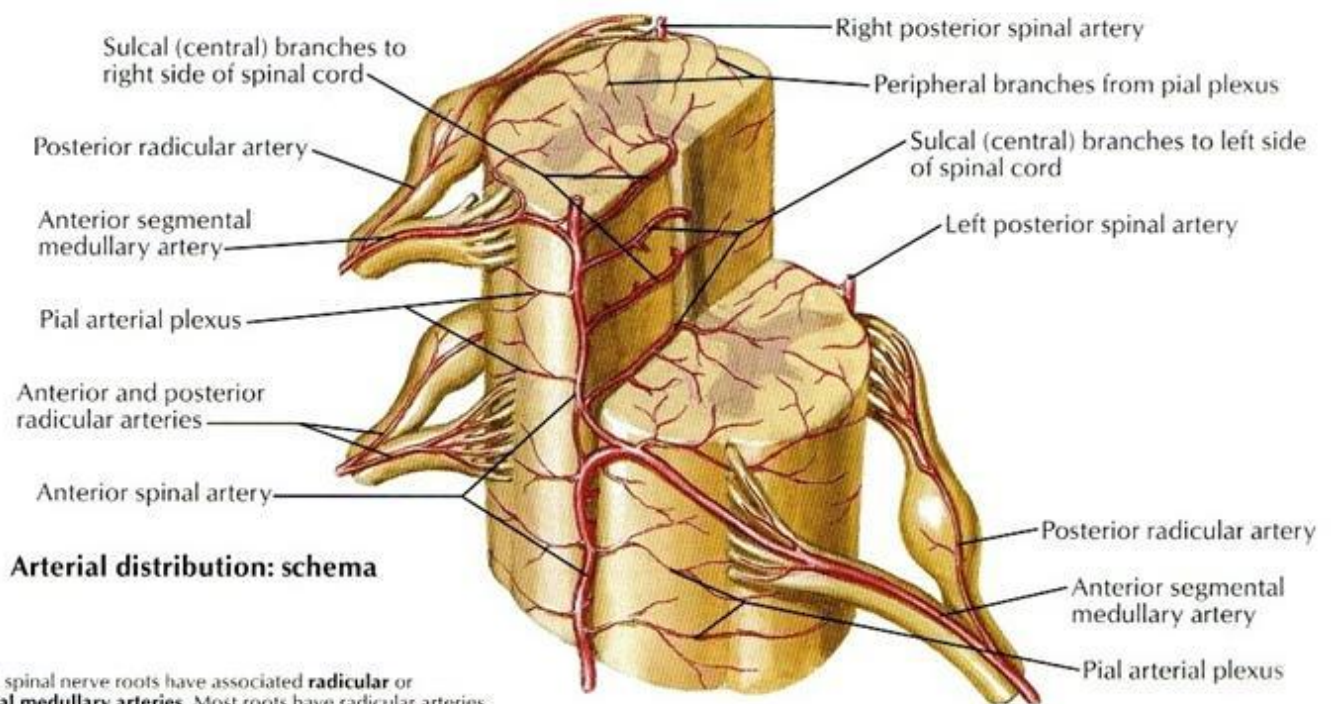
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Section Through Thoracic Level: Anterosuperior View



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Arteries of Spinal Cord: Arterial Distribution Schema

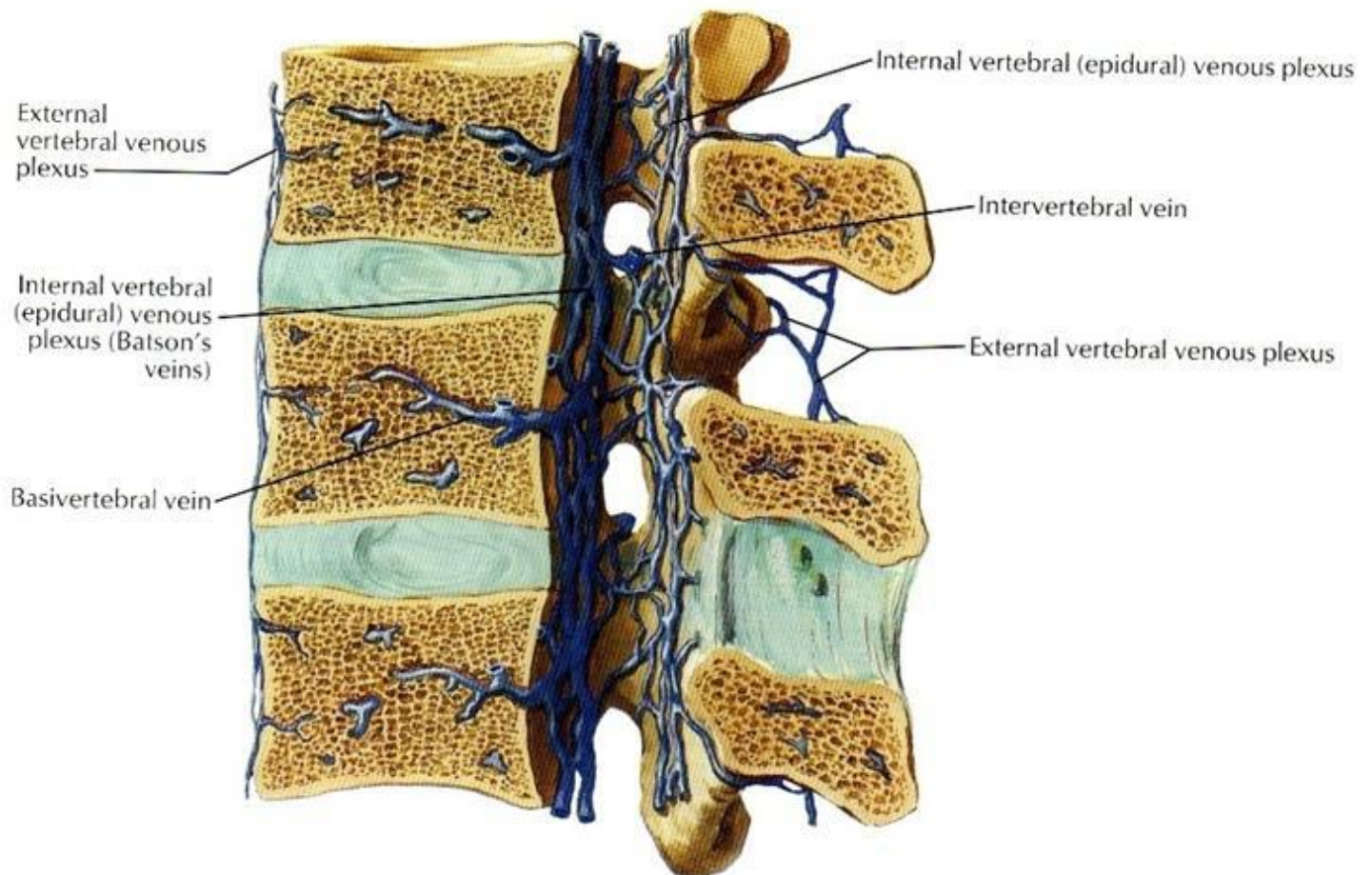


Arterial distribution: schema

Note: All spinal nerve roots have associated **radicular** or **segmental medullary arteries**. Most roots have radicular arteries. Both types of arteries run along roots, but radicular arteries end before reaching anterior or posterior spinal arteries; larger segmental medullary arteries continue on to supply a segment of these arteries.

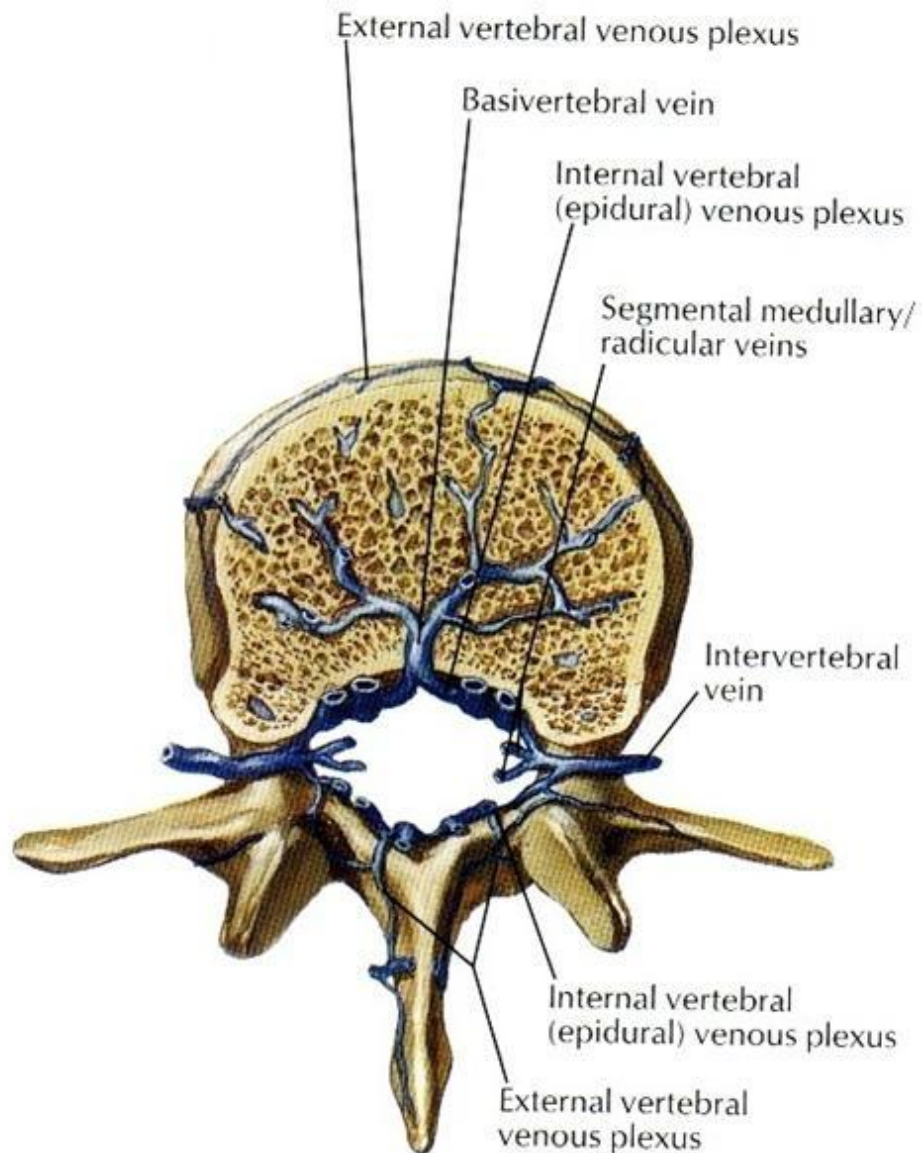
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Veins of Vertebral Column: Medial View



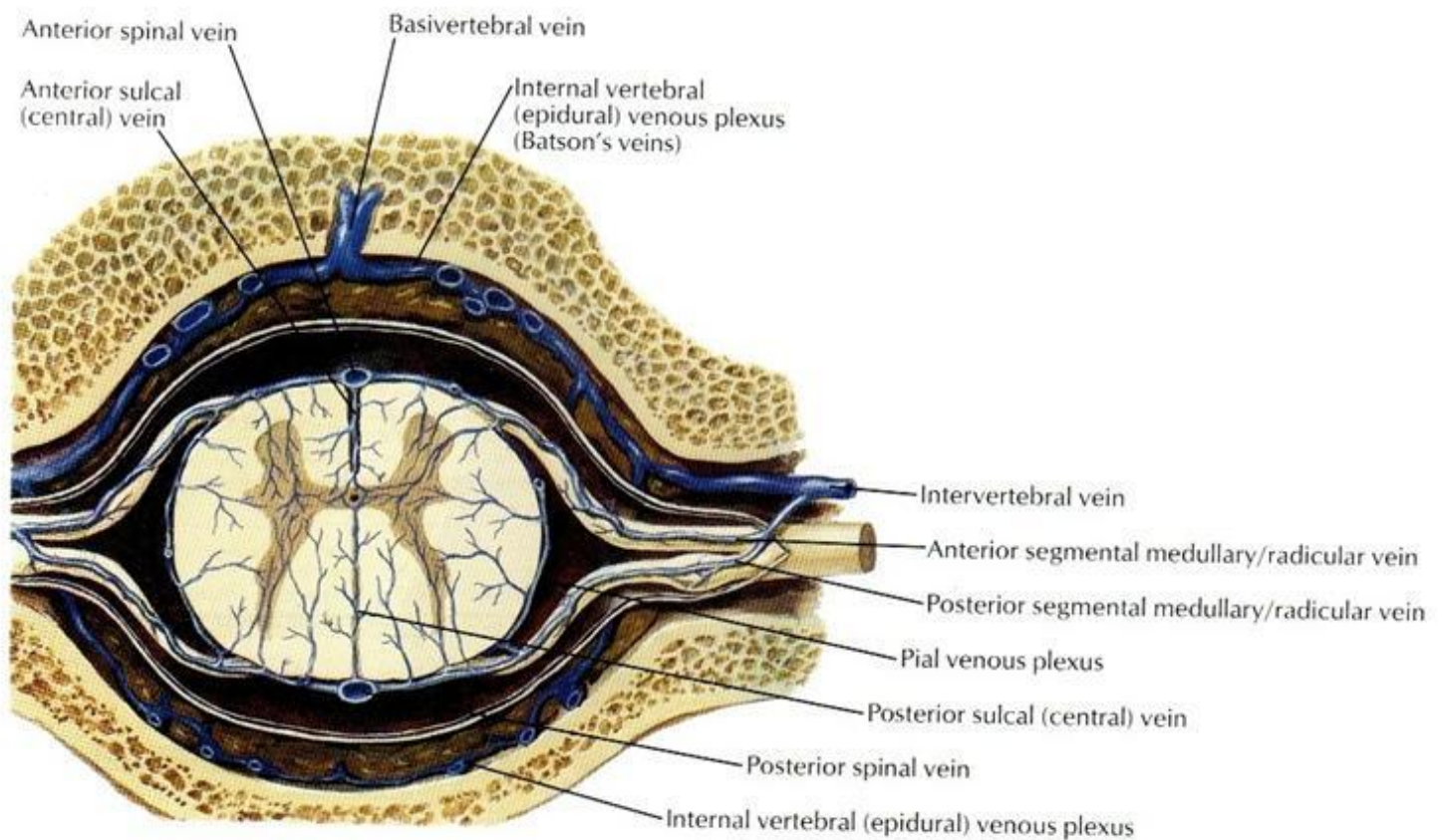
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Veins of Vertebral Column: Superior View



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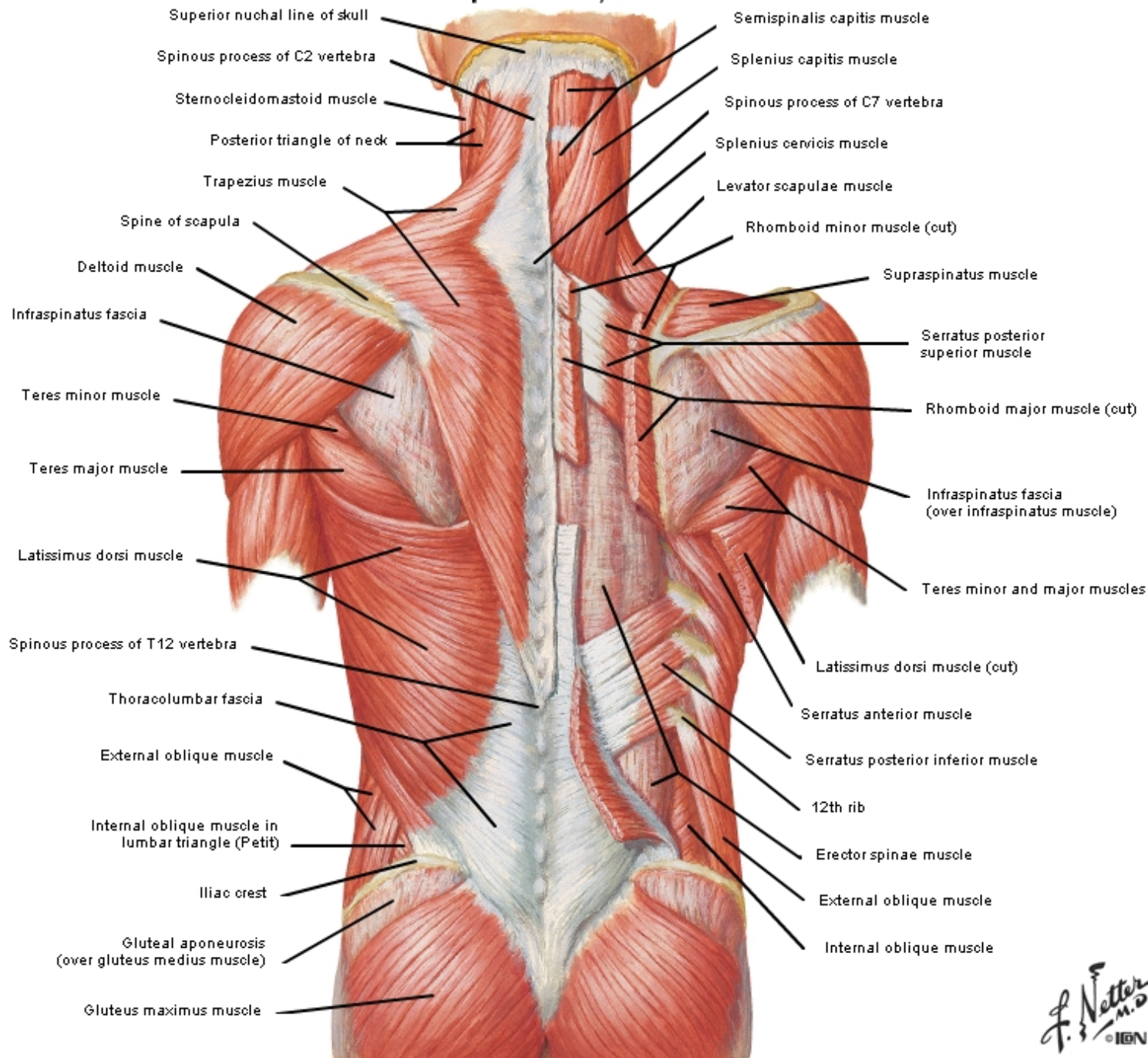
Veins of Spinal Cord



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BACK AND SPINAL CORD

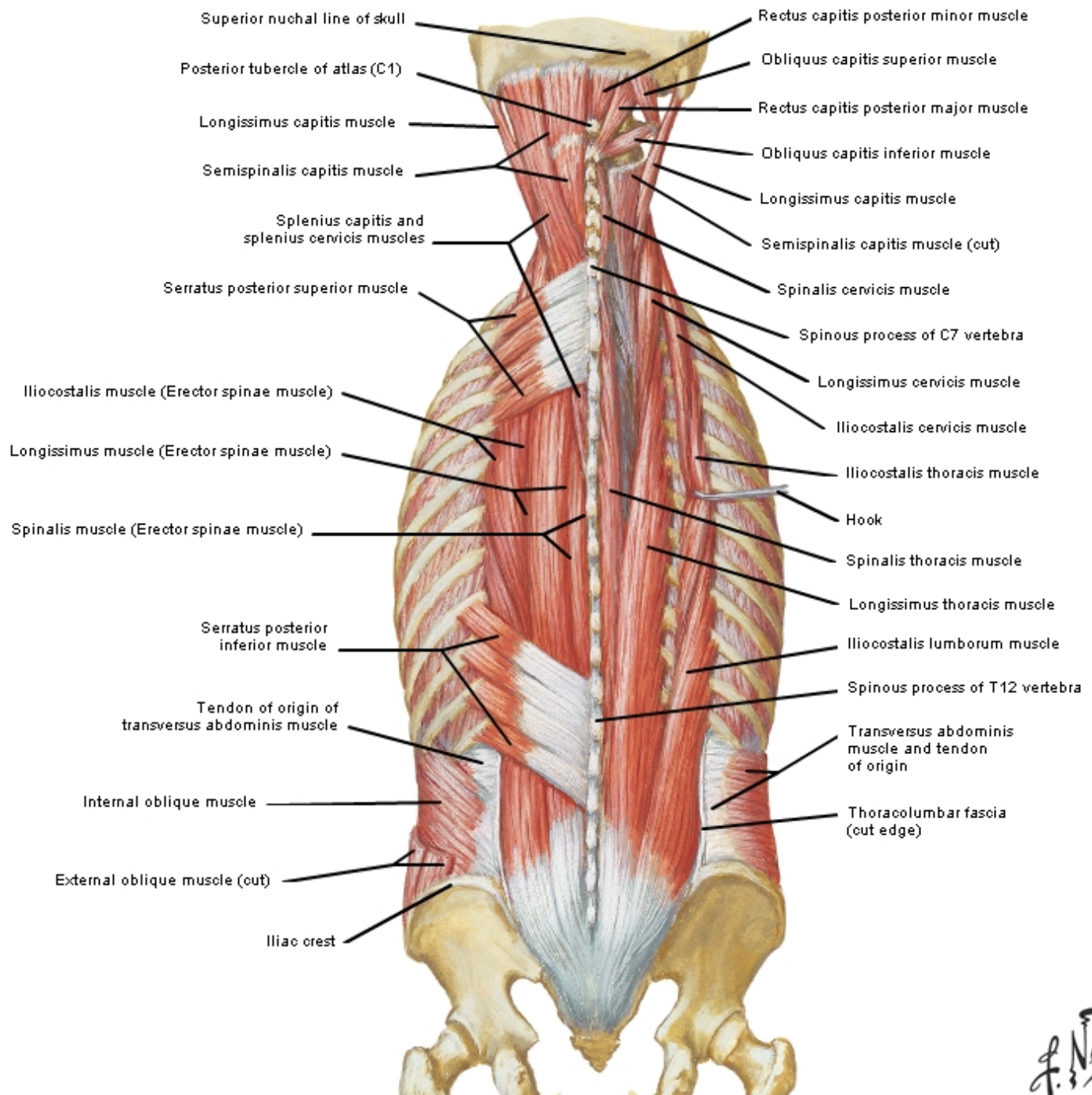
Muscles of Back Superficial Layers



*F. Netter
M.D.*
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BACK AND SPINAL CORD

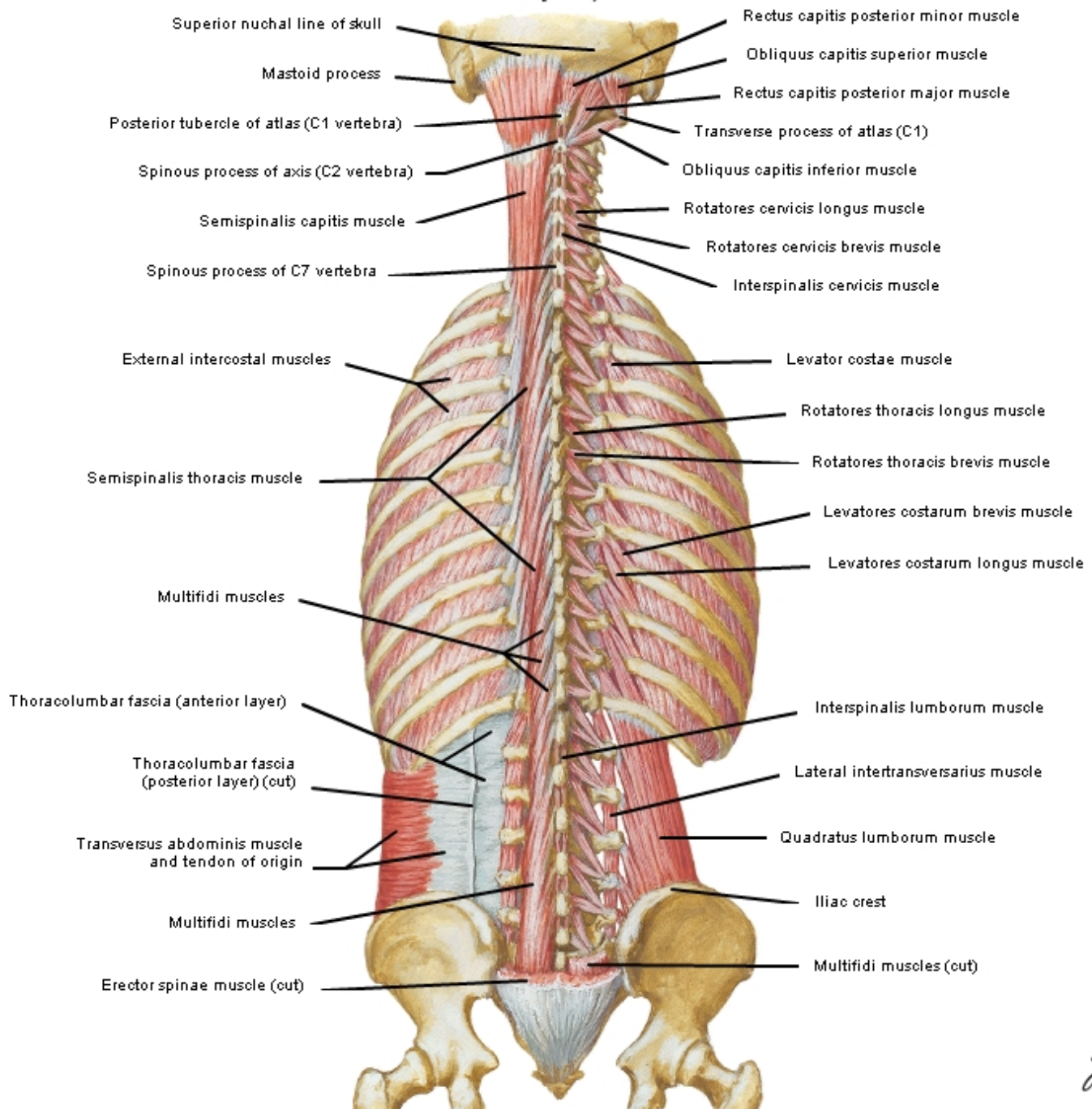
Muscles of Back: Intermediate Layers



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BACK AND SPINAL CORD

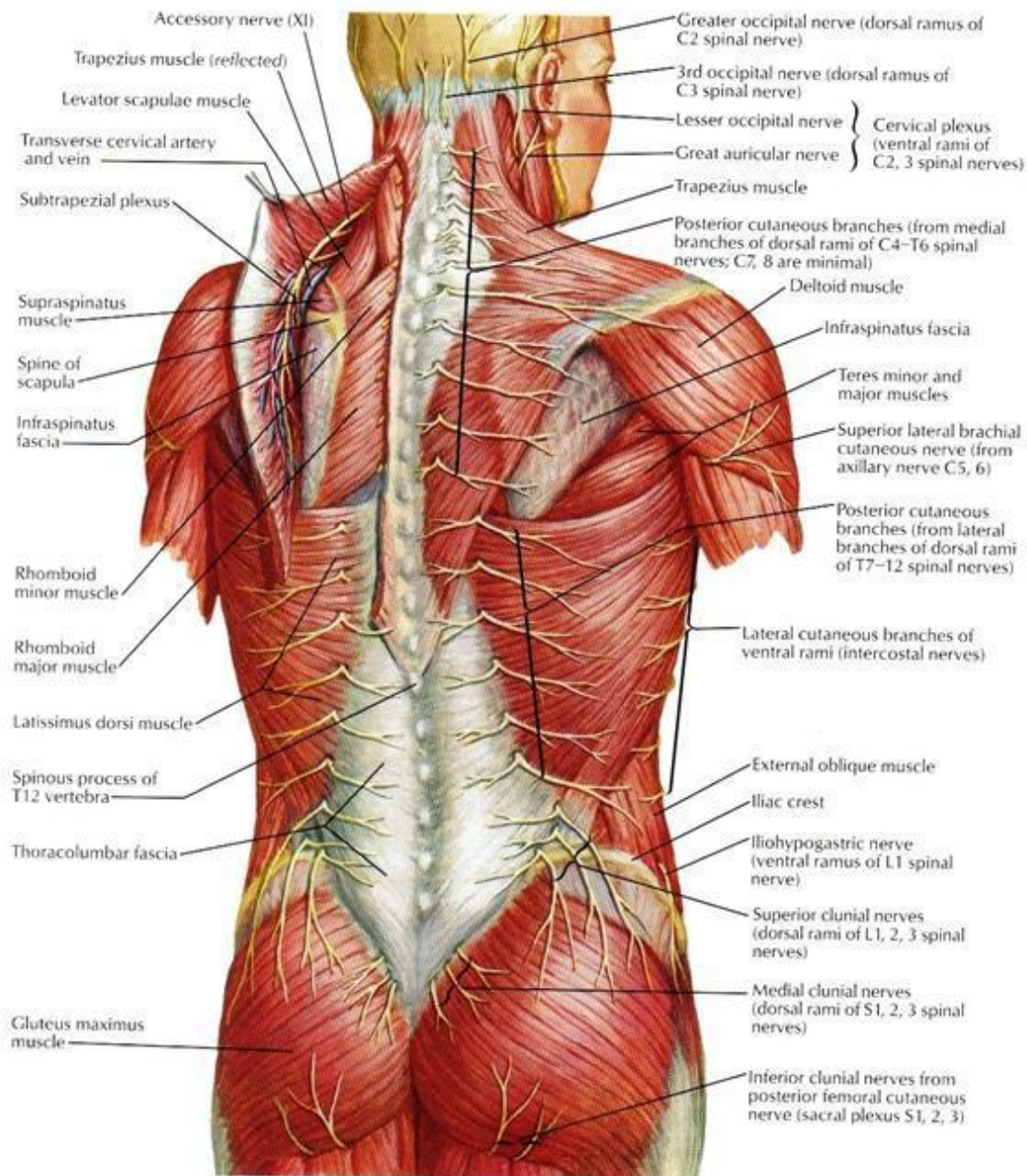
Muscles of Back Deep Layers



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BACK AND SPINAL CORD

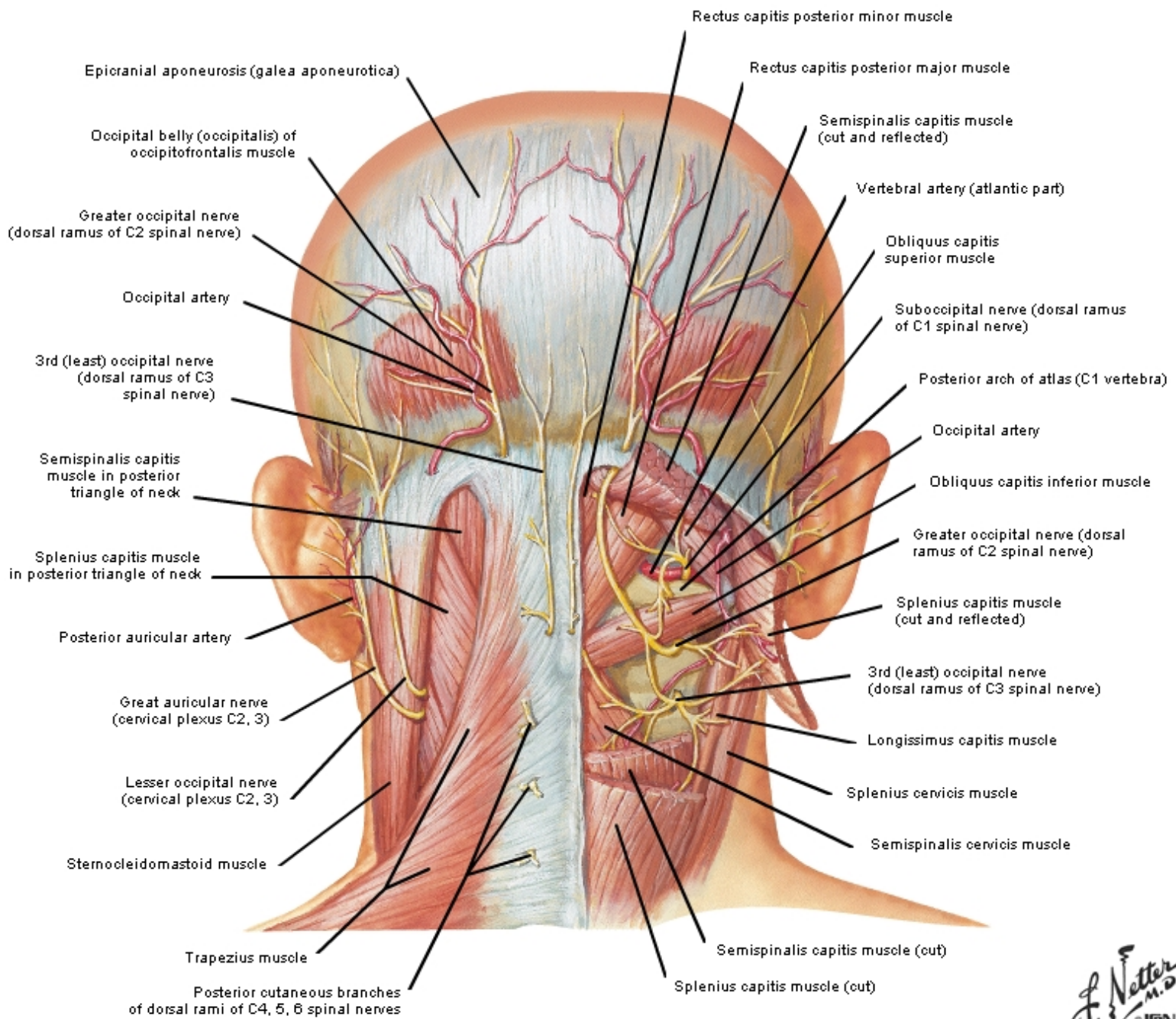
Nerves of Back



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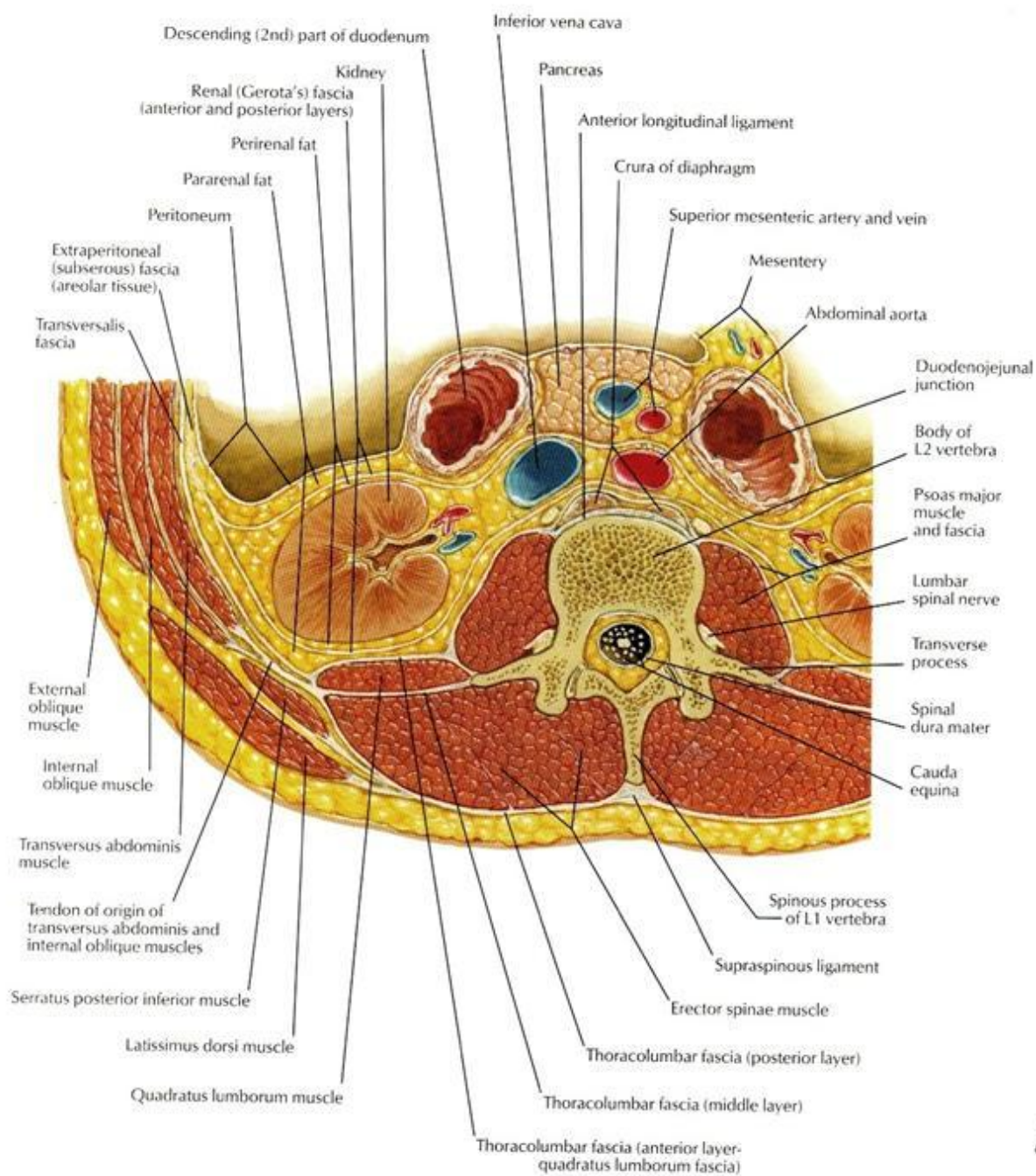
BACK AND SPINAL CORD

Suboccipital Triangle



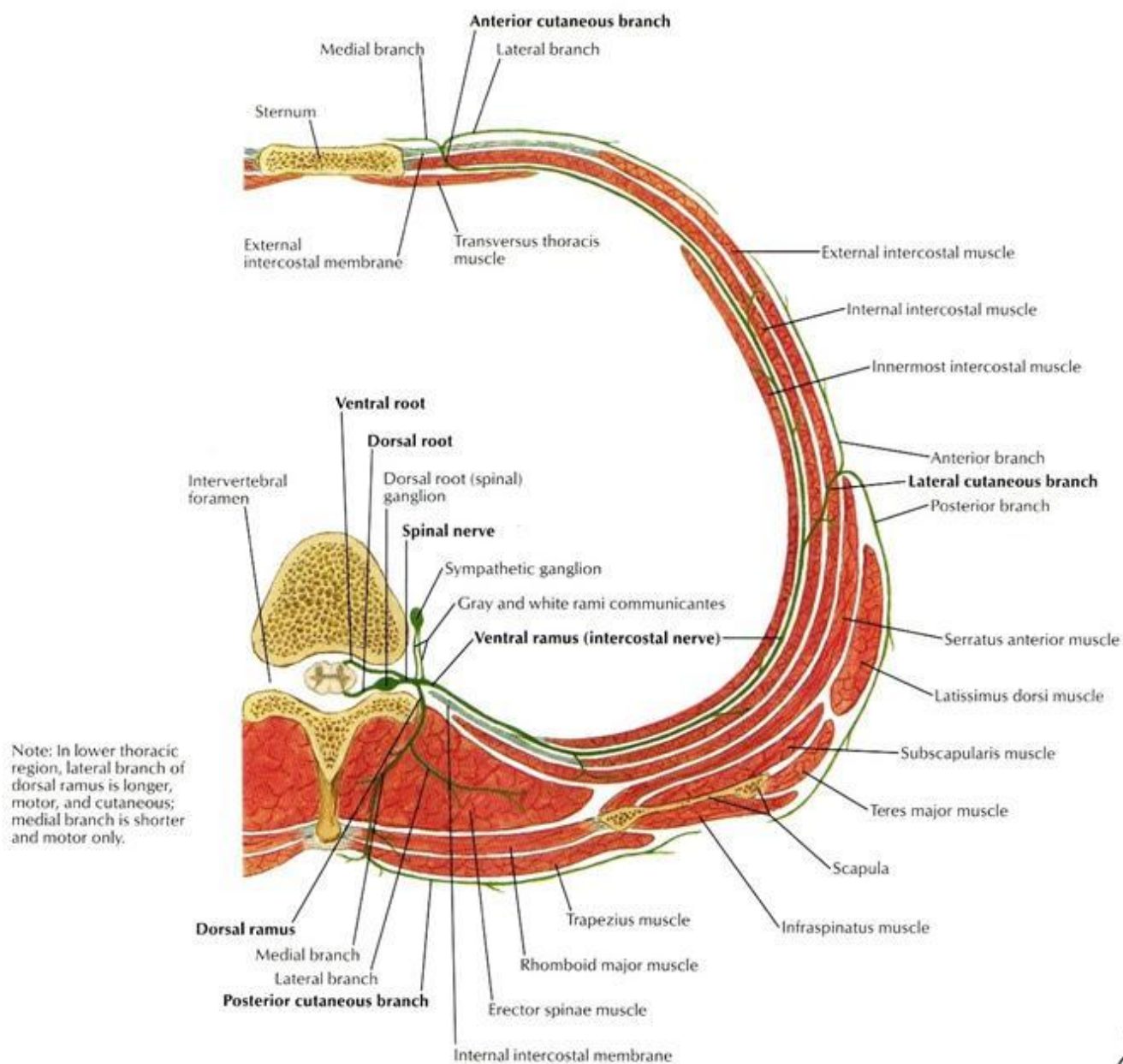
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Lumbar Region of Back: Cross Section



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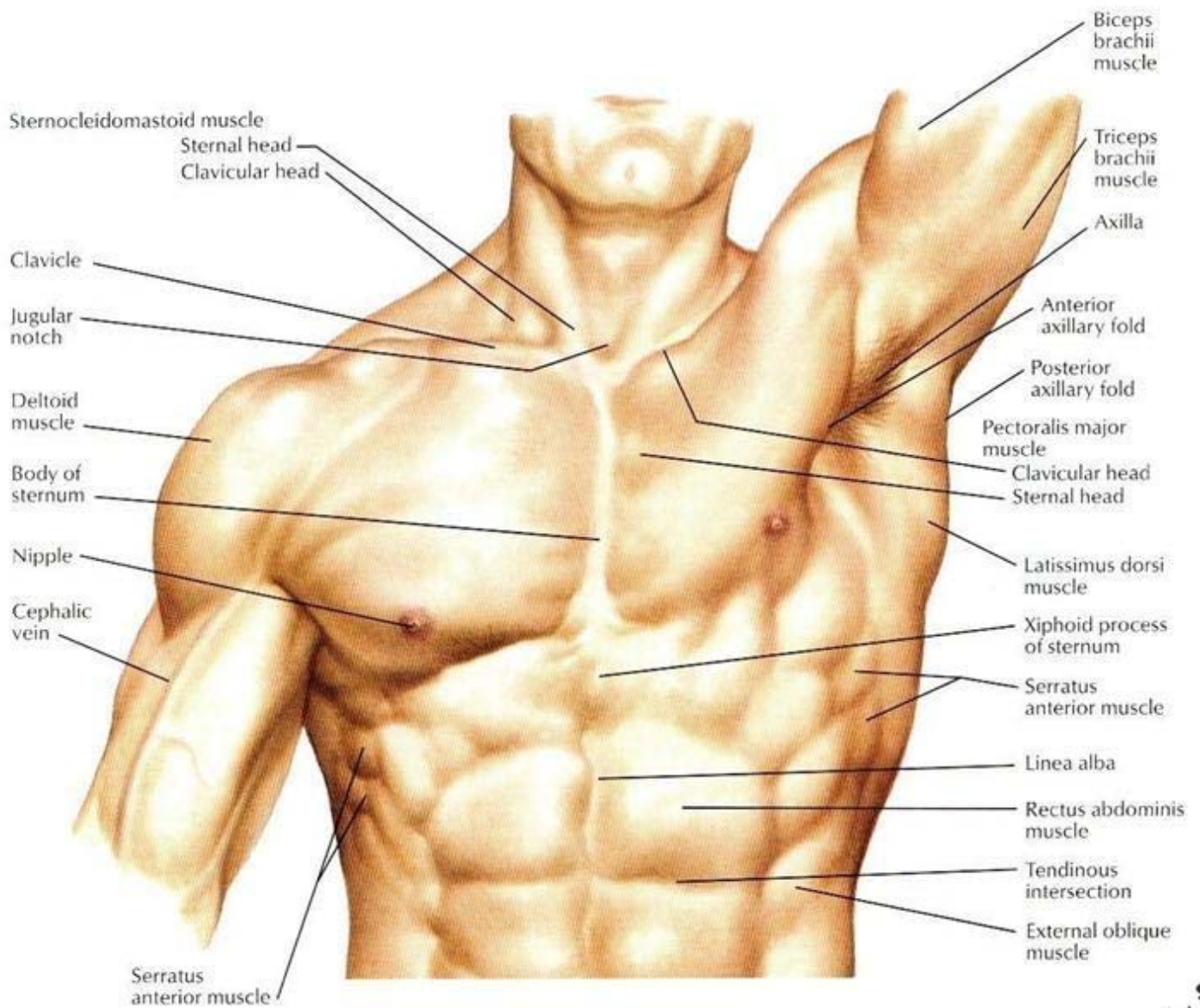
Typical Thoracic Spinal Nerve



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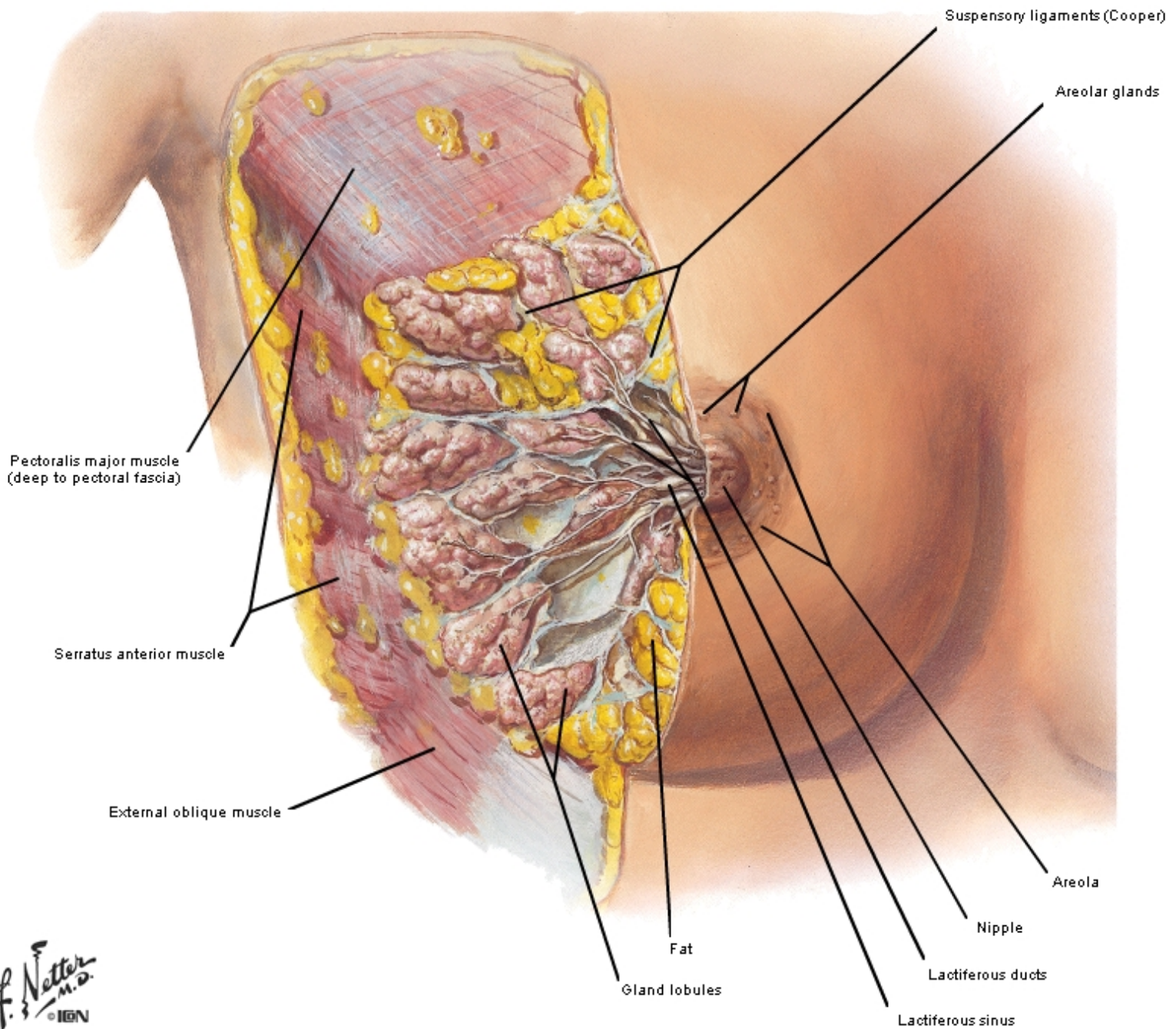
Section 3 Thorax

Thorax

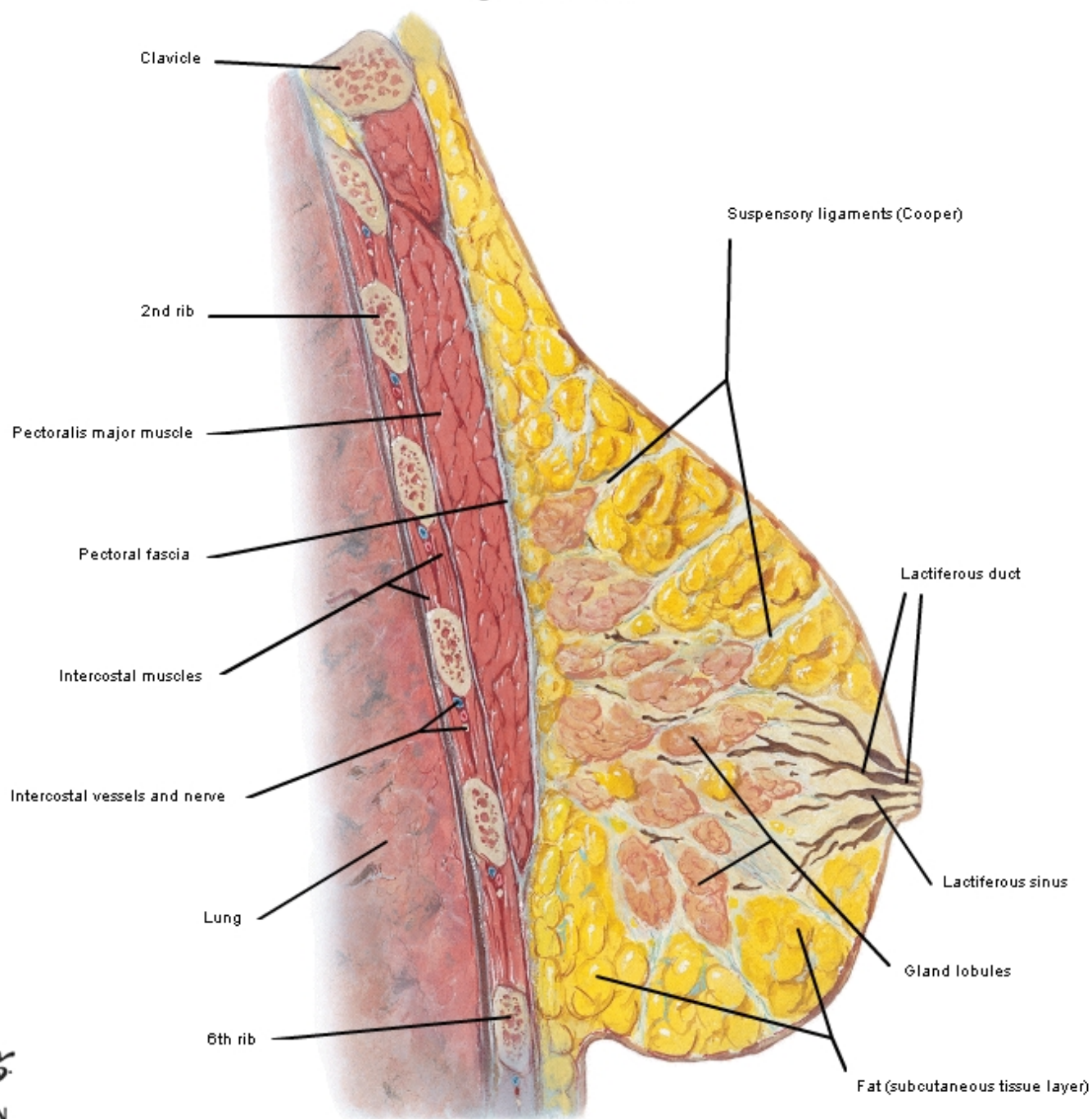


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Mammary Gland Anterolateral Dissection

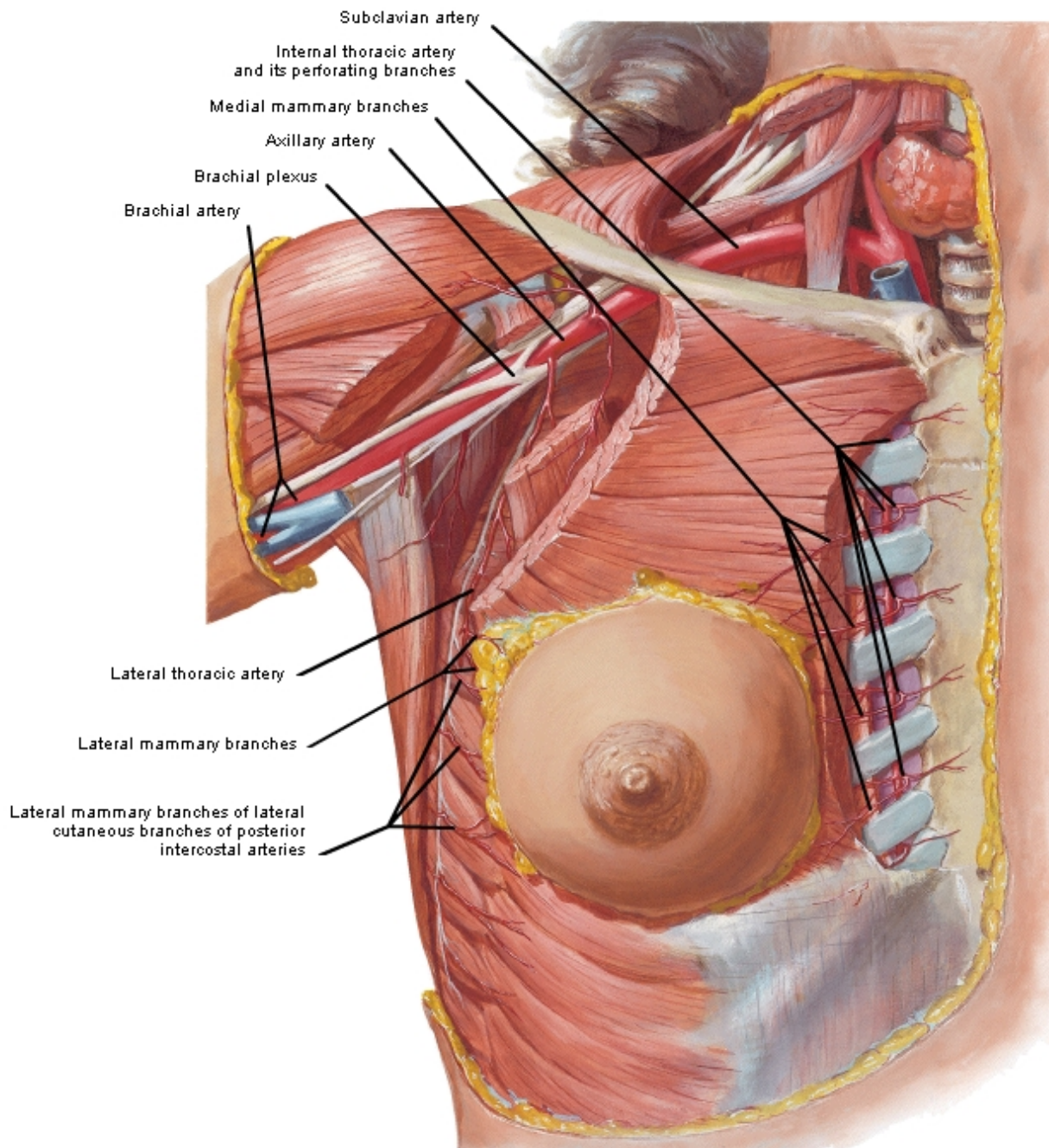


THORAX

**Mammary Gland
Sagittal Section**

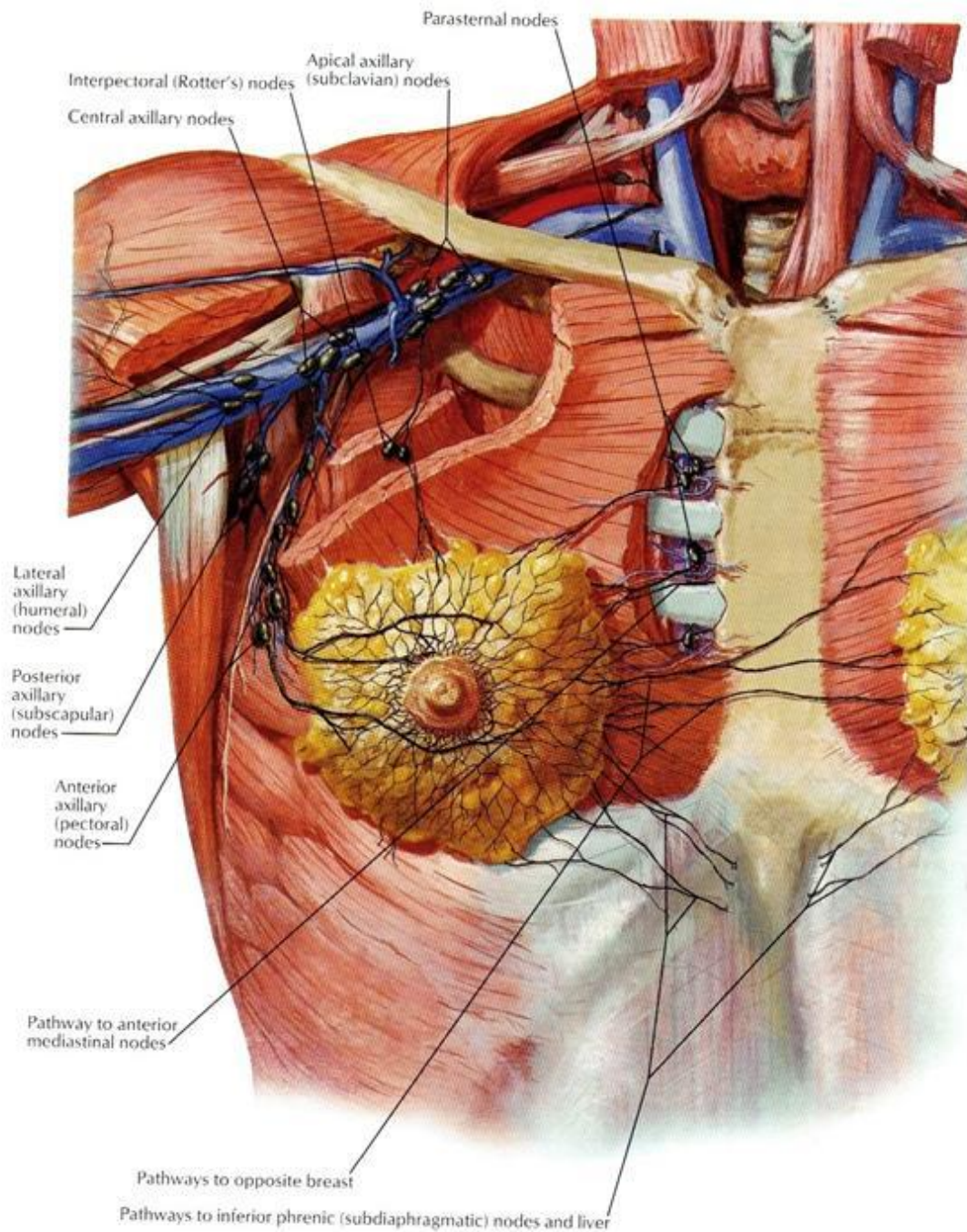
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Arteries of Mammary Gland



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Lymph Vessels and Nodes of Mammary Gland

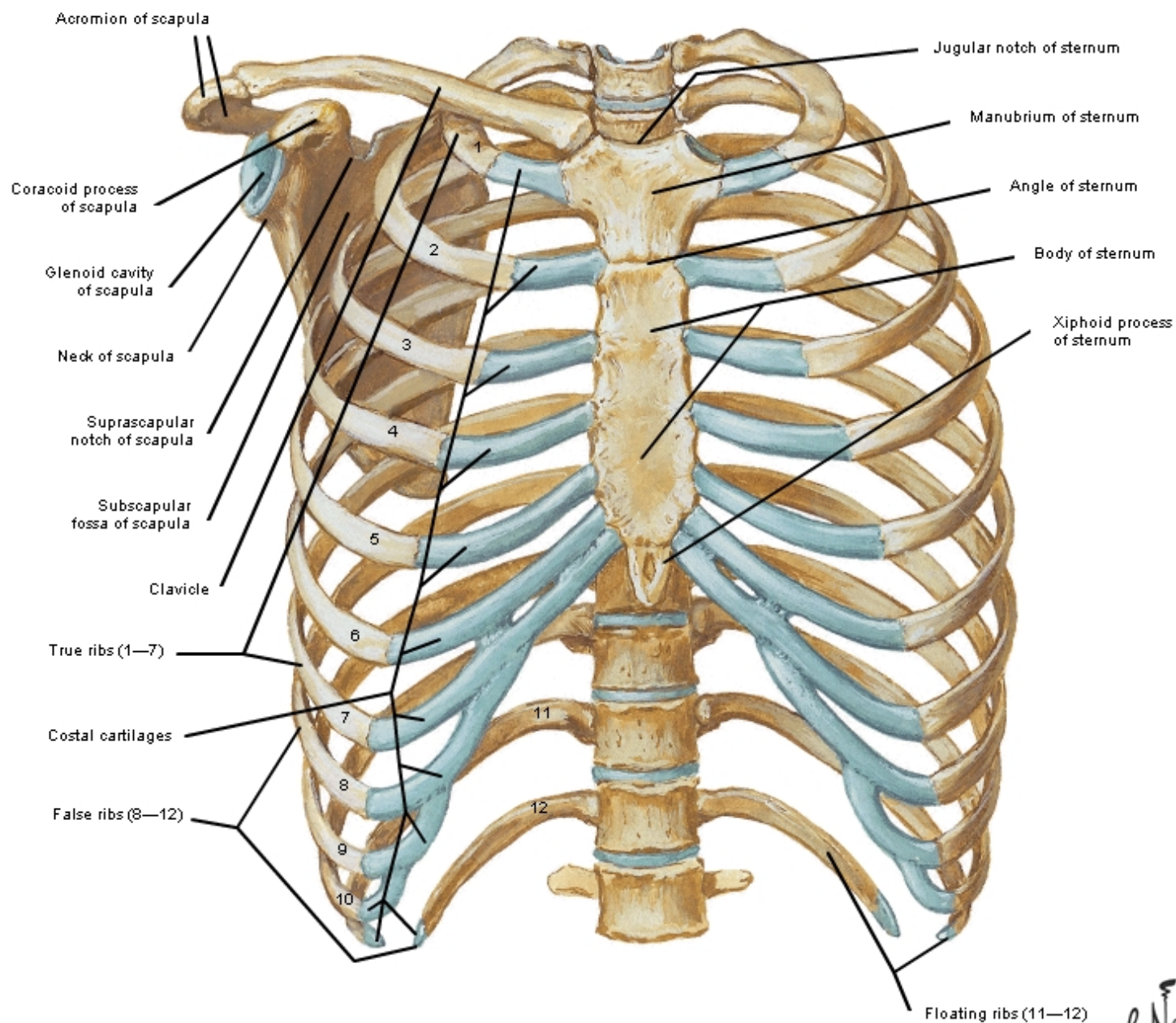


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THORAX

Bony Framework of Thorax

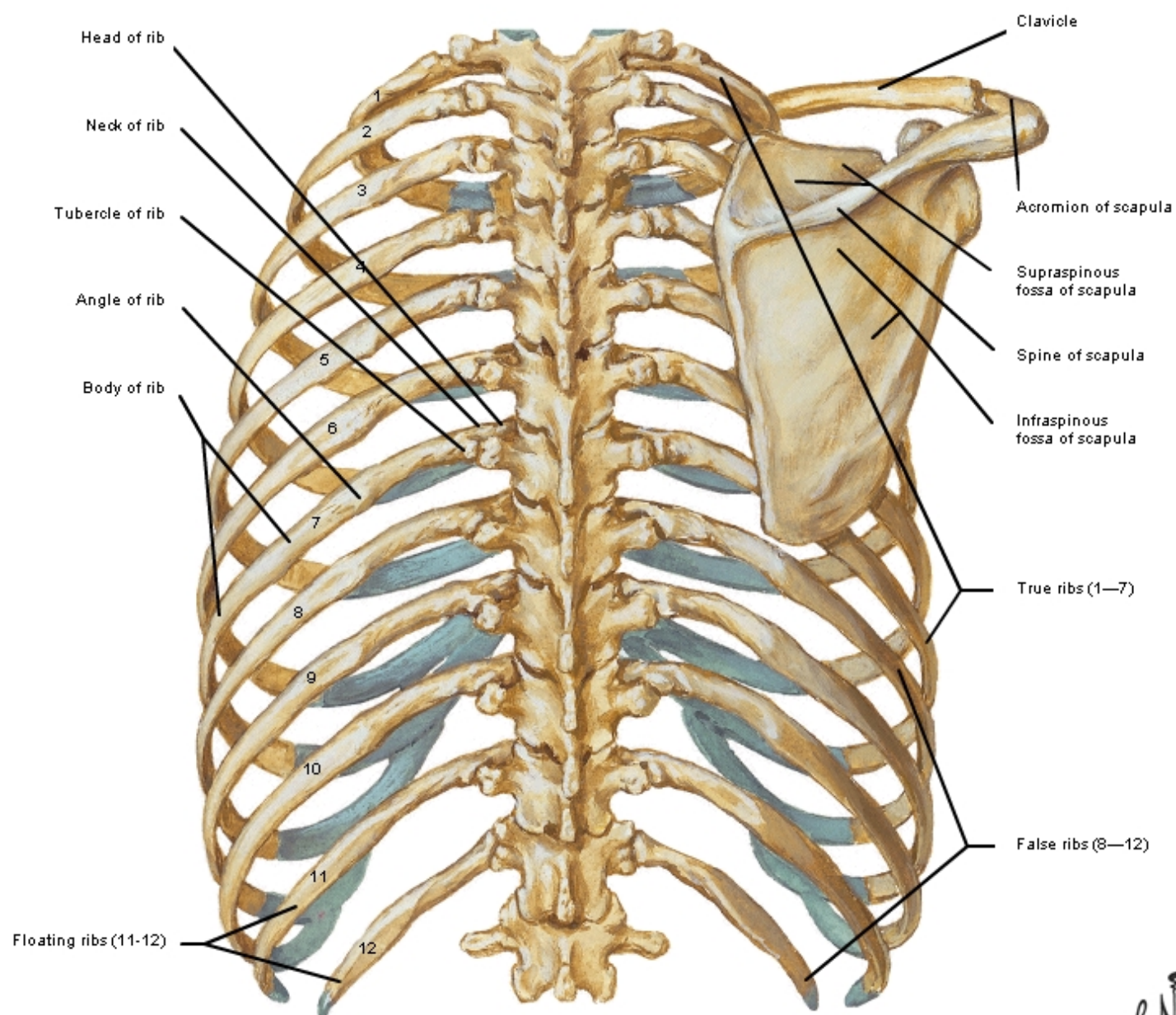
Anterior view



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THORAX

Bony Framework of Thorax Posterior View



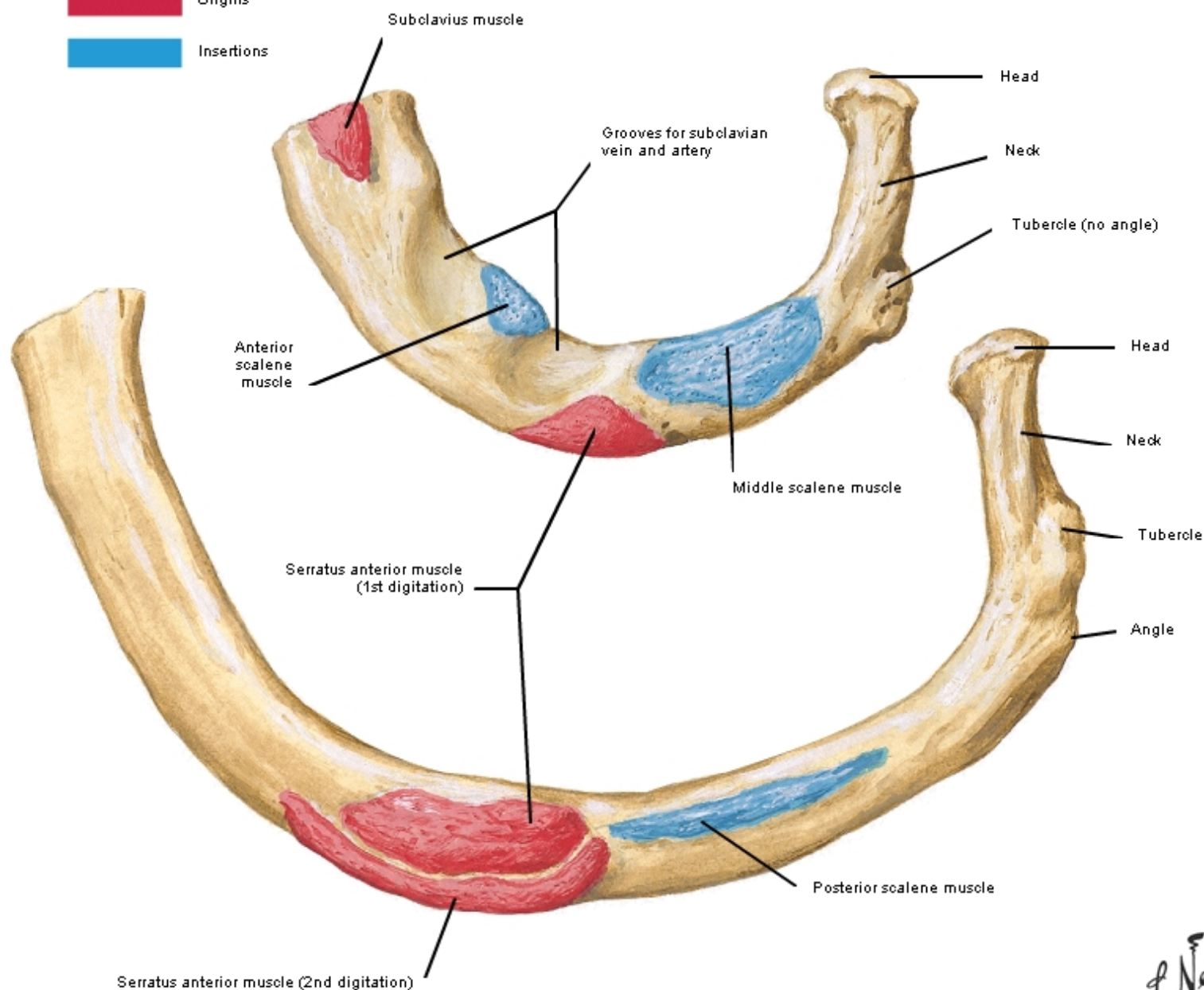
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THORAX

Left 1st and 2nd Ribs Superior View

Muscle attachments

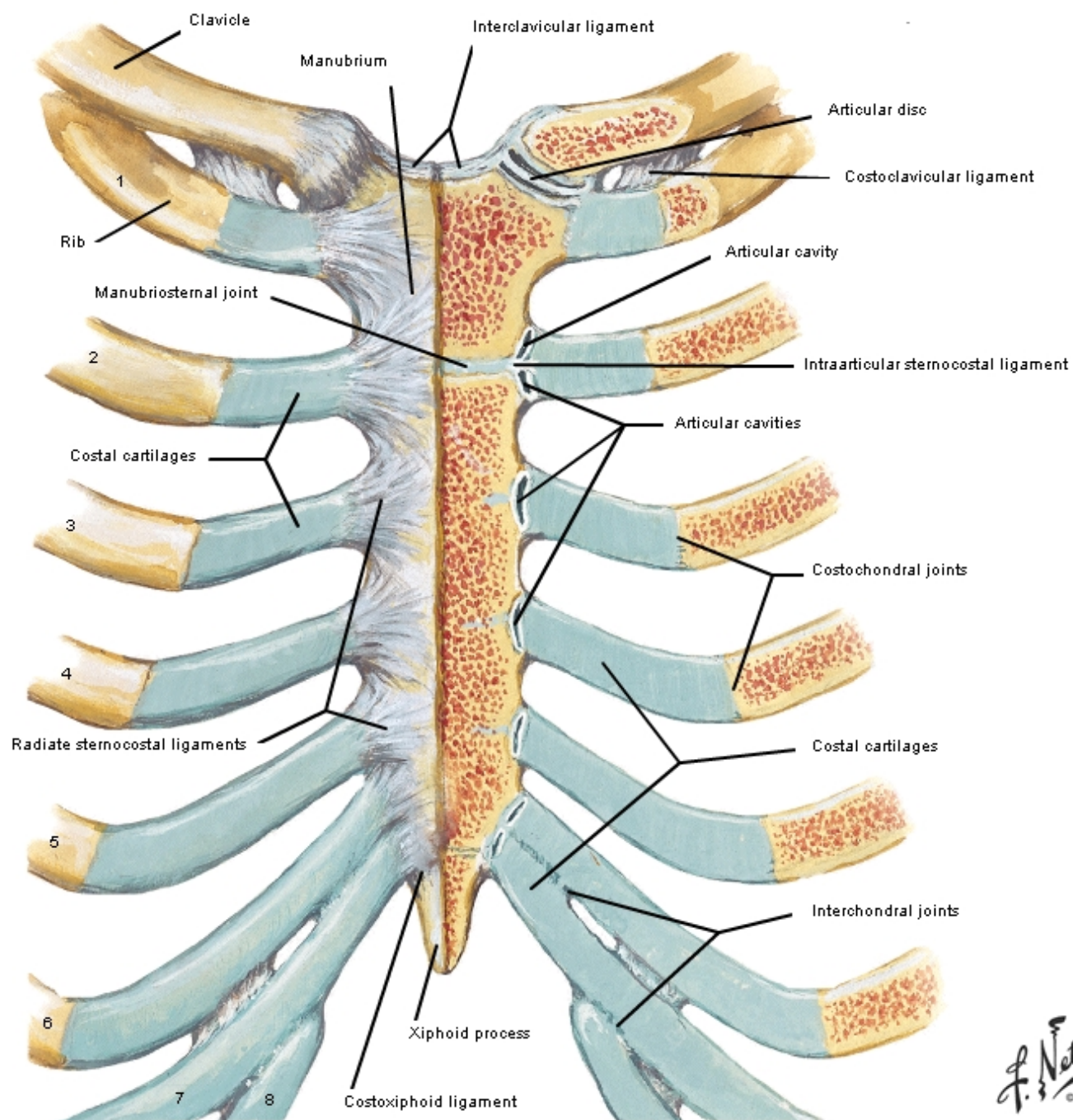
 Origins

 Insertions


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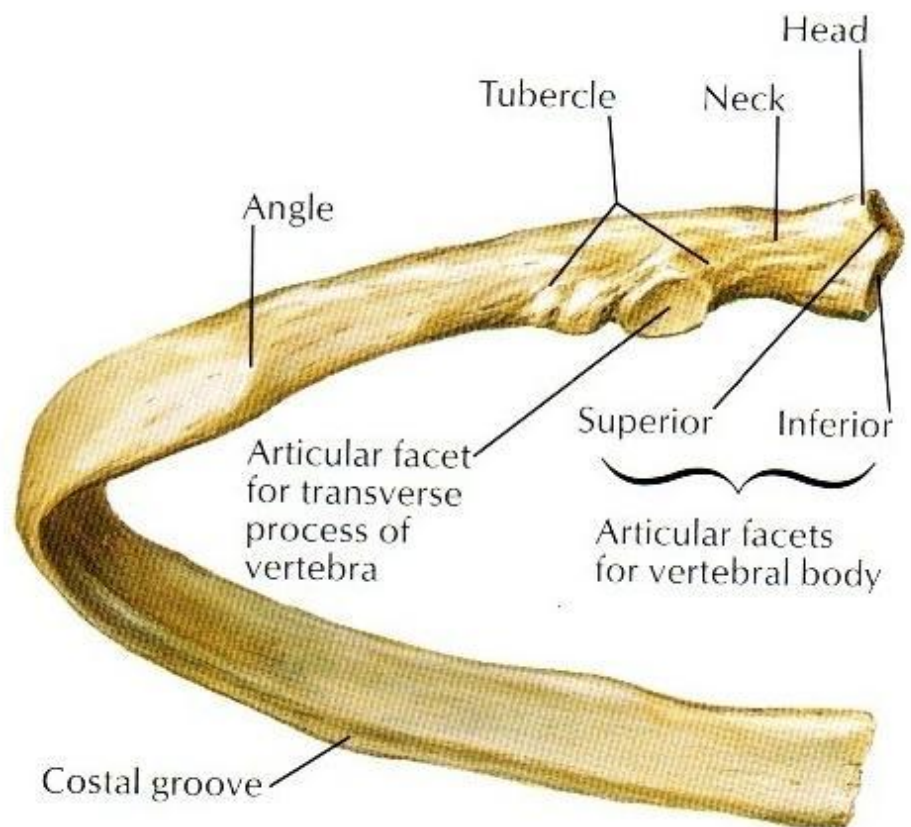
THORAX

Sternocostal Articulations Anterior View



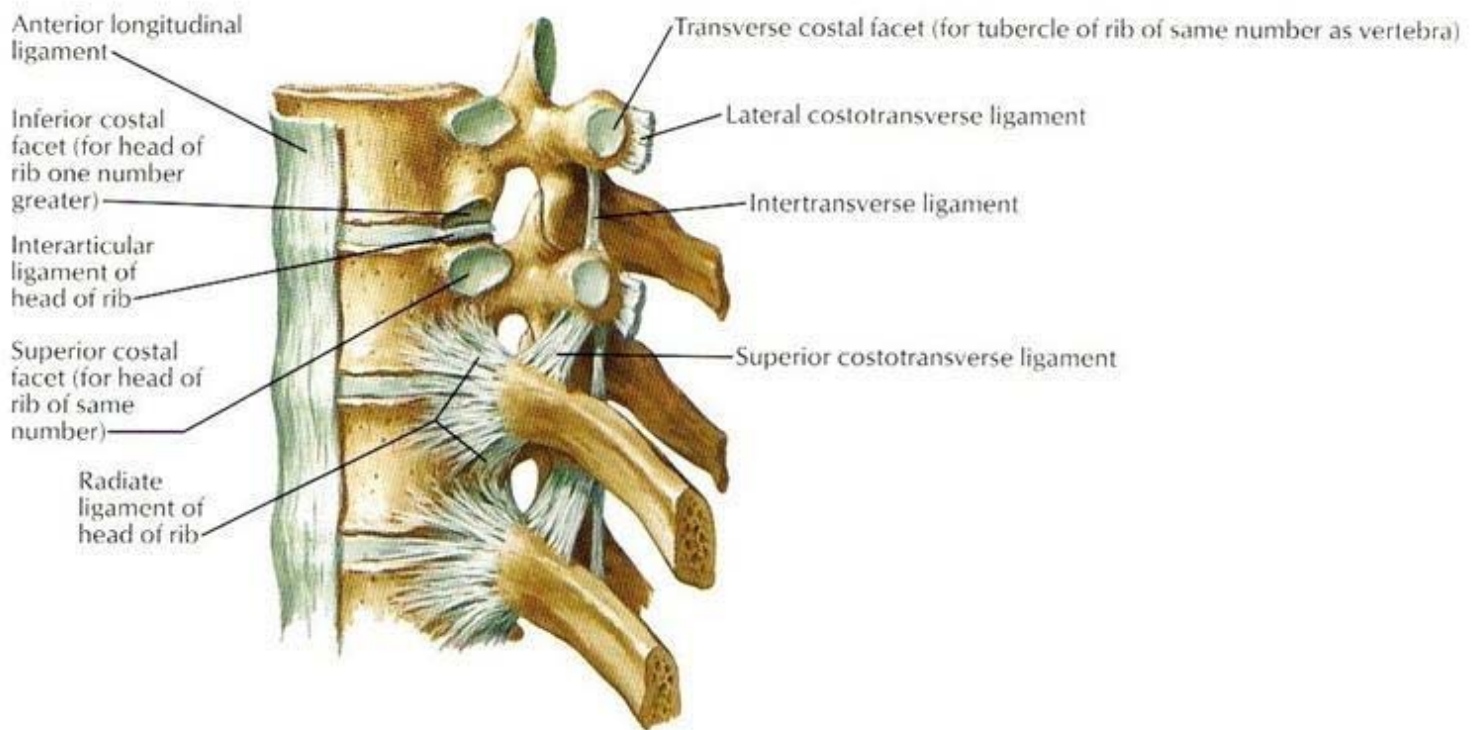
Ribs and Sternocostal Joints: Middle Rib Posterior View

Note: The head of a typical rib articulates with the superior costal facet of the thoracic vertebra of the same number (by its inferior articular facet), the inferior costal facet of the vertebra above (by its superior articular facet), and the intervertebral disc between the two vertebrae. The costal tubercle articulates with the transverse process of the vertebra of the same number.



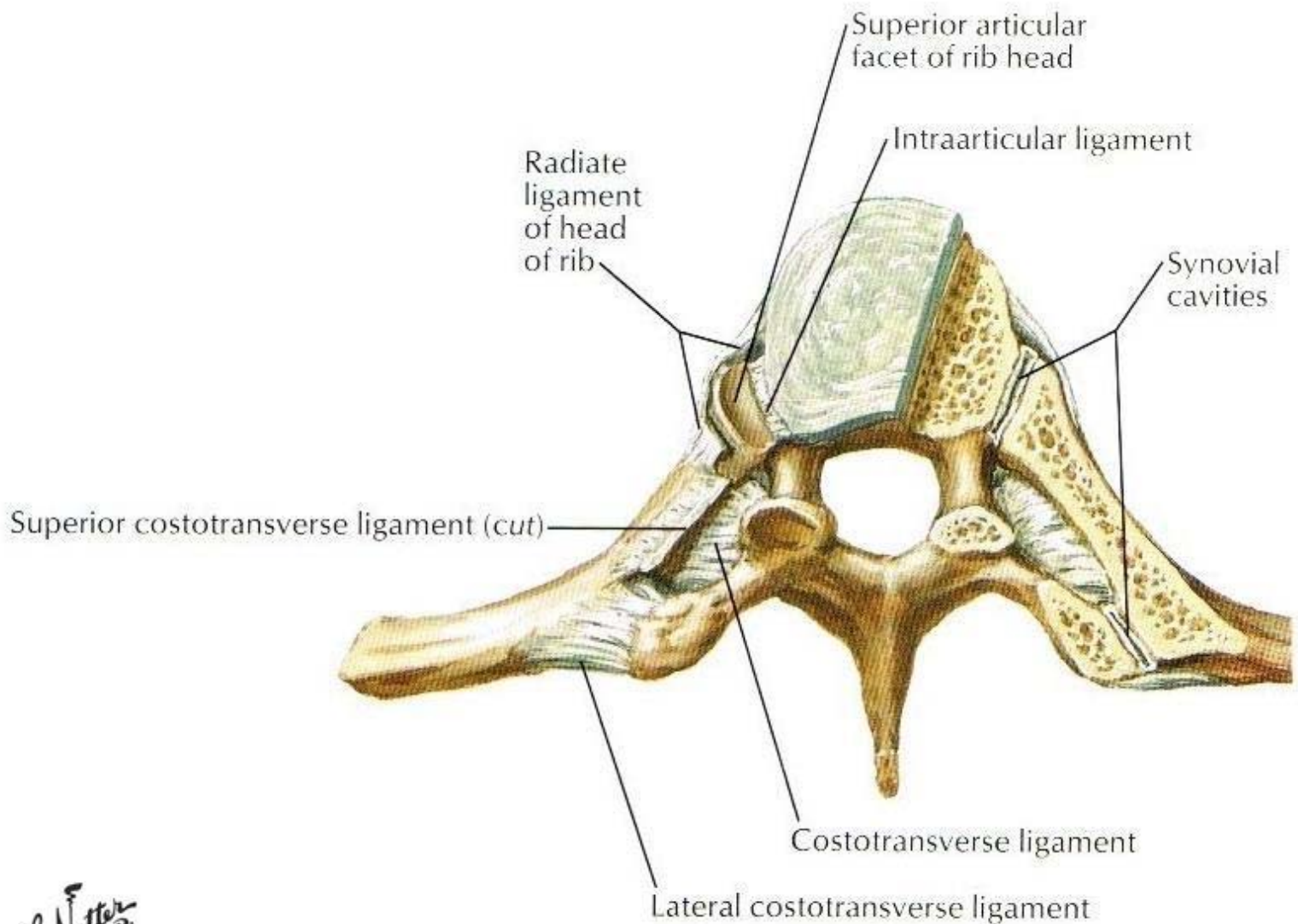
F. Netter
M.D.
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Costovertebral Joints: Left Lateral View

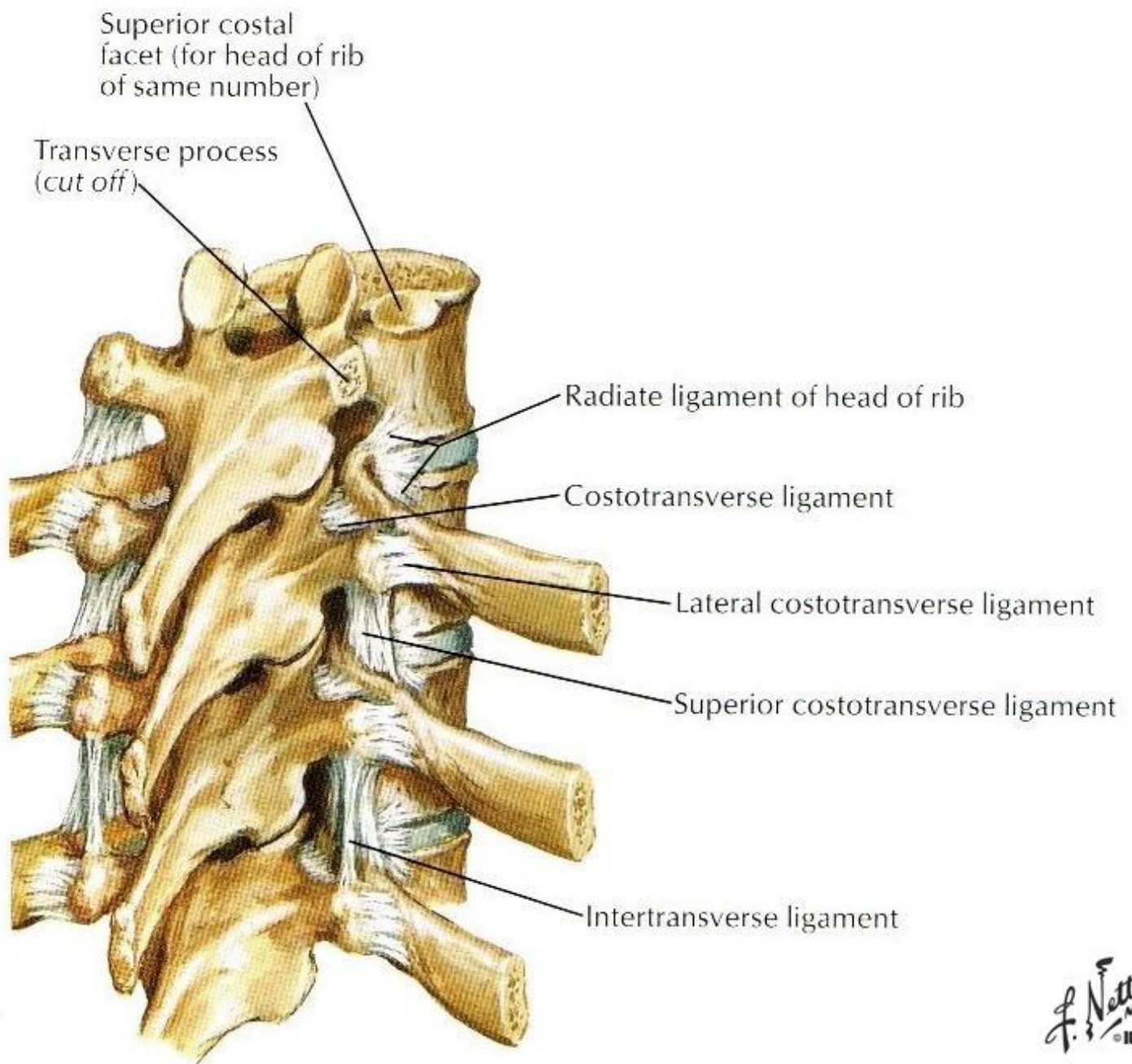


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Costovertebral Joints: Superior View



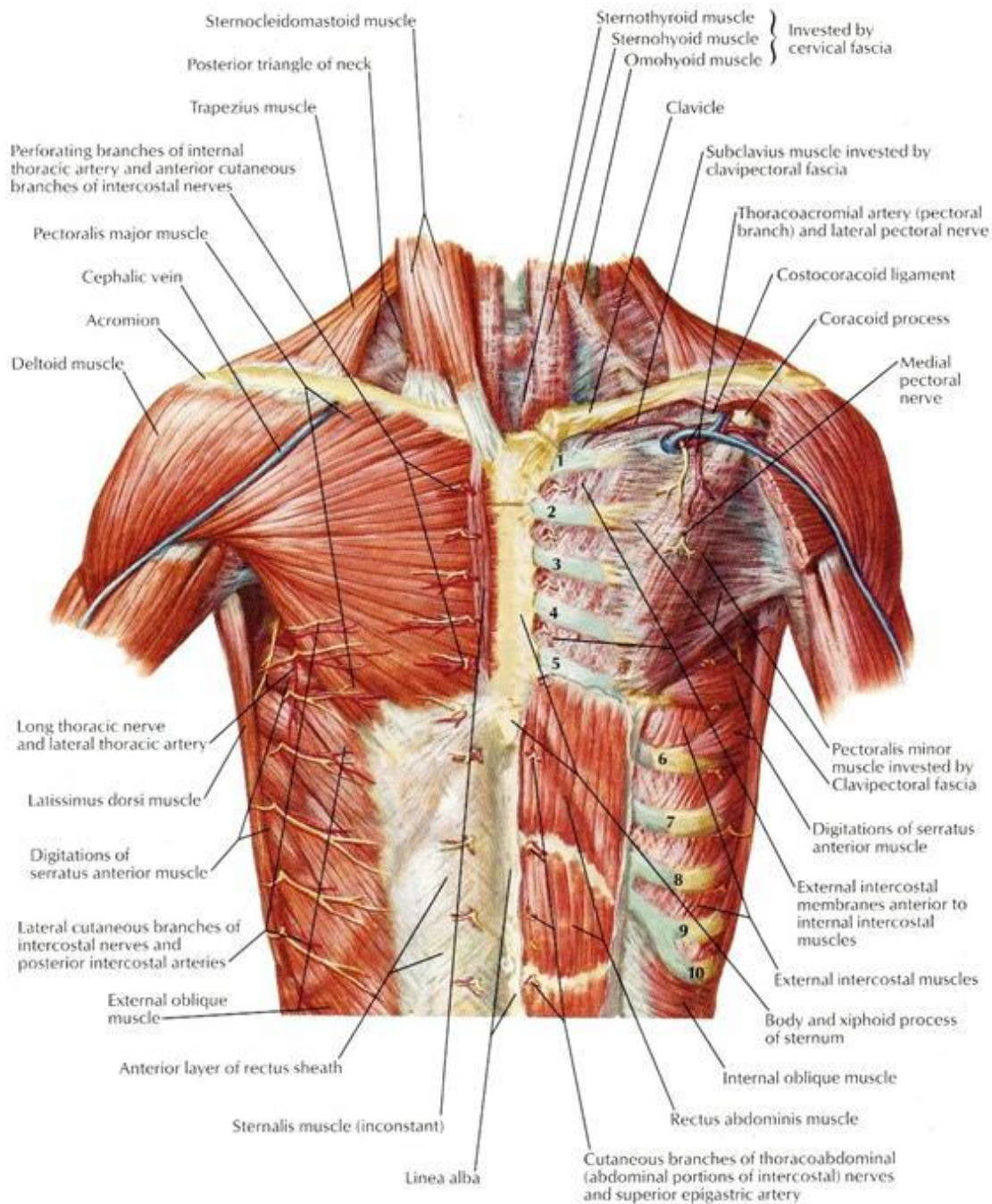
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Costovertebral Joints: Right Posterolateral View

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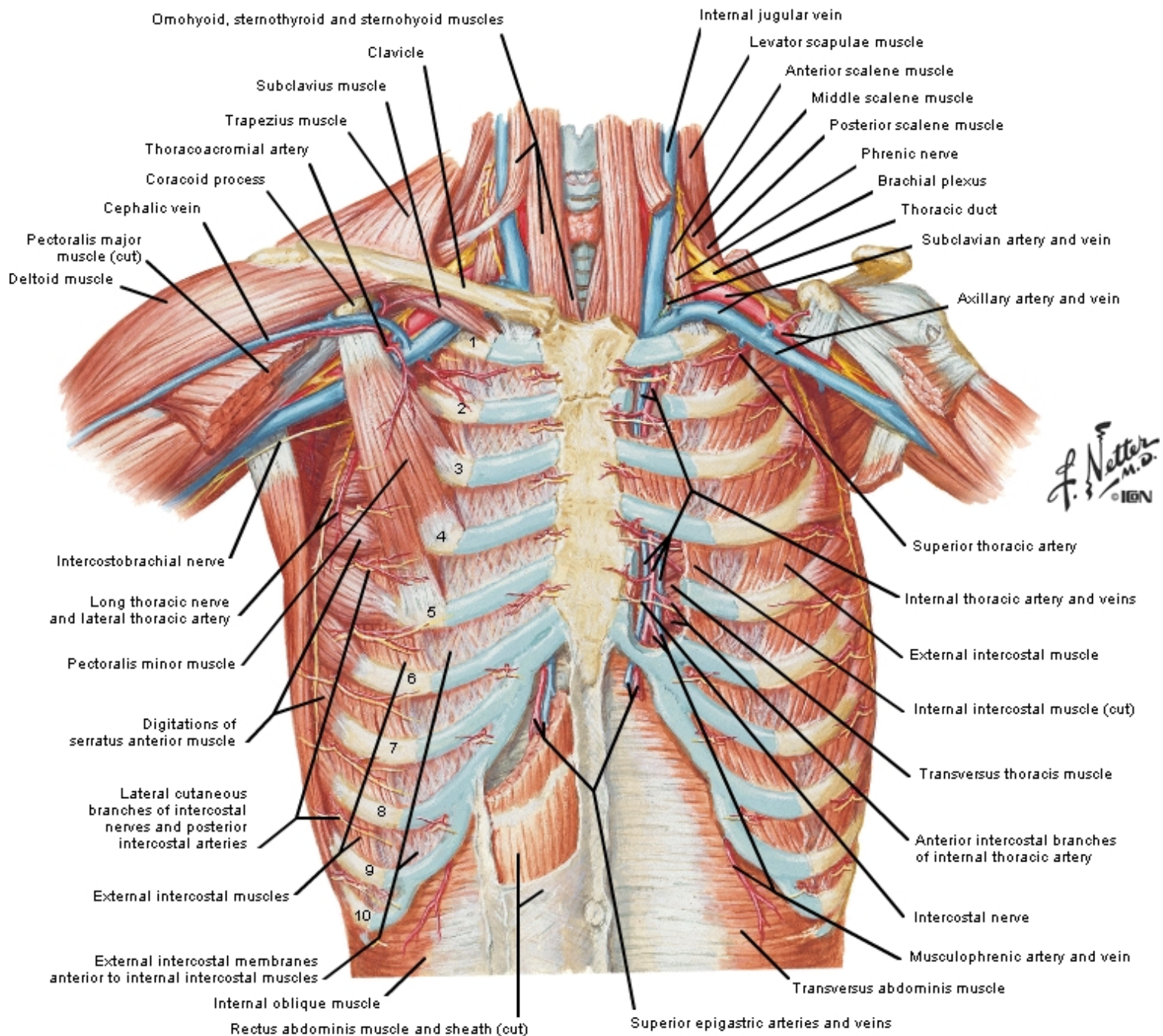
Anterior Thoracic Wall



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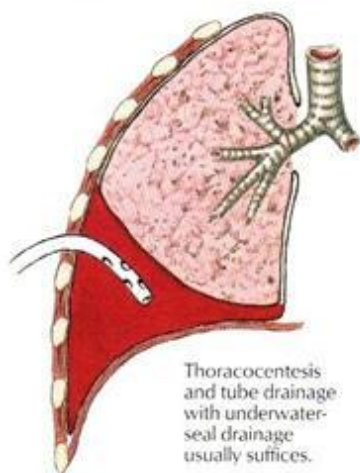
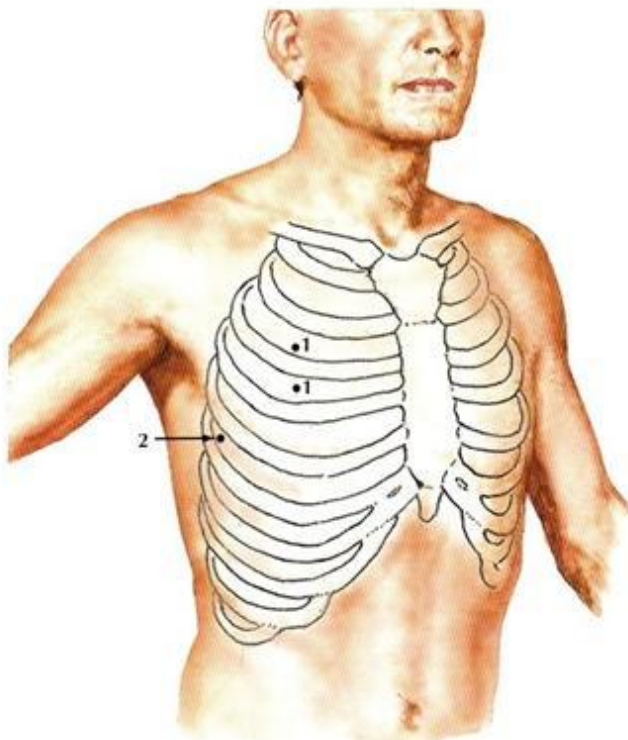
Anterior Thoracic Wall: Deep Dissection



Chest Drainage Tube Placement

Preferred sites

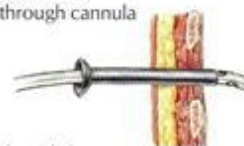
1. For pneumothorax (2nd or 3rd interspace at midclavicular line)
2. For hemothorax (5th interspace at midaxillary line)



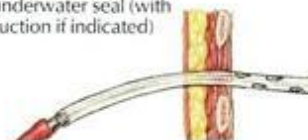
A. Trocar and cannula pushed through intercostal space



B. Trocar withdrawn; tube passed into chest through cannula



C. Cannula withdrawn; tube connected to underwater seal (with suction if indicated)



D. Intercostal space is pierced above rib to avoid damage to neurovascular bundle lying in costal groove

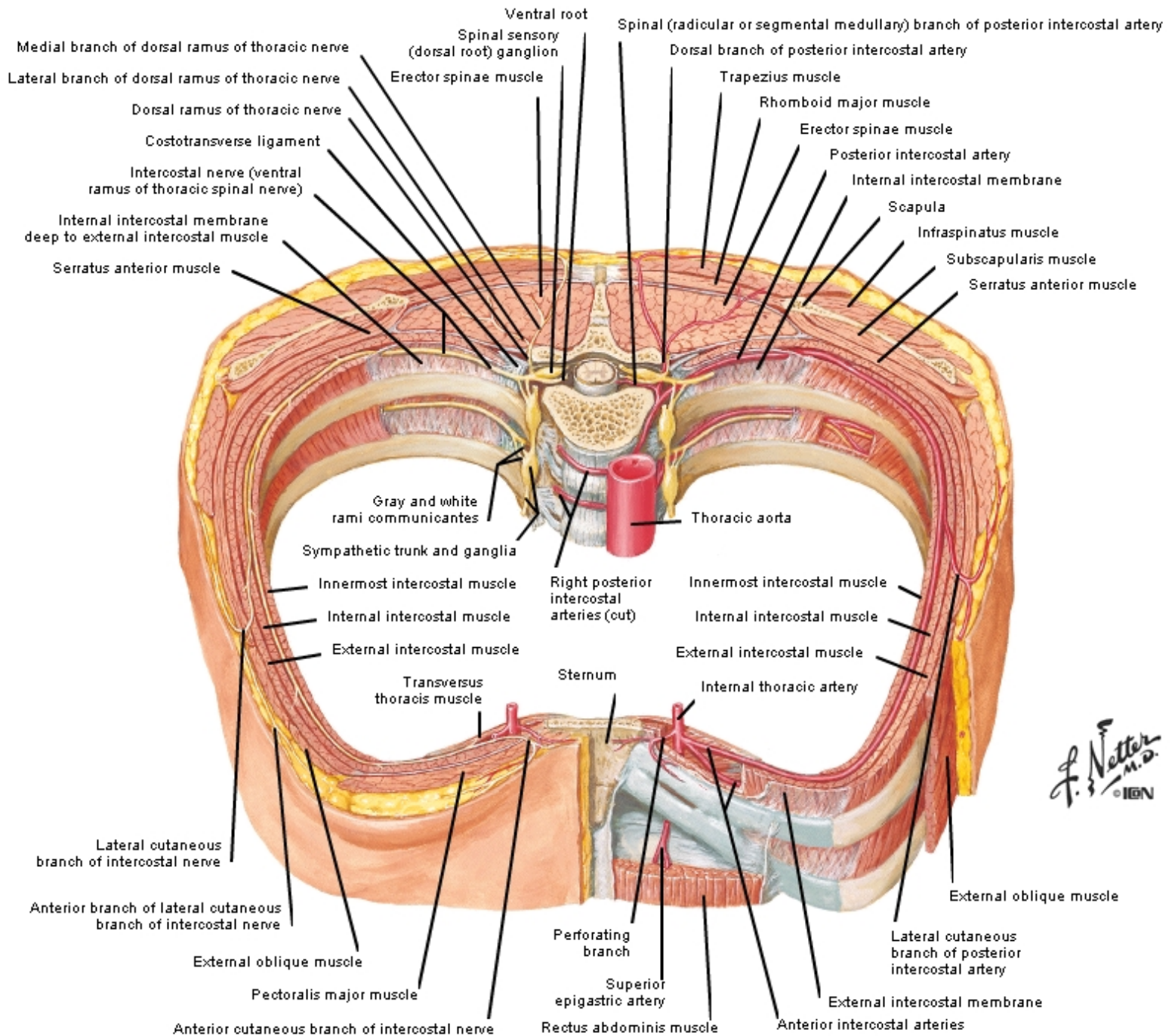


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Internal View

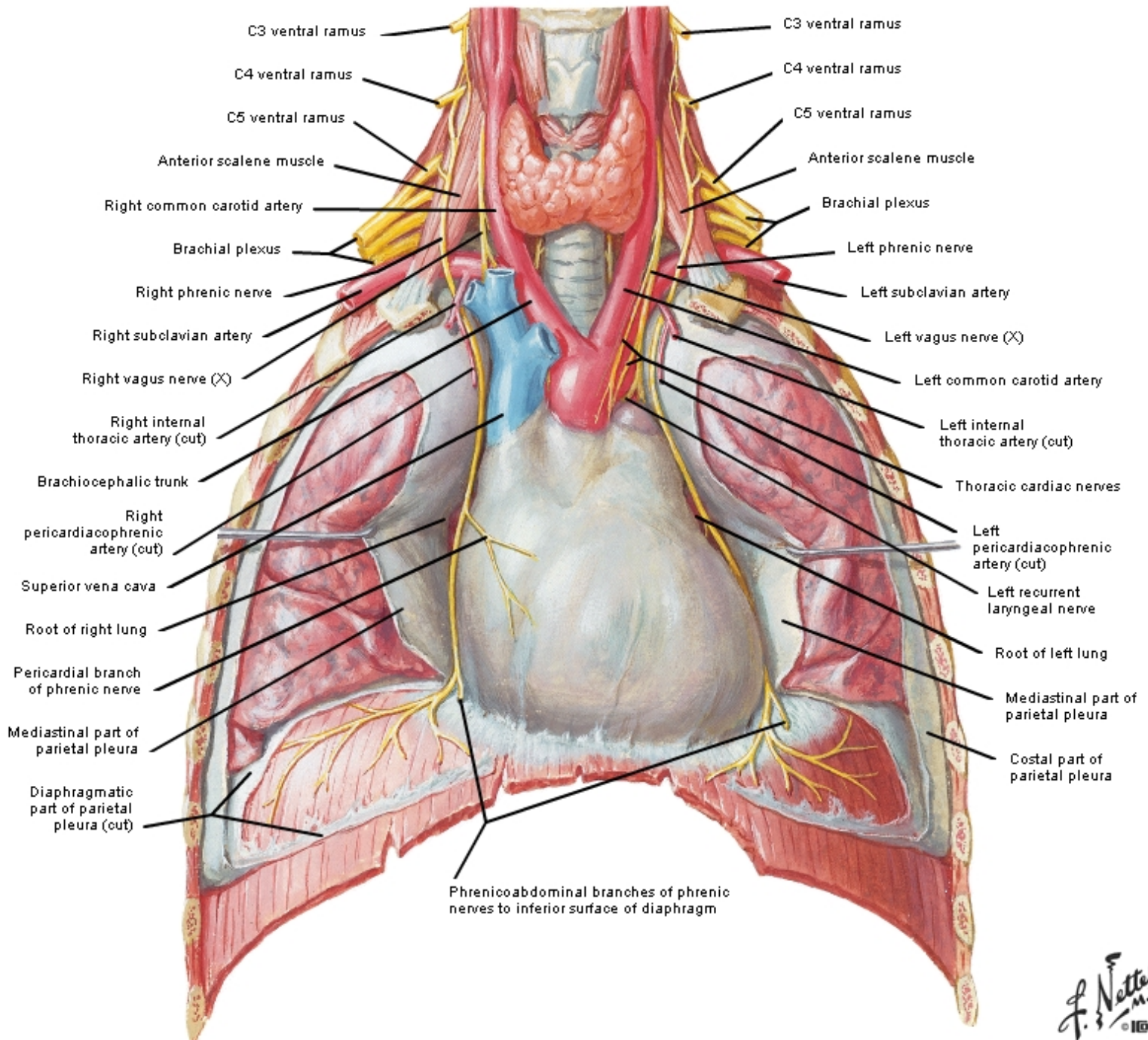


Intercostal Nerves and Arteries



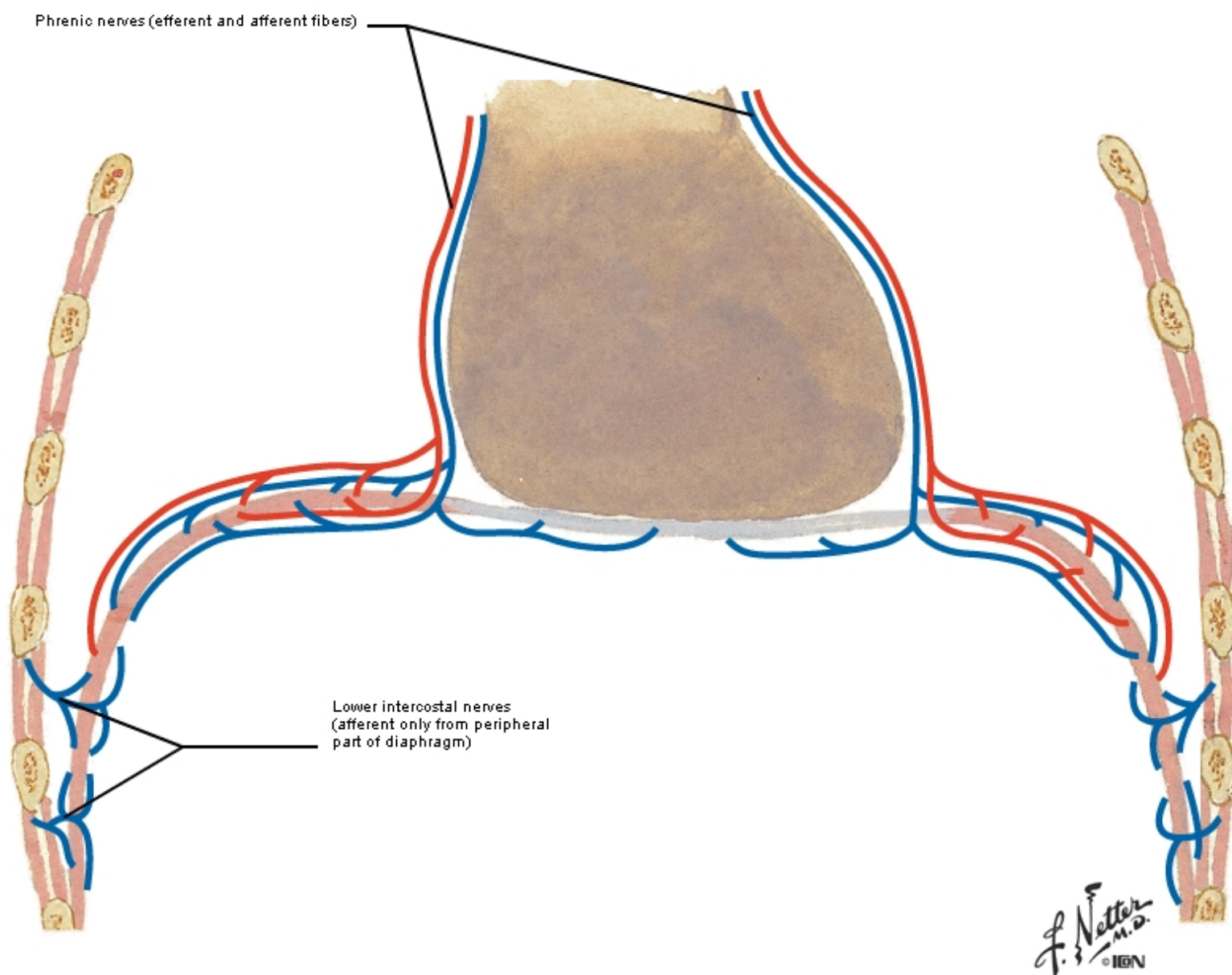
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Phrenic Nerve In Situ



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Phrenic Nerve Schema



Diaphragm

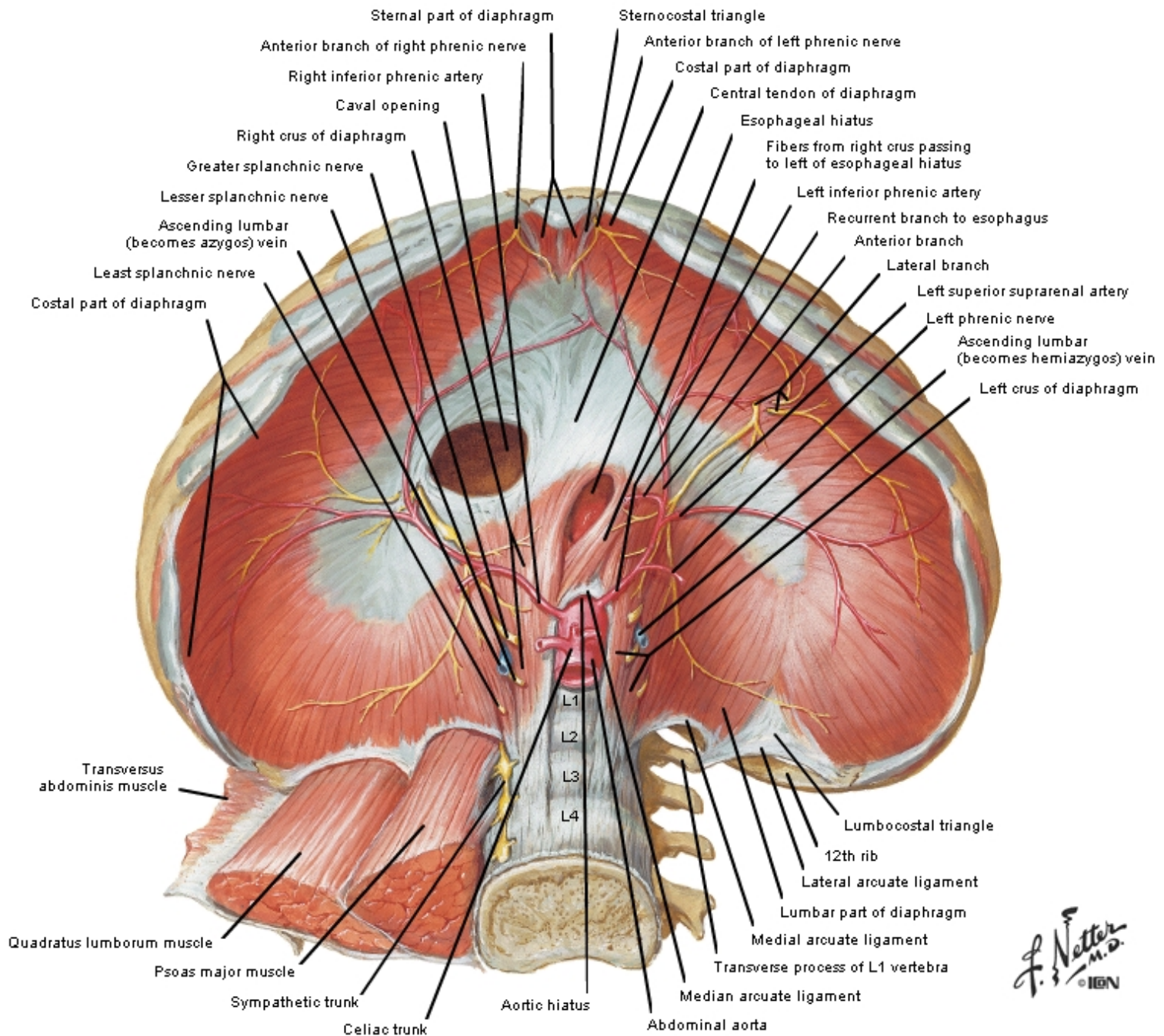
Thoracic Surface



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Diaphragm

Abdominal Surface

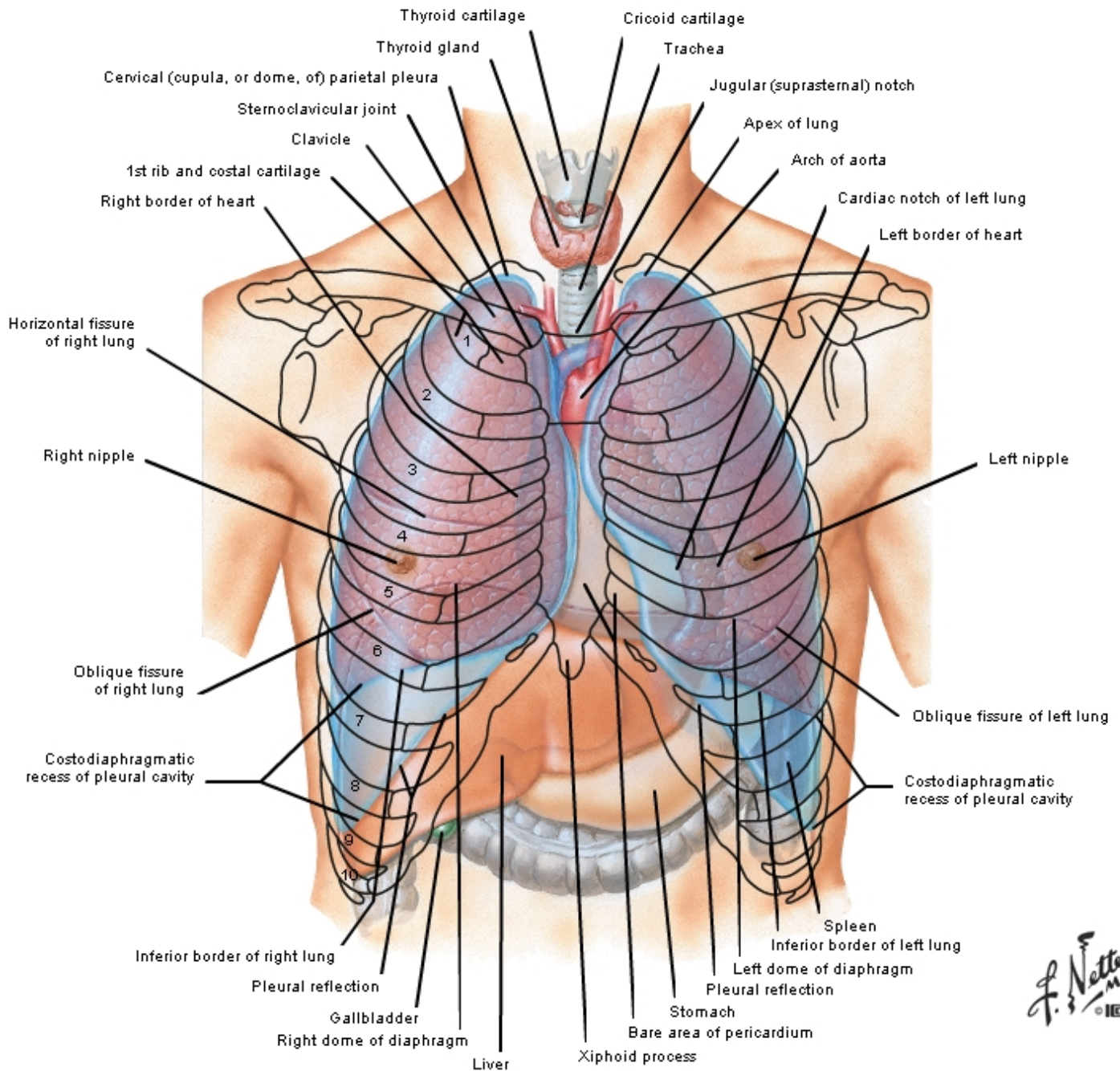


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Topography of Lungs

Anterior View

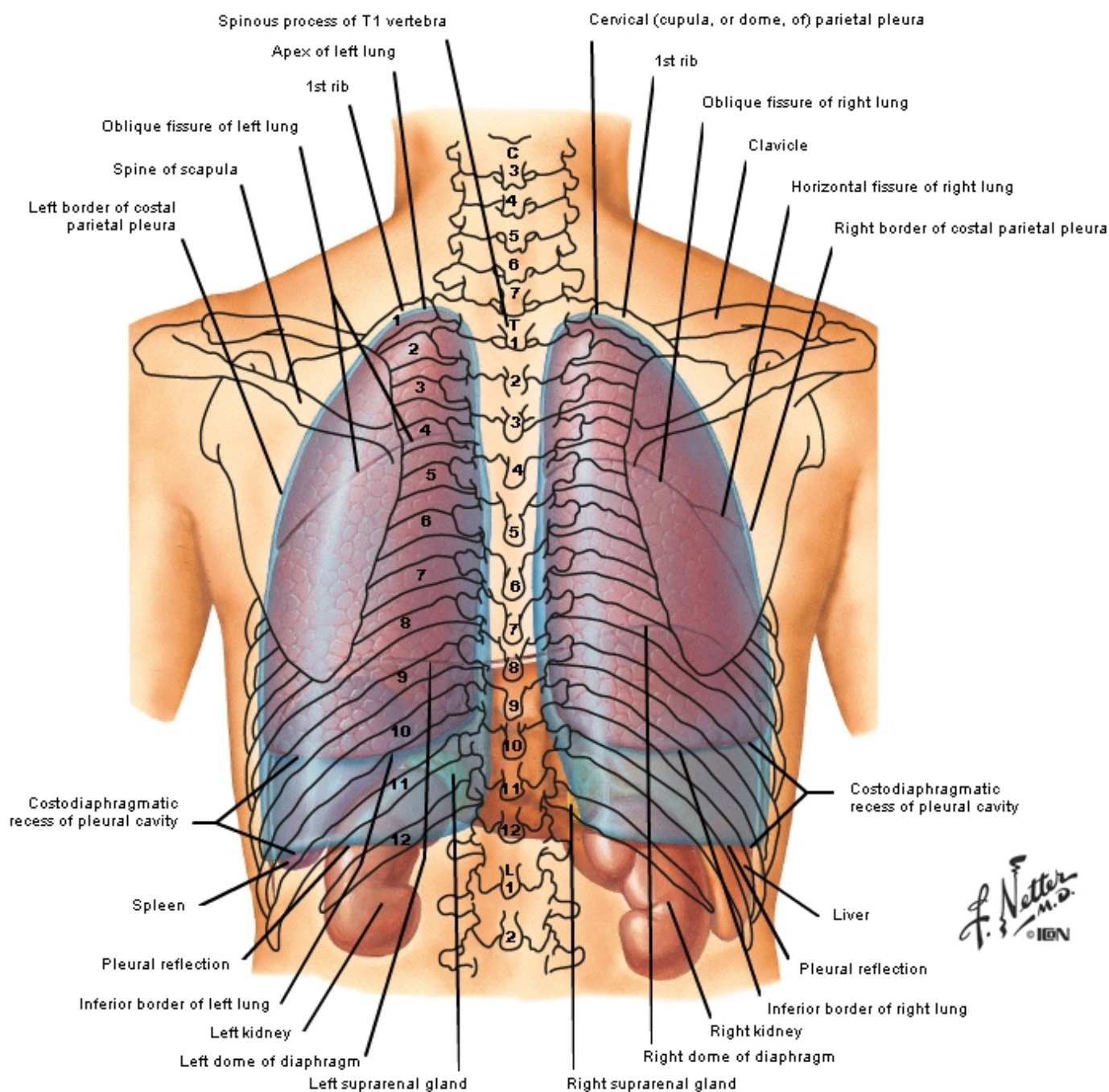


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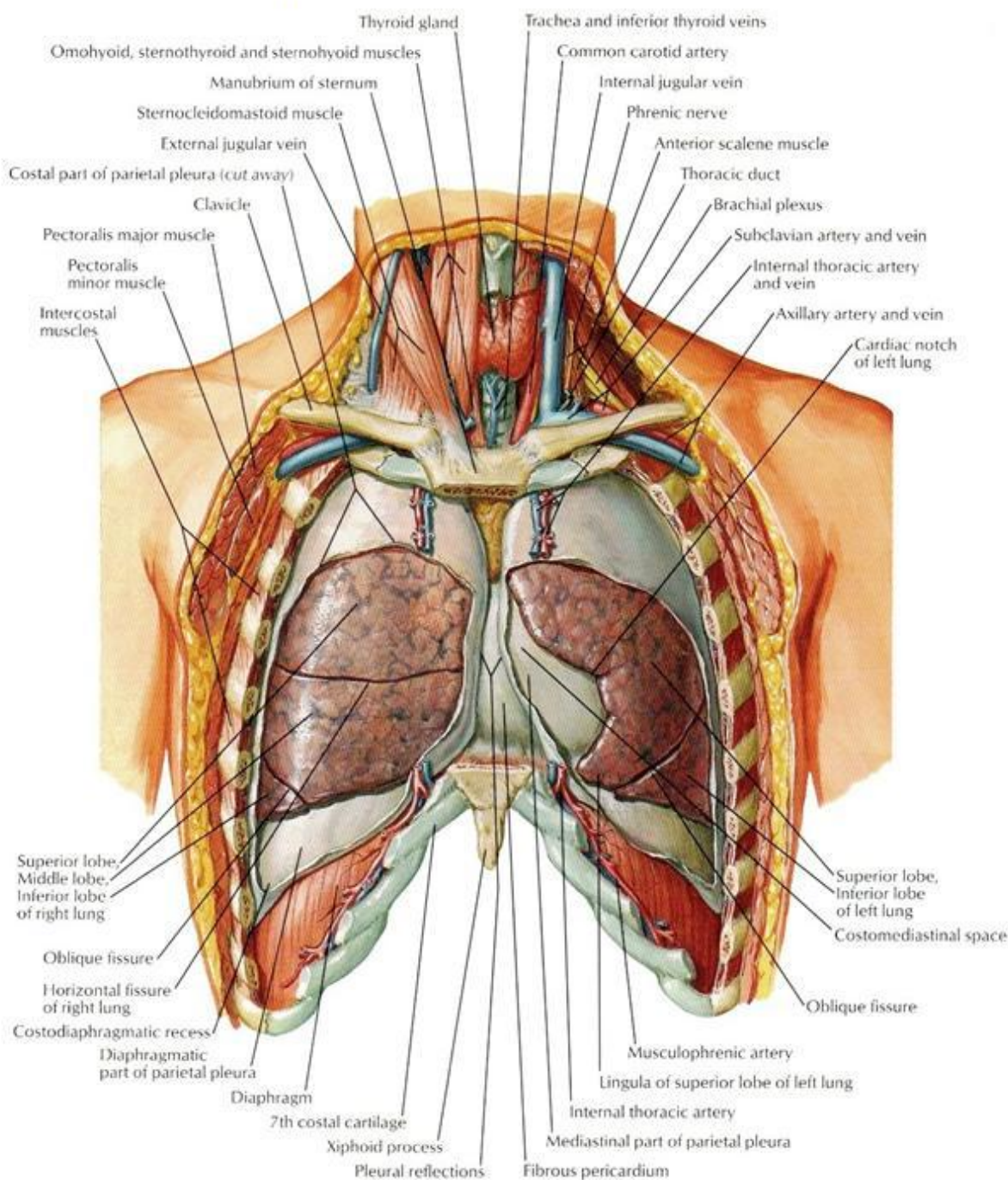
Topography of Lungs

Posterior View



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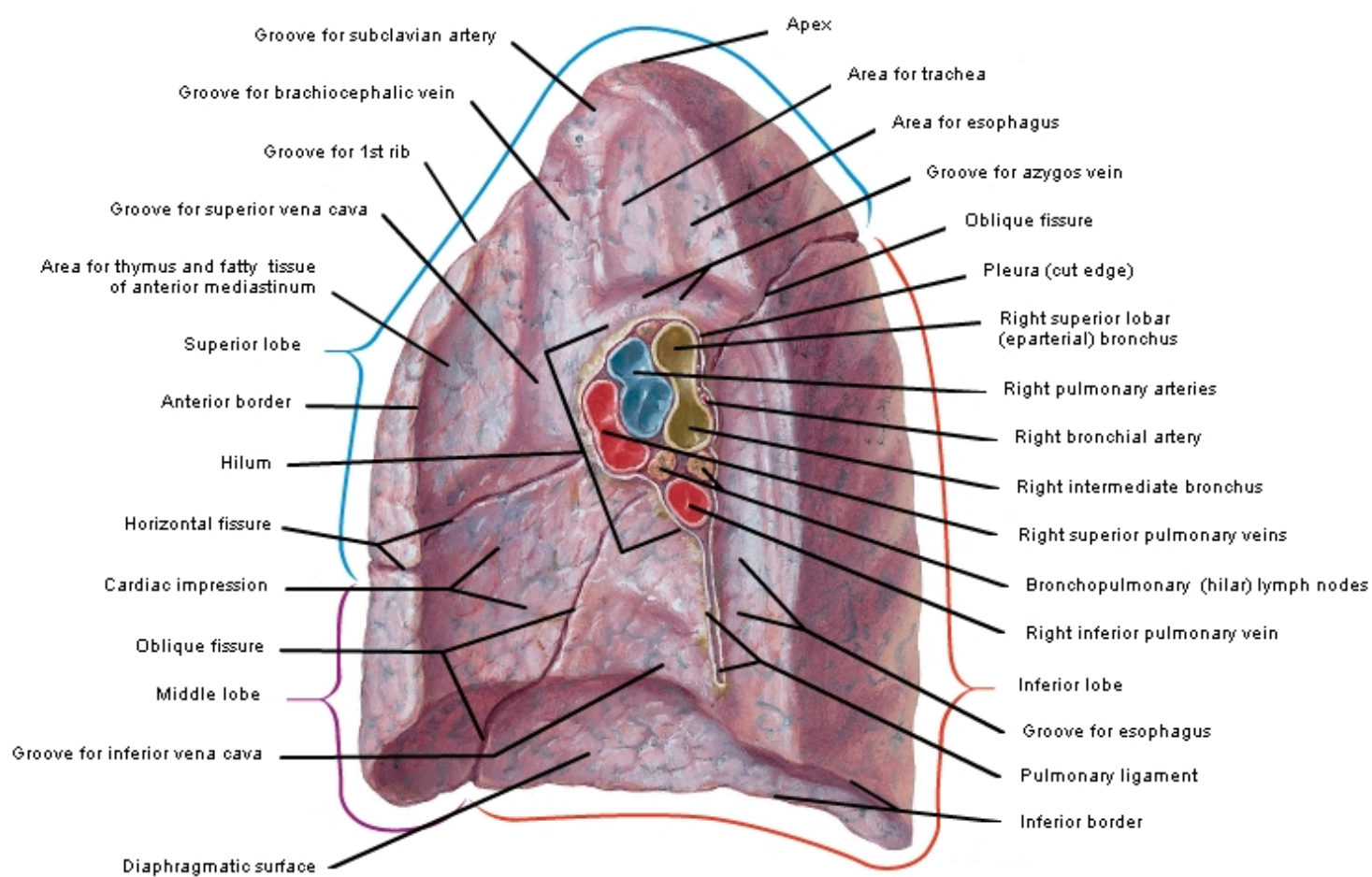
Lungs in Situ: Anterior View



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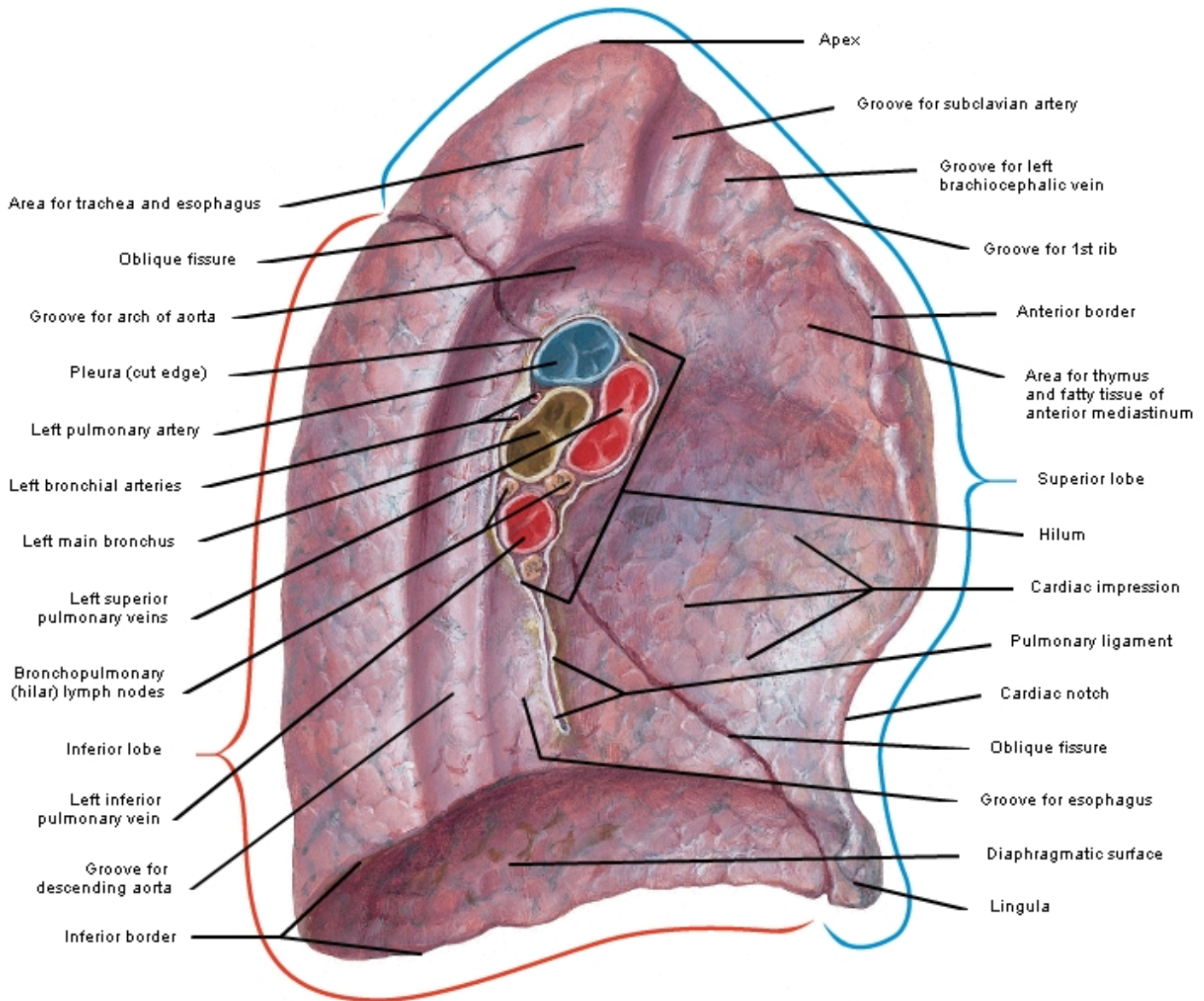
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Right Lung Medial View



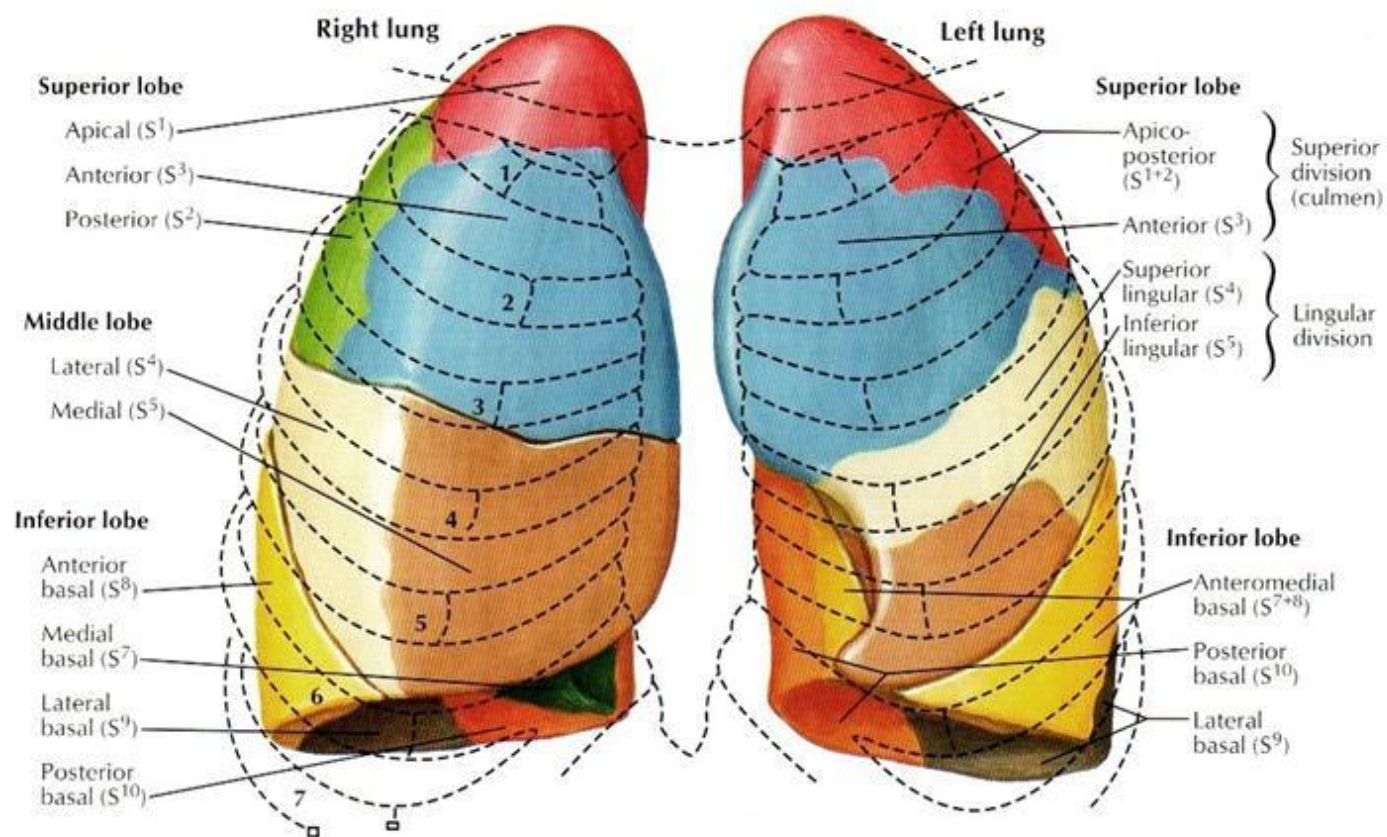
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Left Lung Medial View



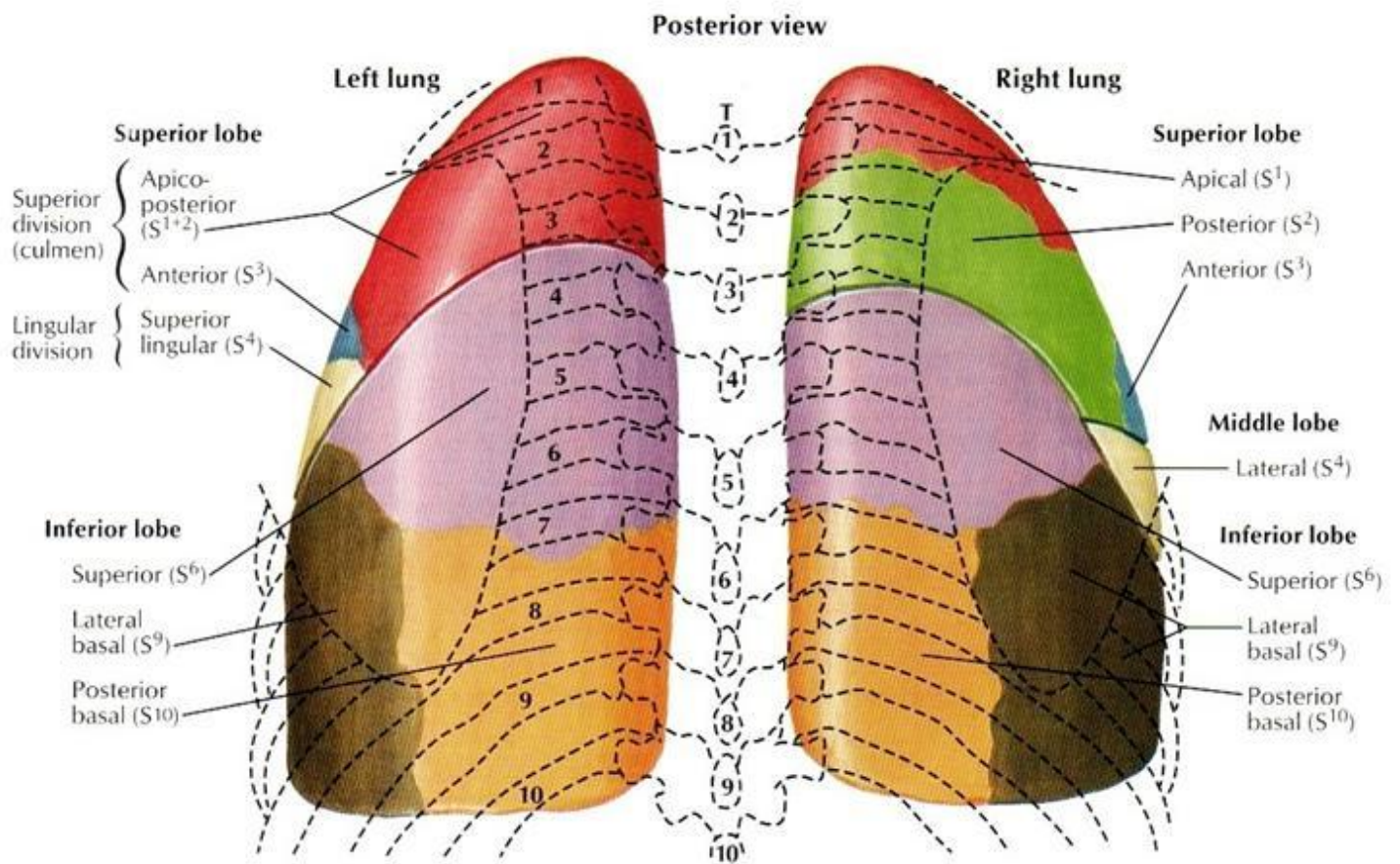
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Bronchopulmonary Segments: Anterior View

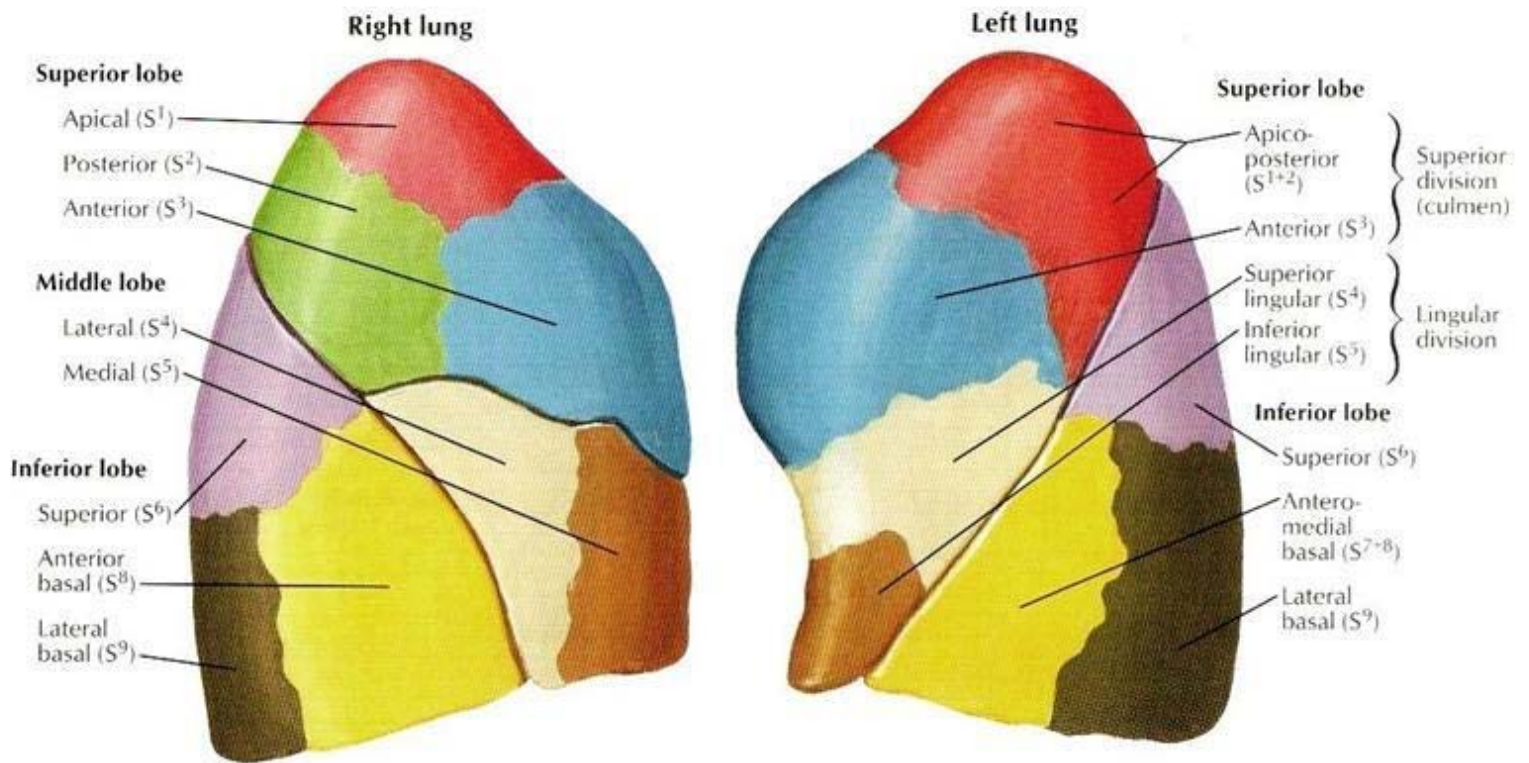


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Bronchopulmonary Segments: Posterior View

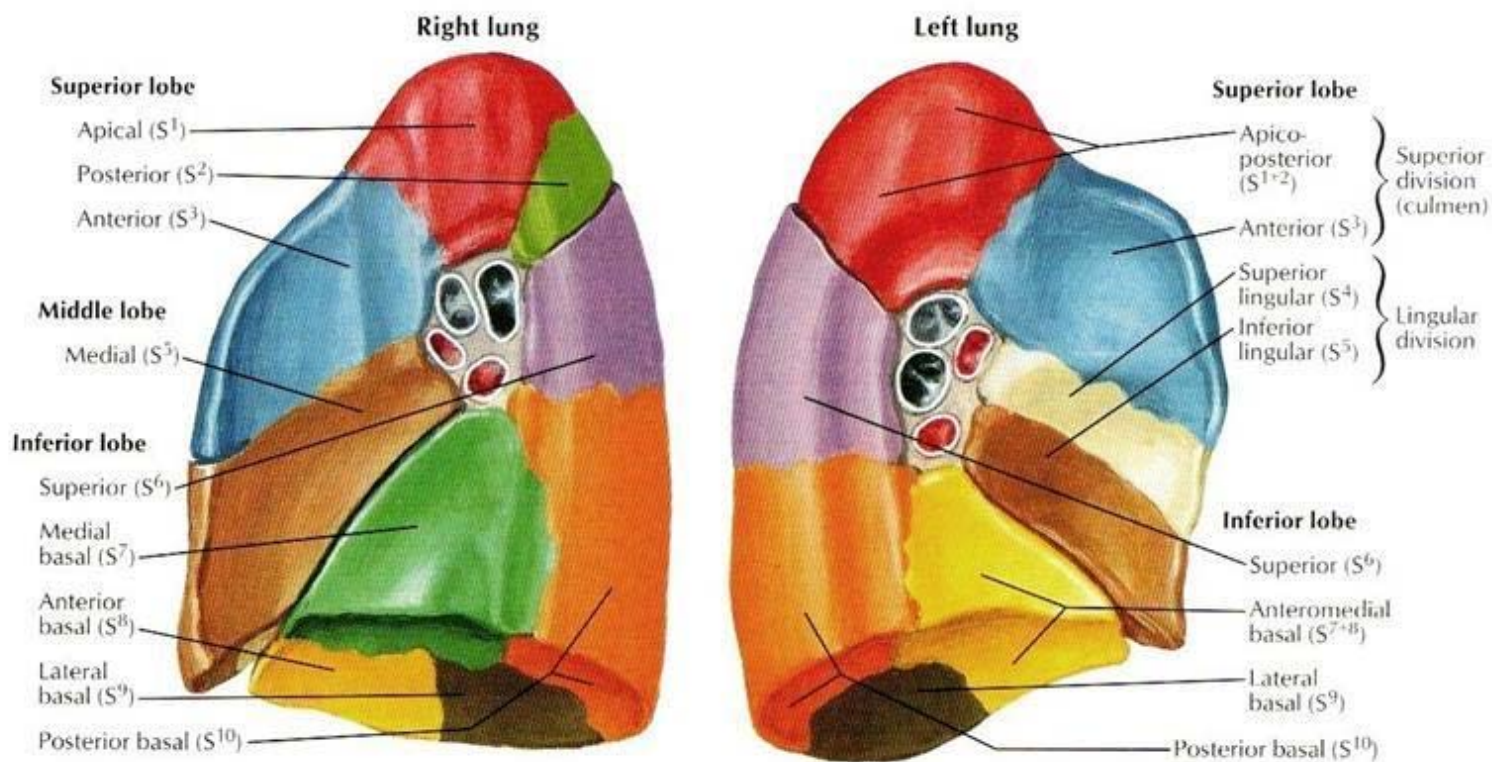


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Bronchopulmonary Segments: Lateral View

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Bronchopulmonary Segments: Medial View

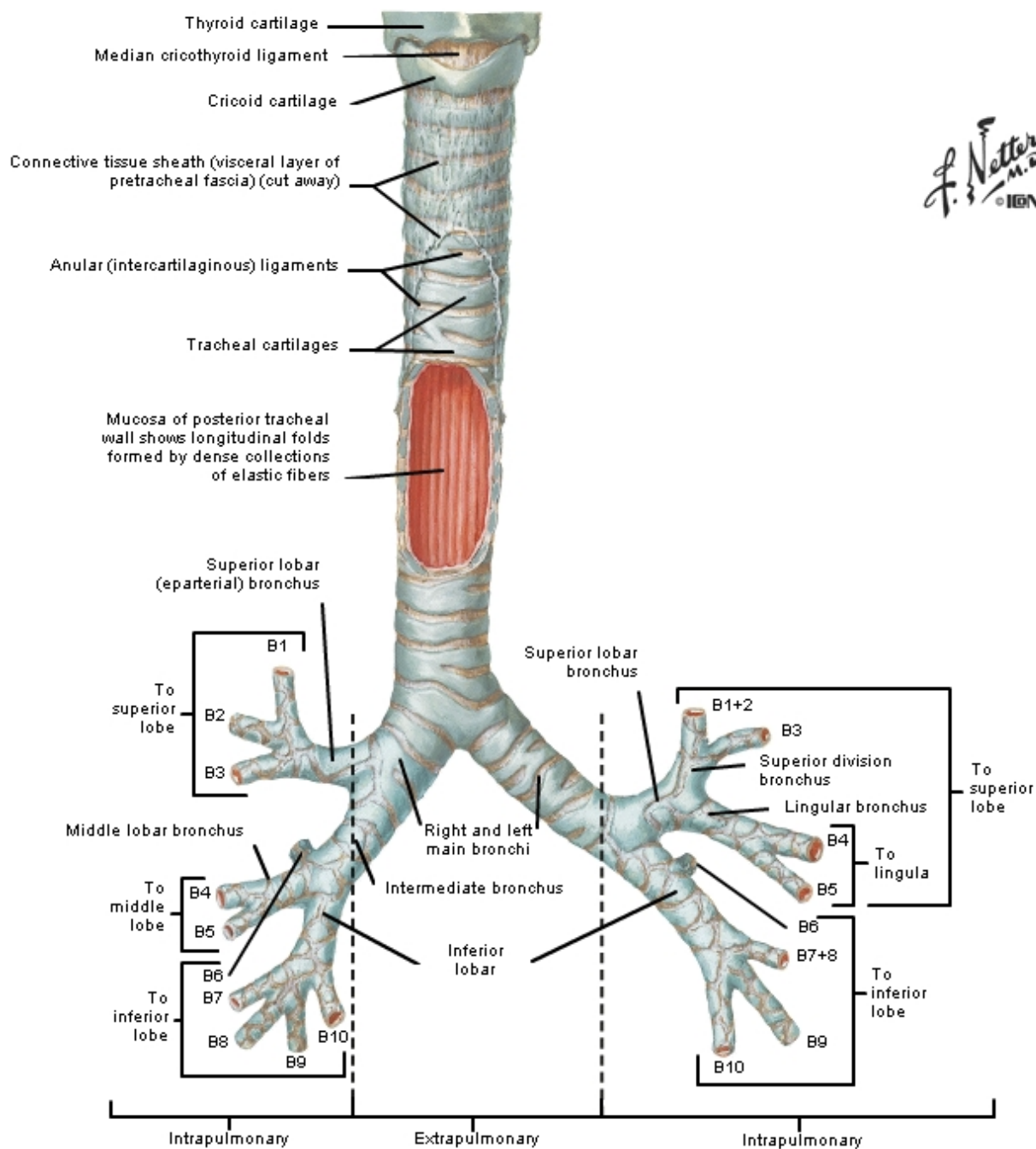


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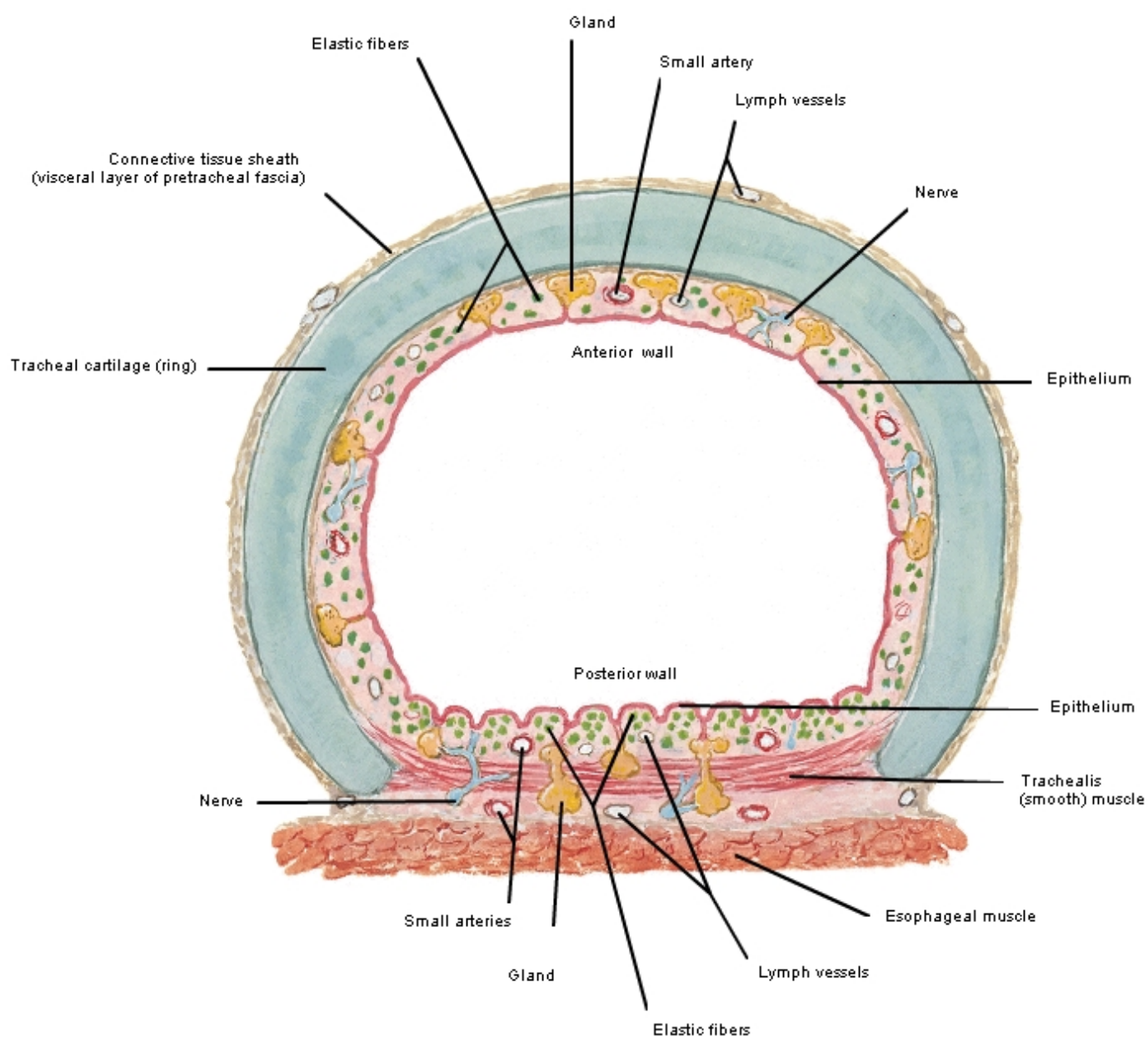
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Trachea and Major Bronchi

Anterior View

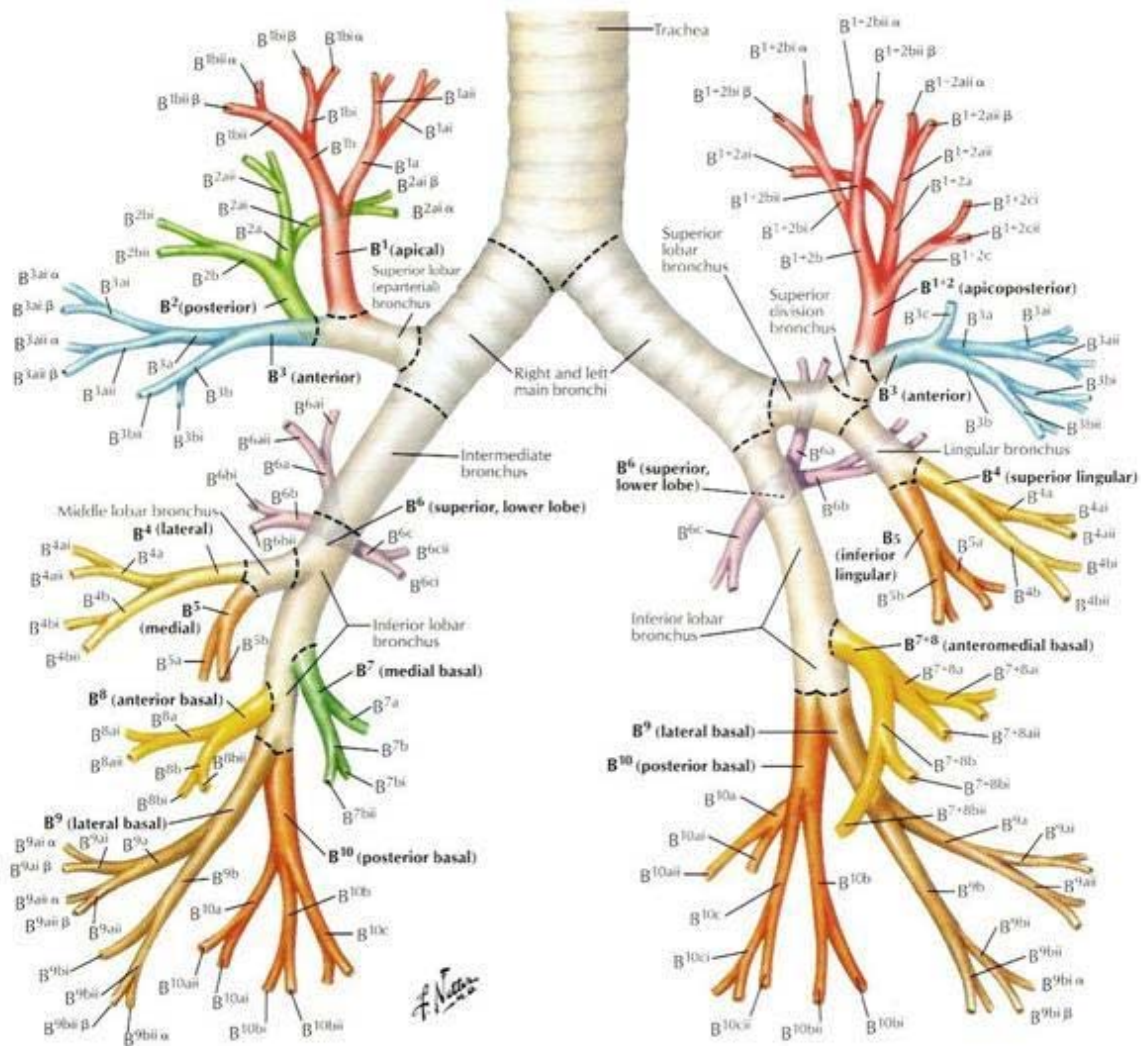


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Trachea
Cross Section

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Nomenclature of Bronchi: Schema

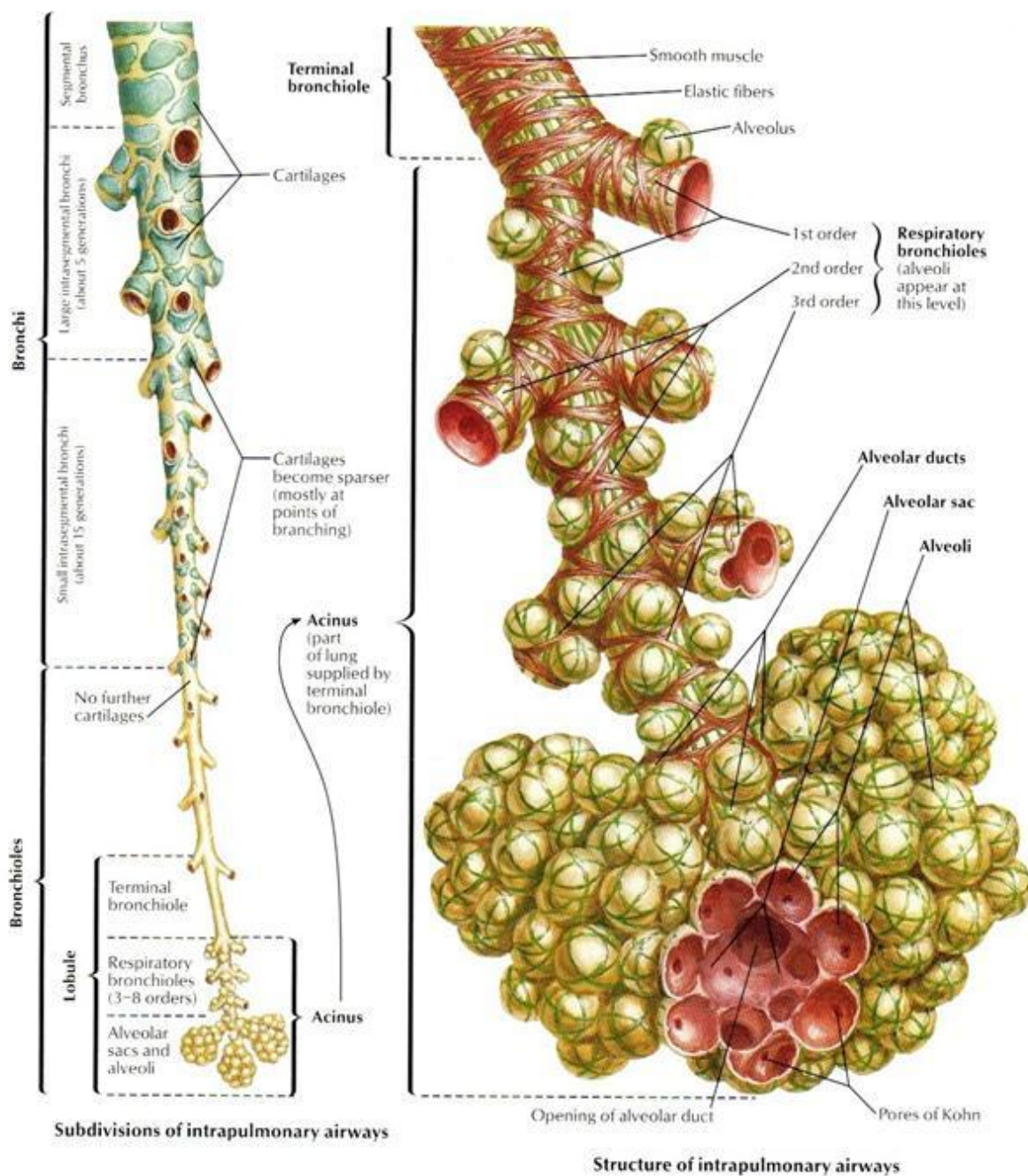


Nomenclature in common usage for bronchopulmonary segments (Plates 200 and 201) is that of Jackson and Huber, and segmental bronchi are named accordingly. Ikeda proposed nomenclature (as demonstrated here) for bronchial subdivisions as far as 6th generation. For simplification on this illustration, only some bronchial subdivisions are labeled as far as 5th or 6th generation. Segmental bronchi (B) are numbered from 1 to 10 in each lung, corresponding to pulmonary segments. In left lung,

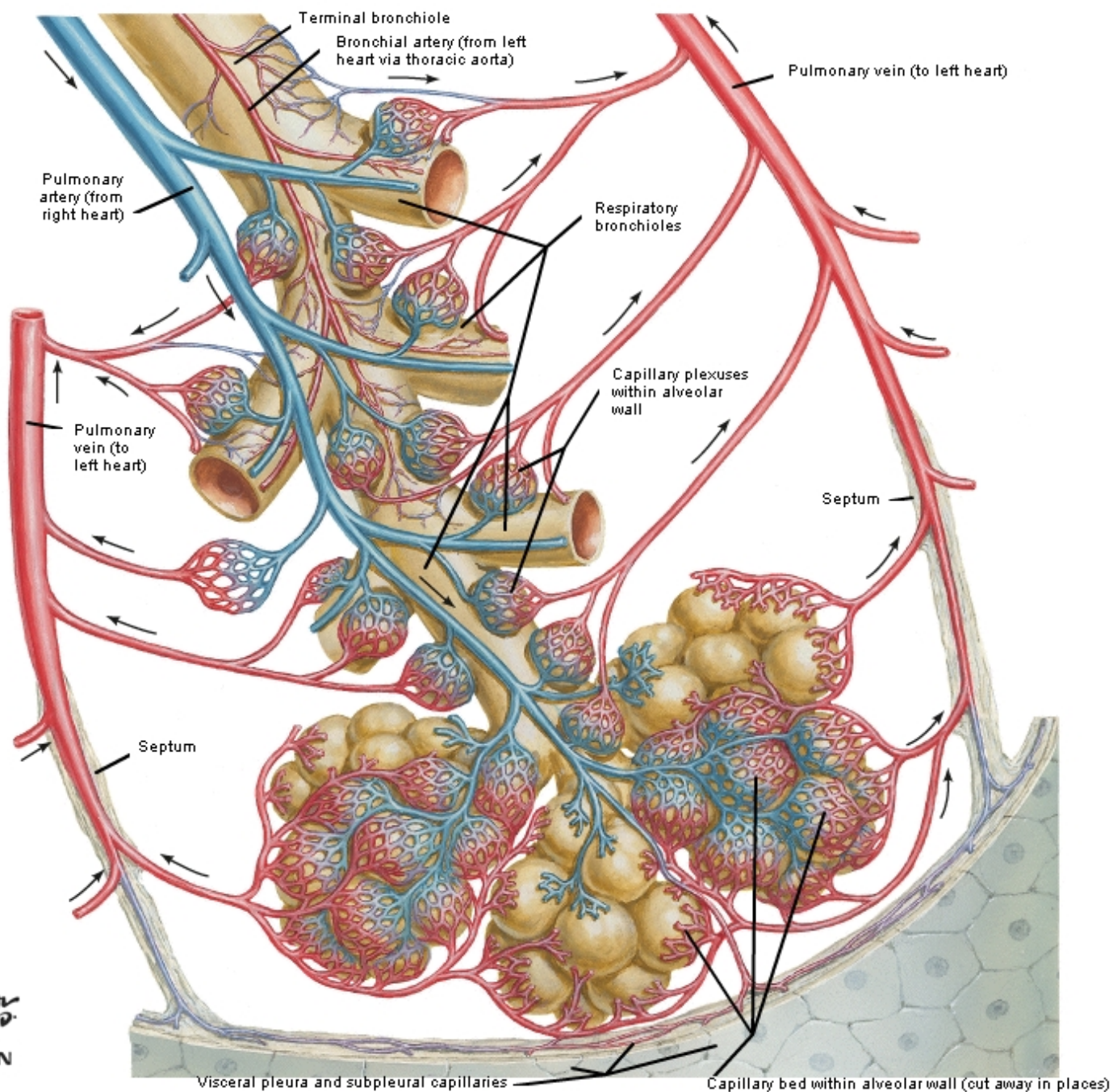
B¹ and B² are combined as are B⁷ and B⁸. Subsegmental, or 4th order, bronchi are indicated by addition of lower-case letters a, b, or c when an additional branch is present. Fifth order bronchi are designated by Roman numerals i (anterior) or ii (posterior) and 6th order bronchi by Greek letters α or β. Several texts use alternate numbers (as proposed by Boyden) for segmental bronchi. Variations of standard bronchial pattern shown here are common, especially in peripheral airways.

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Intrapulmonary Airways: Schema

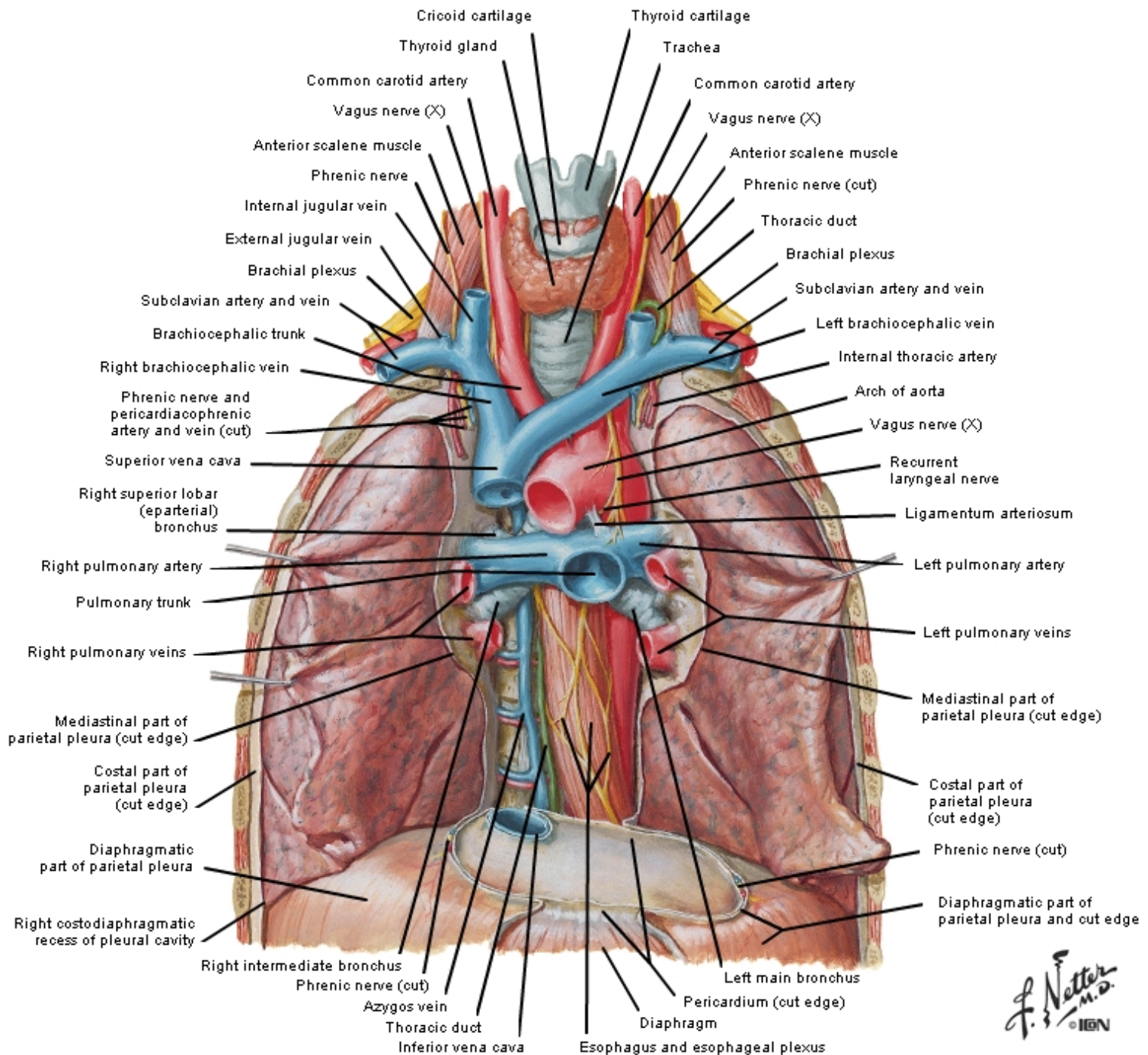


Intrapulmonary Blood Circulation Schema



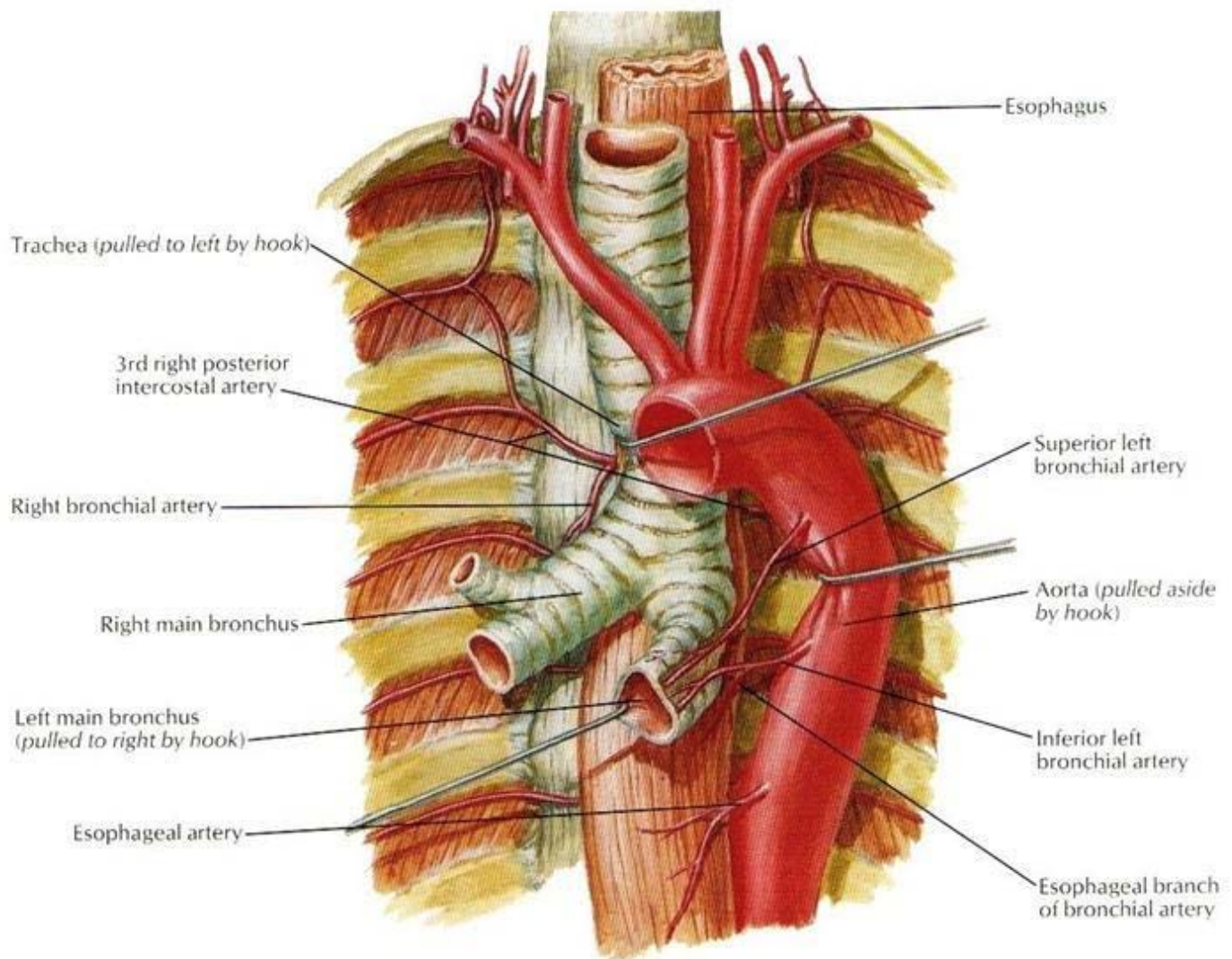
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Great Vessels of Superior Mediastinum



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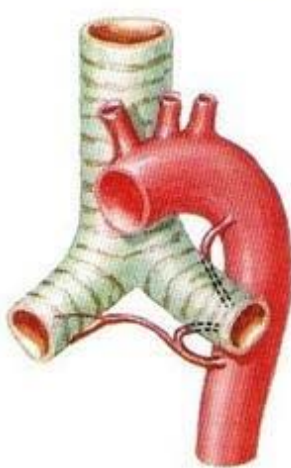
Bronchial Arteries



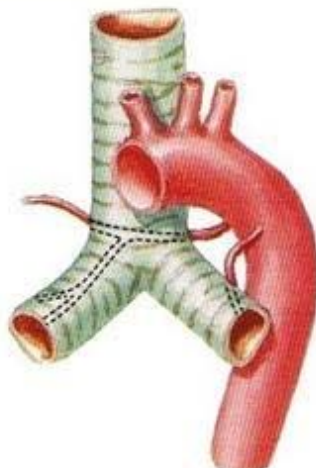
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Bronchial Arteries and Veins

Variations in bronchial arteries

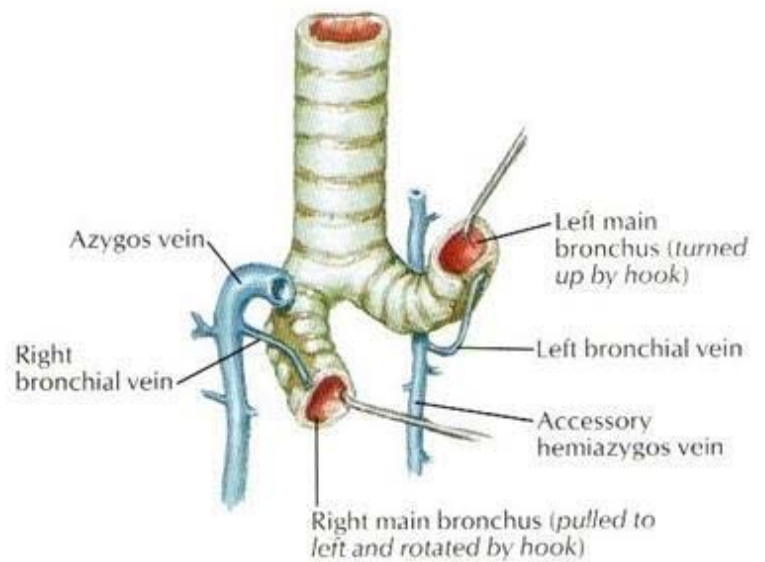


Right and left bronchial arteries originating from aorta by single stem



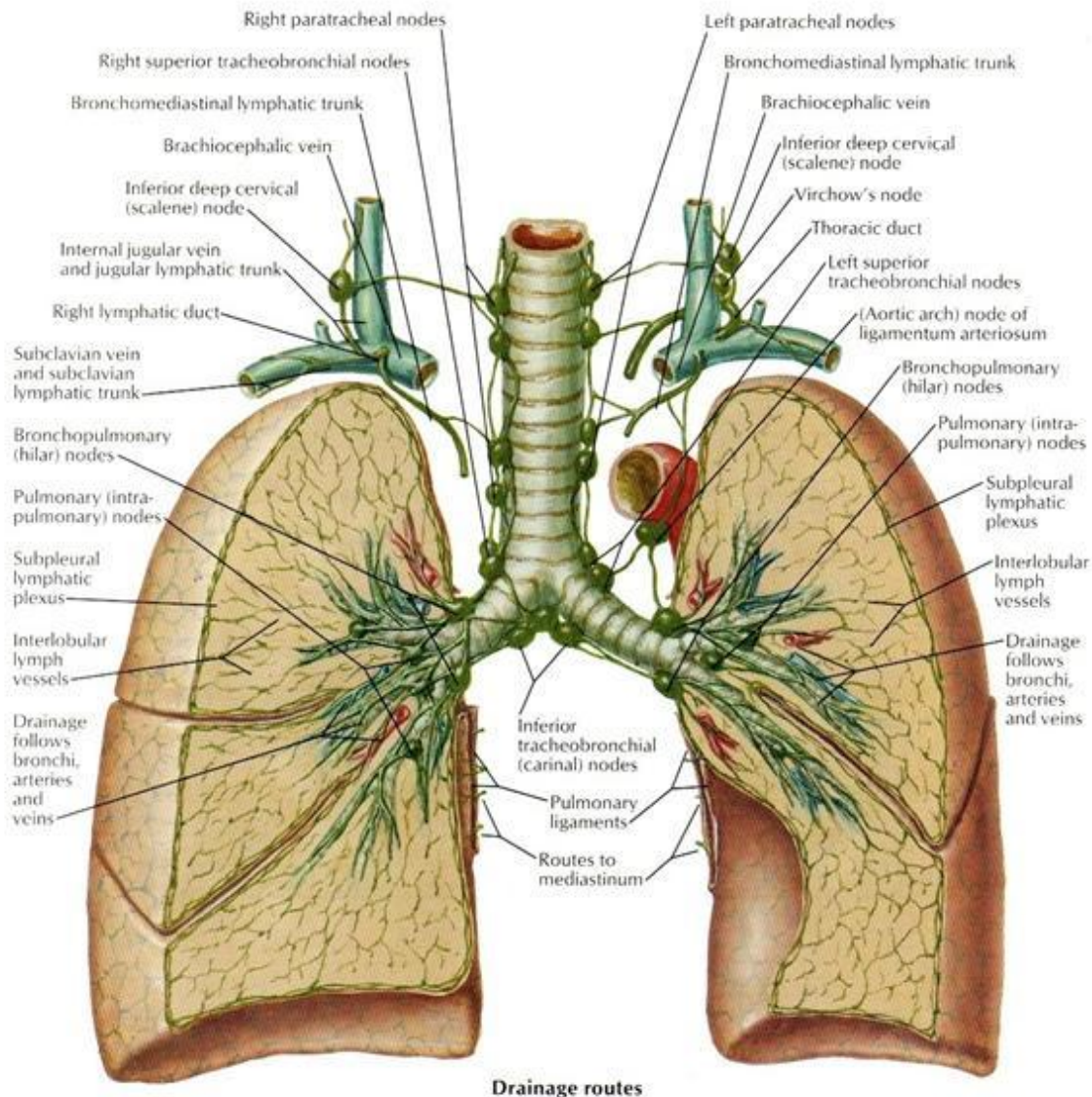
Only single bronchial artery to each bronchus (normally, two to left bronchus)

Bronchial veins



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Lymph Vessels and Nodes of Lungs



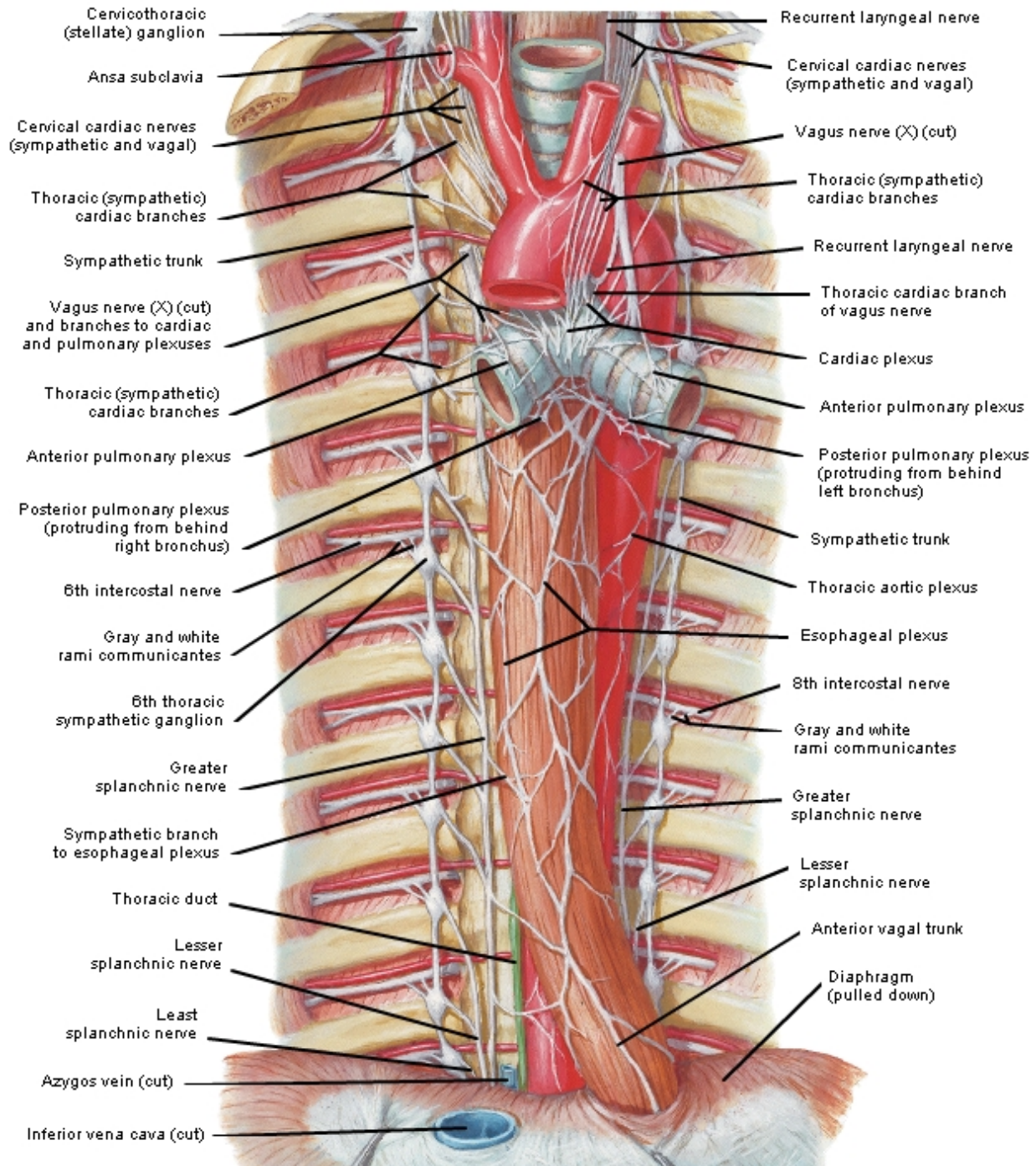
Drainage routes

Right lung: All lobes drain to pulmonary and bronchopulmonary (hilar) nodes, then to inferior tracheobronchial (carinal) nodes, right superior tracheobronchial nodes, and right paratracheal nodes on way to brachiocephalic vein via bronchomediastinal lymphatic trunk and/or inferior deep cervical (scalene) node.

Left lung: Superior lobe drains to pulmonary and bronchopulmonary (hilar) nodes, inferior tracheobronchial (carinal) nodes, left superior tracheobronchial nodes, left paratracheal nodes and/or (aortic arch) node of ligamentum arteriosum, then to brachiocephalic vein via left bronchomediastinal trunk and thoracic duct. Left inferior lobe drains also to pulmonary and bronchopulmonary (hilar) nodes and to inferior tracheobronchial (carinal) nodes, but then mostly to right superior tracheobronchial nodes, where it follows same route as lymph from right lung.

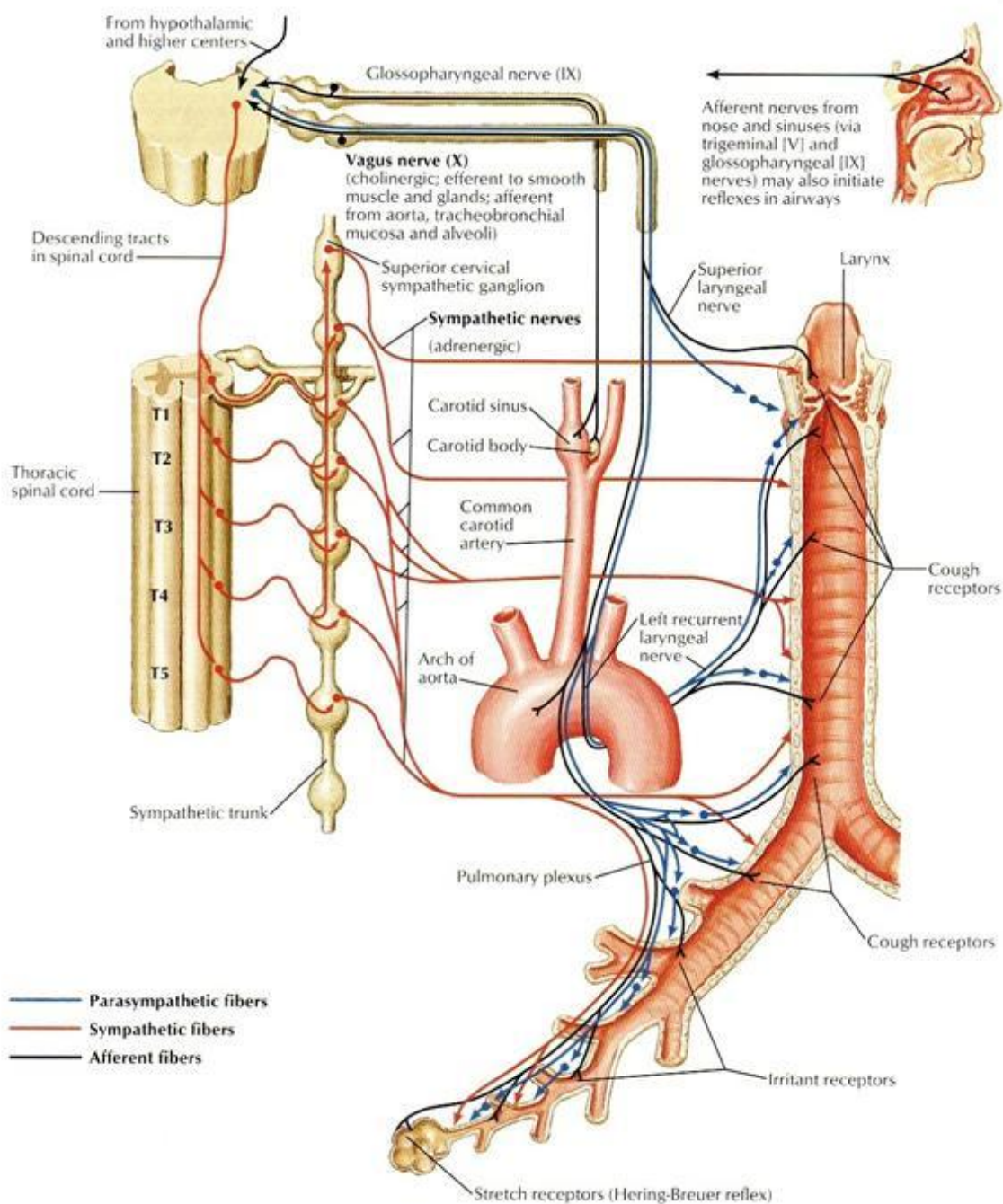
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Autonomic Nerves in Thorax



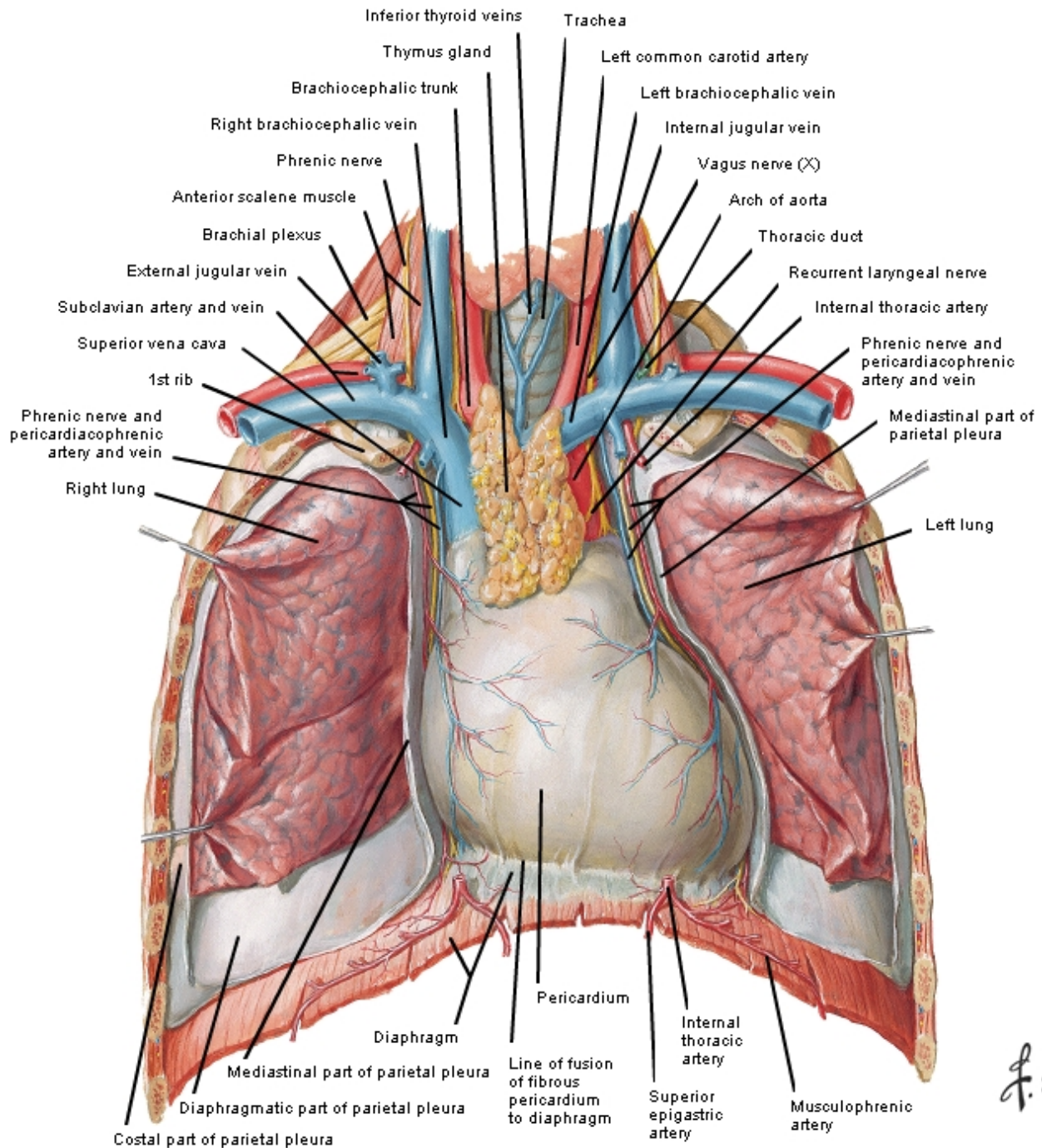
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Innervation of Tracheobronchial Tree: Schema



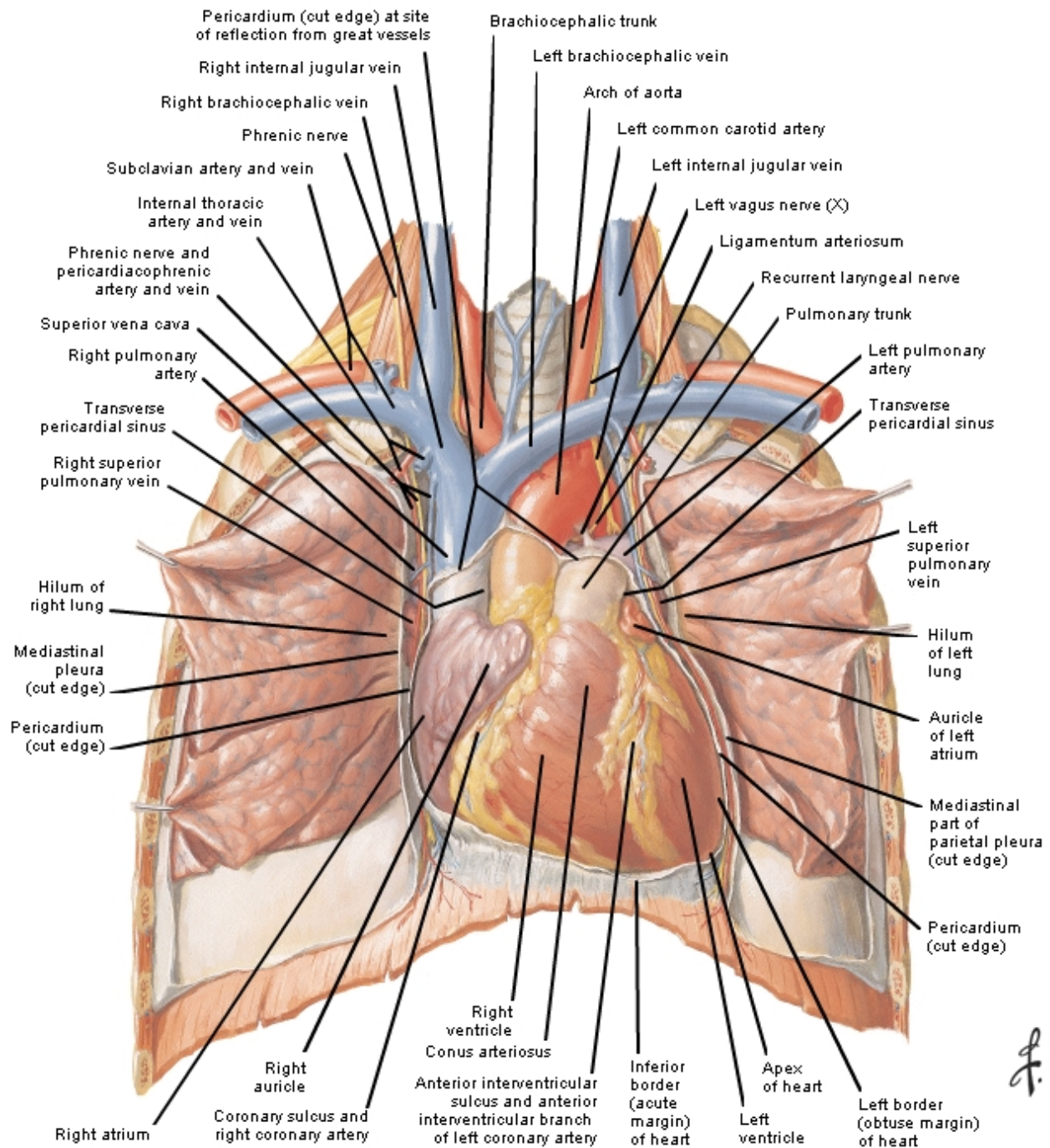
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Heart In Situ

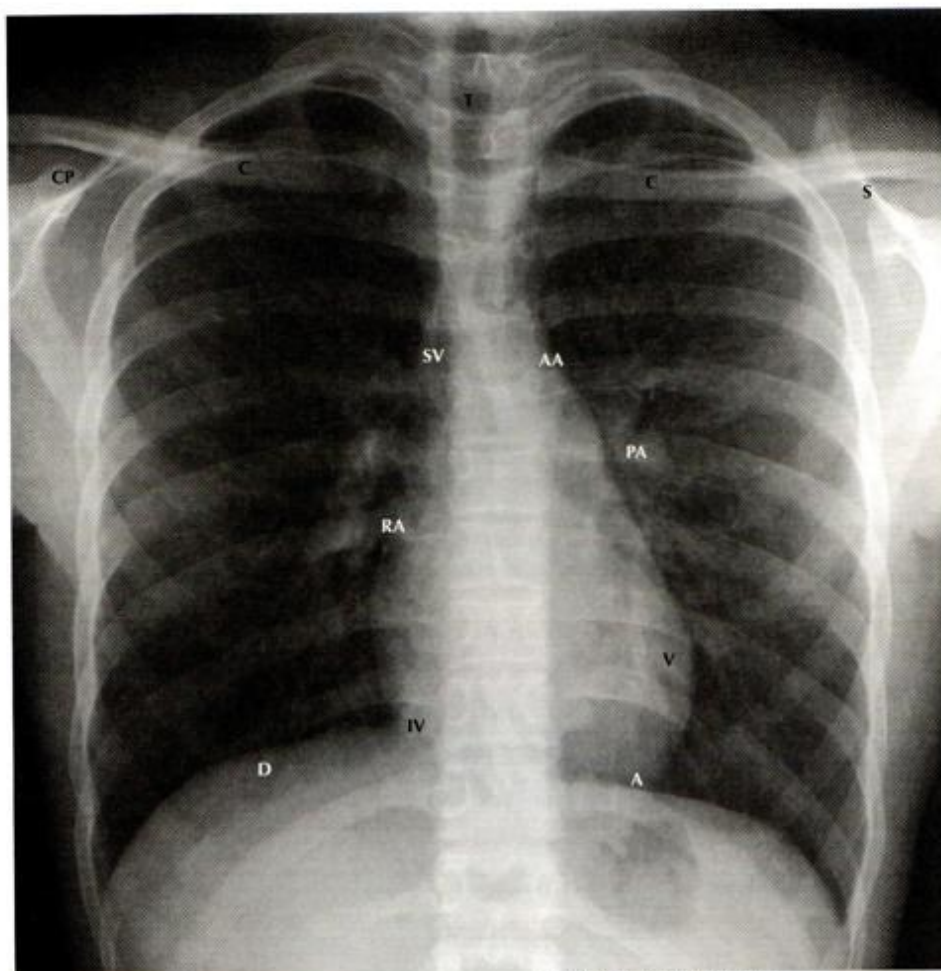


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Heart: Anterior Exposure

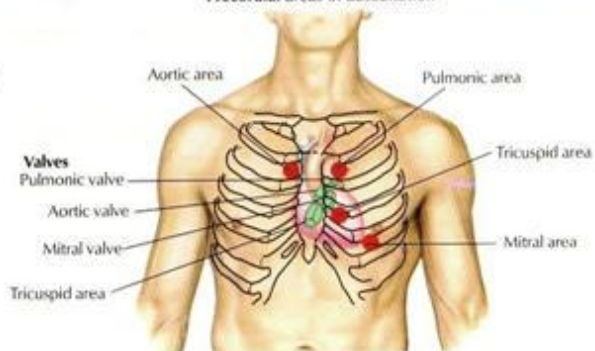


Radiograph of Chest

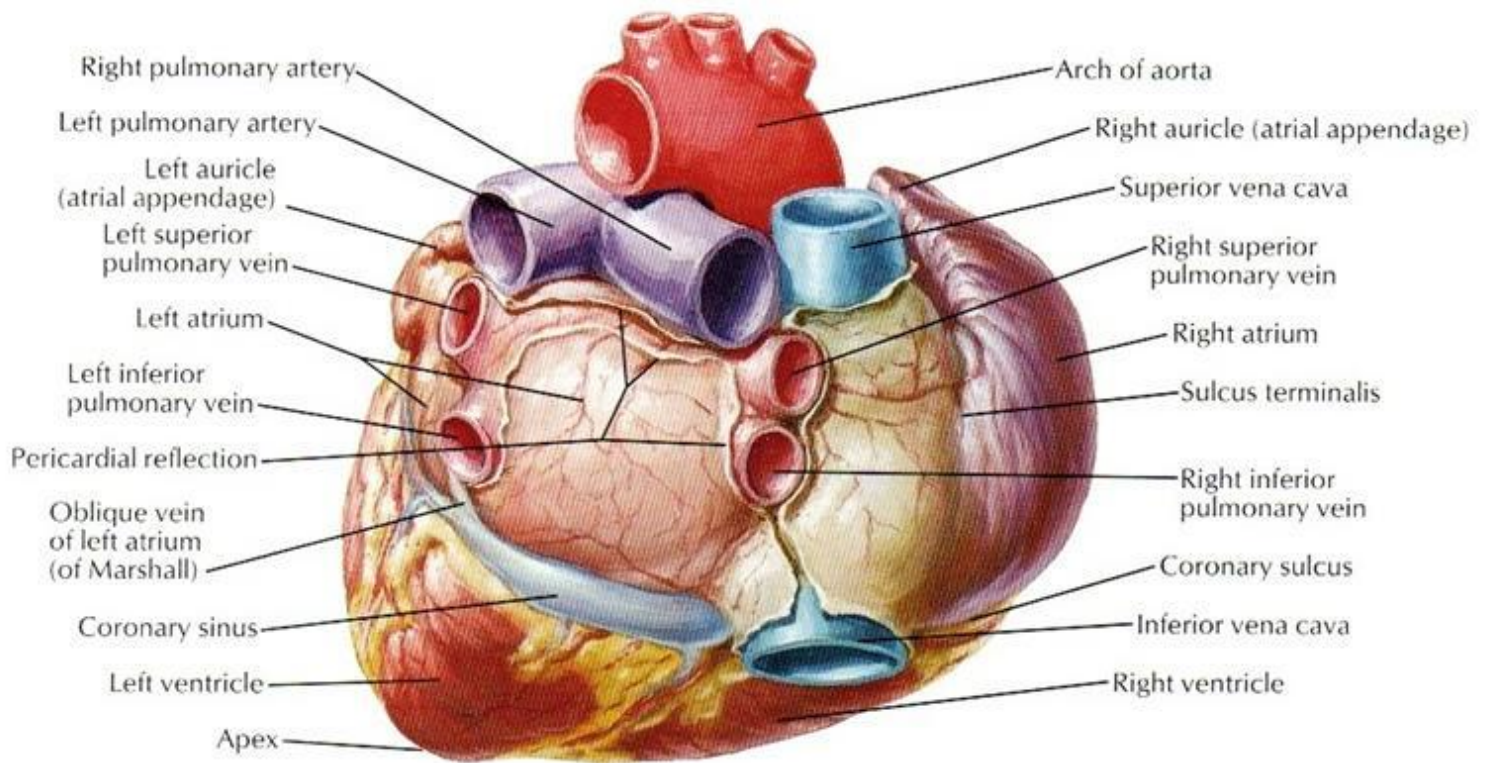


Precordial areas of auscultation

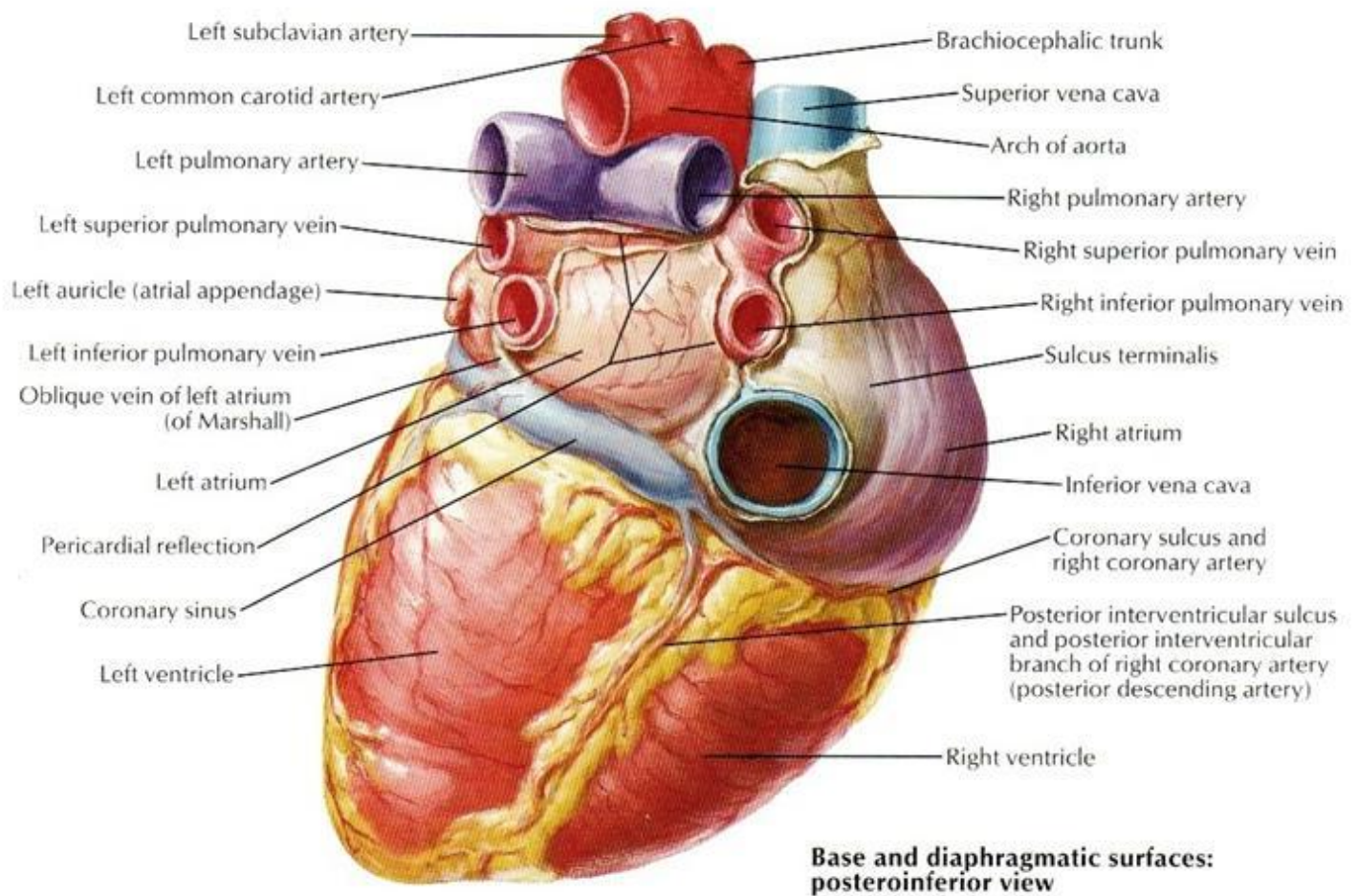
- A Apex of heart
- AA Aortic arch
- C Clavicle
- CP Coracoid process of scapula
- D Dome of diaphragm (right)
- IV Inferior vena cava
- PA Pulmonary artery (left)
- RA Right atrium
- S Spine of scapula
- SV Superior vena cava
- T Trachea (air)
- V Left ventricle



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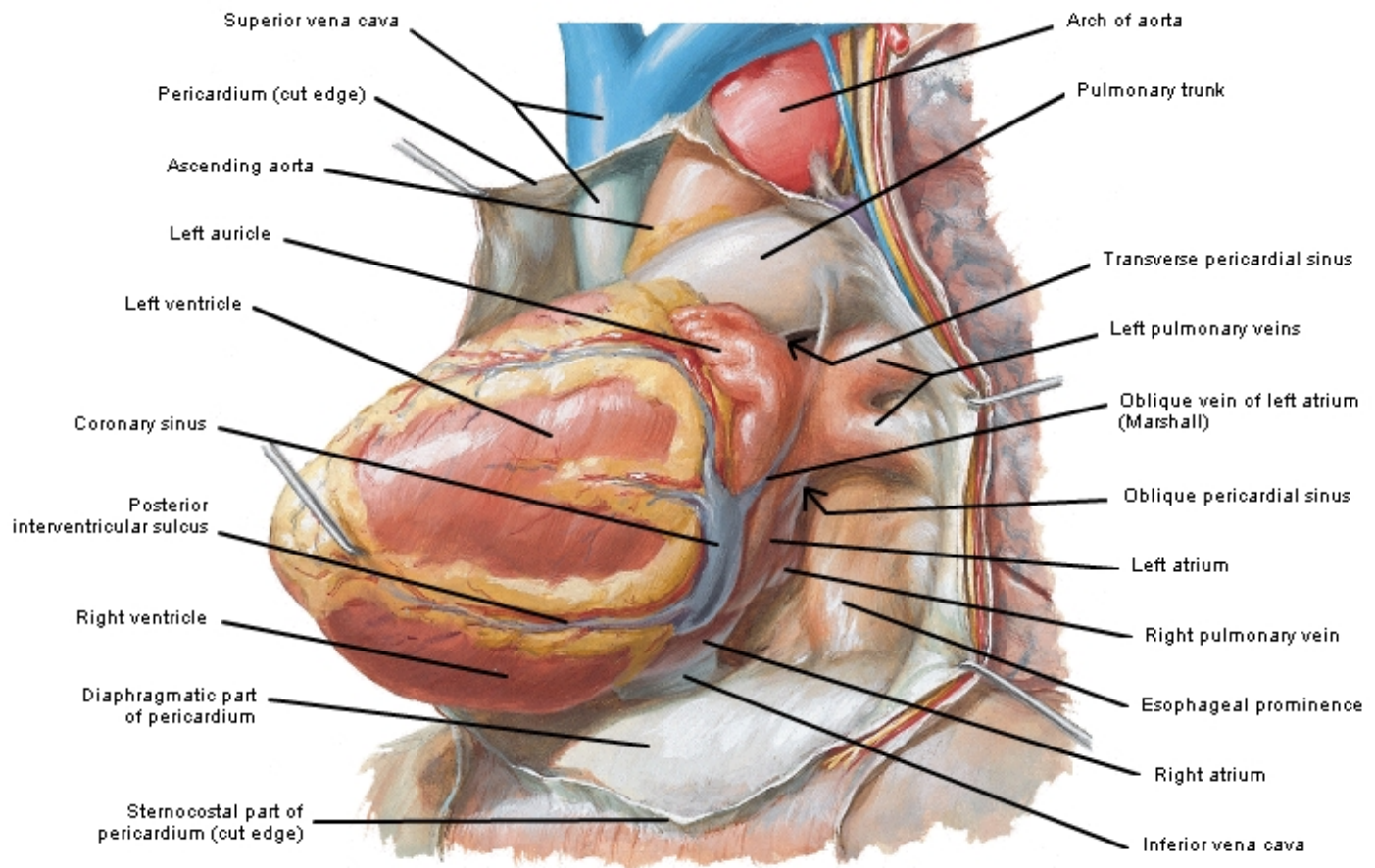
Heart: Base of Heart Posterior View

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Heart: Posteroinferior View

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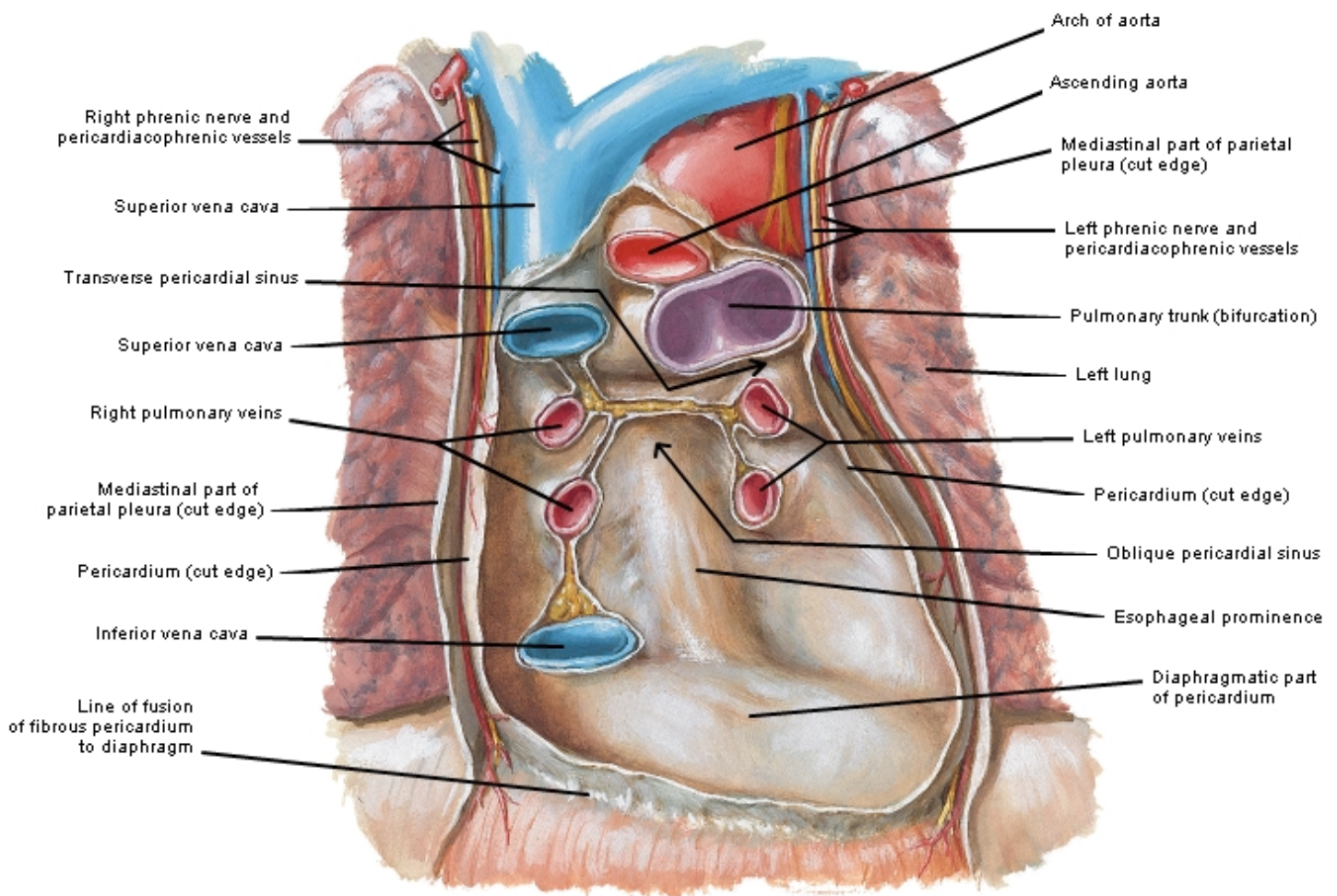
Pericardial Sac - Heart Drawn Out Left Lateral View



Heart drawn out of opened pericardial sac

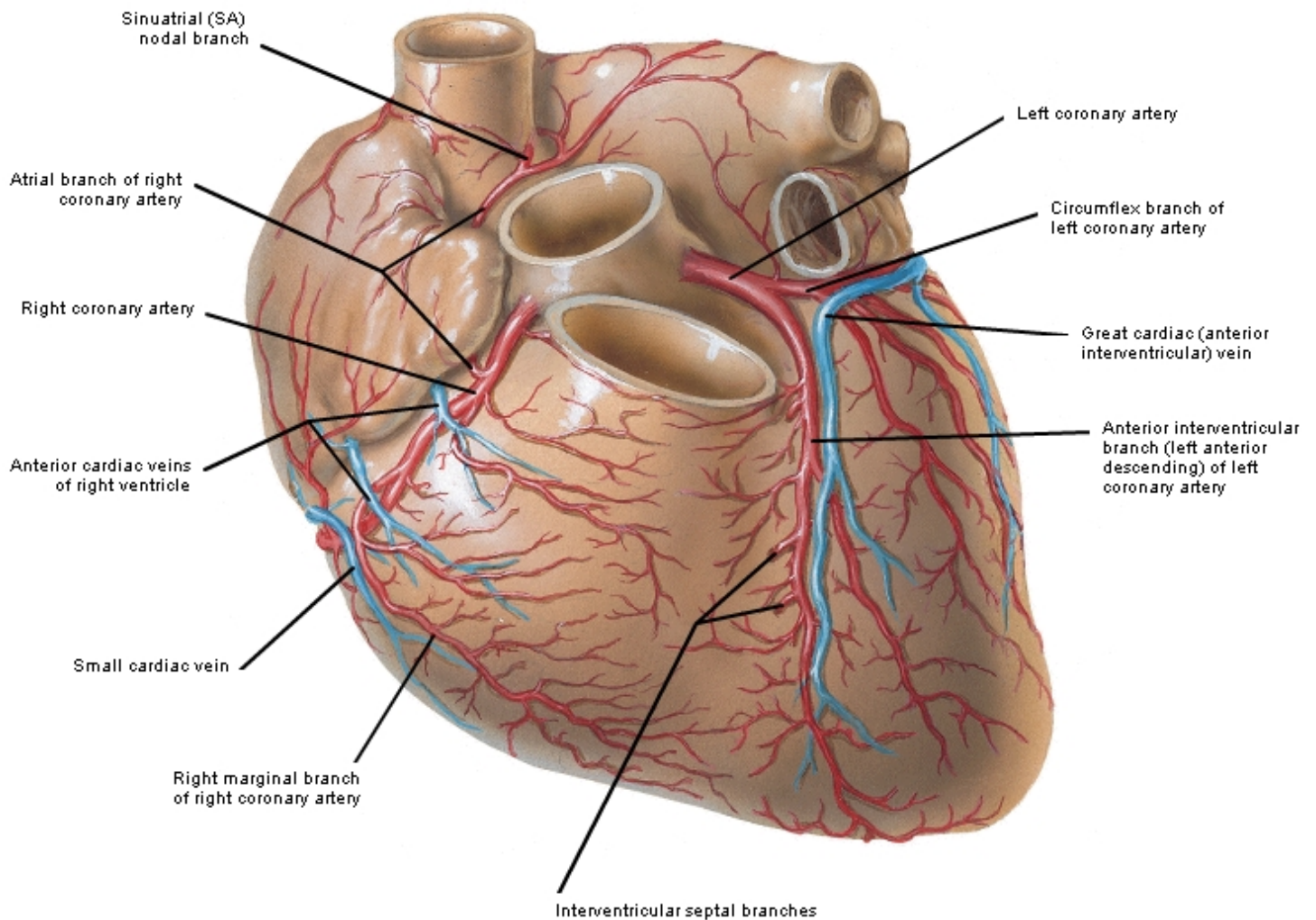
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Pericardial Sac - Heart Removed Anterior View



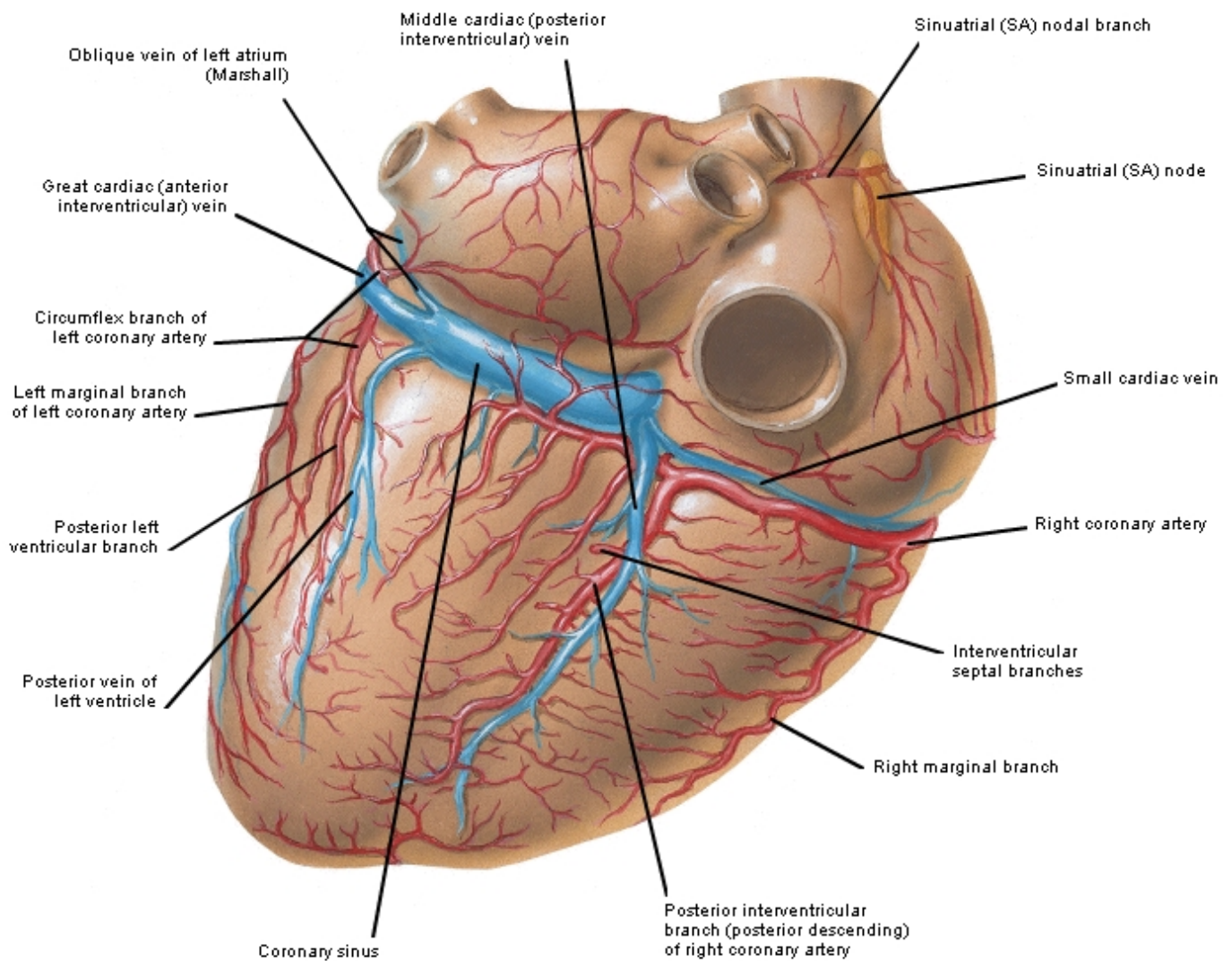
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Coronary Arteries and Cardiac Veins Sternocostal Surface

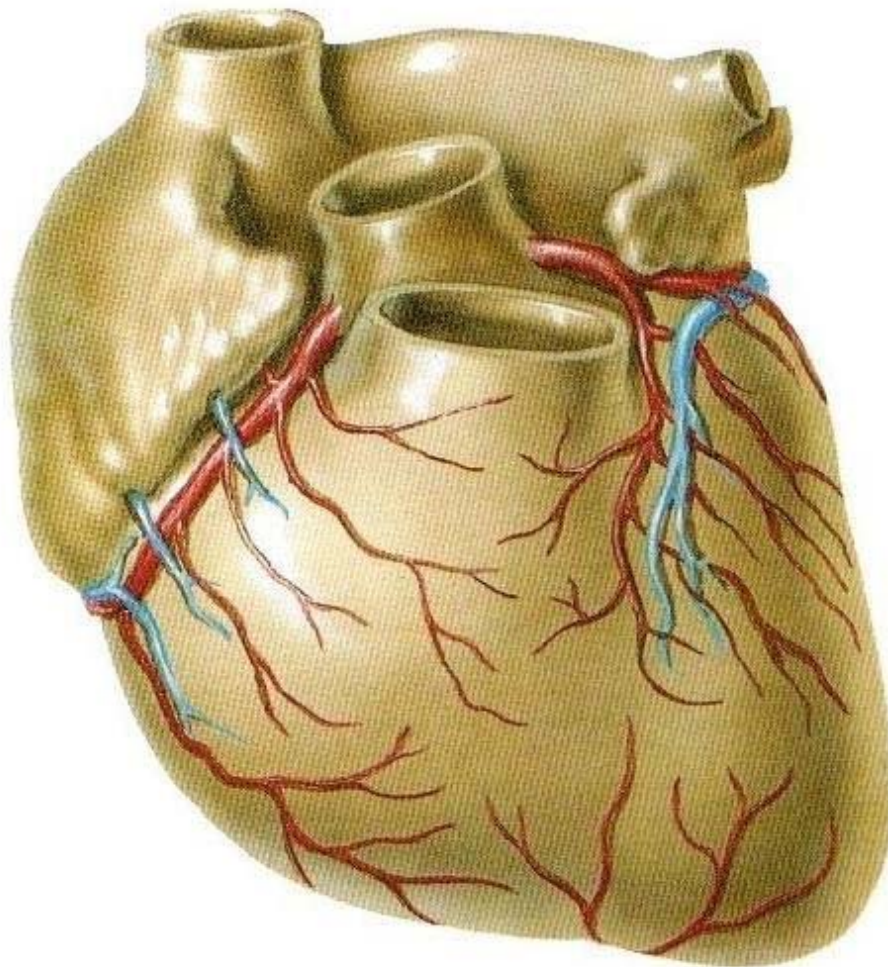


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Coronary Arteries and Cardiac Veins Diaphragmatic Surface



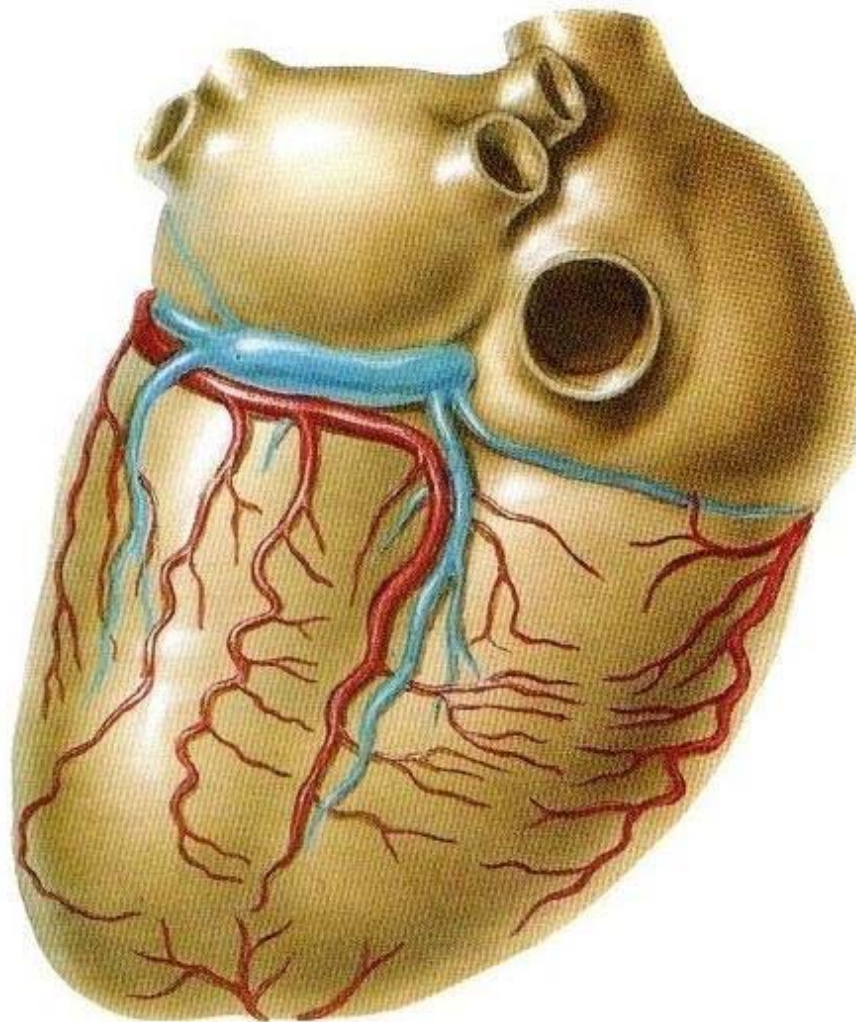
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Coronary Arteries and Cardiac Veins: Variations

Anterior interventricular (left anterior descending) branch of left coronary artery is very short. Apical part of anterior (sternocostal) surface supplied by branches from posterior interventricular (posterior descending) branch of right coronary artery curving around apex.

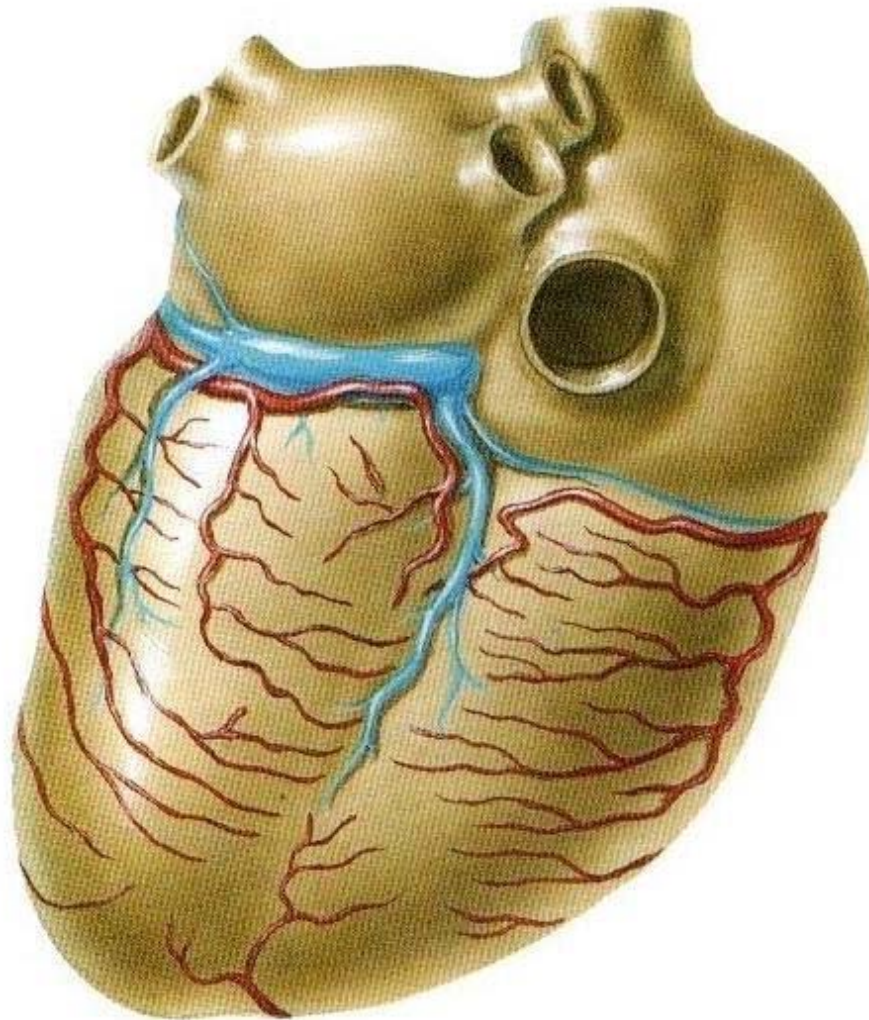
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Coronary Arteries and Cardiac Veins: Variations



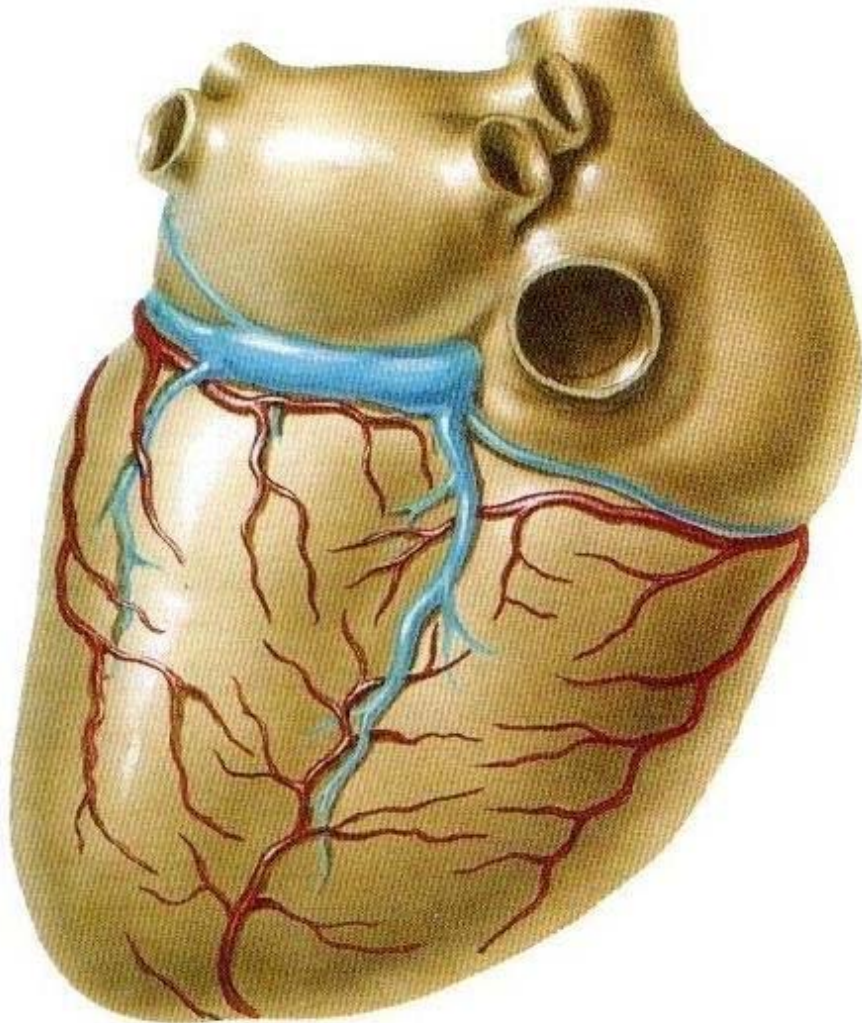
Posterior interventricular (posterior descending) branch is derived from circumflex branch of left coronary artery instead of from right coronary artery.

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Coronary Arteries and Cardiac Veins: Variations

Posterior interventricular (posterior descending) branch is absent. Area supplied chiefly by small branches from circumflex branch of left coronary artery and from right coronary artery.

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Coronary Arteries and Cardiac Veins: Variations

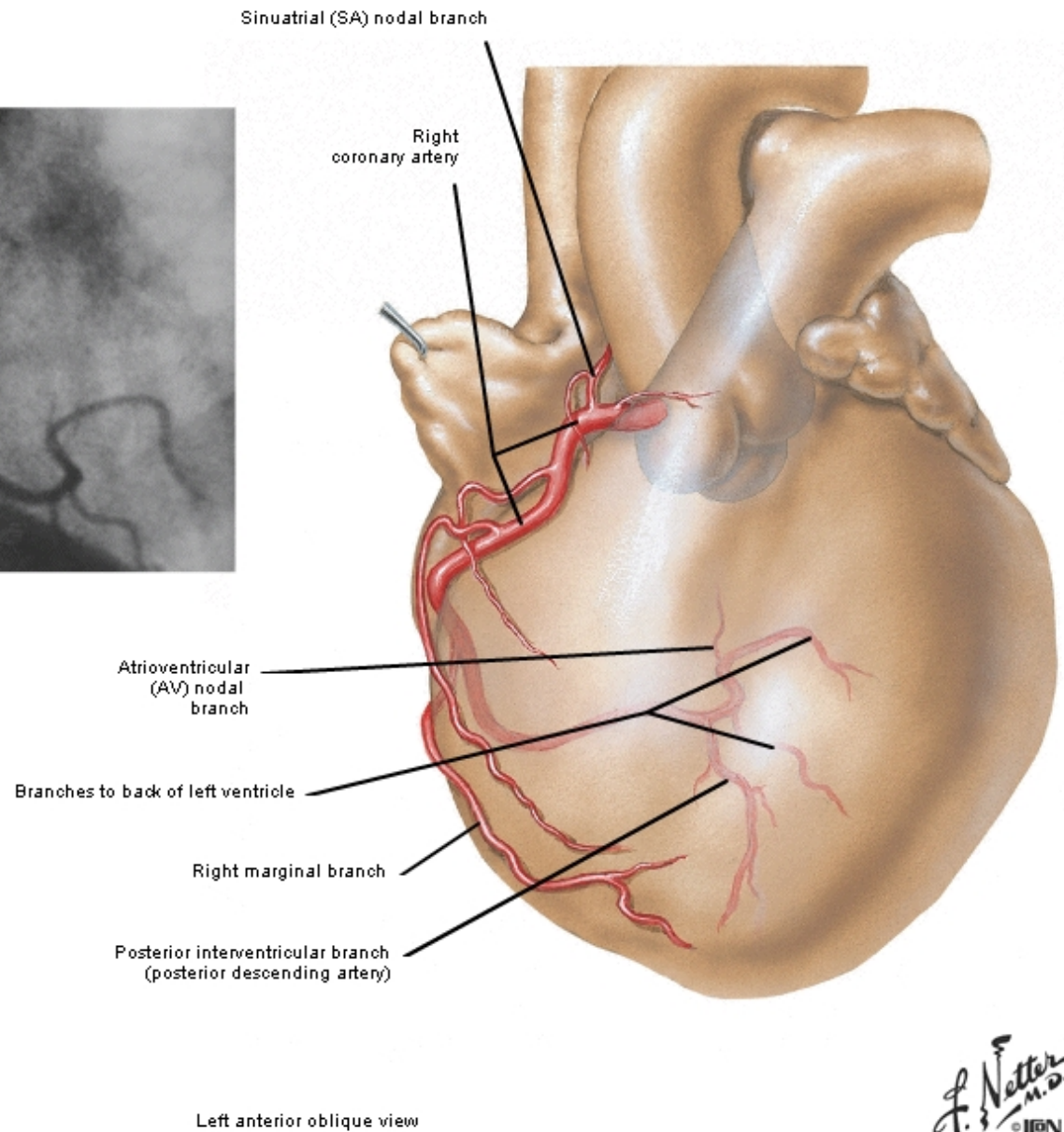
Posterior interventricular (posterior descending) branch is absent. Area supplied chiefly by elongated anterior interventricular (left anterior descending) branch curving around apex.

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Right Coronary Artery Arteriographic View 1

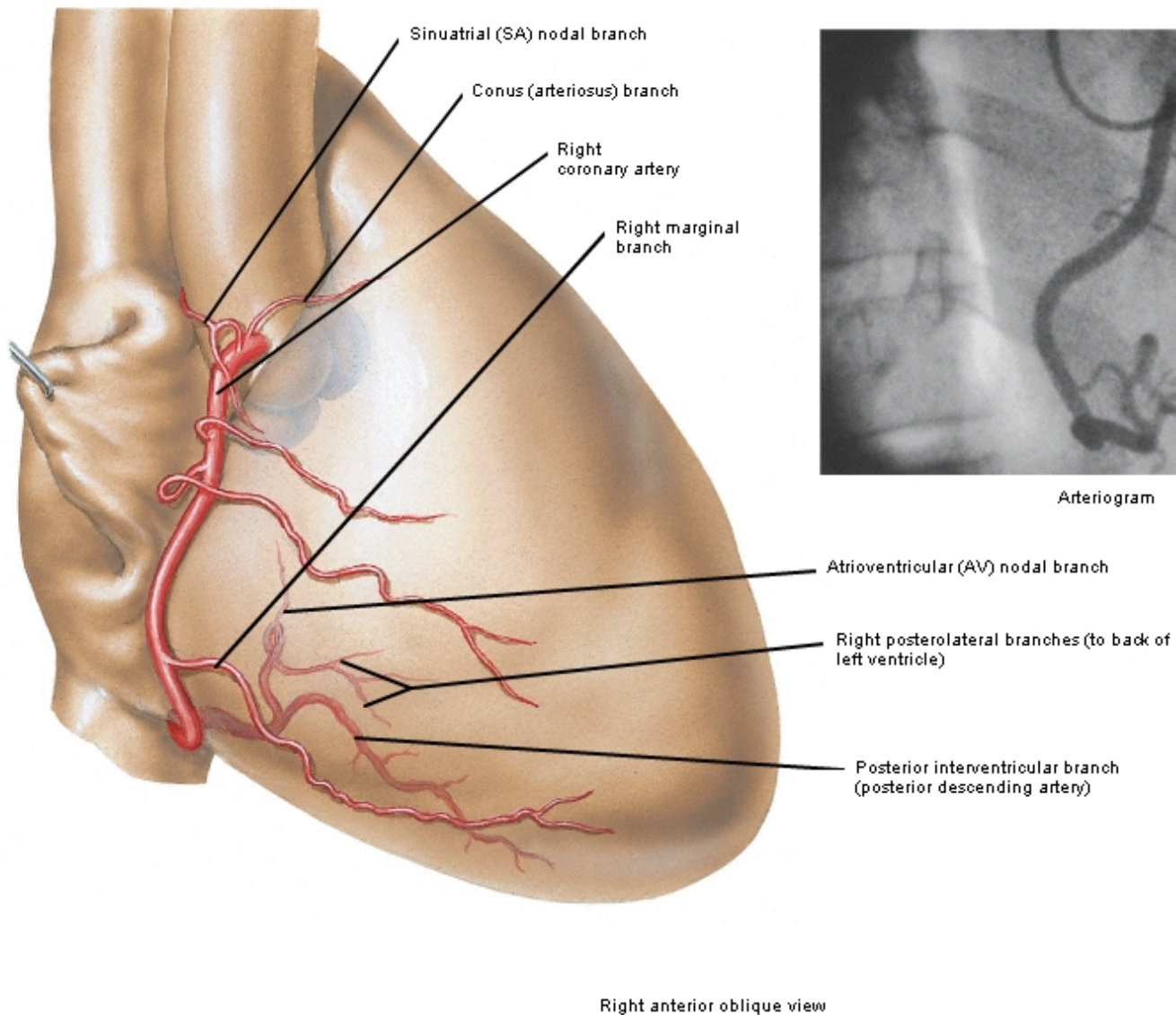


Arteriogram



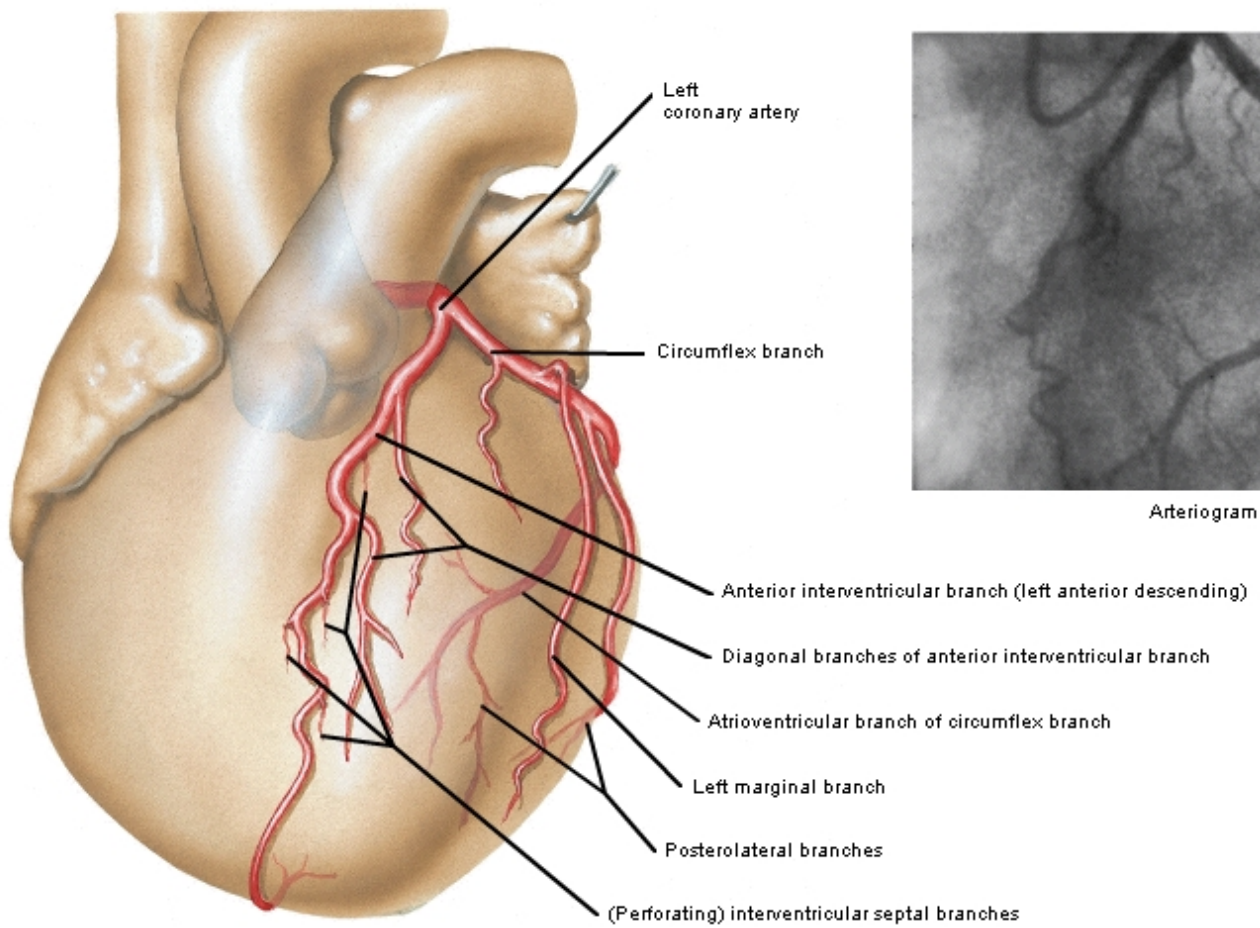
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Right Coronary Artery Arteriographic View



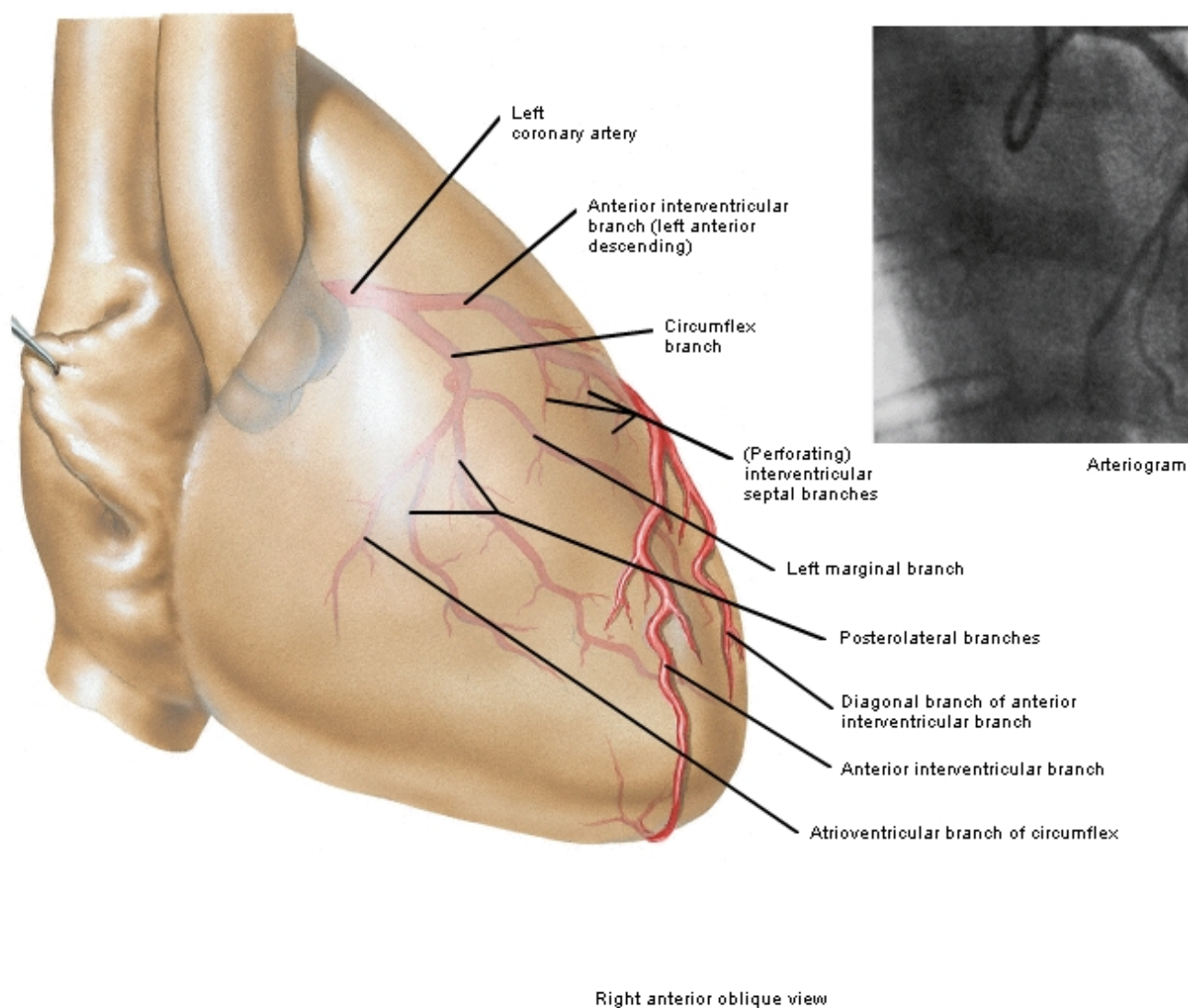
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Left Coronary Artery Arteriographic View



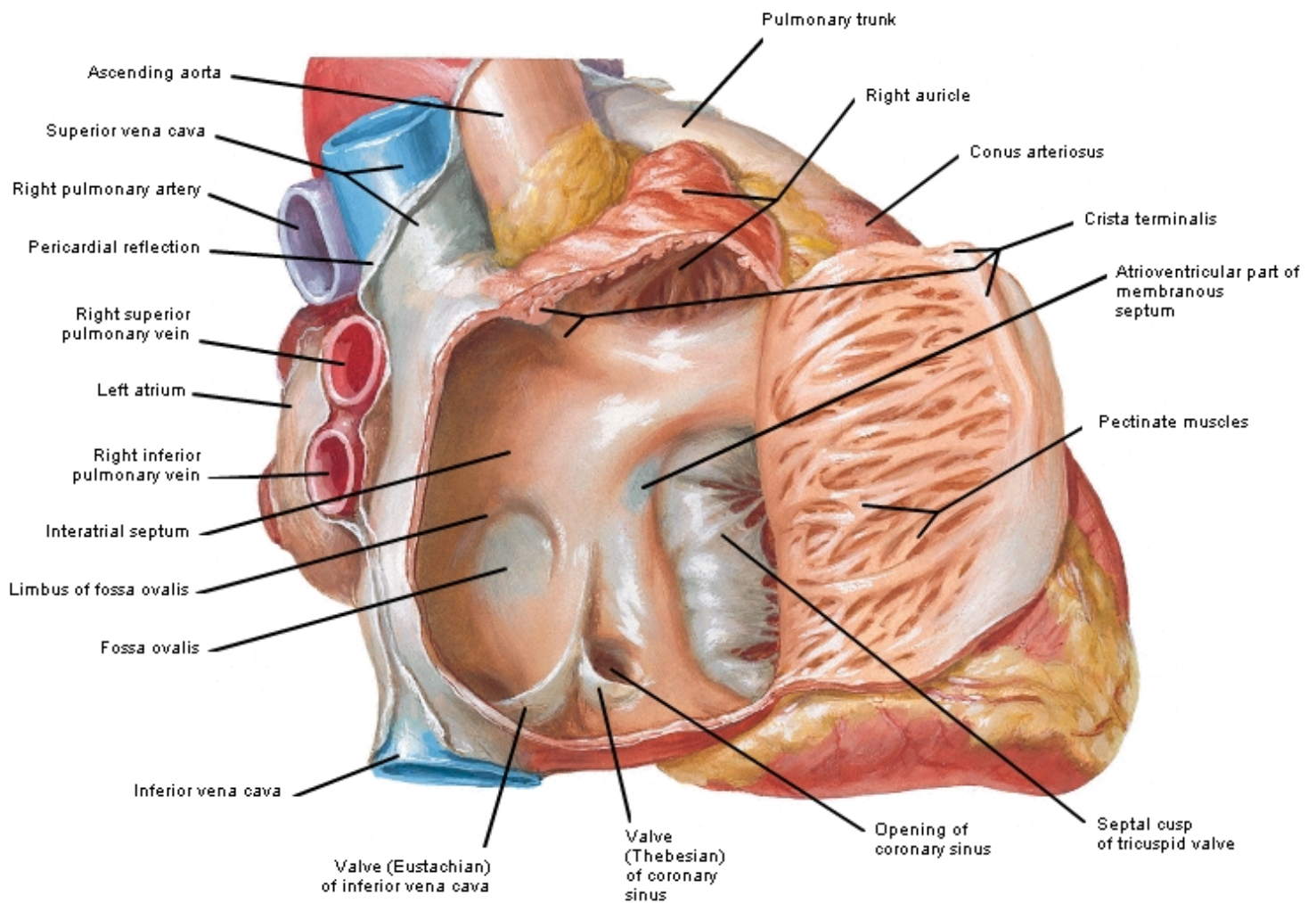
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Left Coronary Artery Arteriographic View



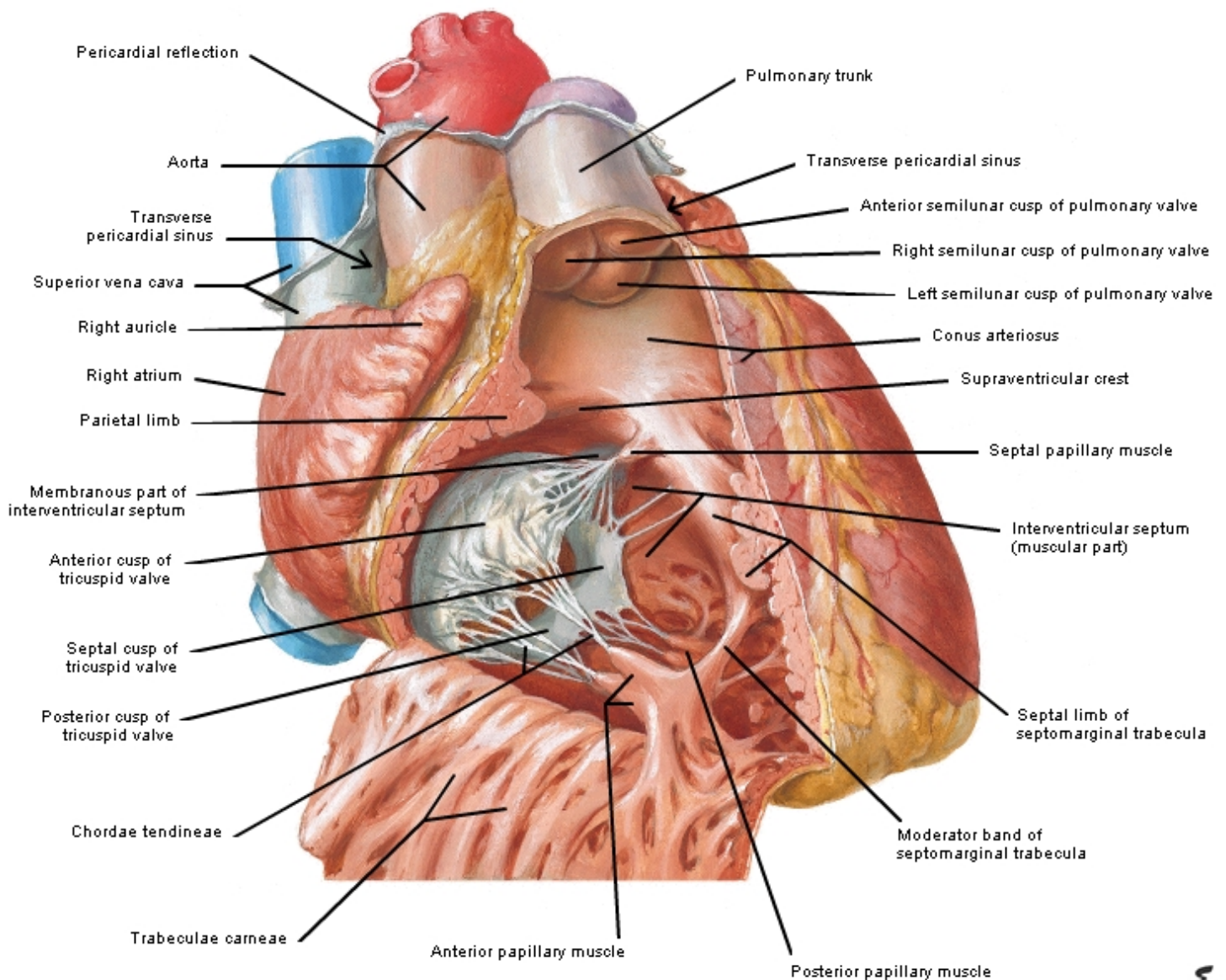
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Opened Right Atrium Right Lateral View



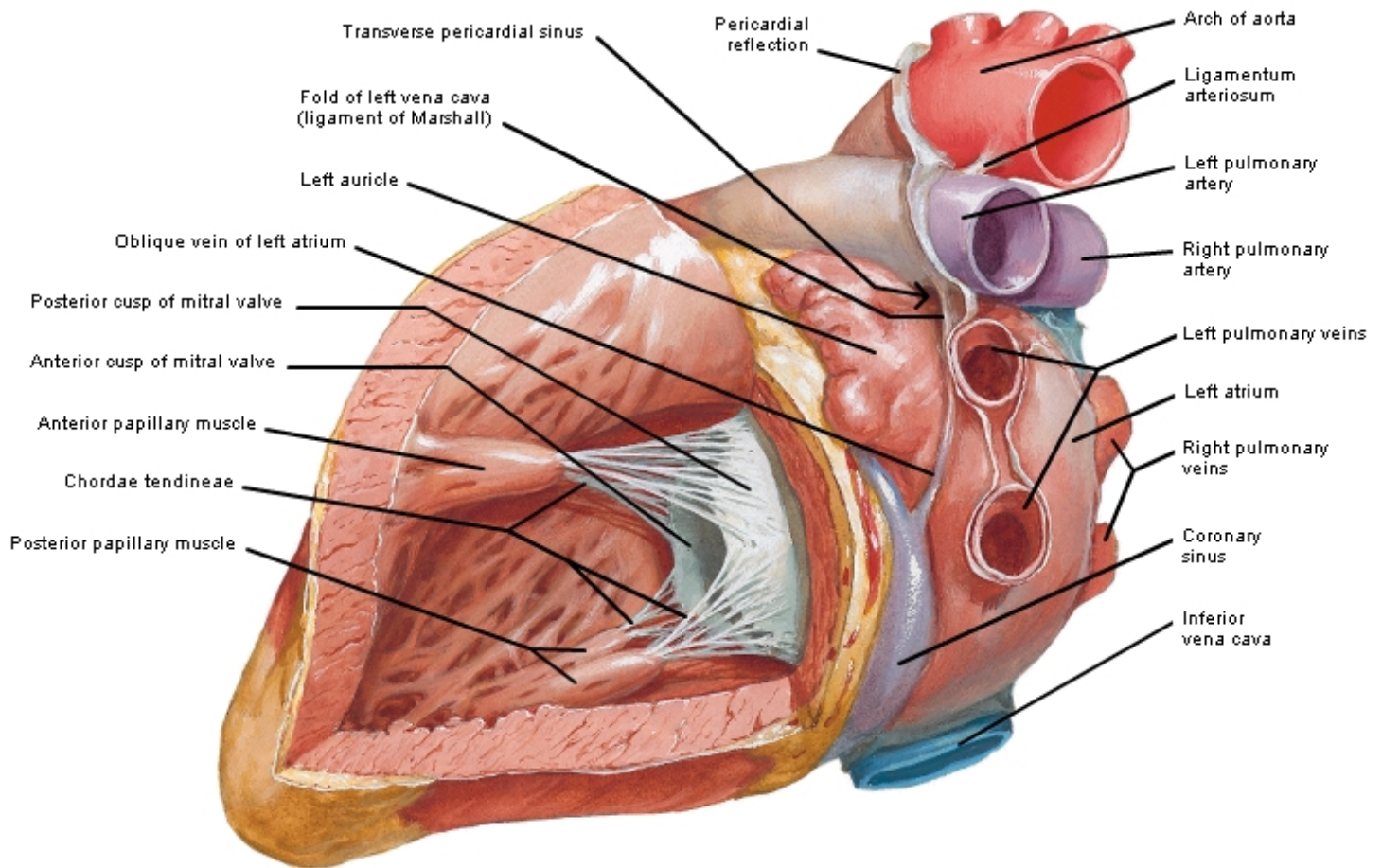
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Opened Right Ventricle Anterior View



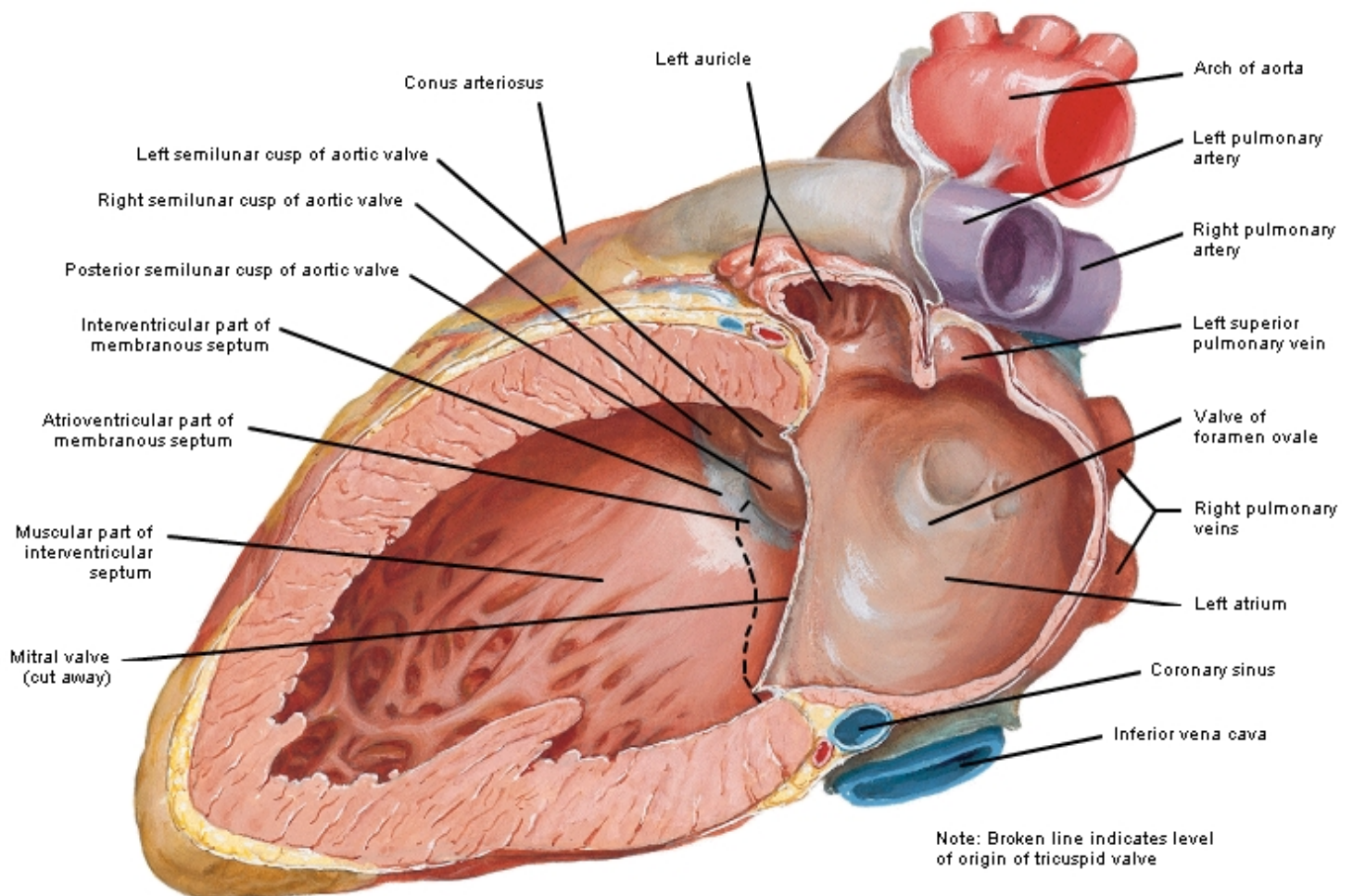
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Left Ventricle Flap Opened in Posterolateral Wall



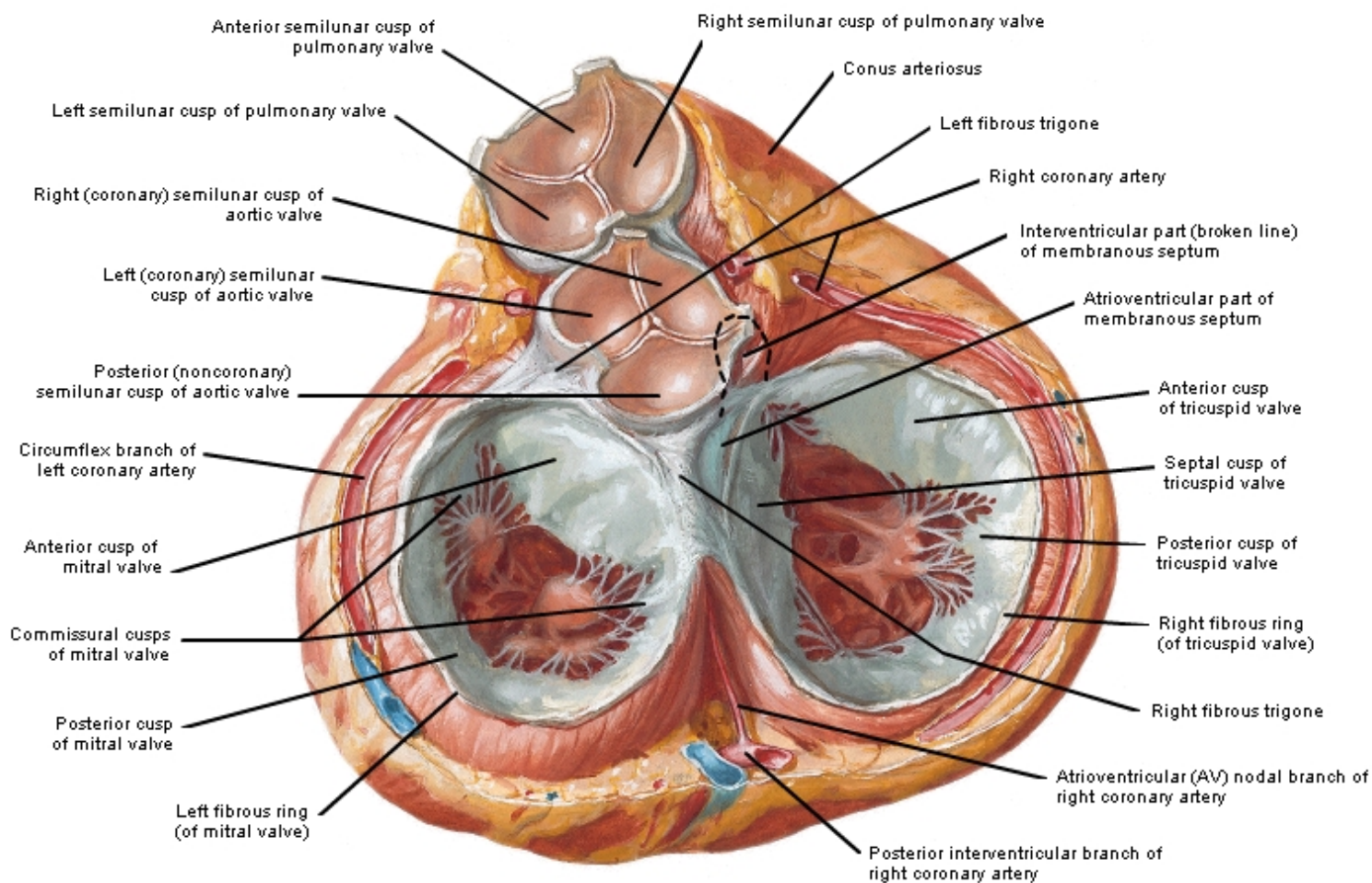
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Left Atrium and Ventricle Sectioned with Mitral Valve Cut Away



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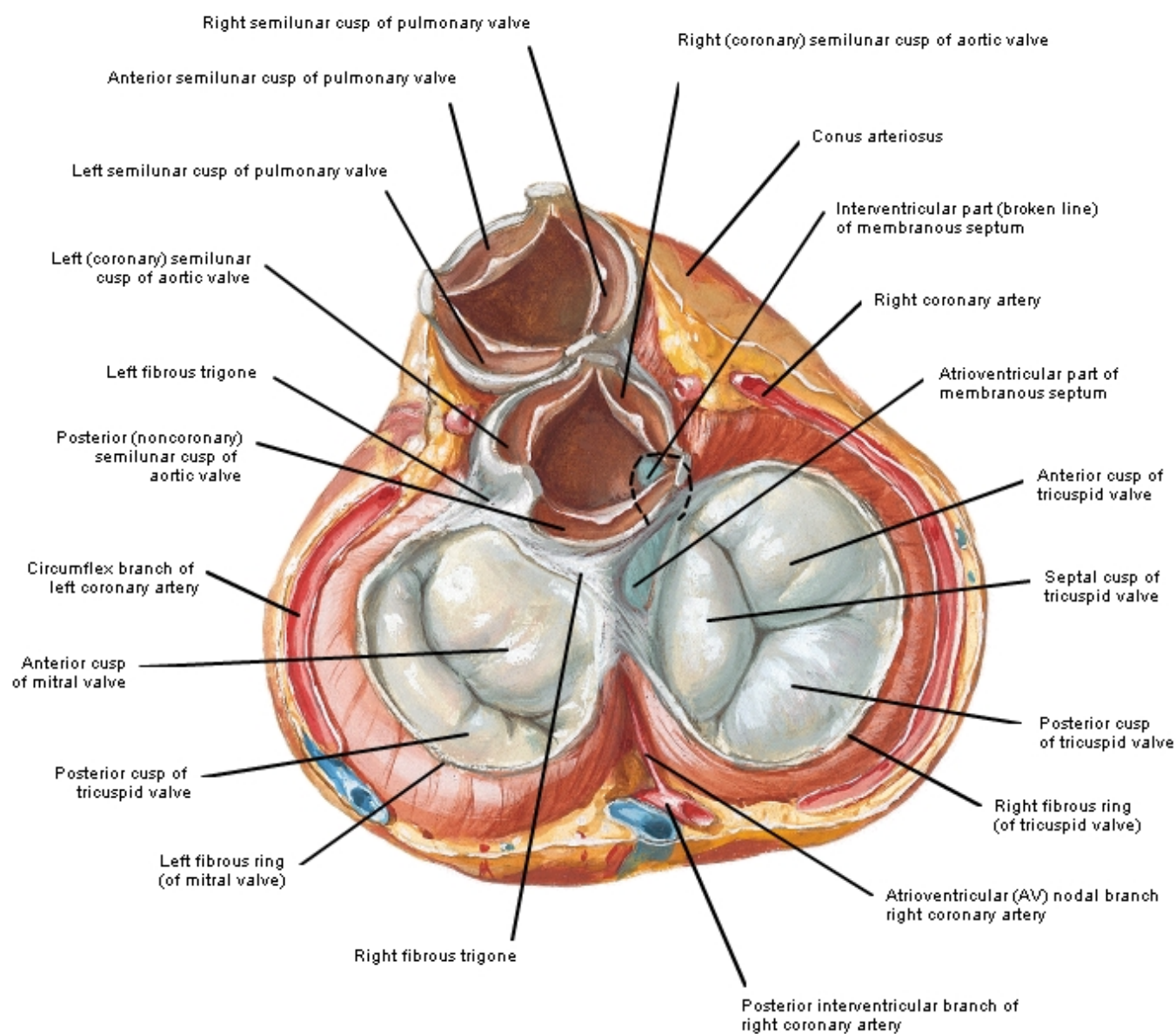
Valves of Heart in Diastole



Viewed from base with atria removed

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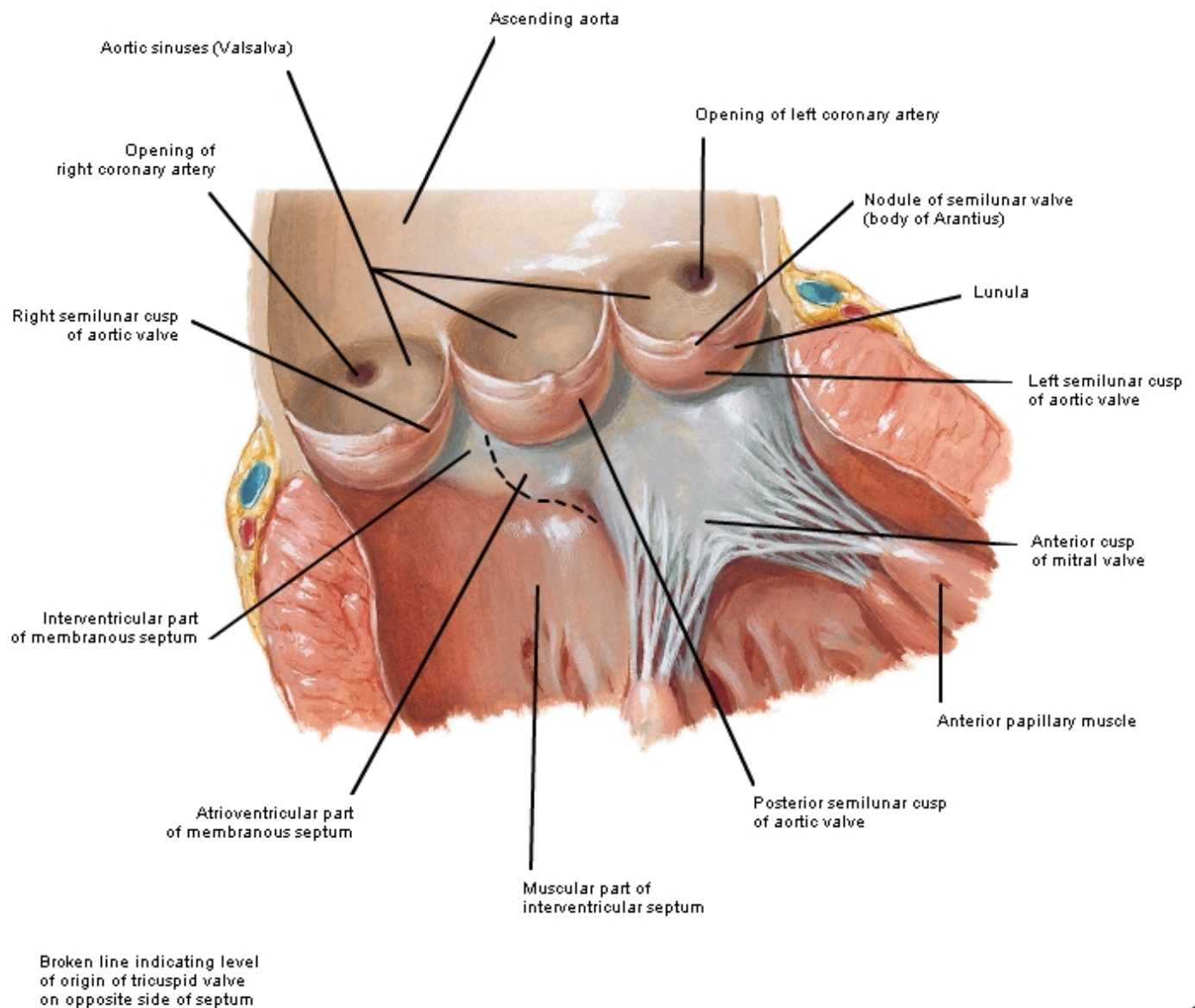
Valves of Heart in Systole



Viewed from base with atria removed

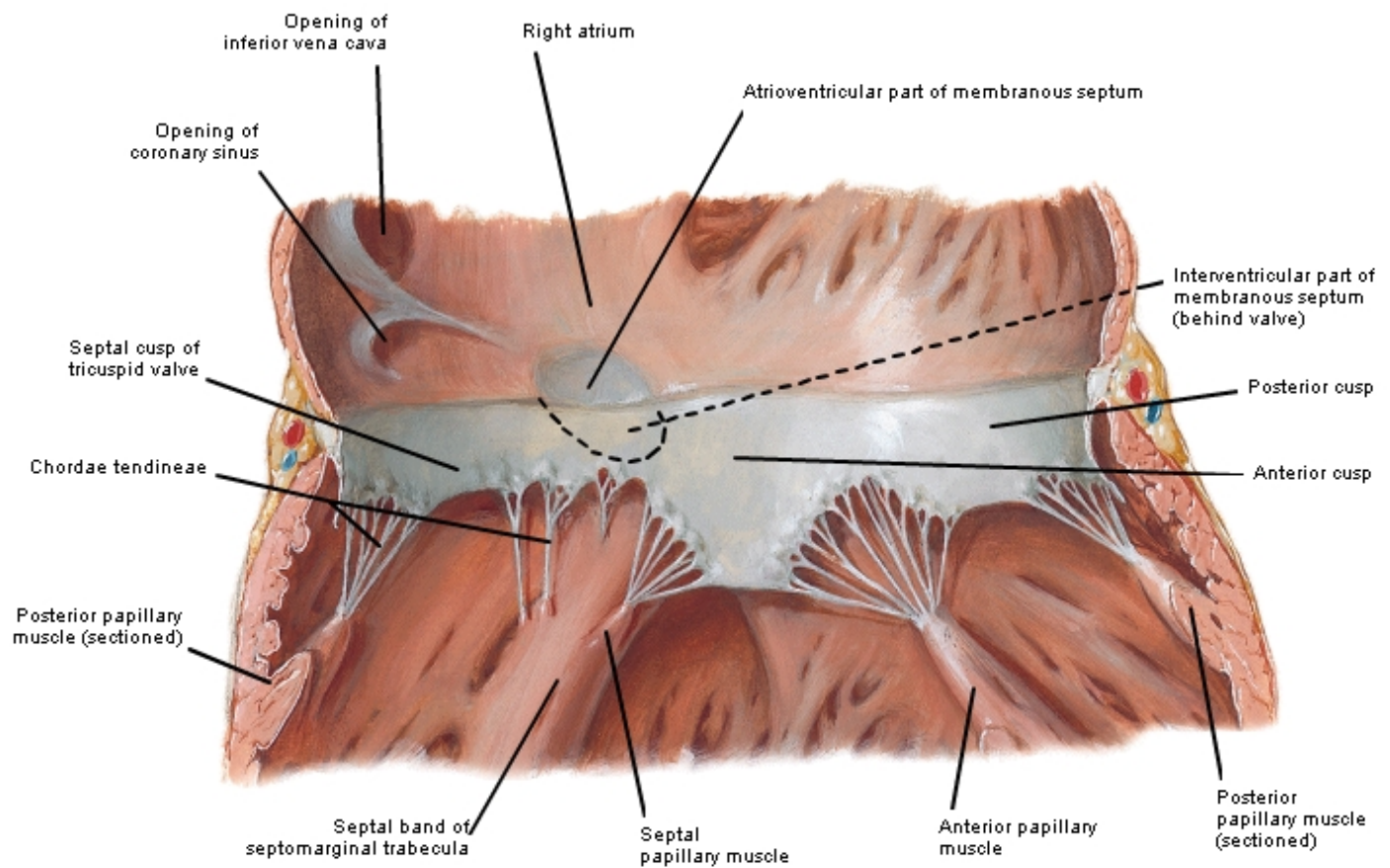
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Aortic Valve



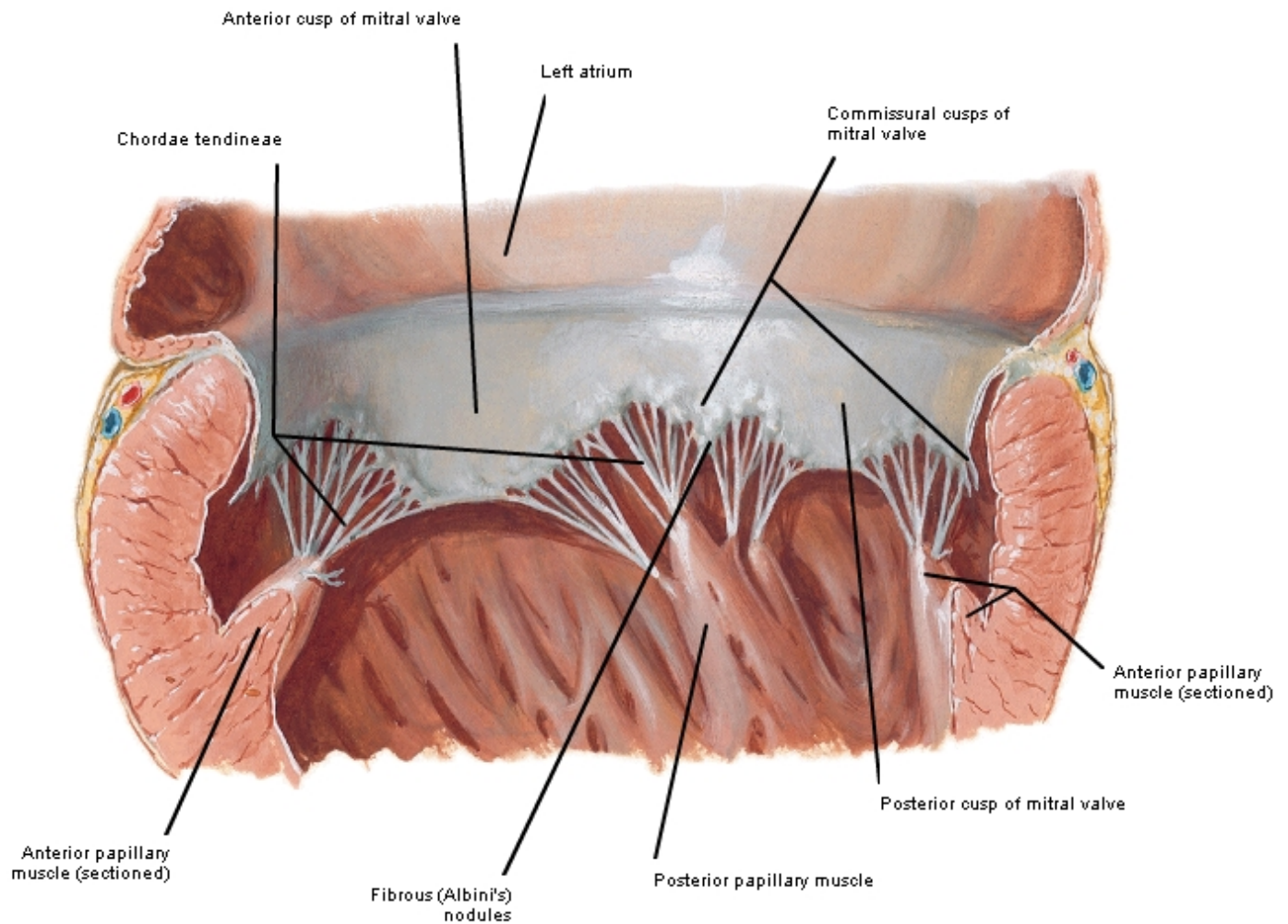
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Tricuspid (Right Atrioventricular) Valve



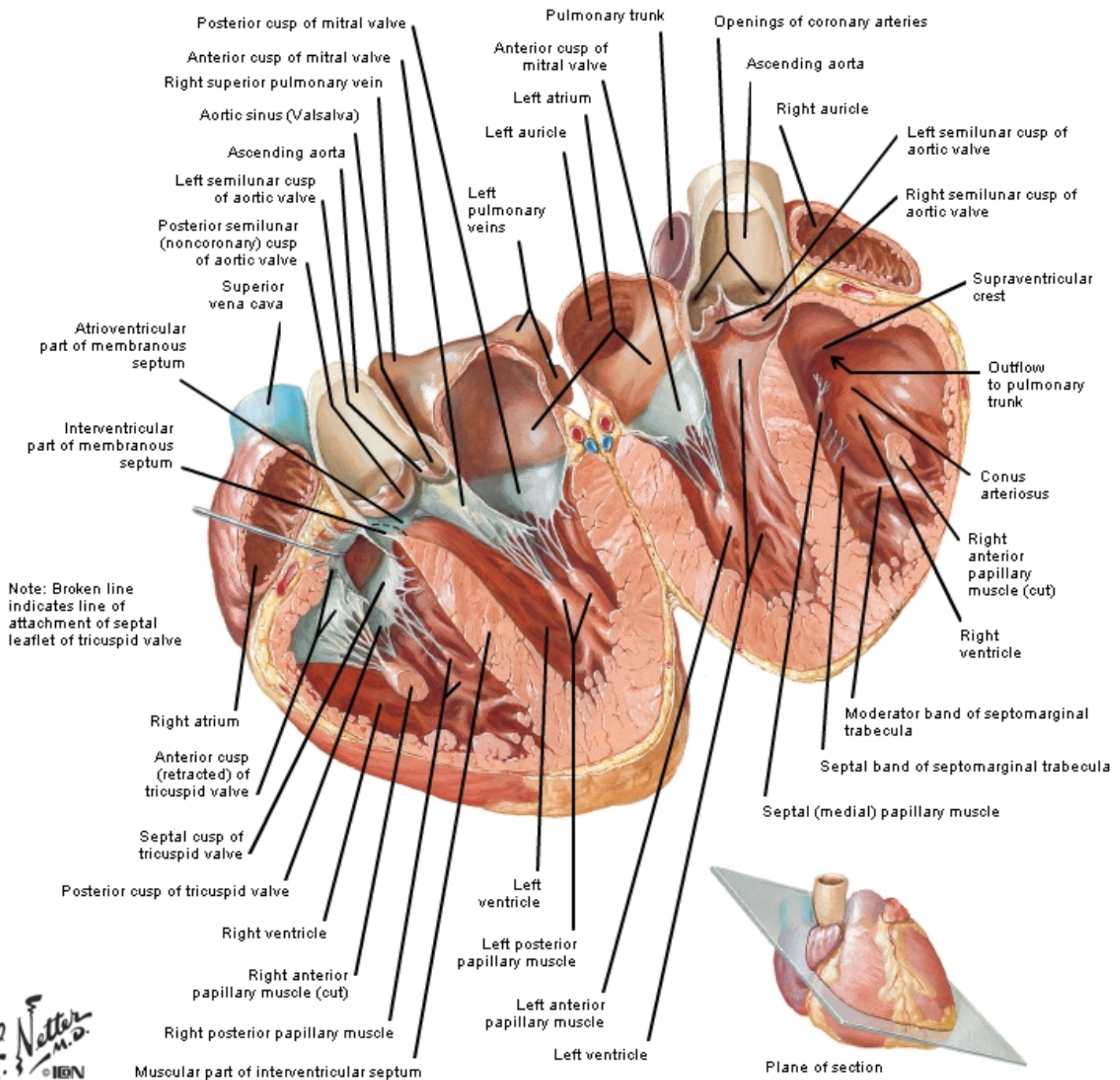
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Mitral (Left Atrioventricular) Valve

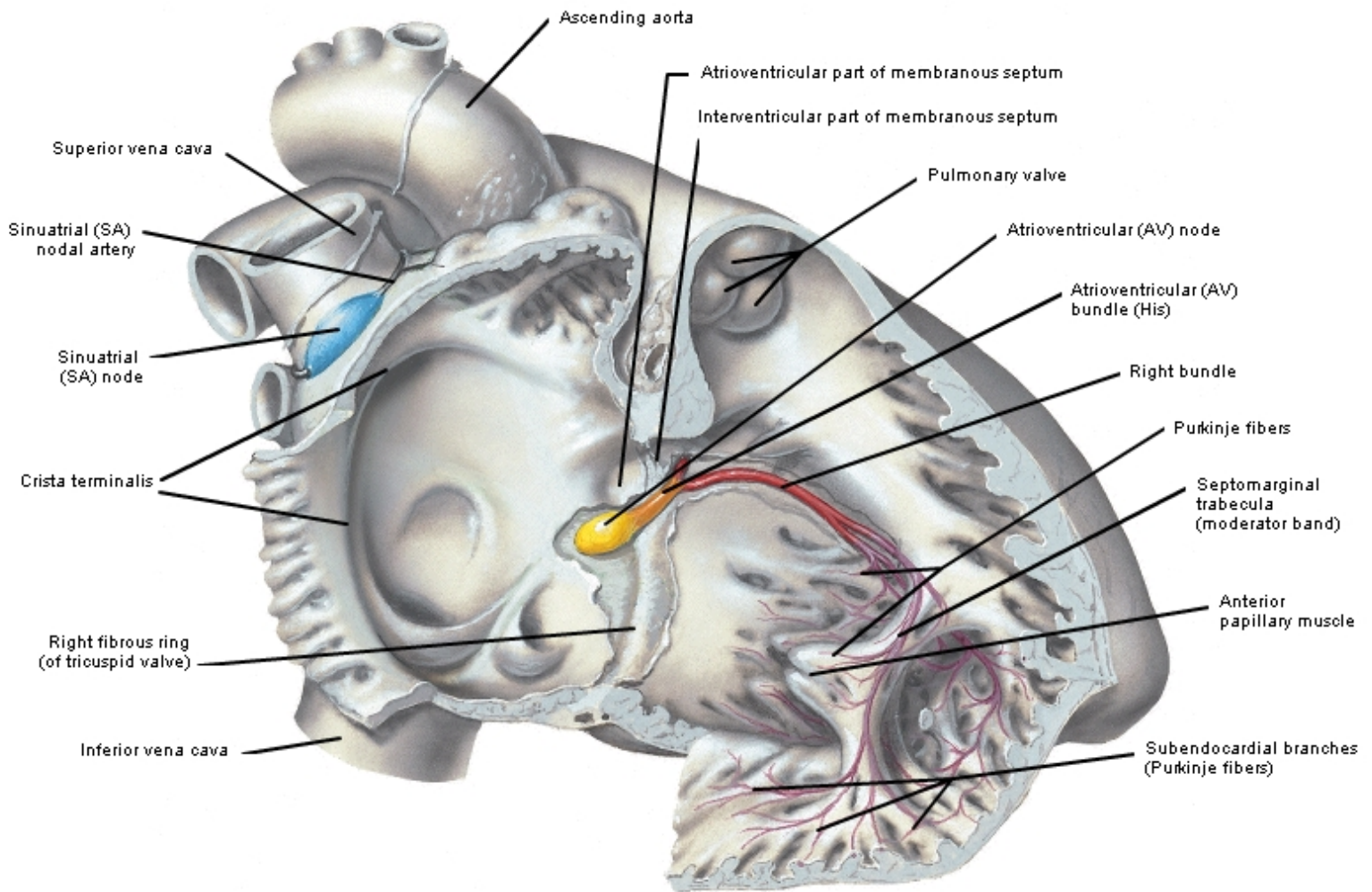


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Atria, Ventricles and Interventricular Septum

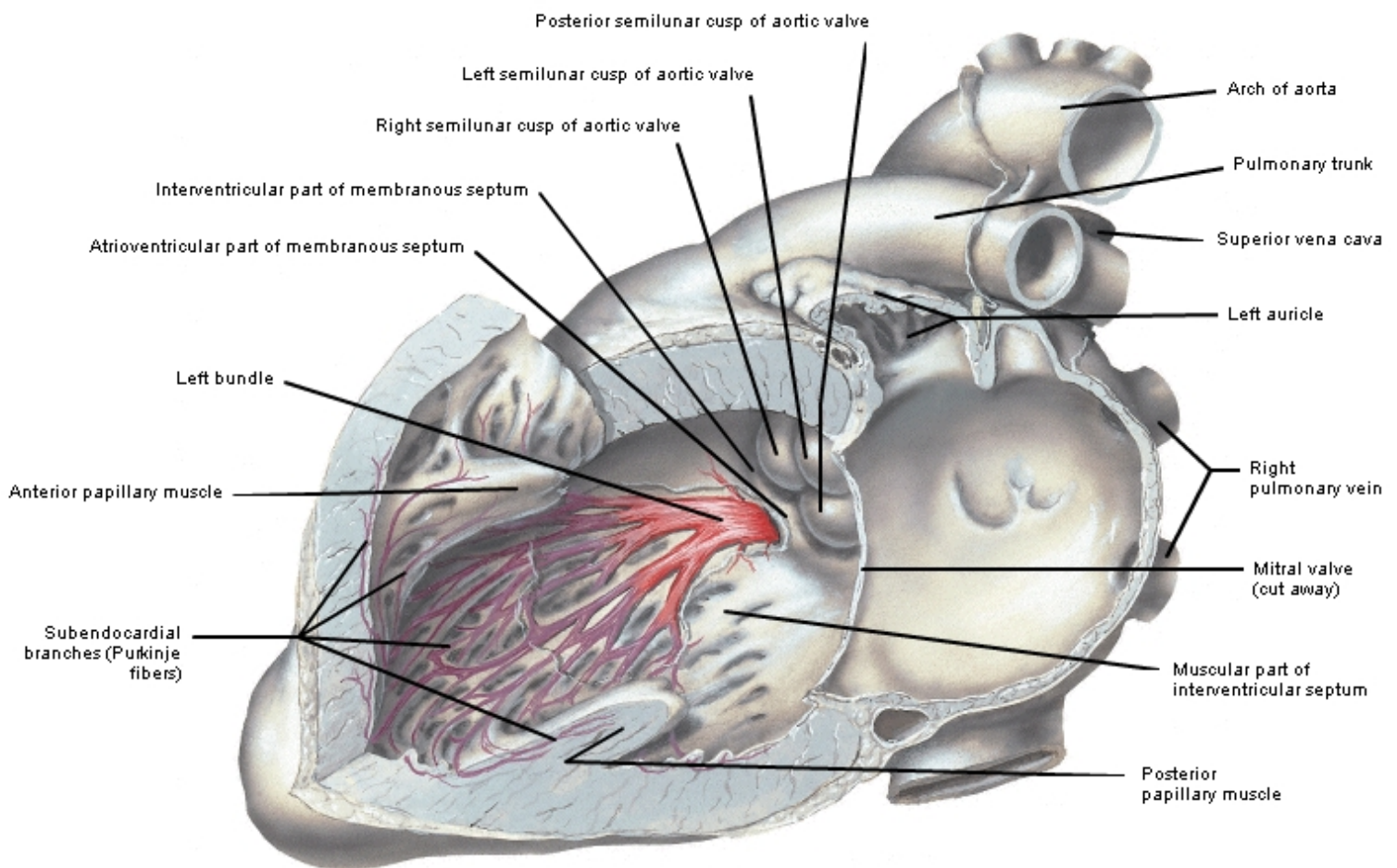


Conducting System of Heart Right Side



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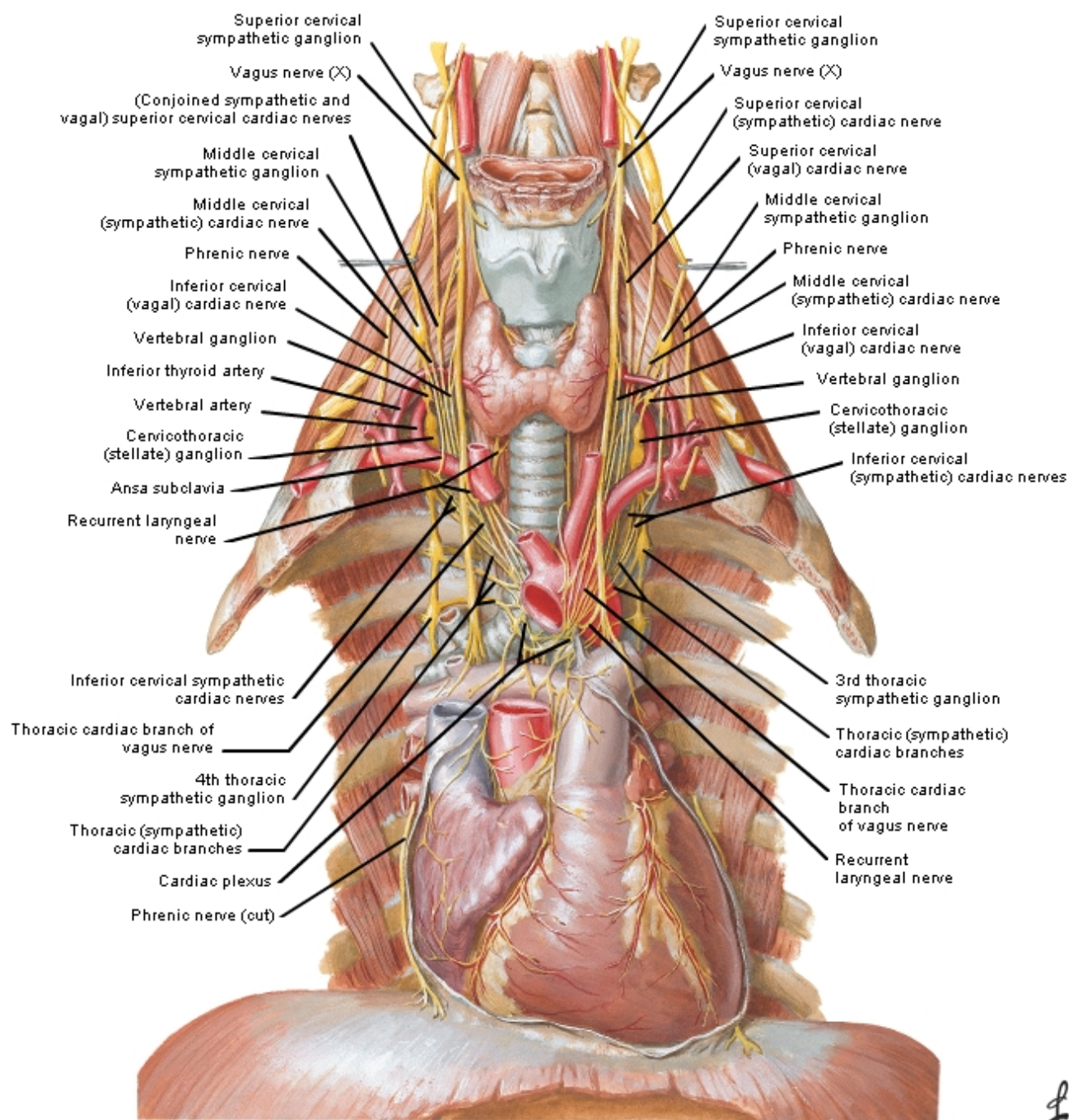
Conducting System of Heart Left Side



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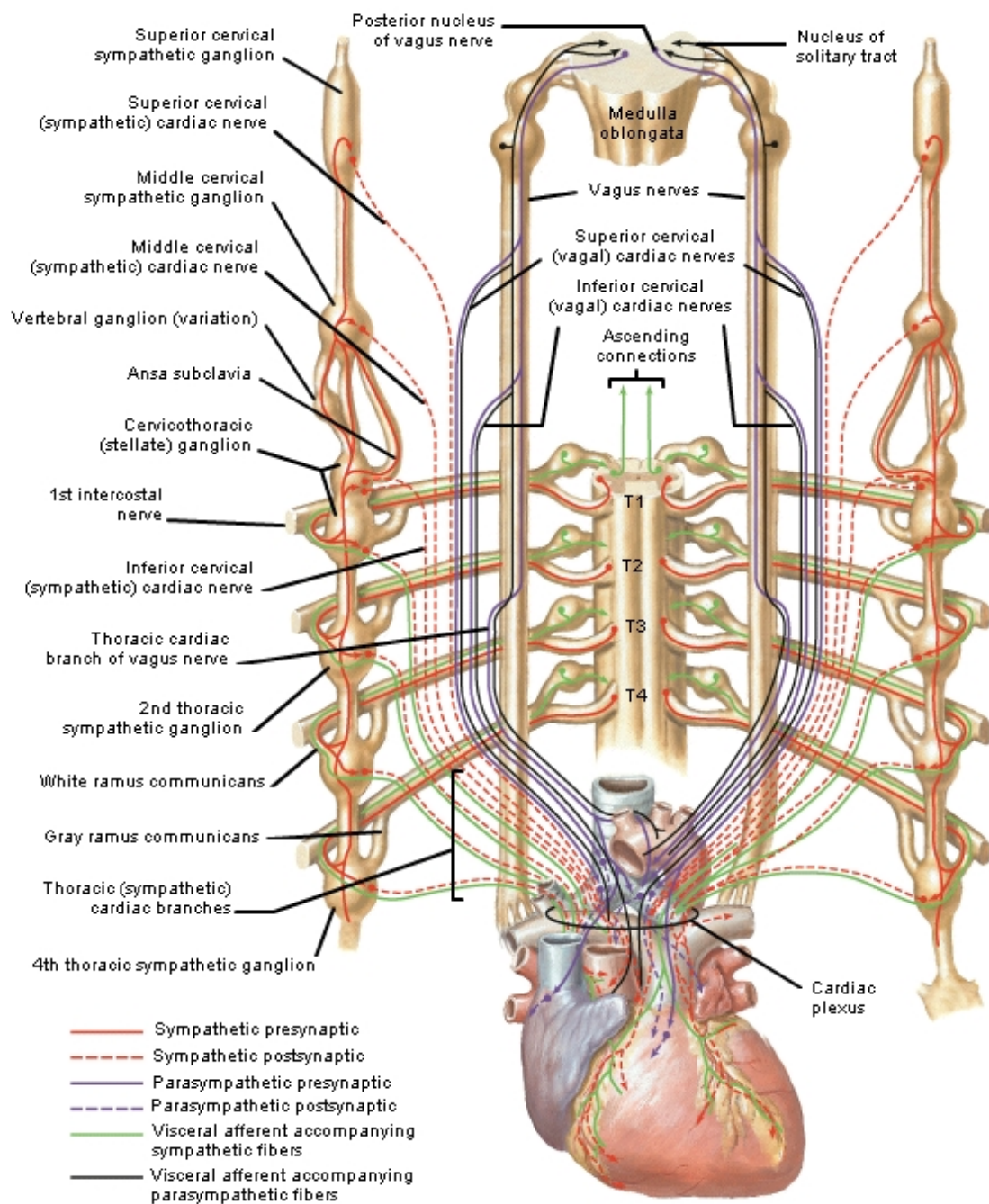
THORAX

Nerves of Heart



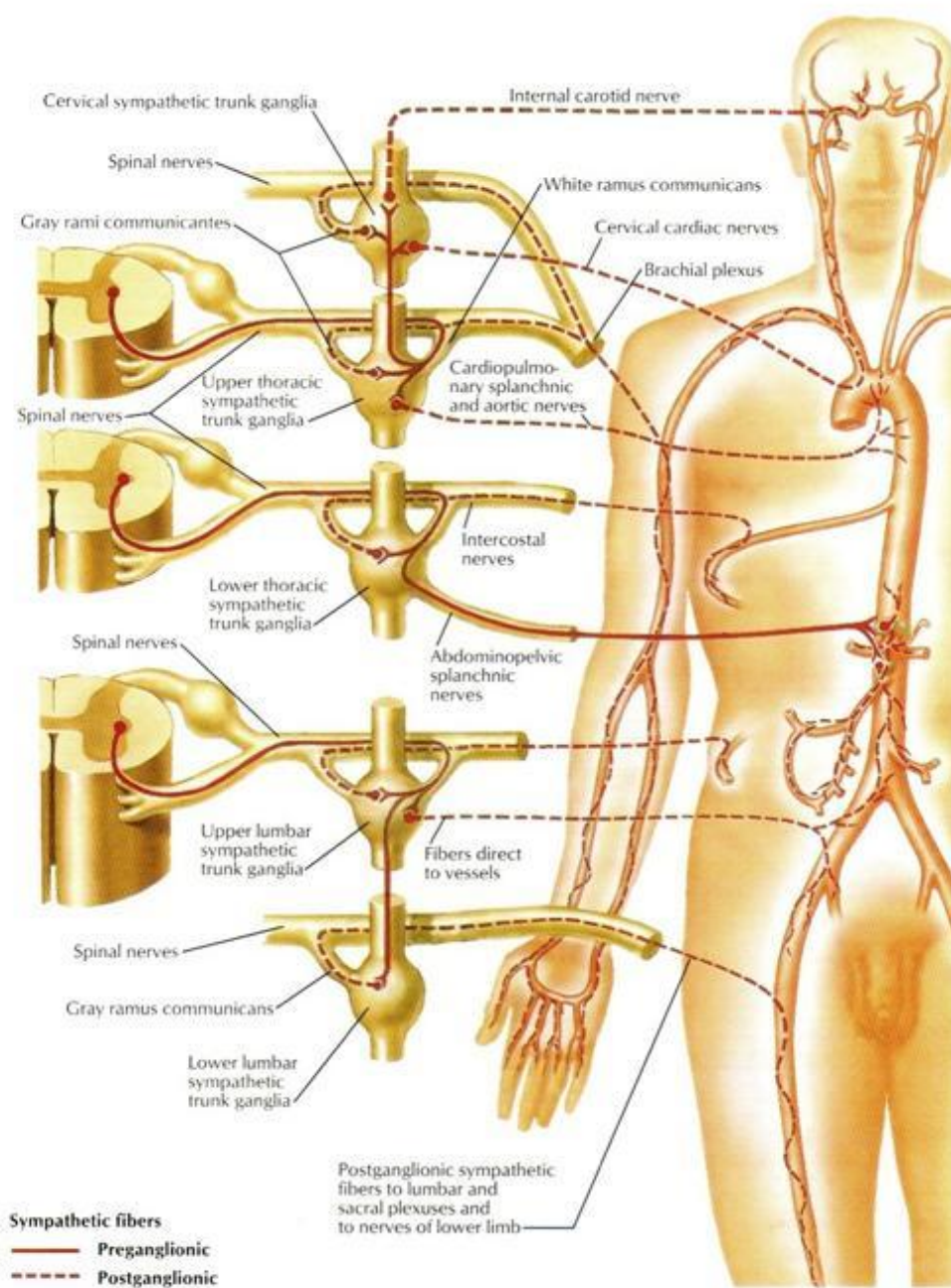
F. Netter M.D.
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Innervation of Heart Schema



F. Netter M.D.
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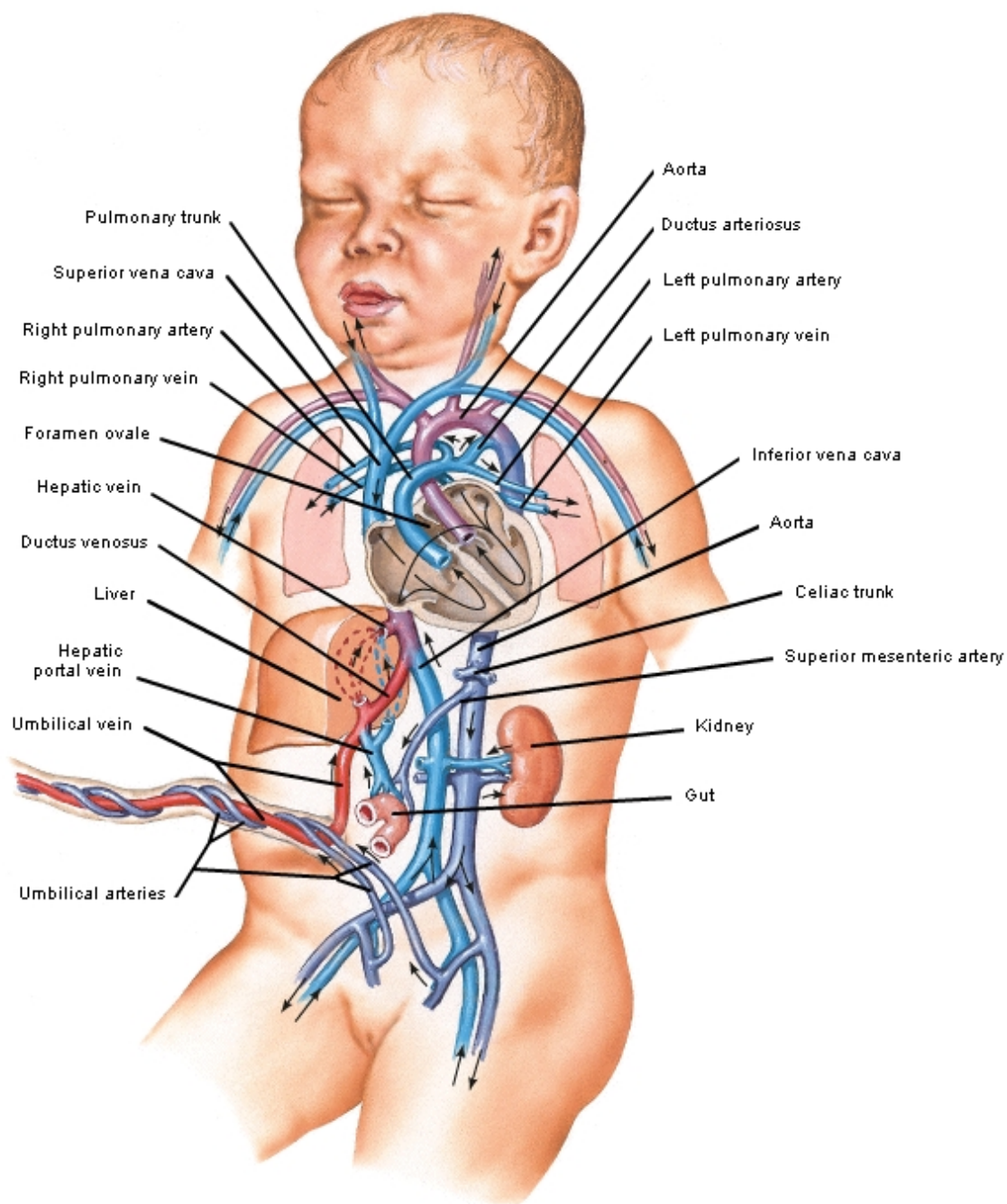
Innervation of Blood Vessels: Schema



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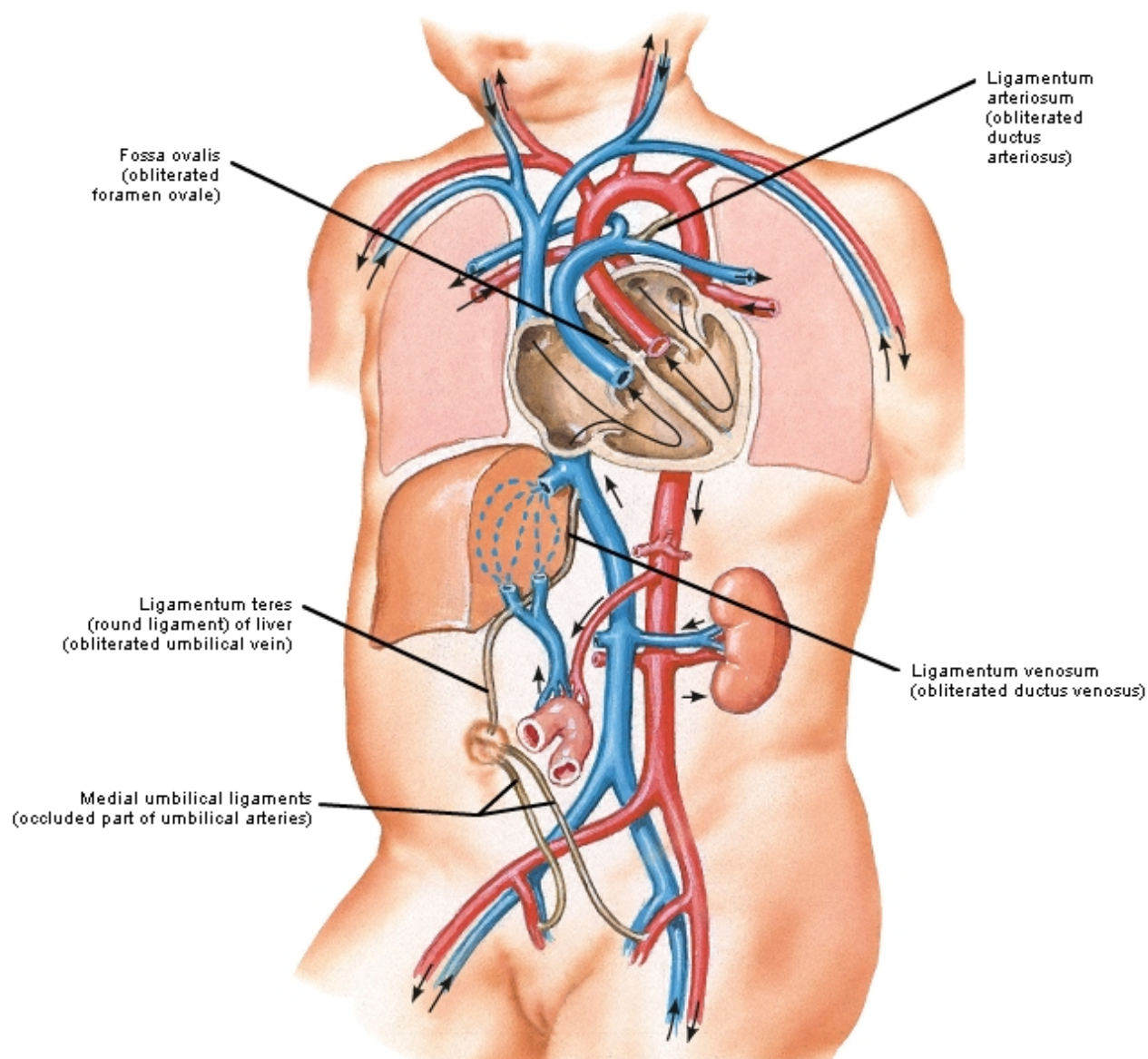
THORAX

Prenatal Circulation



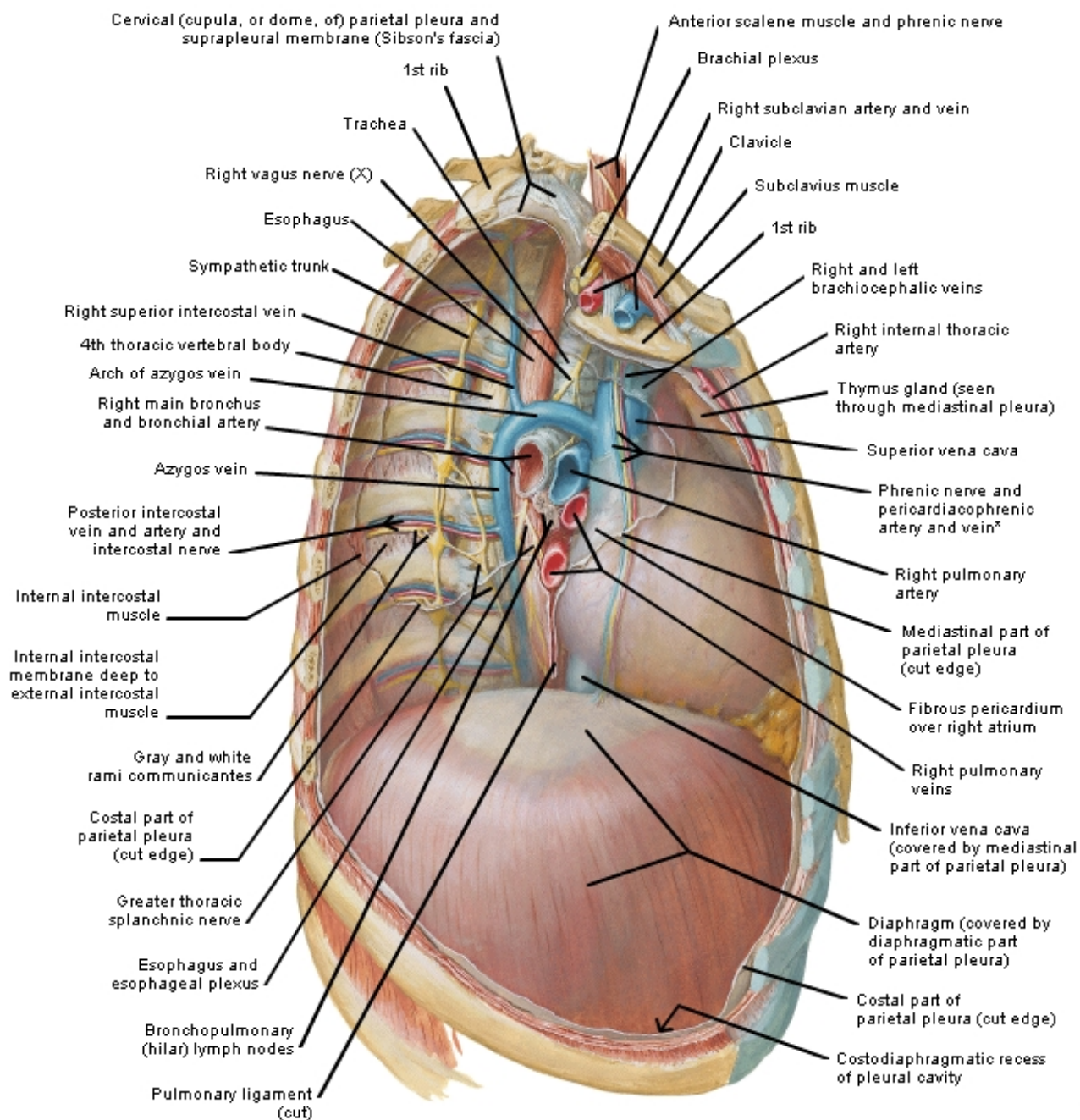
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Postnatal Circulation



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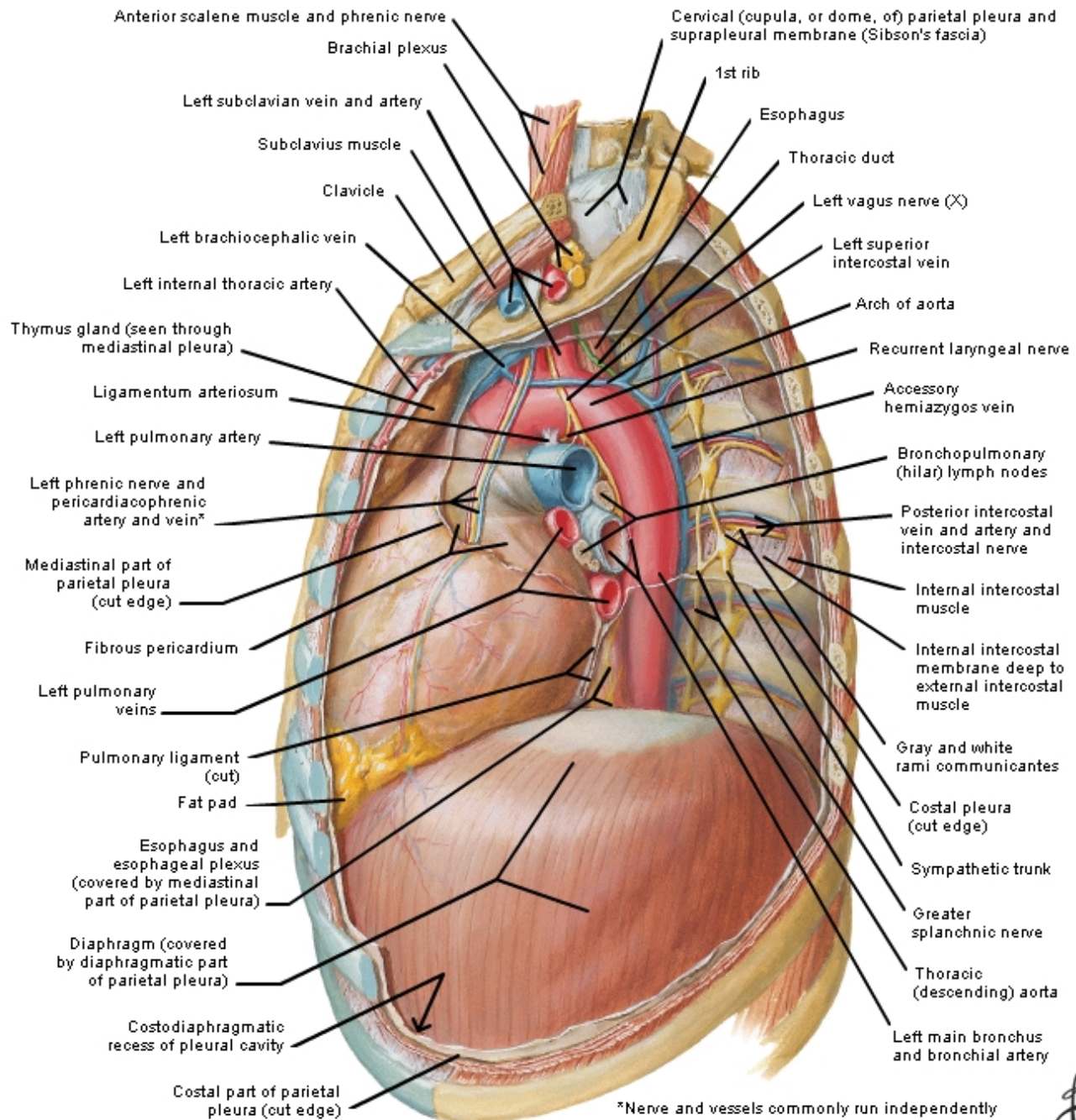
Mediastinum: Right Lateral View



*Nerve and vessels commonly run independently

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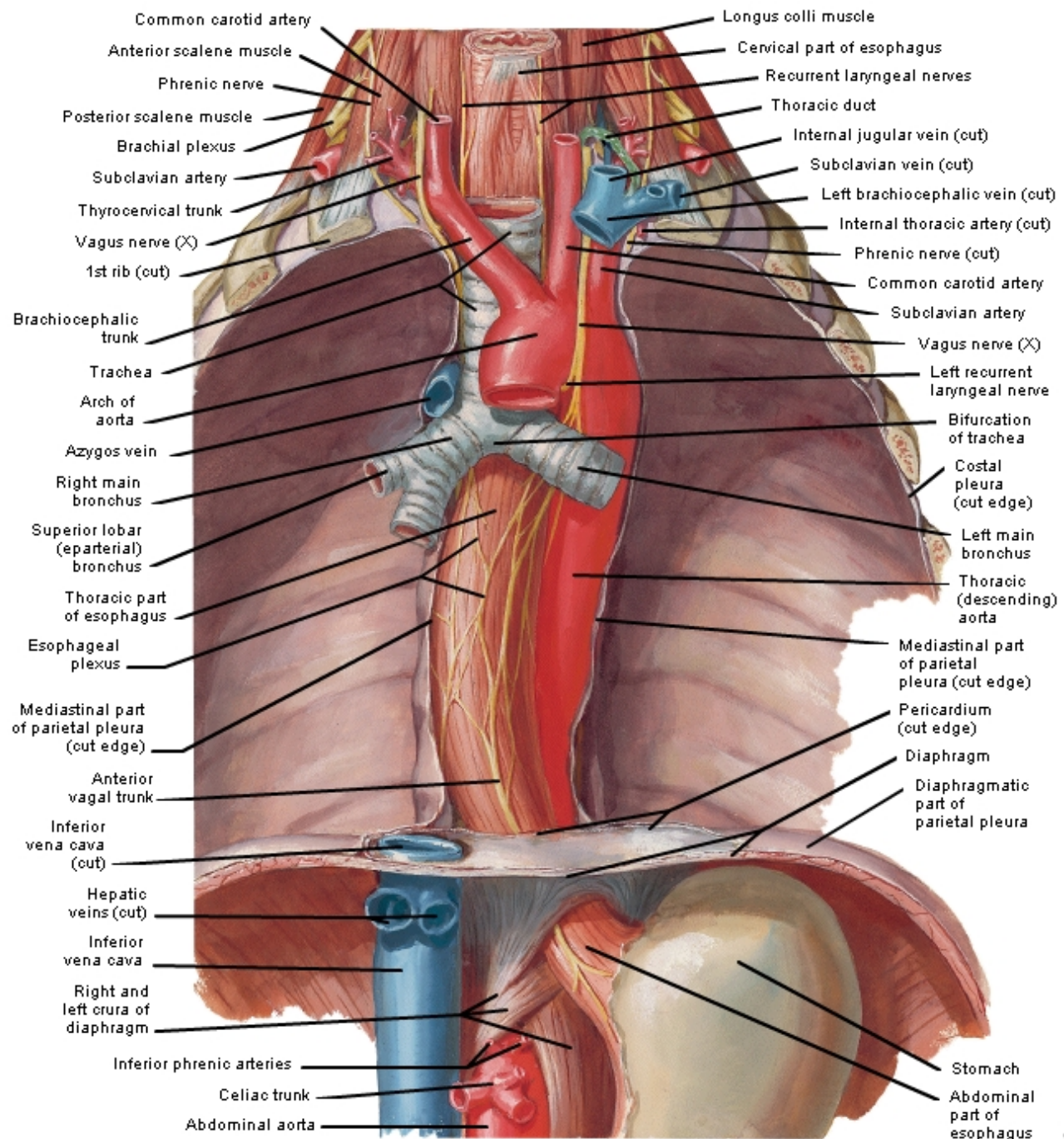
Mediastinum: Left Lateral View



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THORAX

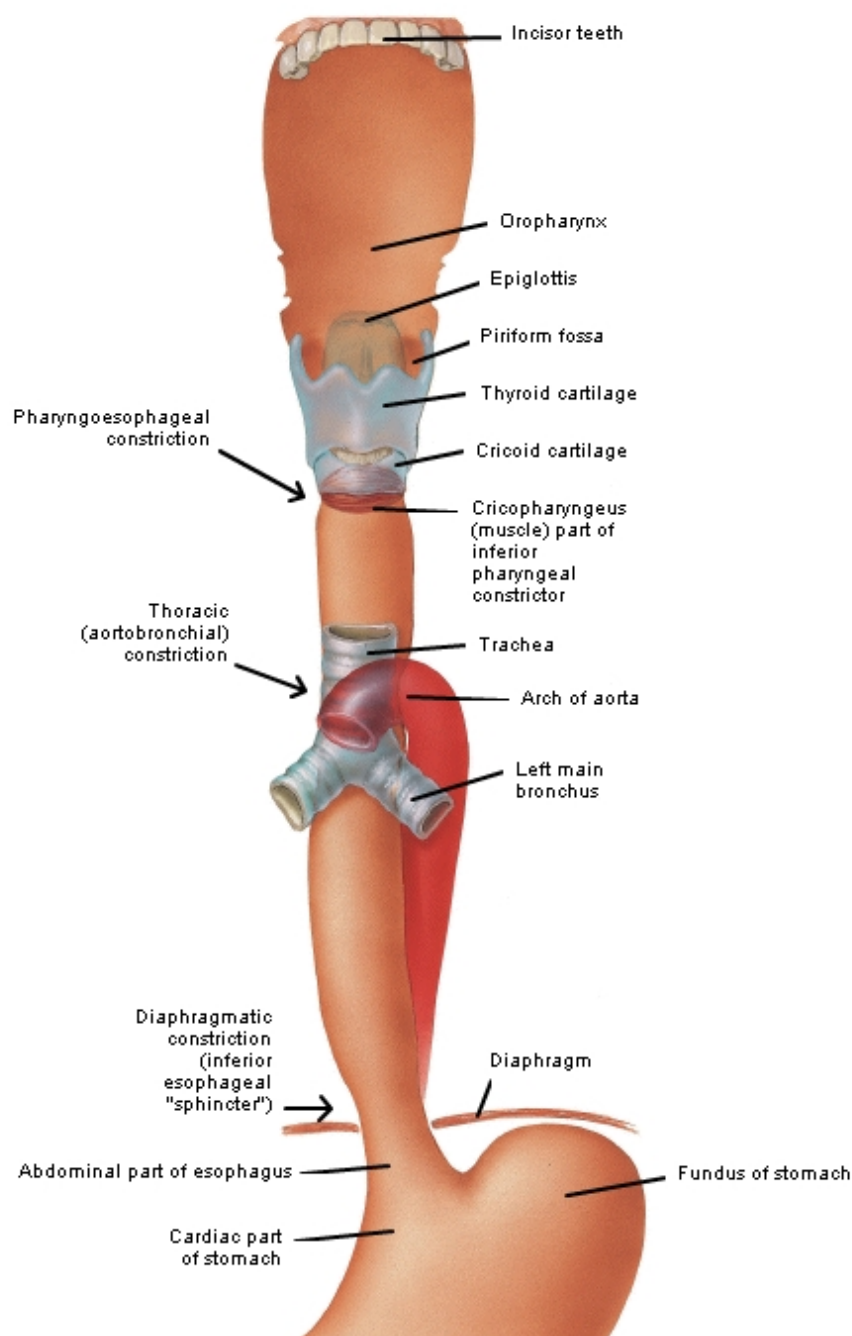
Esophagus In Situ



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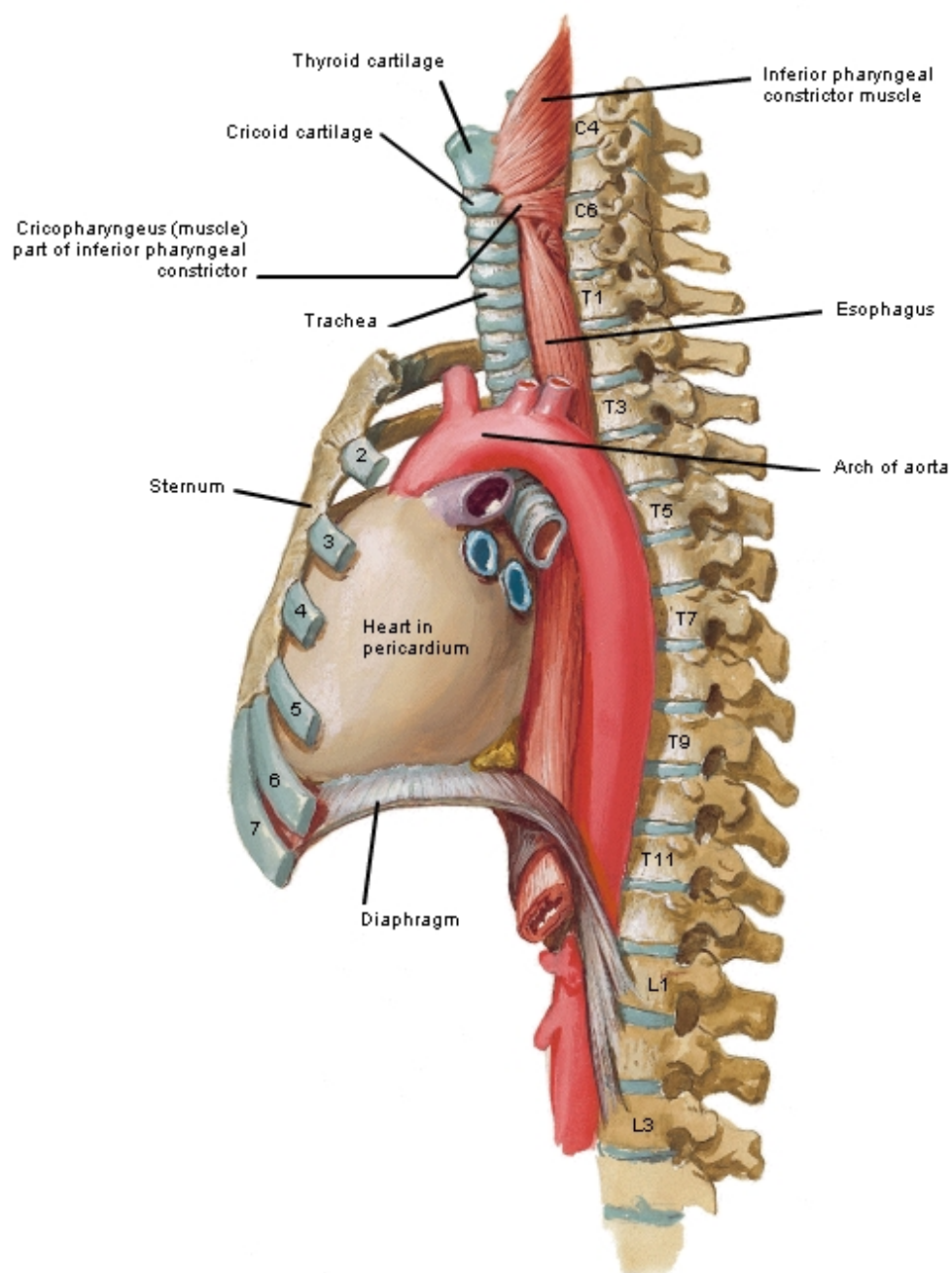
Topography and Constrictions of Esophagus

Schema - Anterior View



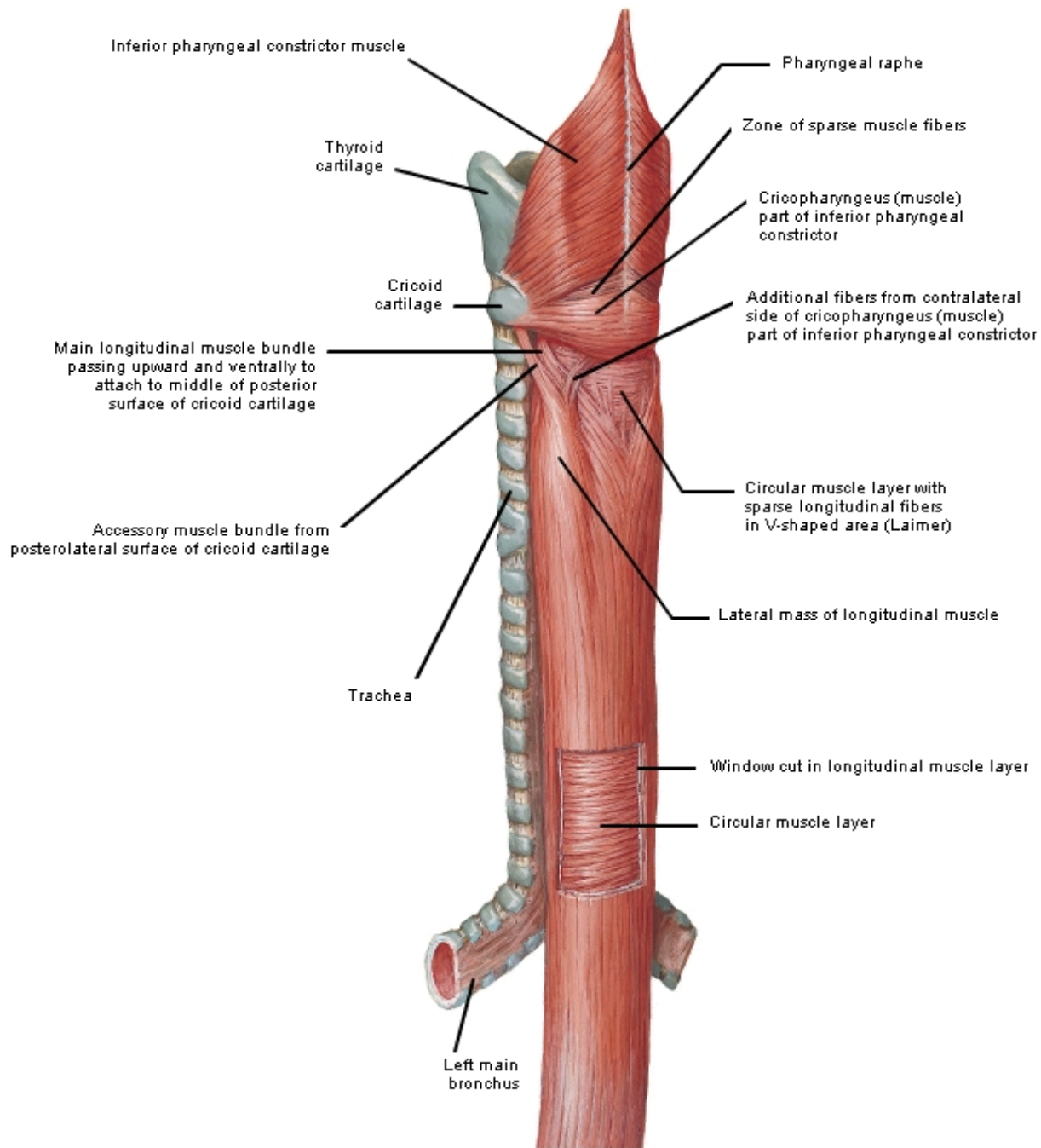
F. Netter M.D.
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Topography and Constrictions of Esophagus Lateral View



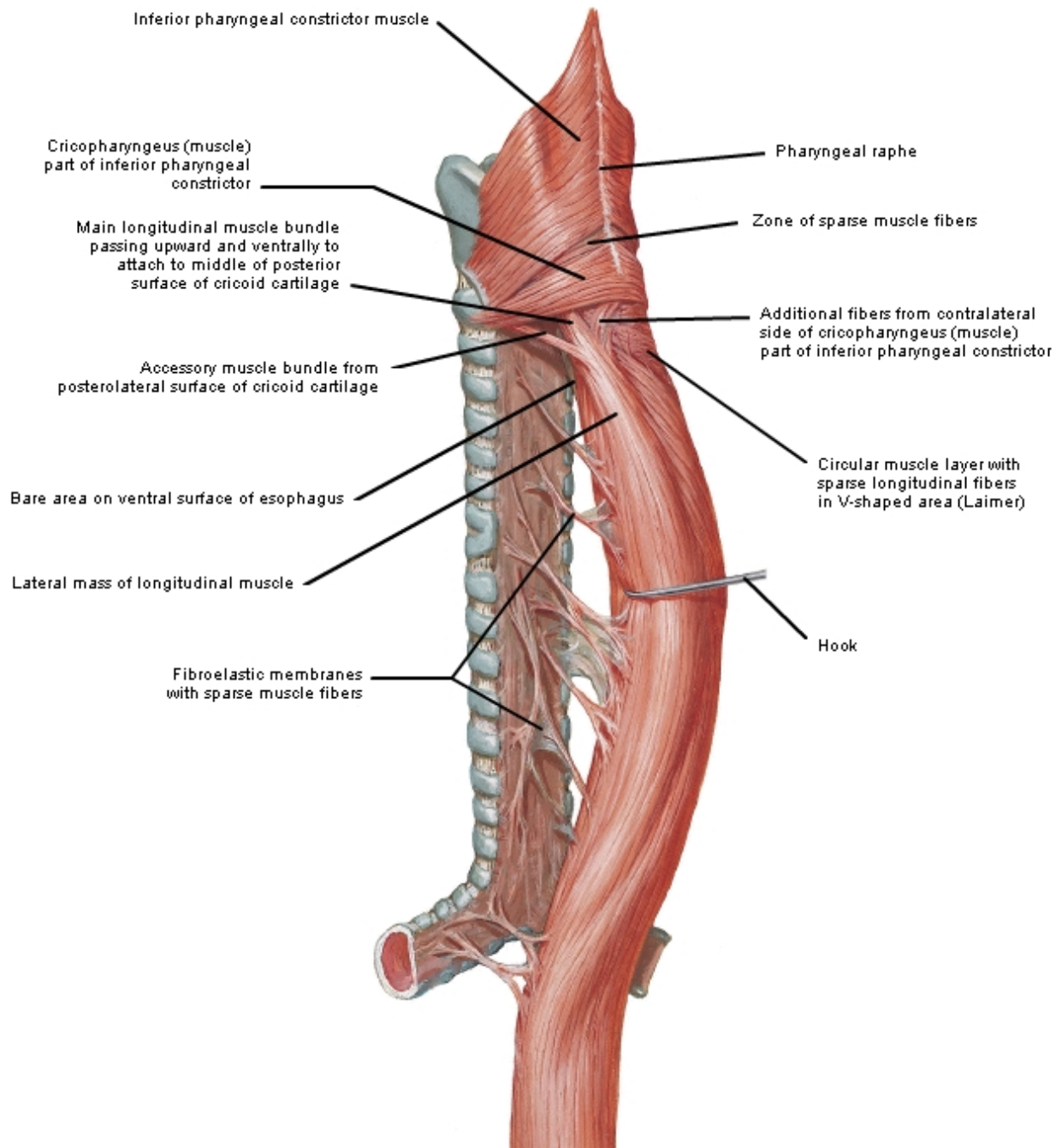
F. Netter M.D.
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Musculature of Esophagus 1



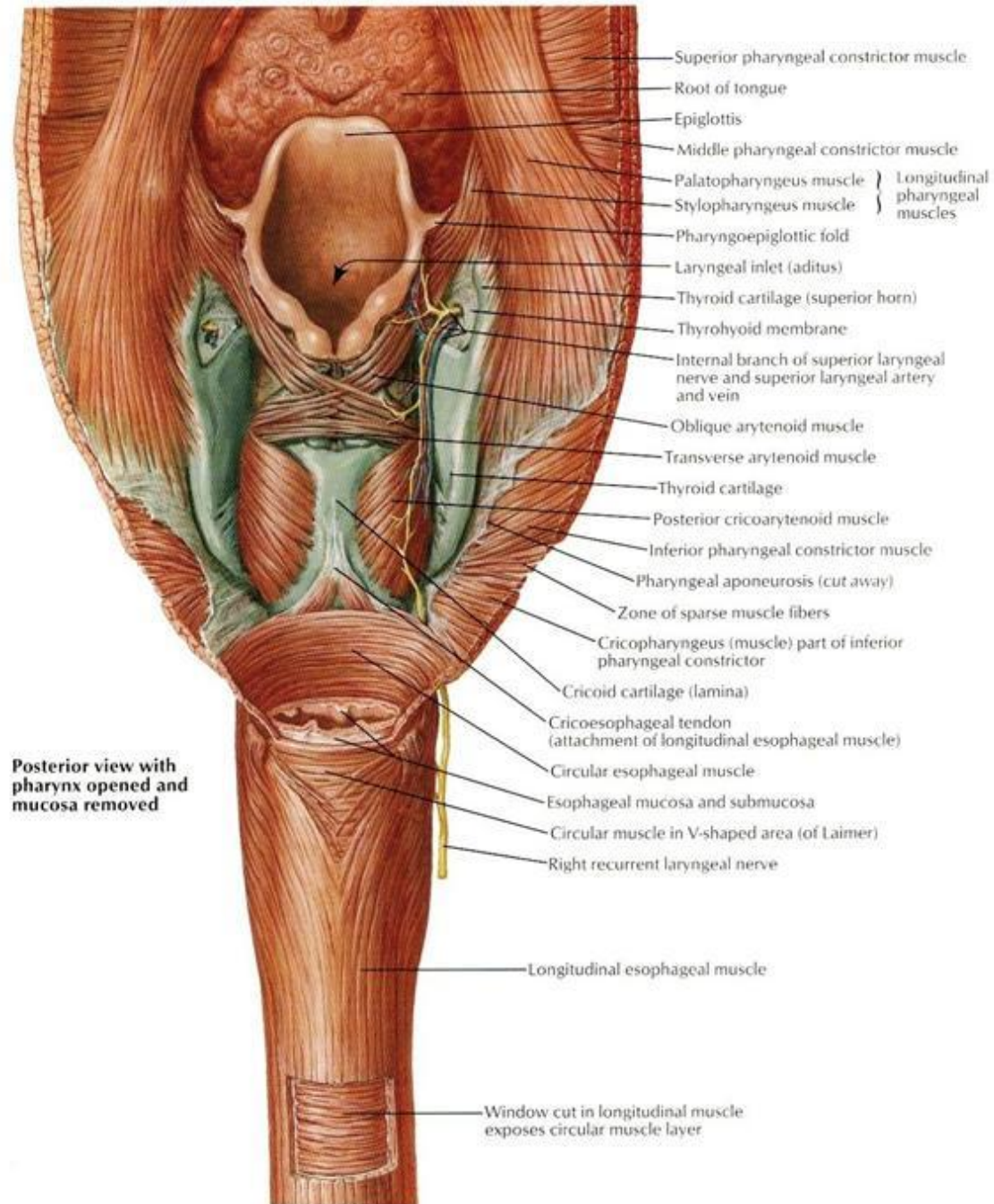
F. Netter M.D.
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Musculature of Esophagus 2



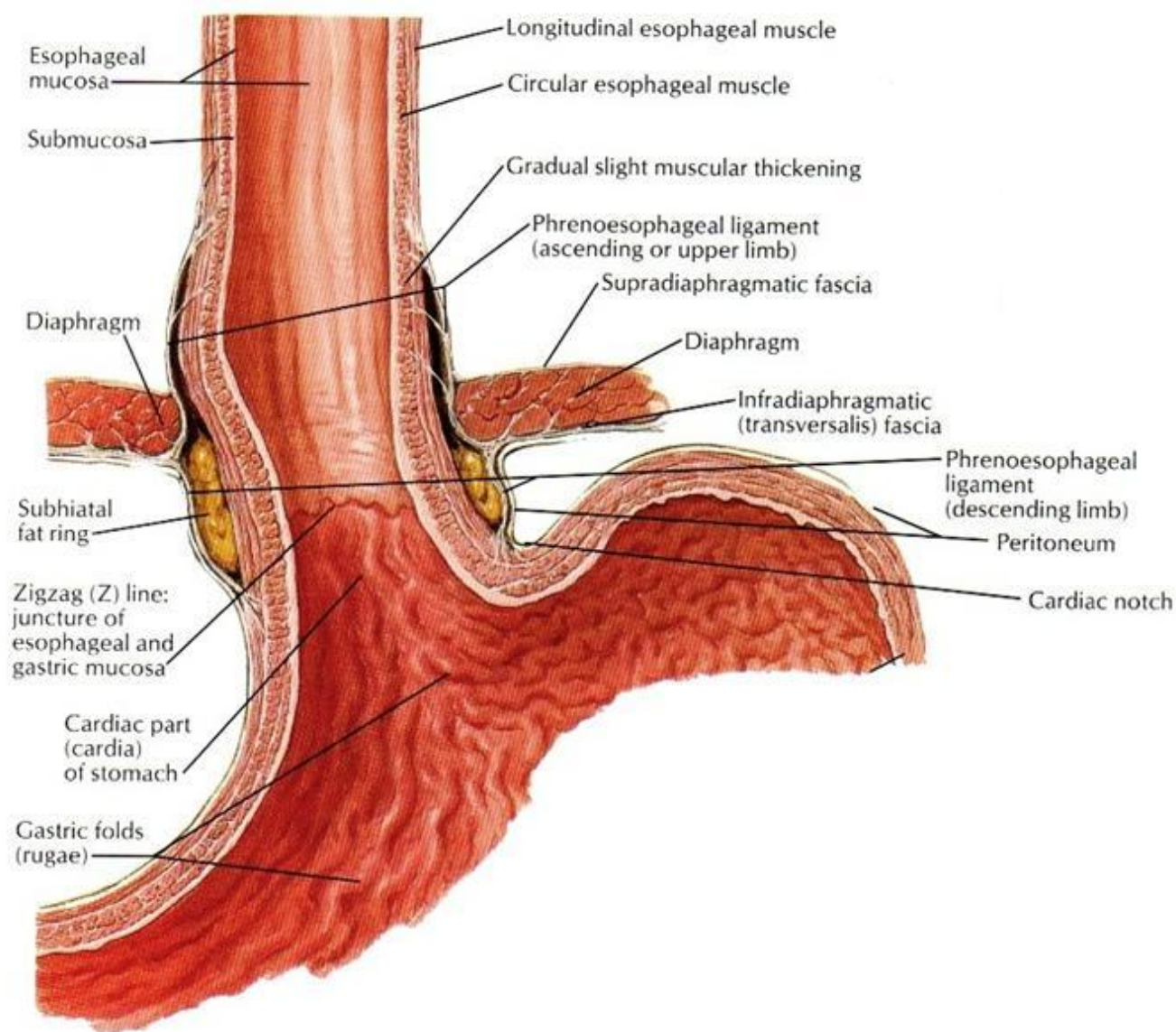
F. Netter M.D.
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Pharyngoesophageal Junction



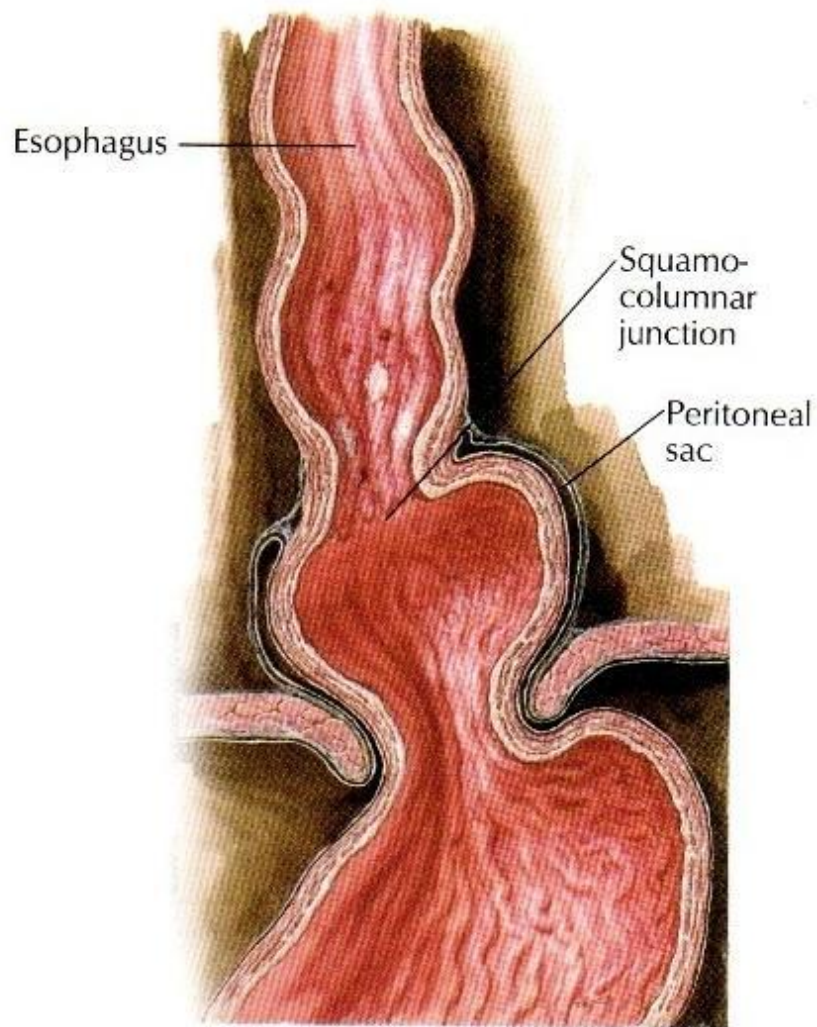
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Esophagogastric Junction: Section



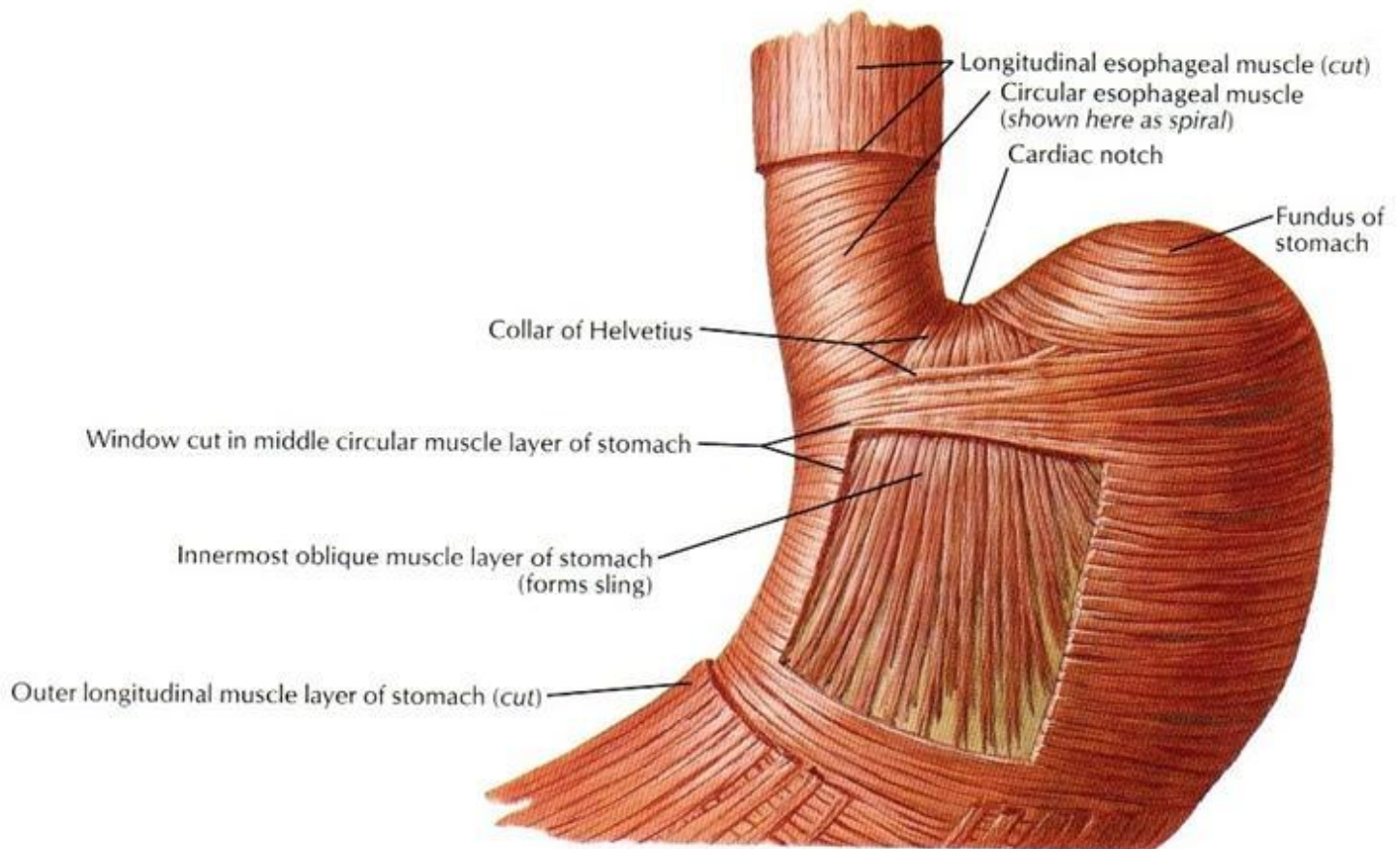
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Esophagogastric Junction: Sliding Hernia



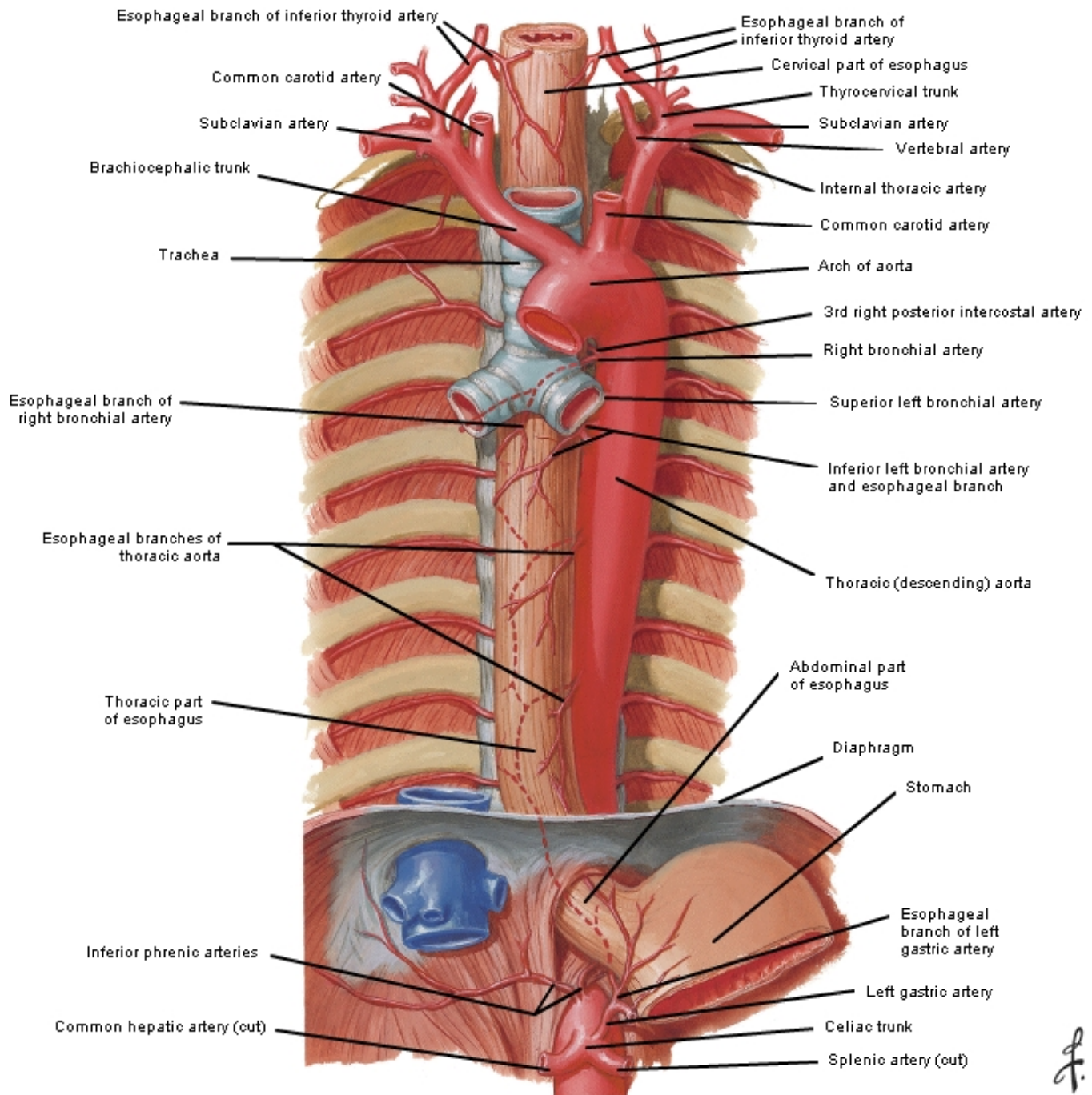
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Esophagogastric Junction



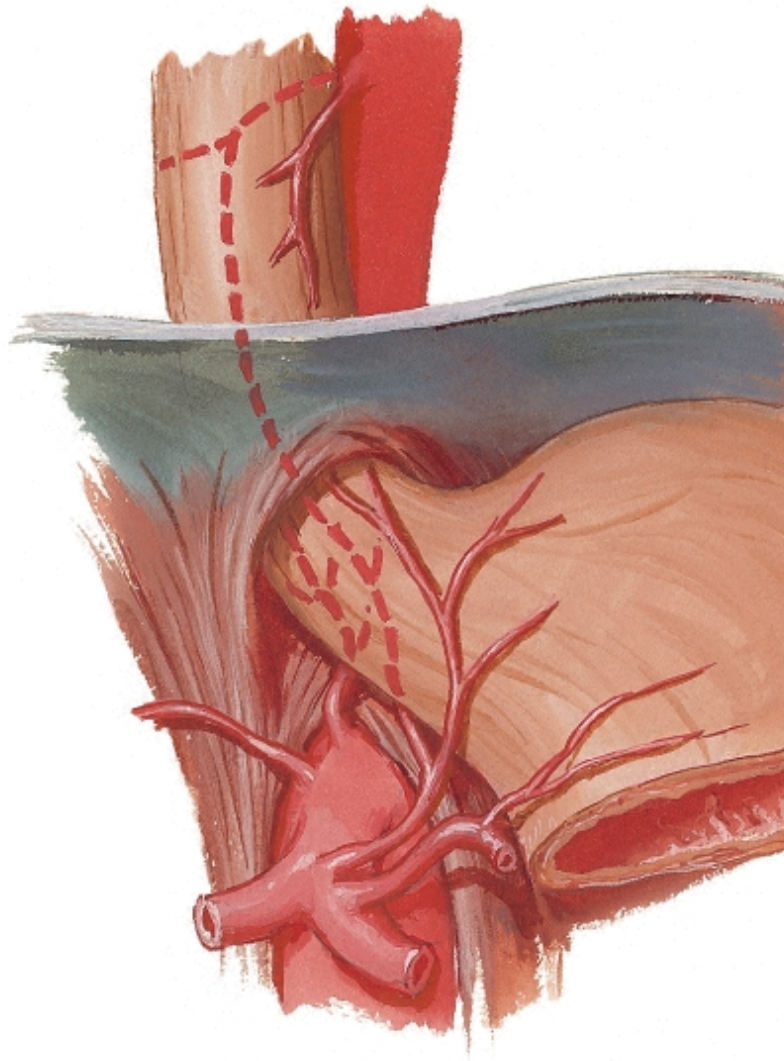
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Arteries of Esophagus



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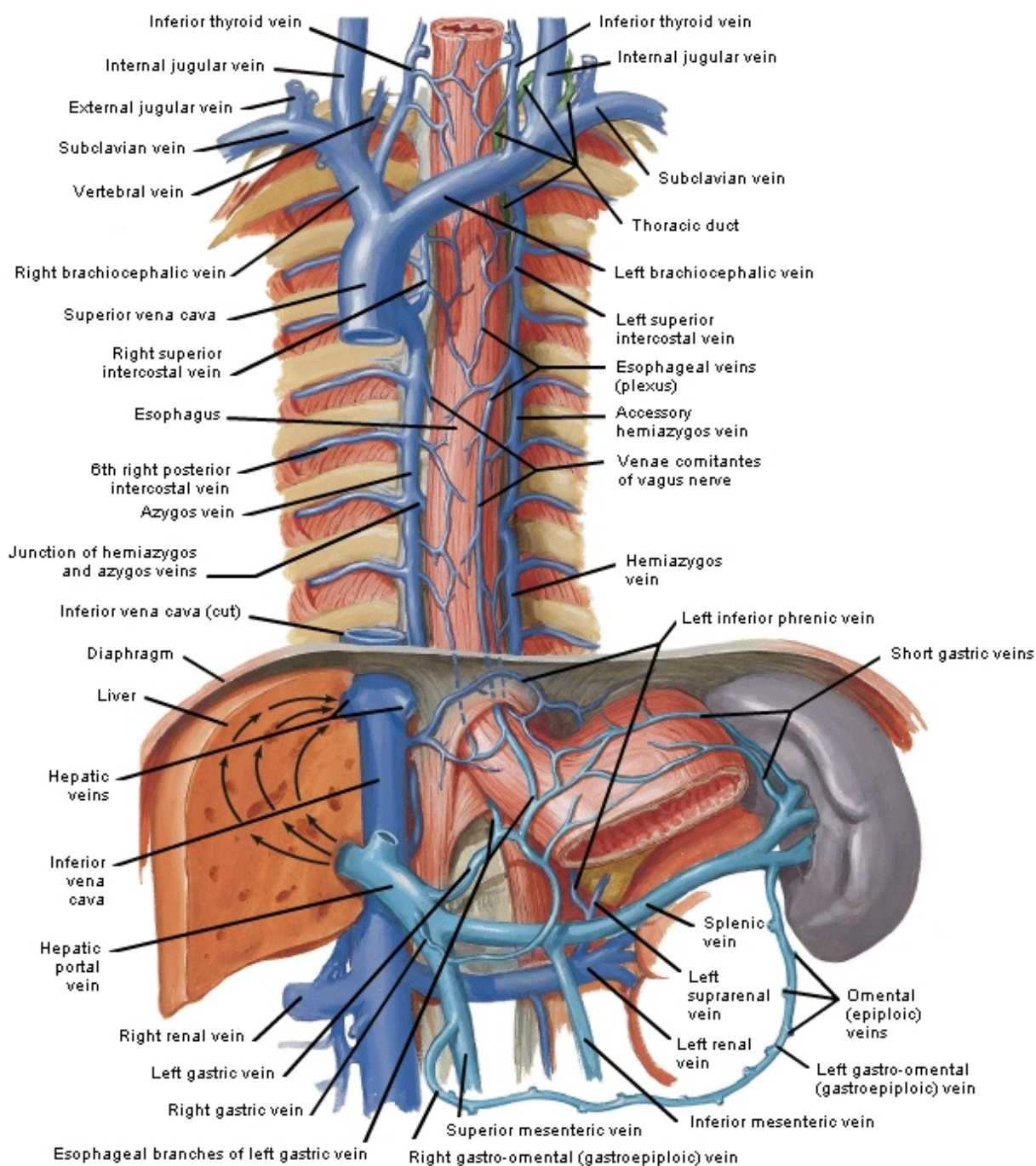
Arteries of Esophagus Variations



Common variations: Esophageal branches may originate from left inferior phrenic artery and/or directly from celiac trunk. Branches to abdominal esophagus may also come from splenic or short gastric arteries

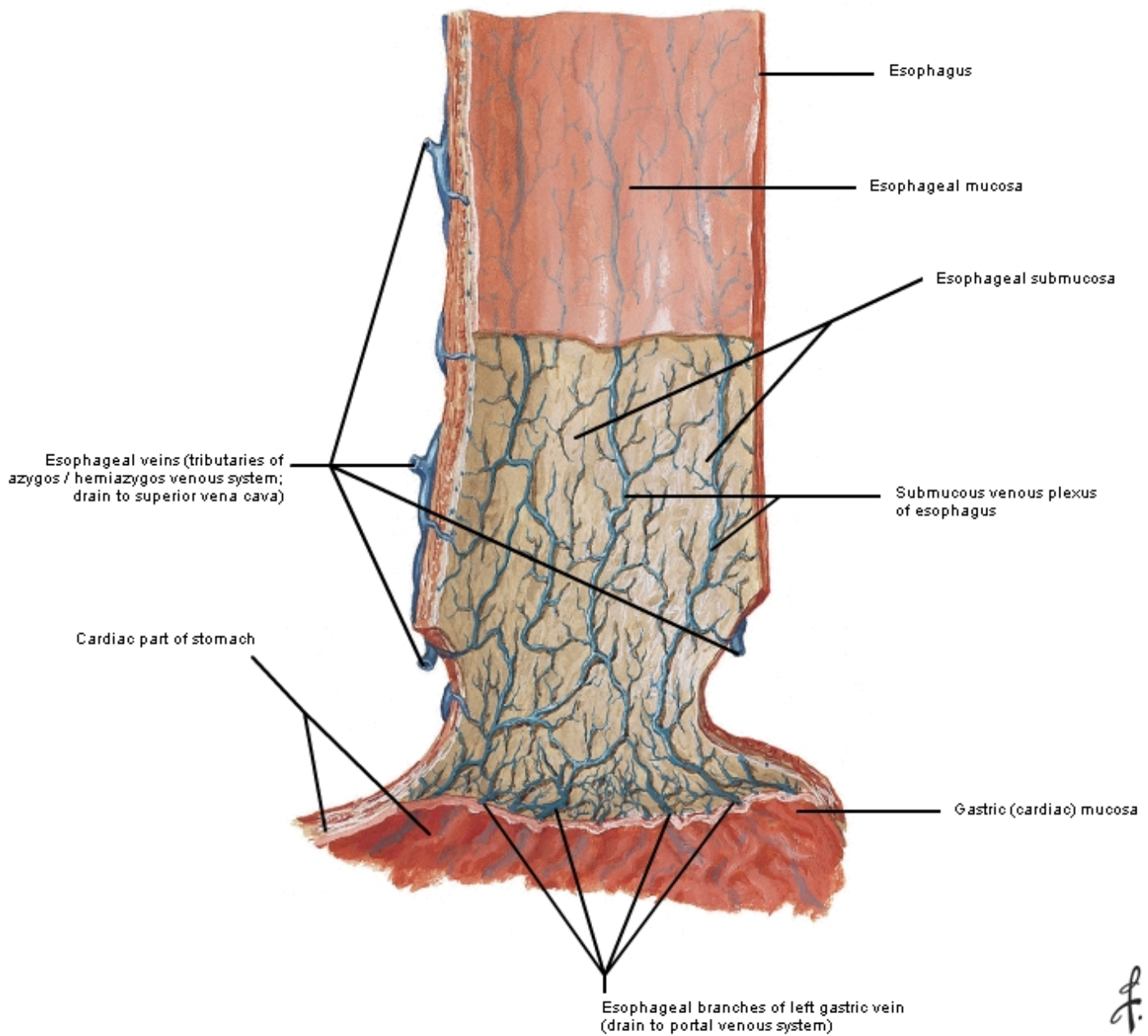
F. Netter M.D.
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Veins of Esophagus



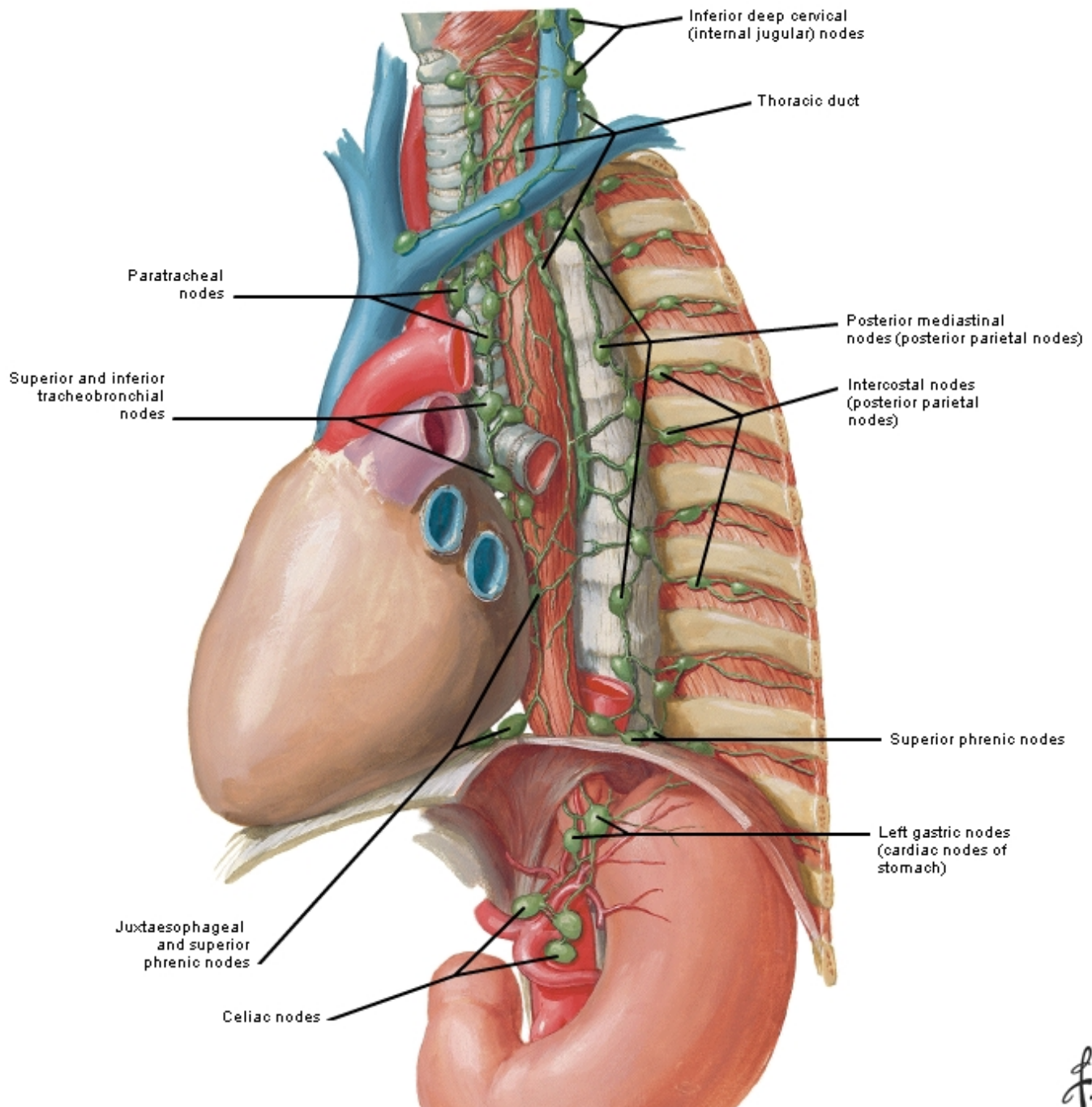
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Veins of Esophagus Submucous Venous Plexus



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Lymph Vessels and Nodes of Esophagus

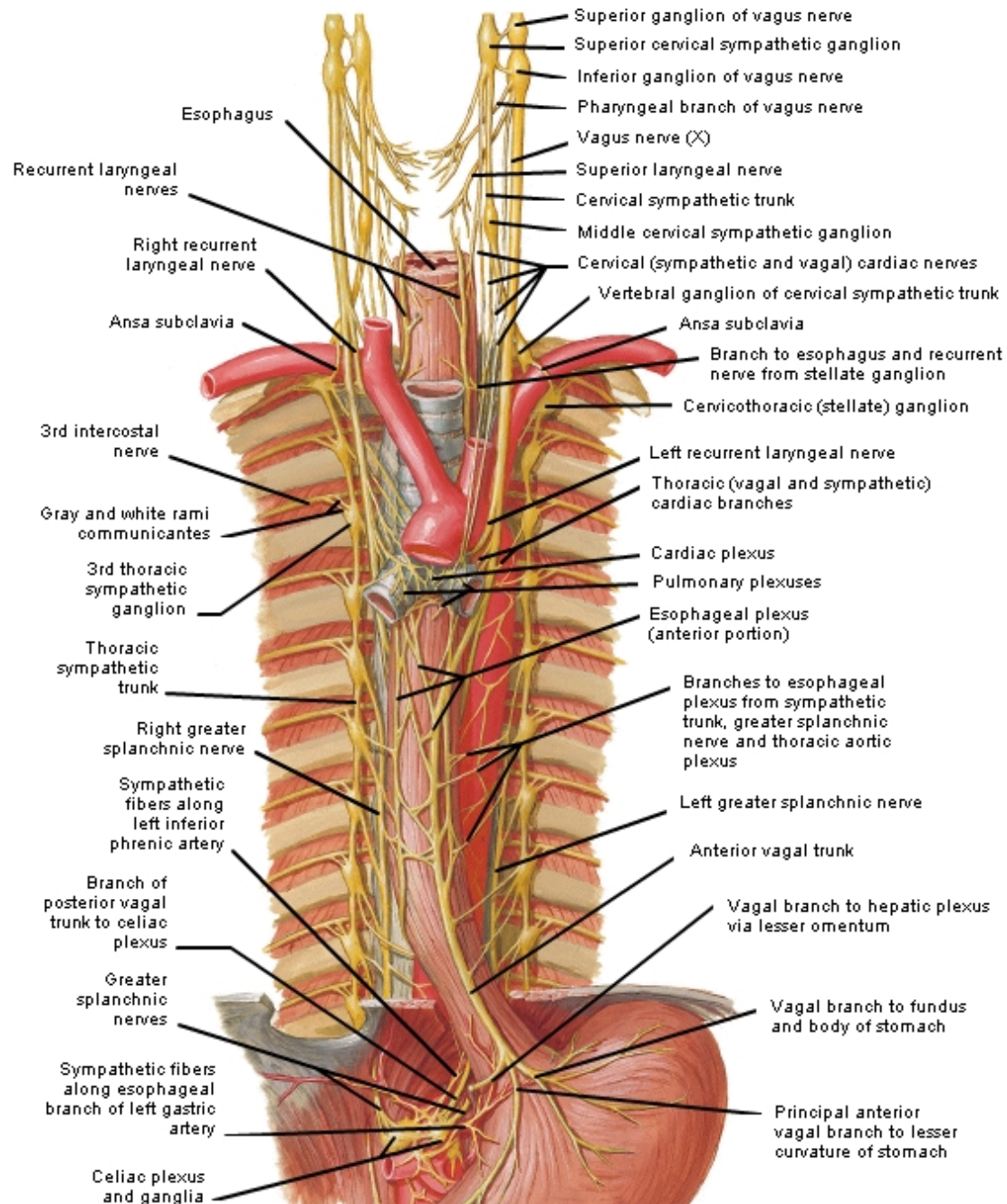


F. Netter M.D.
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THORAX

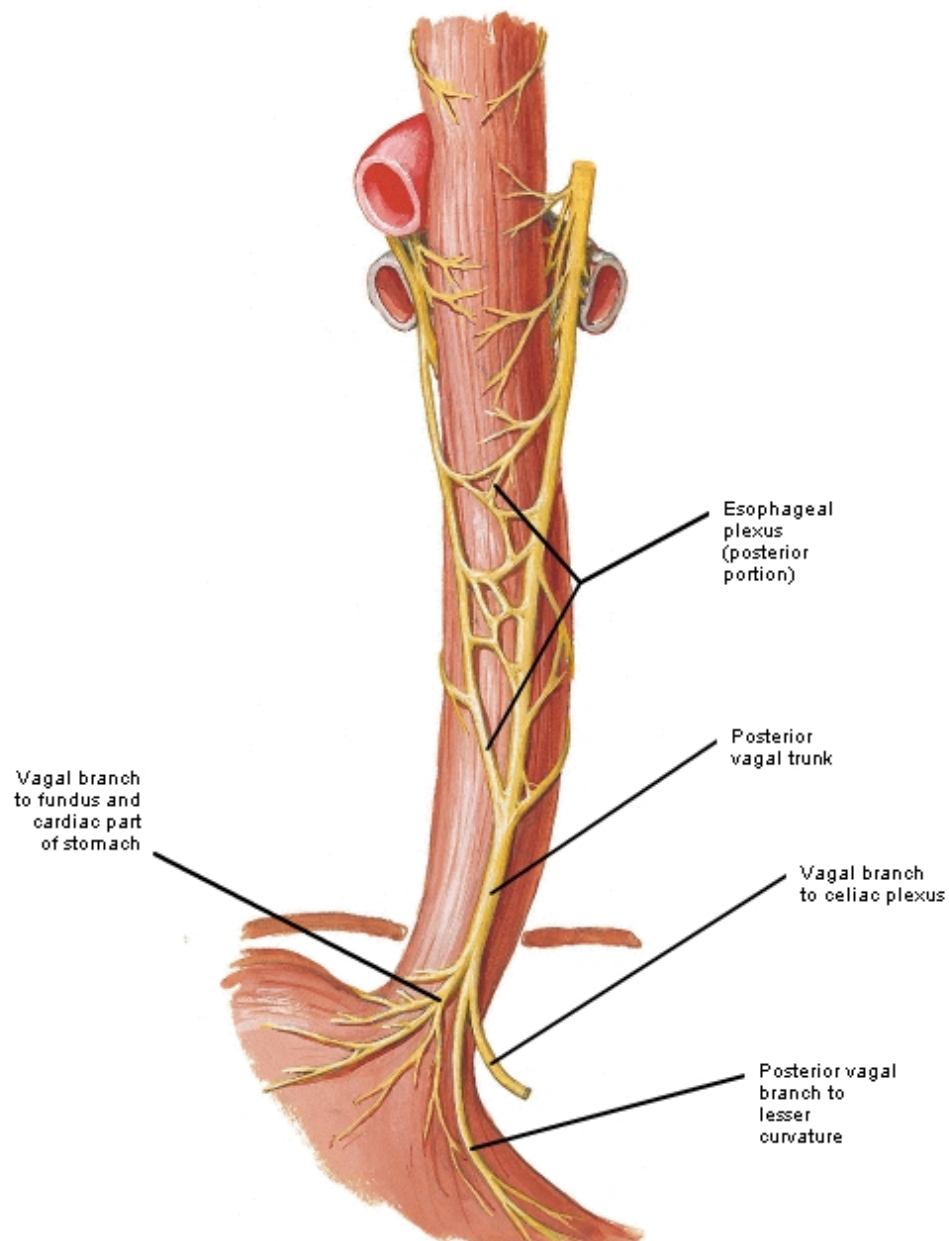
Nerves of Esophagus

Anterior View



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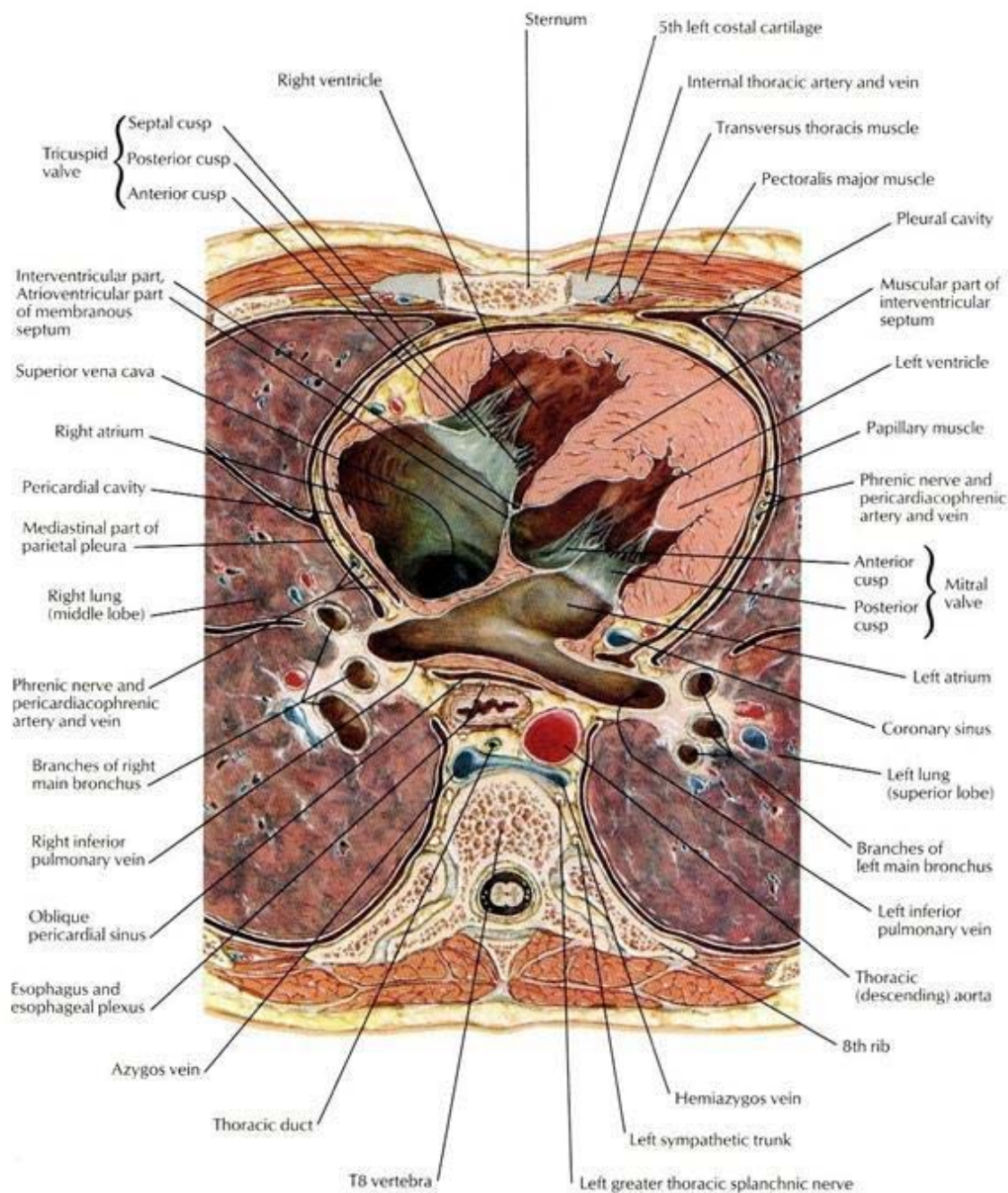
Nerves of Esophagus Posterior View



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THORAX

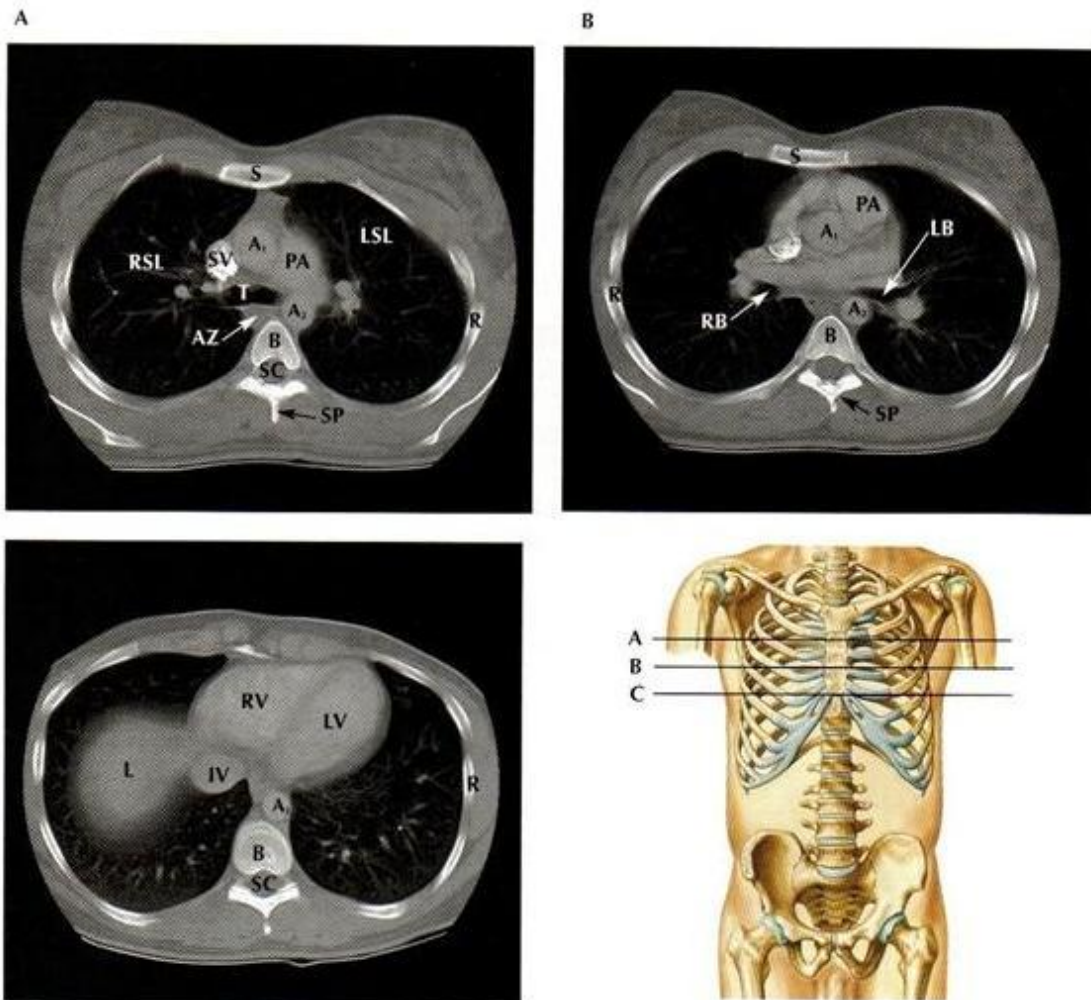
Mediastinum: Cross Section



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Chest Scans: Axial CT Images

Series of chest axial CT images from superior (A) to inferior (C)



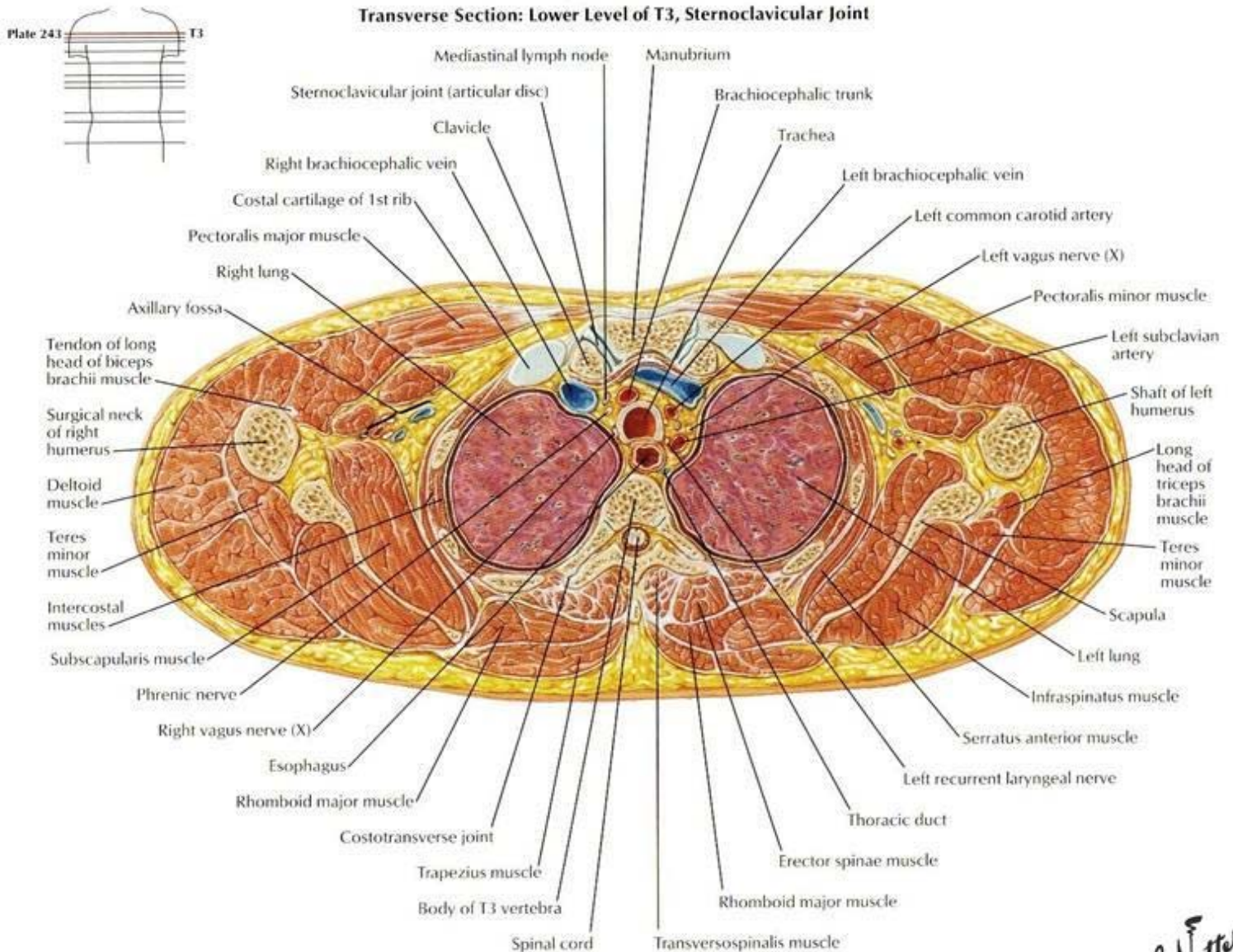
C

A₁ Ascending aorta
 A₂ Descending aorta
 AZ Azygos vein
 B Body of vertebra
 IV Inferior vena cava
 L Liver
 LB Left (main stem) bronchus
 LSL Left superior lobe of lung
 LV Left ventricle
 PA Pulmonary artery

R Rib
 RB Right (main stem) bronchus
 RSL Right superior lobe of lung
 RV Right ventricle
 S Sternum
 SC Spinal cord
 SP Spinous process of vertebra
 SV Superior vena cava
 T Trachea (bifurcation)

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 © IGM

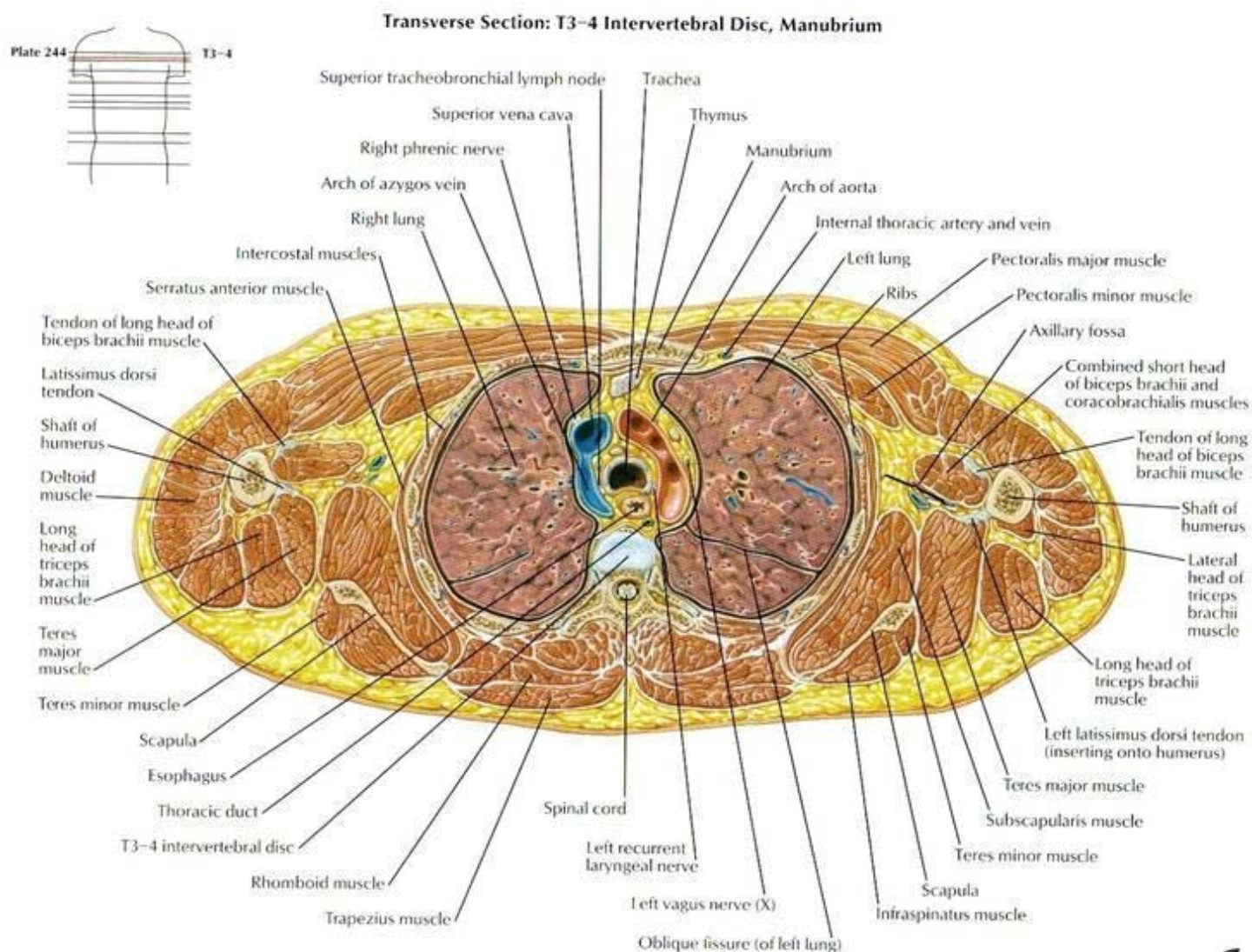
Cross Section of Thorax at T3 Level



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THORAX

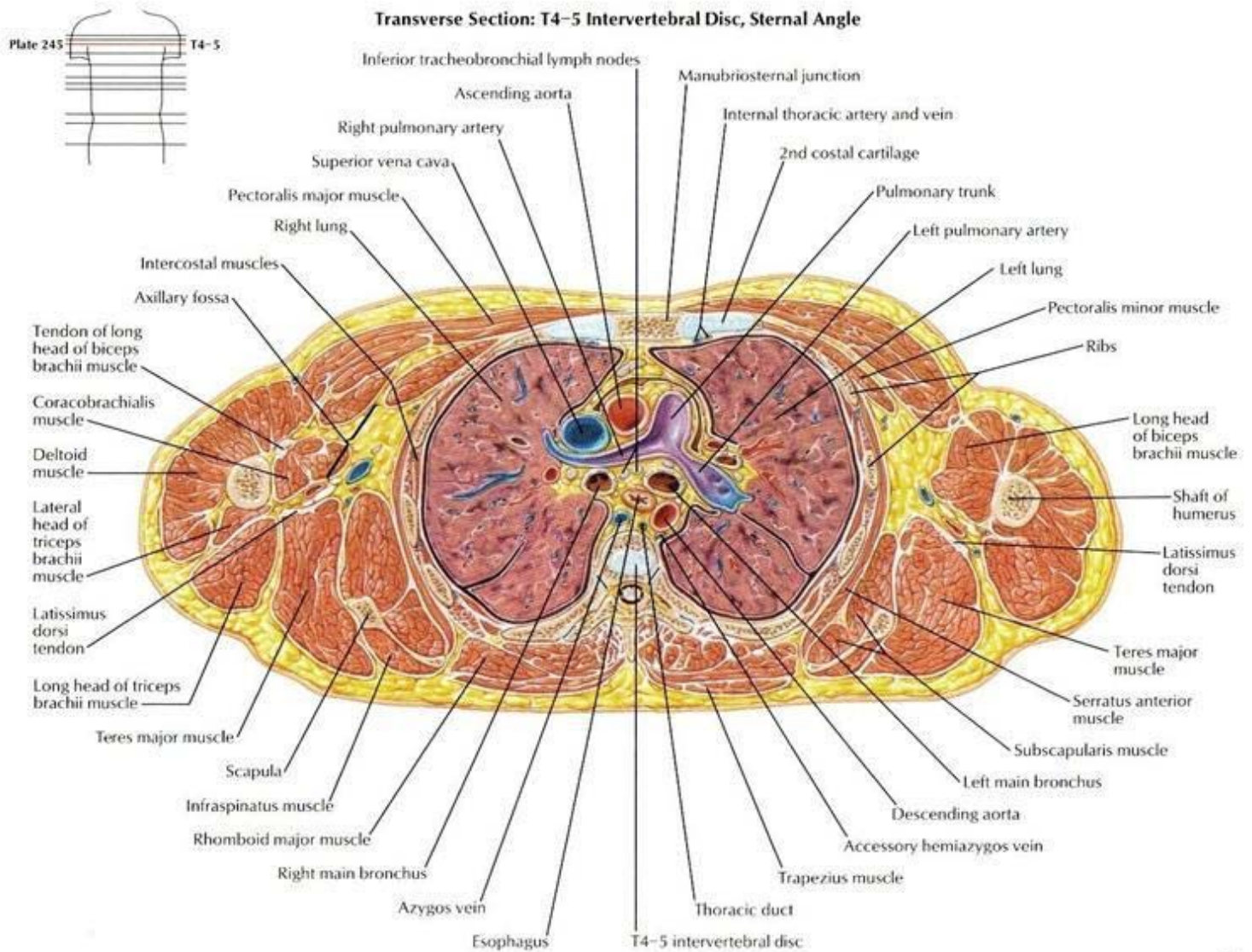
Cross Section of Thorax at T3 - 4 Disc Level



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THORAX

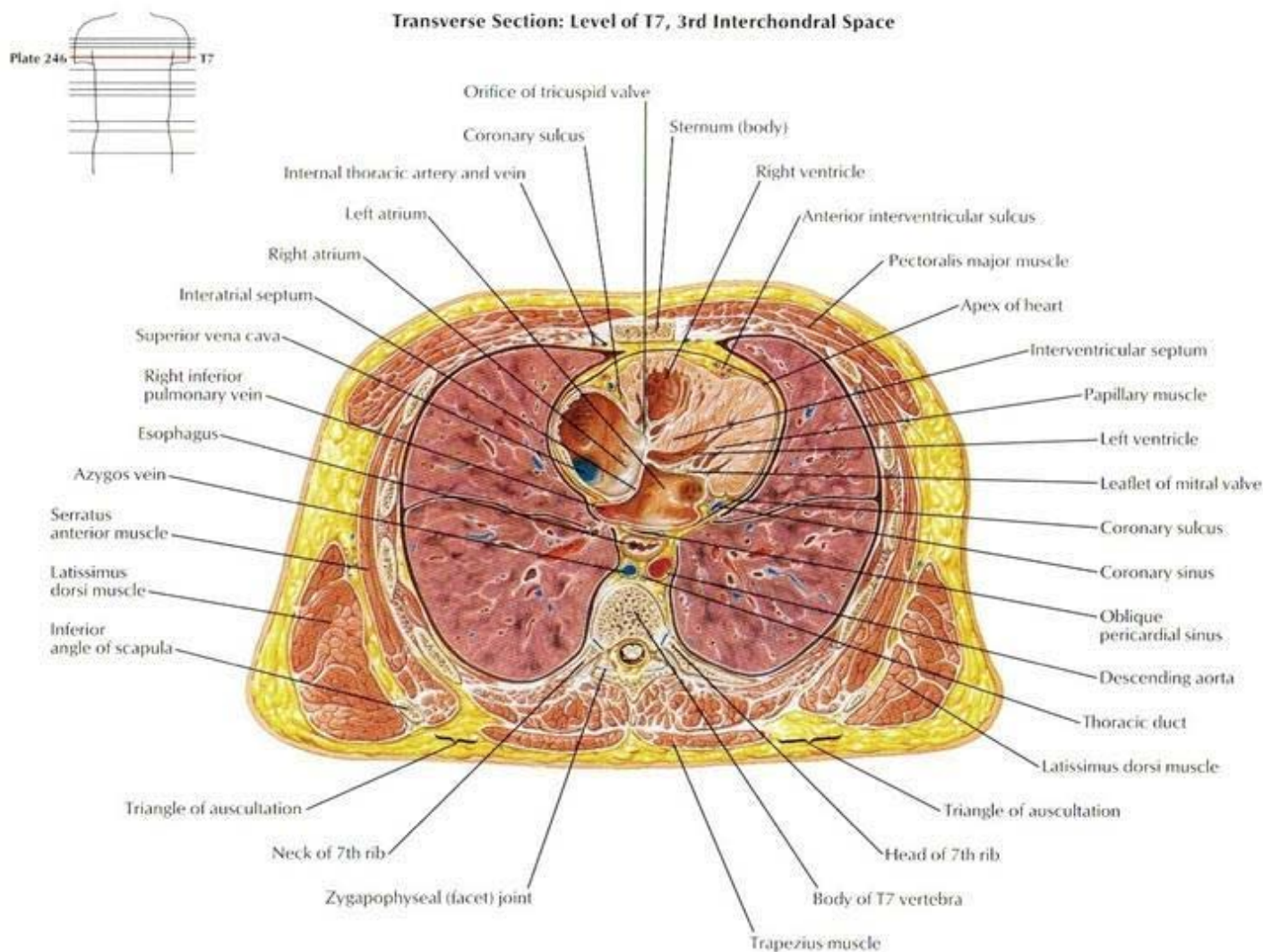
Cross Section of Thorax at T4 - 5 Disc Level



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THORAX

Cross Section of Thorax at T7 Level

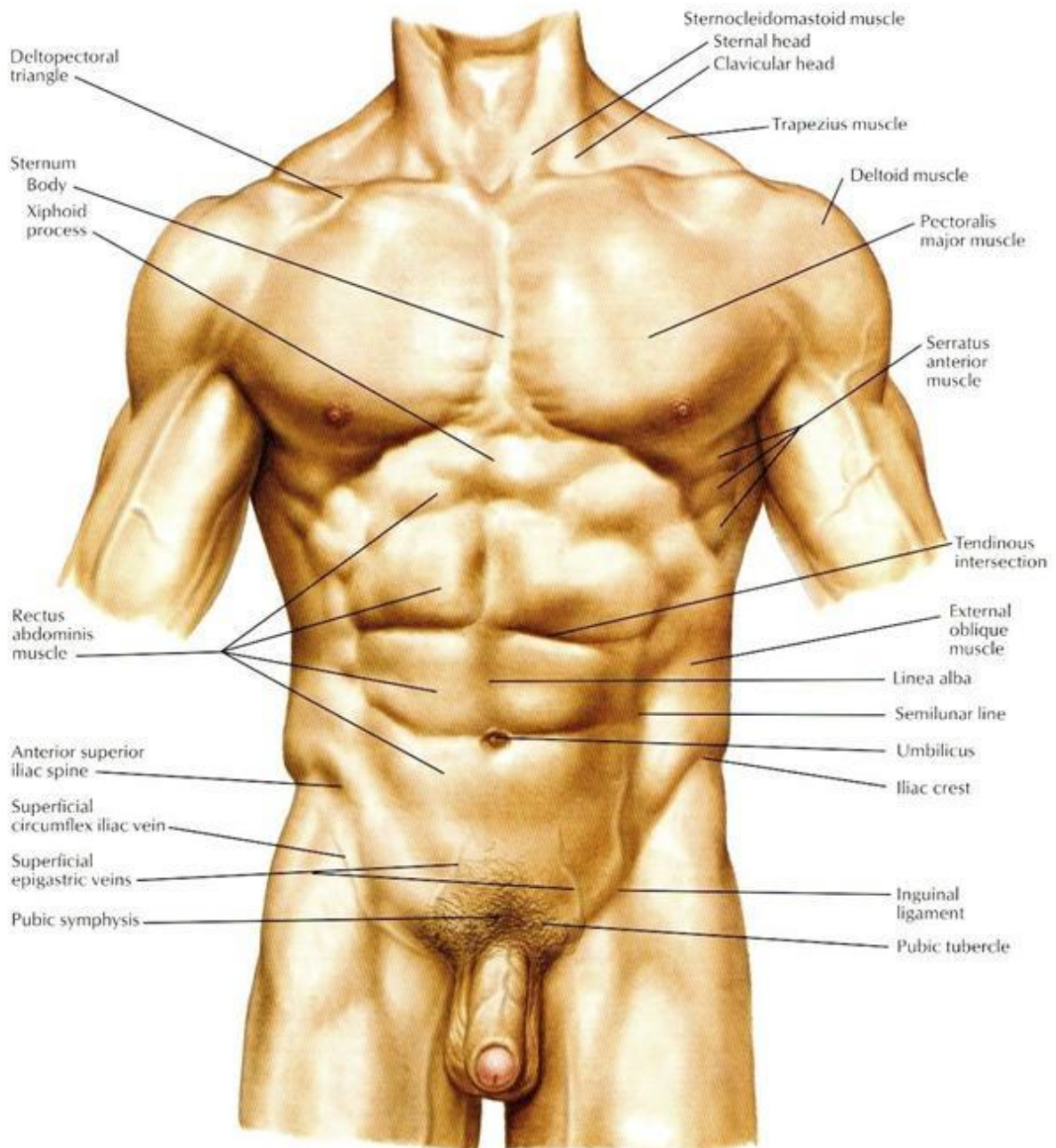


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Section 4 Abdomen

ABDOMEN

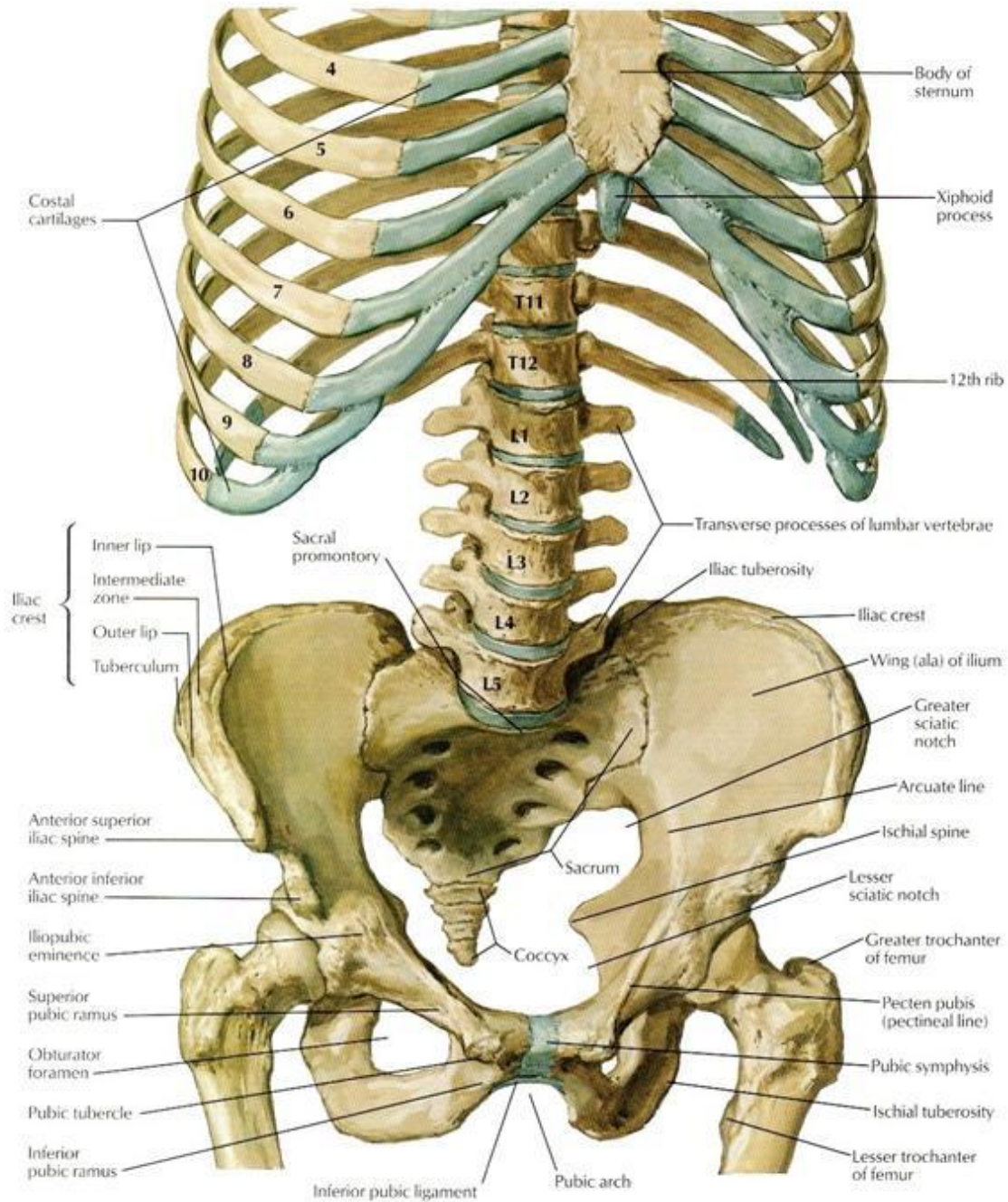
Abdomen



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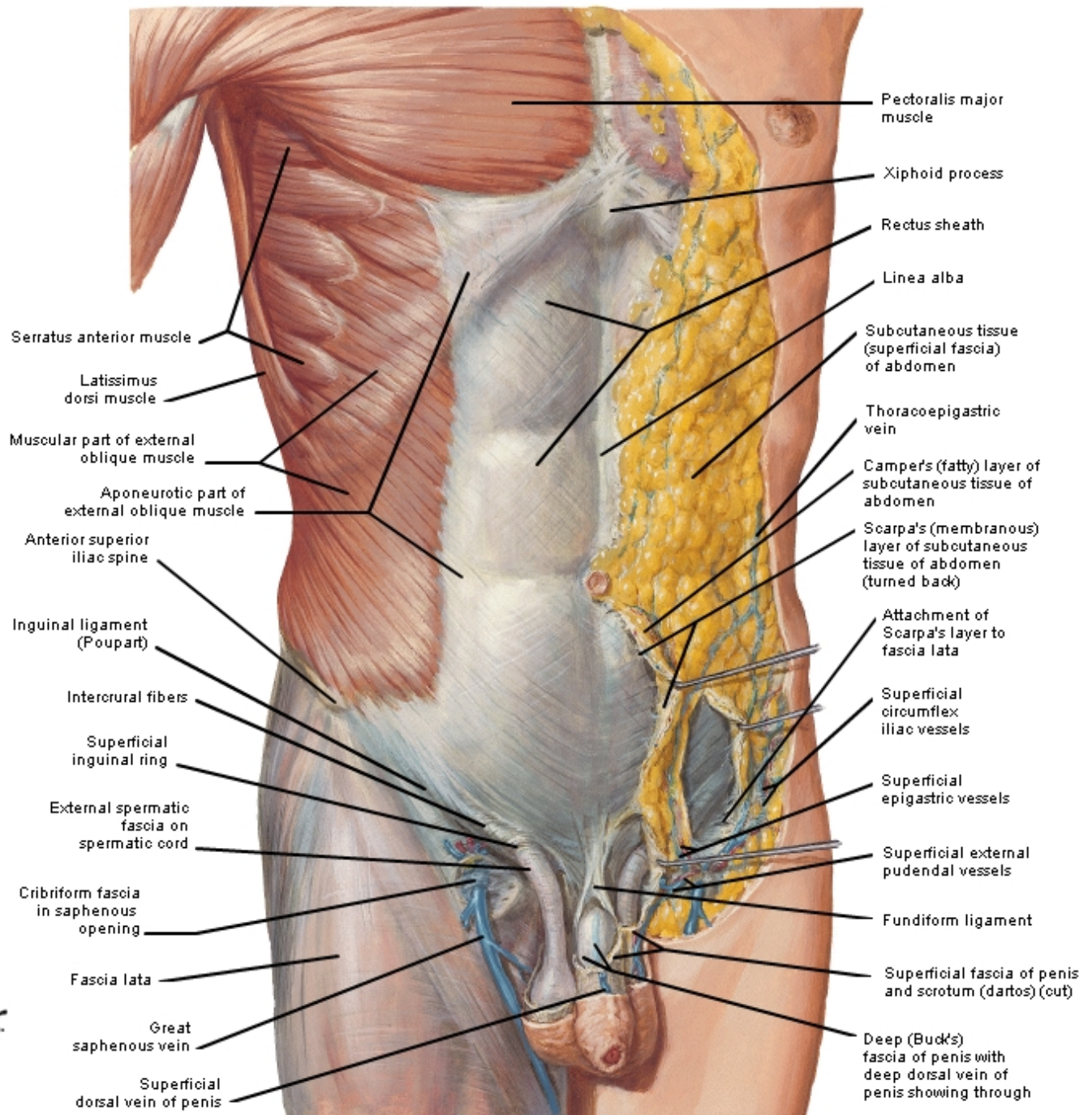
Bony Framework of Abdomen



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ABDOMEN

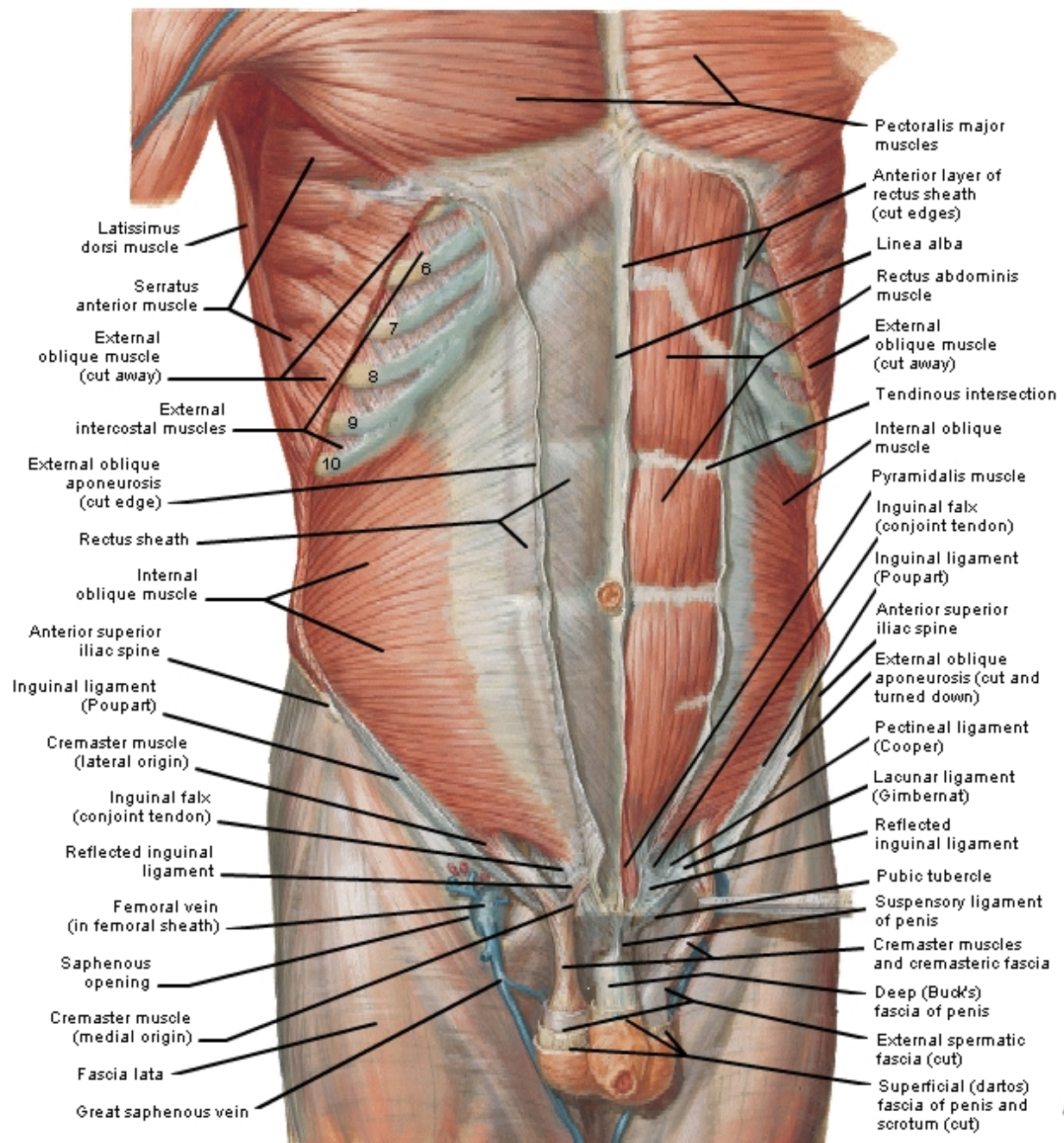
Anterior Abdominal Wall: Superficial Dissection



F. Netter M.D.
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ABDOMEN

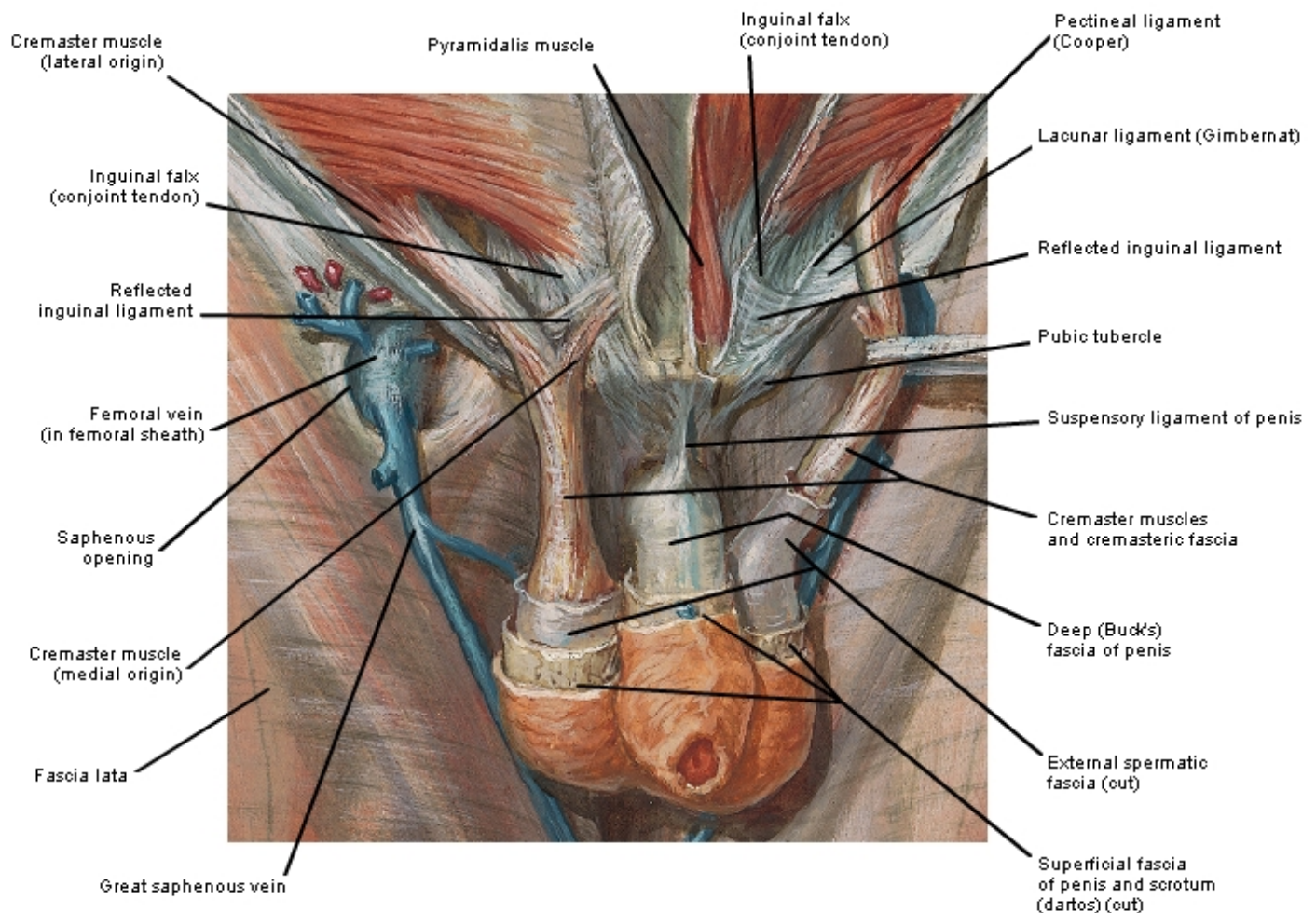
Anterior Abdominal Wall Intermediate Dissection



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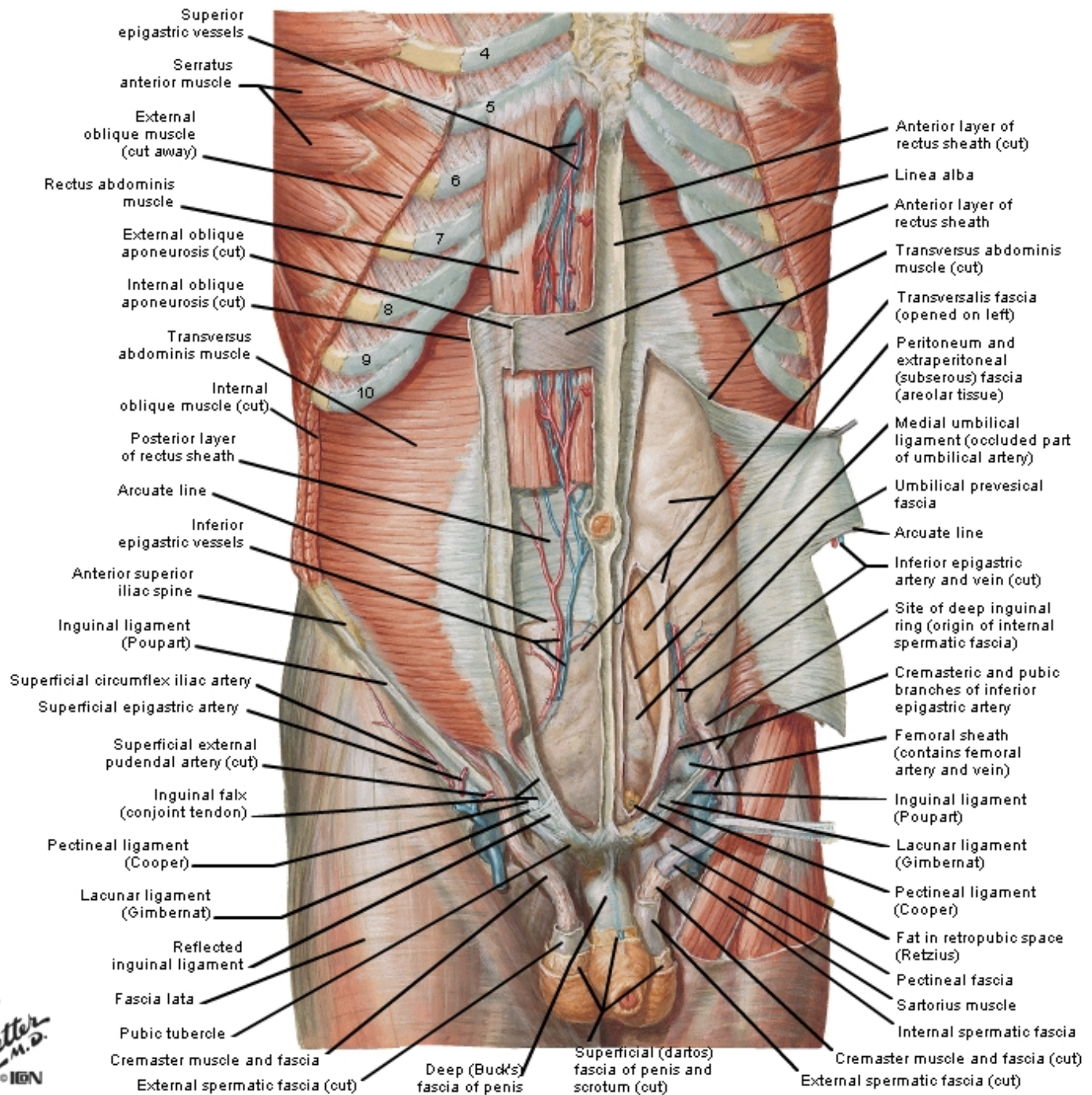
Anterior Abdominal Wall Intermediate Dissection - Enlargement of Inguinal Region



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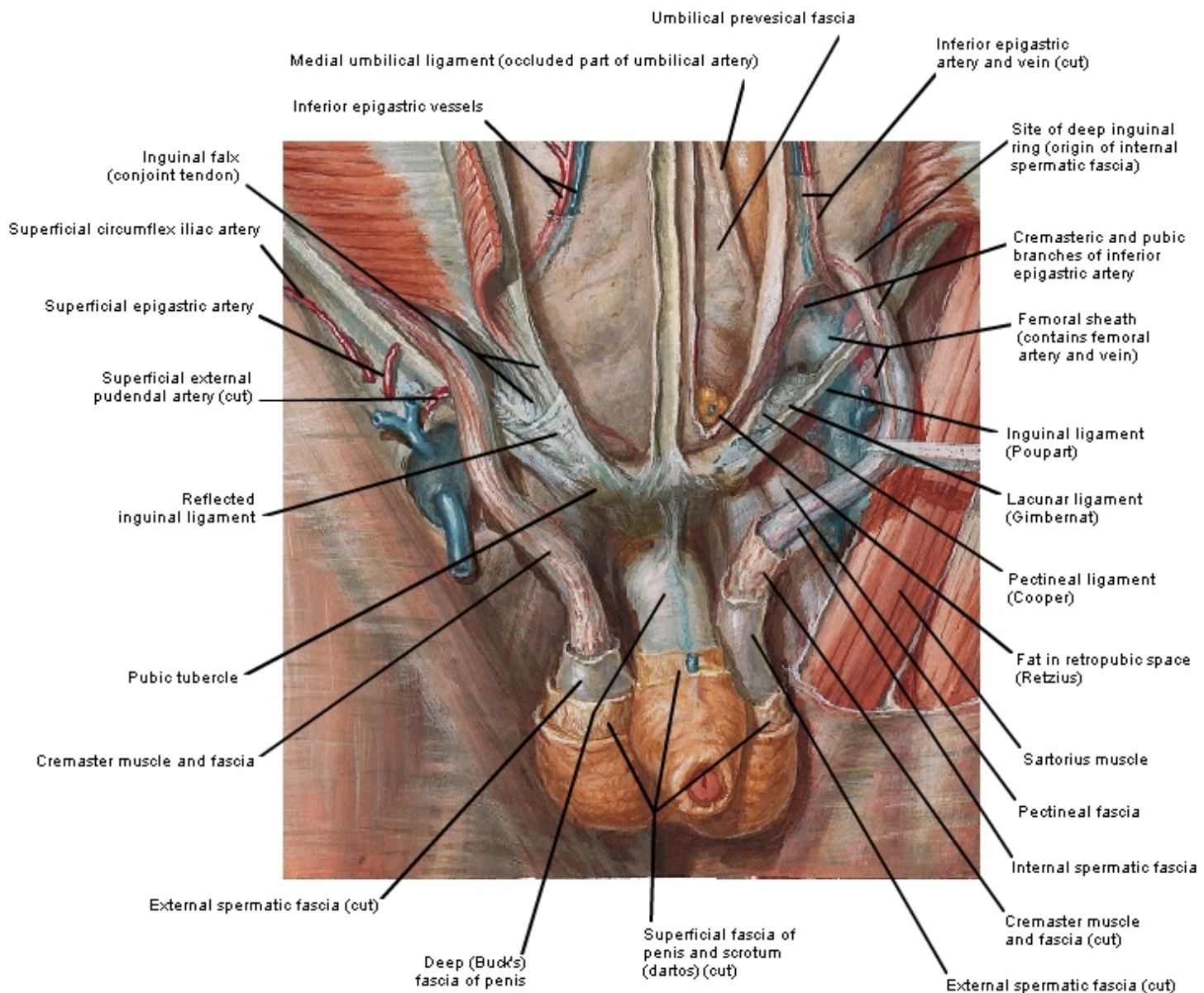
Anterior Abdominal Wall: Deep Dissection



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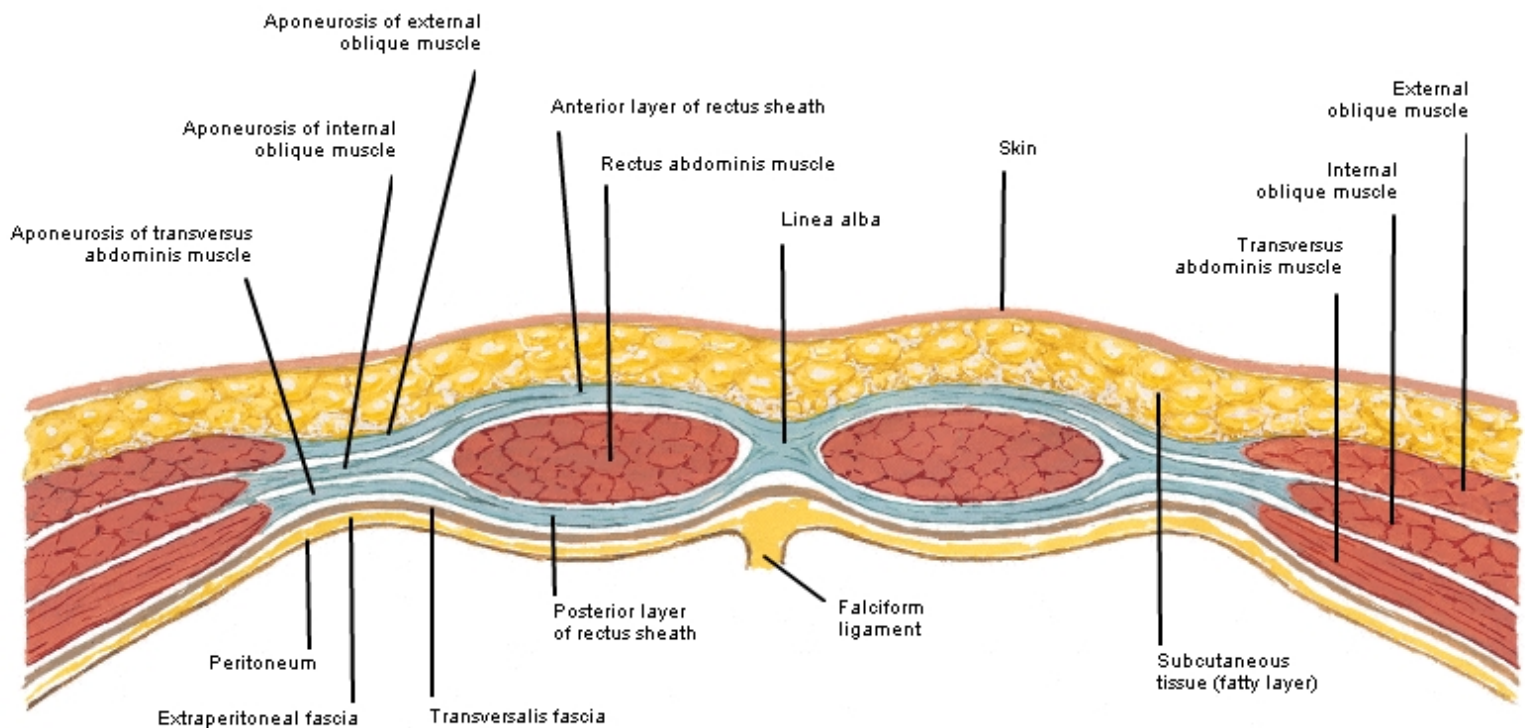
Anterior Abdominal Wall Deep Dissection - Enlargement of Inguinal Region



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ABDOMEN

Rectus Sheath Cross Section Above Arcuate Line

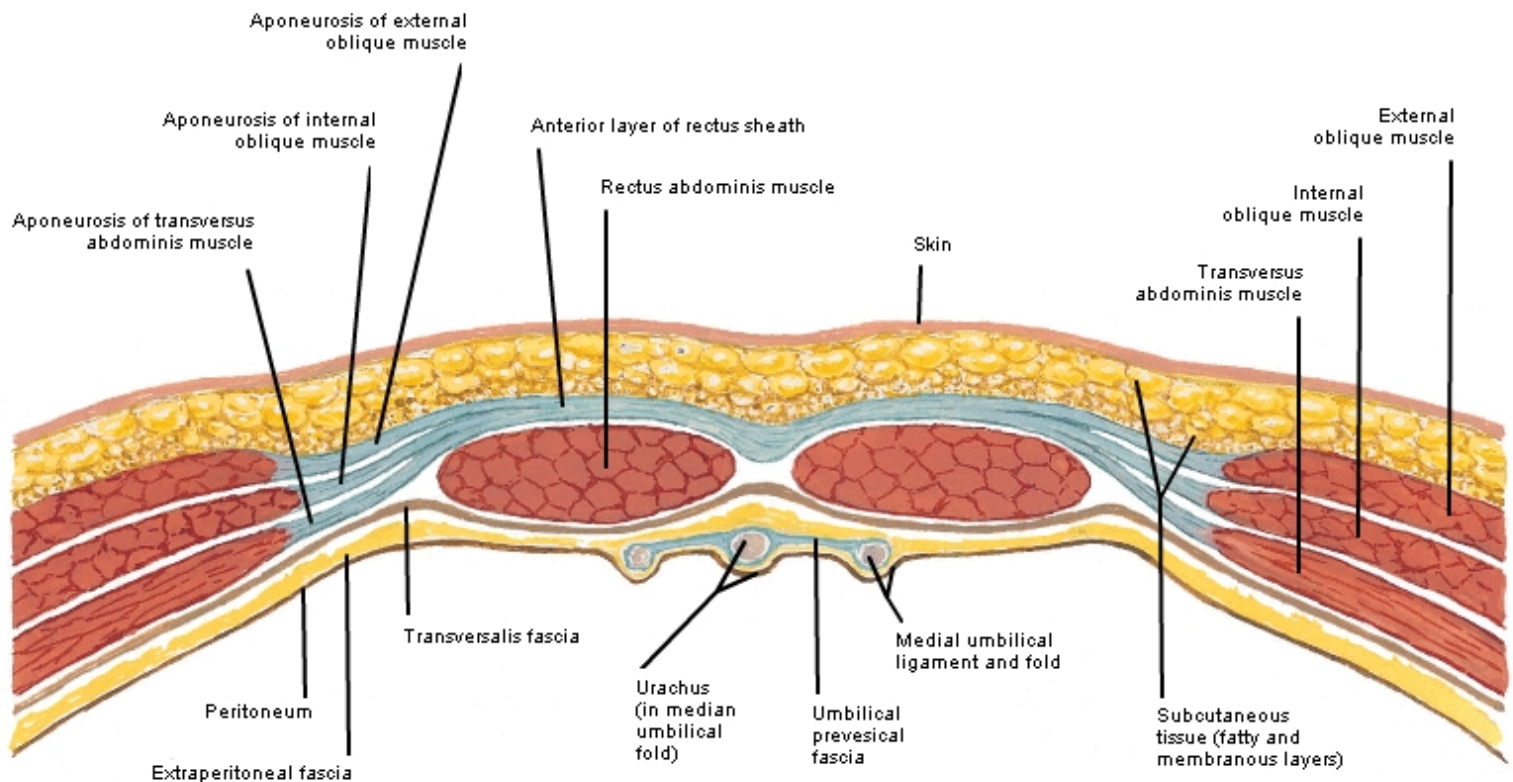


Aponeurosis of internal oblique muscle splits to form anterior and posterior layers of rectus sheath.
 Aponeurosis of external oblique muscle joins anterior layer of sheath; aponeurosis of transversus abdominis muscle joins posterior layer. Anterior and posterior layers of rectus sheath unite medially to form linea alba

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Rectus Sheath Cross Section Below Arcuate Line

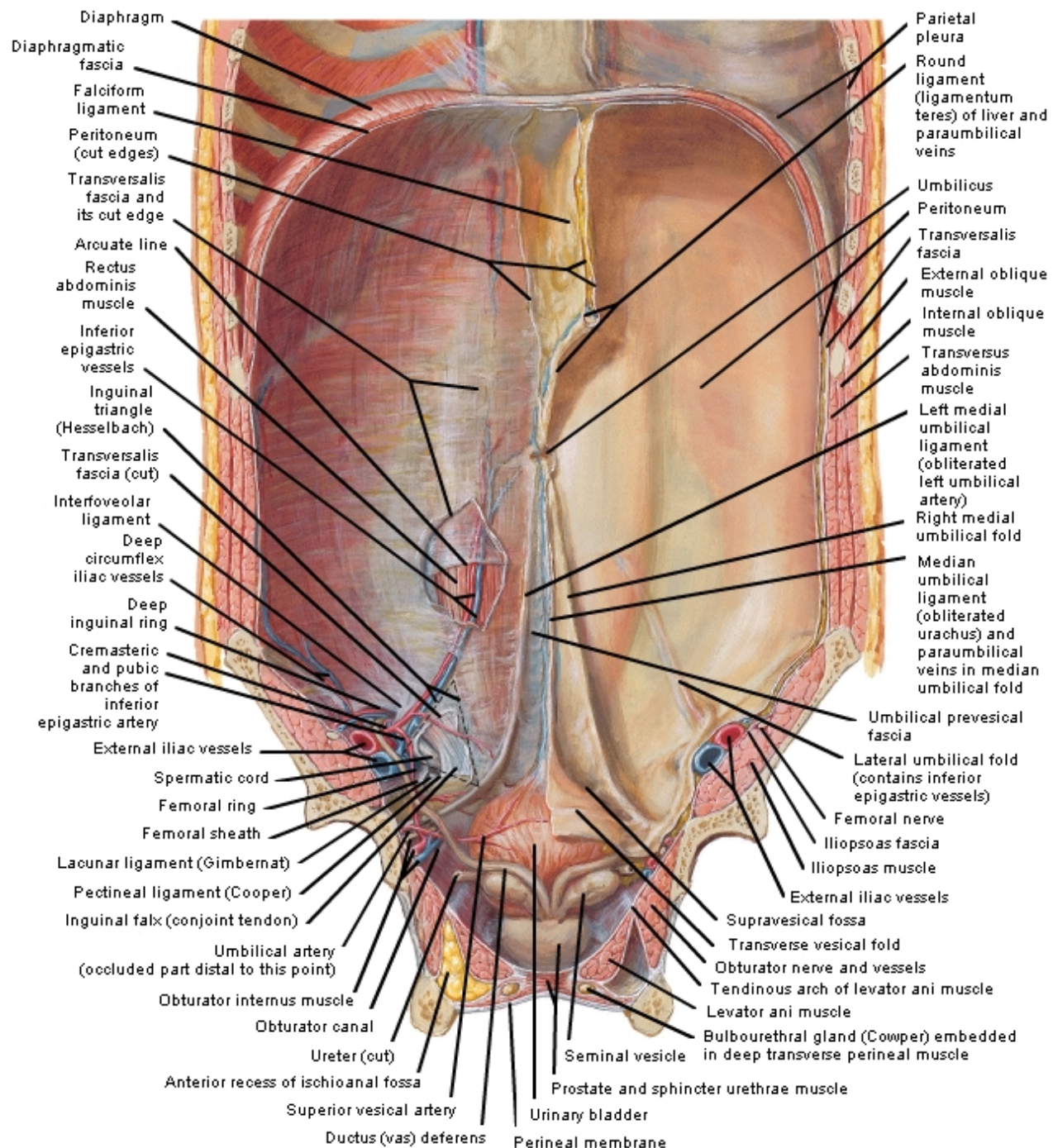


Aponeurosis of internal oblique muscle does not split at this level but passes completely anterior to rectus abdominis muscle and is fused there with both aponeurosis of external oblique muscle and that of transversus abdominis muscle. Thus, posterior wall of rectus sheath is absent below arcuate line and rectus abdominis muscle lies on transversalis fascia

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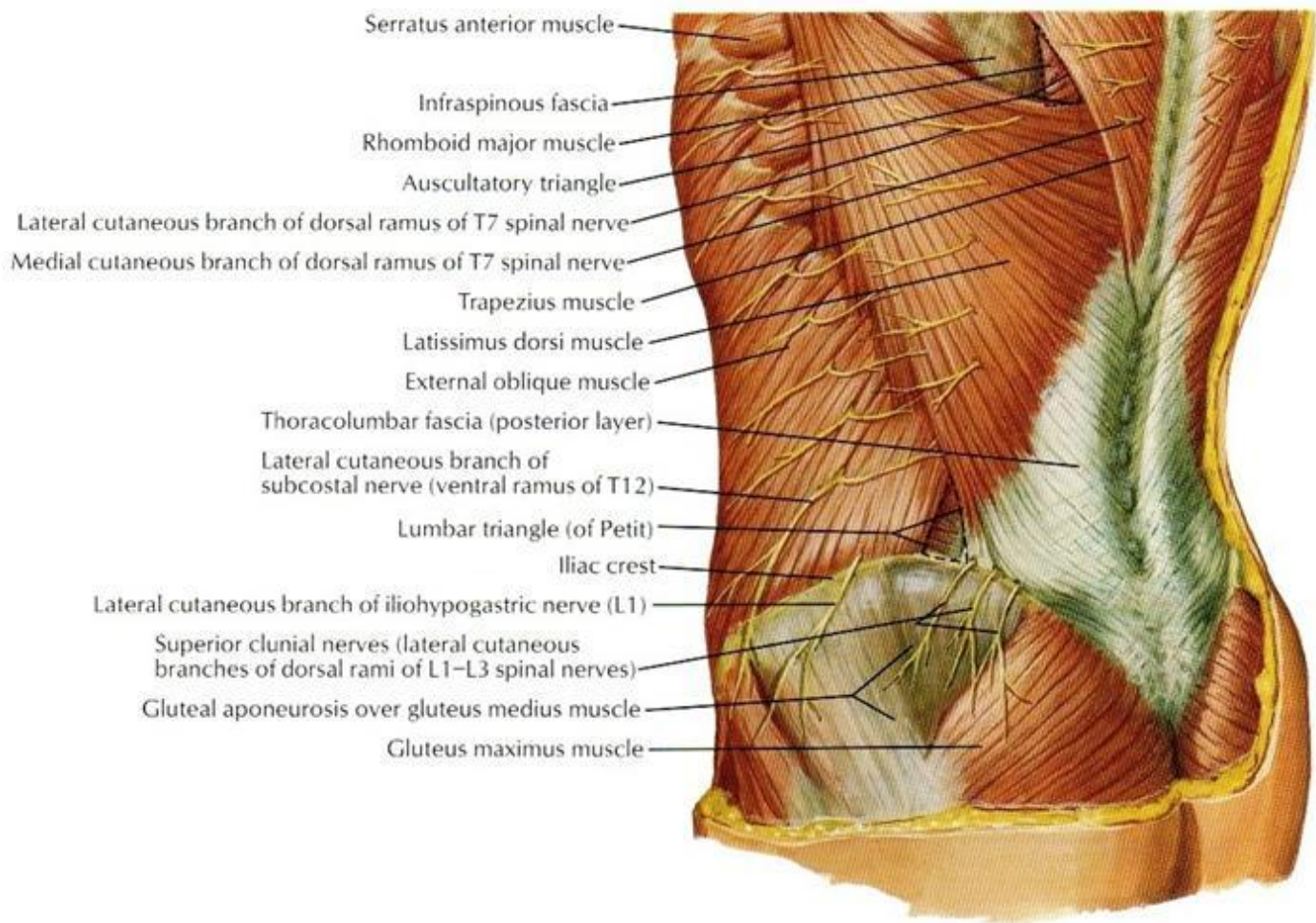
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Anterior Abdominal Wall: Internal View



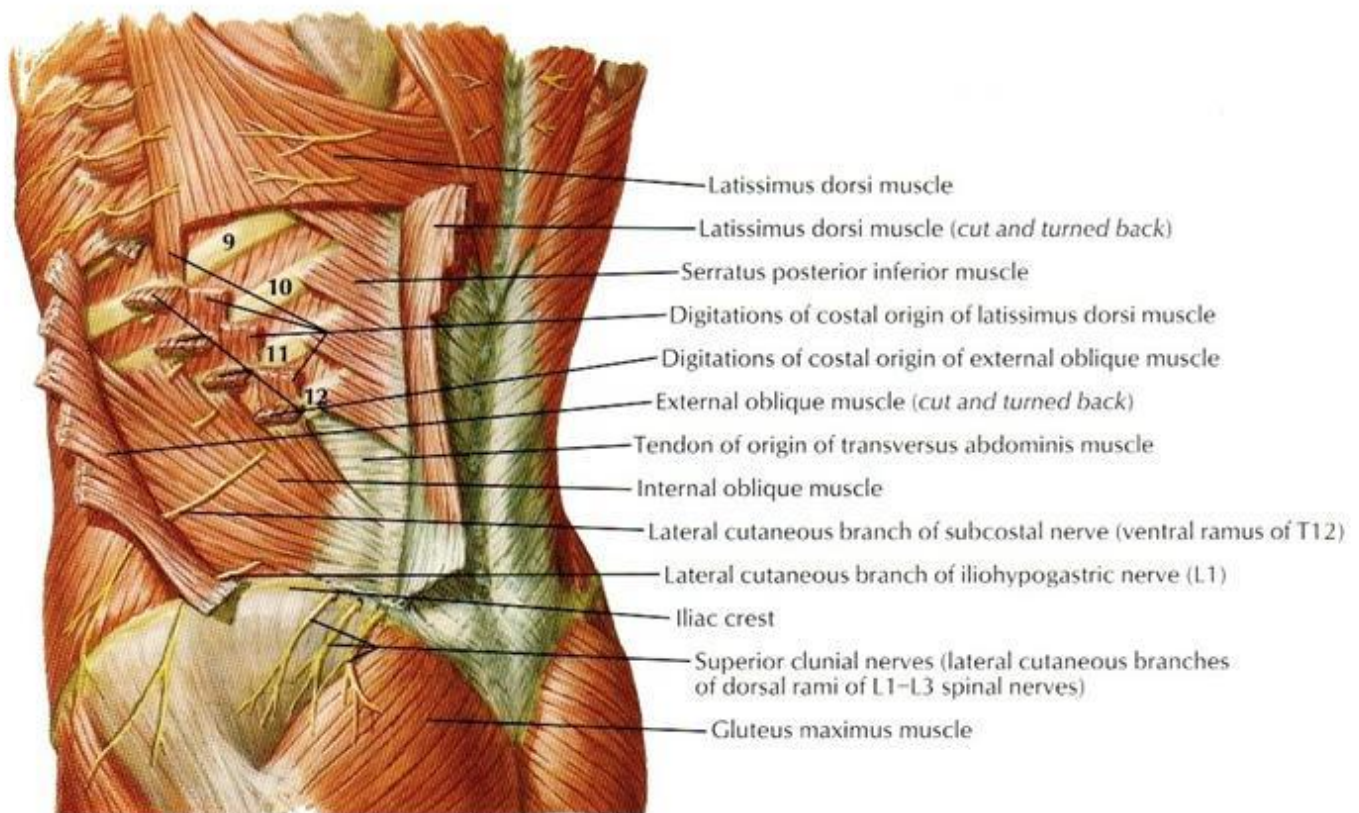
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Posterolateral Abdominal Wall



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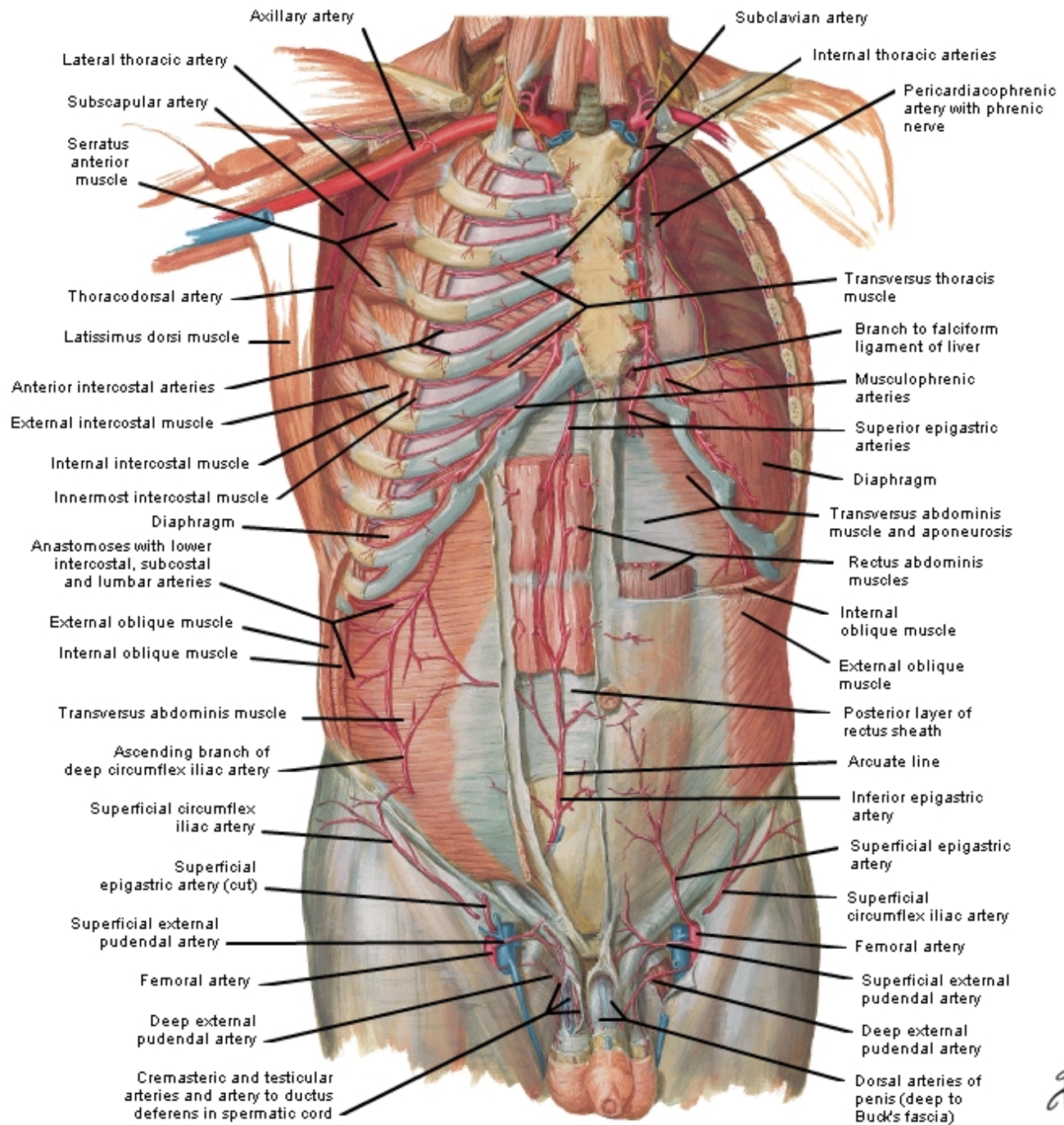
Posterolateral Abdominal Wall: Deep Dissection



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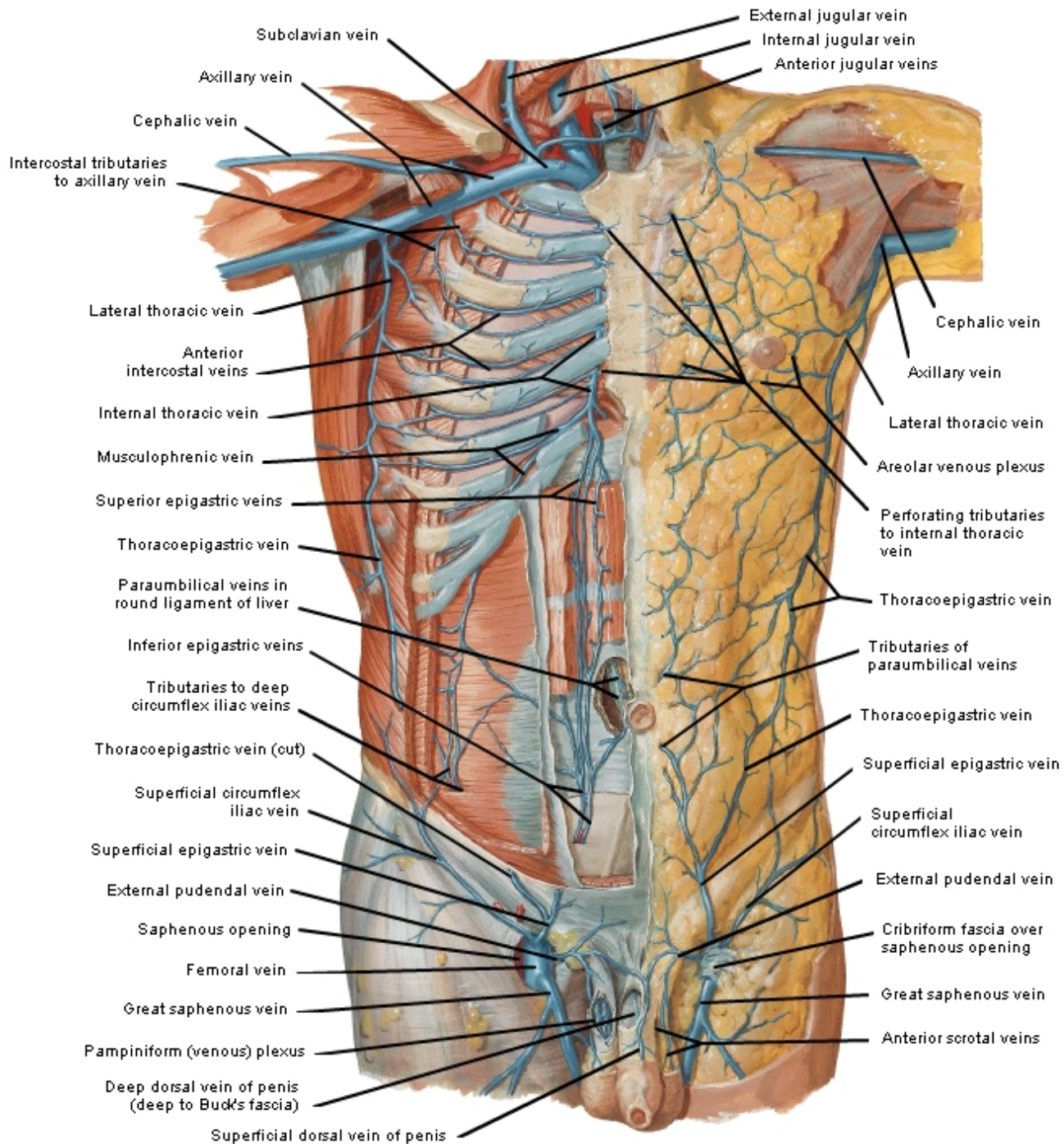
Arteries of Anterior Abdominal Wall



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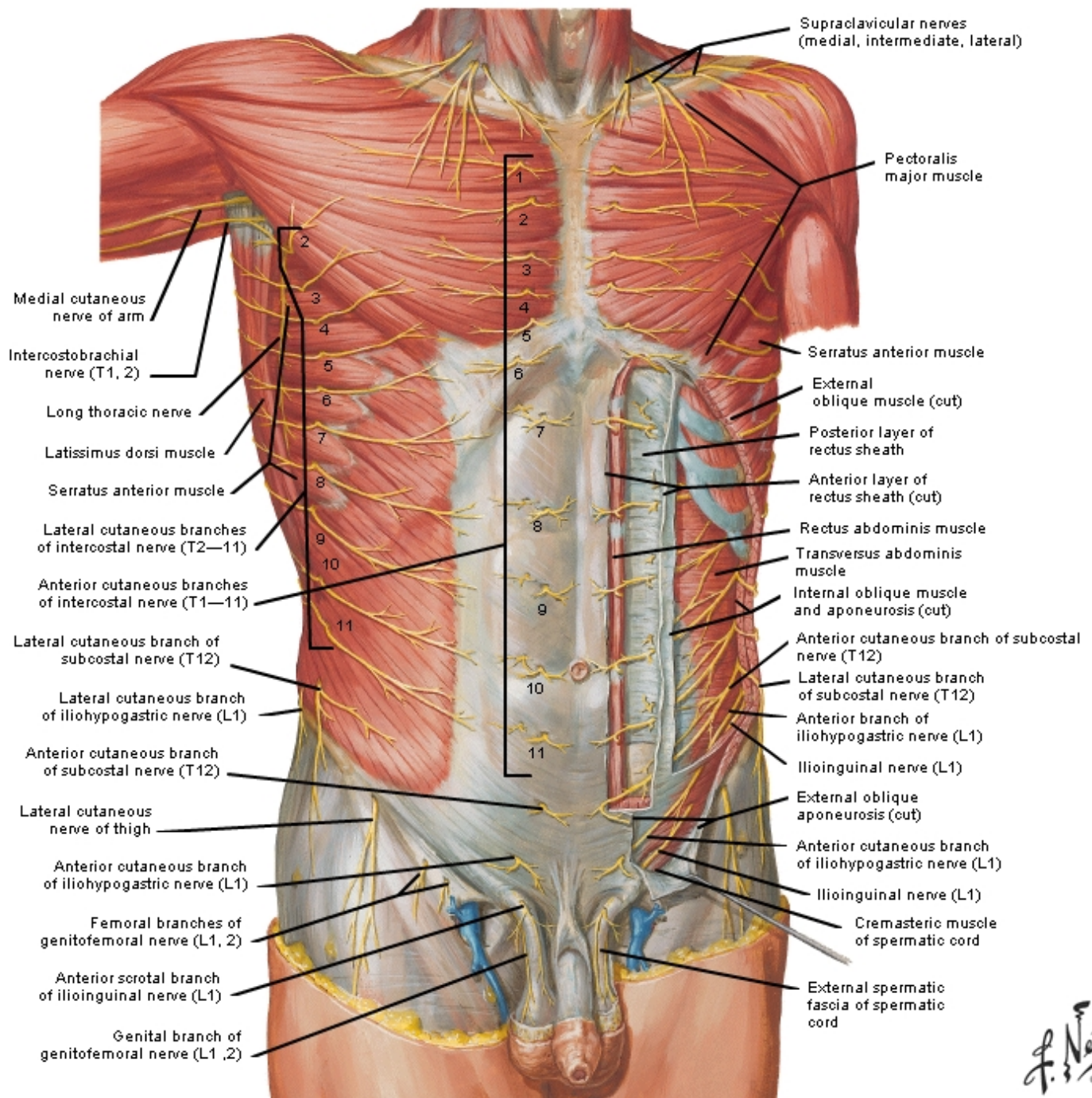
Veins of Anterior Abdominal Wall



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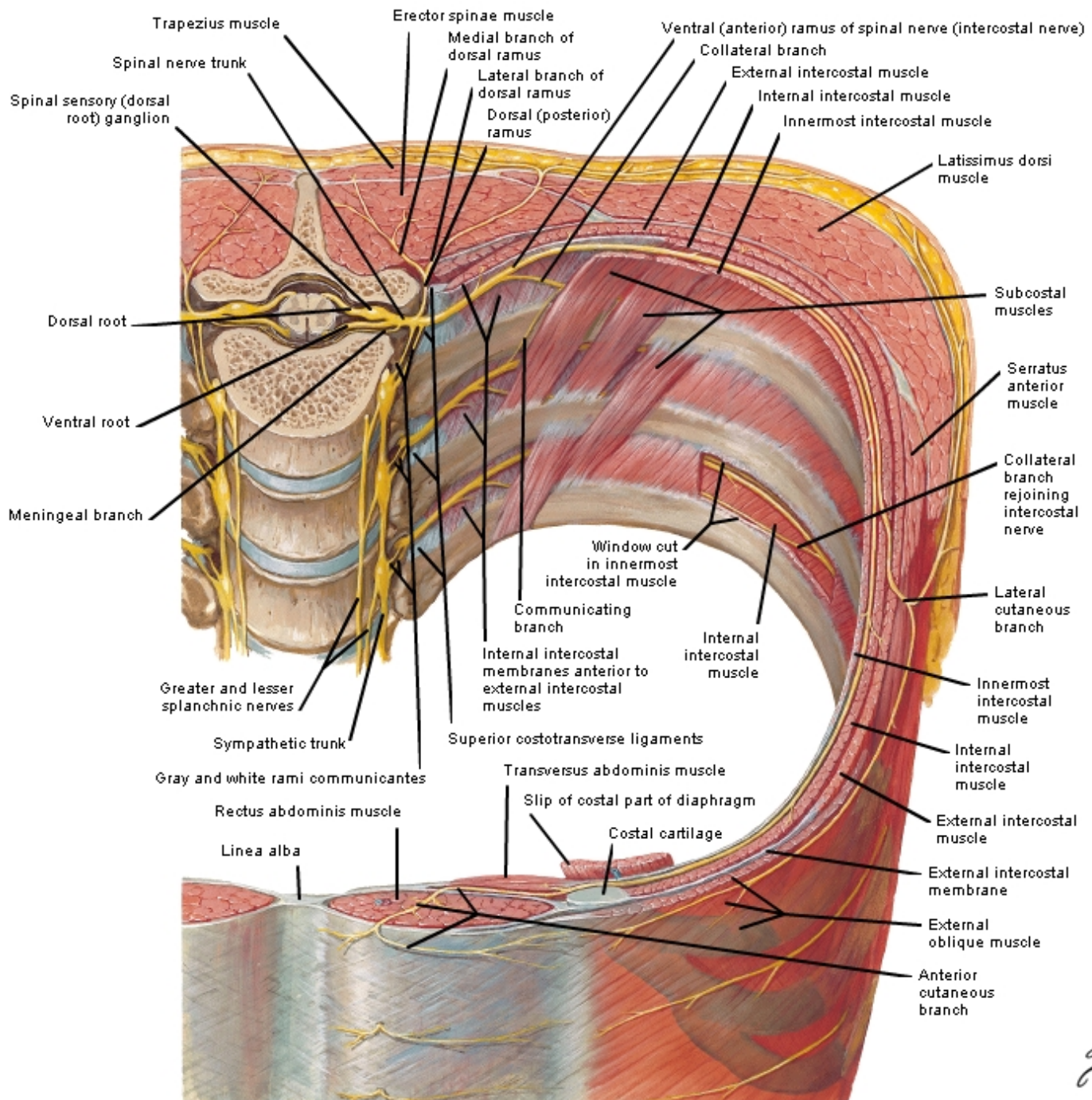
Nerves of Anterior Abdominal Wall



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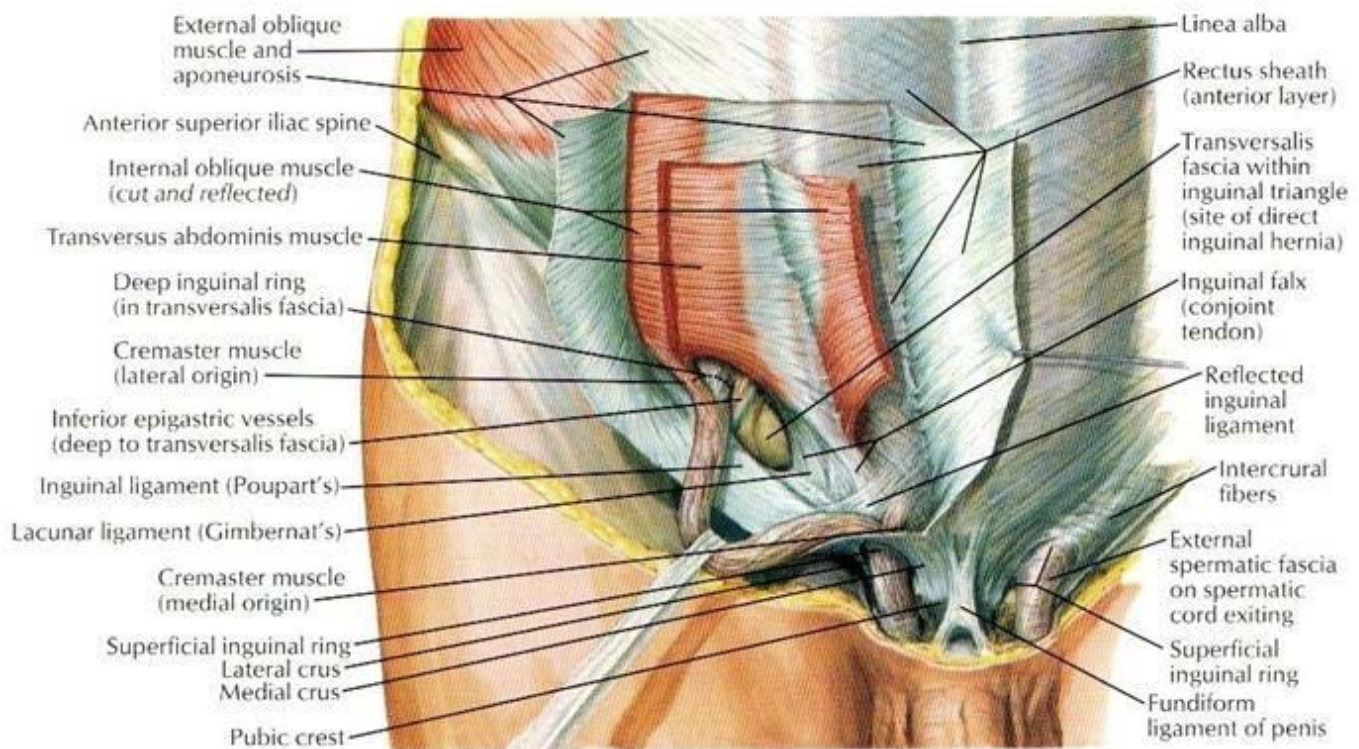
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Thoracoabdominal Nerves



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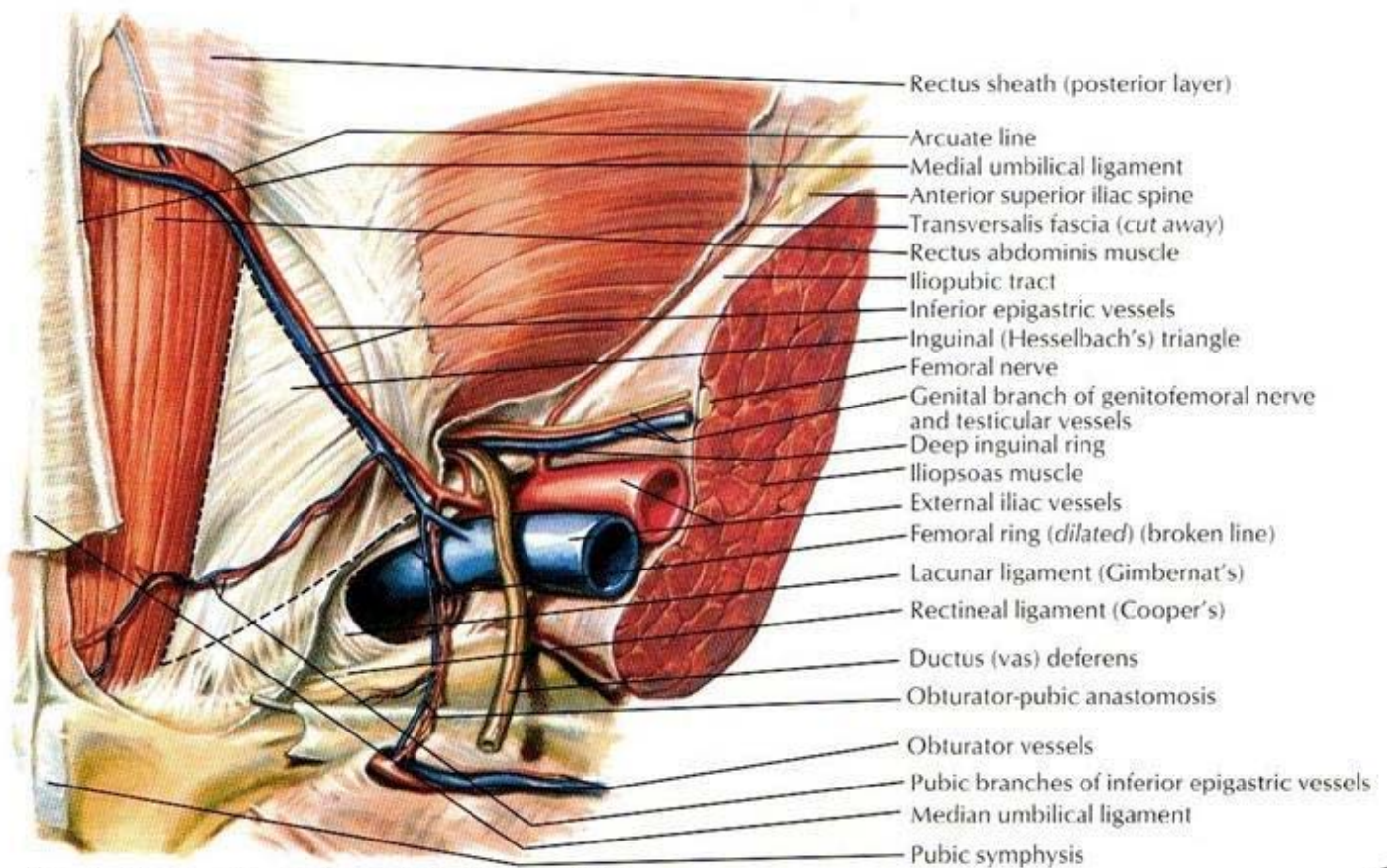
Inguinal Region: Dissection Anterior View



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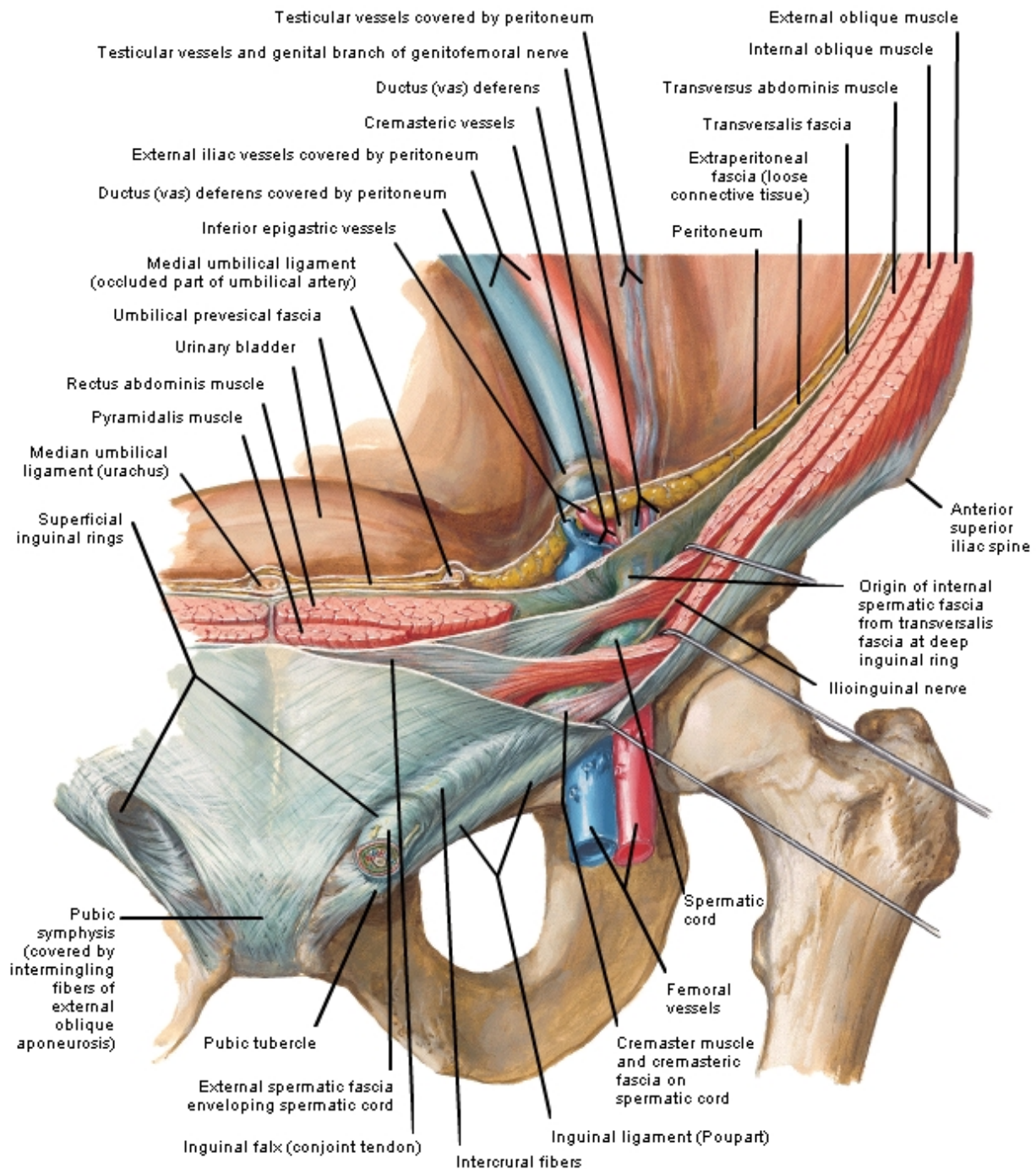
Inguinal Region: Dissection Posterior View



Hesselbach's triangle by Carlos Machado after Frank Netter

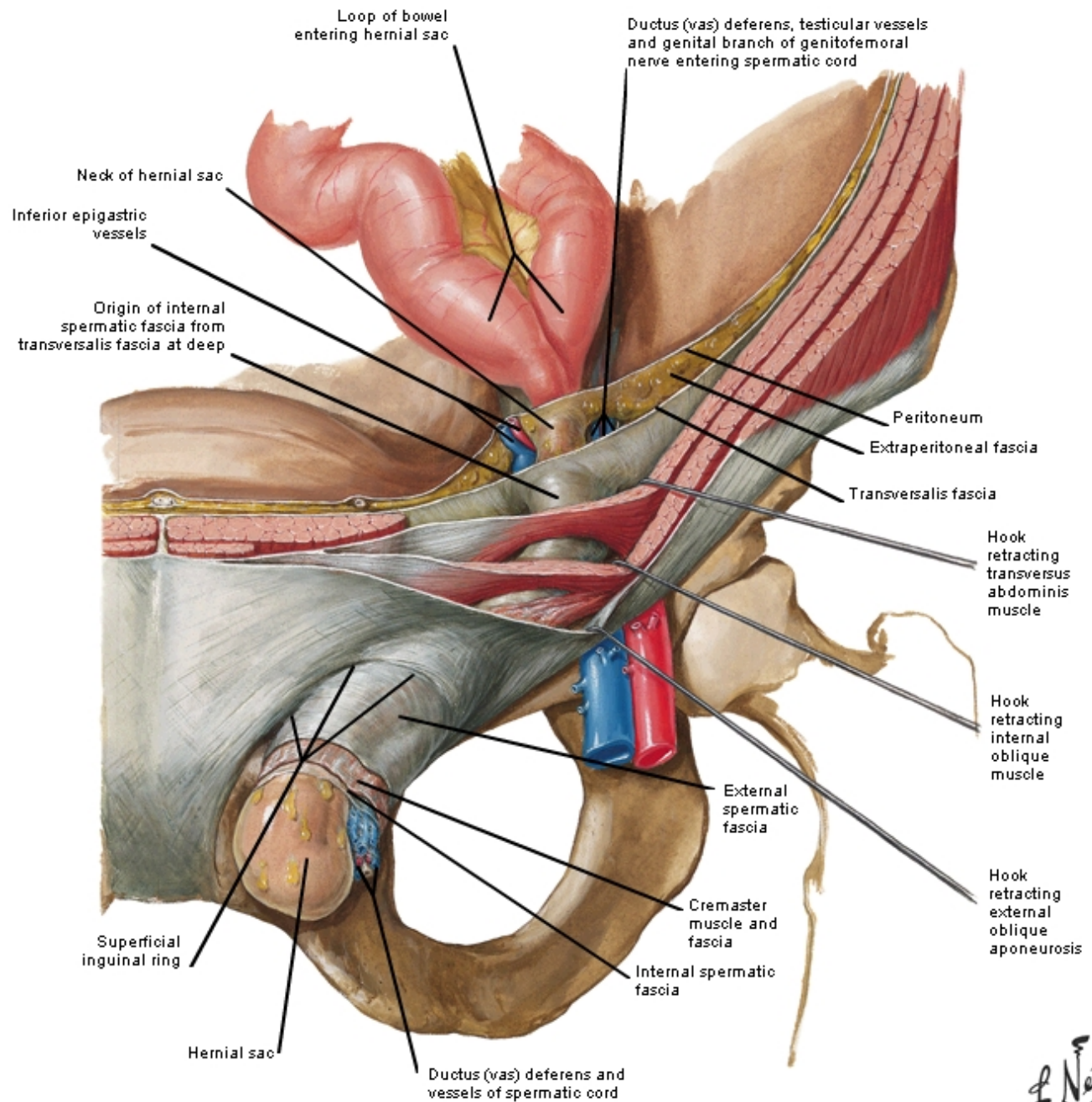
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Inguinal Canal and Spermatic Cord



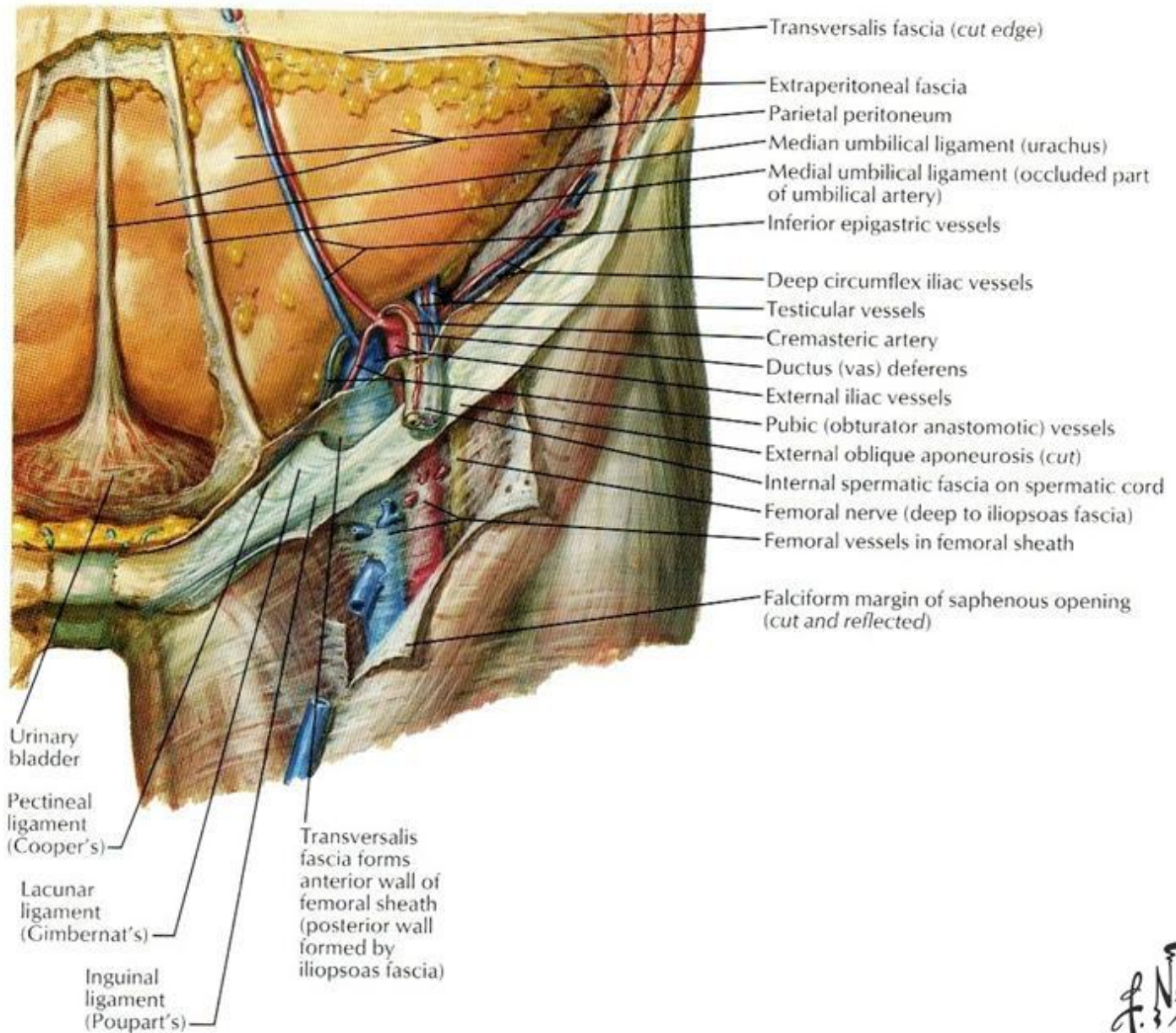
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Indirect Inguinal Hernia



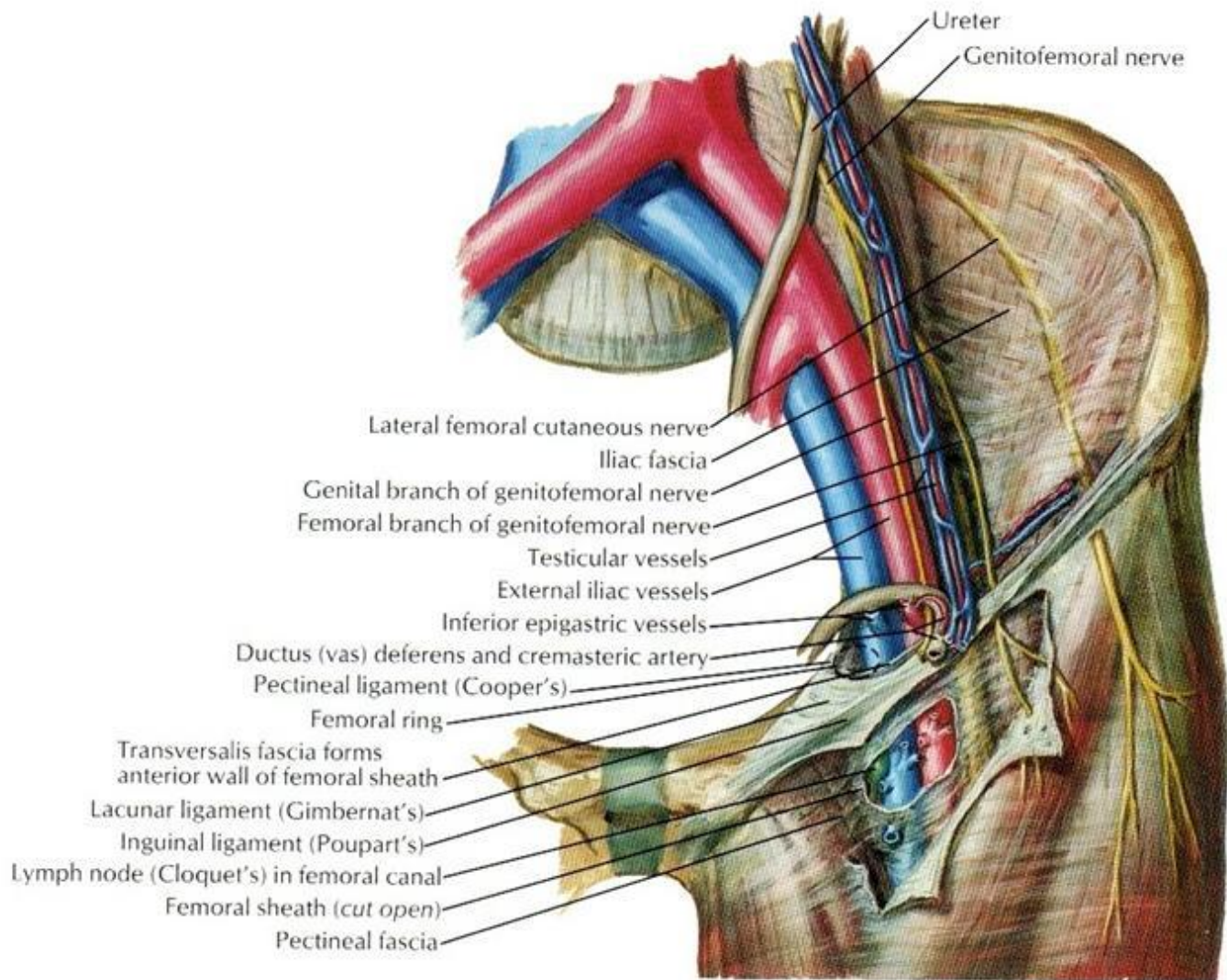
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Femoral Sheath and Inguinal Canal



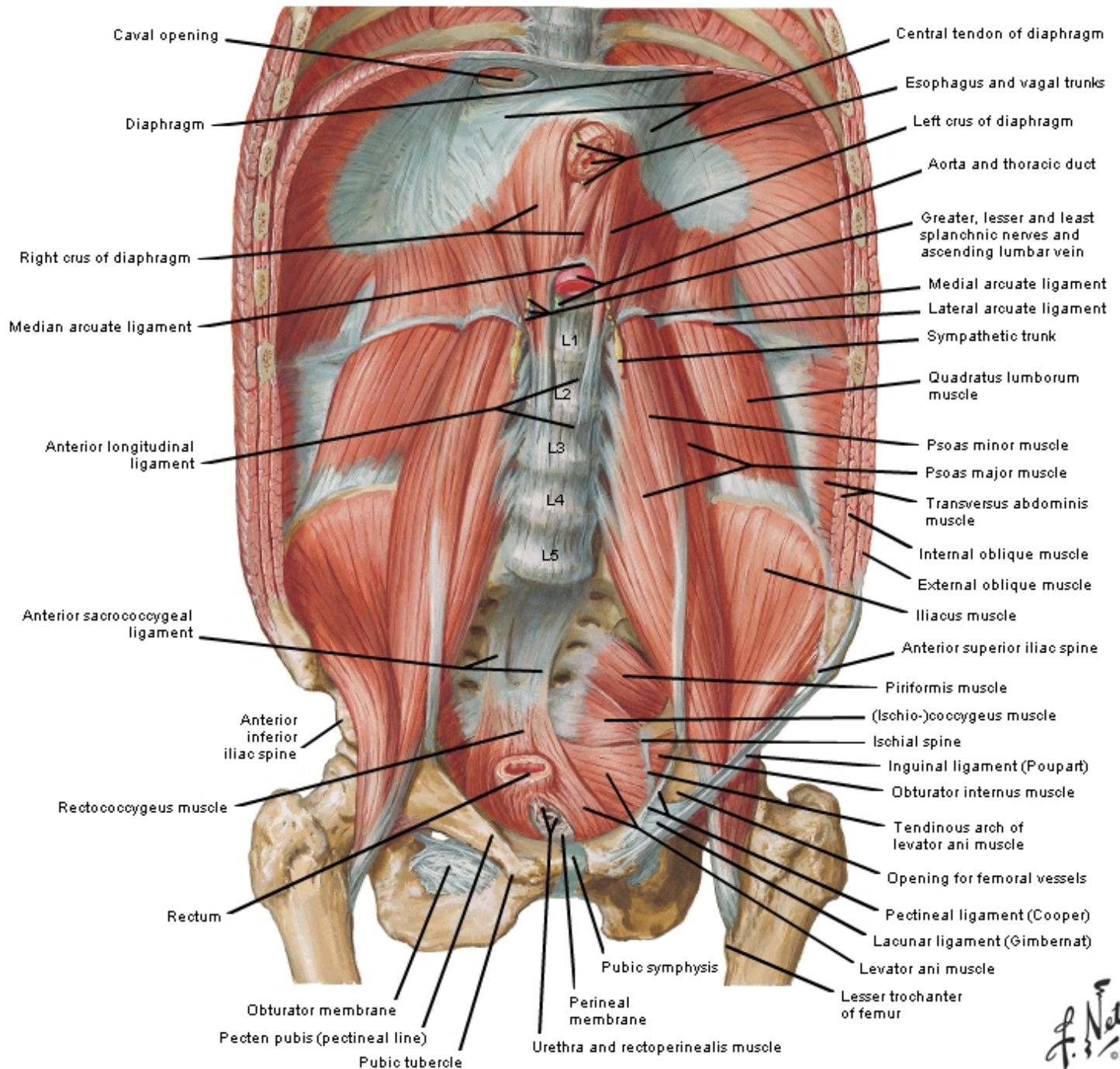
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Femoral Sheath and Inguinal Canal: Deep Dissection



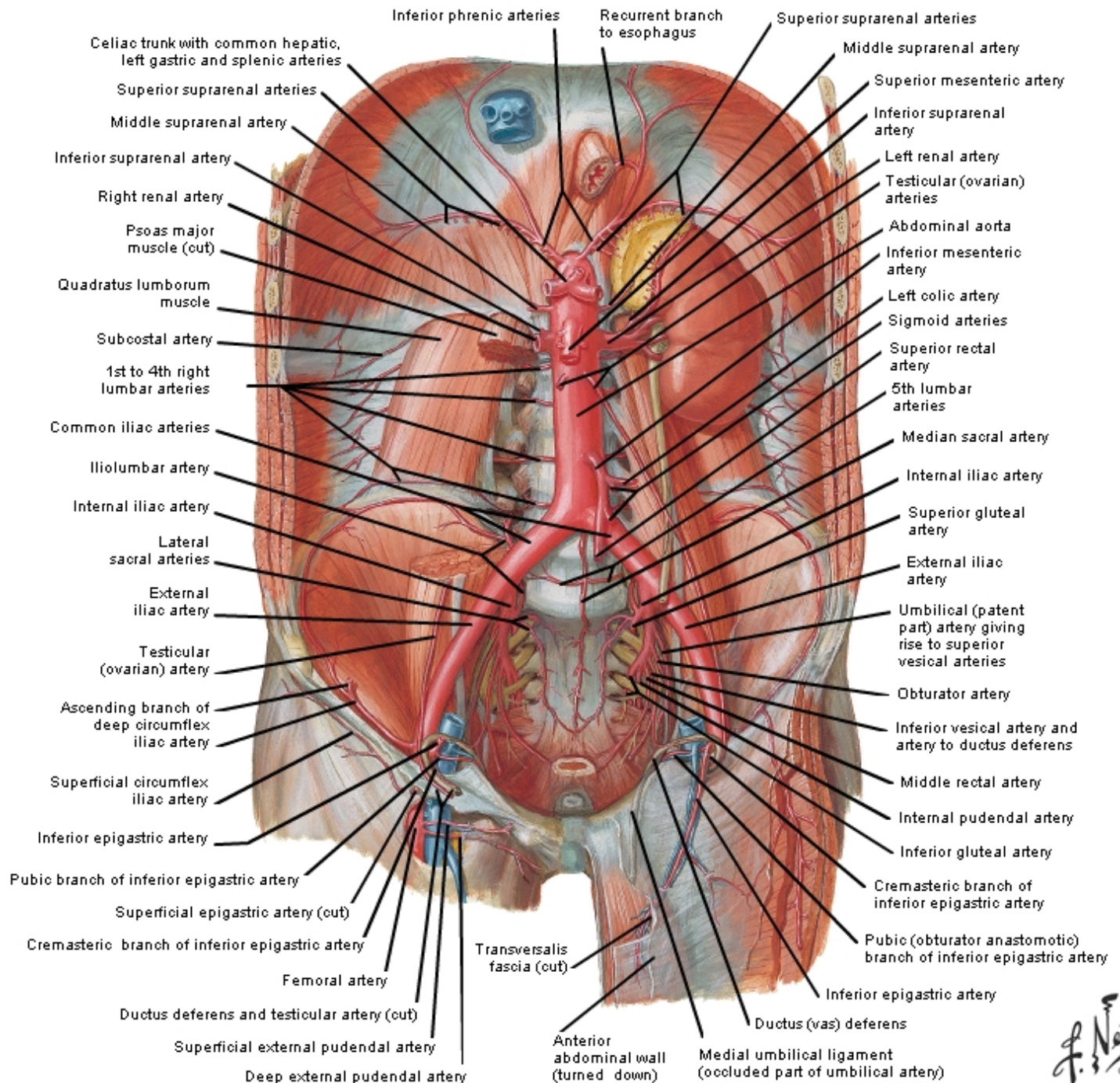
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Posterior Abdominal Wall: Internal View



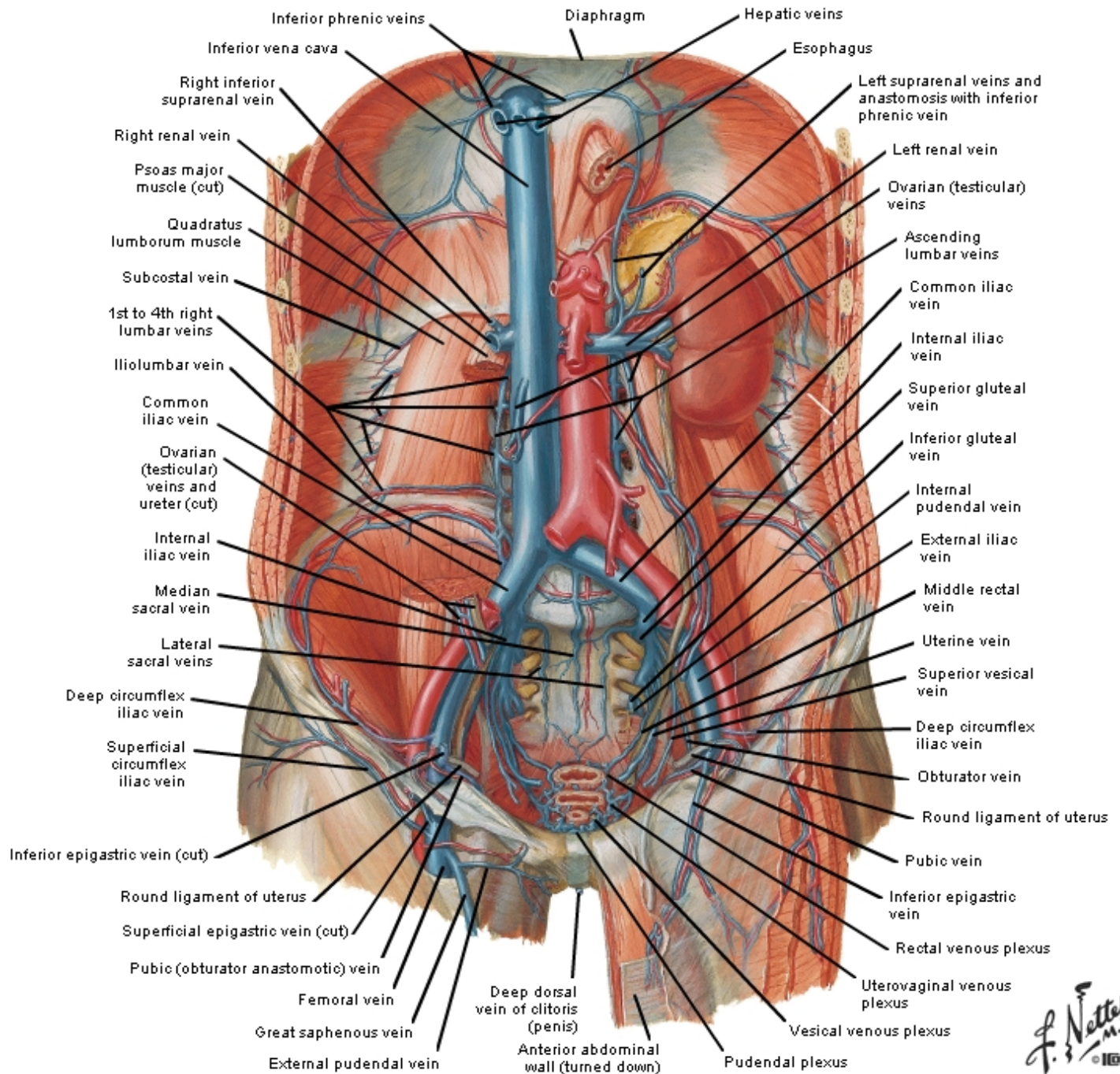
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Arteries of Posterior Abdominal Wall

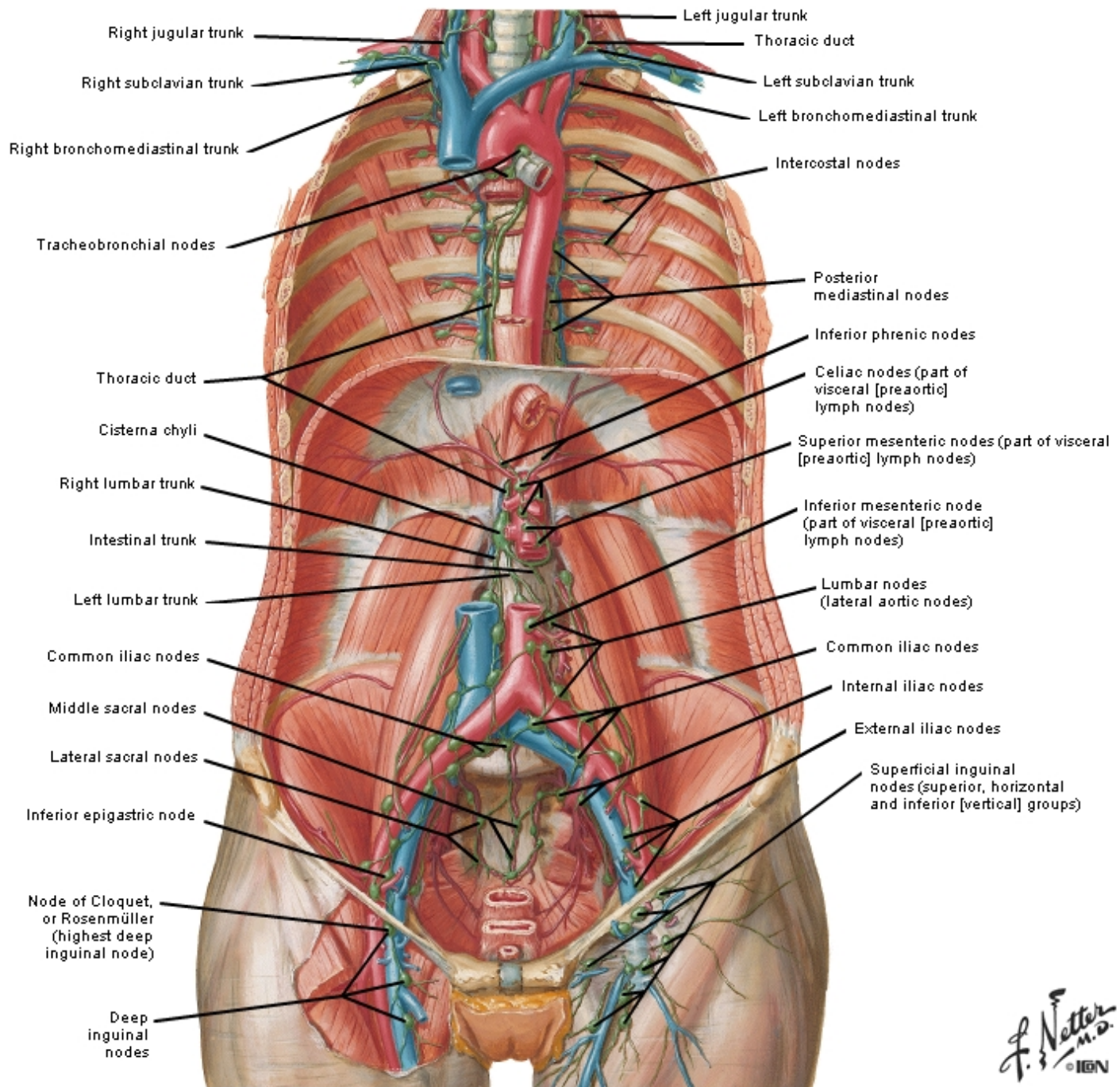


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Veins of Posterior Abdominal Wall



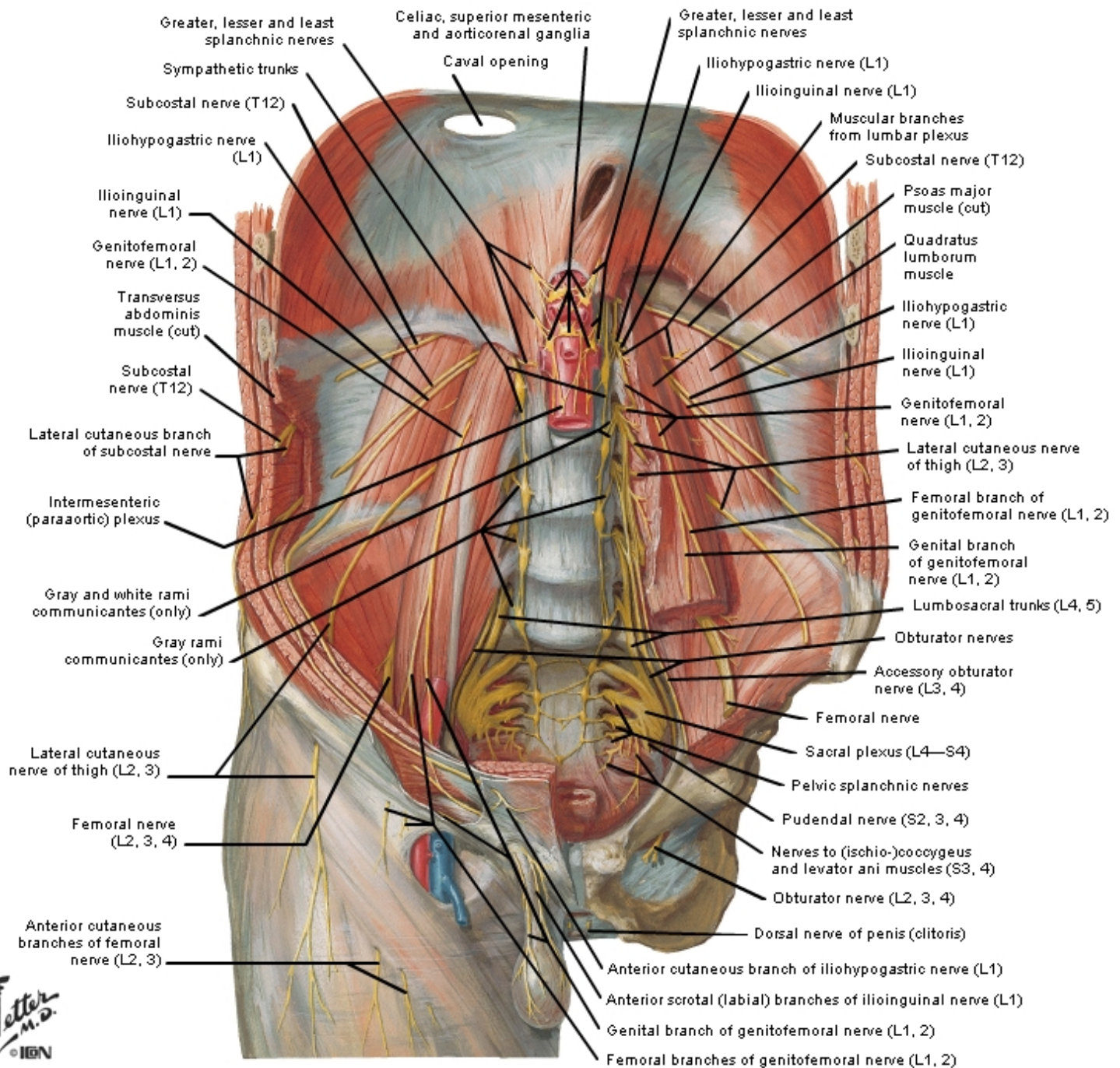
Lymph Vessels and Nodes of Posterior Abdominal Wall



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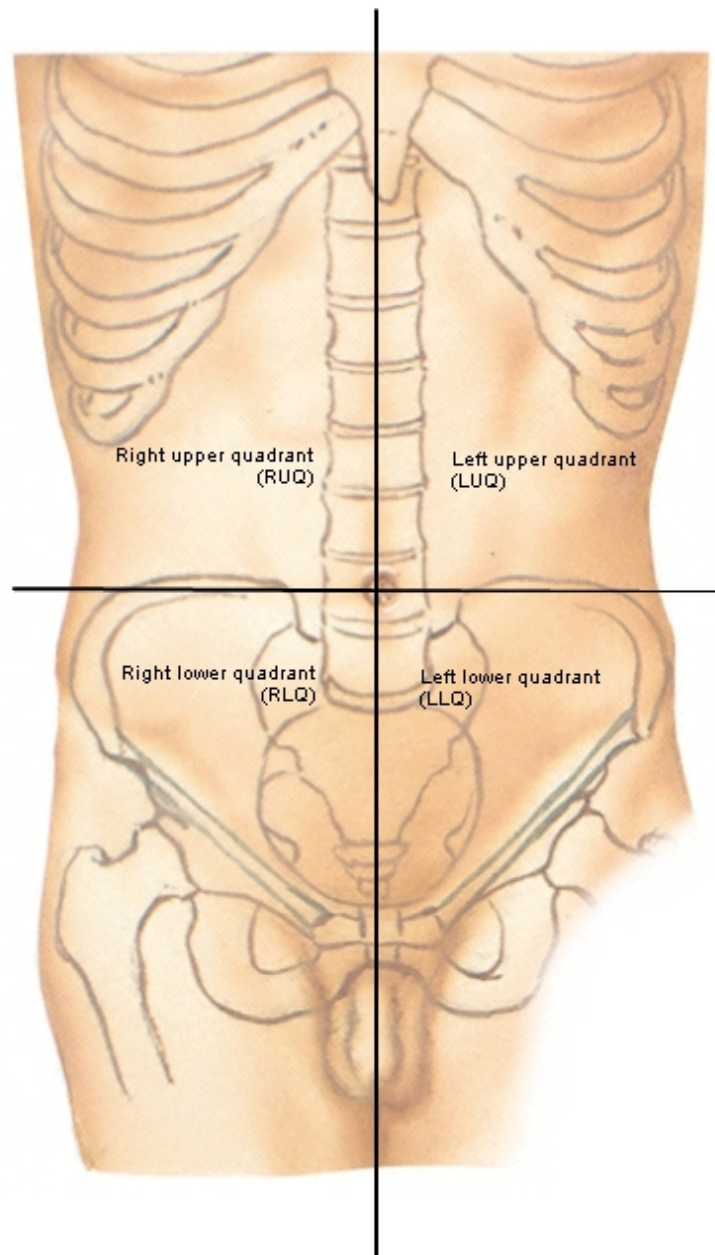
ABDOMEN

Nerves of Posterior Abdominal Wall



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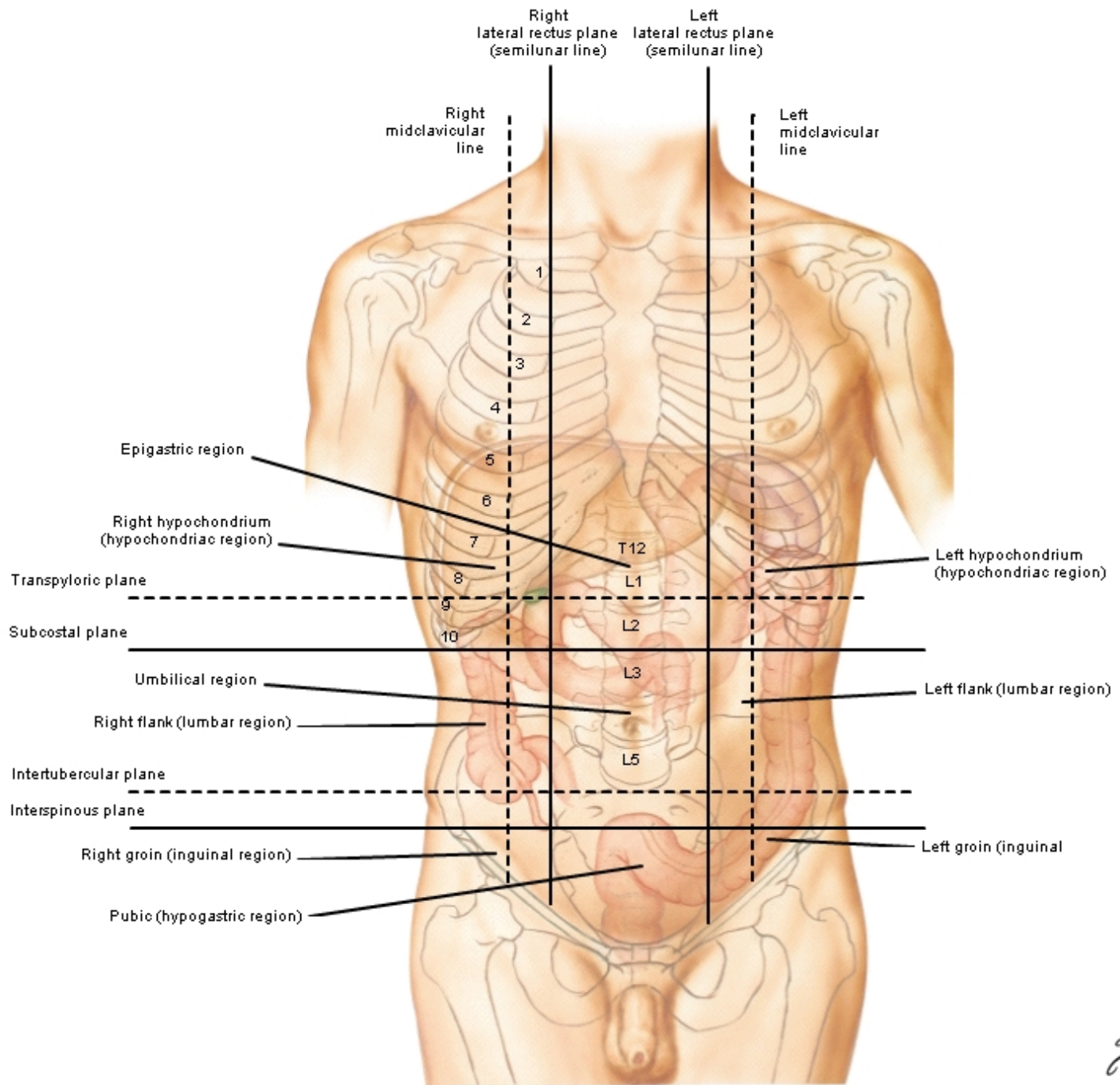
Quadrants of Abdomen



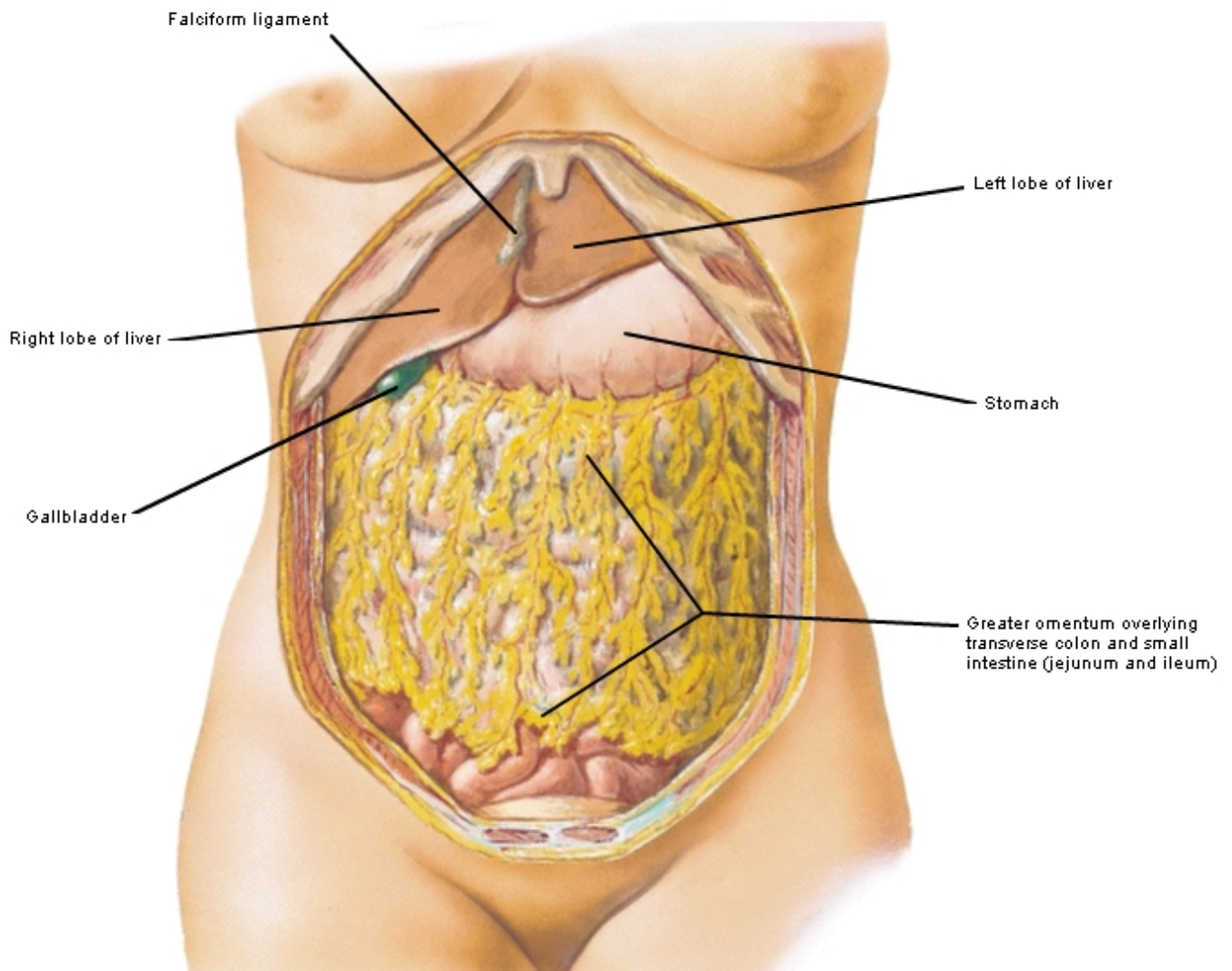
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ABDOMEN

Regions and Planes of Abdomen

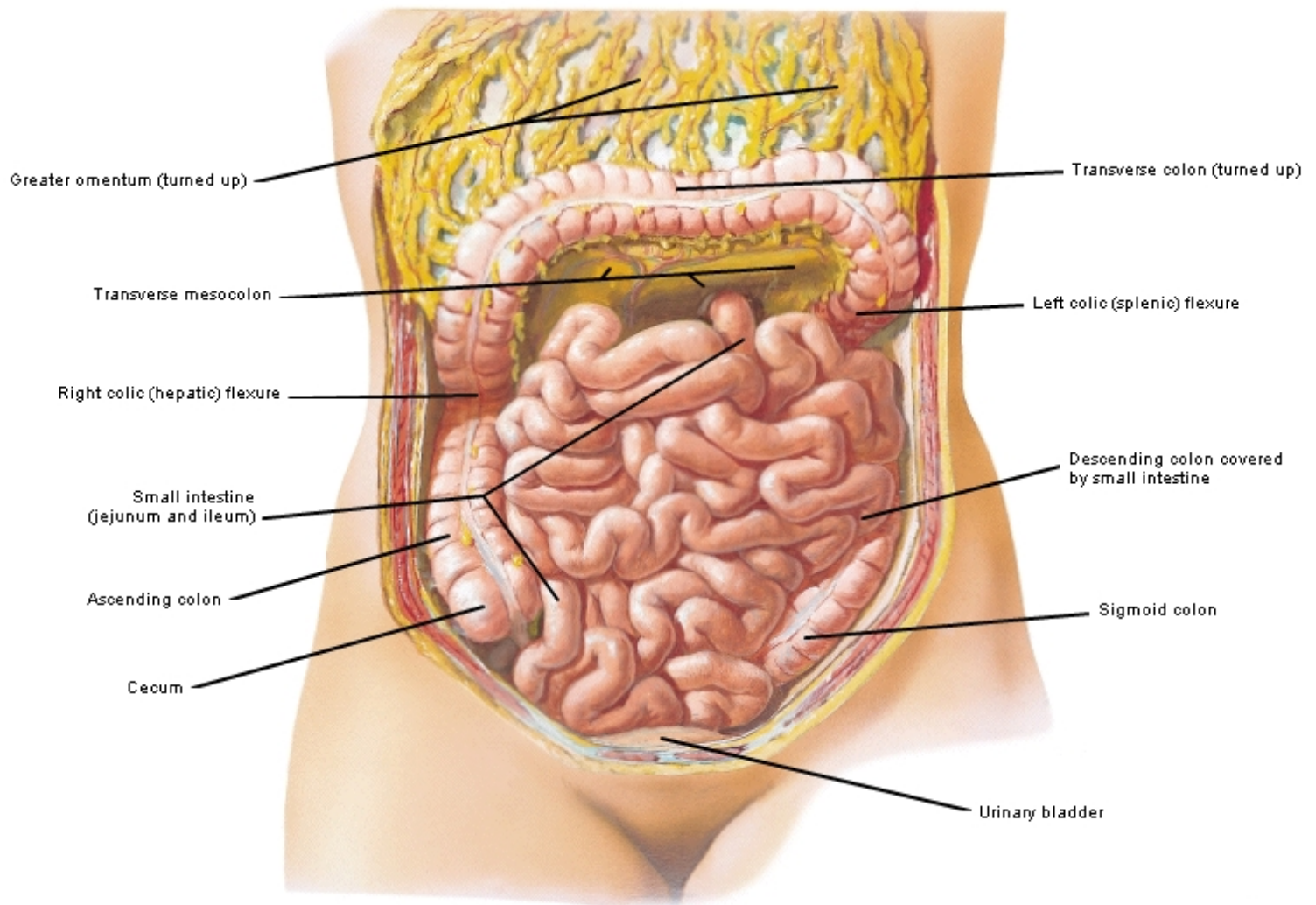


Greater Omentum and Abdominal Viscera



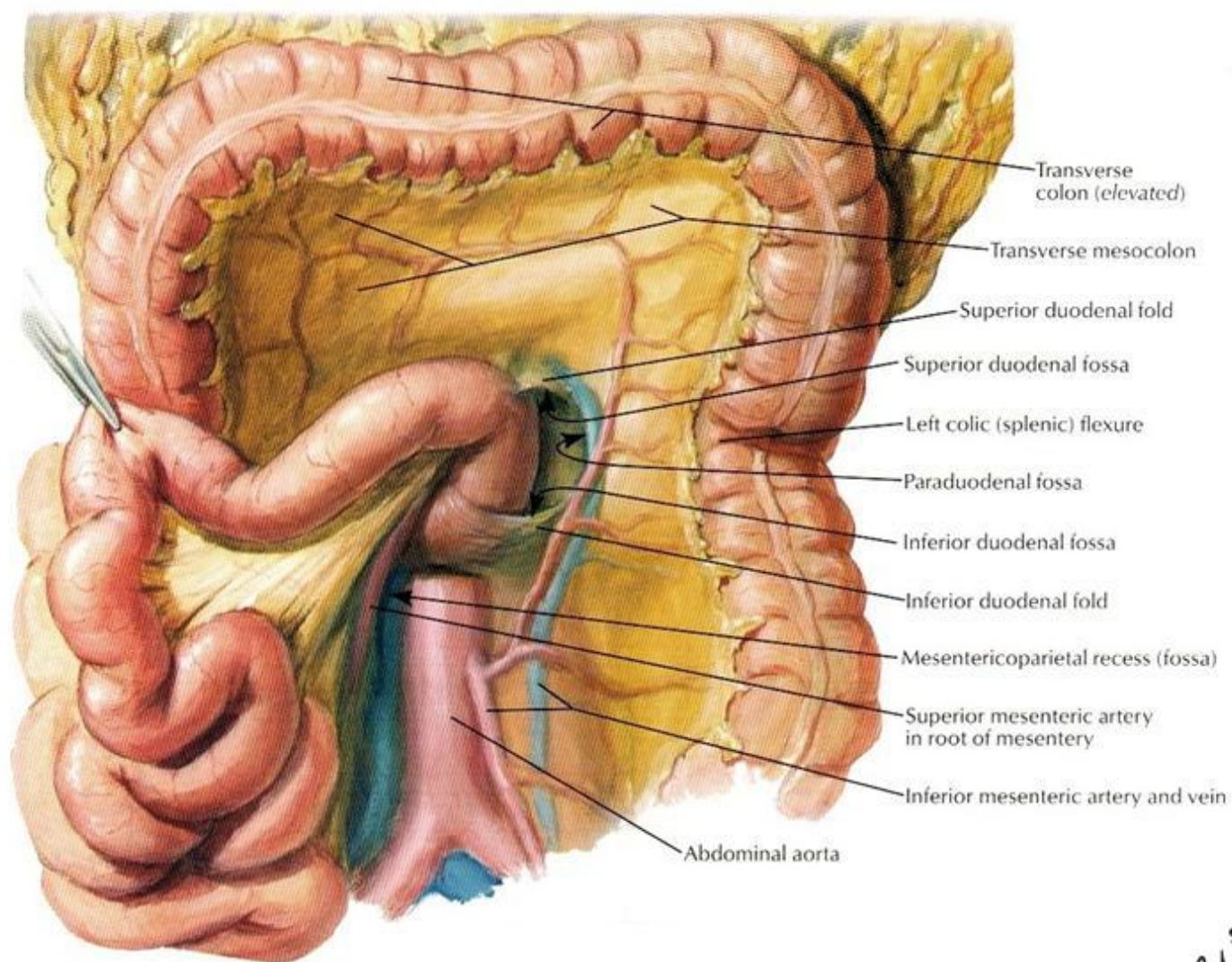
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Greater Omentum and Abdominal Viscera Omentum Raised



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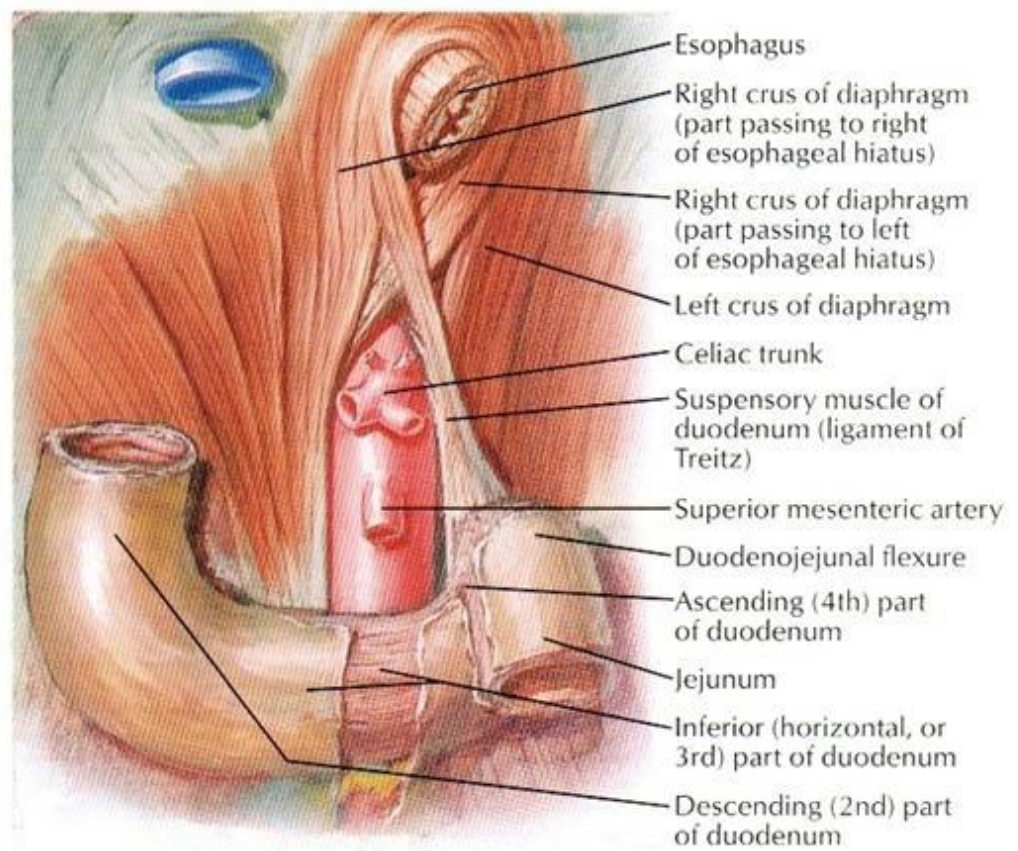
Mesenteric Relations of Intestines



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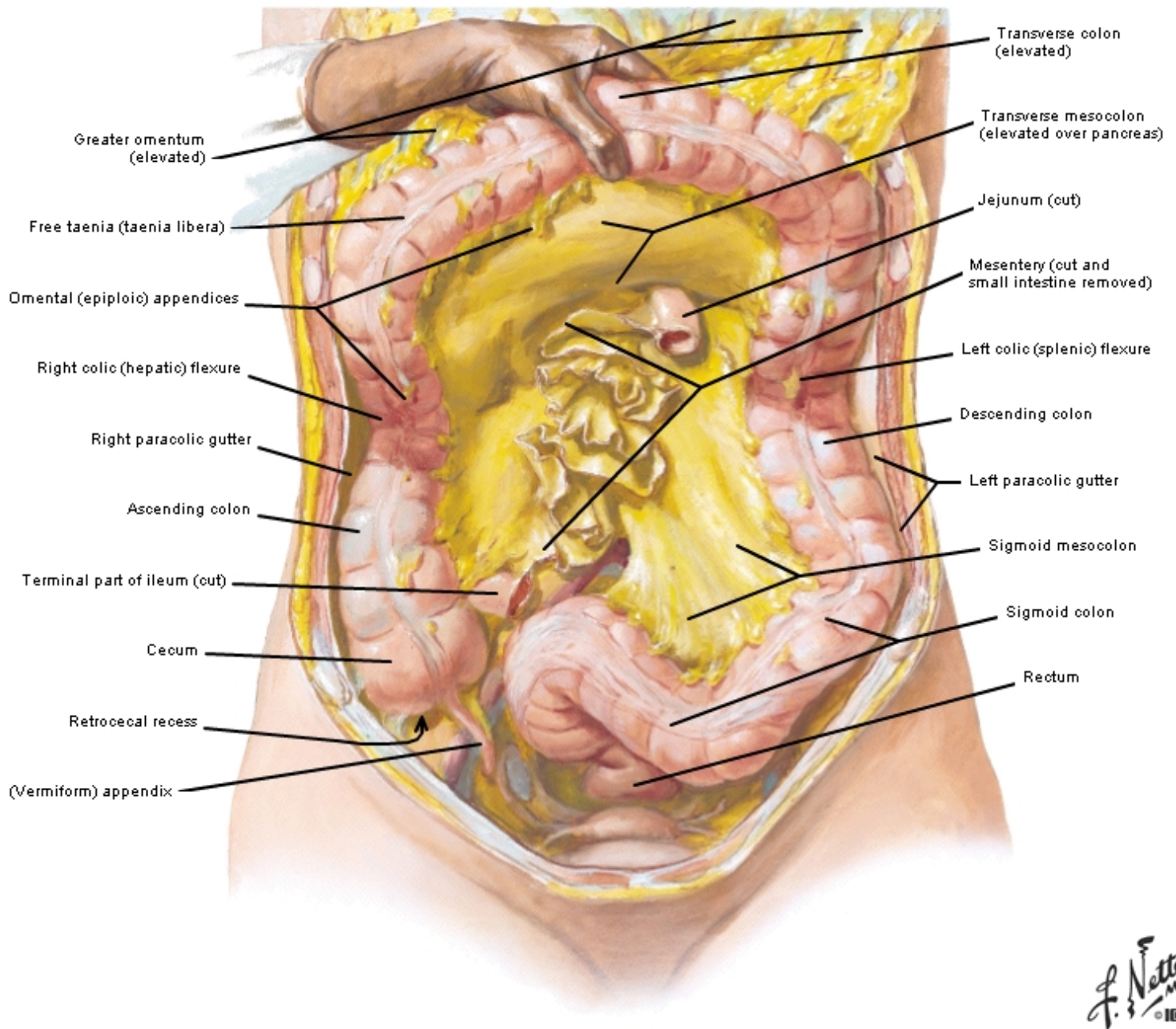
Exposure of Suspensory Muscle of Duodenum

Exposure of suspensory muscle of duodenum (ligament of Treitz)

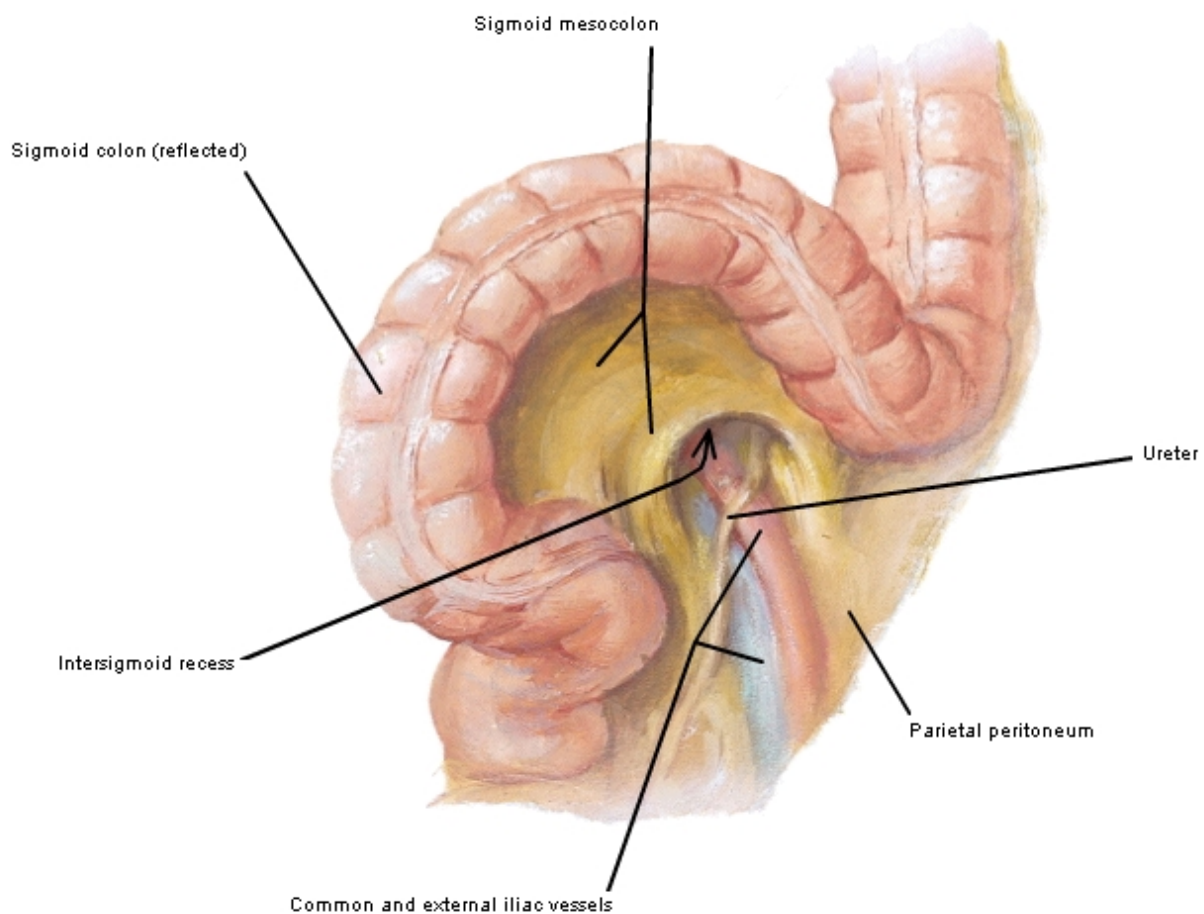


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Mesenteric Relations of Intestines Small Intestine Removed

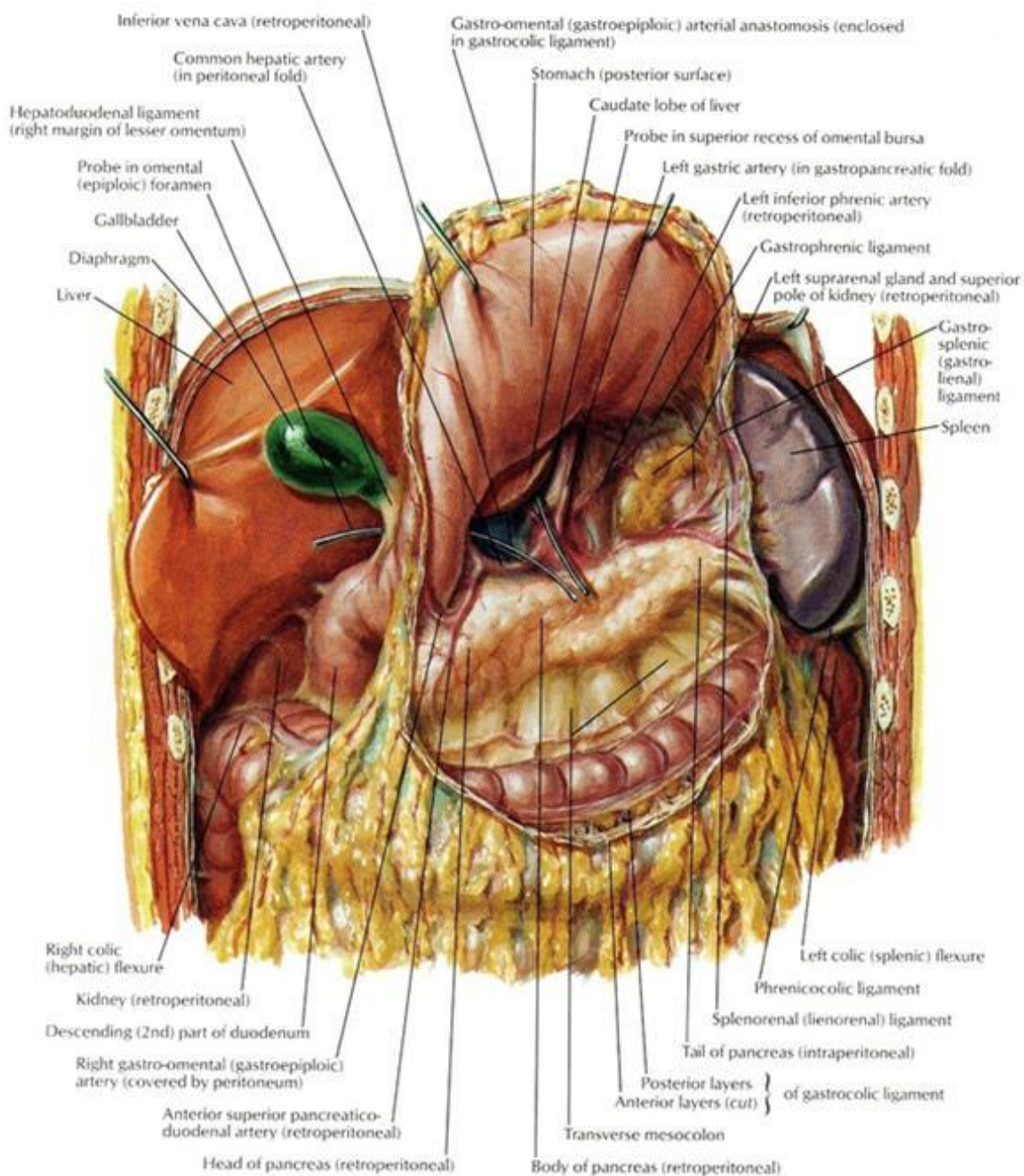


Mesenteric Relations of Intestines Sigmoid Colon Reflected



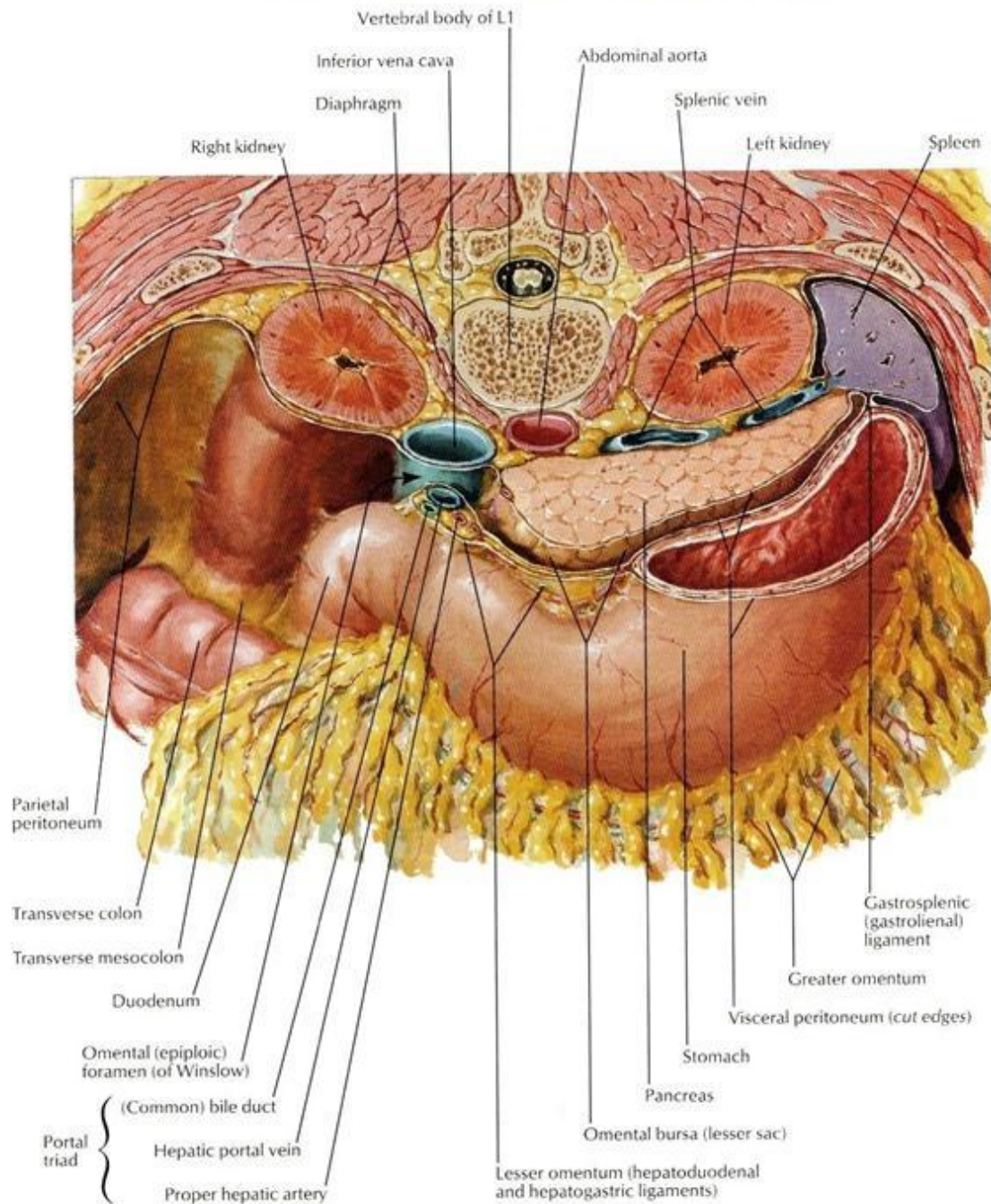
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Omental Bursa: Stomach Reflected



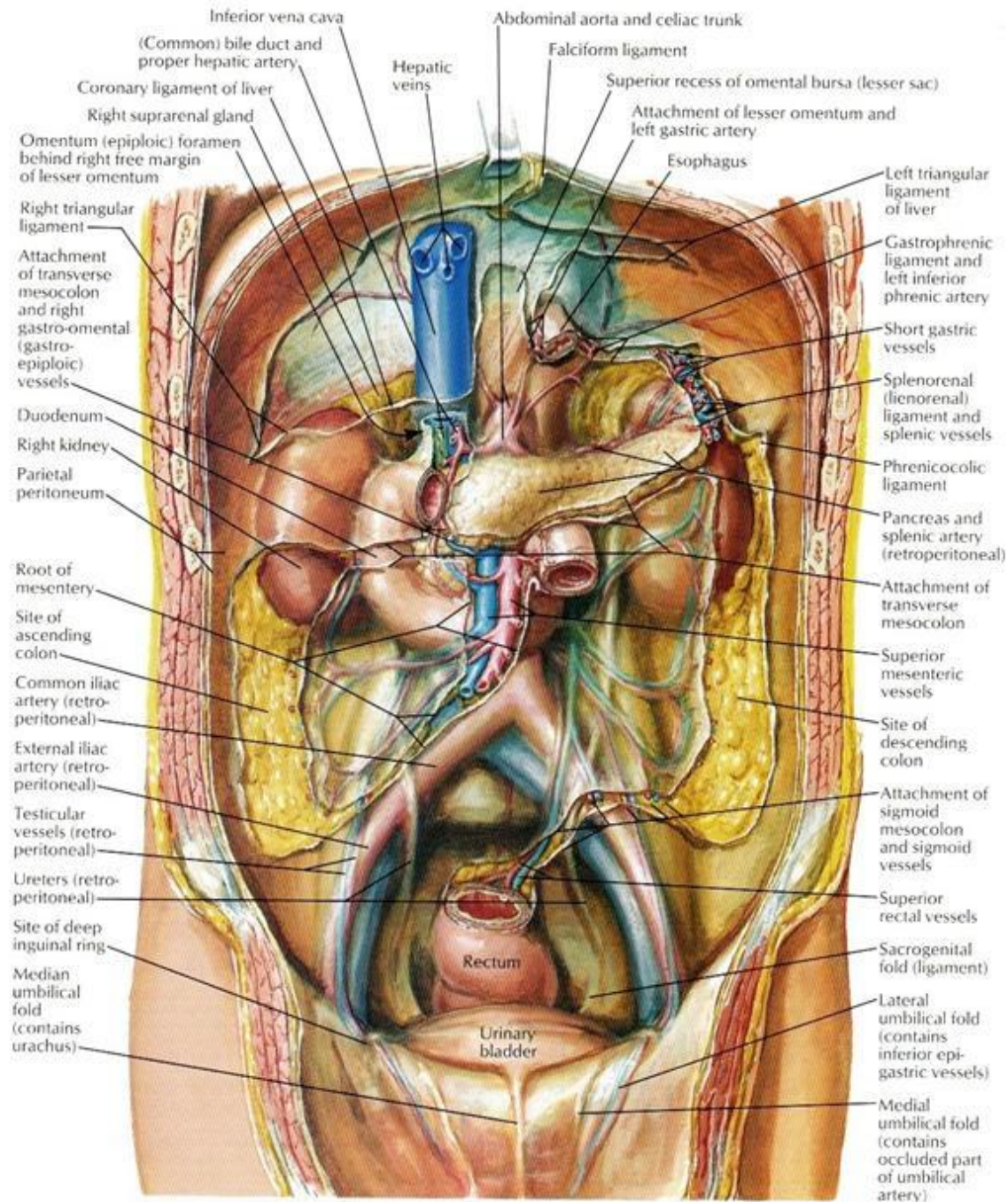
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Omental Bursa: Cross Section



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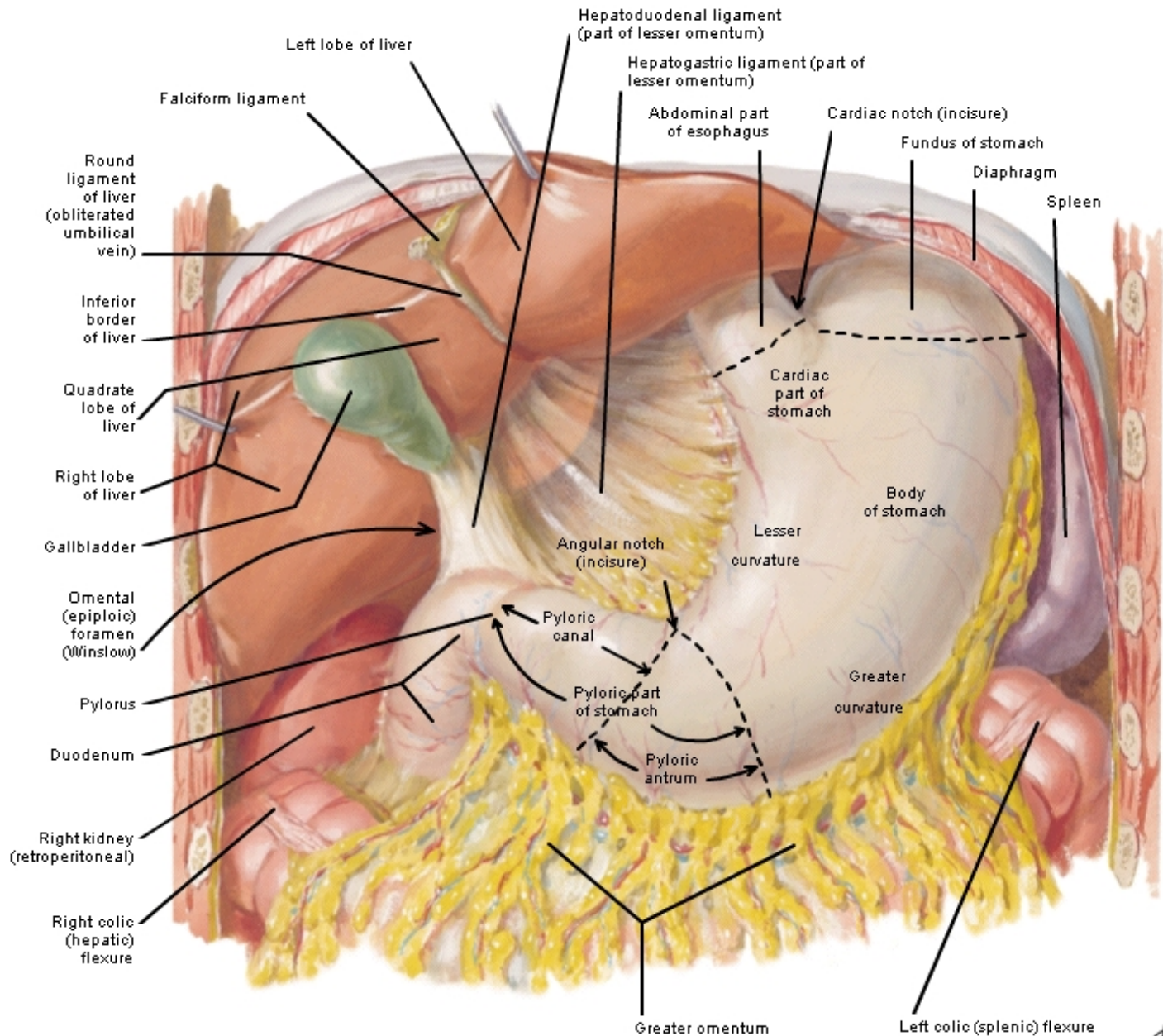
Peritoneum of Posterior Abdominal Wall



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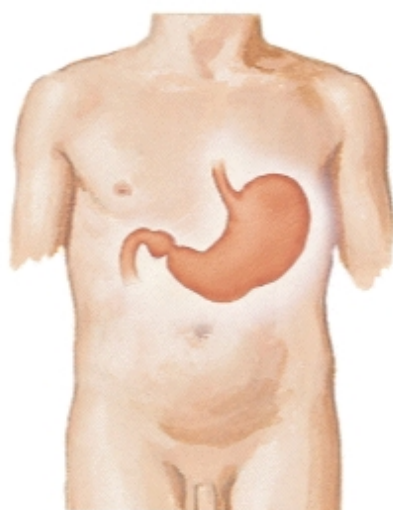
Stomach In Situ



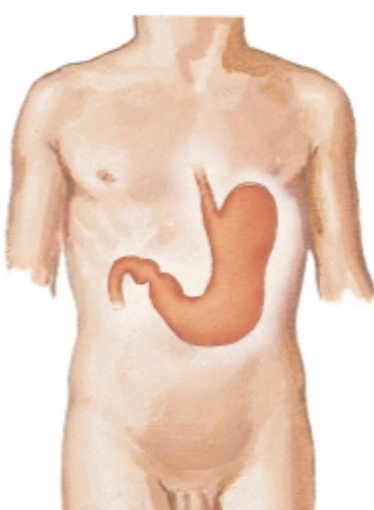
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Stomach

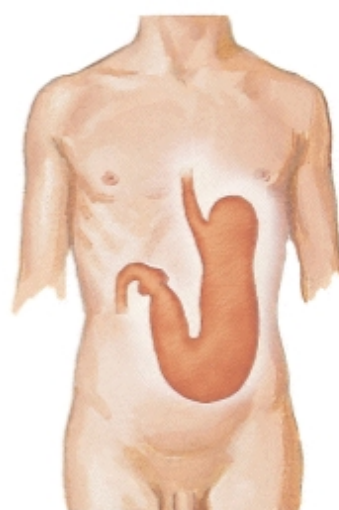
Variations in Position and Contour



Hypertonic stomach



Orthotonic stomach



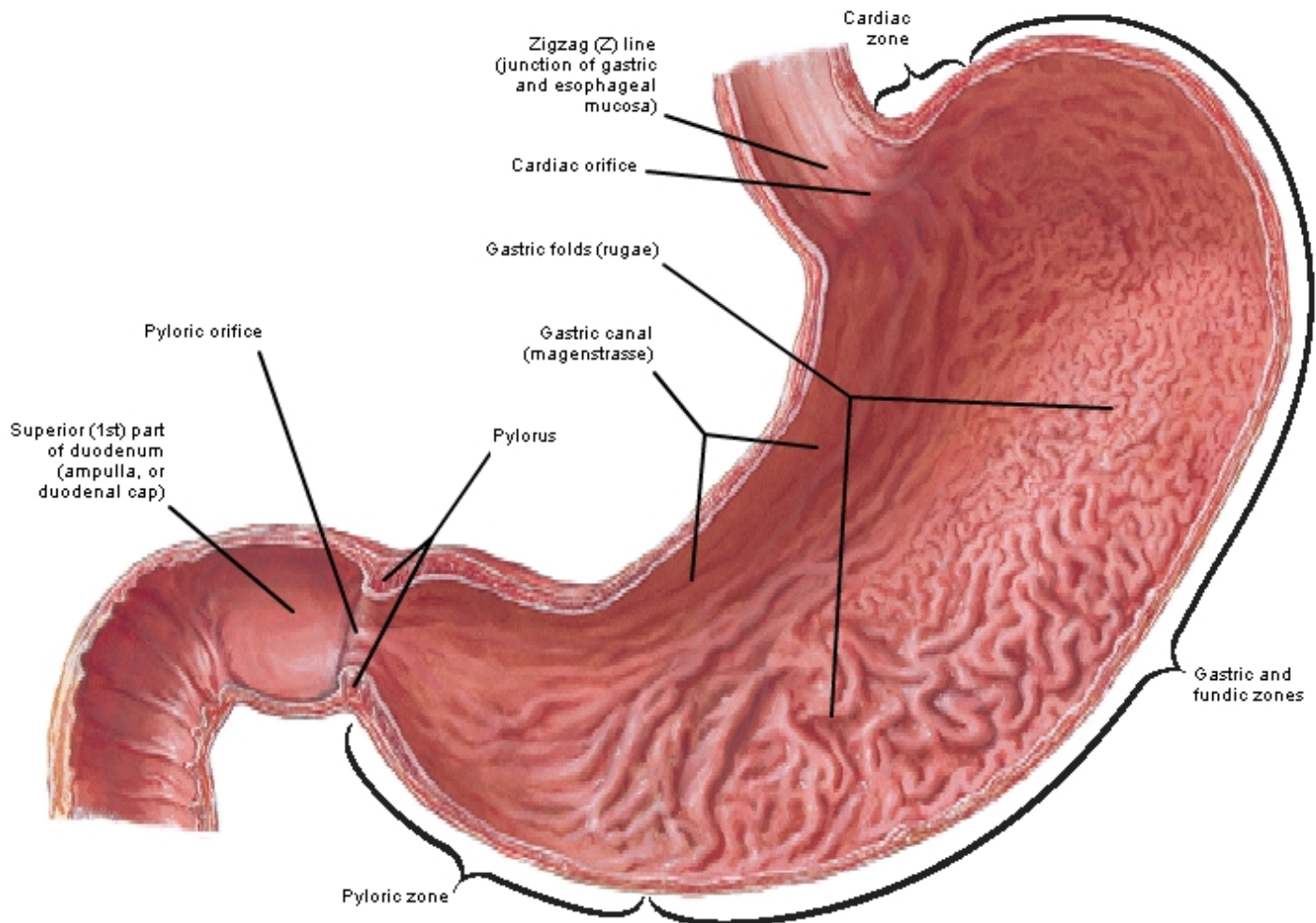
Hypotonic stomach



Atonic stomach

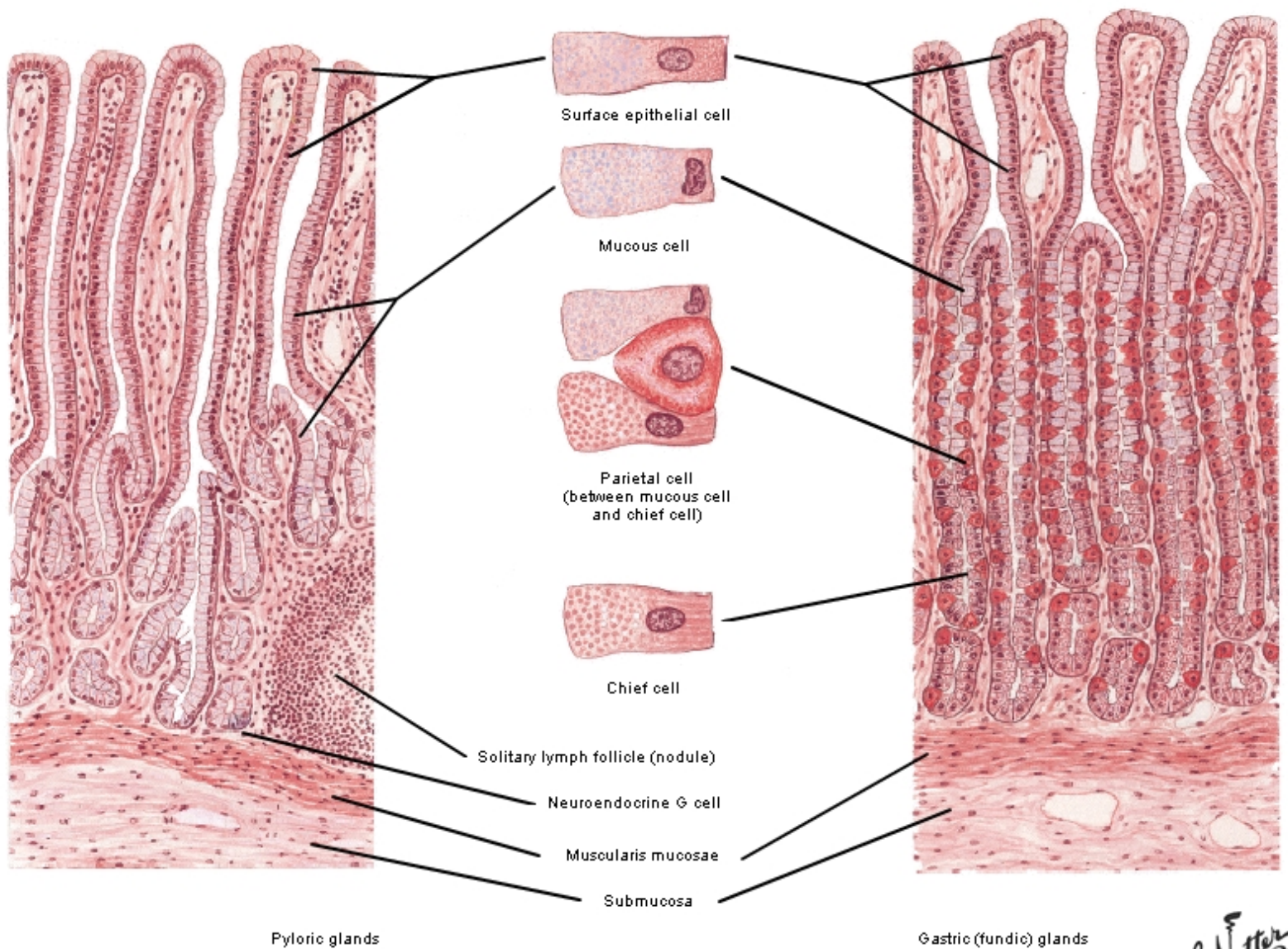
F. Netter
M.D.
© IGV

Mucosa of Stomach



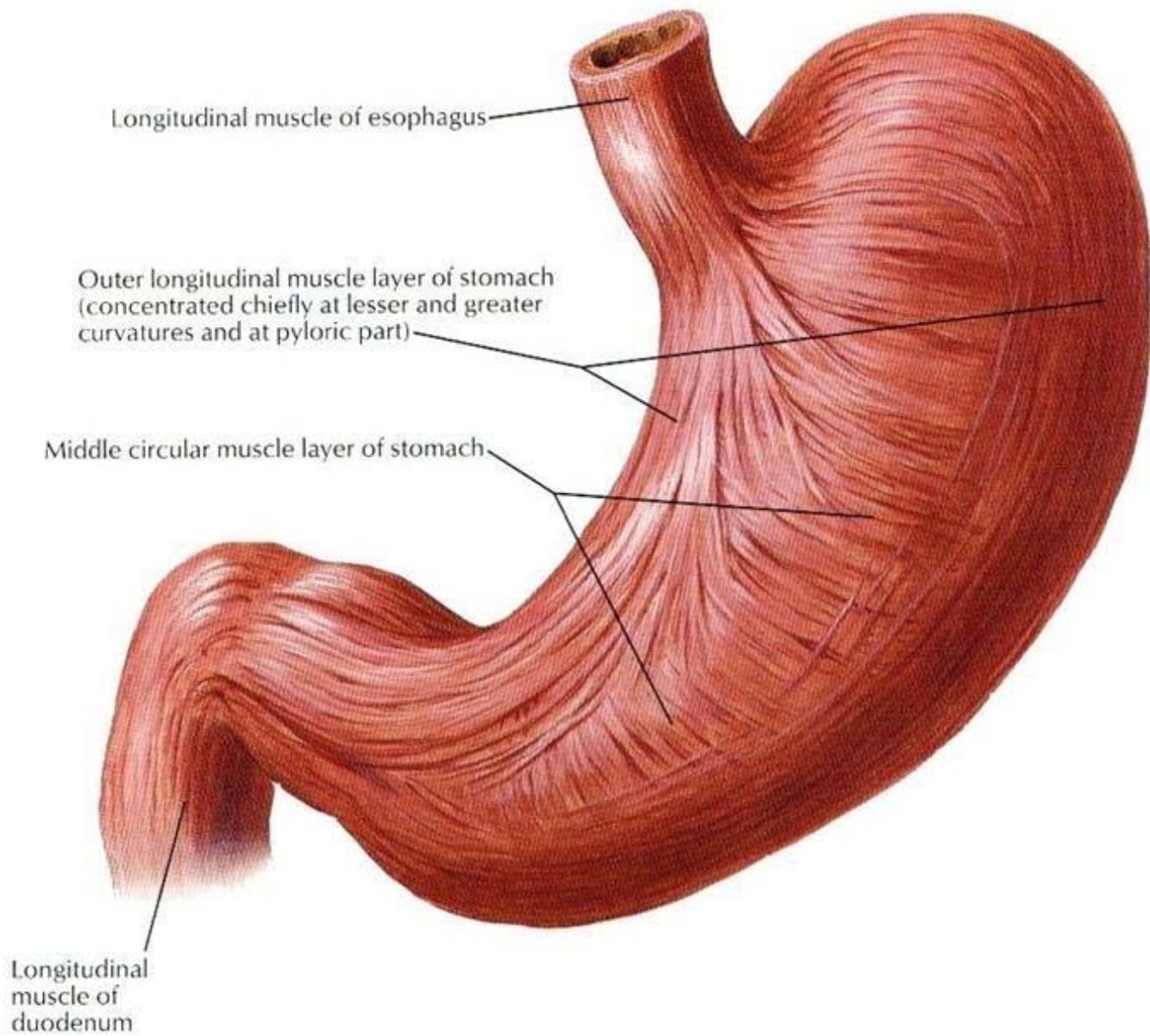
F. Netter M.D.
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Mucosa of Stomach Histology



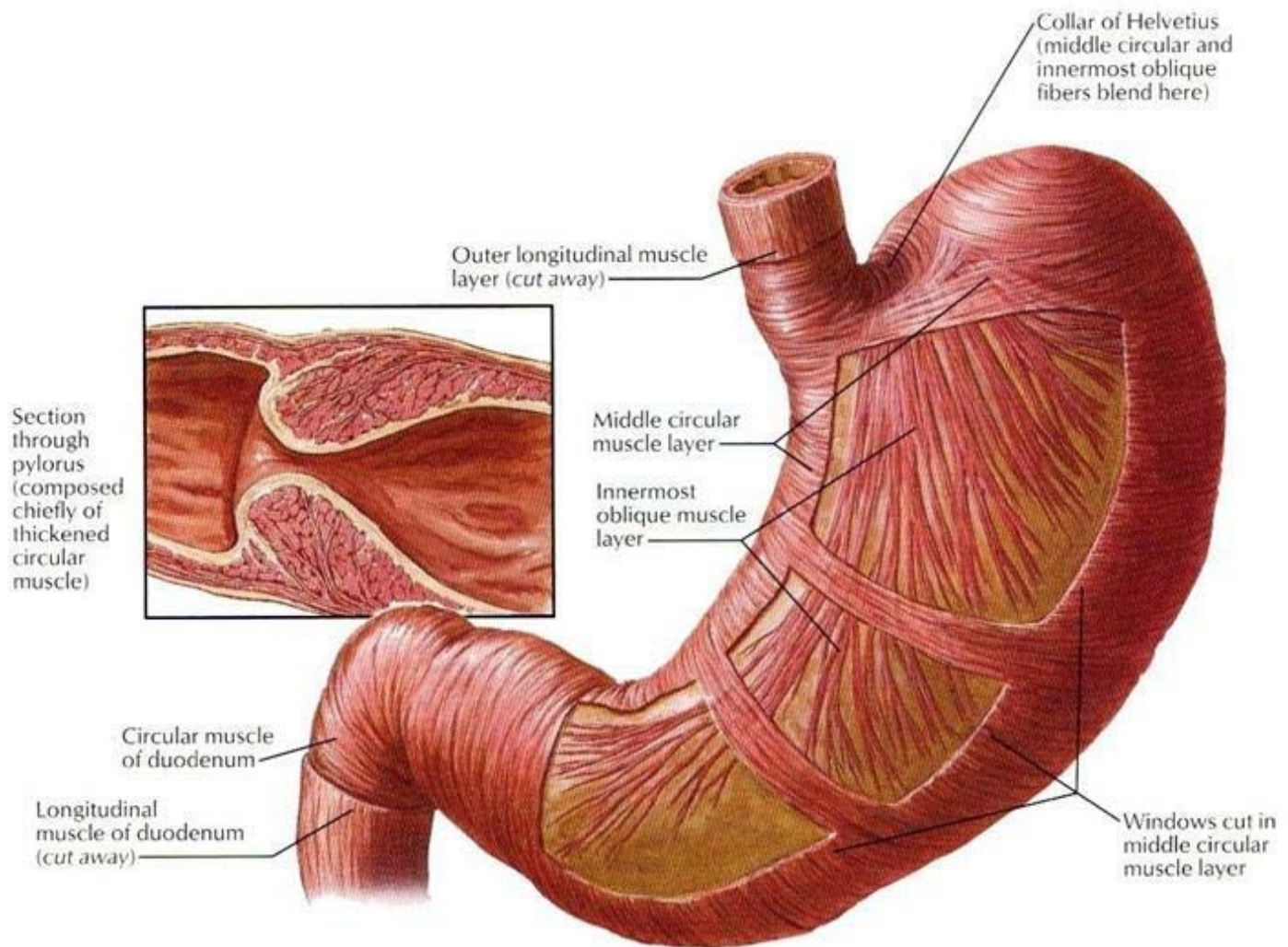
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Musculature of Stomach: Superficial



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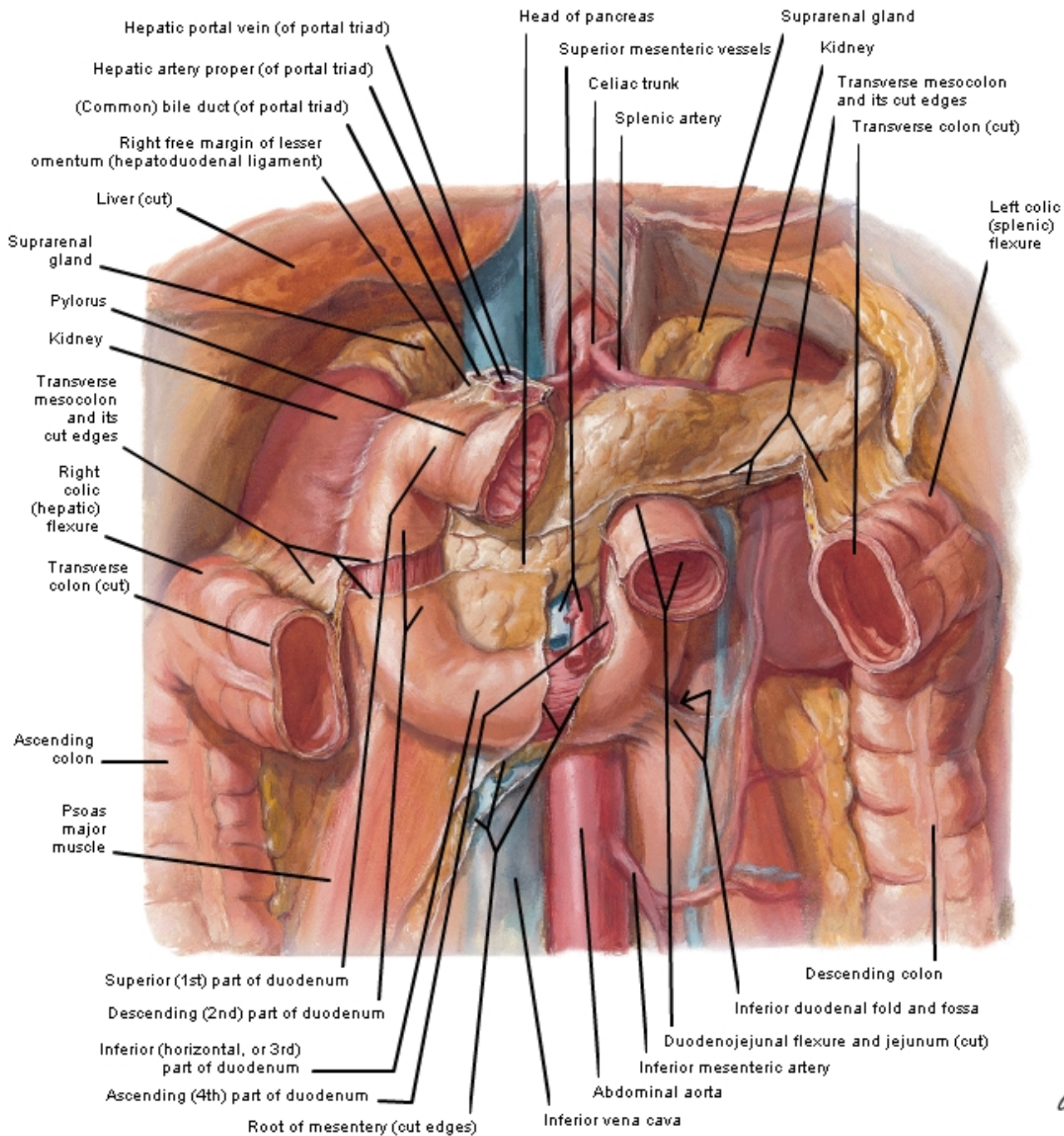
Musculature of Stomach: Inner Surface



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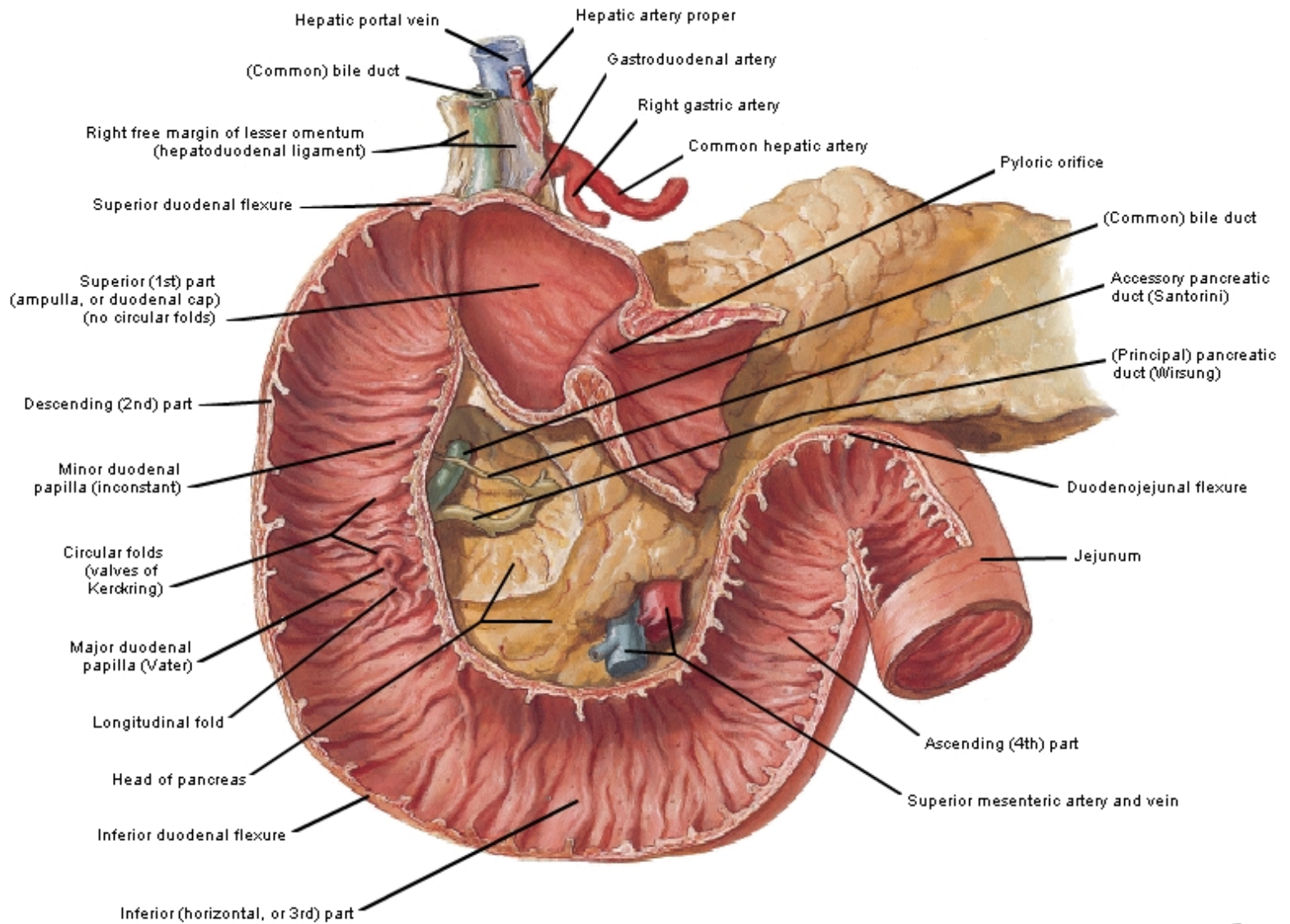
ABDOMEN

Duodenum In Situ



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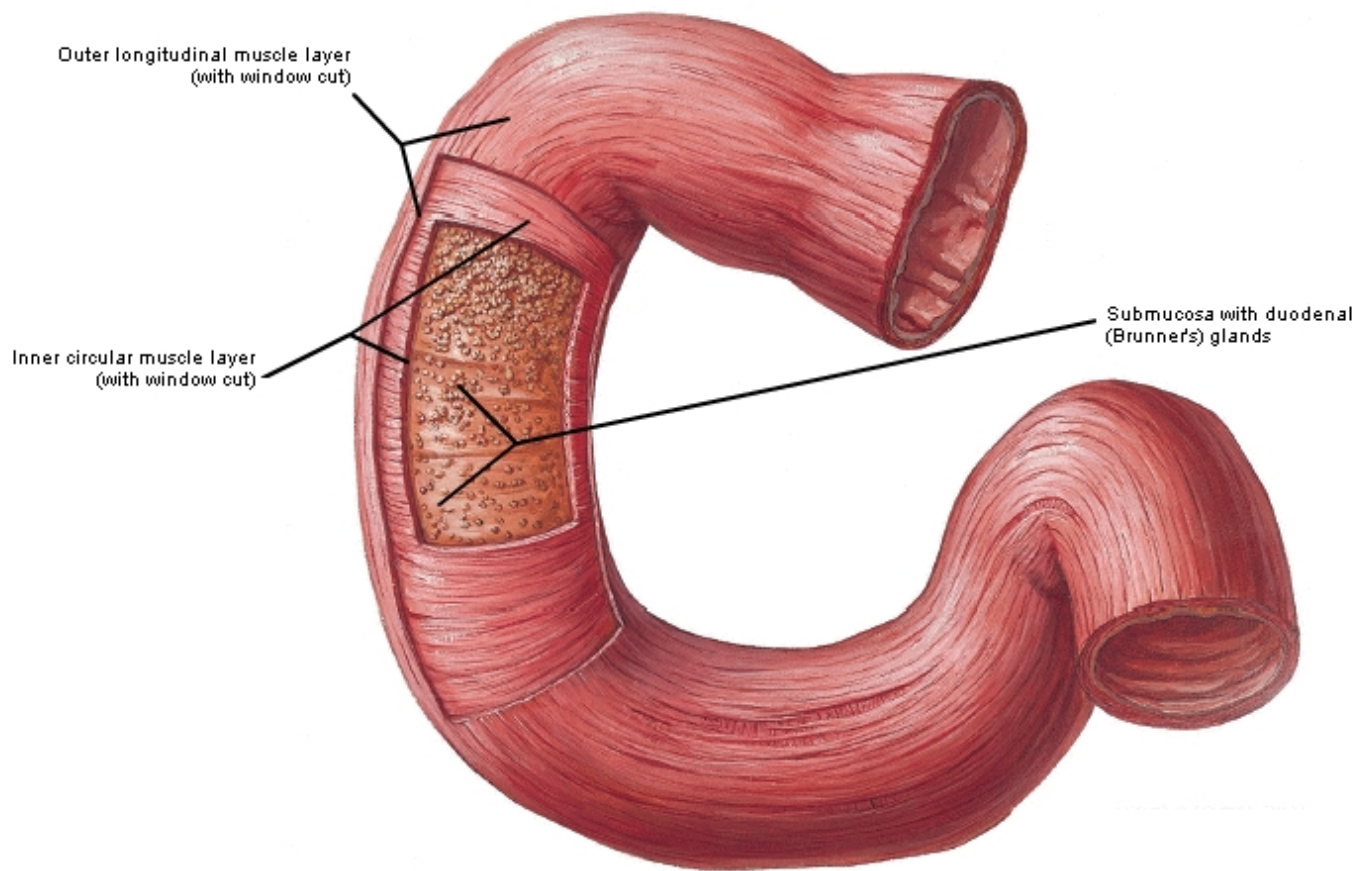
Mucosa of Duodenum



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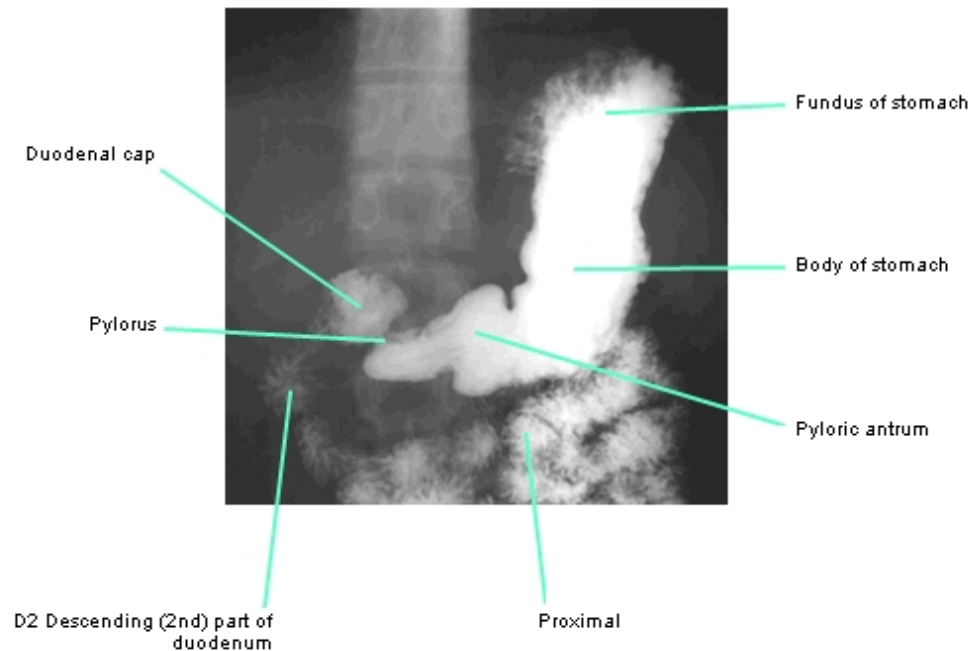
Musculature of Duodenum

Layers of Wall

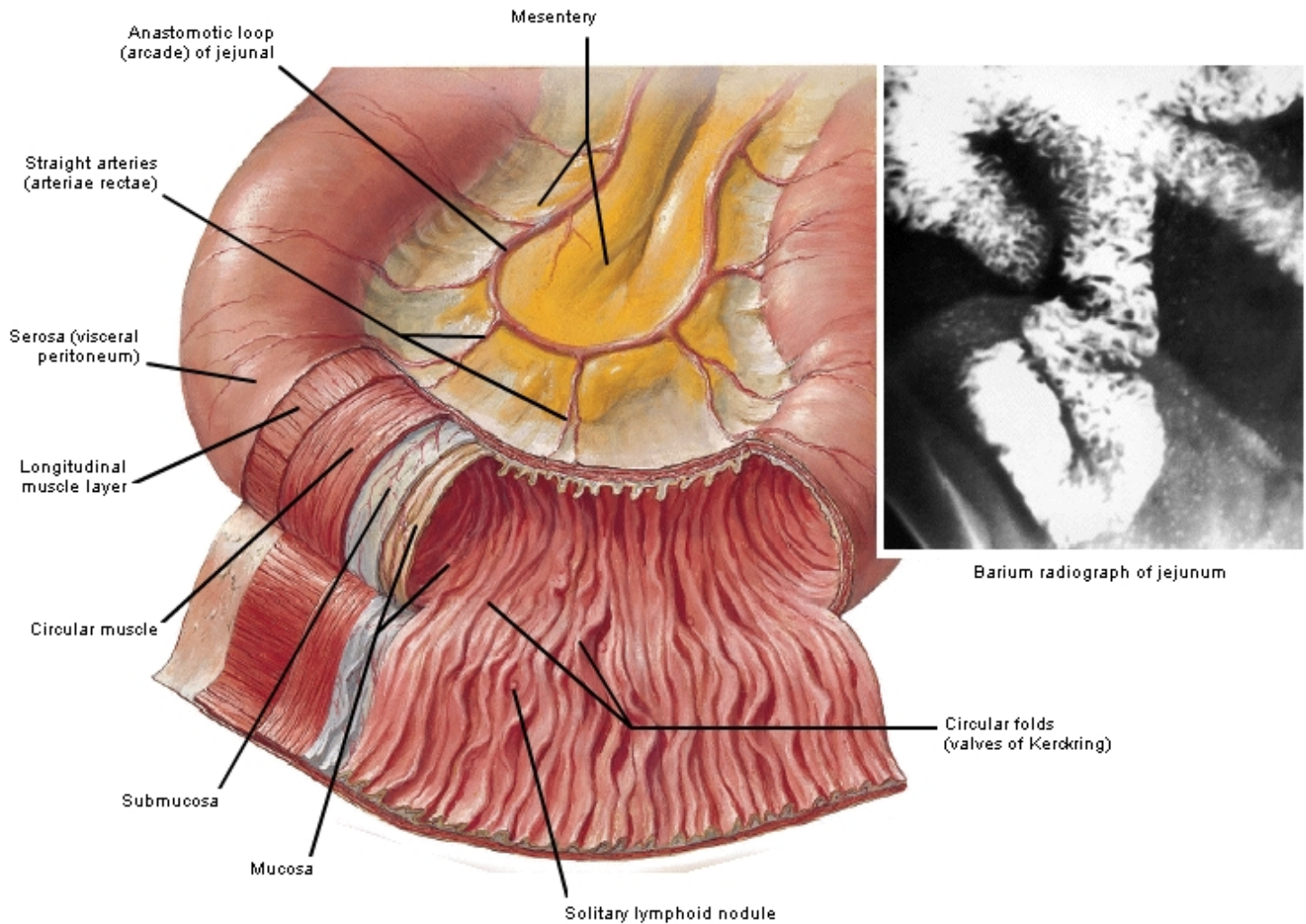


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Barium radiograph of stomach, duodenum and proximal jejunum

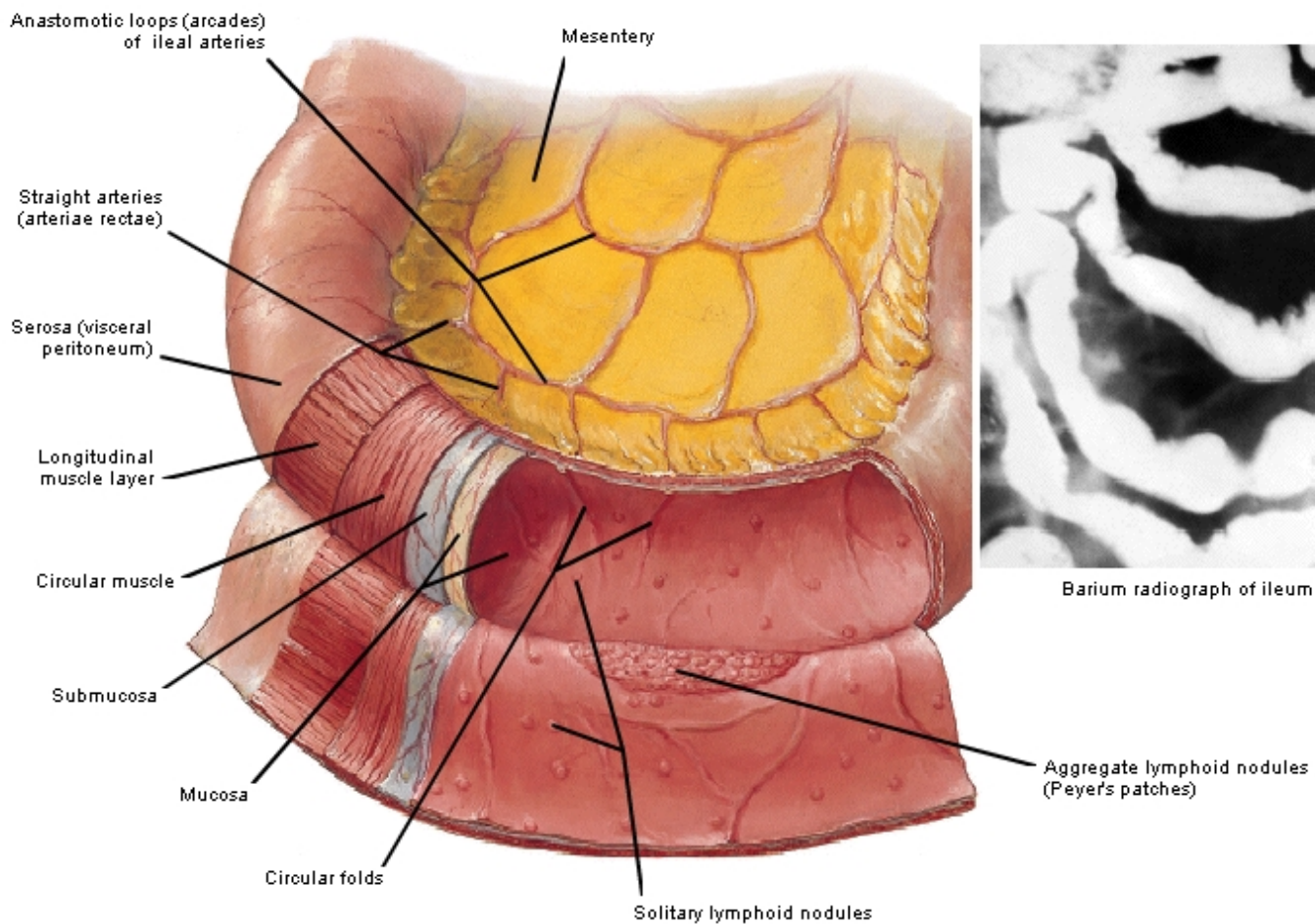


Mucosa and Musculature of Jejunum



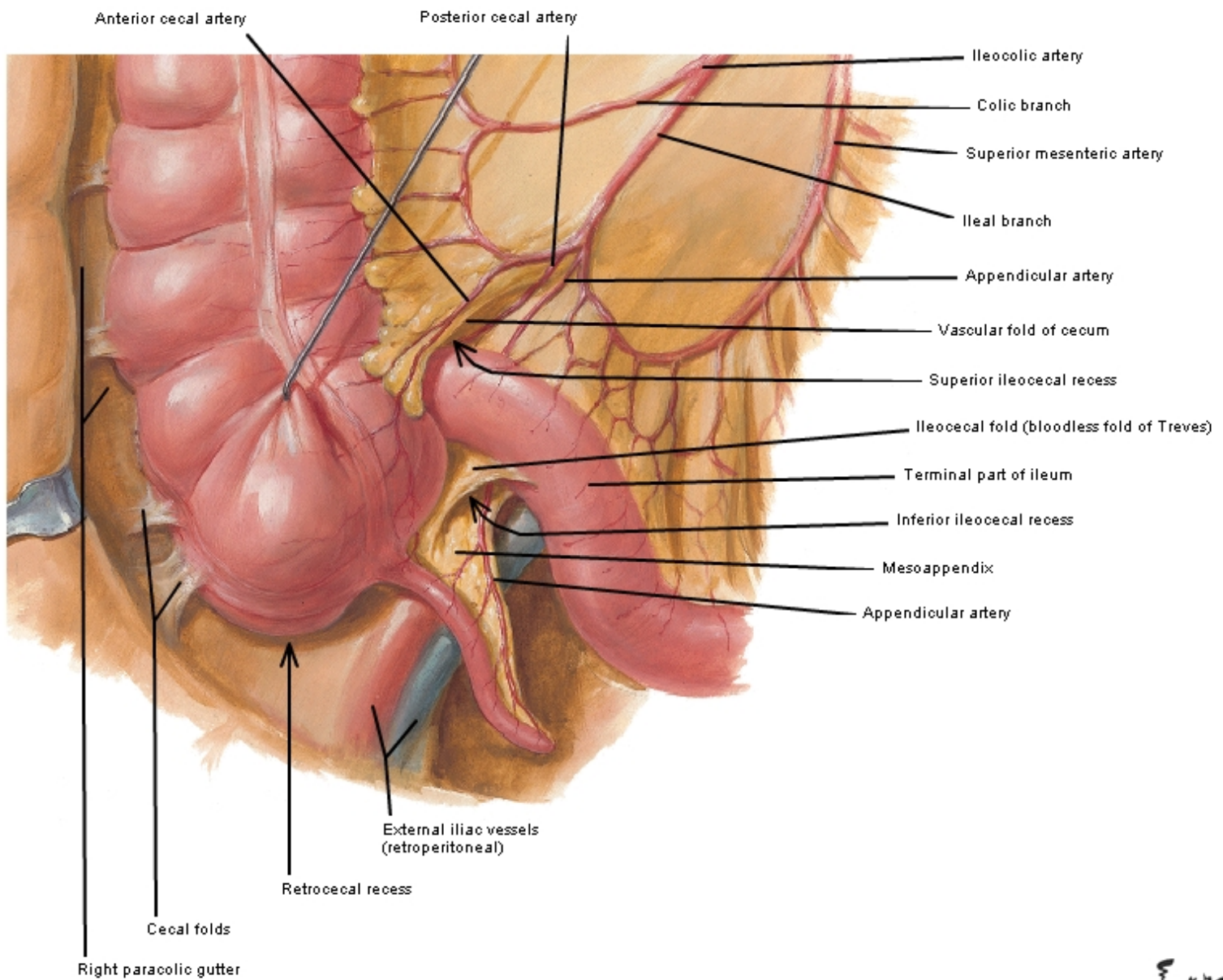
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Mucosa and Musculature of Ileum



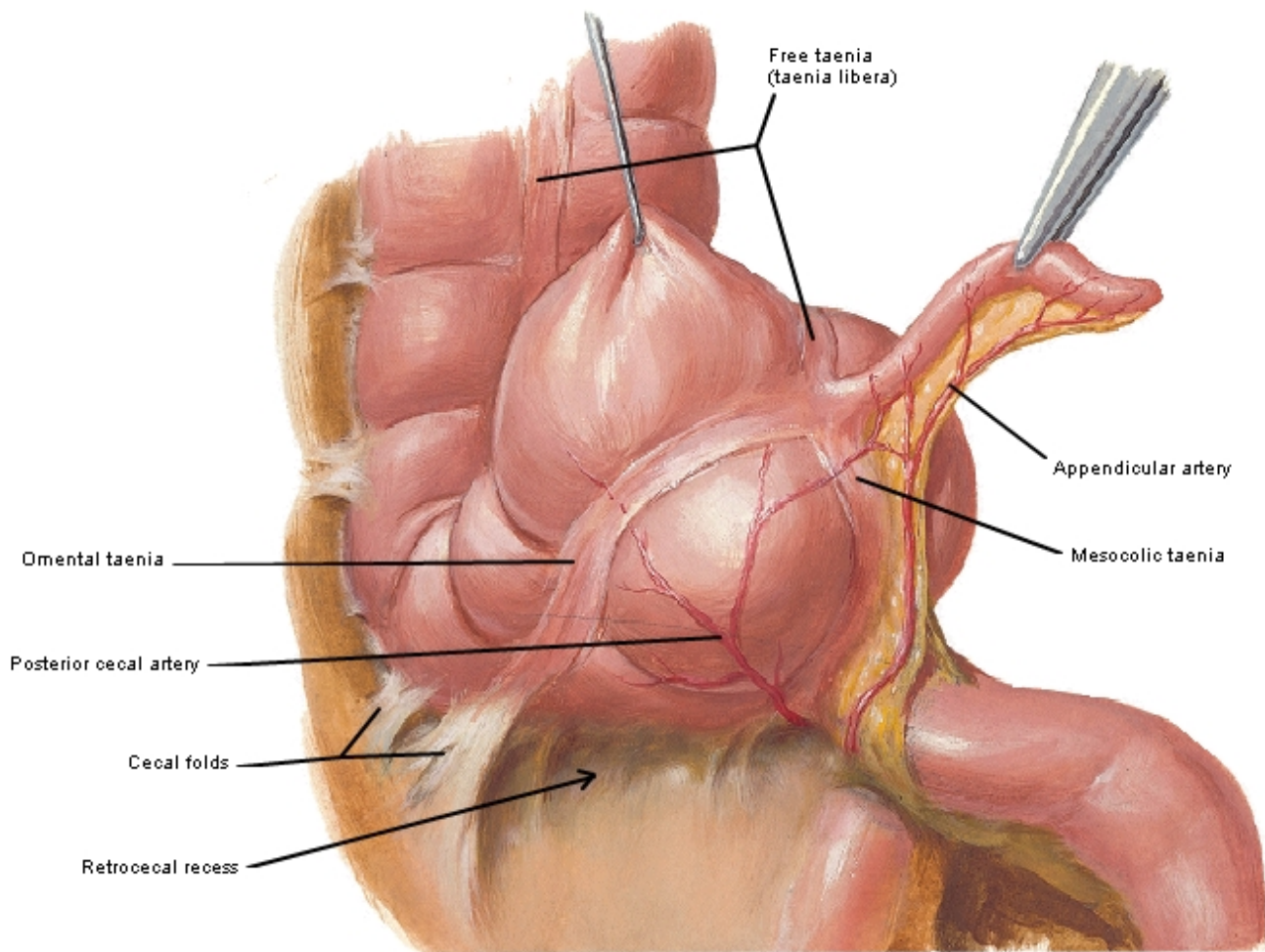
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Ileocecal Region



F. Netter M.D.
© IGCN

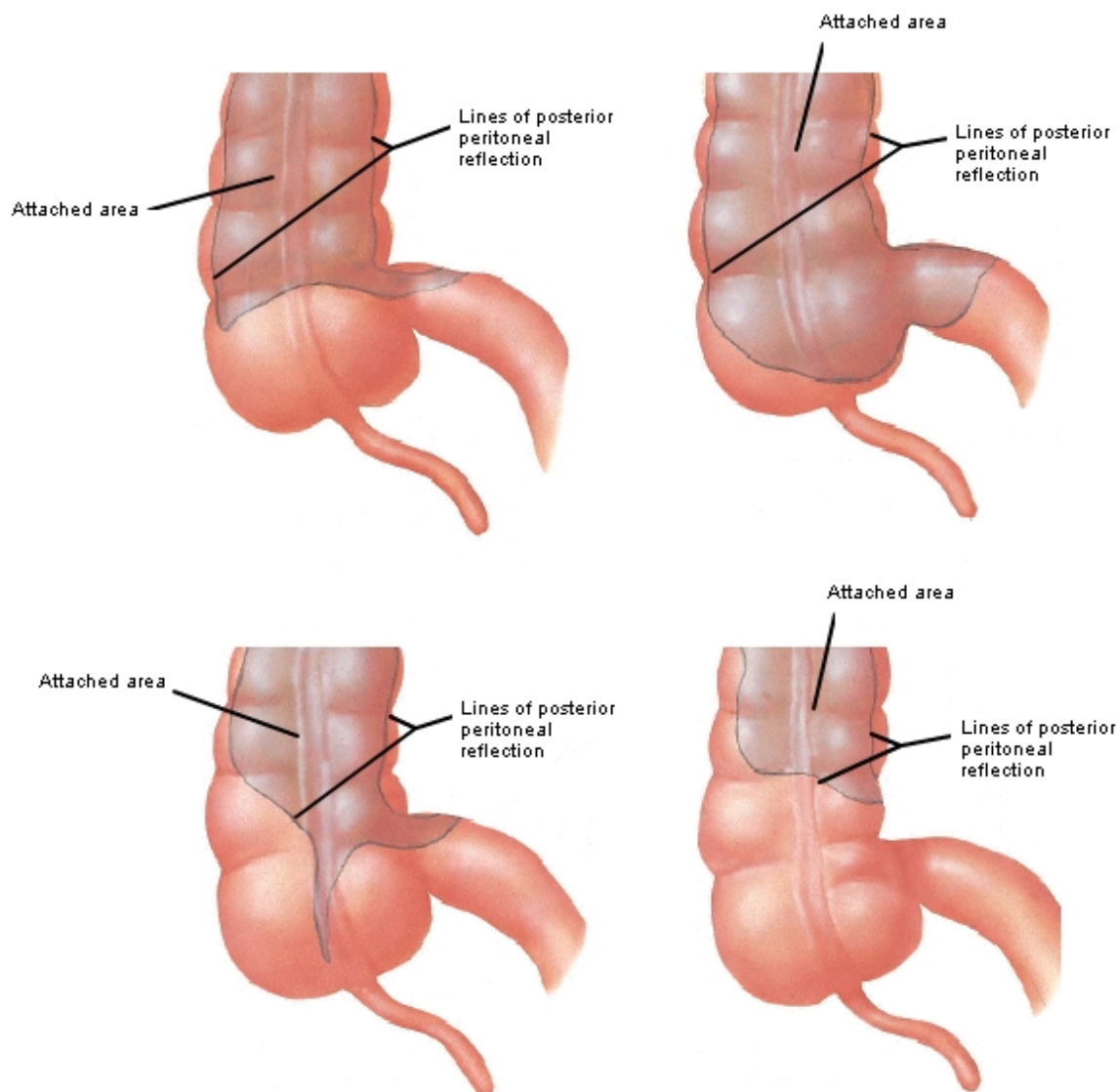
Ileocecal Region Retrocecal Recess Exposed



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Ileocecal Region

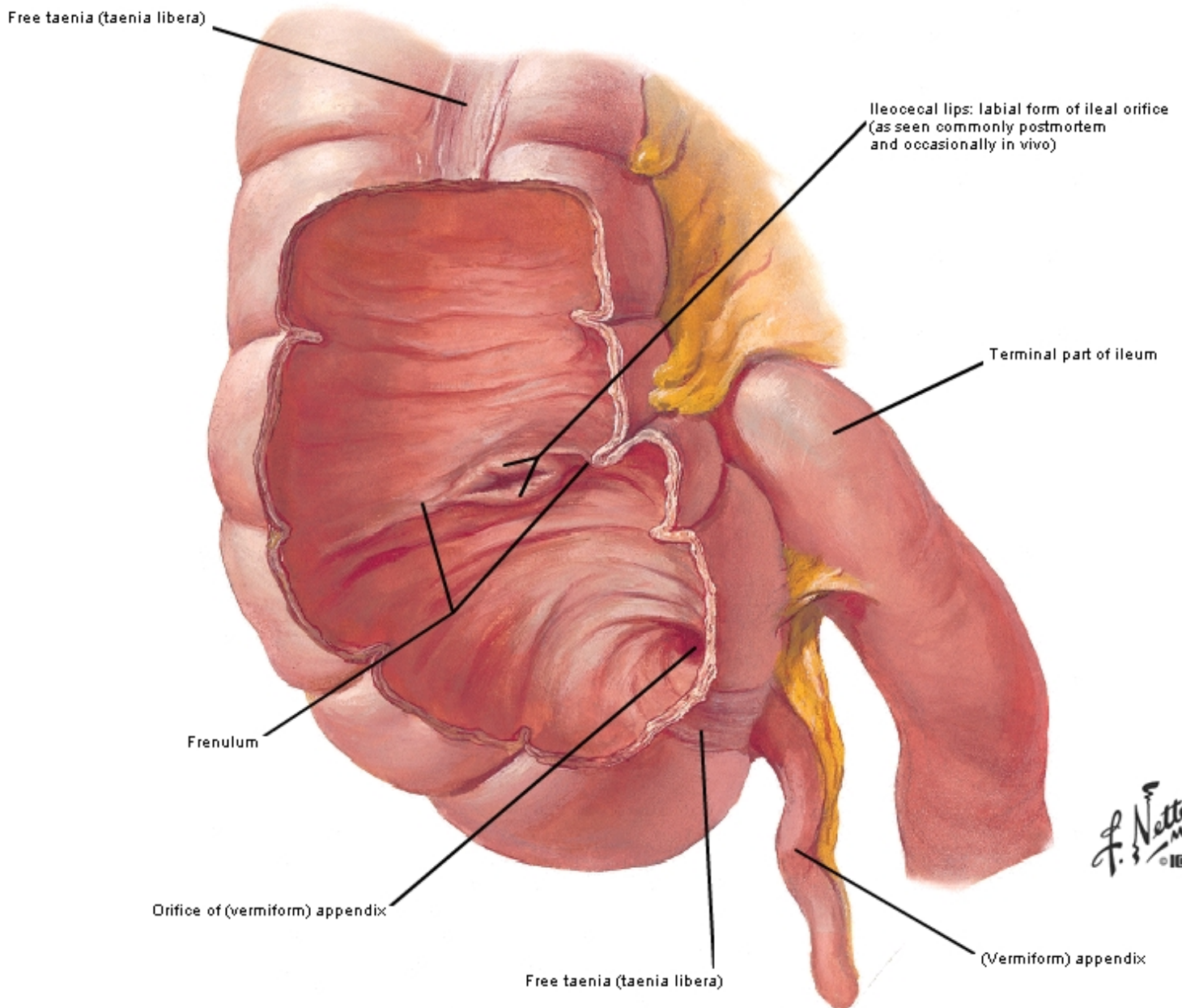
Variations in Posterior Peritoneal Attachment



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Ileocecal Region

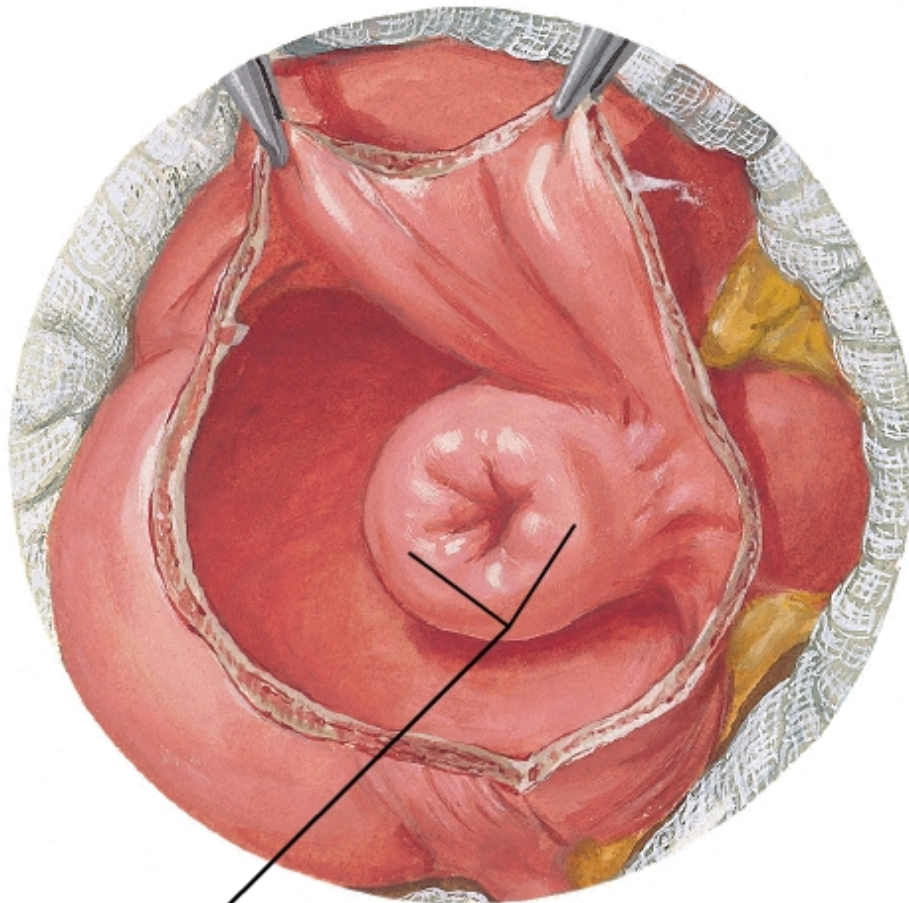
Labial Form of Ileocecal Sphincter



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Ileocecal Region

Papillary Form of Ileocecal Sphincter

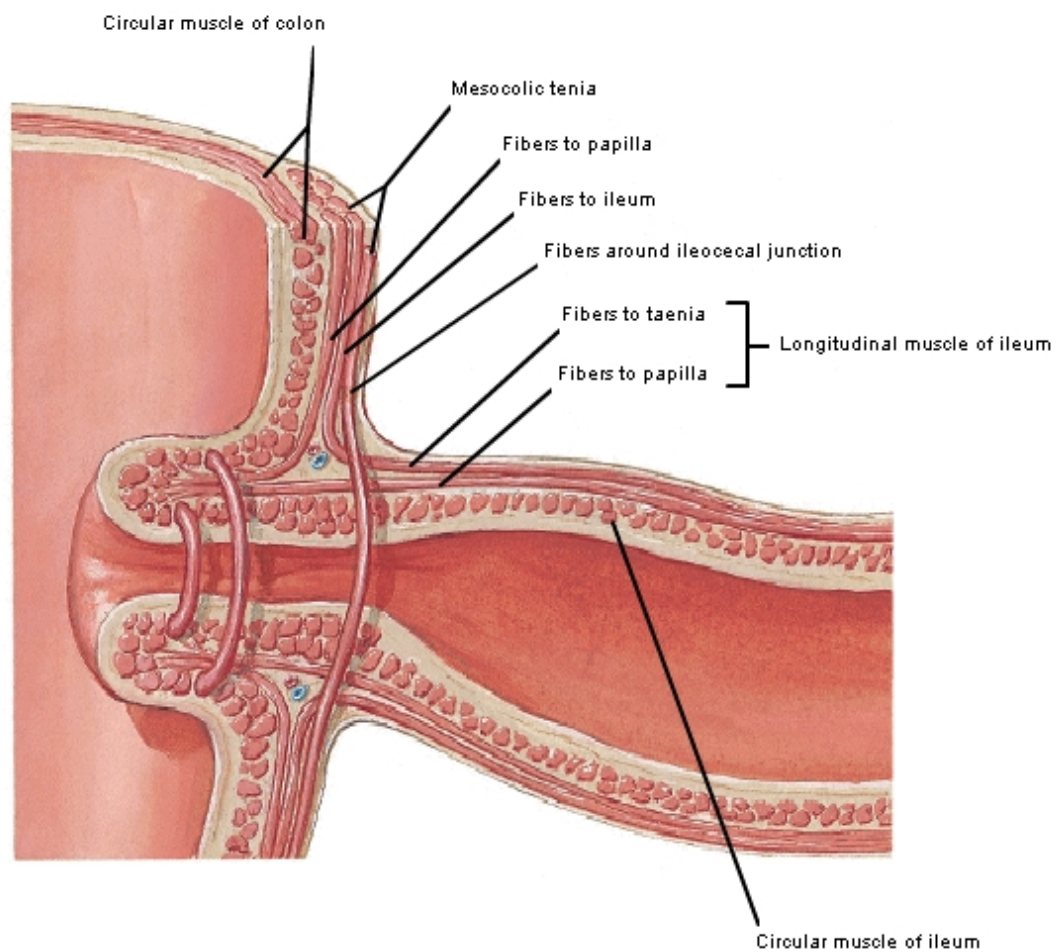


Ileal papilla: papillary form of ileal orifice
(found most commonly in vivo)

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© 1994

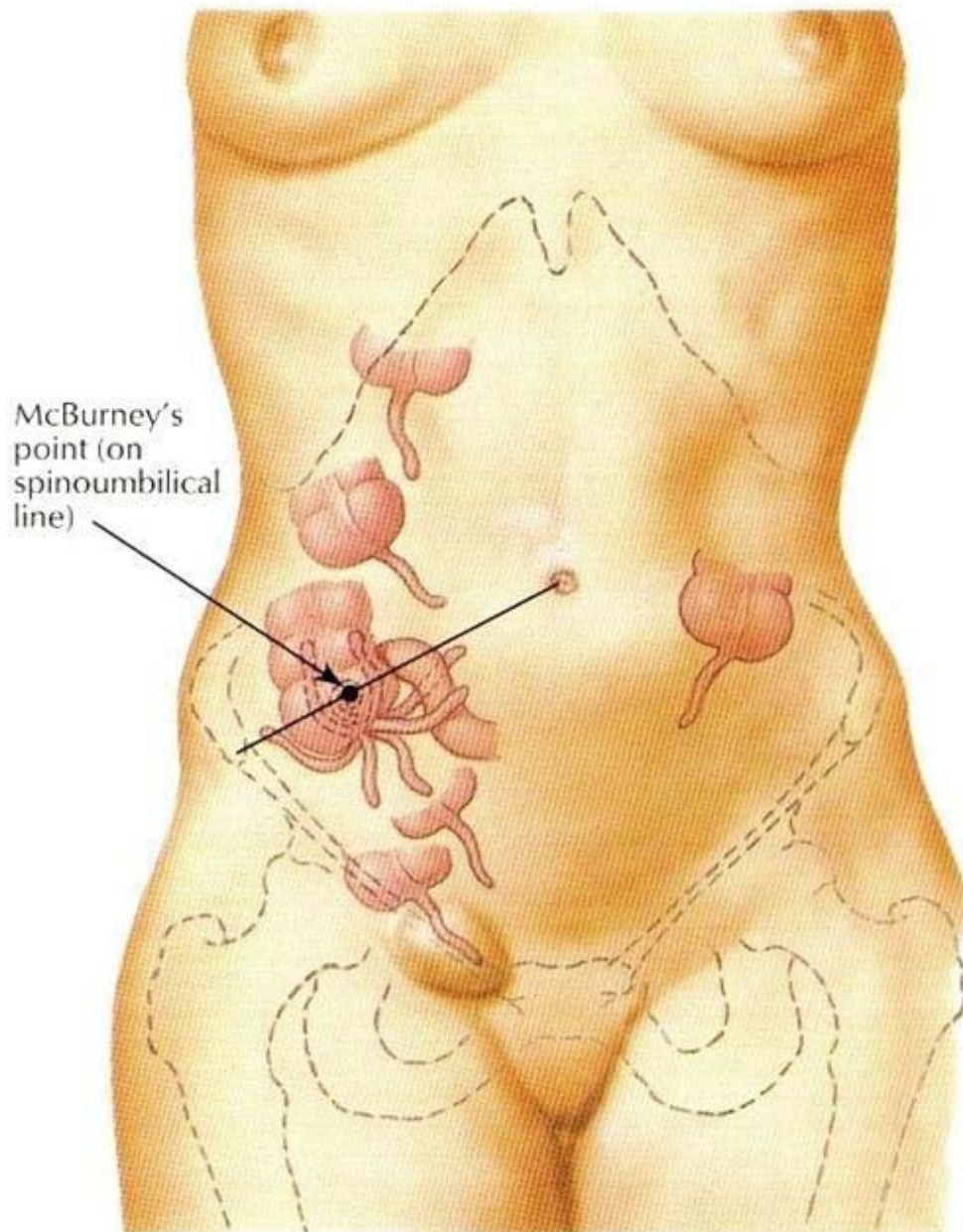
Ileocecal Region

Schema of Muscle Fibers at Ileal Orifice



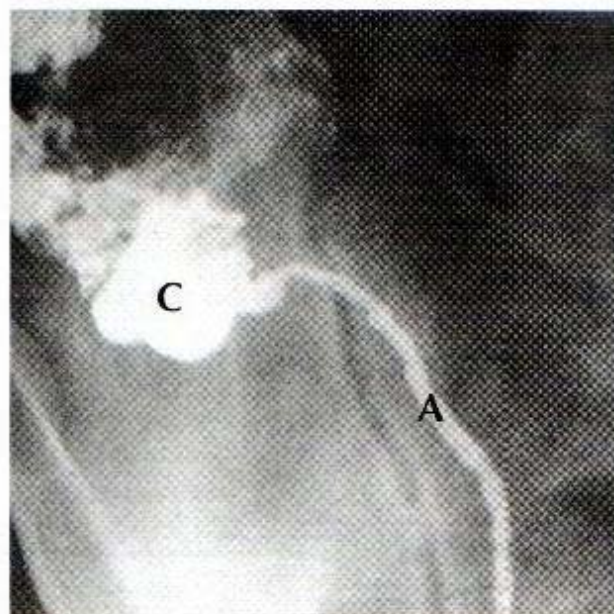
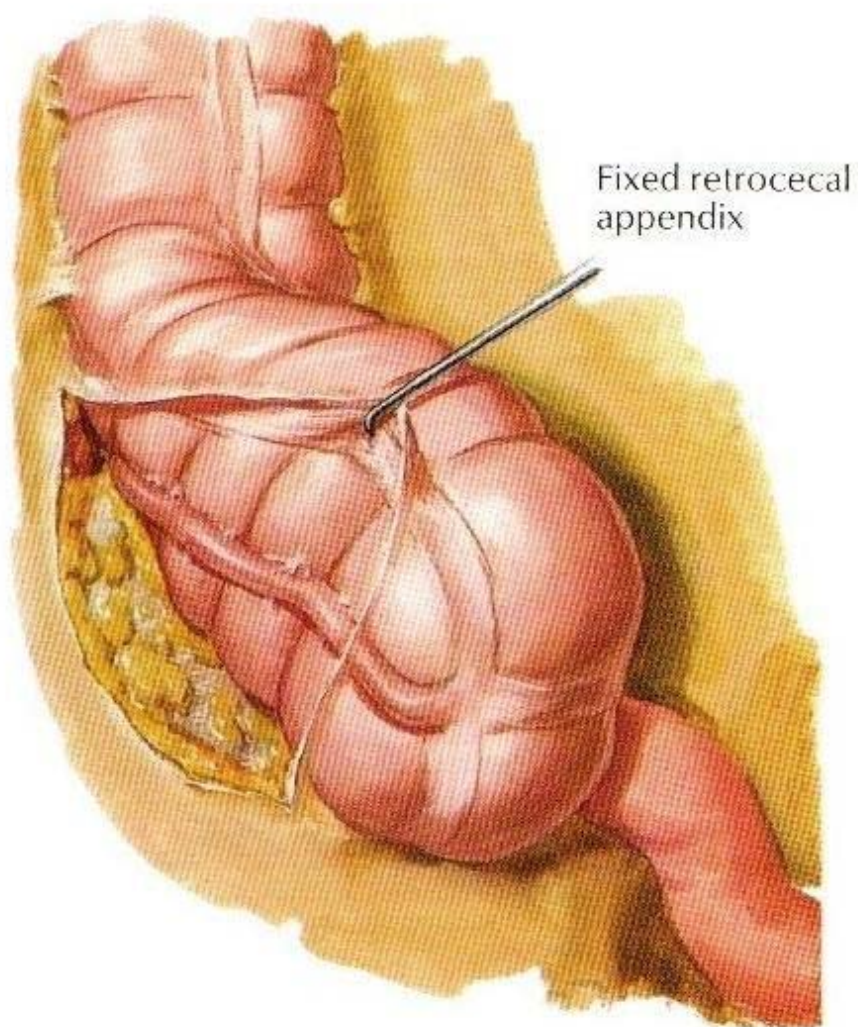
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Variation in Position of Appendix



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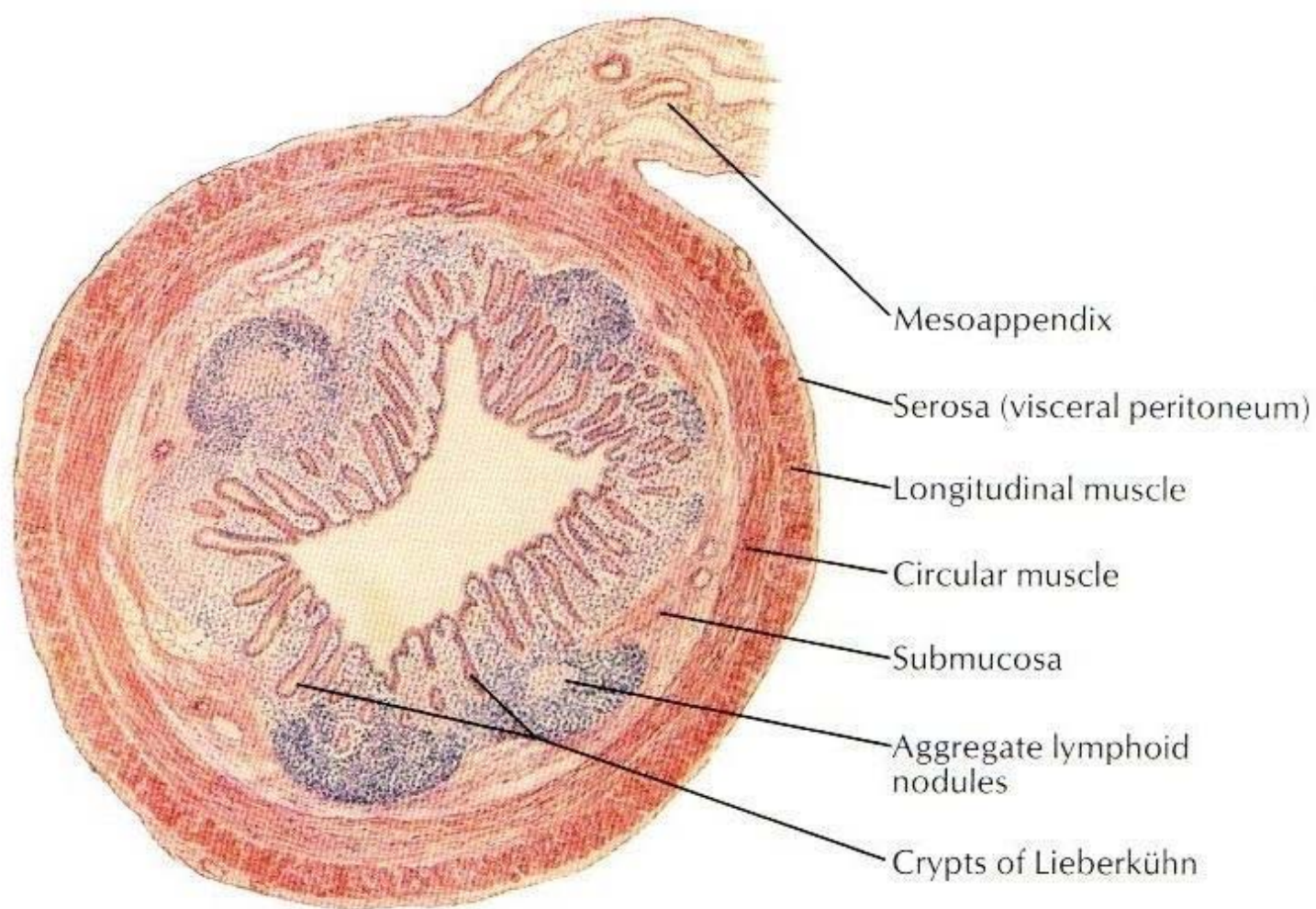
Vermiform Appendix



Barium radiograph of unusually long appendix (A Appendix; C Cecum)

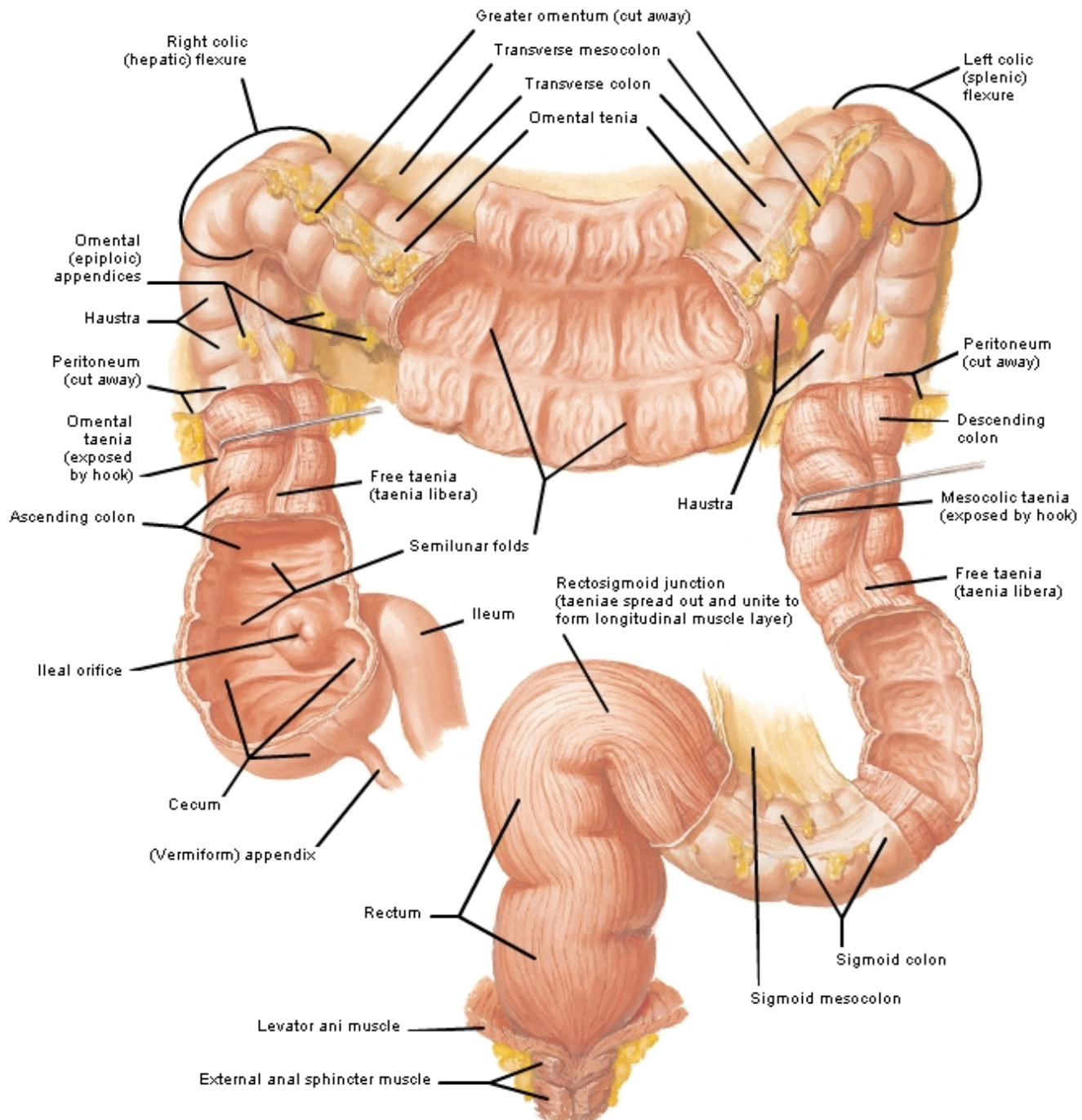
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Vermiform Appendix: Section



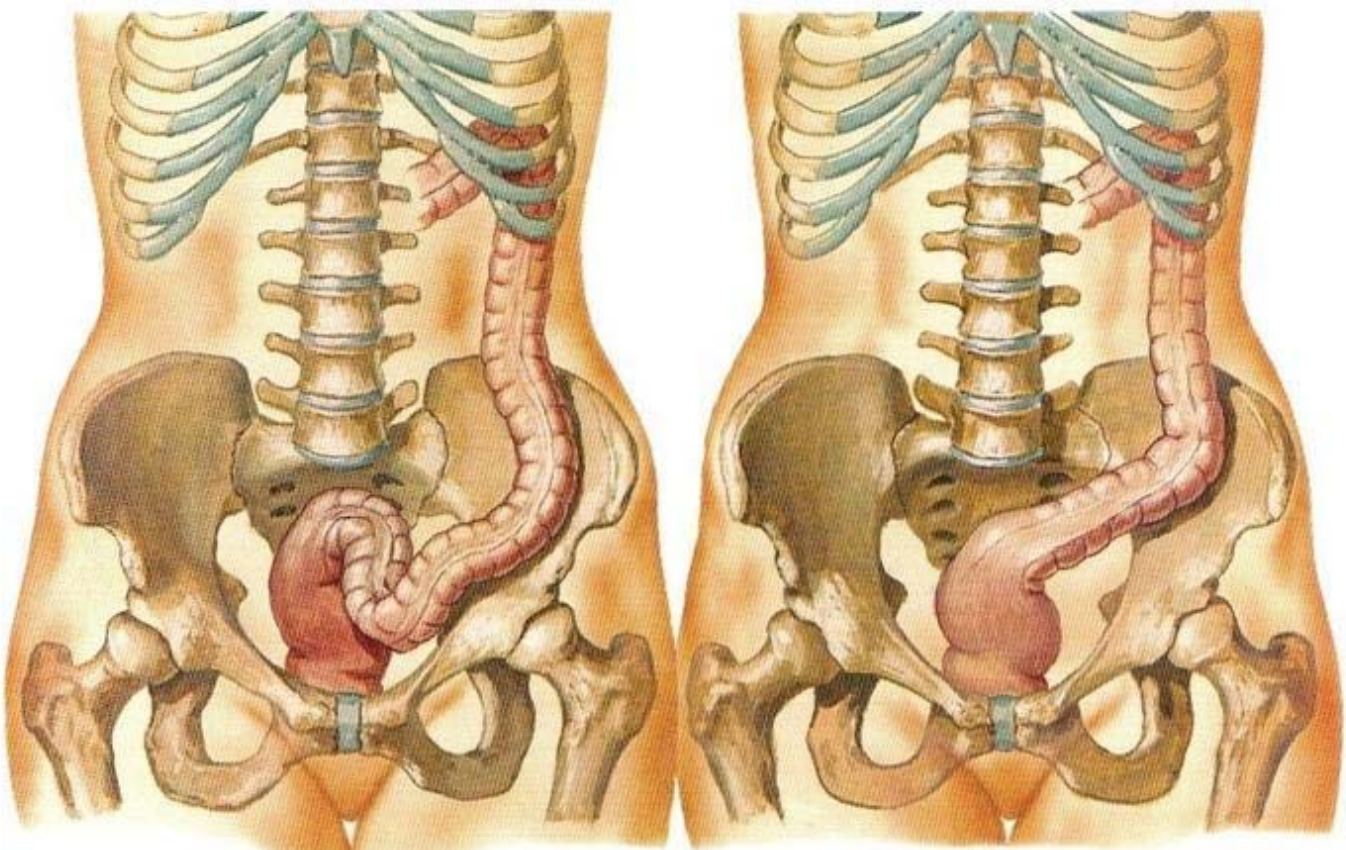
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Mucosa and Musculature of Large Intestine



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Sigmoid Colon: Variations in Positions

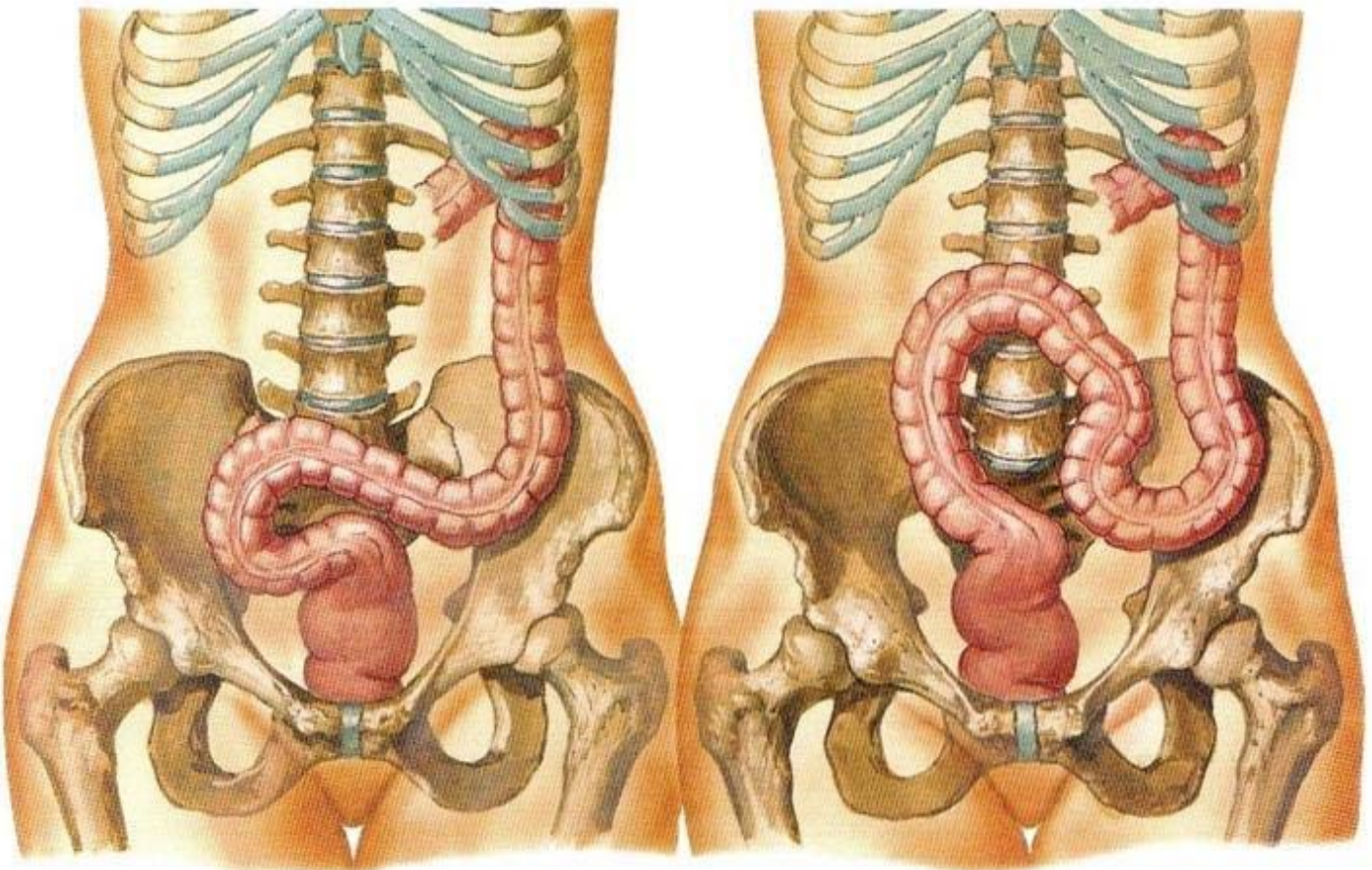


Typical

Short, straight, obliquely into pelvis

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Sigmoid Colon: Variations in Position

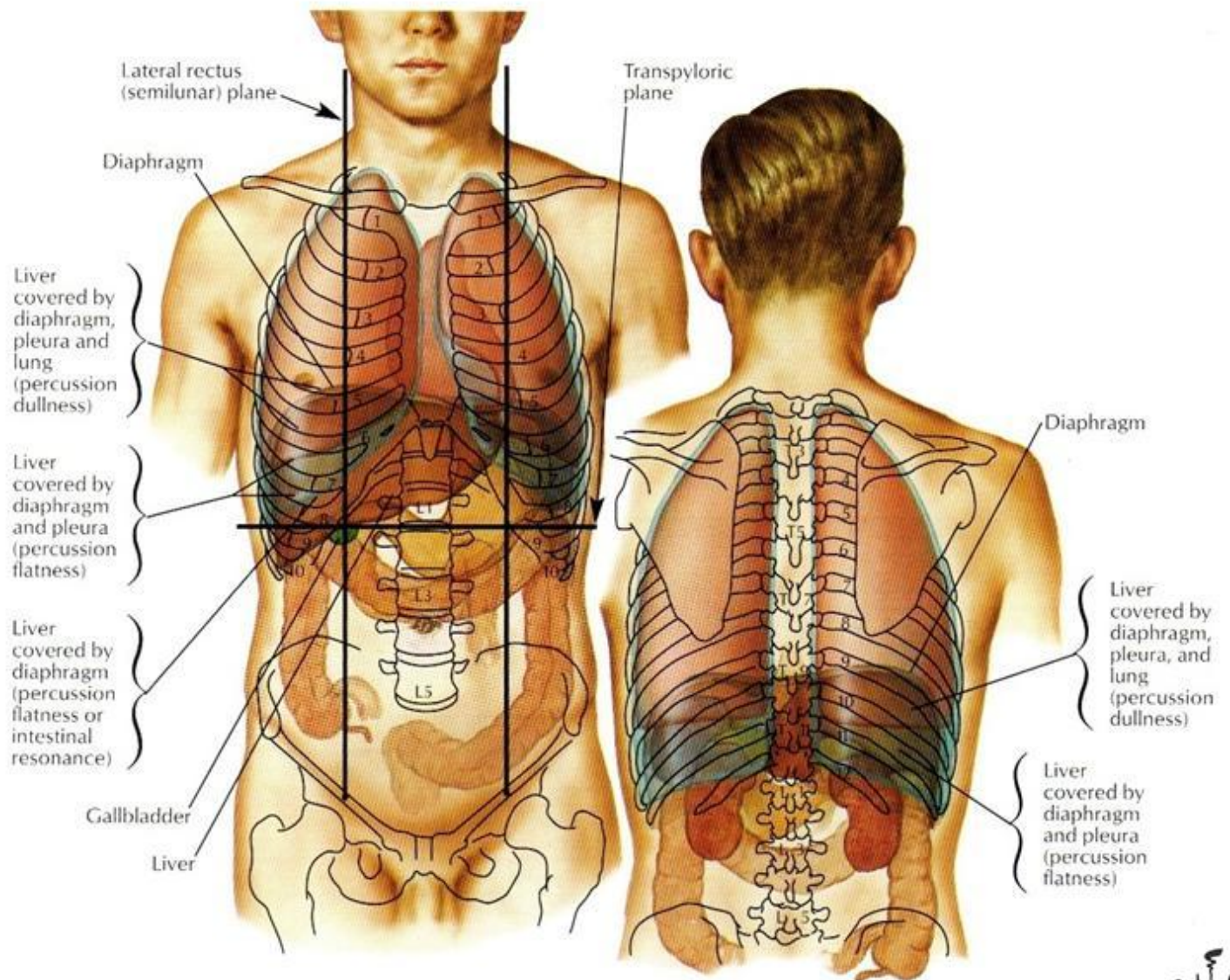


Looping to right side

Ascending high into abdomen

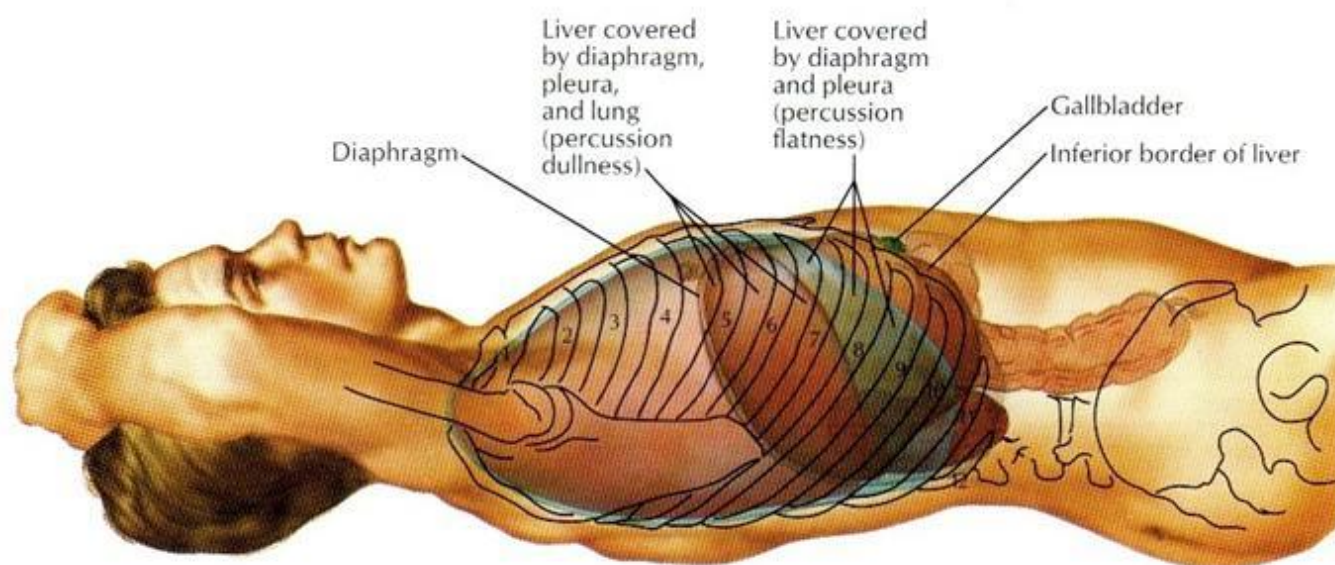
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M.D.
© 1964

Topography of Liver: Anterior and Posterior



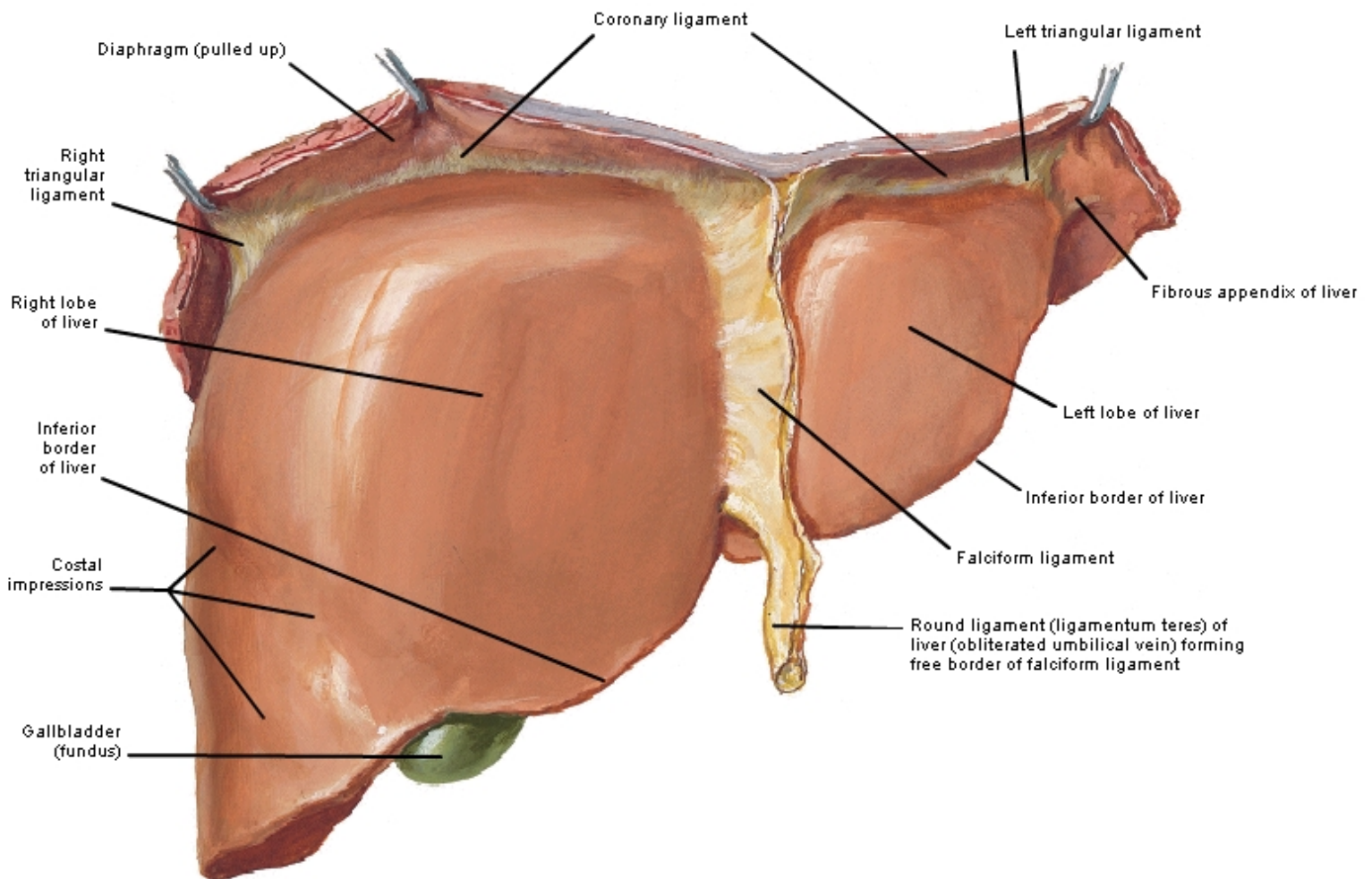
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Topography of Liver: Lateral



F. Netter M.D.
© 1974

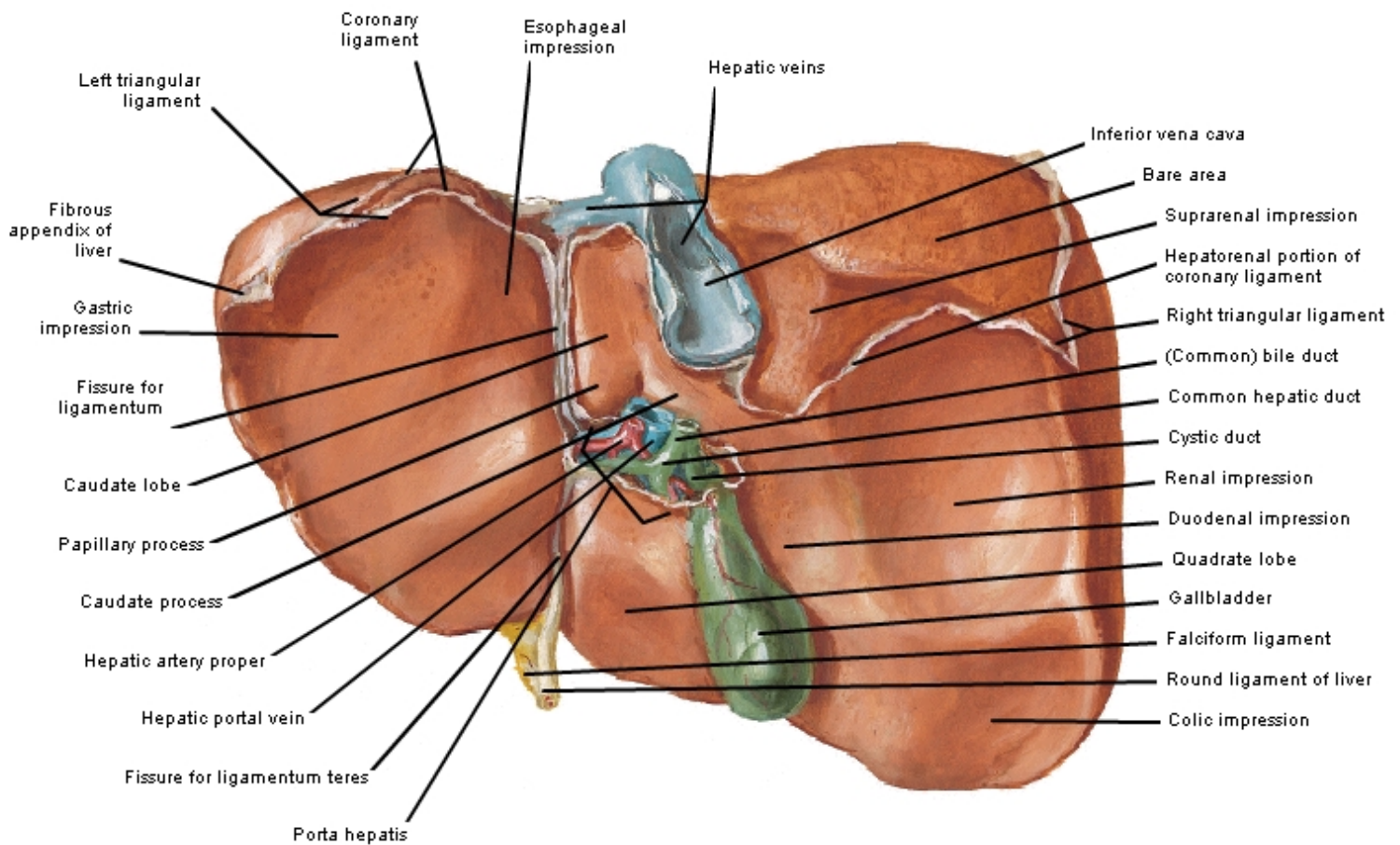
Surfaces and Bed of Liver Anterior View



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Surfaces and Bed of Liver

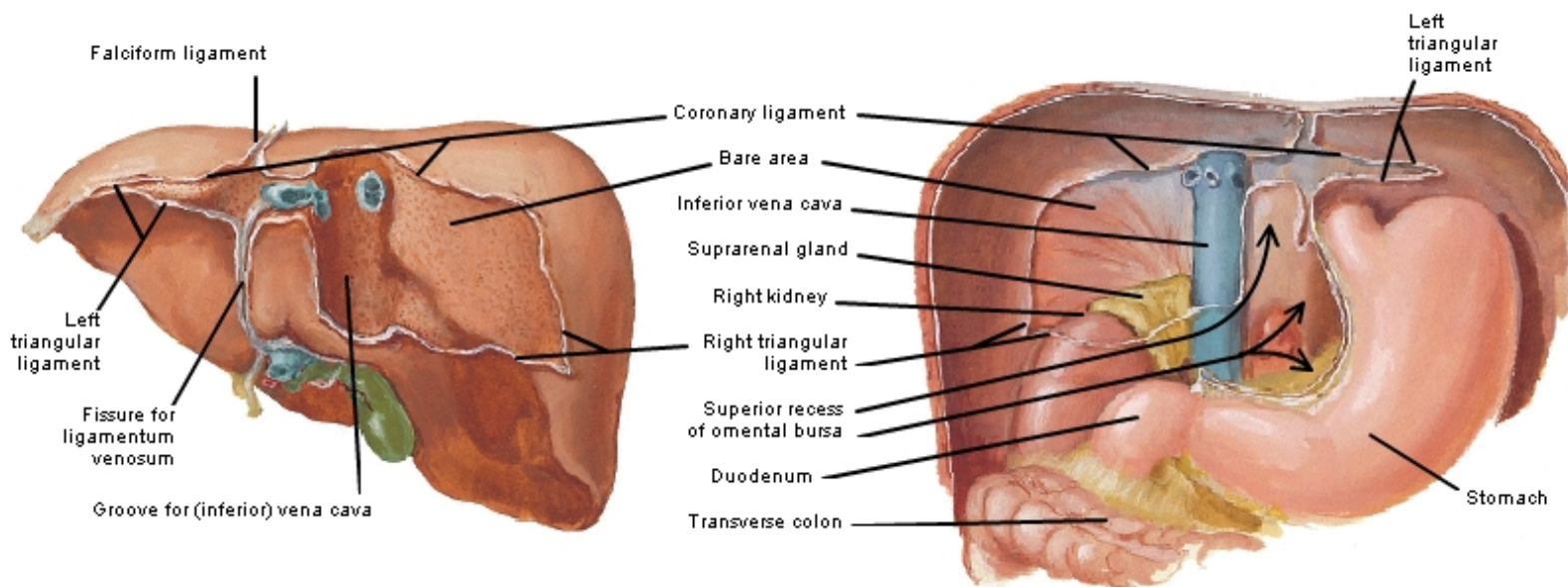
Visceral Surface



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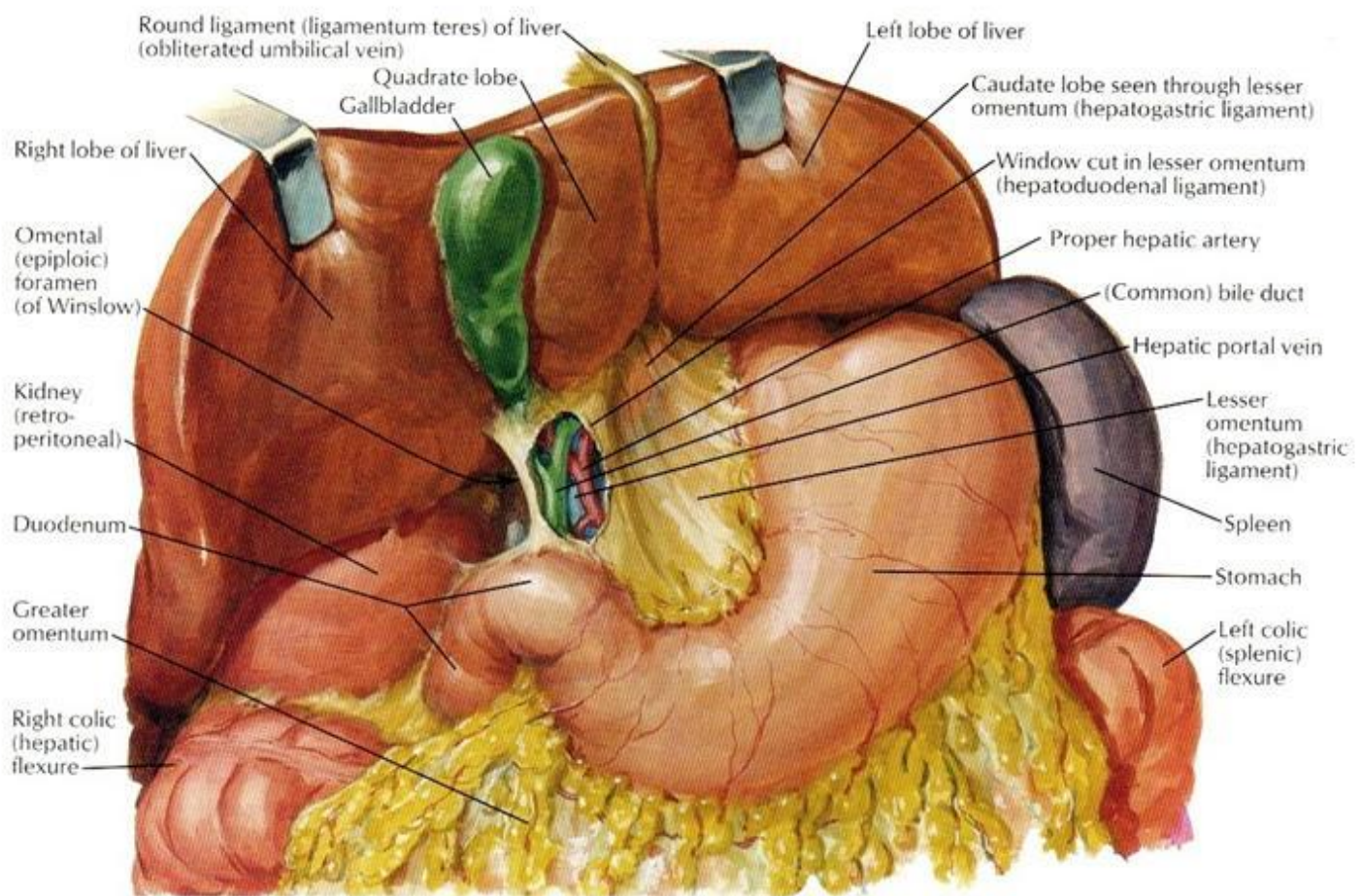
Surfaces and Bed of Liver

Posterior View and Bed of Liver



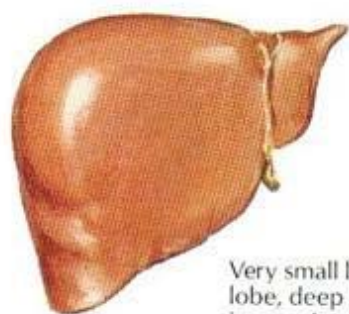
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Liver in Situ



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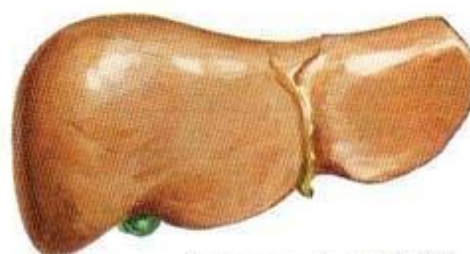
Liver: Variations in Form



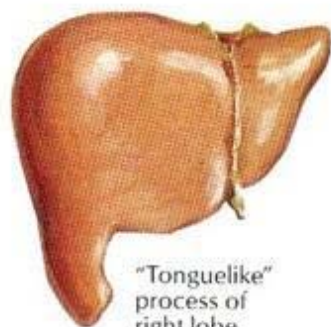
Very small left lobe, deep costal impressions



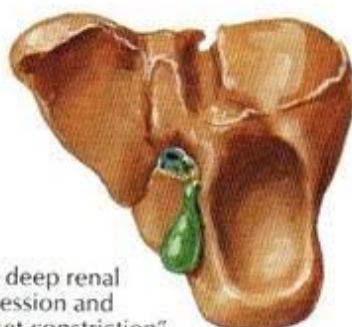
Complete atrophy of left lobe (left portal vein compression)



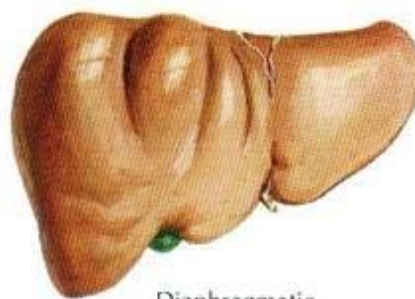
Transverse, "saddlelike" liver, relatively large left lobe



"Tonguelike" process of right lobe



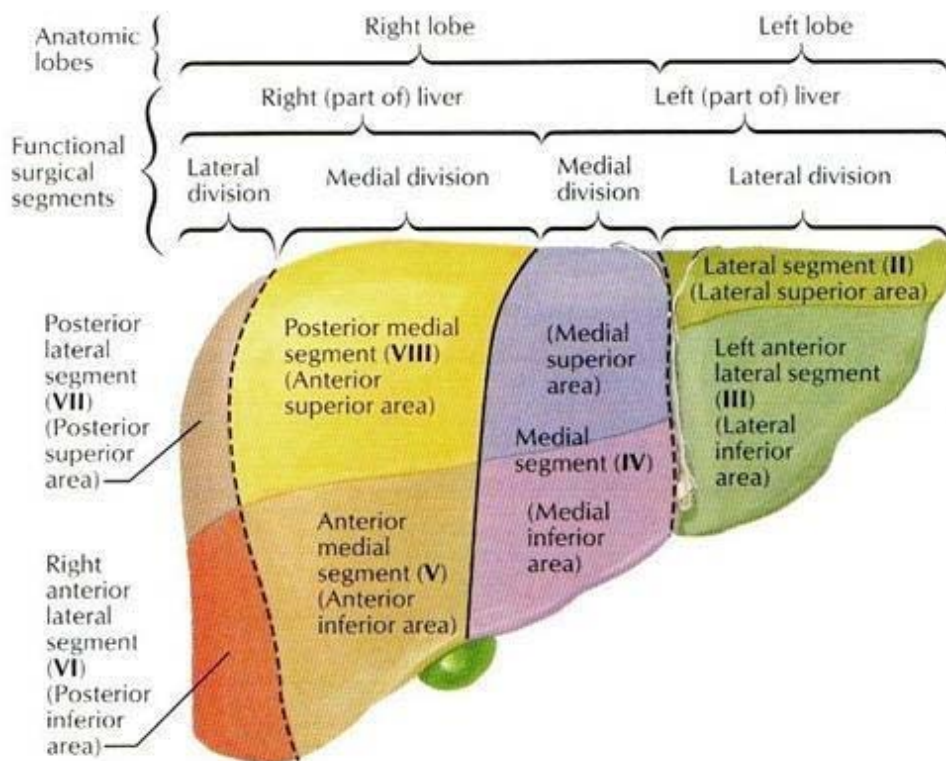
Very deep renal impression and "corset constriction"



Diaphragmatic grooves

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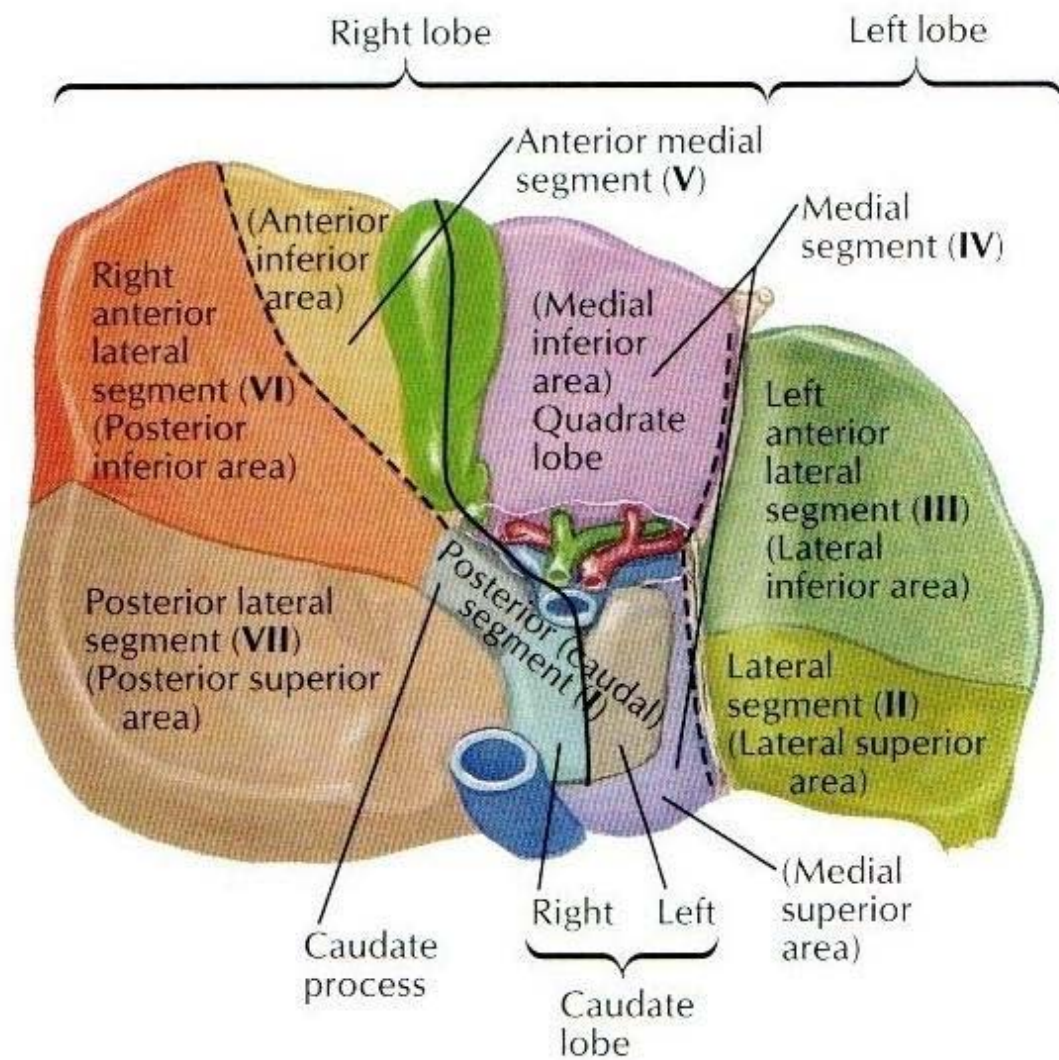
Liver Segments and Lobes: Parietal Surface



Division into segments is based upon ramifications of bile ducts and hepatic vessels. It does not entirely correspond with division into anatomic lobes.

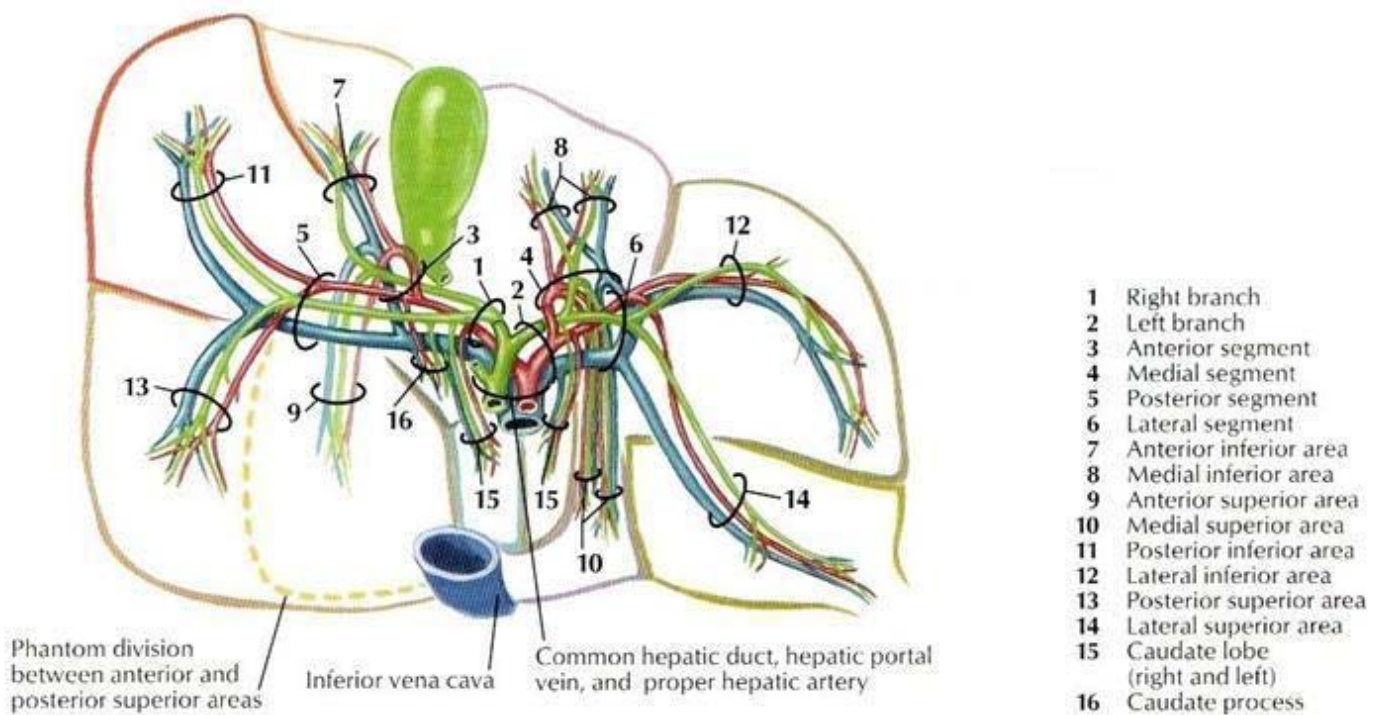
F. Netter M.D.
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Liver Segments and Lobes: Visceral Surface



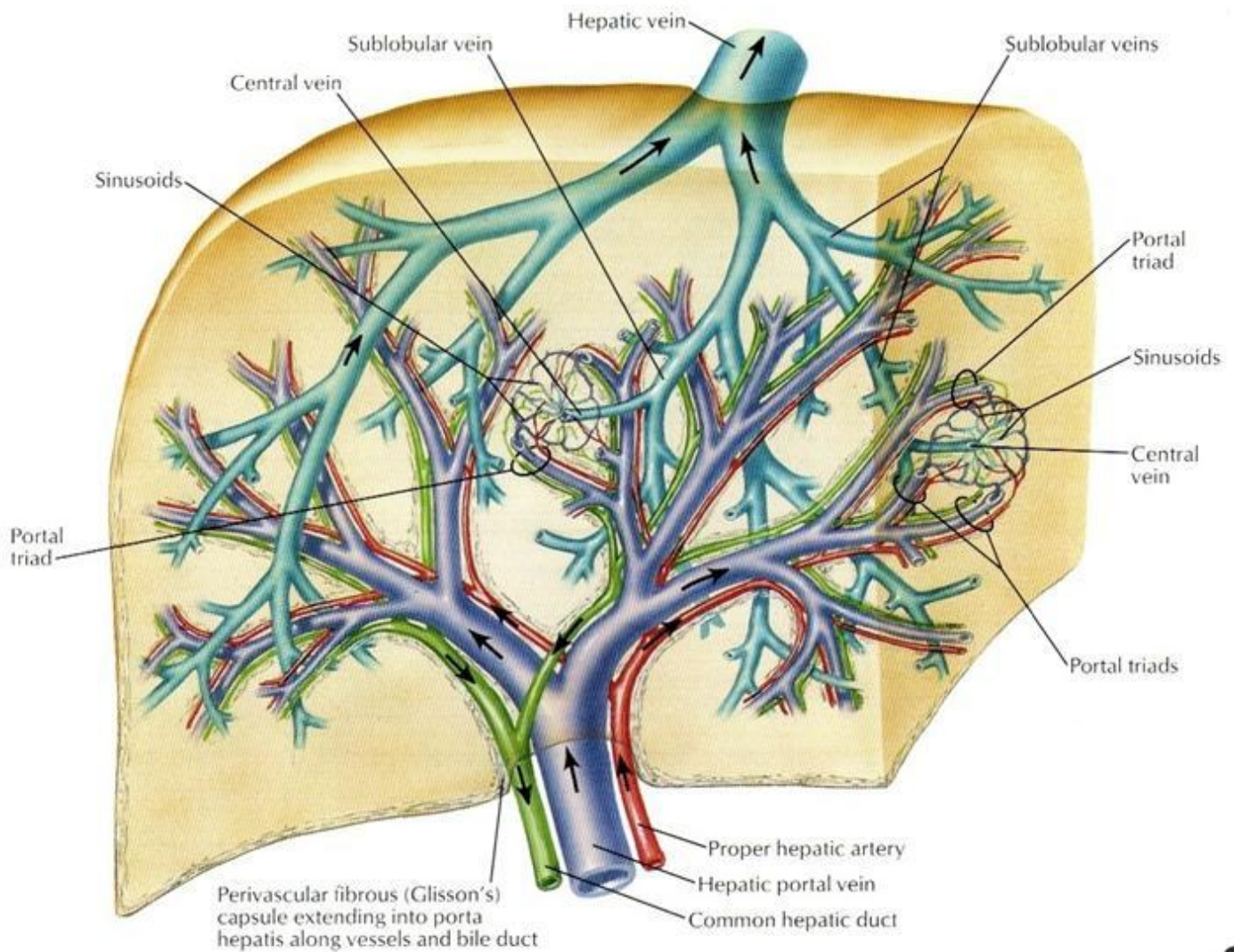
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Liver: Distribution of Vessels and Ducts



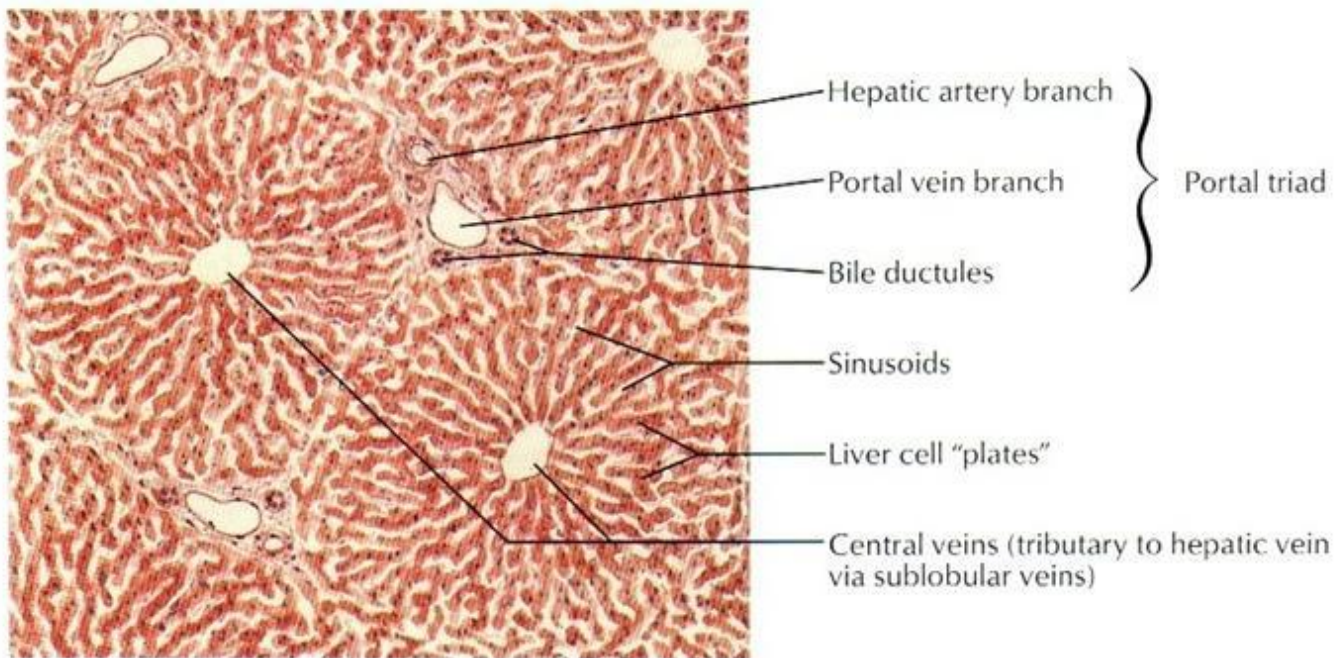
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Intrahepatic Vascular and Duct Systems



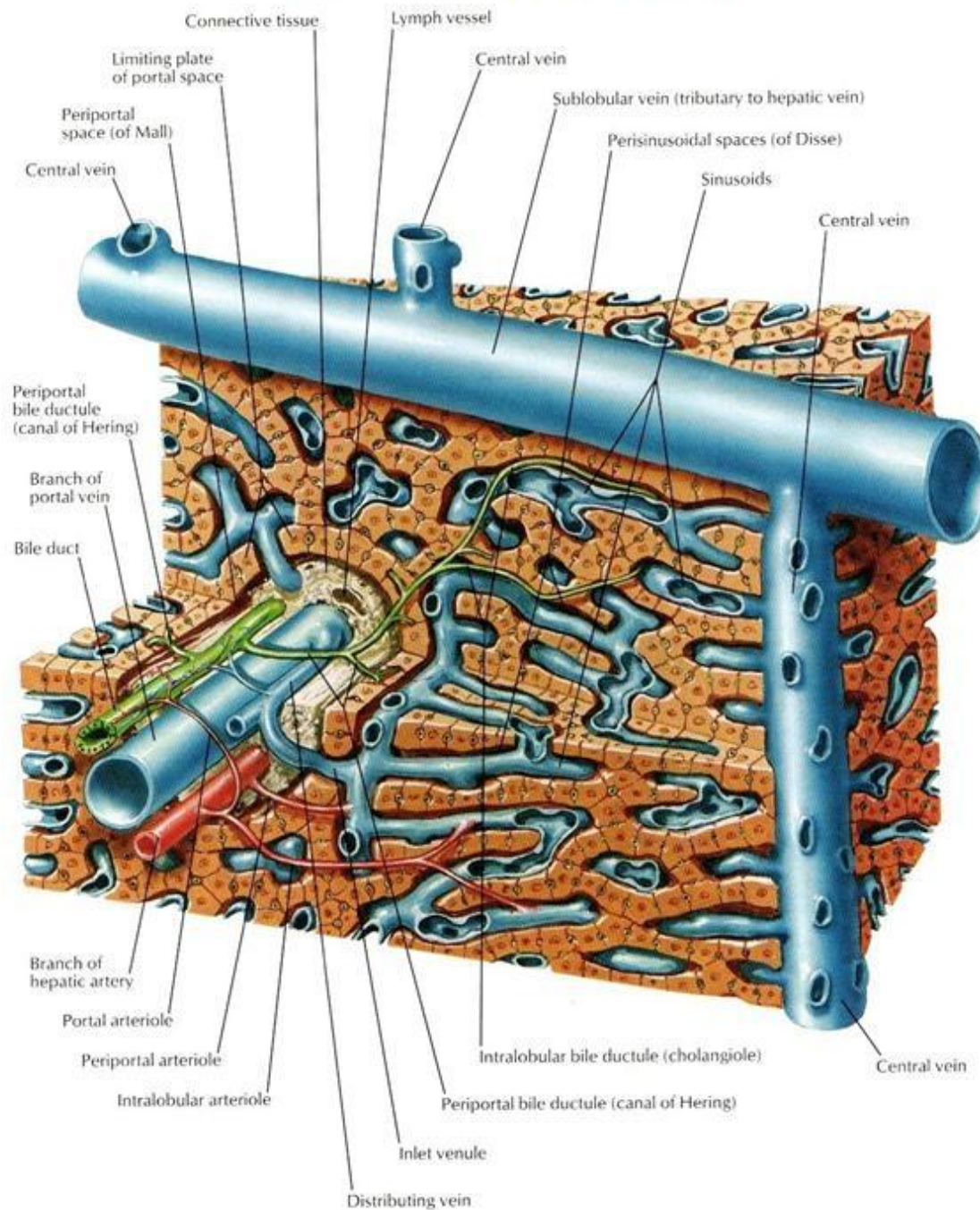
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Normal Lobular Pattern of Liver



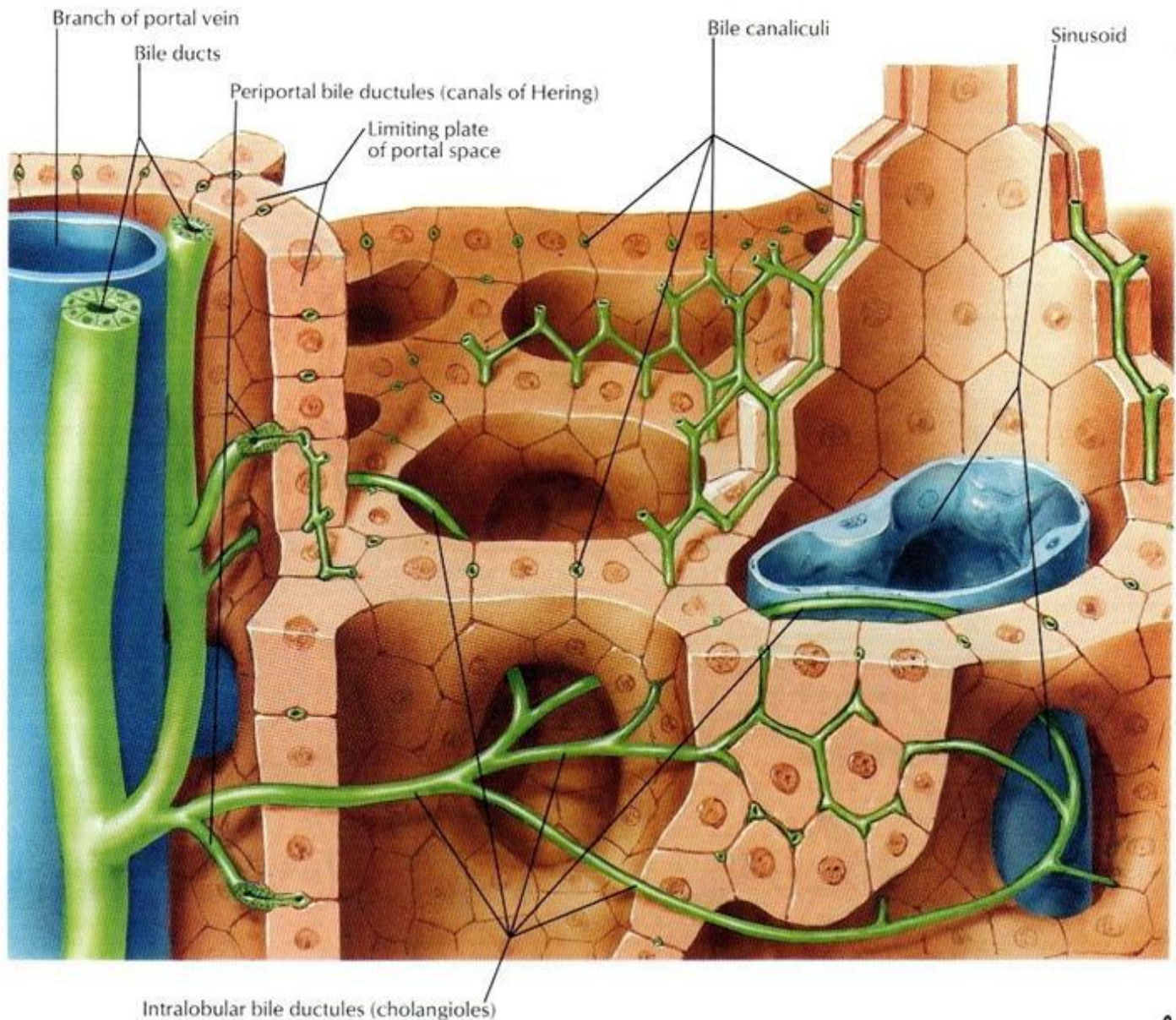
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Liver Structure: Schema



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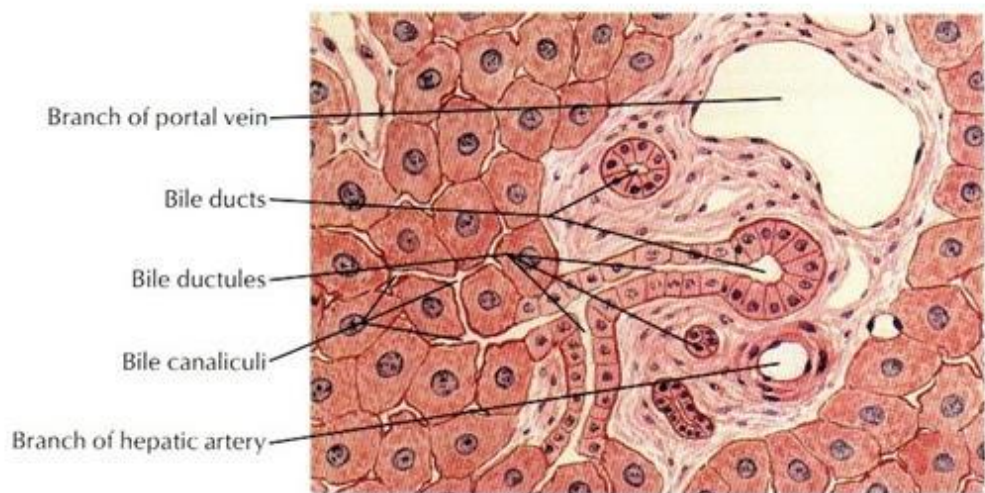
Intrahepatic Biliary Systems: Schema



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Low - Power Section of Liver

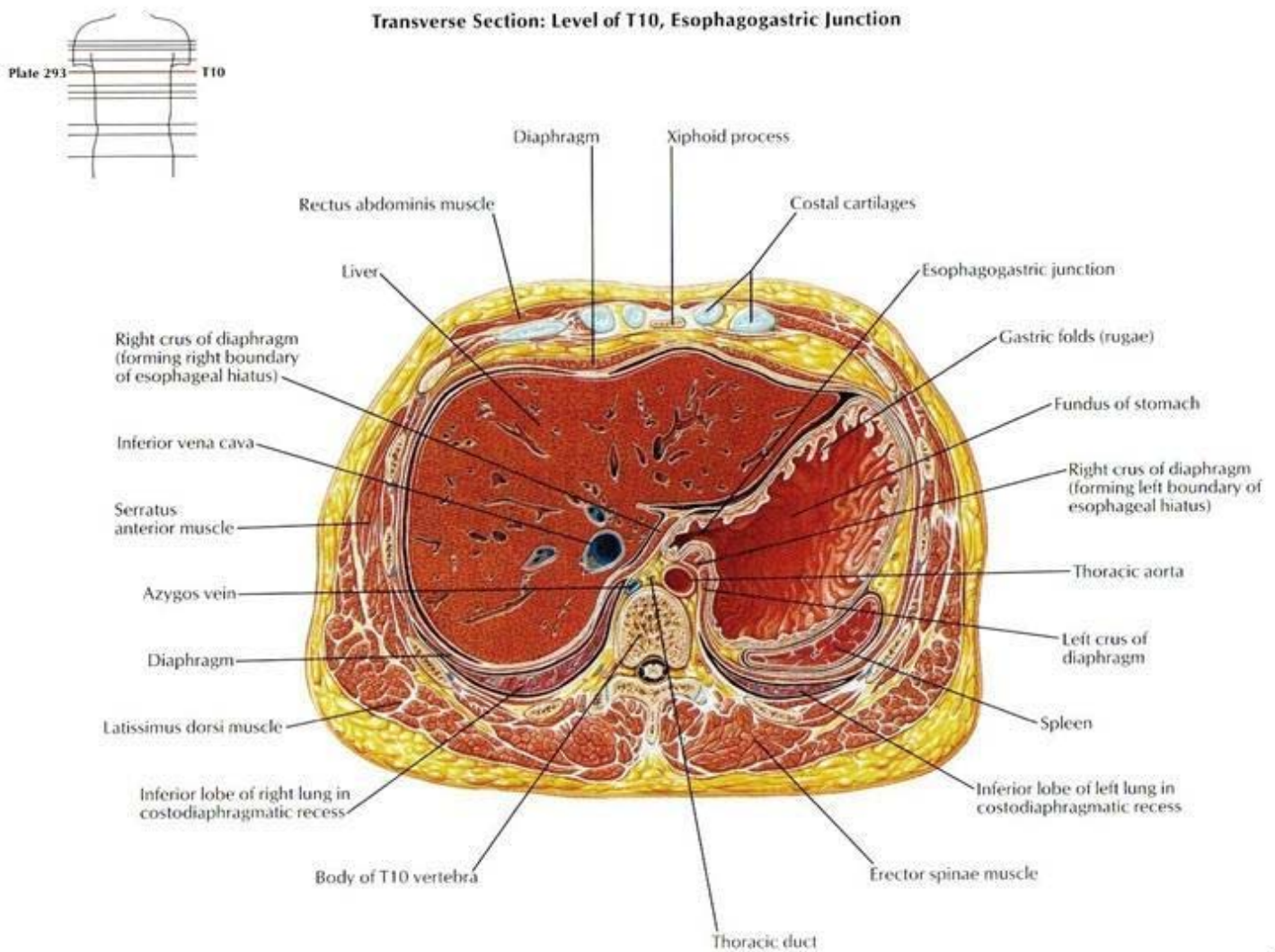
Note: In the above illustration, bile canaliculi appear as structures with walls of their own. However, as shown in the histologic section at right, boundaries of canaliculi are actually a specialization of surface membranes of adjoining liver parenchymal cells.



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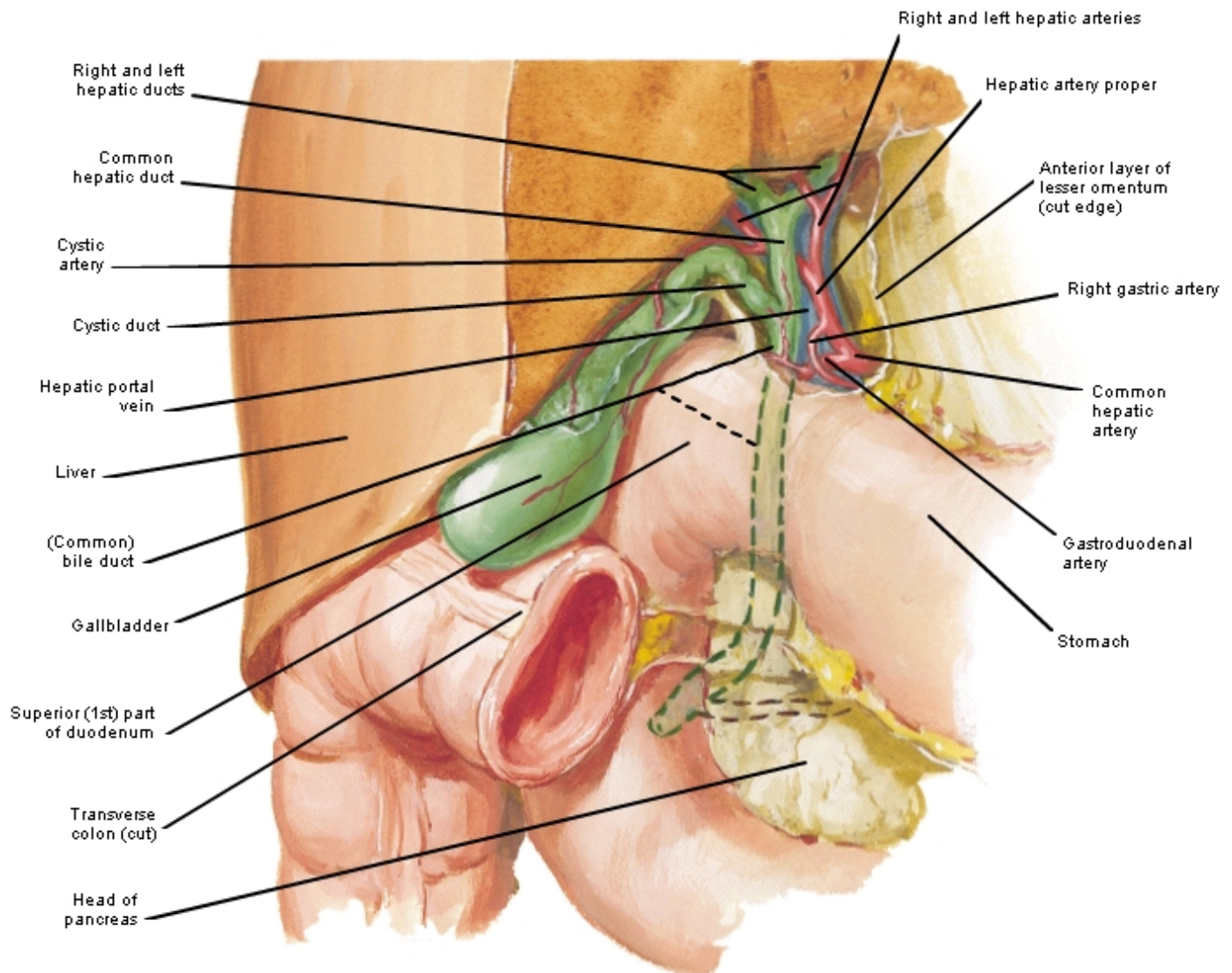
ABDOMEN

Schematic Cross Section of Abdomen at T10

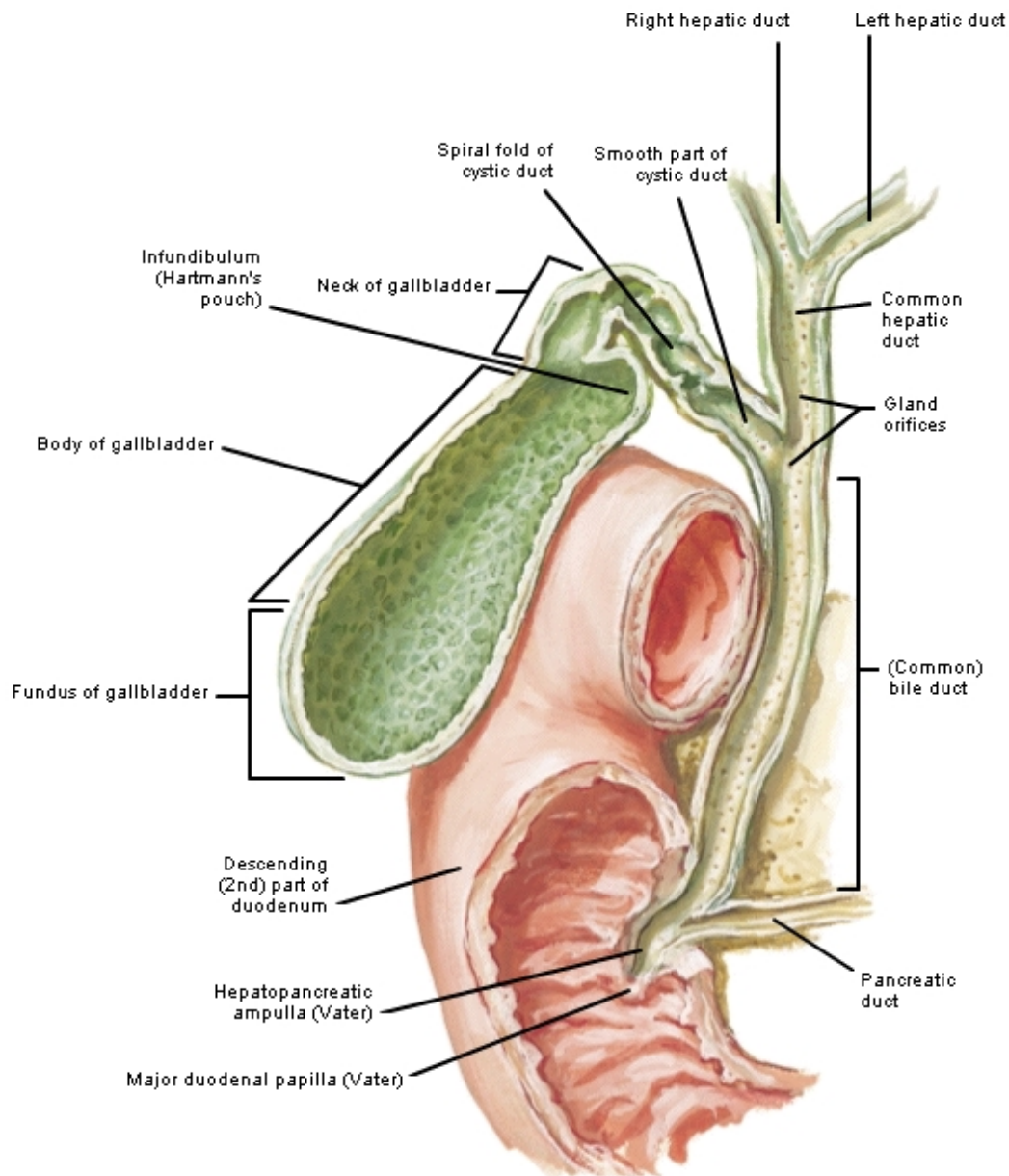


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Gallbladder and Extrahepatic Bile Ducts

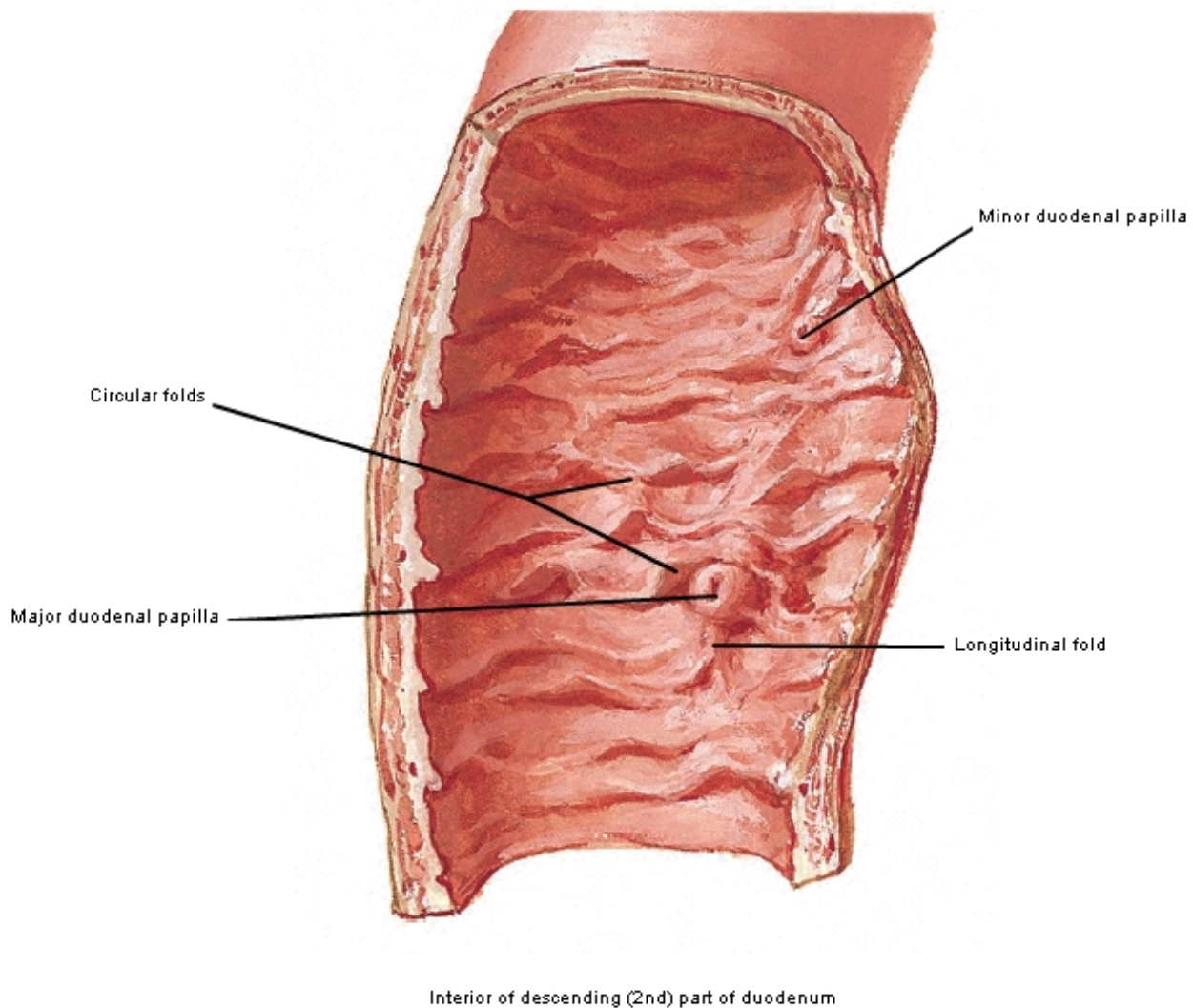


Gallbladder and Extrahepatic Bile Ducts Sectioned



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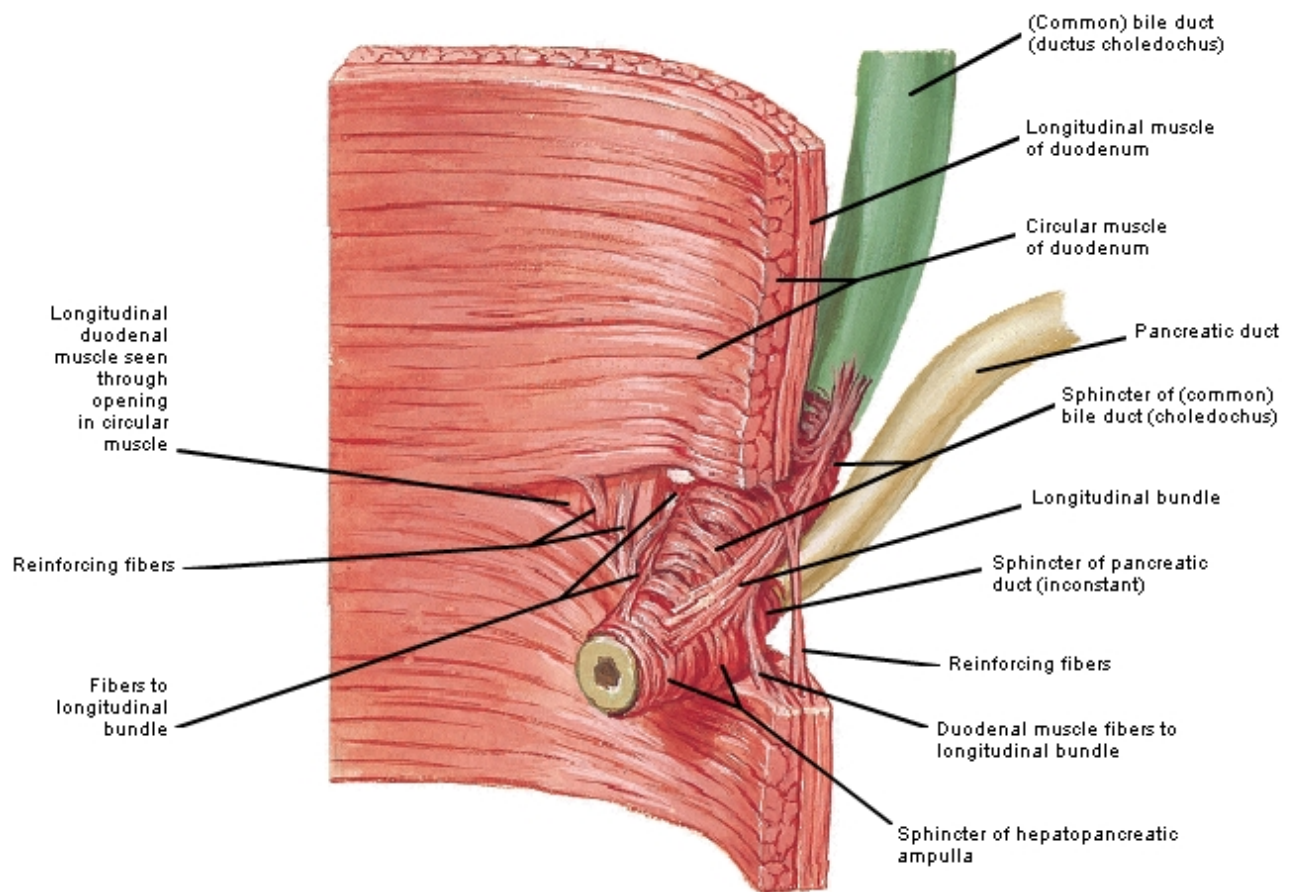
Junction of Bile Duct and Duodenum



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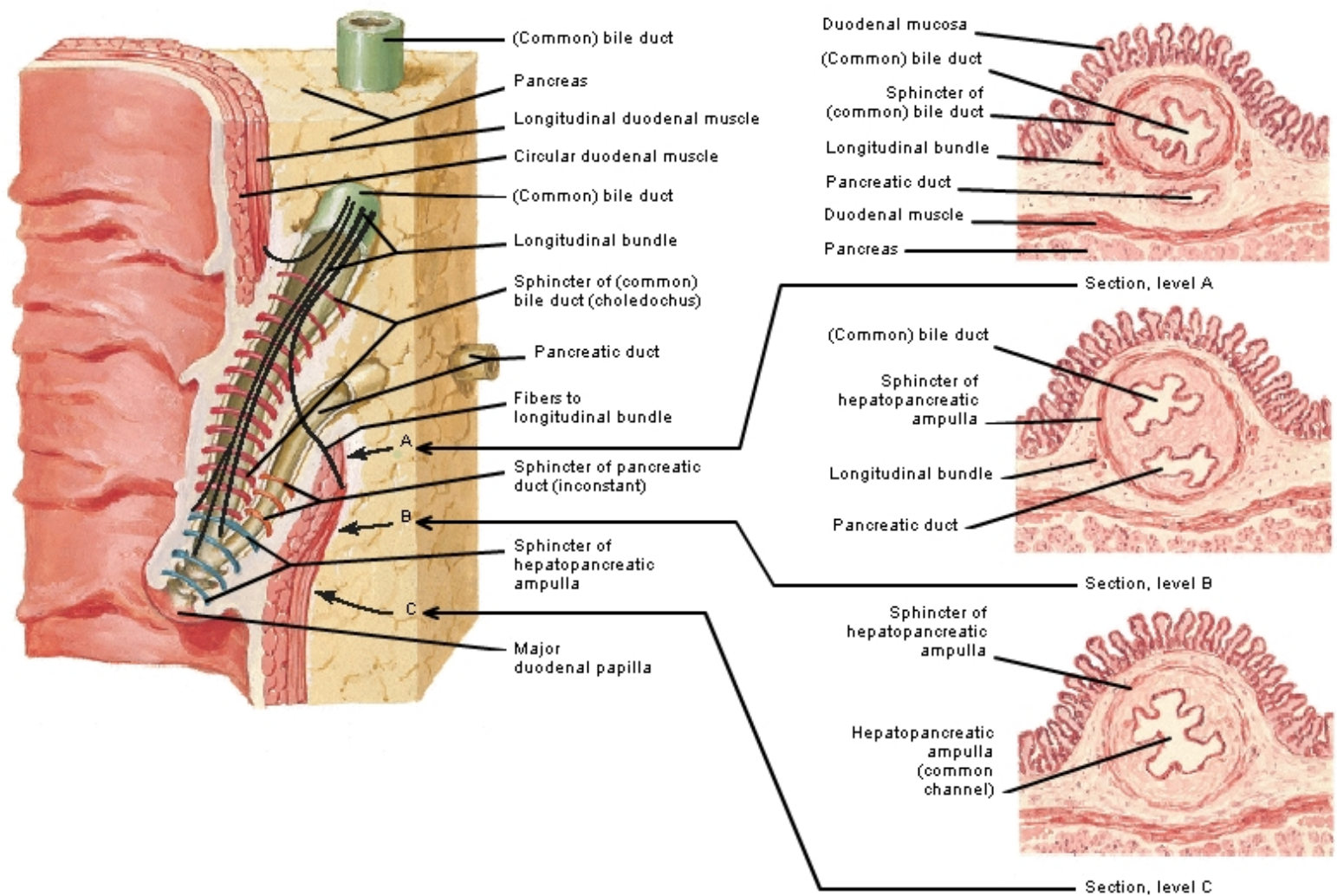
ABDOMEN

Junction of Bile Duct and Duodenum Dissection



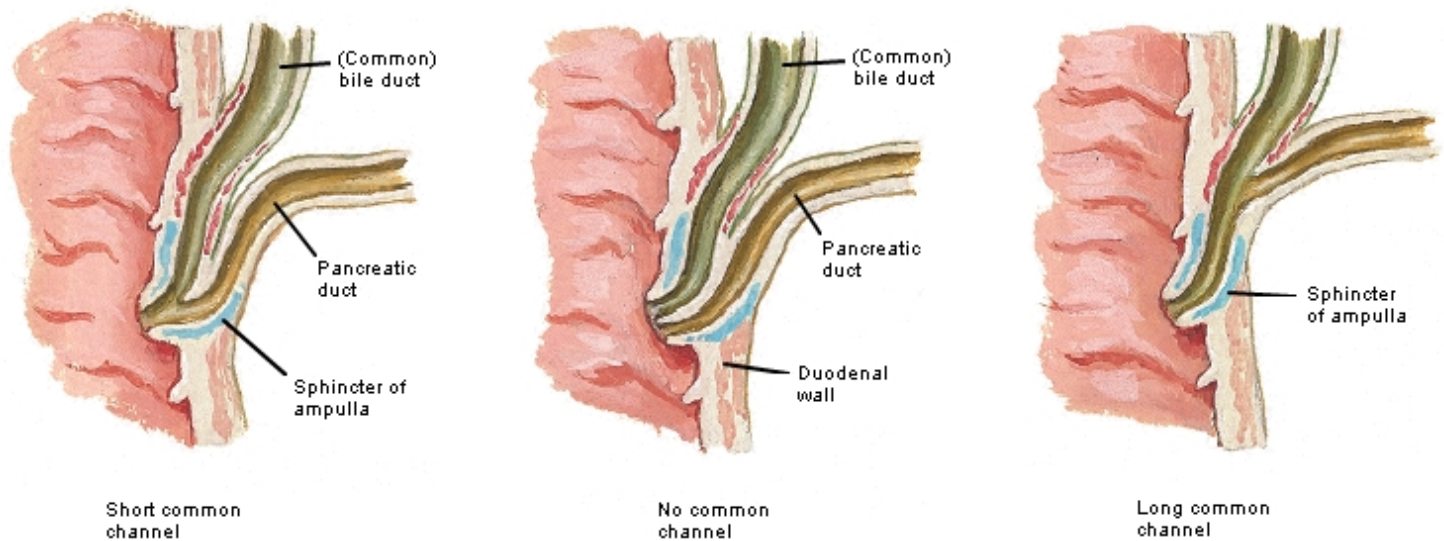
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Junction of Bile Duct and Duodenum Reconstruction



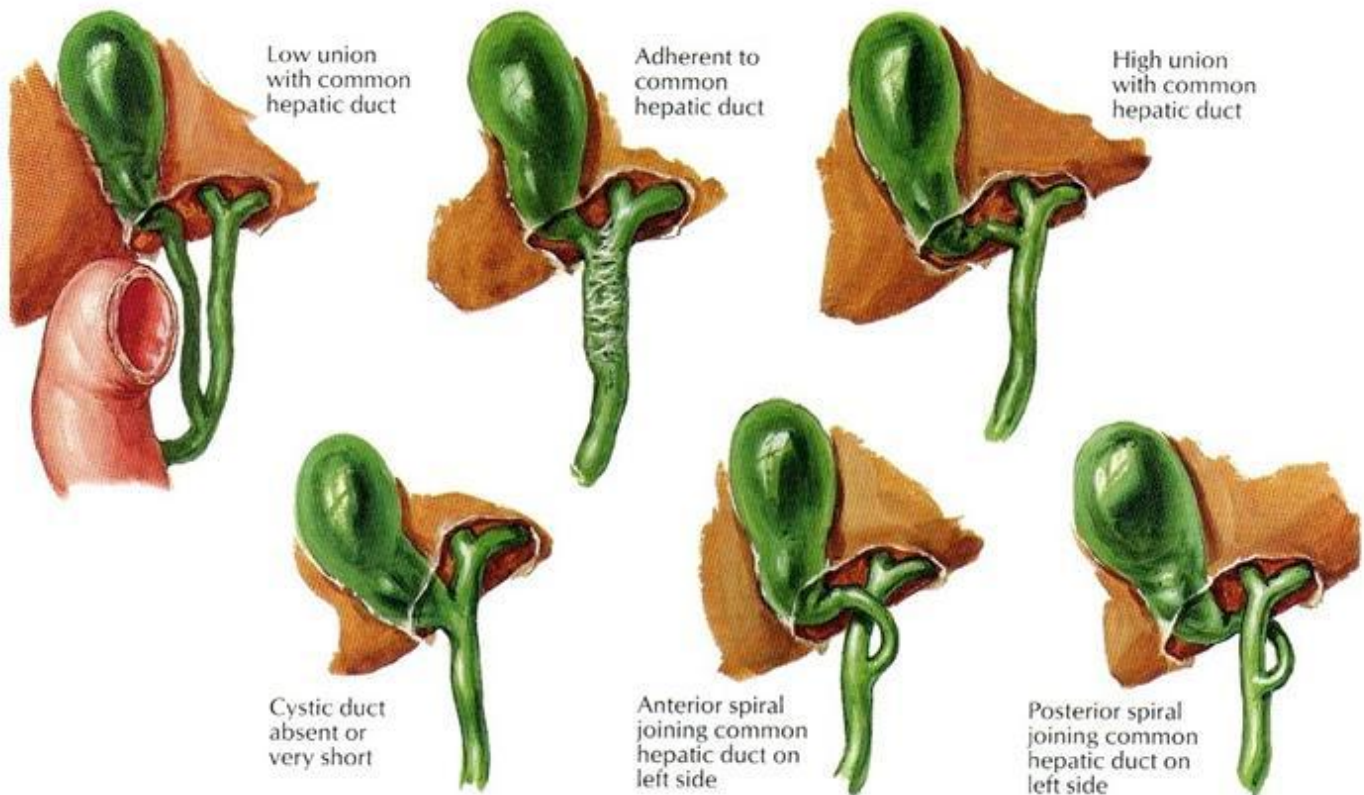
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Variations in Union of Bile and Pancreatic Ducts



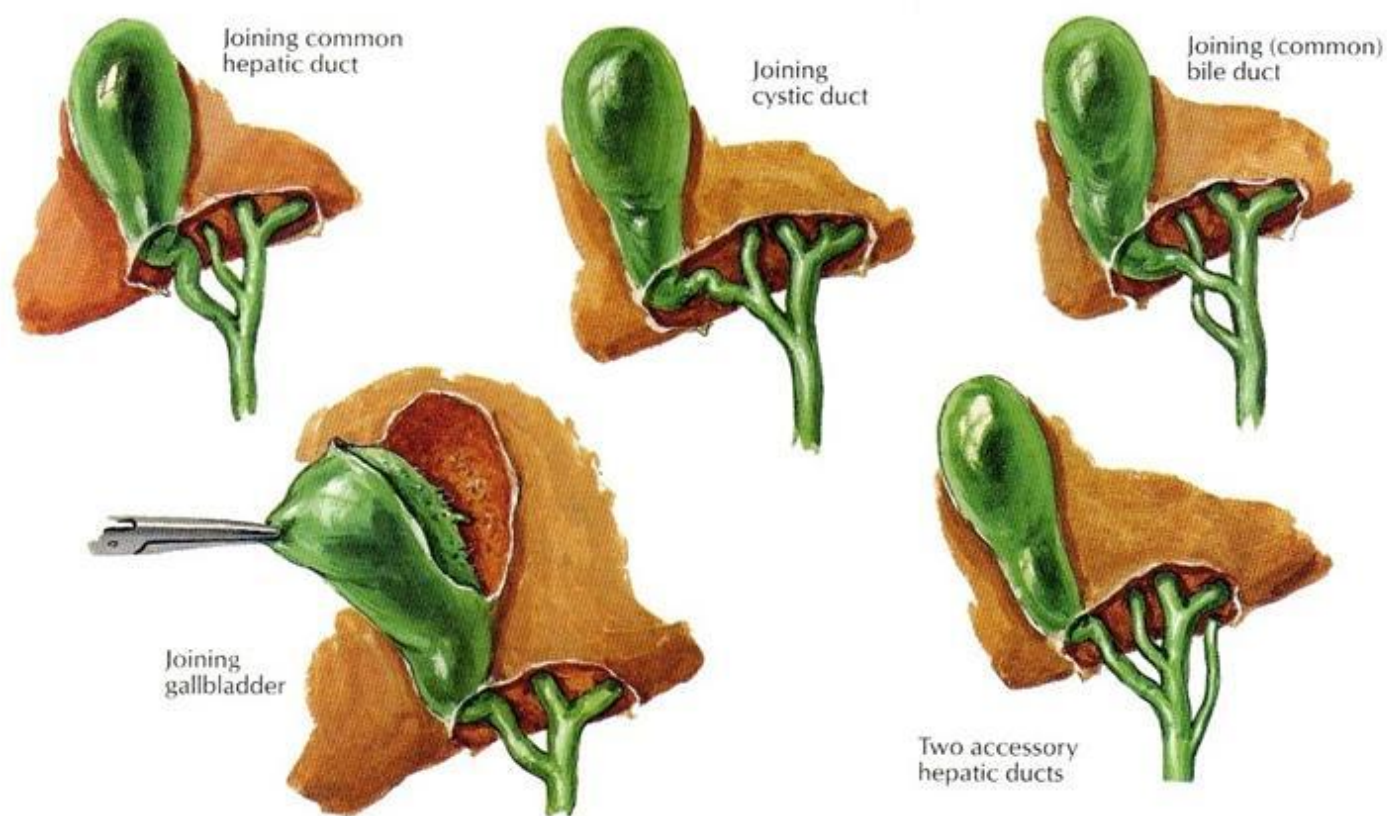
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Variations in Cystic Ducts



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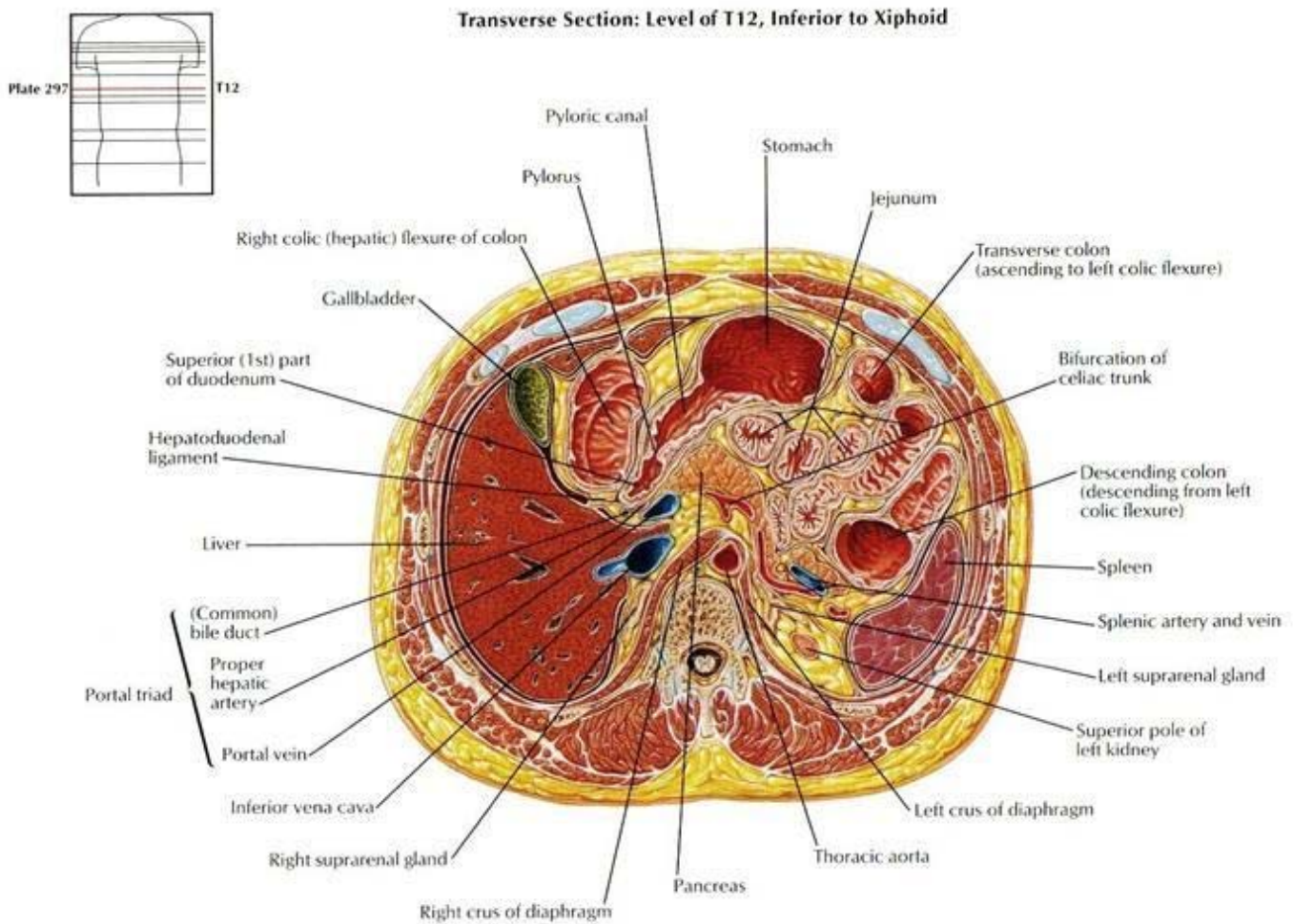
Variations in Accessory Hepatic Ducts



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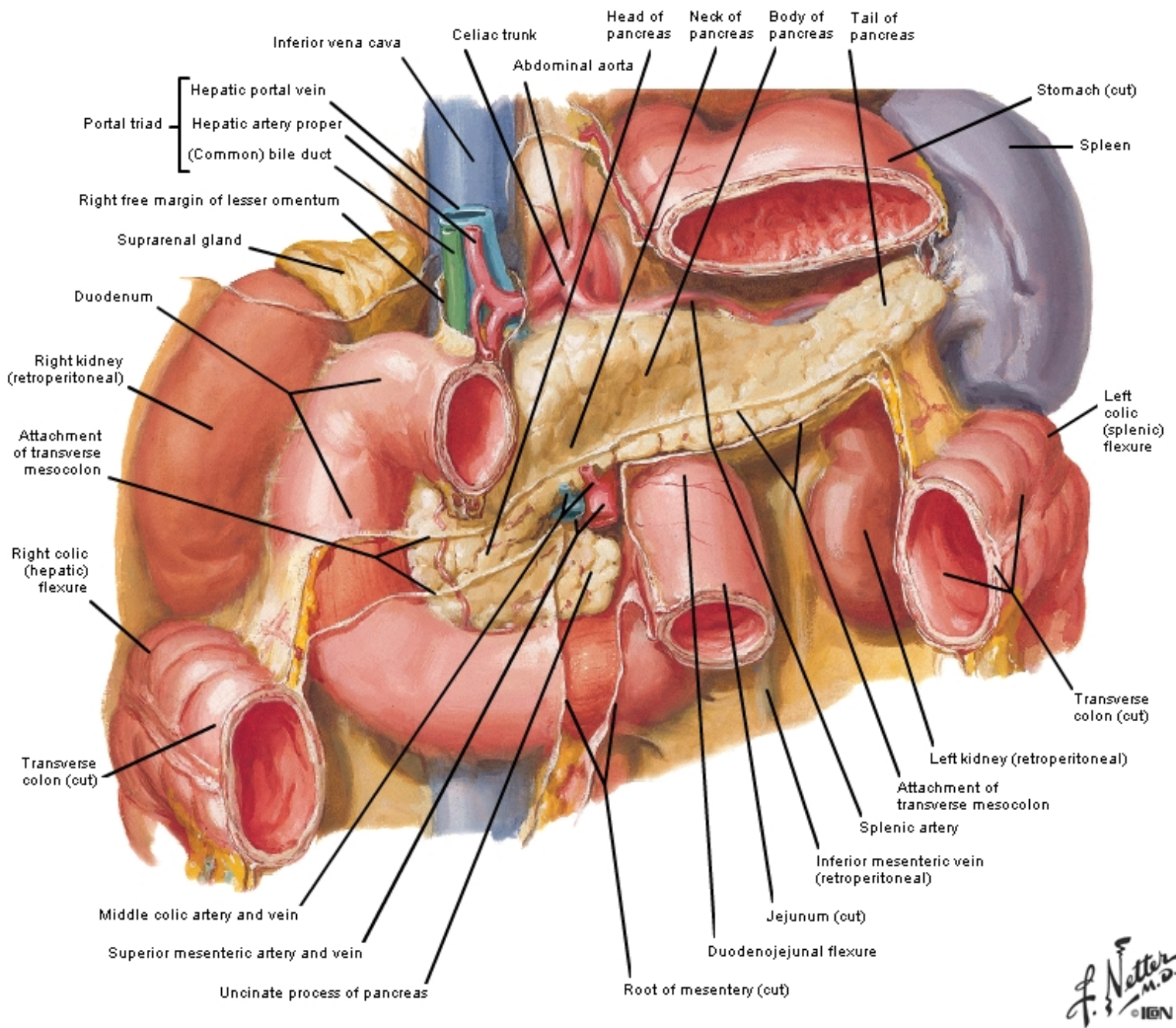
ABDOMEN

Schematic Cross Section of Abdomen at T12



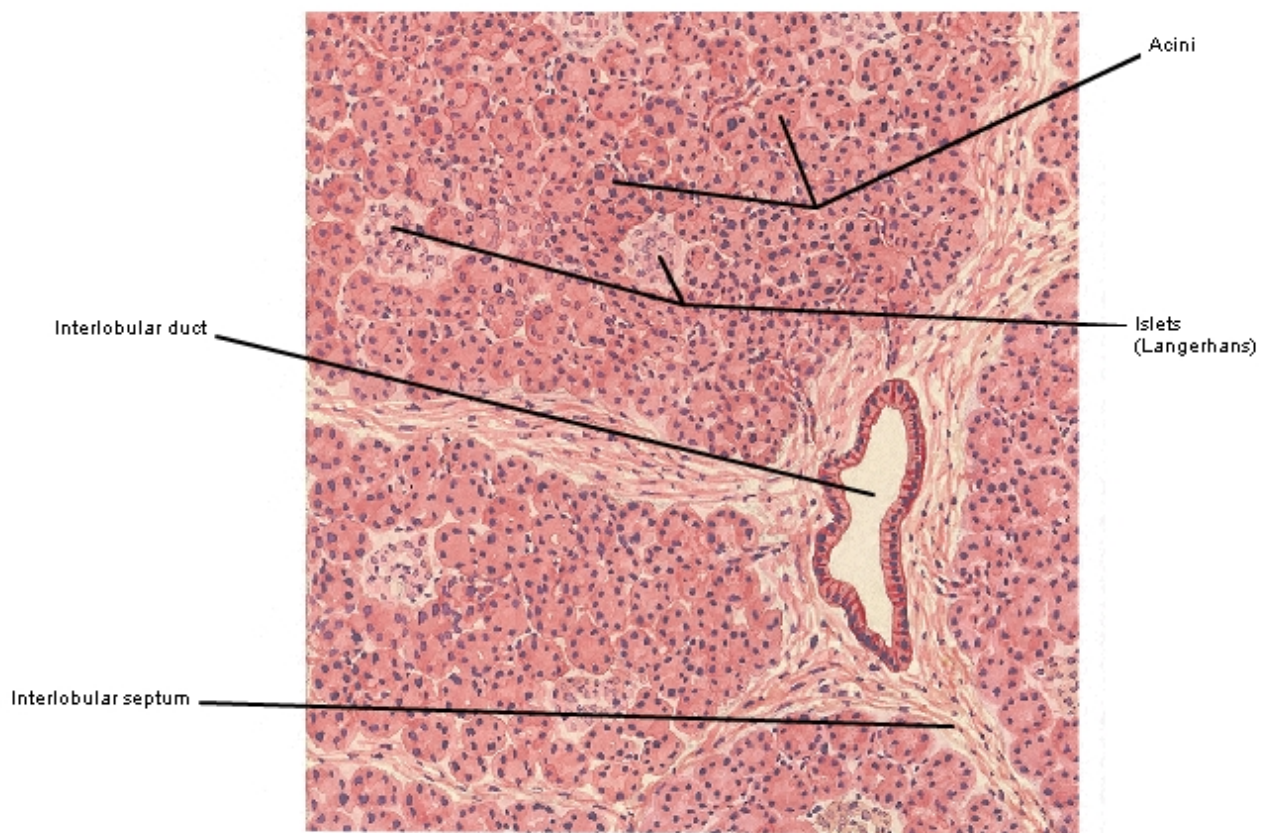
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Pancreas In Situ



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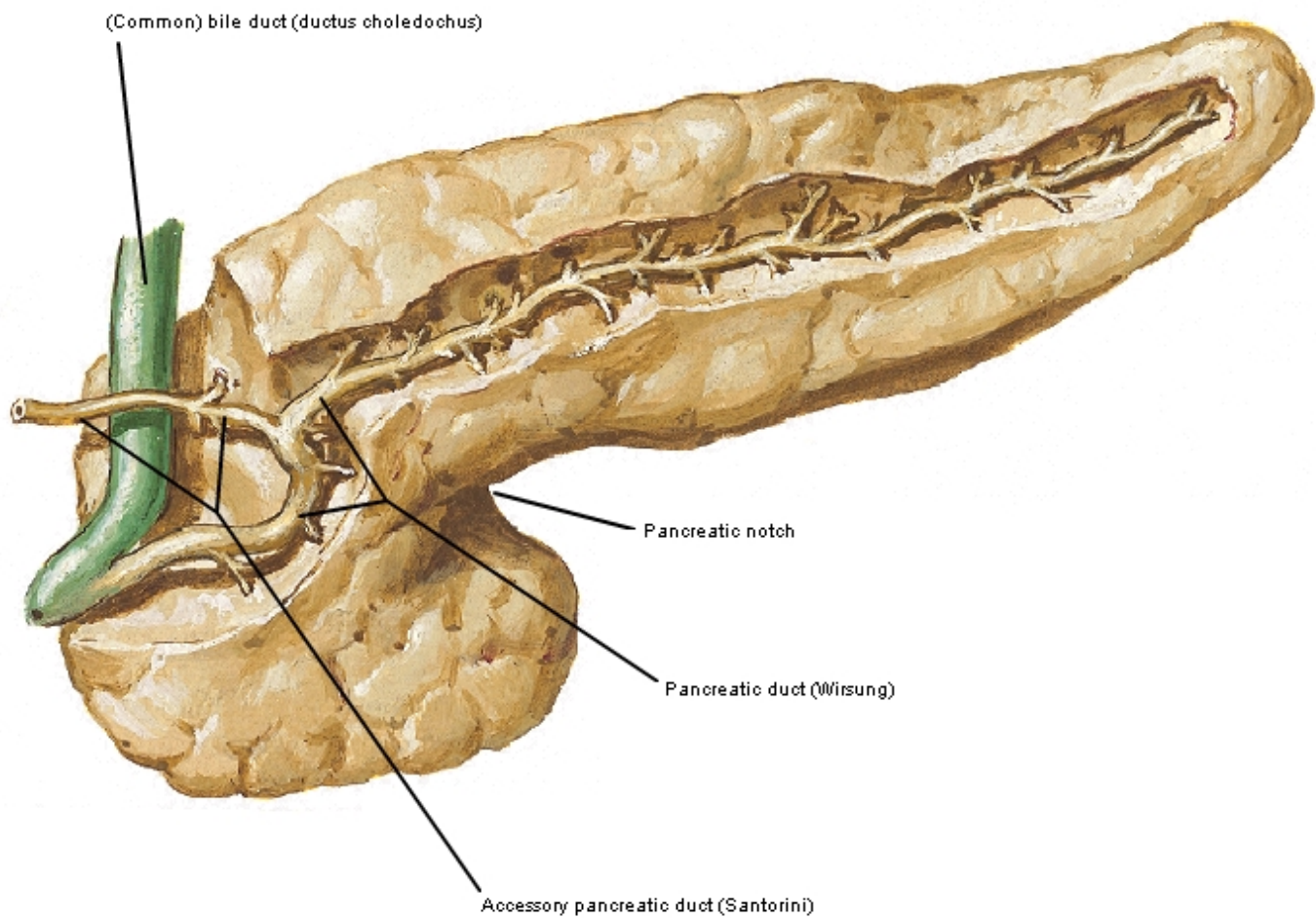
Pancreas Histology



Low-power section of pancreas

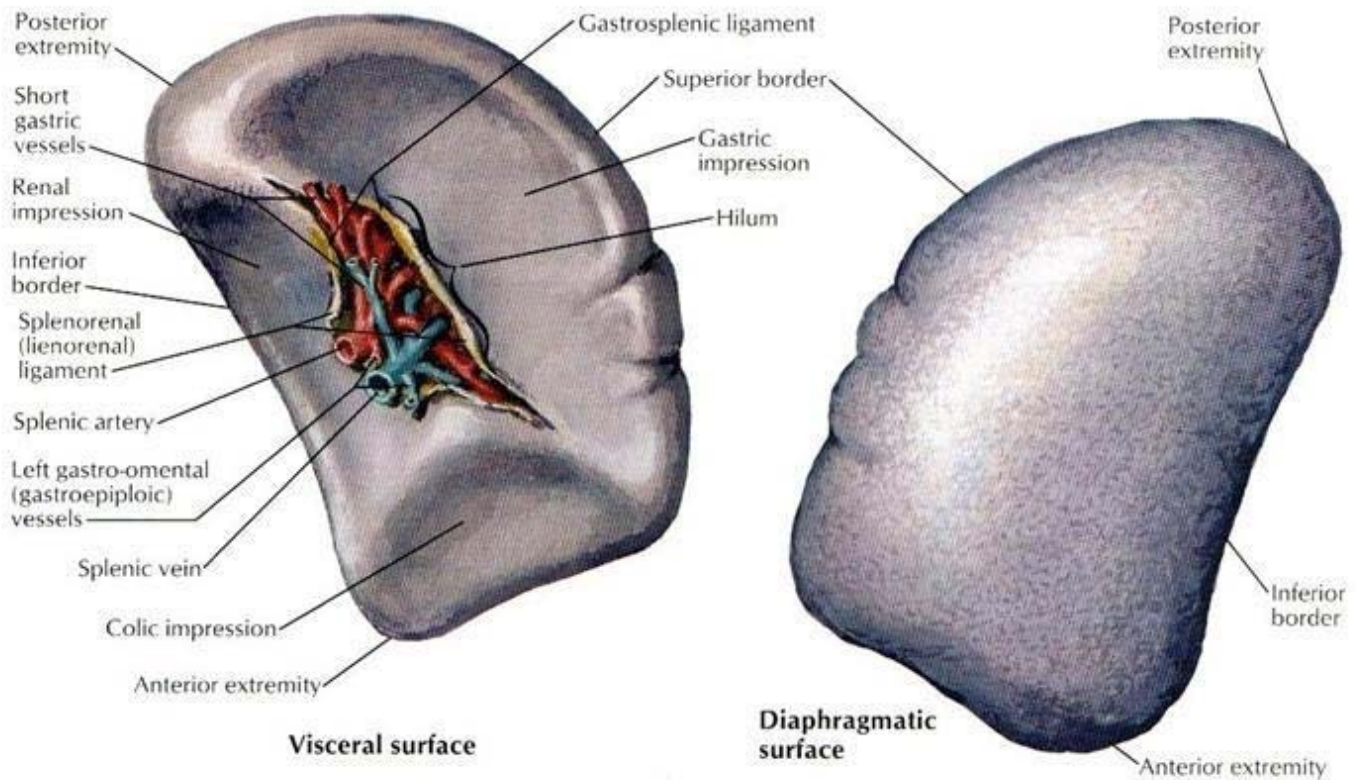
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Pancreas



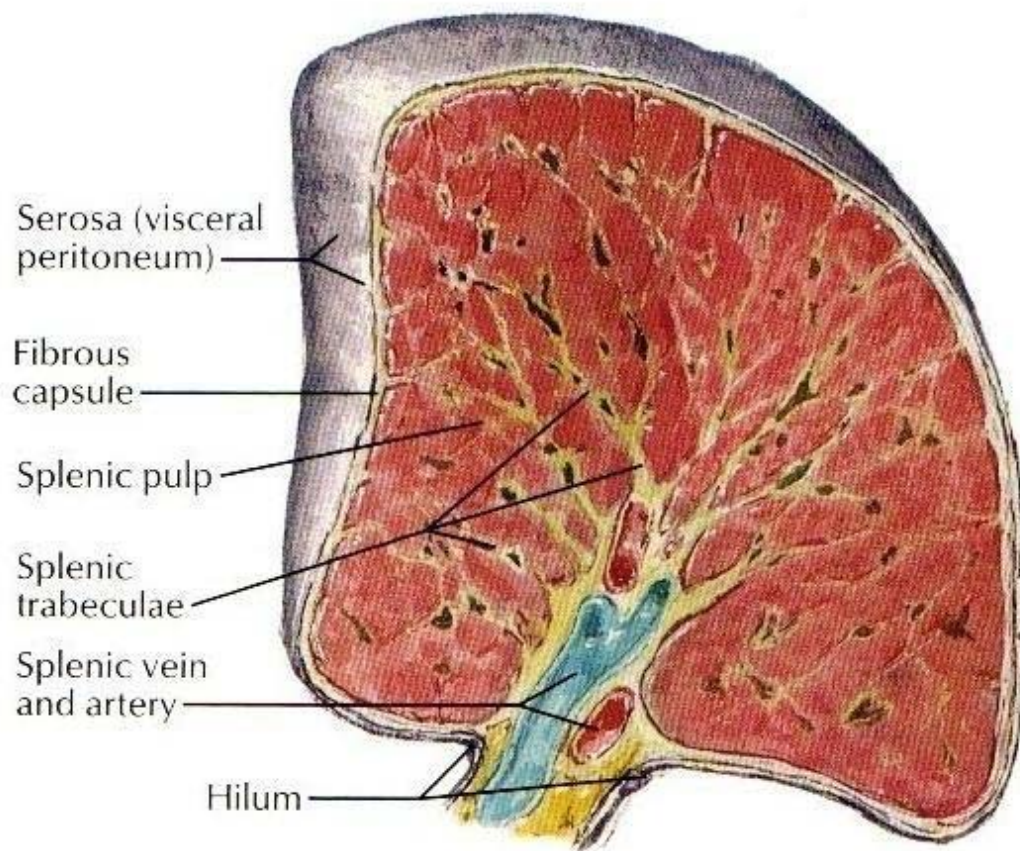
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© 1994

Spleen: Superficial



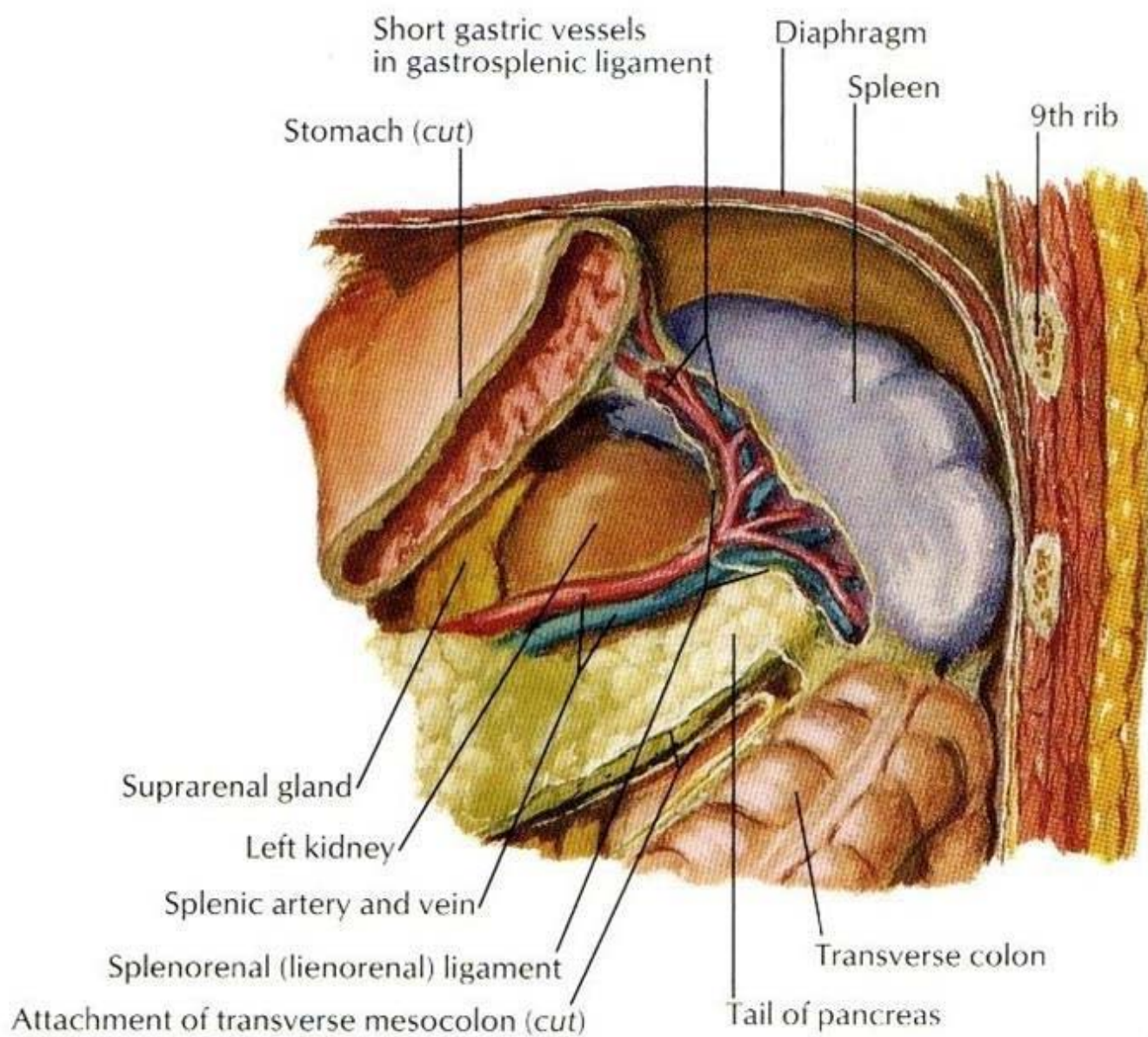
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Spleen: Cross Section



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M.D.
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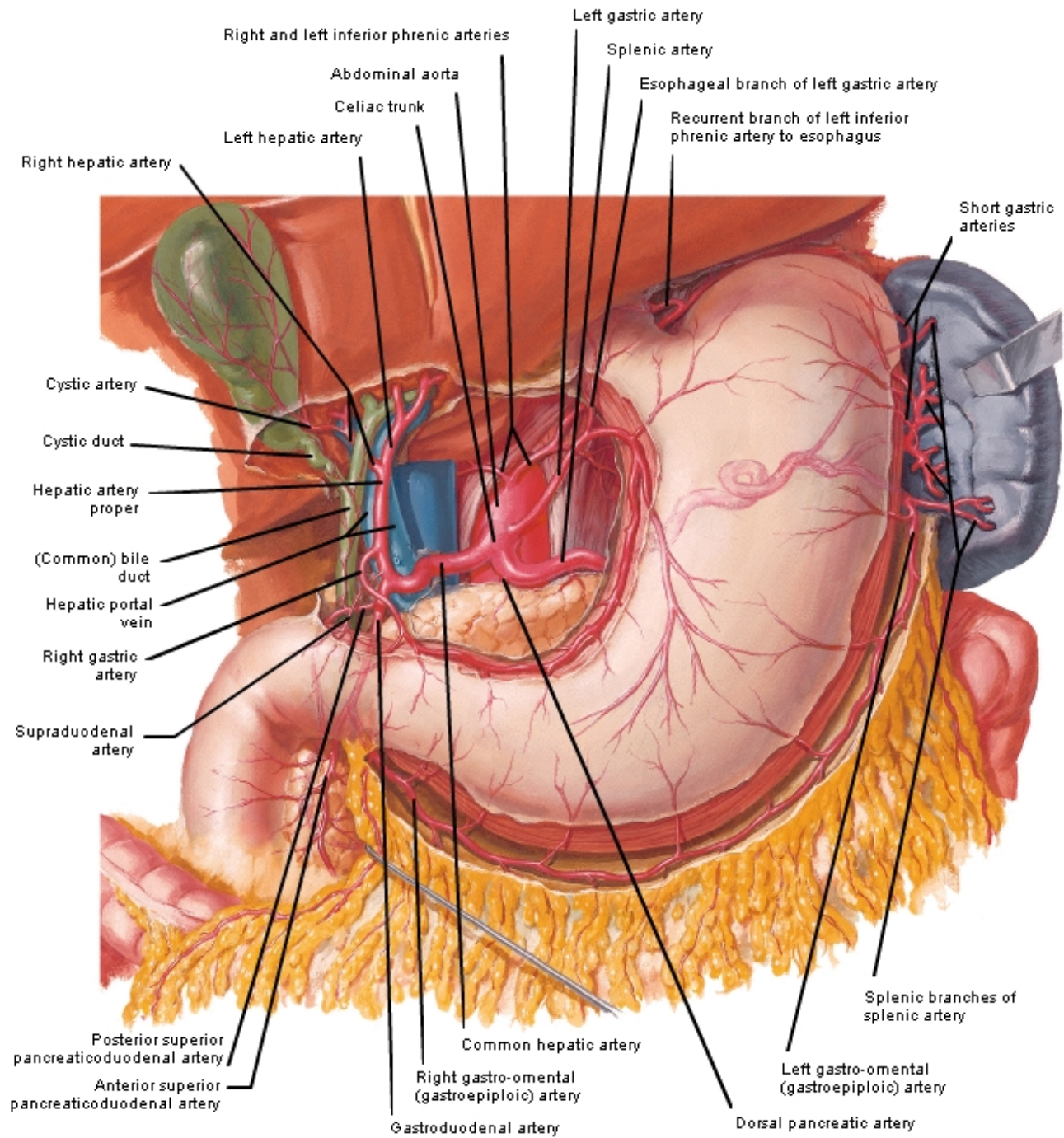
Spleen in Situ



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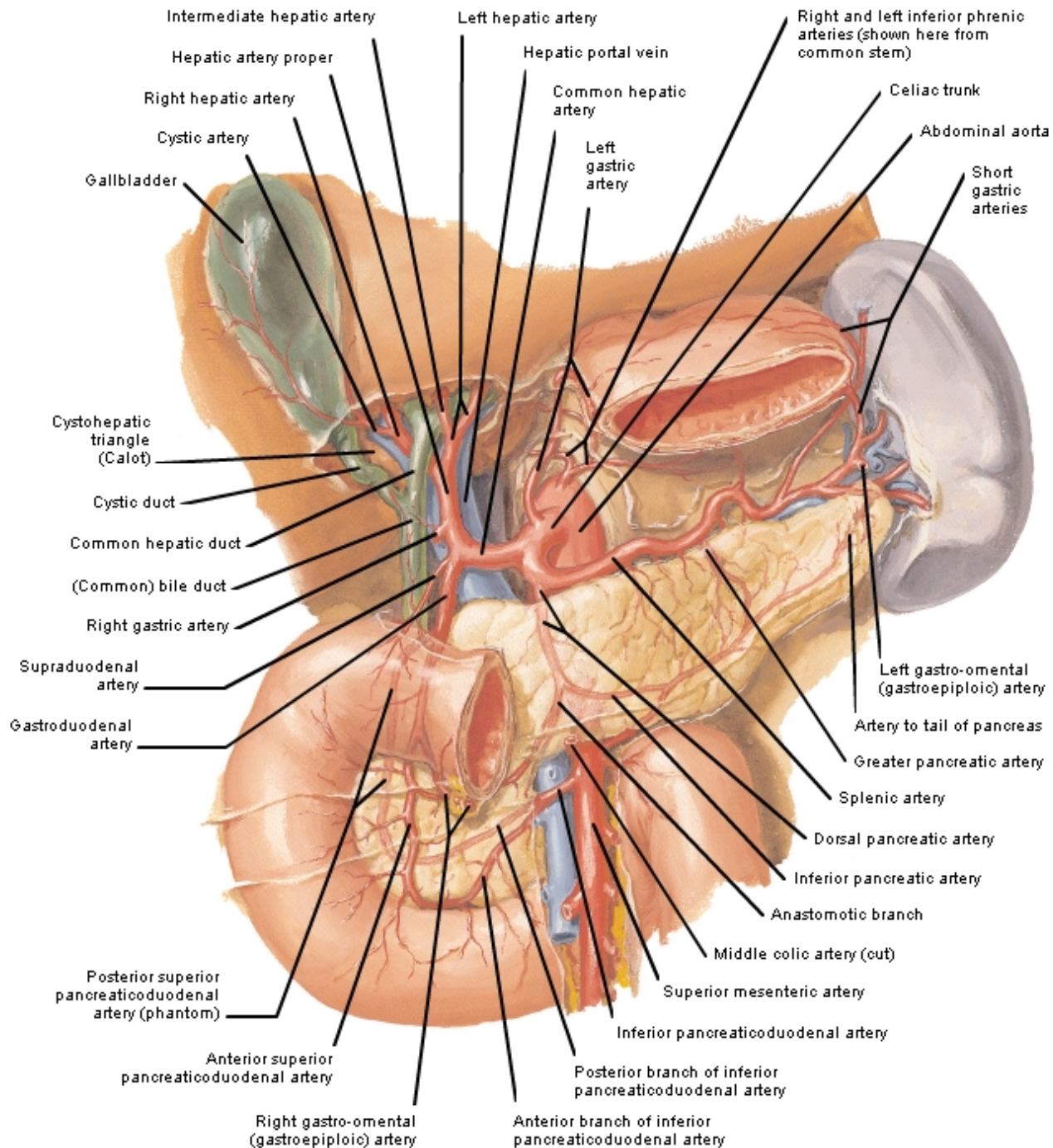
ABDOMEN

Arteries of Stomach, Liver and Spleen



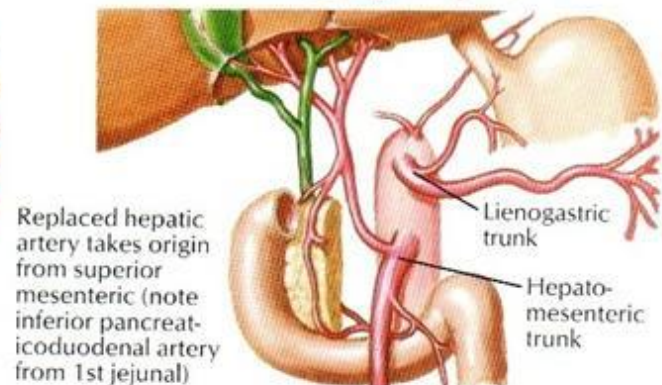
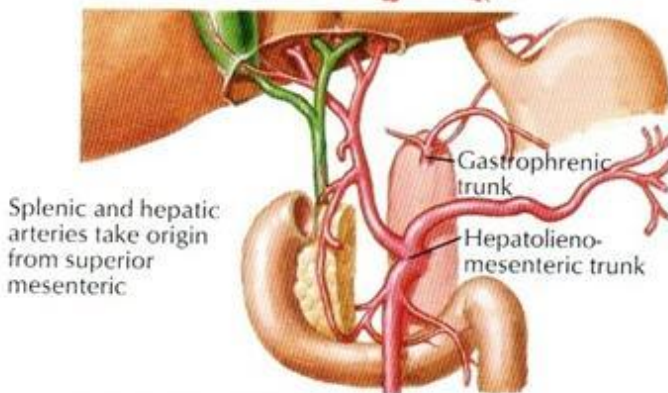
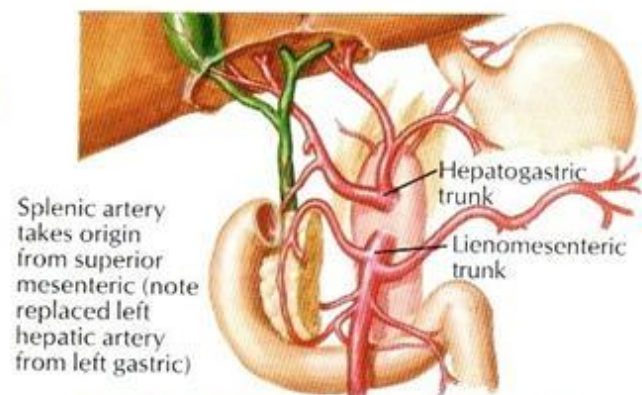
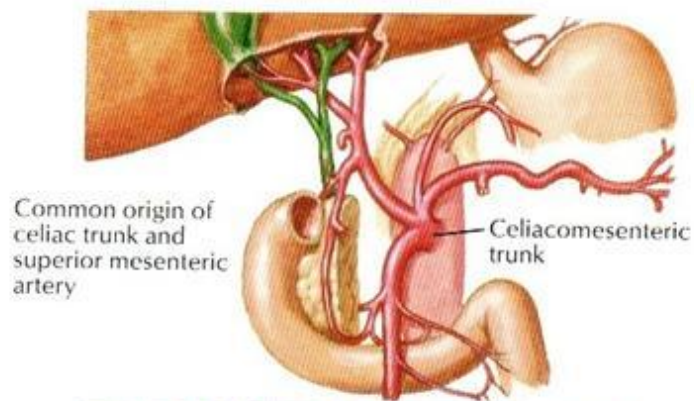
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Arteries of Liver, Pancreas, Duodenum and Spleen



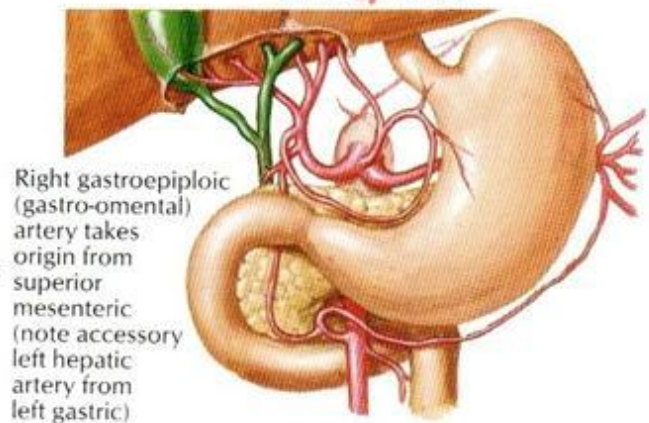
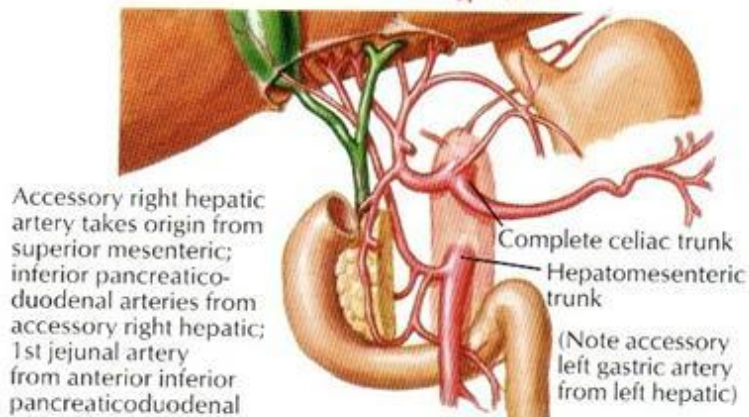
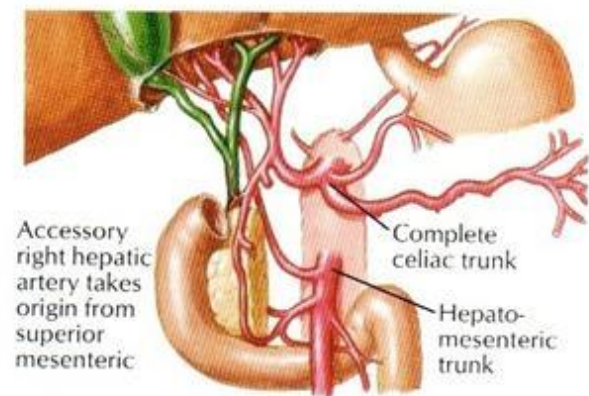
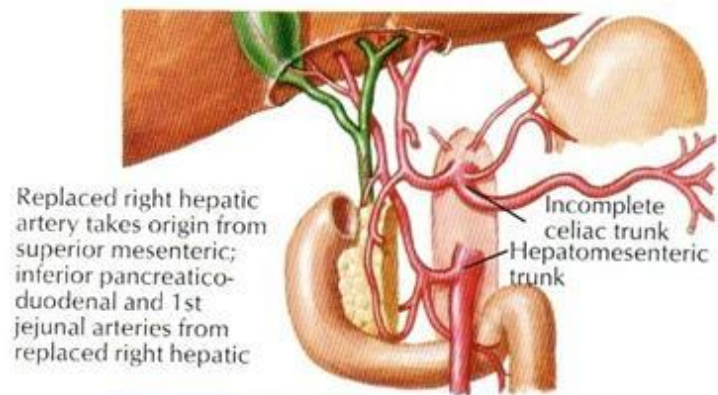
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Variations in Celiac Trunk



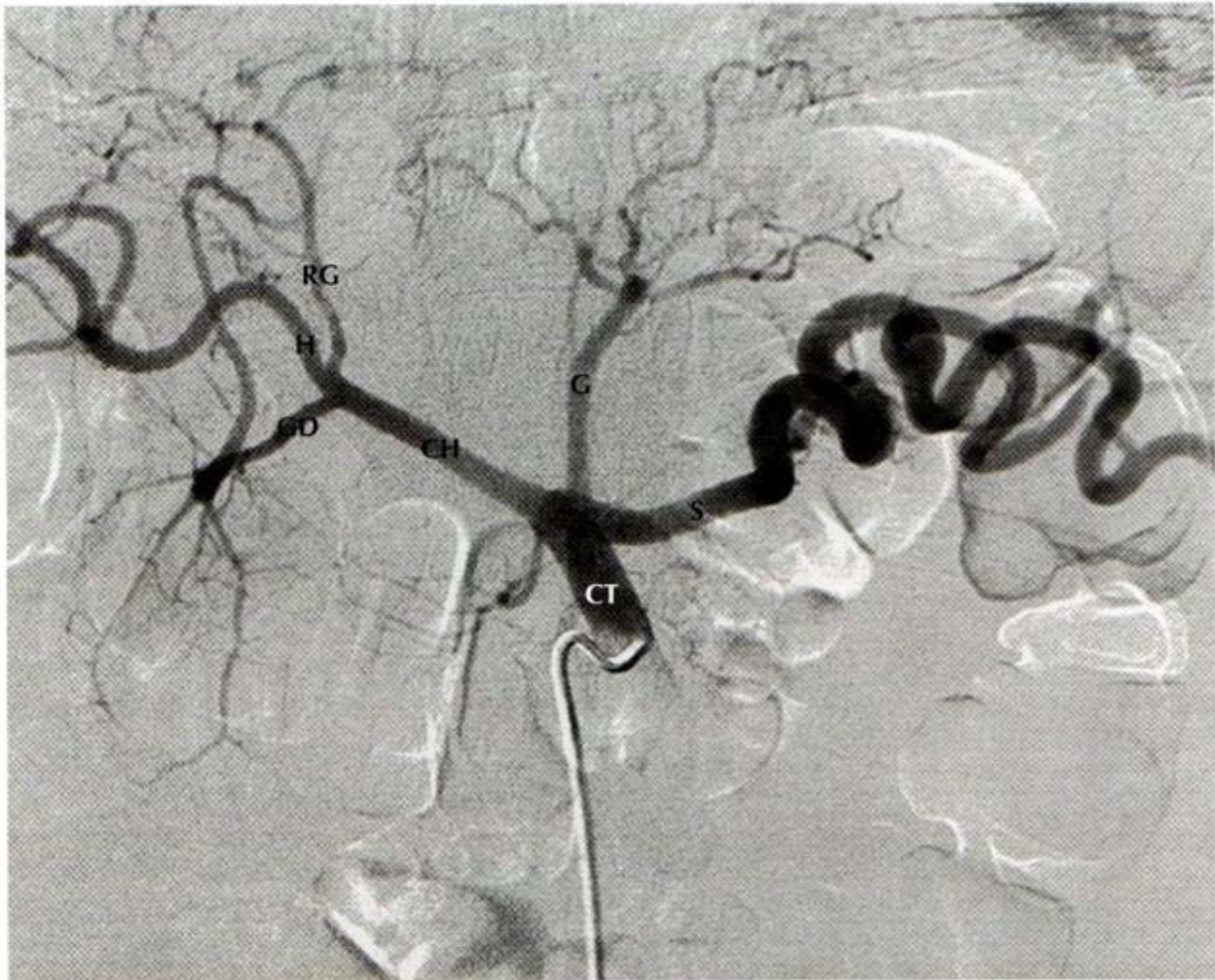
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Variations in Celiac Trunk



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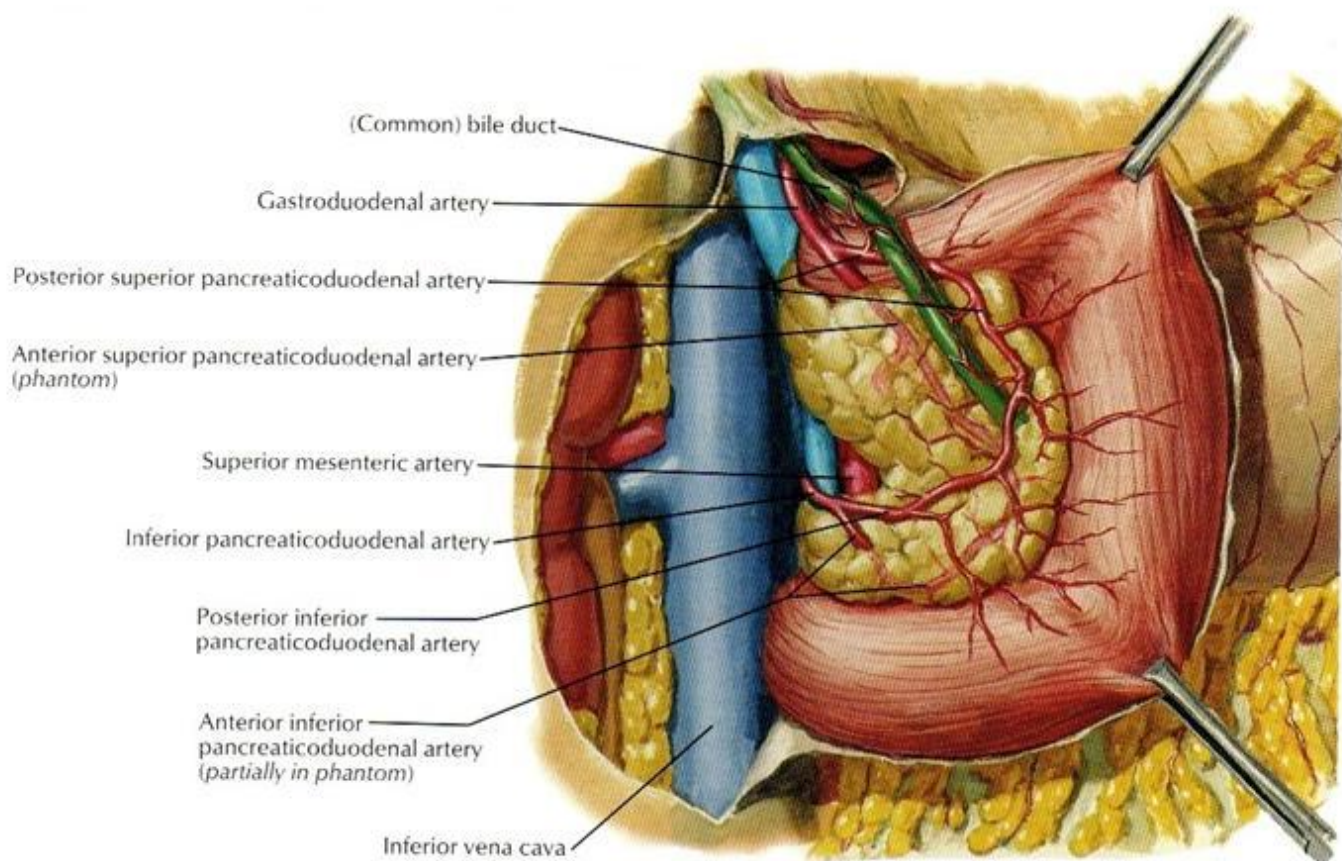
Celiac Arteriogram



- CH Common hepatic artery
- CT Celiac trunk
- G Left gastric artery
- GD Gastroduodenal artery
- H Proper hepatic artery
- RG Right gastric artery
- S Splenic artery

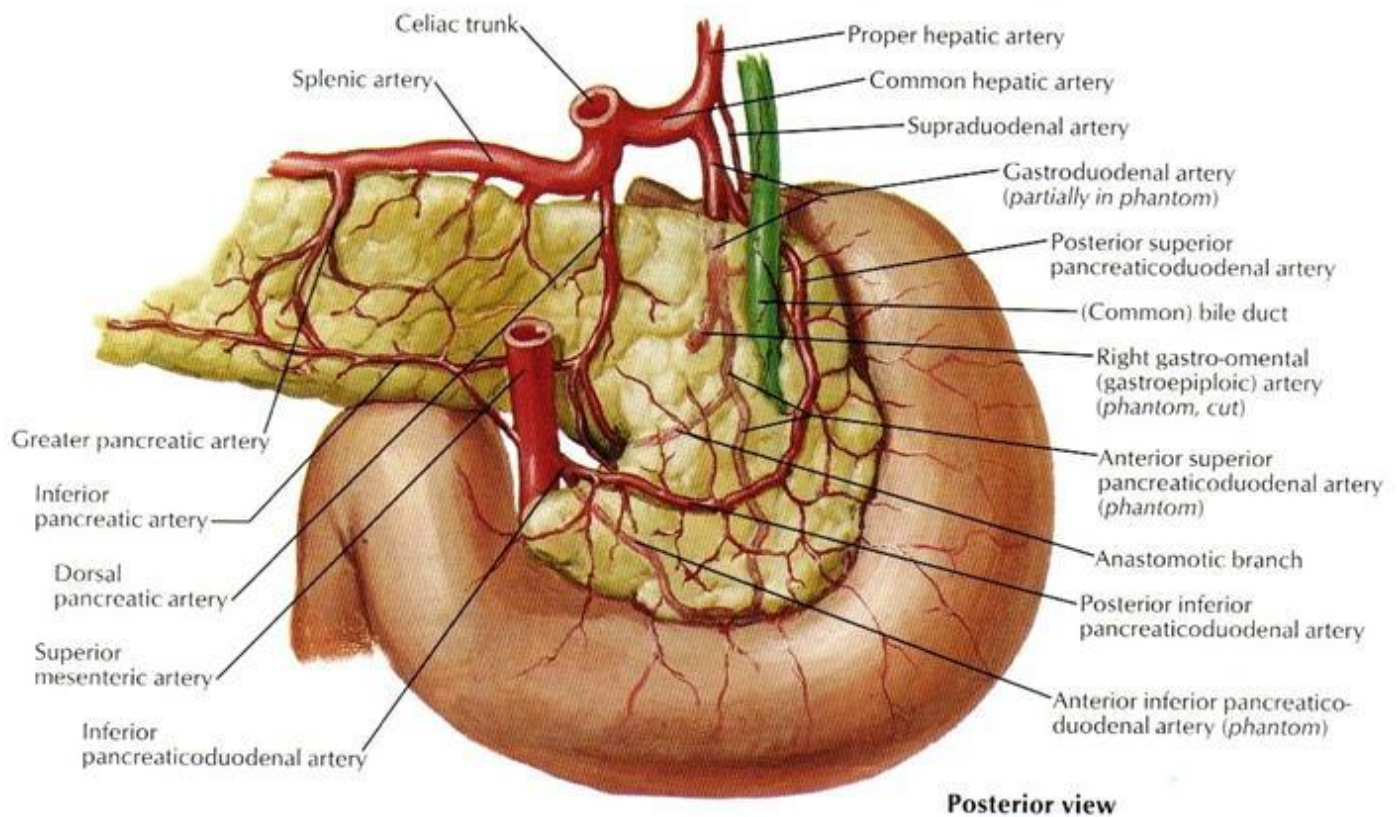
F. Netter M.D.
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Arteries of Duodenum and Head of Pancreas: Reflected to Left



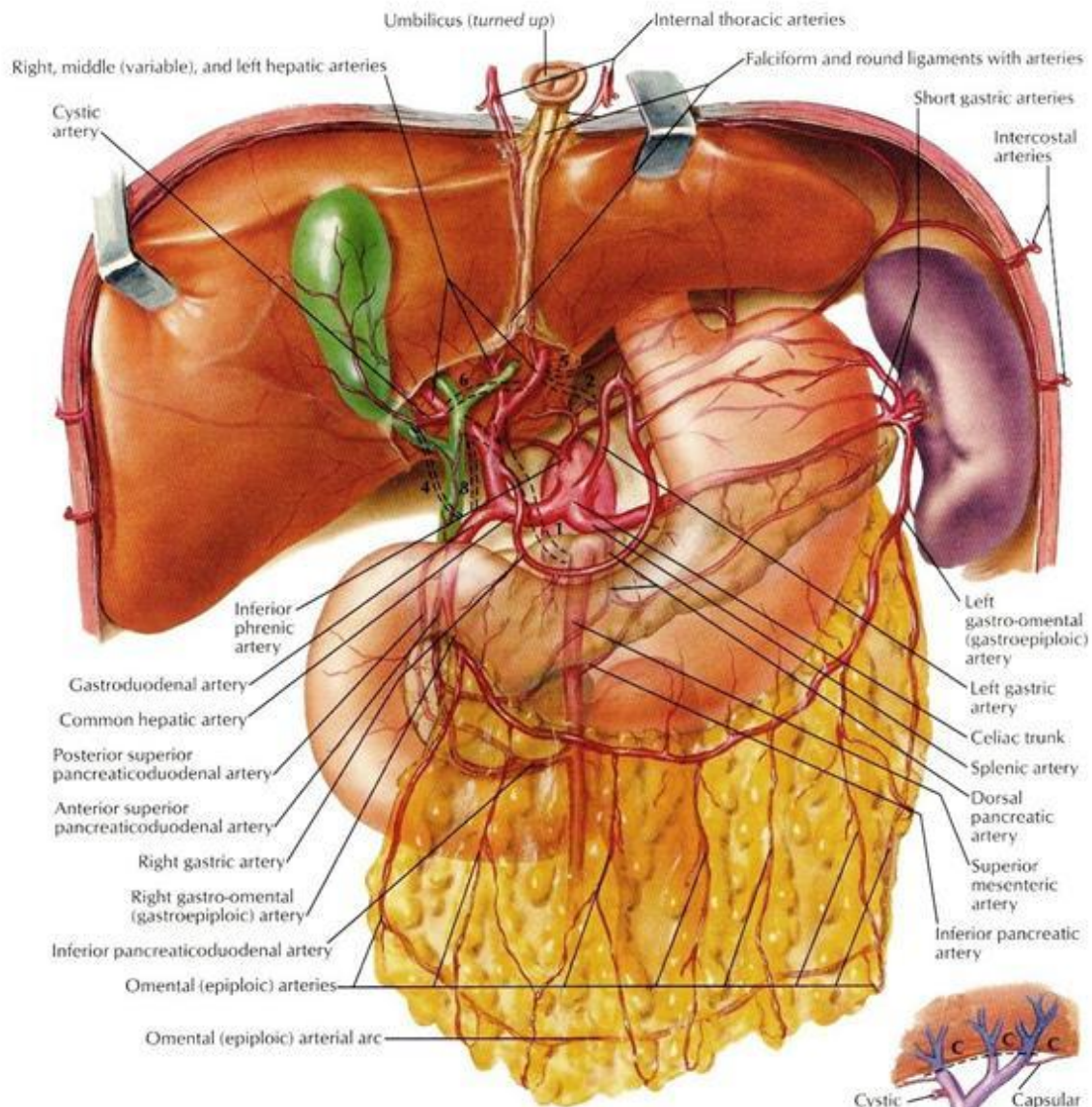
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Arteries of Duodenum and Head of Pancreas: Posterior View



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Arterial Variations and Collateral Supply of Liver and Gallbladder



Accessory or replaced arteries

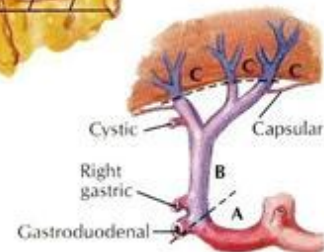
1. Right or common hepatic
2. Left hepatic
3. Right hepatic
4. Cystic

Anastomoses of corresponding arteries

5. Inferior phrenic/left gastric $\longleftrightarrow$ left hepatic
6. Right $\longleftrightarrow$ left hepatic

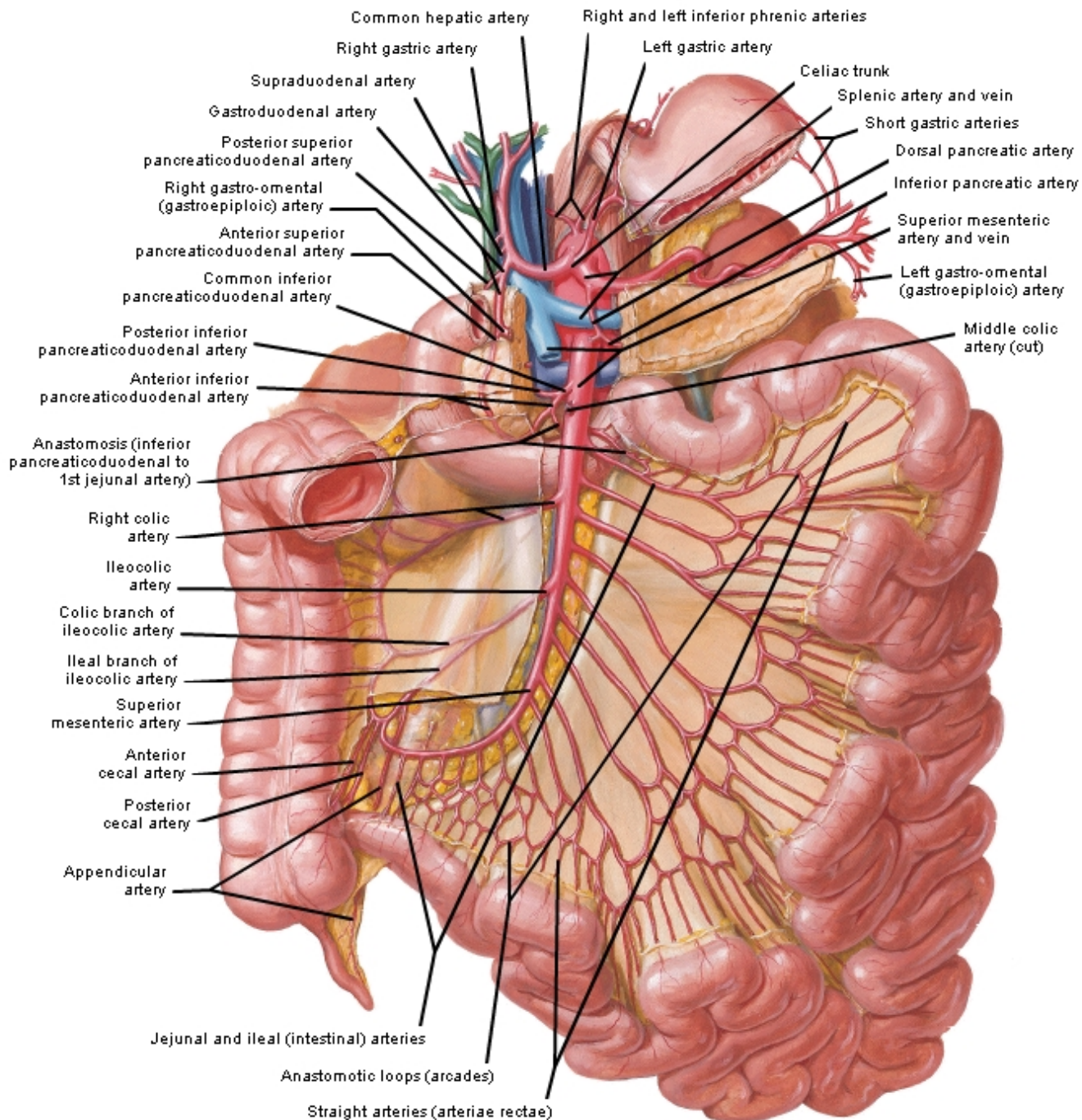
Effects of hepatic artery obstruction

- A. Zone of relative safety
- B. Zone of questionable effects
- C. Zone of inevitable infarction



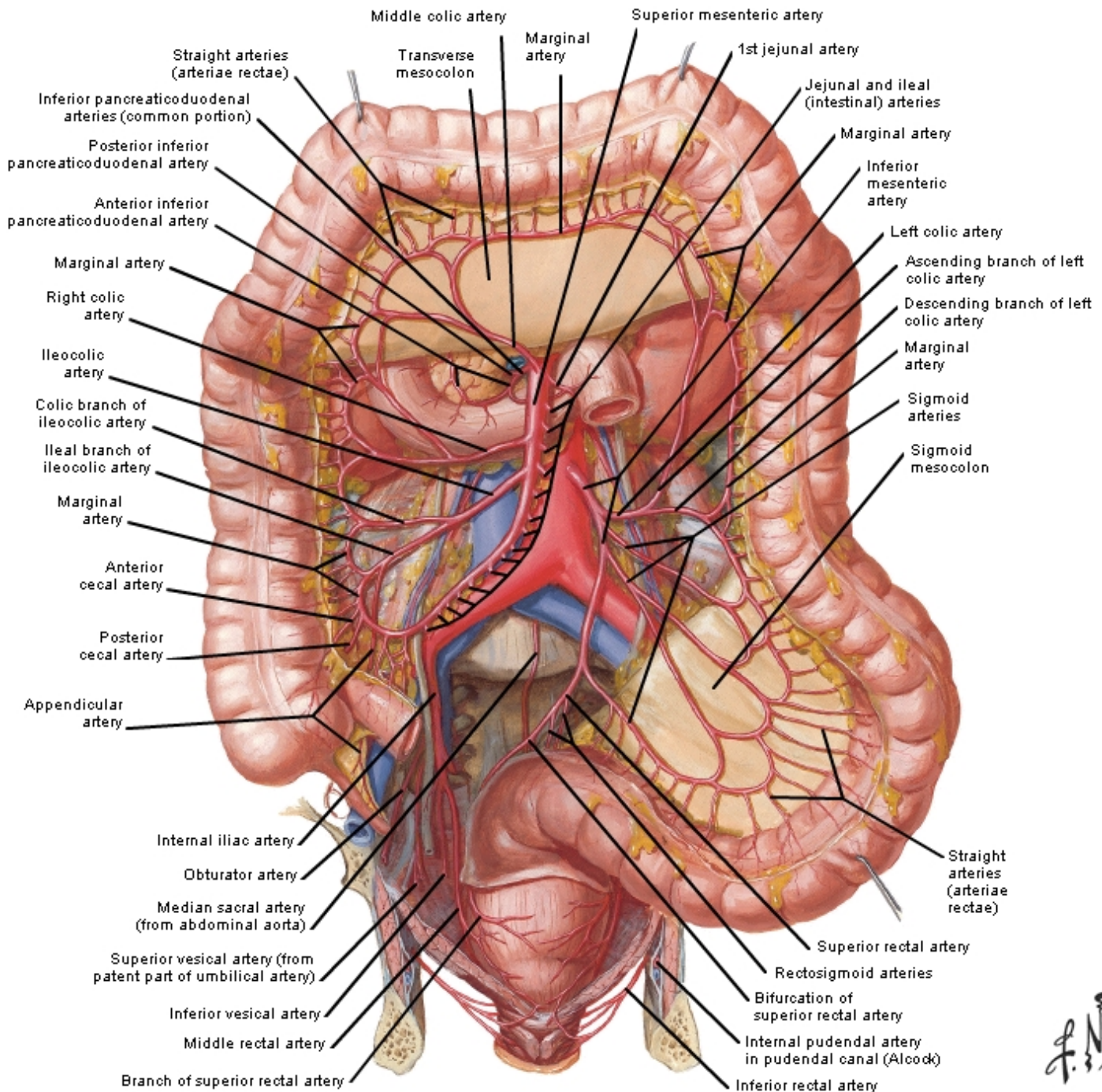
F. Netter M.D.
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Arteries of Small Intestine



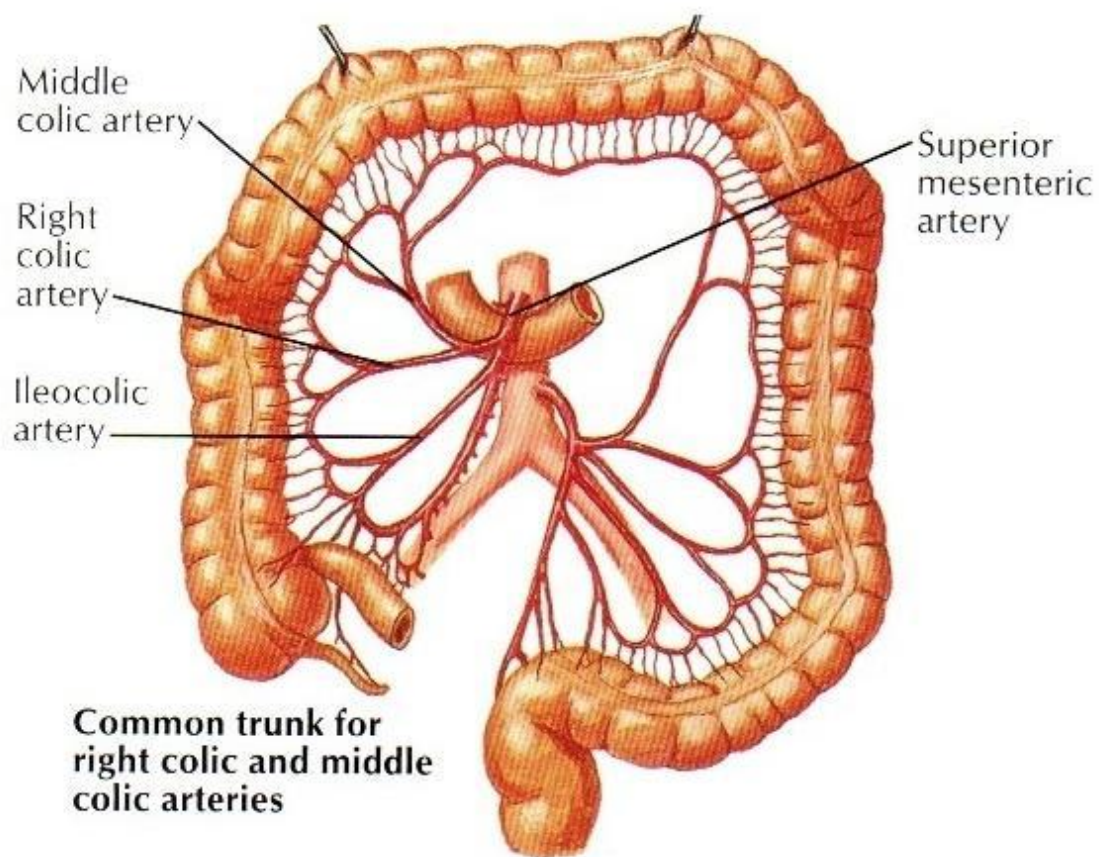
F. Netter M.D.
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Arteries of Large Intestine



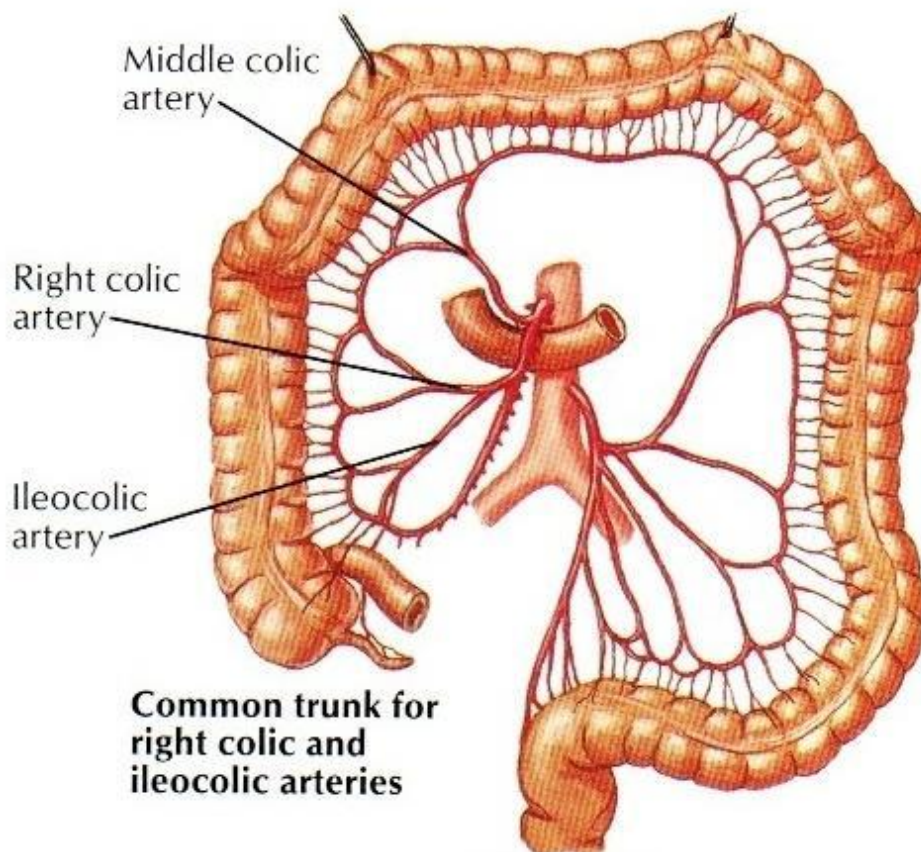
F. Netter M.D.
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Variations in Colic Arteries



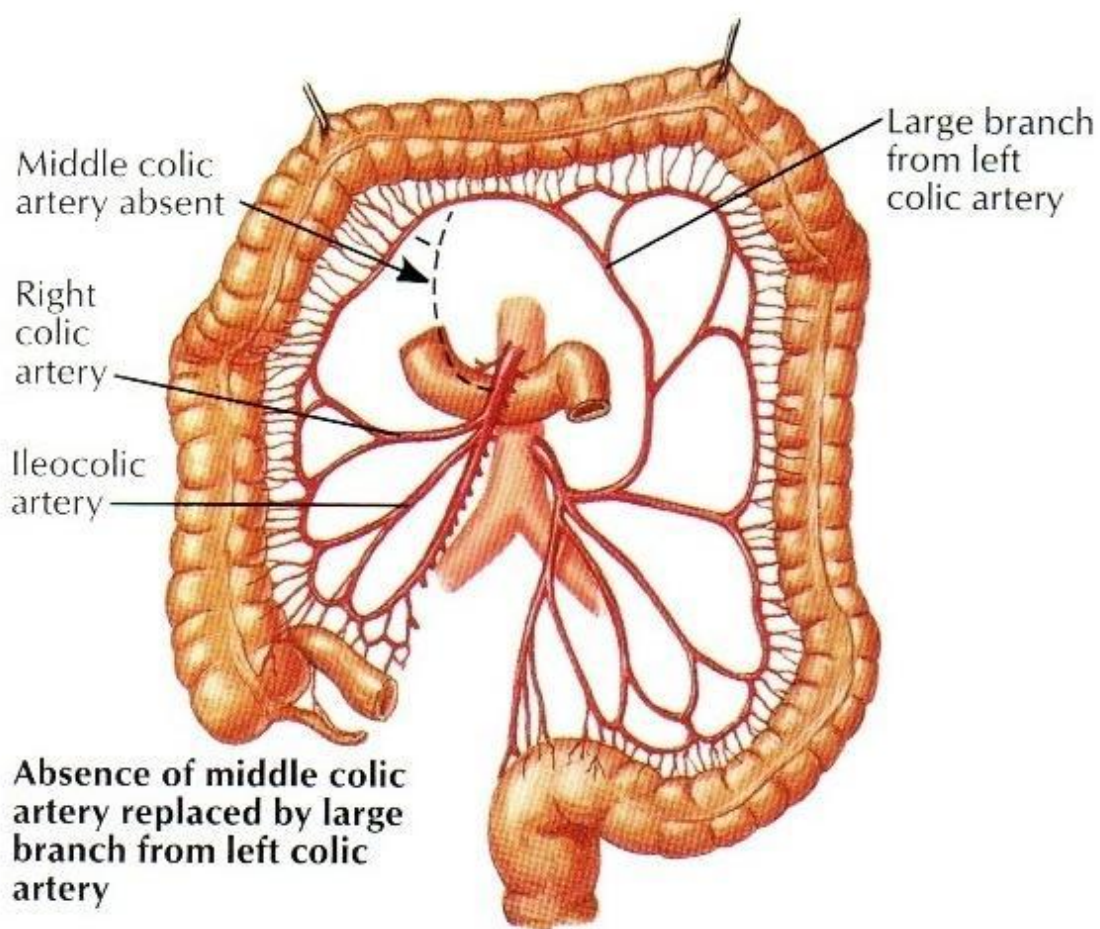
F. Netter M.D.
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Variations in Colic Arteries



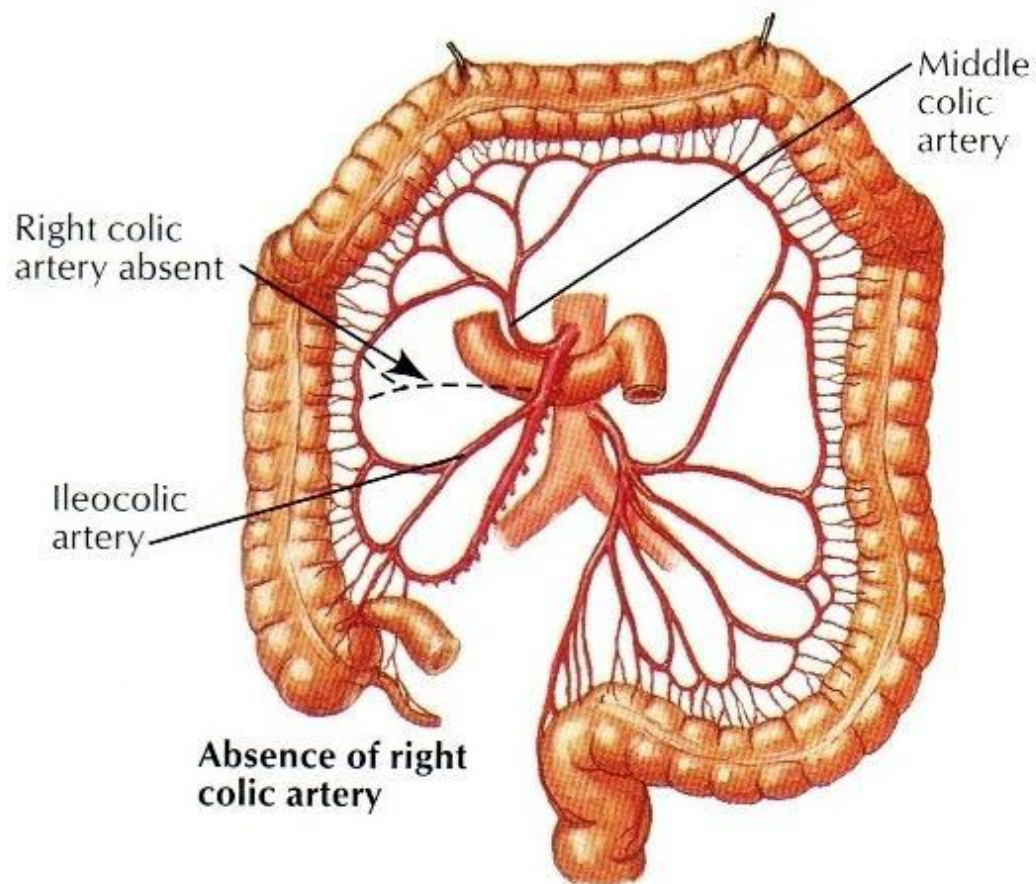
F. Netter M.D.
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Variations in Colic Arteries



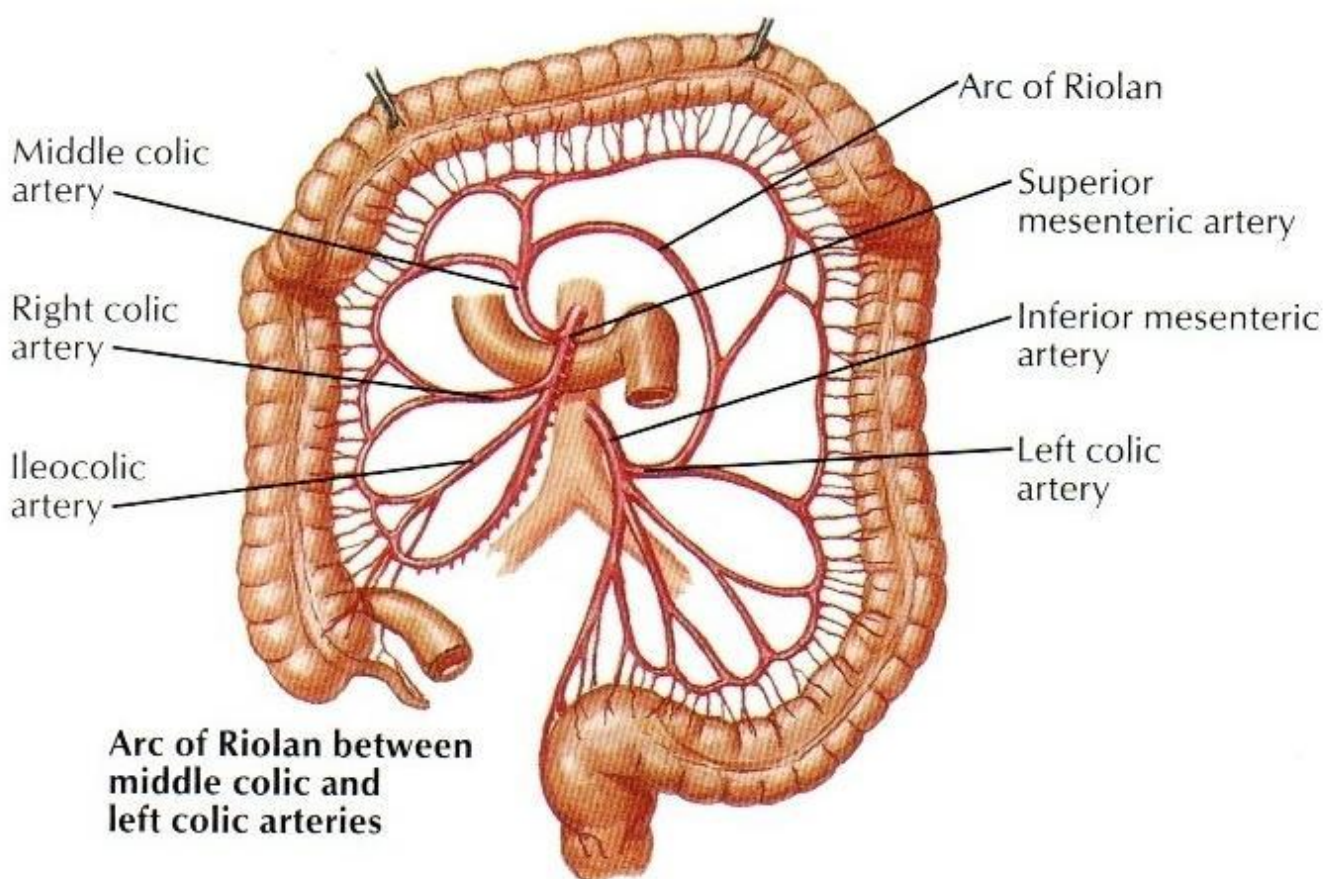
F. Netter M.D.
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Variations in Colic Arteries



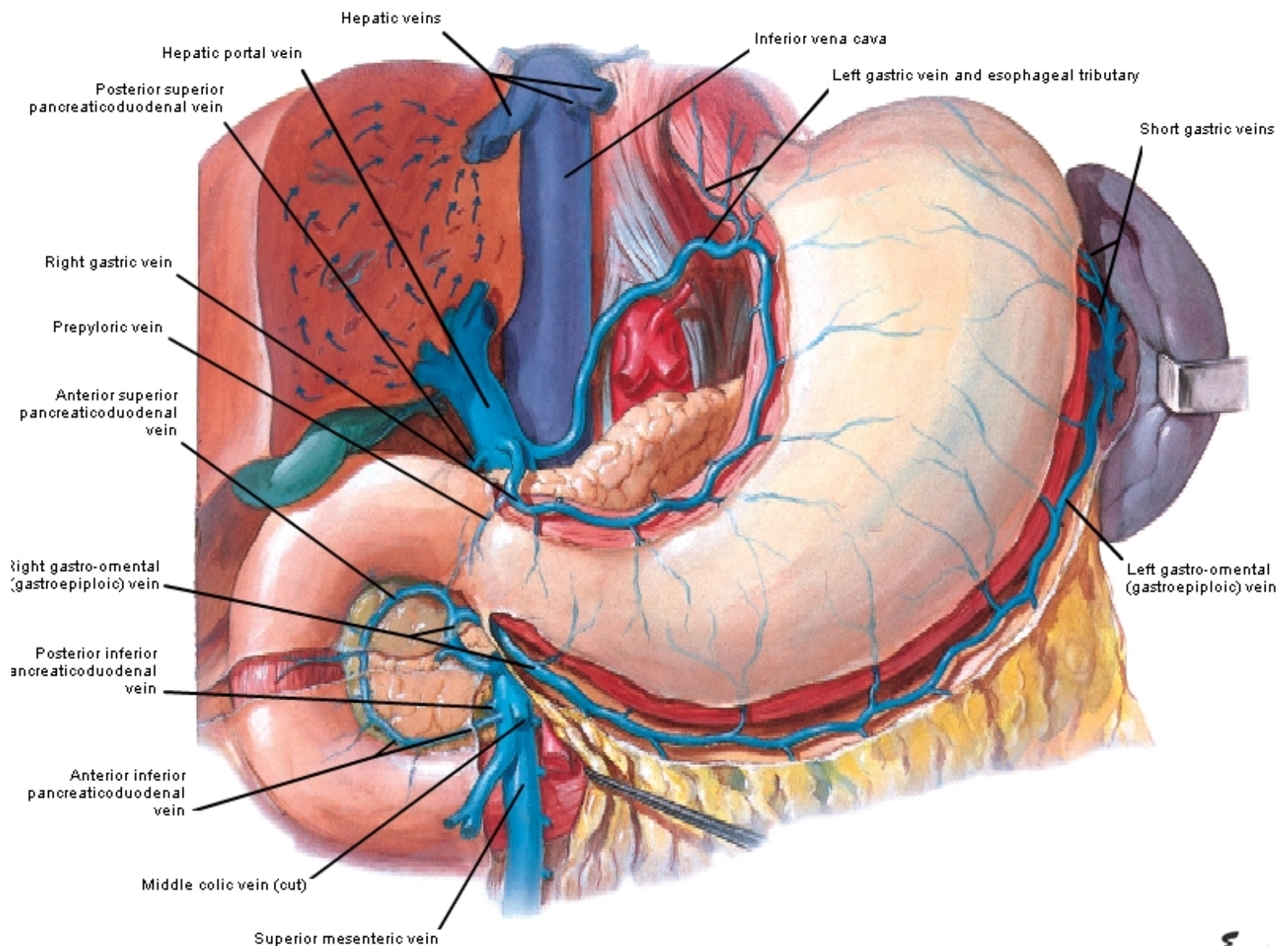
F. Netter M.D.
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Variations in Colic Arteries

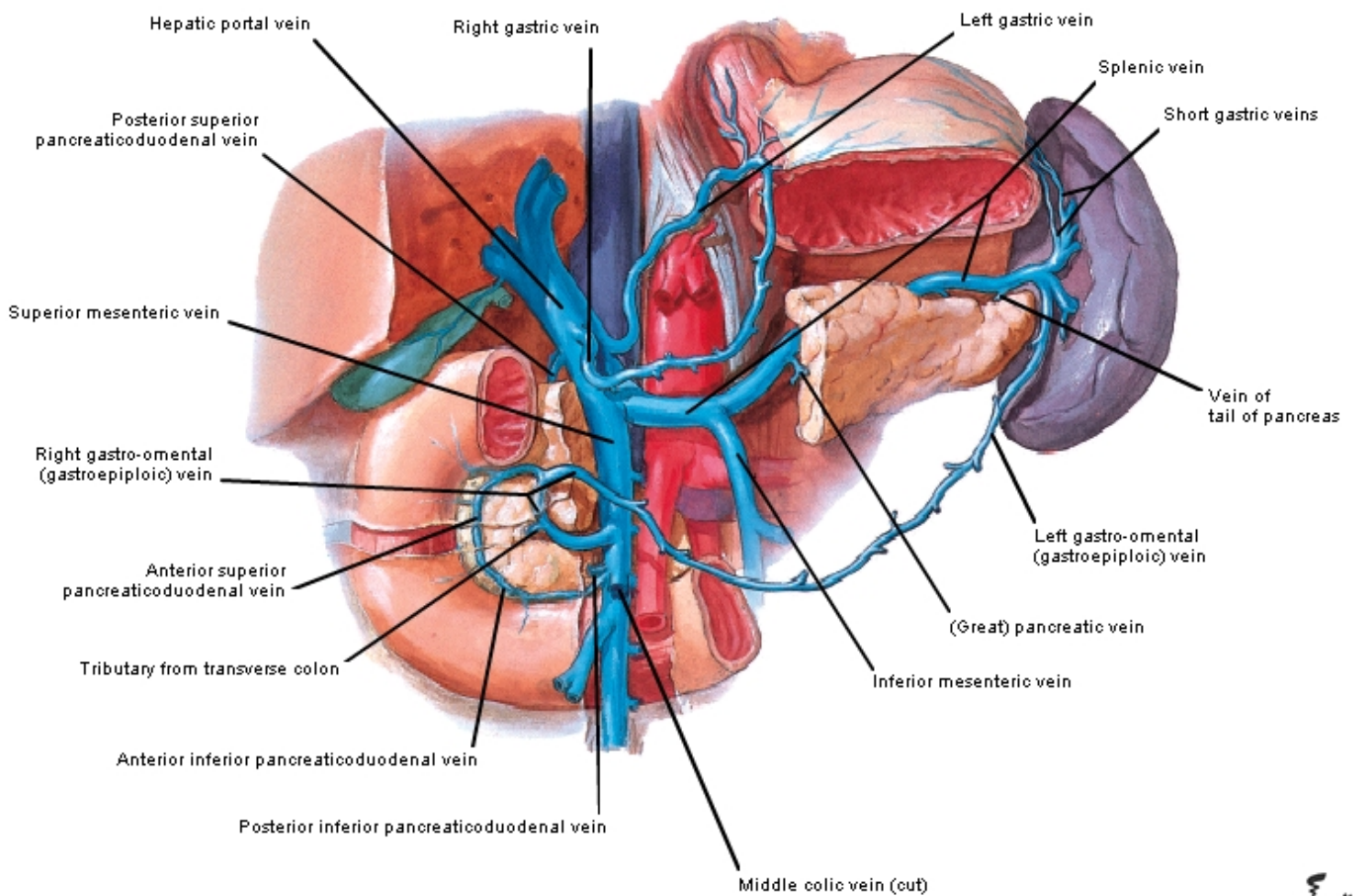


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Veins of Stomach, Duodenum, and Pancreas

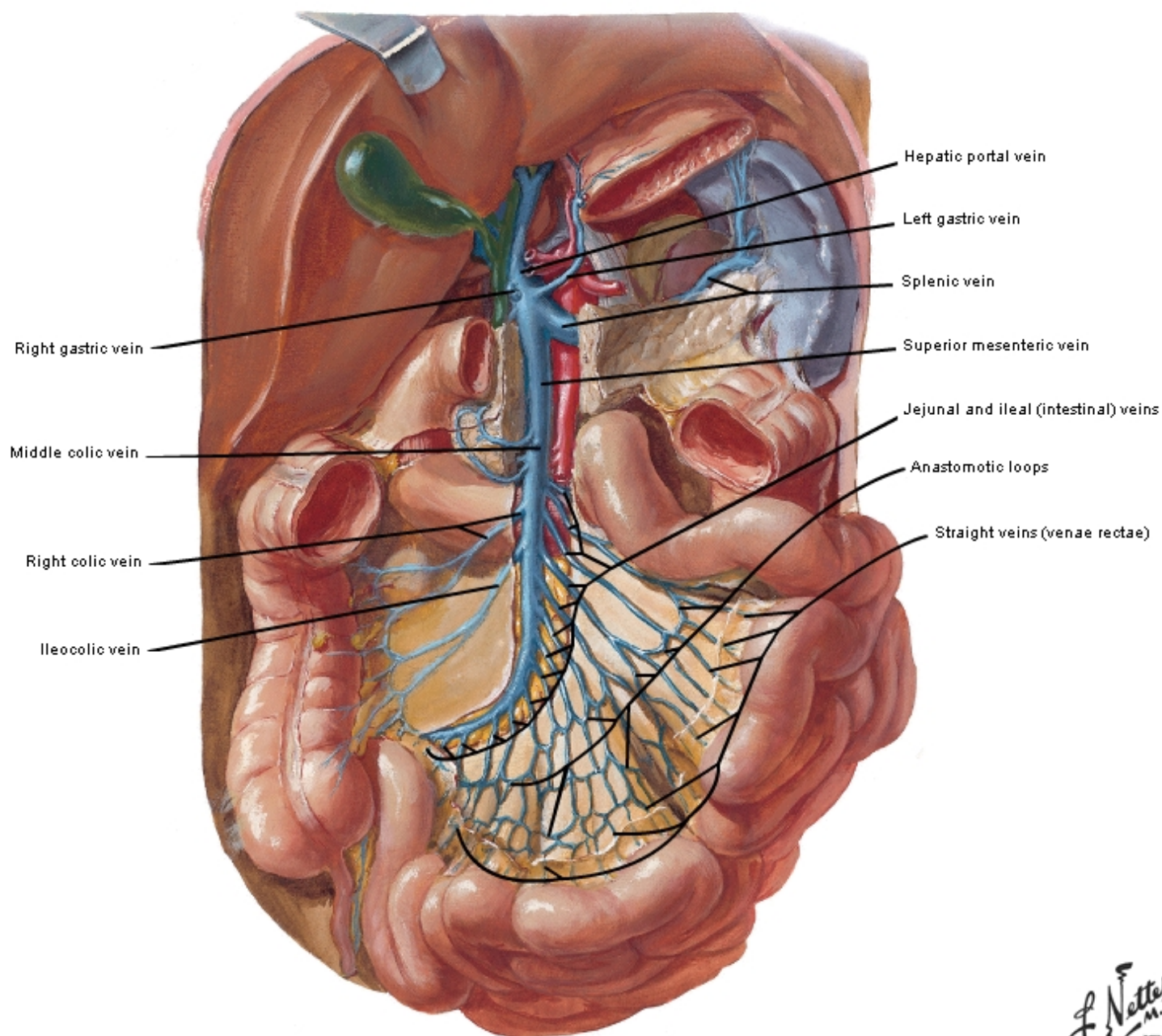


Veins of Stomach, Duodenum, and Pancreas

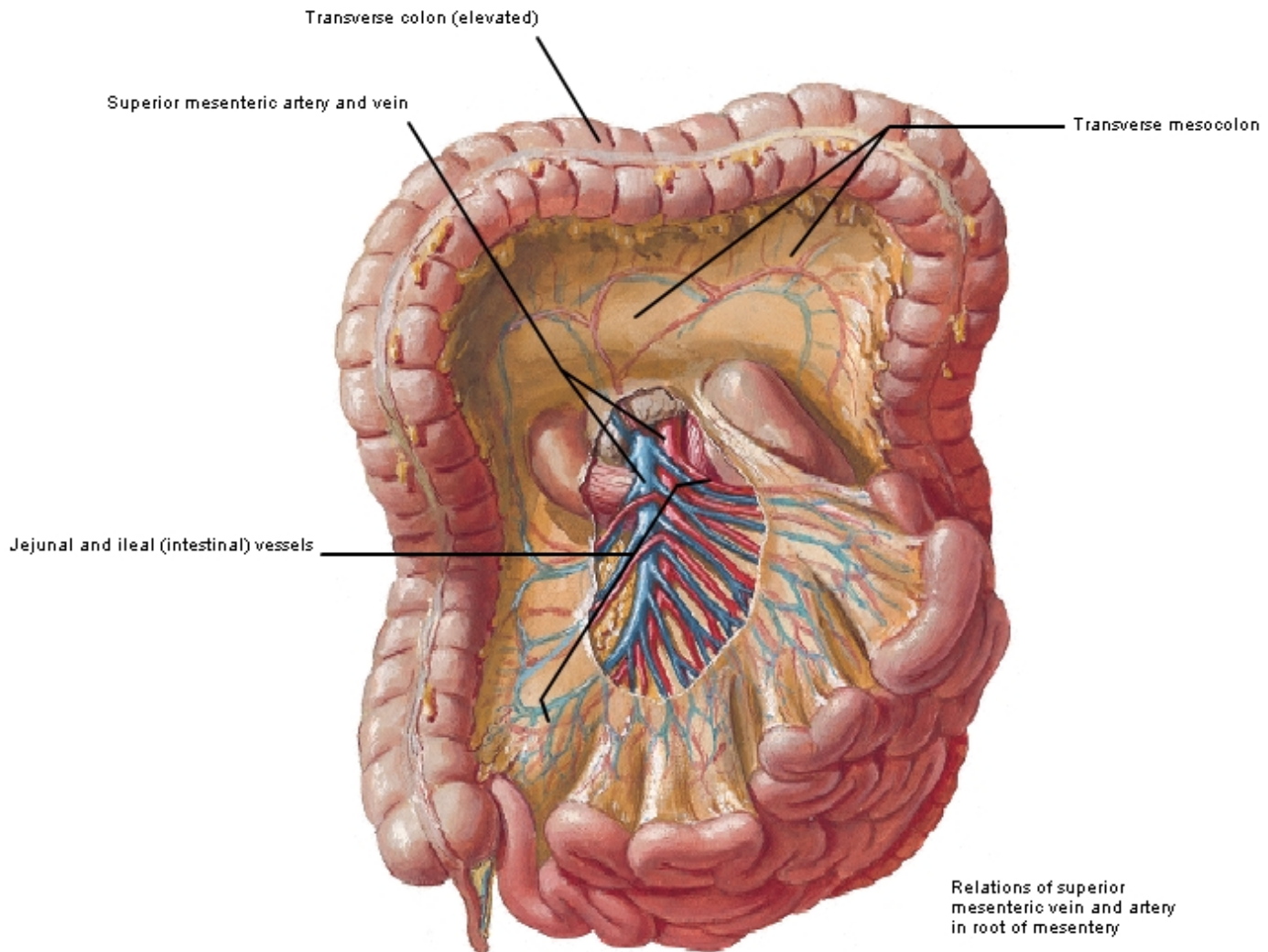


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Veins of Small Intestine Transverse Colon Cut



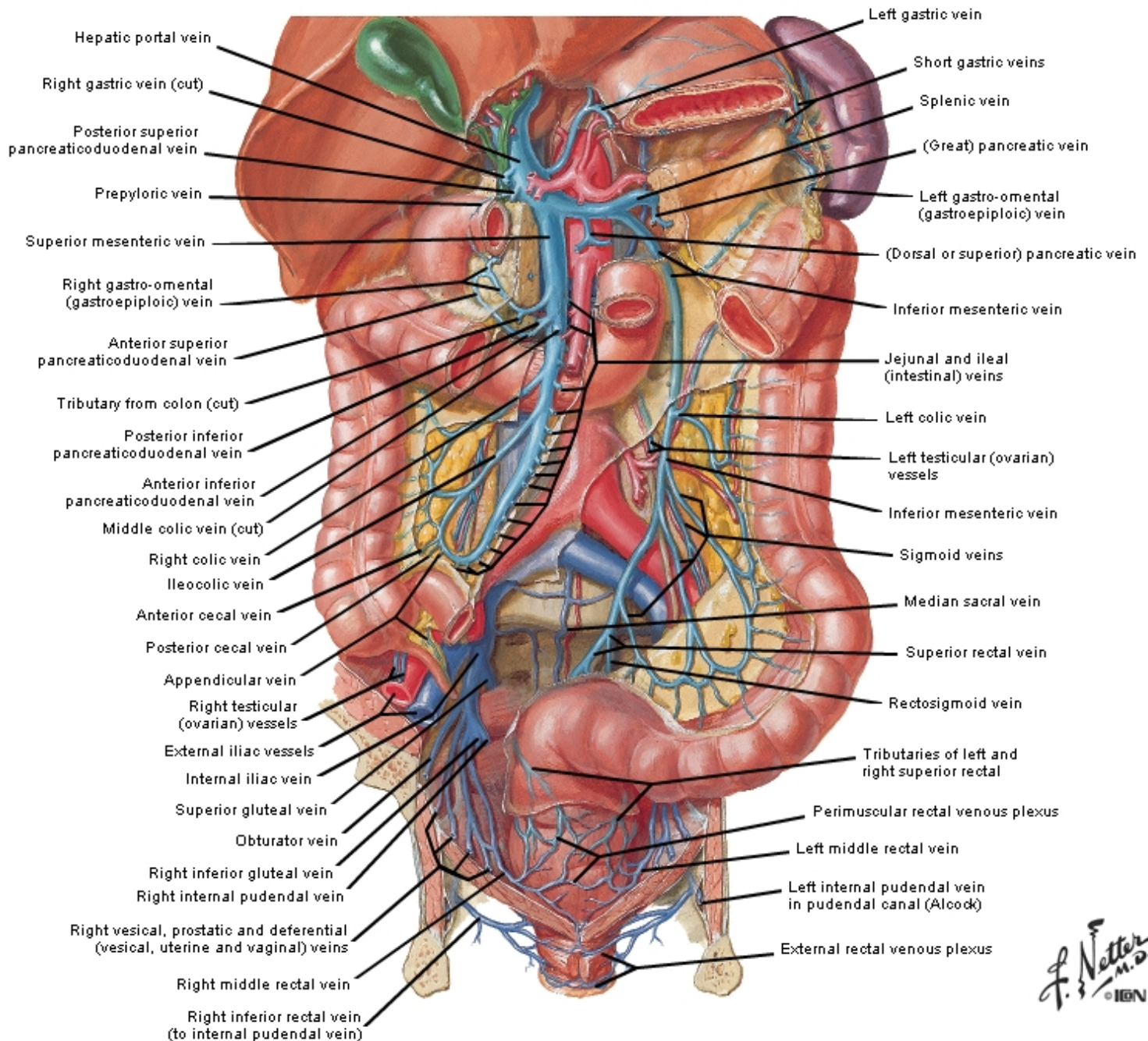
Veins of Small Intestine Transverse Colon Elevated



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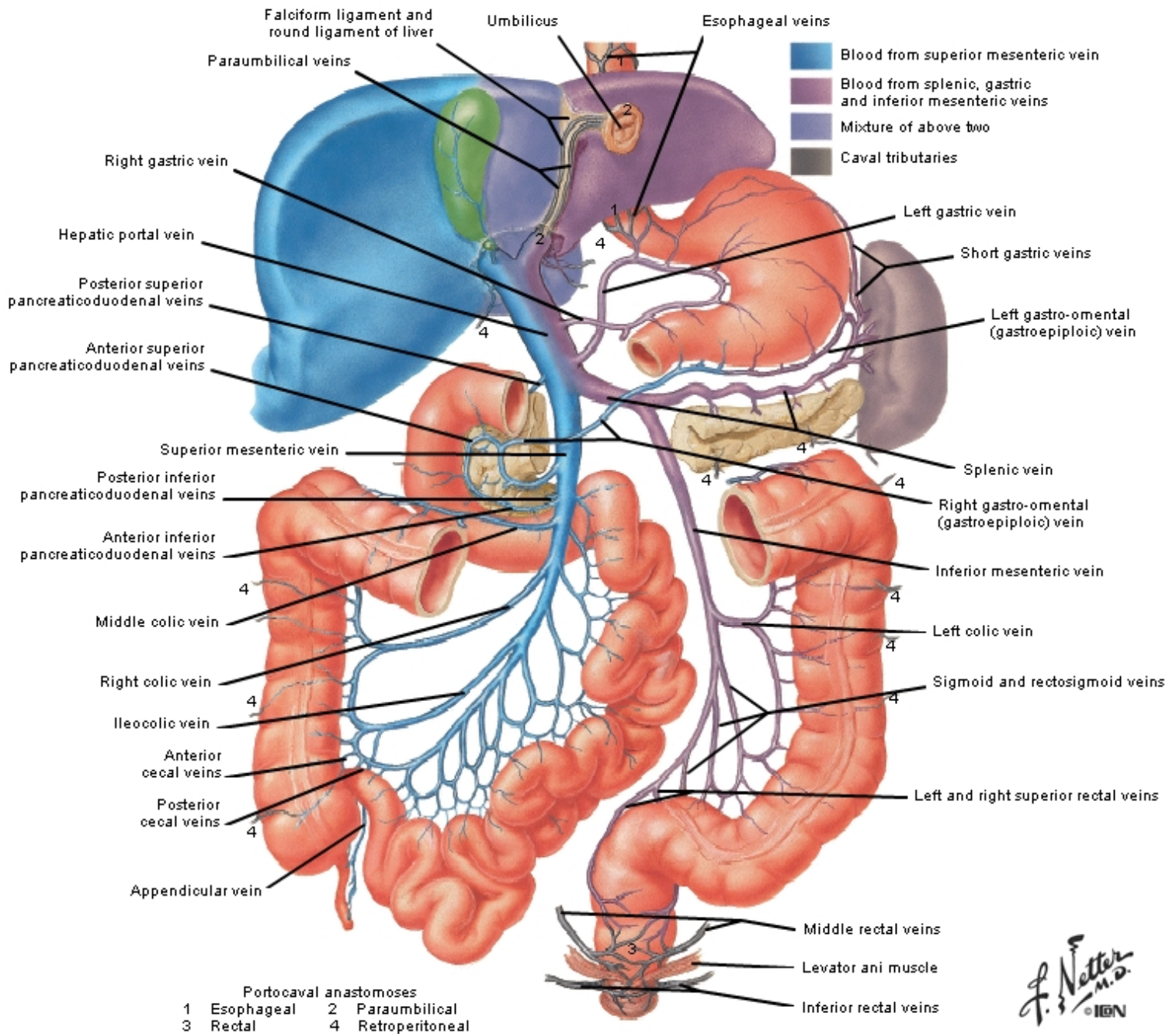
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Veins of Small and Large Intestine



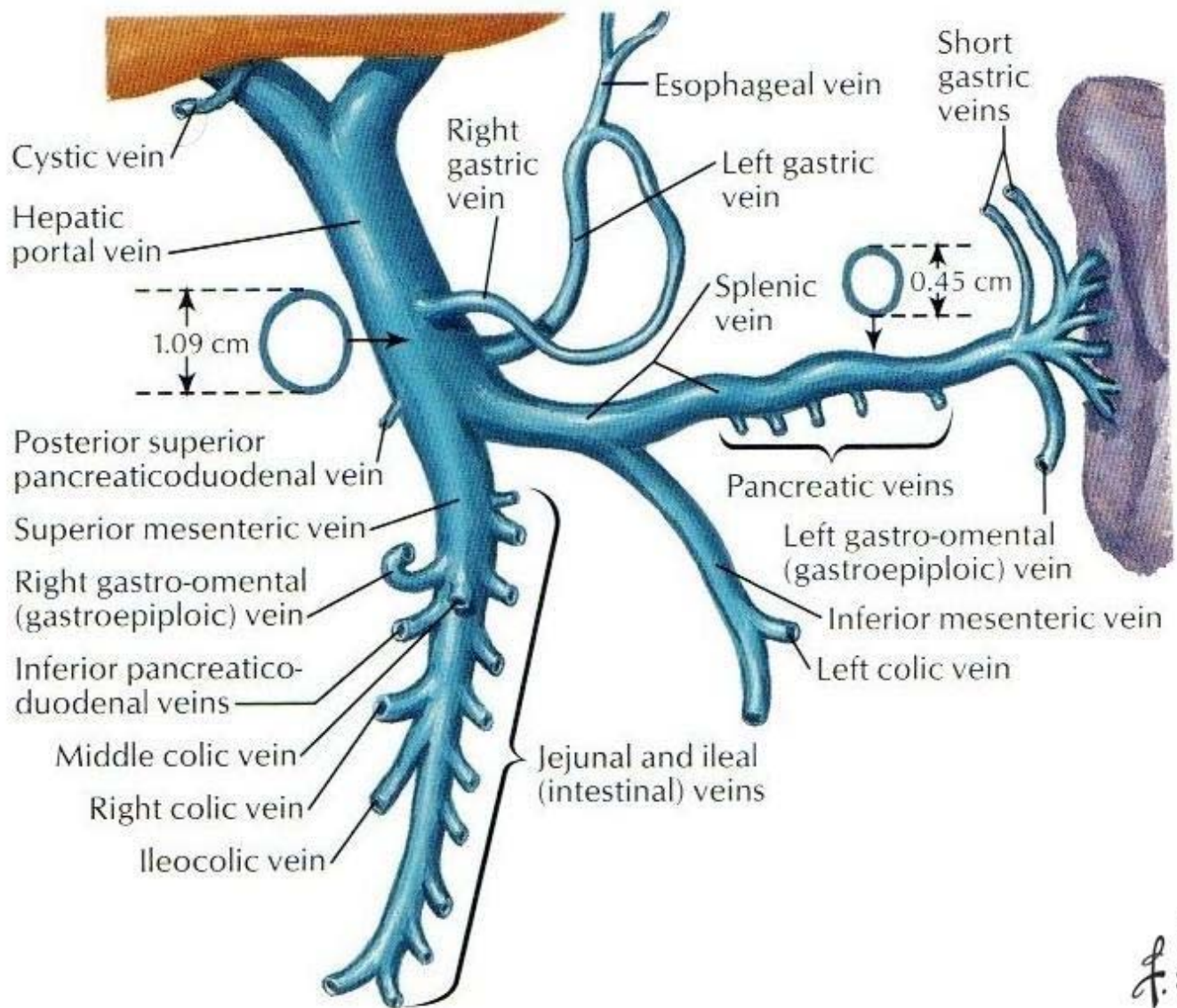
F. Netter M.D.
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Hepatic Portal Vein Tributaries Portocaval Anastomoses

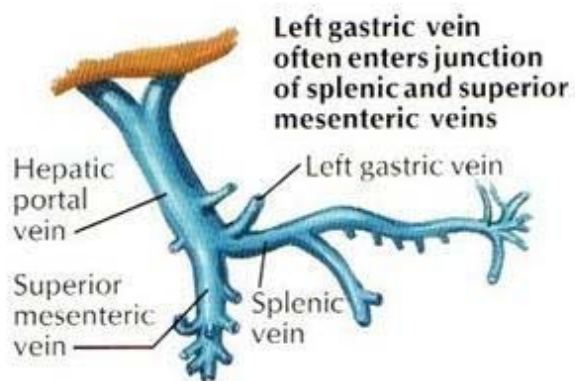
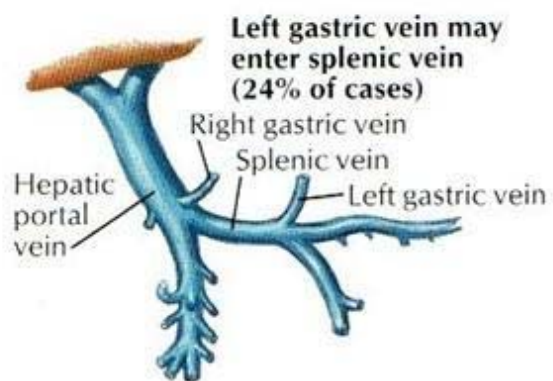
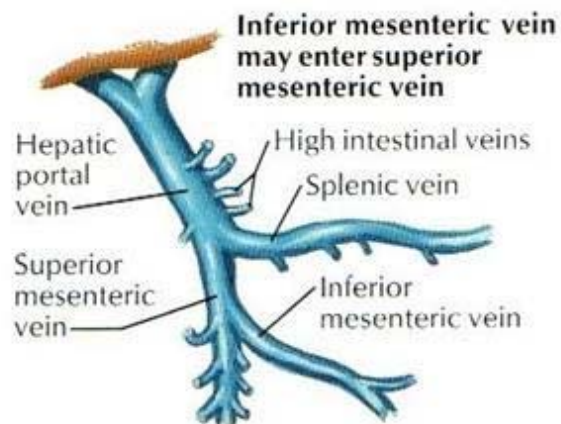
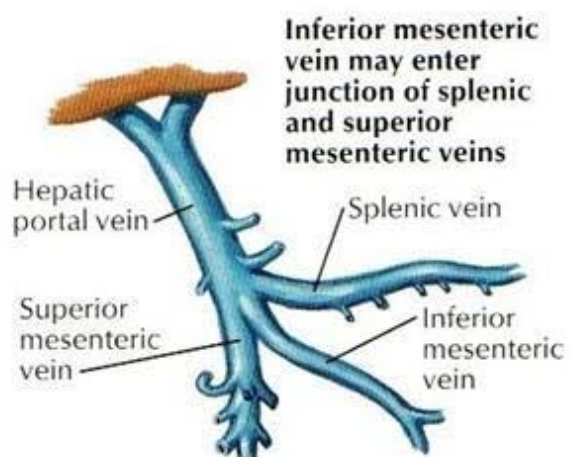


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Hepatic Portal Vein

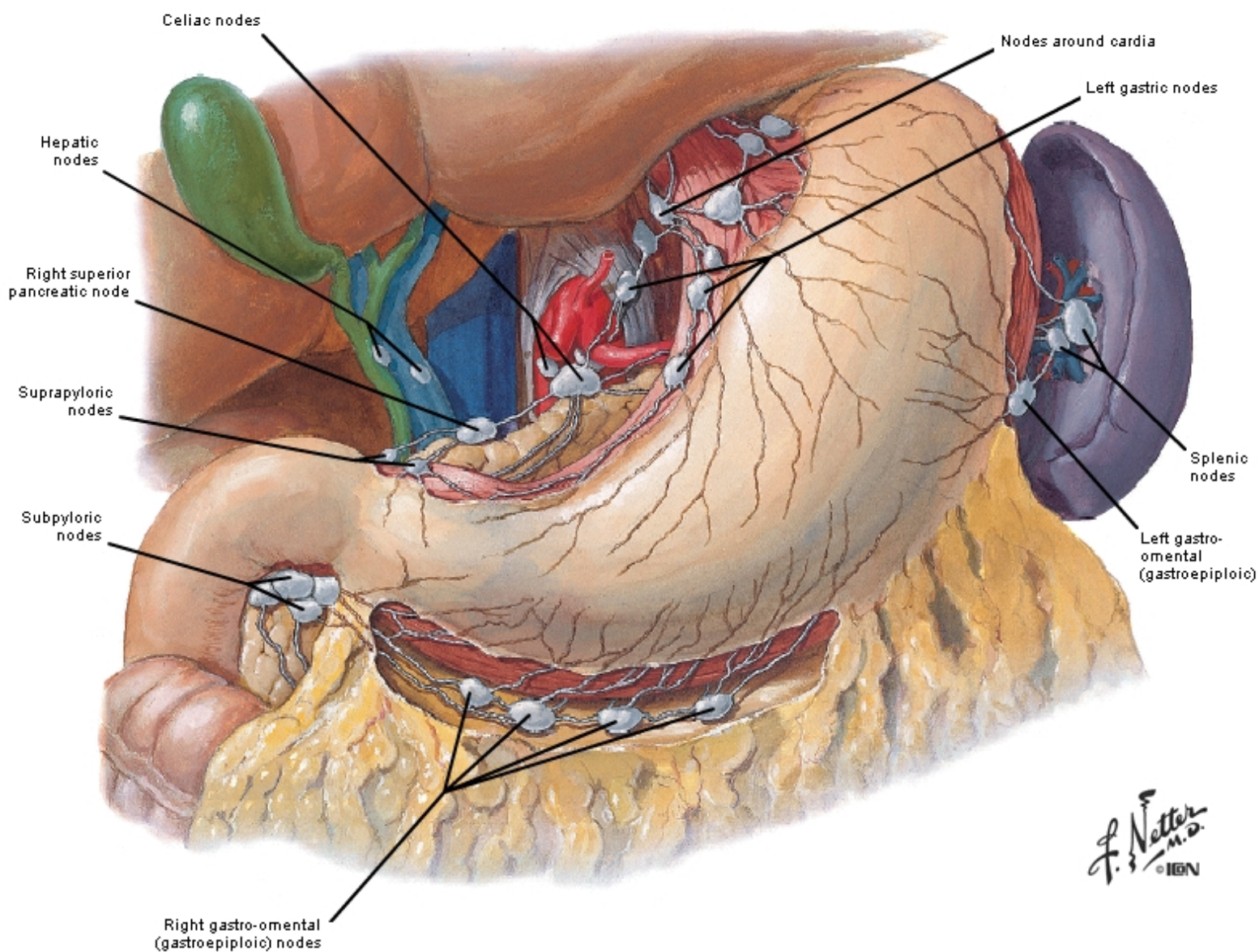


Variations of Hepatic Portal Vein

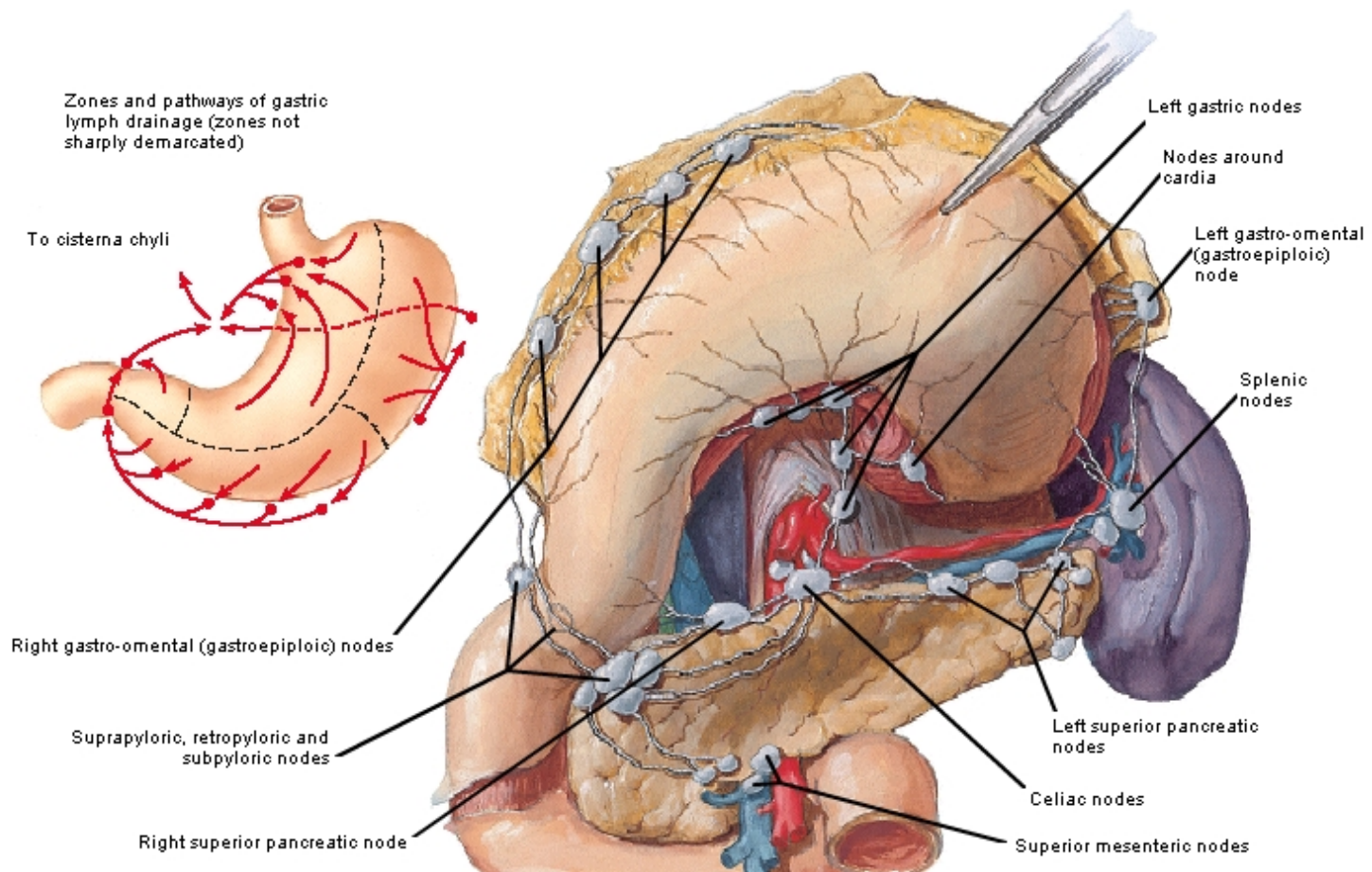


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Lymph Vessels and Nodes of Stomach

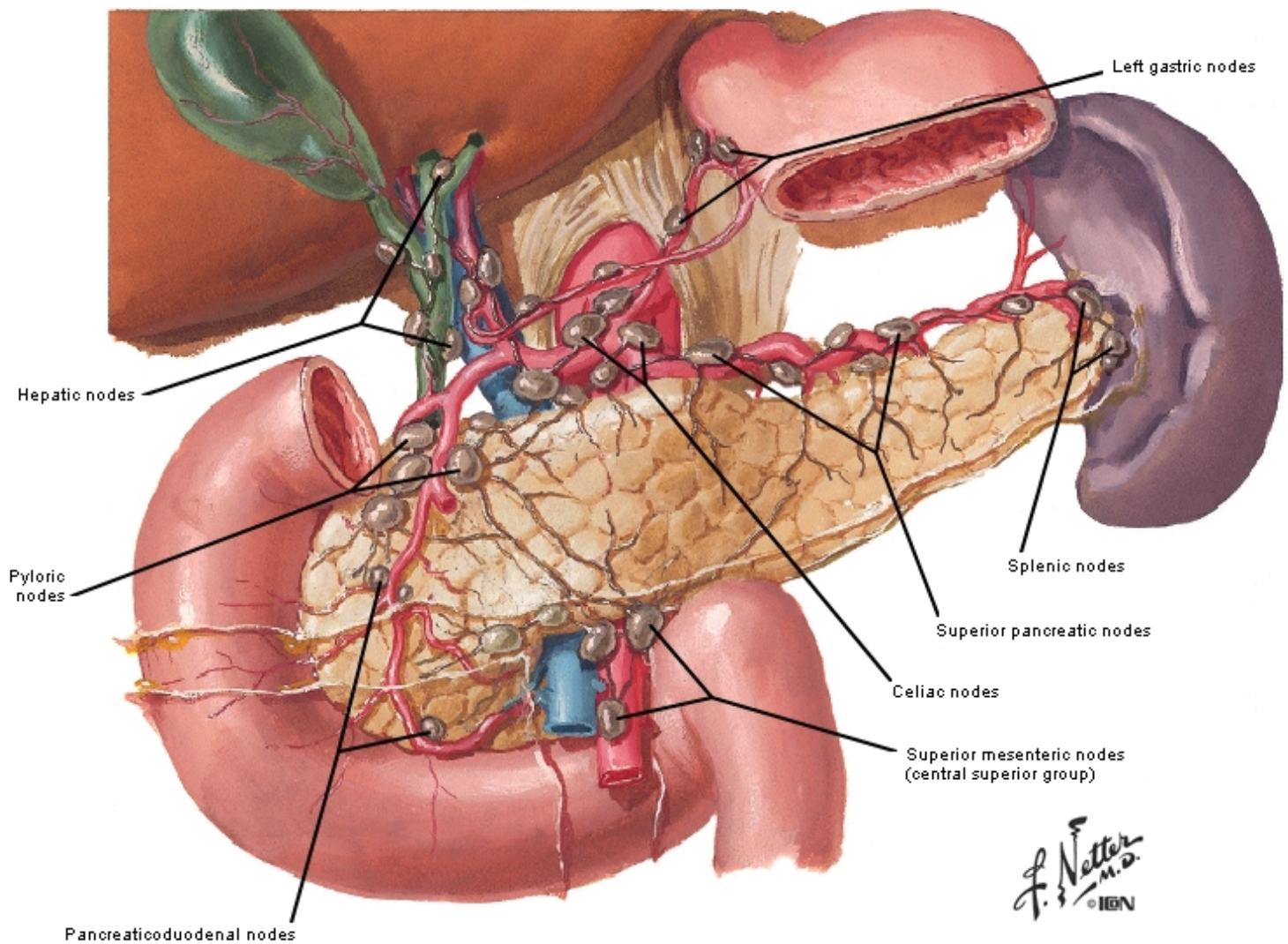


Lymph Vessels and Nodes of Stomach Stomach Reflected

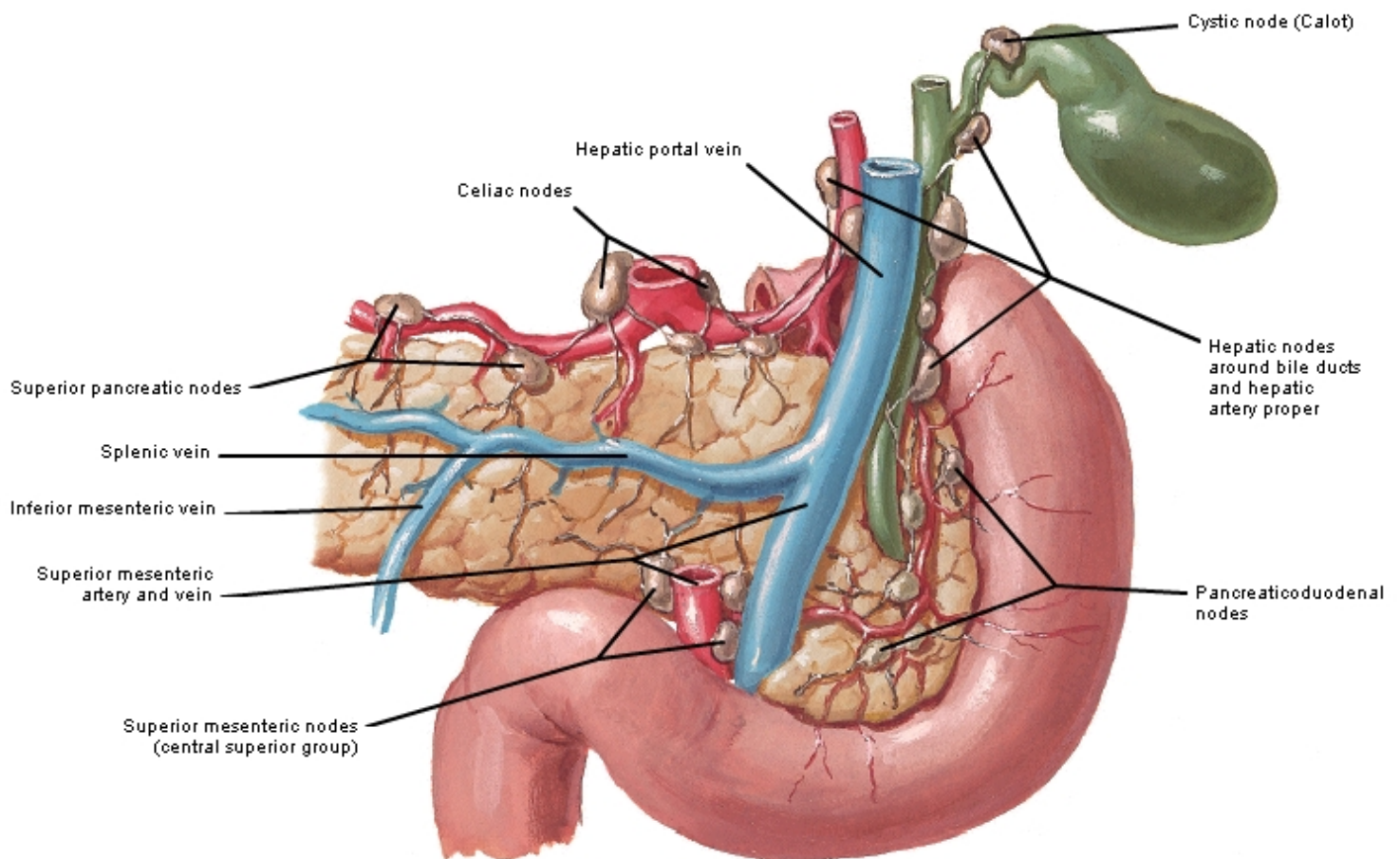


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Lymph Vessels and Nodes of Pancreas Anterior View

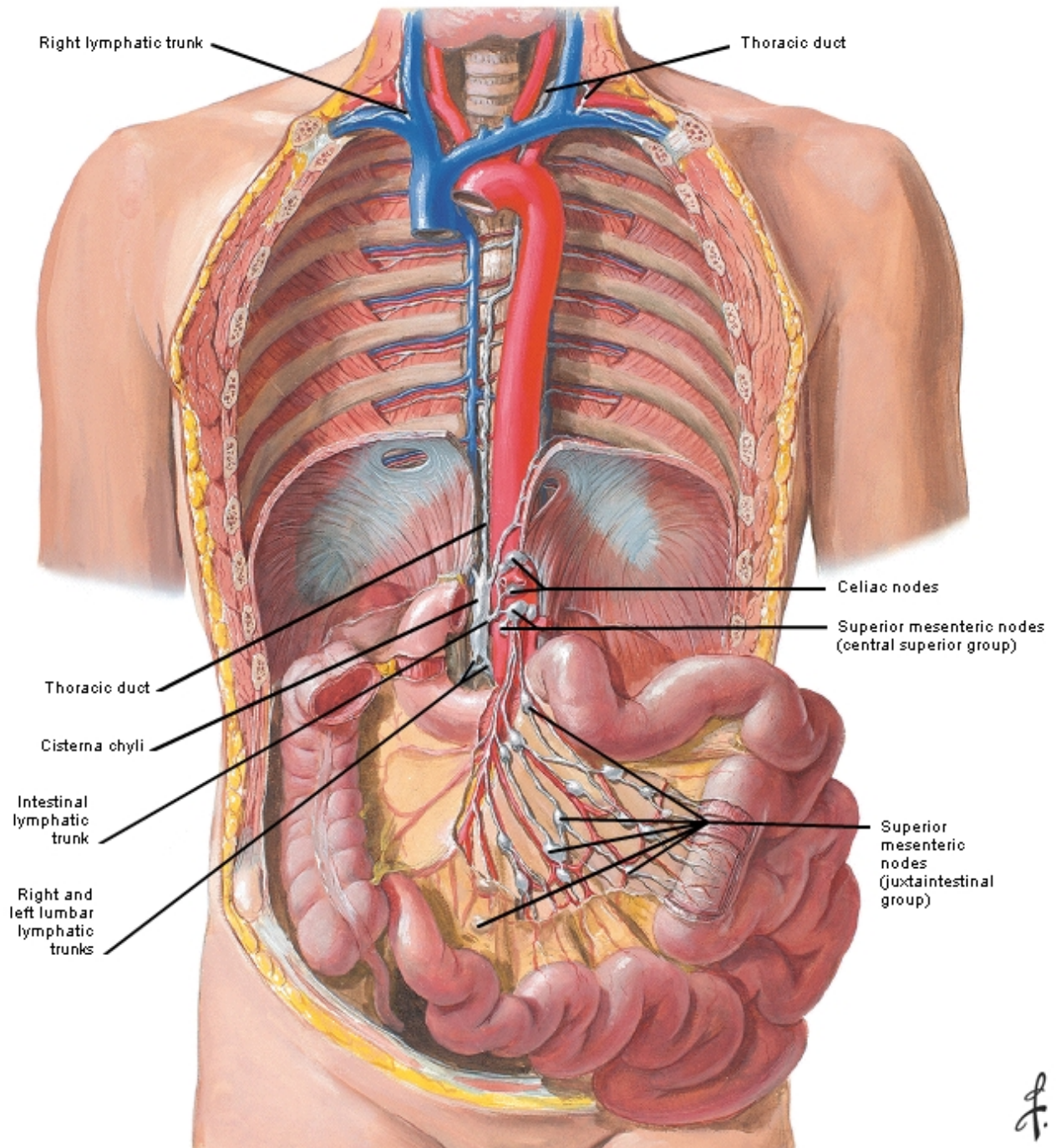


Lymph Vessels and Nodes of Pancreas Posterior View

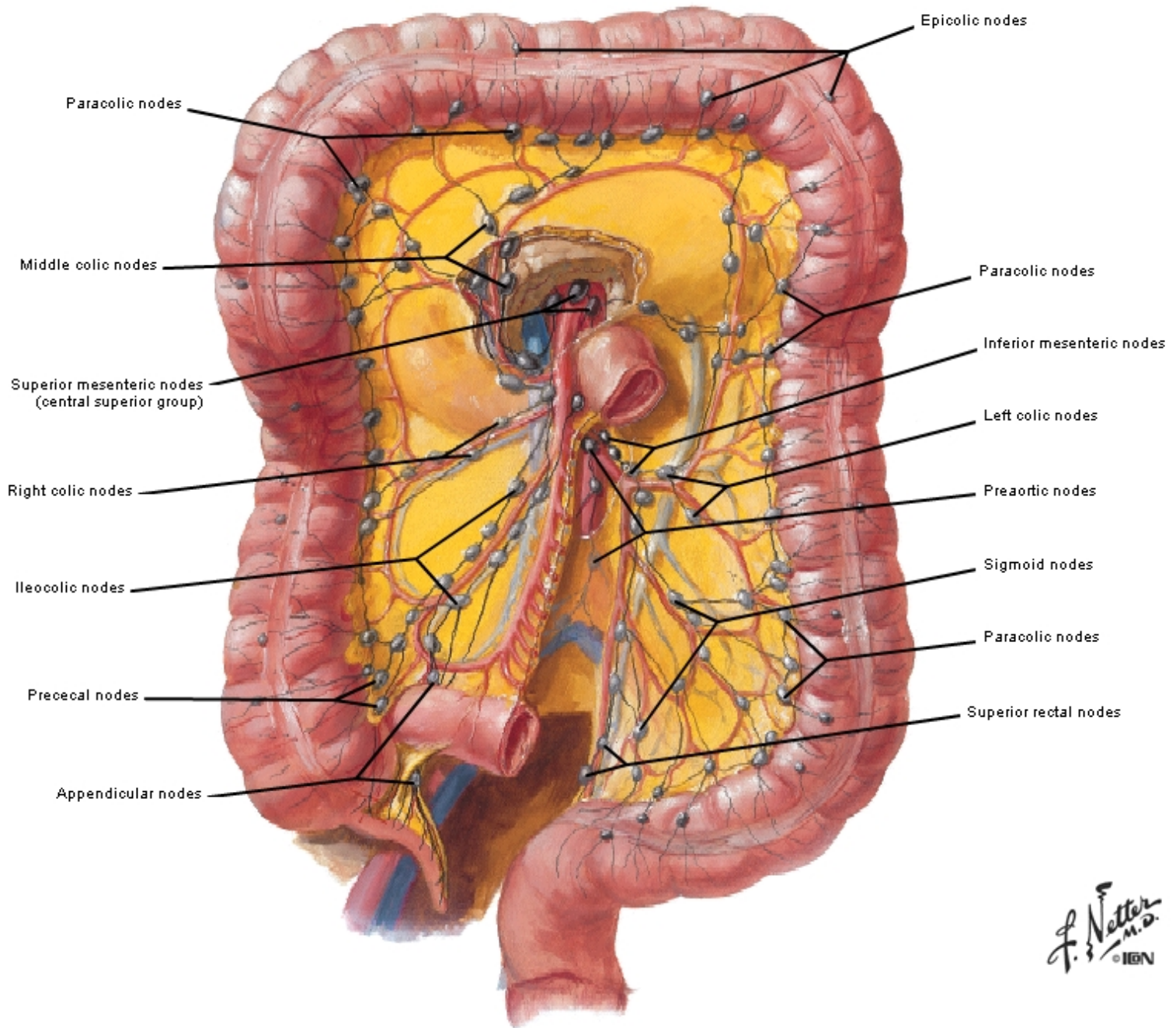


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Lymph Vessels and Nodes of Small Intestine

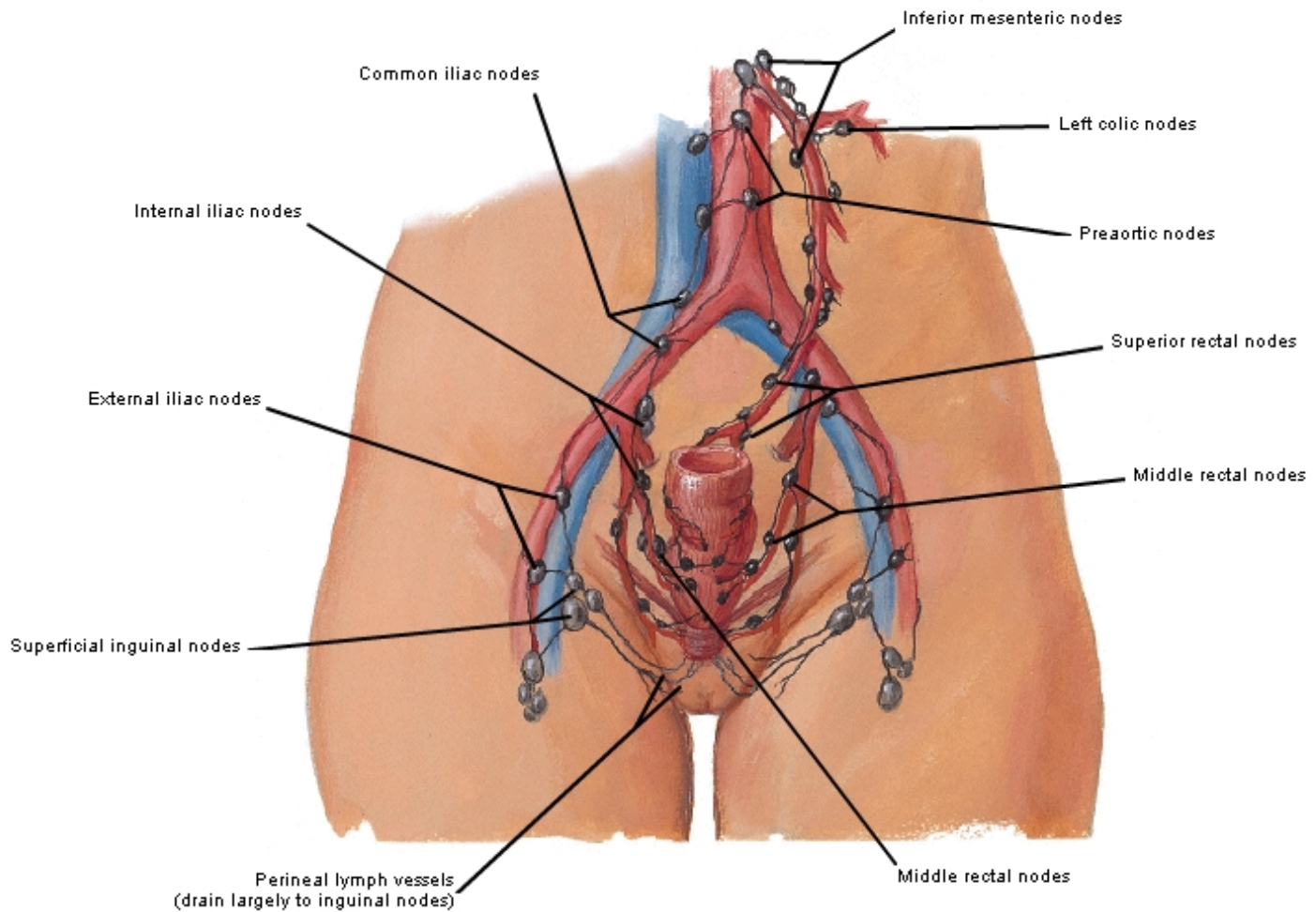


Lymph Vessels and Nodes of Large Intestine



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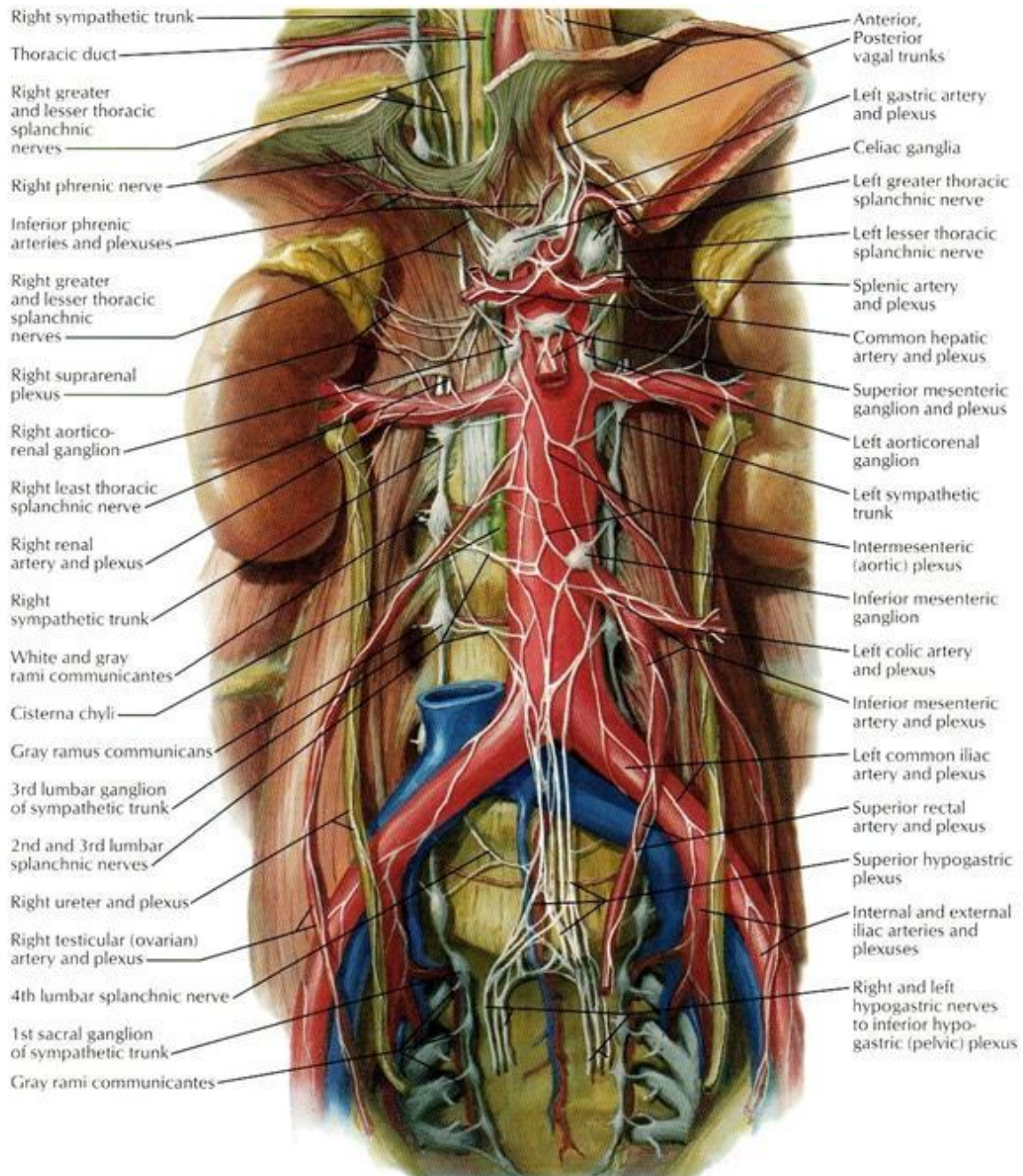
Lymph Vessels and Nodes of Large Intestine



F. Netter M.D.
© IGV

ABDOMEN

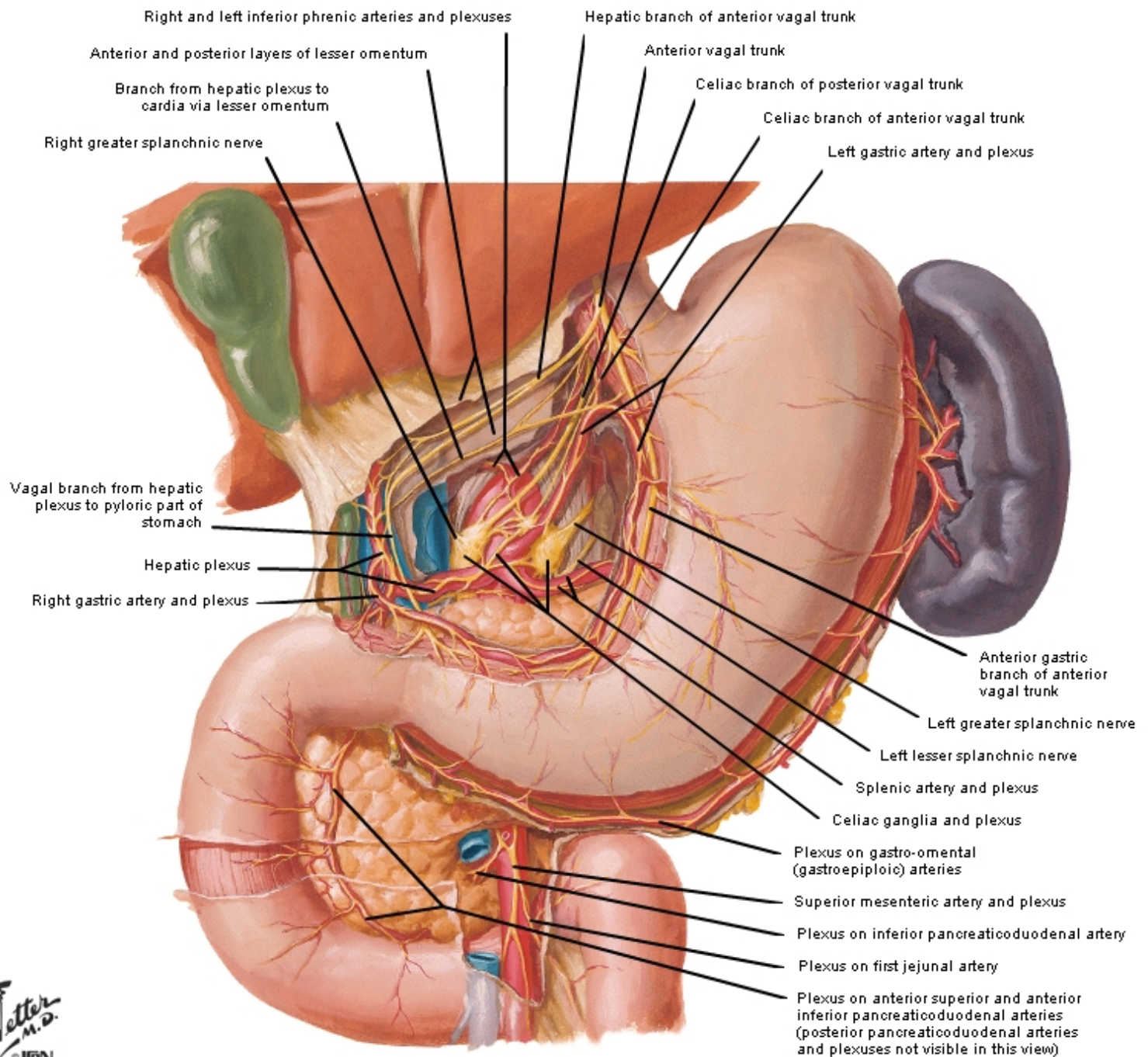
Autonomic Nerves and Ganglia of Abdomen



F. Netter M.D.
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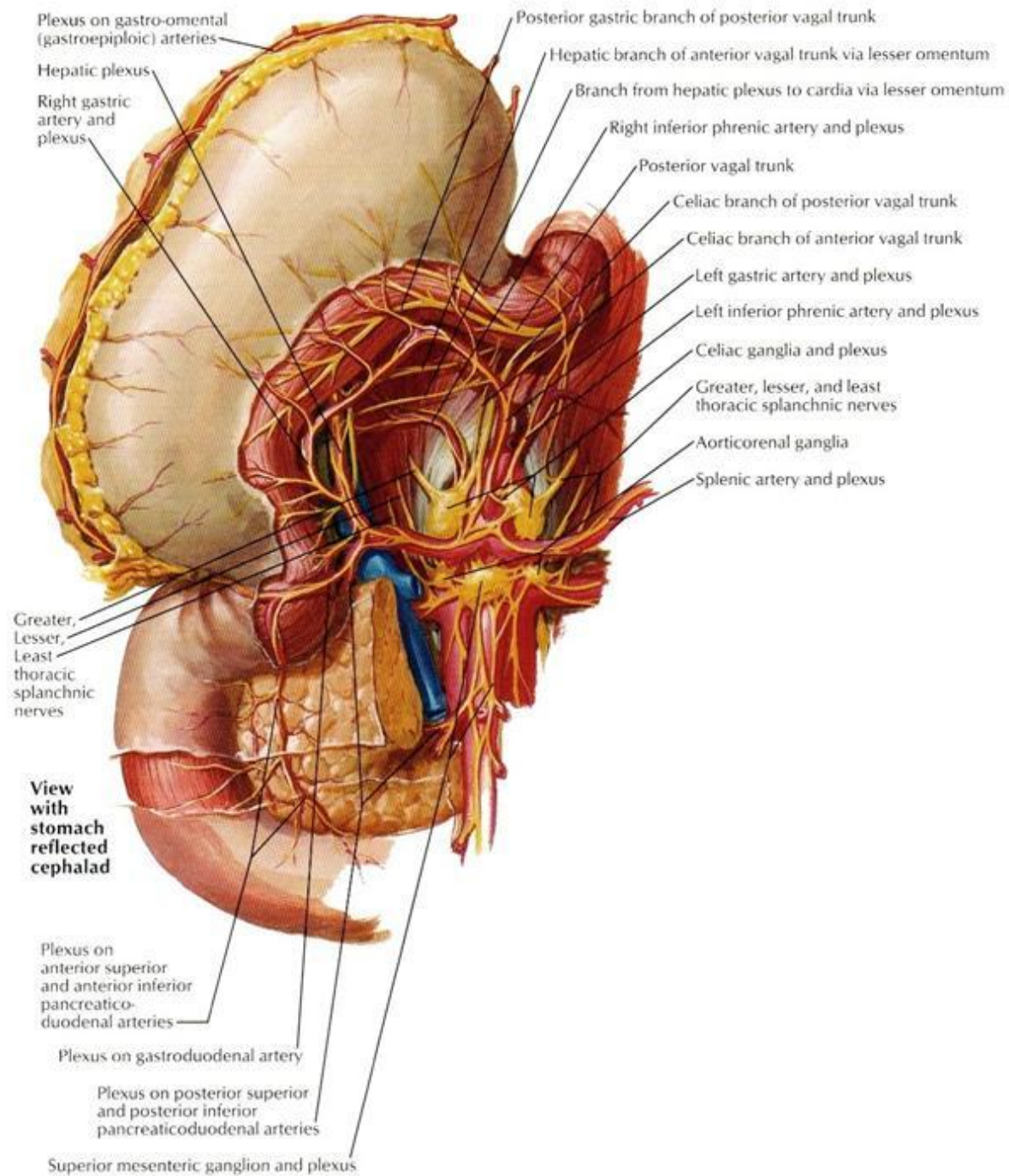
ABDOMEN

Nerves of Stomach and Duodenum



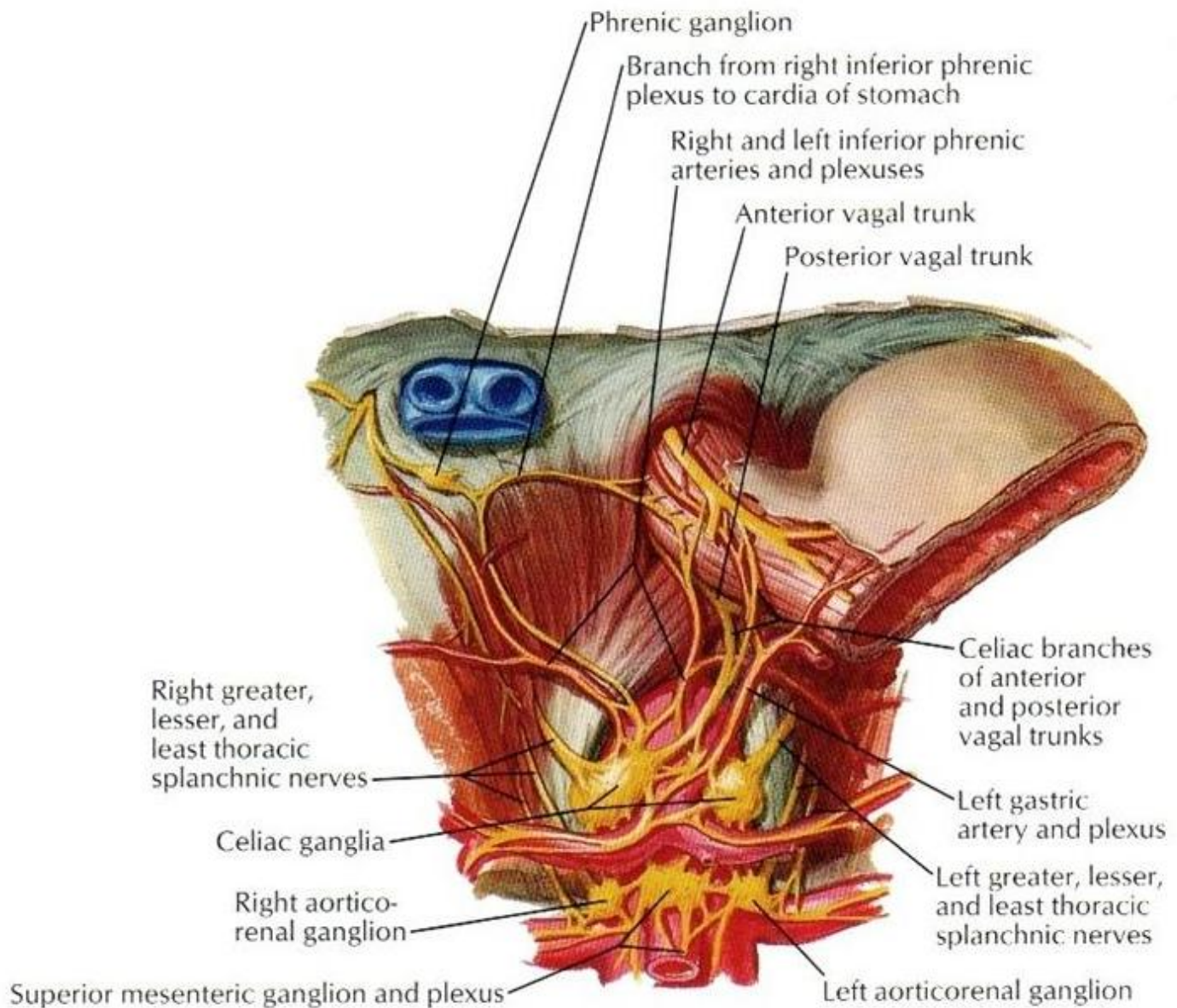
F. Netter M.D.
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Nerves of Stomach and Duodenum



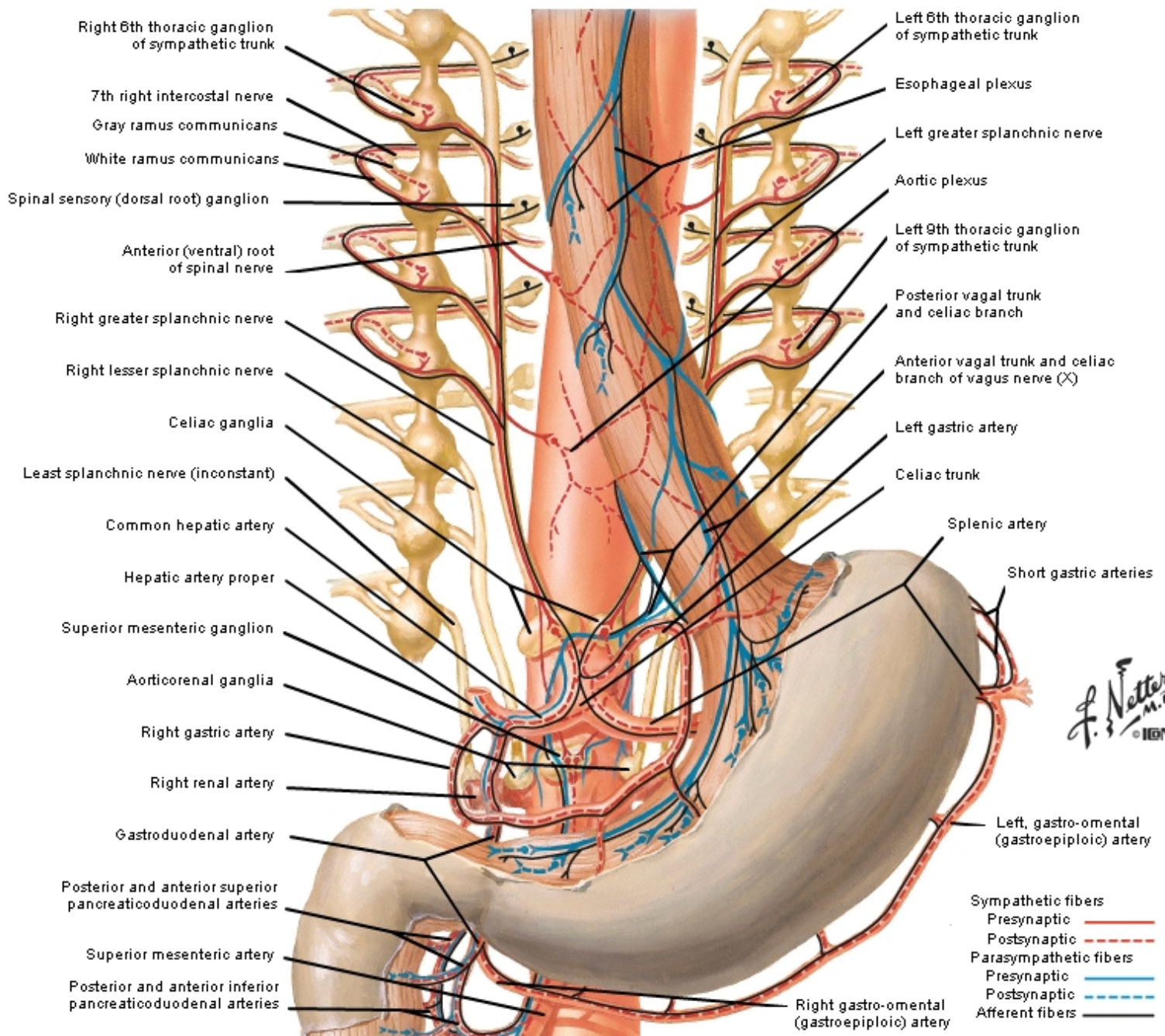
F. Netter M.D.
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Nerves of Stomach and Duodenum

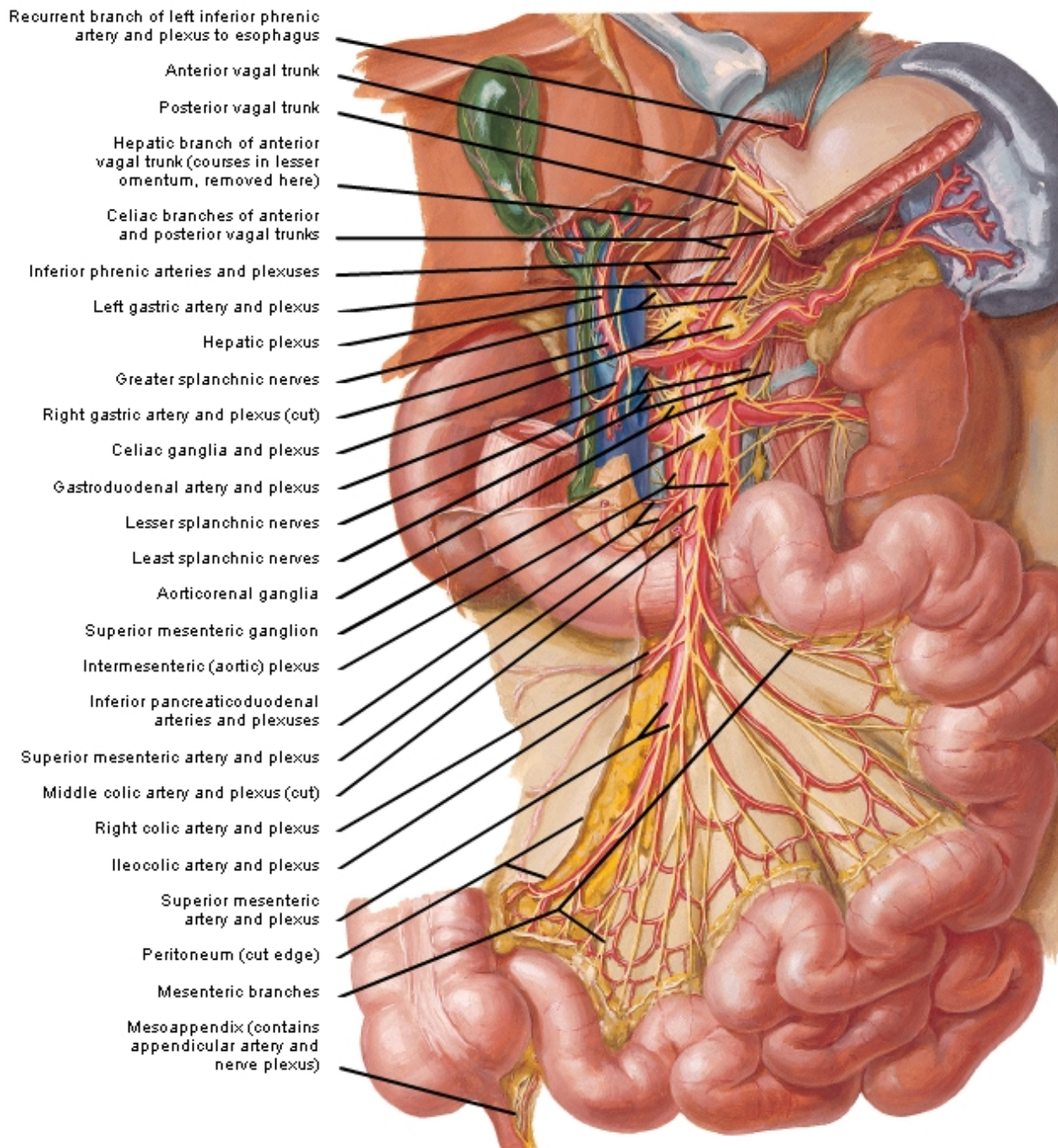


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Innervation of Stomach and Duodenum Schema



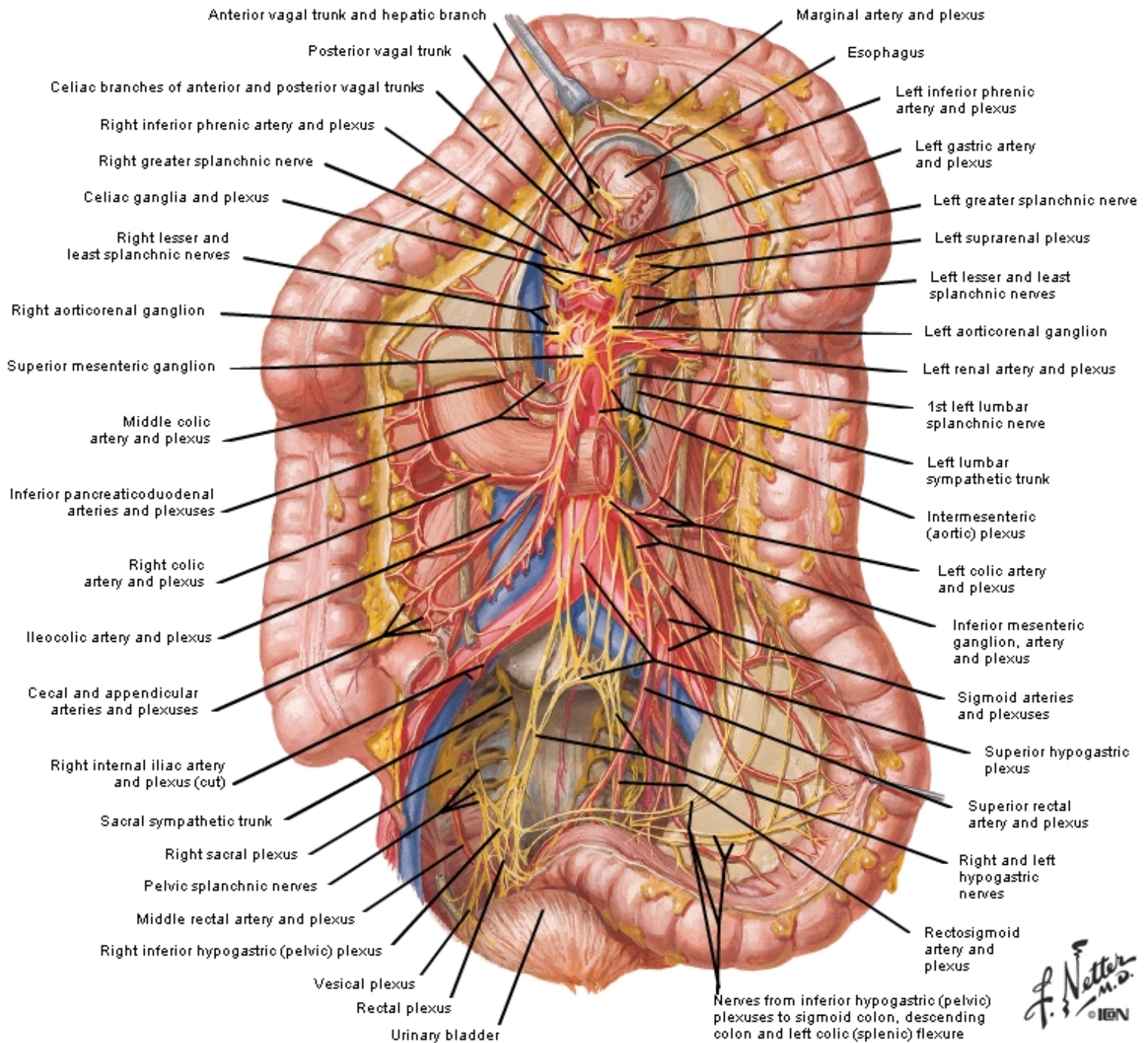
Nerves of Small Intestine



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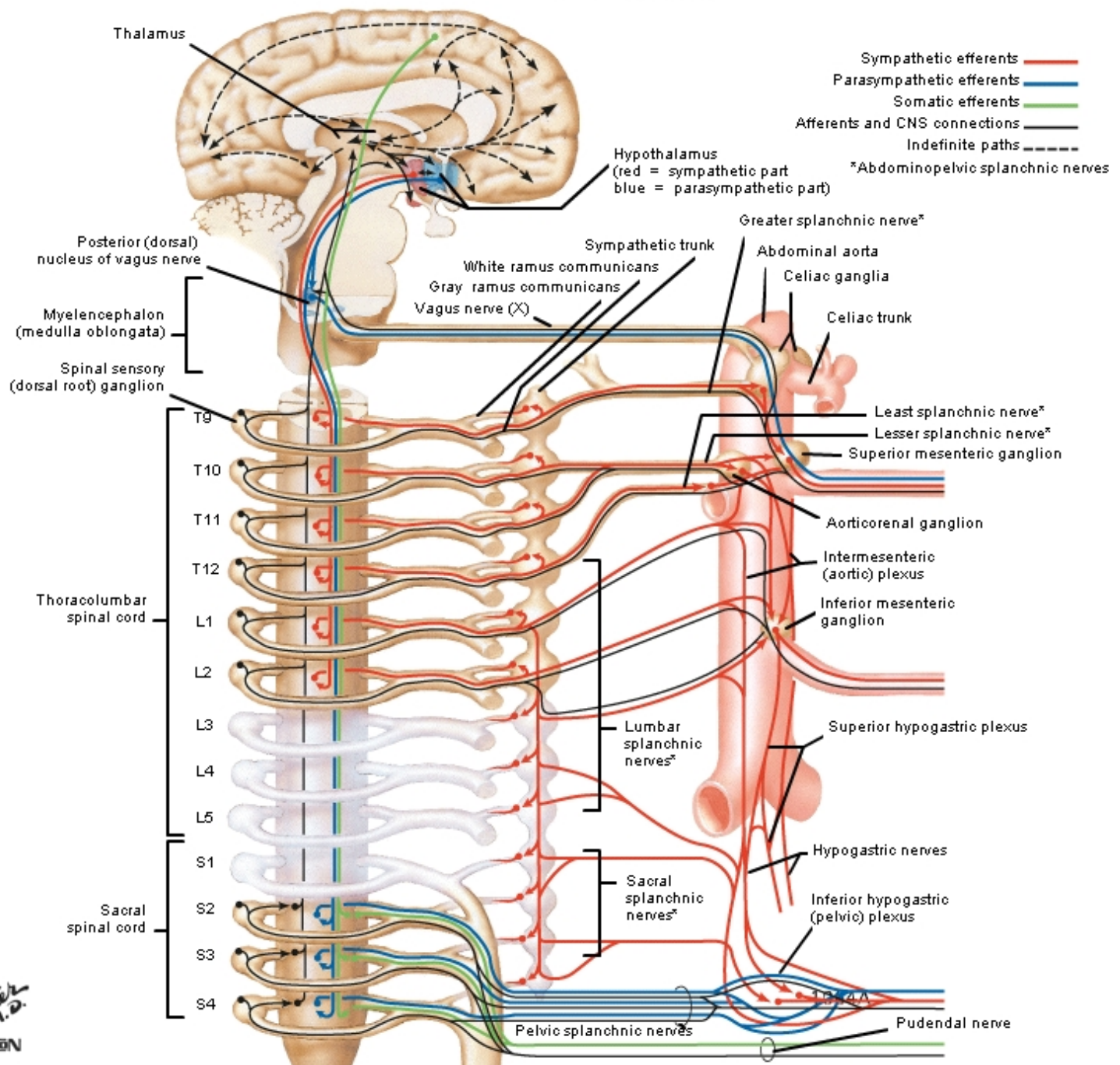
Nerves of Large Intestine



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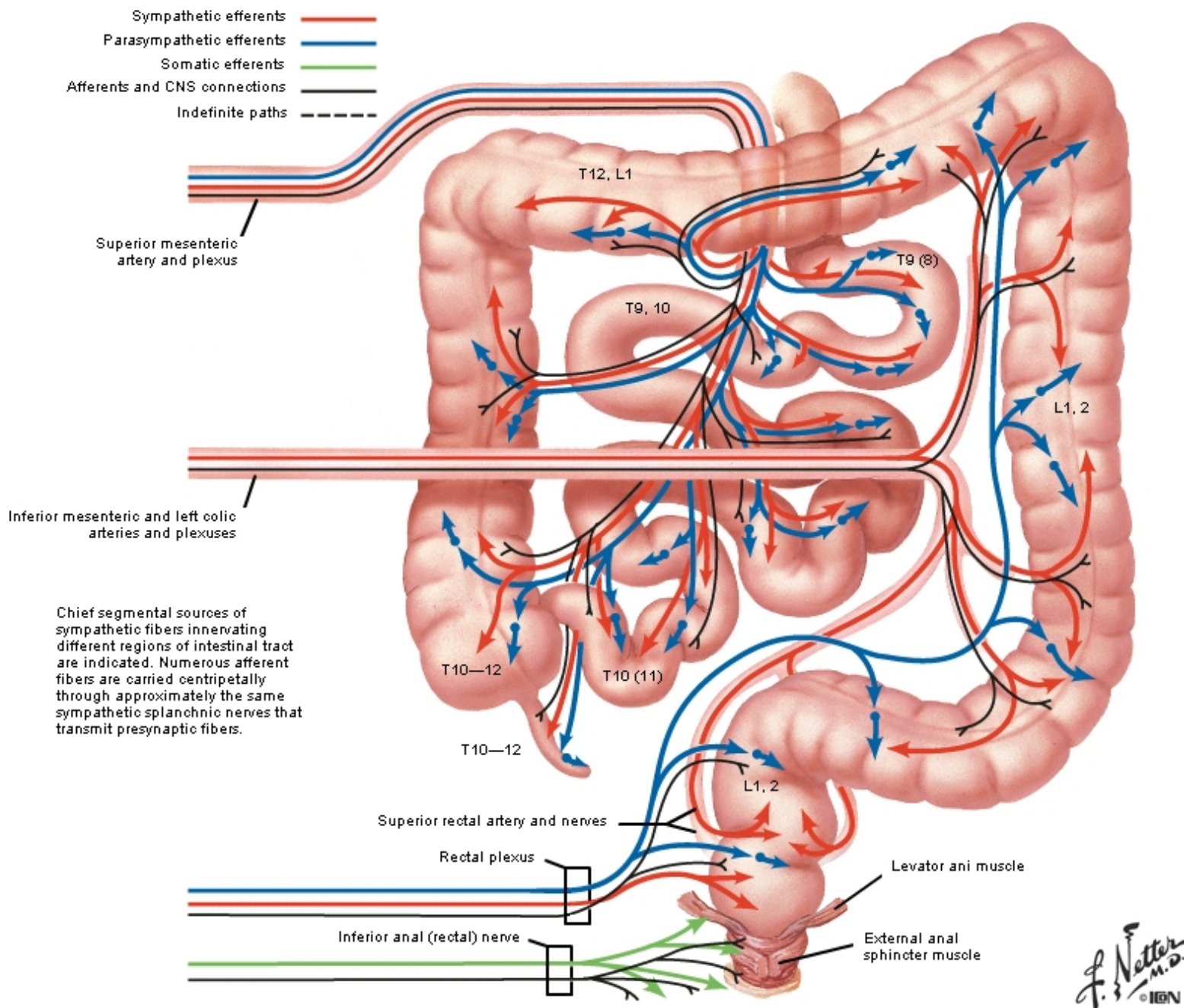
ABDOMEN

White Rami Communicantes Left Side of Schema

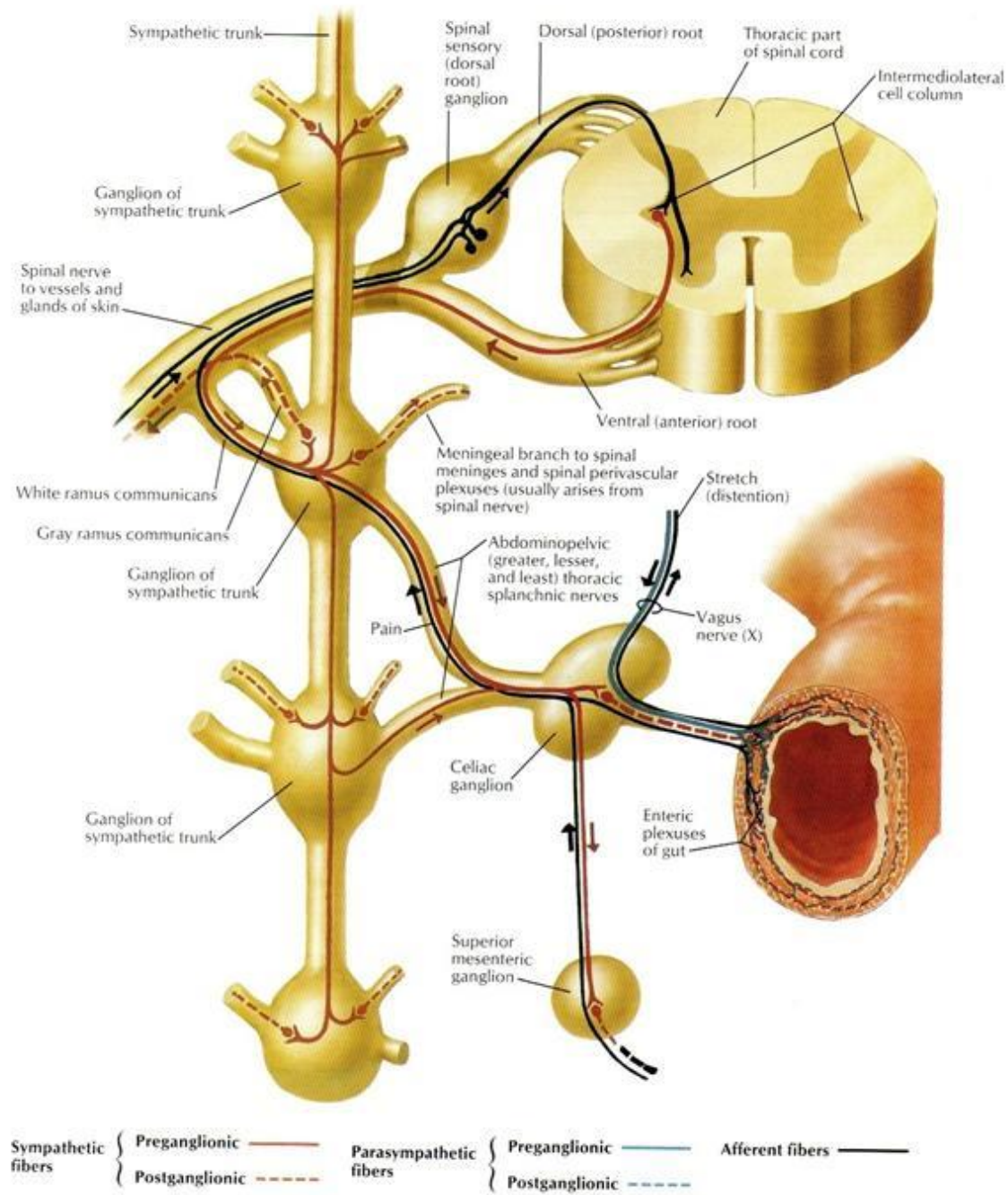


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Innervation of Small and Large Intestines Right Side of Schema

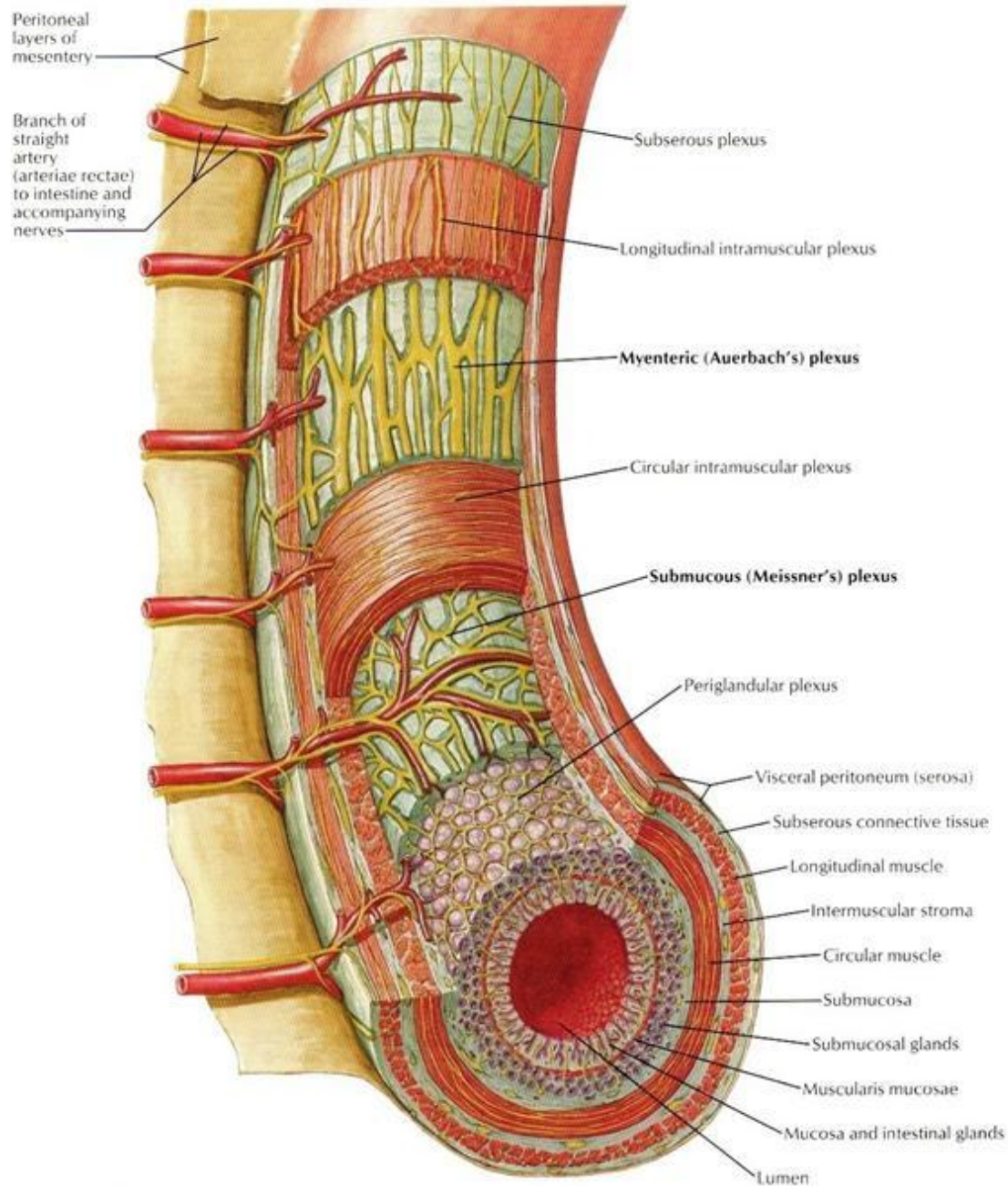


Autonomic Reflex Pathways: Schema



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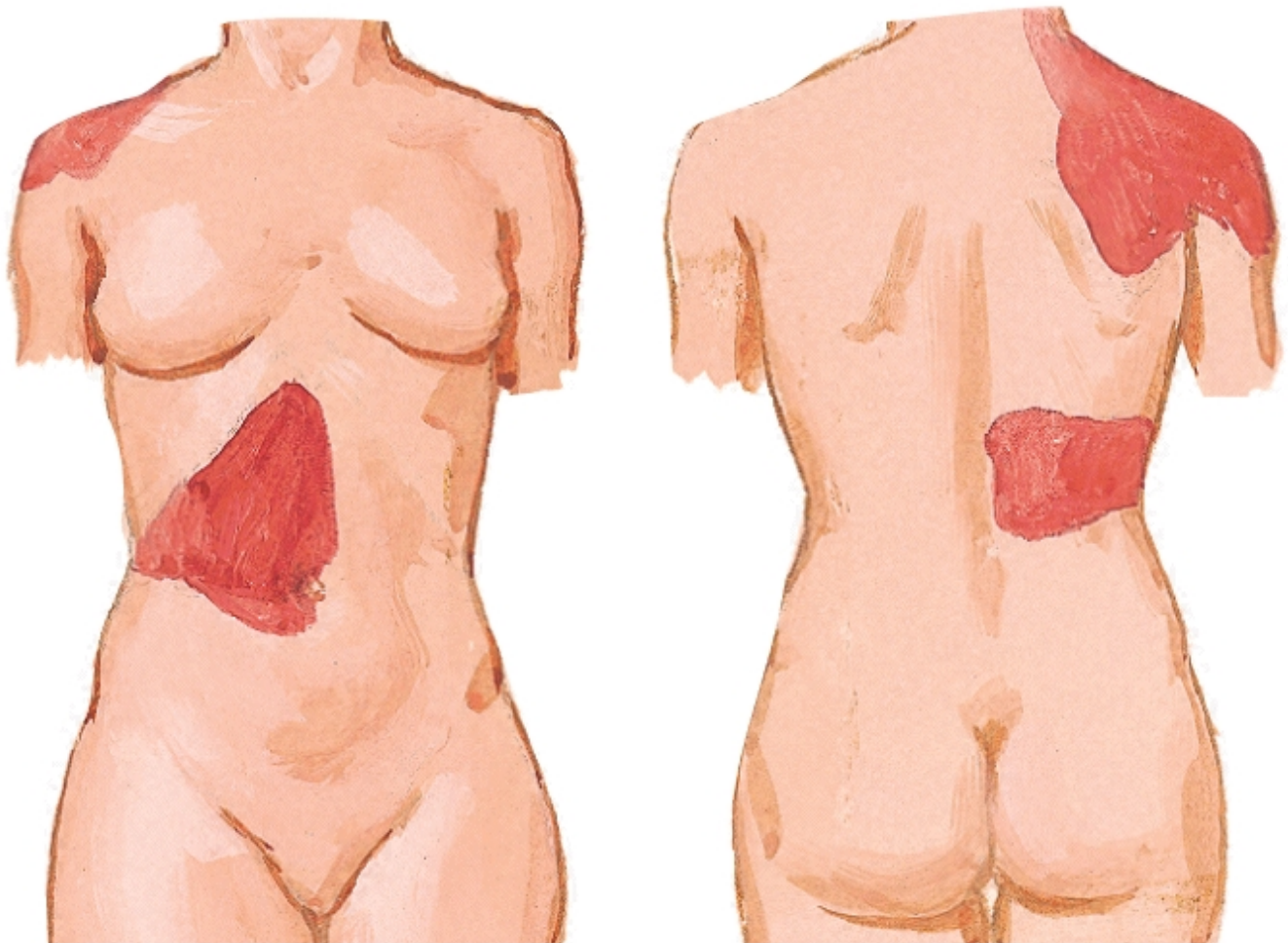
Intrinsic Autonomic Plexuses of Intestine: Schema



Note: Intestinal wall is shown much thicker than in actuality.

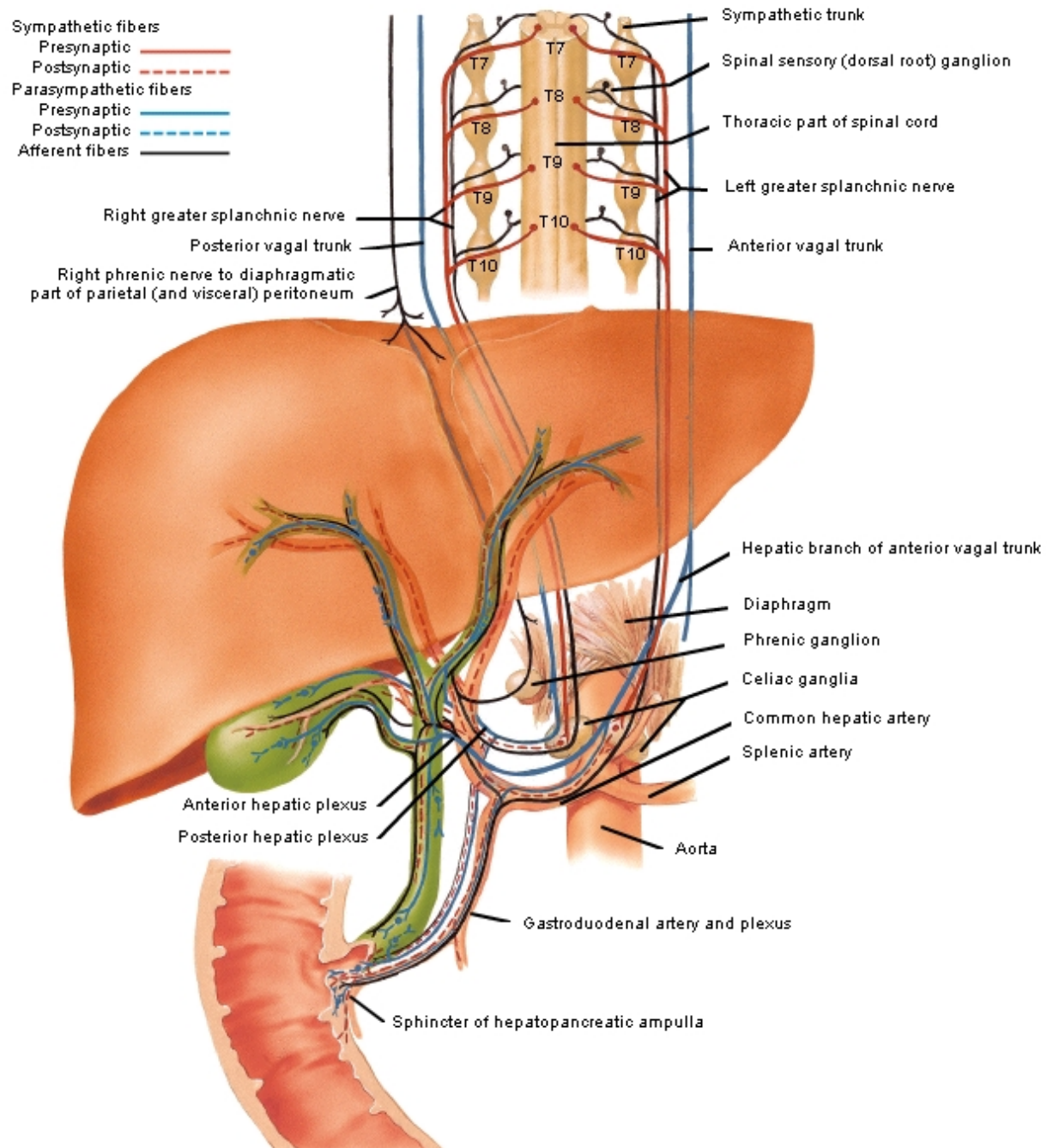
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Common Areas of Referred Pain in Biliary Disease



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Innervation of Liver and Biliary Tract Schema



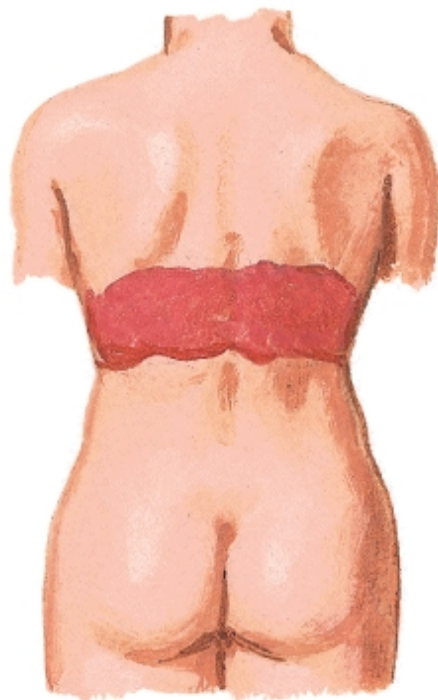
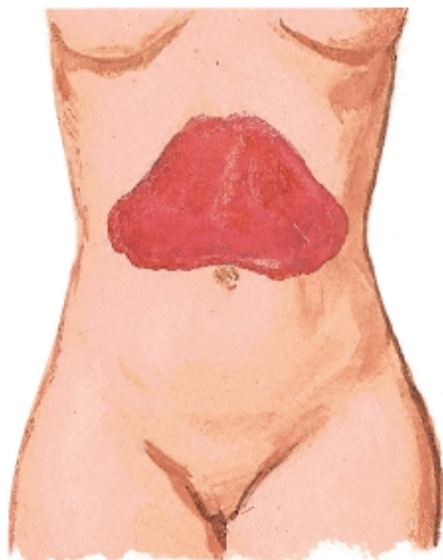
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Innervation of Liver
Nerve Fibers Around Fine Branch of Hepatic Artery



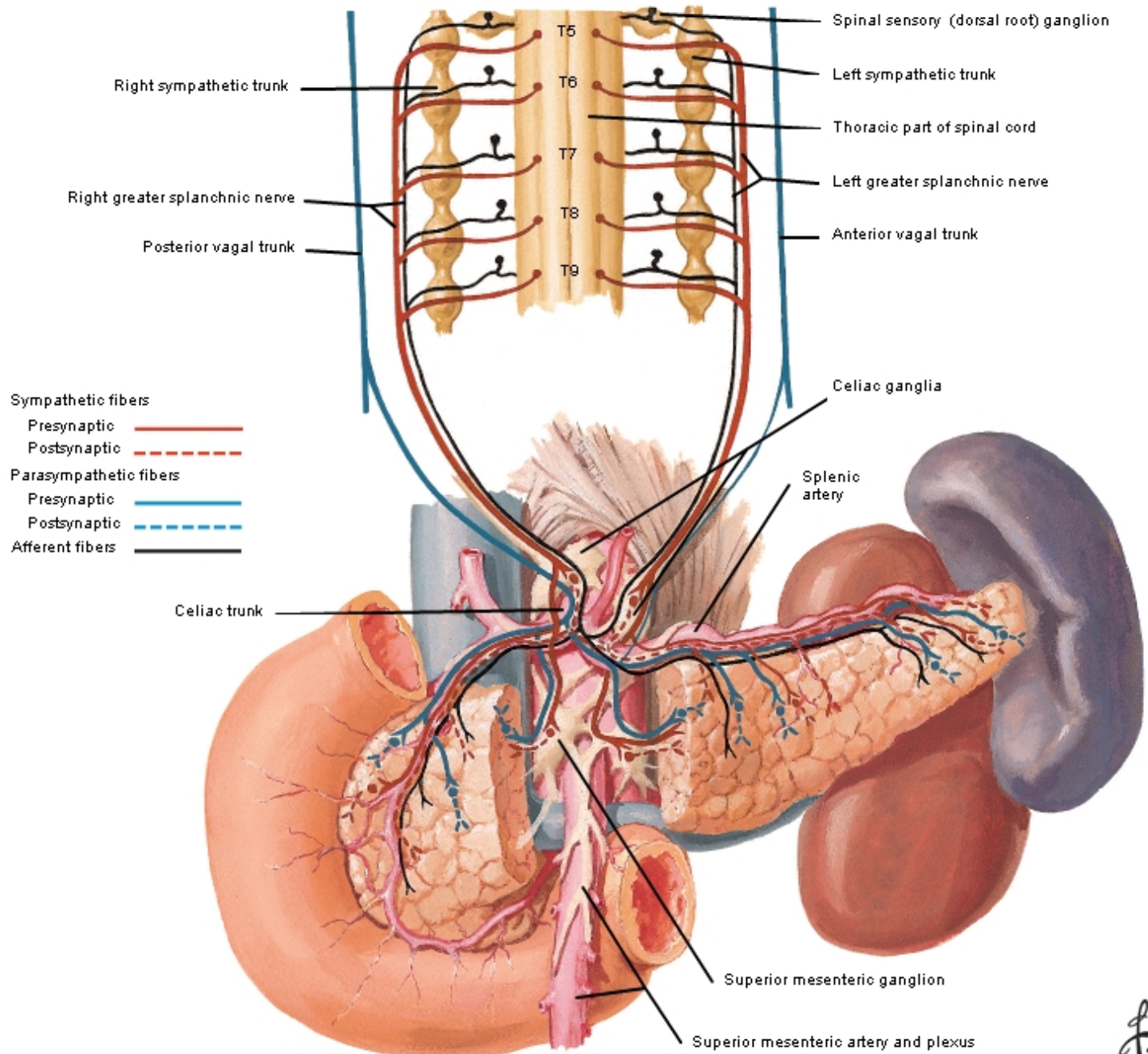
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Common Areas of Pancreatic Pain



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Innervation of Pancreas Schema



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Schema of Intrinsic Nerve Supply of Pancreas

Sympathetic fibers

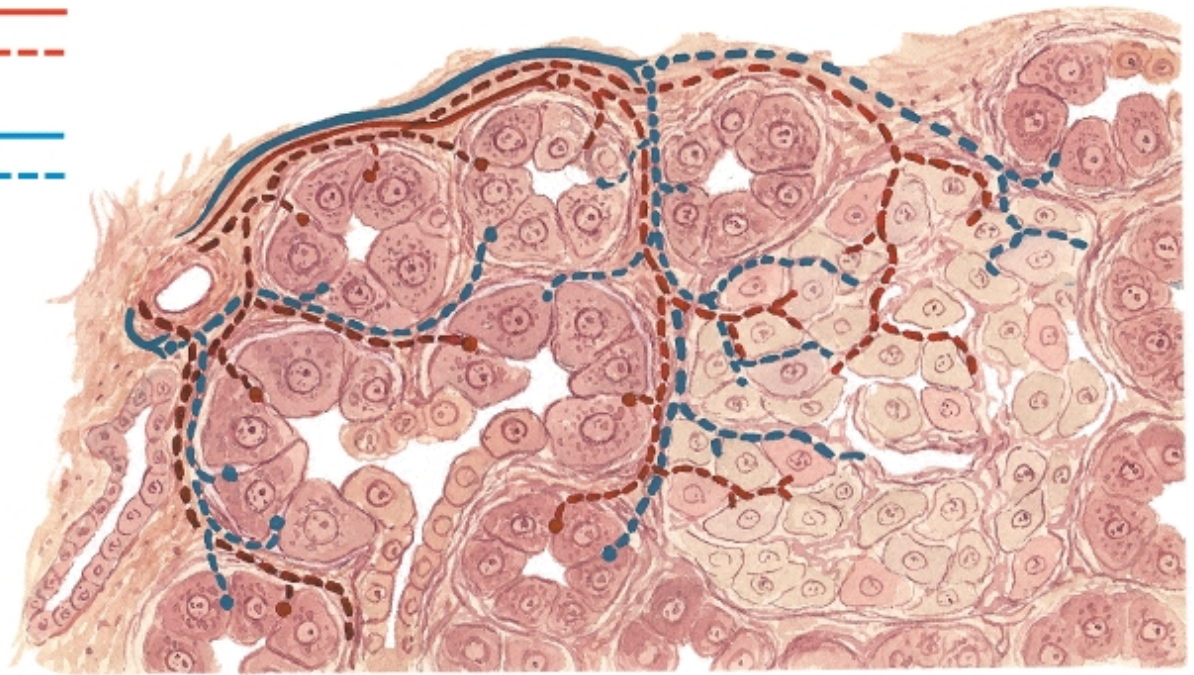
Presynaptic ———

Postsynaptic - - - - -

Parasympathetic fibers

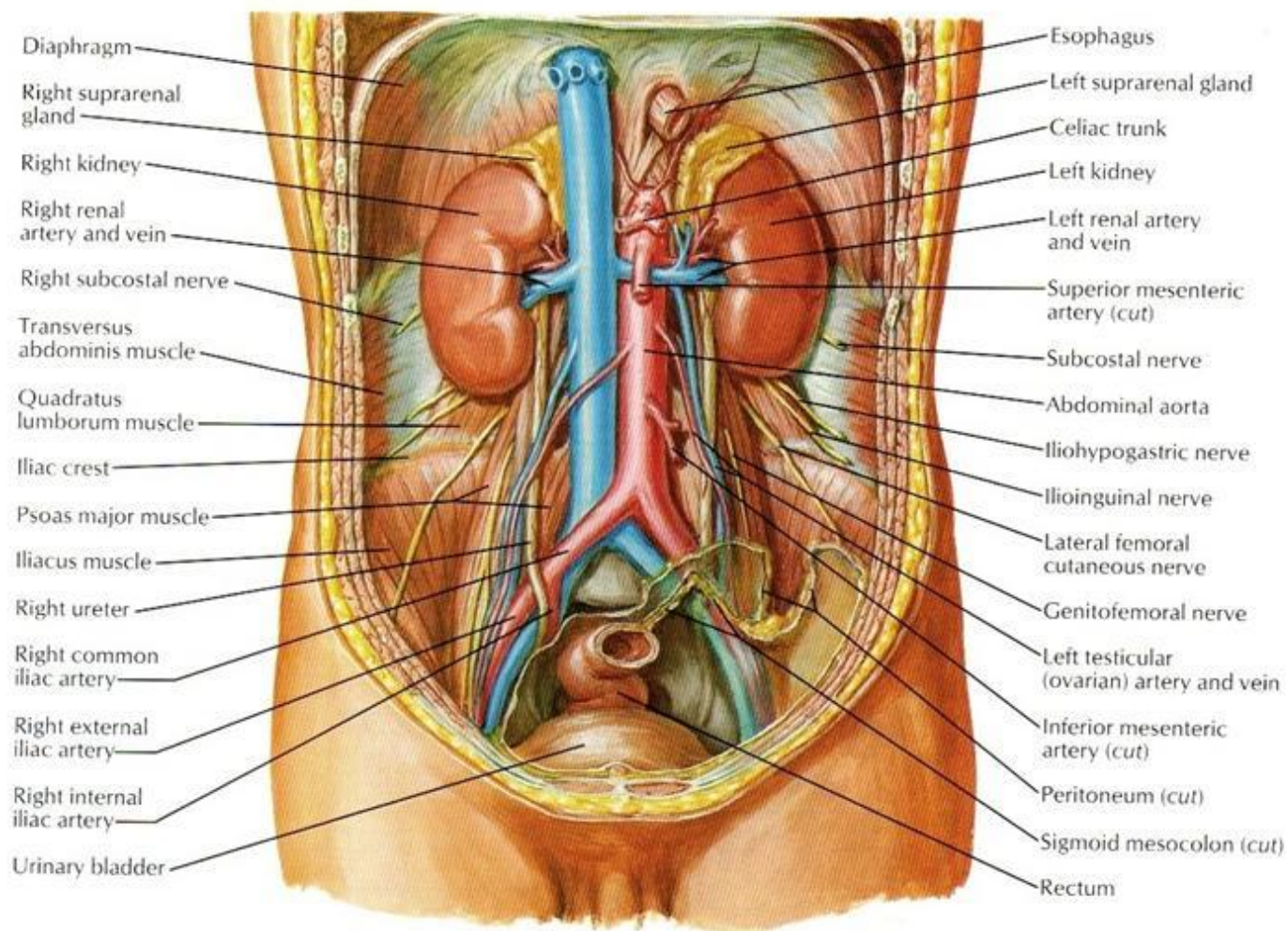
Presynaptic ———

Postsynaptic - - - - -



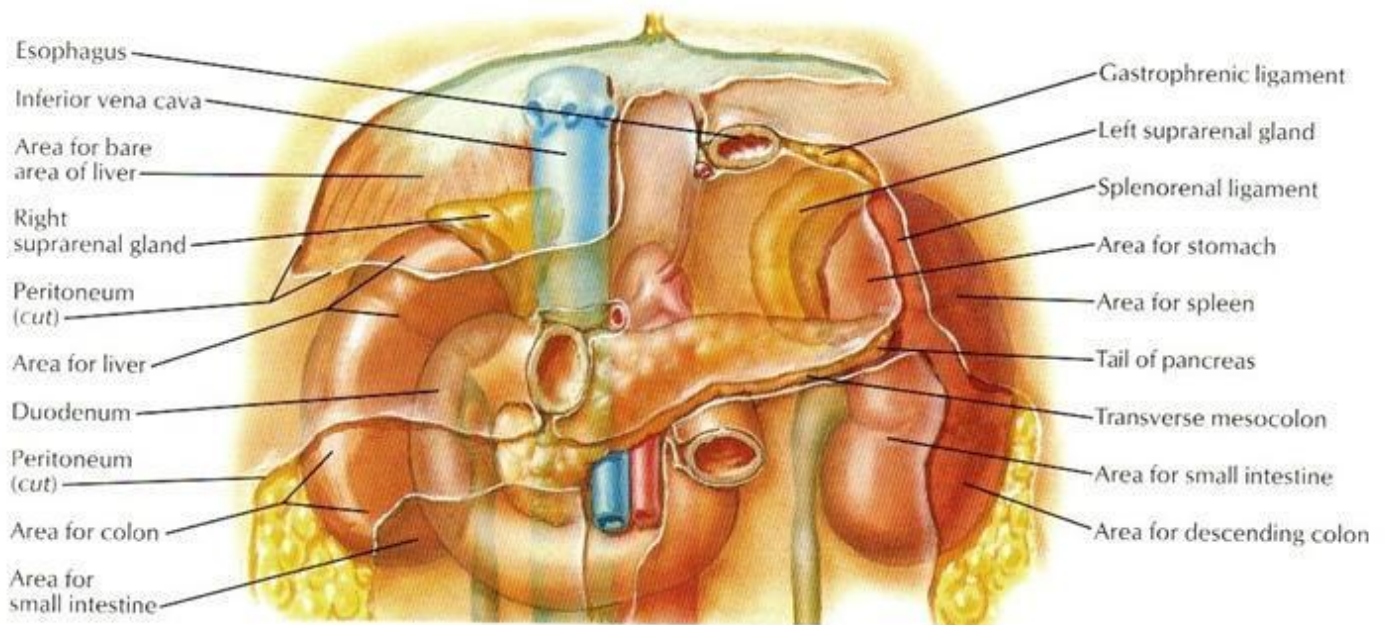
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Kidneys in Situ: Anterior View



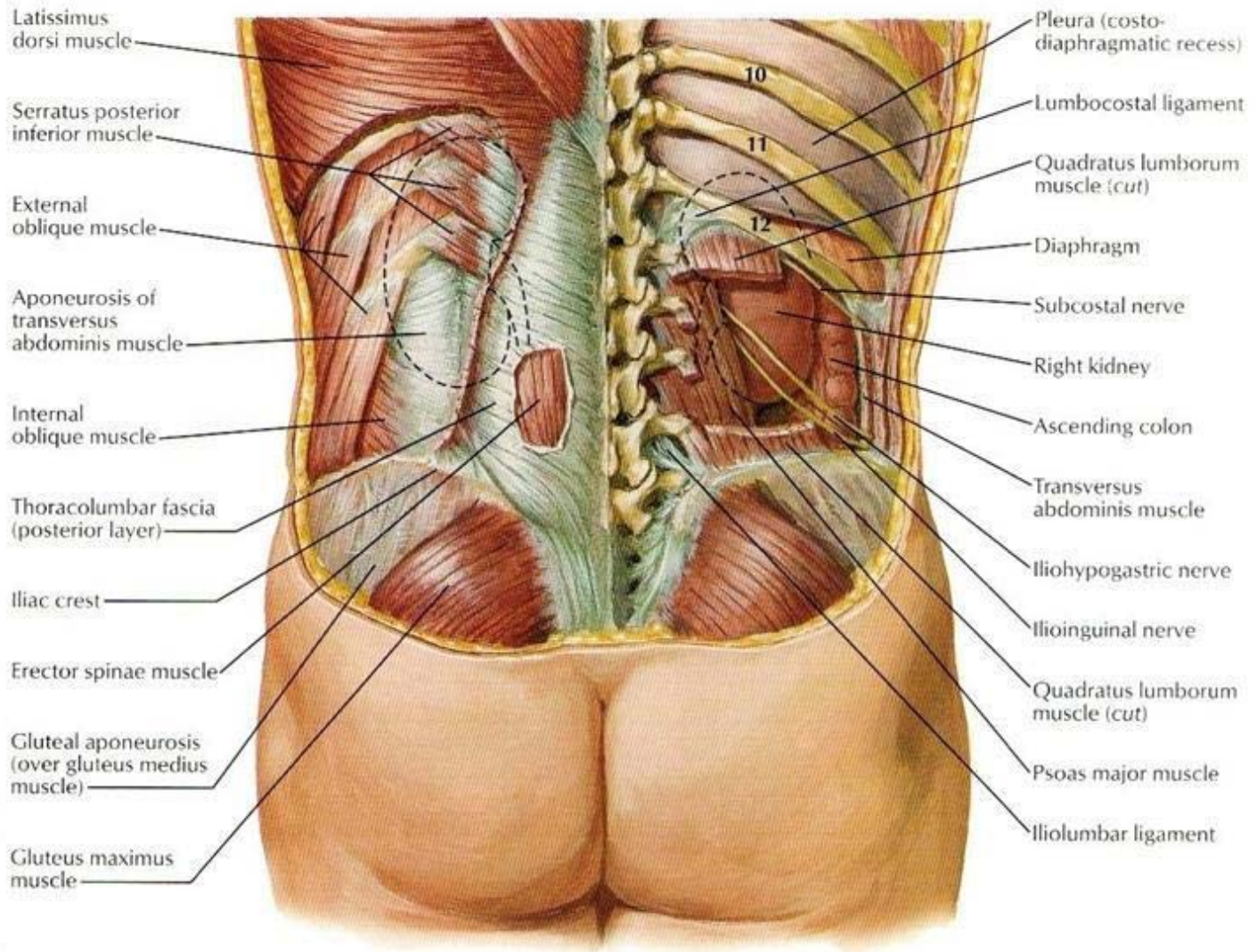
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Kidneys in Situ: Anterior Relation of Kidneys



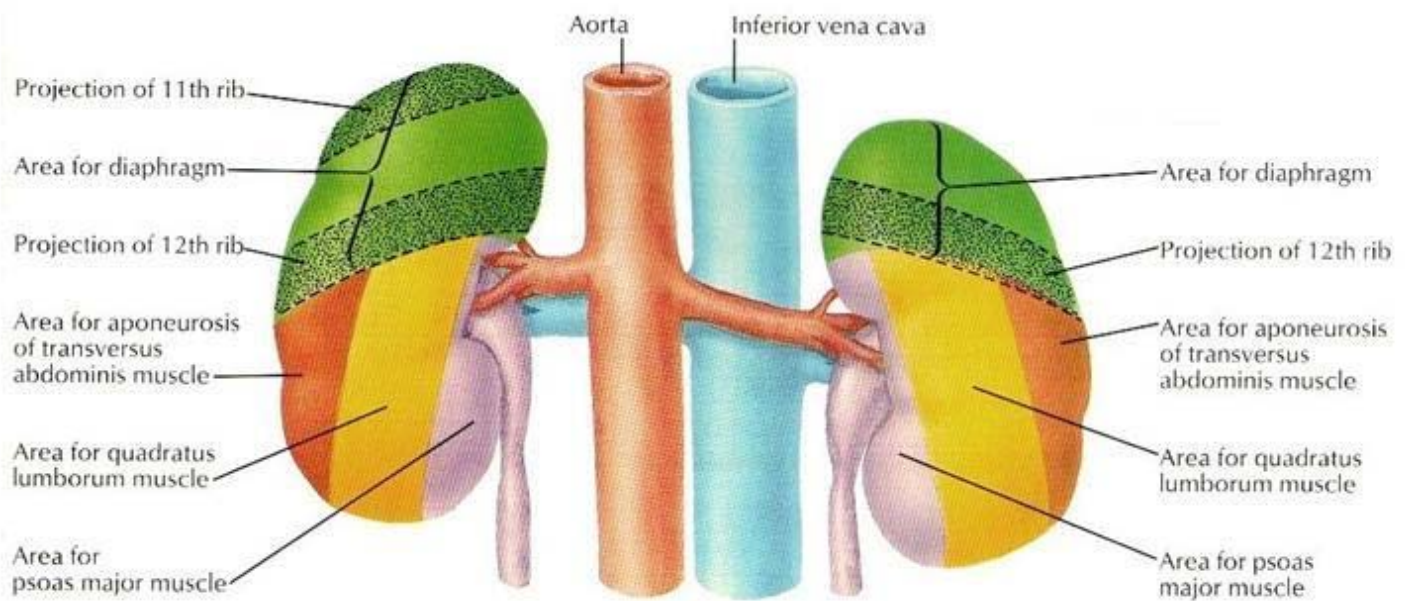
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Kidneys in Situ: Posterior Views



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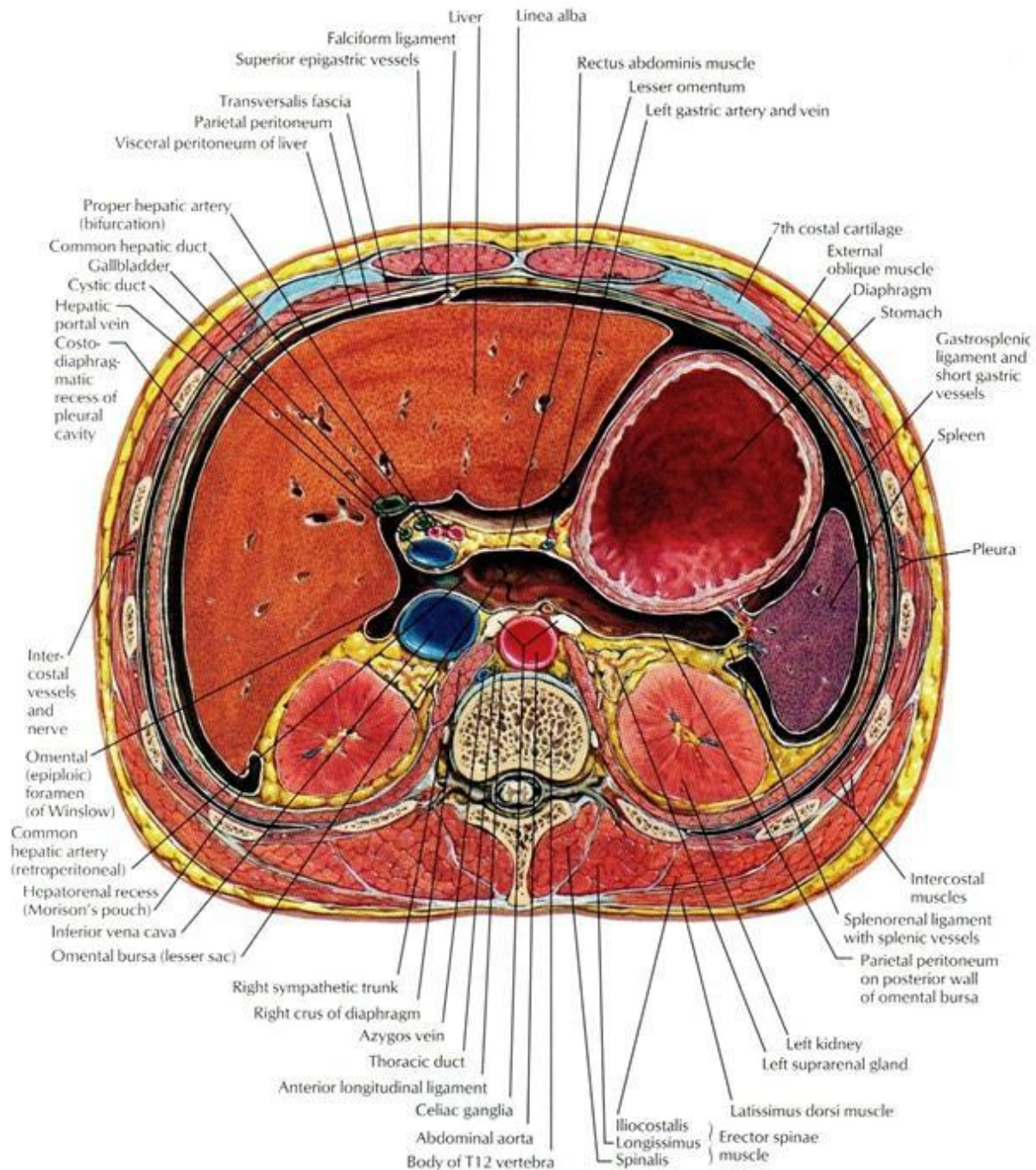
Kidneys in Situ: Posterior Relations of Kidneys



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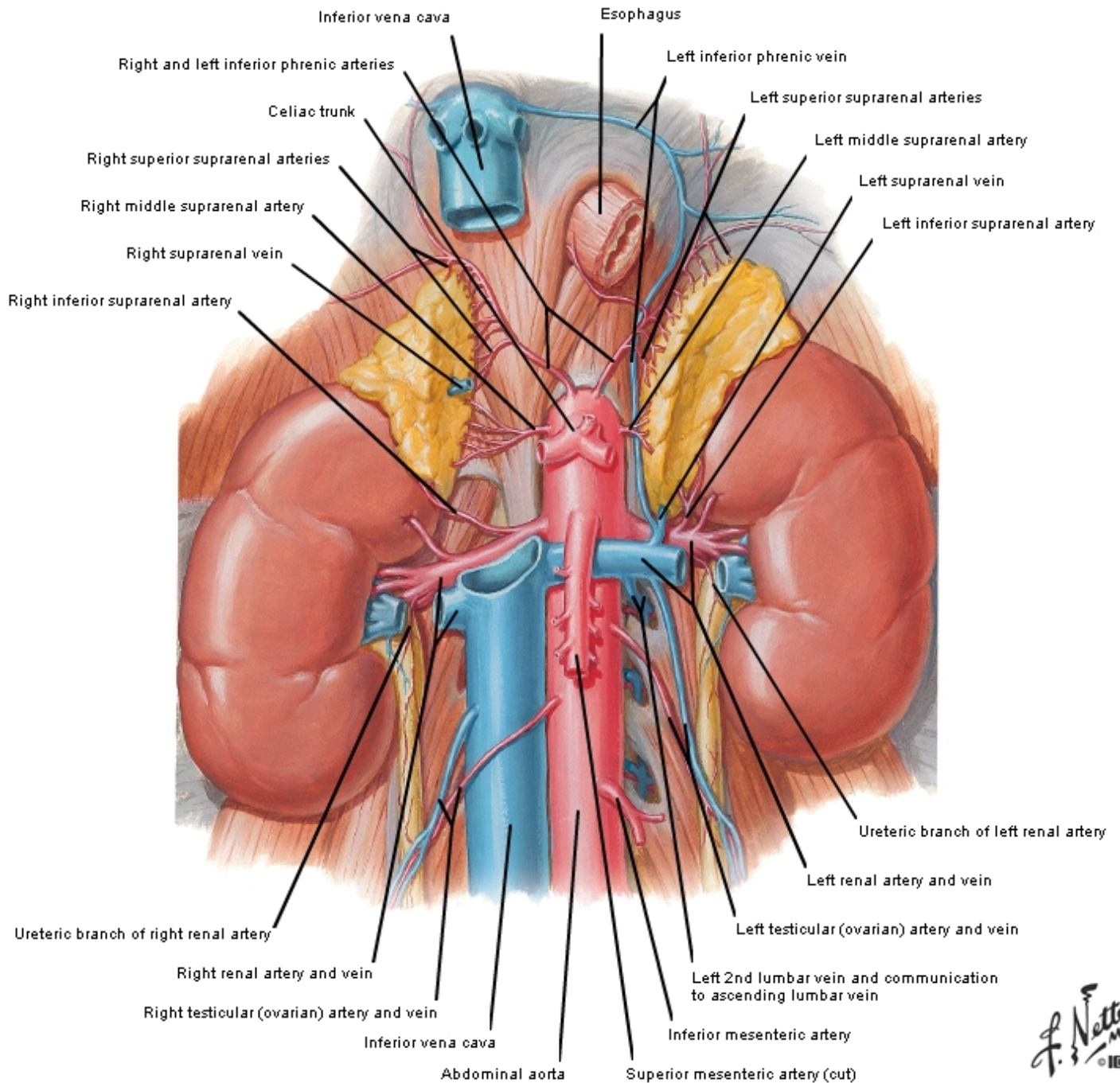
ABDOMEN

Schematic Cross Section of Abdomen at T12



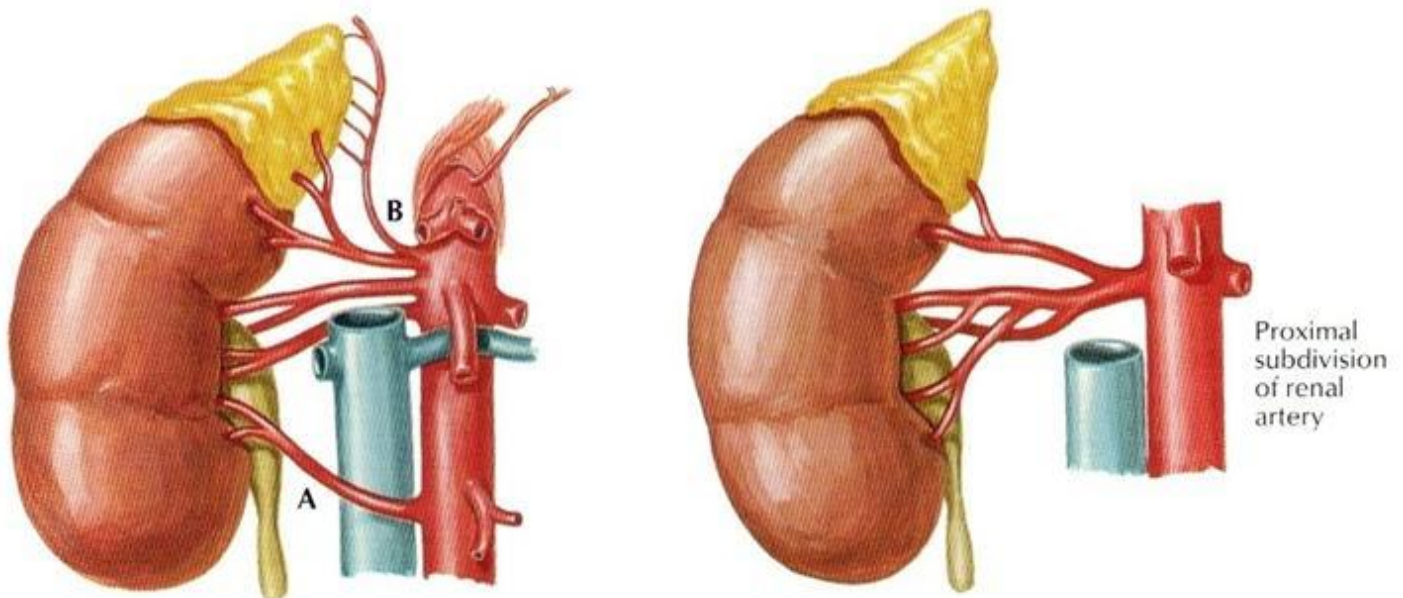
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Renal Artery and Vein In Situ



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Variations in Renal Artery

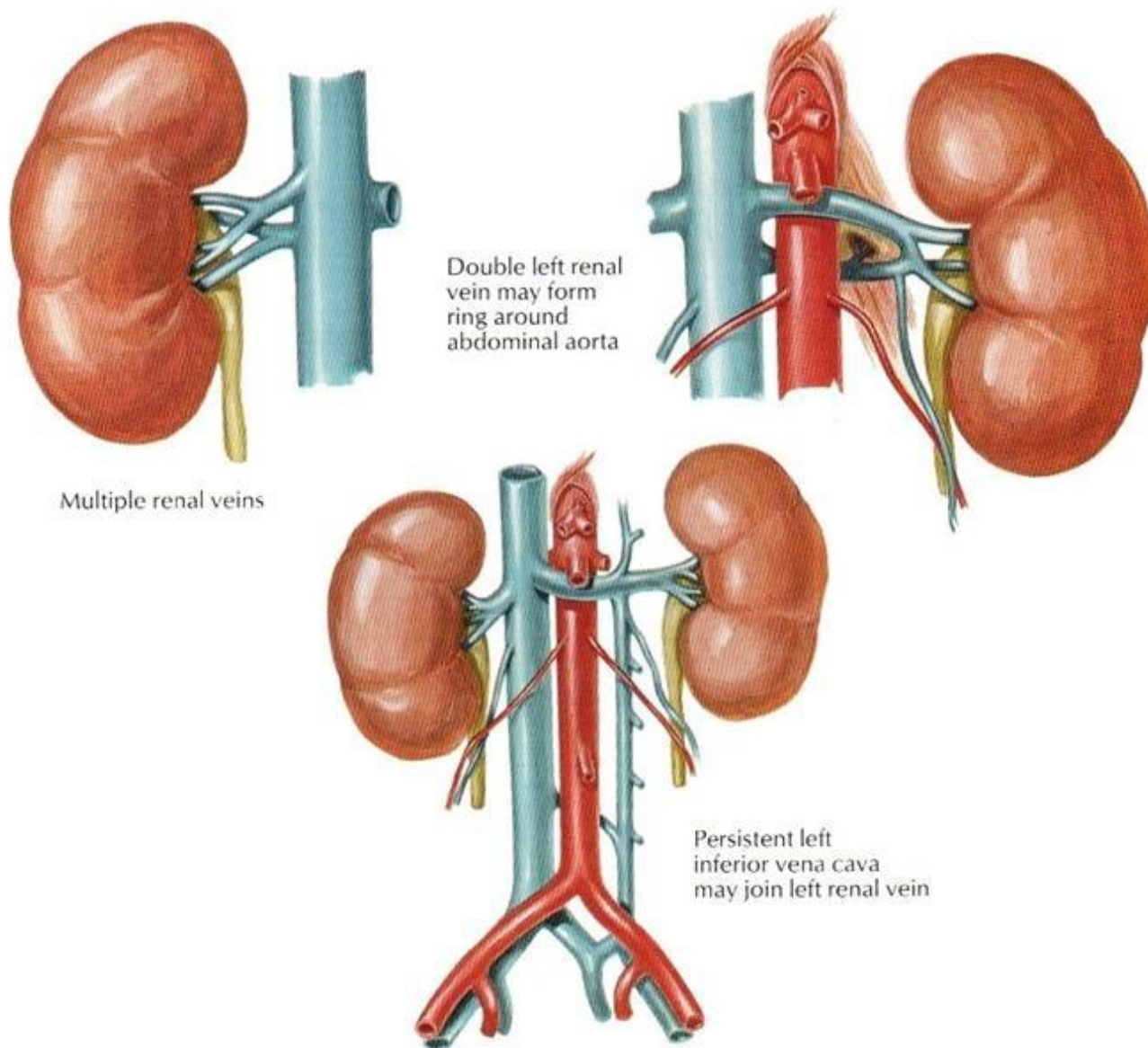


A Low accessory right renal artery may pass anterior to inferior vena cava instead of posterior to it

B Inferior phrenic artery with superior suprarenal arteries may arise from renal artery (middle suprarenal artery absent)

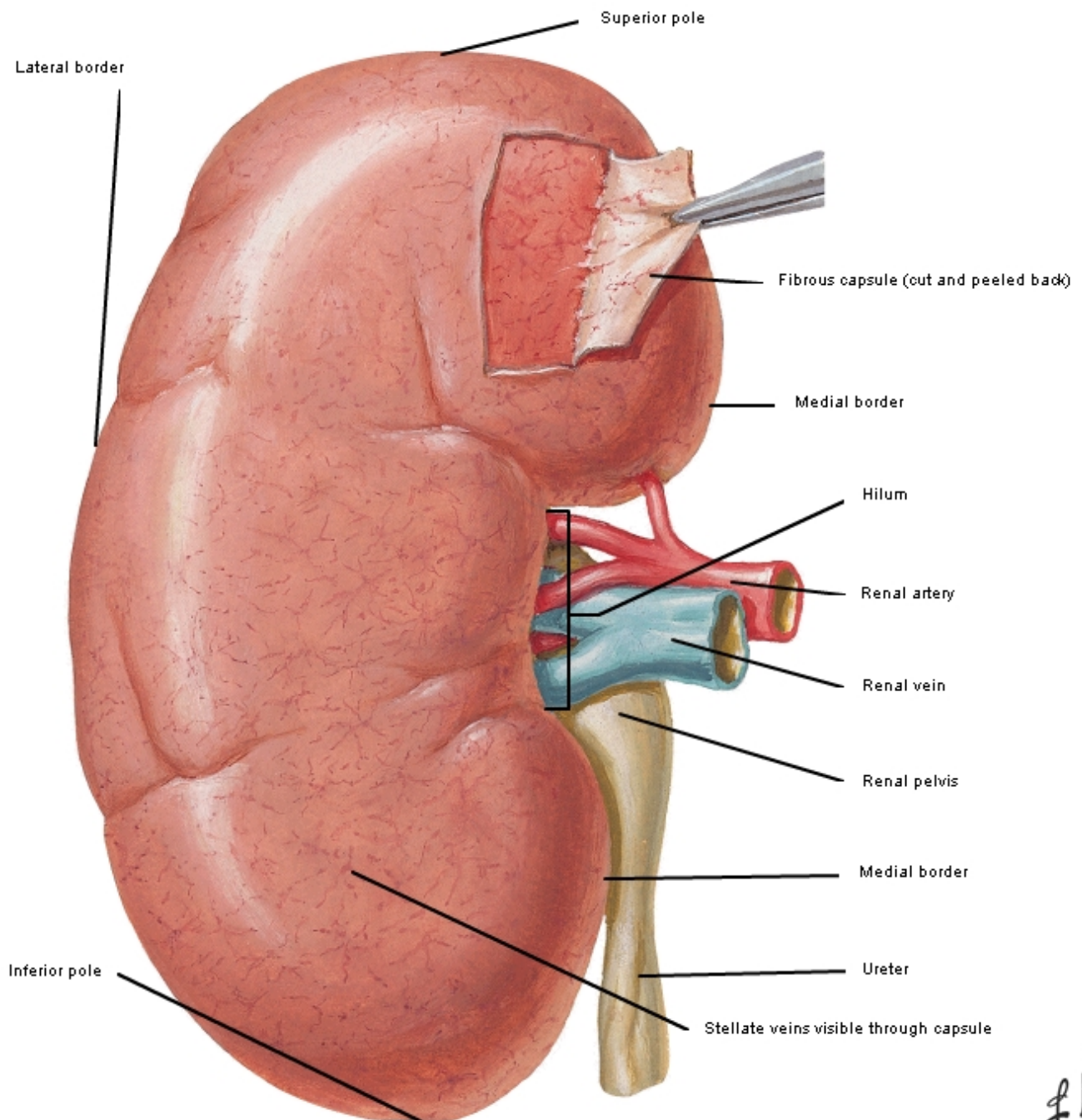
F. Netter M.D.
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Variations in Renal Vein



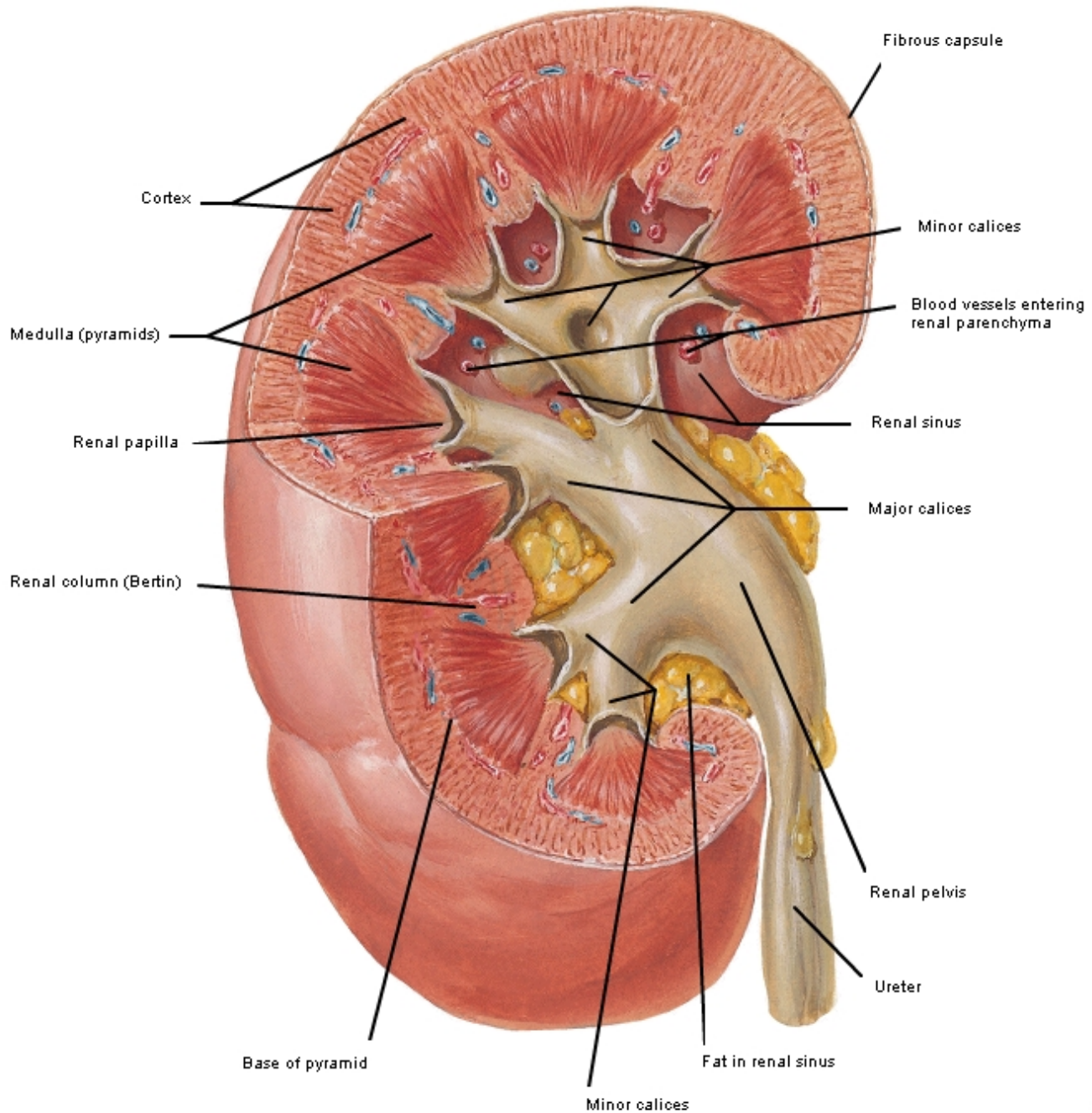
F. Netter M.D.
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Anterior Surface of Right Kidney



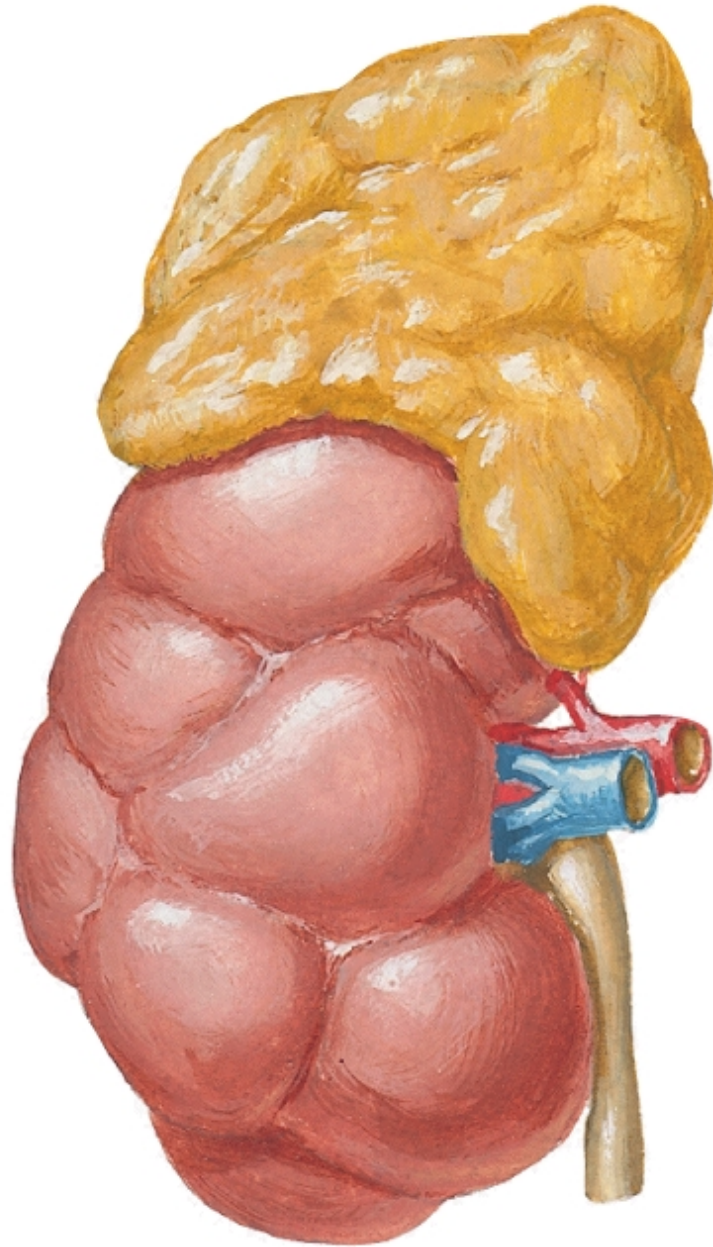
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Right Kidney Sectioned in Several Planes



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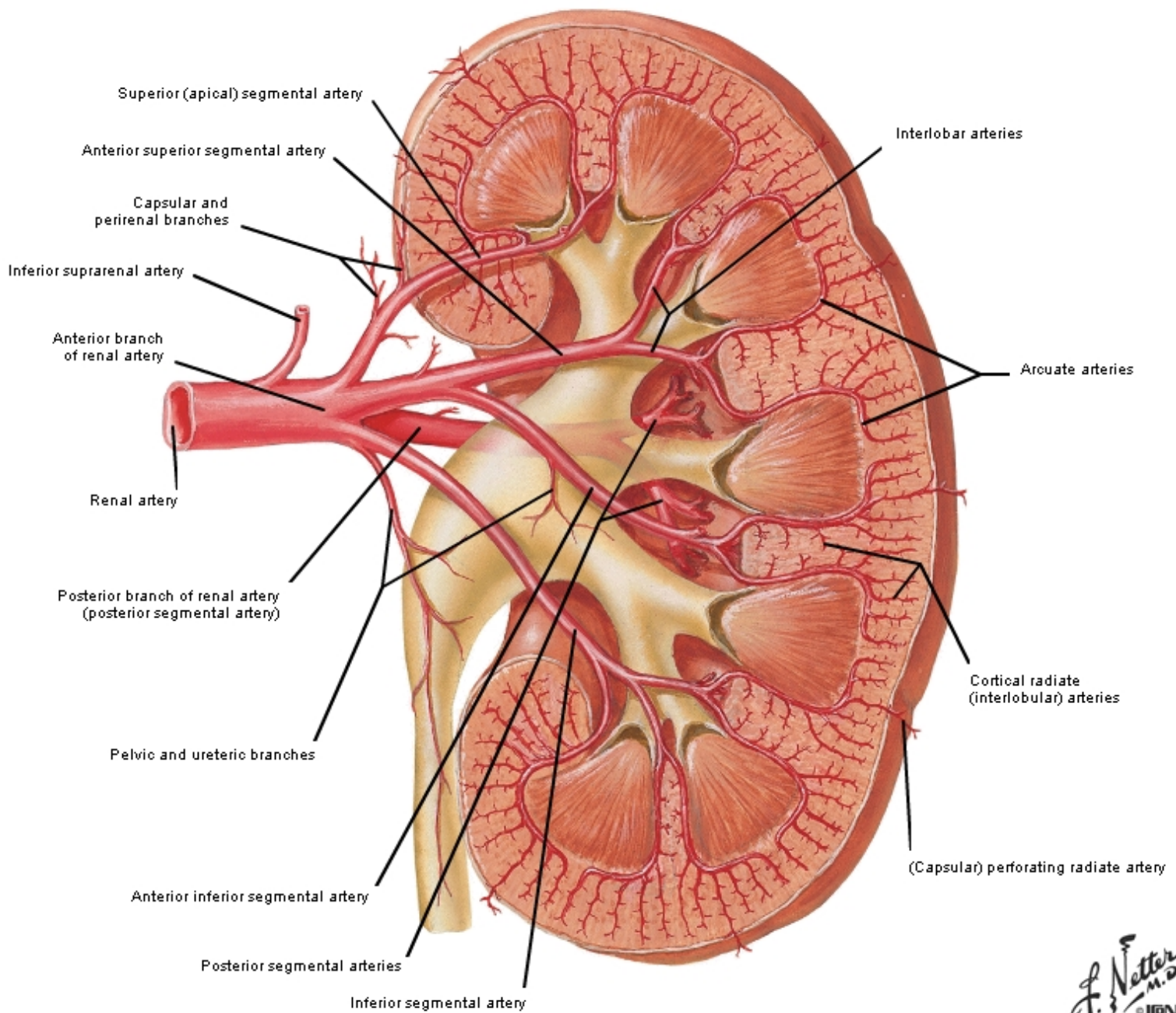
Suprarenal Gland and Lobulated Kidney of Infant



F. Netter
M.D.
© IGV

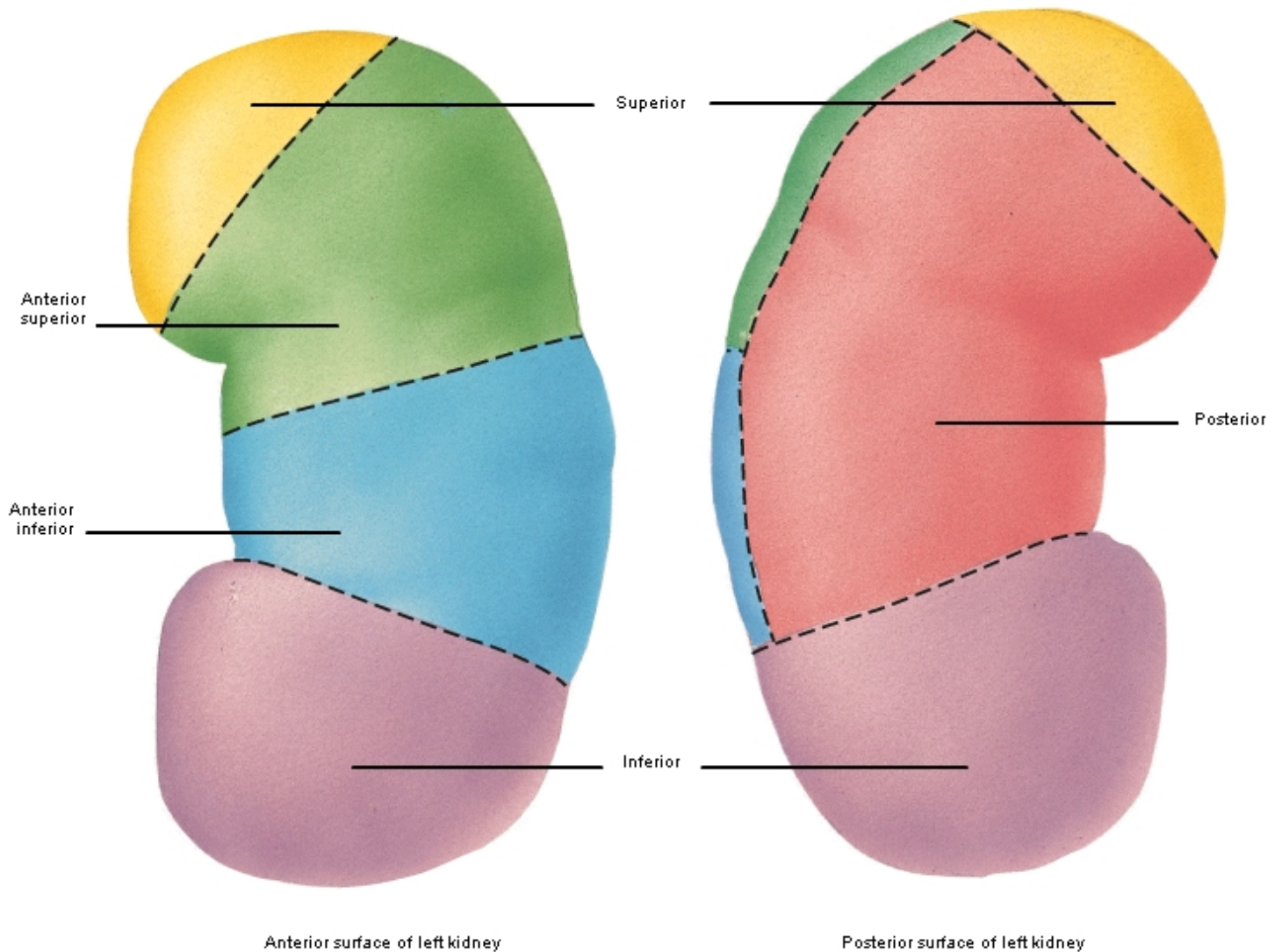
Intrarenal Arteries

Frontal Section of Left Kidney - Anterior View



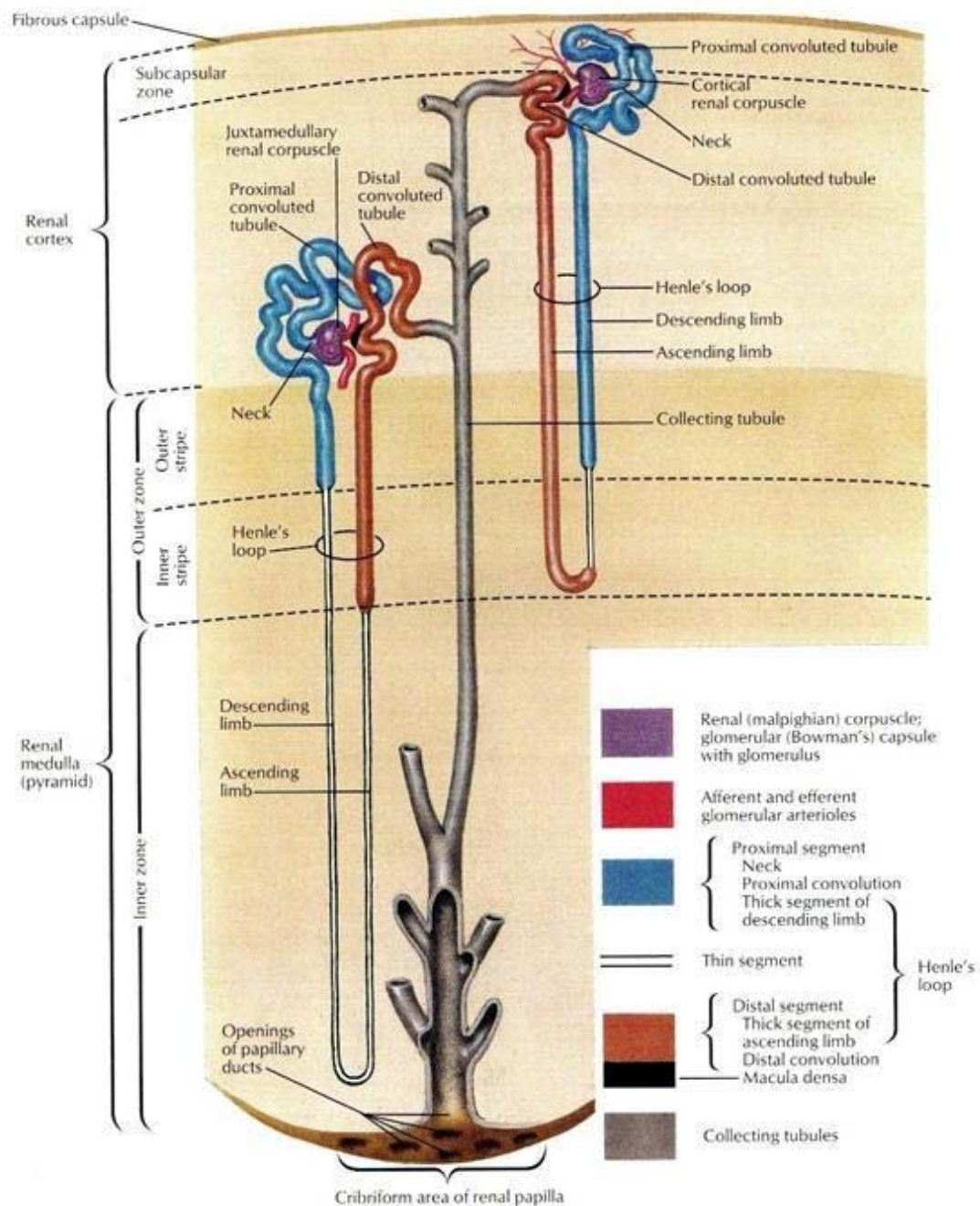
F. Netter M.D.
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Vascular Renal Segments



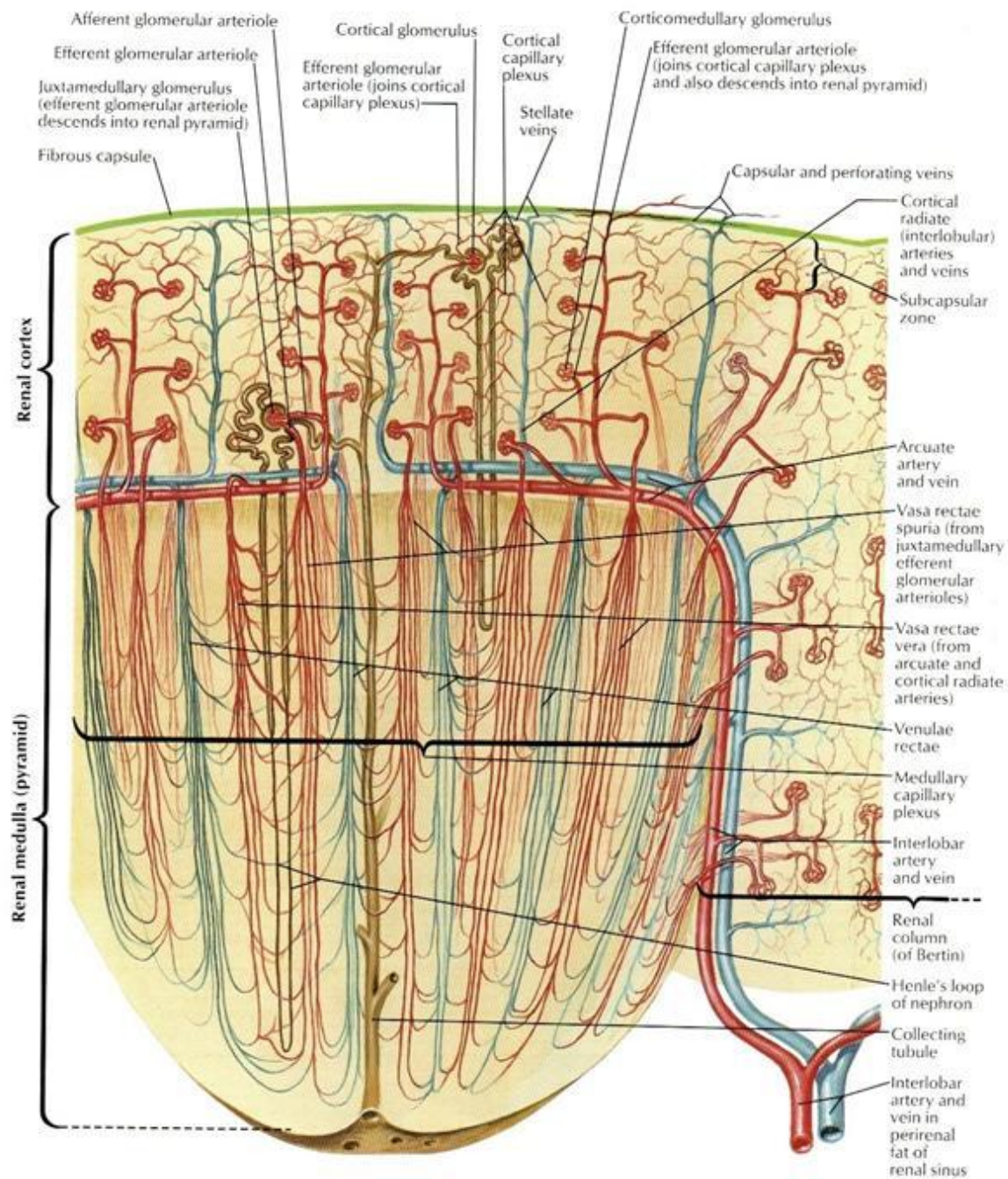
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Nephron and Collecting Tubule: Schema



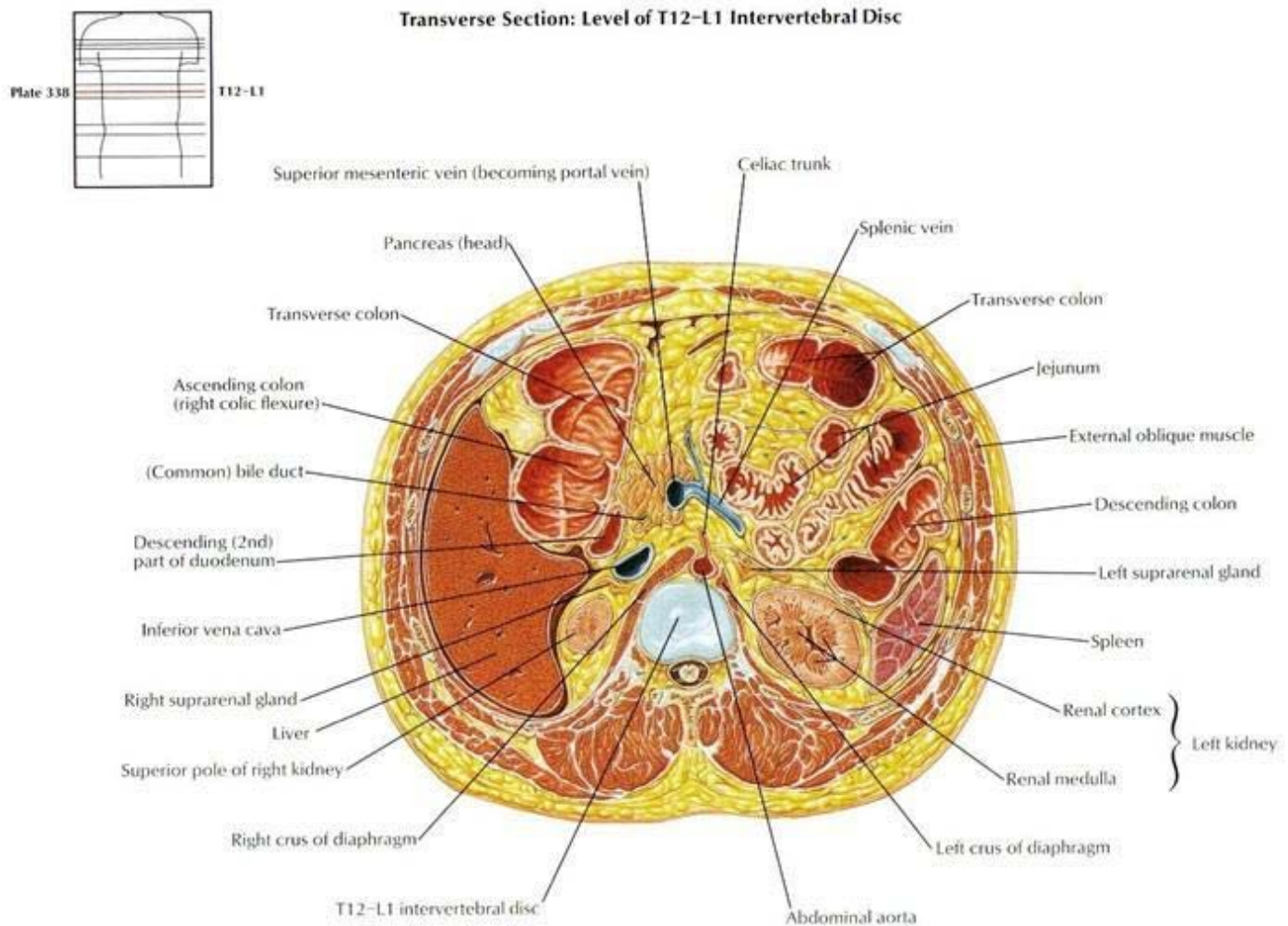
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Blood Vessels in Parenchyma of Kidney: Schema



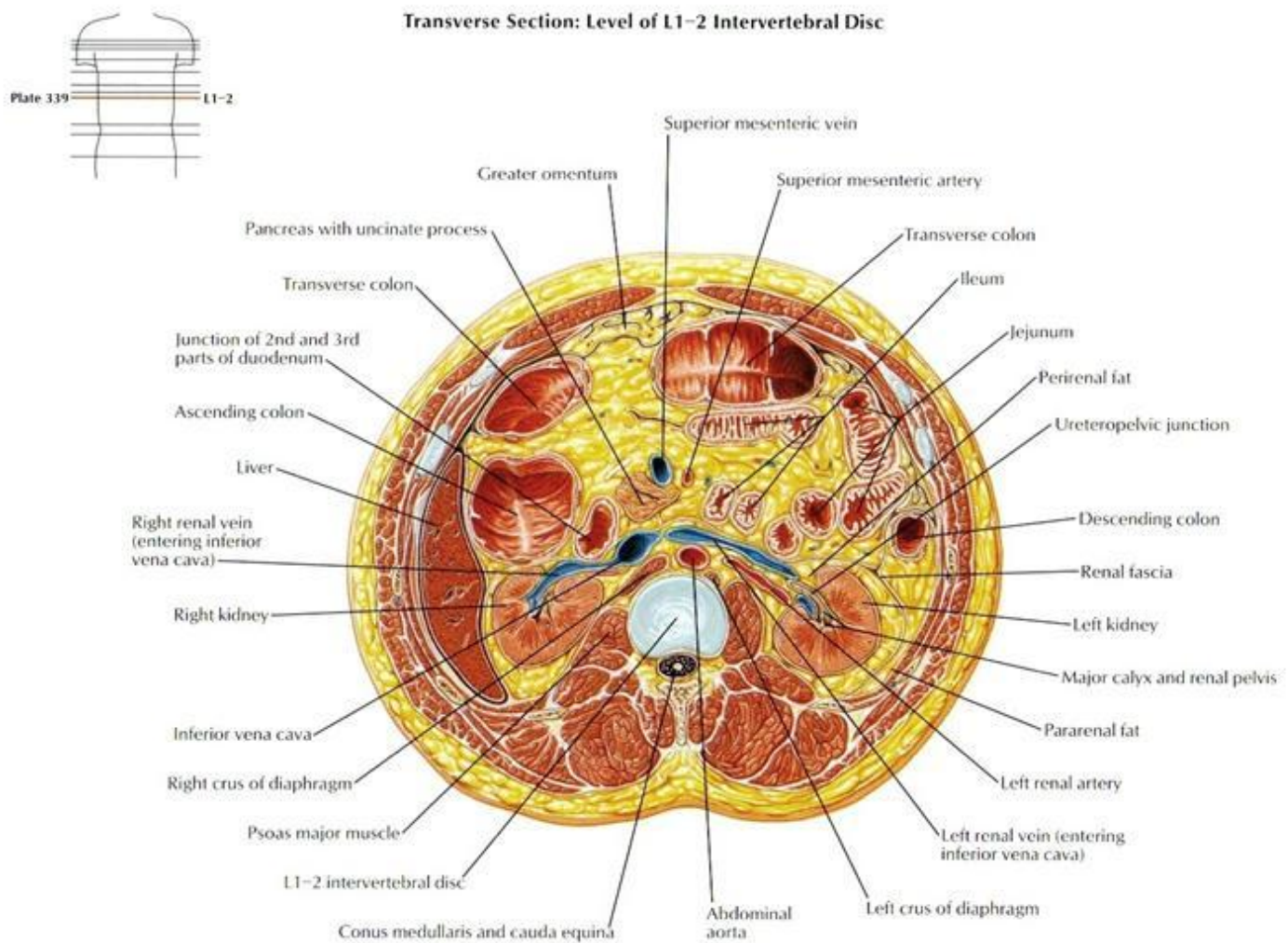
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Schematic Cross Section of Abdomen at T12 - L1



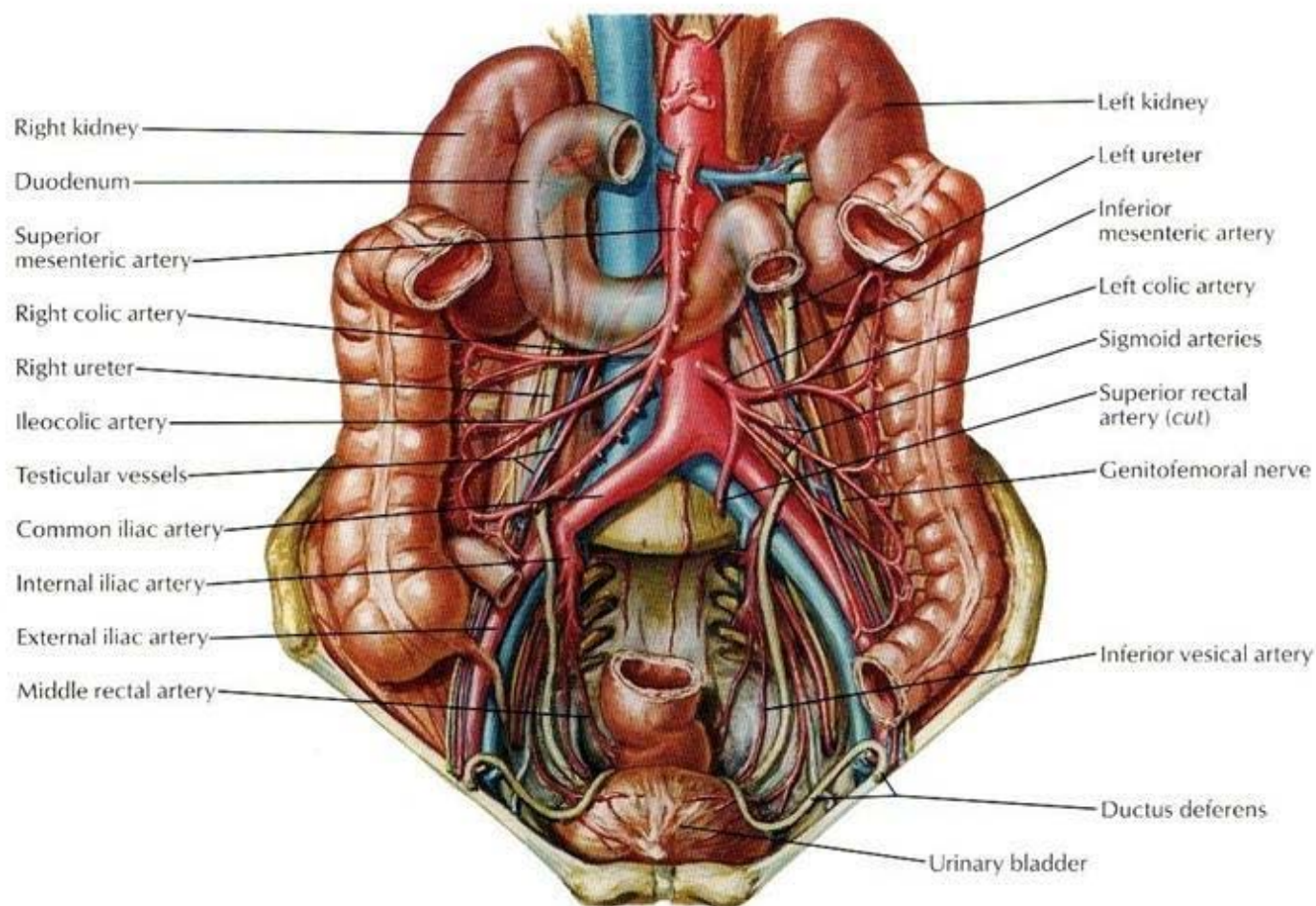
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Schematic Cross Section of Abdomen at L1 - 2



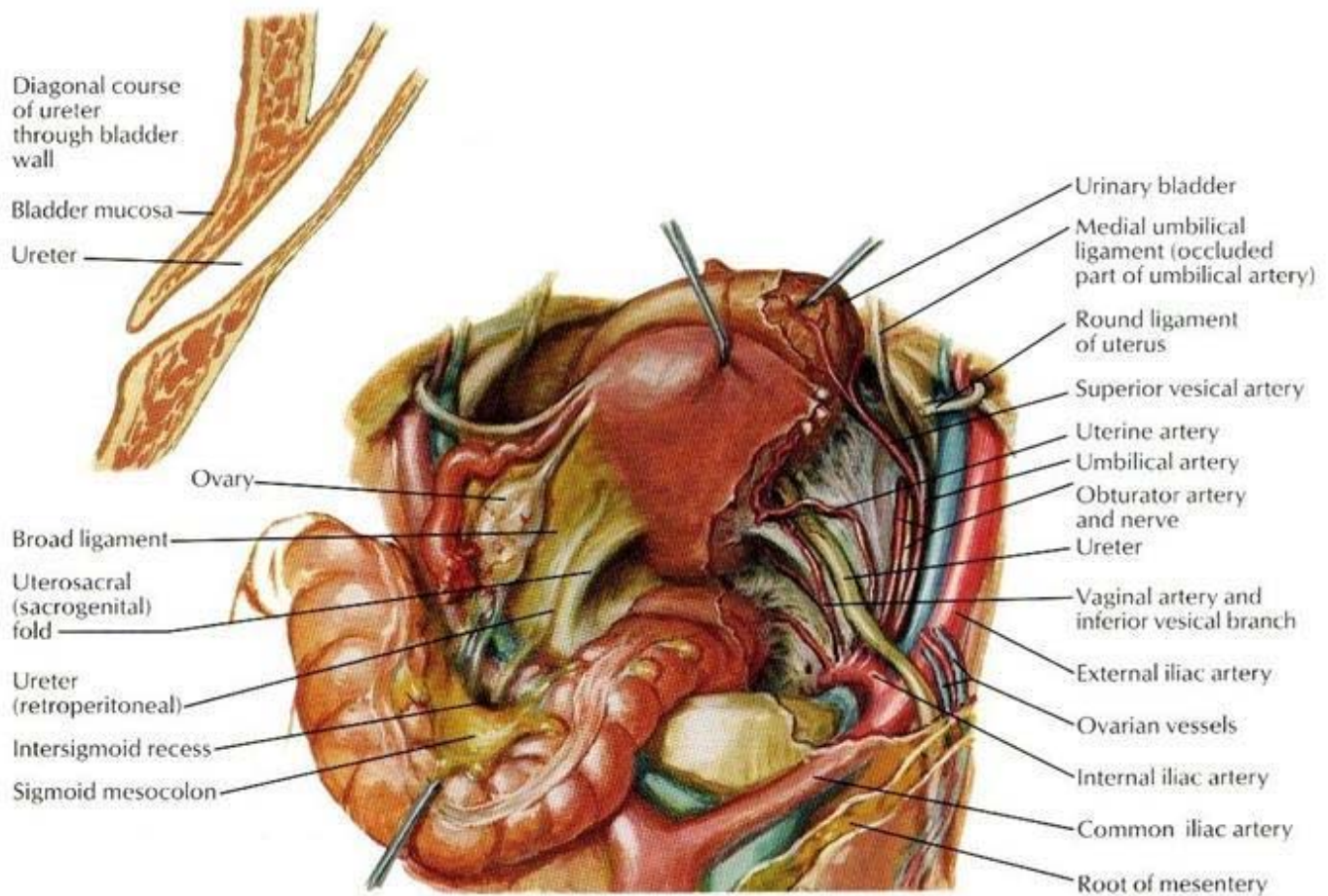
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Ureters in Male: Anterior View



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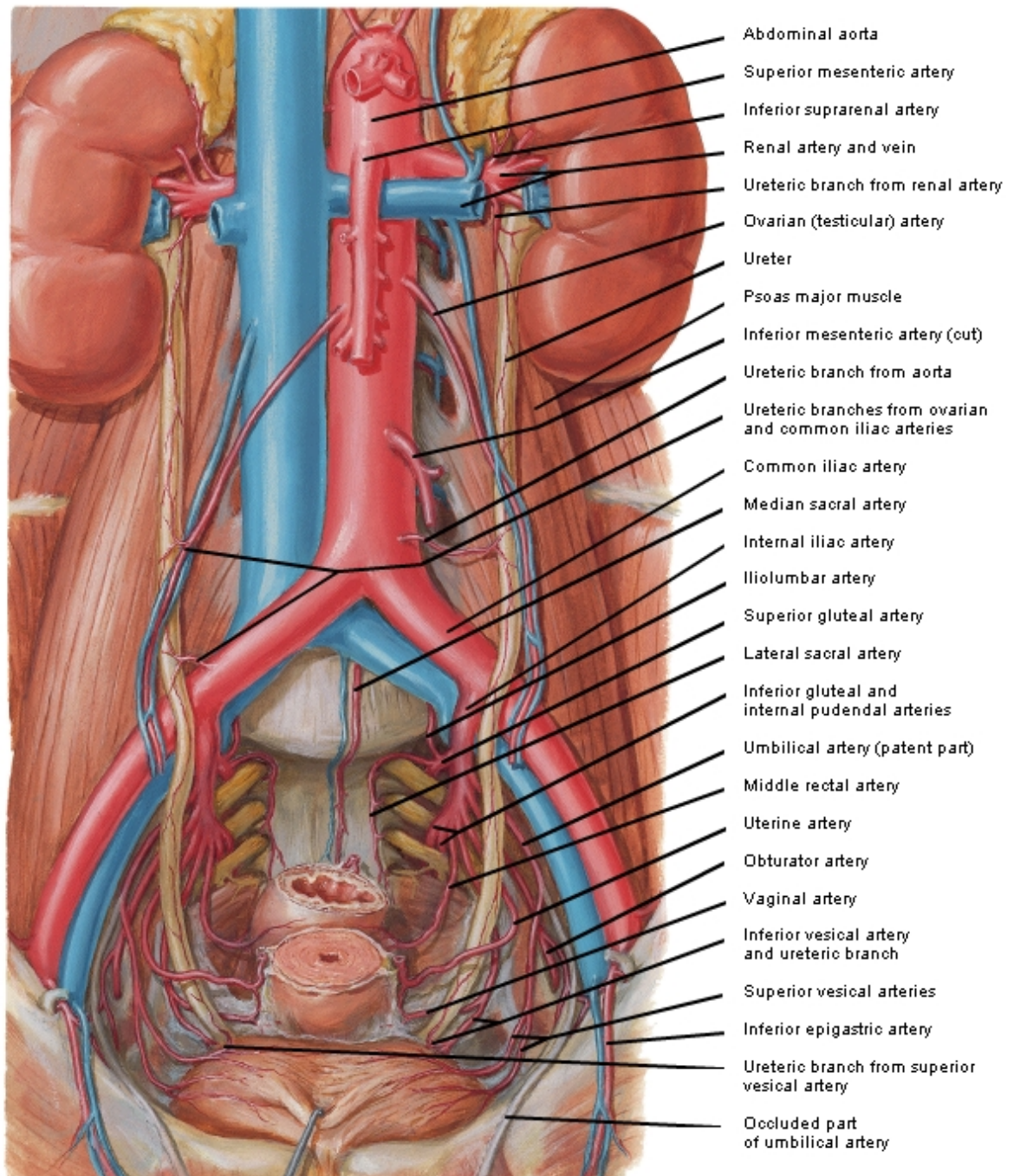
Ureters in Female: Superior View



F. Netter M.D.
© 1997

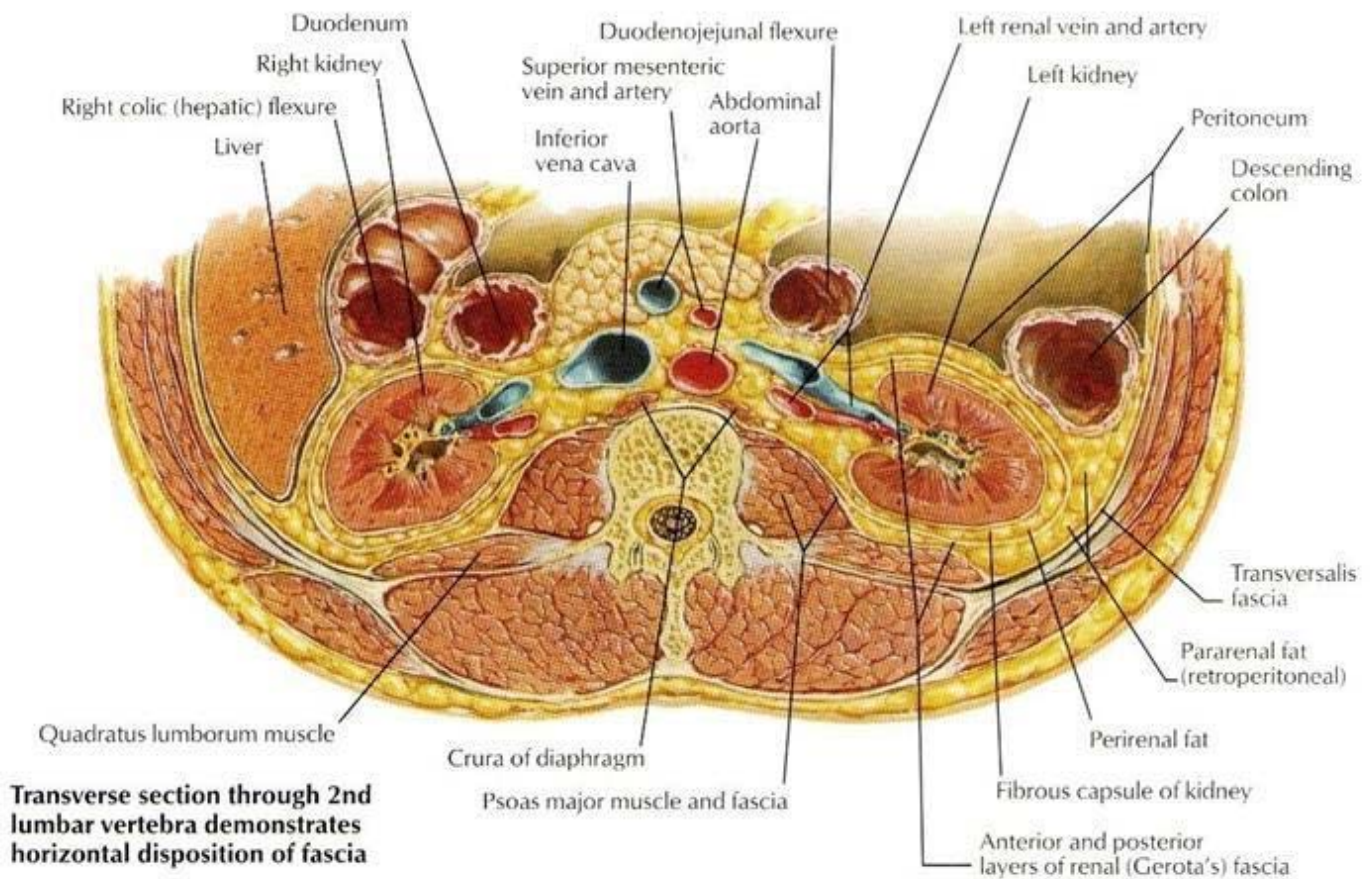
ABDOMEN

Arteries of Ureters and Urinary Bladder



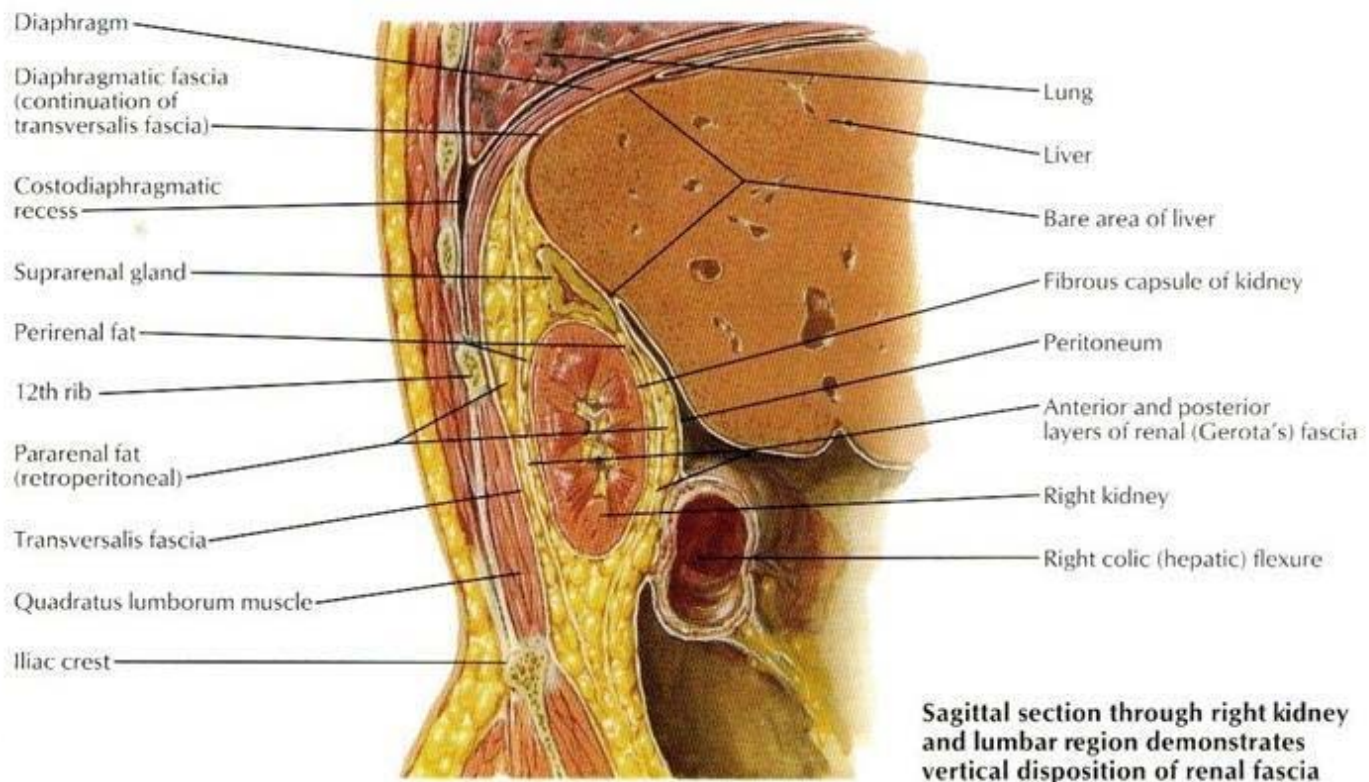
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Renal Fascia: Transverse Section



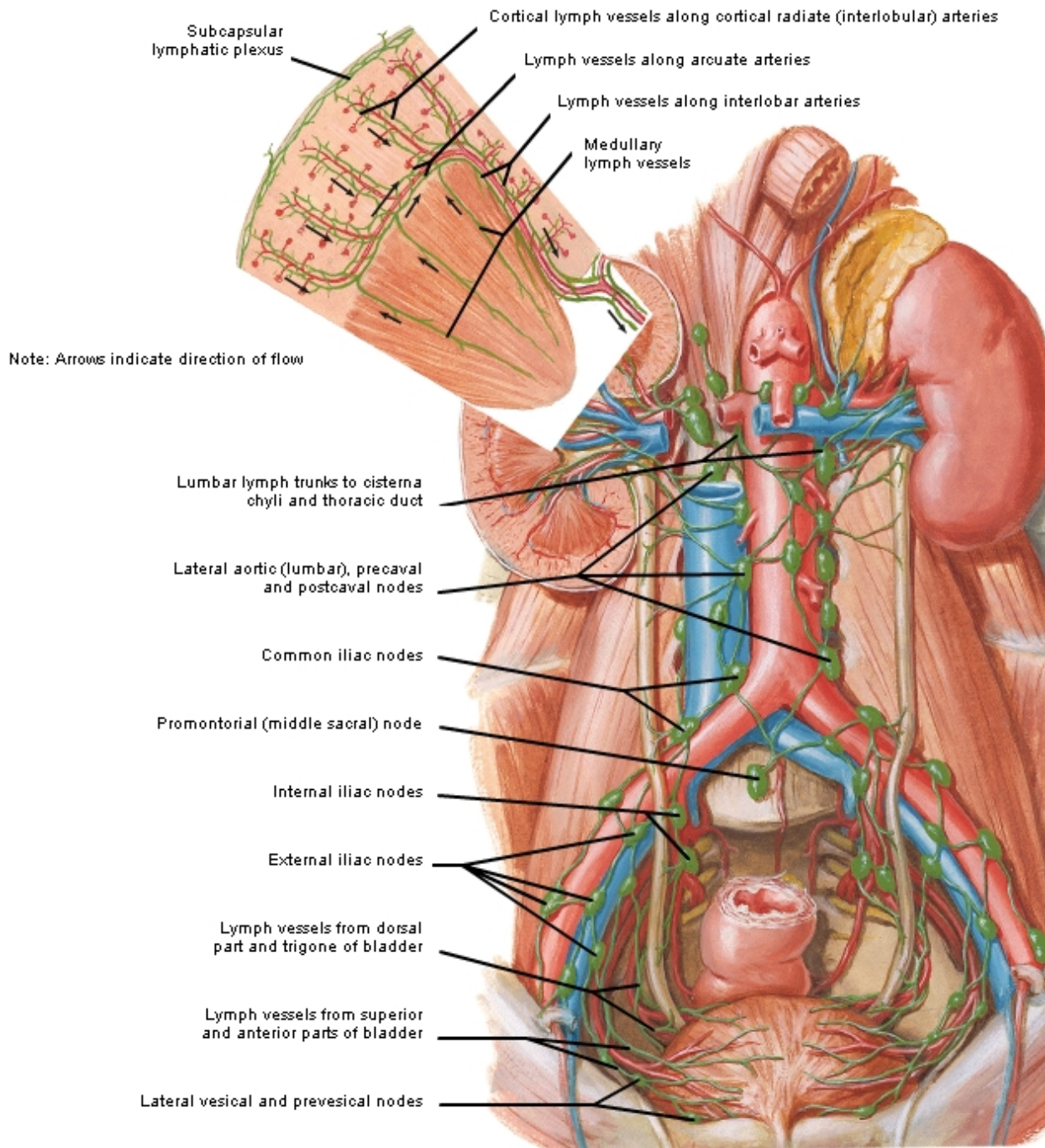
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Renal Fascia: Sagittal Section



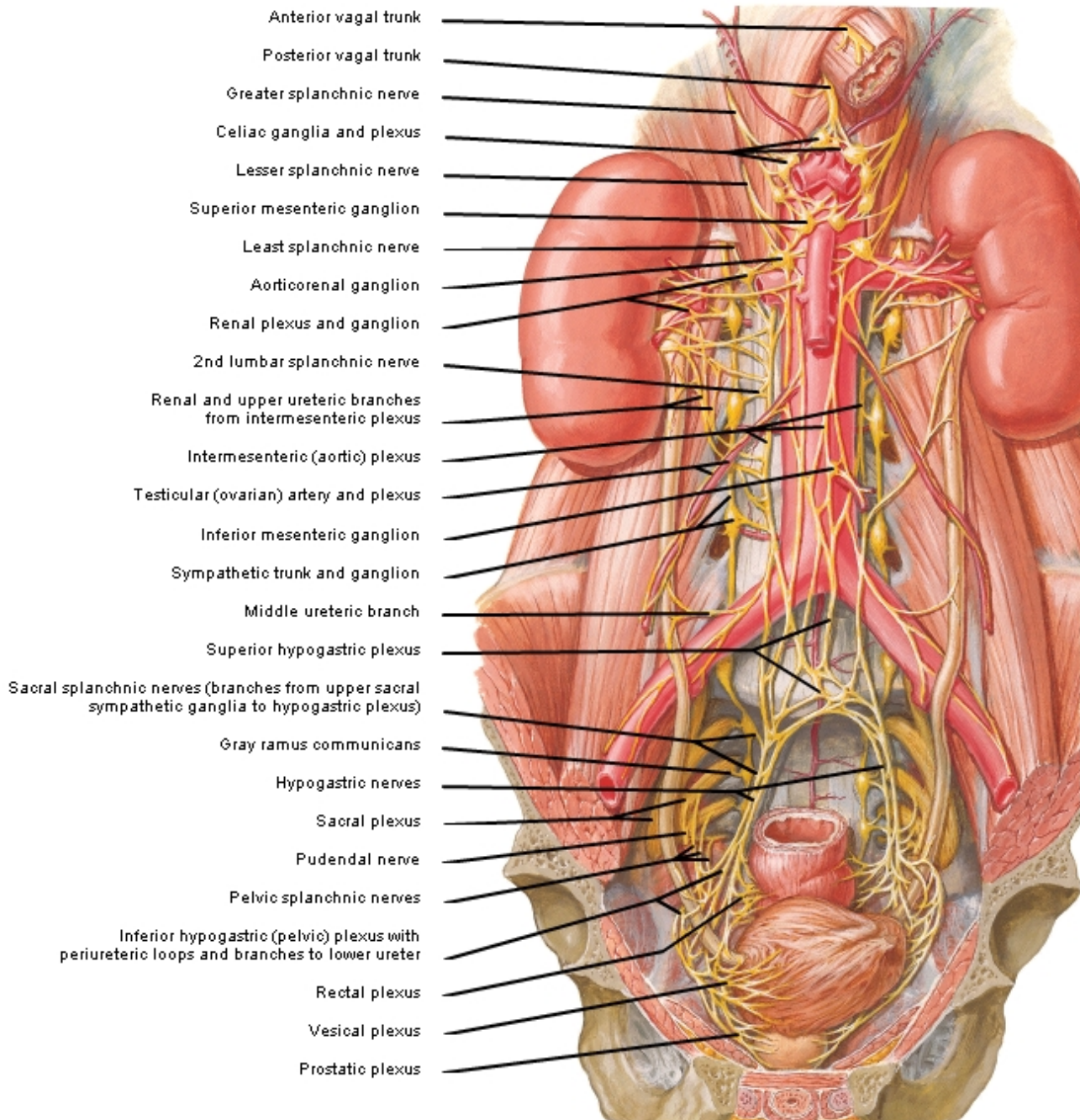
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Lymph Vessels and Nodes of Kidneys and Urinary Bladder



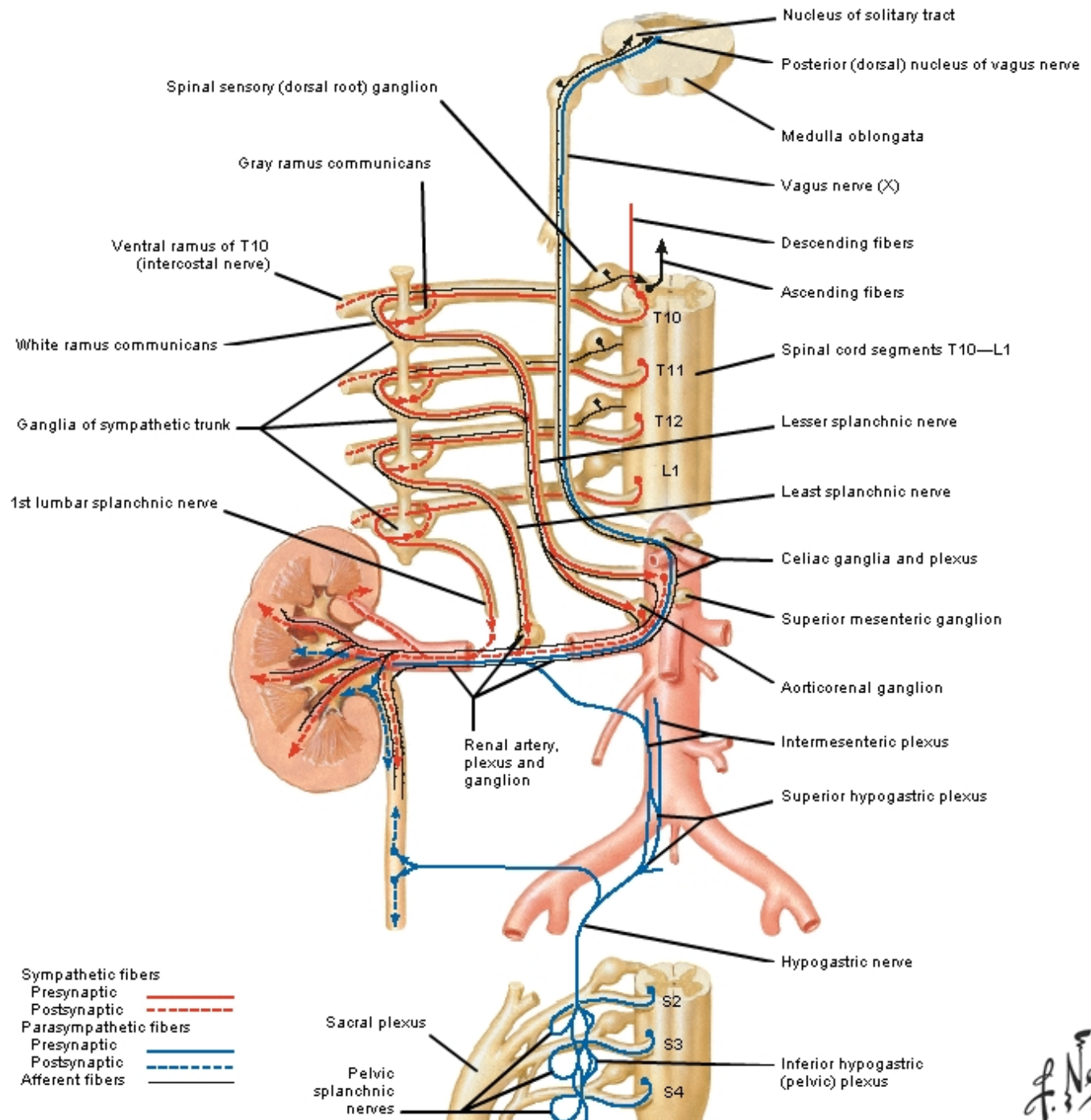
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Nerves of Kidneys, Ureters and Urinary Bladder



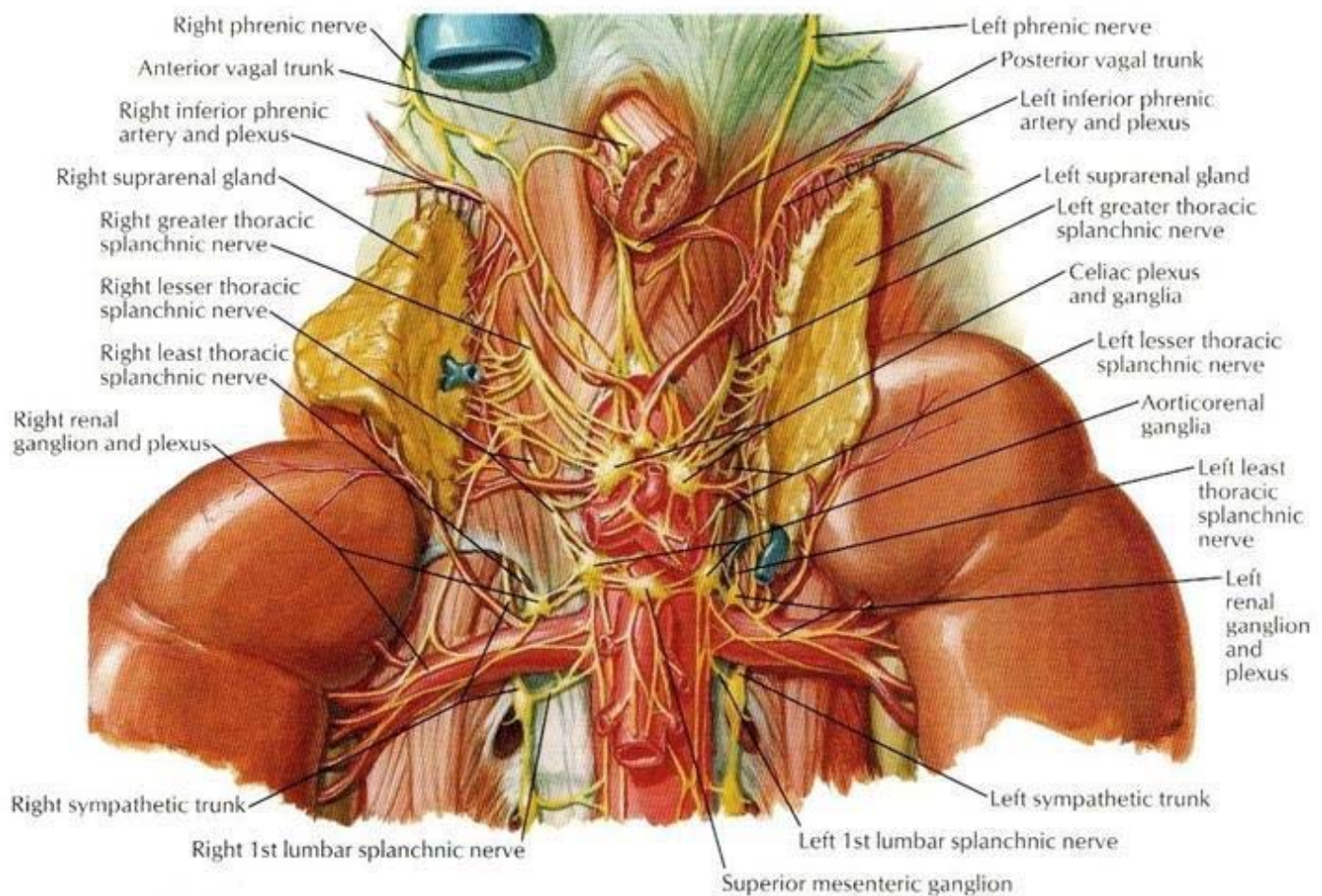
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Innervation of Kidneys and Upper Ureters: Schema



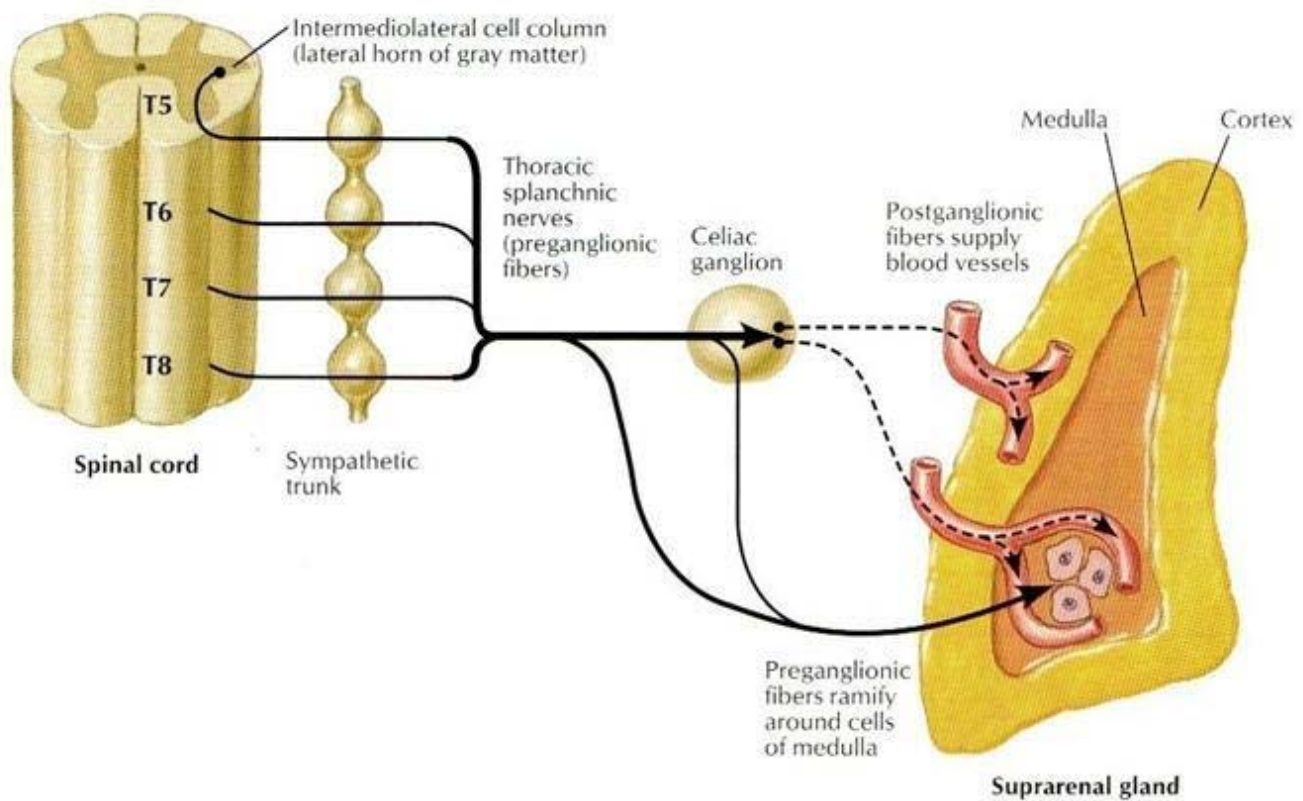
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Nerves of Suprarenal Glands: Dissection



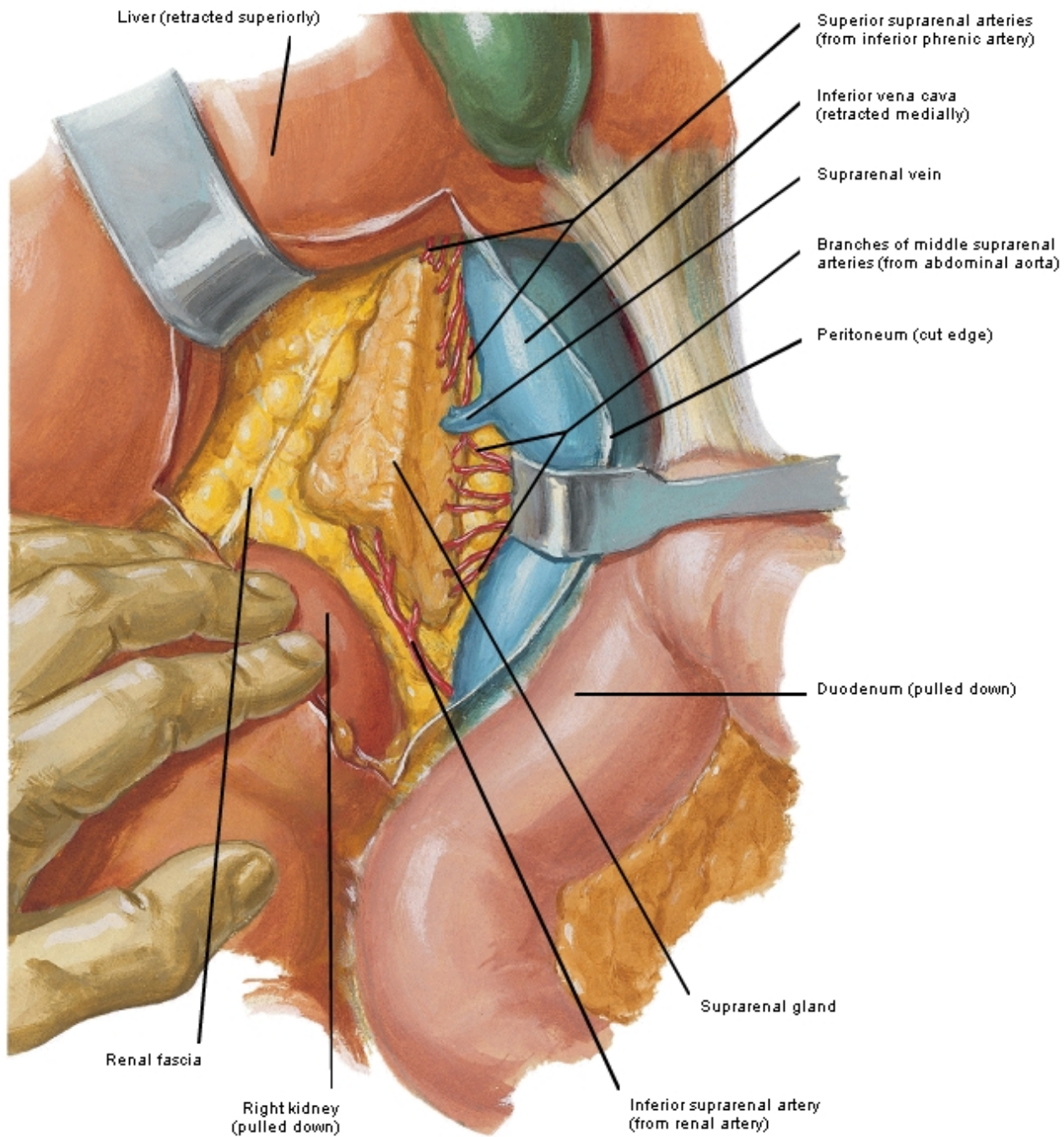
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Nerves of Suprarenal Glands: Schema



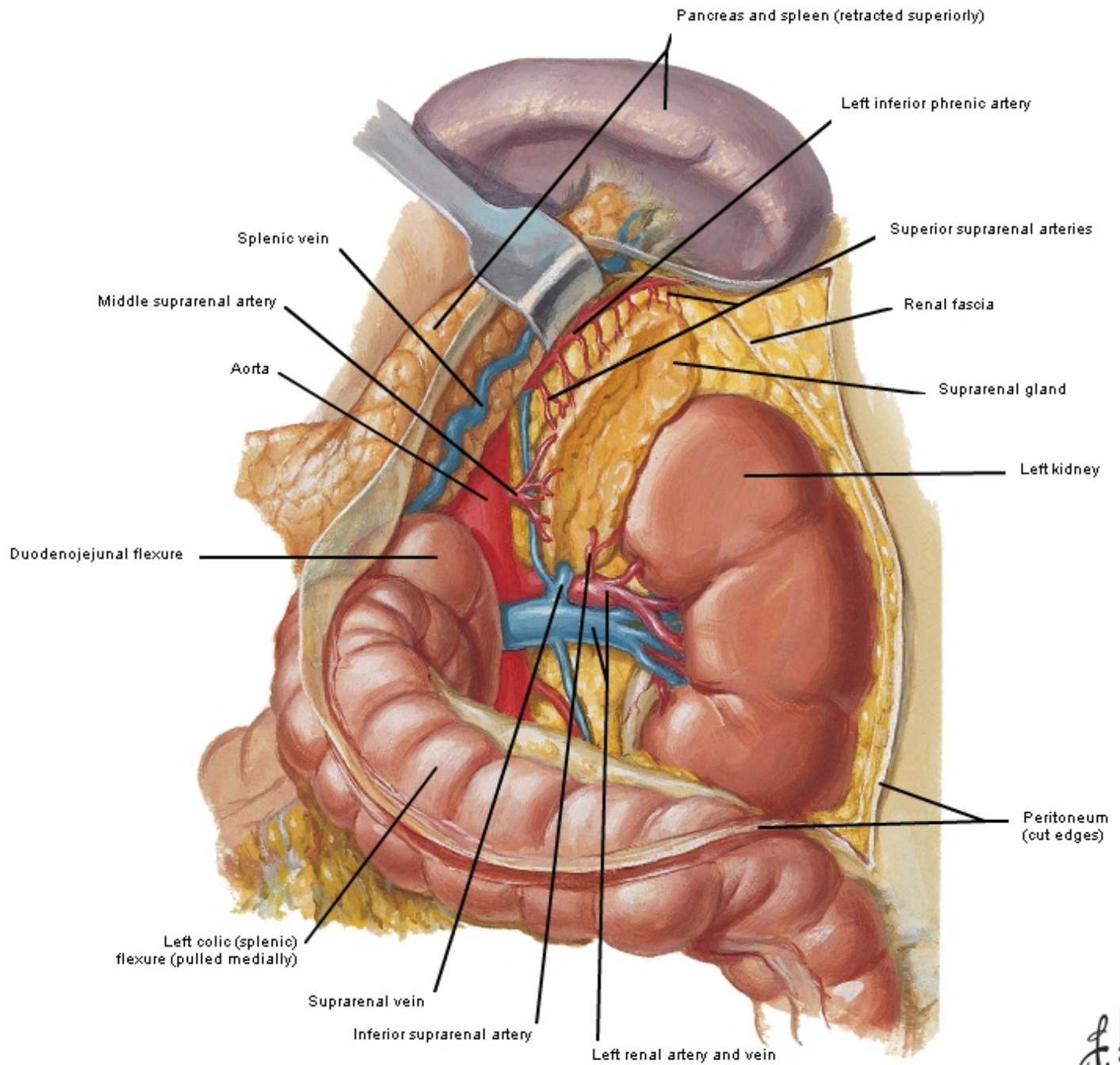
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Arteries and Veins of Right Suprarenal Gland In Situ



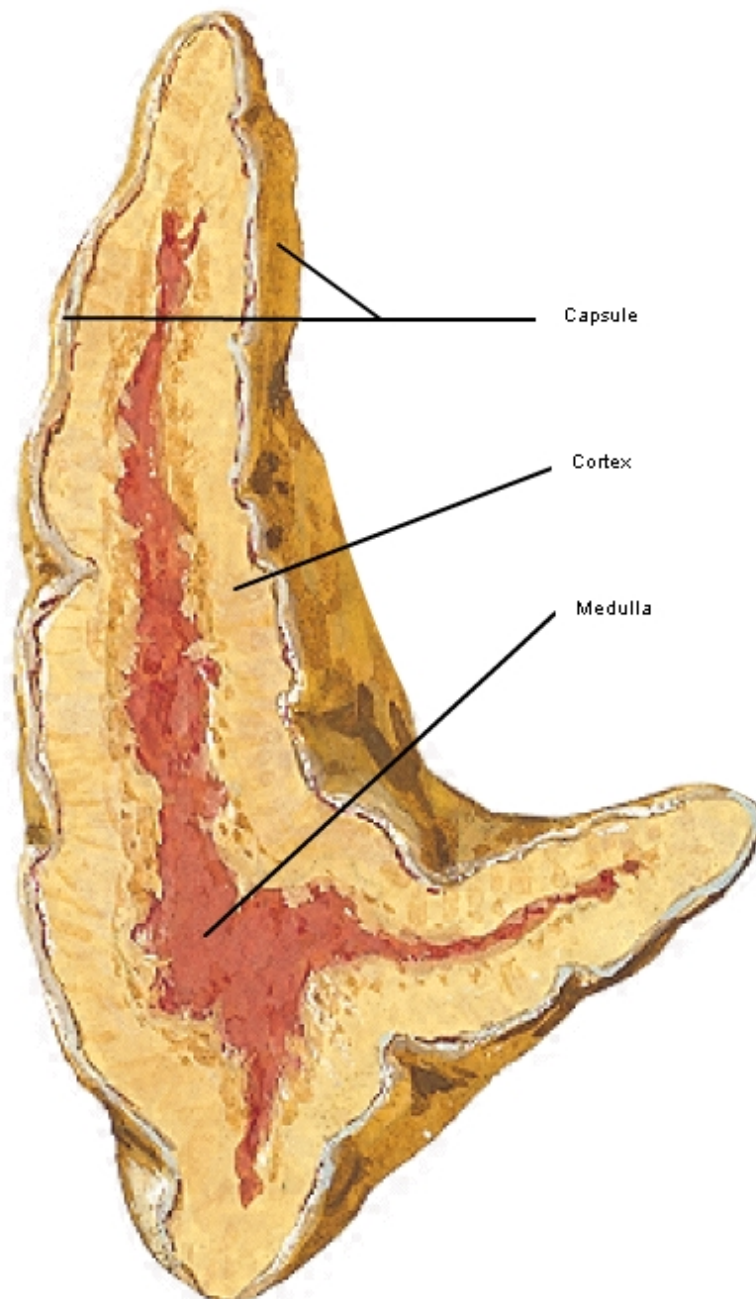
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Arteries and Veins of Left Suprarenal Gland In Situ



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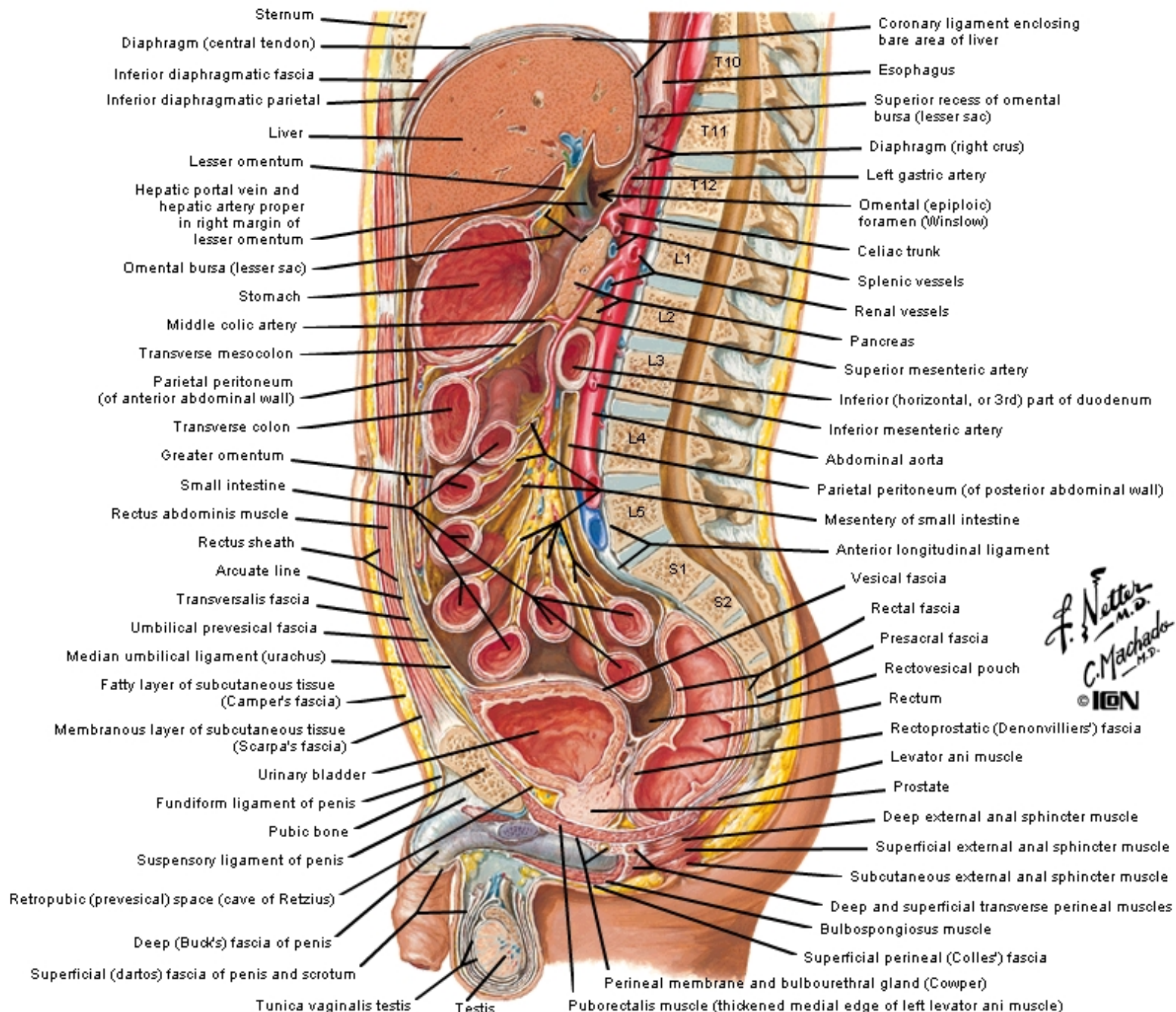
Cross Section through Suprarenal Gland



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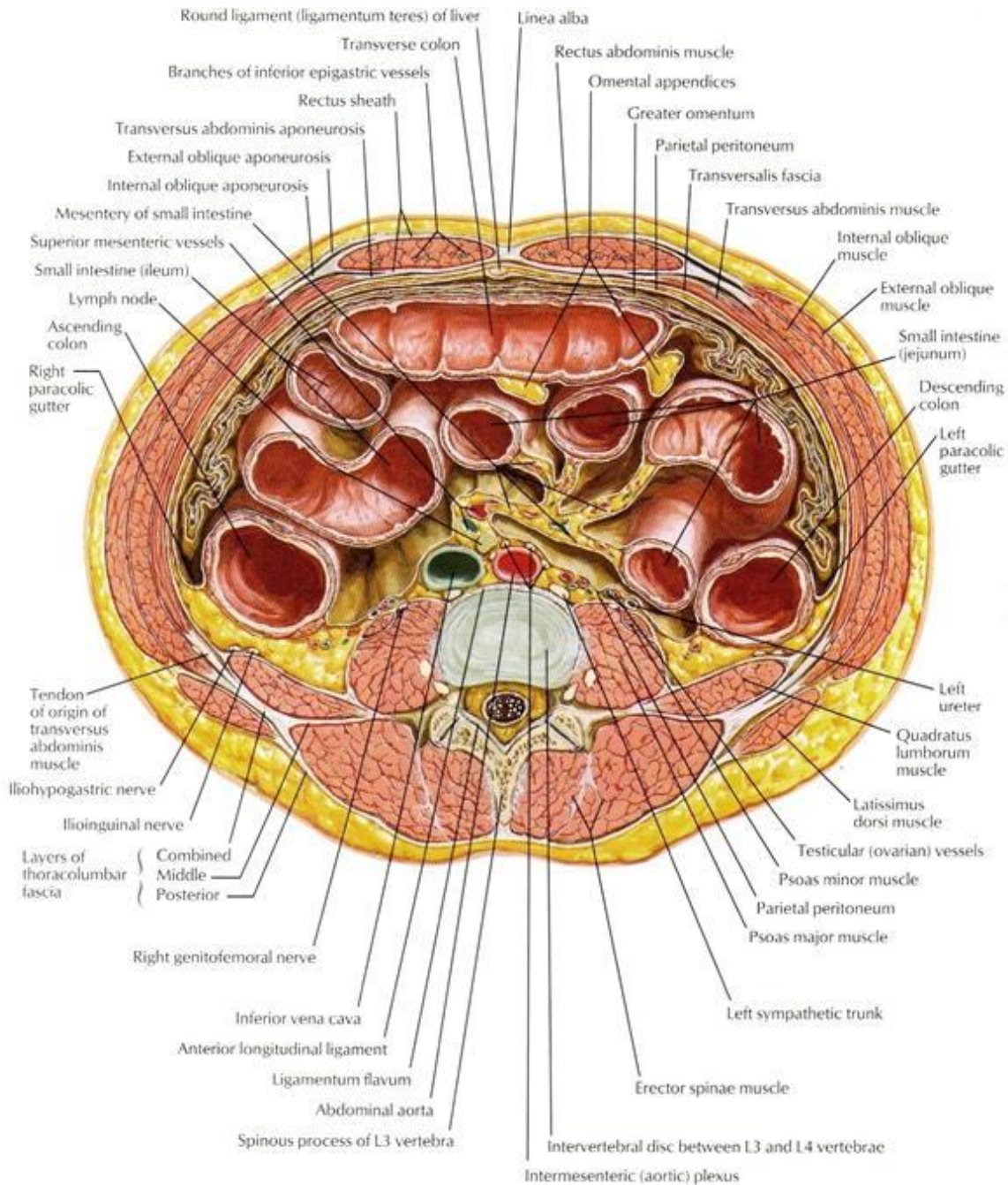
Abdominal Wall and Viscera Median (Sagittal) Section



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ABDOMEN

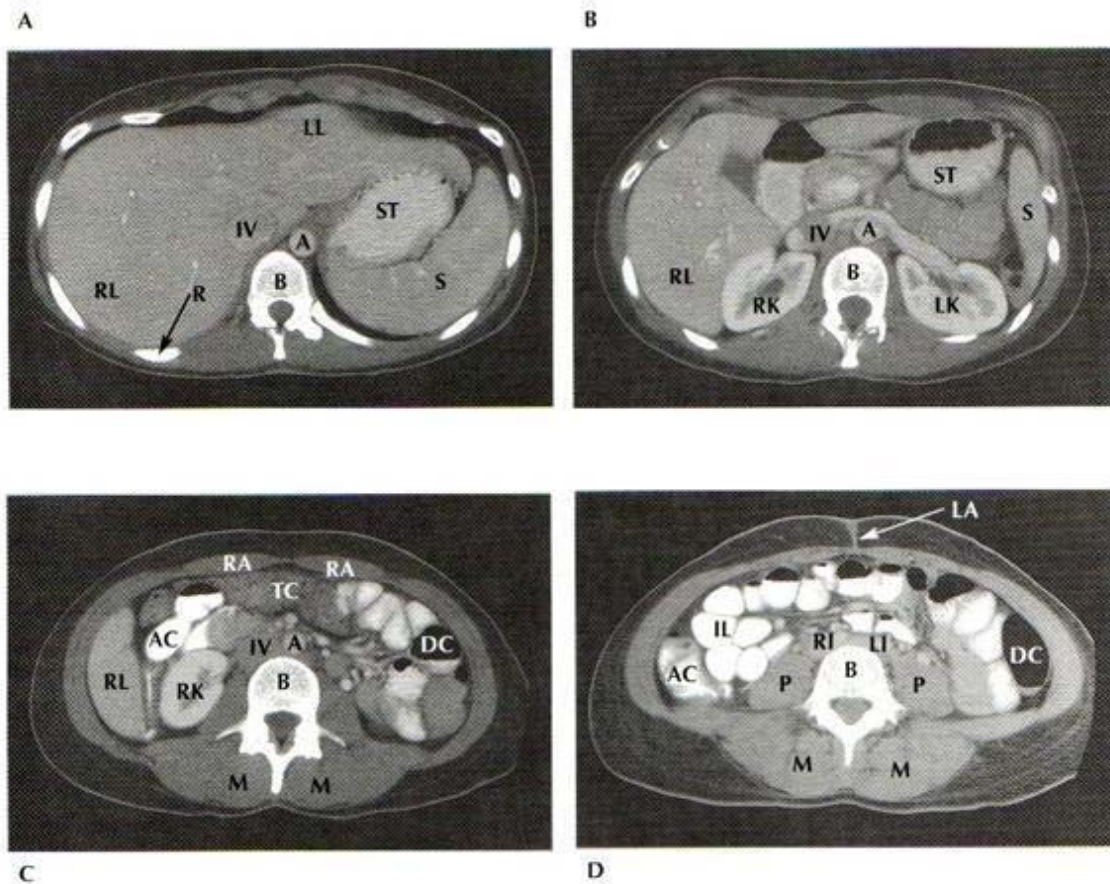
Schematic Cross Section of Abdomen at L3, 4



F. Netter M.D.
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Abdominal Scans: Axial CT Images

Series of abdominal axial CT images from superior (A) to inferior (D)



A Aorta
AC Ascending colon
B Body of vertebra
DC Descending colon
IL Ileum
IV Inferior vena cava
LA Linea alba
LI Left common iliac artery
LK Left kidney
LL Left lobe of liver

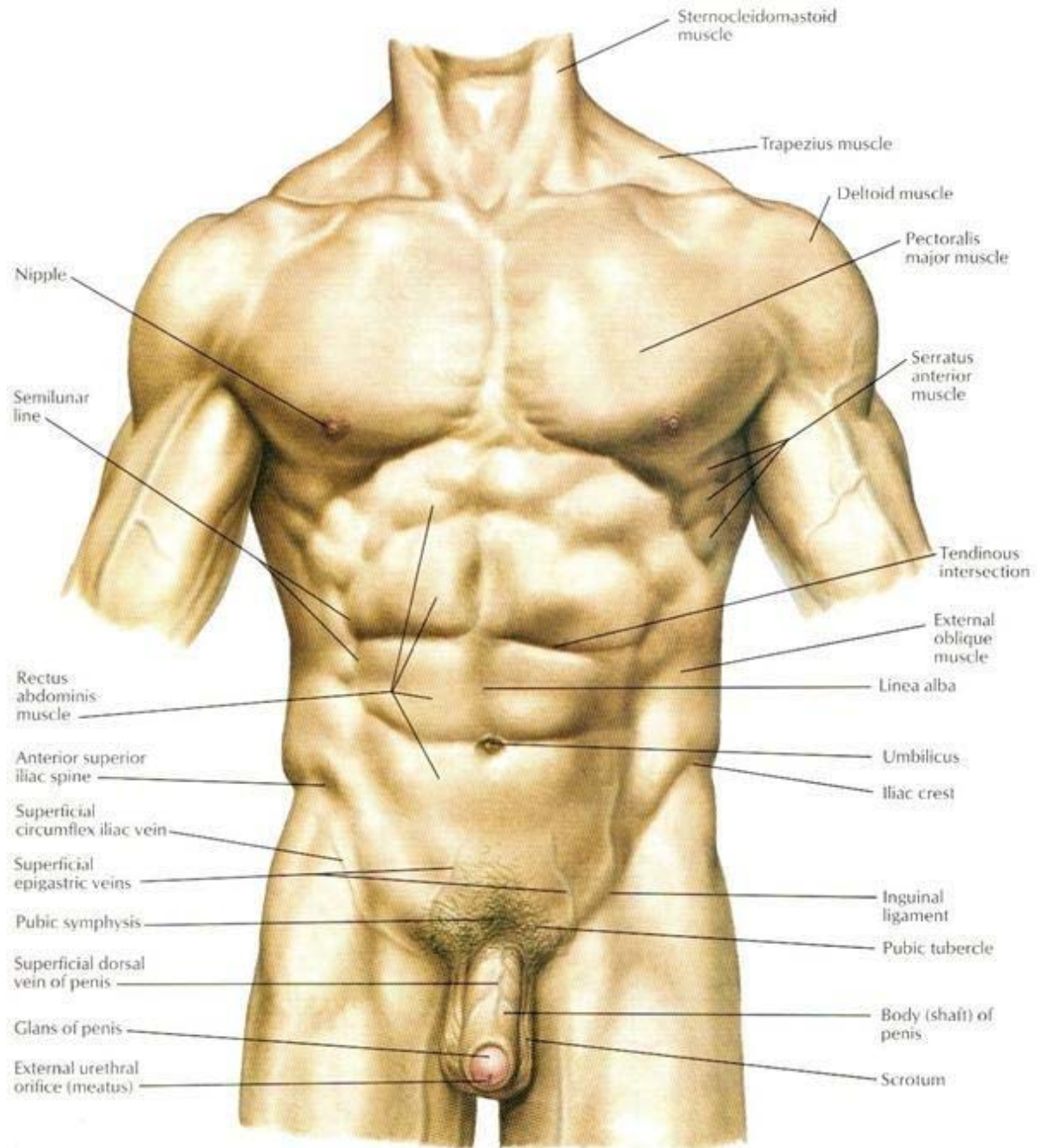
M Deep back muscles
P Psoas muscle
R Rib
RA Rectus abdominis muscle
RI Right common iliac artery
RK Right kidney
RL Right lobe of liver
S Spleen
ST Stomach
TC Transverse colon

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Section 5 Pelvis and Perineum

PELVIS AND PERINEUM

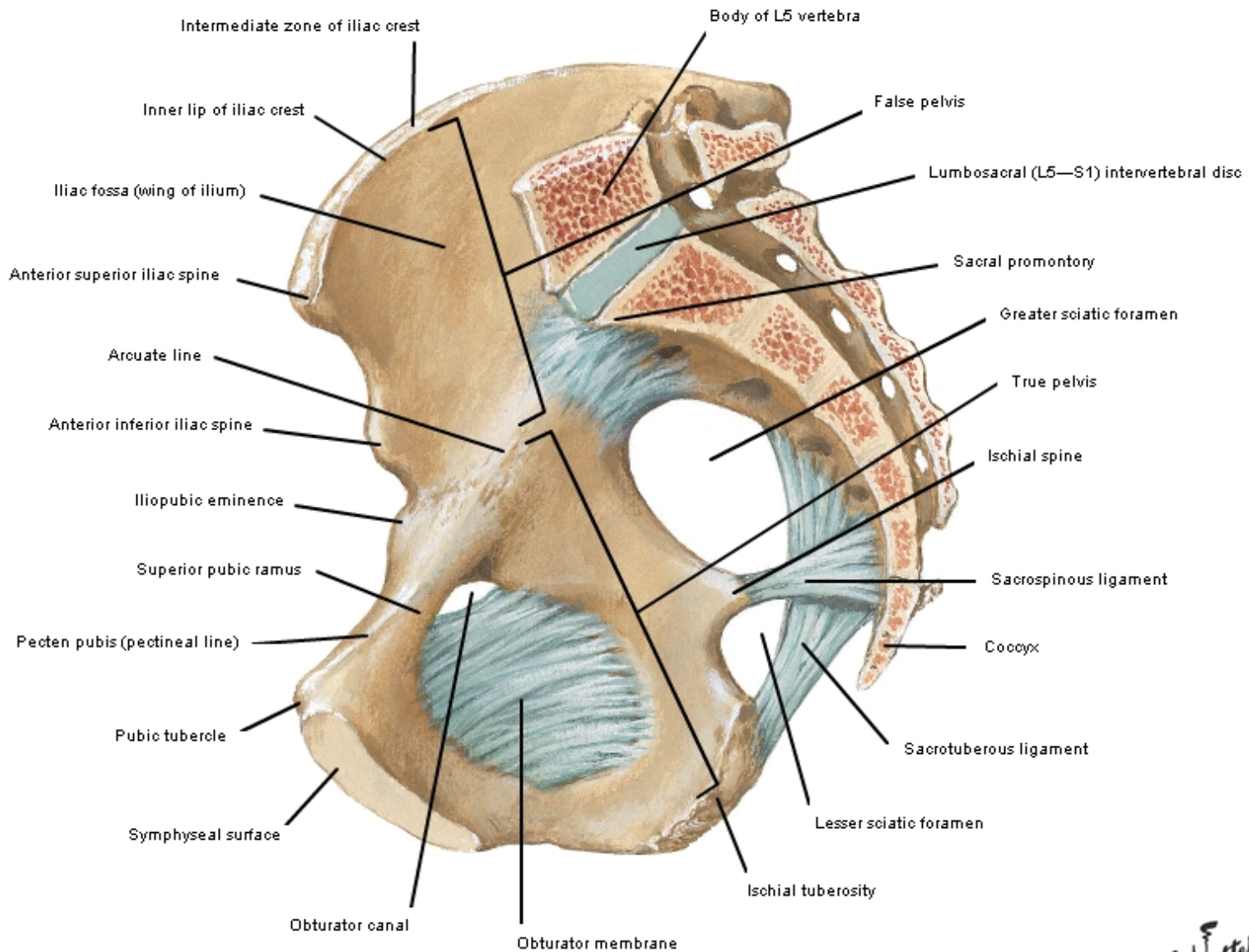
Pelvis and Perineum



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PELVIS AND PERINEUM

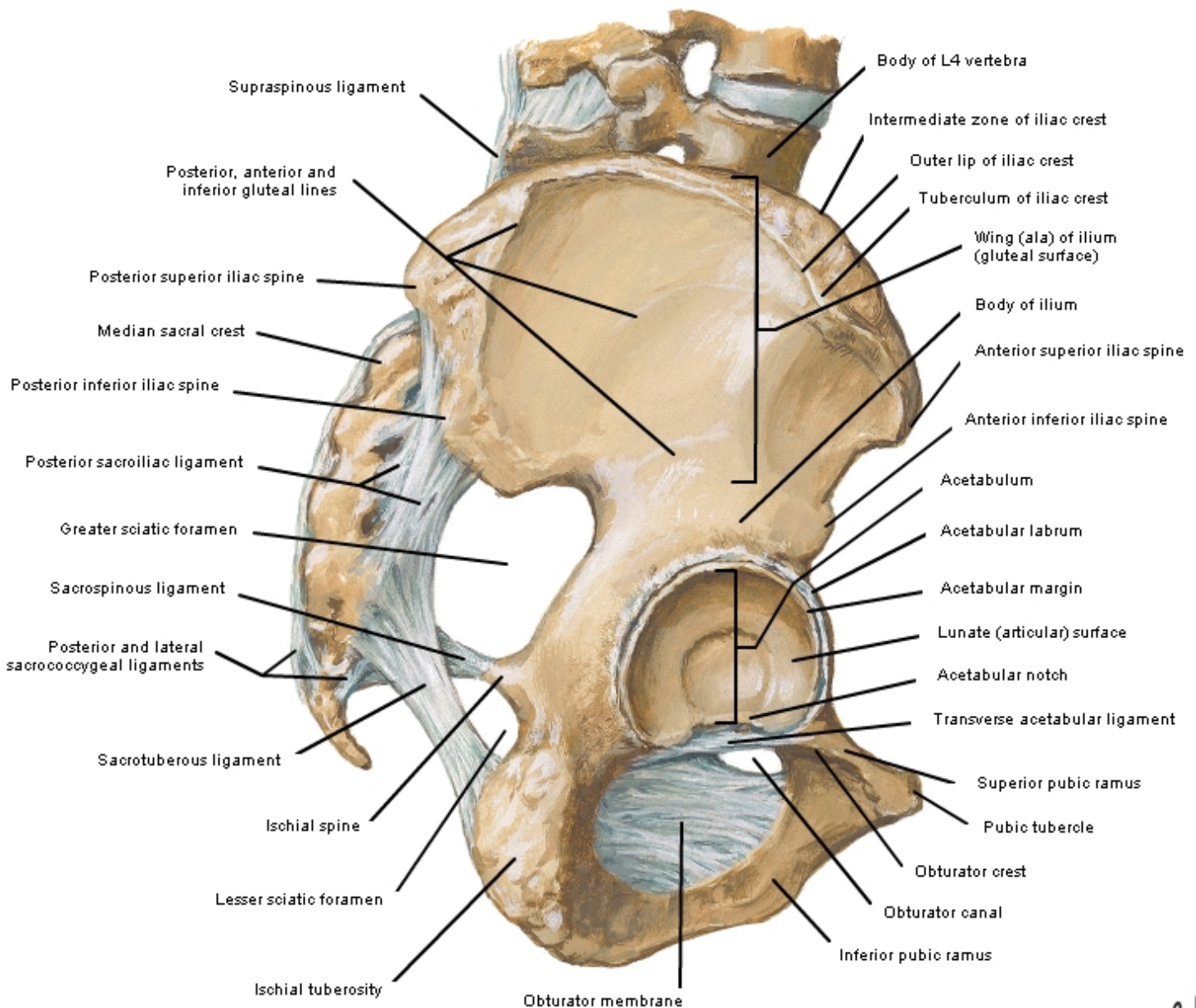
Bones and Ligaments of Pelvis Median (Sagittal) Section



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PELVIS AND PERINEUM

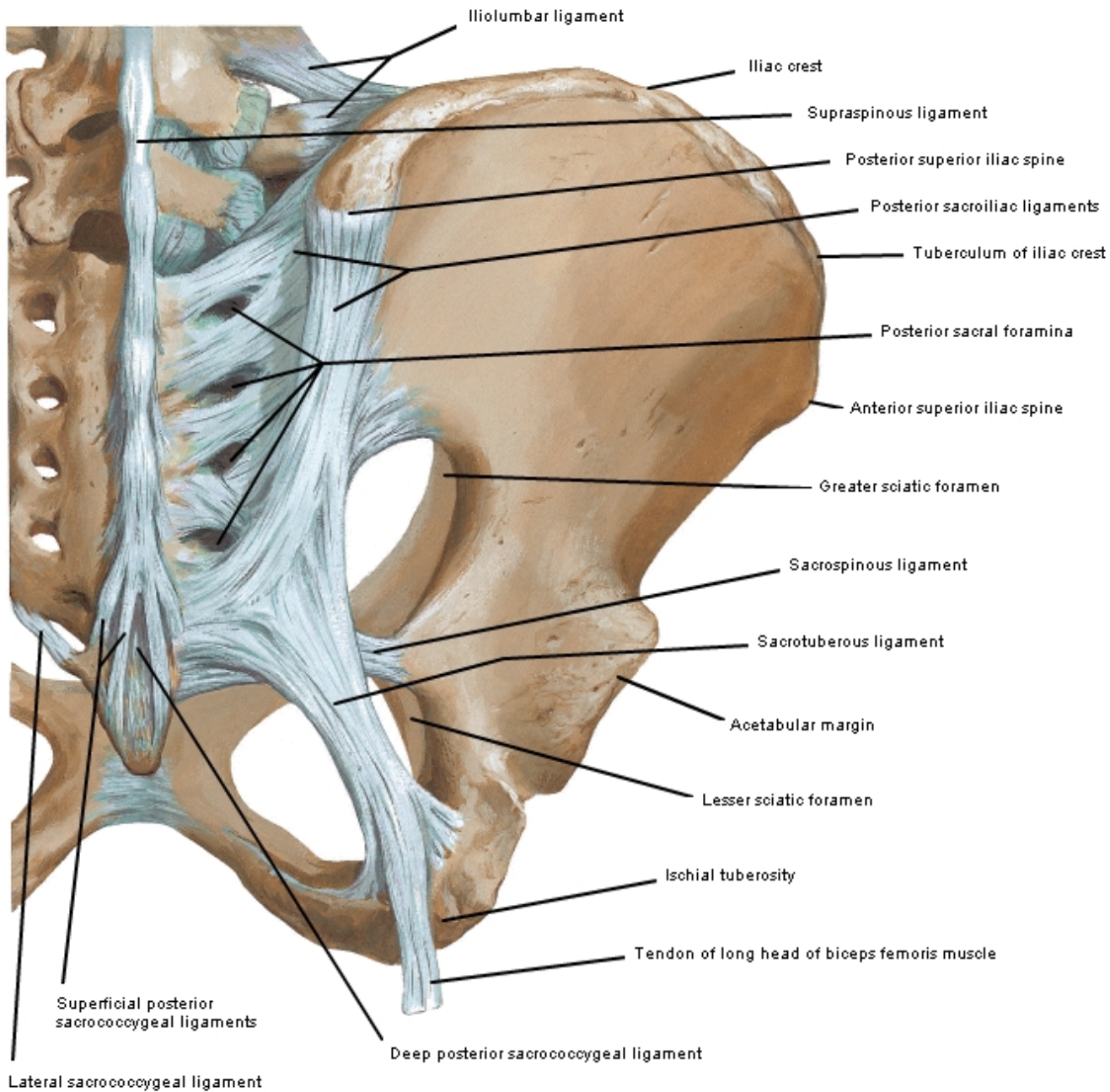
Bones and Ligaments of Pelvis Lateral View



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PELVIS AND PERINEUM

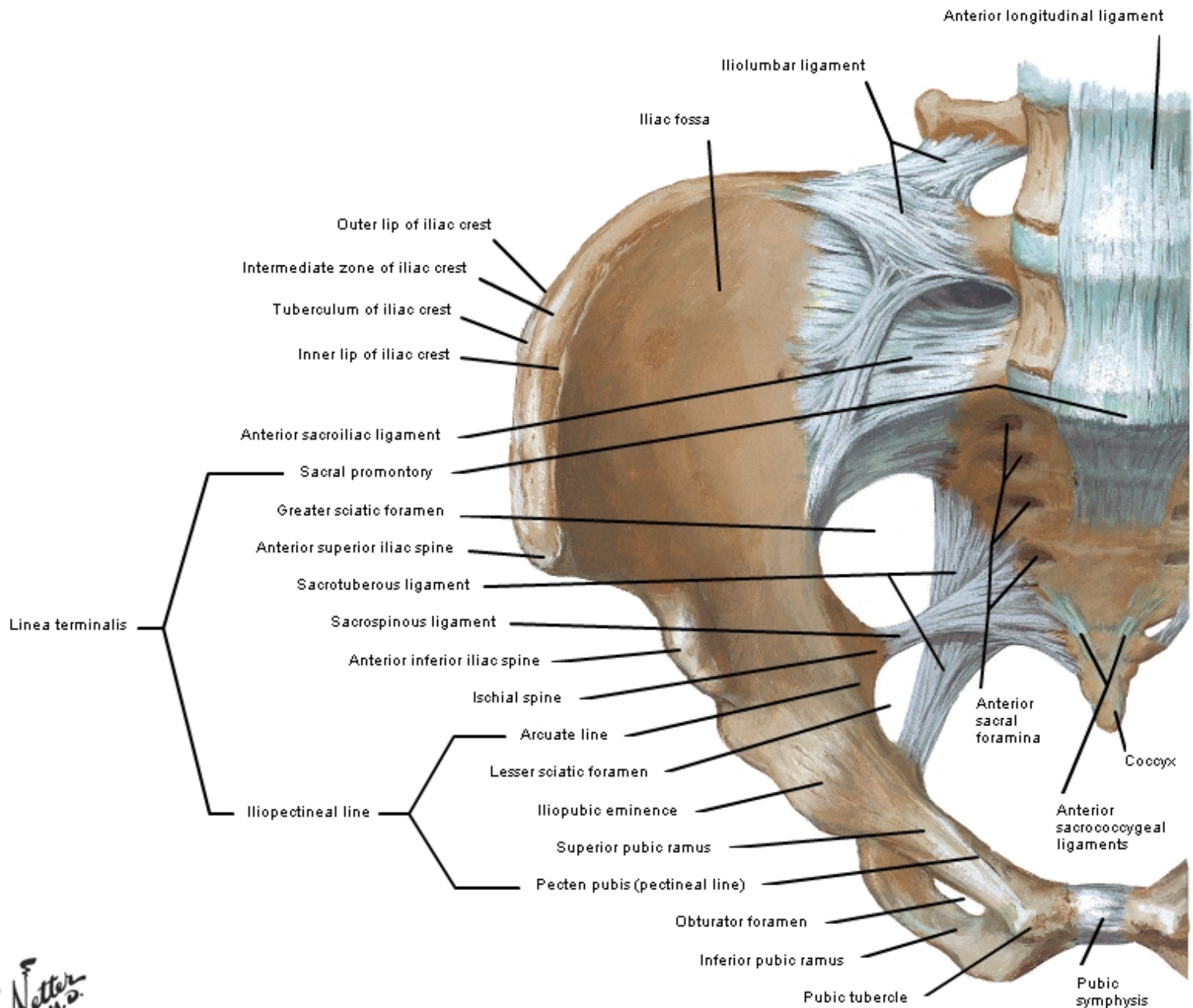
Bones and Ligaments of Pelvis Posterior View



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PELVIS AND PERINEUM

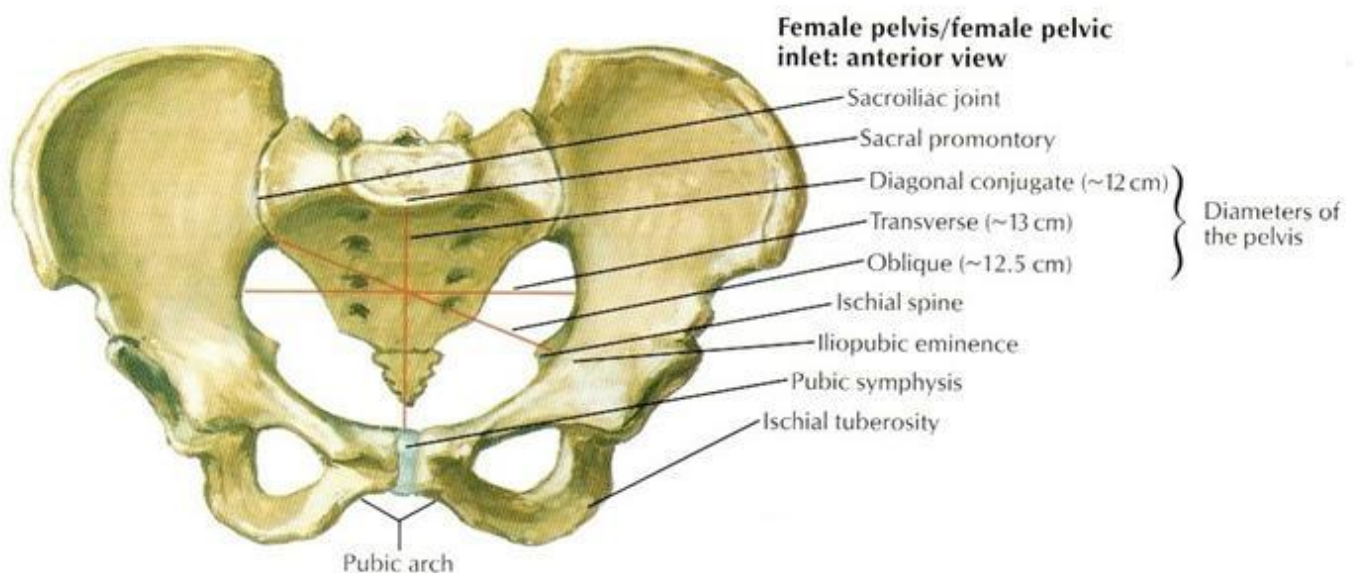
Bones and Ligaments of Pelvis Anterior View



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PELVIS AND PERINEUM

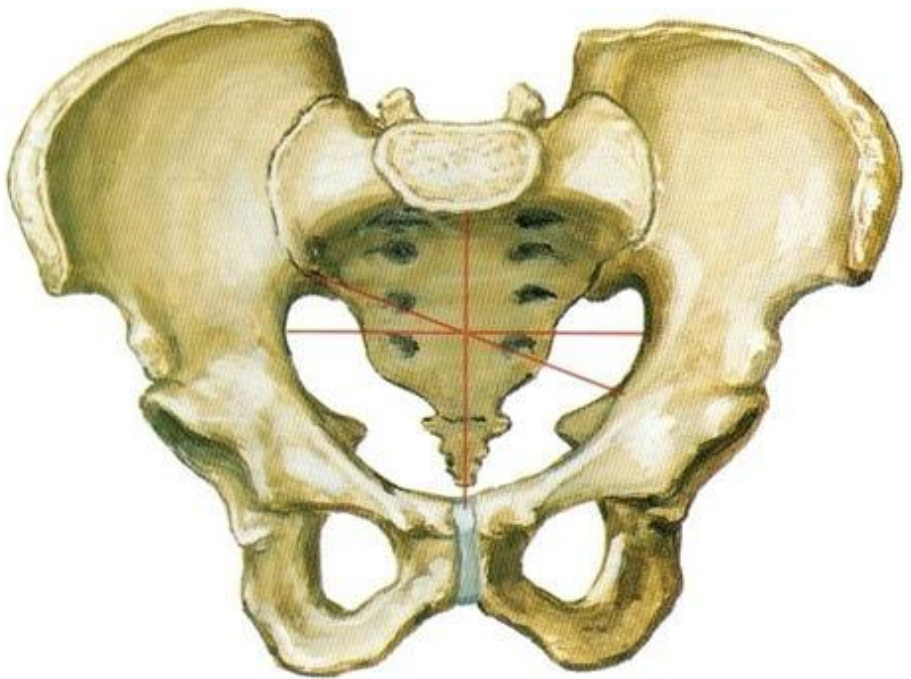
Sex Differences of Pelvis: Measurements Female Pelvis Anterior View



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Sex Differences of Pelvis: Measurements Male Pelvis Anterior View**Male pelvis/male pelvic inlet: anterior view**

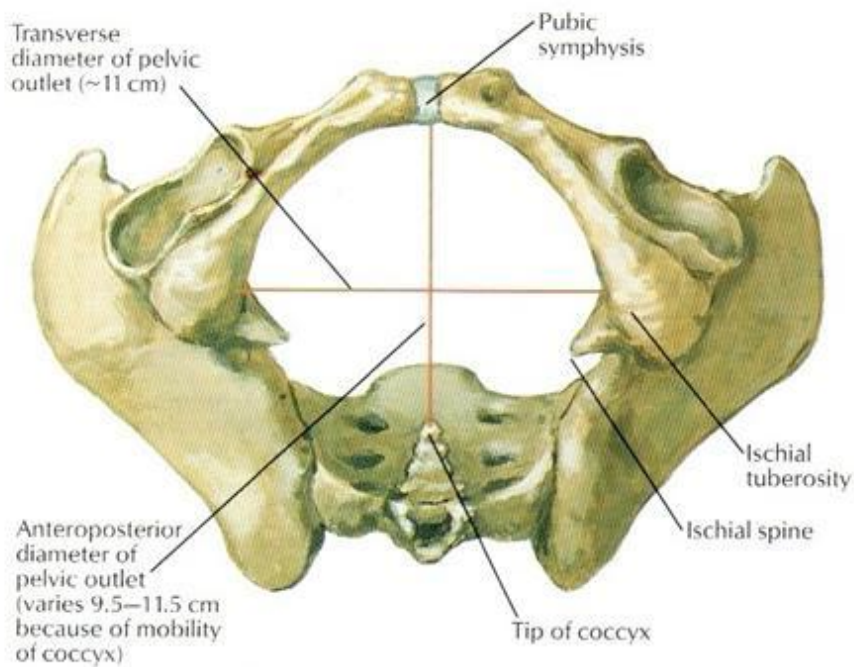
All measurements slightly shorter in relation to body size than in female
Pelvic inlet oriented more antero-posteriorly than in female, where it tends to be transversely oval
Pubic symphysis deeper (taller)
Pubic arch (subpubic angle) narrower
Ischial tuberosities less far apart
Iliac wings less flared



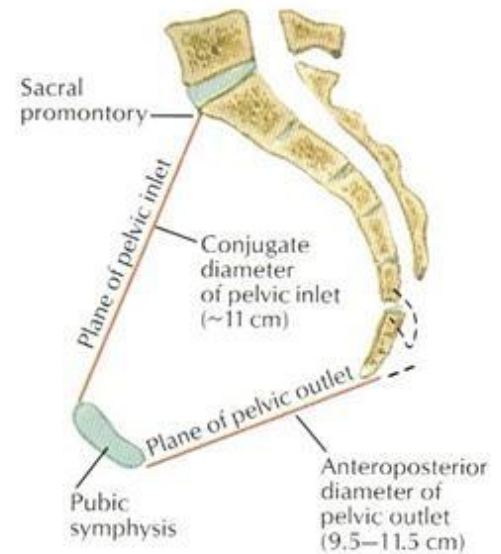
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PELVIS AND PERINEUM

Sex Differences of Pelvis: Measurements Female Pelvis Inferior View



**Female pelvis/female pelvic outlet:
inferior view**

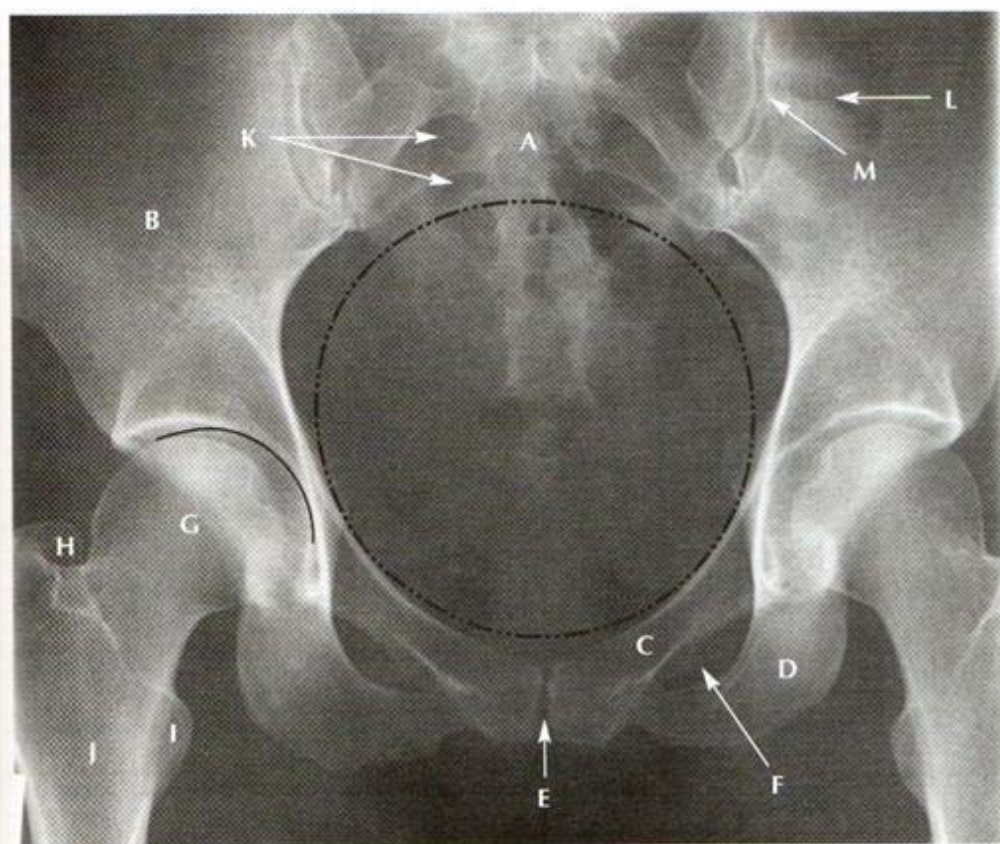


Female: sagittal section

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PELVIS AND PERINEUM

Female Pelvis Radiograph

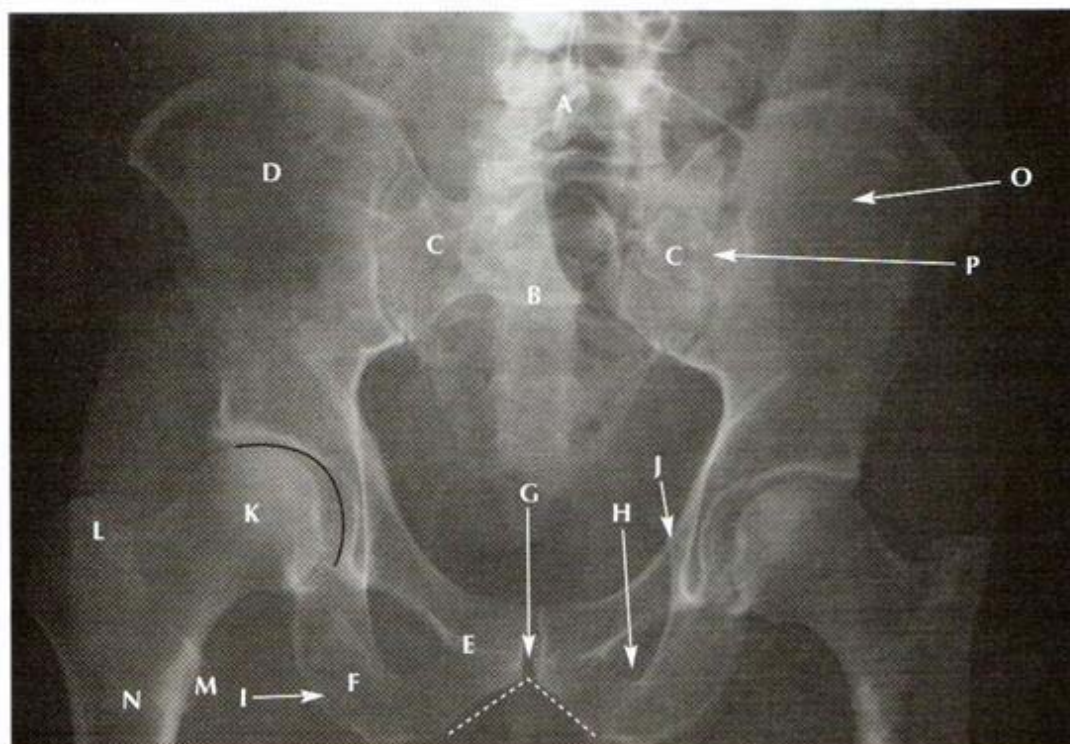


- A Sacrum
- B Ilium
- C Pubis
- D Ischium
- E Pubis symphysis
- F Obturator foramen
- G Head of femur
- H Greater trochanter
- I Lesser trochanter
- J Femur
- K Pelvic foramina
- L Air in colon
- M Sacroiliac joint
- Acetabulum
- - - - Pelvic inlet

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PELVIS AND PERINEUM

Male Pelvis Radiograph

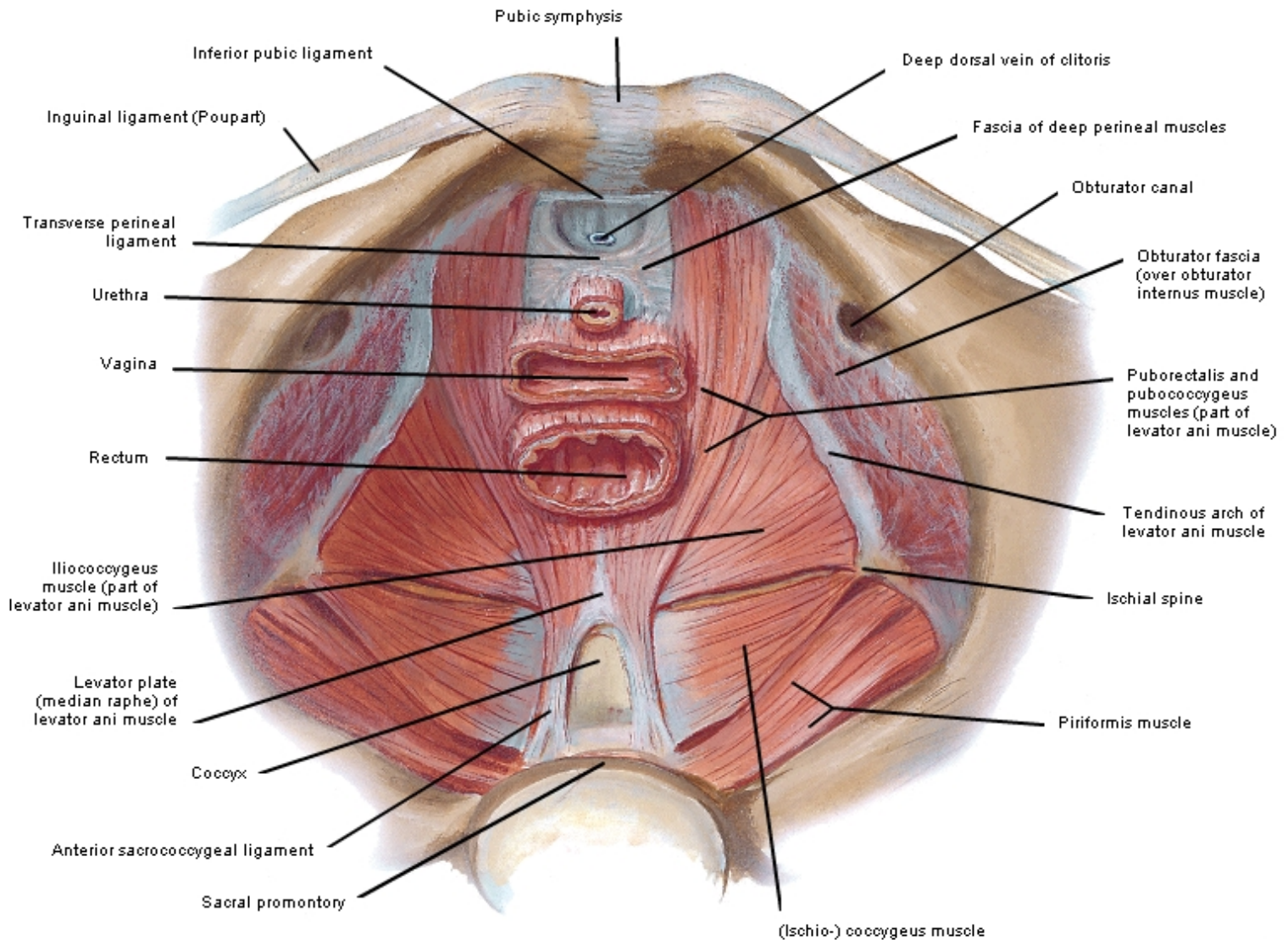


- A L5
- B Sacrum
- C Ala of sacrum
- D Ilium
- E Pubis
- F Ischium
- G Pubic symphysis
- H Obturator foramen
- I Ischial tuberosity
- J Ischial spine
- K Head of femur
- L Greater trochanter
- M Lesser trochanter
- N Femur
- O Air in colon
- P Sacroiliac joint
- Acetabulum
- - - Subpubic angle

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PELVIS AND PERINEUM

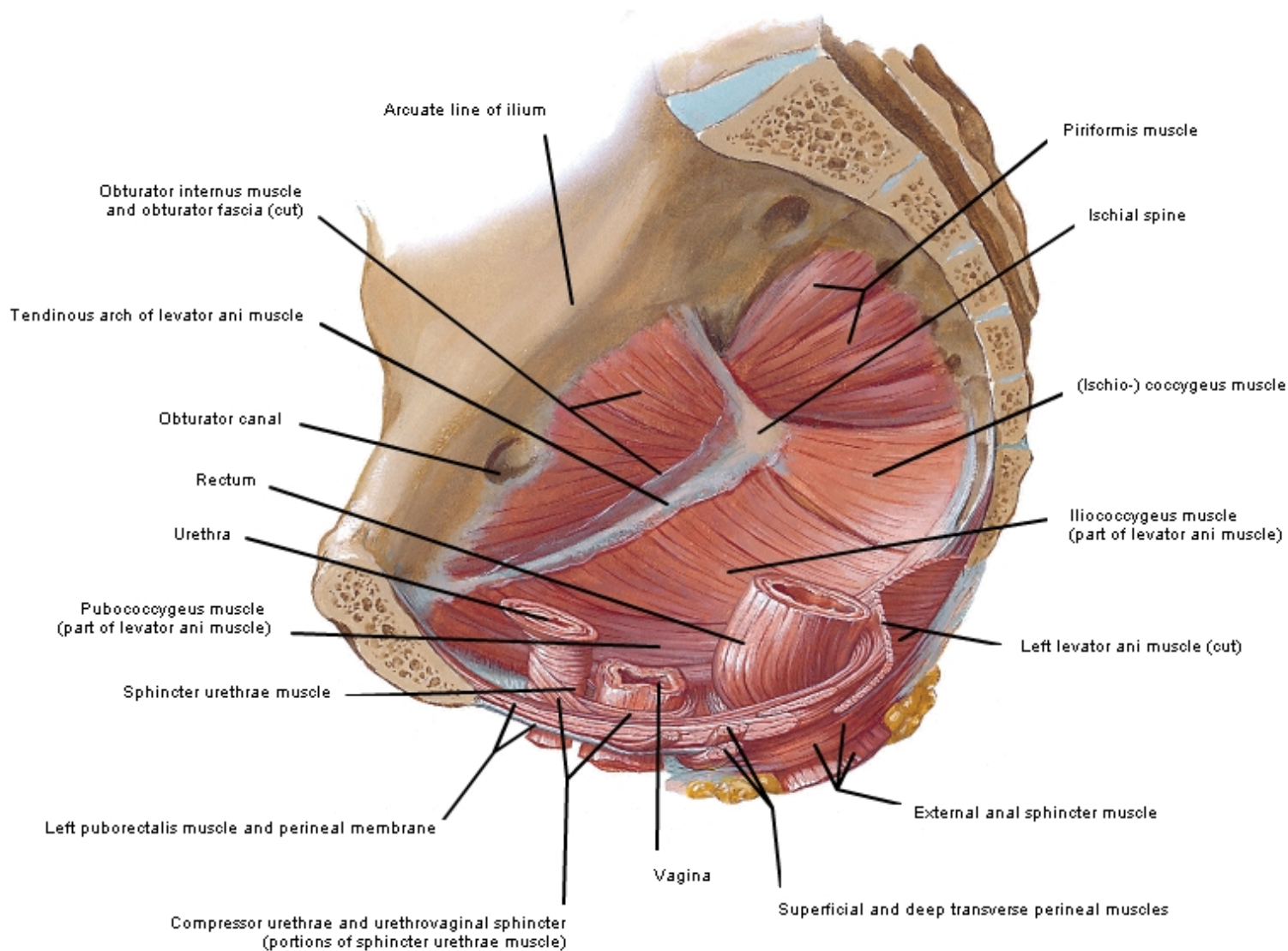
Pelvic Diaphragm of Female Superior View



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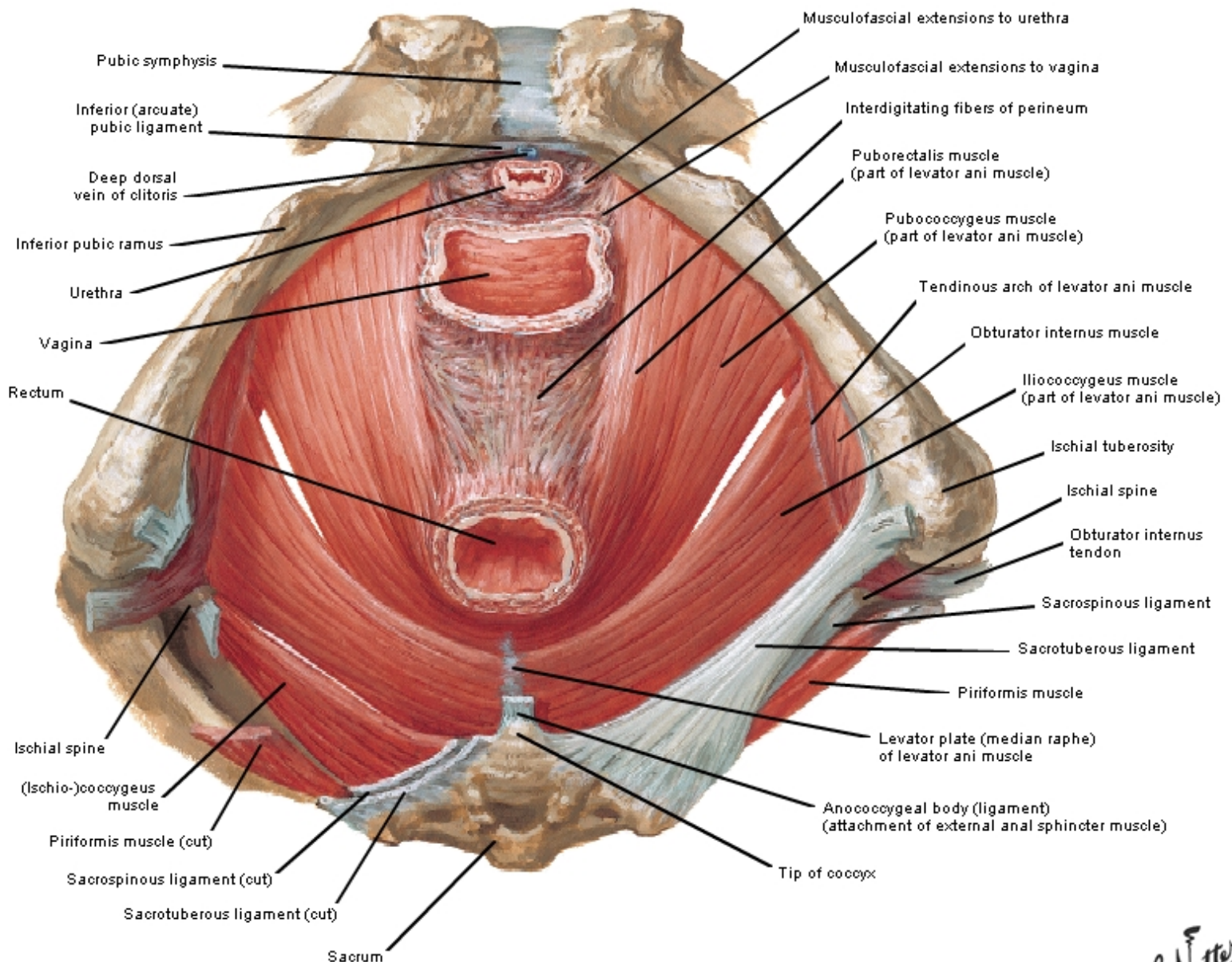
PELVIS AND PERINEUM

Pelvic Diaphragm of Female Medial View



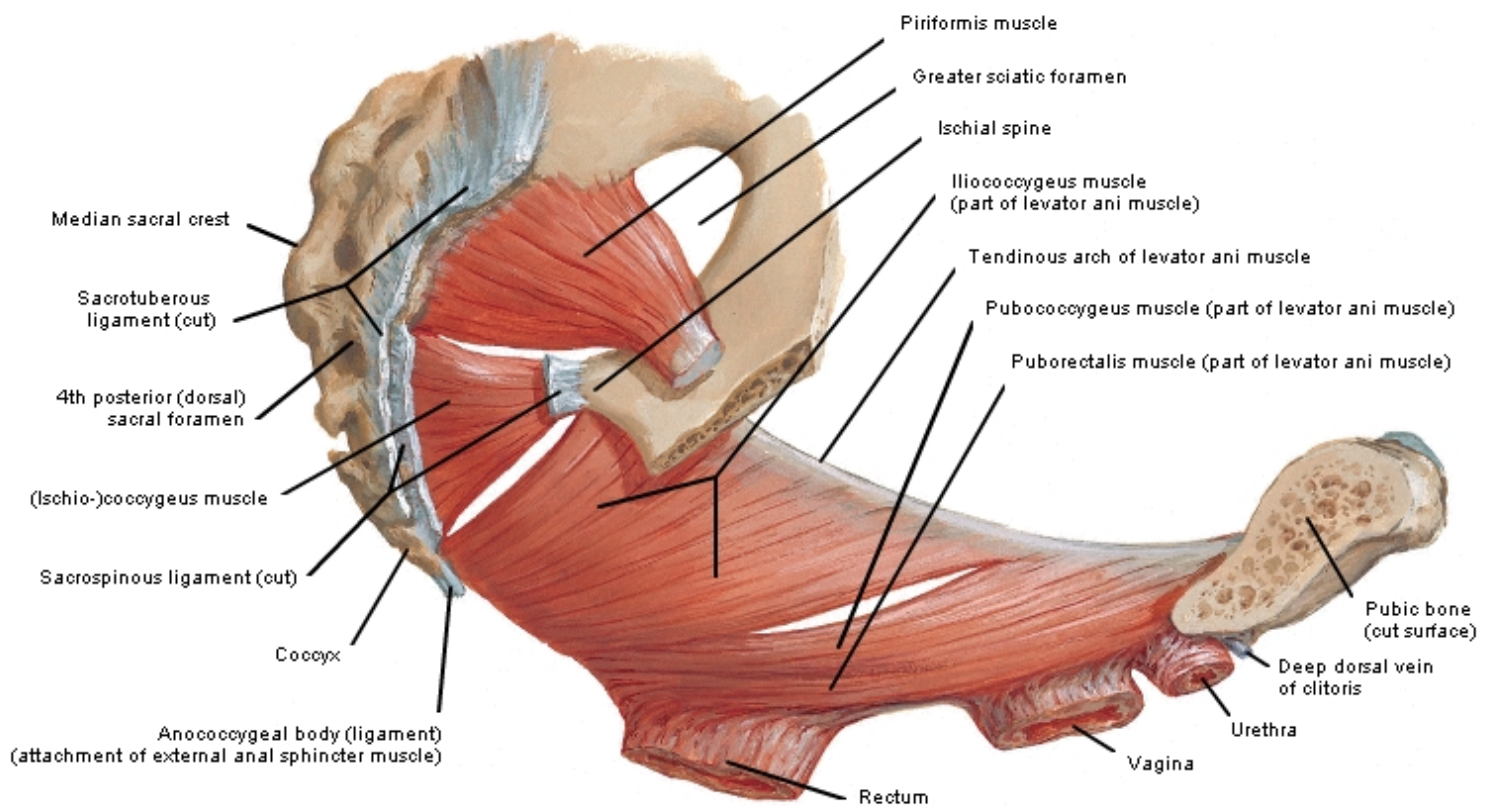
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Pelvic Diaphragm of Female Inferior View



PELVIS AND PERINEUM

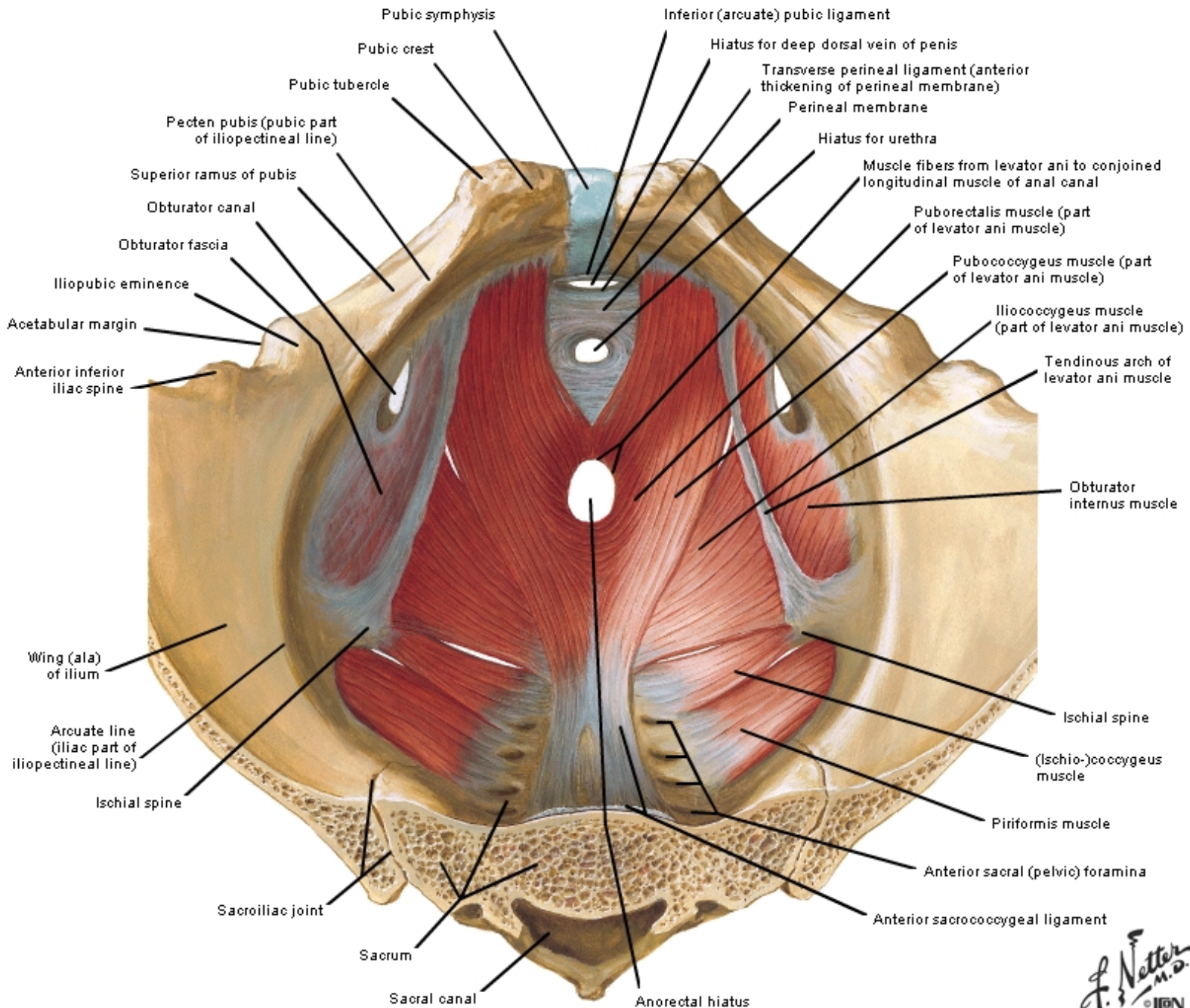
Pelvic Diaphragm of Female Lateral View



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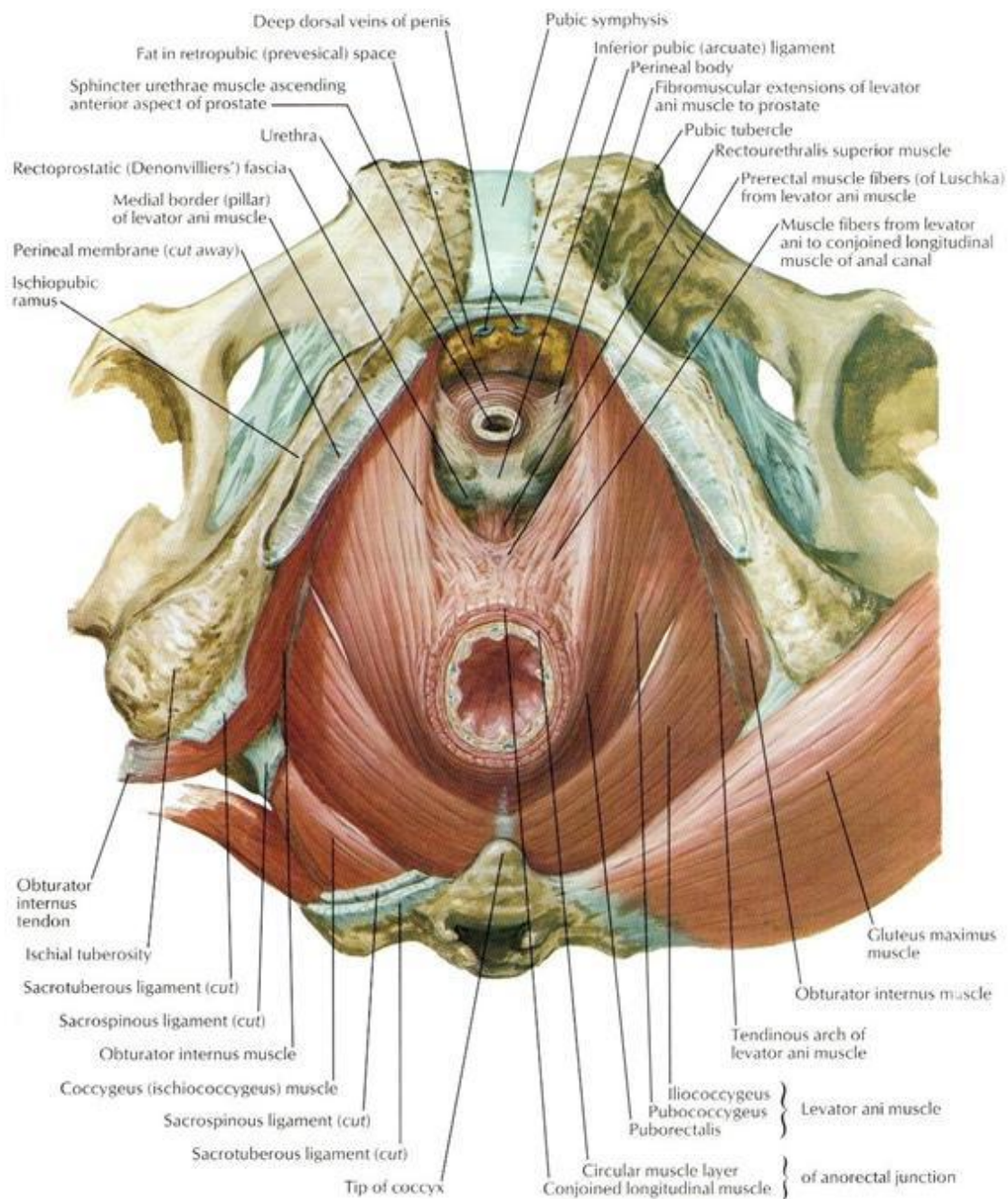
PELVIS AND PERINEUM

Pelvic Diaphragm of Male Superior View - Viscera Removed



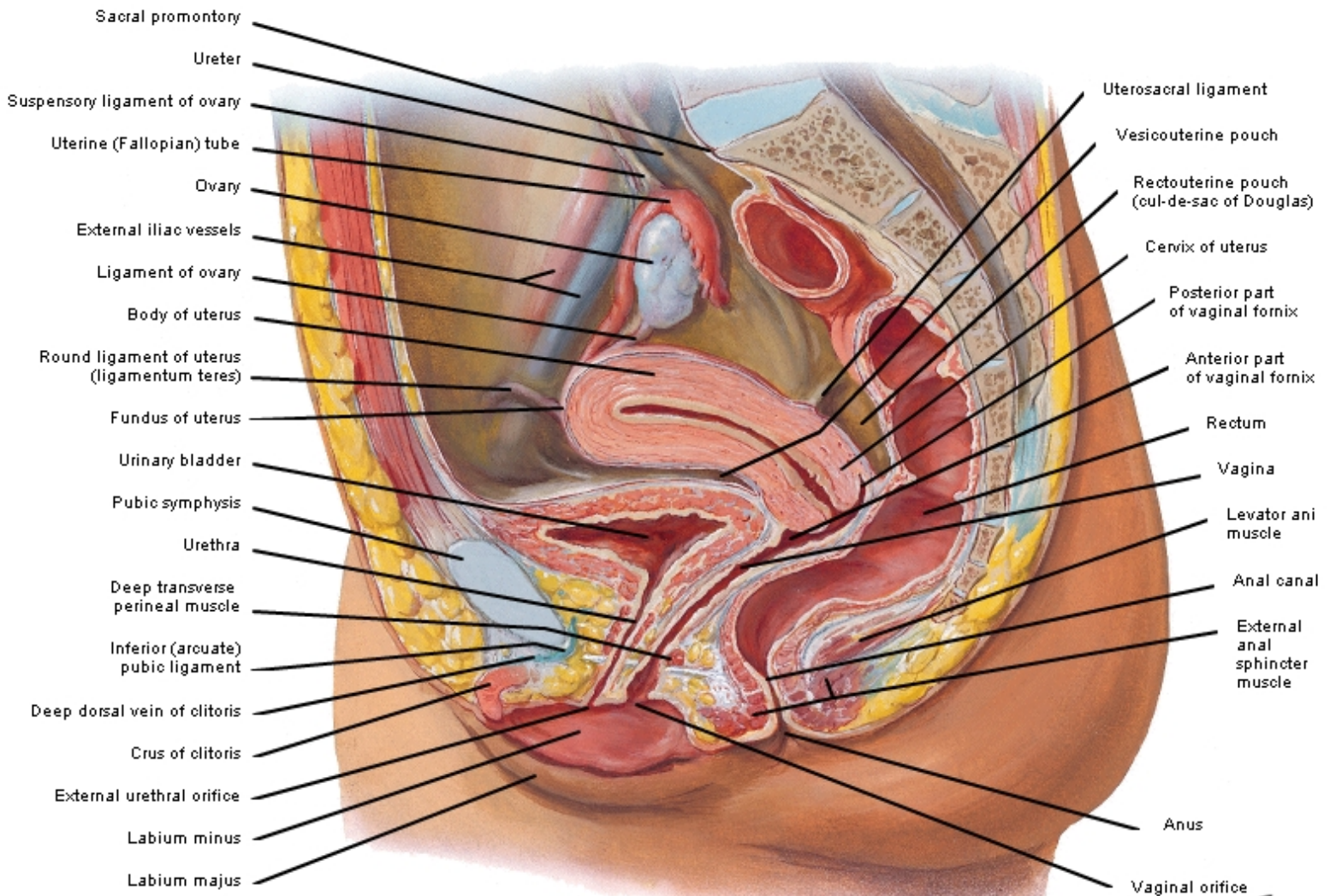
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Pelvic Diaphragm: Male Inferior View



PELVIS AND PERINEUM

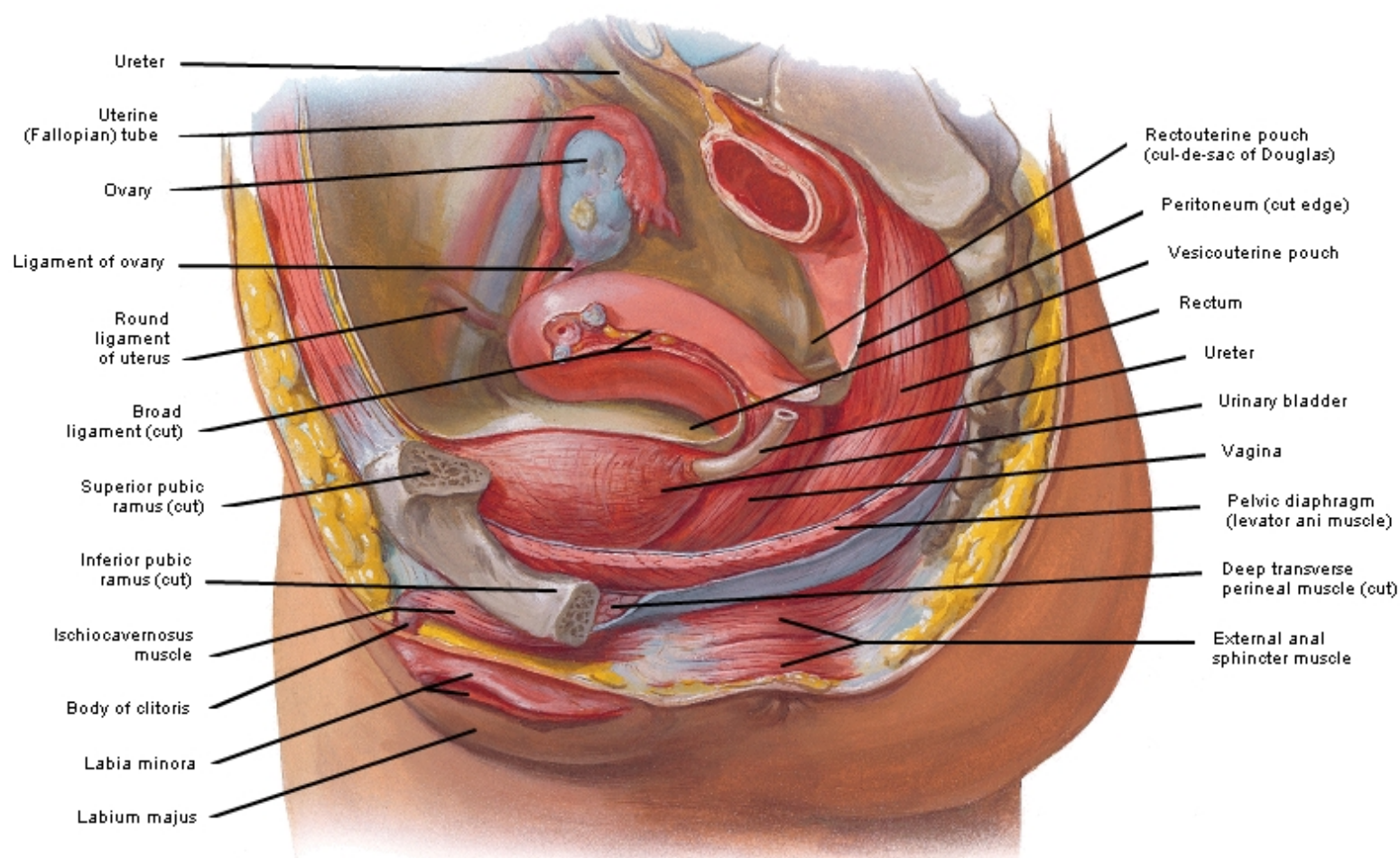
Pelvic Viscera and Perineum of Female Median (Sagittal) Section



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C. Machado M.D.
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PELVIS AND PERINEUM

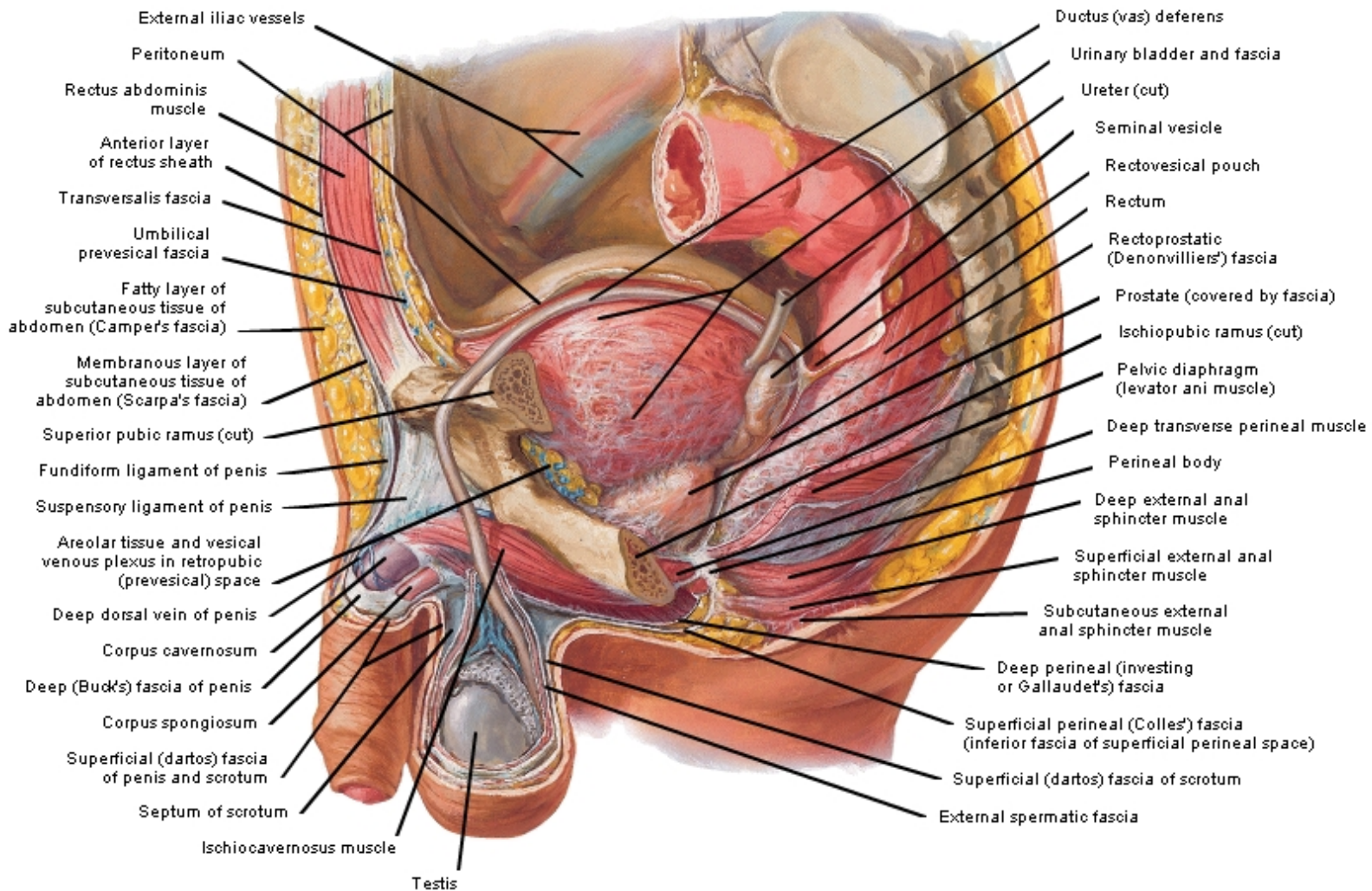
Pelvic Viscera and Perineum of Female Paramedian Sagittal Dissection



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PELVIS AND PERINEUM

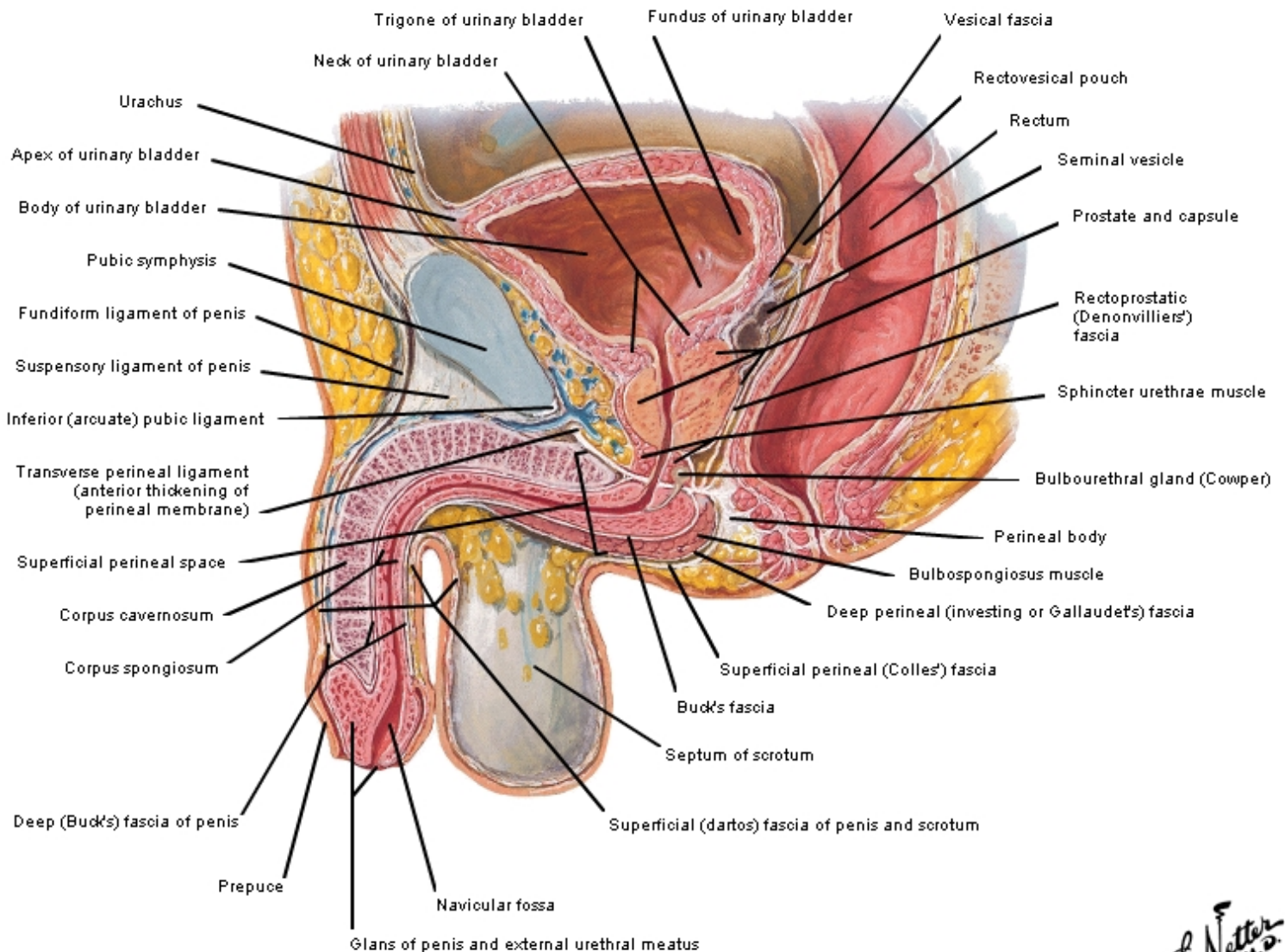
Pelvic Viscera and Perineum of Male Paramedian (Sagittal) Section



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PELVIS AND PERINEUM

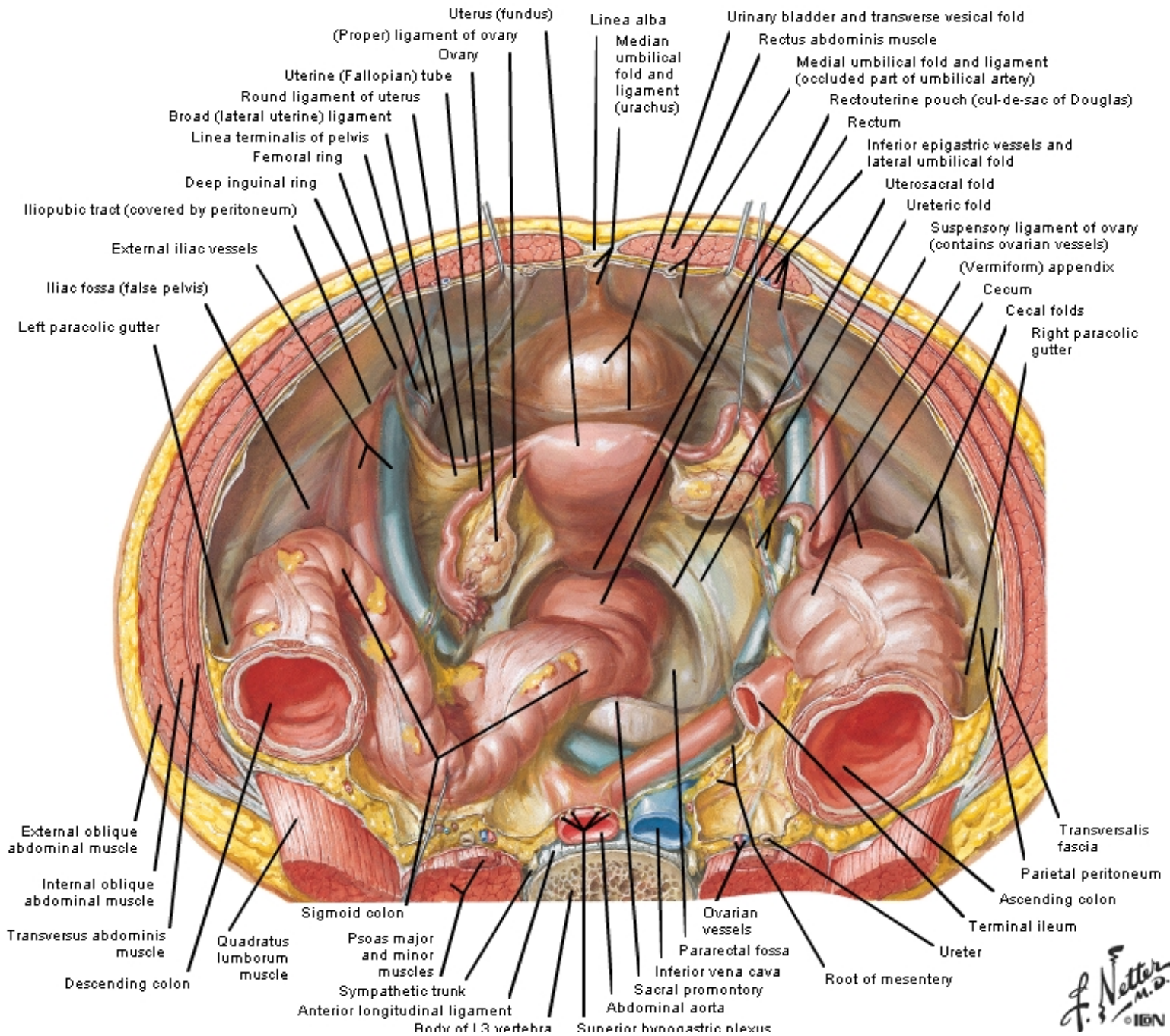
Pelvic Viscera and Perineum of Male Median (Sagittal) Section



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C. Machado M.D.
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PELVIS AND PERINEUM

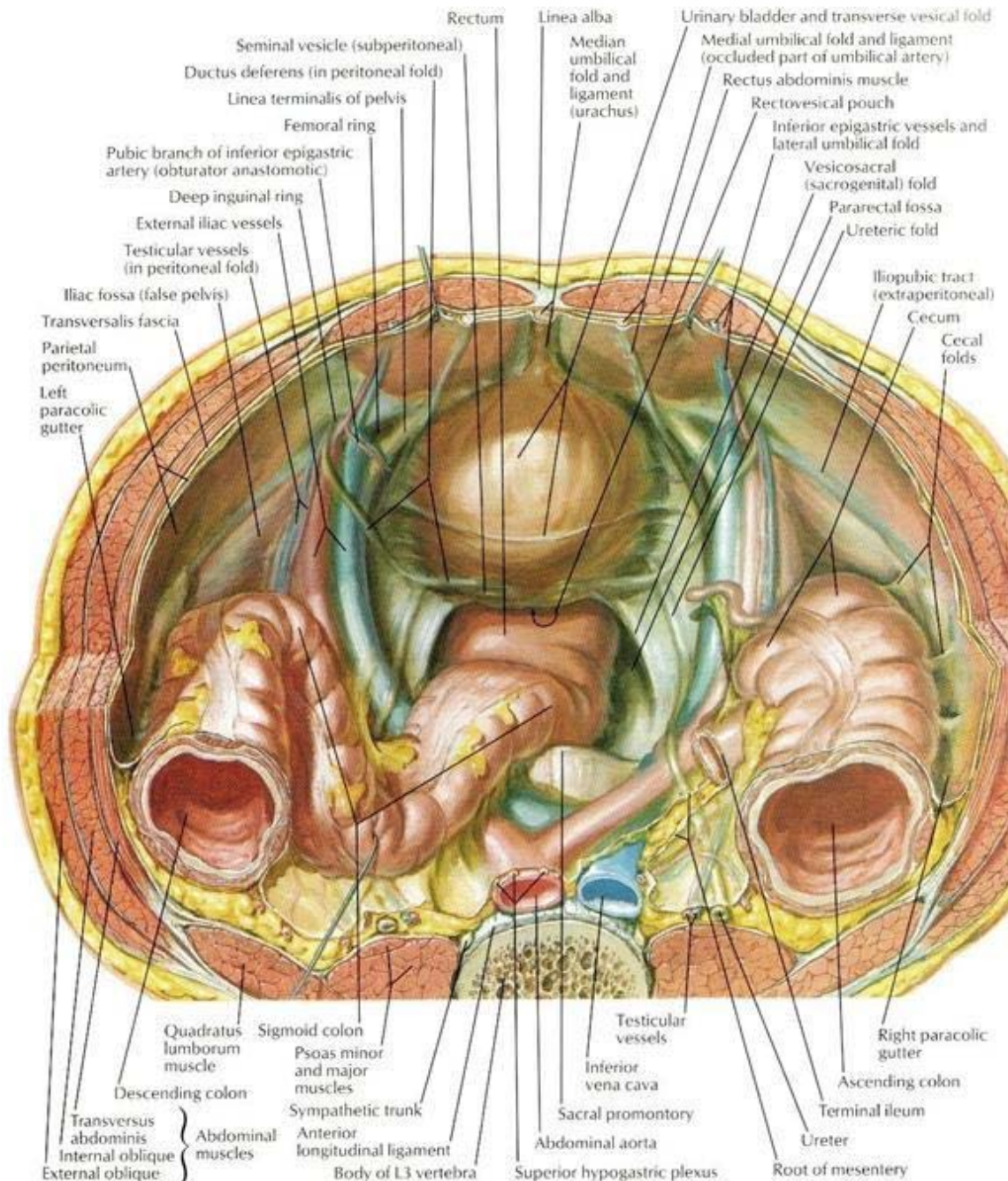
Pelvic Contents of Female Superior View



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PELVIS AND PERINEUM

Pelvic Contents: Male

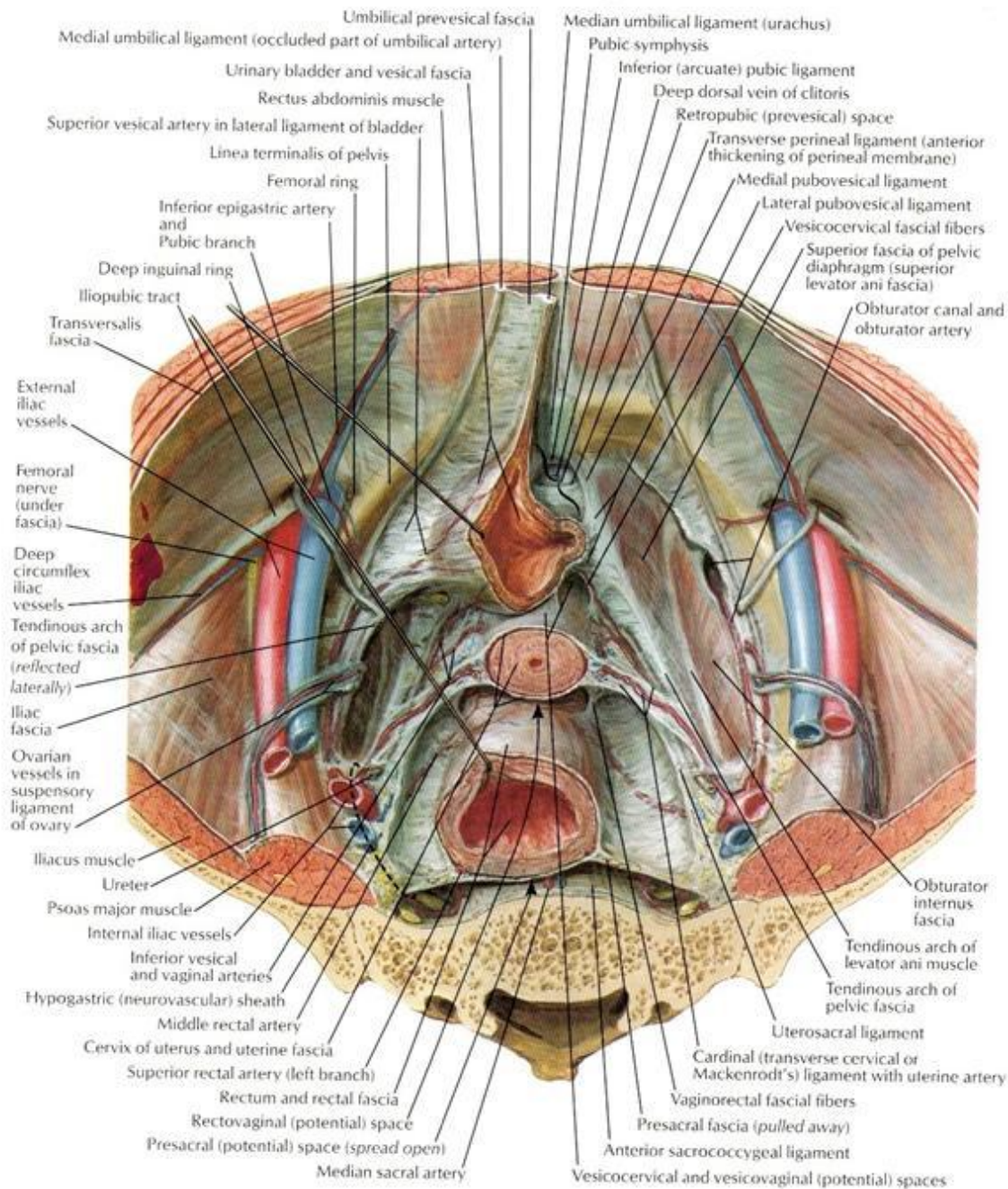


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PELVIS AND PERINEUM

Endopelvic Fascia and Potential Spaces

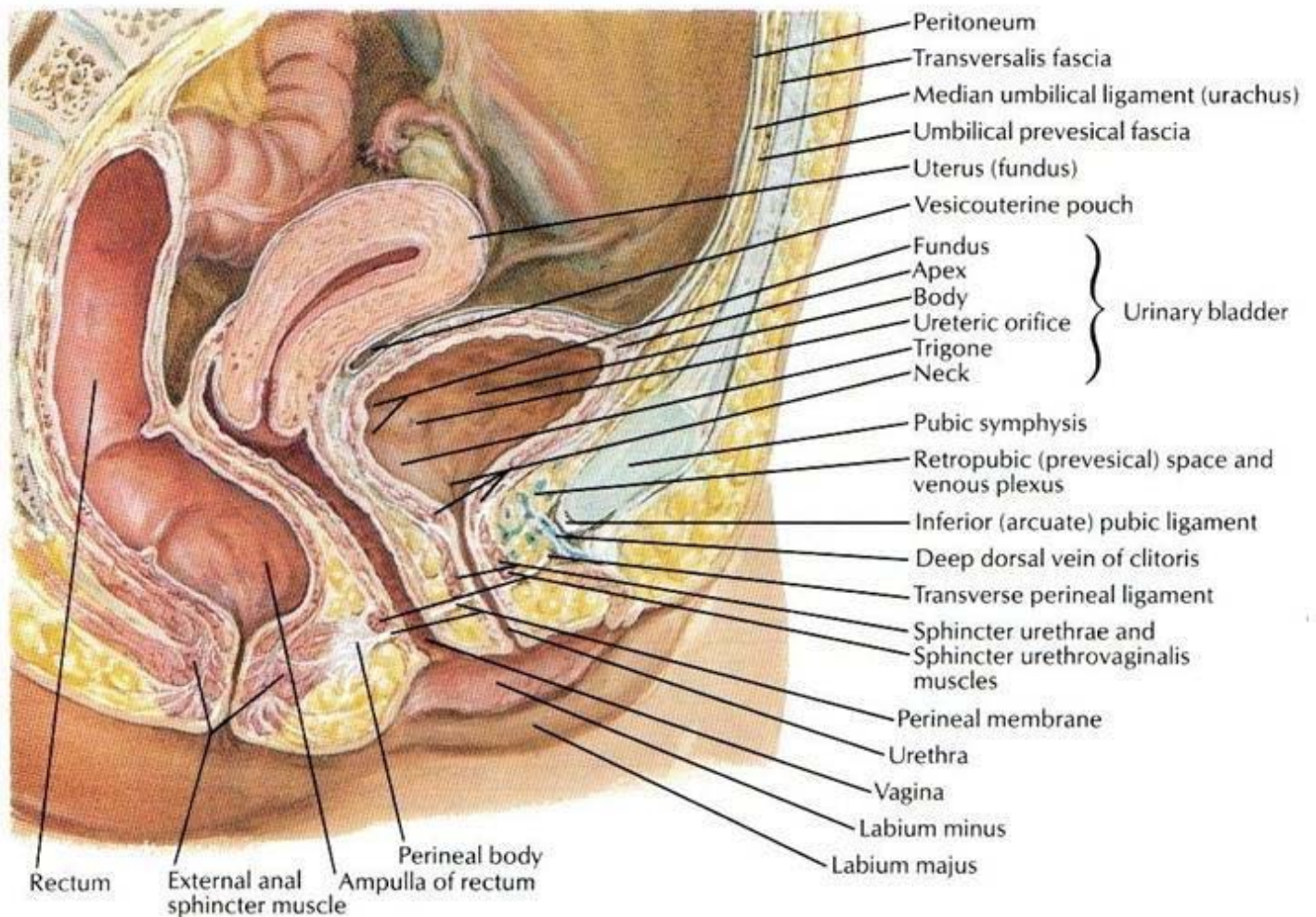
Female: superior view (peritoneum and loose areolar tissue removed)



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PELVIS AND PERINEUM

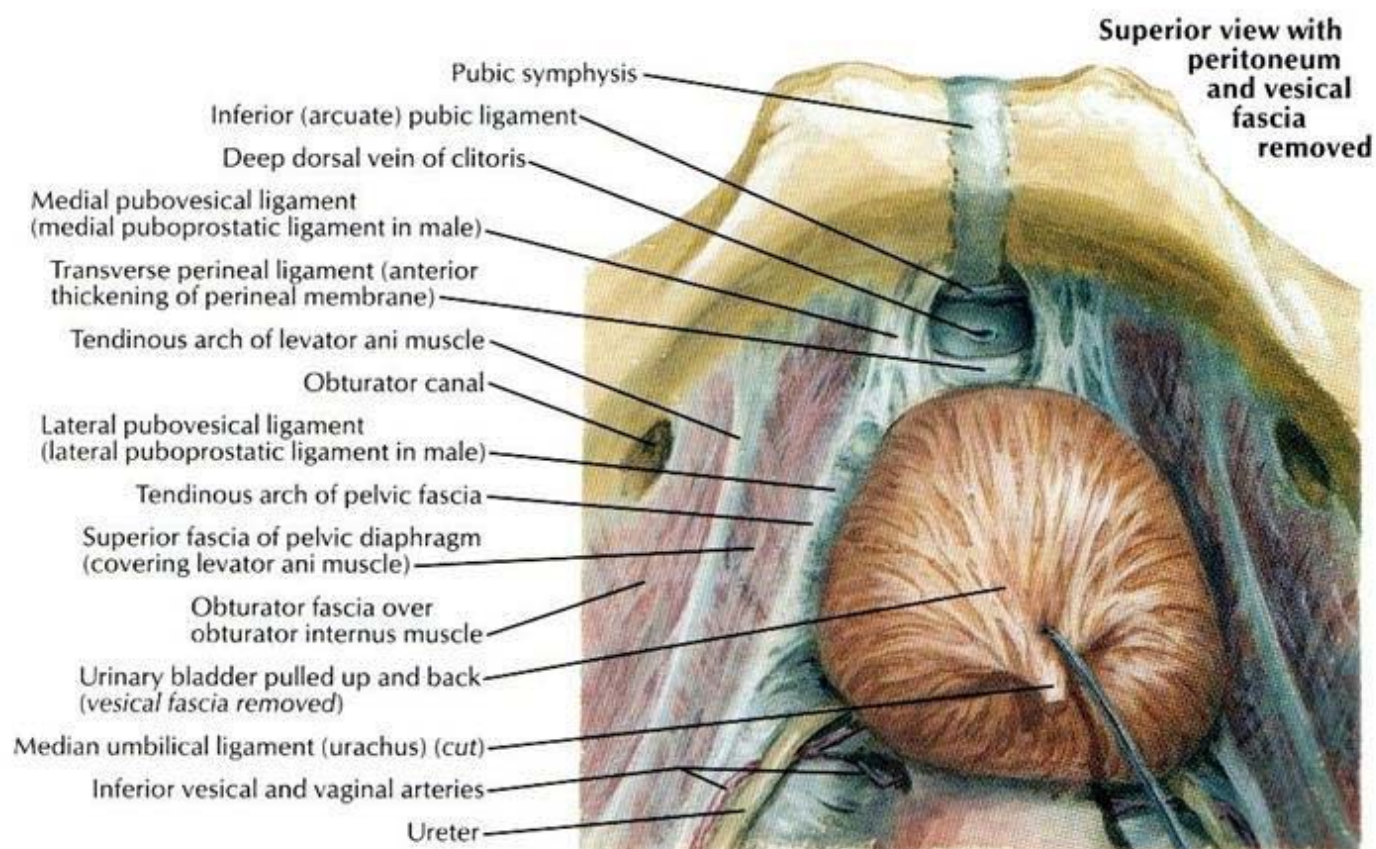
Urinary Bladder: Orientation and Supports Female Midsagittal Section



F. Netter M.D.
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PELVIS AND PERINEUM

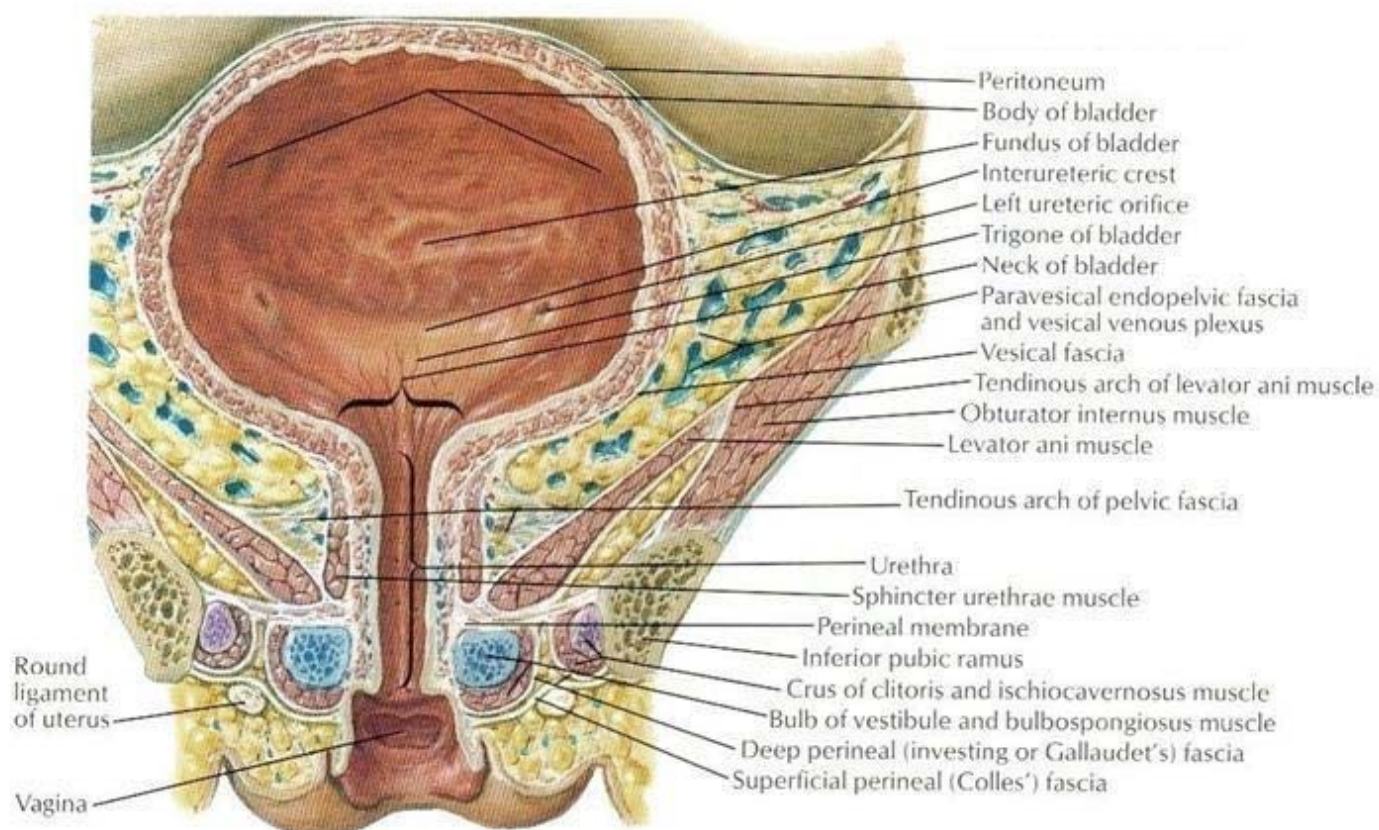
Urinary Bladder: Superior View



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PELVIS AND PERINEUM

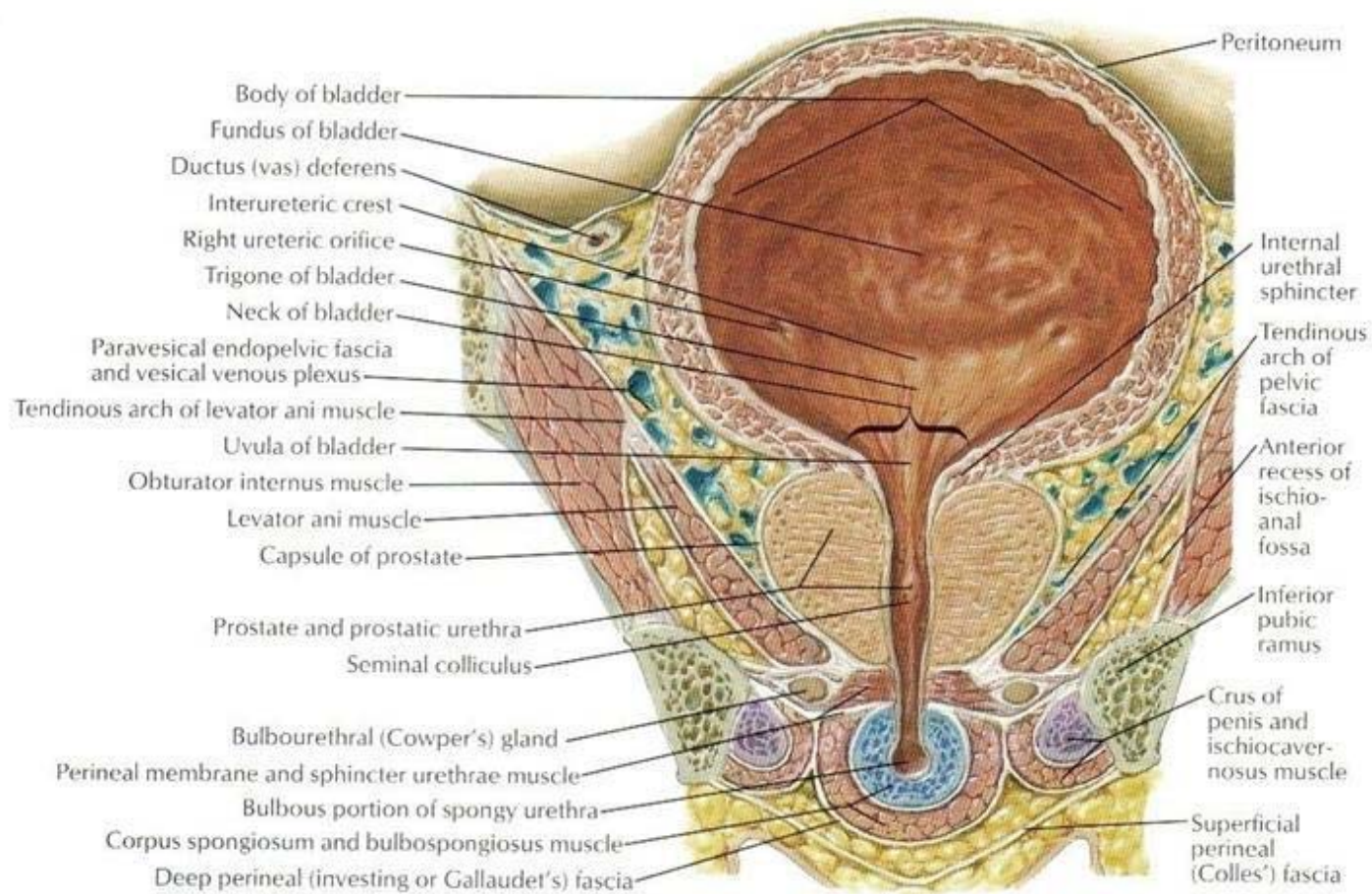
Urinary Bladder: Female Frontal Section



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PELVIS AND PERINEUM

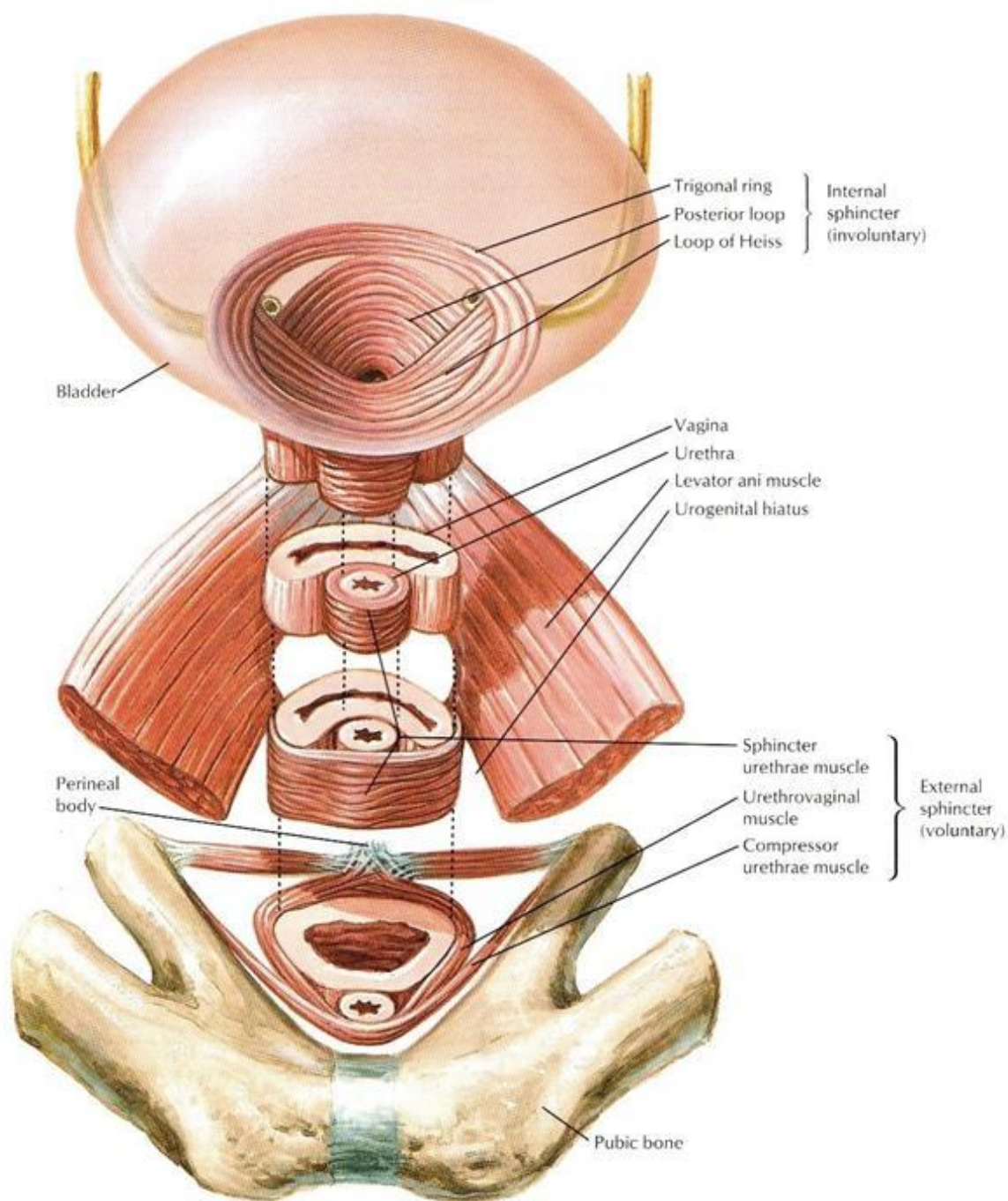
Urinary Bladder: Male Frontal Section



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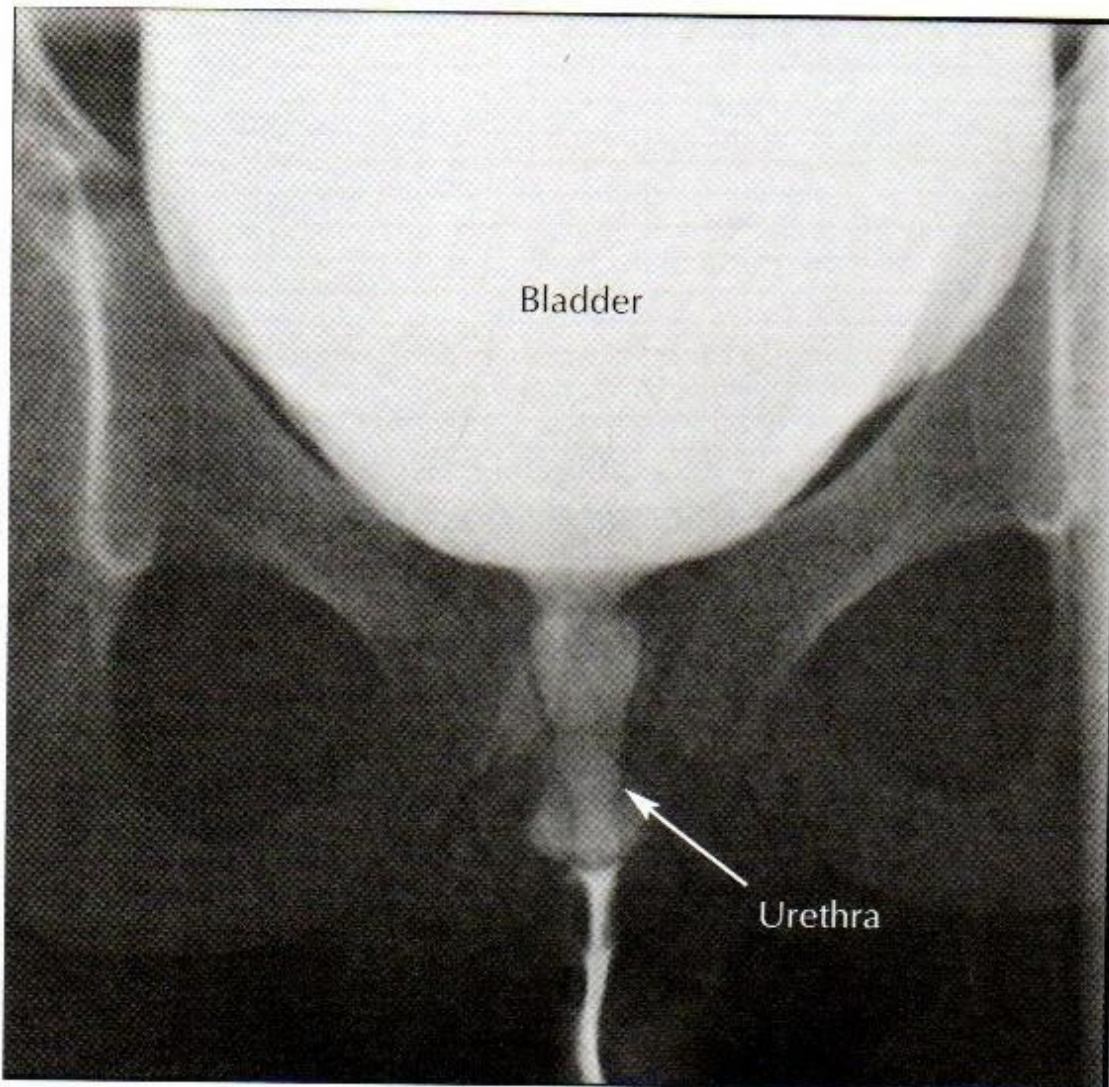
PELVIS AND PERINEUM

Sphincters



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Female Cystourethrogram

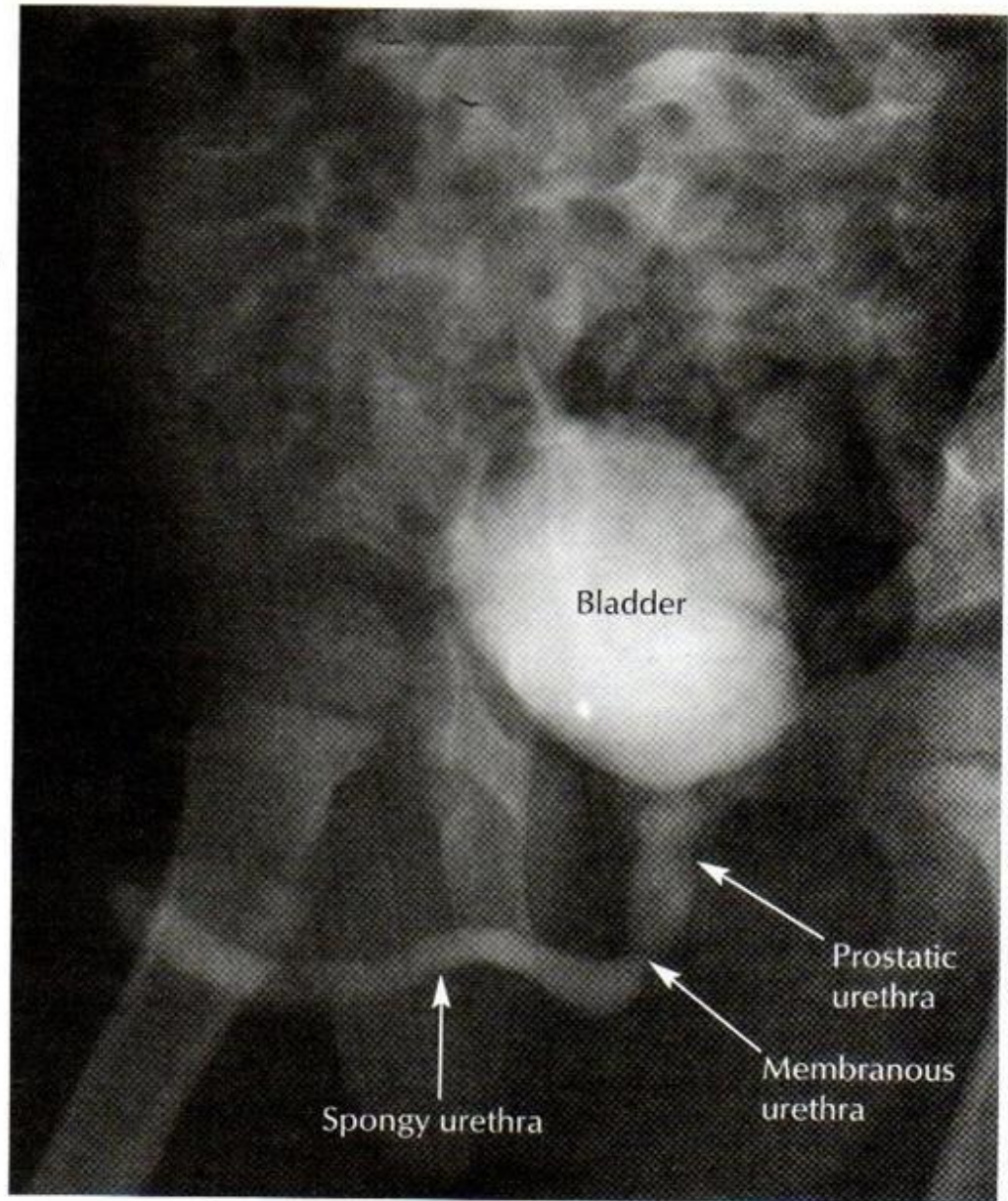


Female urethra,
8-year-old child

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Male Cystourethrogram

Voiding
cystourethrogram,
2-year-old male

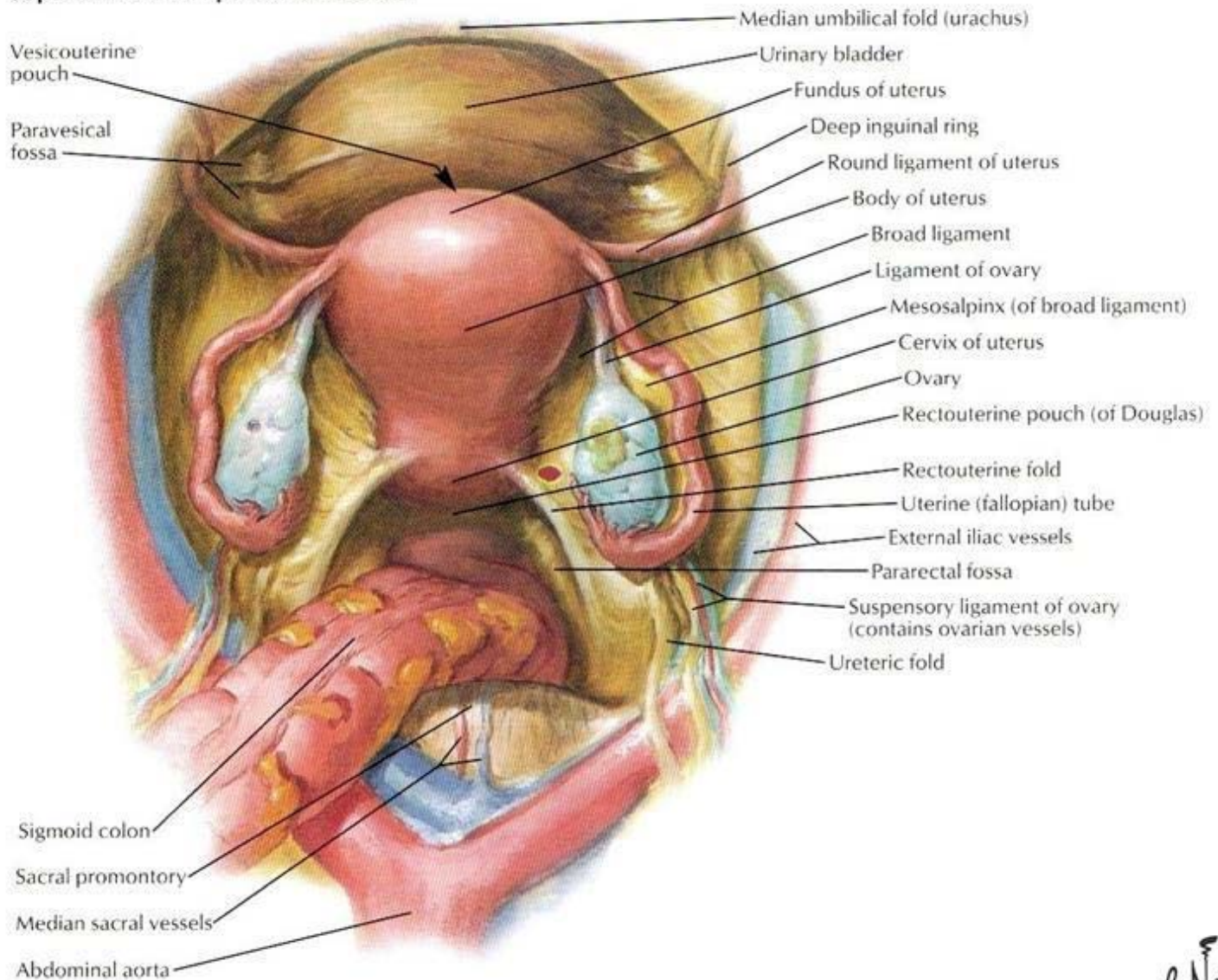


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PELVIS AND PERINEUM

Pelvic Viscera: Female Superior View with Peritoneum

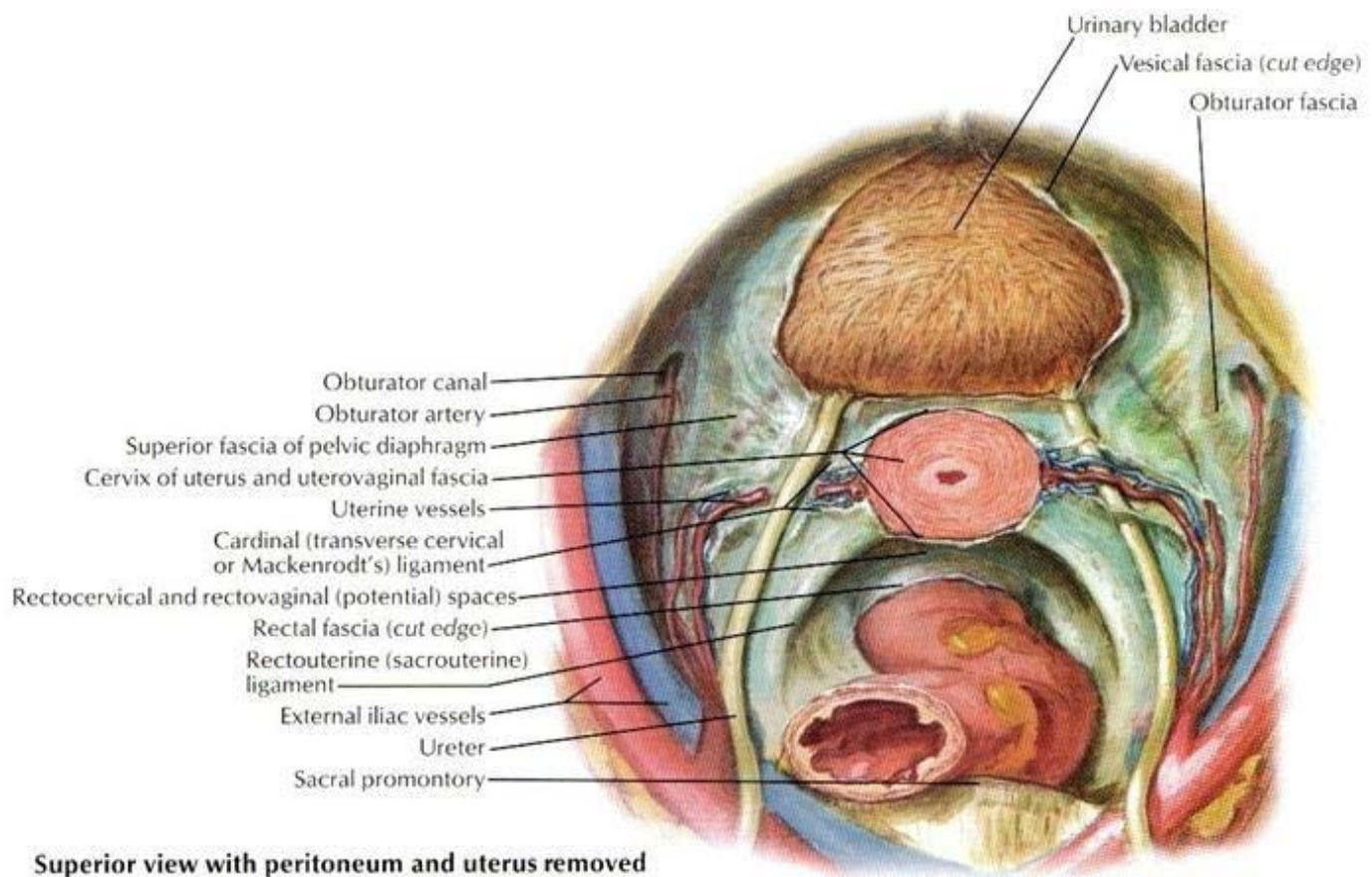
Superior view with peritoneum intact



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© IGM

PELVIS AND PERINEUM

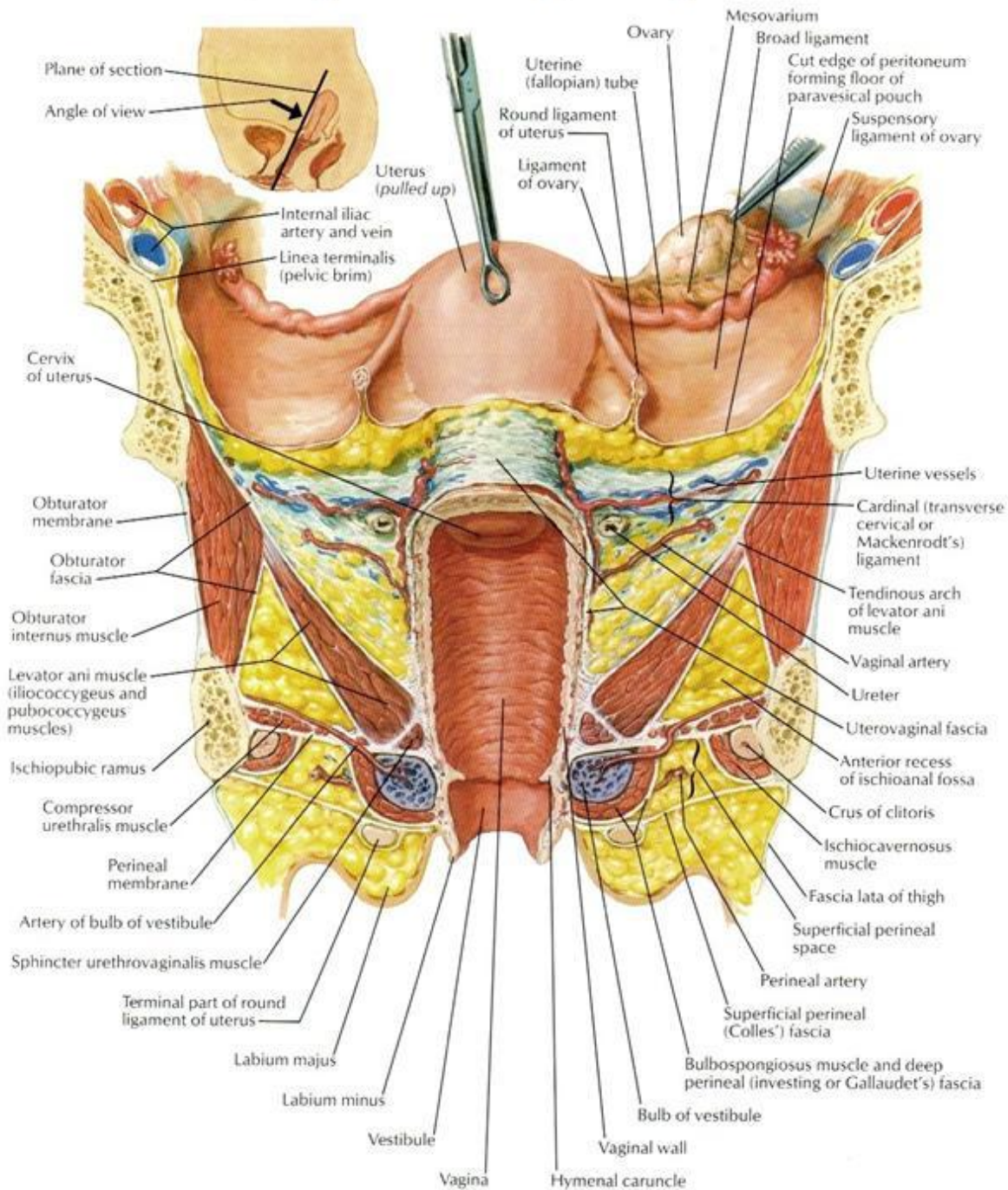
Pelvic Viscera: Female Superior View without Peritoneum



F. Netter M.D.
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PELVIS AND PERINEUM

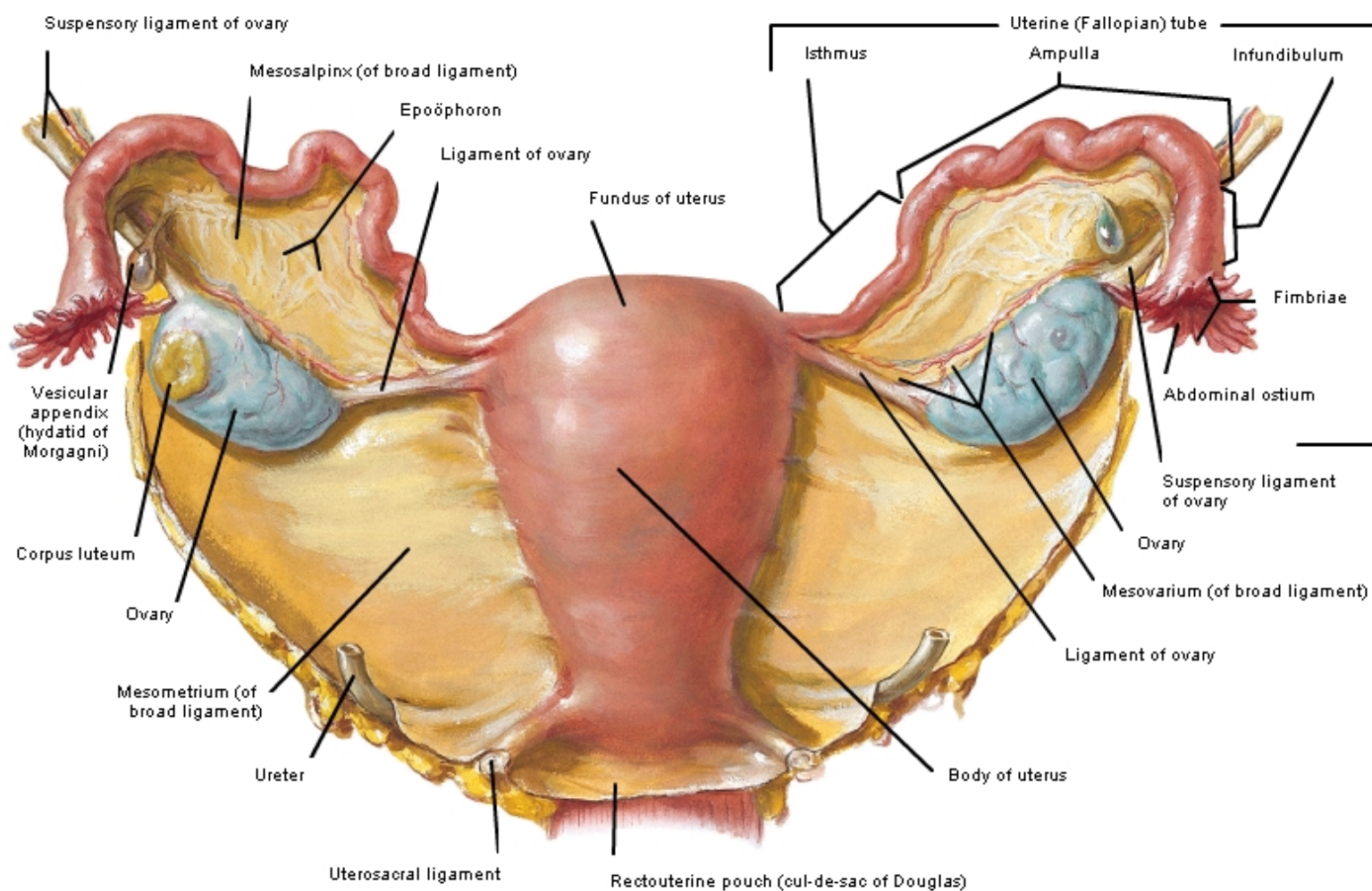
Uterus, Vagina and Supporting Structures



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PELVIS AND PERINEUM

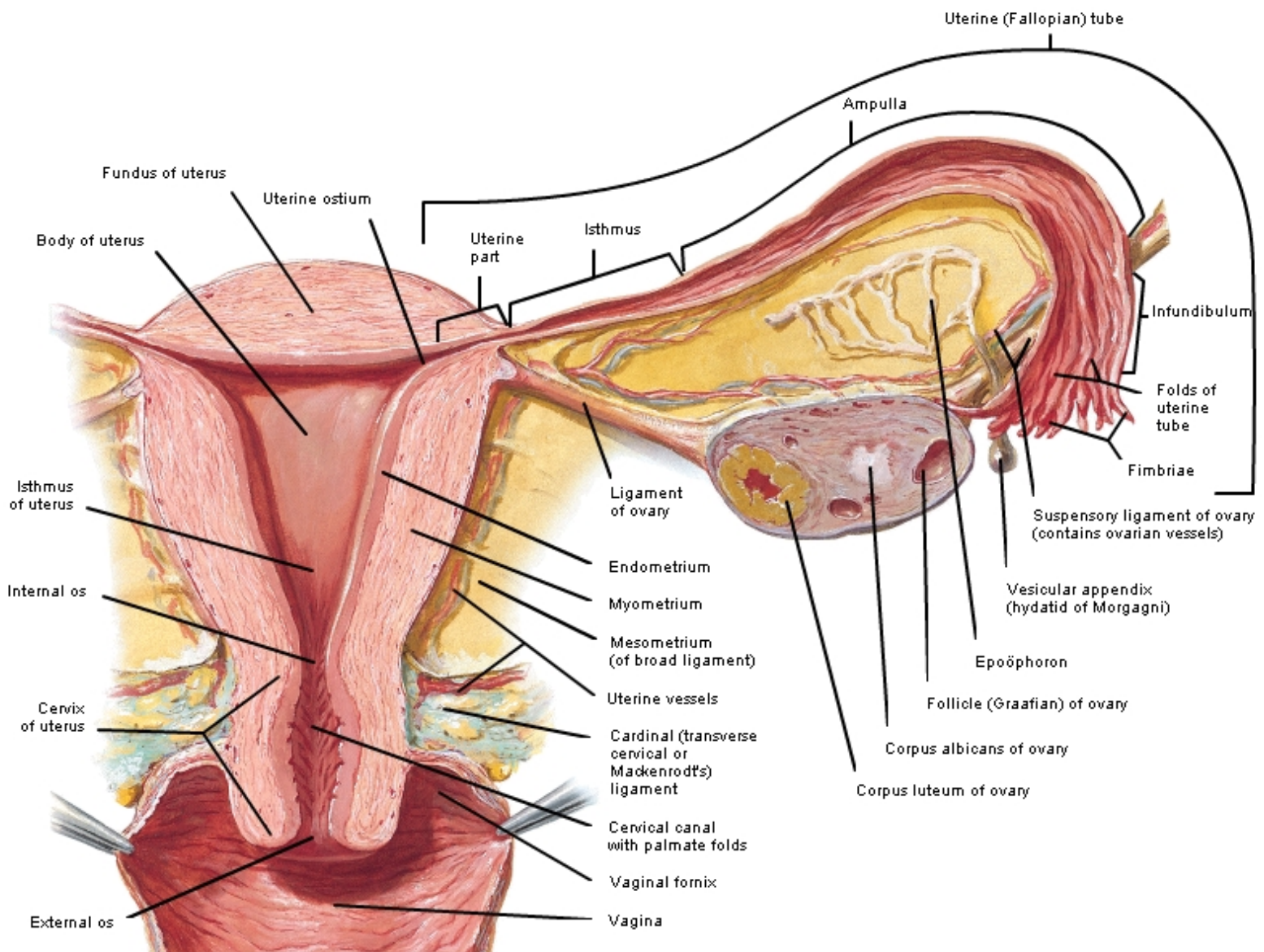
Uterus and Adnexa Posterior View



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PELVIS AND PERINEUM

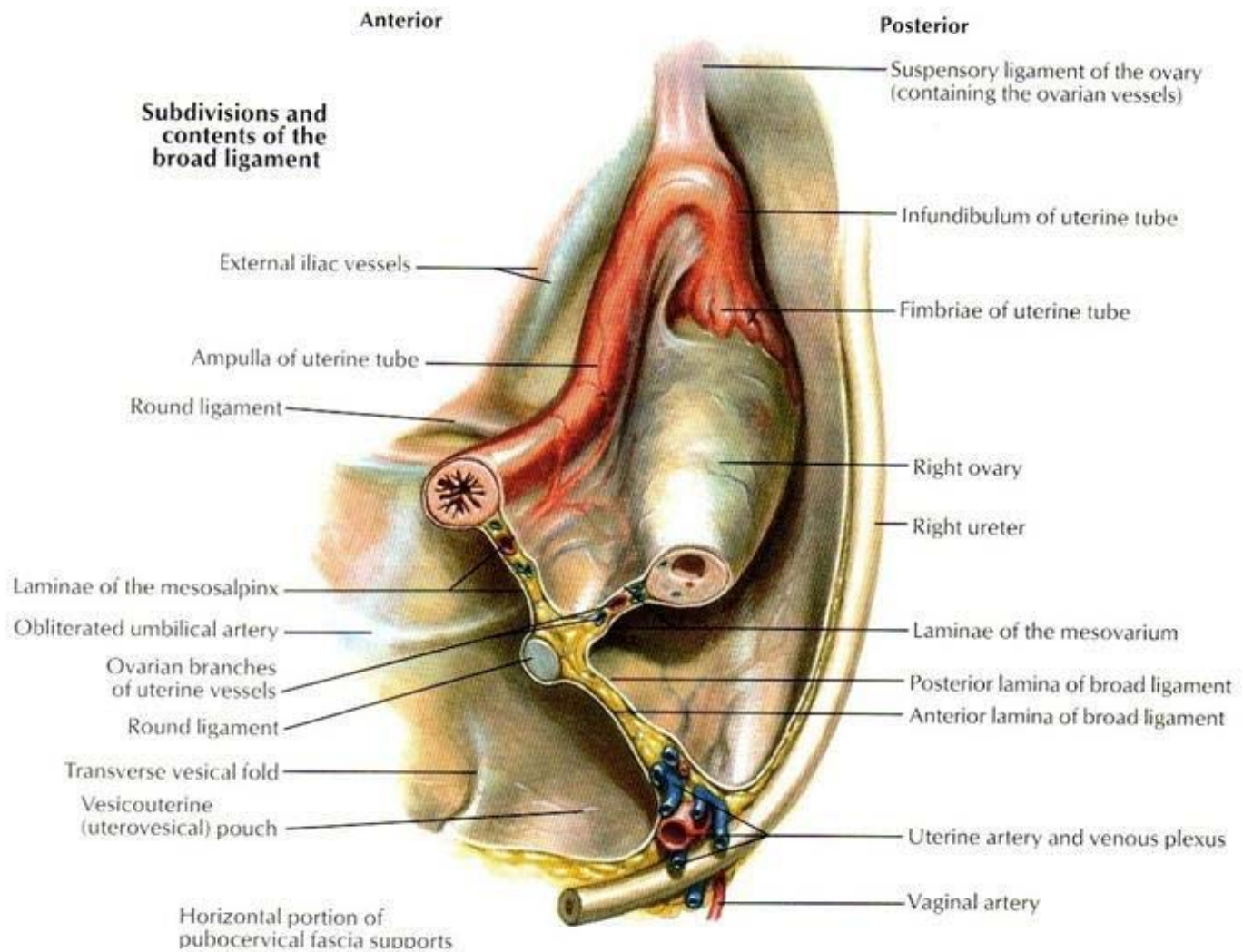
Uterus and Adnexa Frontal Section



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PELVIS AND PERINEUM

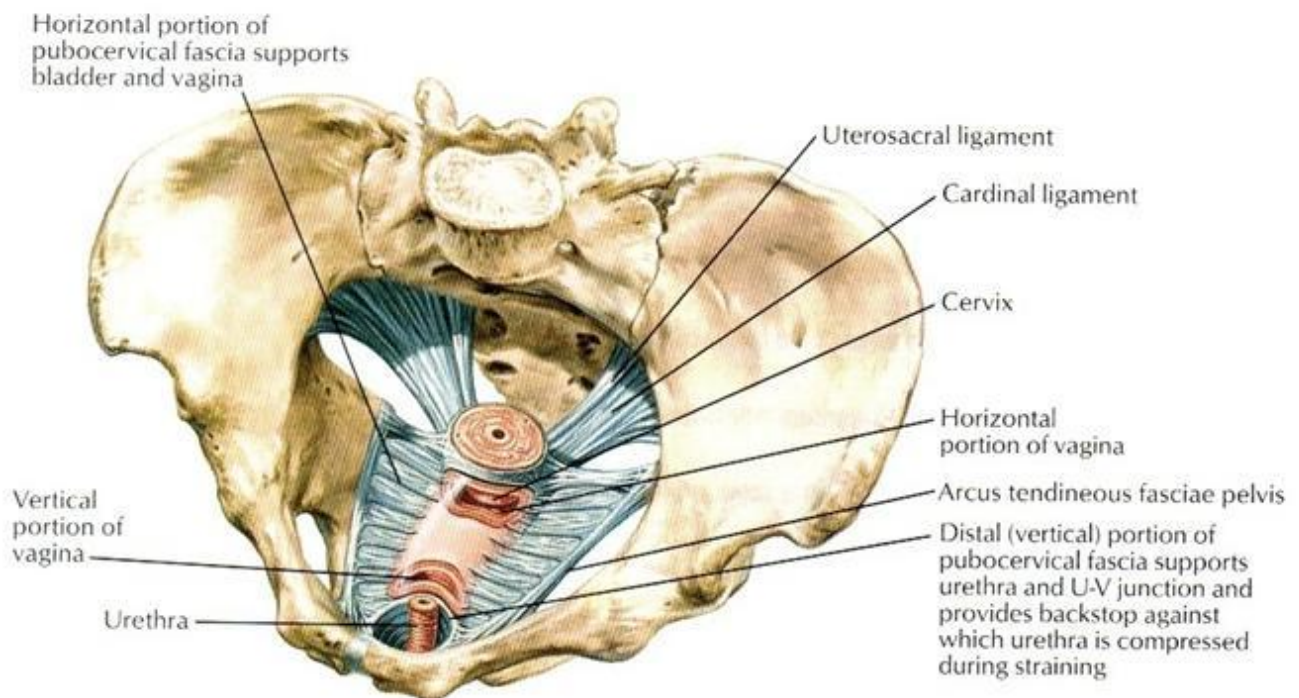
Pelvic Ligaments: Broad Ligament



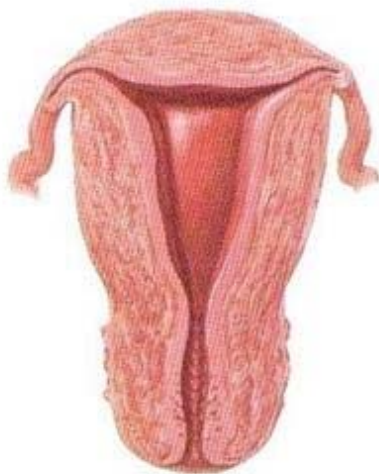
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PELVIS AND PERINEUM

Pelvic Fascia and Ligaments



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Uterus: Age Changes

Adult
(nulliparous)



Adult
(parous)



Adult
(postmenopausal)

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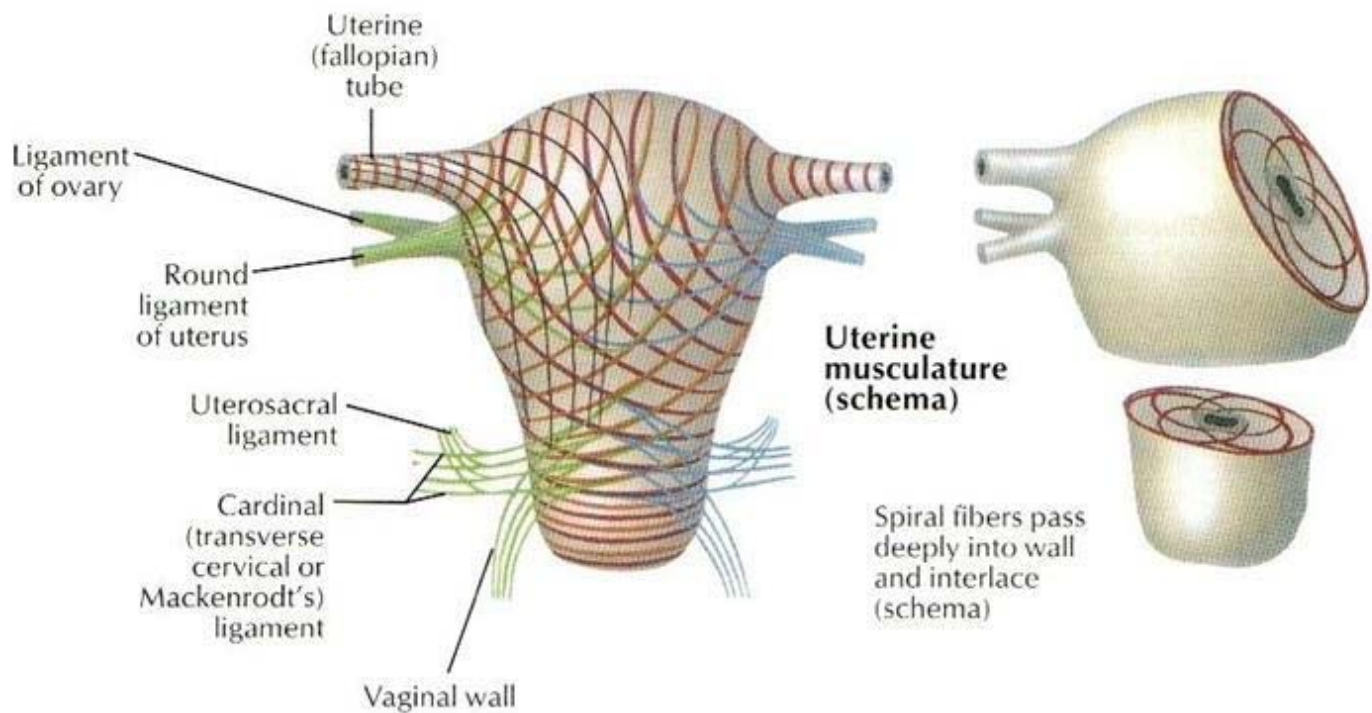
Uterus: Muscle Pattern



- C Contrast medium in abdominal cavity
- H Hysterosalpingogram uterus
- R Right fallopian tube infection

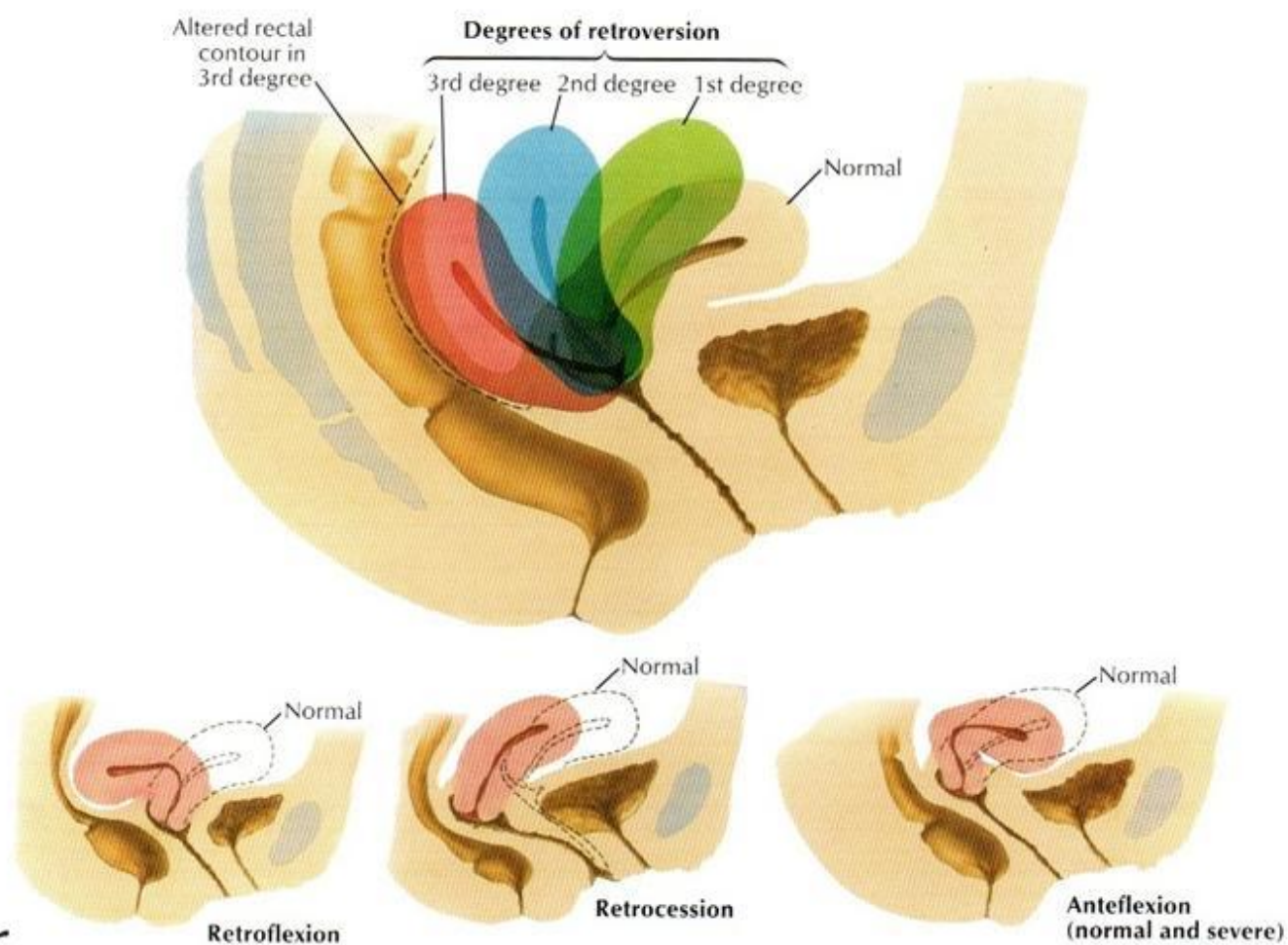
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Uterine Musculature (Schema)

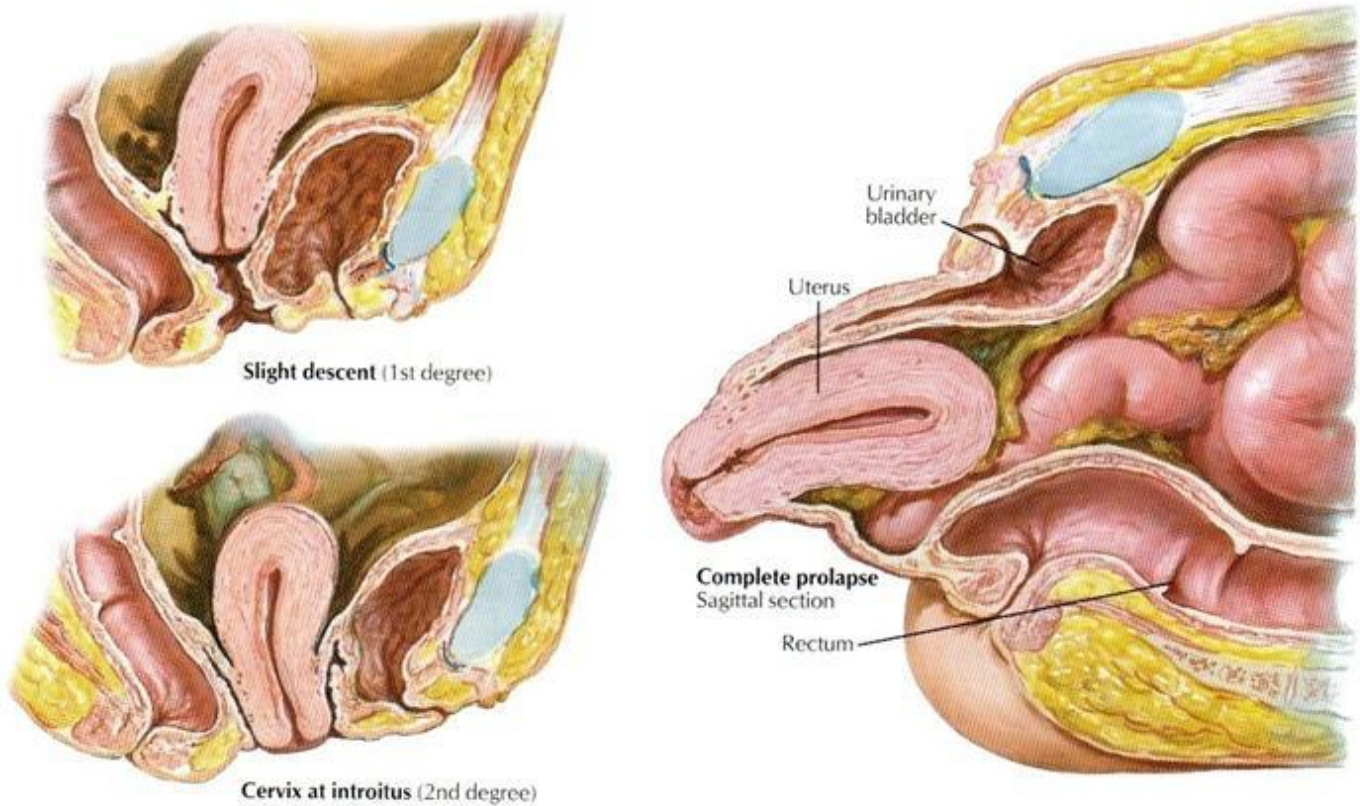


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Uterus: Variations in Positions

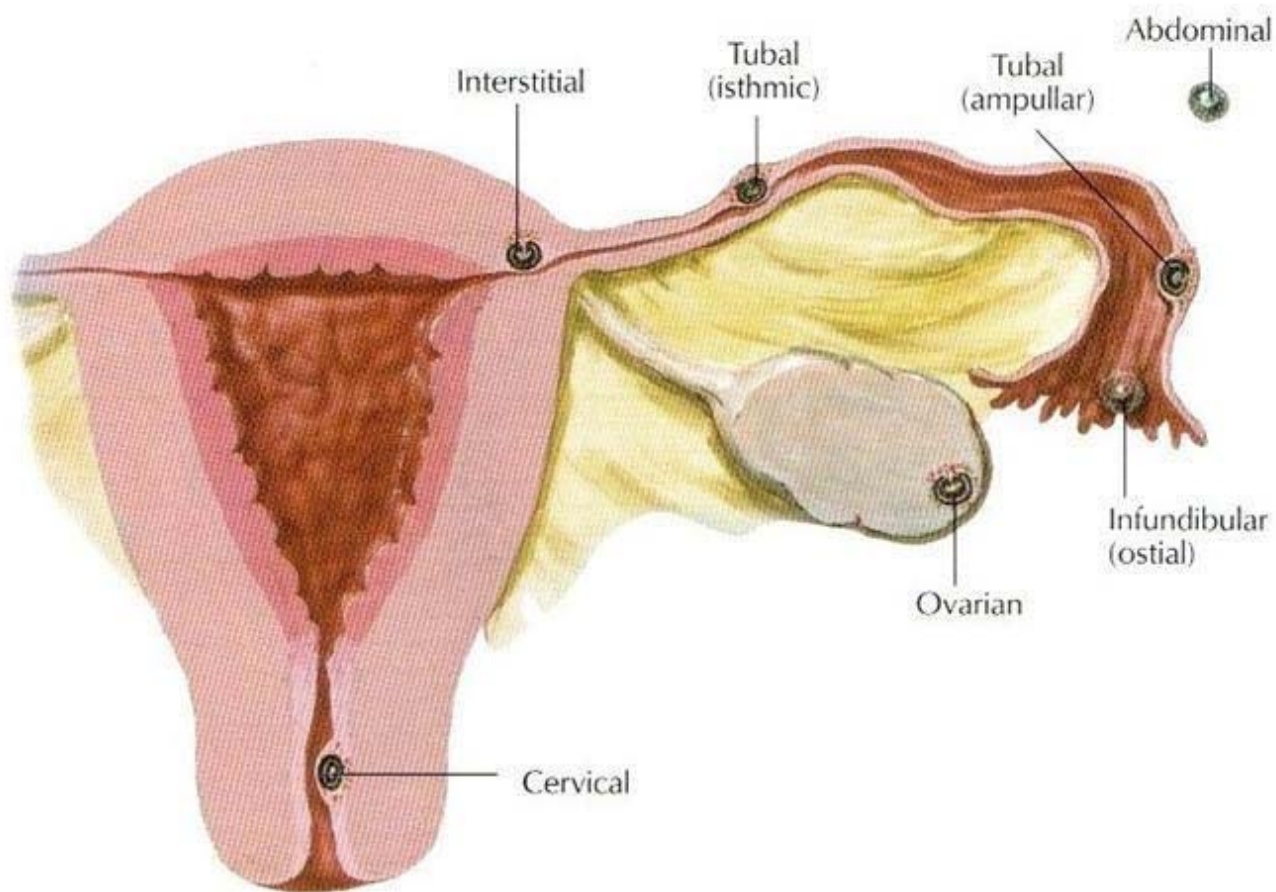


Uterine Prolapse



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Sites of Ectopic Implantation

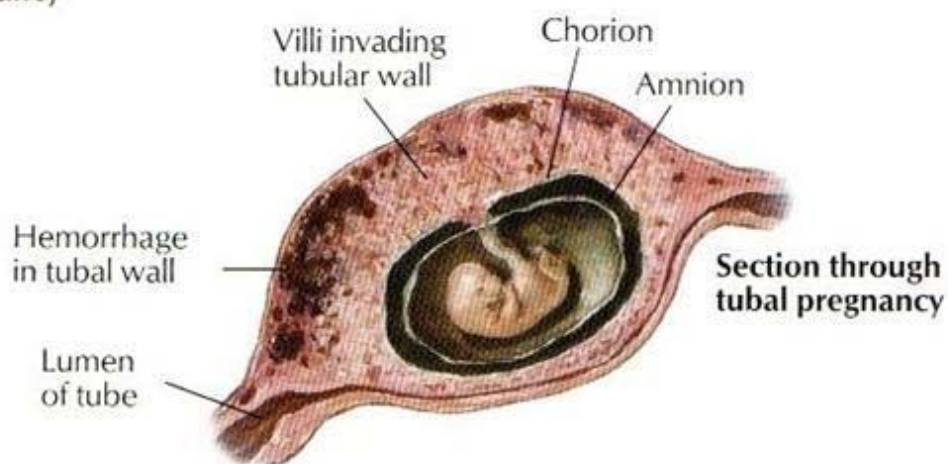


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Tubal Pregnancy: Unruptured and Section



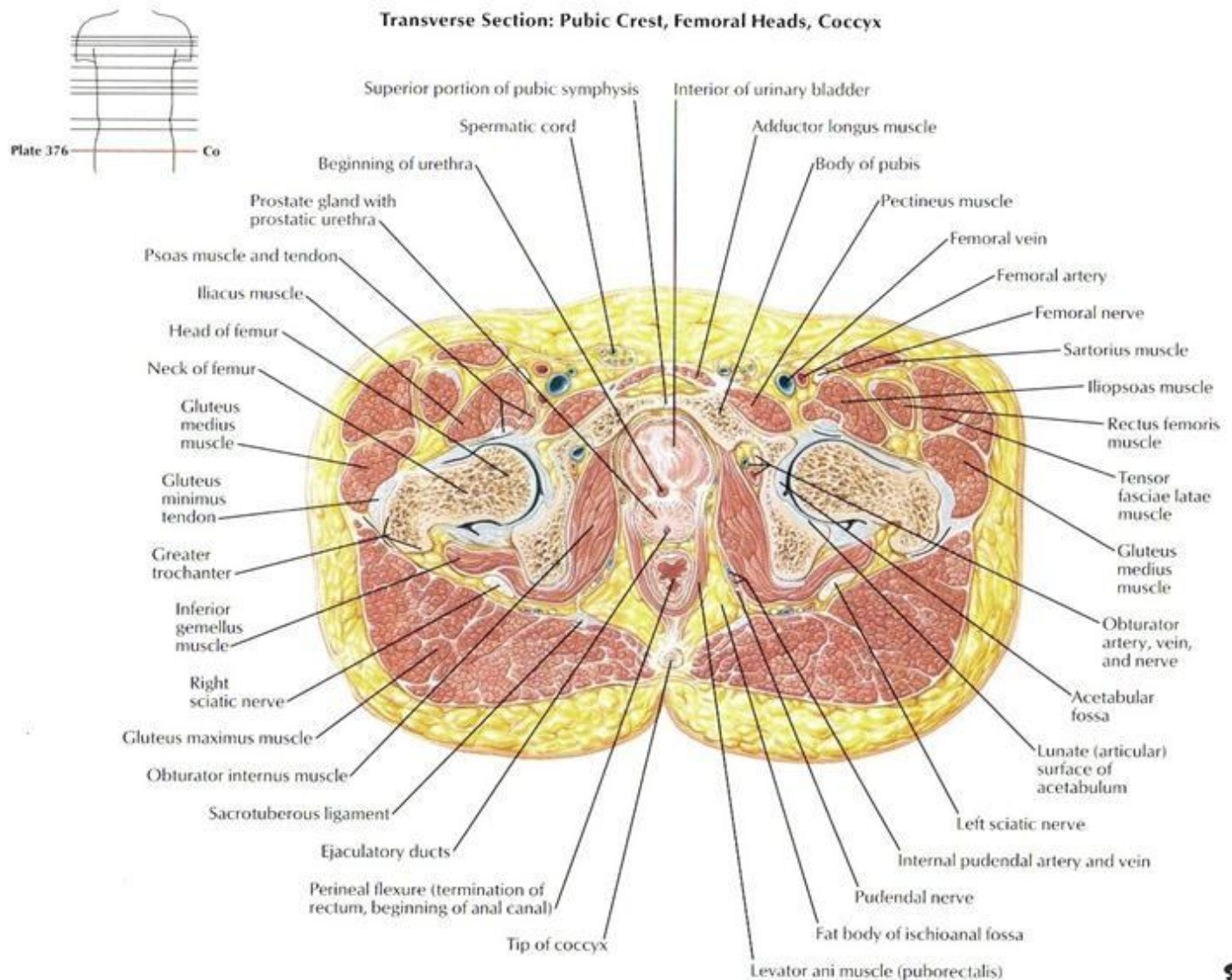
Unruptured
tubal pregnancy



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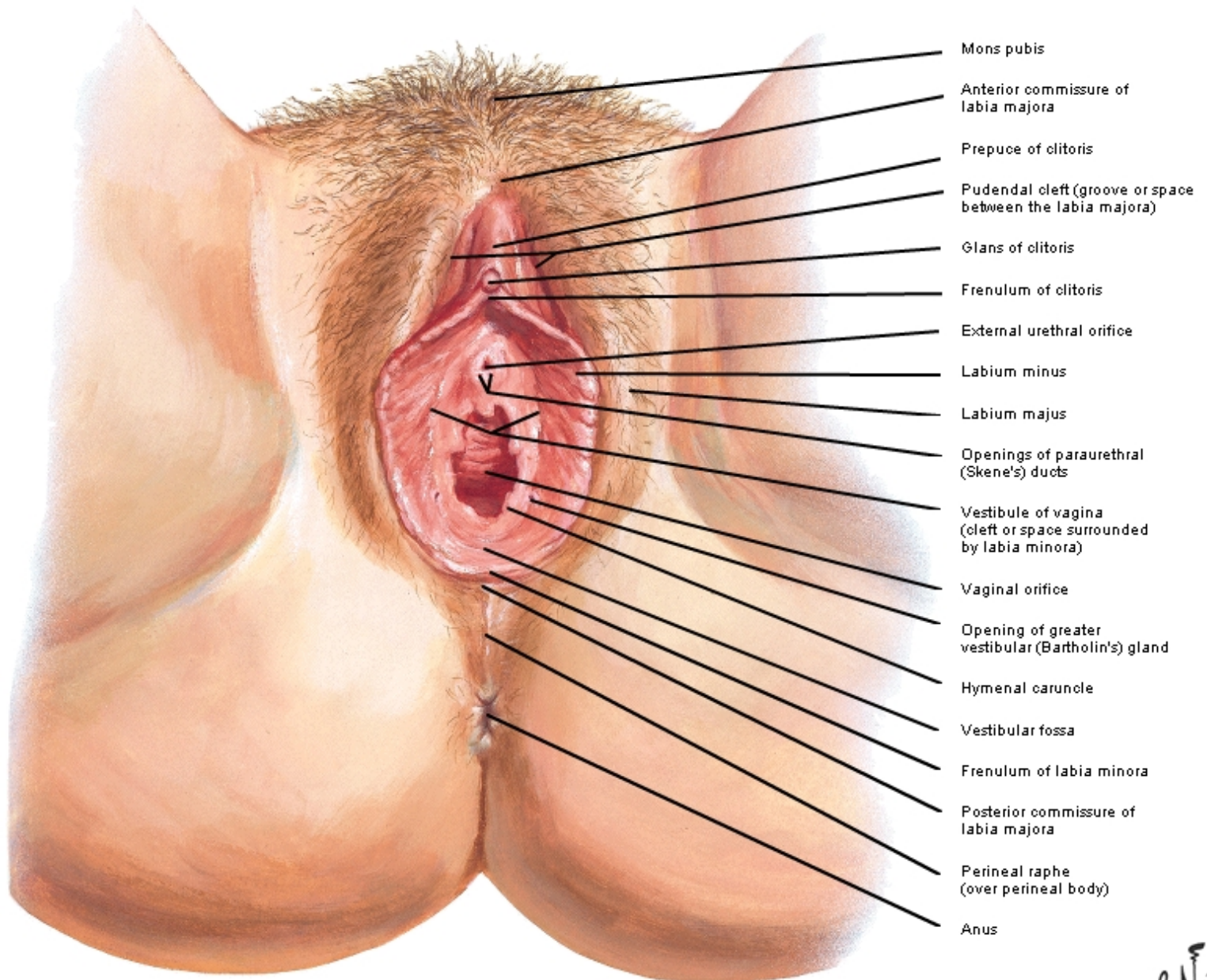
Male Pelvis: Bladder - Prostate Junction



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PELVIS AND PERINEUM

Perineum and External Genitalia of Female Vulva or Pudendum



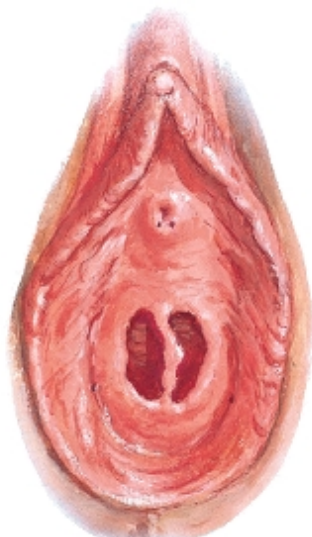
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Perineum and External Genitalia of Female

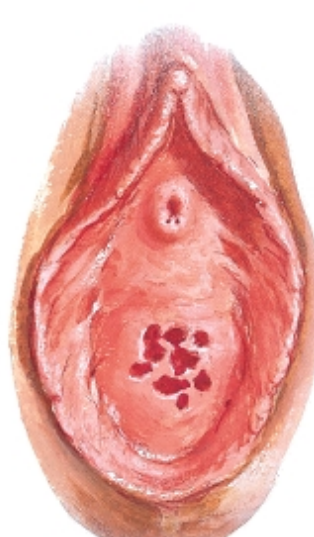
Vulva or Pudendum



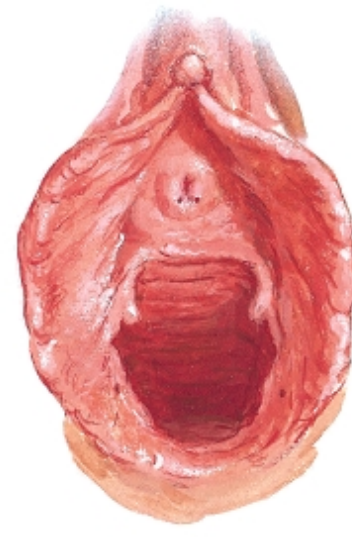
Anular hymen



Septate hymen



Cribriform hymen

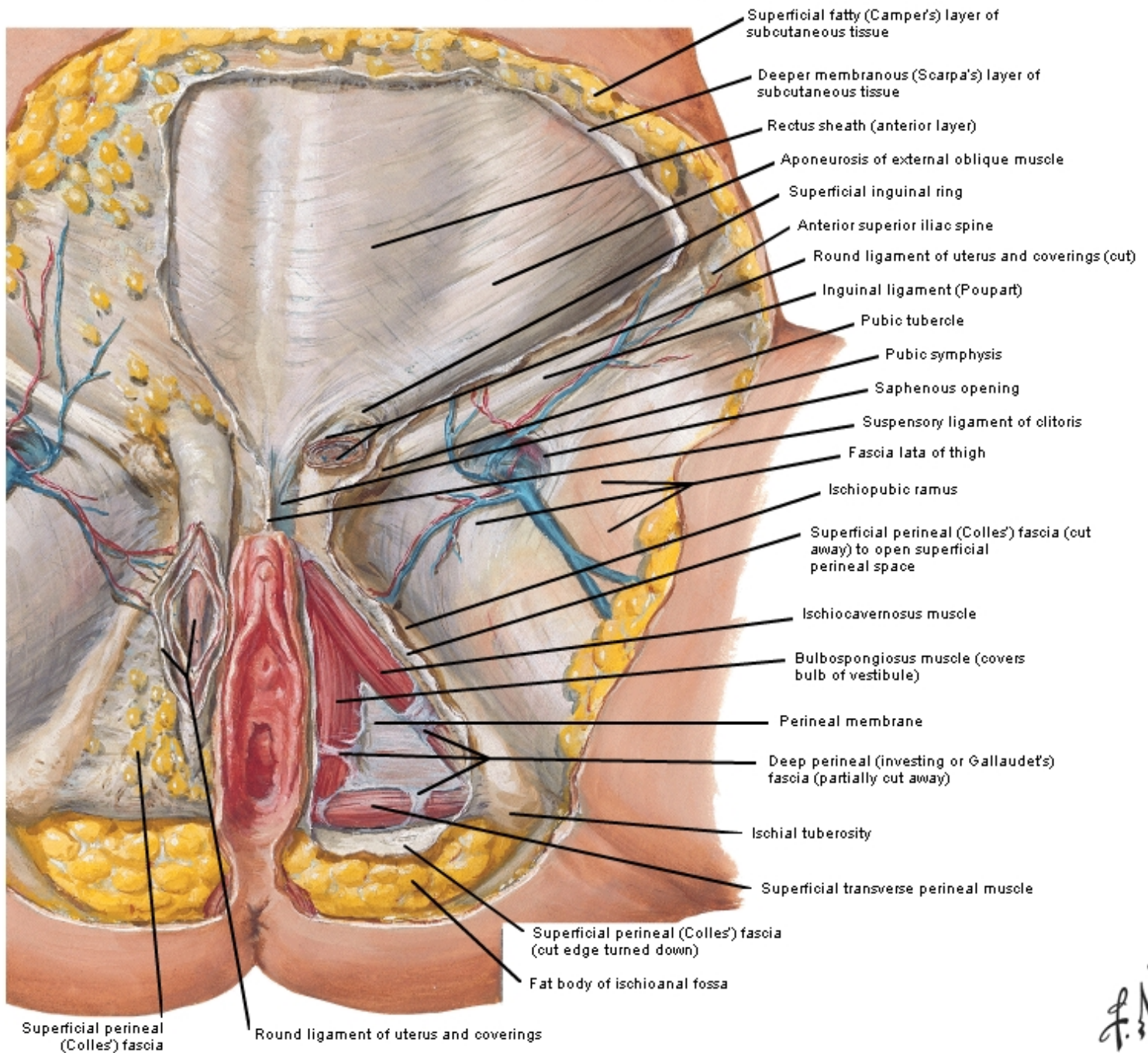


Parous introitus

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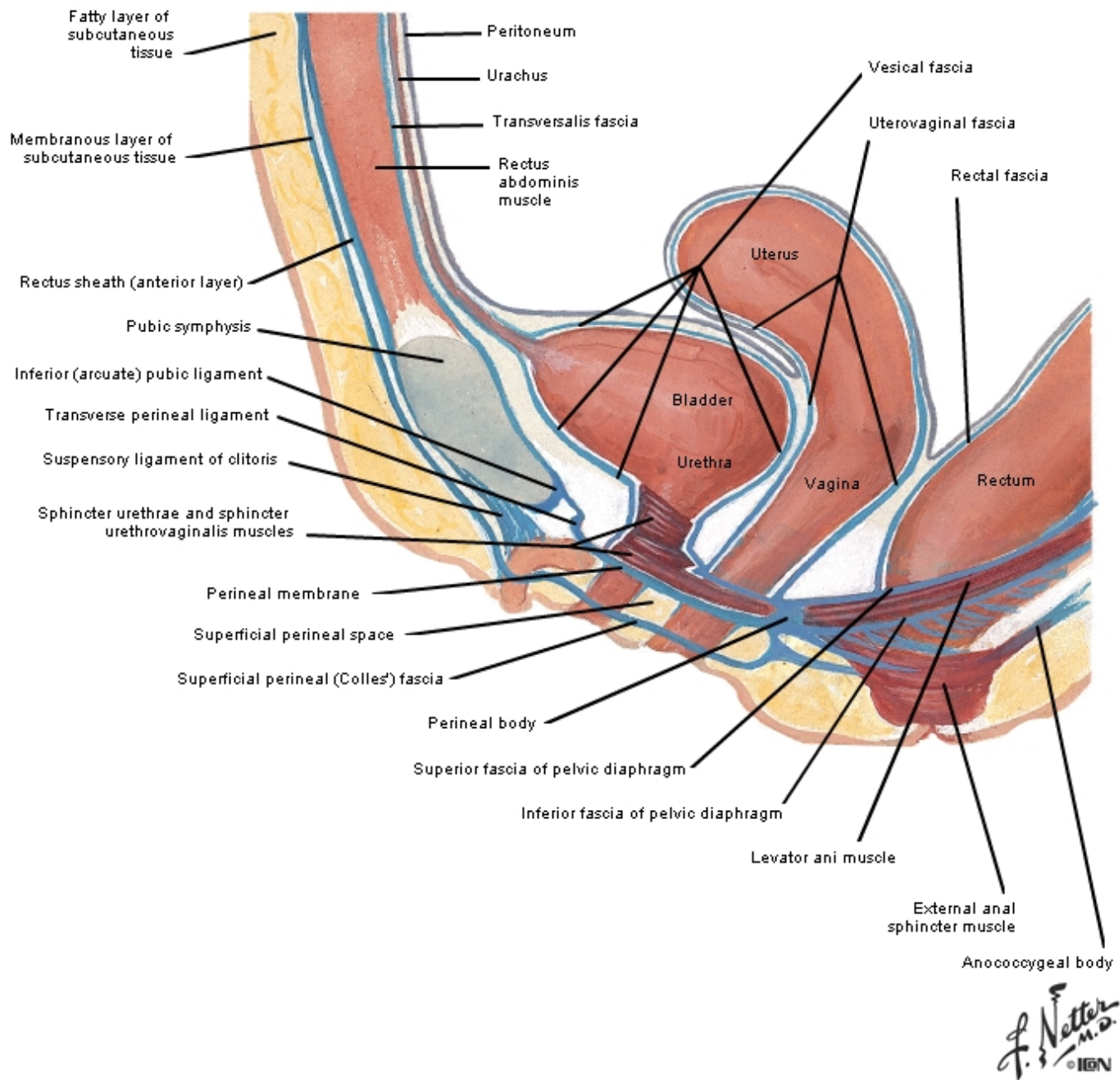
Perineum of Female Superficial Dissection



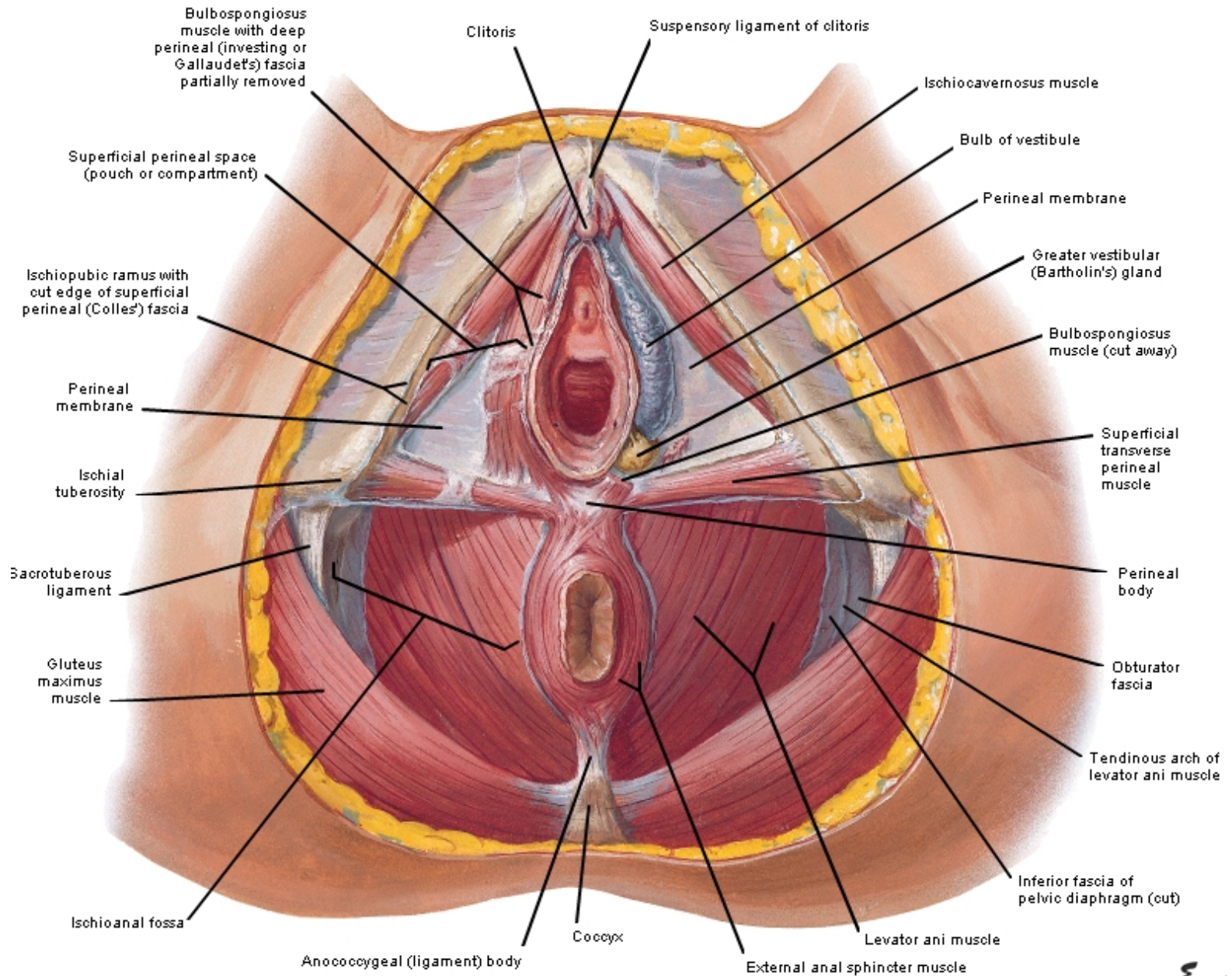
F. Netter
M.D.
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PELVIS AND PERINEUM

Perineum of Female Sagittal Section

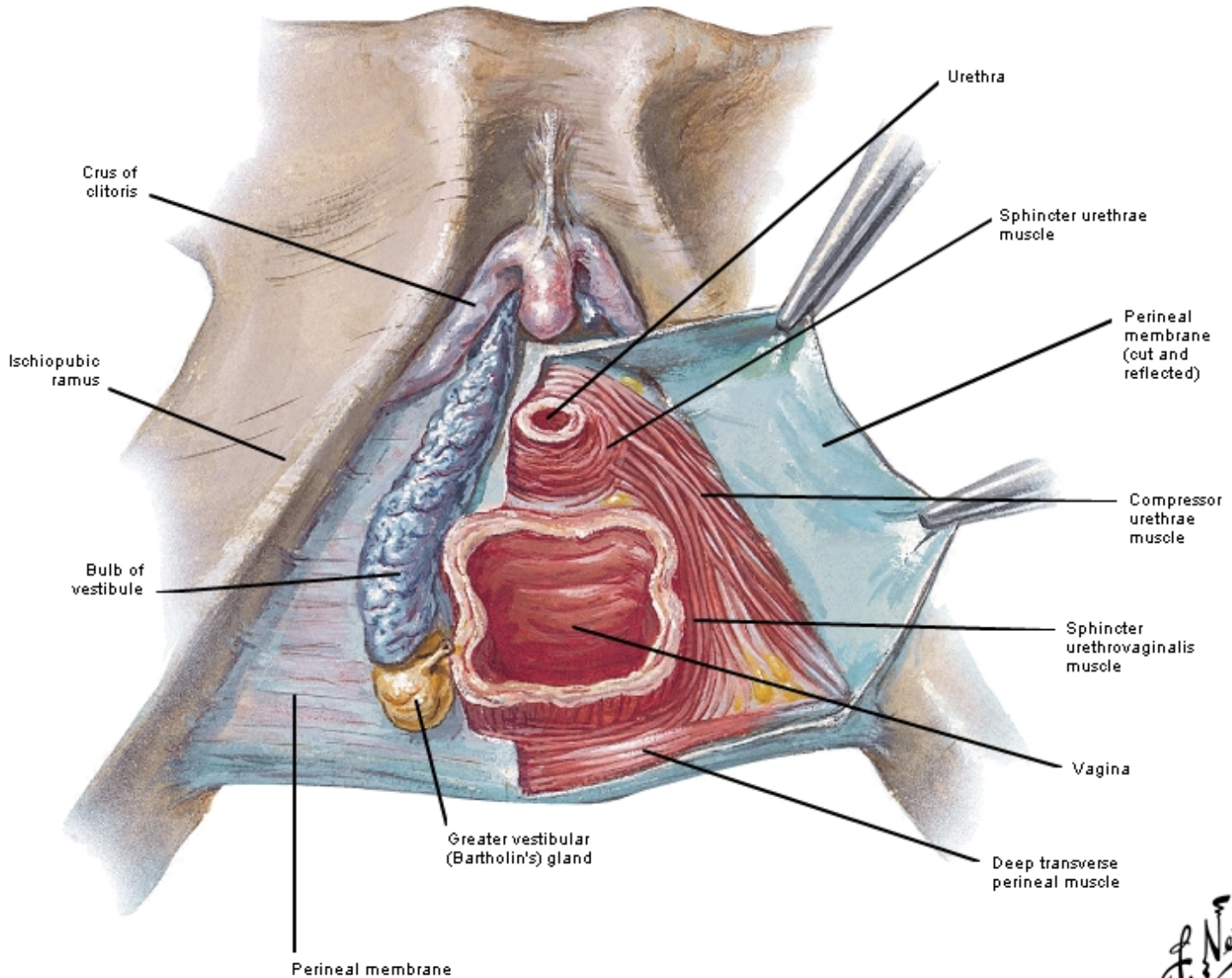


Superficial Perineum of Female



PELVIS AND PERINEUM

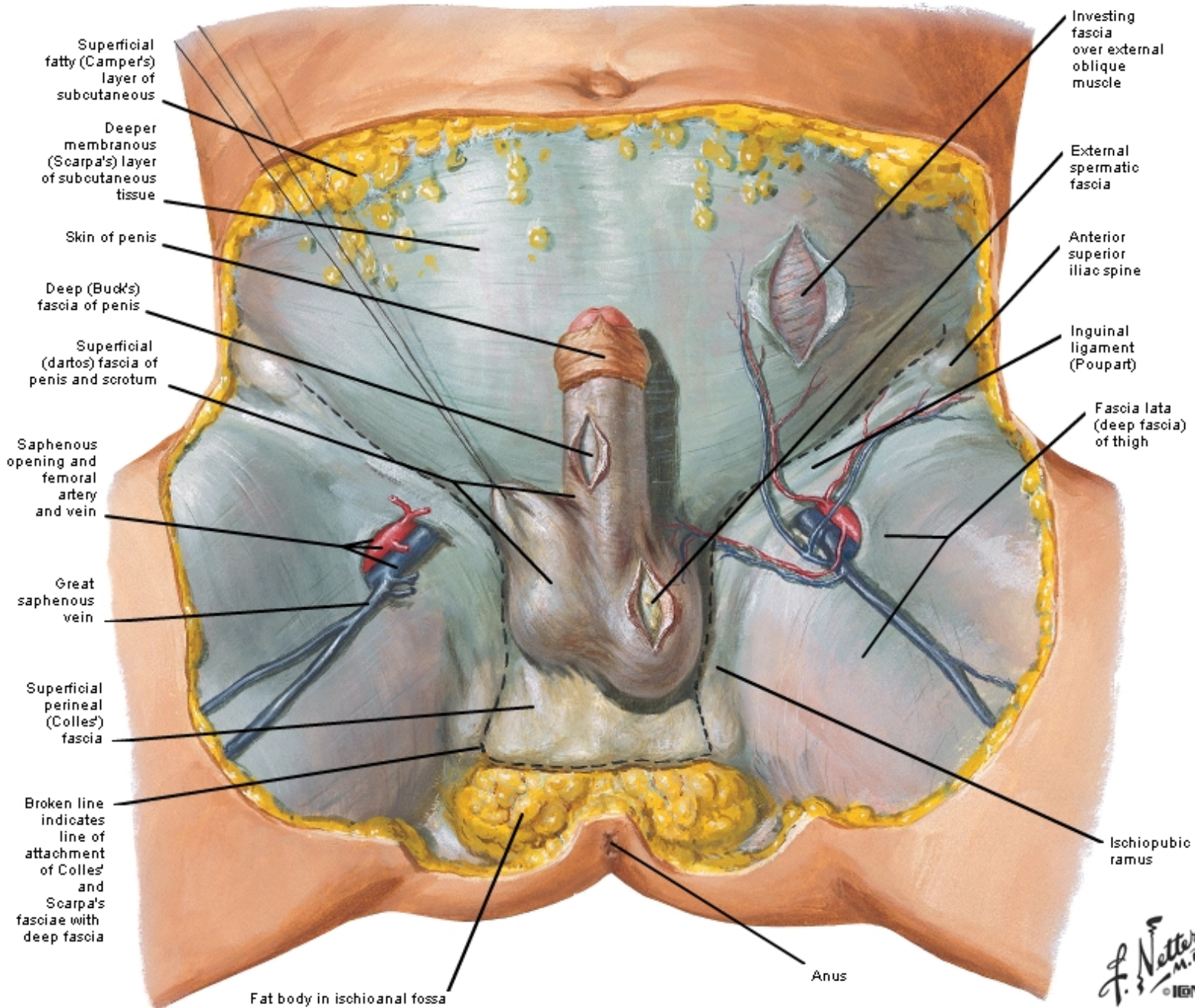
Perineum of Female Deep Dissection



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C. Machado M.D.
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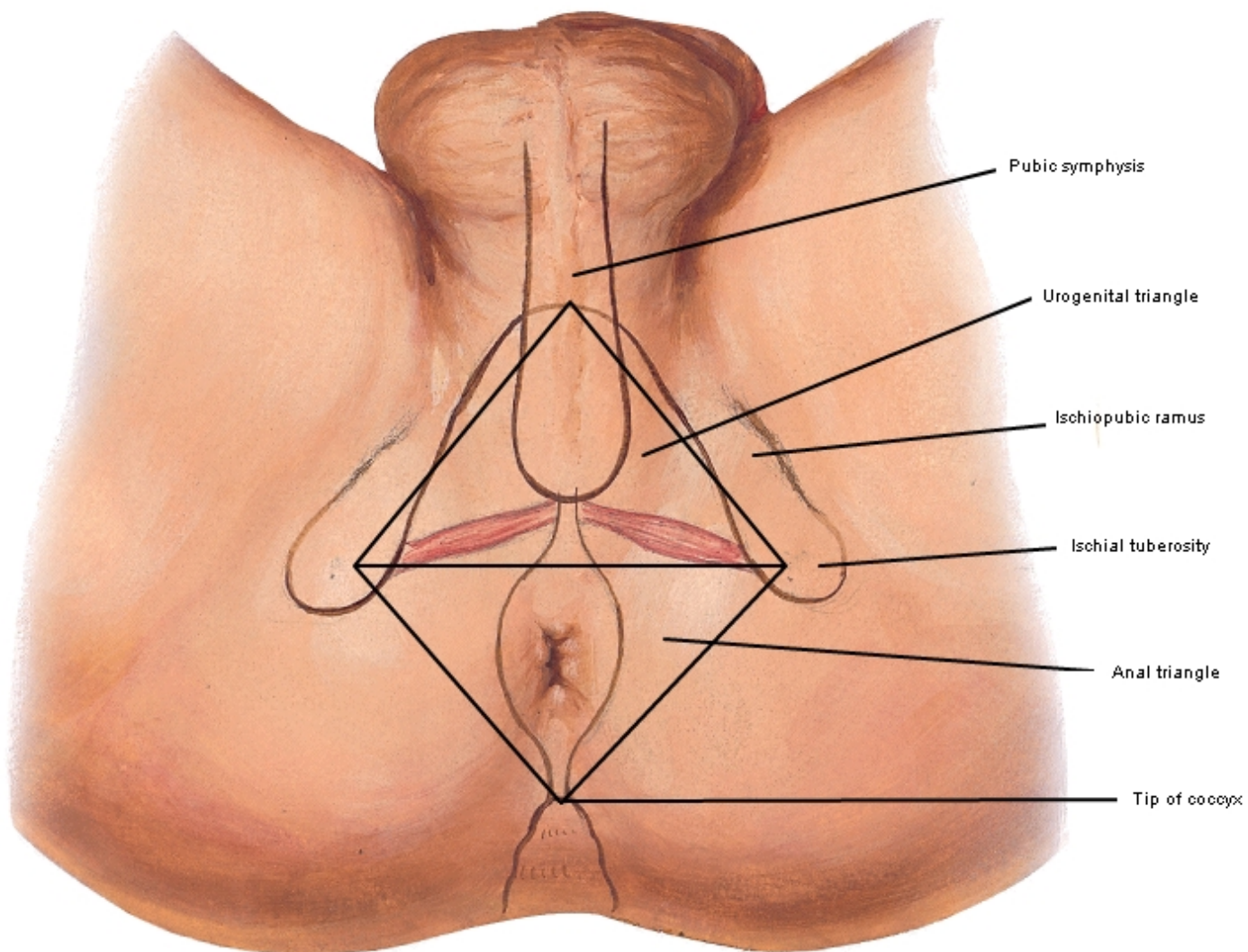
PELVIS AND PERINEUM

Perineum and External Genitalia of Male Superficial Dissection



PELVIS AND PERINEUM

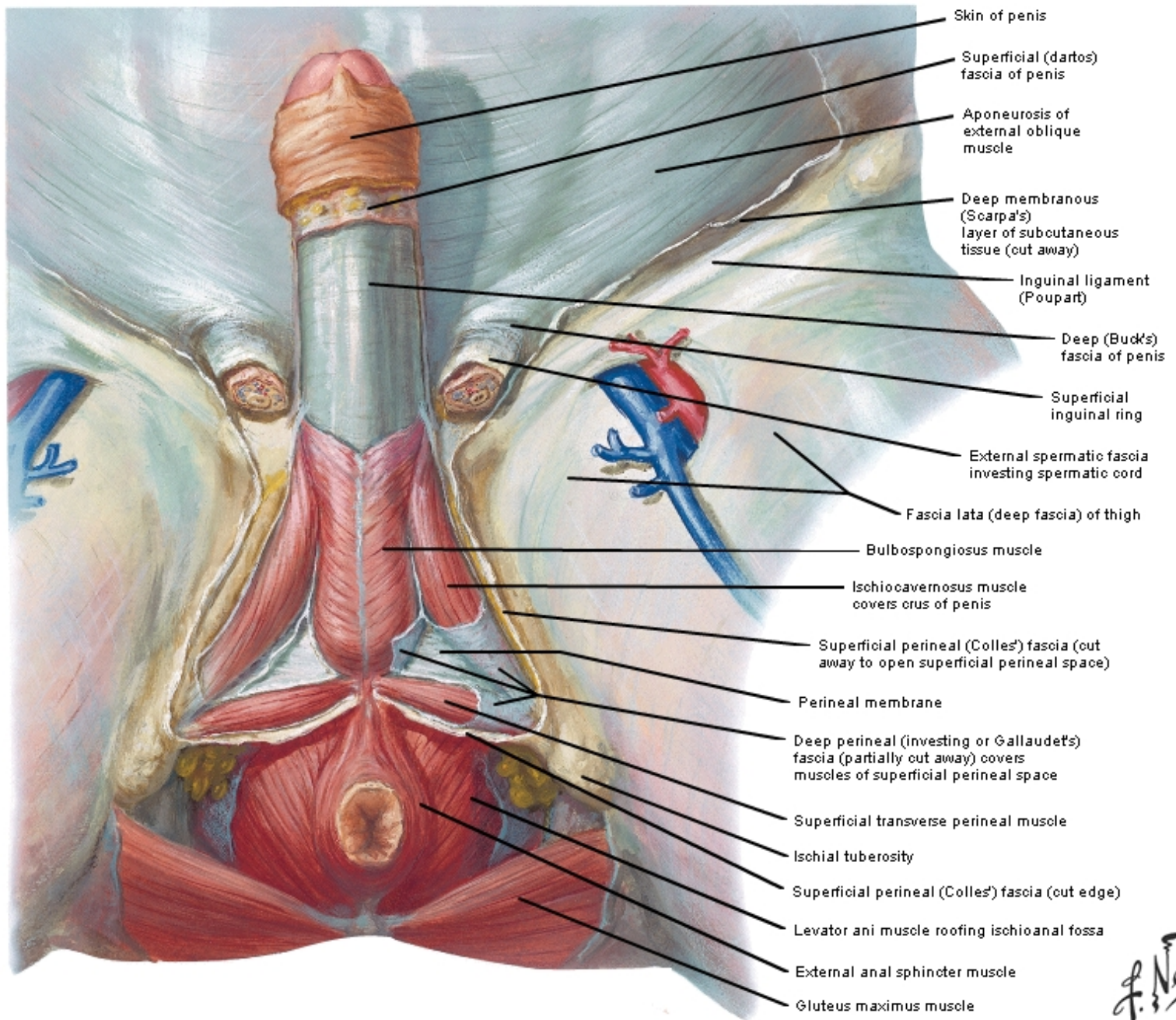
Perineum of Male Regions (Triangles) and Surface Topography



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PELVIS AND PERINEUM

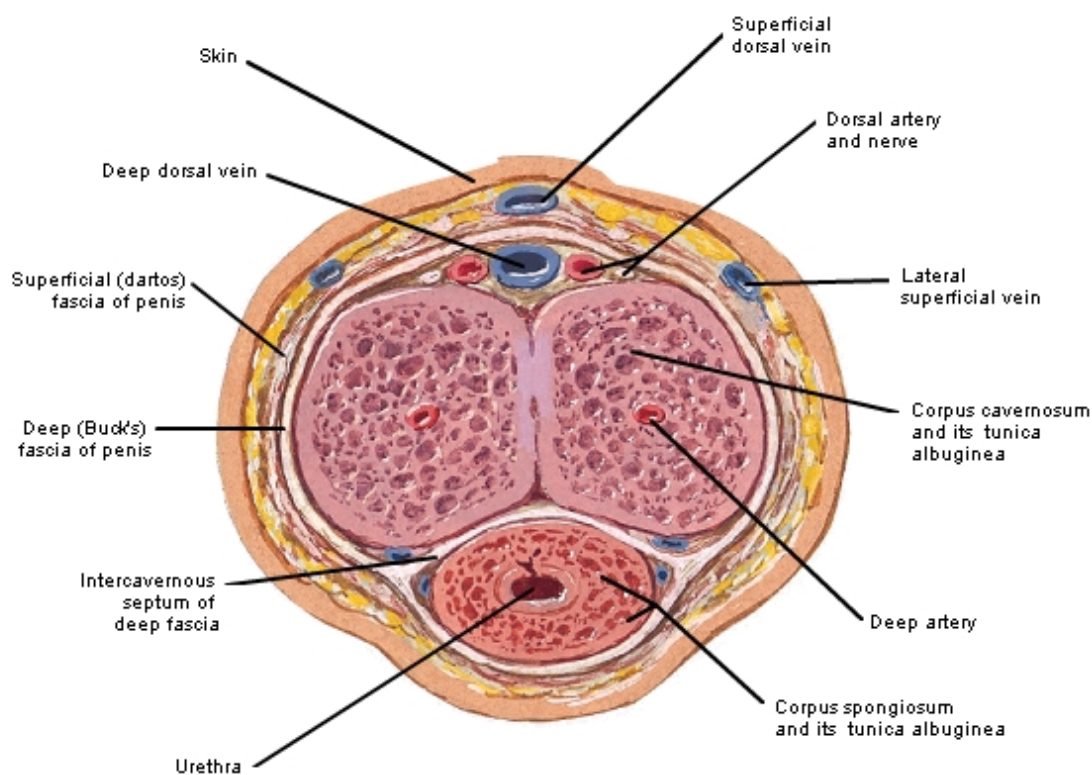
Perineum and External Genitalia of Male Deep Dissection



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PELVIS AND PERINEUM

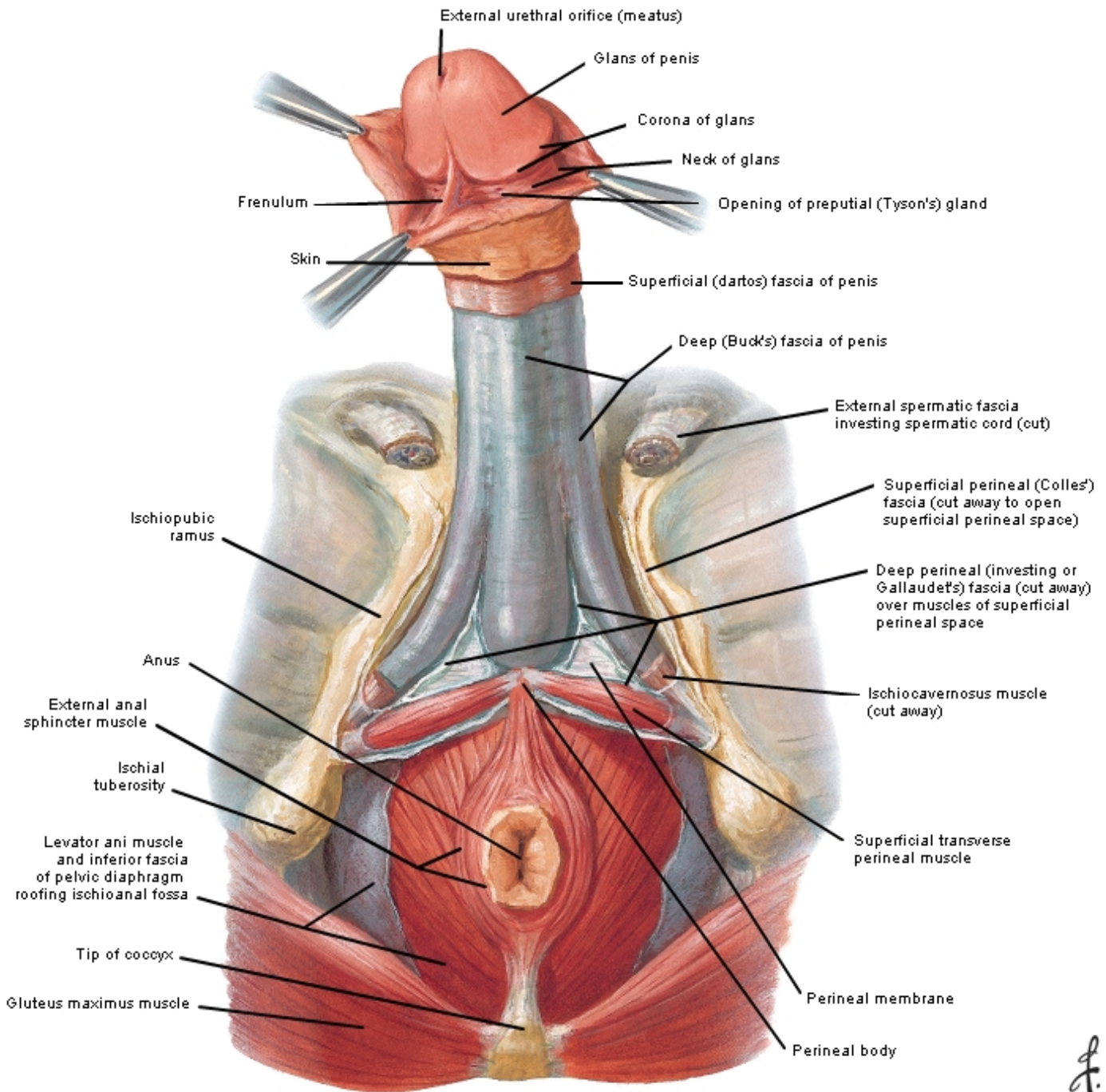
Section through Body of Penis



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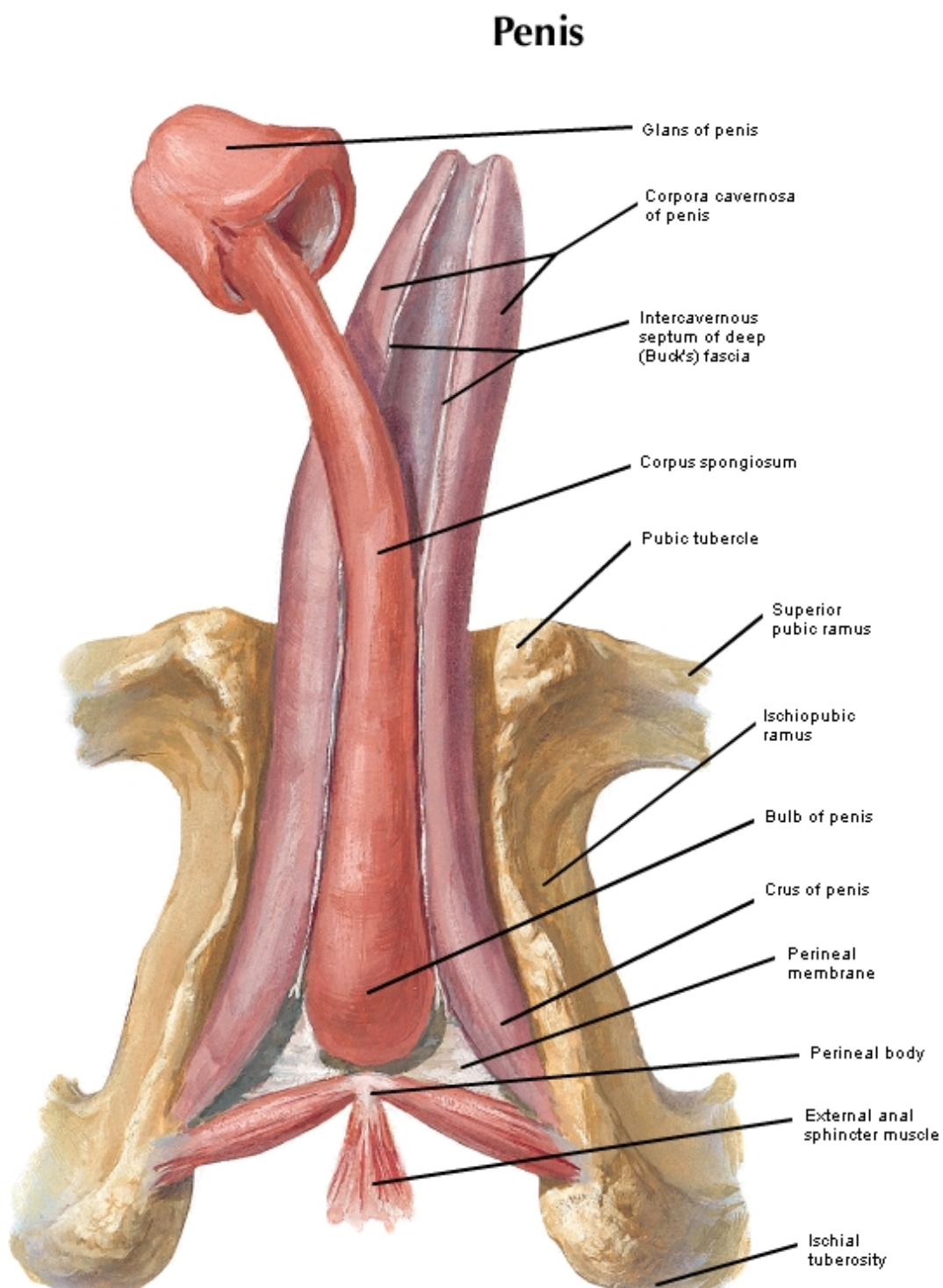
PELVIS AND PERINEUM

Penis



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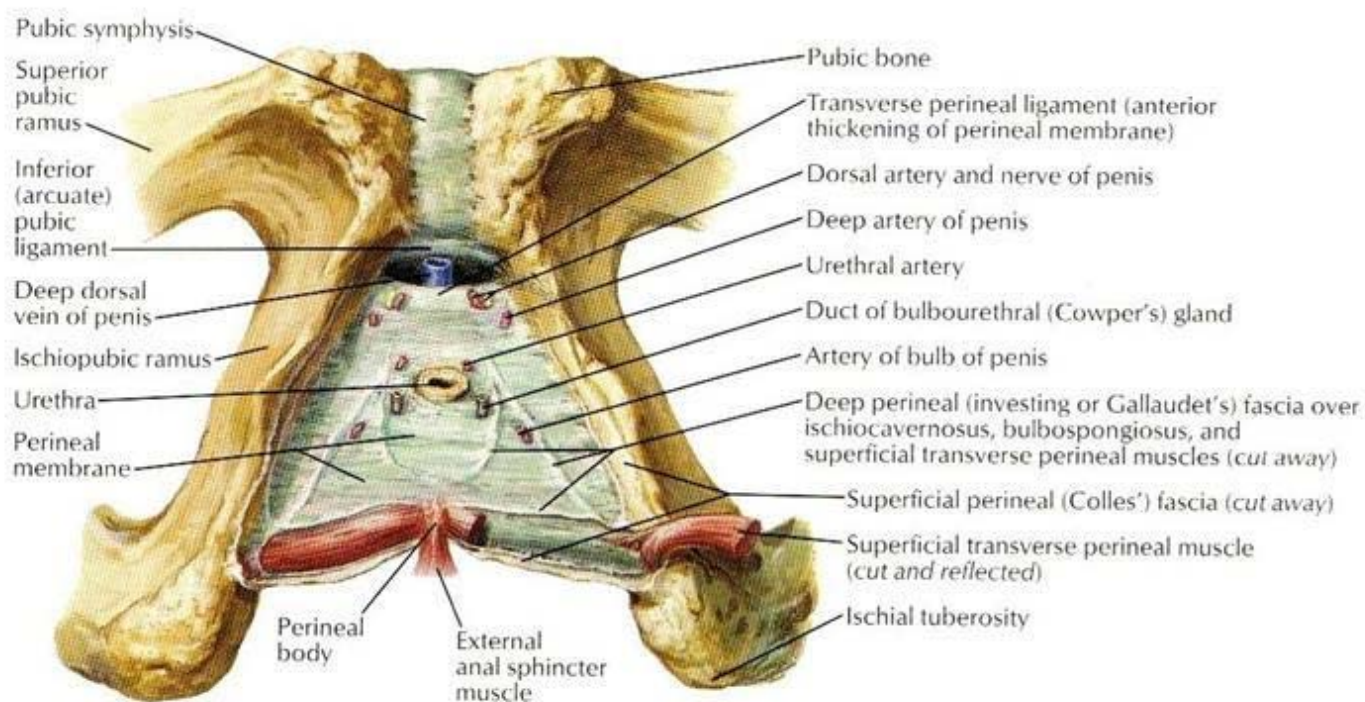
PELVIS AND PERINEUM



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PELVIS AND PERINEUM

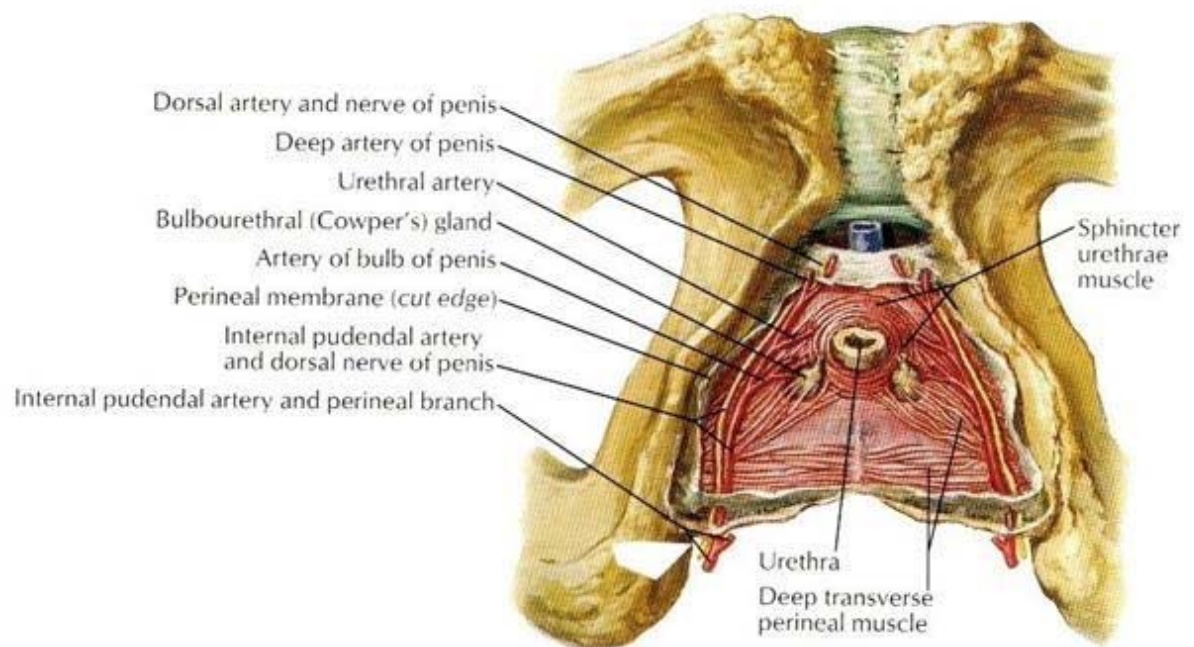
Perineal Spaces: Inferior View



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PELVIS AND PERINEUM

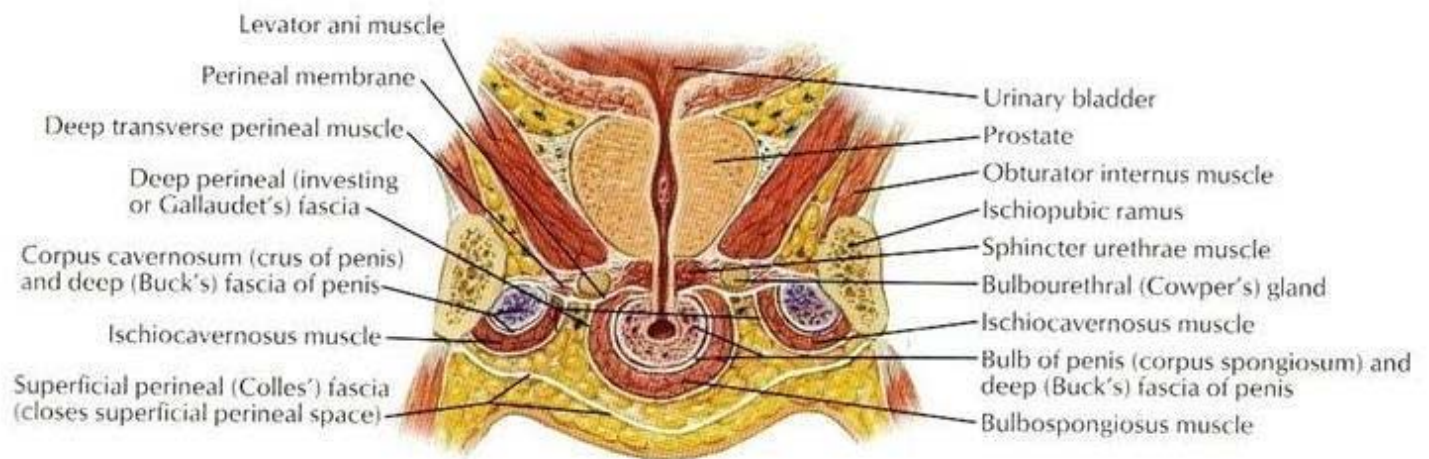
Perineal Space: Inferior View Deep Dissection



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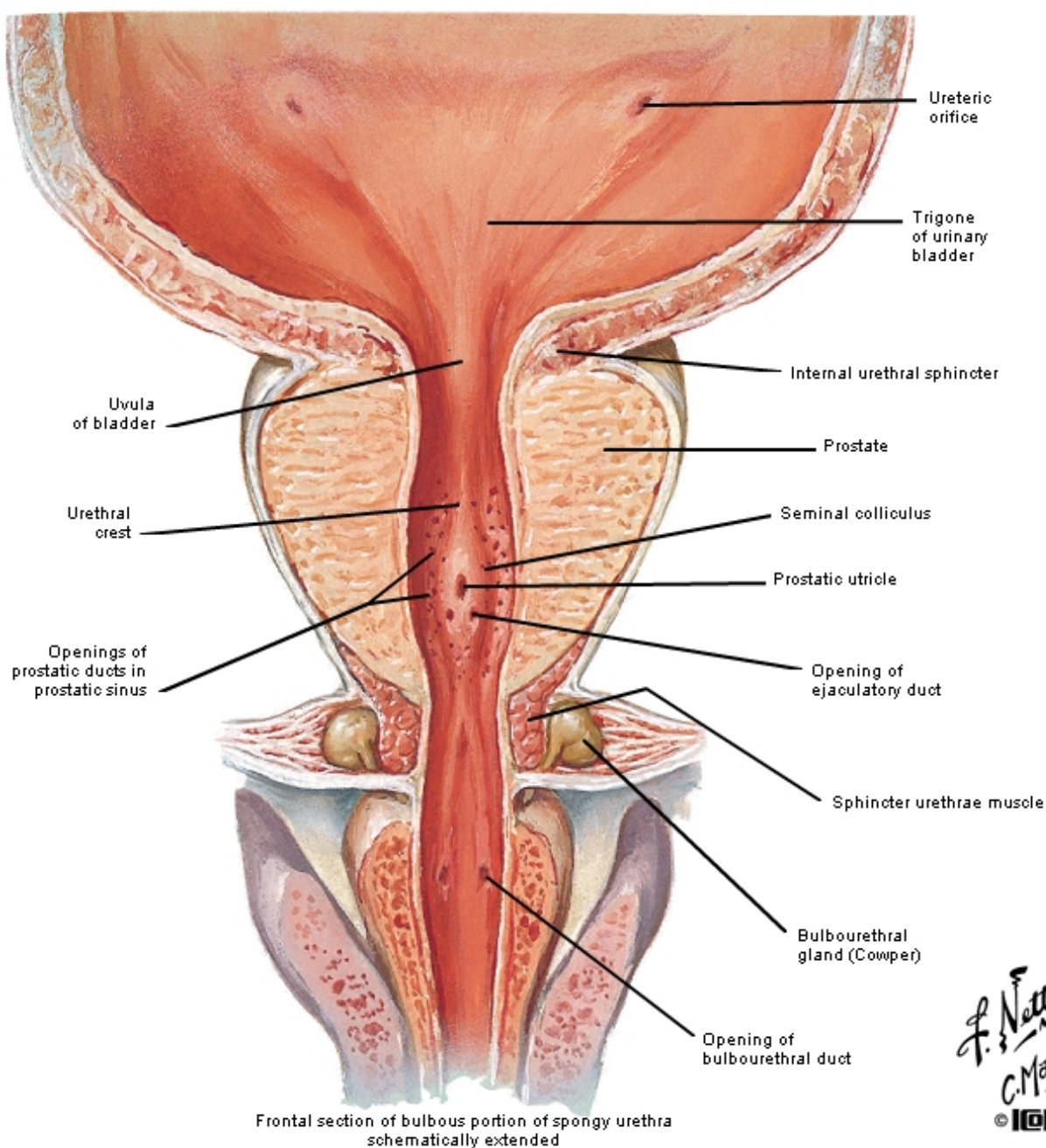
Frontal Section, Anterior View of Perineum: Schema



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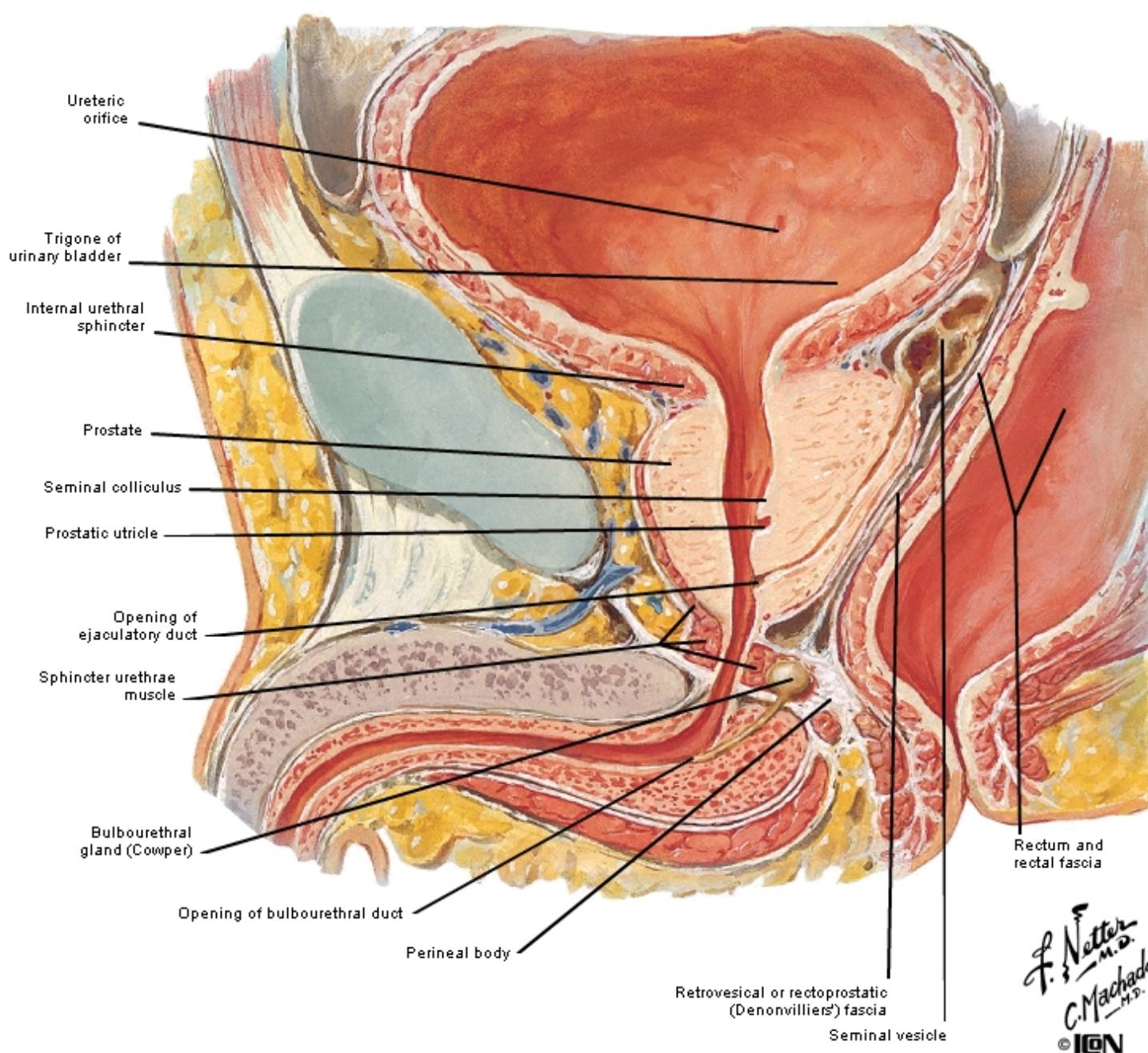
PELVIS AND PERINEUM

Prostate and Seminal Vesicles Frontal Section



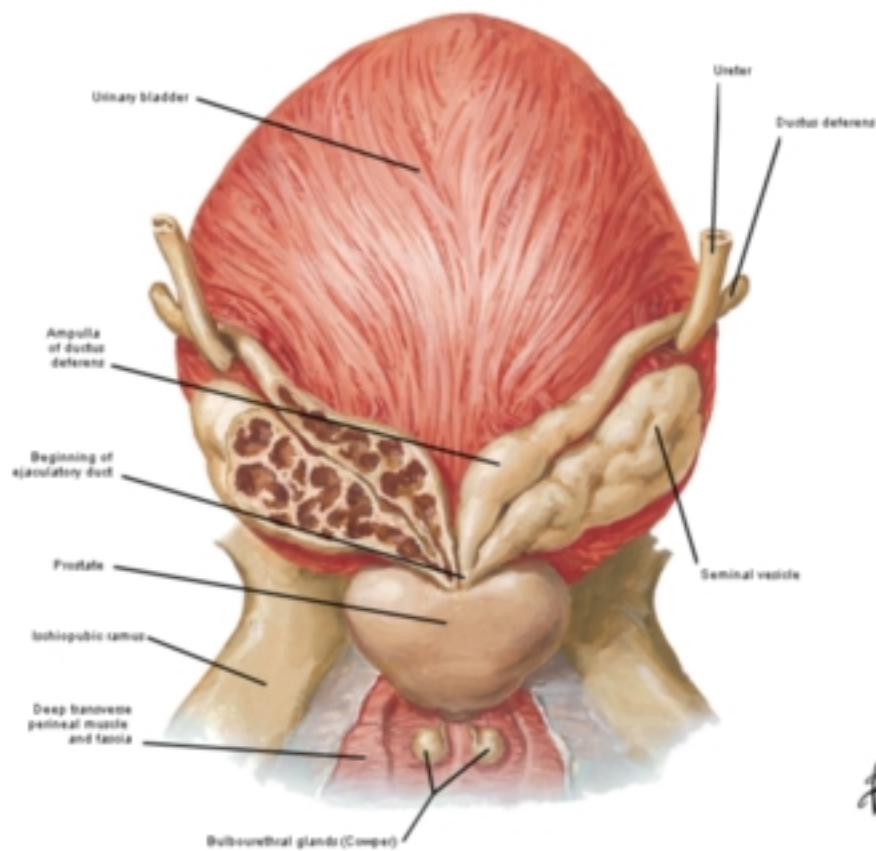
PELVIS AND PERINEUM

Prostate and Seminal Vesicles Sagittal Section



Prostate and Seminal Vesicles

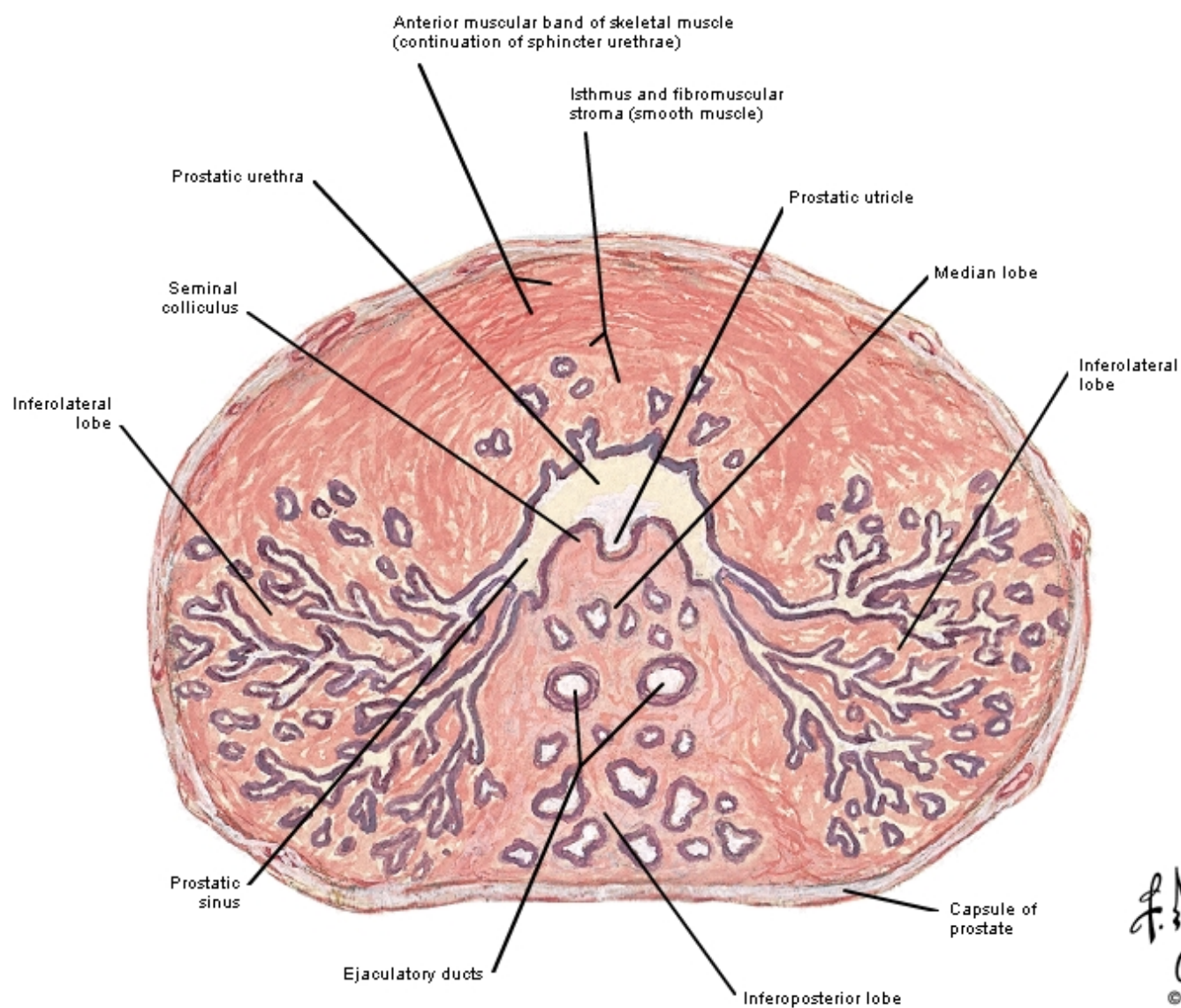
Posterior View



F. Natter
C. M. Mochales
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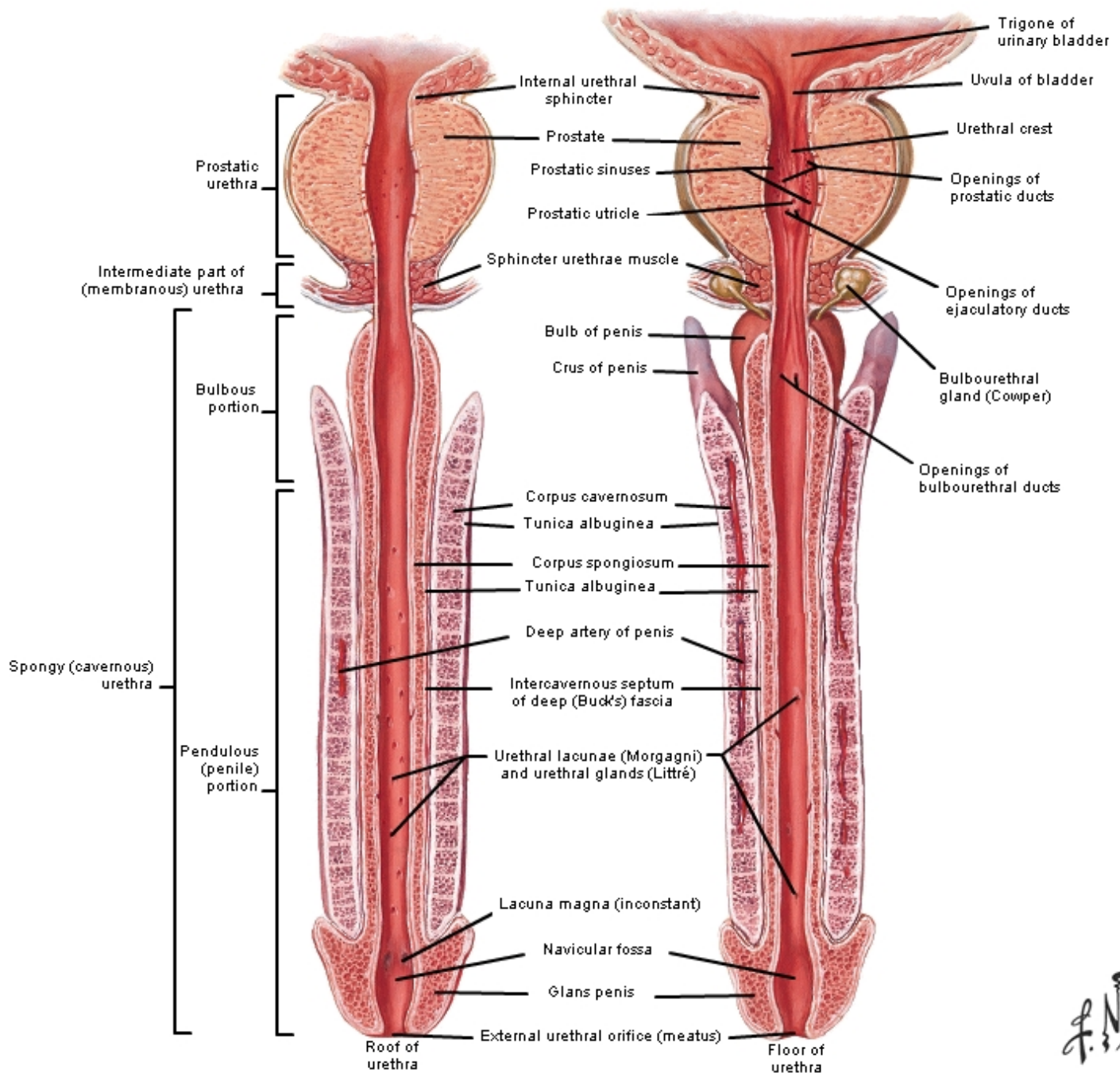
PELVIS AND PERINEUM

Prostate and Seminal Vesicles Cross Section through Prostate



PELVIS AND PERINEUM

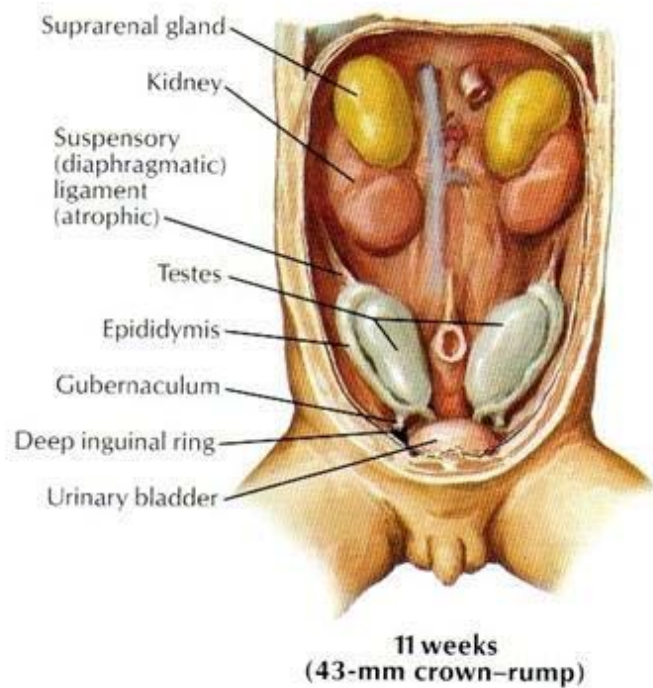
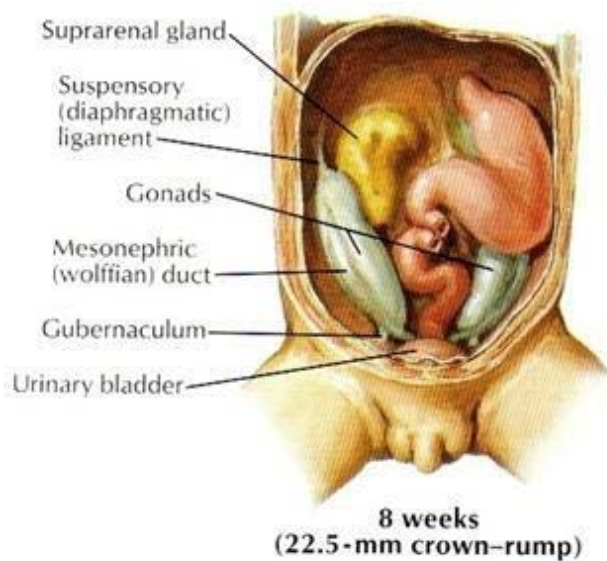
Urethra: Male



F. Netter M.D.
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PELVIS AND PERINEUM

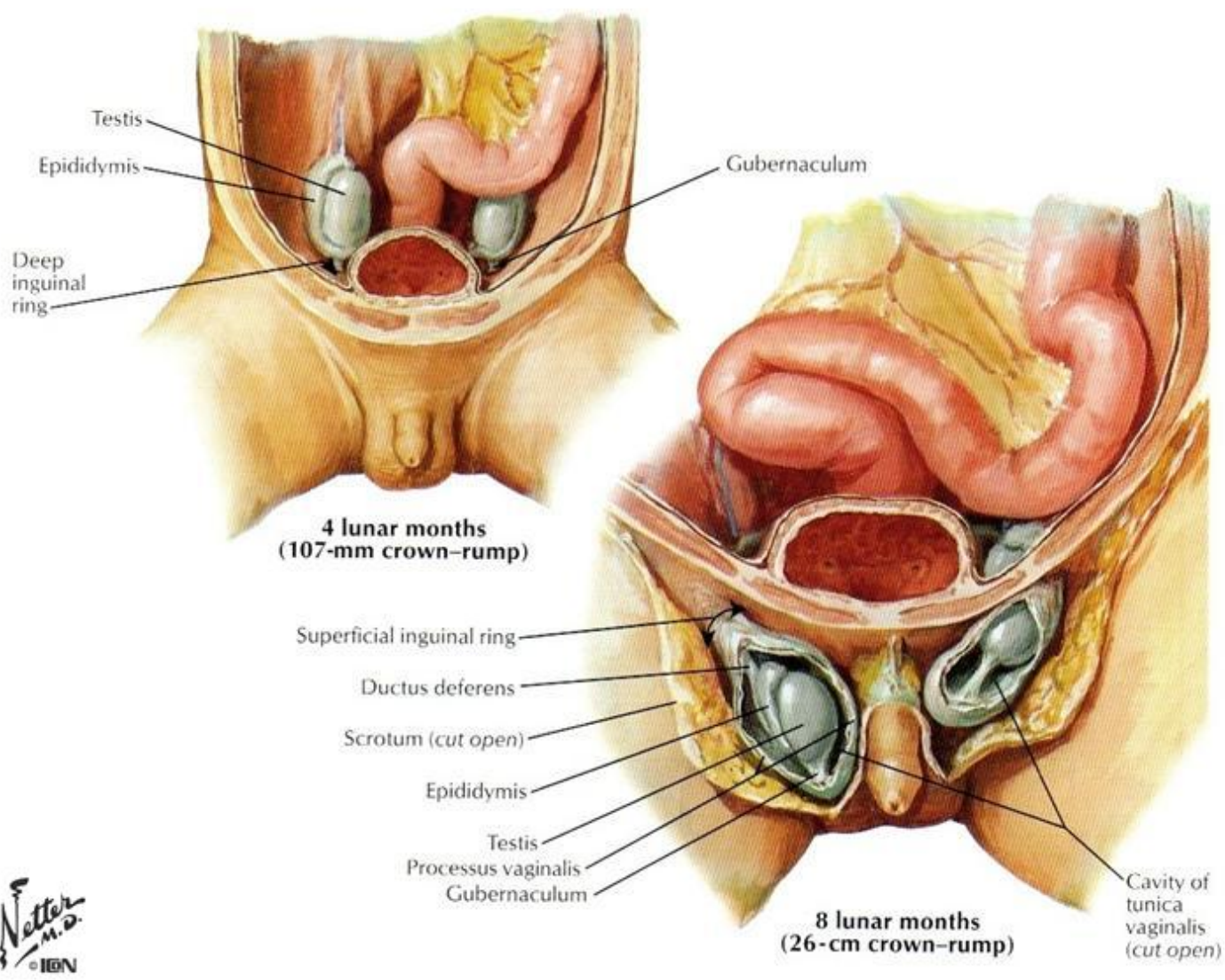
Descent of Testis



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PELVIS AND PERINEUM

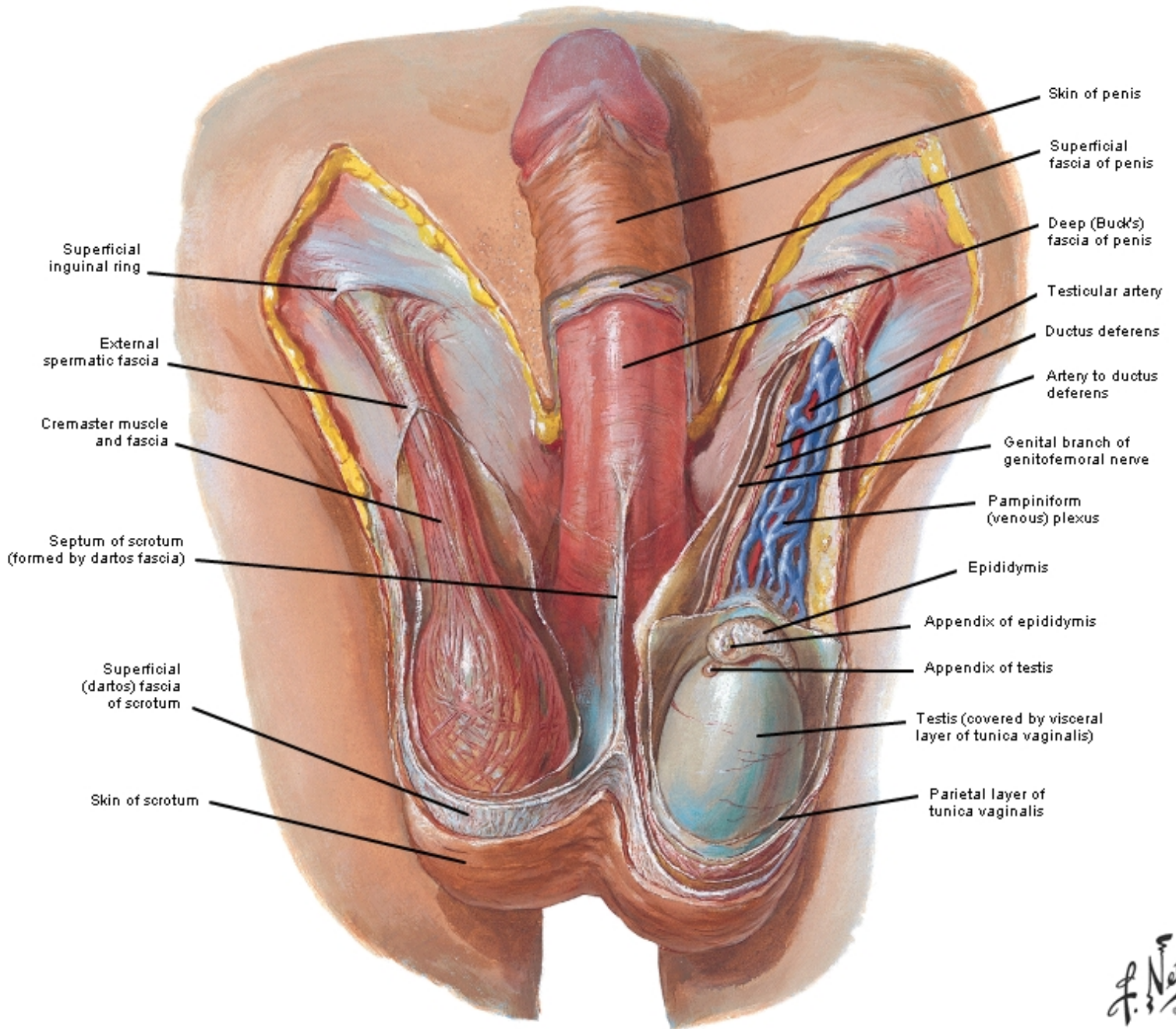
Descent of Testis



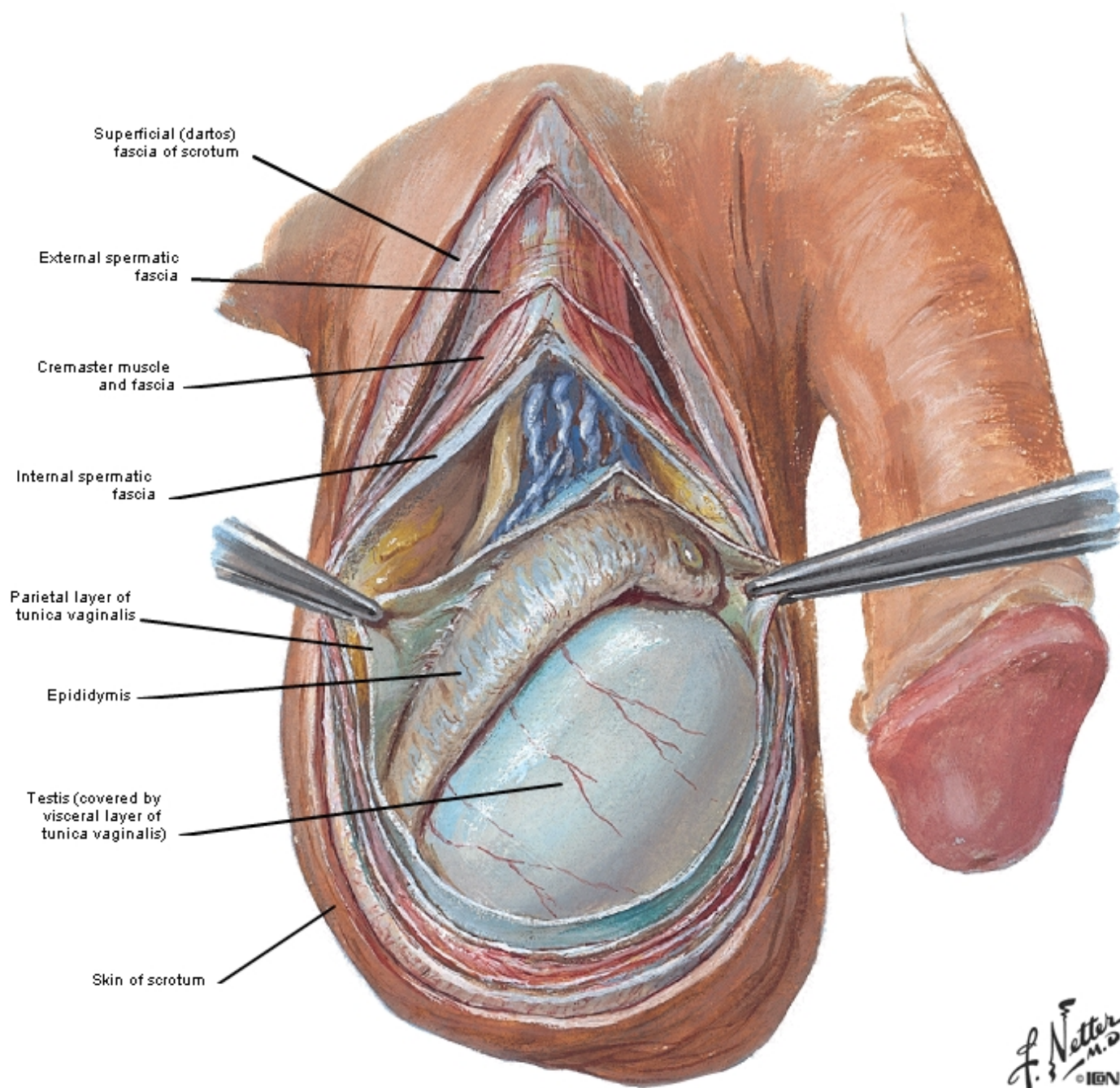
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PELVIS AND PERINEUM

Scrotum and Contents Anterior View

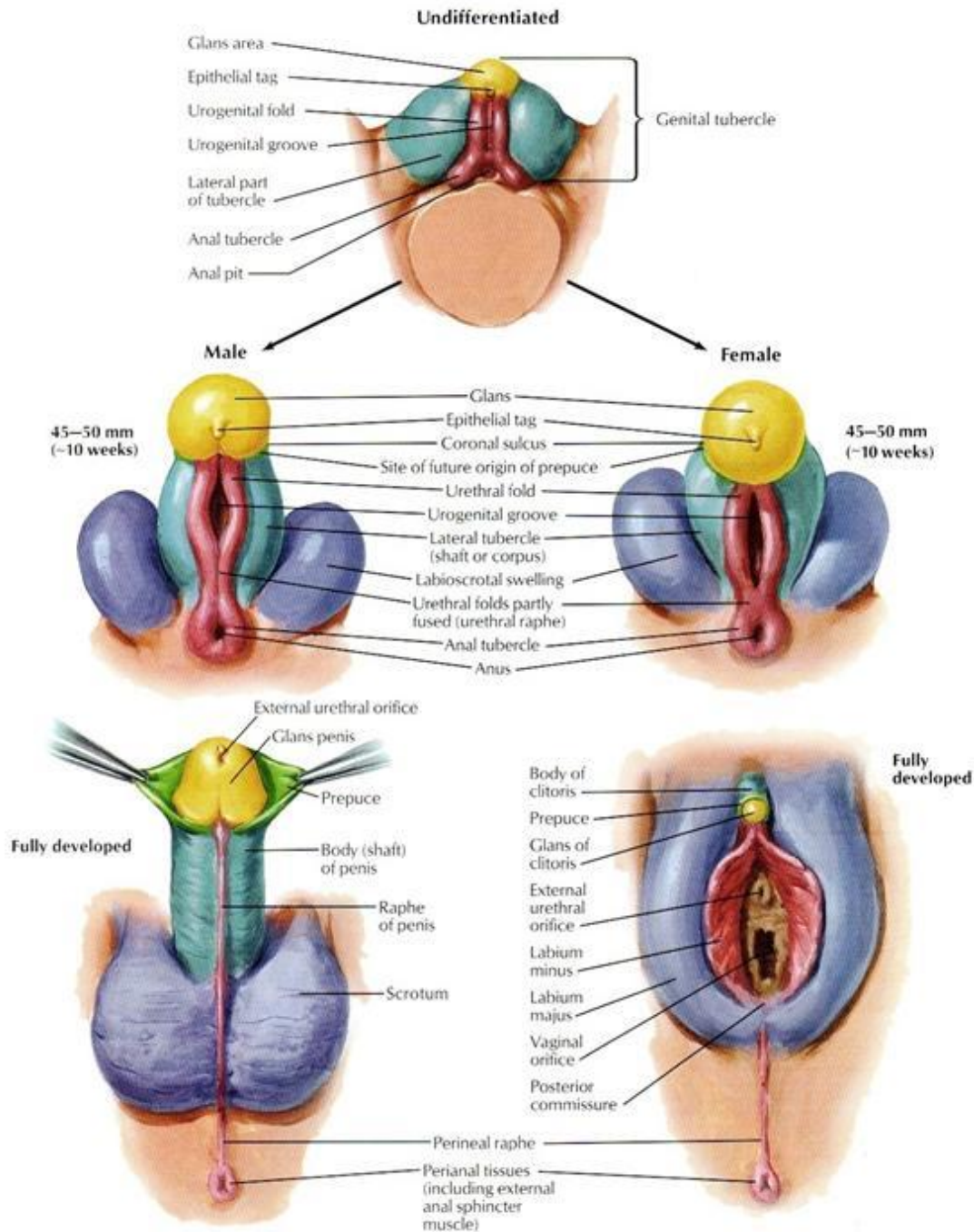


PELVIS AND PERINEUM

Scrotum and Contents
Lateral View

PELVIS AND PERINEUM

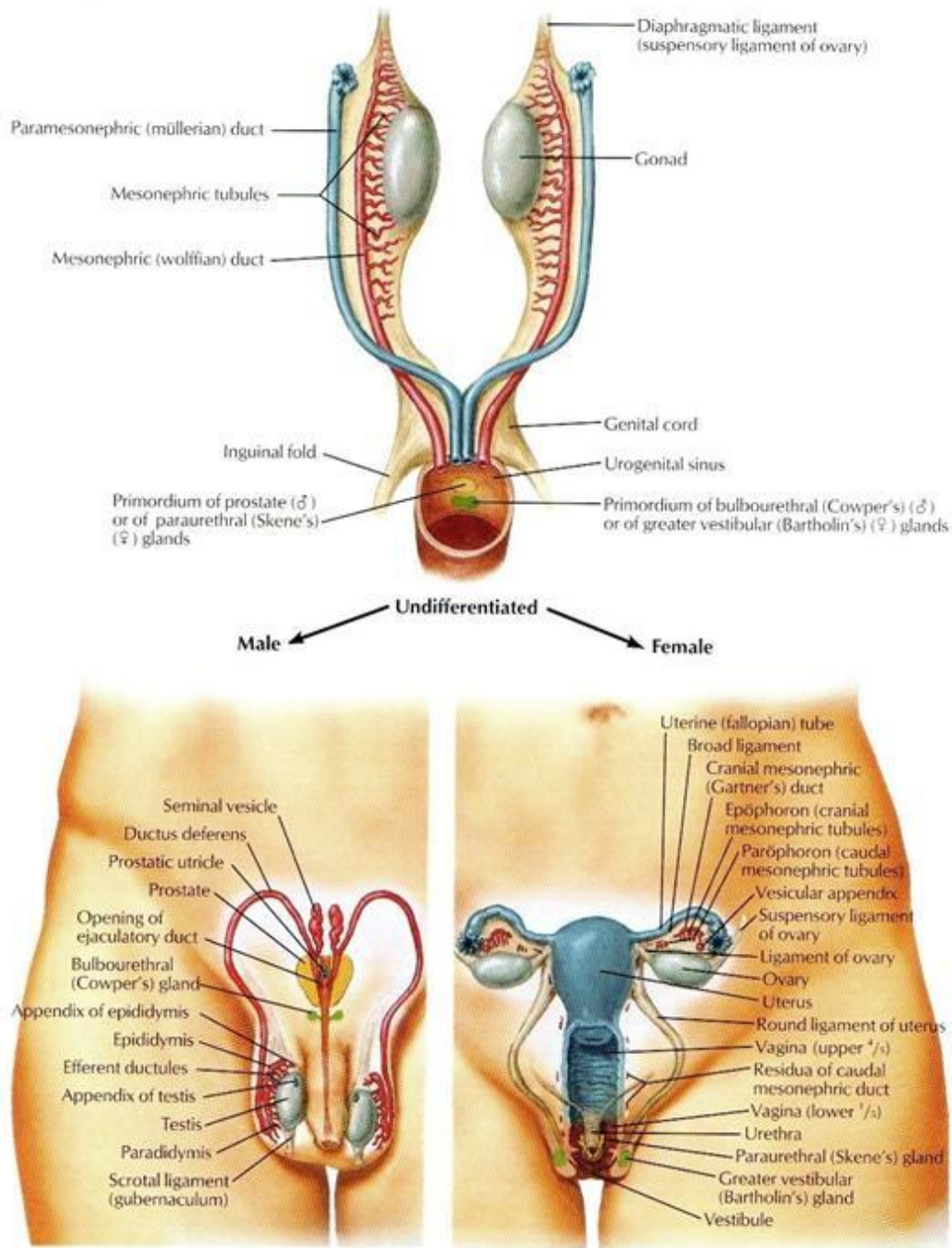
Homologues of External Genitalia



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PELVIS AND PERINEUM

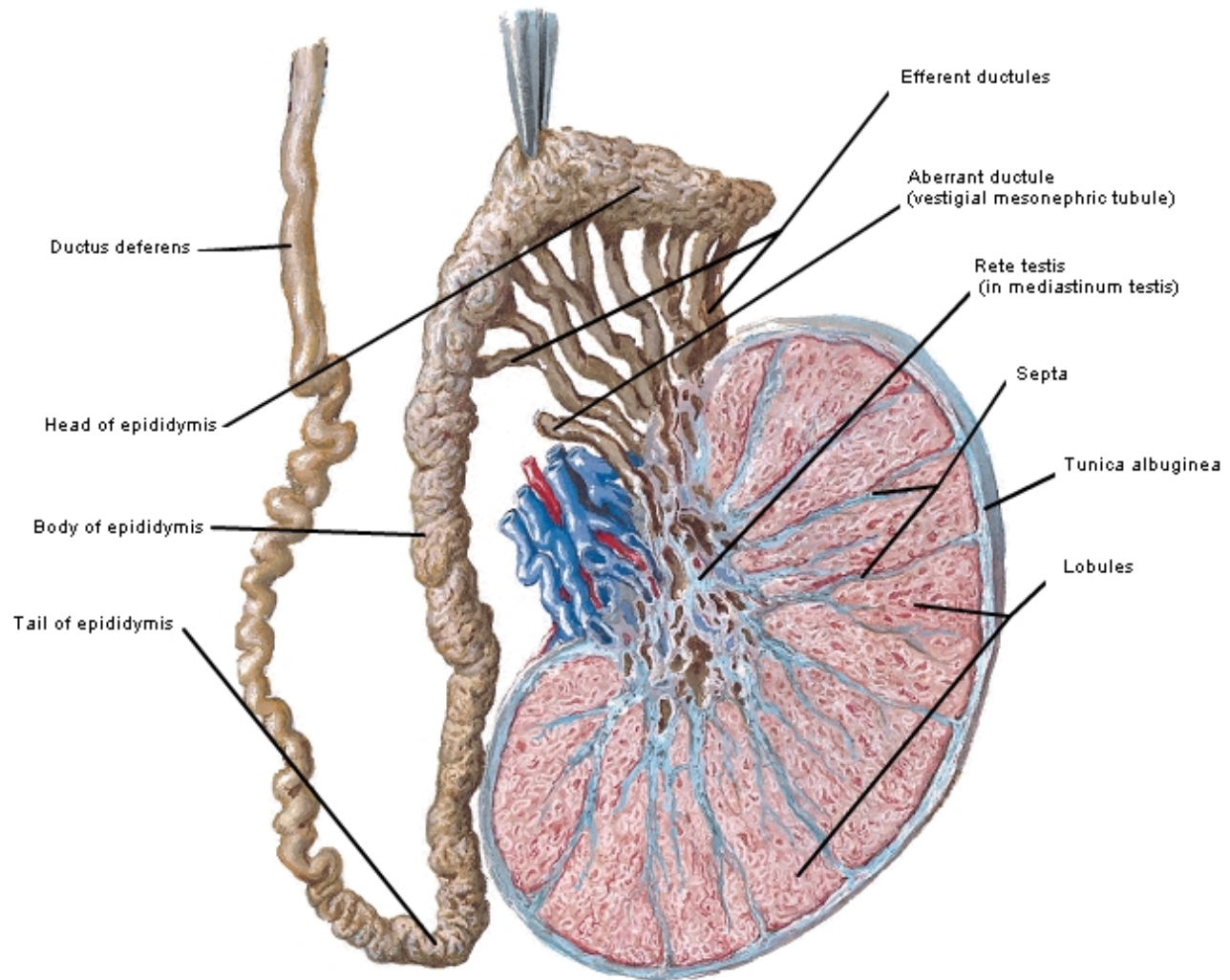
Homologues of Internal Genitalia



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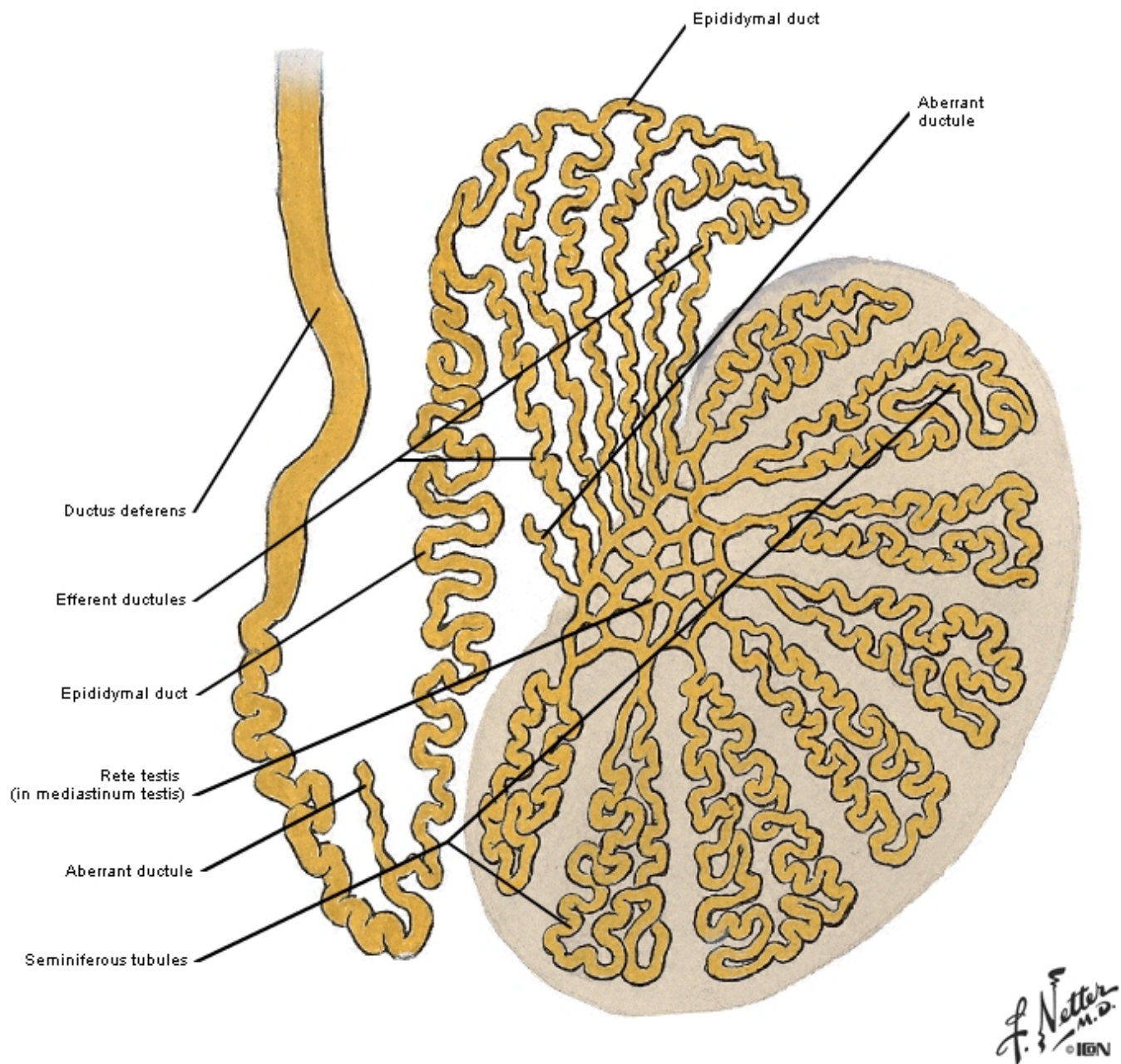
PELVIS AND PERINEUM

Testis, Epididymis and Ductus Deferens Frontal Section



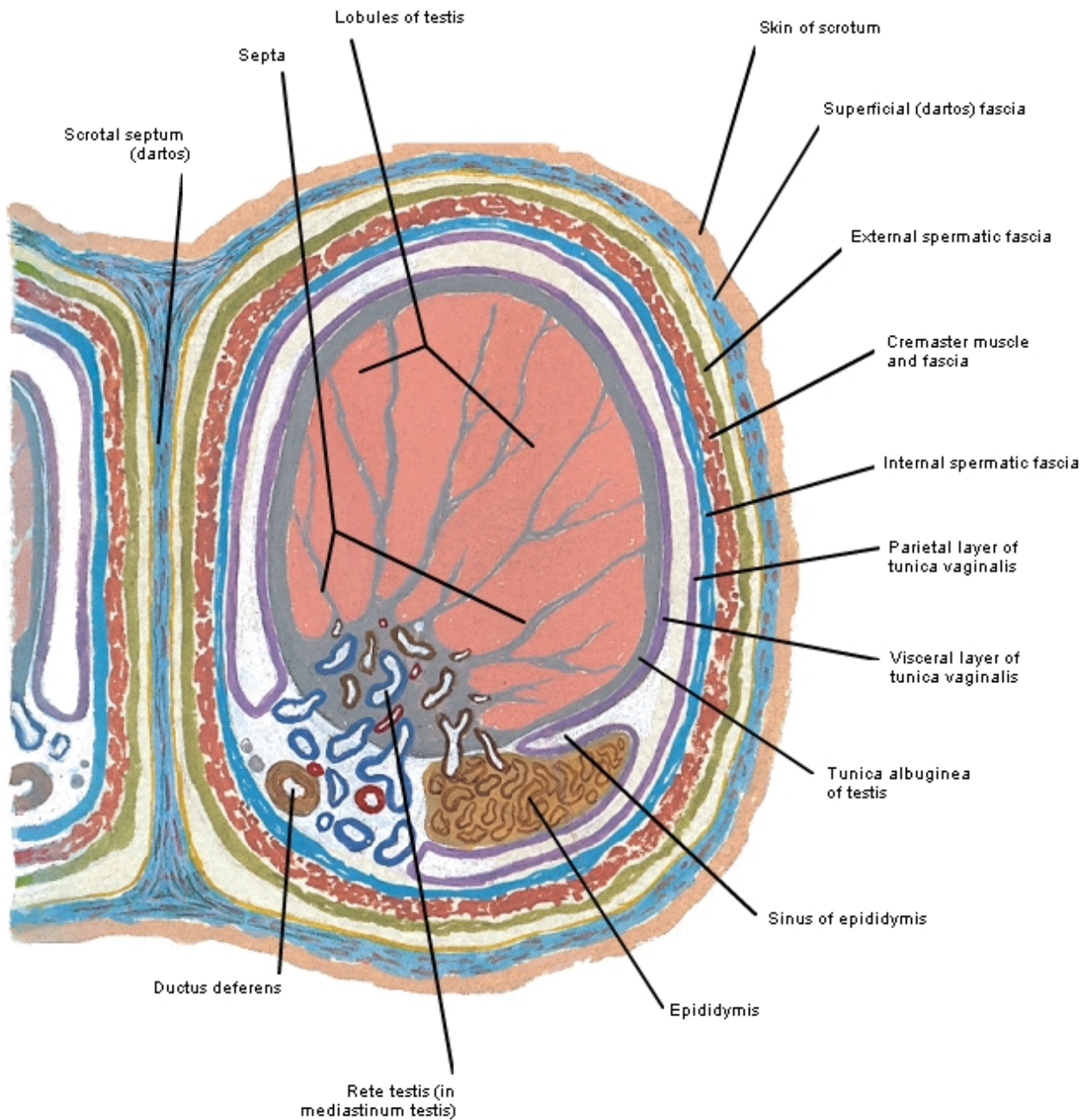
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PELVIS AND PERINEUM

**Testis, Epididymis and Ductus Deferens
Schema***F. Netter
M.D.
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PELVIS AND PERINEUM

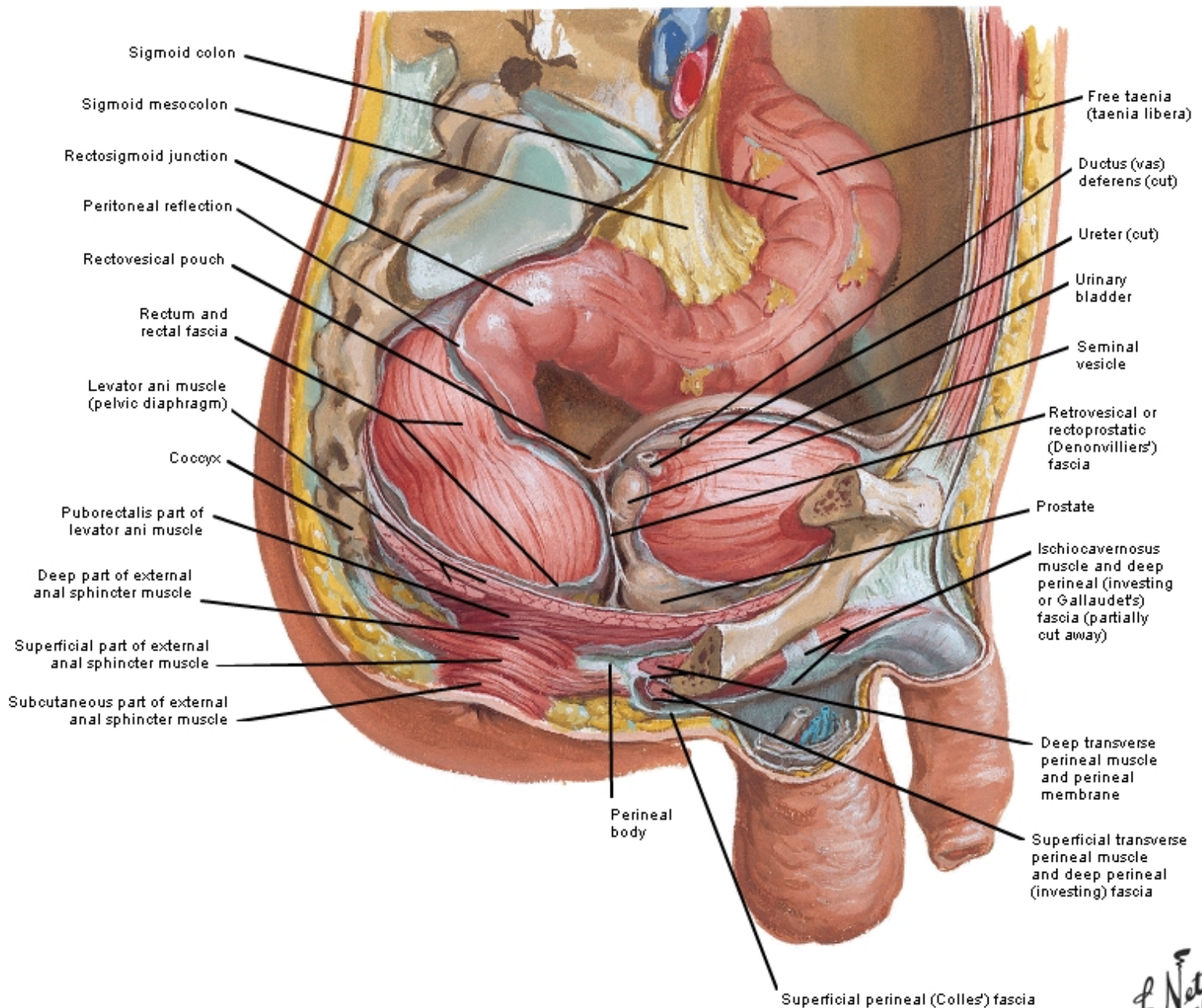
Testis, Epididymis and Ductus Deferens Cross Section



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PELVIS AND PERINEUM

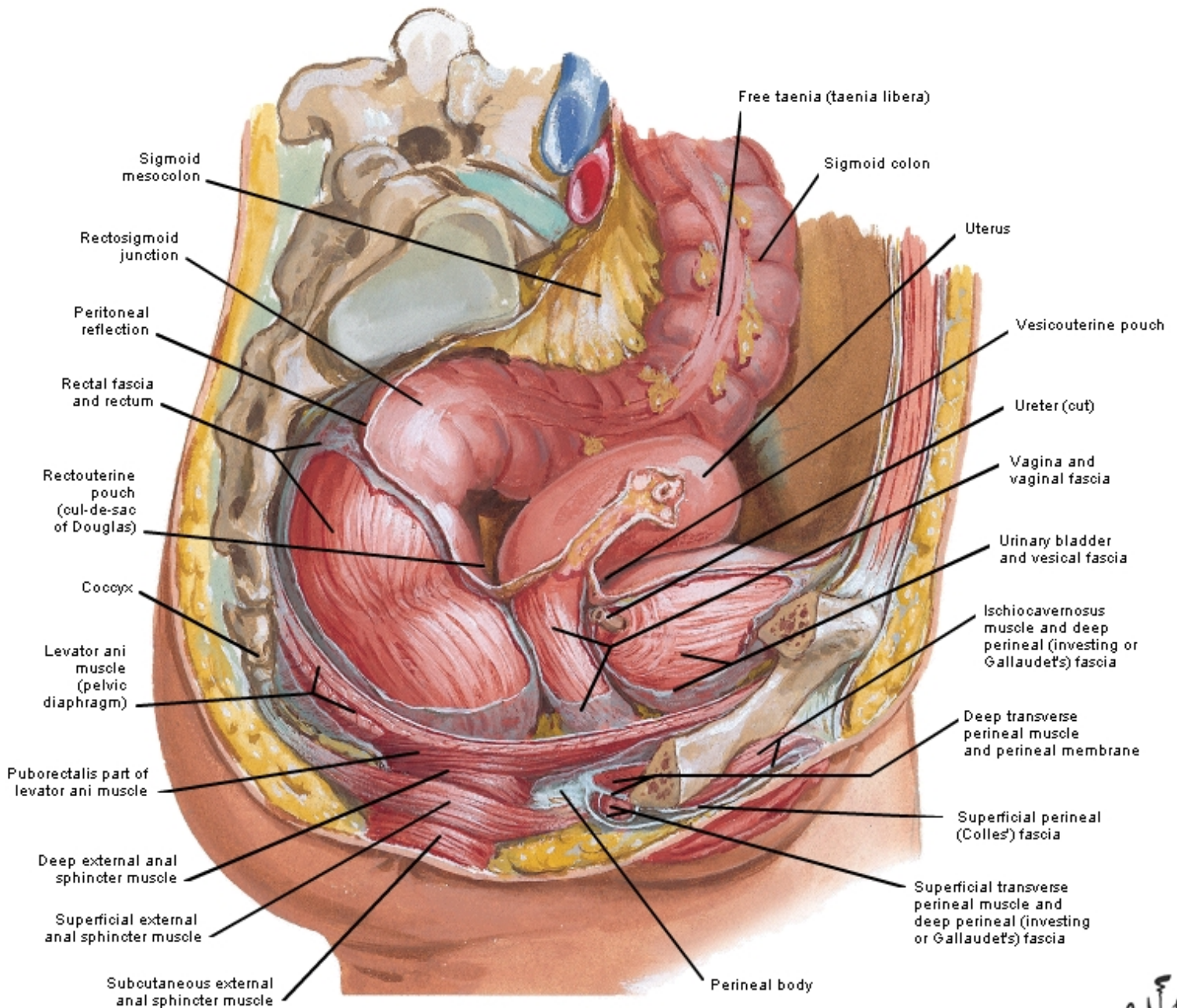
Rectum of Male In Situ



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PELVIS AND PERINEUM

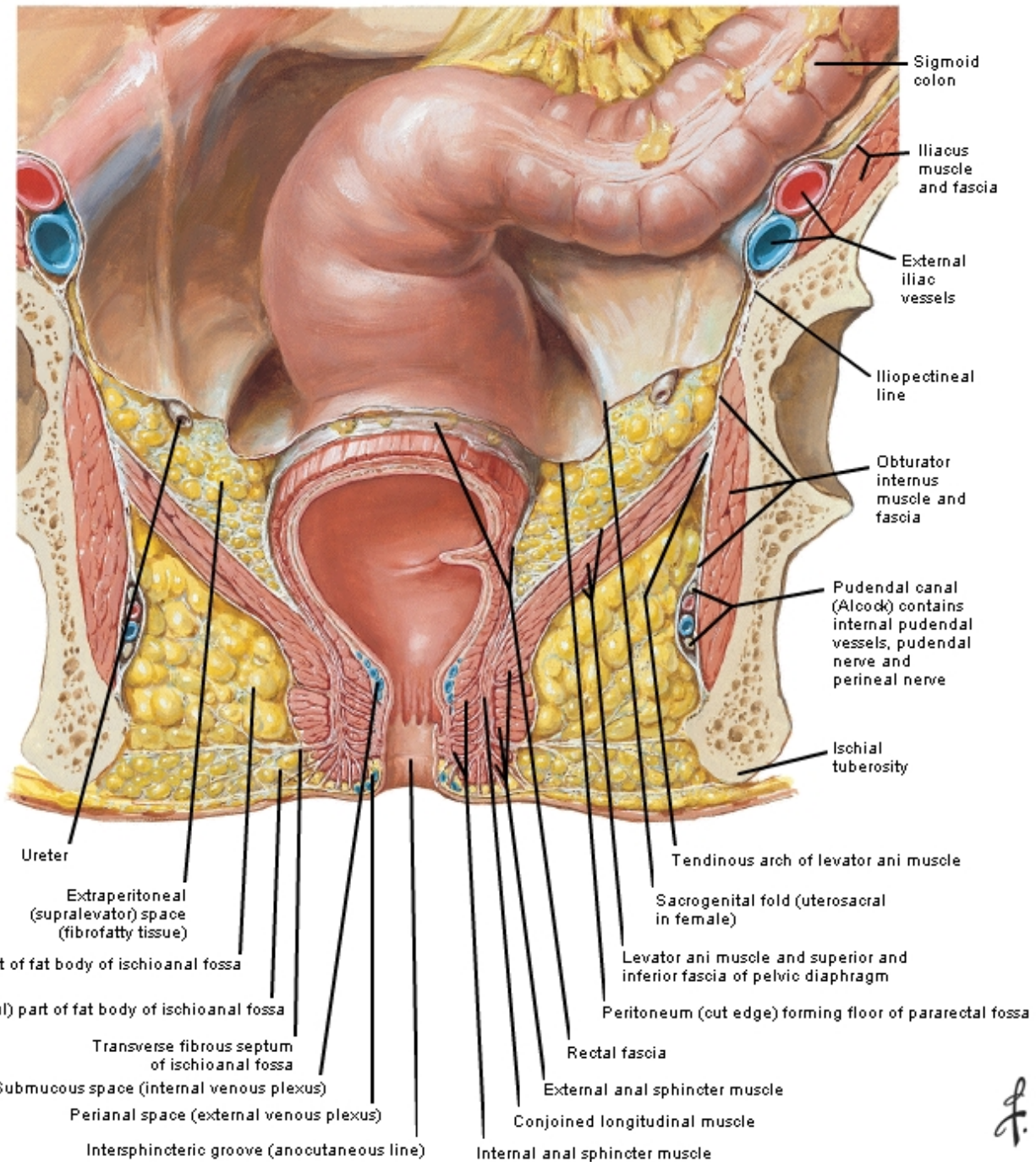
Rectum of Female In Situ



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PELVIS AND PERINEUM

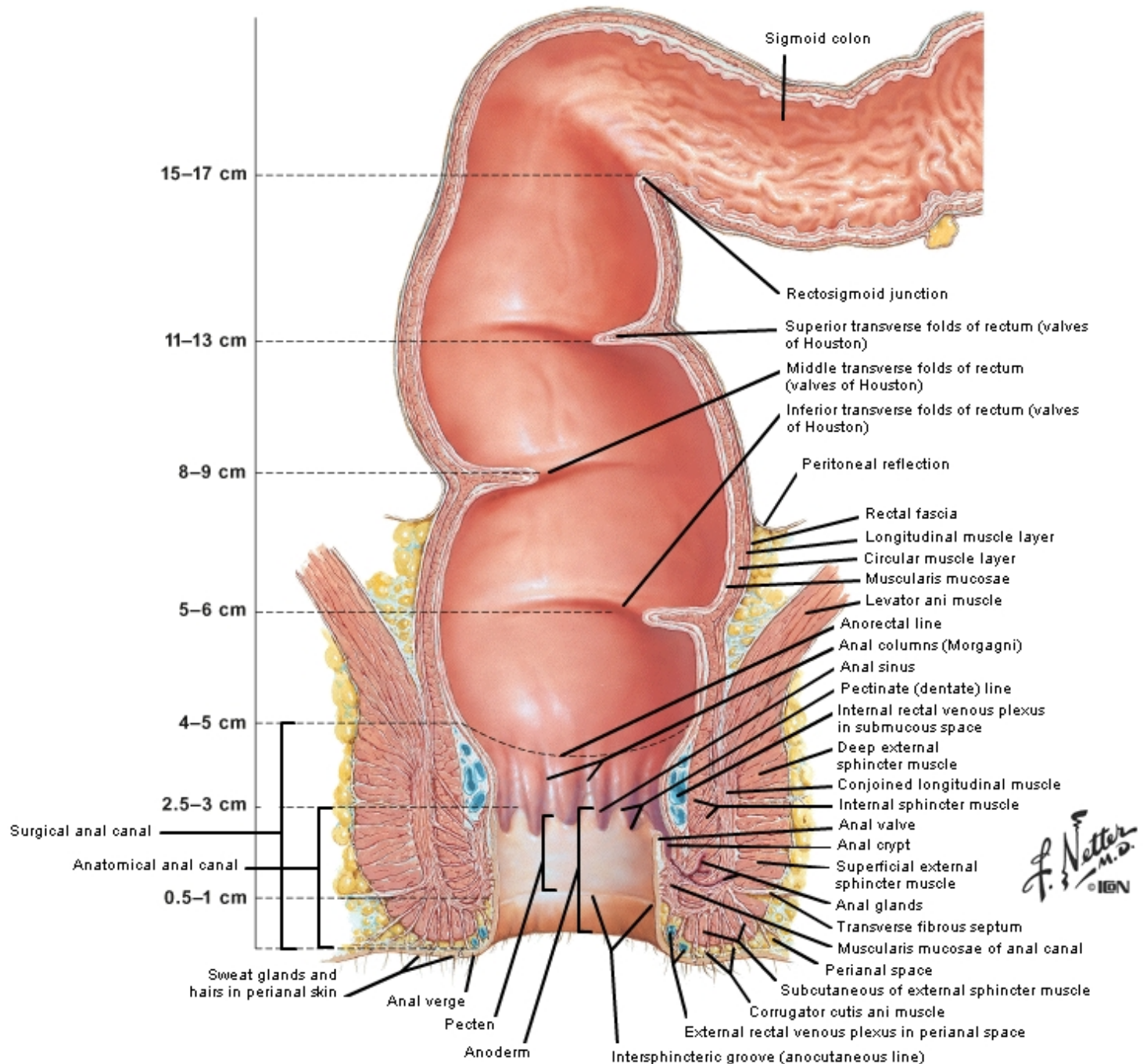
Ischioanal Fossae



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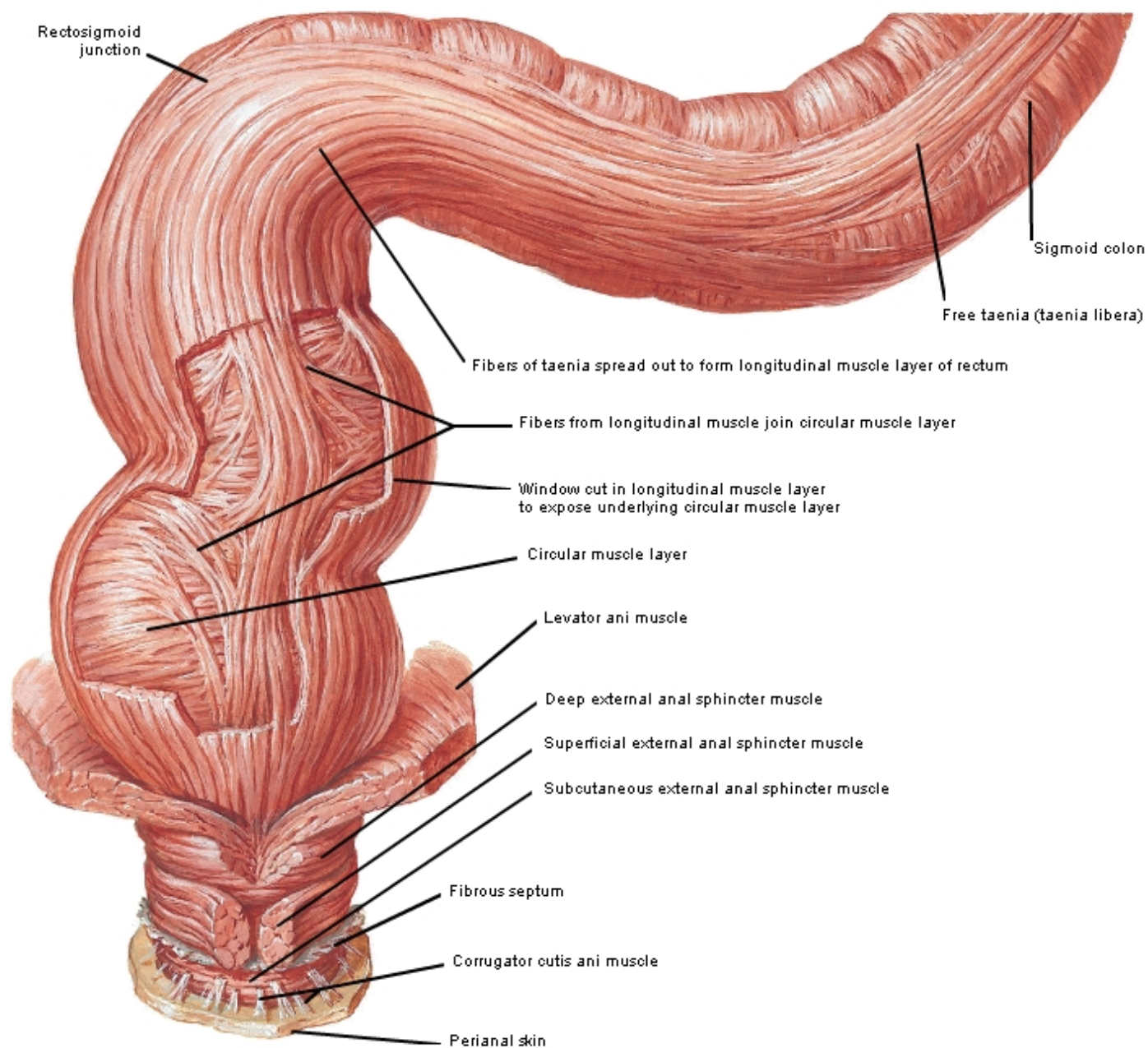
PELVIS AND PERINEUM

Rectum and Anal Canal



PELVIS AND PERINEUM

Anorectal Musculature Anterior View



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PELVIS AND PERINEUM

Anorectal Musculature Frontal Section

Superior fascia of pelvic diaphragm

Inferior fascia of pelvic diaphragm

Levator ani muscle

Rectal fascia

Longitudinal muscle of rectum

Circular muscle of rectum

Muscularis mucosae of rectum

Deep external
anal sphincter muscle

Internal rectal venous plexus

Conjoined longitudinal muscle

Superficial external
anal sphincter muscle

Internal anal sphincter muscle

Muscularis mucosae of anal canal

Transverse fibrous septum
of ischioanal fossa

Subcutaneous external
anal sphincter muscle

Corrugator cutis ani muscle

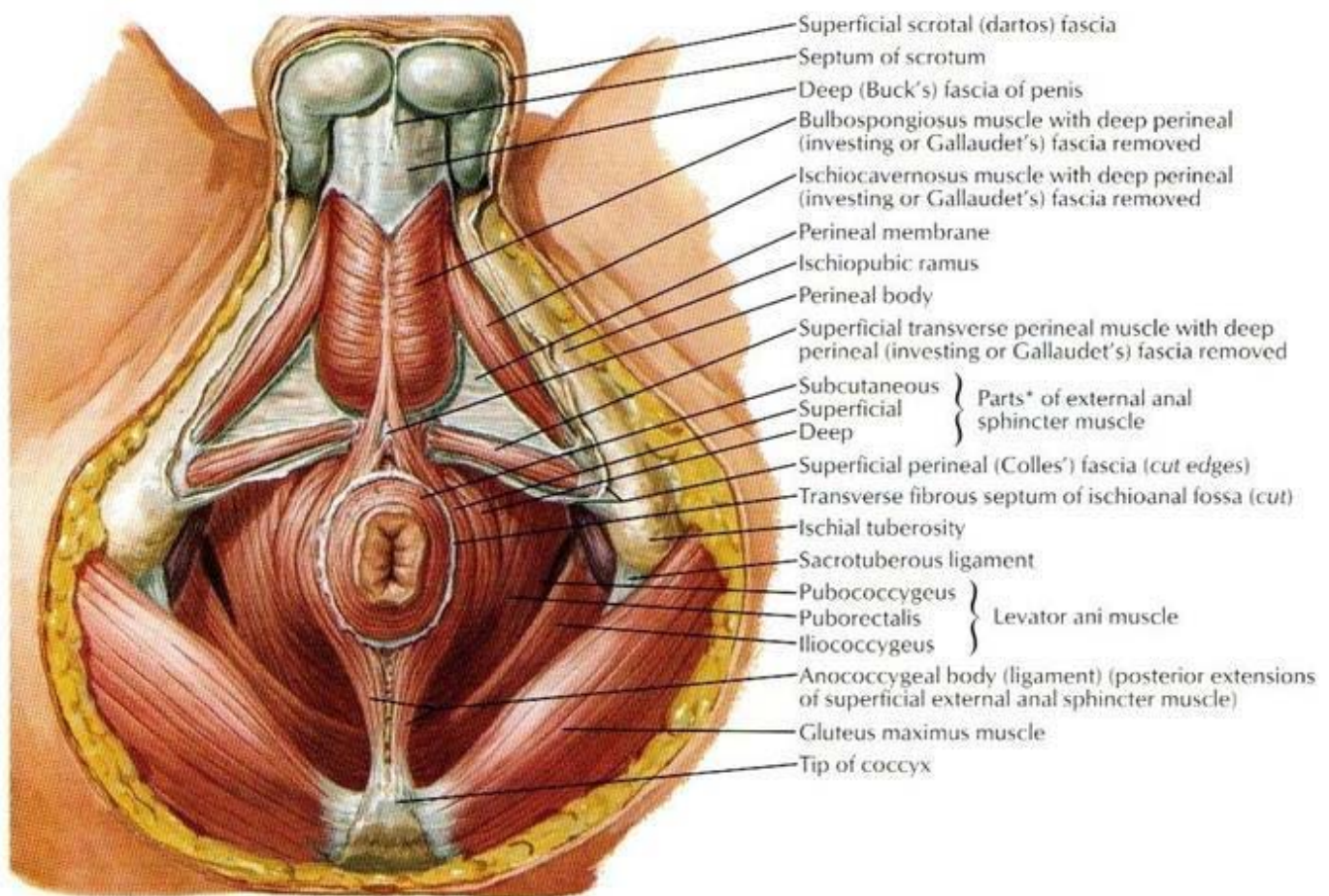
External rectal venous plexus

Intersphincteric groove
(anocutaneous line)

*F. Netter
M.D.*
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PELVIS AND PERINEUM

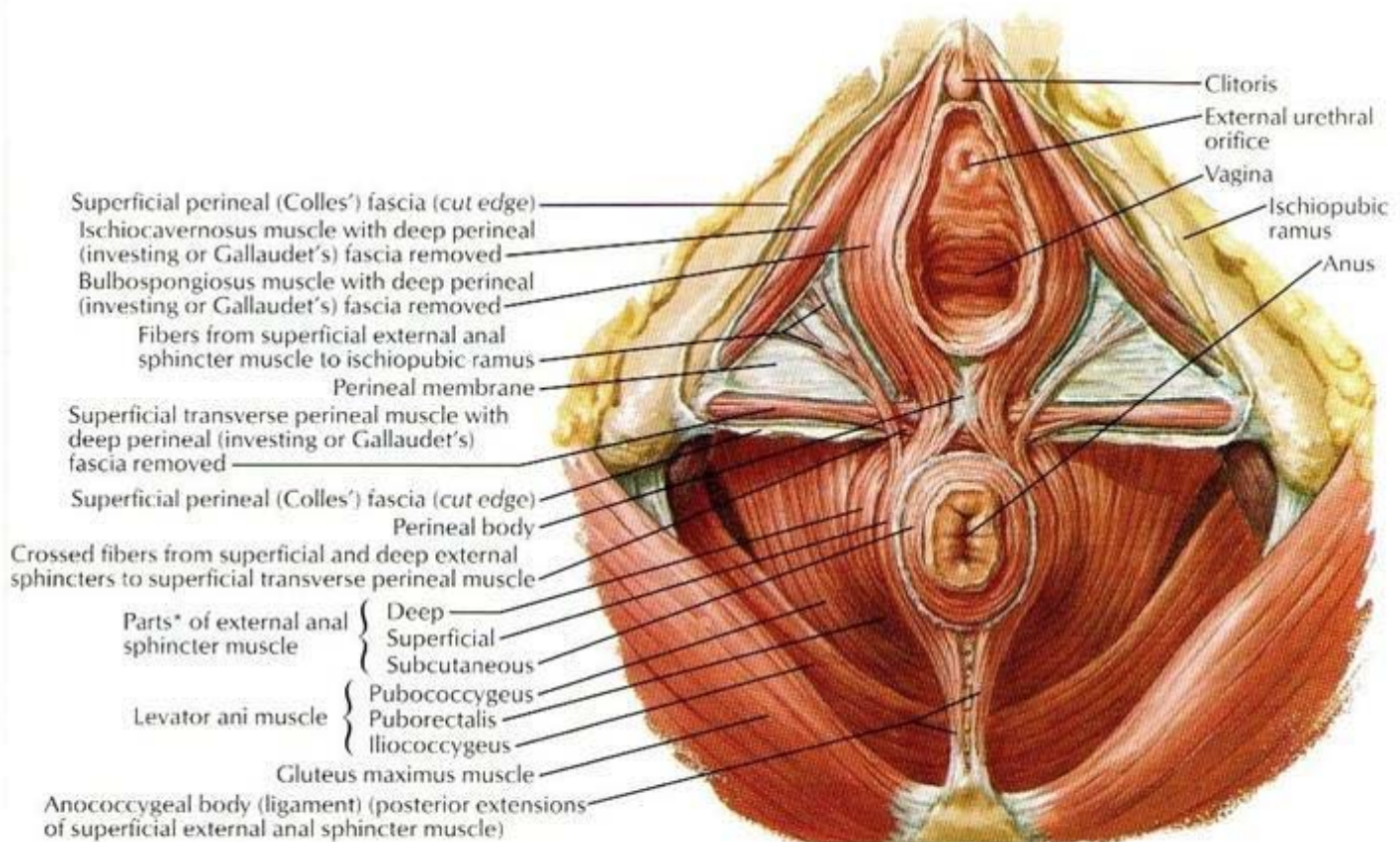
External Anal Sphincter Muscle: Male Perineal View



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PELVIS AND PERINEUM

External Anal Sphincter Muscle: Female Perineal View

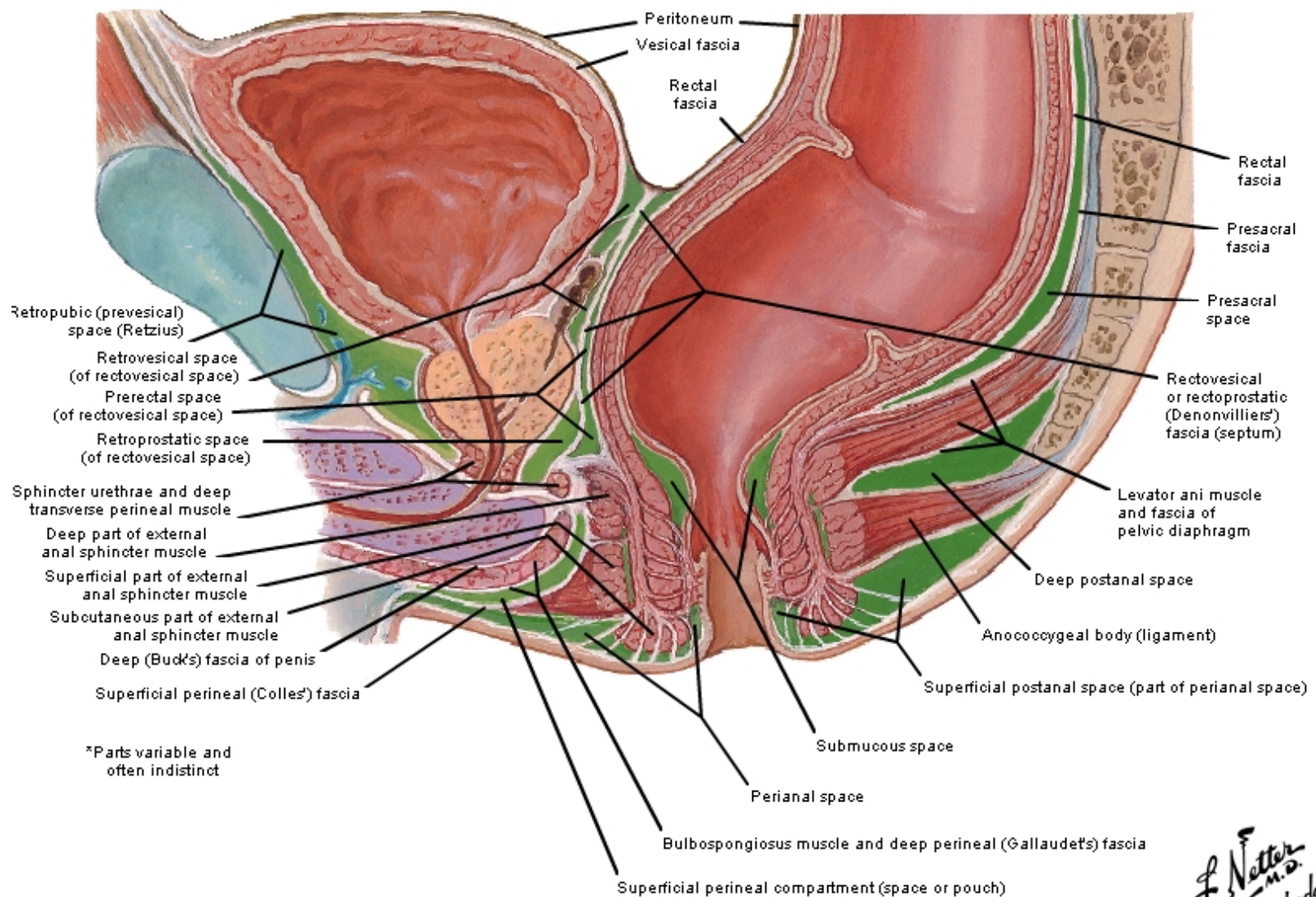


*Parts variable and often indistinct

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PELVIS AND PERINEUM

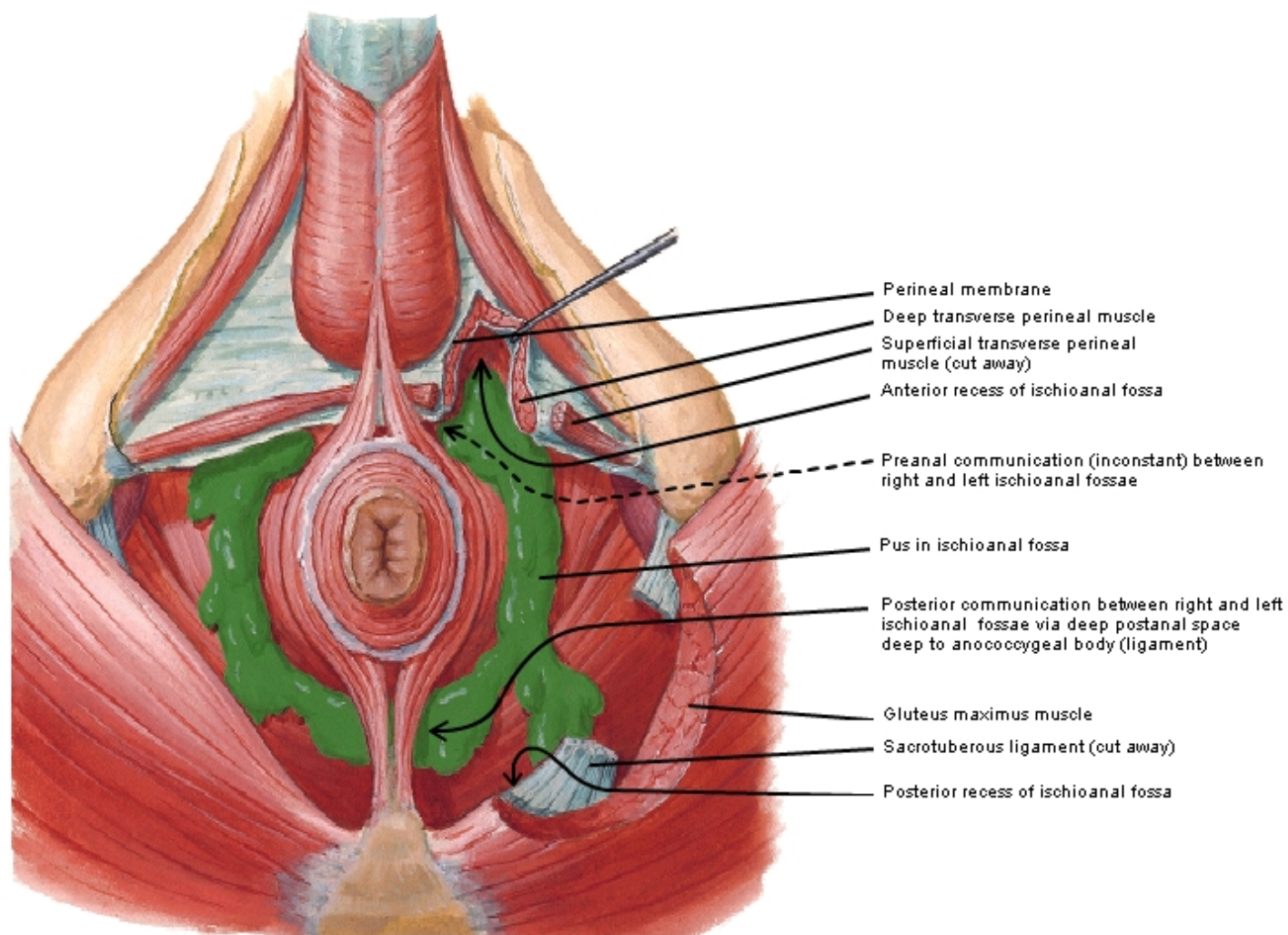
Actual and Potential Perineopelvic Spaces Sagittal section



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PELVIS AND PERINEUM

Spread of Perineal Abscess in Perineal Spaces Perineal view

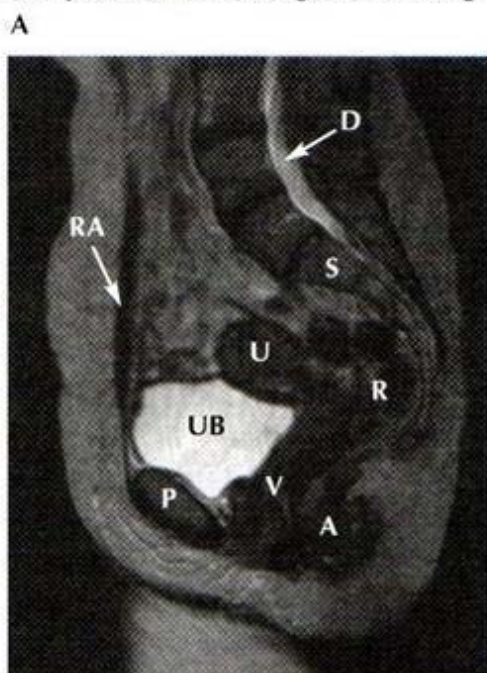


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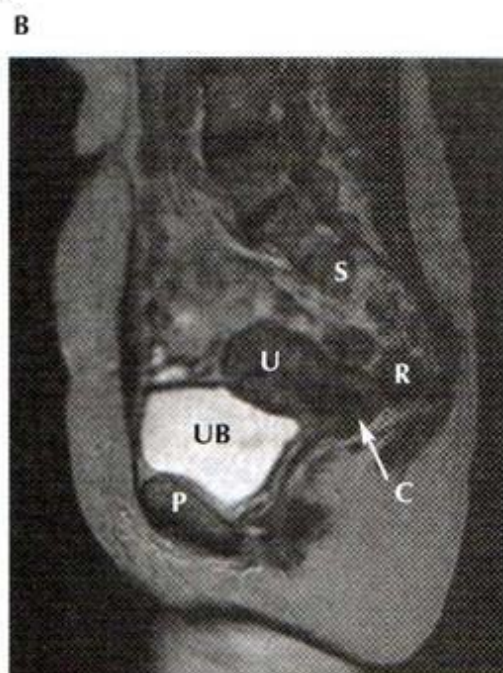
PELVIS AND PERINEUM

Pelvic Scans: Female Sagittal MR Images

Median (A) and paramedian (B) sagittal MR images of female pelvis



- A** Anal canal
- C** External os of cervix
- D** Dural (thecal) sac
- P** Pubic symphysis
- R** Rectum

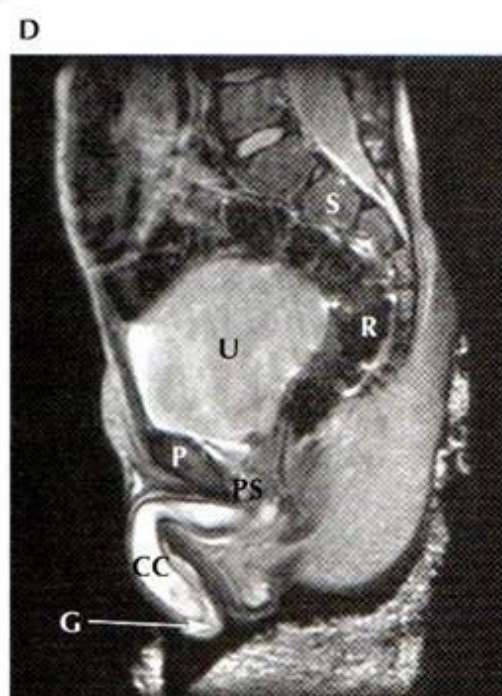


- RA** Rectus abdominis muscle
- S** Sacrum
- U** Uterus
- UB** Urinary bladder
- V** Vagina

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Pelvic Scans: Male Sagittal MR Images

Median (C) and paramedian (D) sagittal MR images of male pelvis



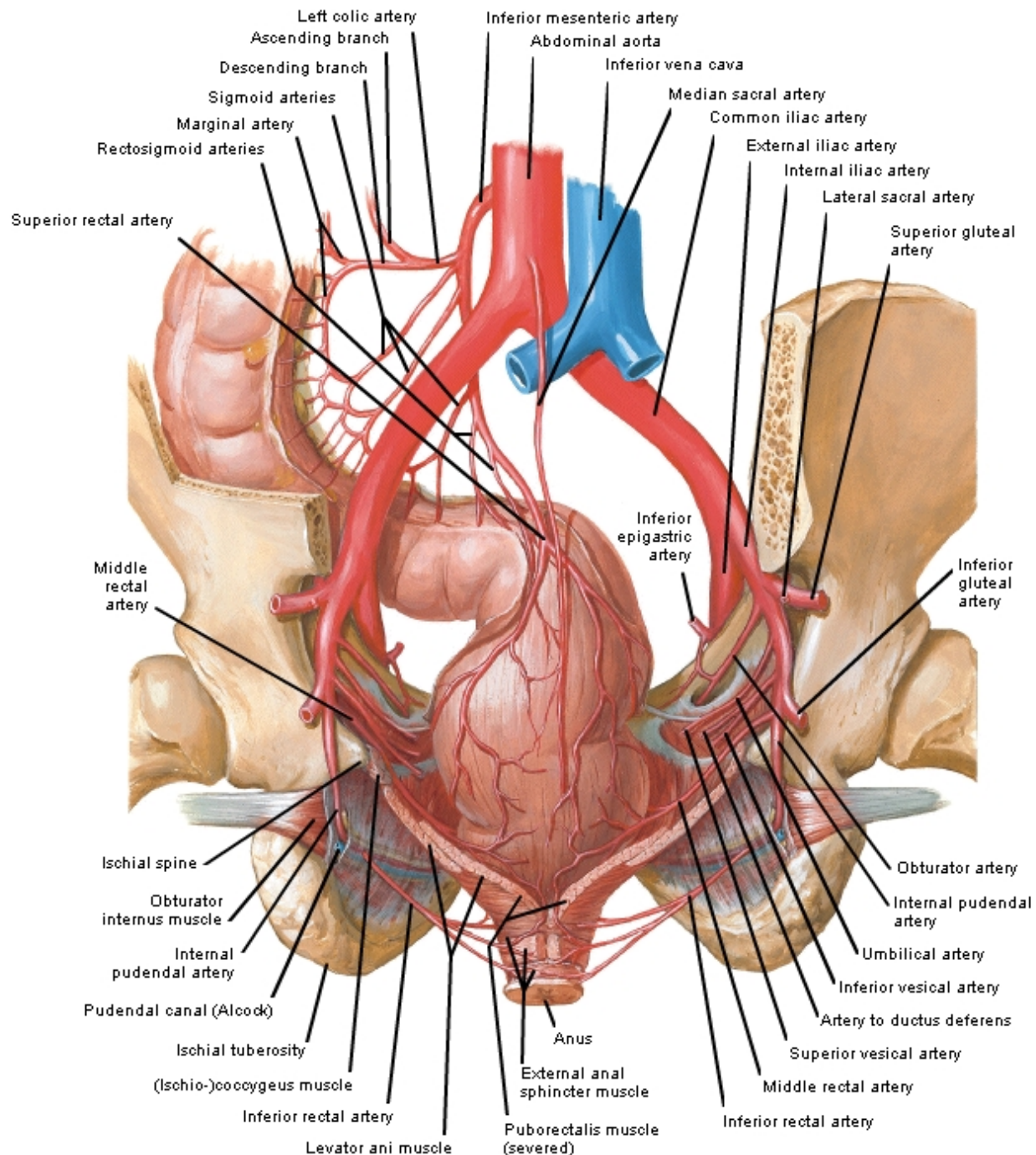
C Corpus spongiosum
CC Corpus cavernosum
G Glans penis
P Pubic symphysis
PS Prostate

R Rectum
S Sacrum
T Testis
U Urinary bladder

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PELVIS AND PERINEUM

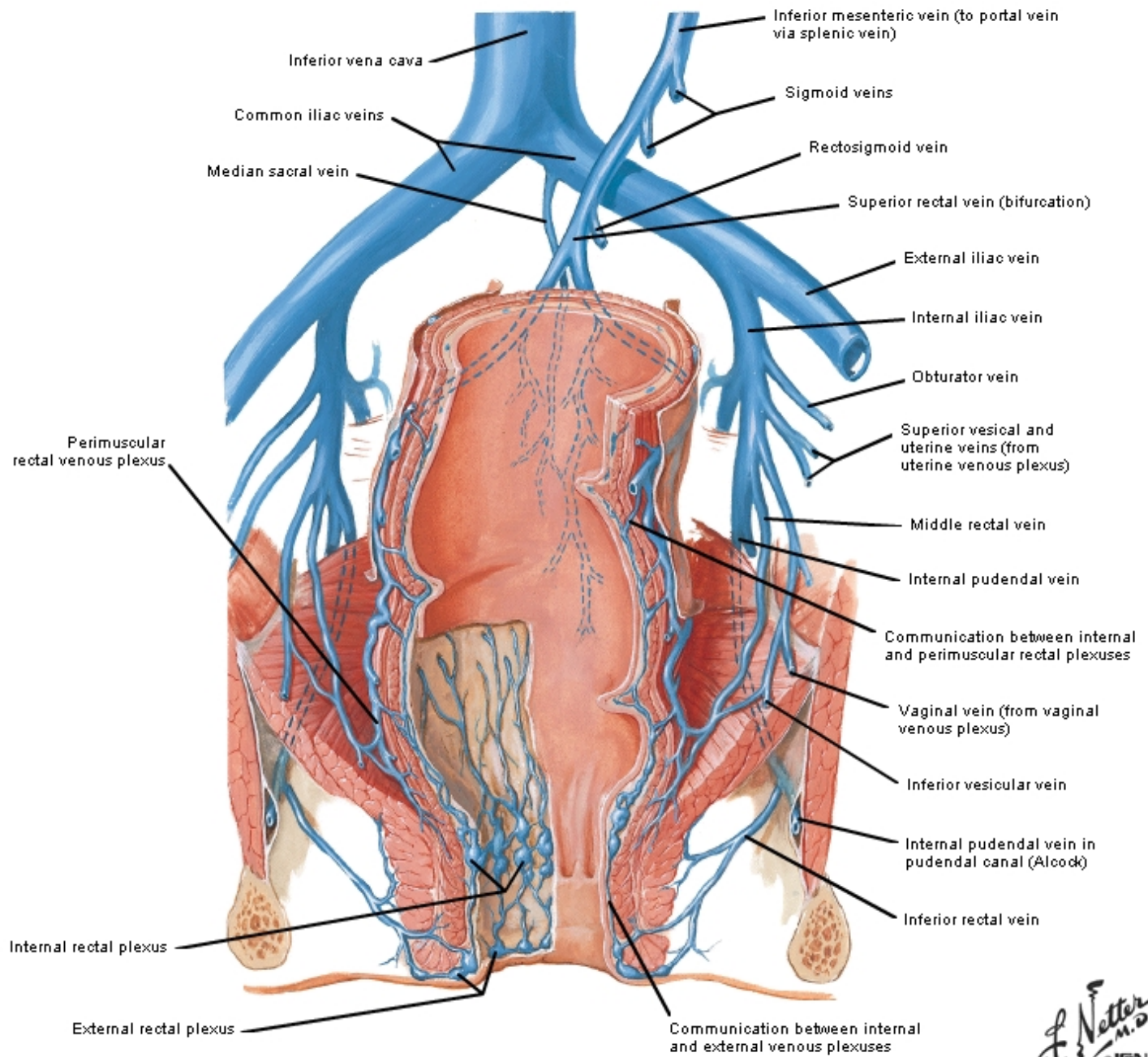
Arteries of Rectum and Anal Canal: Posterior View



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PELVIS AND PERINEUM

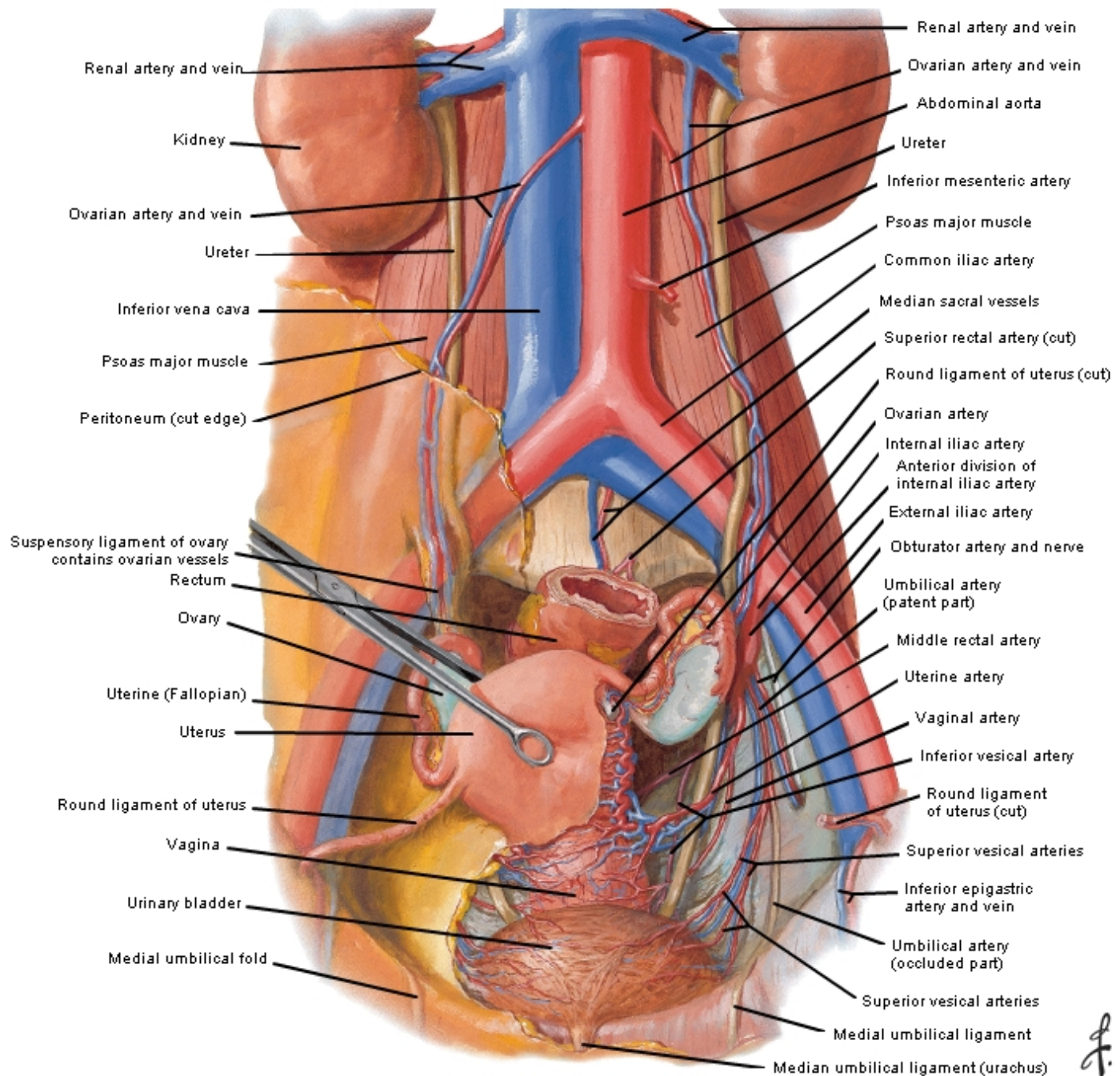
Veins of Rectum and Anal Canal Anterior View



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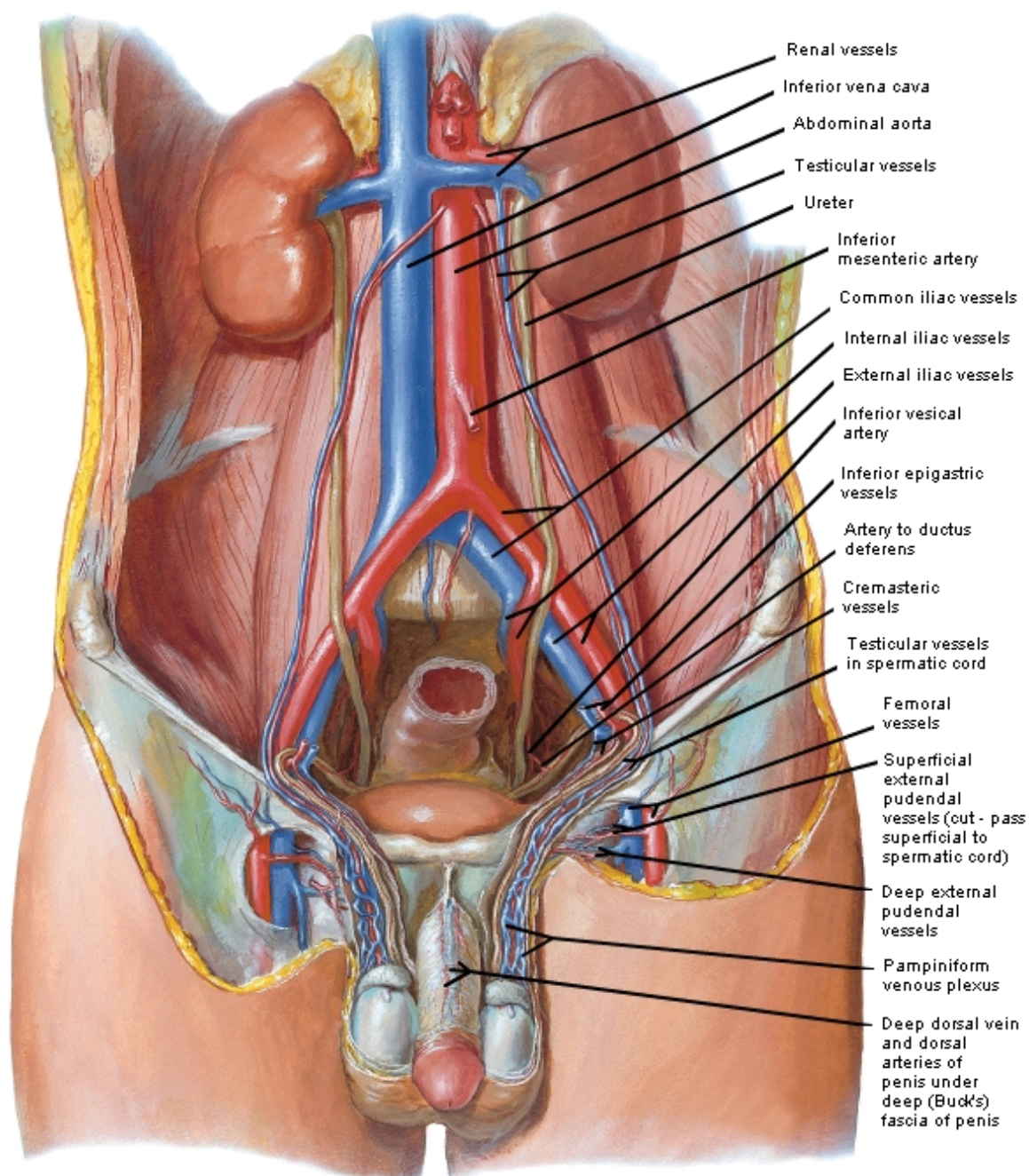
Arteries and Veins of Pelvic Organs: Female

Anterior View



PELVIS AND PERINEUM

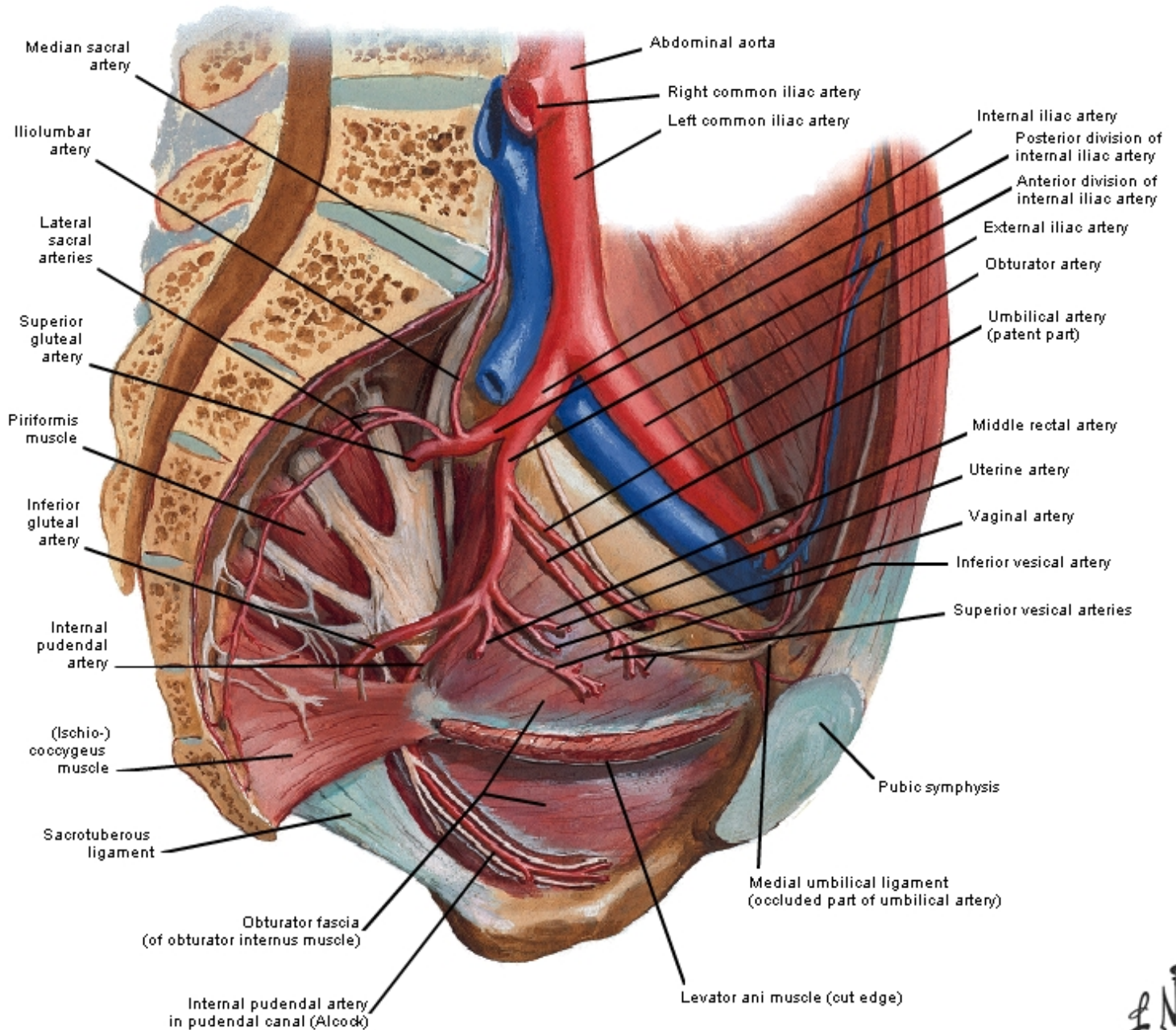
Arteries and Veins of Testis Anterior view



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PELVIS AND PERINEUM

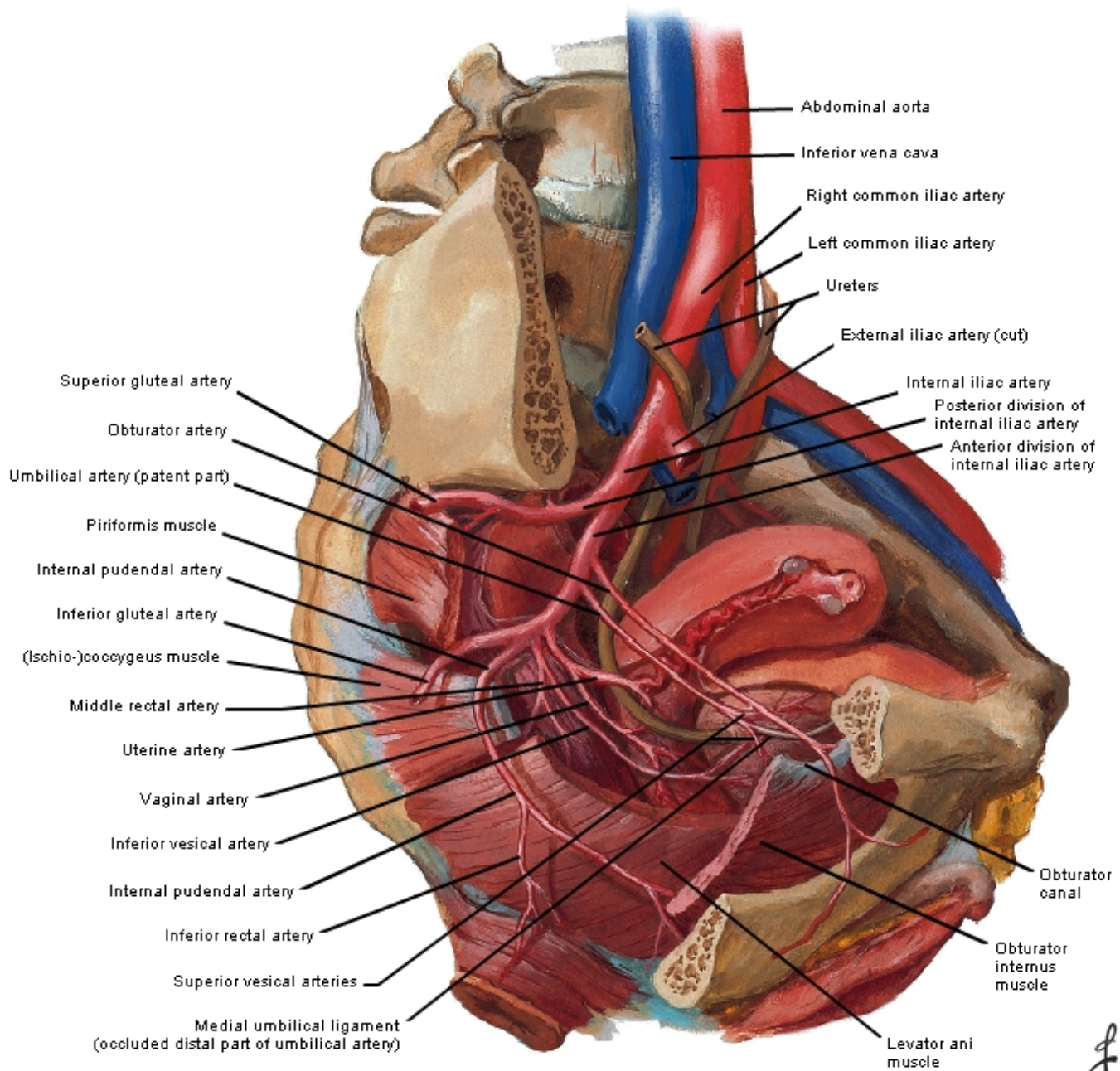
Arteries and Veins of Pelvis Female - Sagittal Section



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PELVIS AND PERINEUM

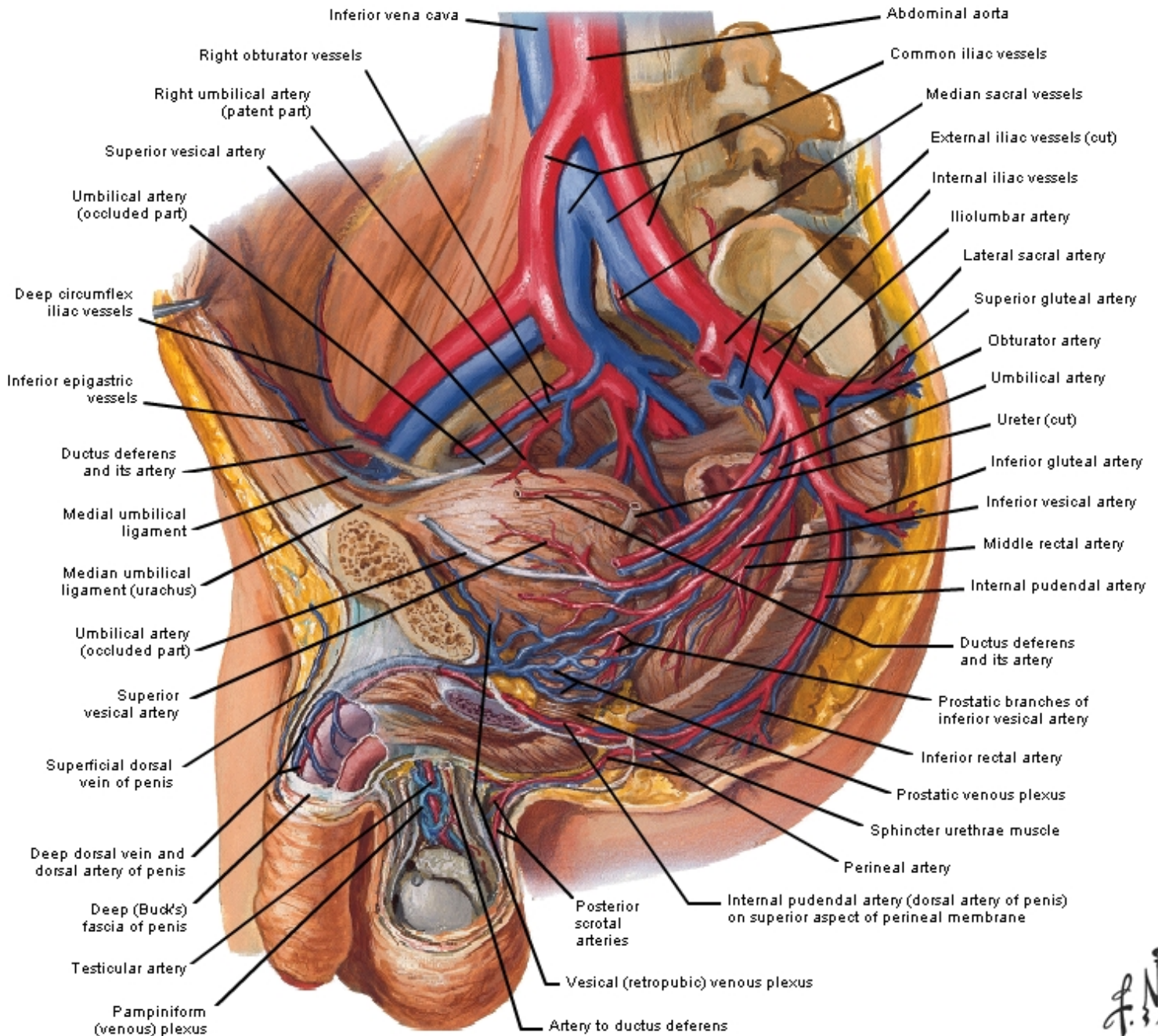
Arteries and Veins of Pelvis Female - Right Paramedian Section: Lateral View



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PELVIS AND PERINEUM

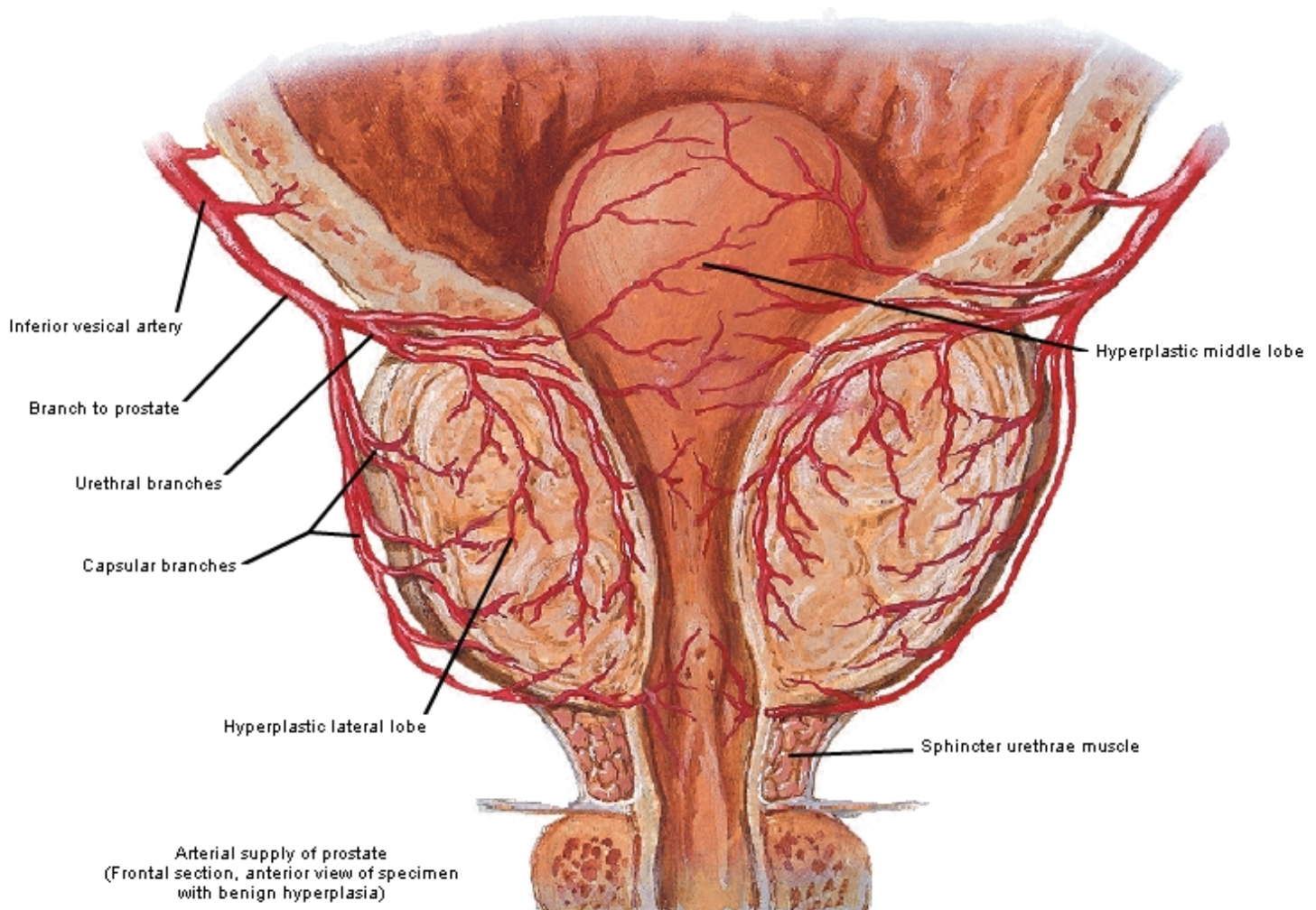
Arteries and Veins of Pelvis: Male Left Paramedian Section - Lateral View



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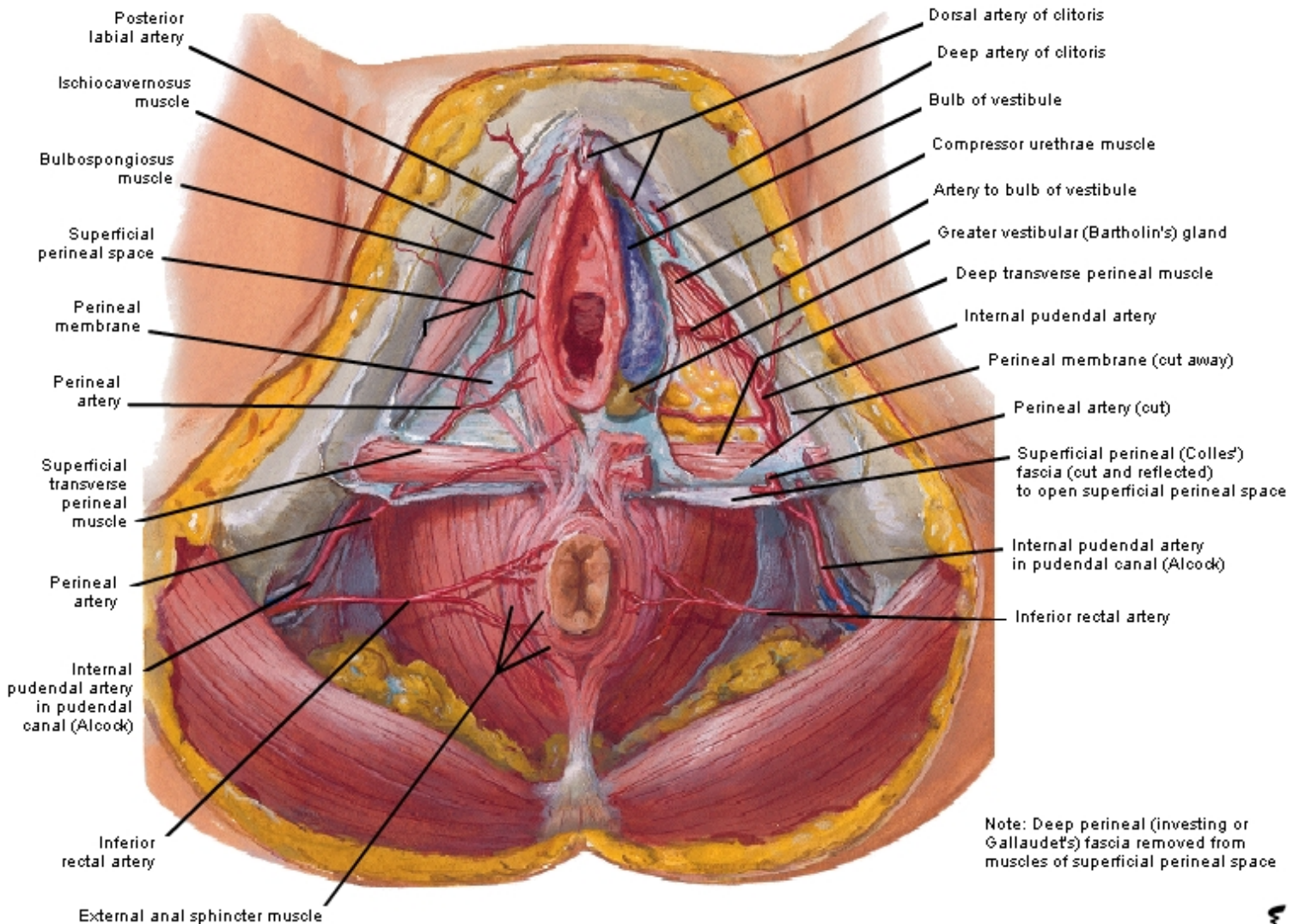
Arterial Supply of Prostate Benign Hyperplasia Specimen



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M.D.
C. Machado
M.D.
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PELVIS AND PERINEUM

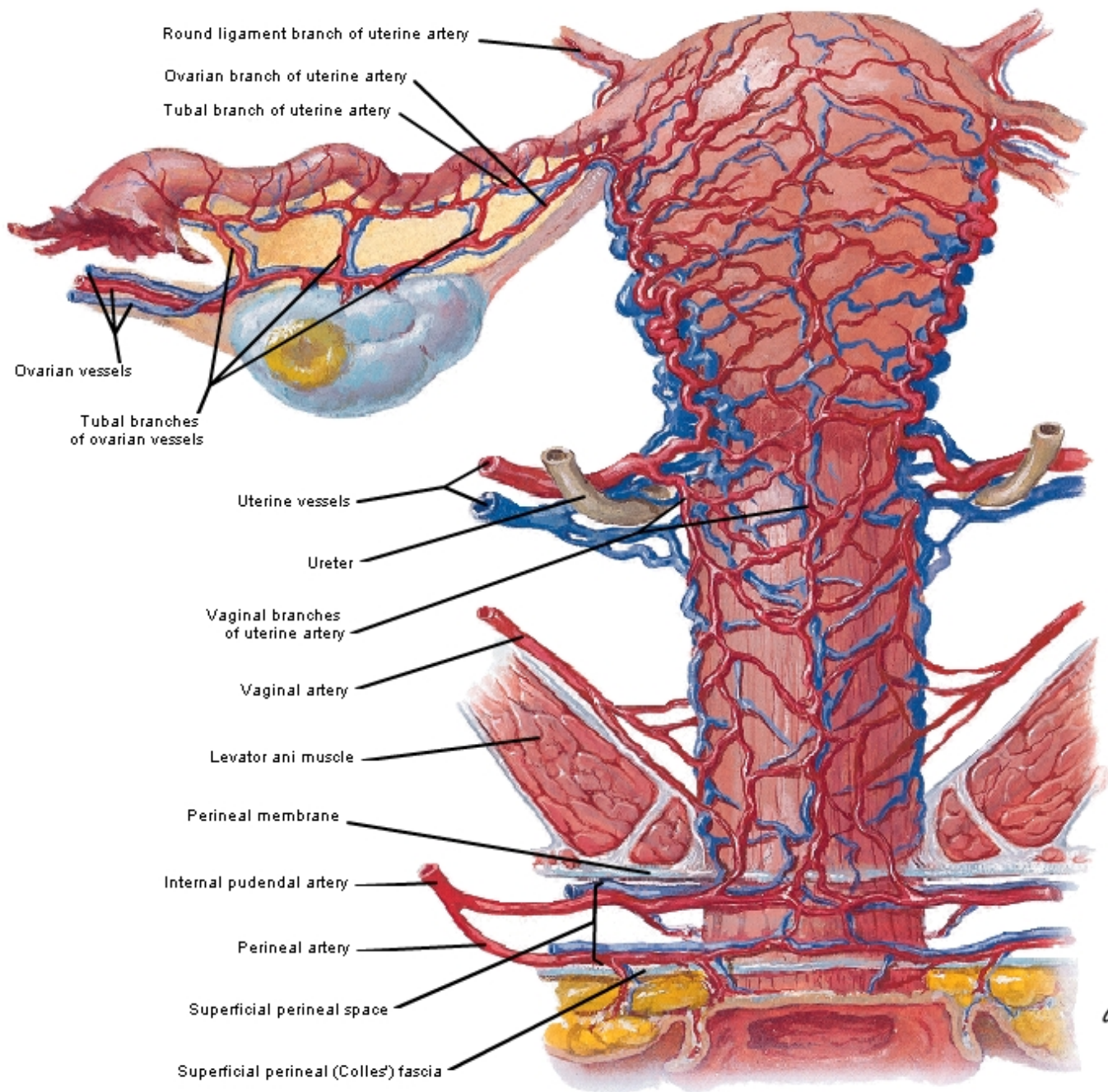
Arteries and Veins of Perineum Female



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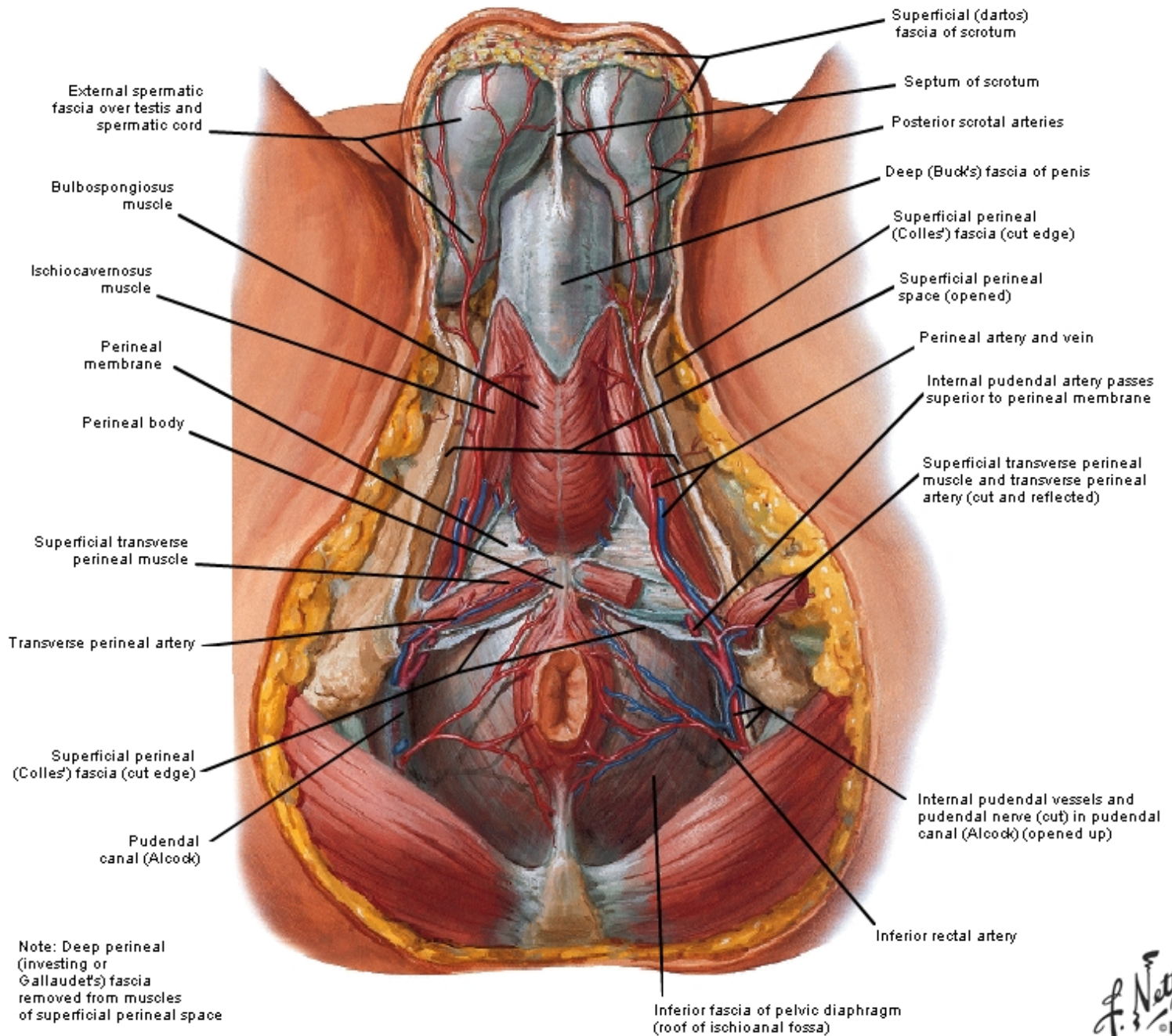
PELVIS AND PERINEUM

Arteries and Veins of Uterus



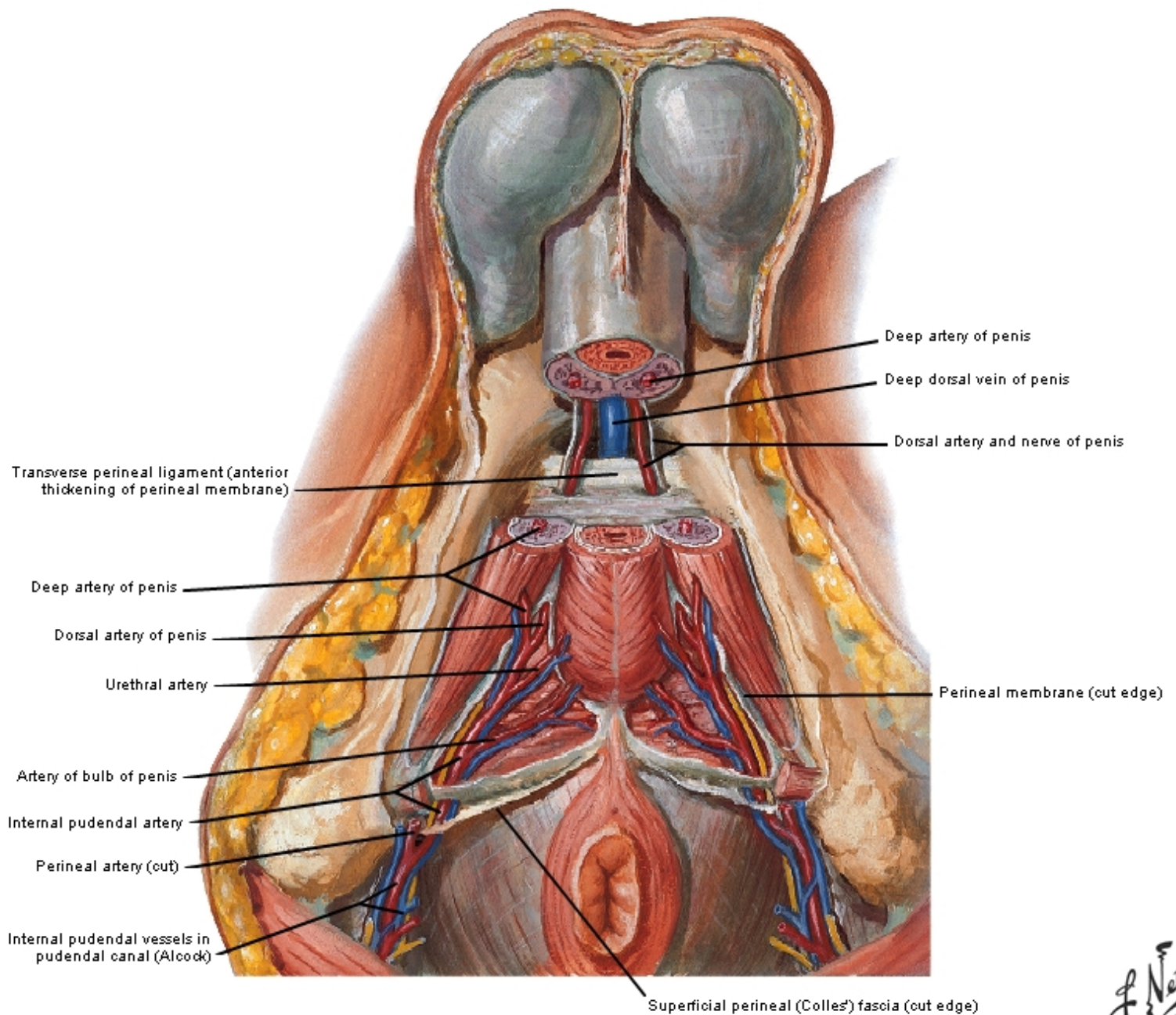
PELVIS AND PERINEUM

Arteries and Veins of Perineum: Male



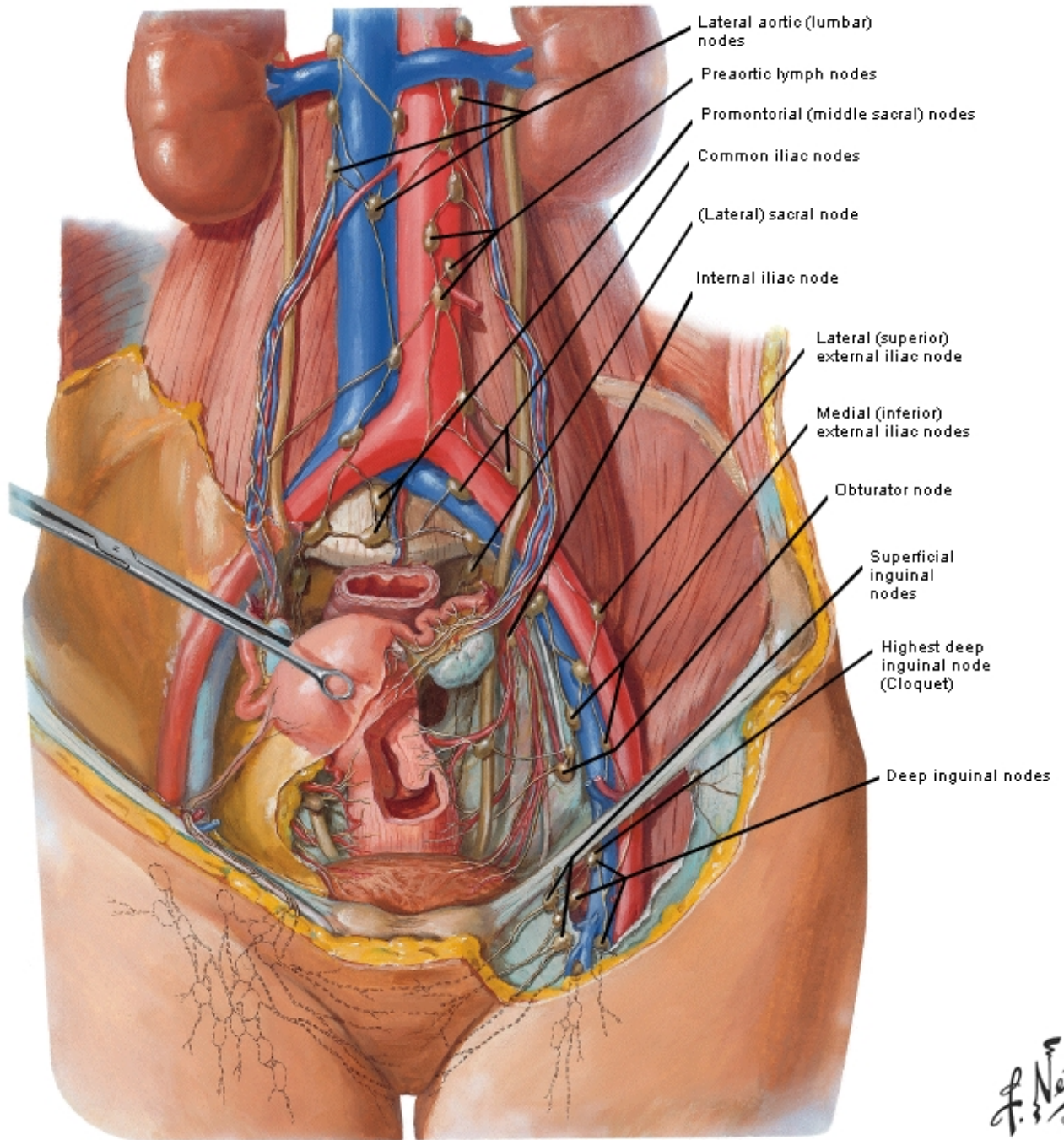
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Arteries and Veins of Perineum: Male



PELVIS AND PERINEUM

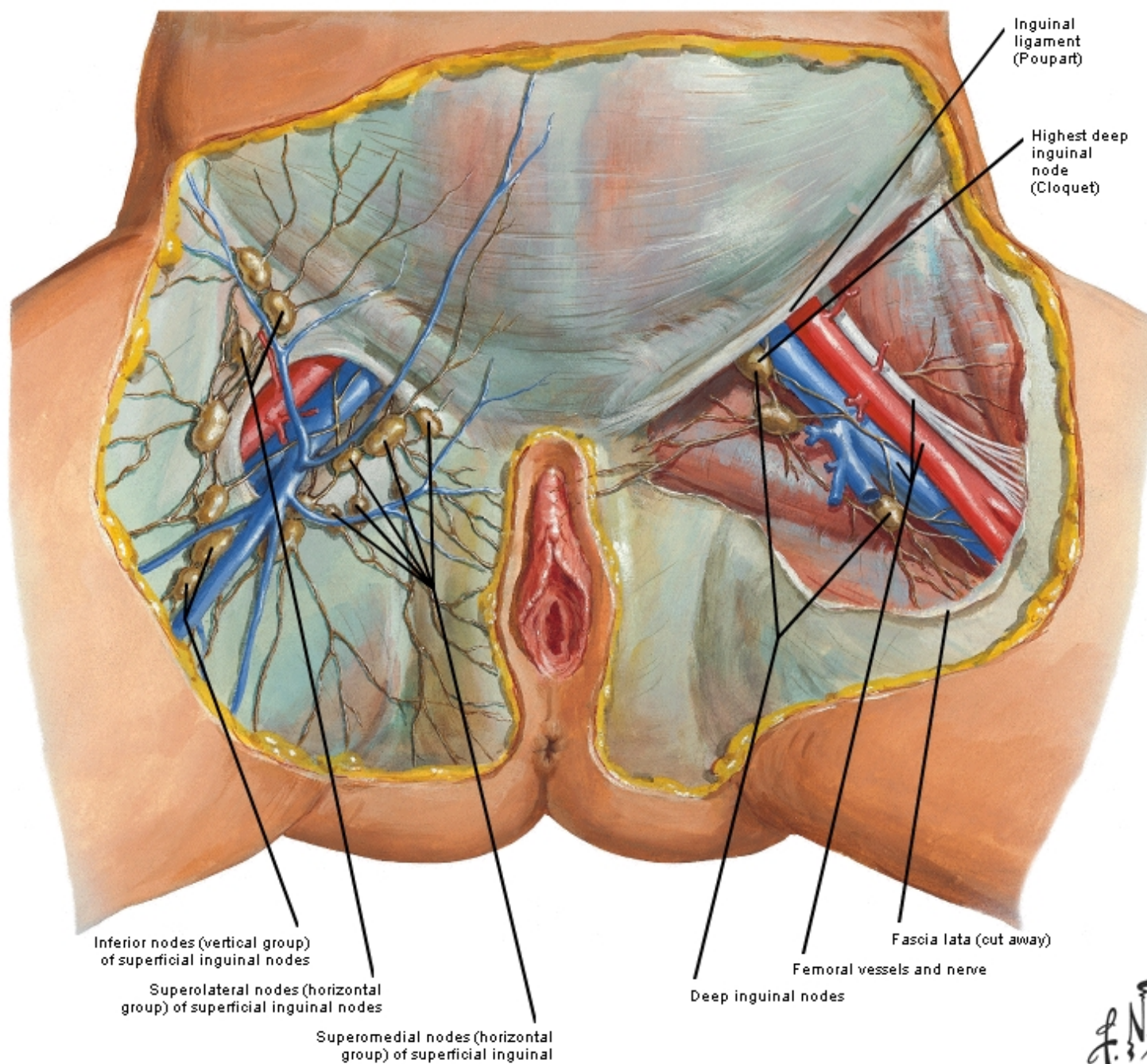
Lymph Vessels and Nodes of Pelvis and Genitalia: Female



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PELVIS AND PERINEUM

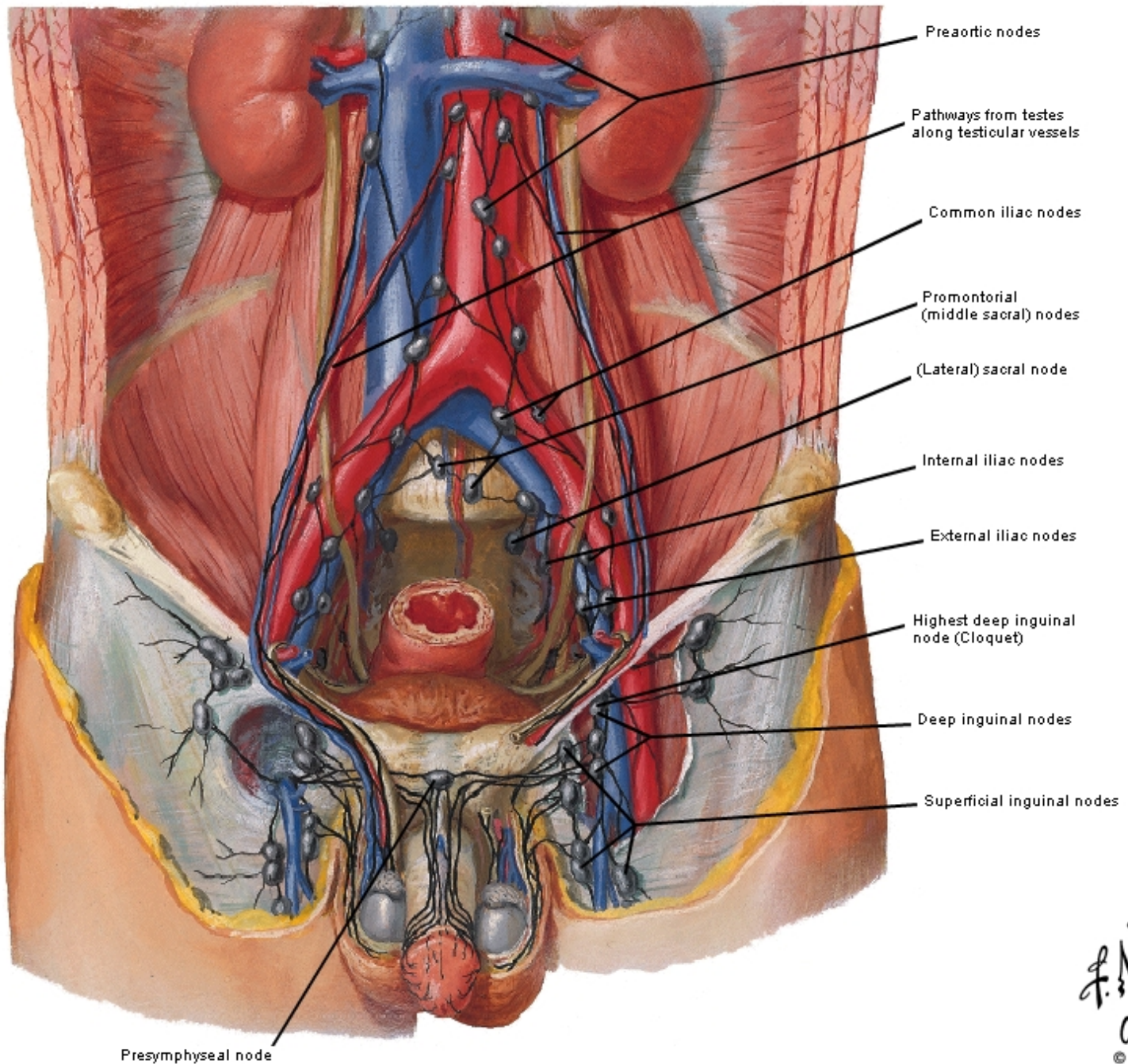
Lymph Vessels and Nodes of Perineum Female



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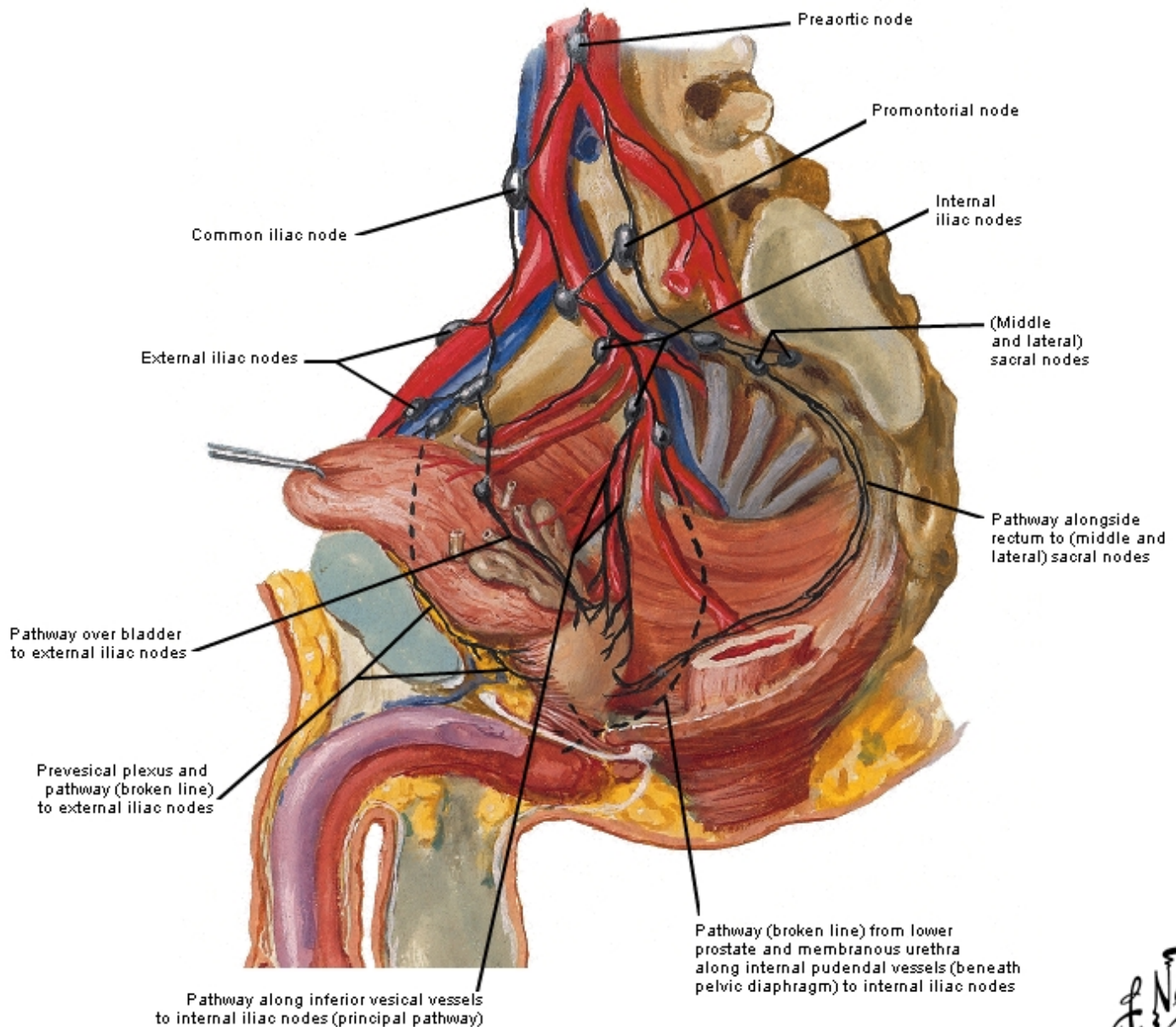
PELVIS AND PERINEUM

Lymph Vessels and Nodes of Pelvis and Genitalia: Male



PELVIS AND PERINEUM

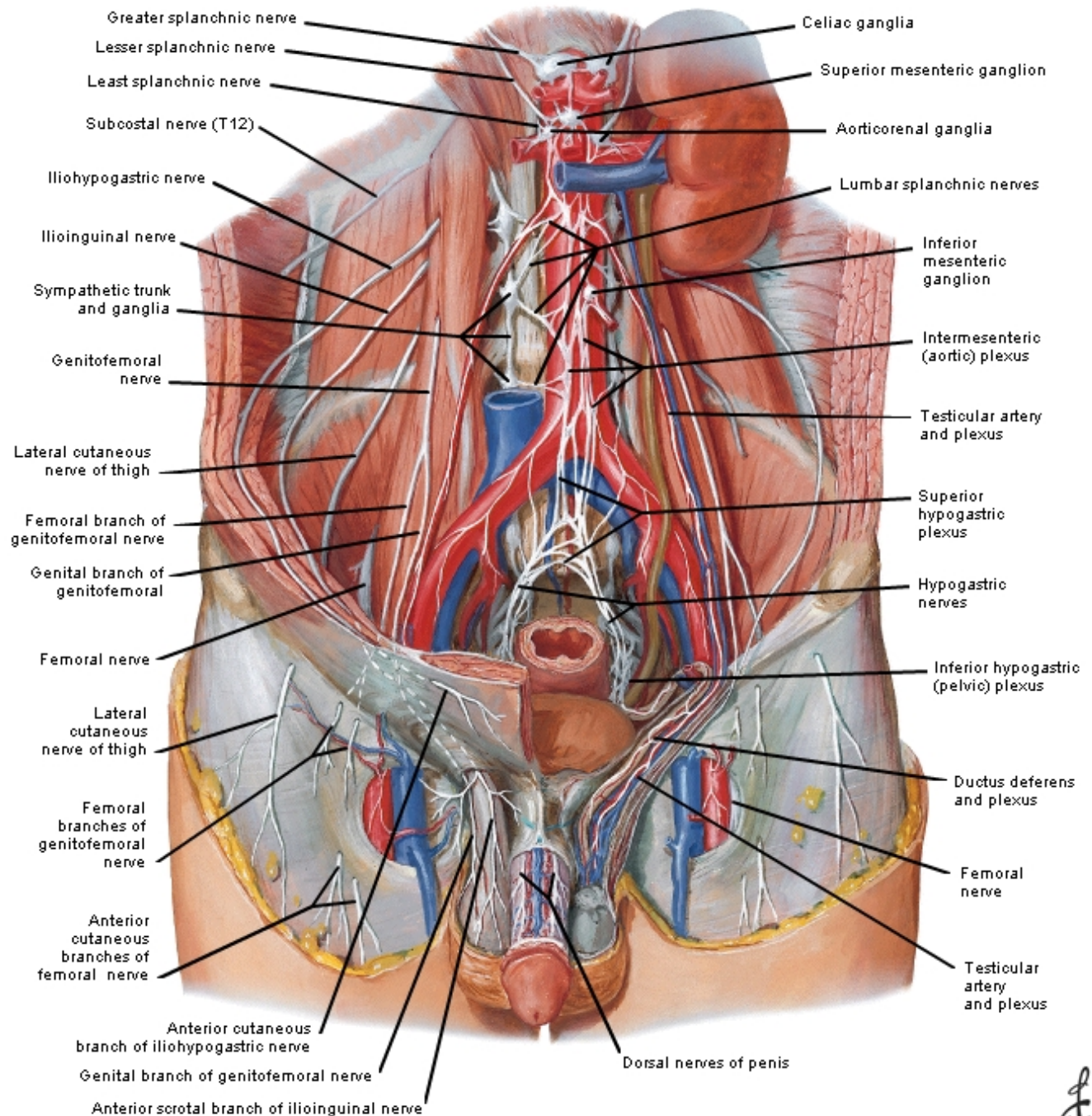
Lymphatic Drainage from Prostate



F. Netter M.D.
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PELVIS AND PERINEUM

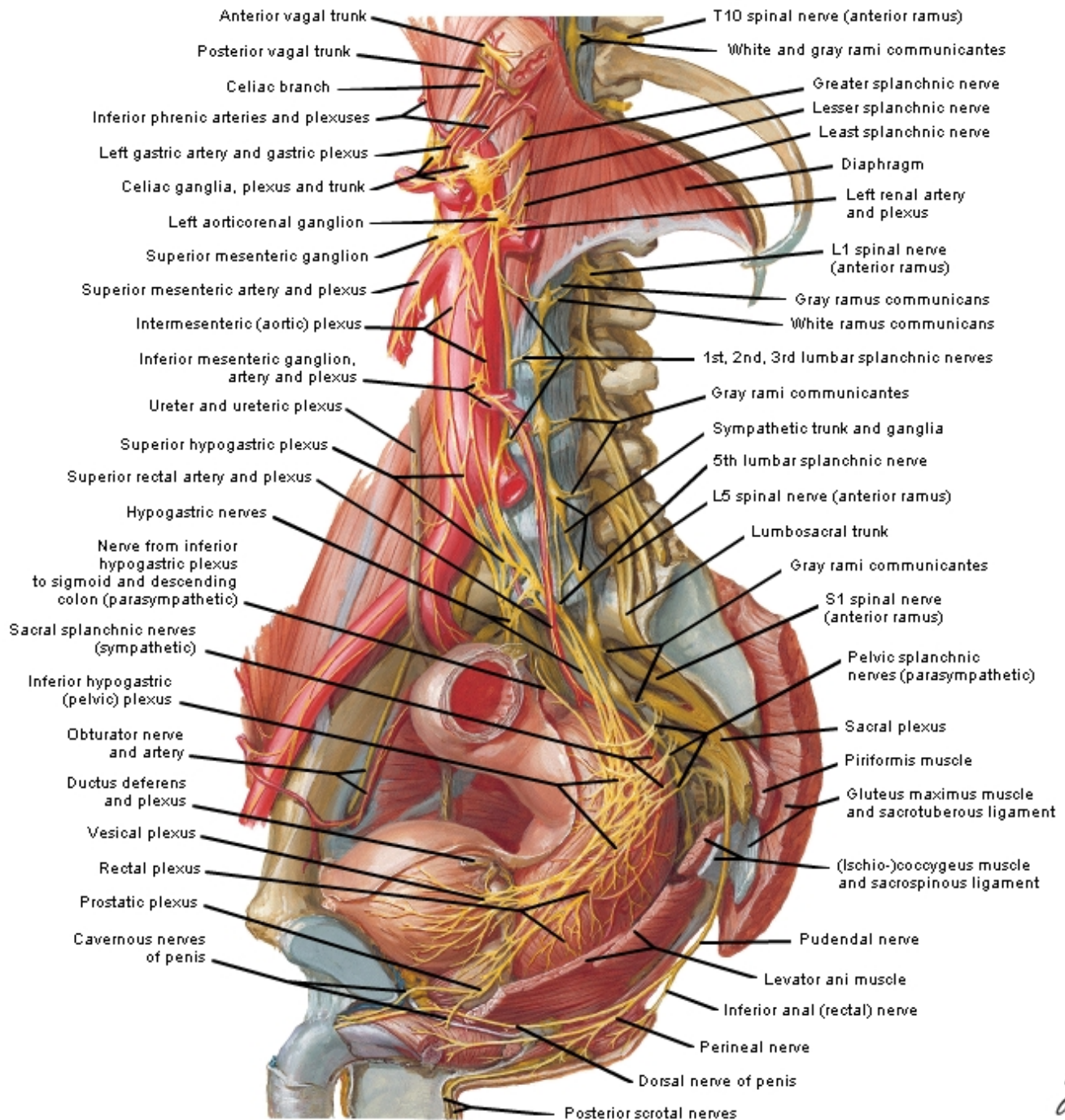
Nerves of External Genitalia: Male



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PELVIS AND PERINEUM

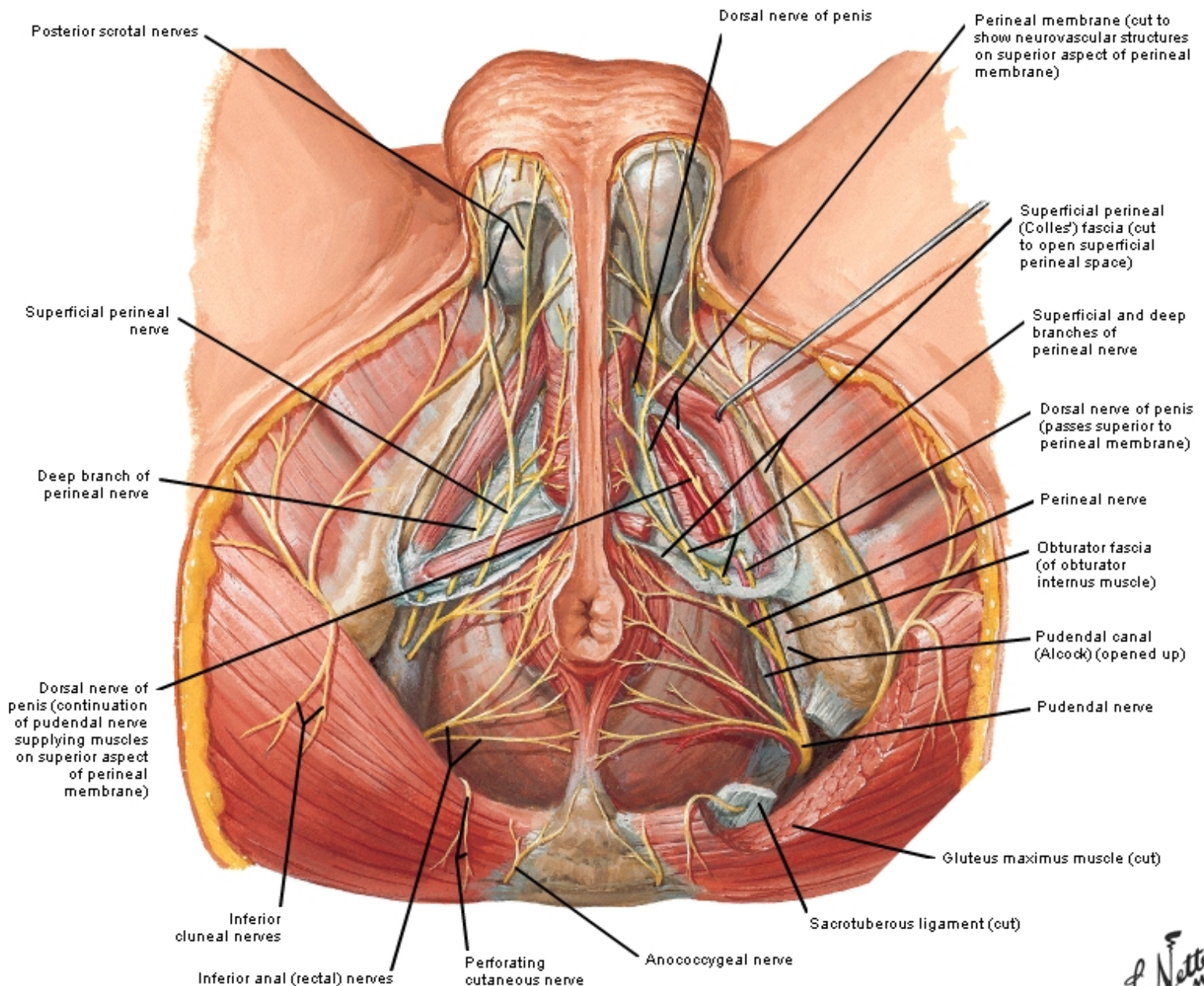
Nerves of Pelvic Viscera: Male



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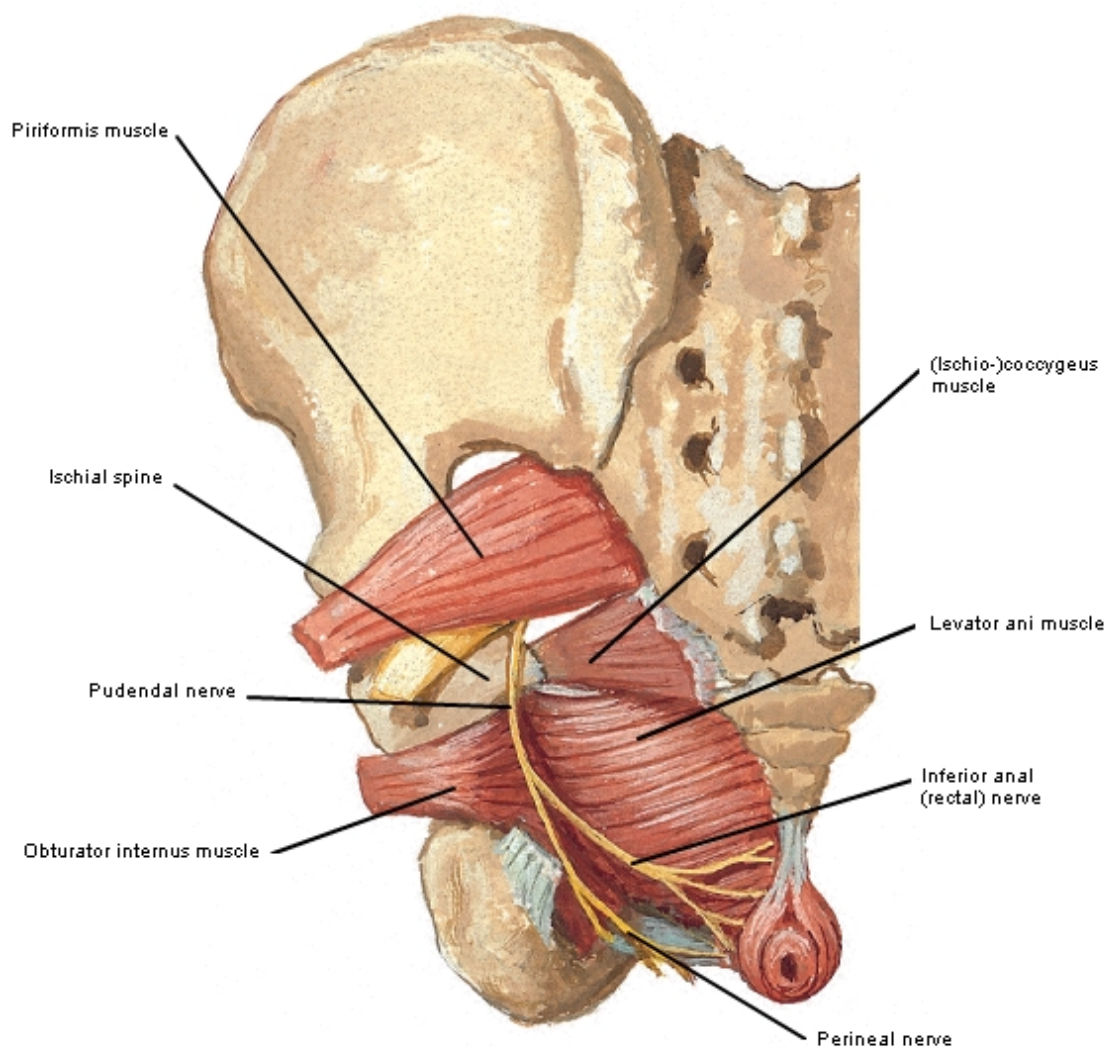
Nerves of Perineum Male - Perineal View



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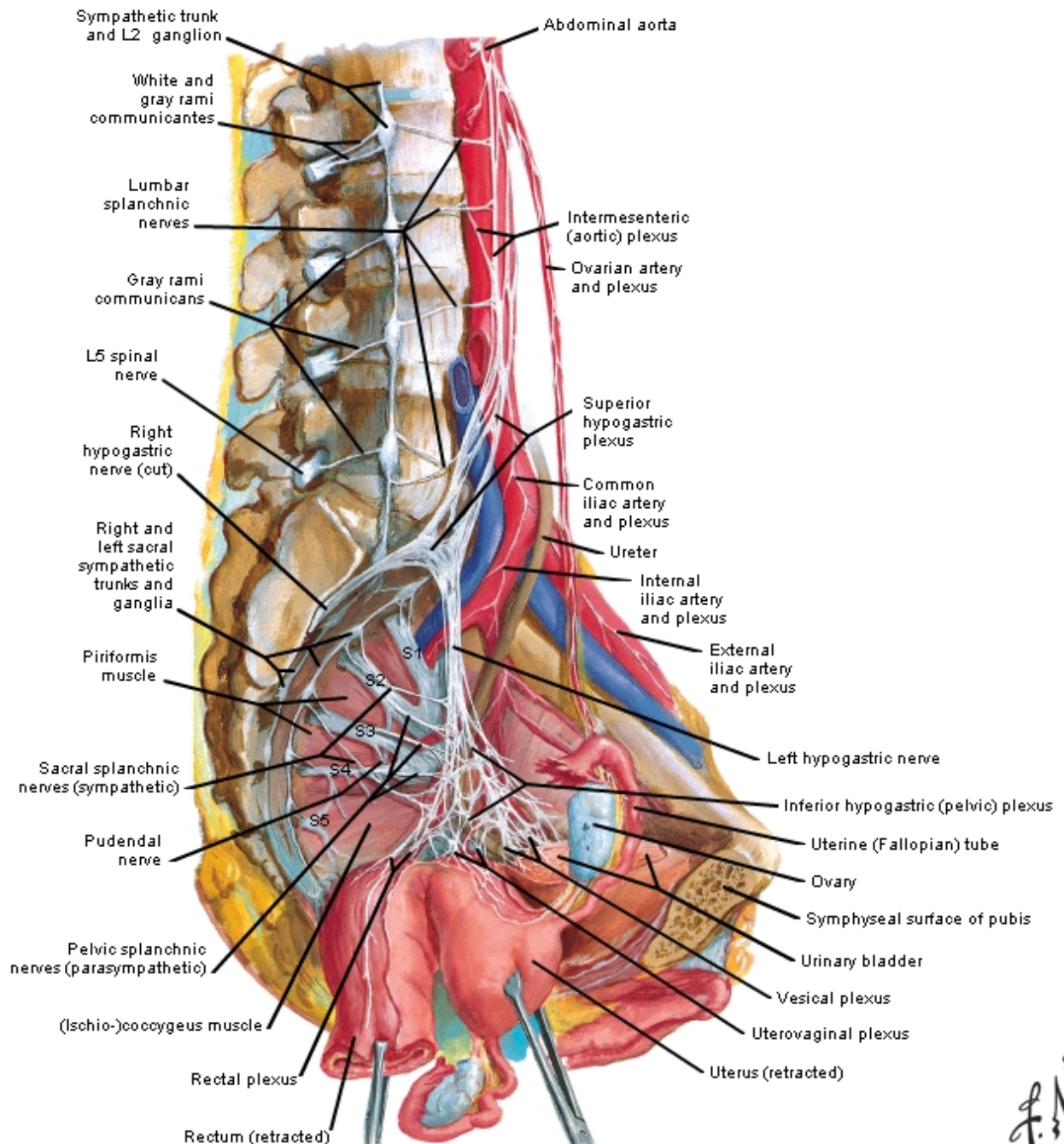
Nerves of Perineum Male - Posteroinferior View



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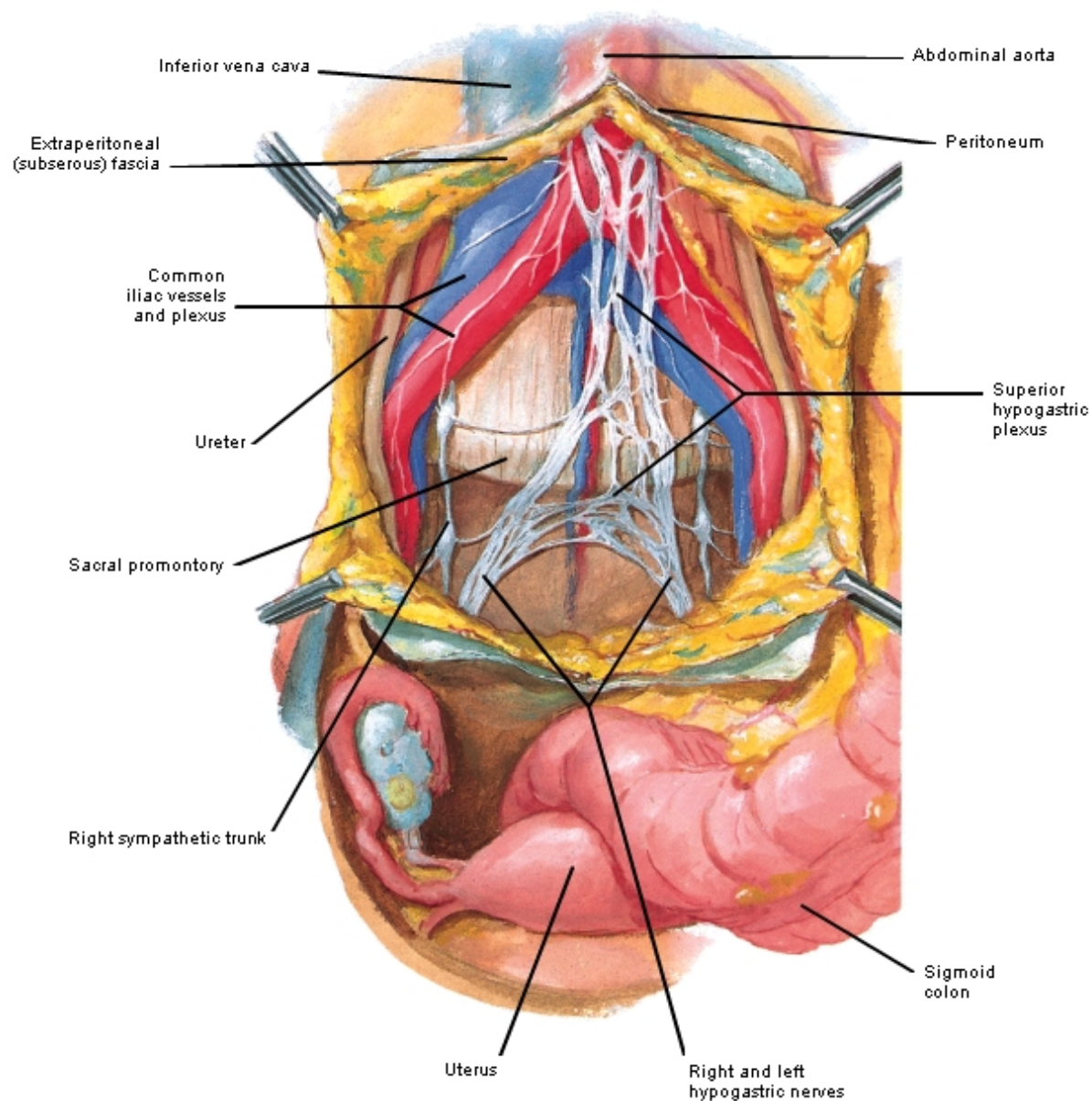
Nerves of Pelvic Viscera Female - Sagittal Section



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PELVIS AND PERINEUM

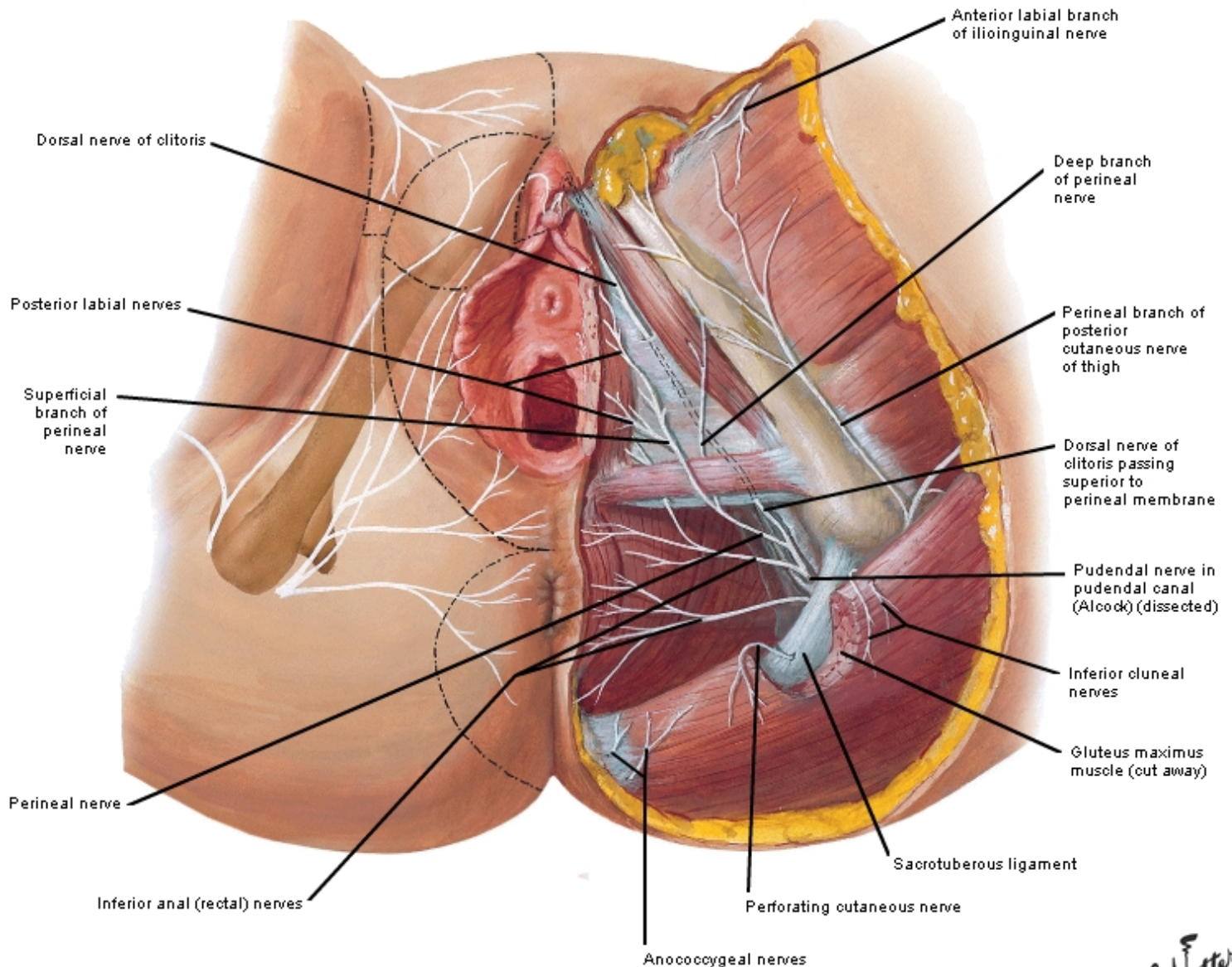
Nerves of Pelvic Viscera Female - Superior View



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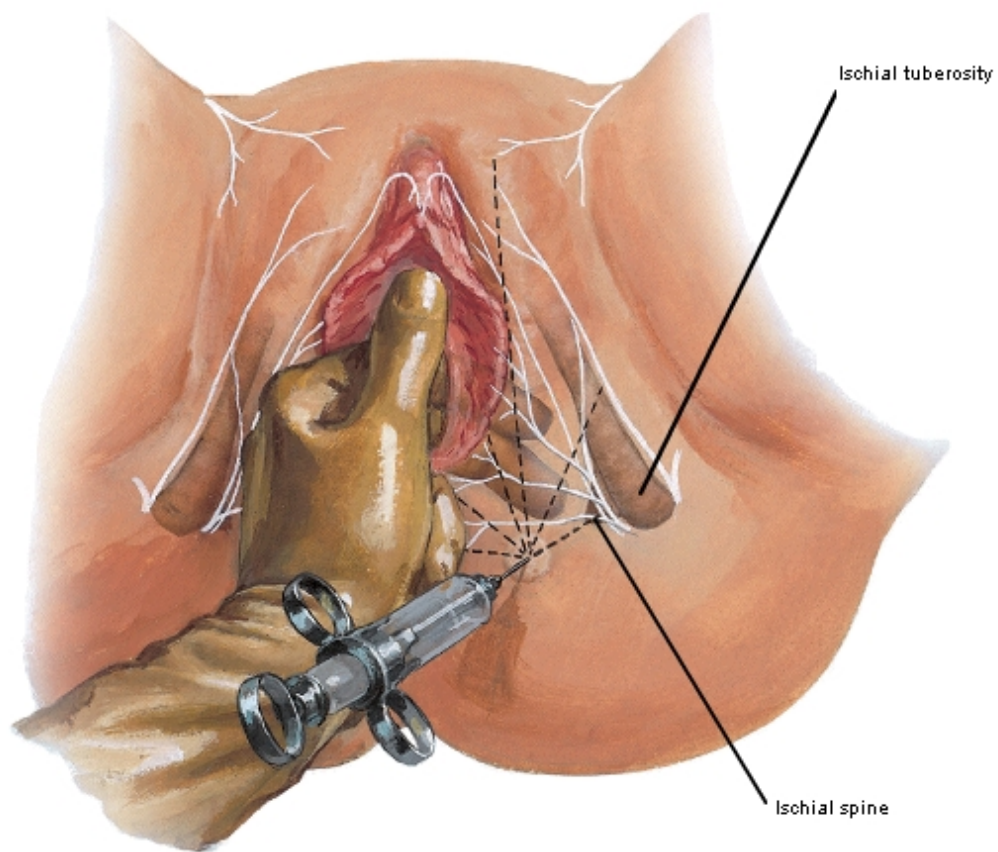
Nerves of Perineum and External Genitalia Female



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Pudendal Nerve Block, Perineal Approach

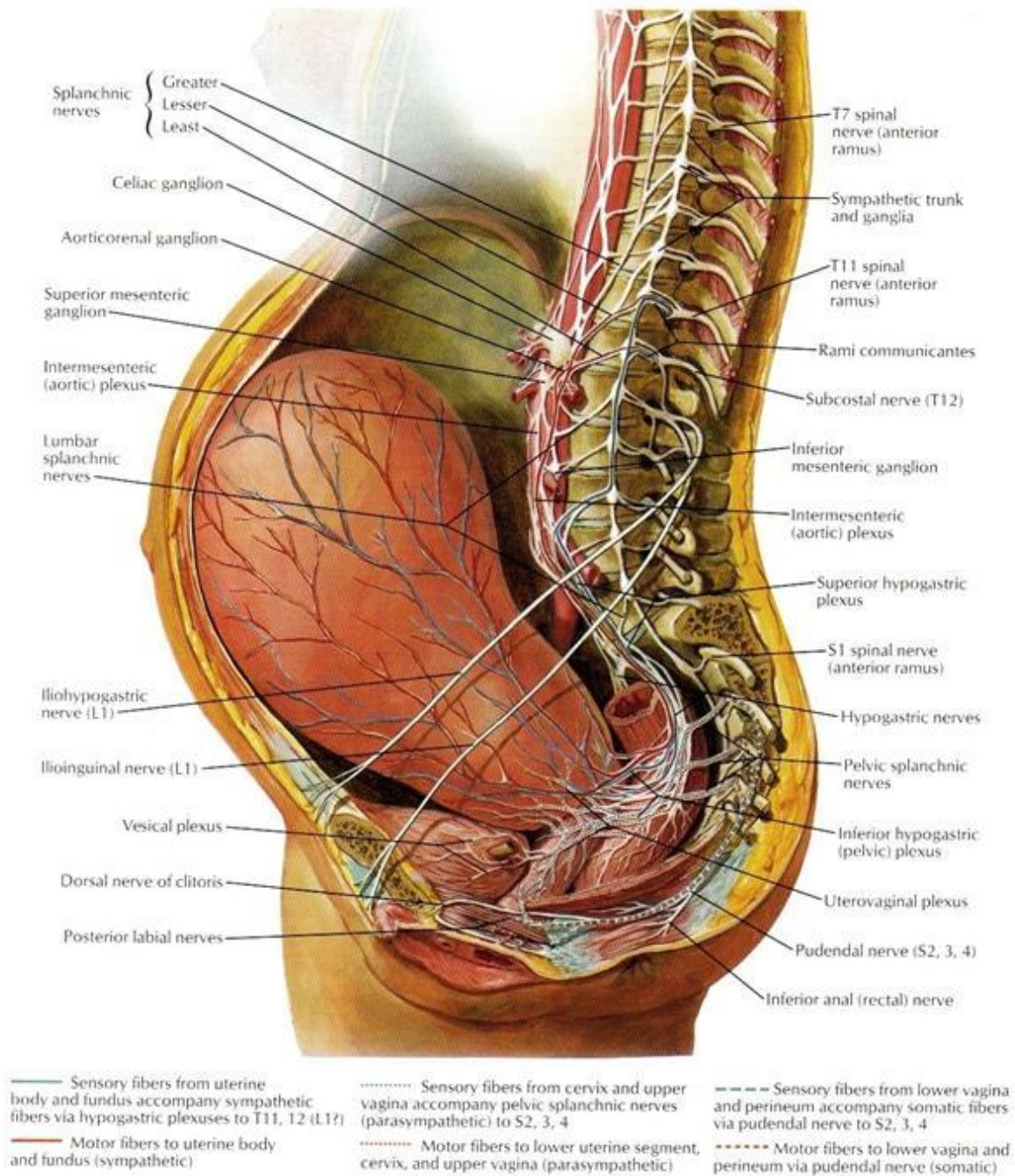
Primarily Pudendal Nerve



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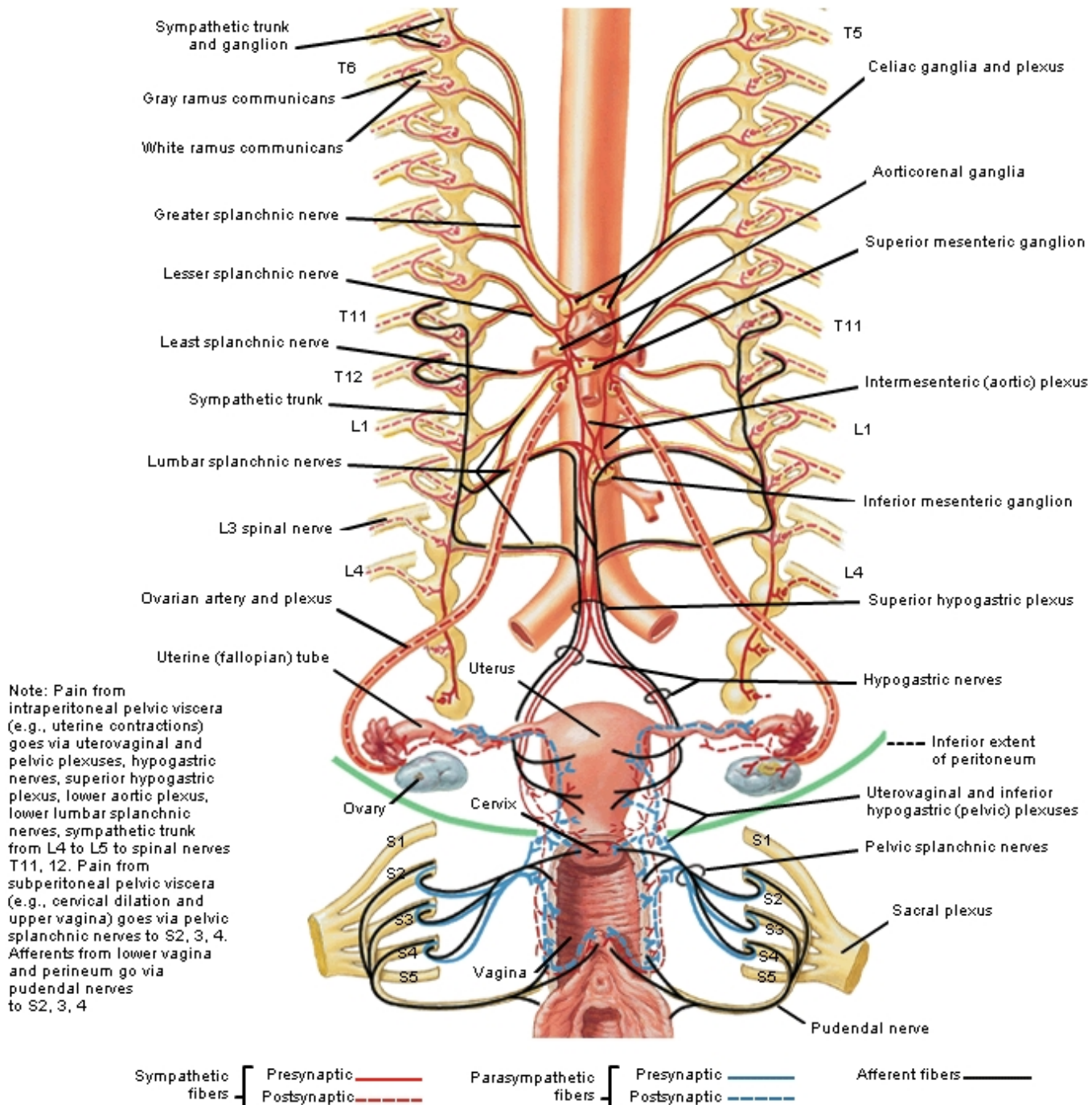
Neuropathways in Parturition



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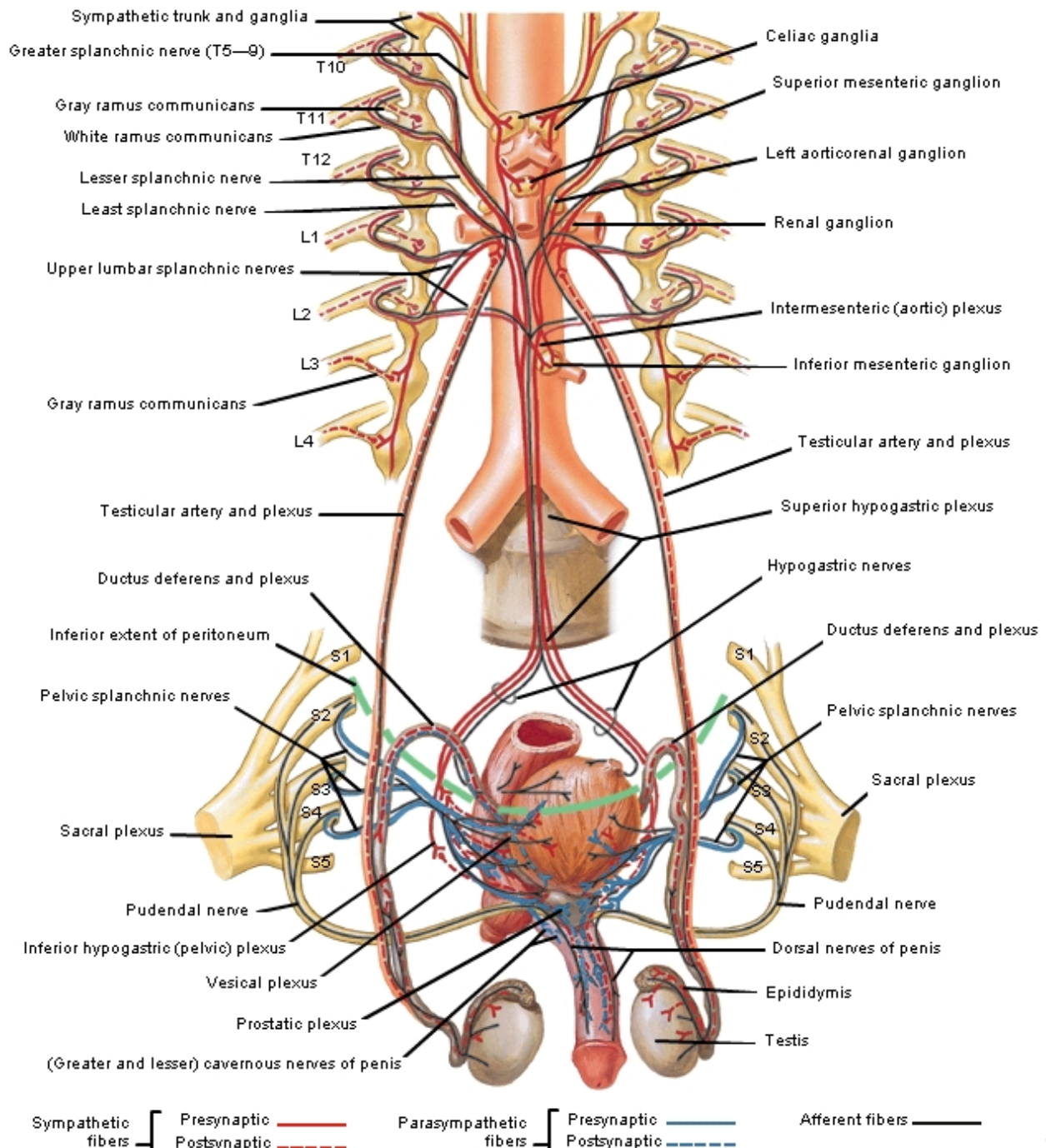
Innervation of Female Reproductive Organs: Schema



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PELVIS AND PERINEUM

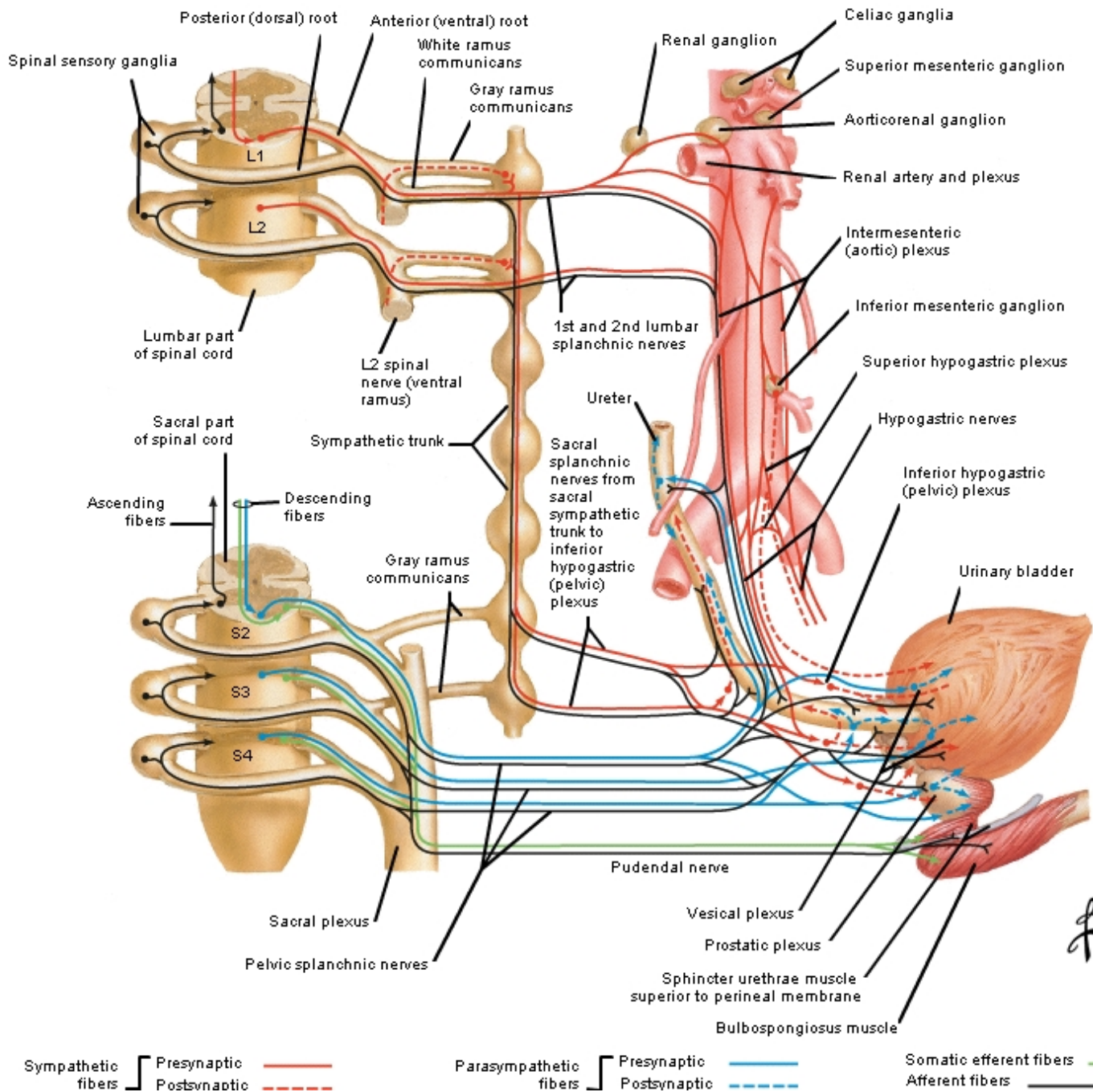
Innervation of Male Reproductive Organs: Schema



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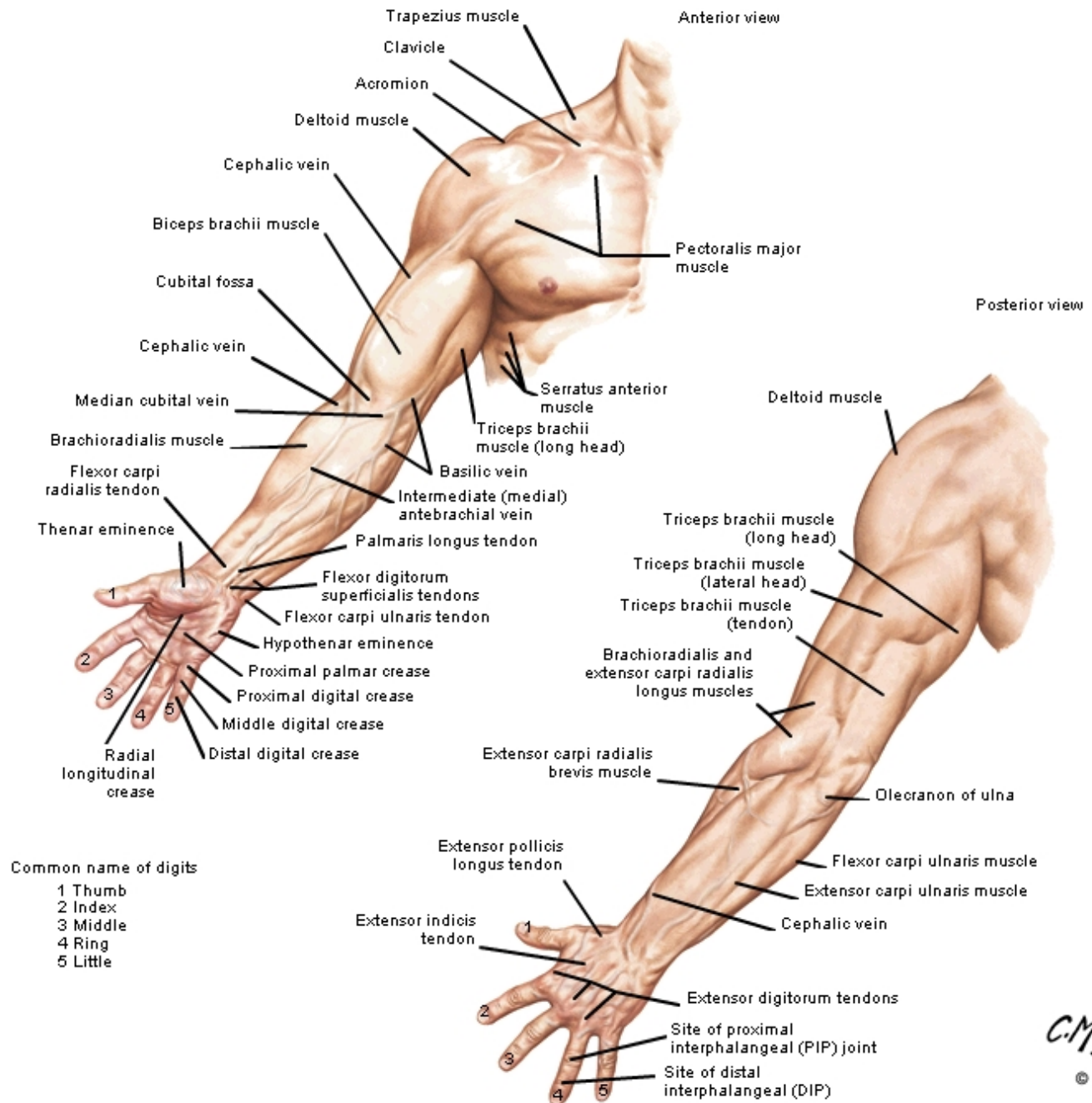
Innervation of Urinary Bladder and Lower Ureter Schema



Section 6 Upper Limb

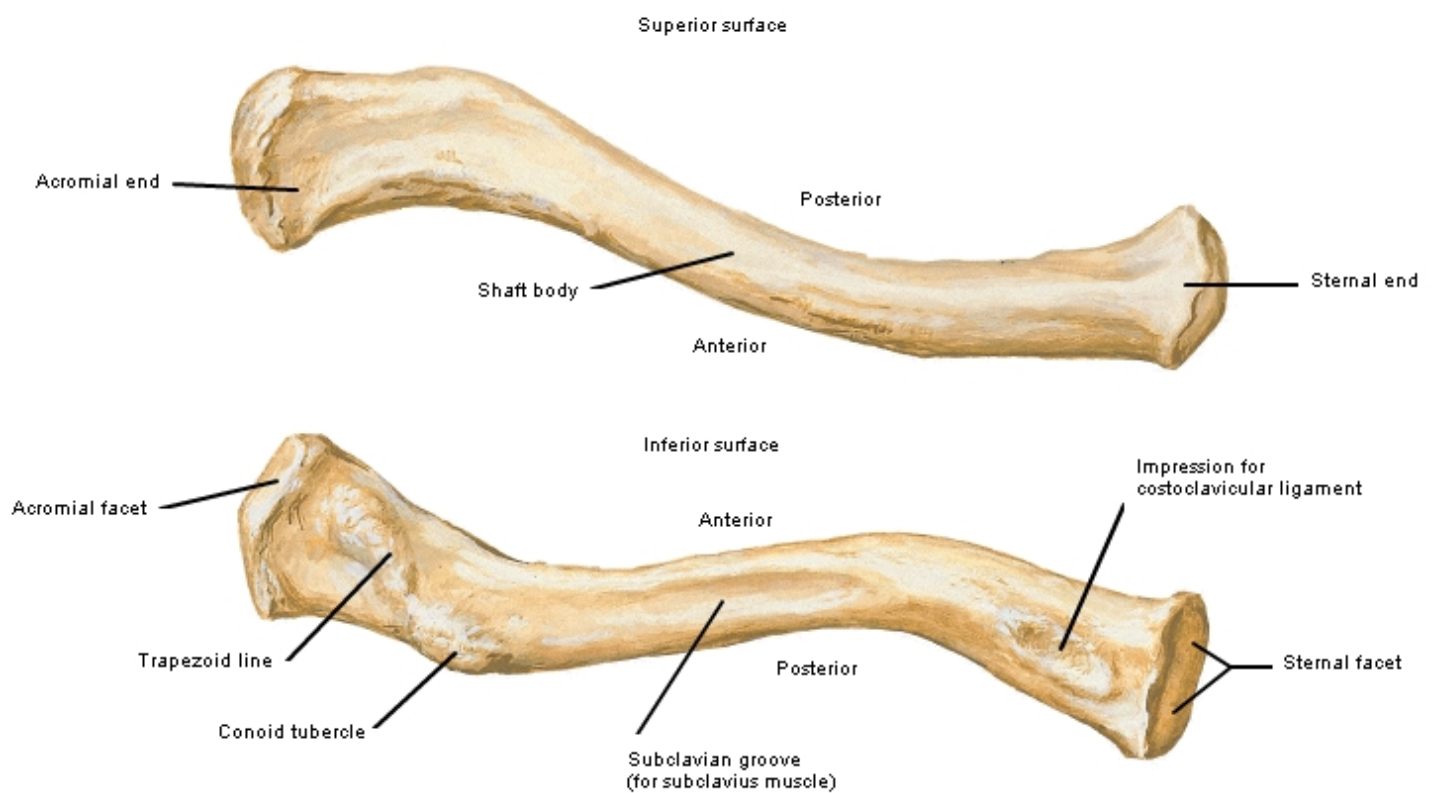
UPPER LIMB

Upper Limb



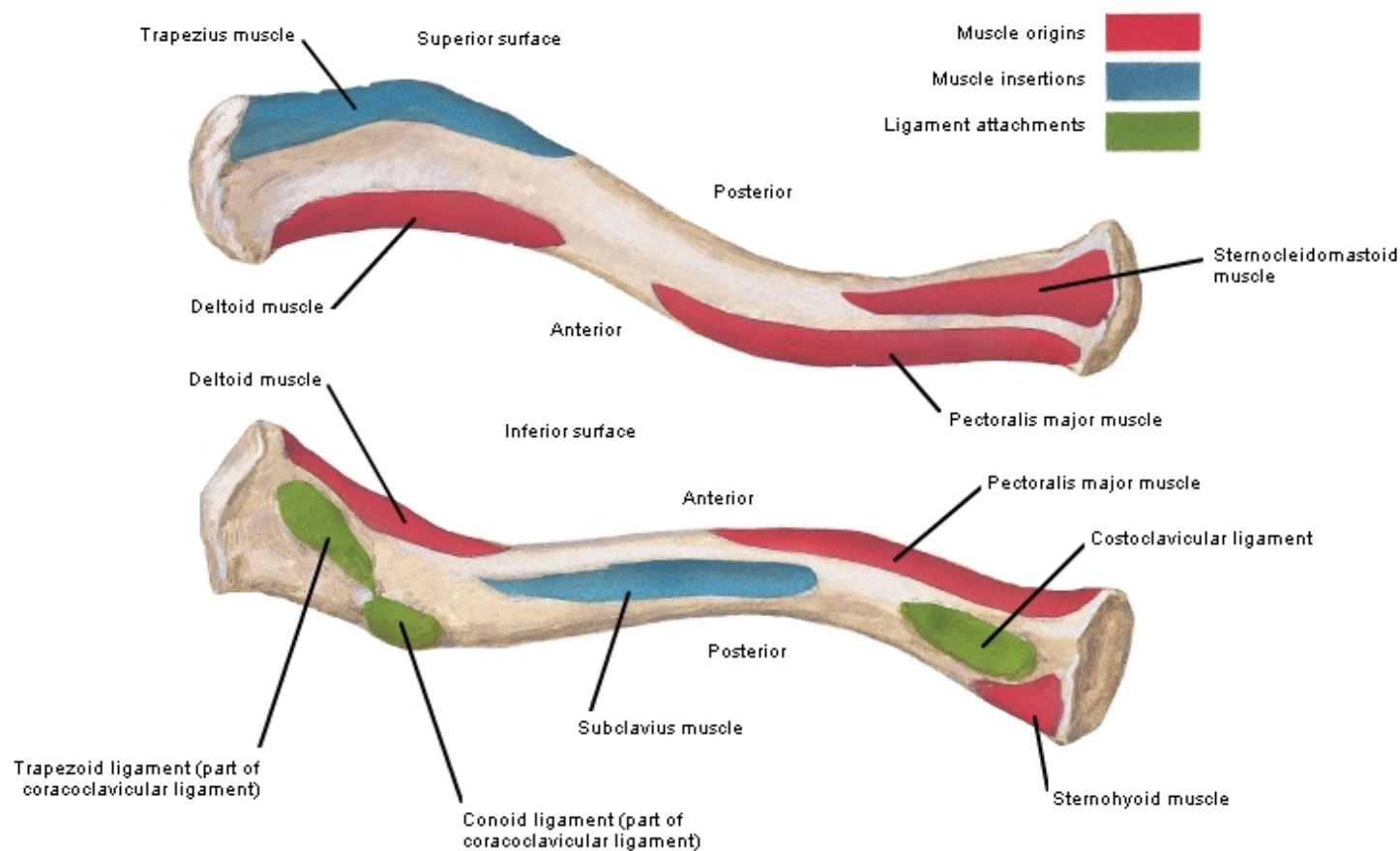
C. Machado
M.D.
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Right Clavicle - Features



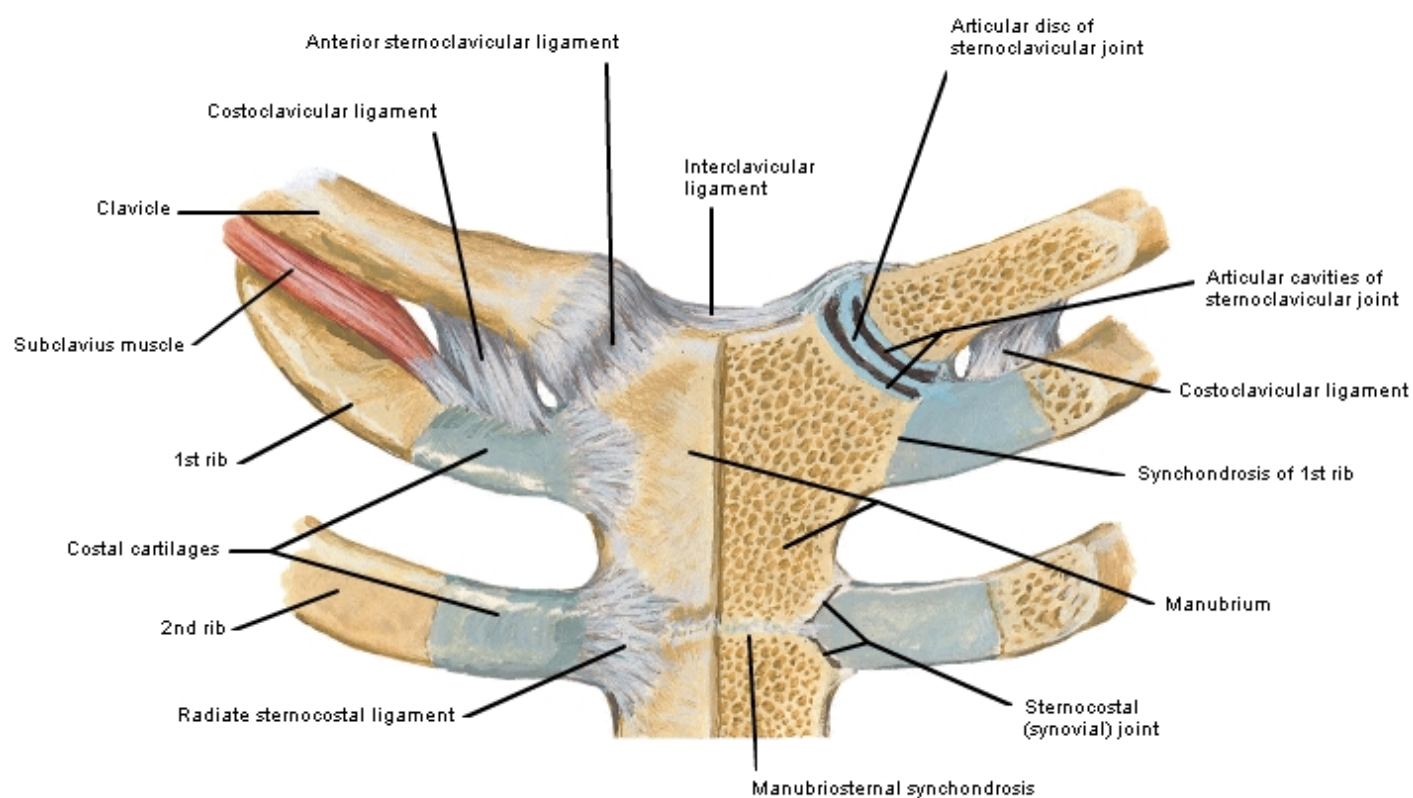
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Right Clavicle - Muscle Attachments



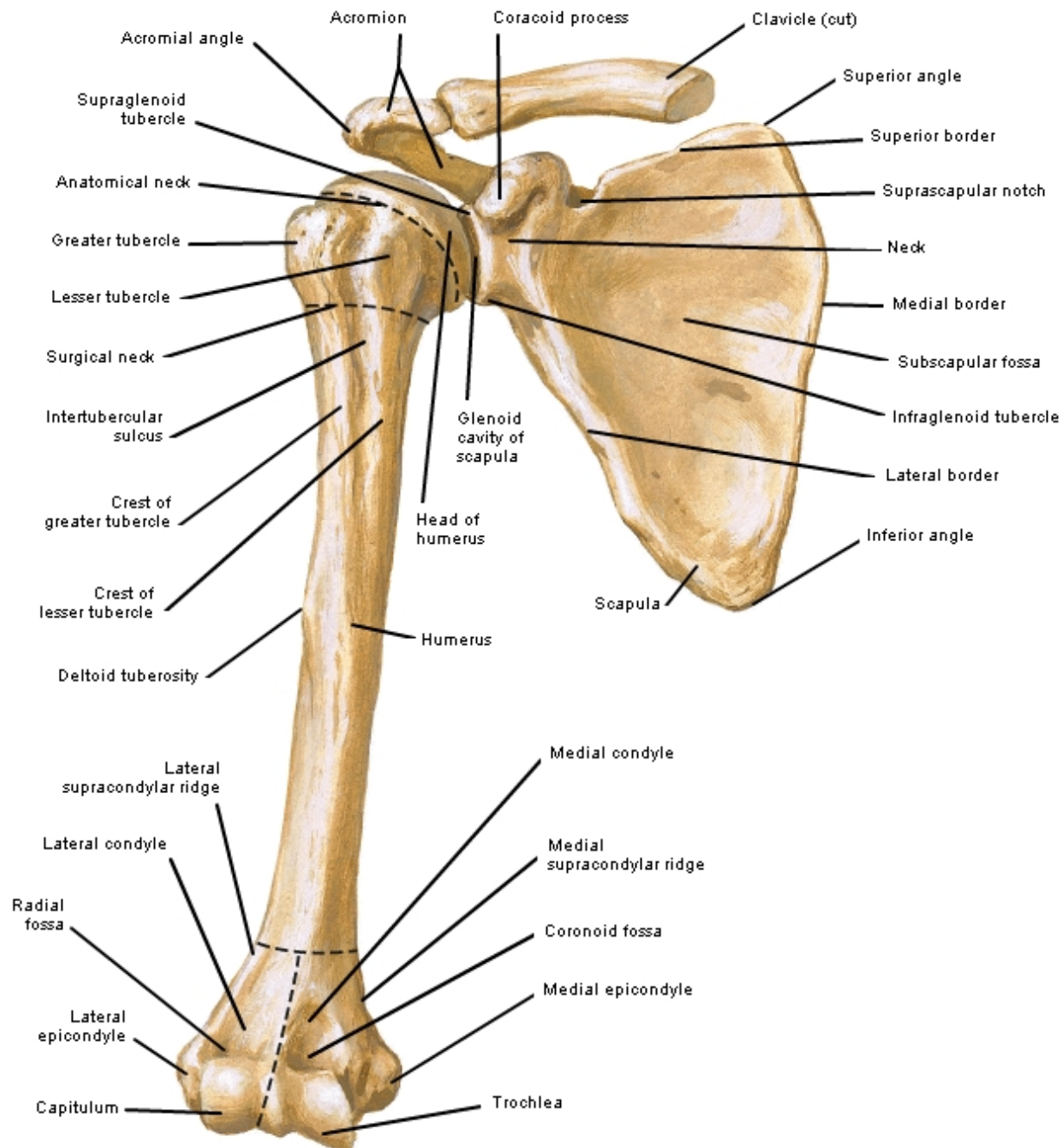
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Sternoclavicular Joint



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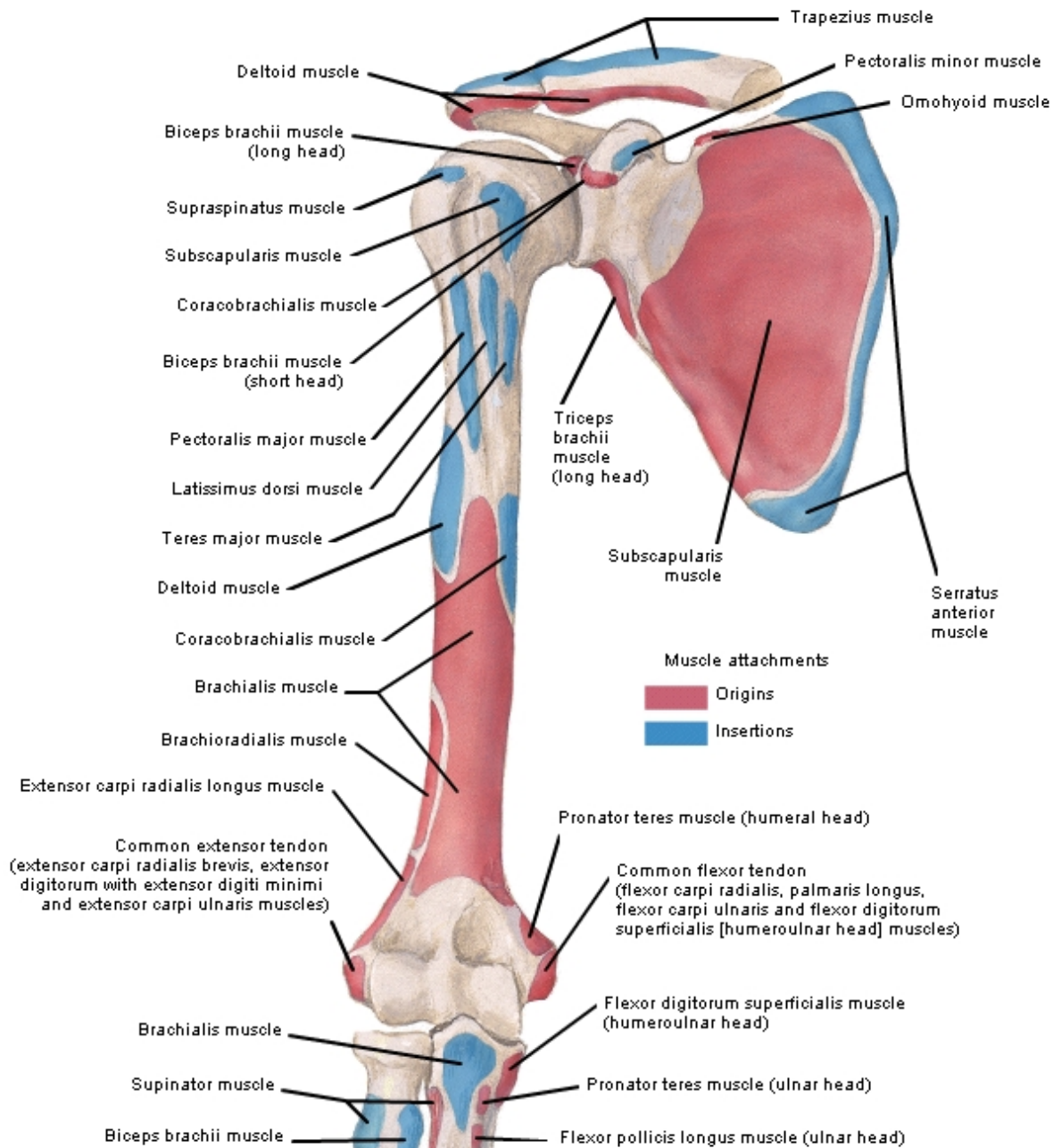
Humerus and Scapula: Anterior Views



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UPPER LIMB

Humerus and Scapula Anterior View: Muscle Attachments

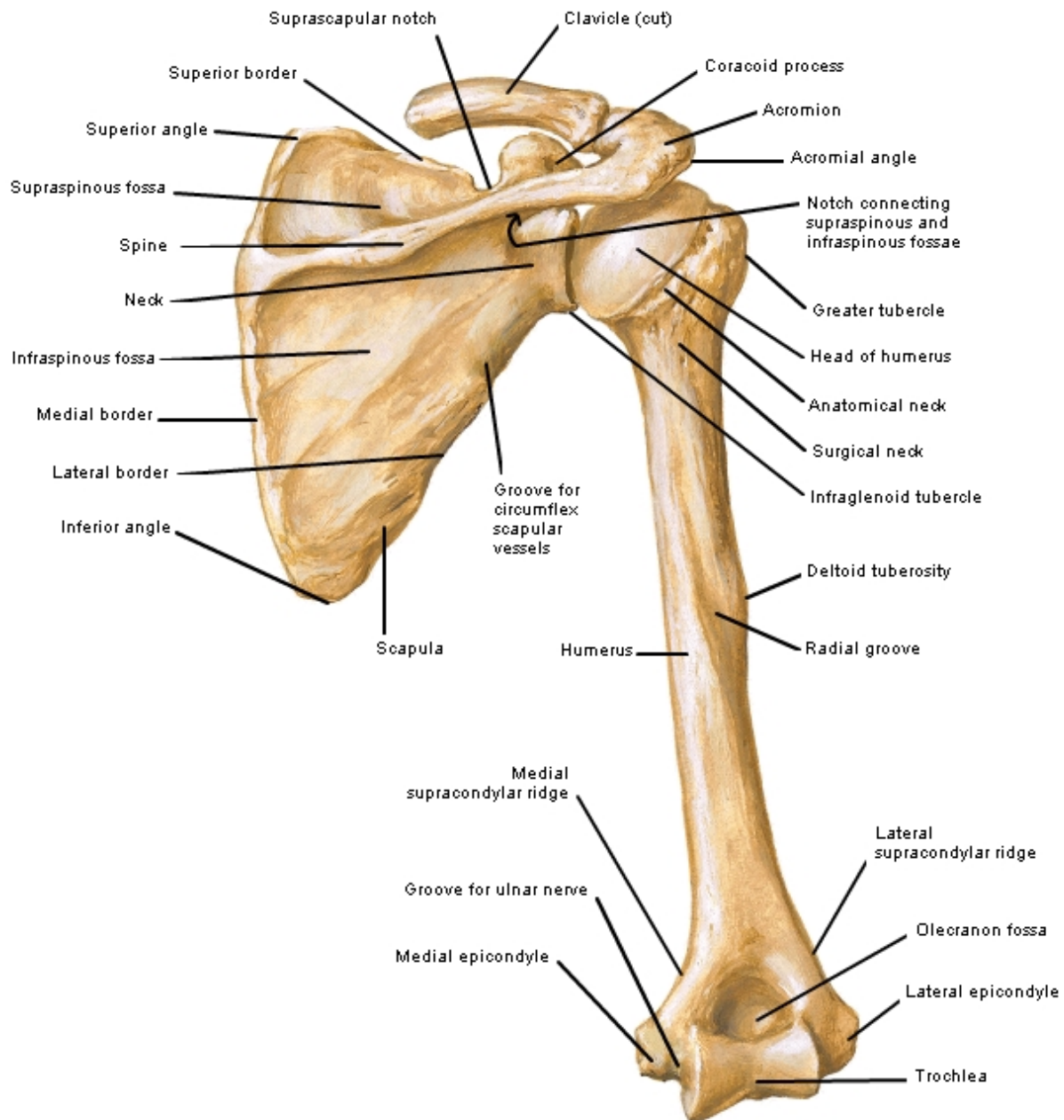


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UPPER LIMB

Humerus and Scapula

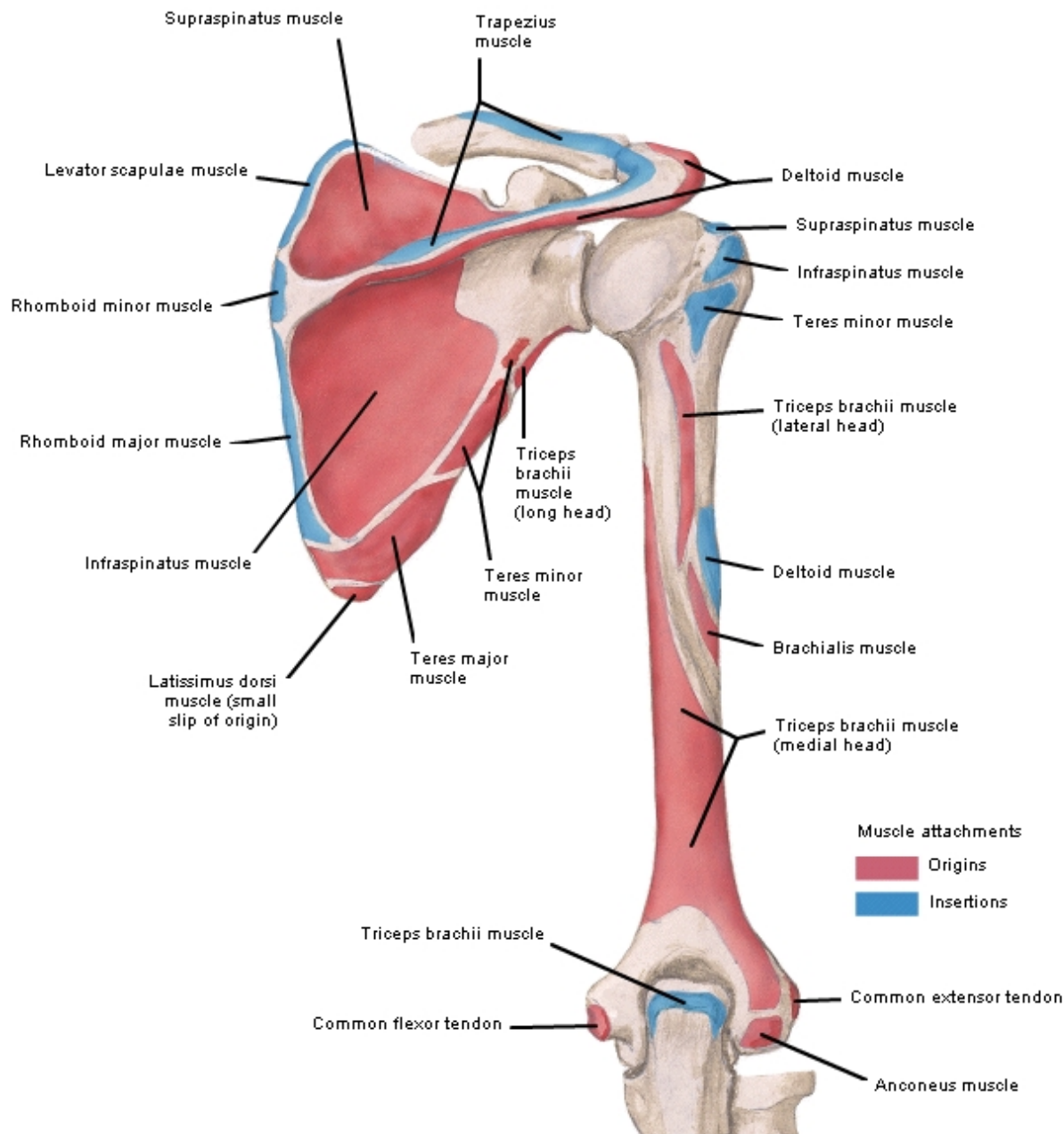
Posterior View: Features



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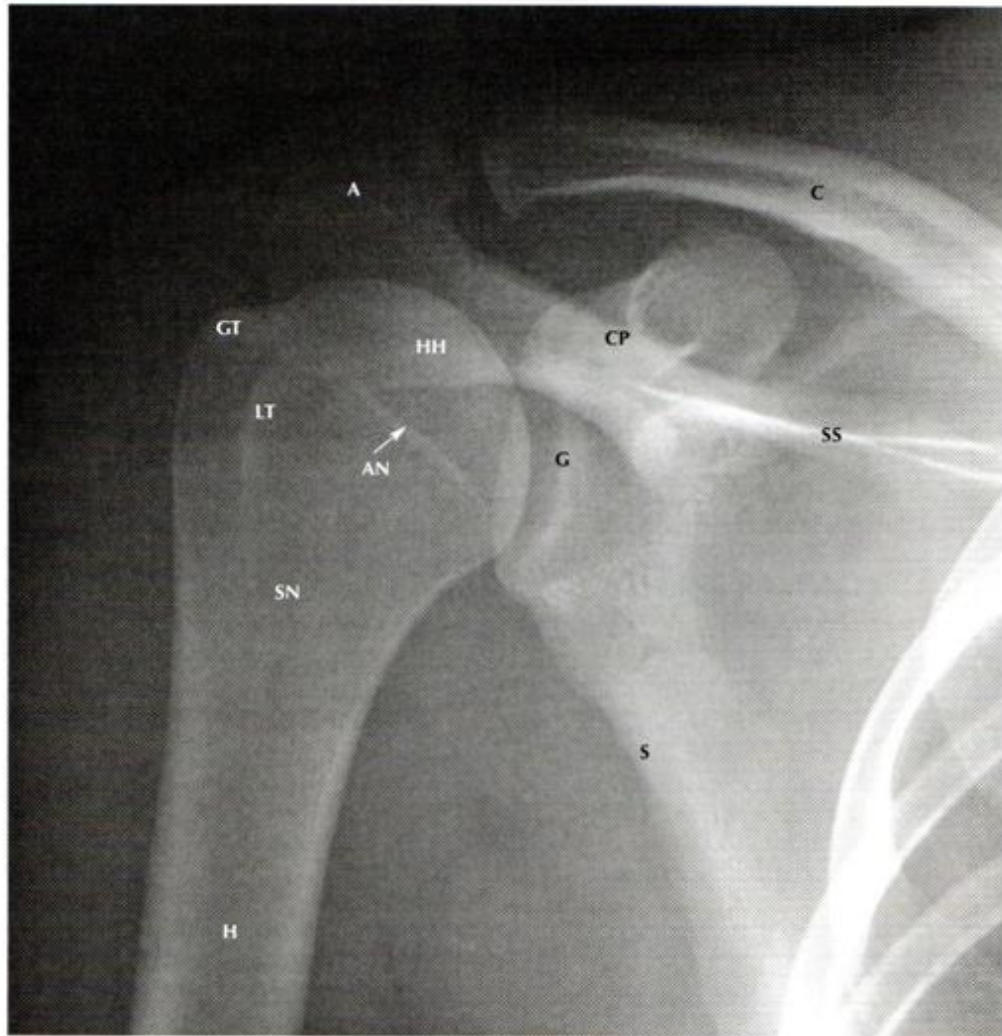
Humerus and Scapula

Posterior View: Muscle Attachments



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Shoulder: Anteroposterior Radiograph

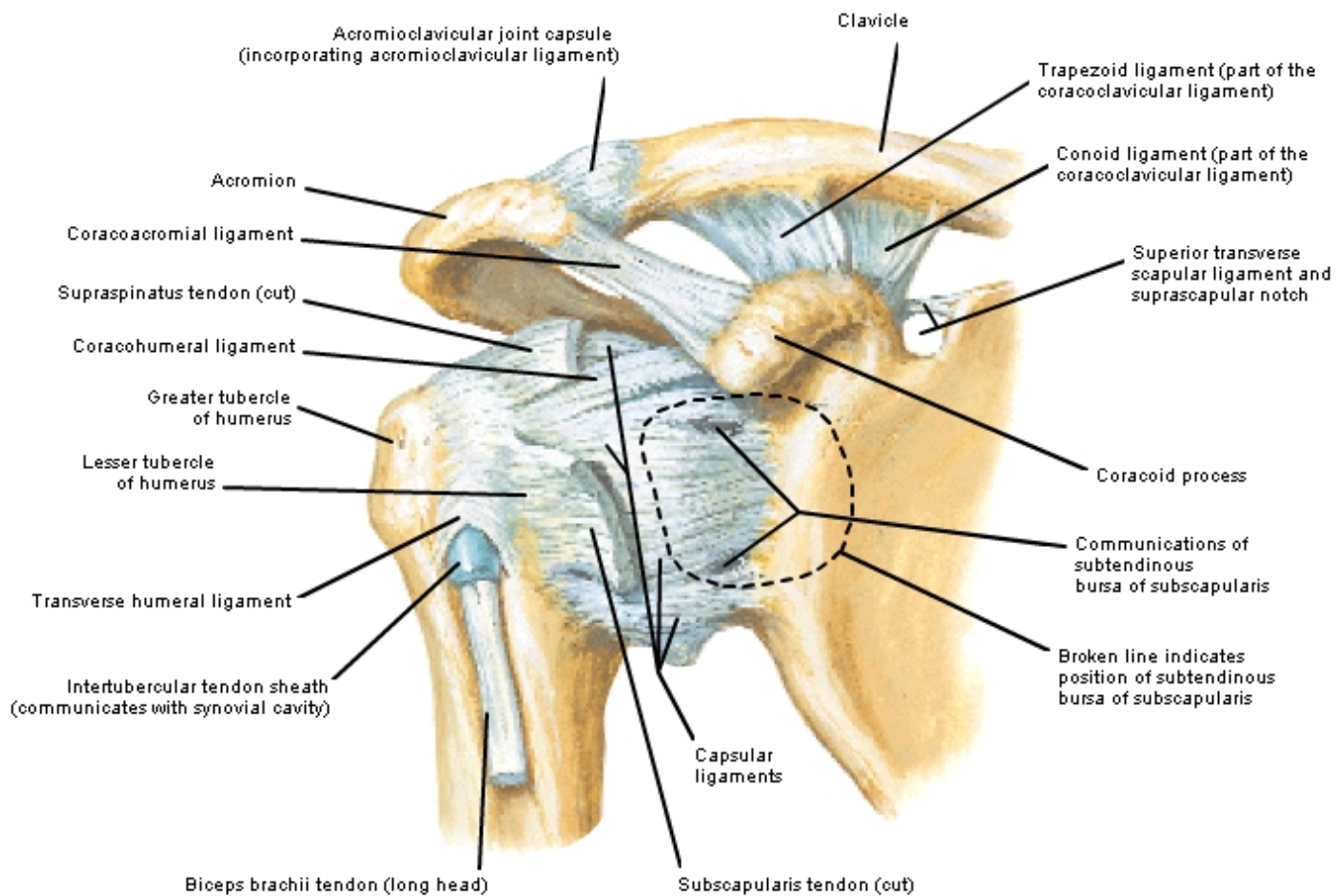


- A Acromion
- AN Anatomical neck of humerus
- C Clavicle
- CP Coracoid process
- G Glenoid cavity of scapula
- GT Greater tubercle
- H Humerus
- HH Head of humerus
- LT Lesser tubercle
- S Scapula (lateral border)
- SN Surgical neck of humerus
- SS Spine of scapula

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Shoulder (Glenohumeral) Joint

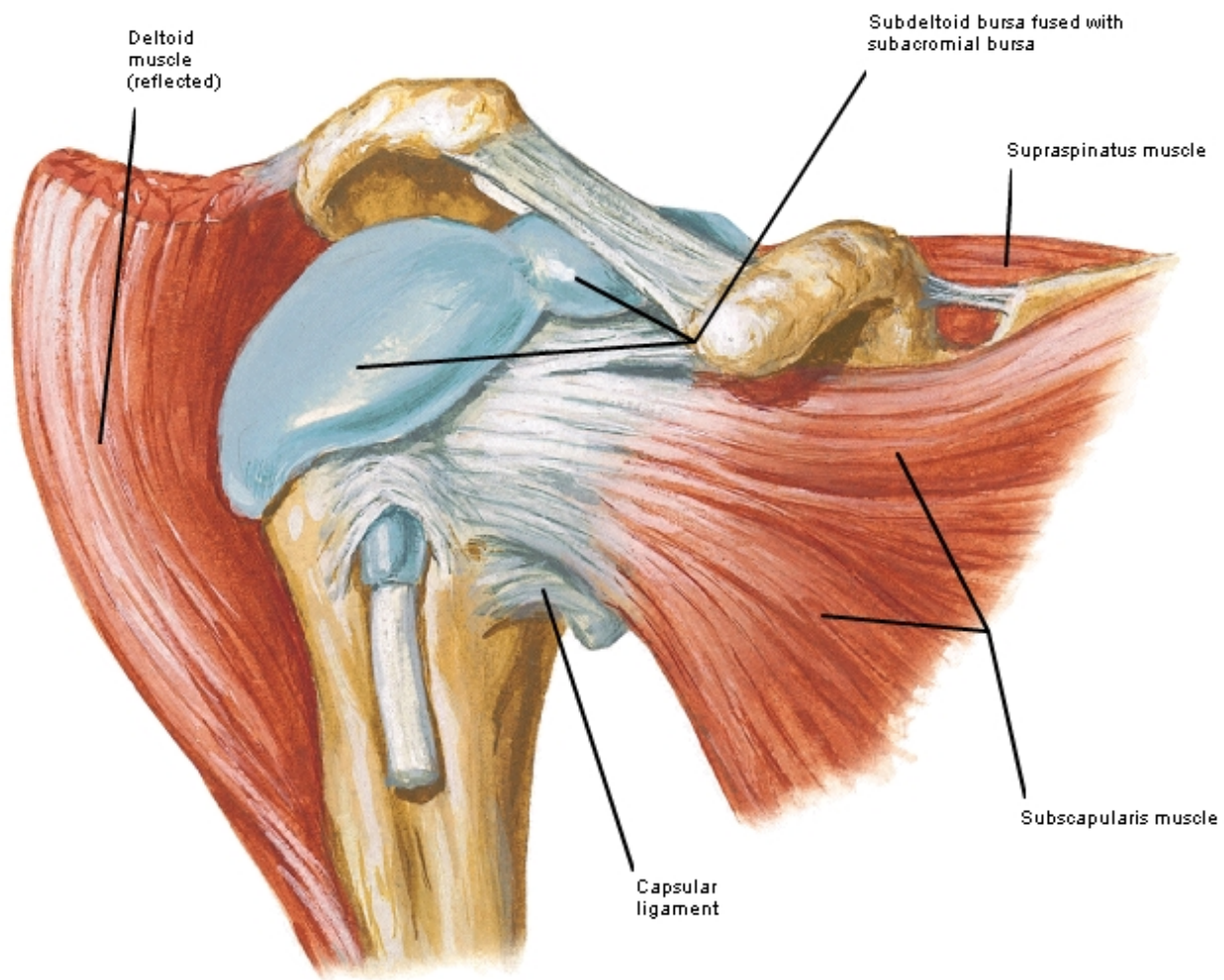
Anterior View: Tendons and Ligaments



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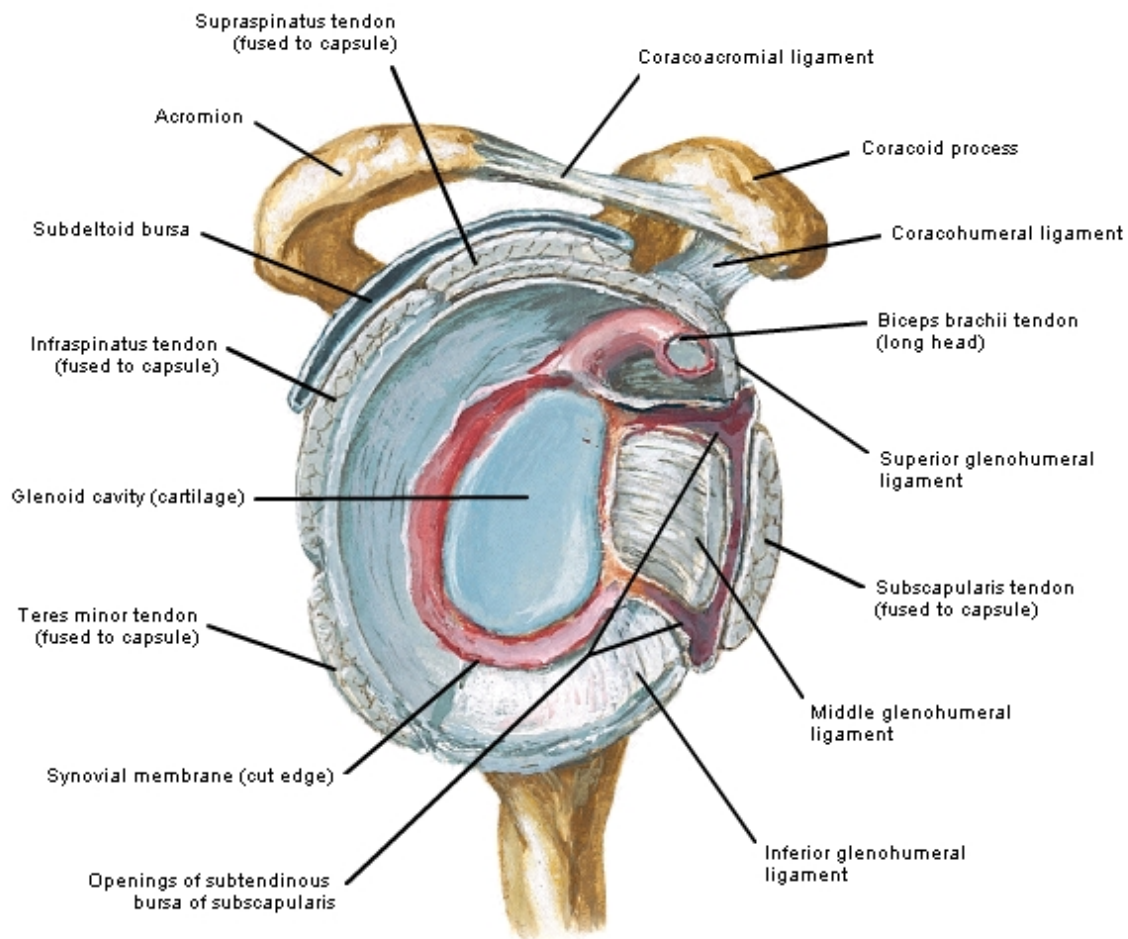
Shoulder (Glenohumeral) Joint

Anterior View: Supporting Muscles



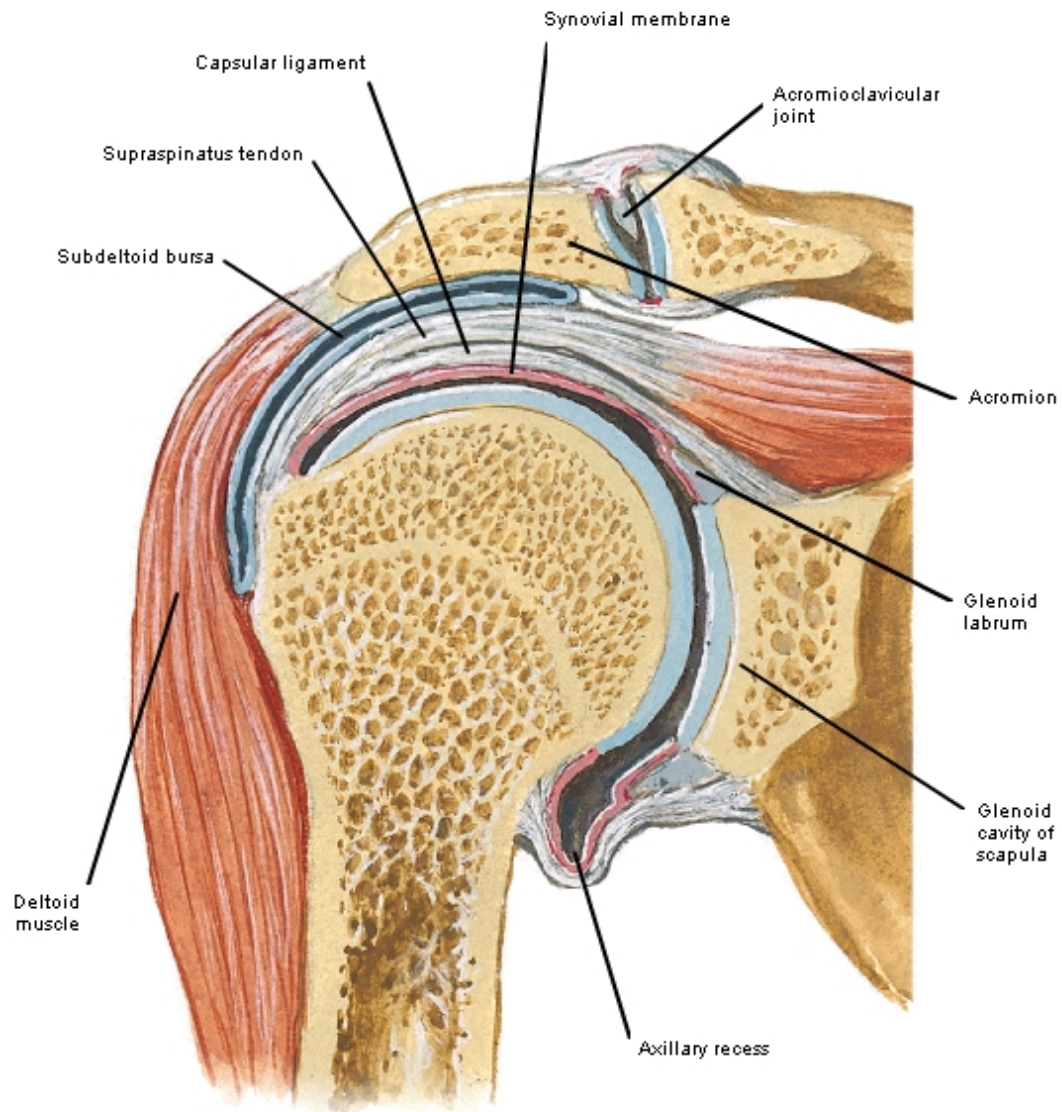
F. Netter M.D.
© IGV

Shoulder (Glenohumeral) Joint (Opened) Lateral View



F. Netter M.D.
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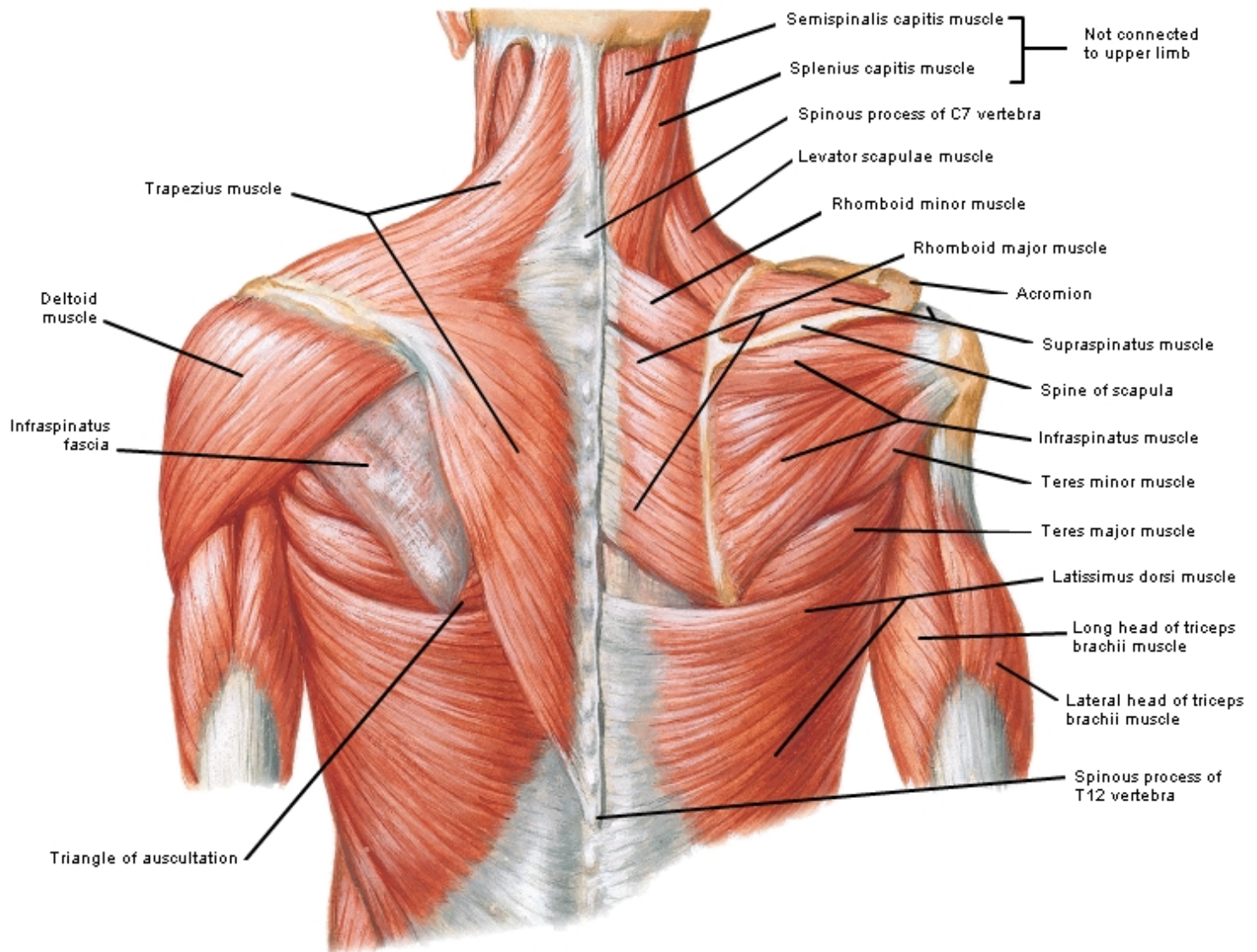
Shoulder (Glenohumeral) Joint Opened Coronal Section through Joint



F. Netter M.D.
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UPPER LIMB

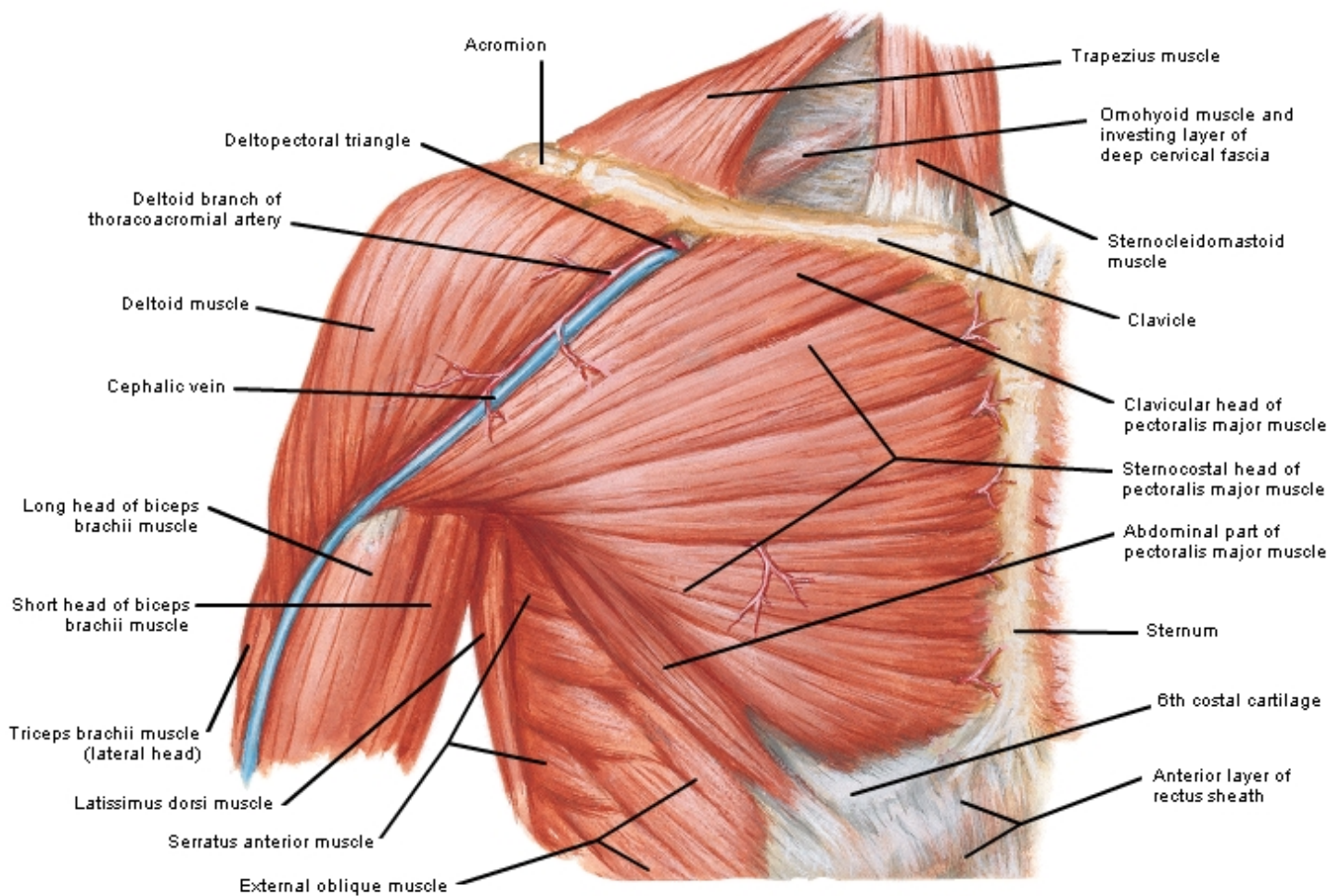
Muscles of Shoulder Posterior View



F. Netter M.D.
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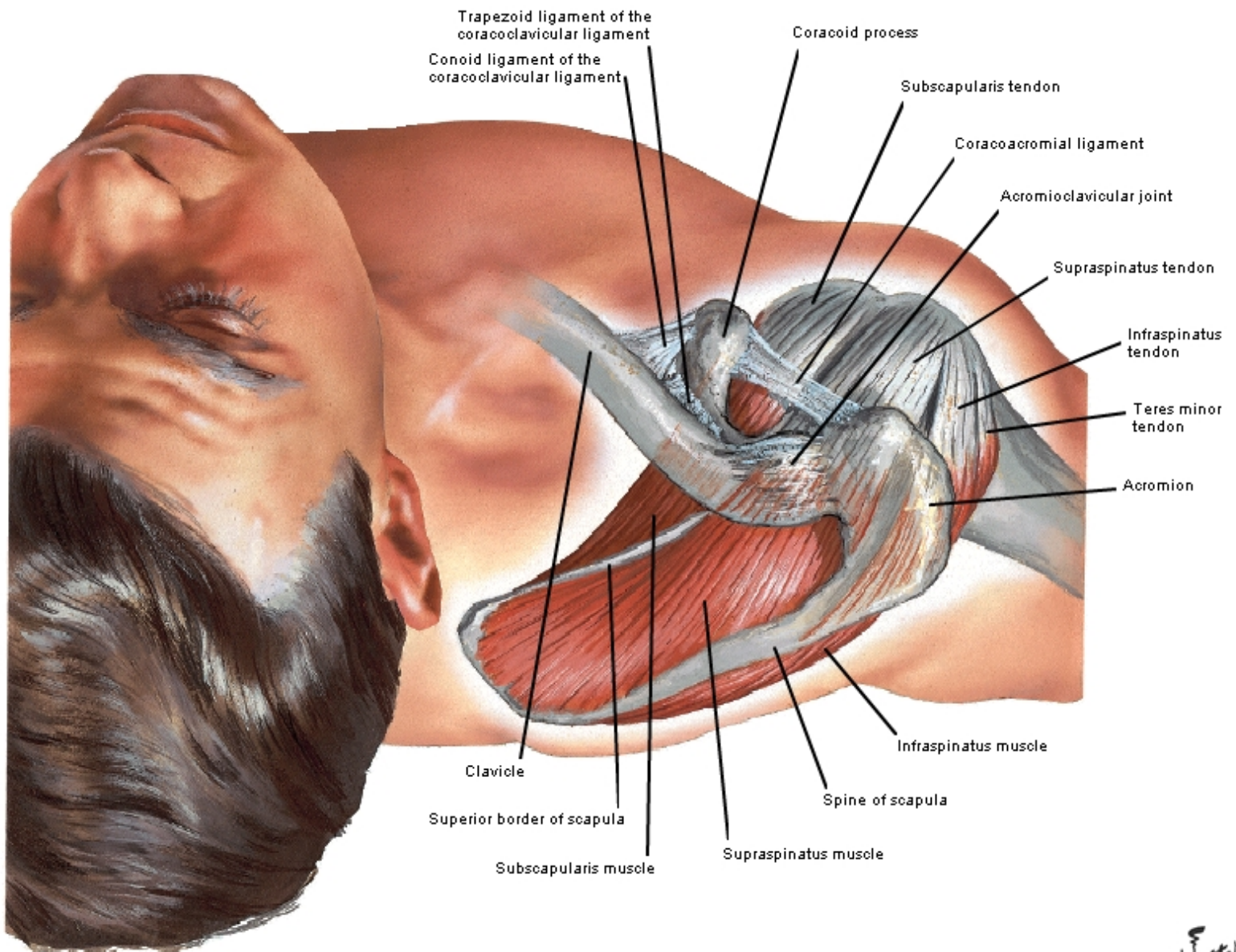
UPPER LIMB

Muscles of Shoulder Anterior View



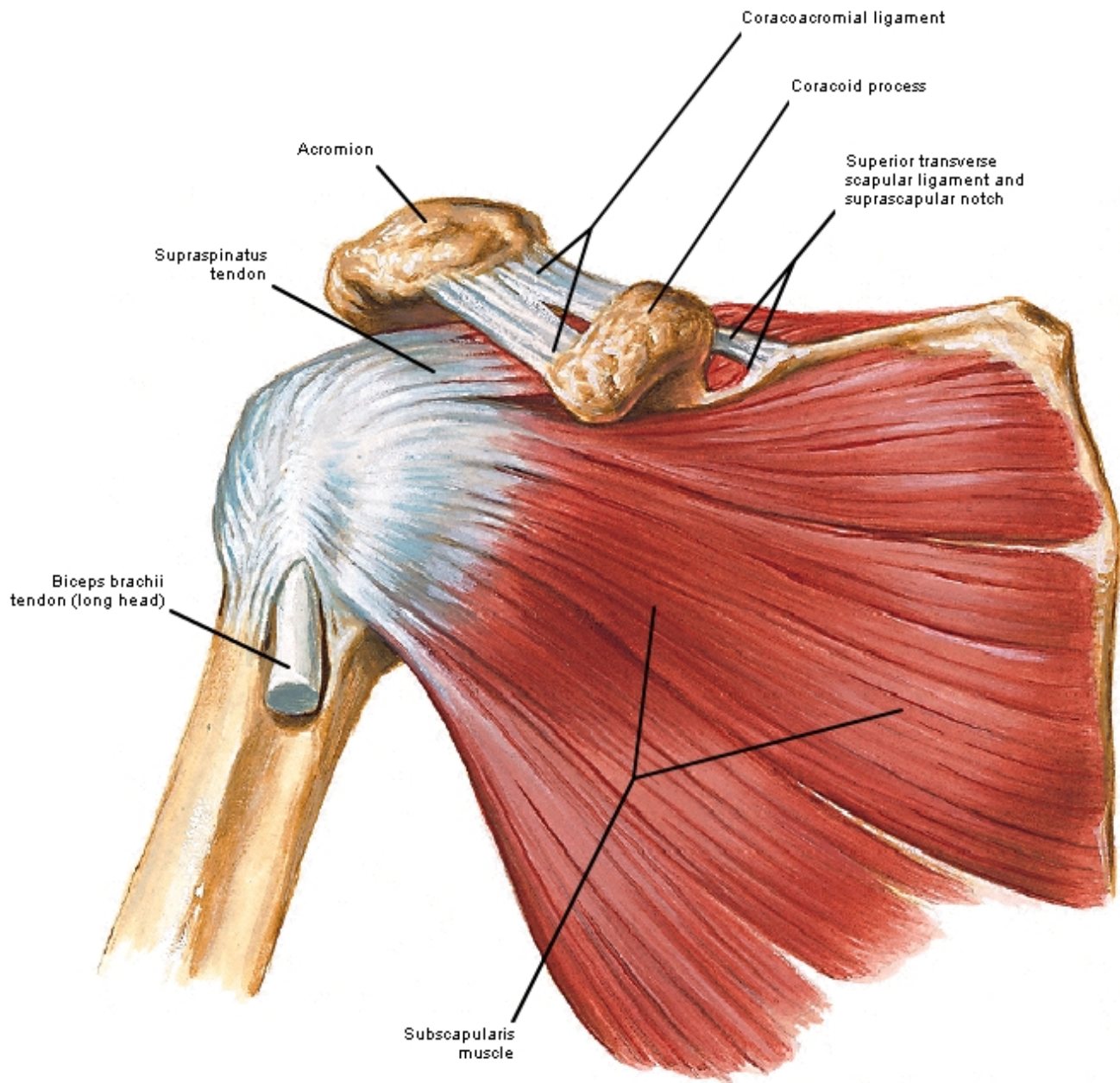
F. Netter M.D.
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Muscles of Rotator Cuff Superior View



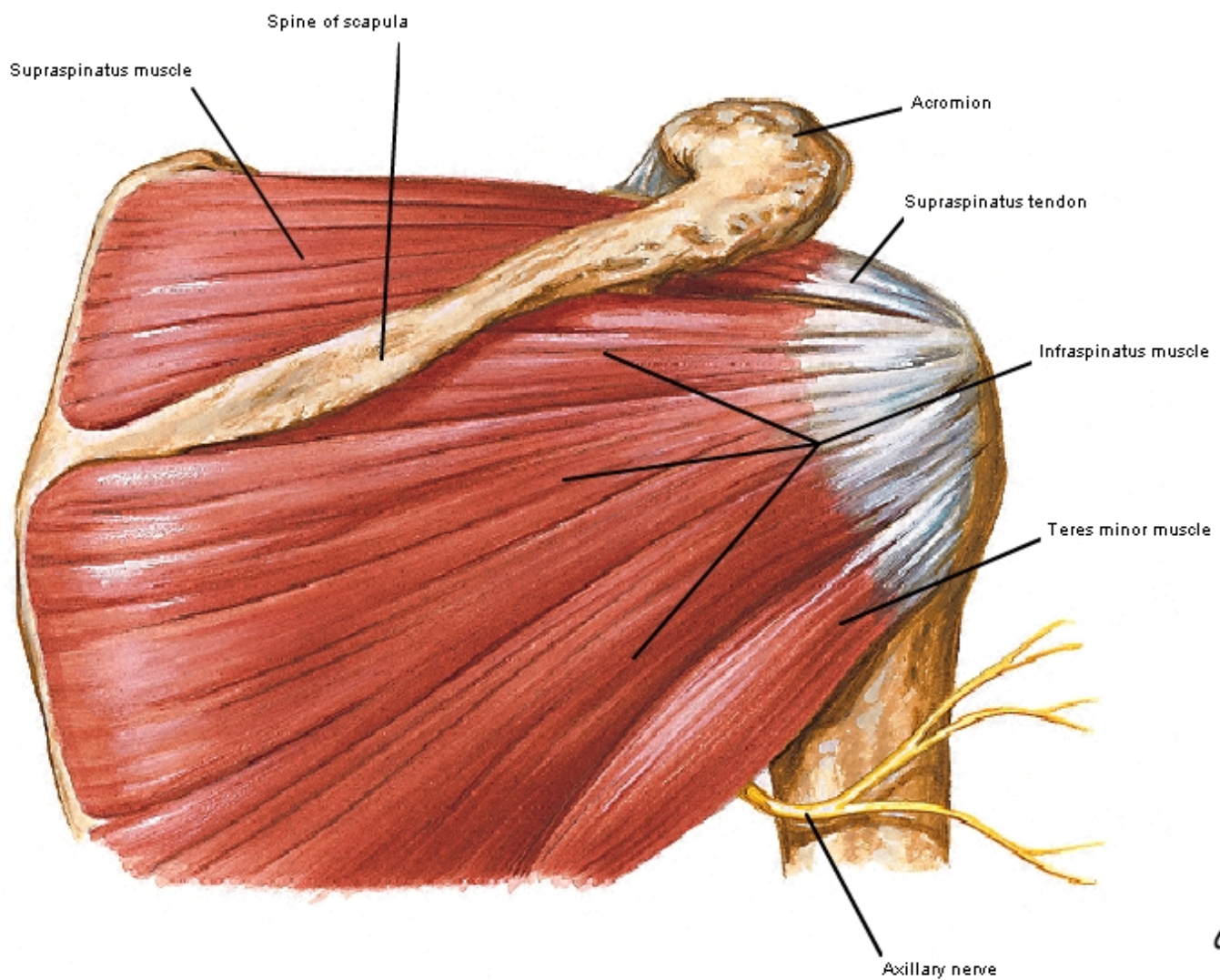
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Muscles of Rotator Cuff Anterior View



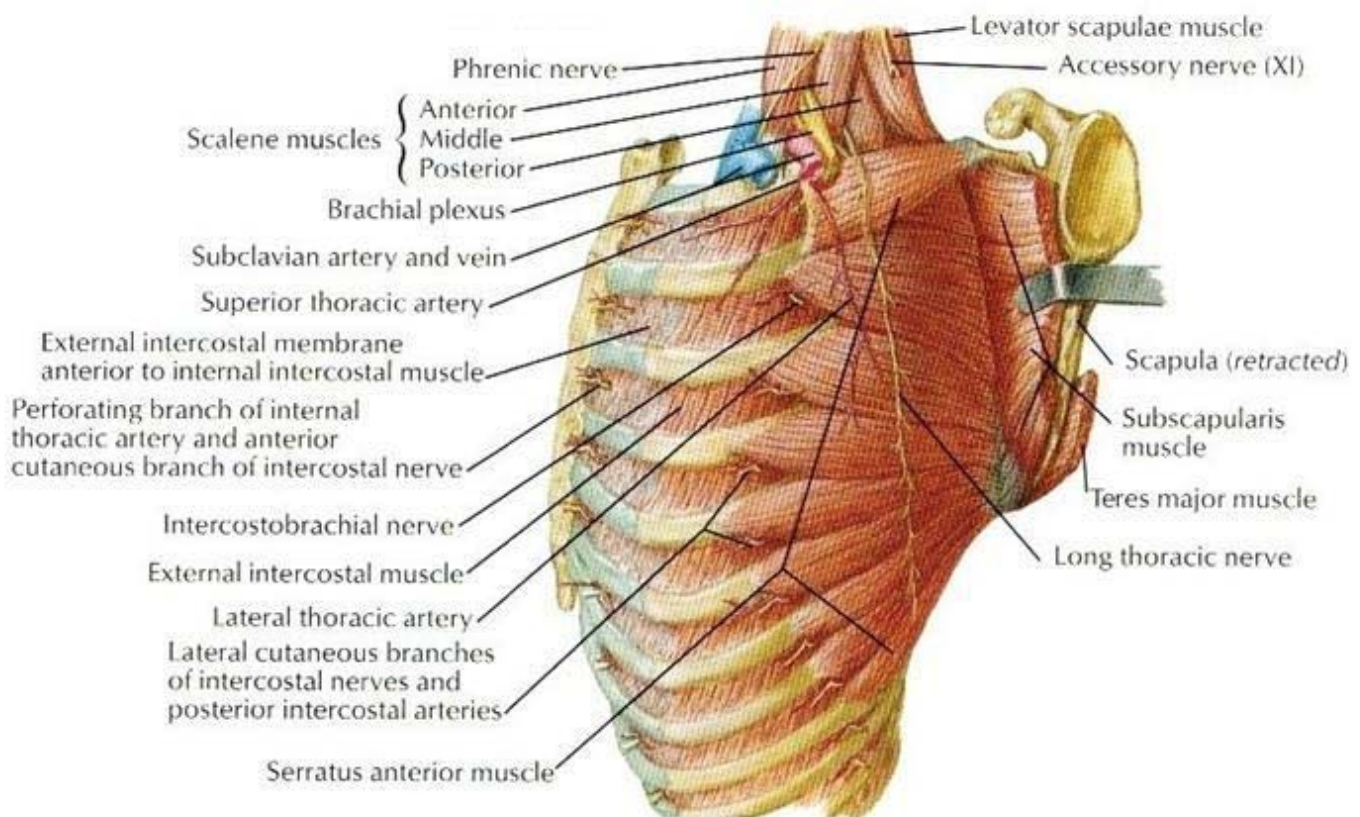
C. Machado
—M.D.—
© ION

Muscles of Rotator Cuff Posterior View



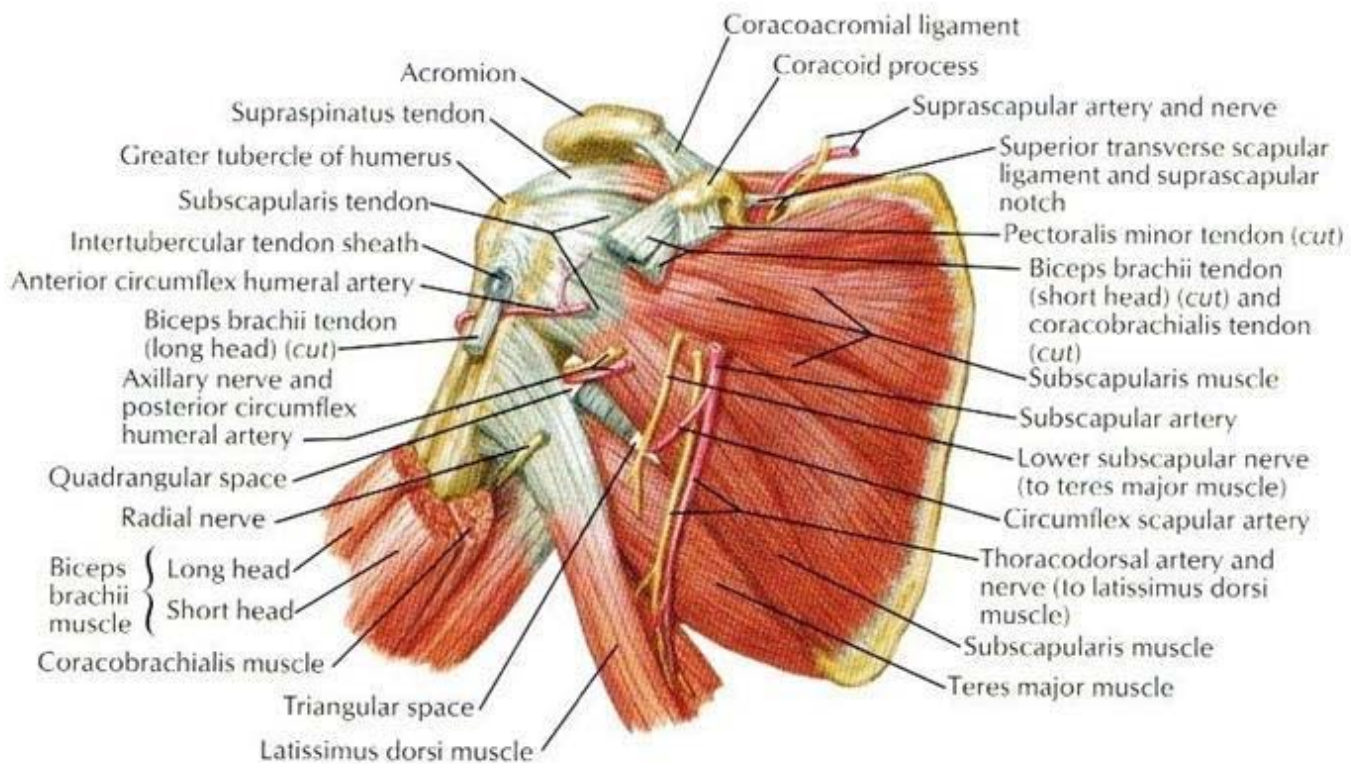
C. Machado
H.D.
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Scapulohumeral Dissection: Lateral View



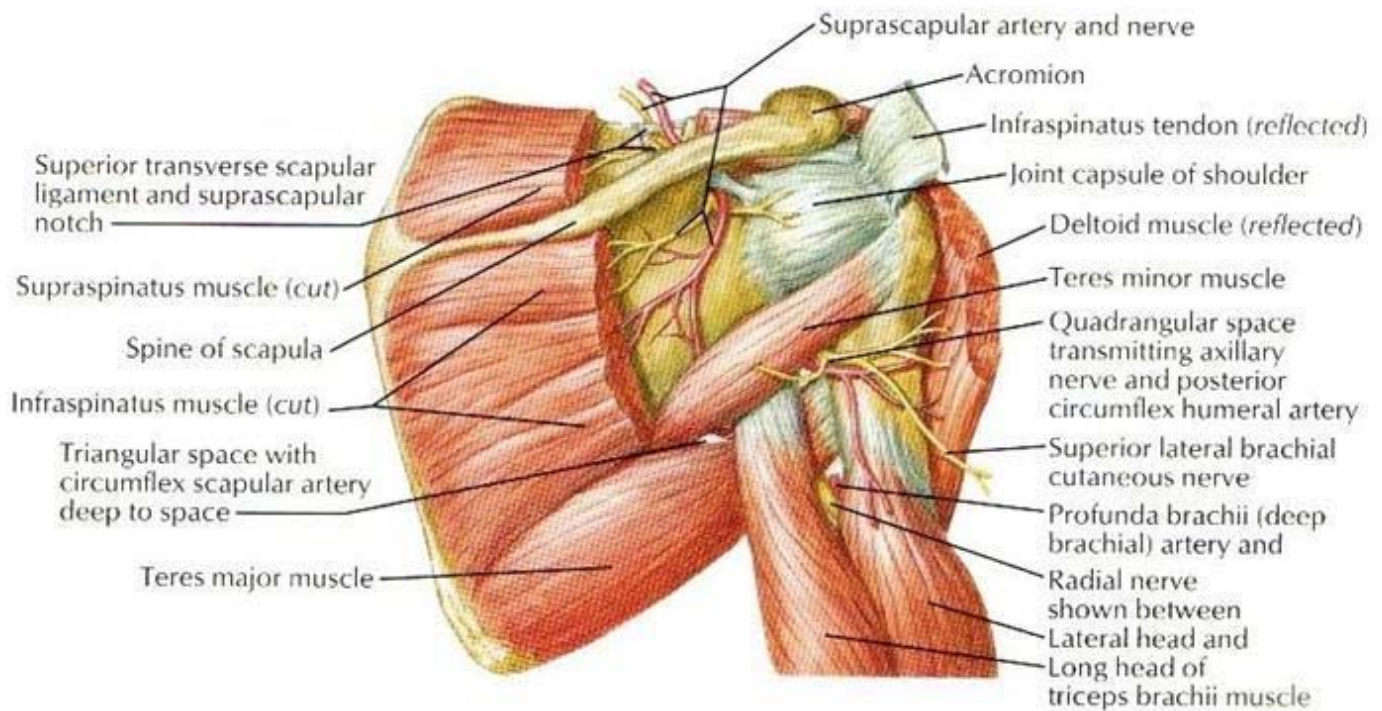
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Scapulohumeral Dissection: Anterior View



F. Netter M.D.
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Scapulohumeral Dissection: Posterior View

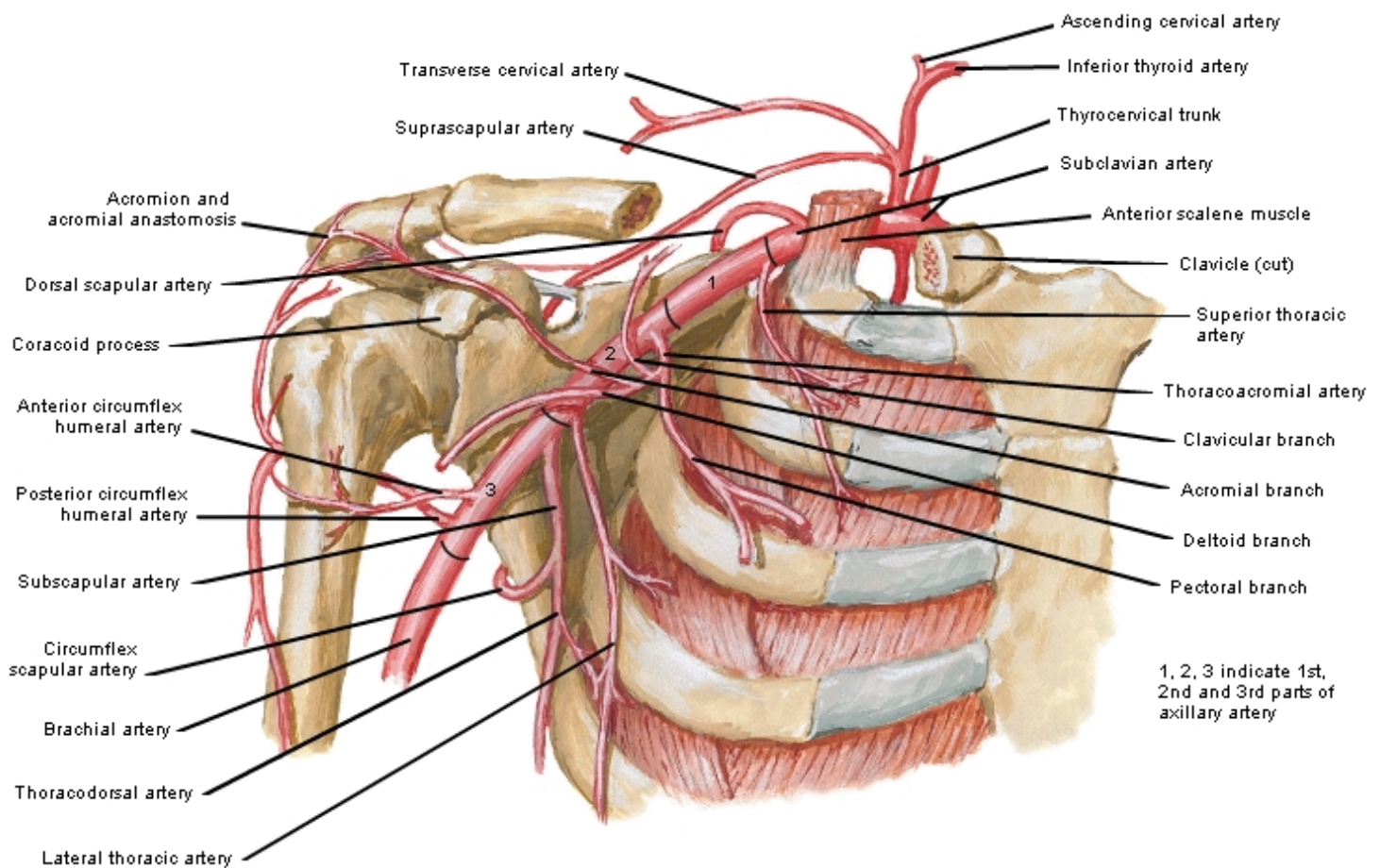


F. Netter M.D.
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UPPER LIMB

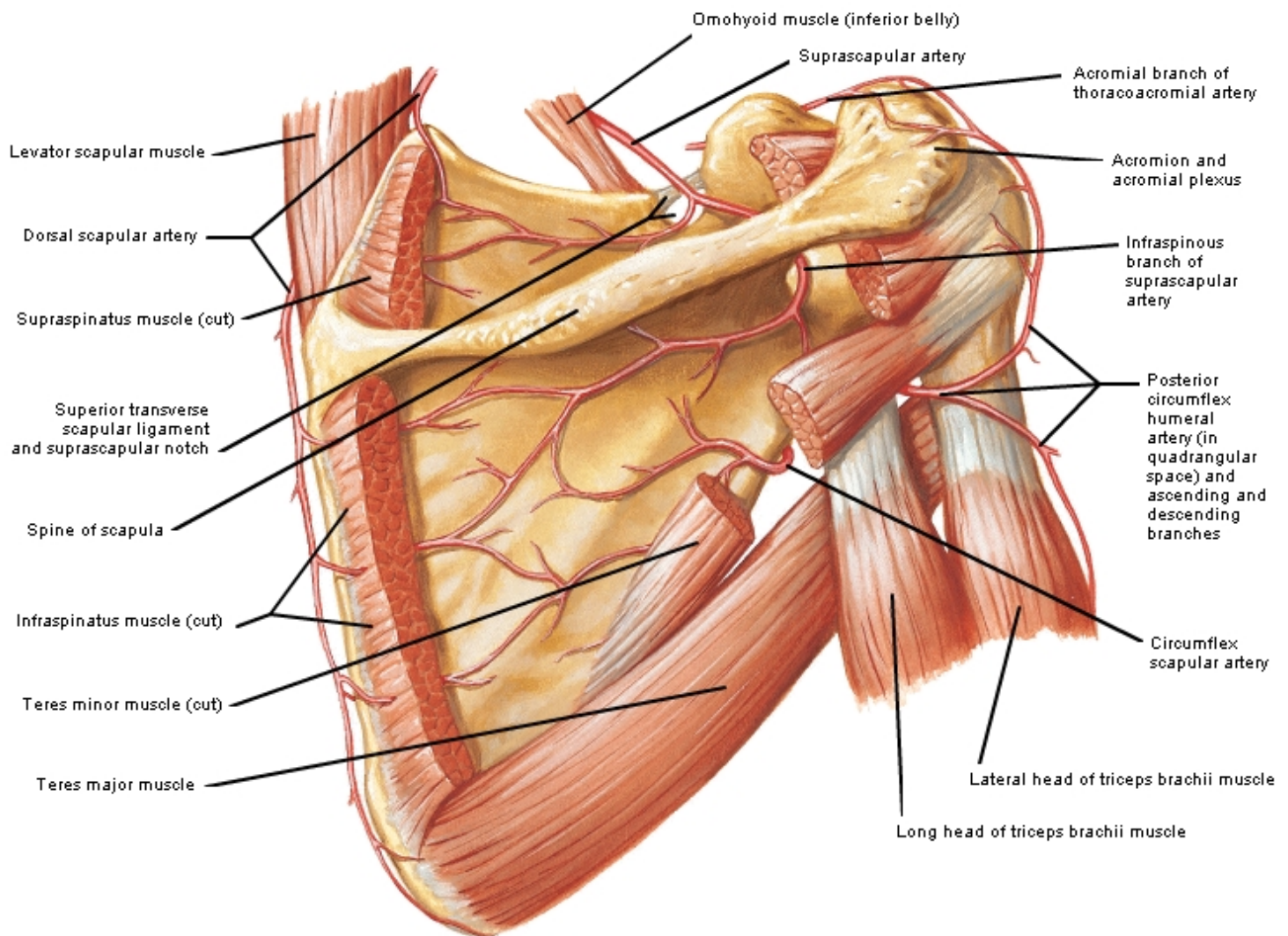
Axillary Artery and Anastomoses Around Scapula

Anterior View



F. Netter M.D.
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Axillary Artery and Anastomoses Around Scapula Posterior View

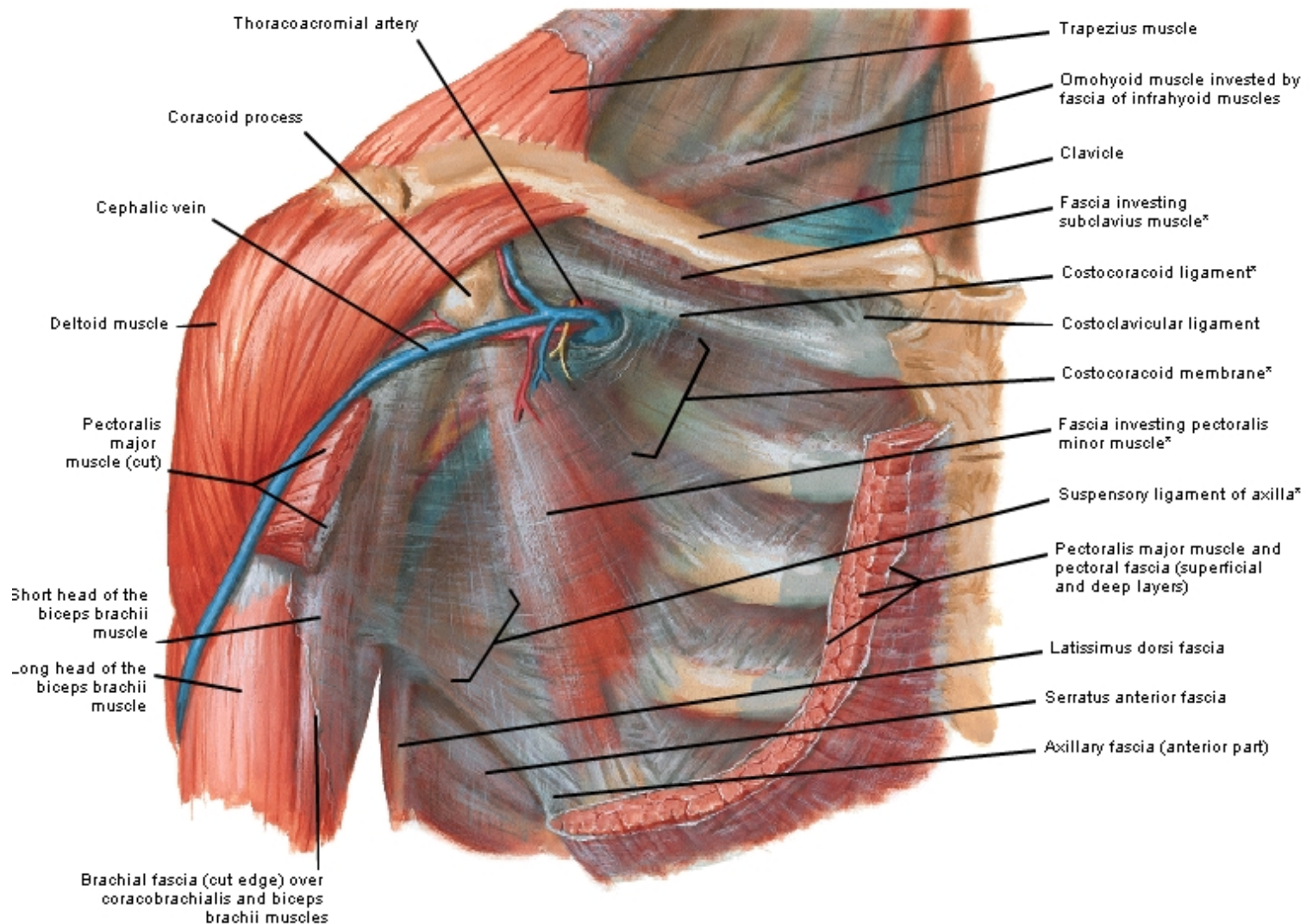


C. Machado
M.D.
© IGM

UPPER LIMB

Pectoral, Clavipectoral and Axillary Fasciae

Anterior View

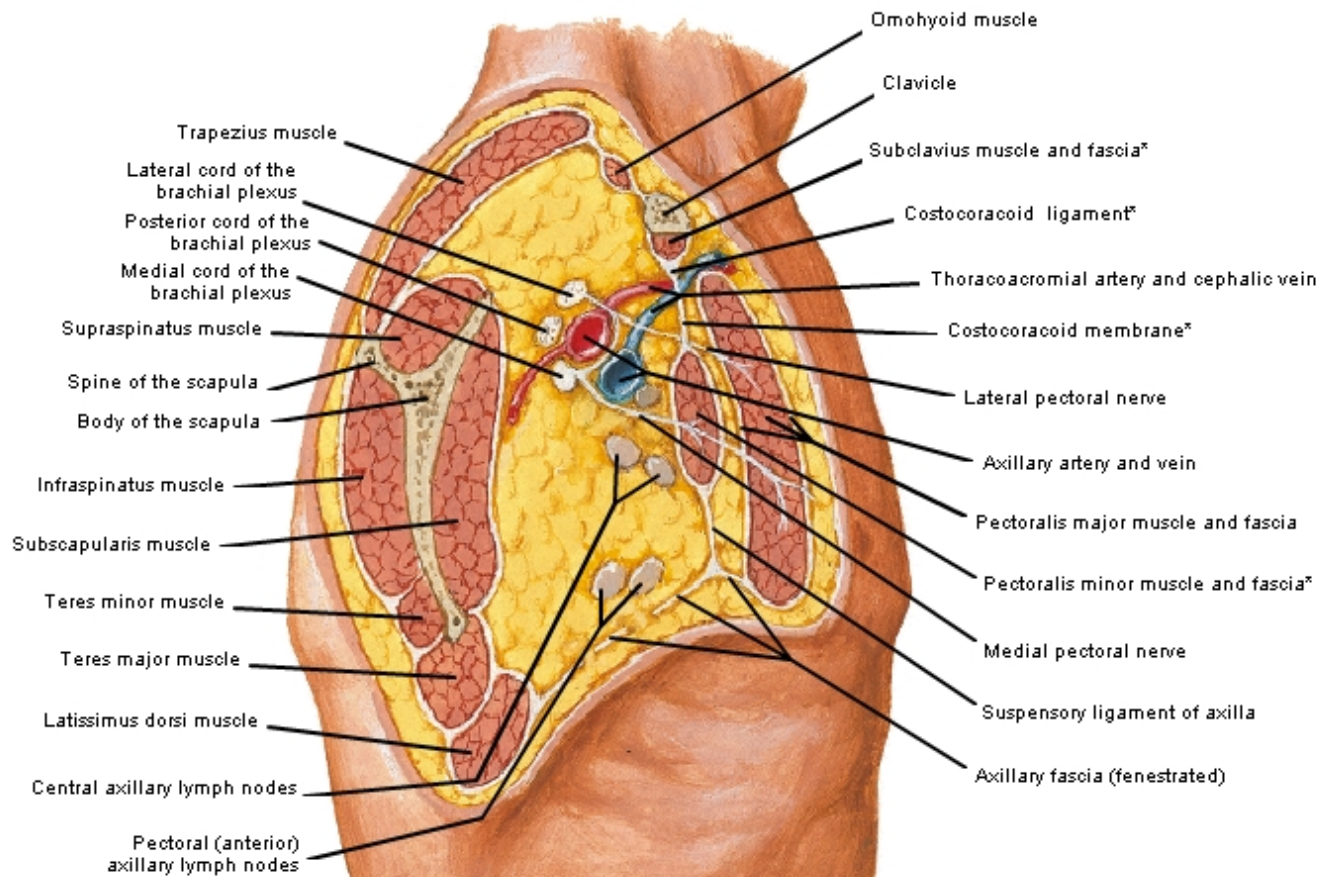


*Components of clavipectoral fascia

F. Netter M.D.
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Pectoral, Clavipectoral and Axillary Fasciae

Section of Axilla



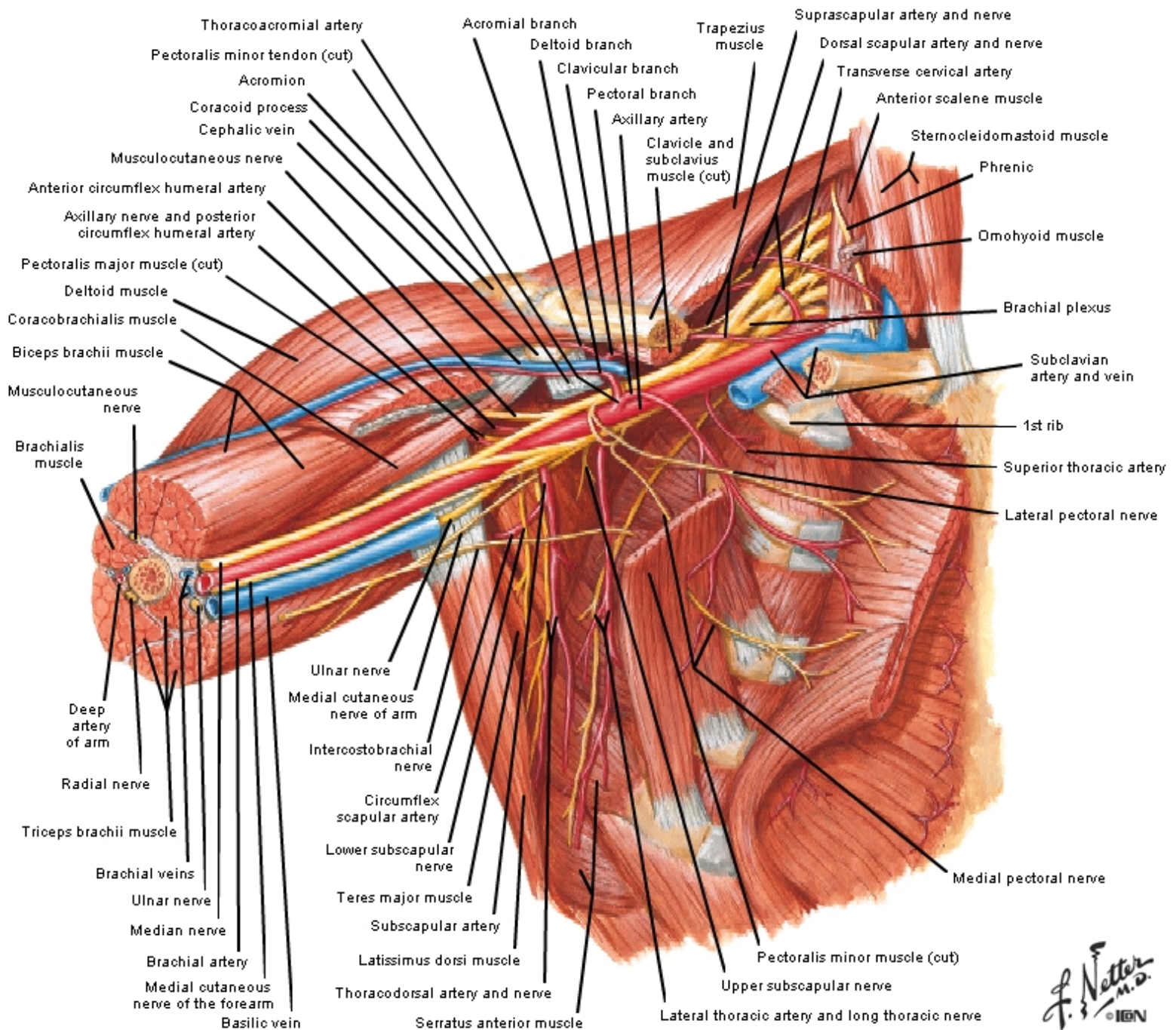
*Components of clavipectoral fascia

Oblique parasagittal section

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UPPER LIMB

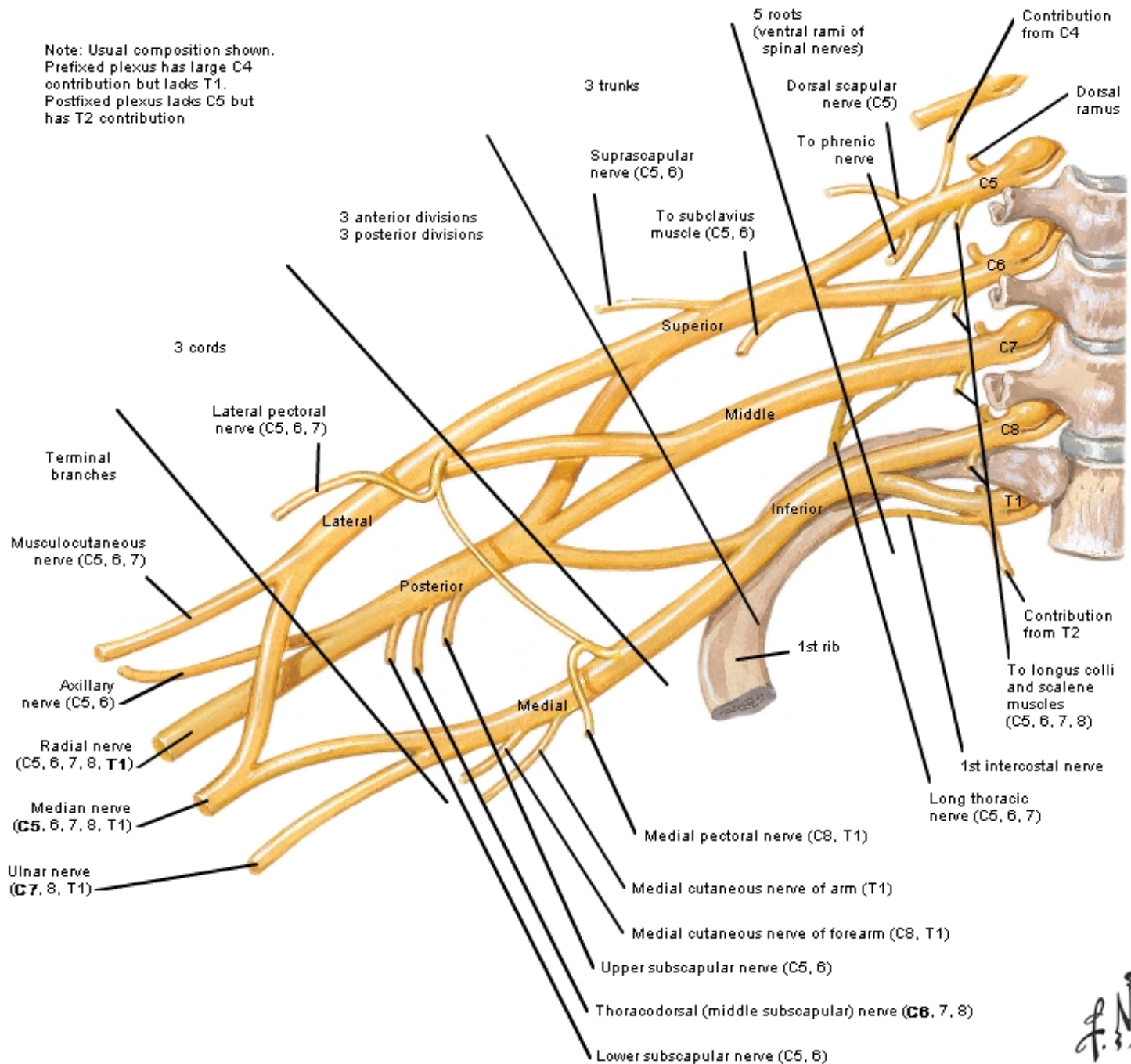
Axilla (Dissection): Anterior View



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UPPER LIMB

Brachial Plexus: Schema

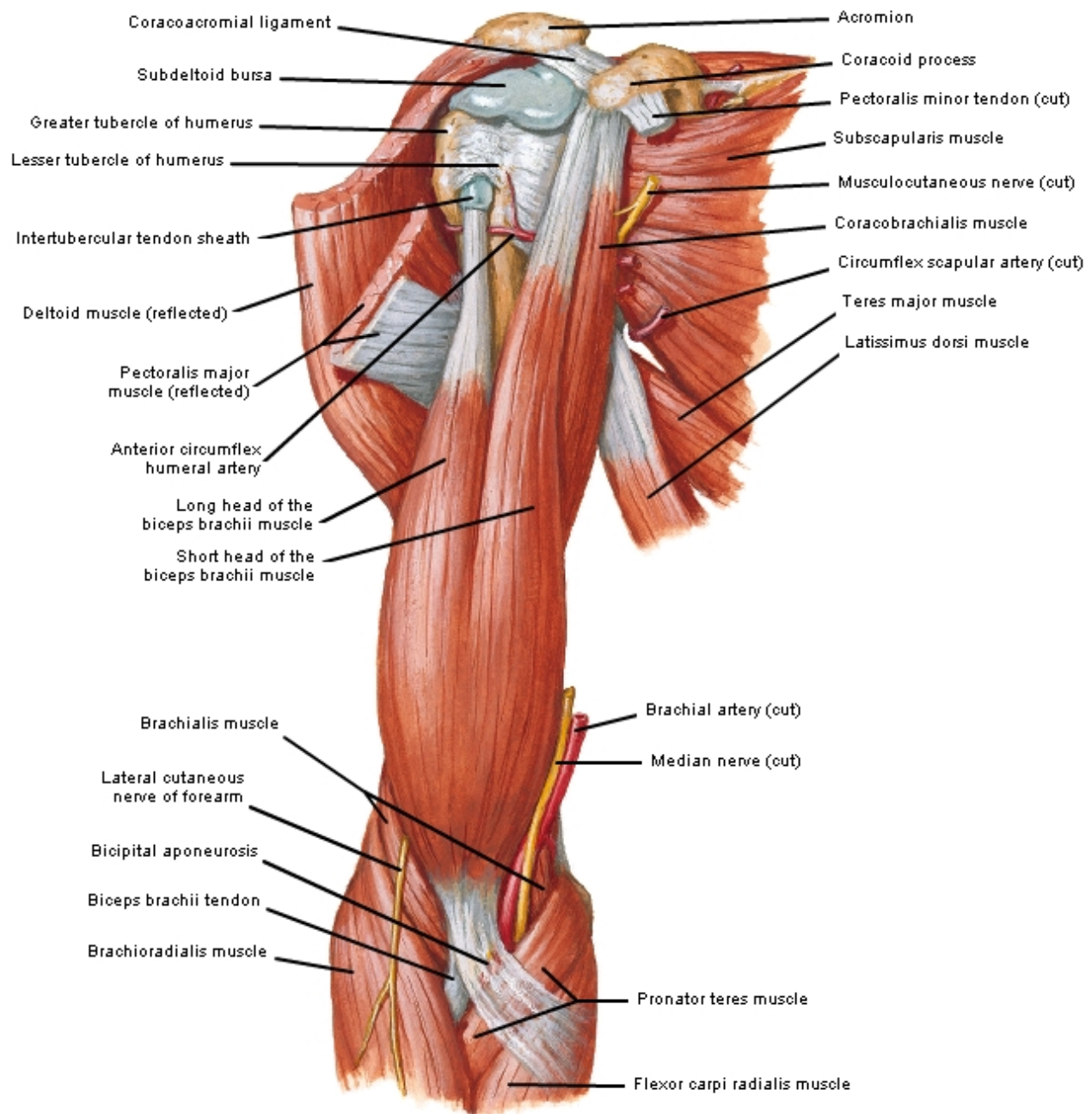


F. Netter
M.D.

UPPER LIMB

Muscles of Arm

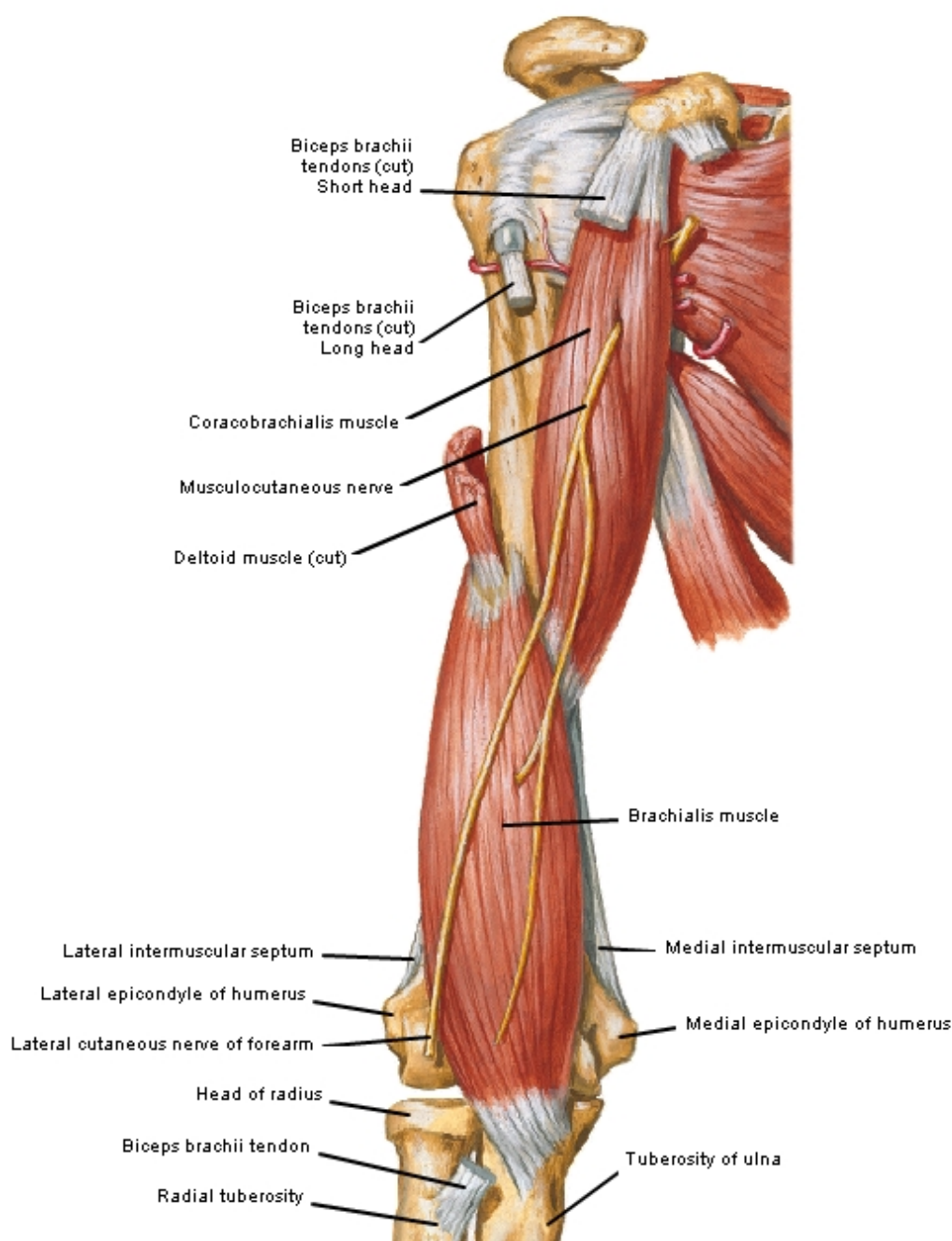
Anterior View - Superficial Layer



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Muscles of Arm

Anterior View - Deep Layer

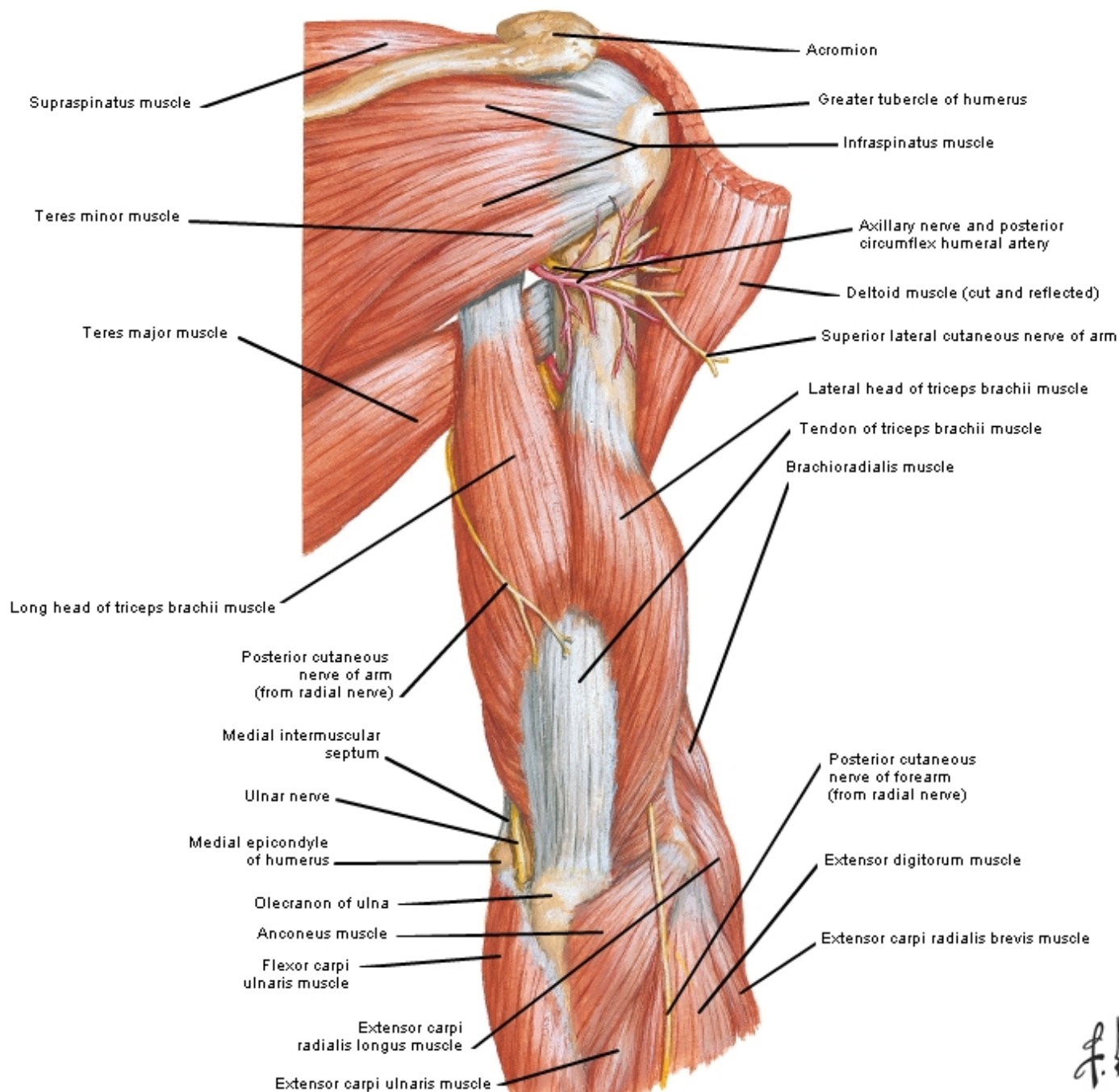


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UPPER LIMB

Muscles of Arm

Posterior View - Superficial layer

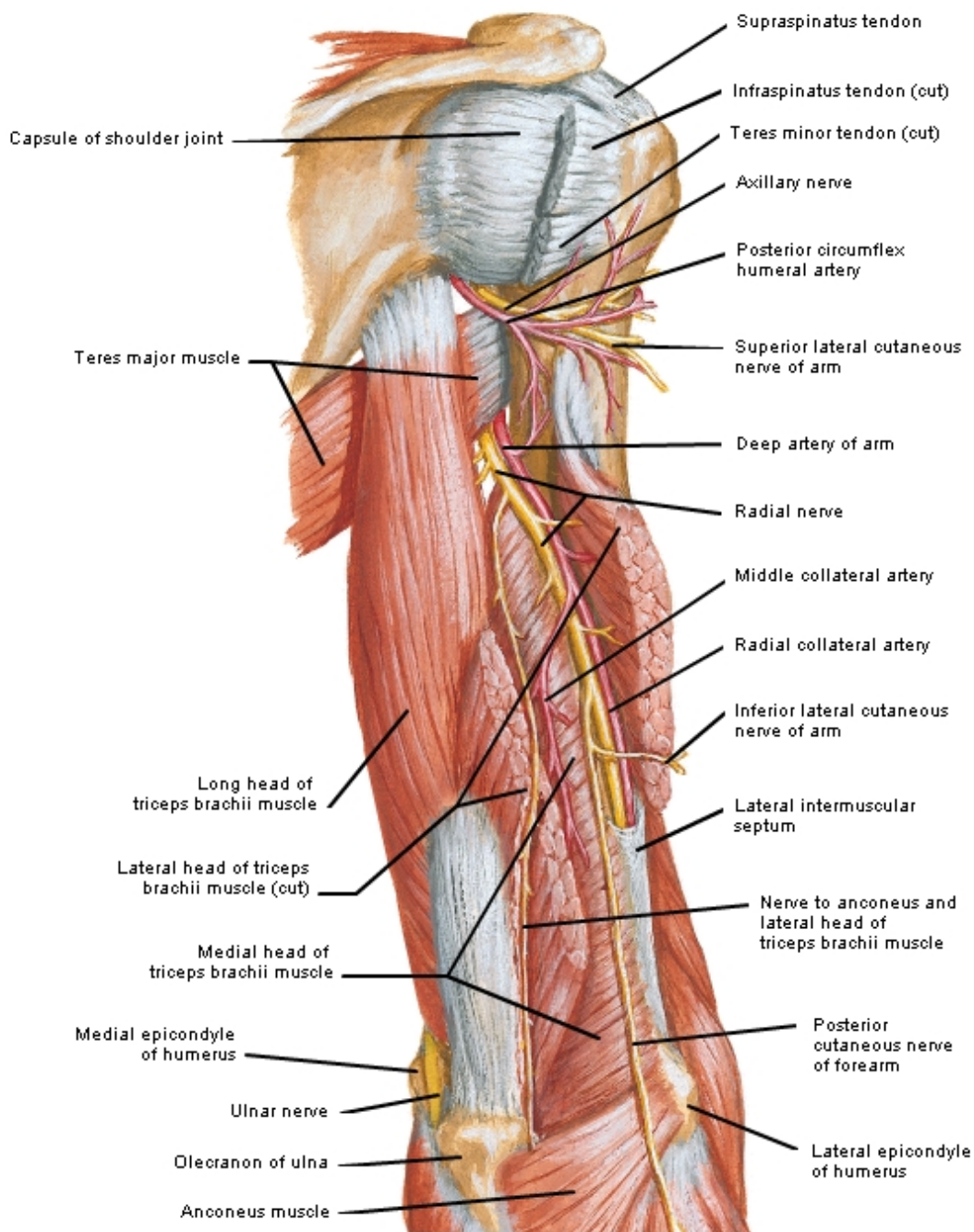


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UPPER LIMB

Muscles of Arm

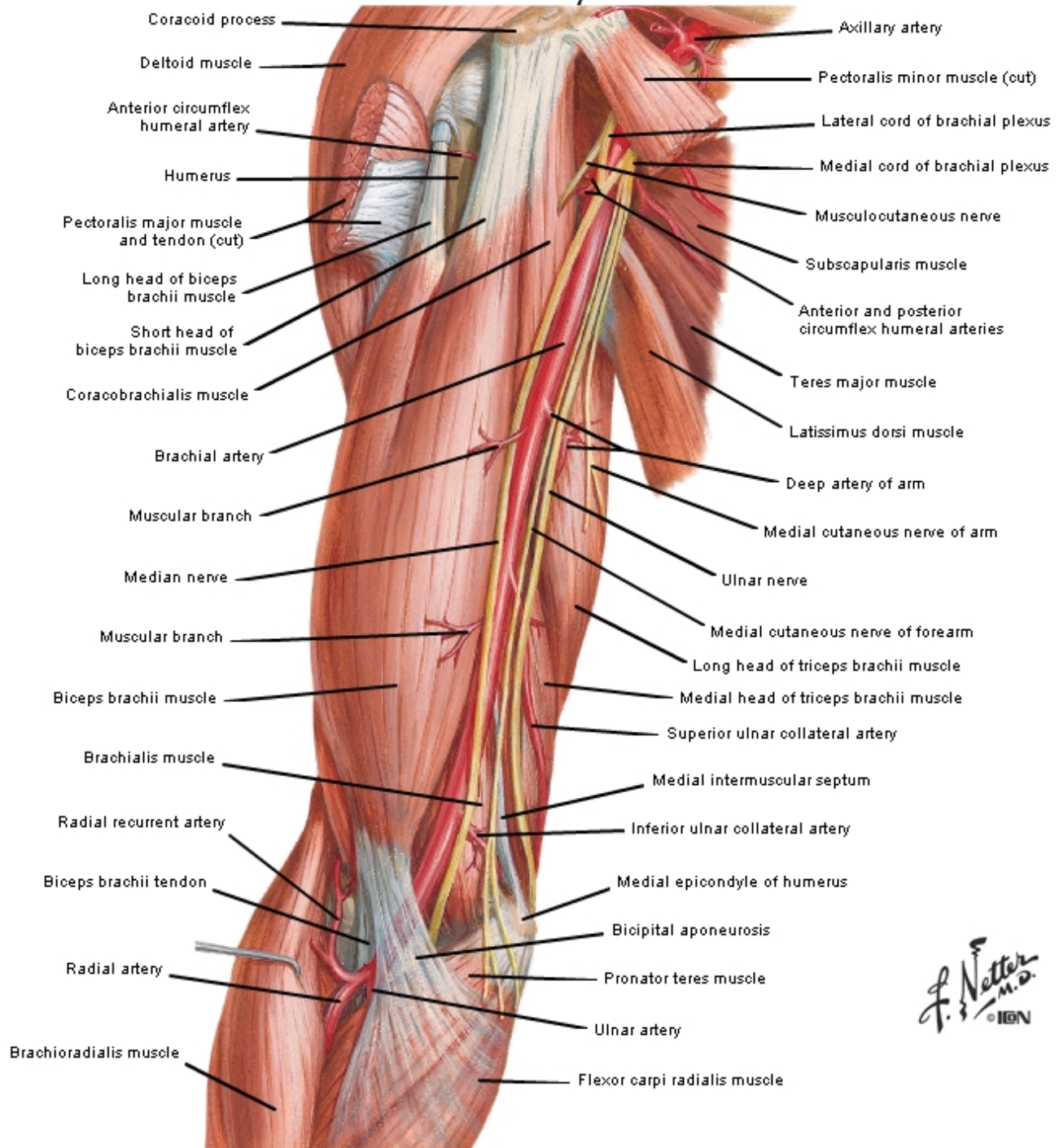
Posterior View - Deep Layer



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UPPER LIMB

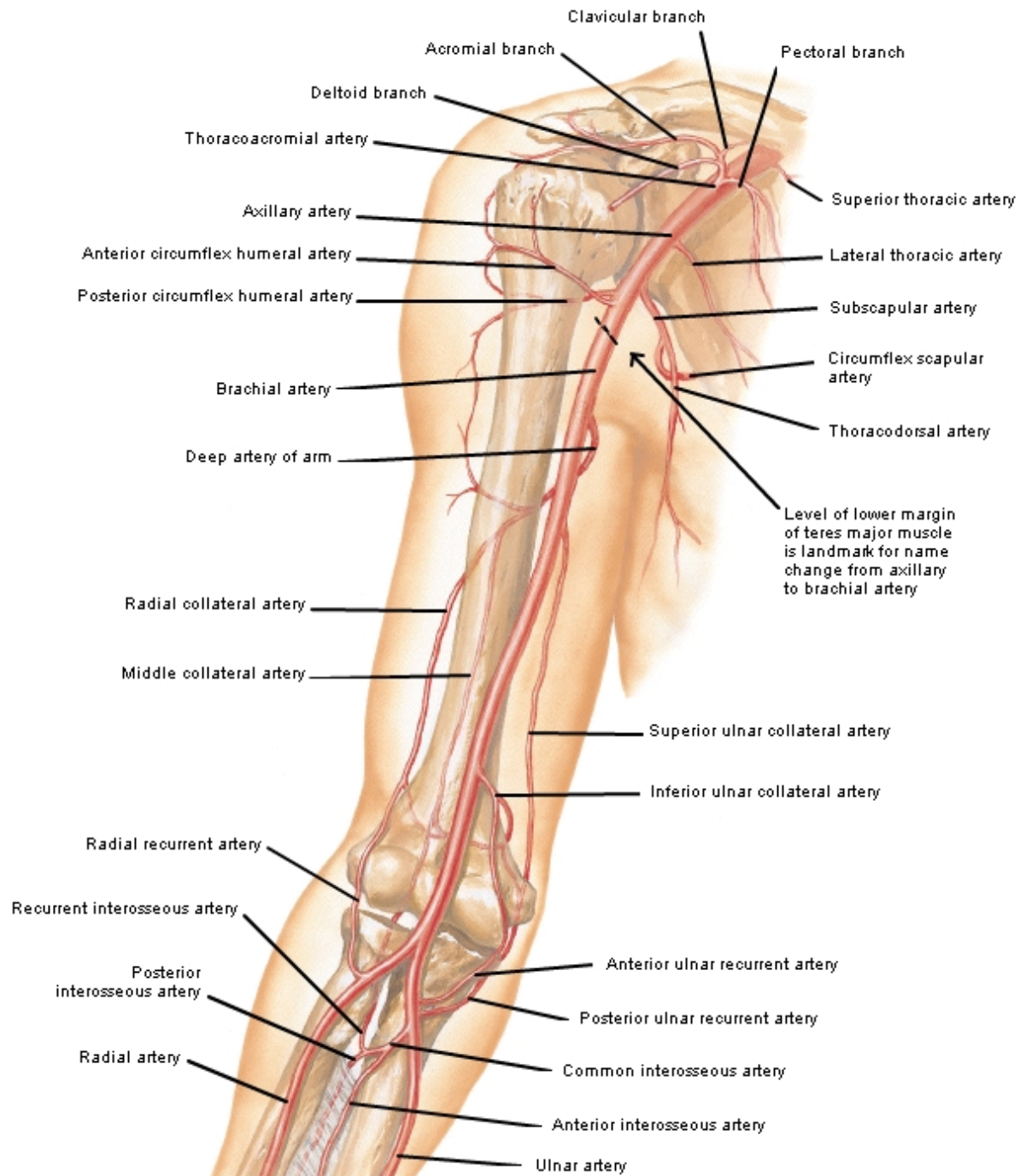
Brachial Artery In Situ



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UPPER LIMB

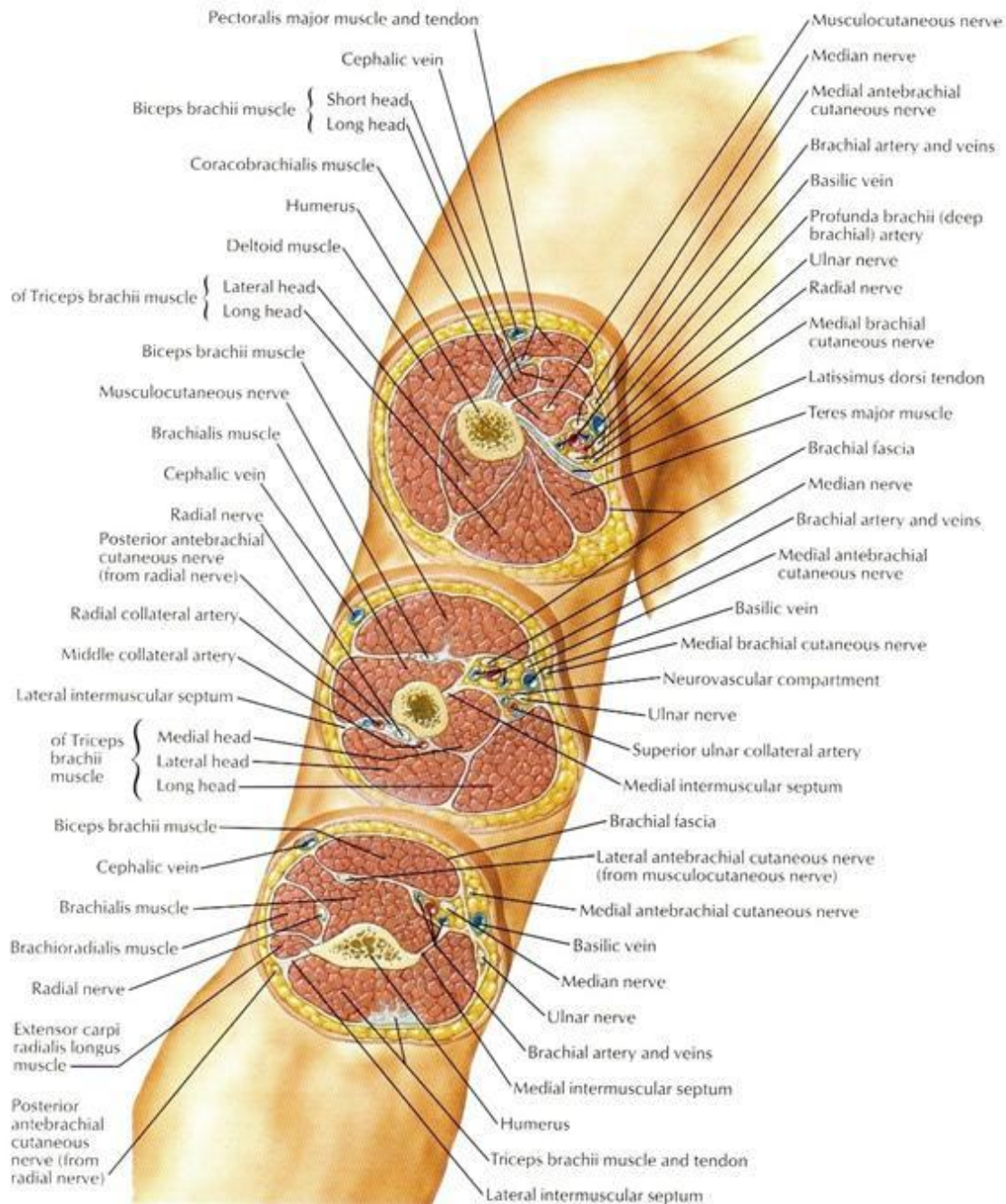
Brachial Artery and Anastomoses Around Elbow



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UPPER LIMB

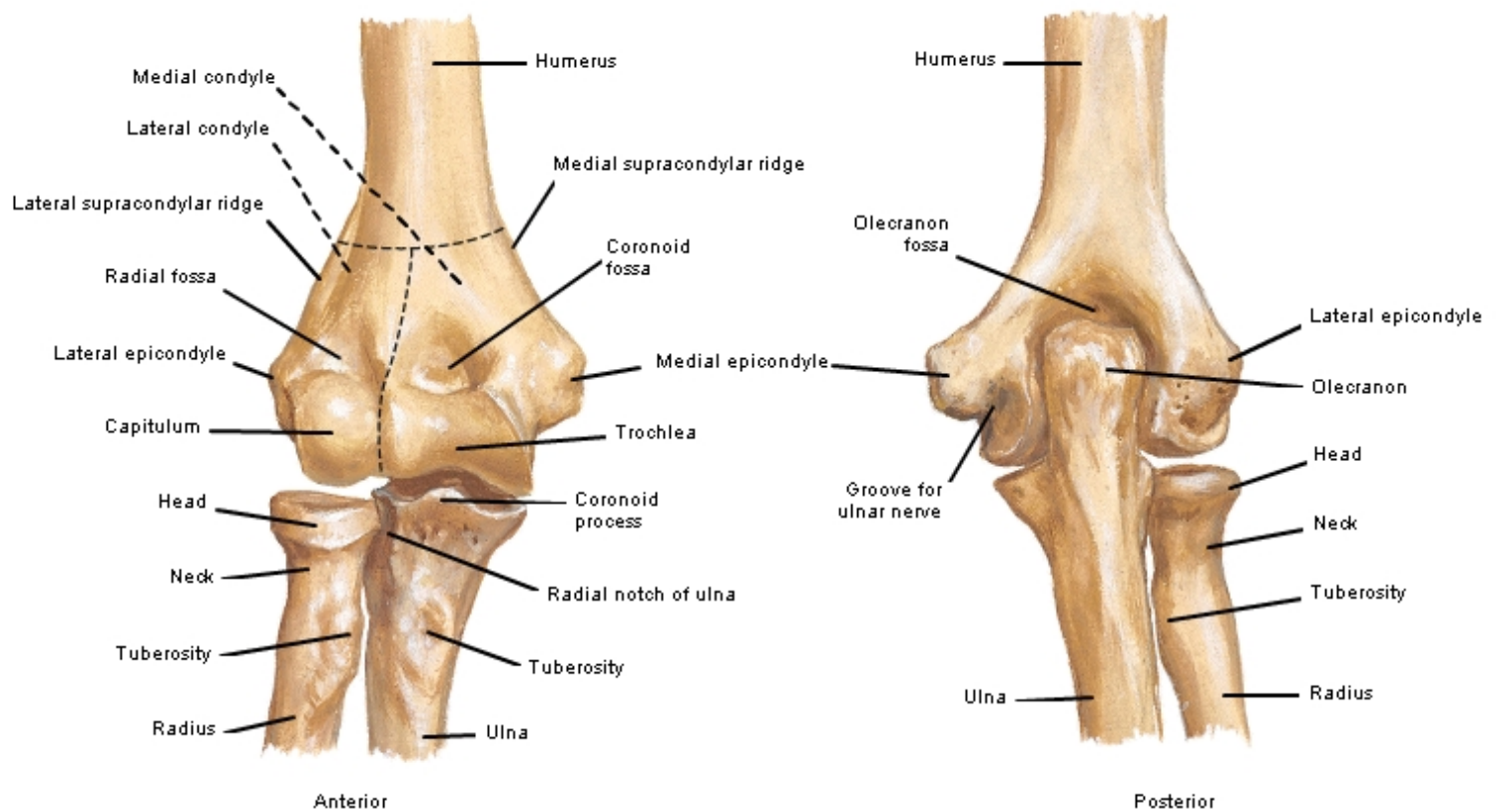
Arm: Serial Cross Sections



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Bones of Elbow in Extension

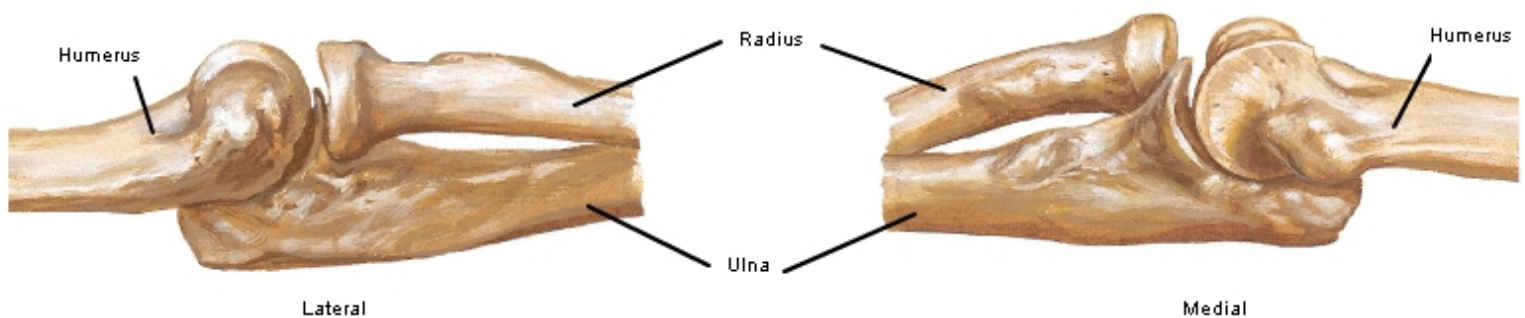
Anterior and Posterior Views: Right Elbow



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Bones of Elbow in Extension

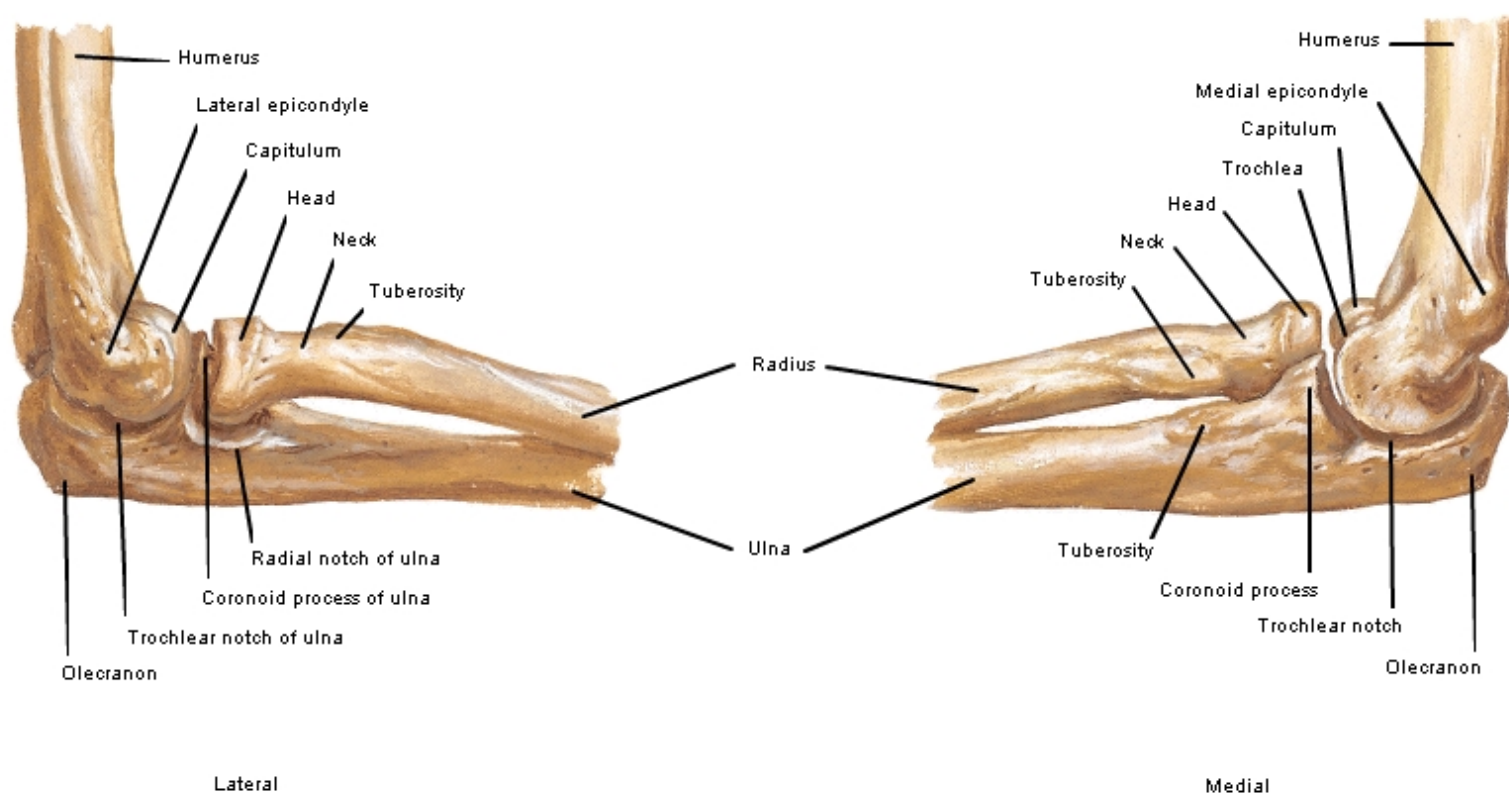
Lateral and Medial Views



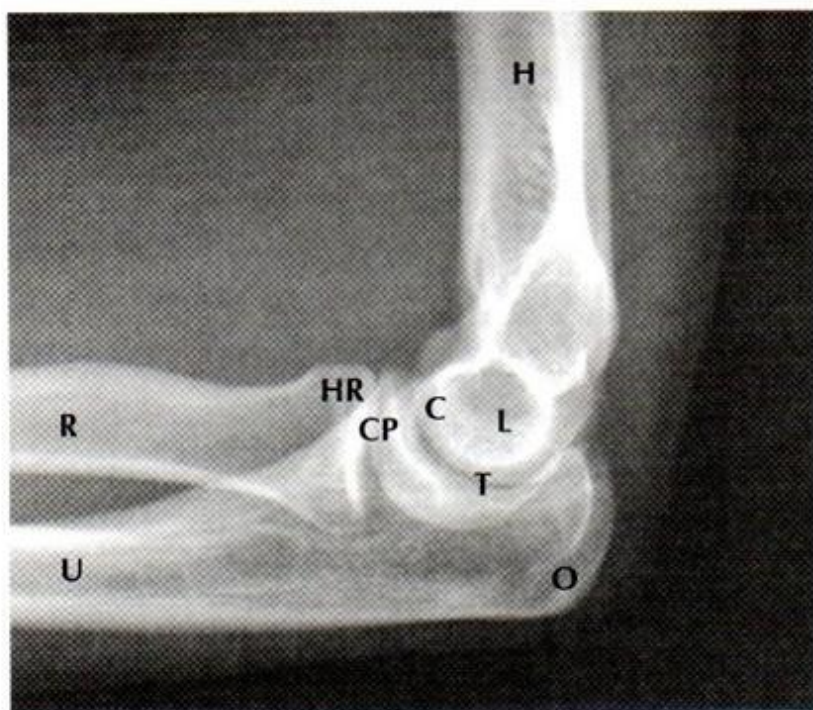
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Bones of Elbow in 90° Flexion

Lateral and Medial Views



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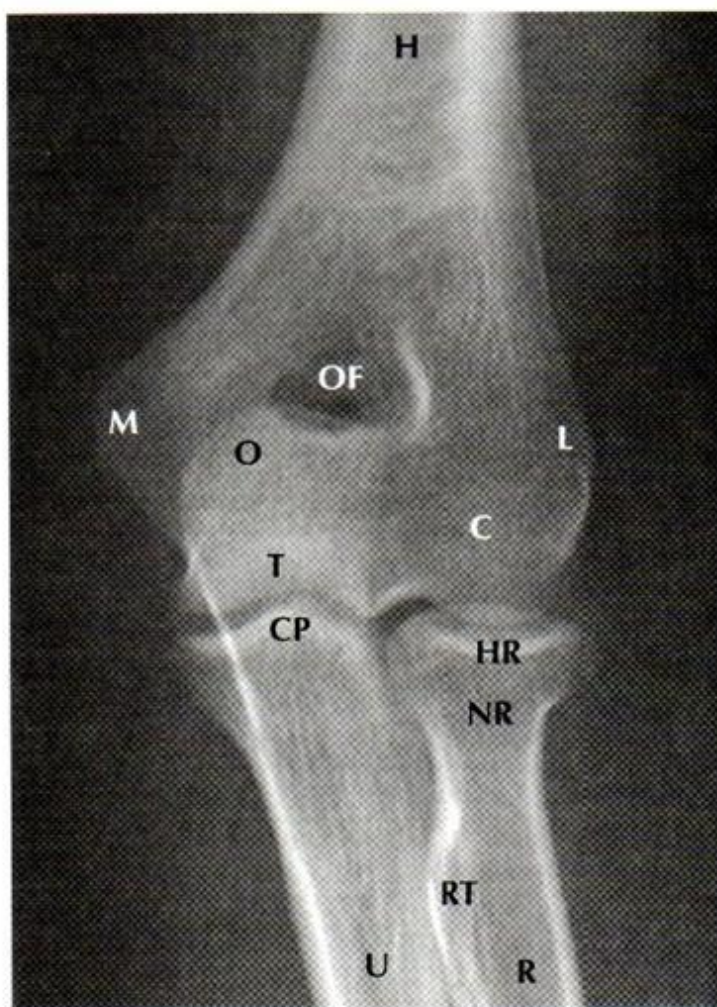
Elbow: Lateral Radiograph

- C Capitulum
- CP Coronoid process of ulna
- H Humerus
- HR Head of radius
- L Lateral epicondyle
- O Olecranon
- R Radius
- T Trochlear notch
- U Ulna

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Elbow: Anteroposterior Radiograph

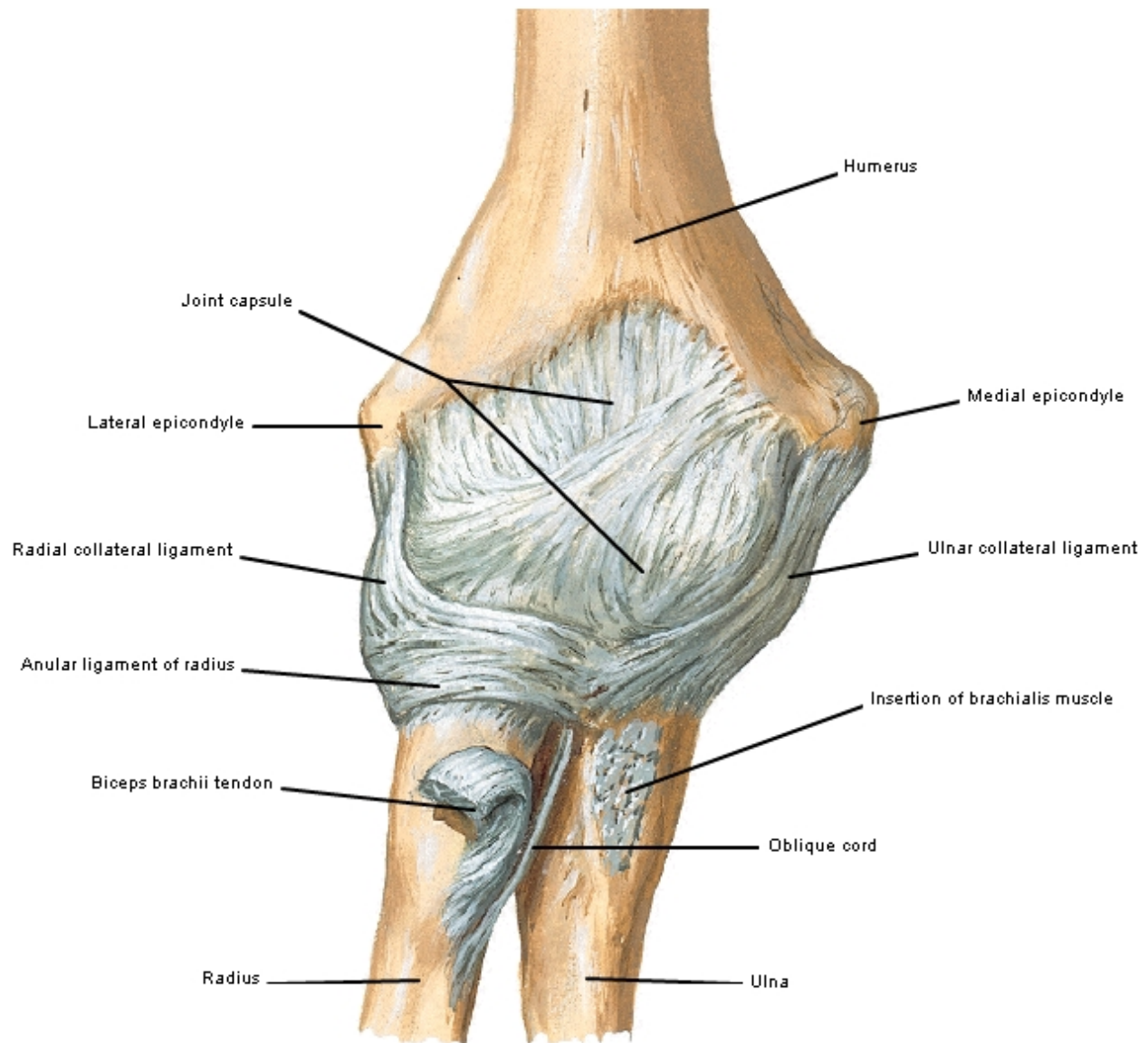
- C Capitulum
- CP Coronoid process of ulna
- H Humerus
- HR Head of radius
- L Lateral epicondyle
- M Medial epicondyle
- NR Neck of radius
- O Olecranon
- OF Olecranon fossa
- R Radius
- T Trochlea of humerus
- RT Radial tuberosity
- U Ulna



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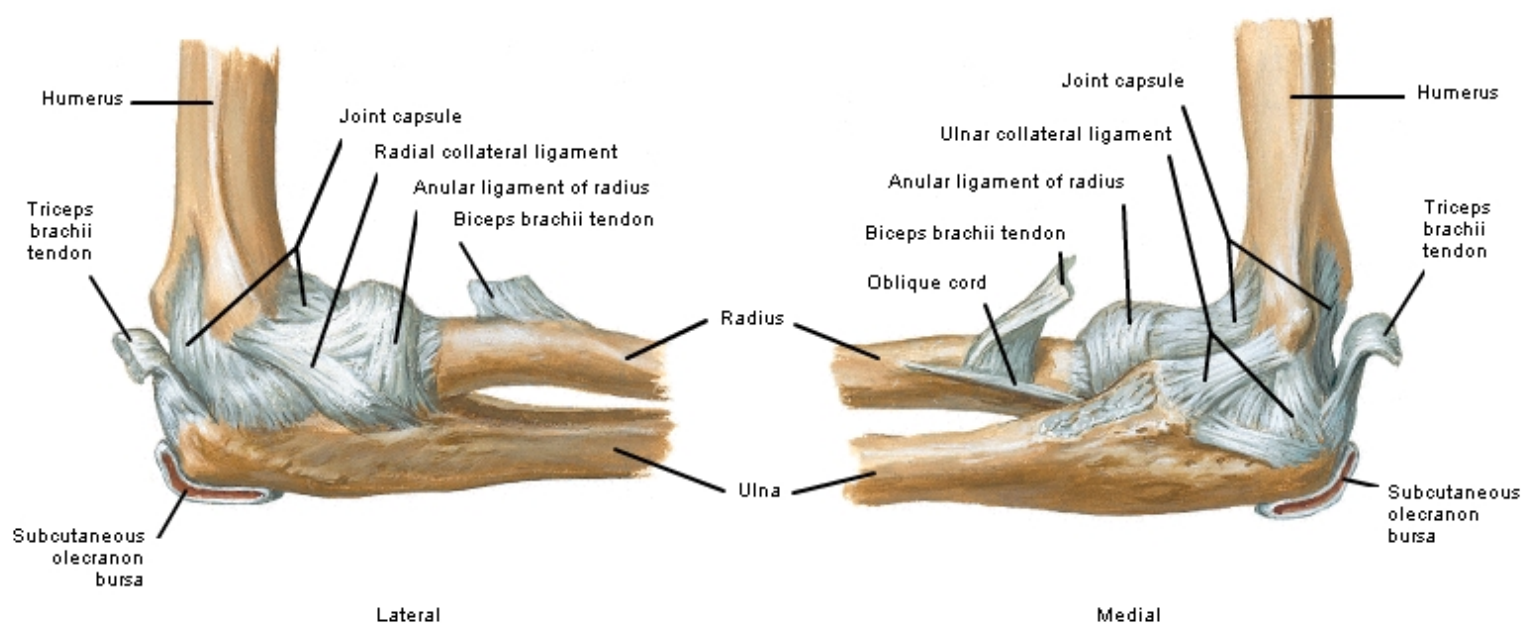
Ligaments of Elbow

Right Elbow - Anterior View



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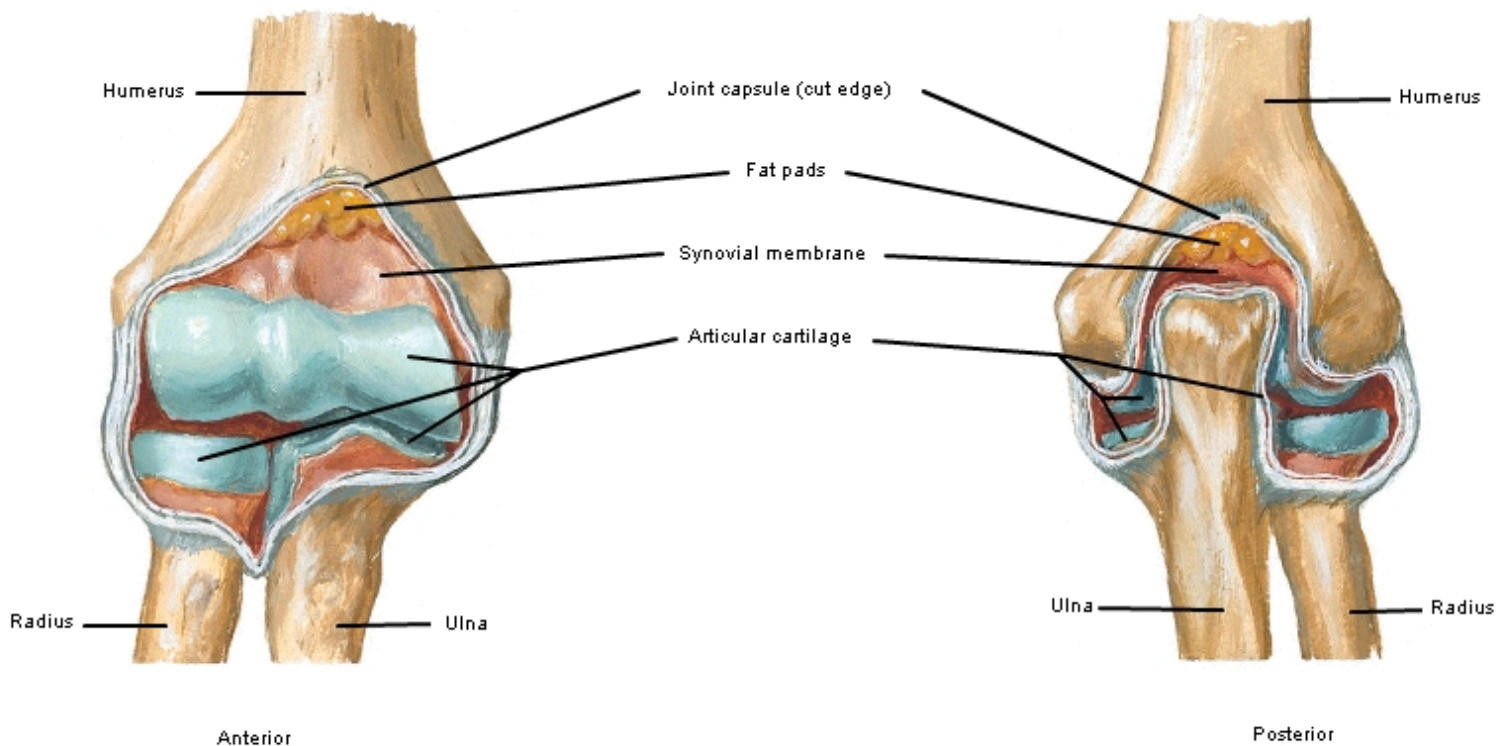
Ligaments of Elbow in 90° Flexion Lateral and Medial Views



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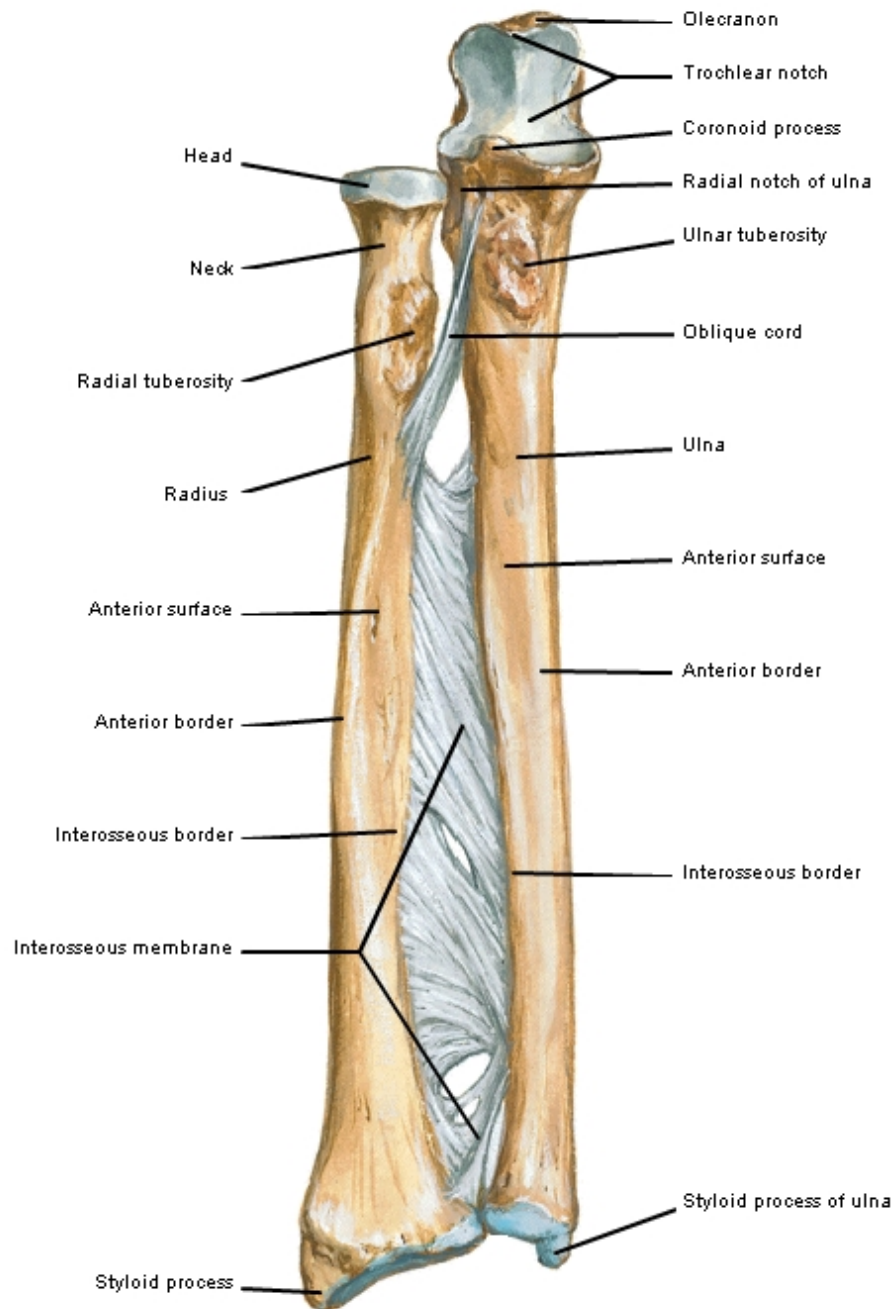
Elbow Joint (Opened)

Anterior and Posterior Views



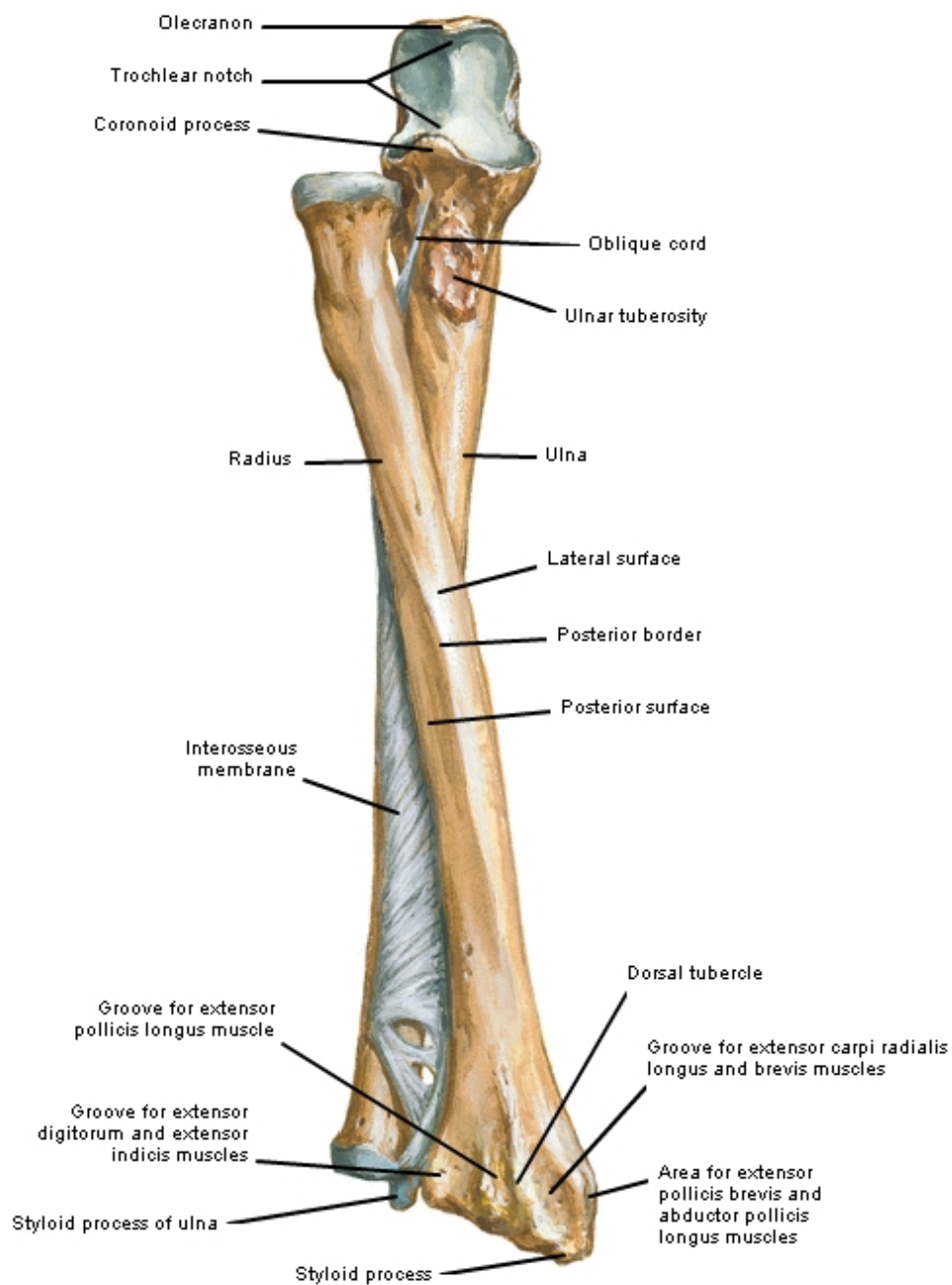
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Right Radius and Ulna in Supination Anterior View



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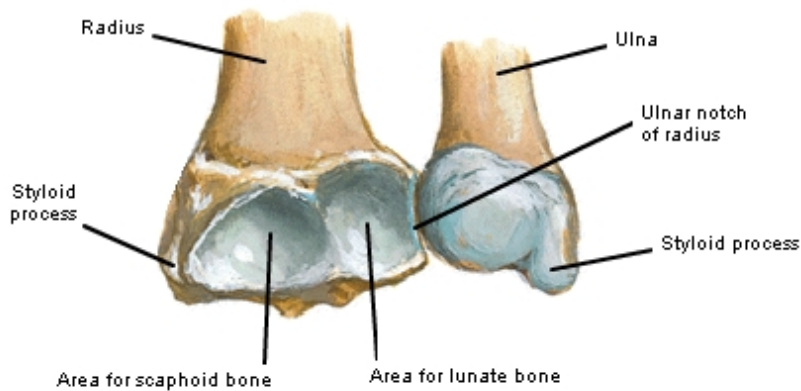
Right Radius and Ulna in Pronation Anterior View



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Bones of Forearm

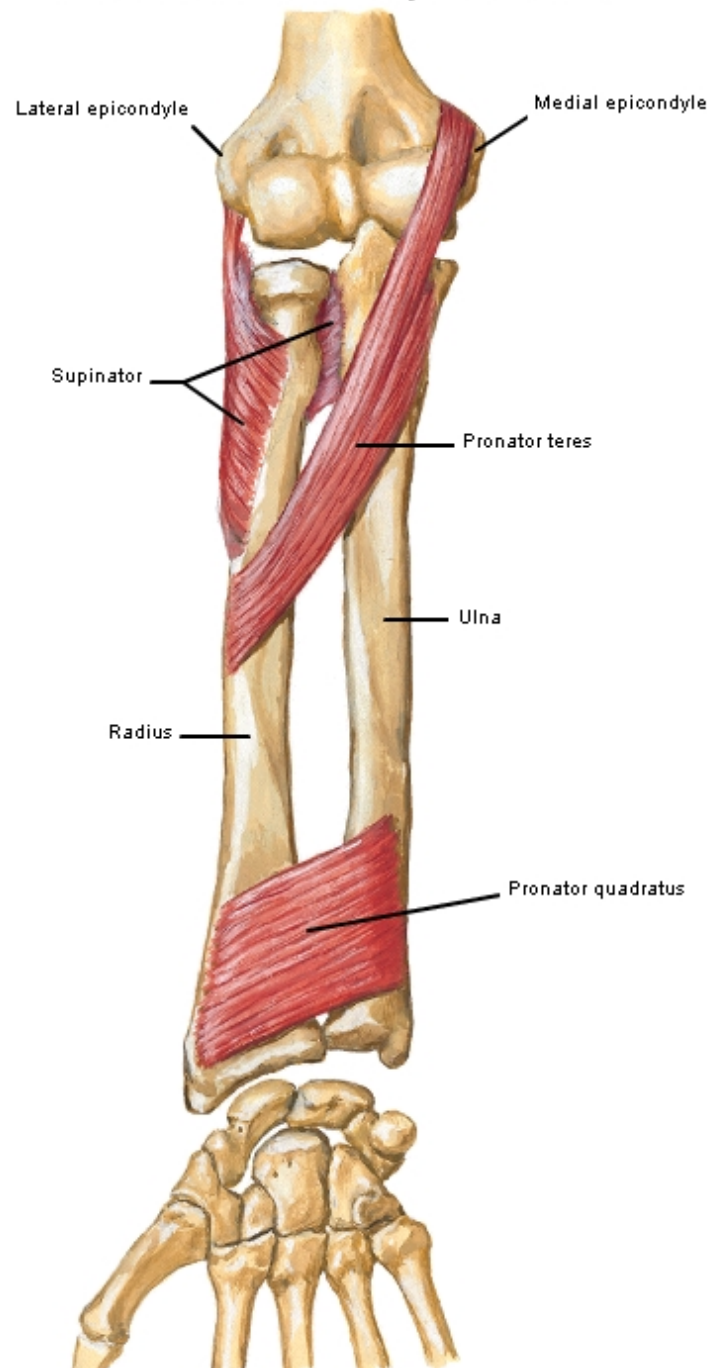
Carpal Articular Surface and Section of Radius



Coronal section of radius demonstrates how thickness of cortical bone of shaft diminishes to thin layer over cancellous bone at distal end

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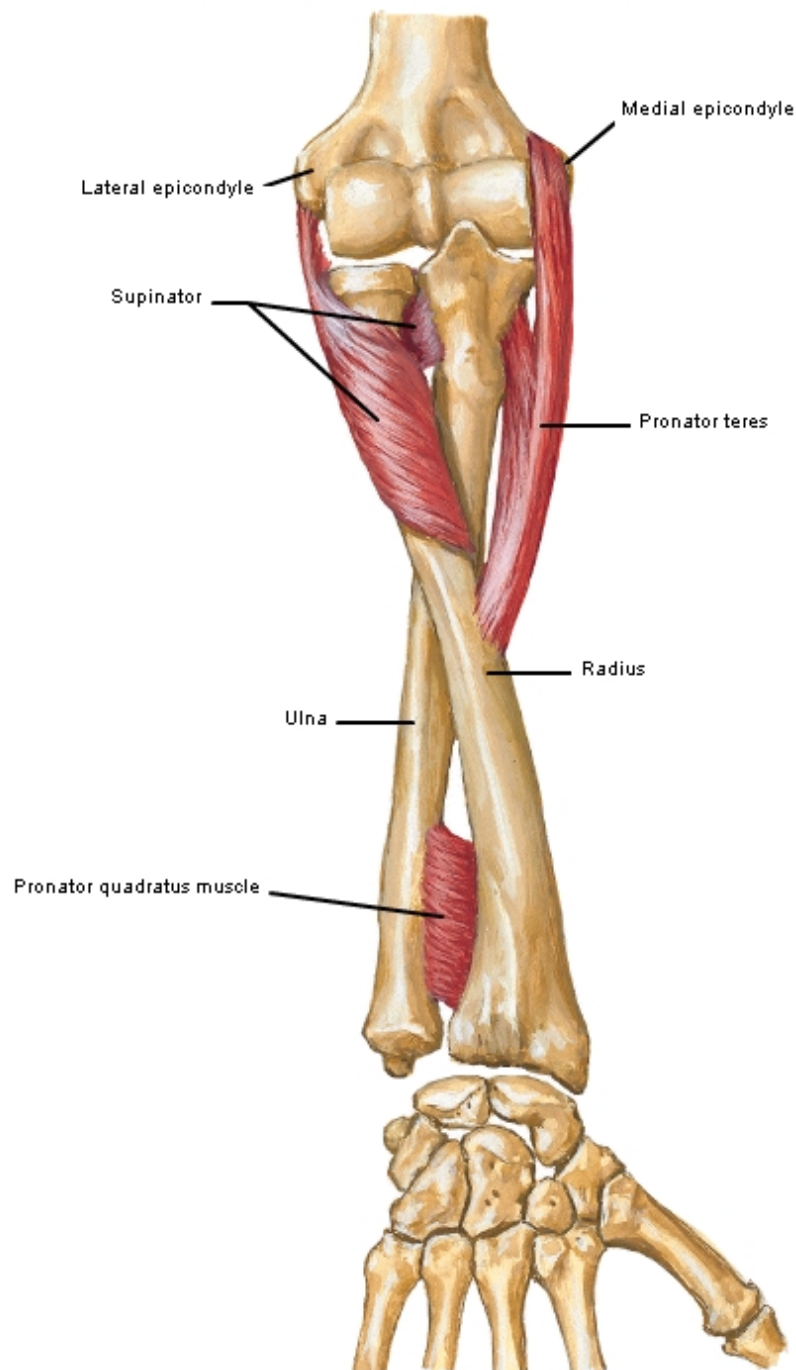
Individual Muscles of Forearm Rotators of Radius - Supinated Position



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Individual Muscles of Forearm

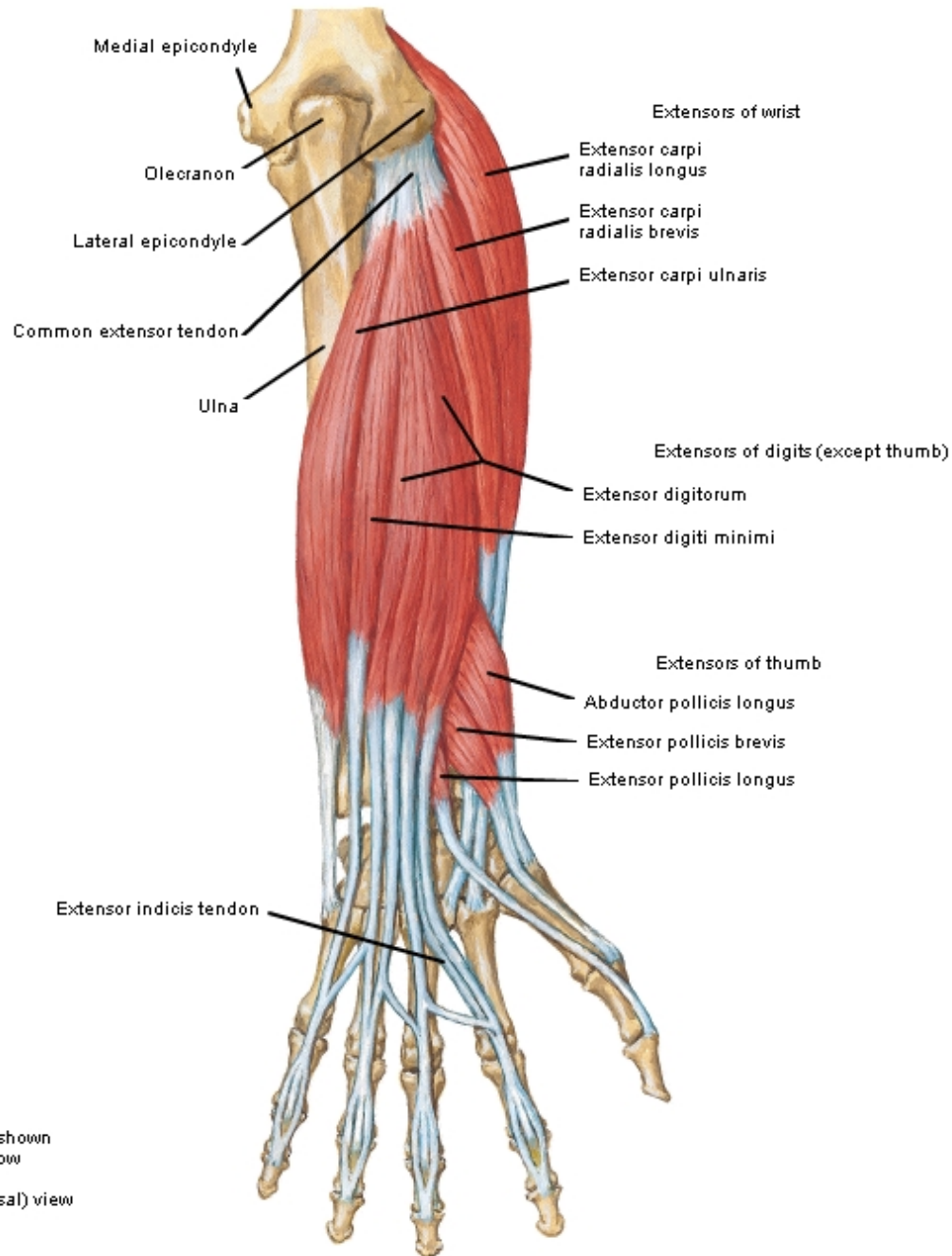
Rotators of Radius - Pronated Position



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Individual Muscles of Forearm

Extensors of Wrist and Digits

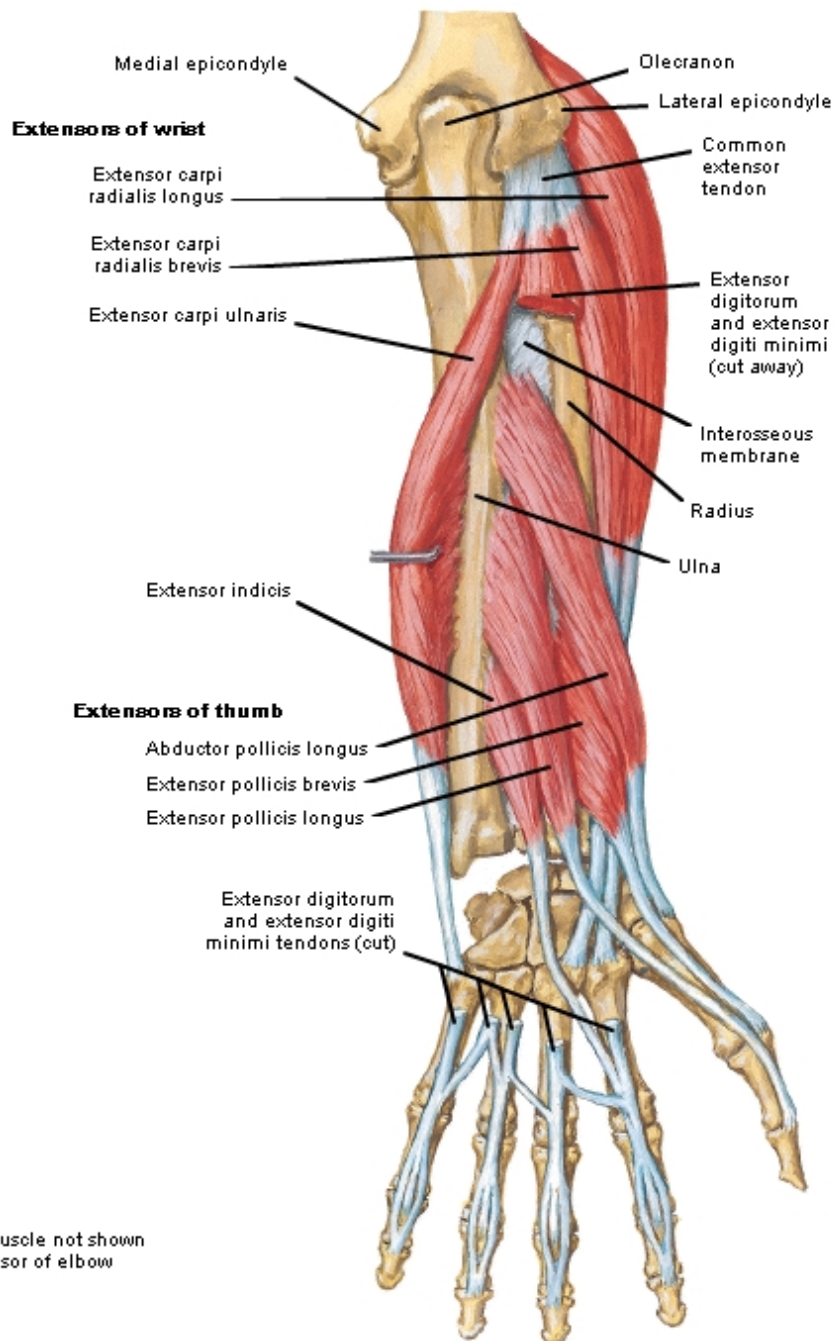


Note: Anconeus muscle not shown because it is extensor of elbow

Right forearm: posterior (dorsal) view

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Individual Muscles of Forearm Extensors of Wrist and Digits (Dorsal View)

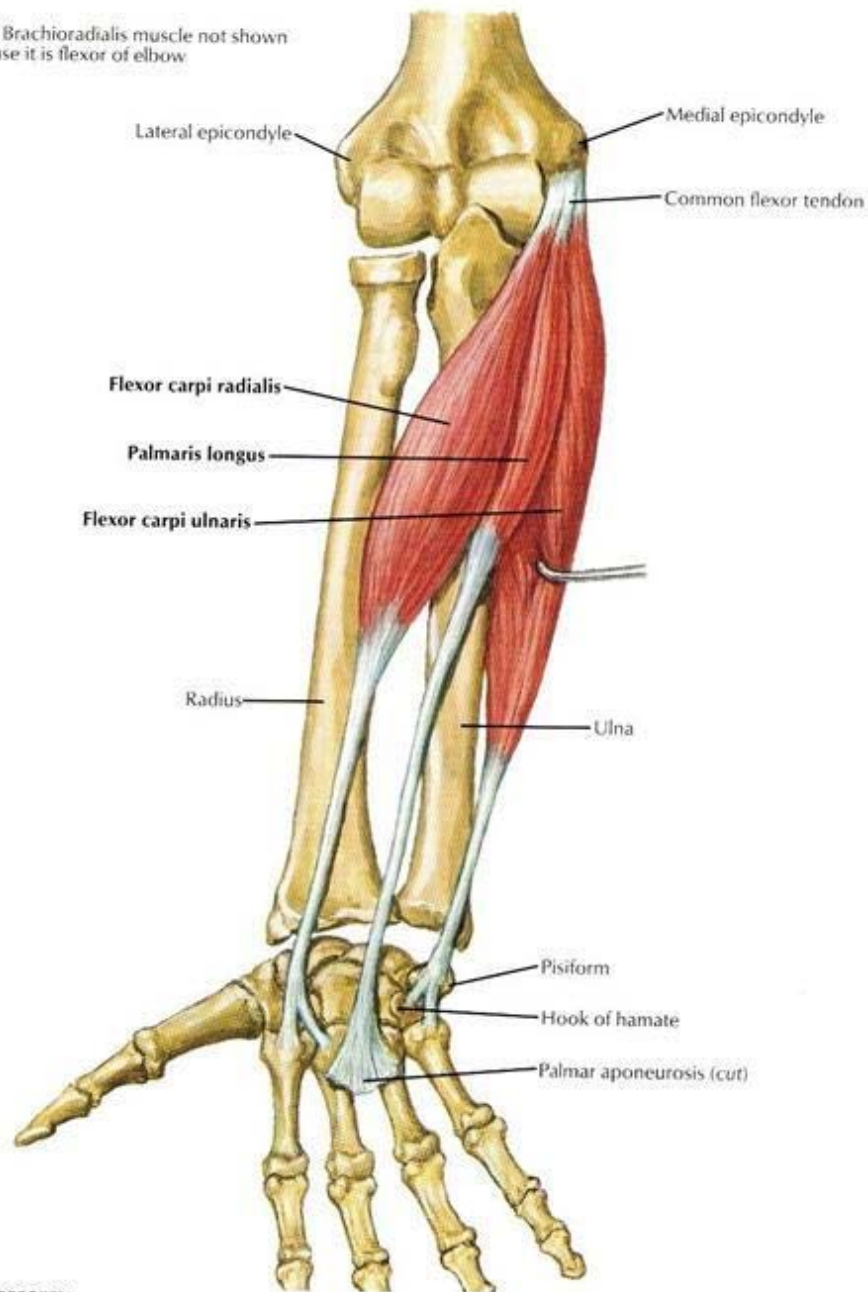


Note: Anconeus muscle not shown because it is extensor of elbow

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Individual Muscles of Forearm: Flexors of Wrist

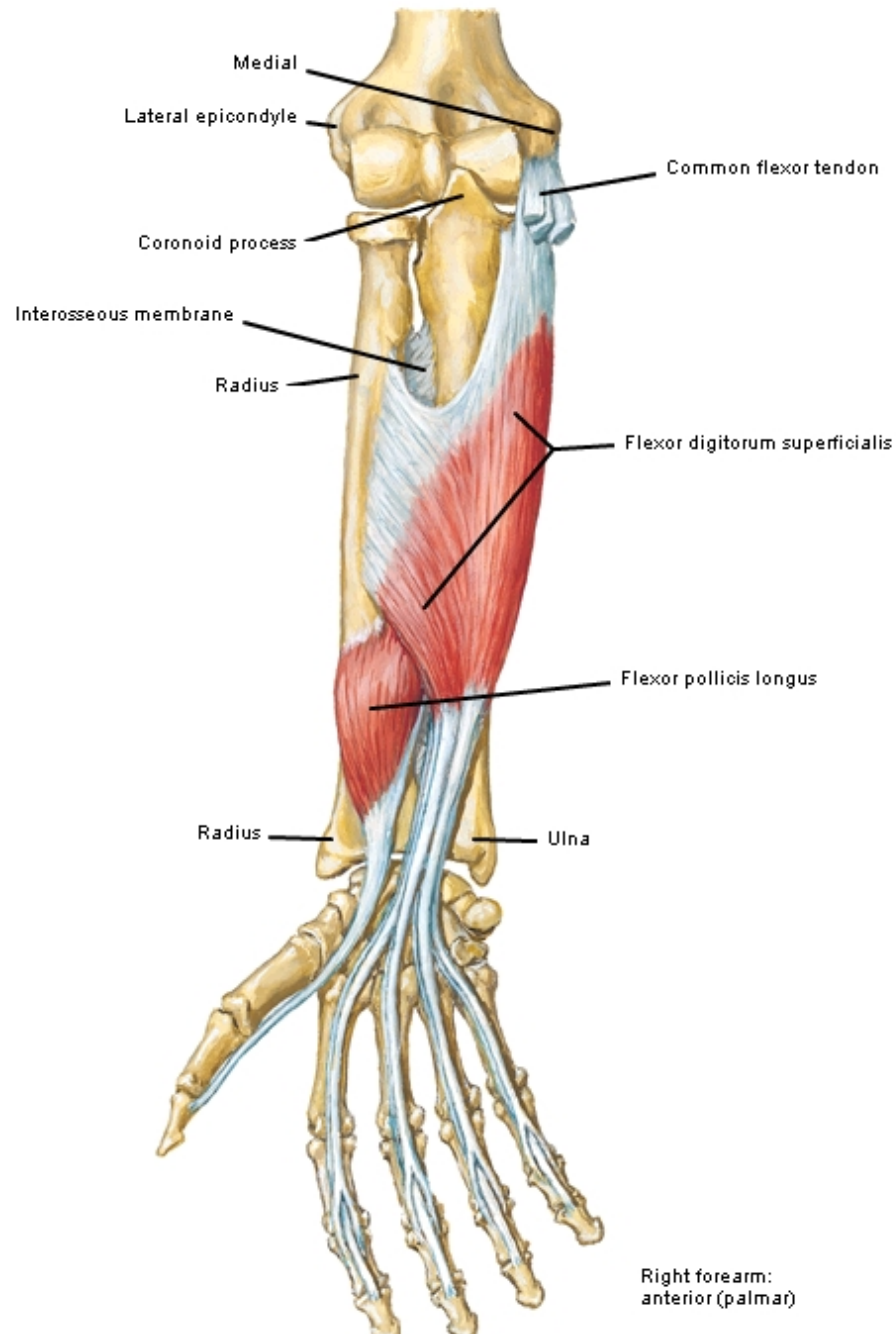
Note: Brachioradialis muscle not shown because it is flexor of elbow



Right forearm:
anterior (palmar) view

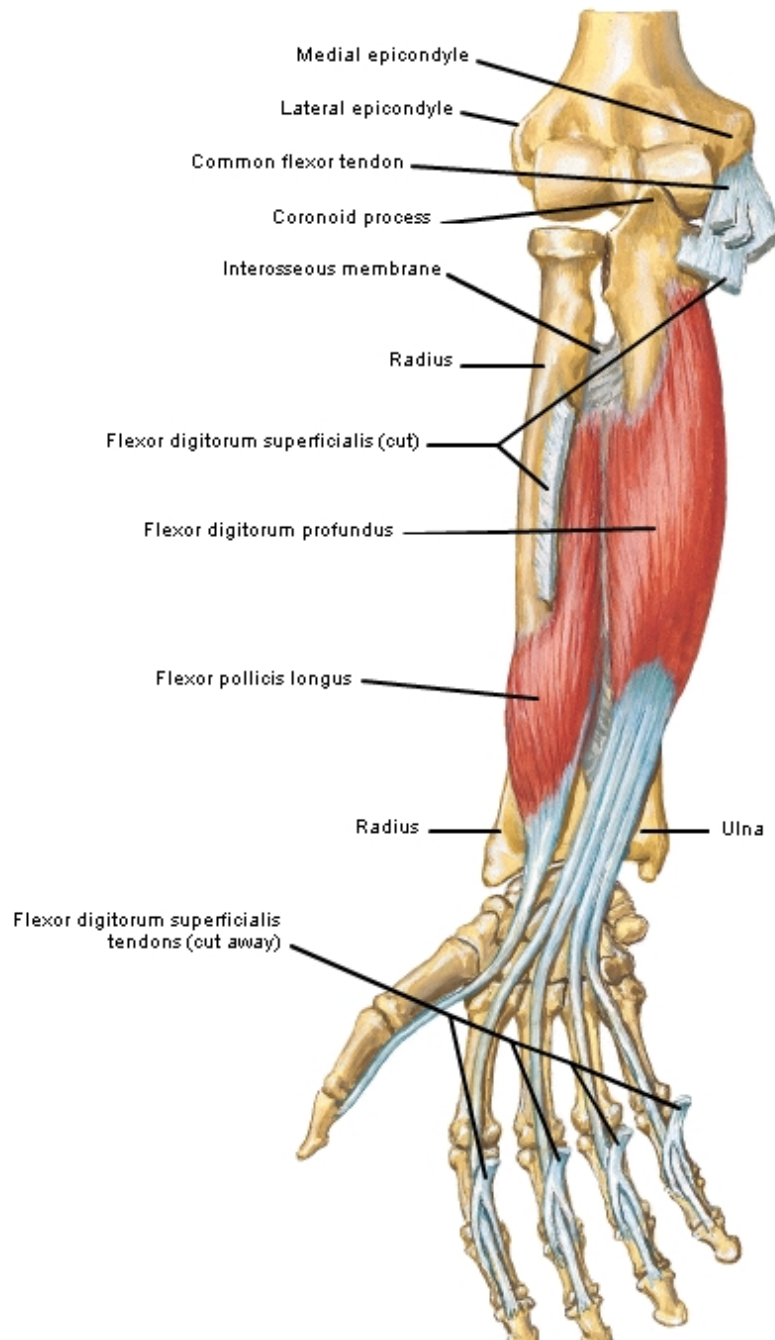
F. Netter M.D.
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Individual Muscles of Forearm Flexors of Digits (Anterior View)



F. Netter M.D.
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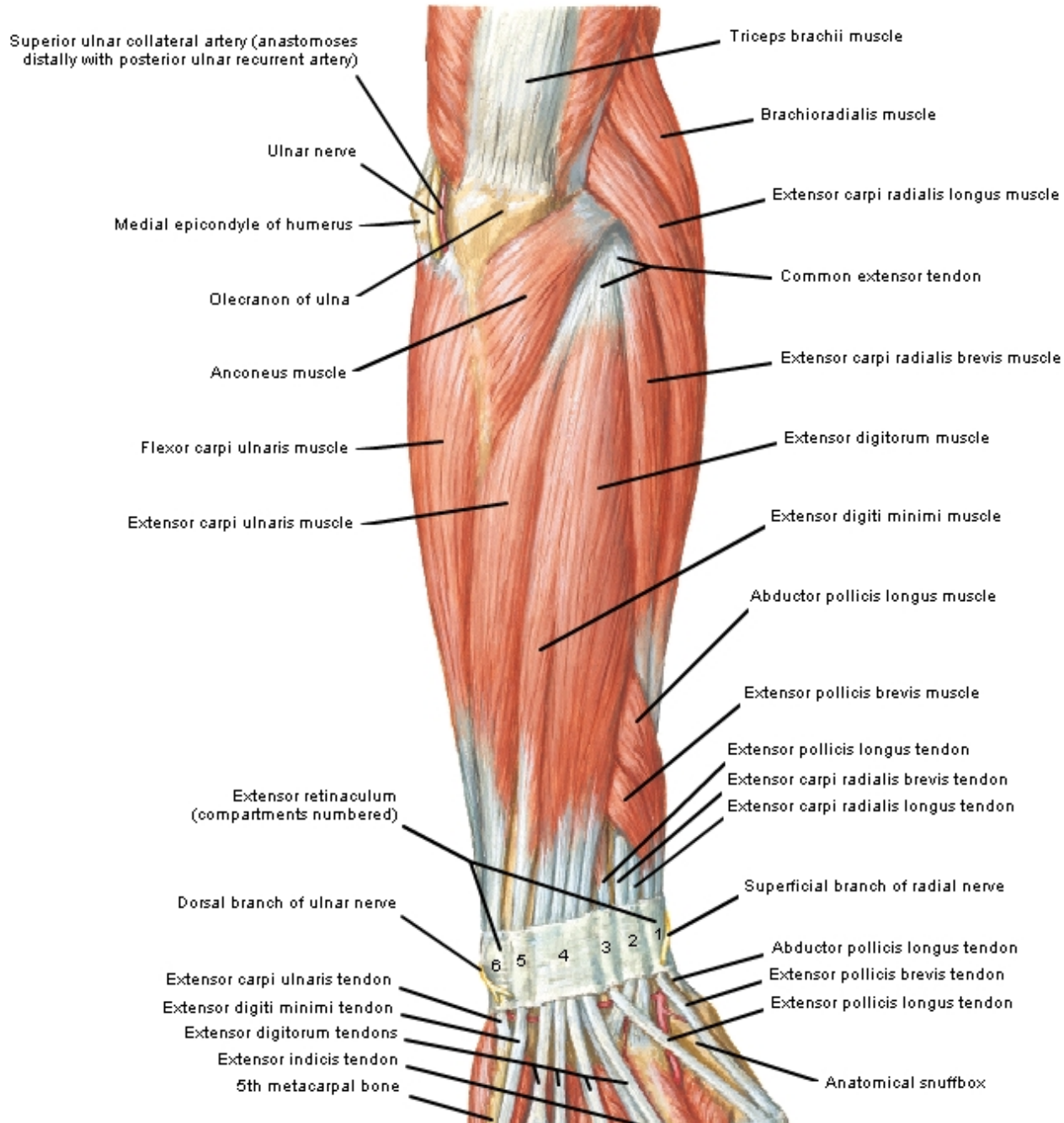
Individual Muscles of Forearm Flexors of Digits (Anterior View)



F. Netter
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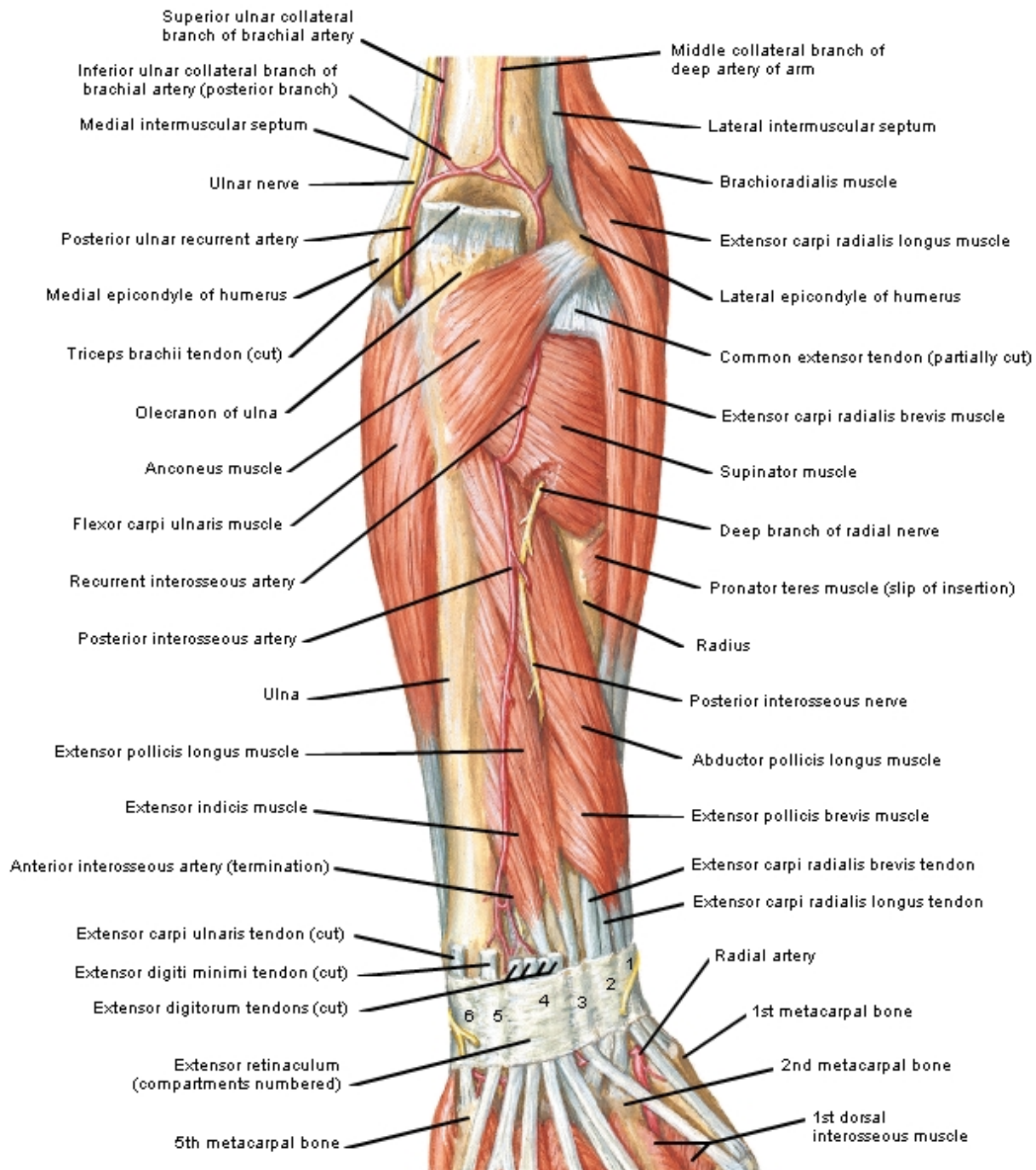
UPPER LIMB

Muscles of Forearm (Superficial Layer) Posterior View



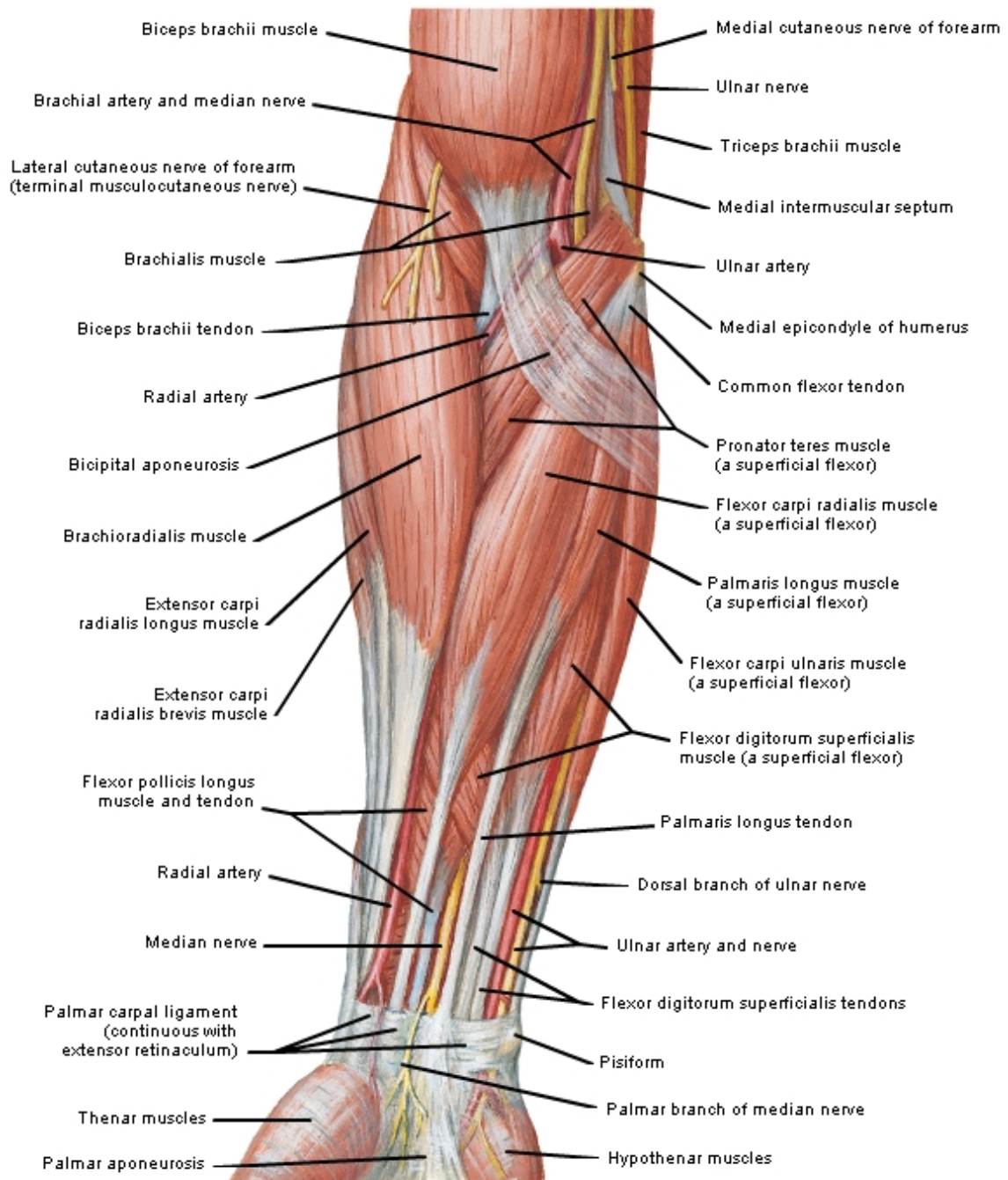
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UPPER LIMB

Muscles of Forearm (Deep Layer): Posterior View

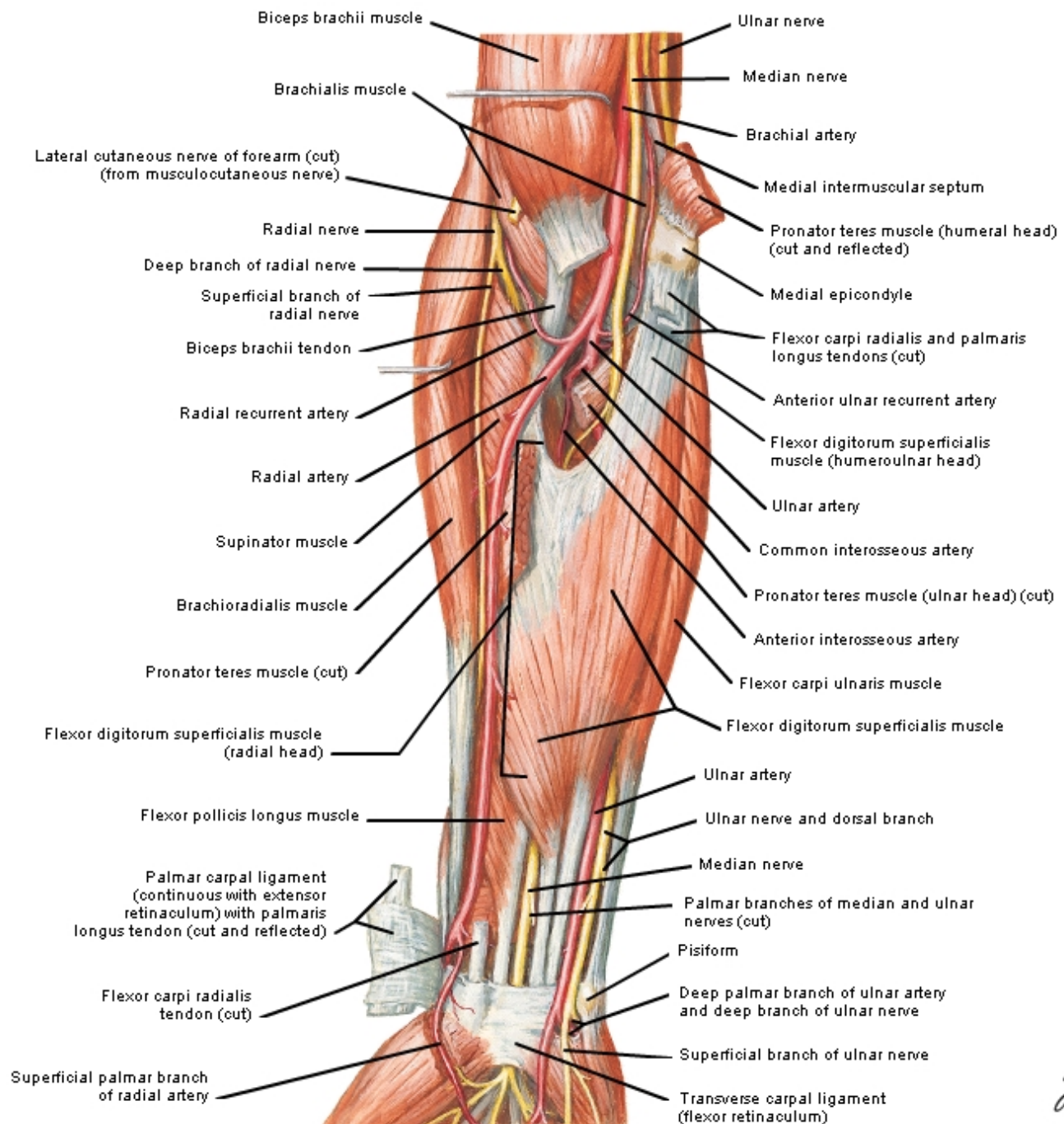
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UPPER LIMB

Muscles of Forearm (Superficial Layer): Anterior View

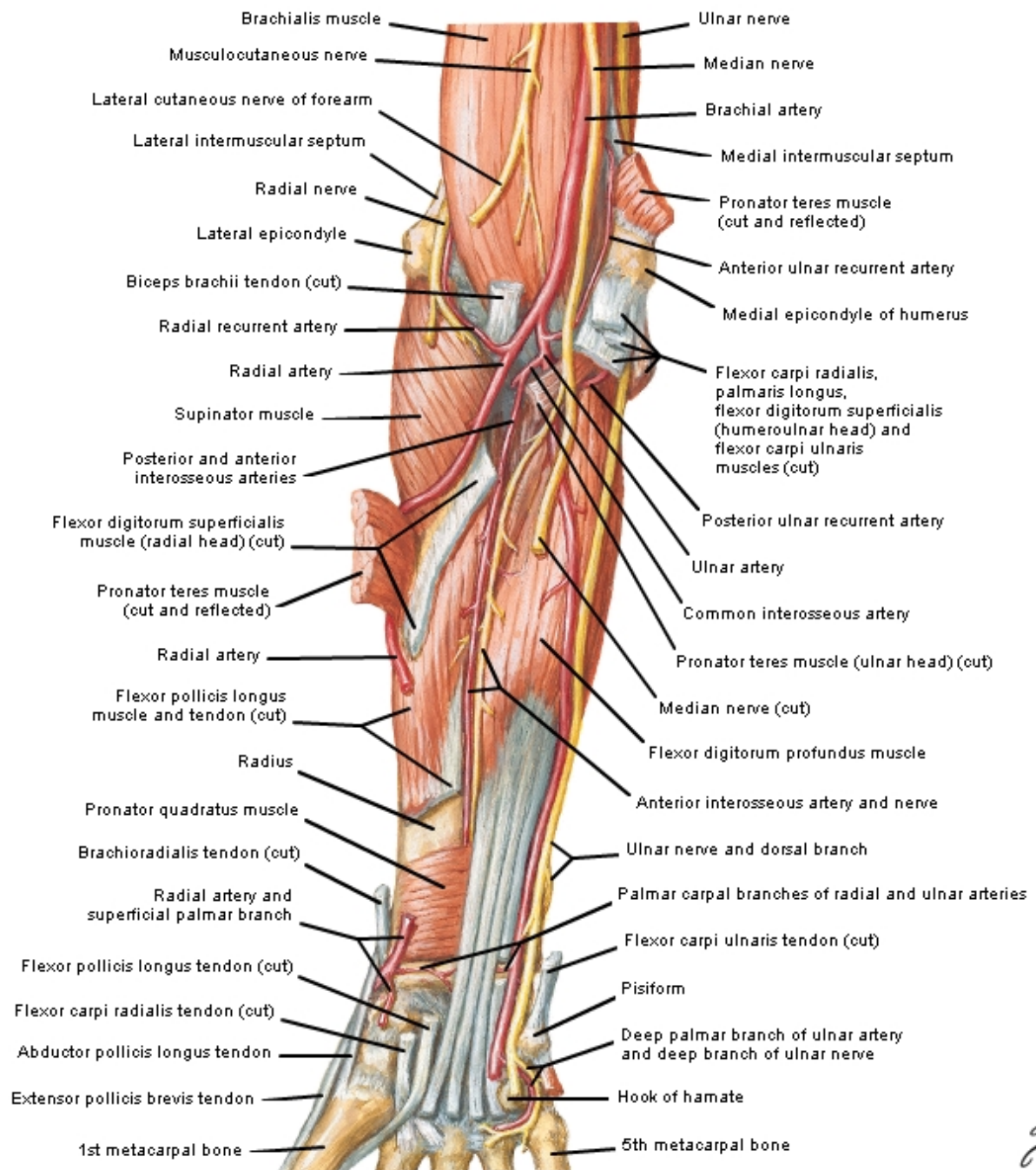
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UPPER LIMB

Muscles of Forearm (Intermediate Layer): Anterior View

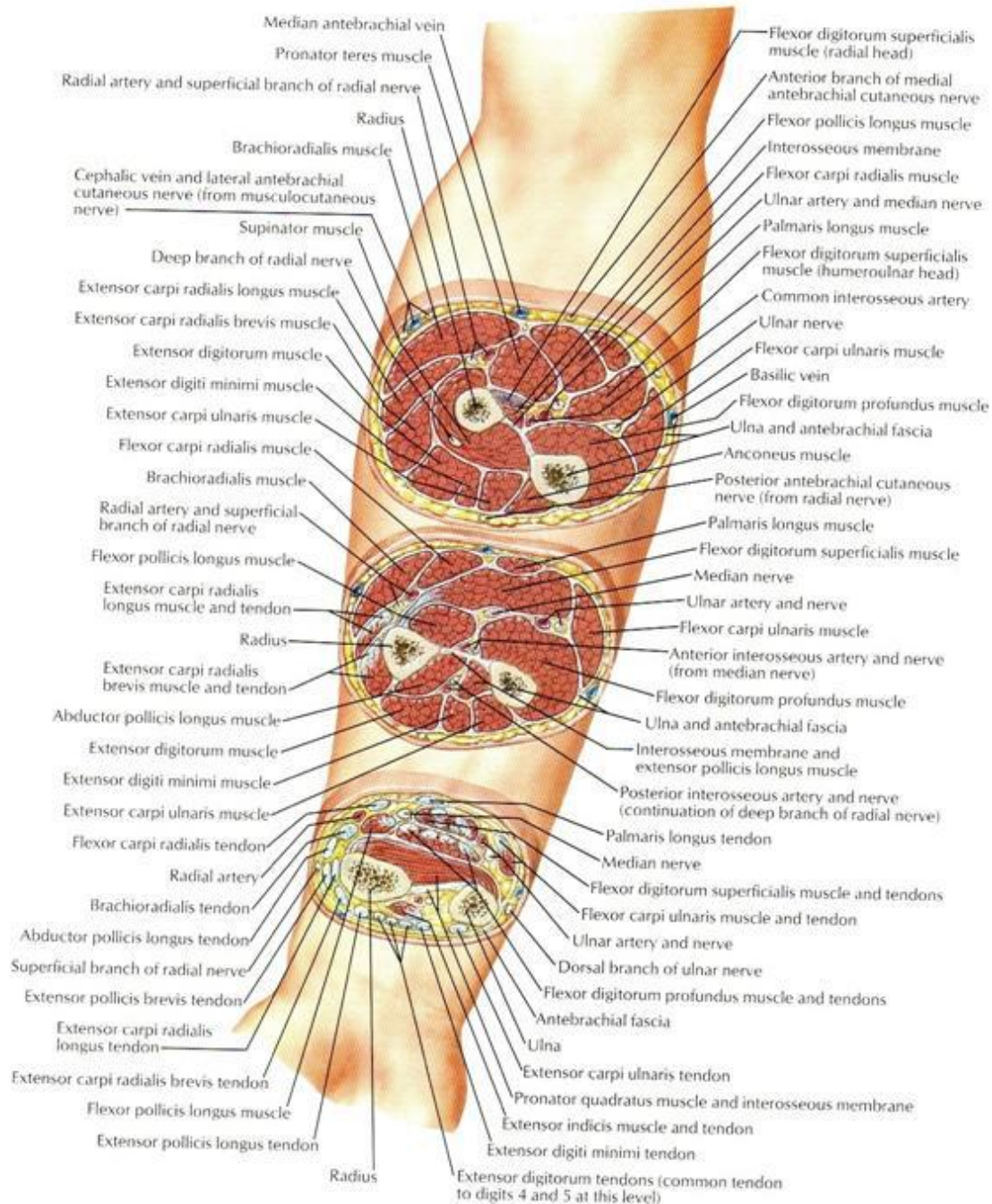
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UPPER LIMB

Muscles of Forearm (Deep Layer): Anterior View

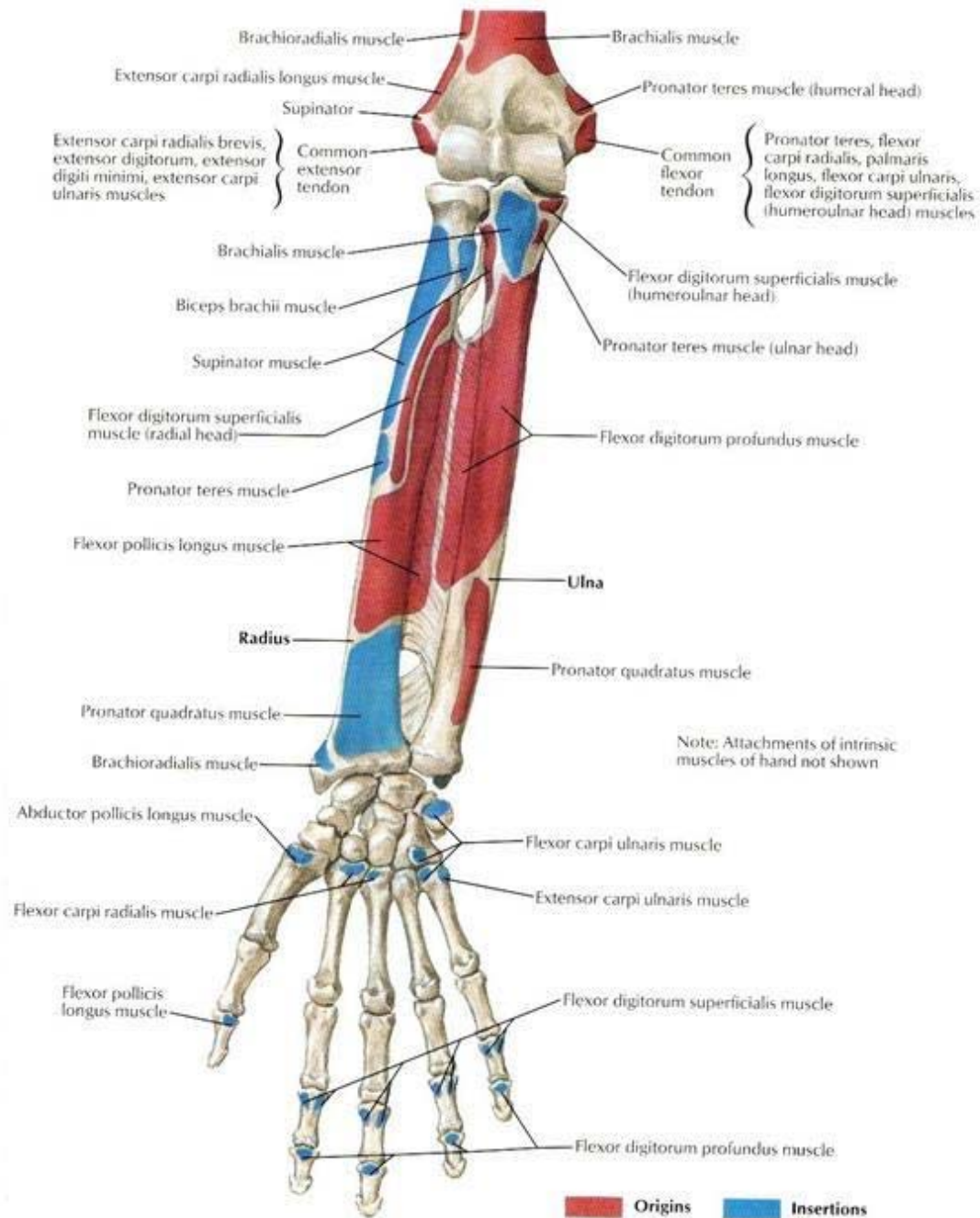
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Forearm: Serial Cross Sections



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Attachments of Muscles of Forearm: Anterior View

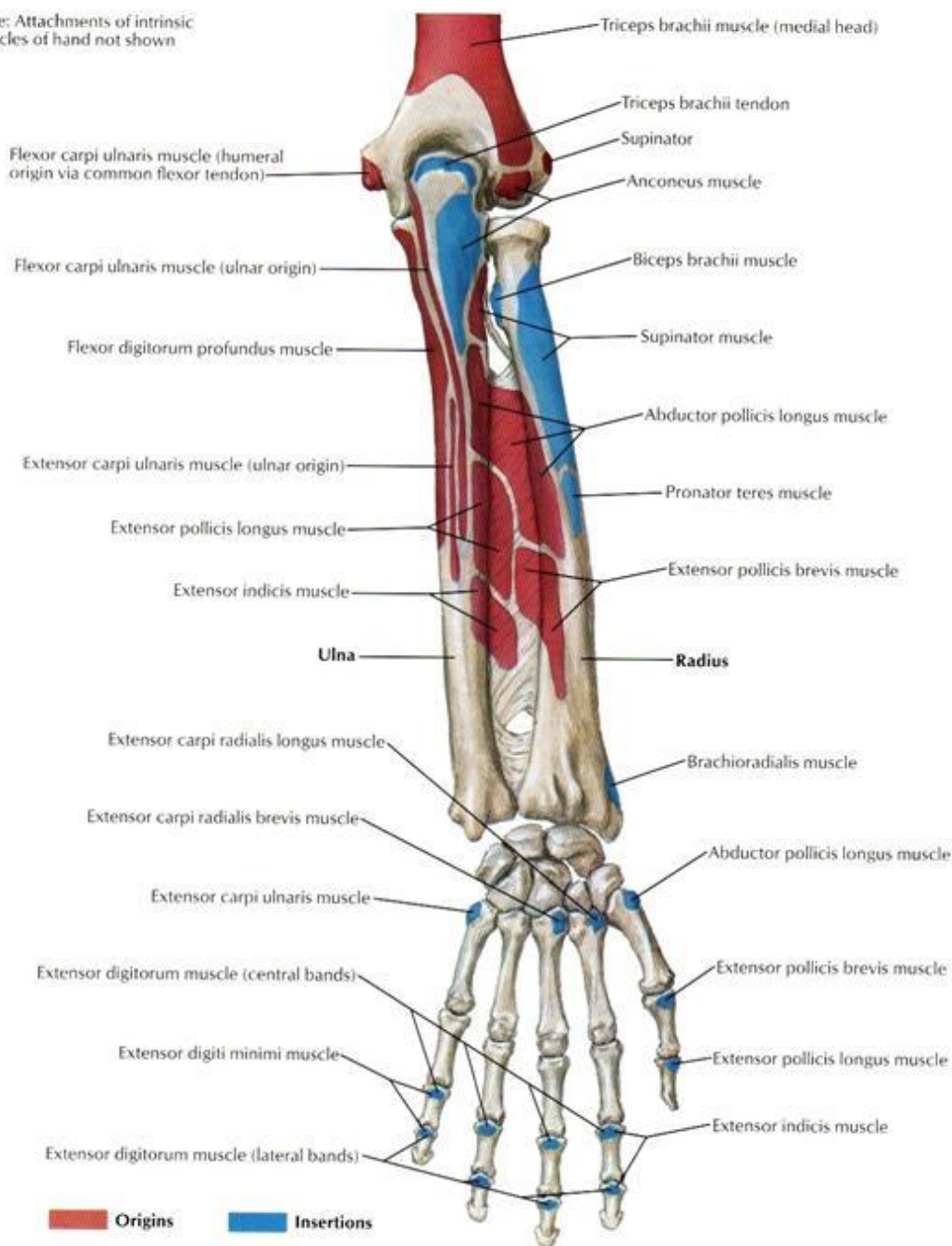


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UPPER LIMB

Attachments of Muscles of Forearm: Posterior View

Note: Attachments of intrinsic muscles of hand not shown

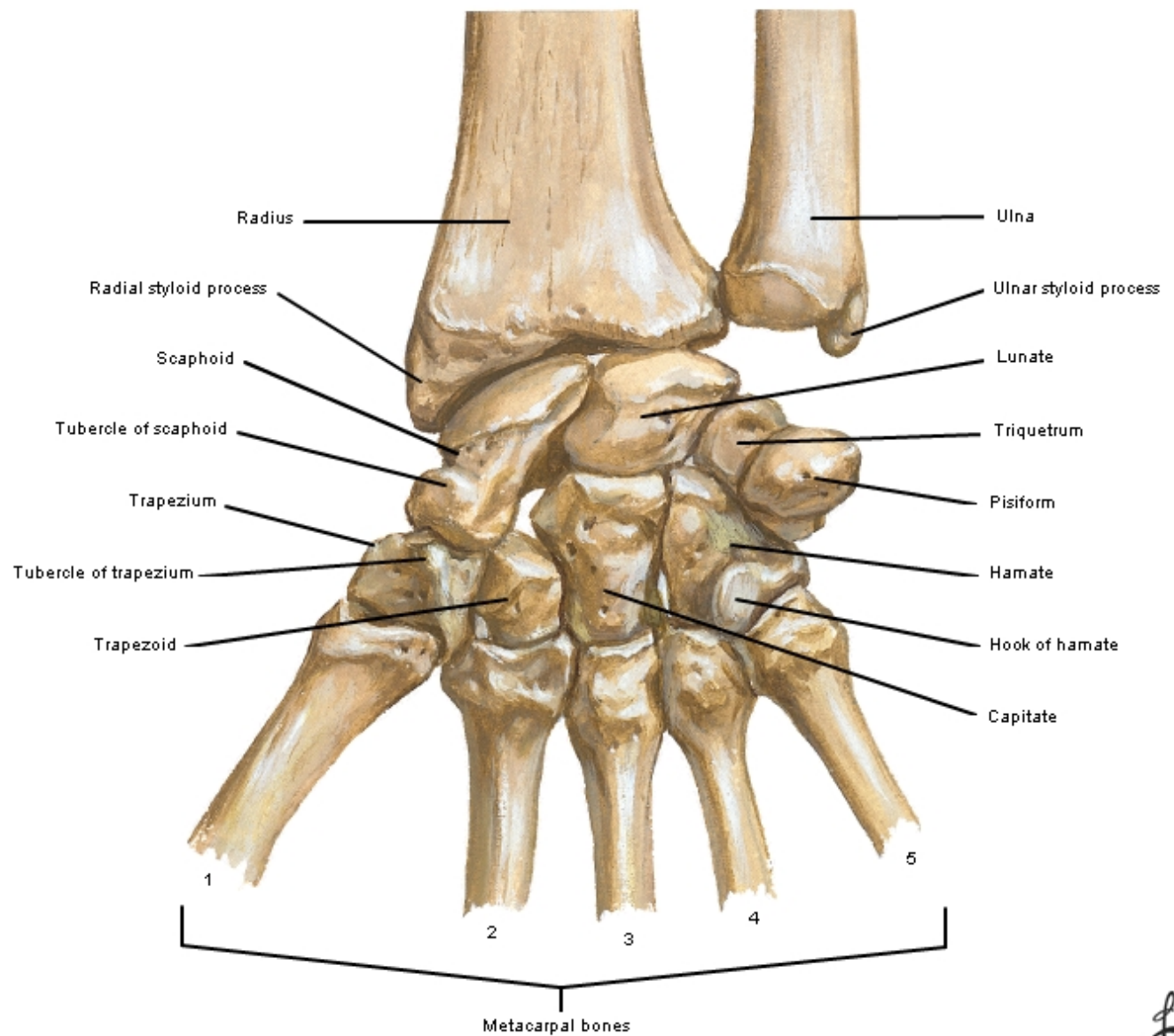


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UPPER LIMB

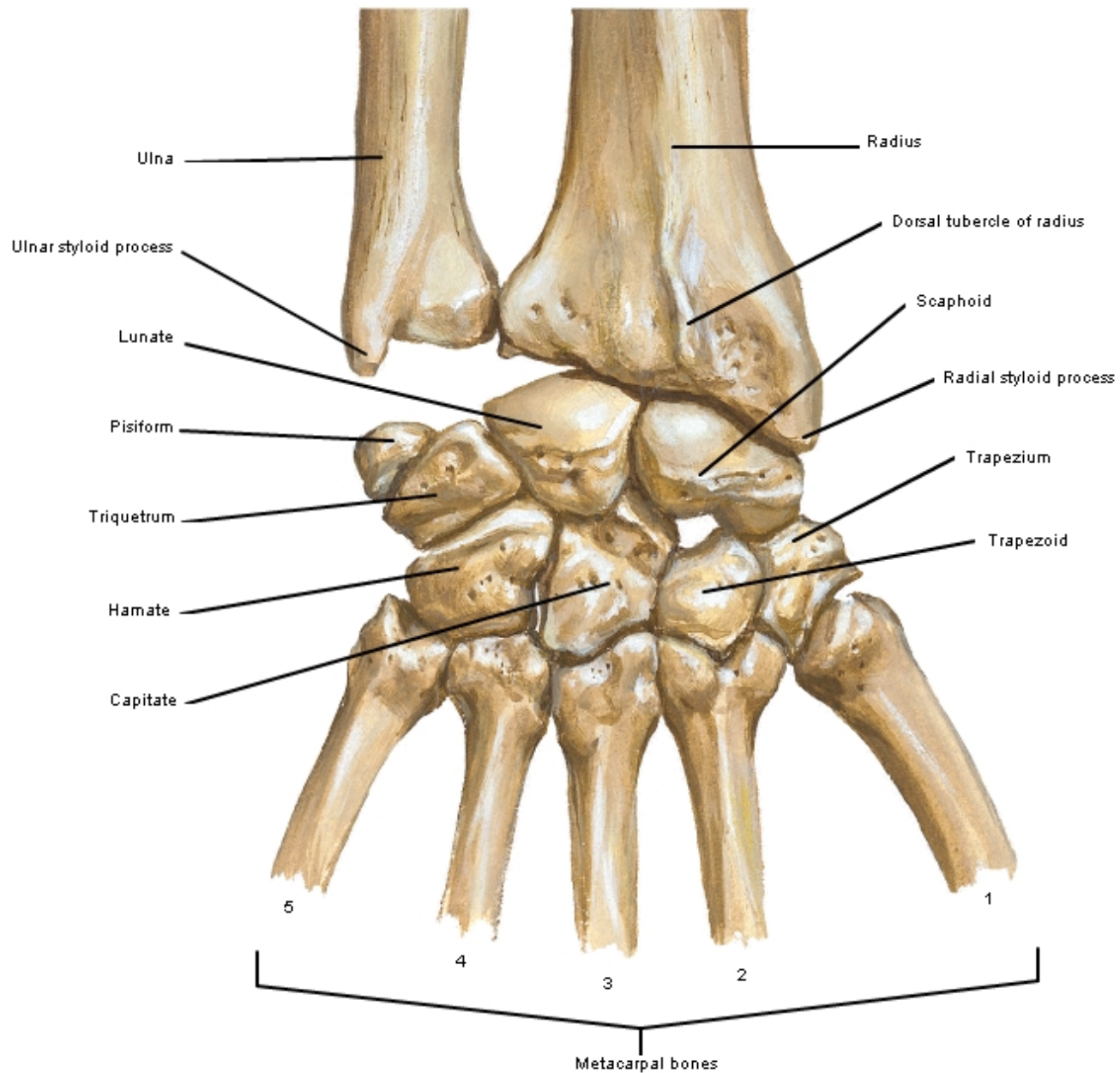
Carpal Bones

Anterior (Palmar) View



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Carpal Bones Posterior (Dorsal) View



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Movements of Wrist: Position of Carpal Bones



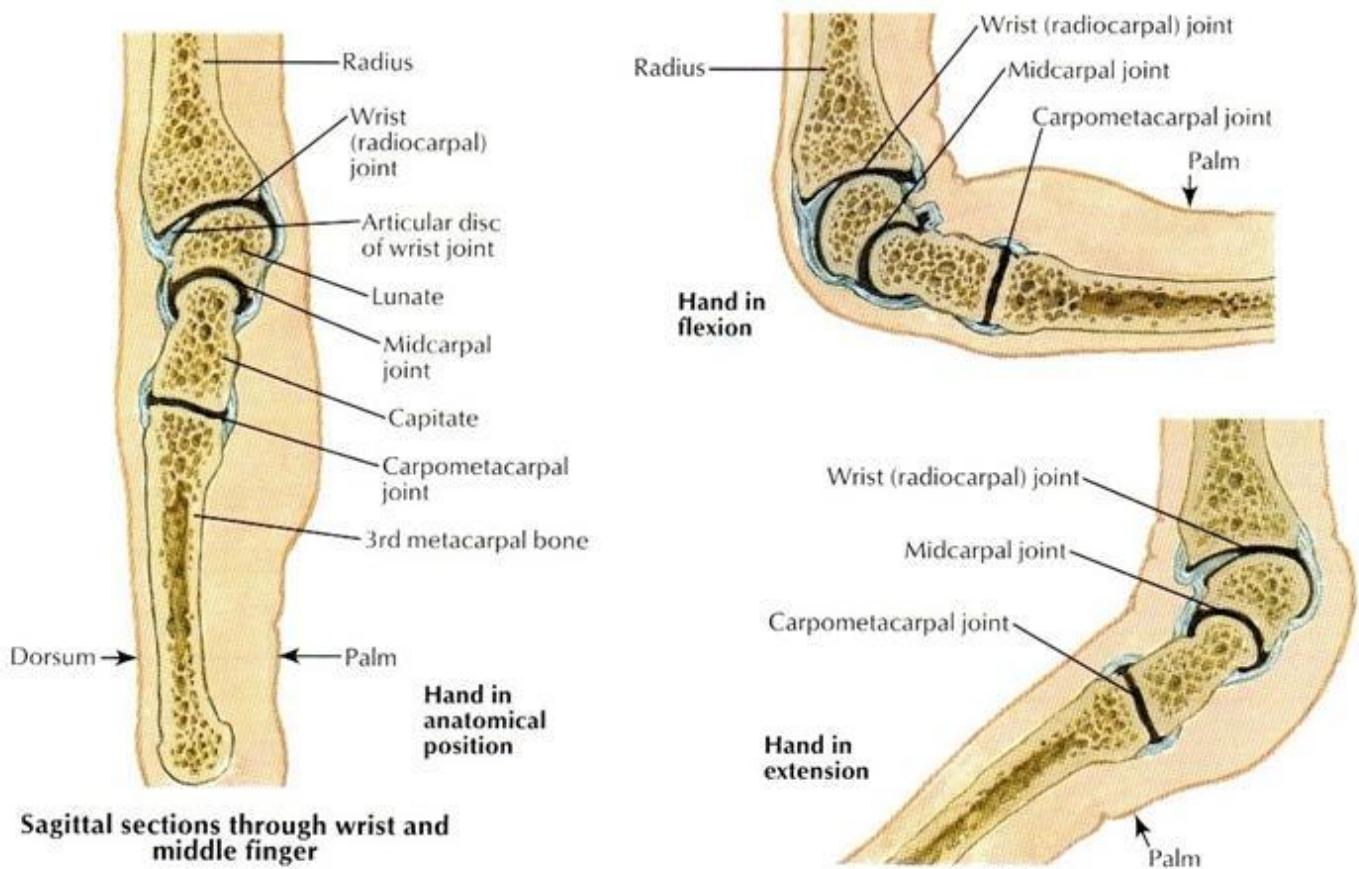
Position of carpal bones with hand in abduction:
anterior (palmar) view



Position of carpal bones with hand in adduction:
anterior (palmar) view

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Movements of Wrist: Sagittal Sections

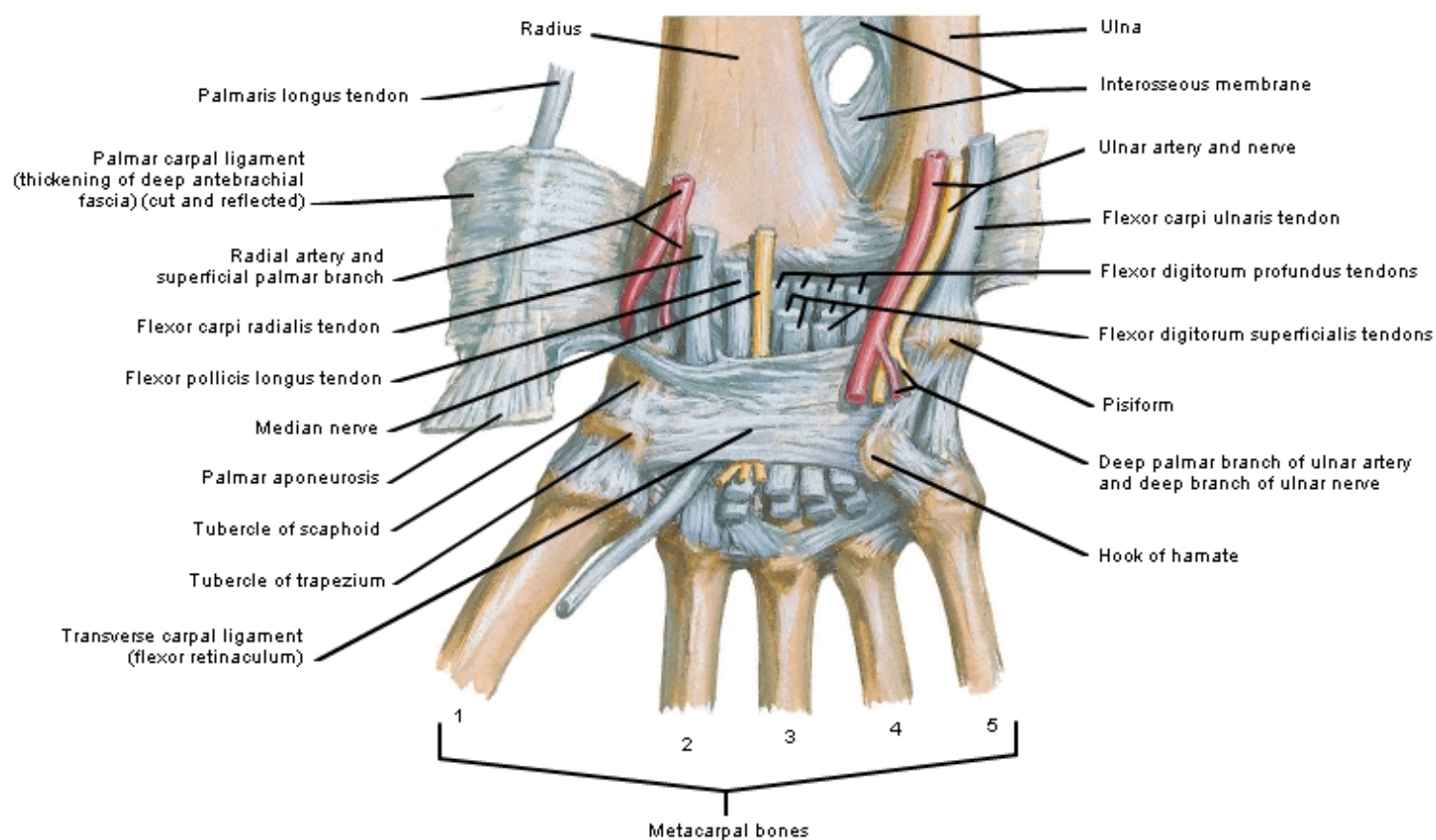


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UPPER LIMB

Ligaments of Wrist

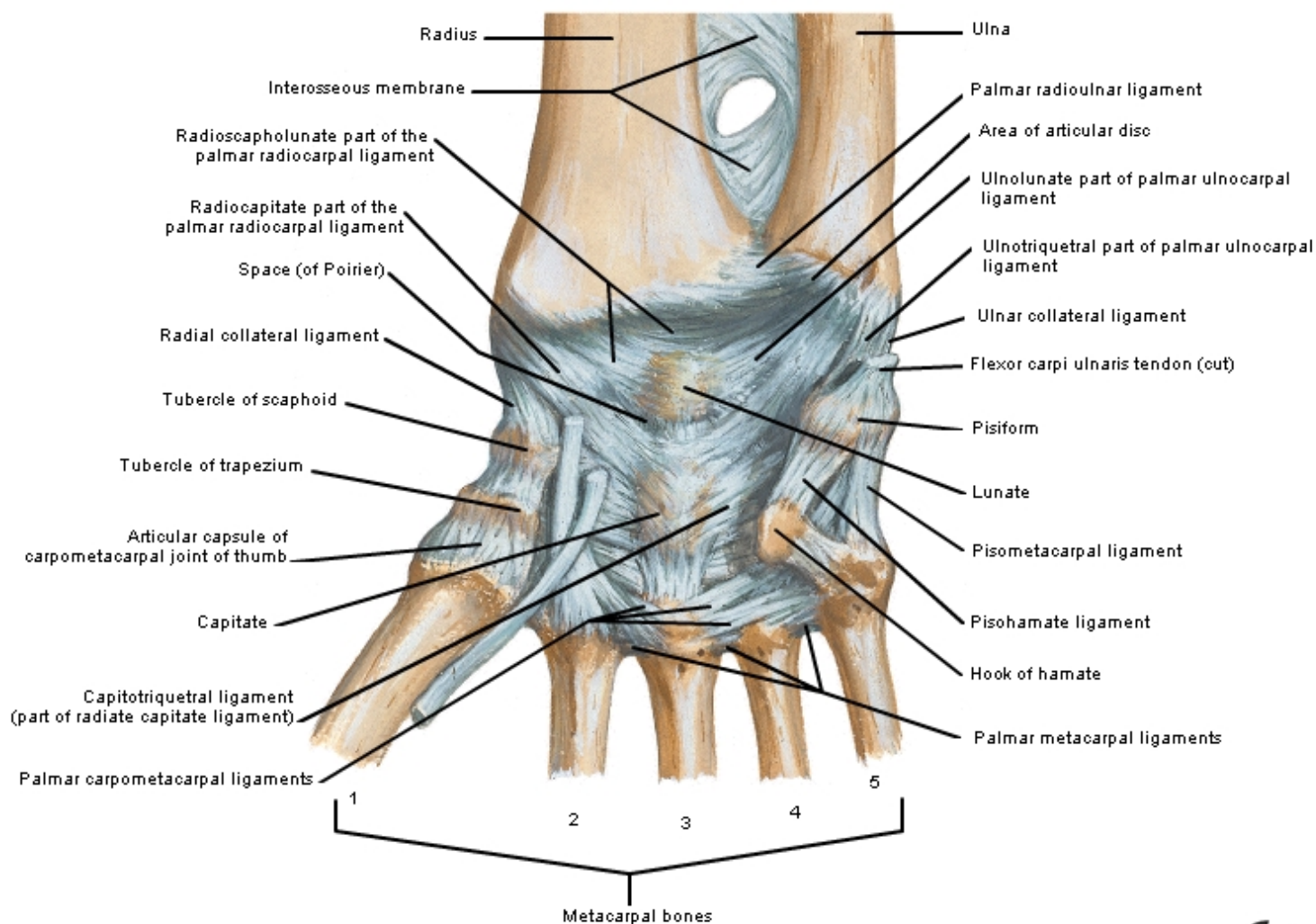
Carpal Tunnel: Palmar View



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Ligaments of Wrist

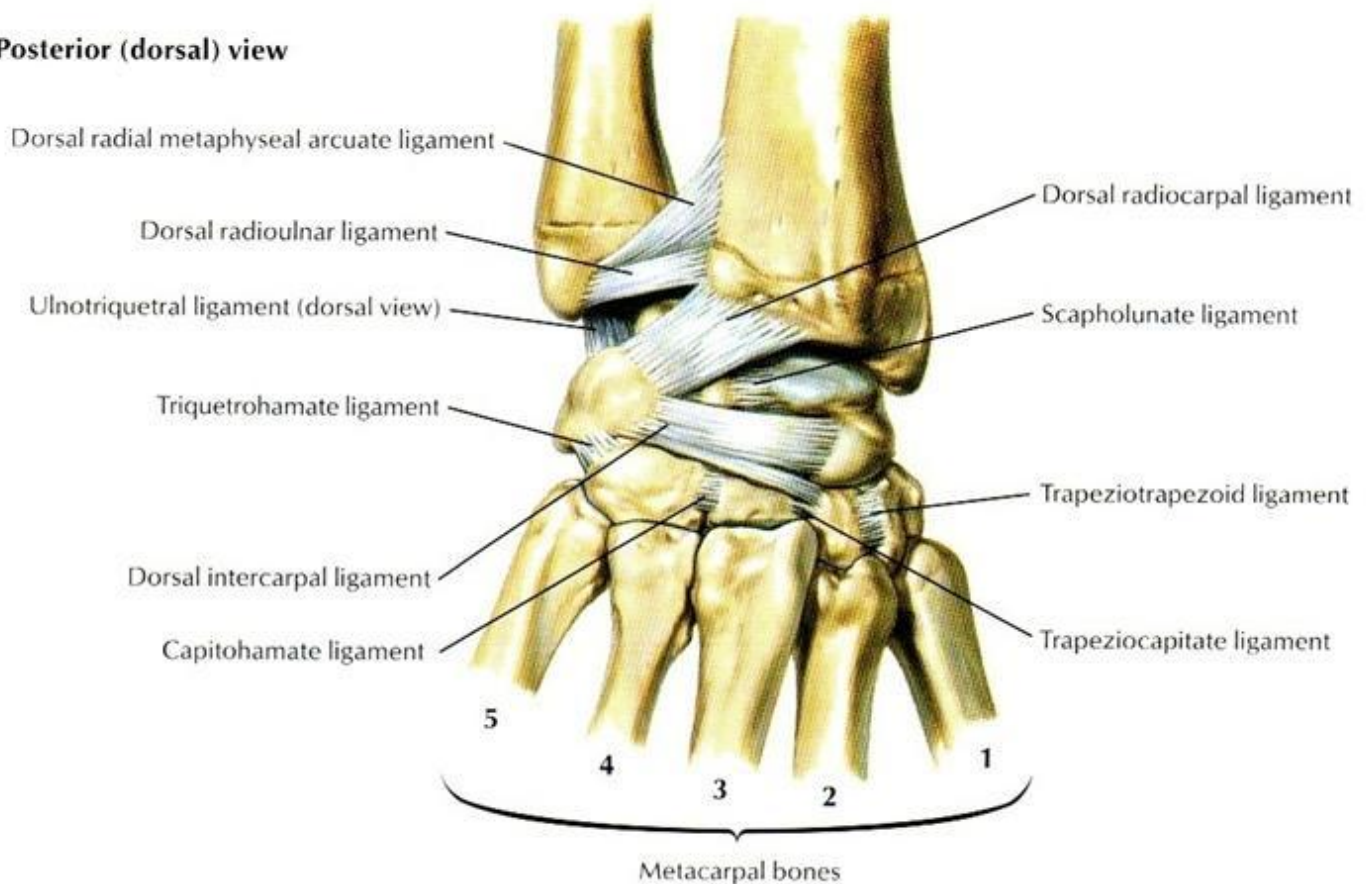
Flexor Retinaculum Removed: Palmar View



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Ligaments of Wrist: Posterior View

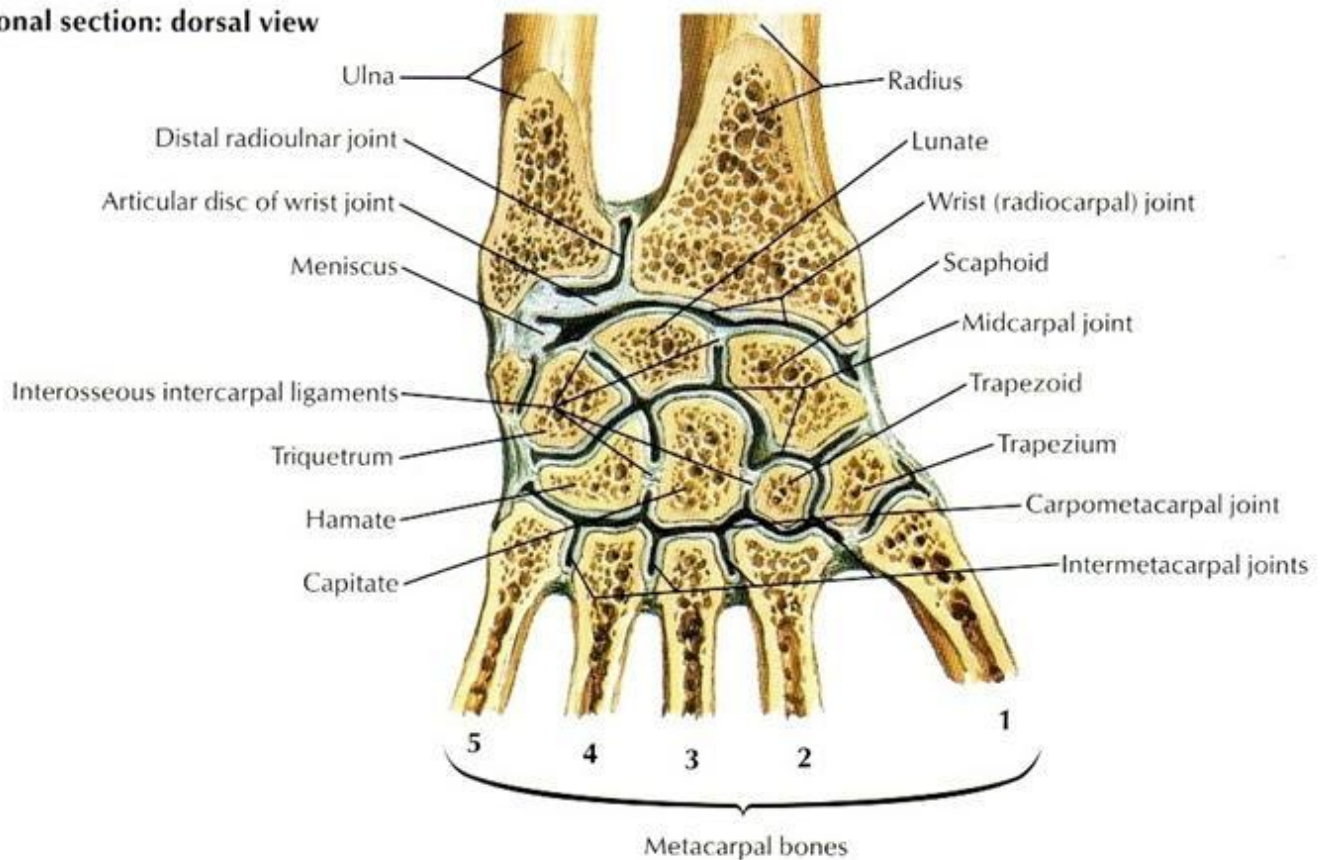
Posterior (dorsal) view



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Ligaments of Wrist: Coronal Section

Coronal section: dorsal view

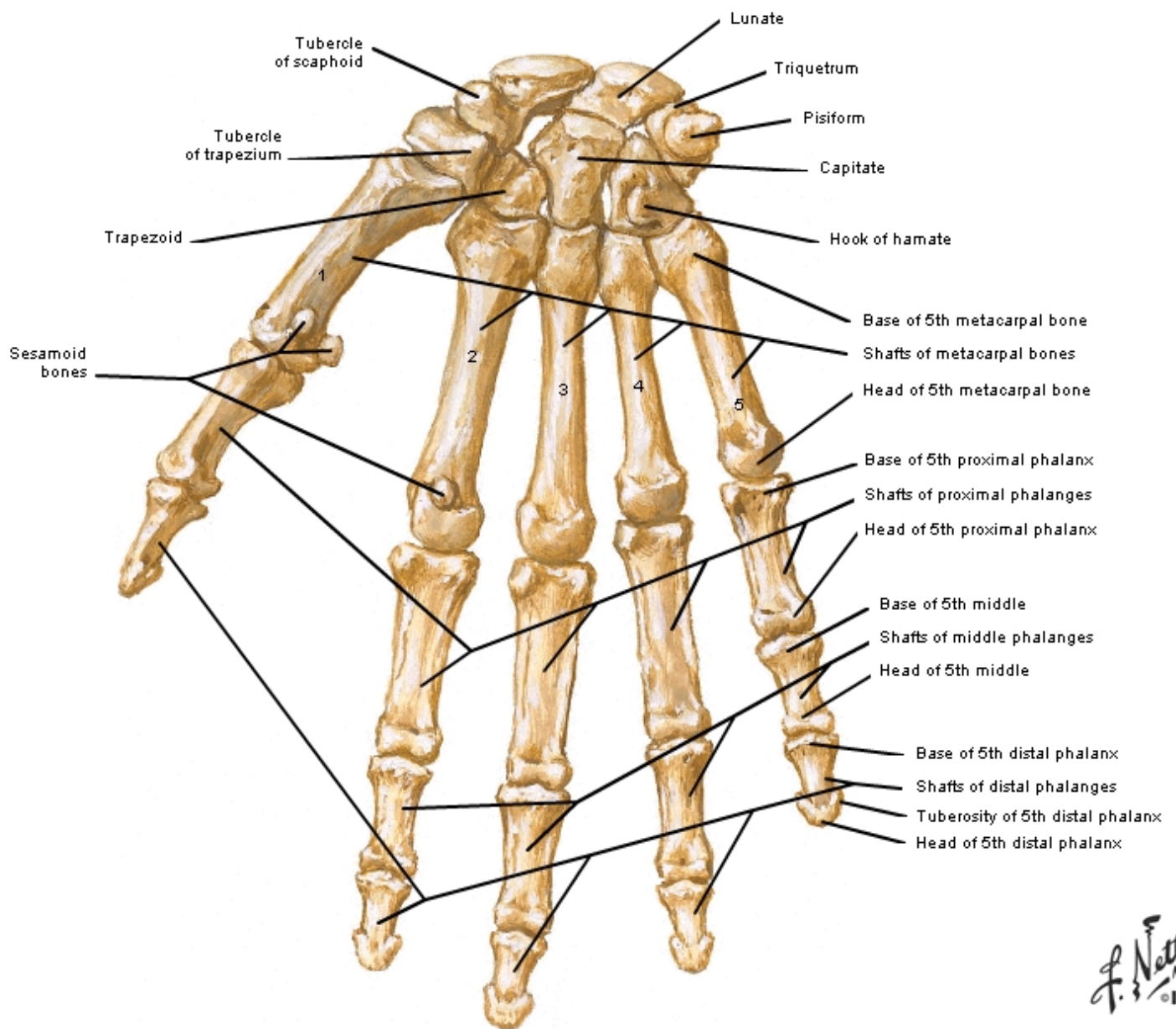


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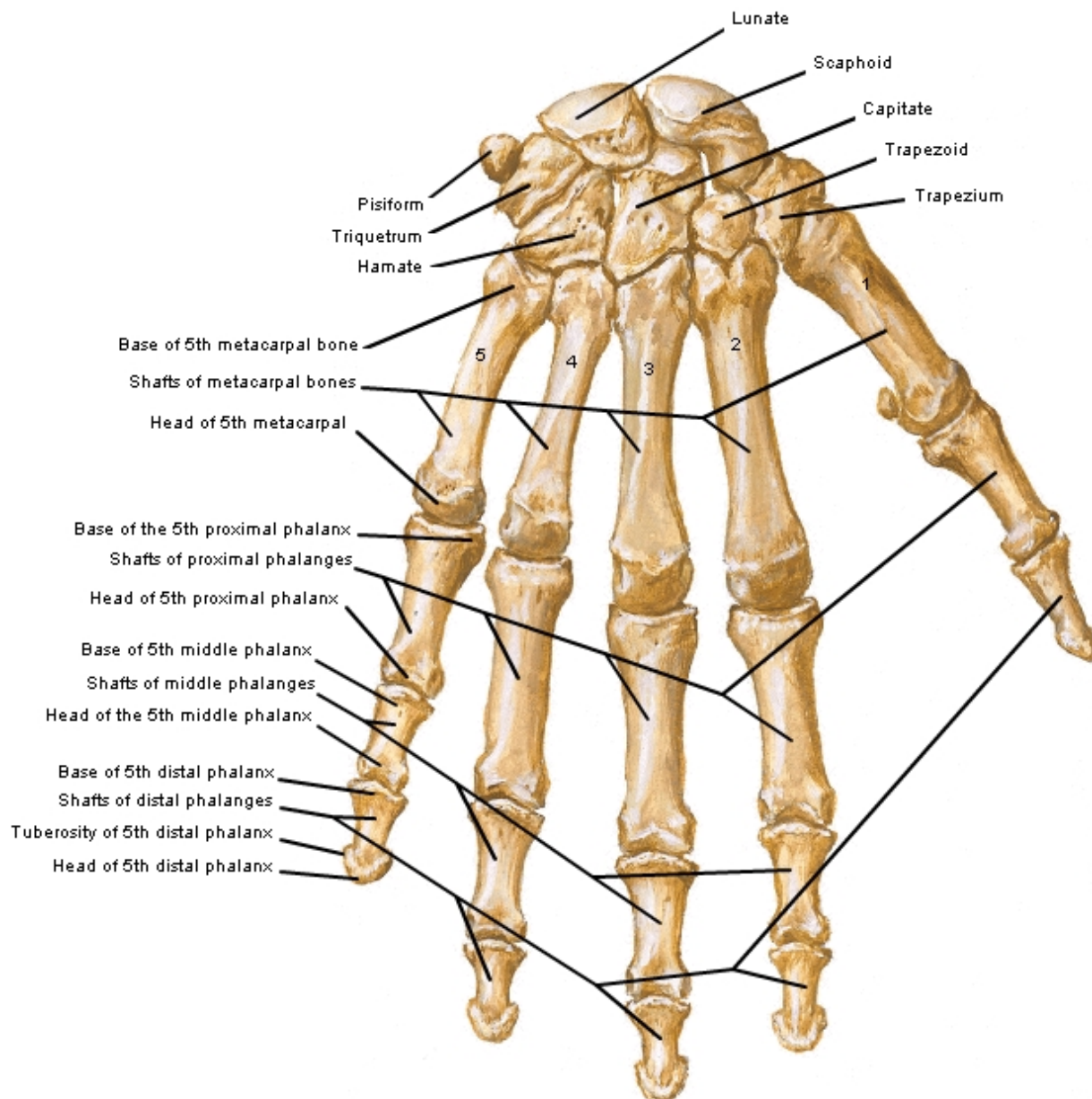
UPPER LIMB

Bones of Right Wrist and Hand

Anterior (Palmar) View



Bones of Right Wrist and Hand Posterior (Dorsal) View

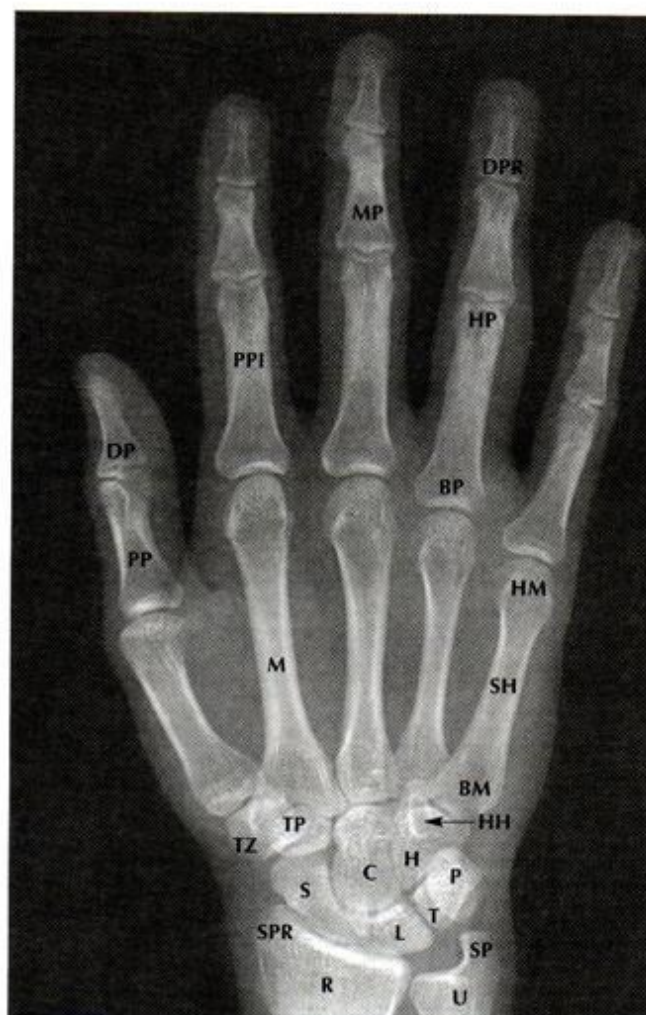


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Wrist and Hand: Anteroposterior Radiograph

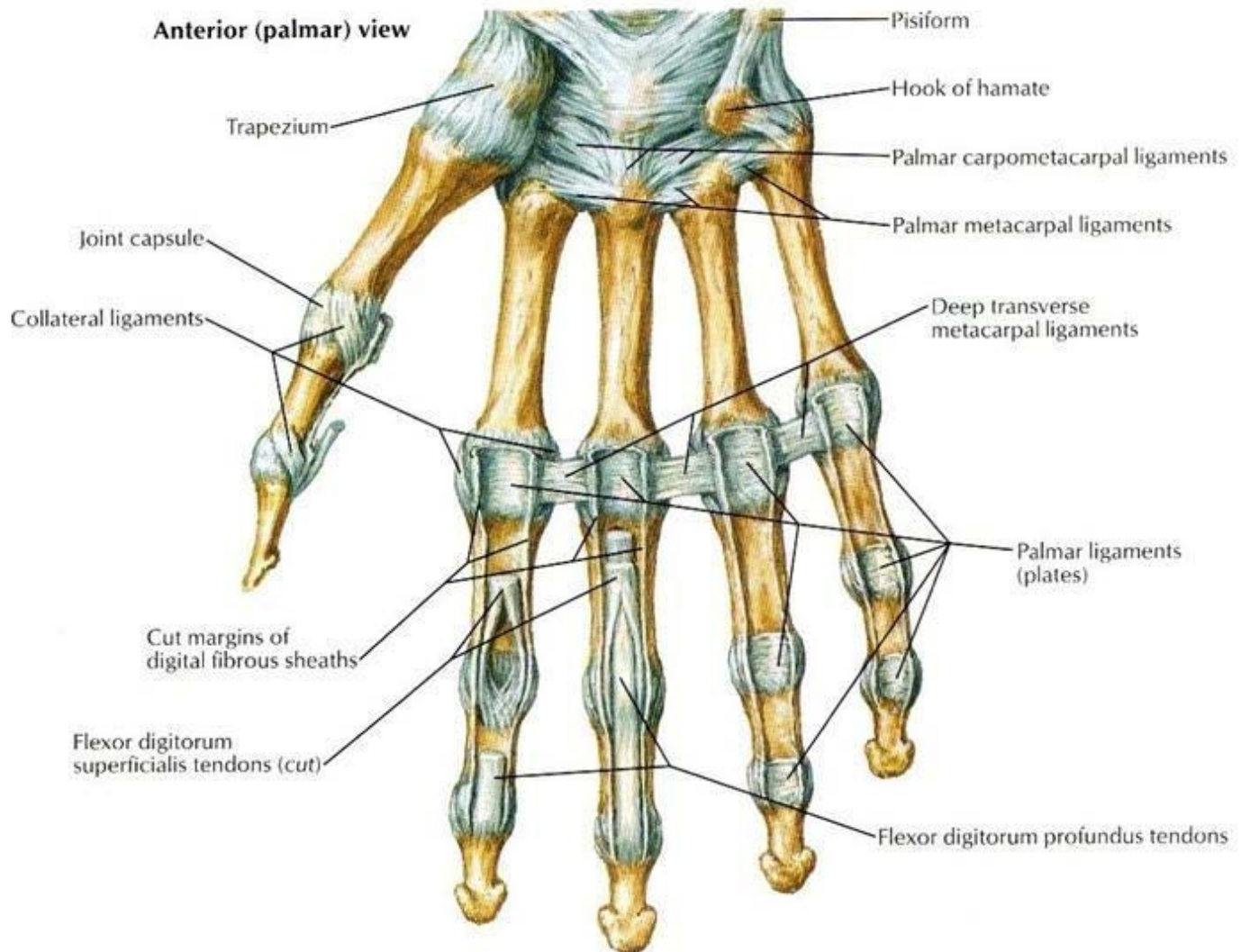
BM Base of 5th metacarpal
BP Base of 4th proximal phalanx
C Capitate
DP Distal phalanx of thumb
DPR Distal phalanx of ring finger
H Hamate
HH Hook of hamate
HM Head of 5th metacarpal
HP Head of proximal phalanx
L Lunate
M Metacarpal of index finger
MP Middle phalanx of middle finger

P Pisiform
PP Proximal phalanx of thumb
PPI Proximal phalanx of index finger
R Radius
S Scaphoid
SH Shaft of 5th metacarpal
SP Styloid process of ulna
SPR Styloid process of radius
T Triquetrum
TP Trapezoid
TZ Trapezium
U Ulna



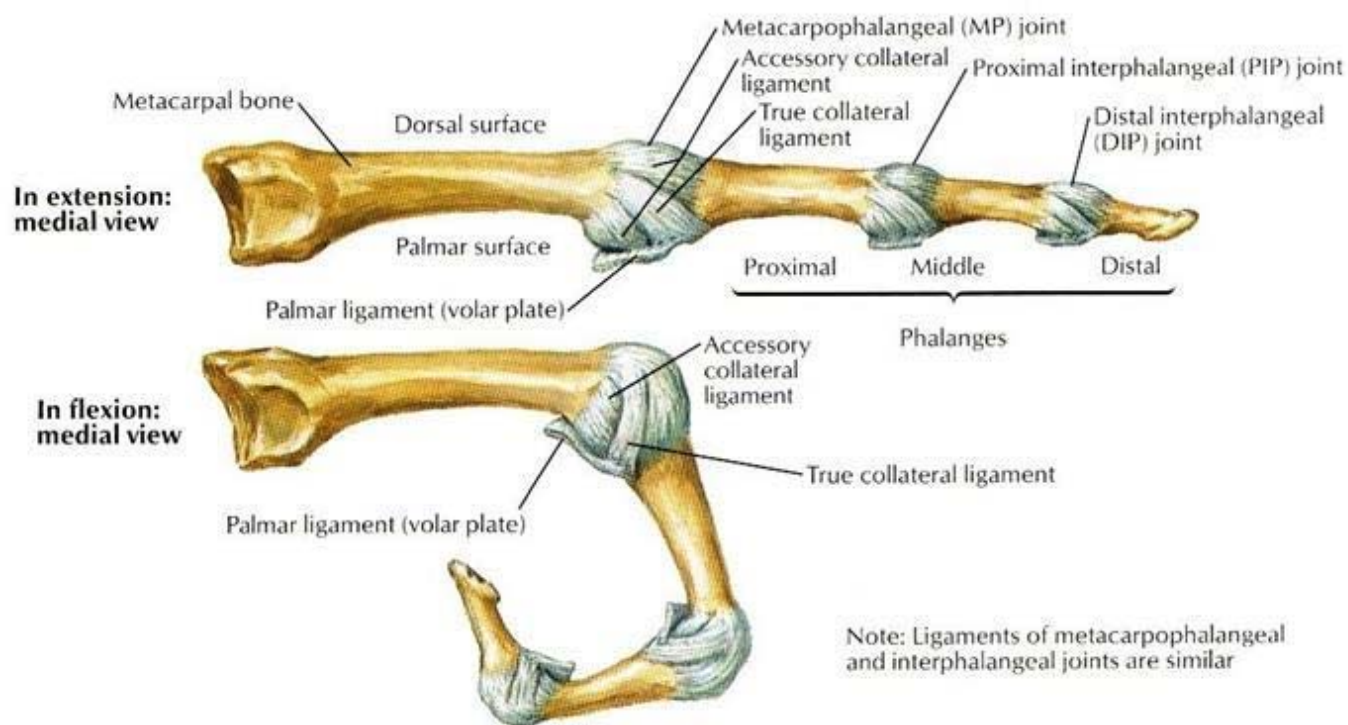
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Metacarpophalangeal and Interpalangeal Ligaments: Anterior View



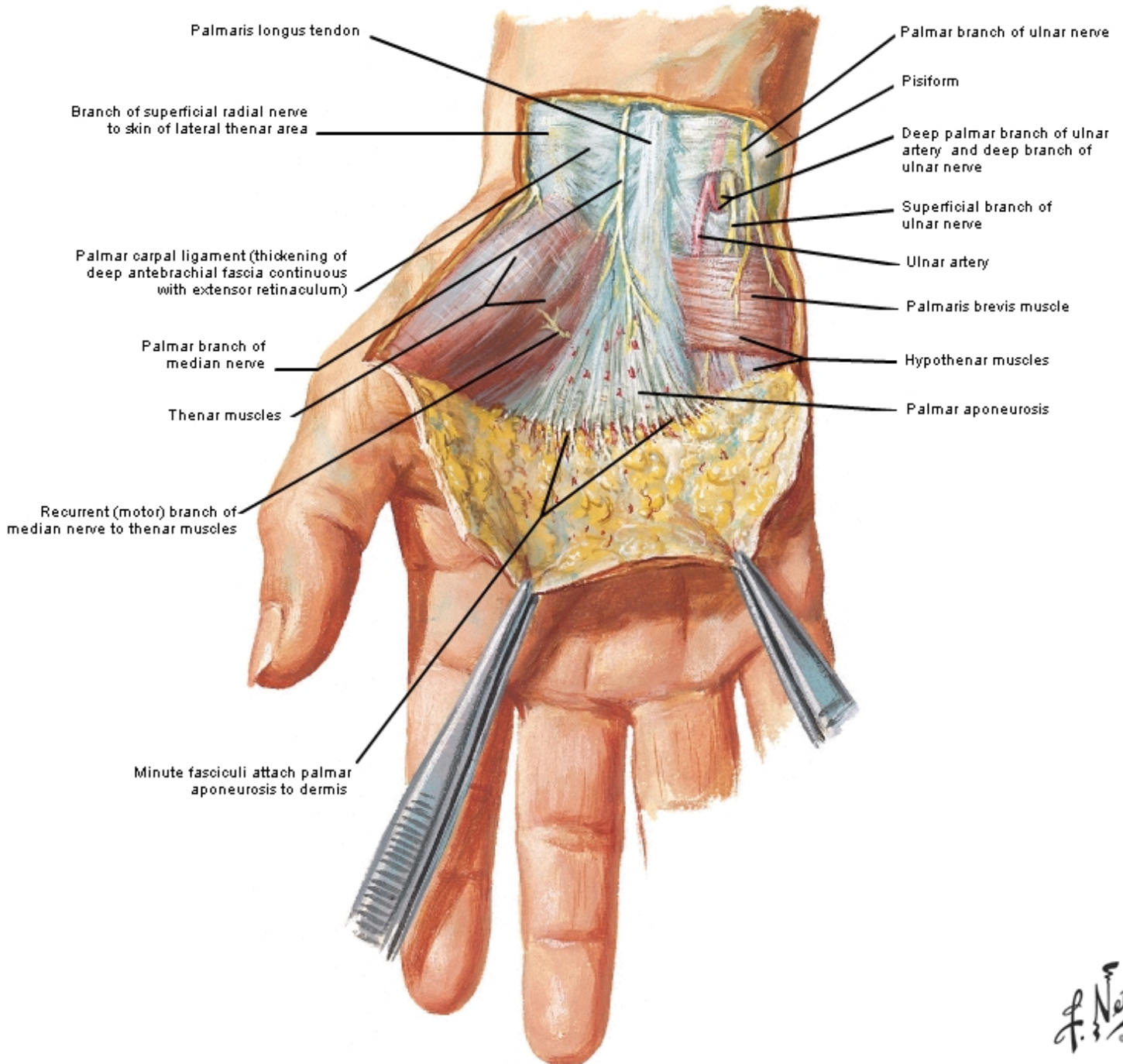
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Metacarpophalangeal and Interphalangeal Ligaments



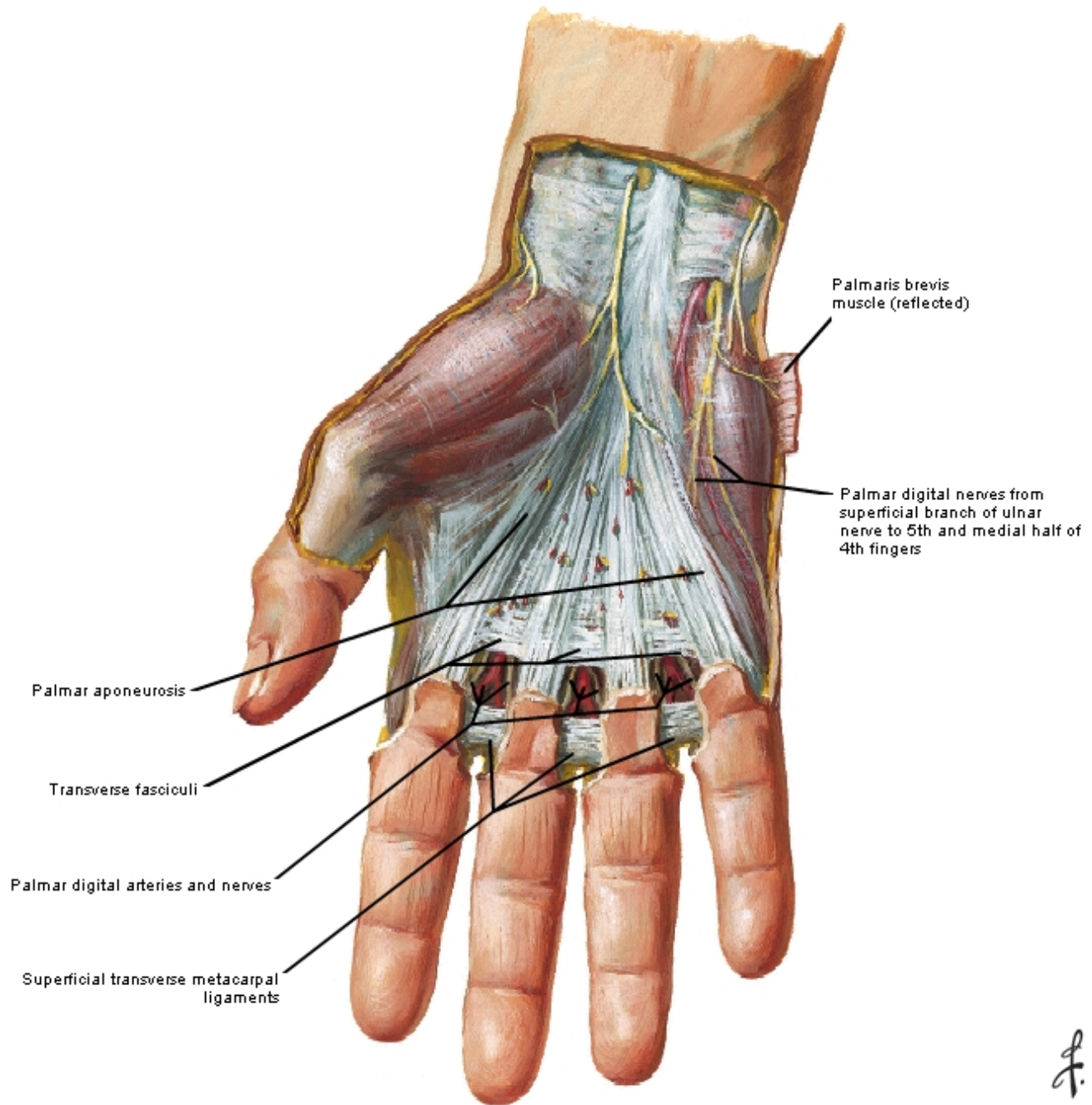
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Wrist and Hand: Superficial Palmar Dissection



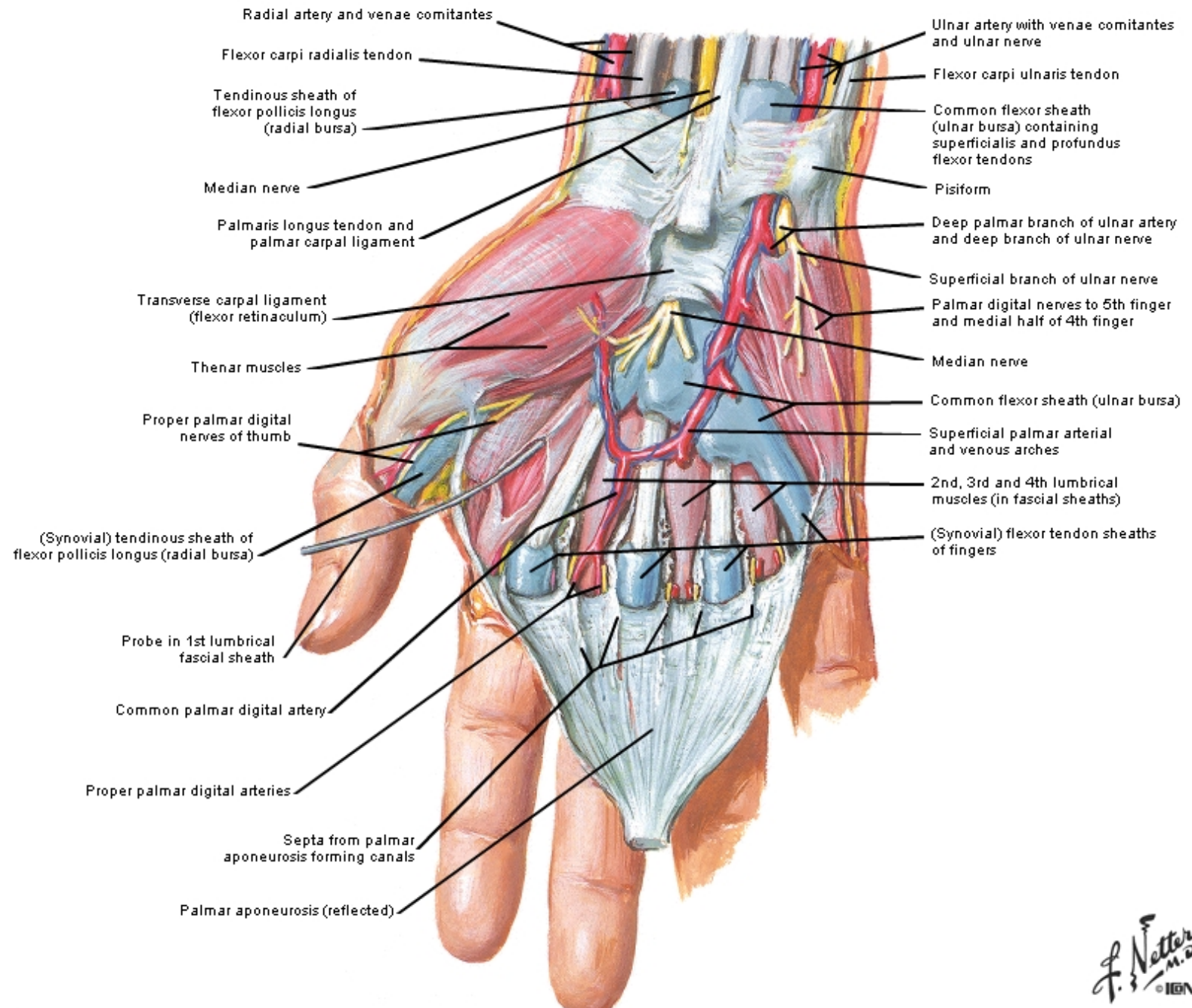
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Wrist and Hand Superficial Palmar Dissection



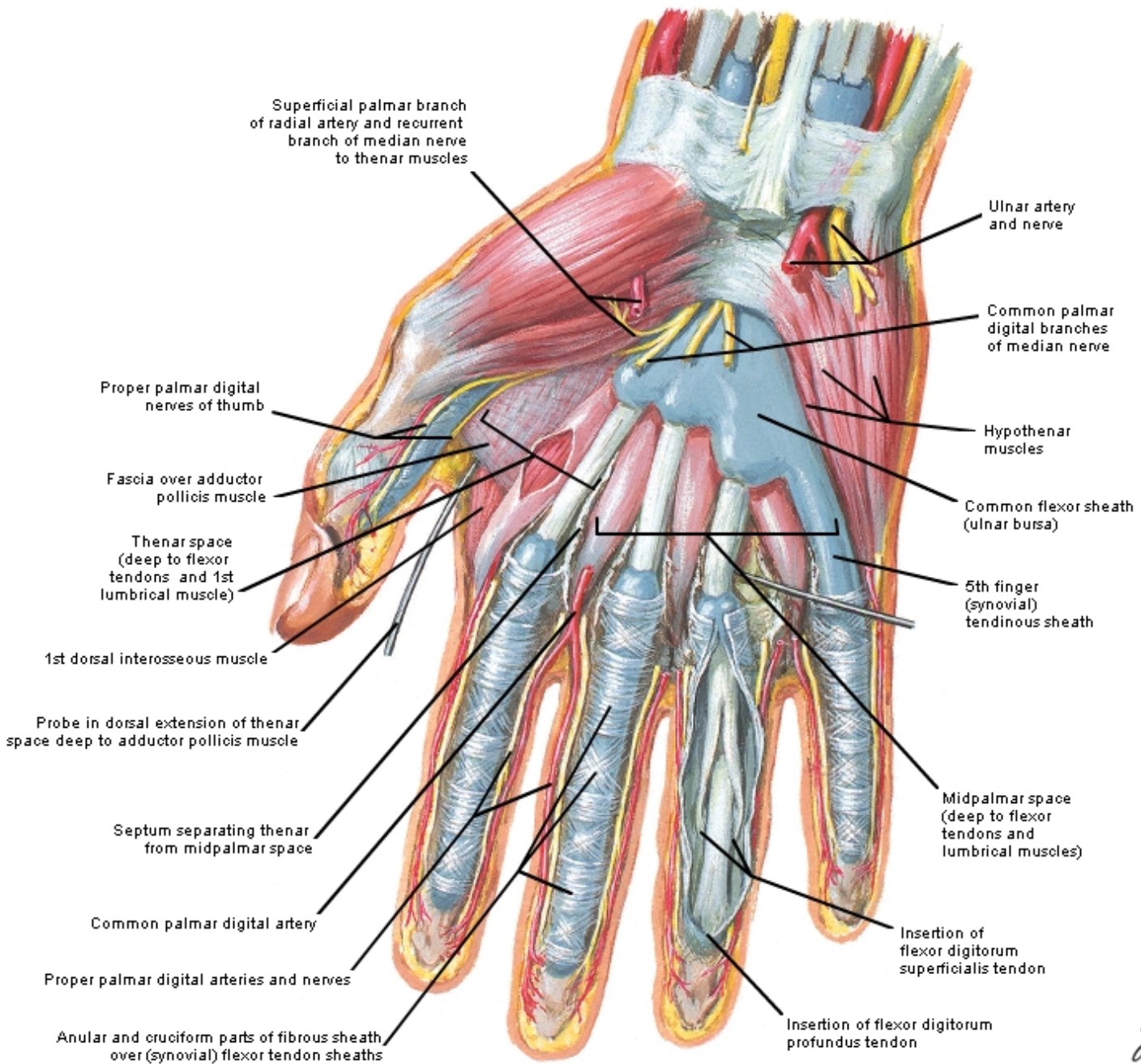
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Wrist and Hand Deeper Palmar Dissection



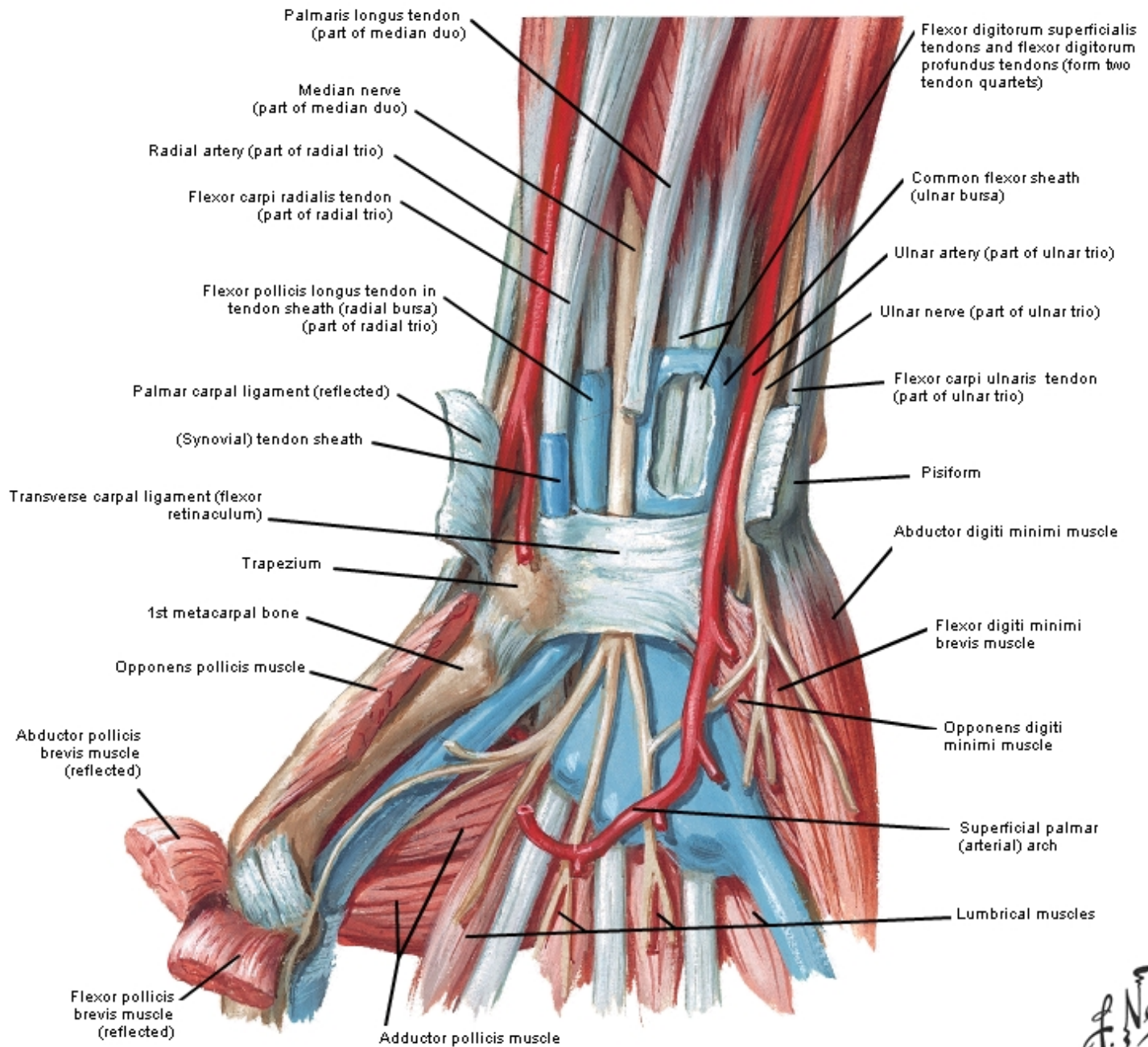
F. Netter M.D.
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Wrist and Hand Deeper Palmar Dissection



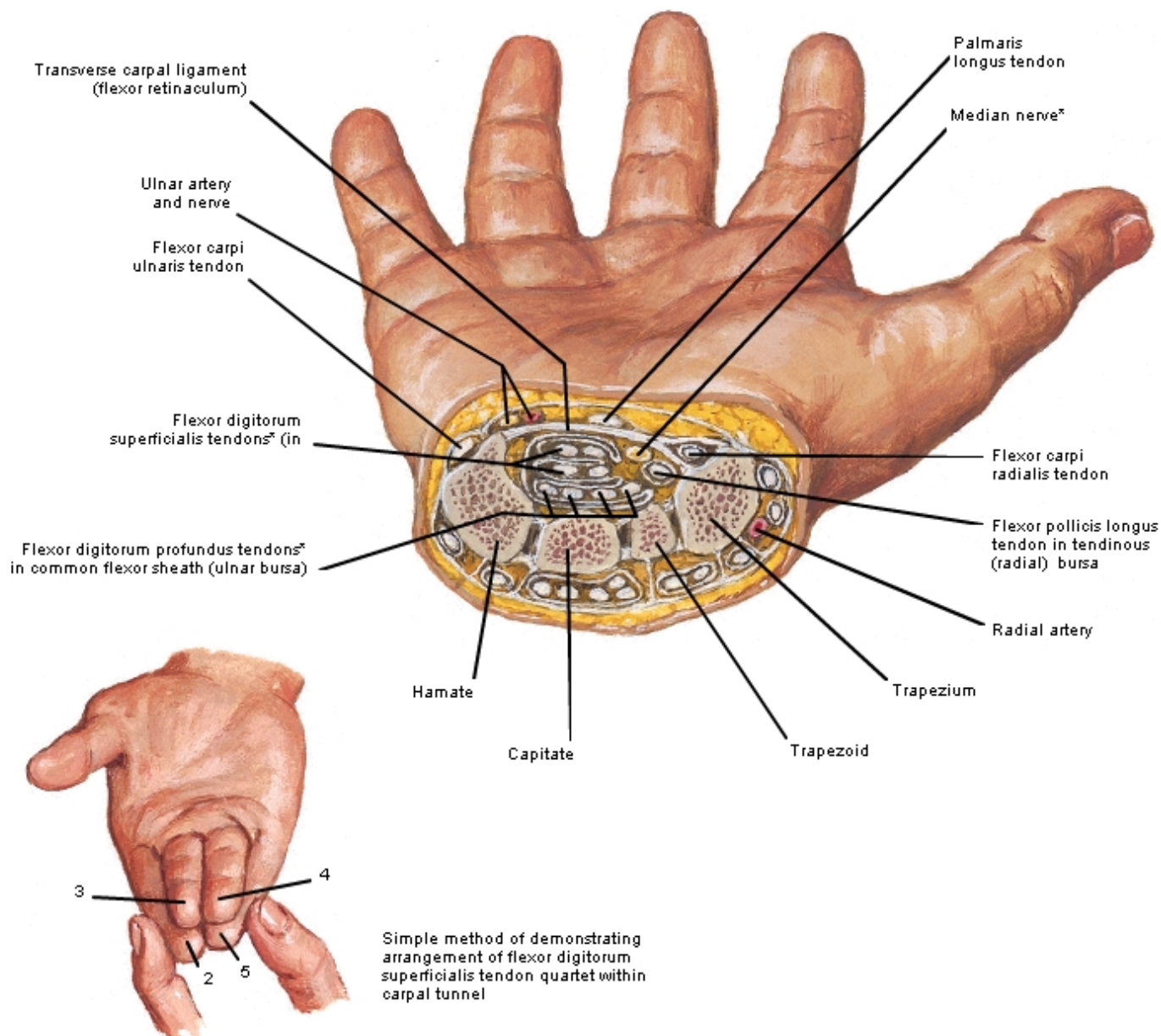
F. Netter M.D.
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Flexor Tendons, Arteries and Nerves at Wrist Palmar view



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Cross Section of Wrist: Carpal Tunnel

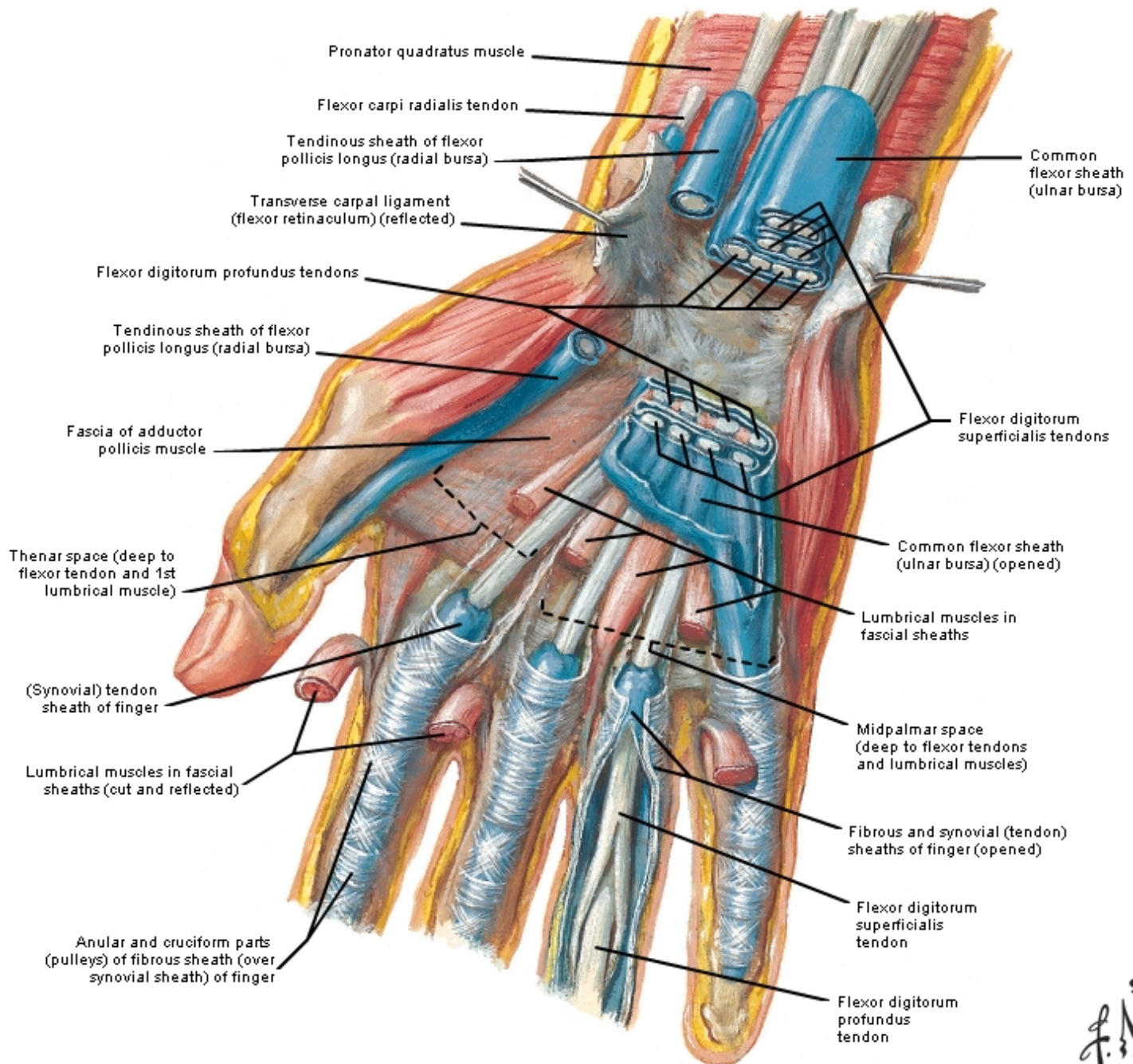


*Contents of carpal tunnel

F. Netter M.D.
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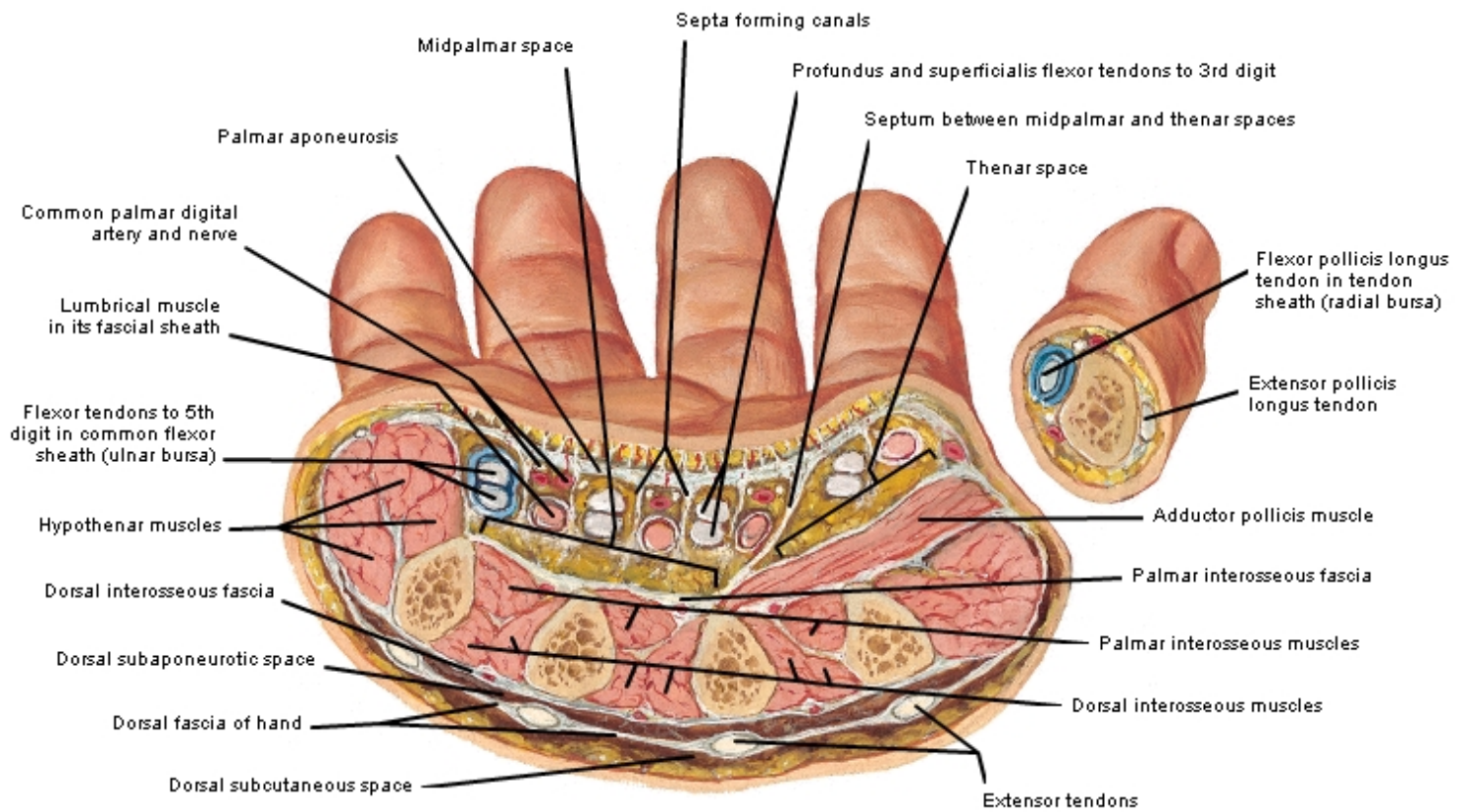
UPPER LIMB

Bursae, Spaces and Tendon Sheaths of Hand Palmar View



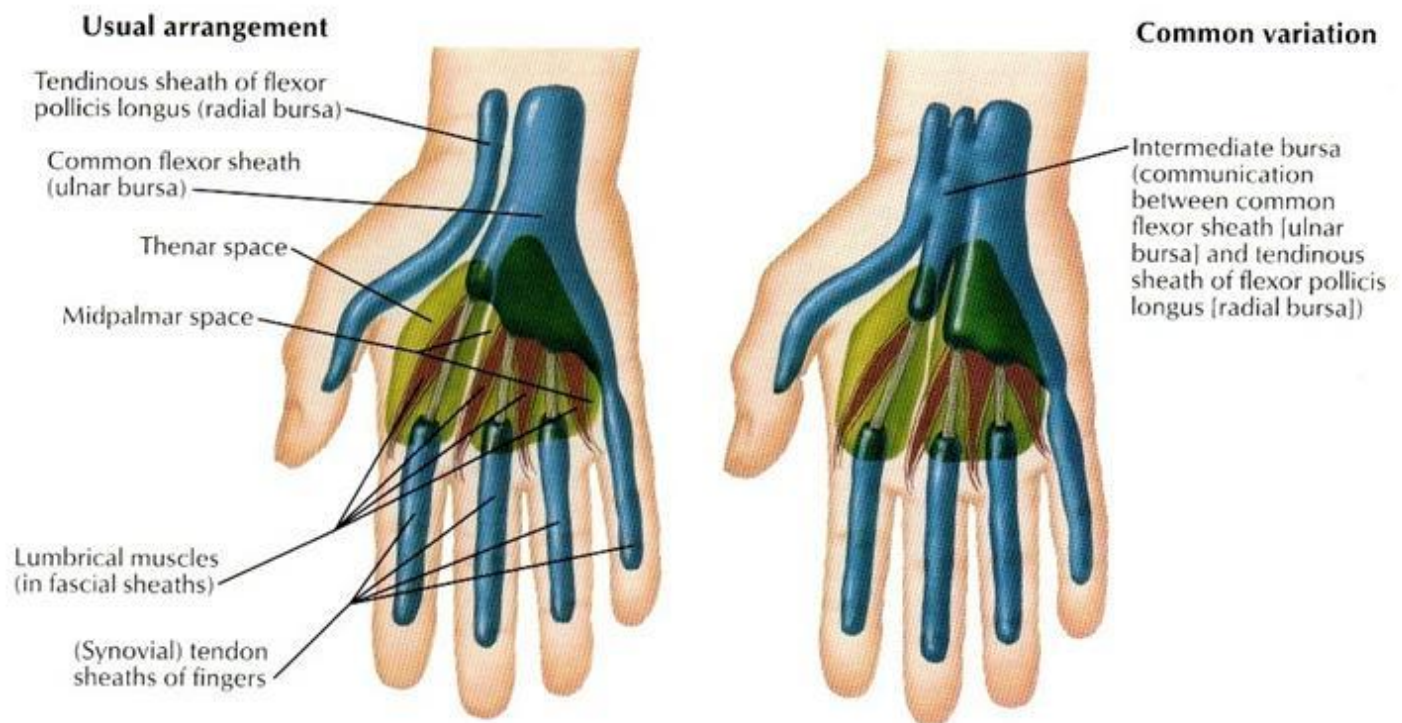
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Bursae, Spaces and Tendon Sheaths of Hand Cross Section



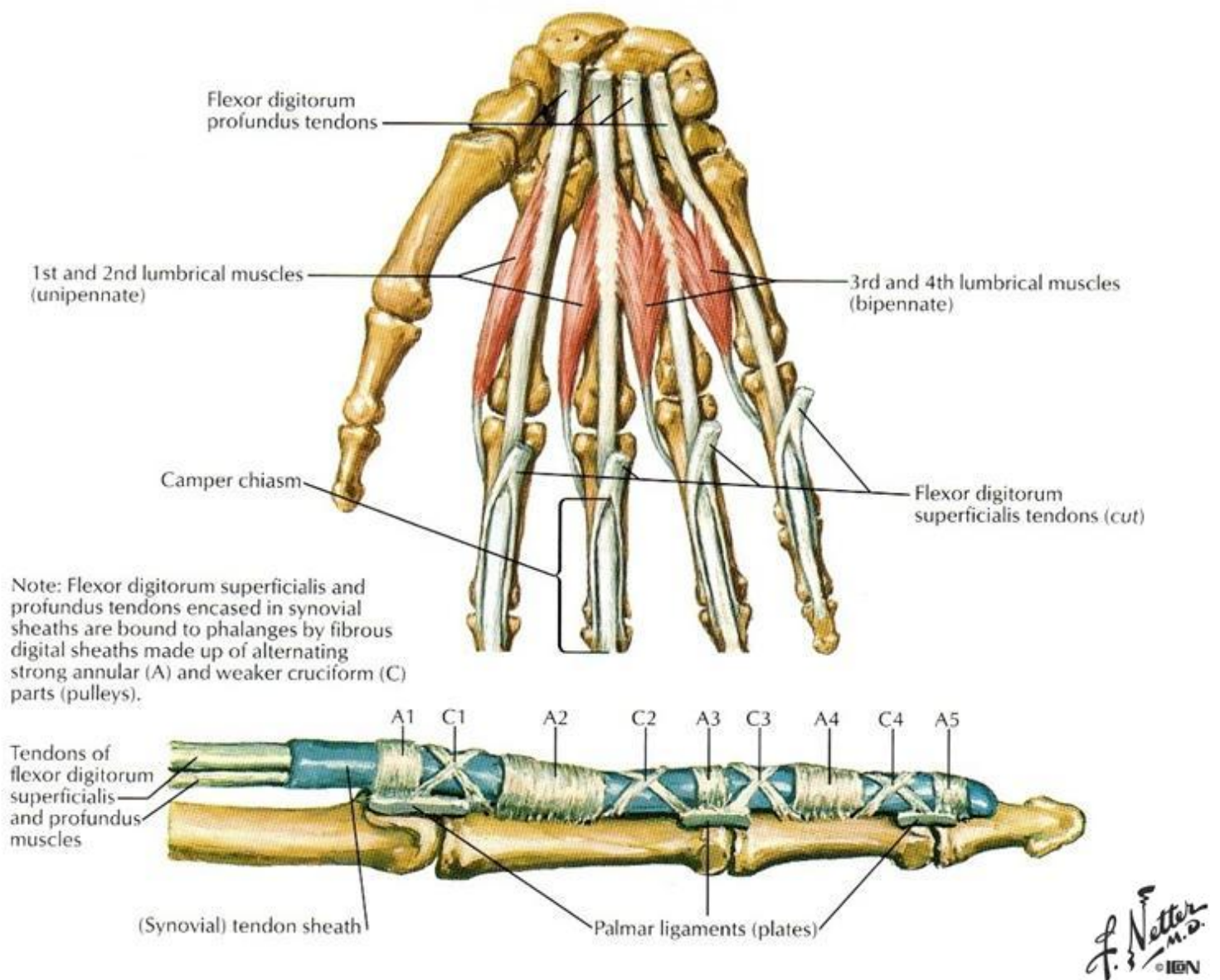
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Lumbrical Muscles: Schema

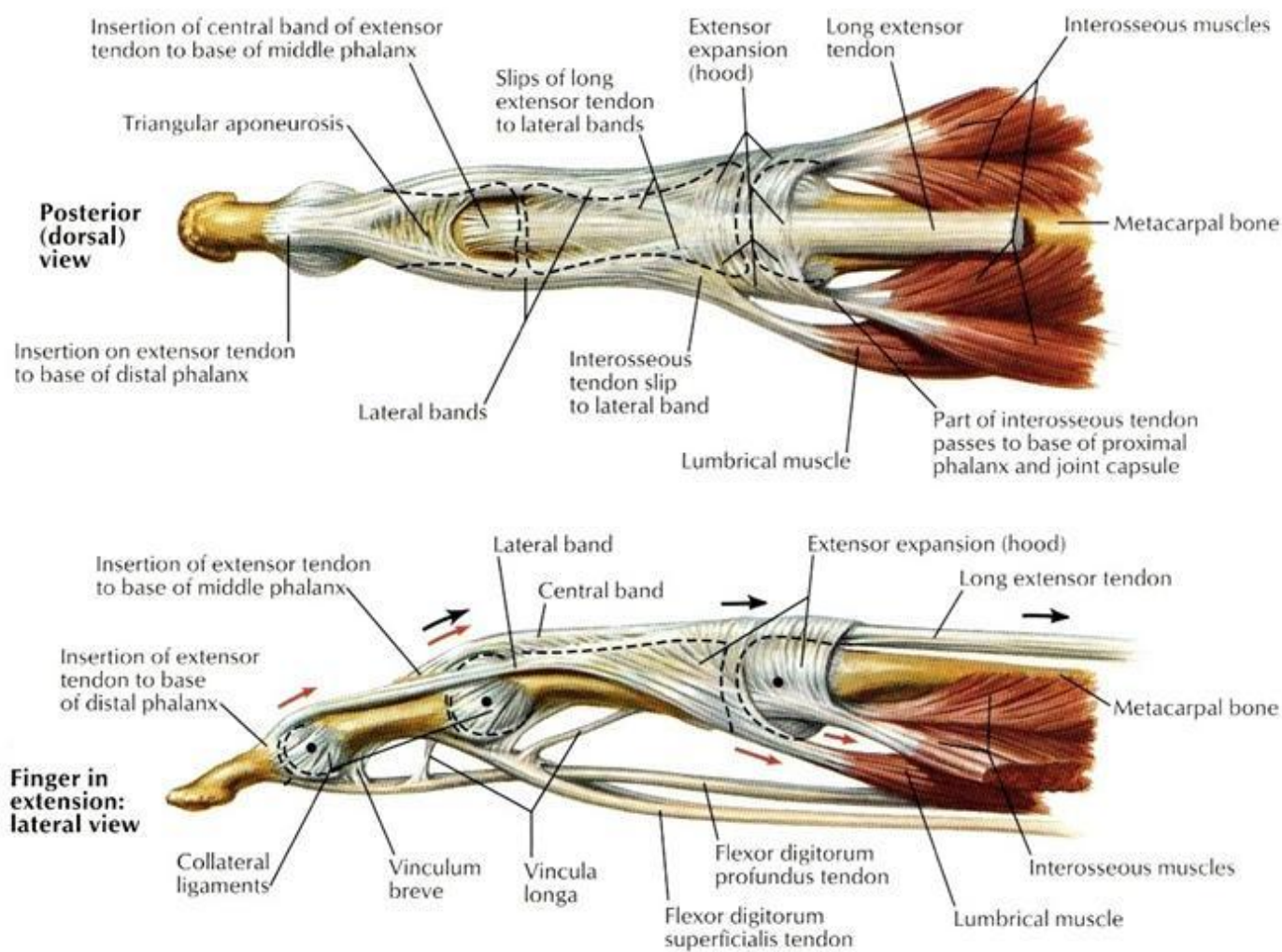


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Lumbrical Muscles and Bursae, Spaces and Sheaths

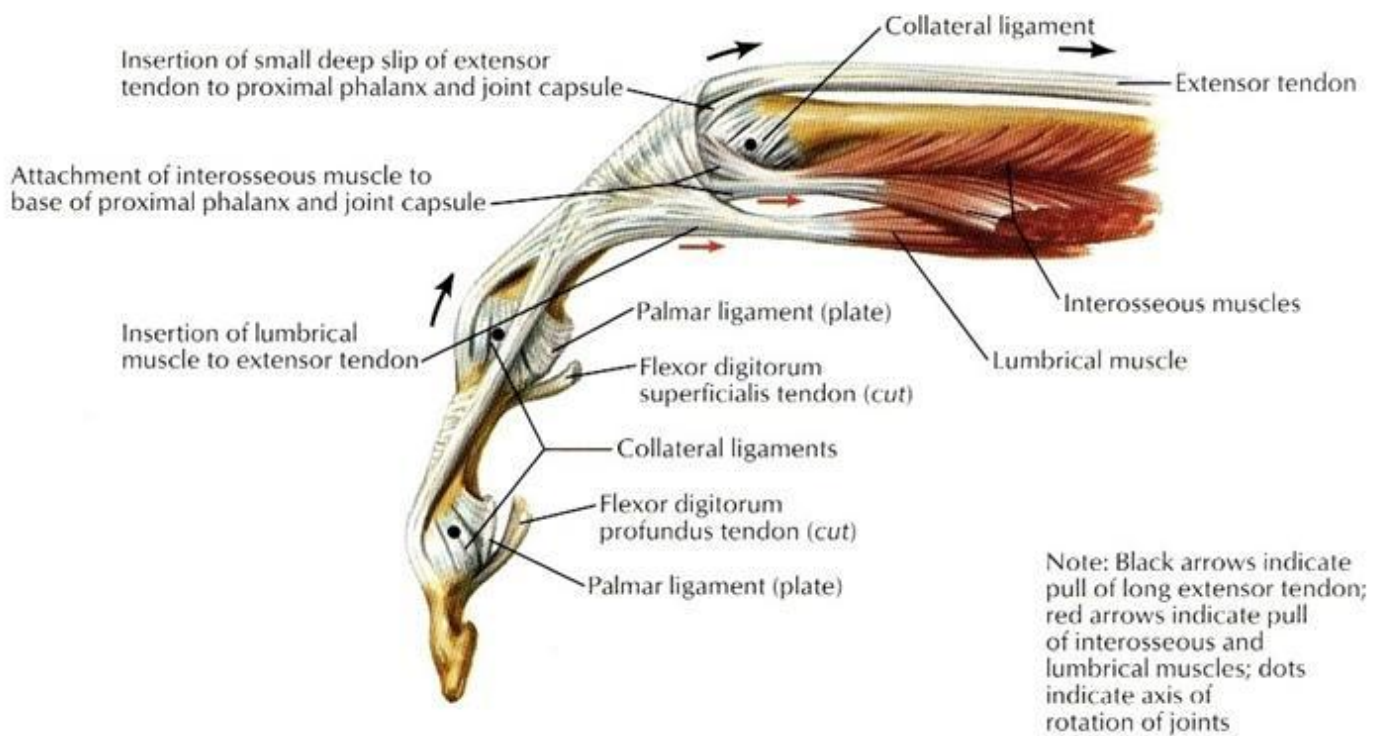


Flexor and Extensor Tendons in Fingers



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Finger in Flexion: Lateral View

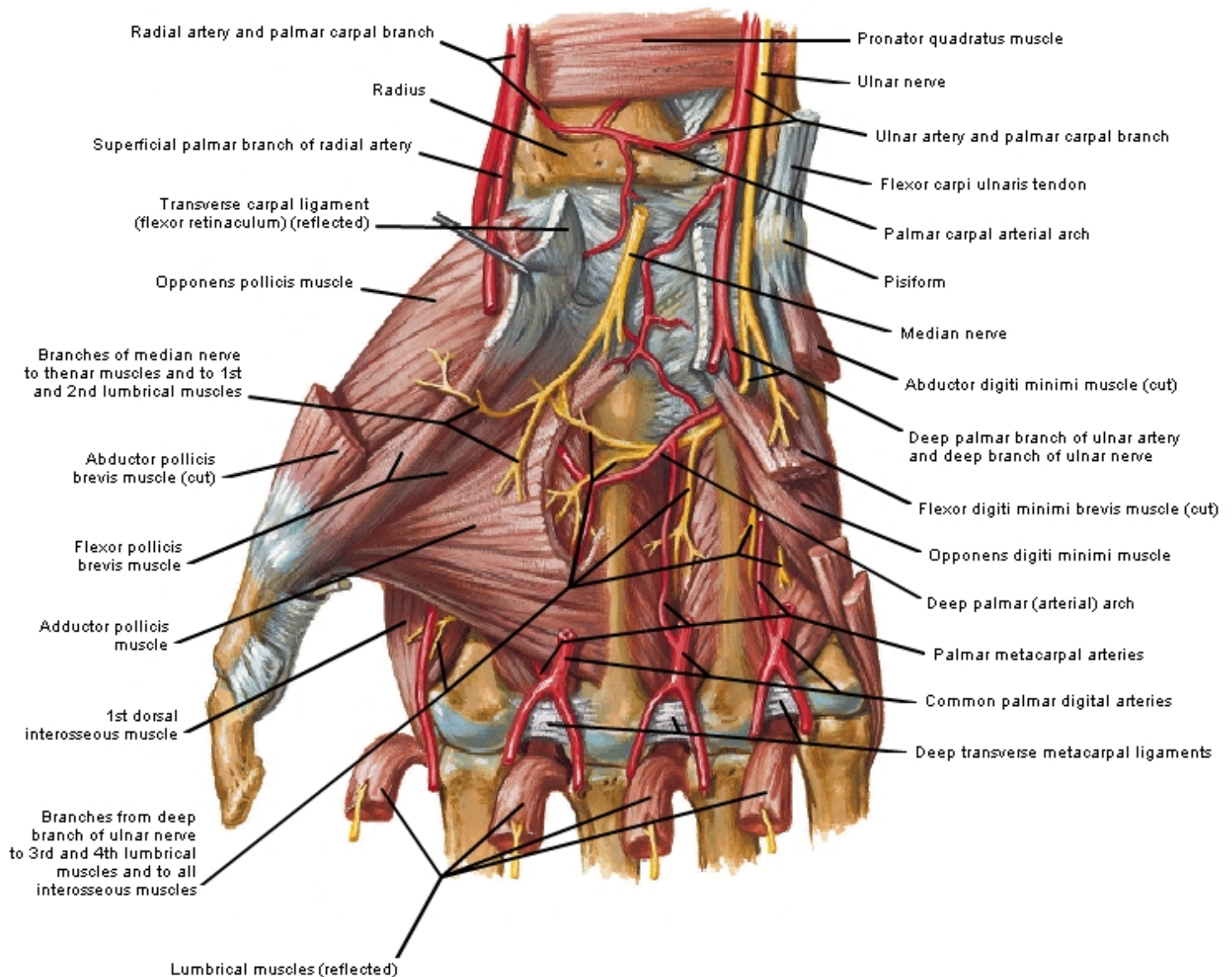


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UPPER LIMB

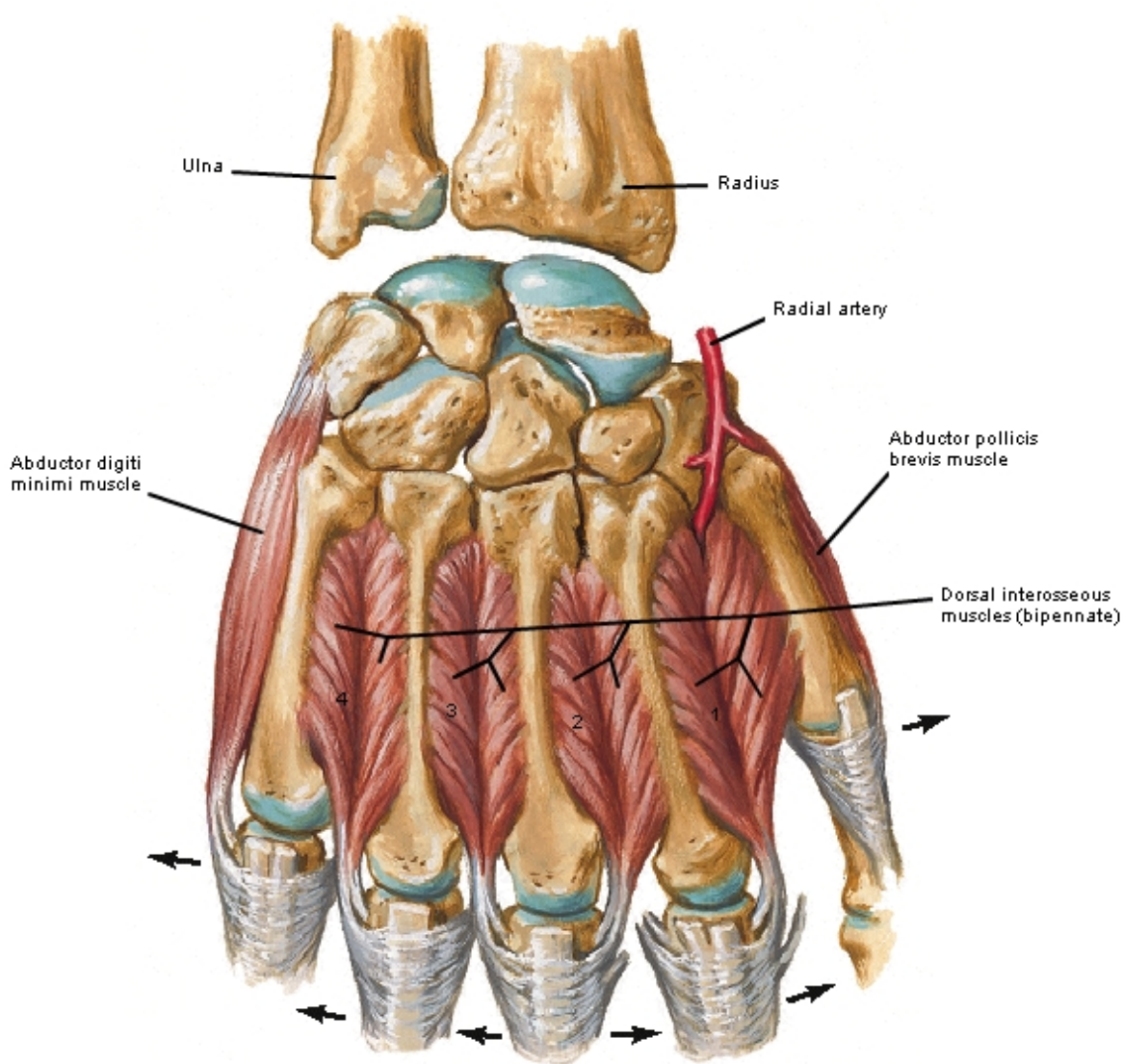
Intrinsic Muscles of Hand

Anterior (Palmar) View



C. Machado
—M.D.—
© ION

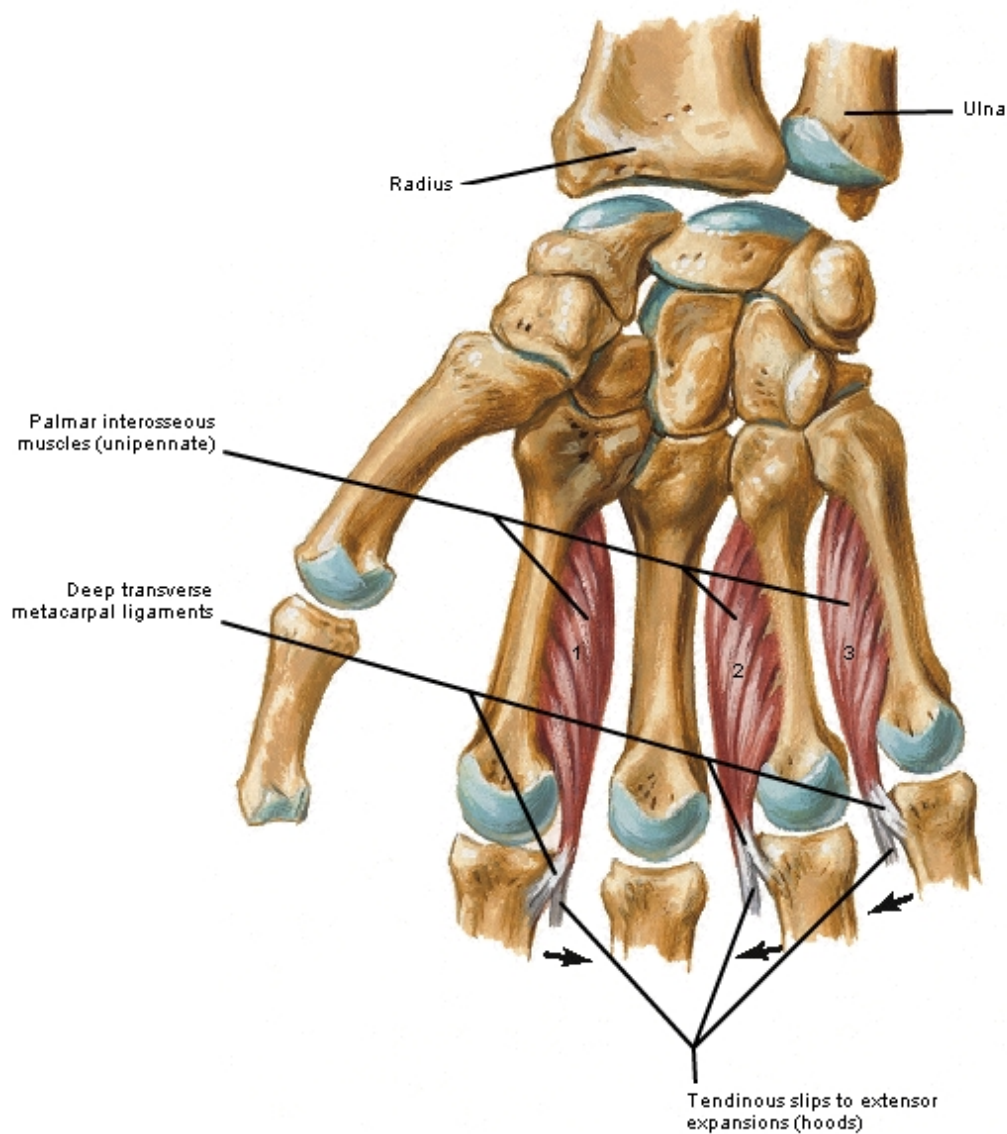
Intrinsic Muscles of Hand Posterior (Dorsal) View



Note: Arrows indicate action of muscles

C. Machado
— M.D. —
© ION

Intrinsic Muscles of Hand Deep Anterior (Palmar) View

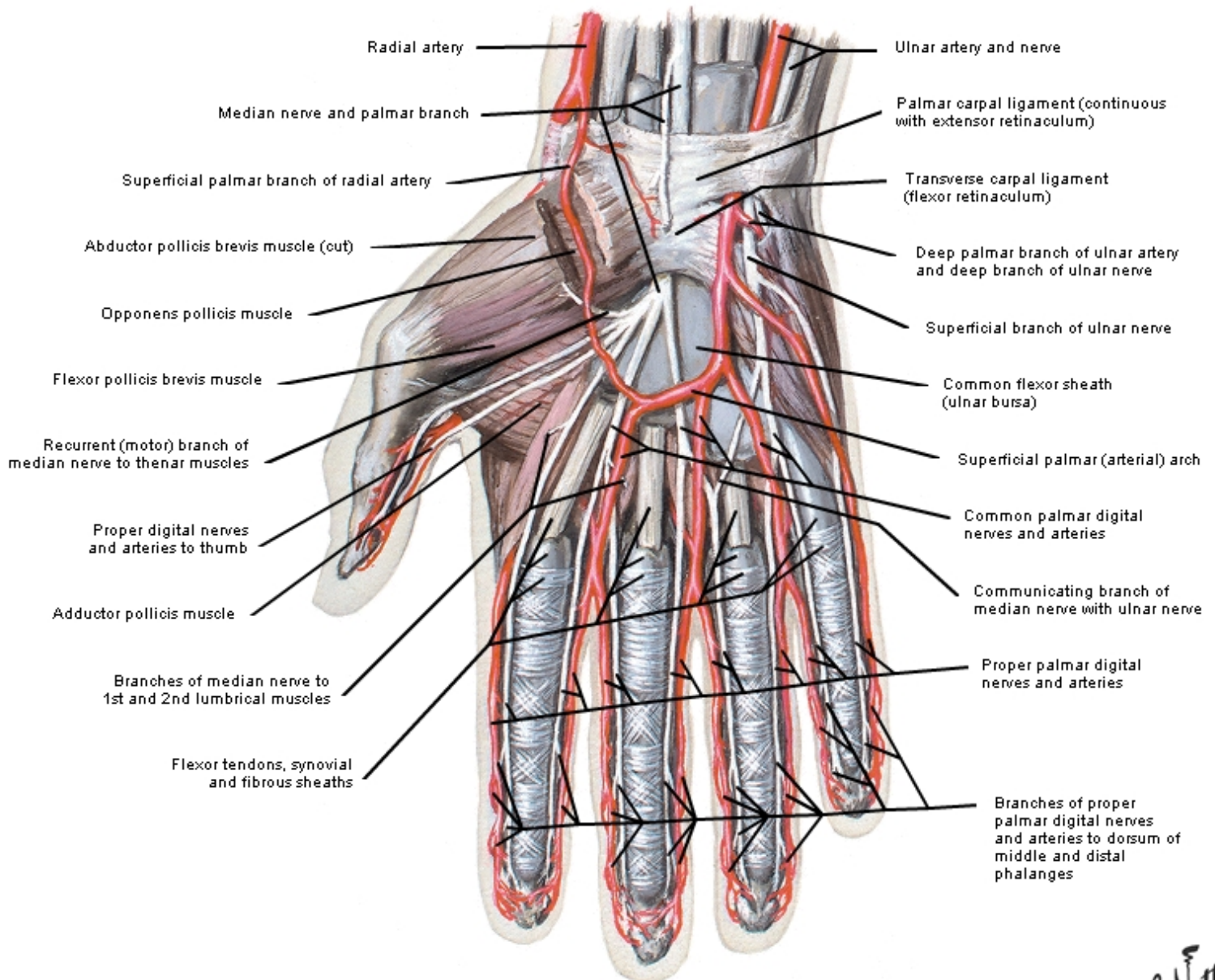


Note: Arrows indicate action of muscles

C. Machado
M.D.
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UPPER LIMB

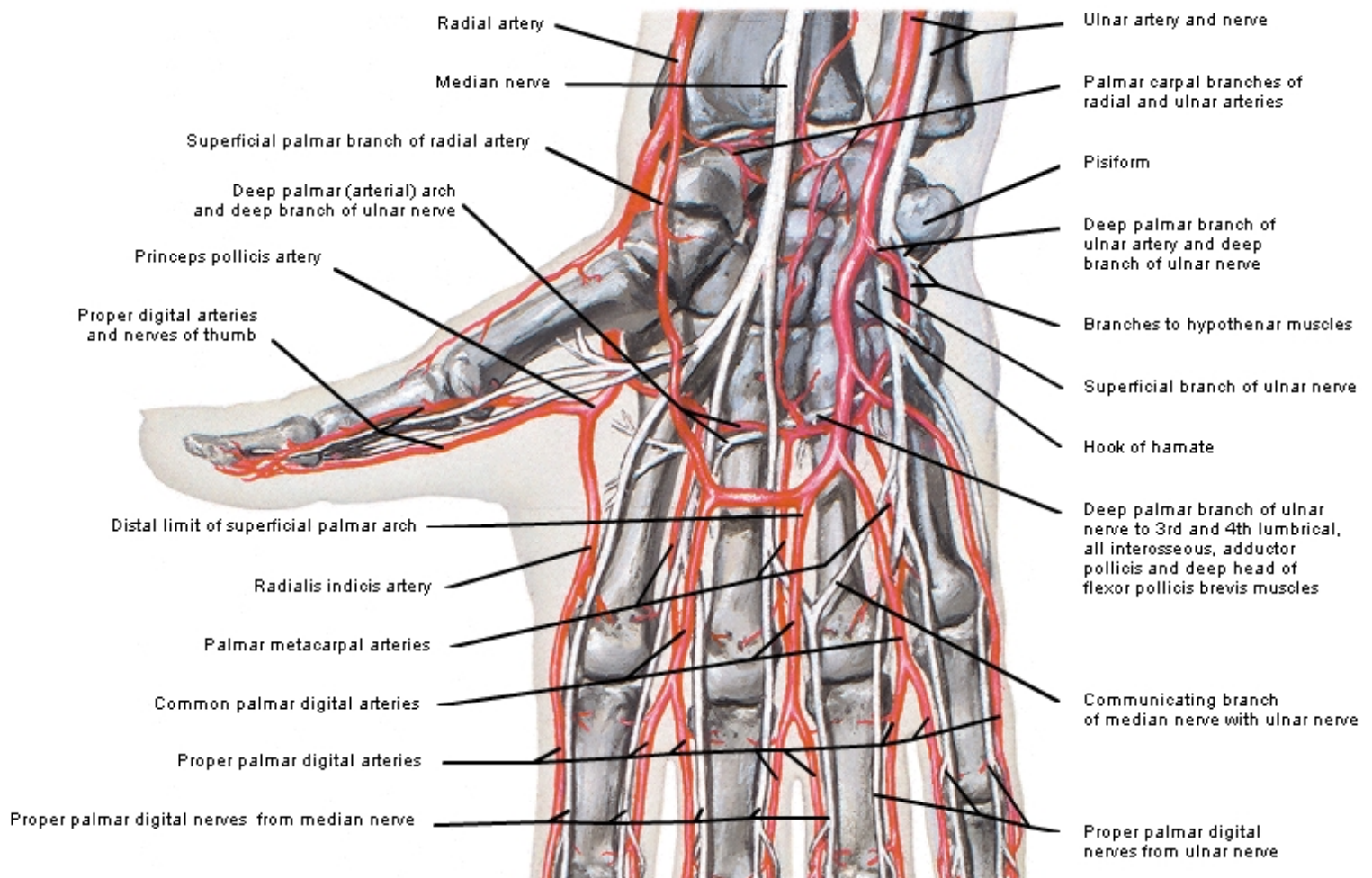
Arteries and Nerves of Hand Palmar View



F. Netter M.D.
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UPPER LIMB

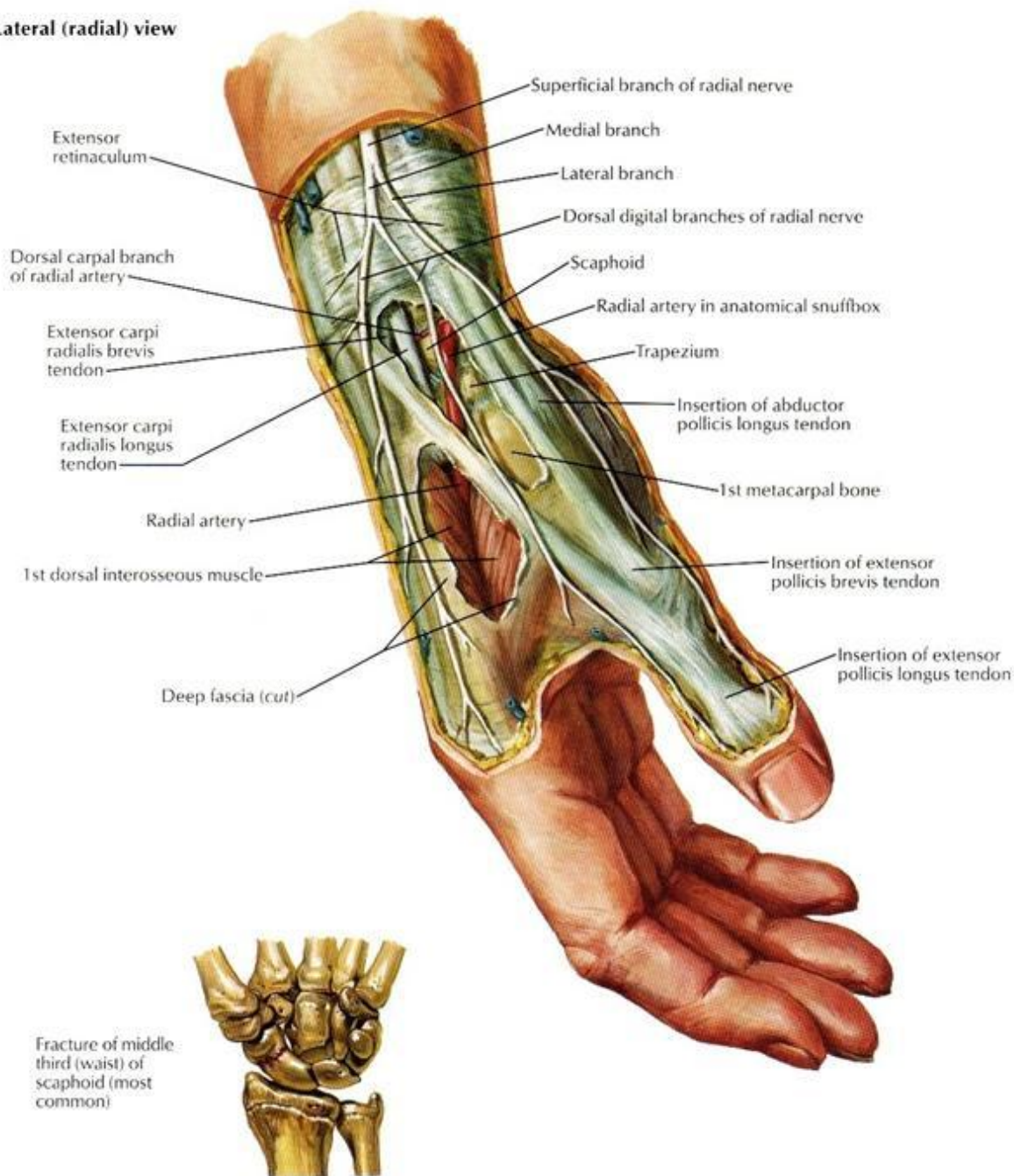
Arteries and Nerves of Hand Deep Palmar View



F. Netter M.D.
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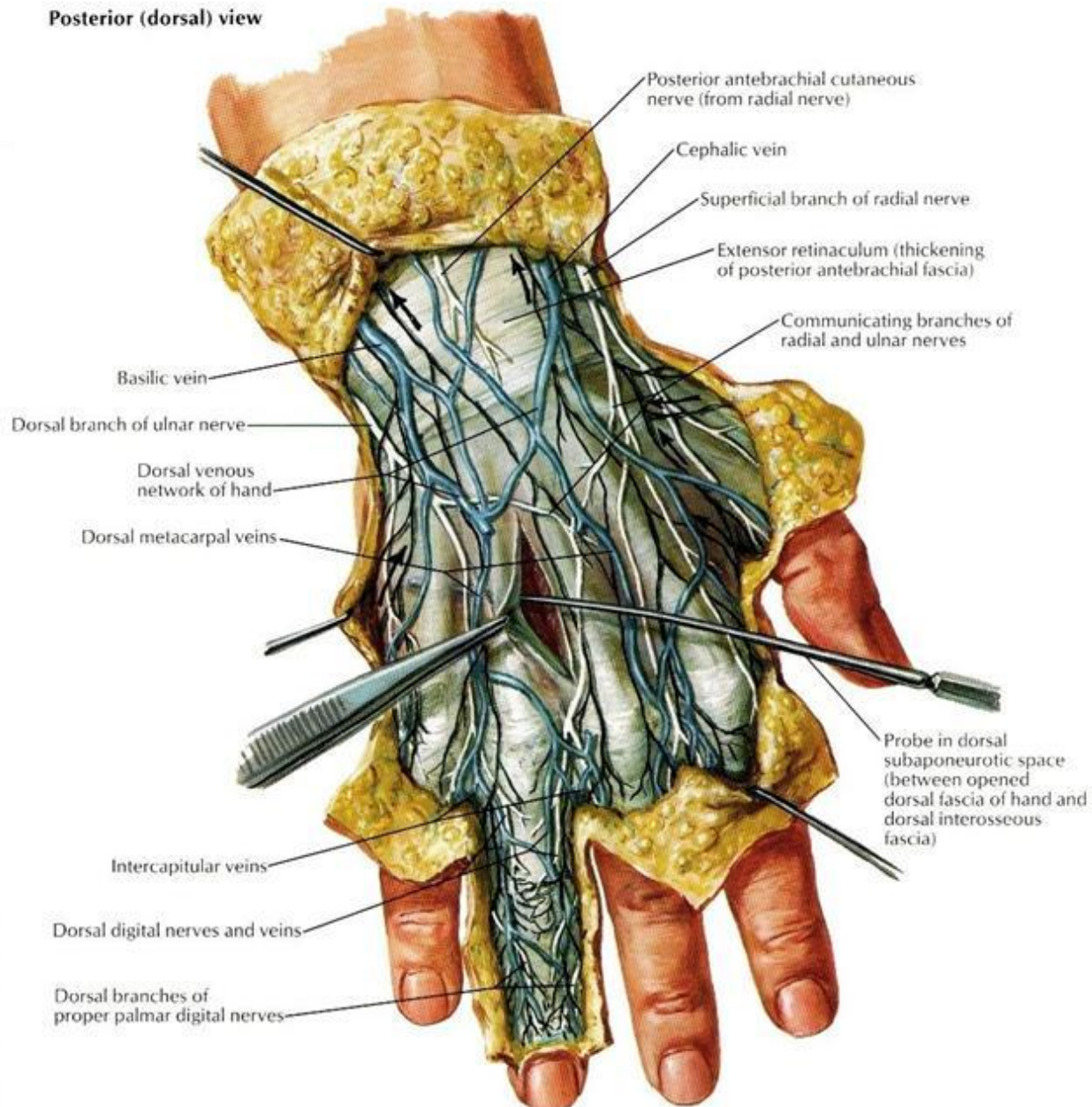
Wrist and Hand: Superficial Radial Dissection

Lateral (radial) view



Wrist and Hand: Superficial Dorsal Dissection

Posterior (dorsal) view

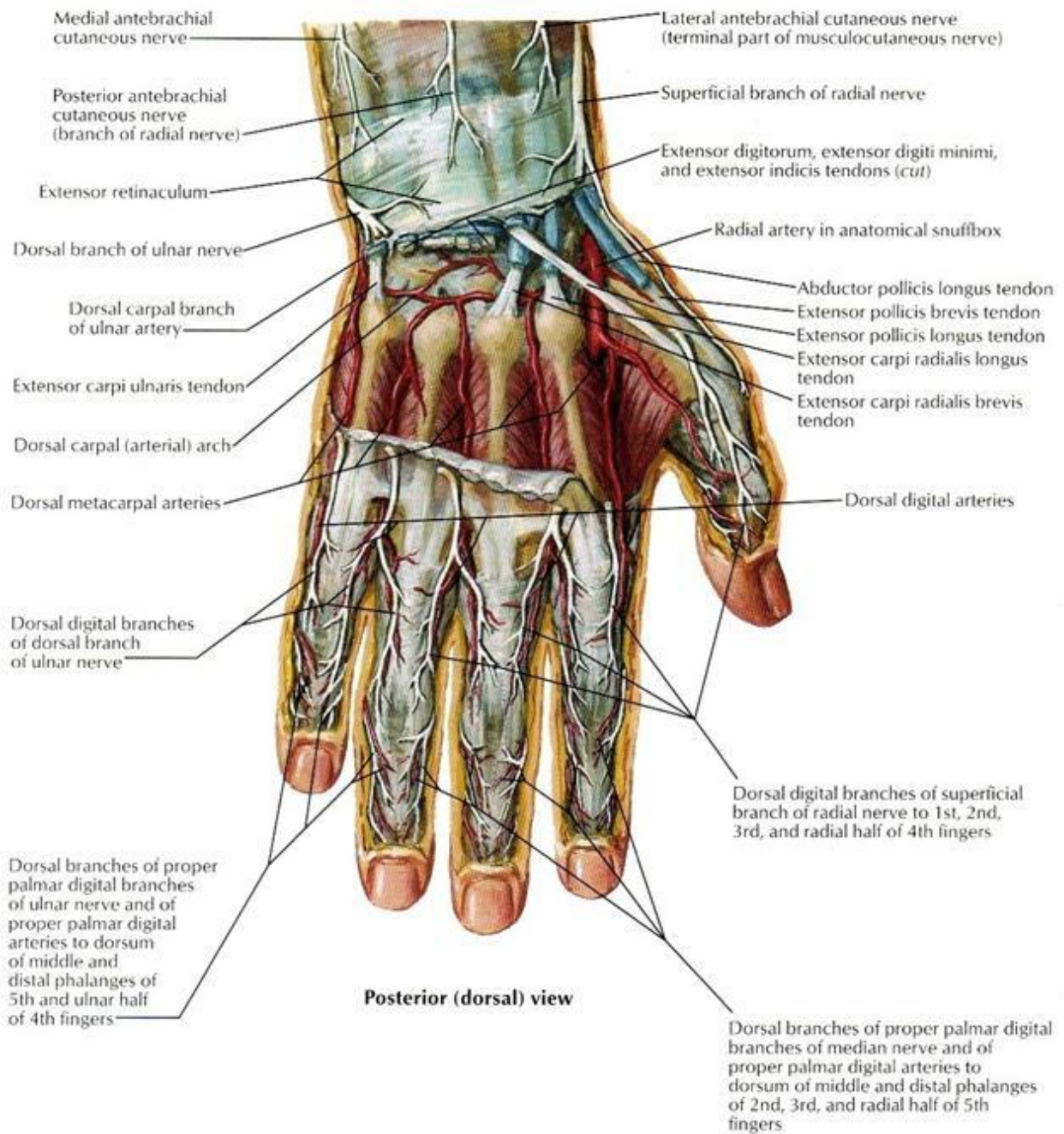


Note: Lymphatic pathways shown in black; arrows indicate direction of drainage

F. Netter M.D.
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UPPER LIMB

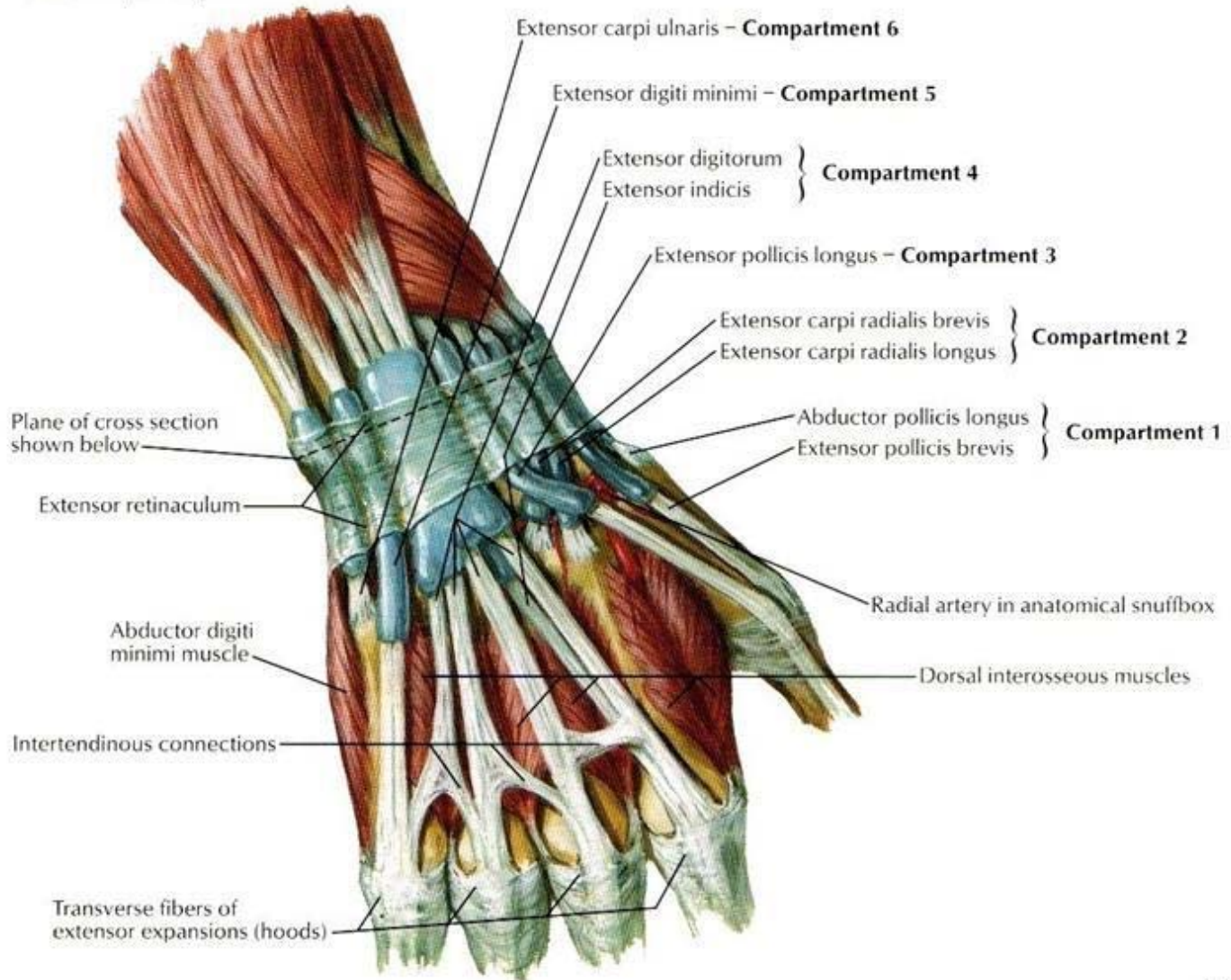
Wrist and Hand: Deep Dorsal Dissection



F. Netter
M.D.
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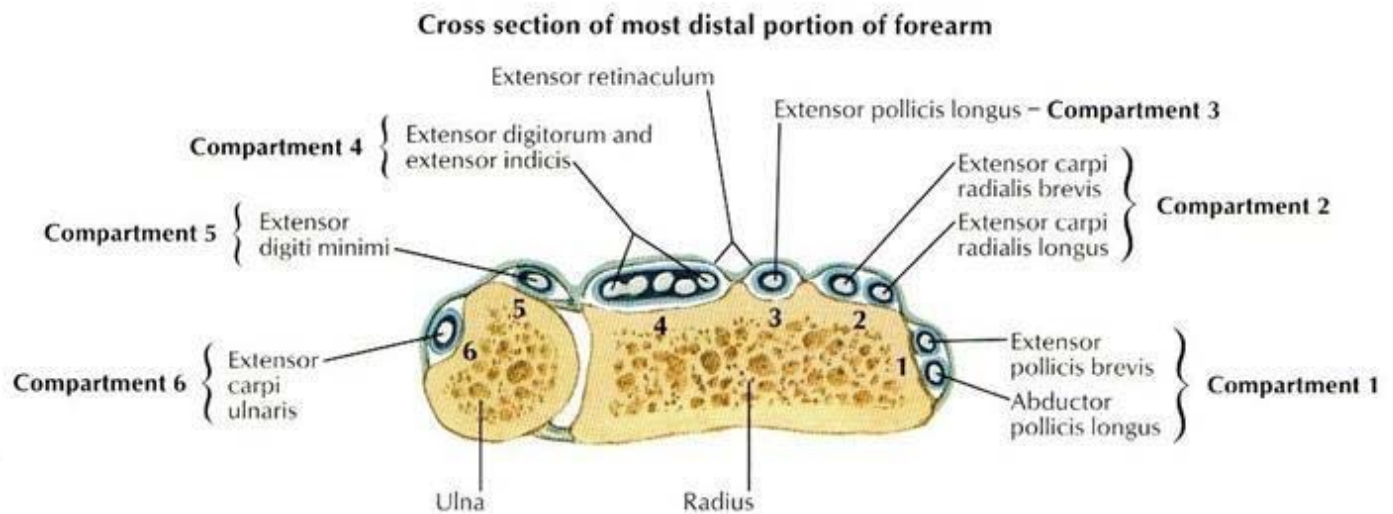
Extensor Tendons at Wrist: Posterior View

Posterior (dorsal) view



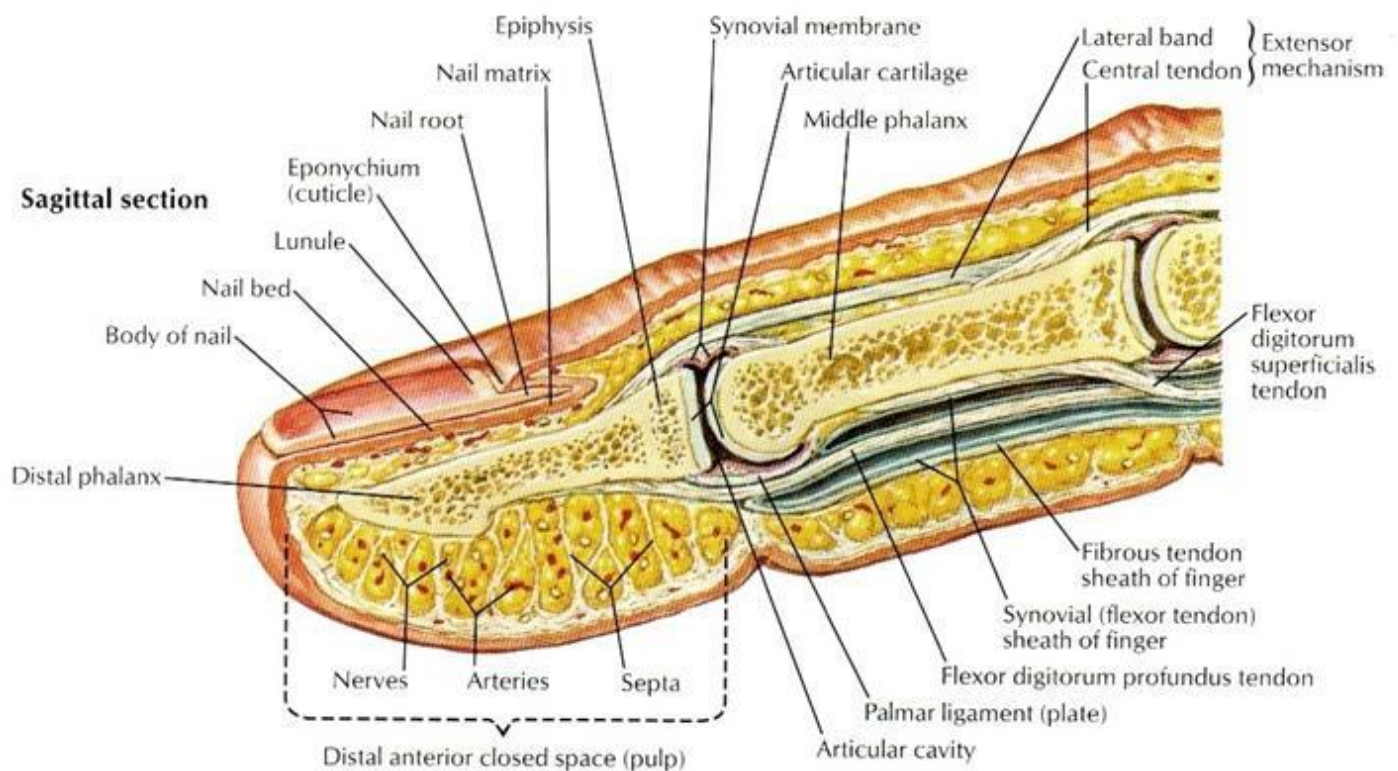
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Extensor Tendons at Wrist: Cross Section



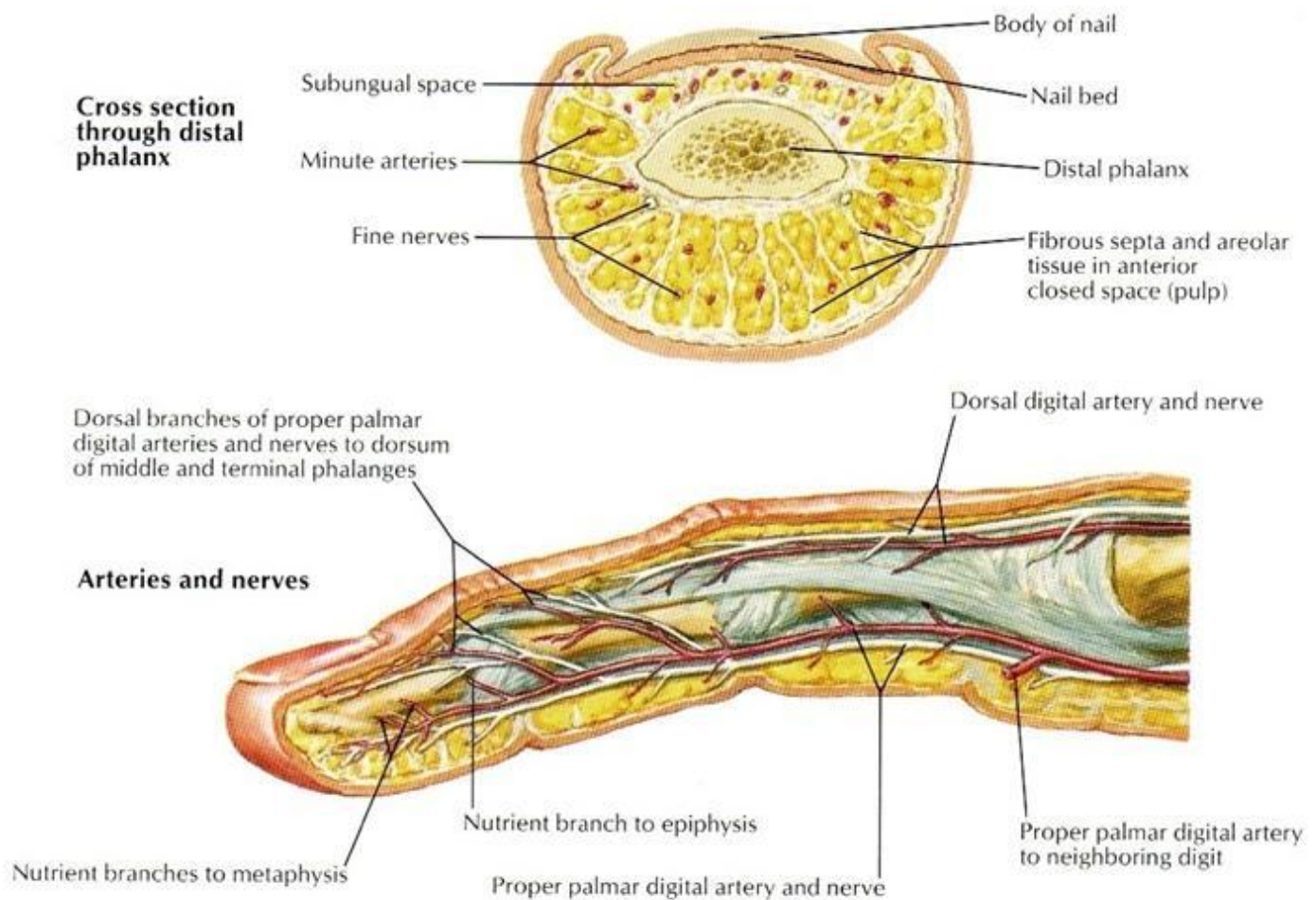
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Finger: Sagittal Section



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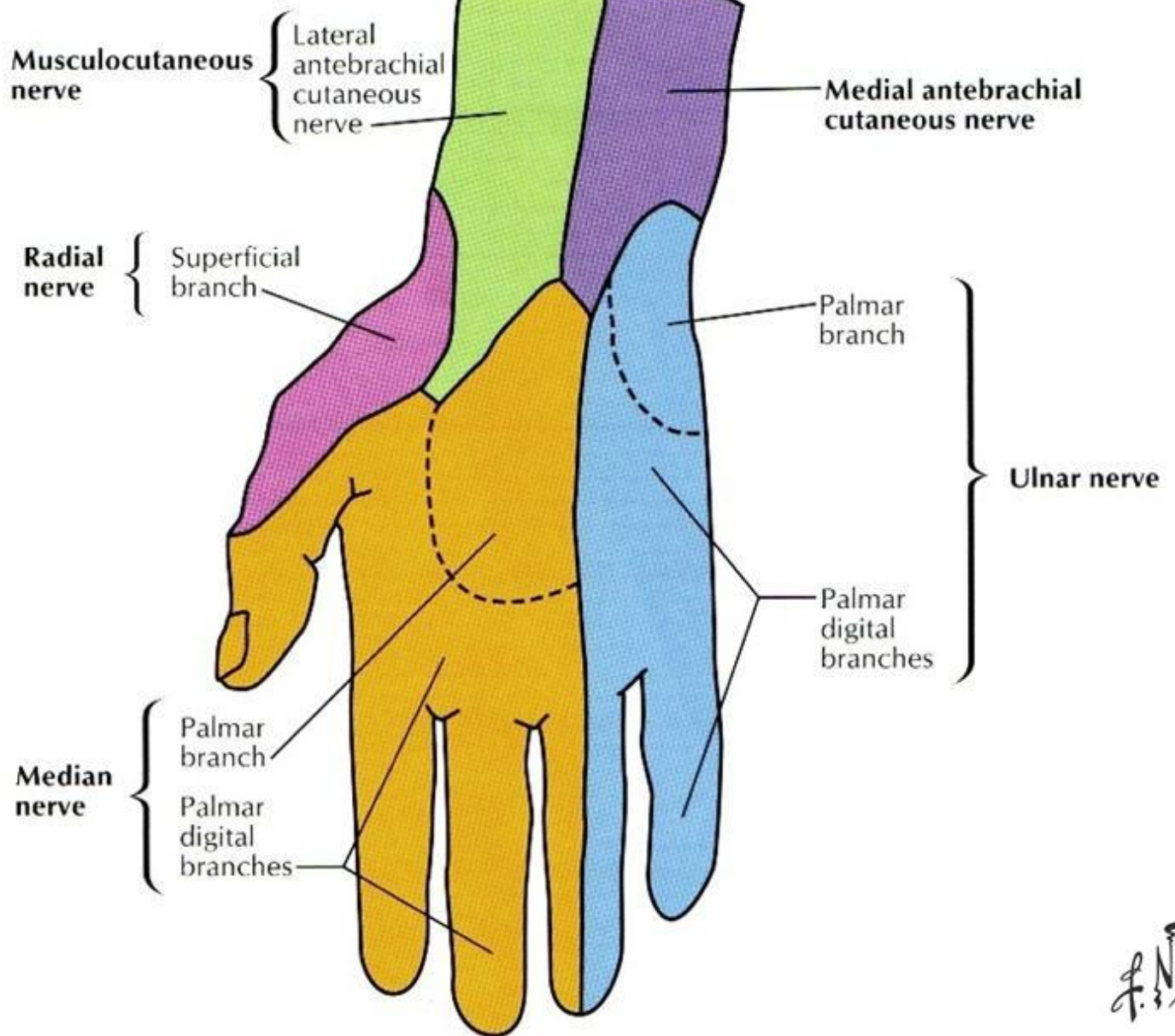
Finger: Cross Section and Arteries and Nerves



F. Netter M.D.
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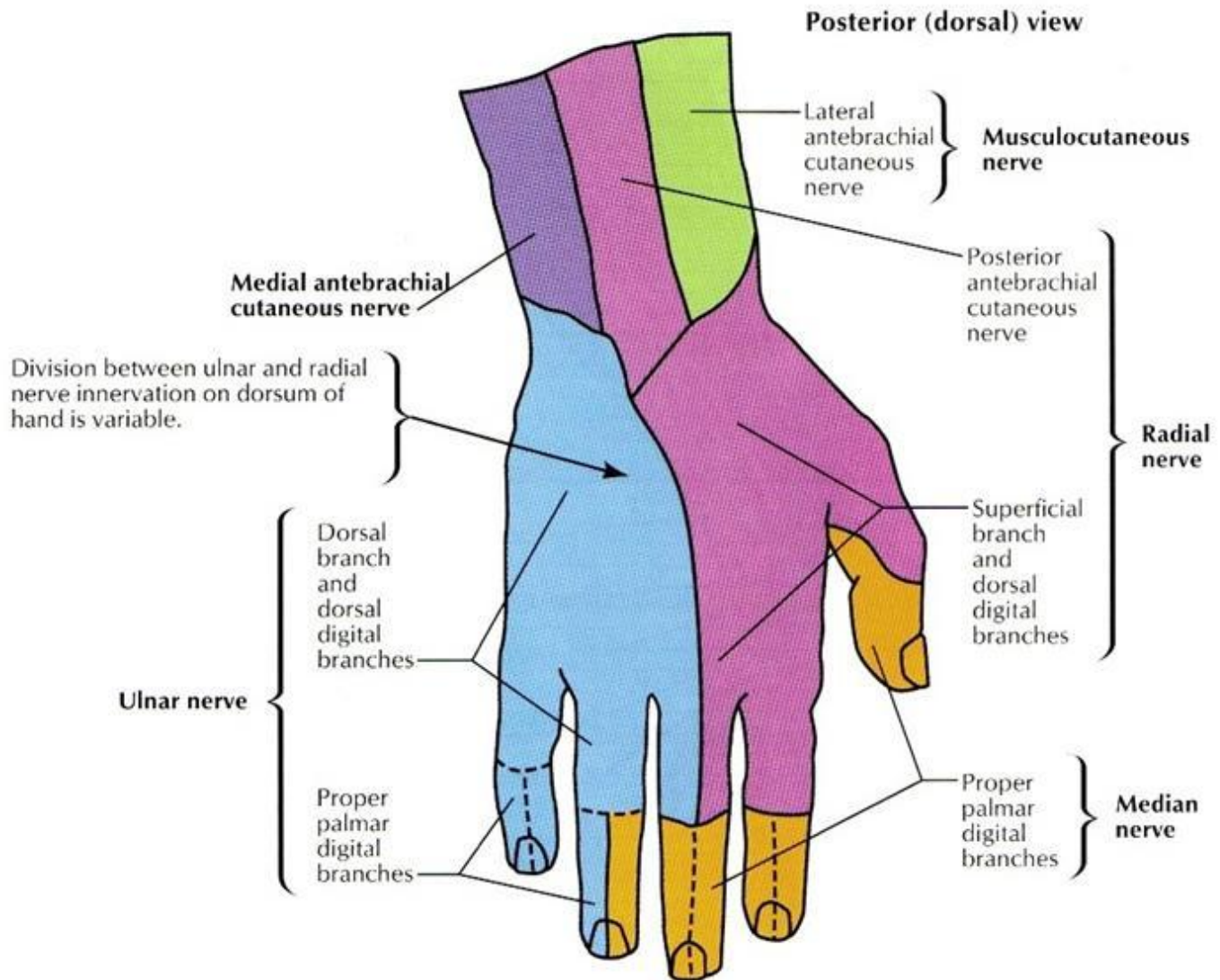
Cutaneous Innervation of Wrist and Hand: Anterior View

Anterior (palmar) view



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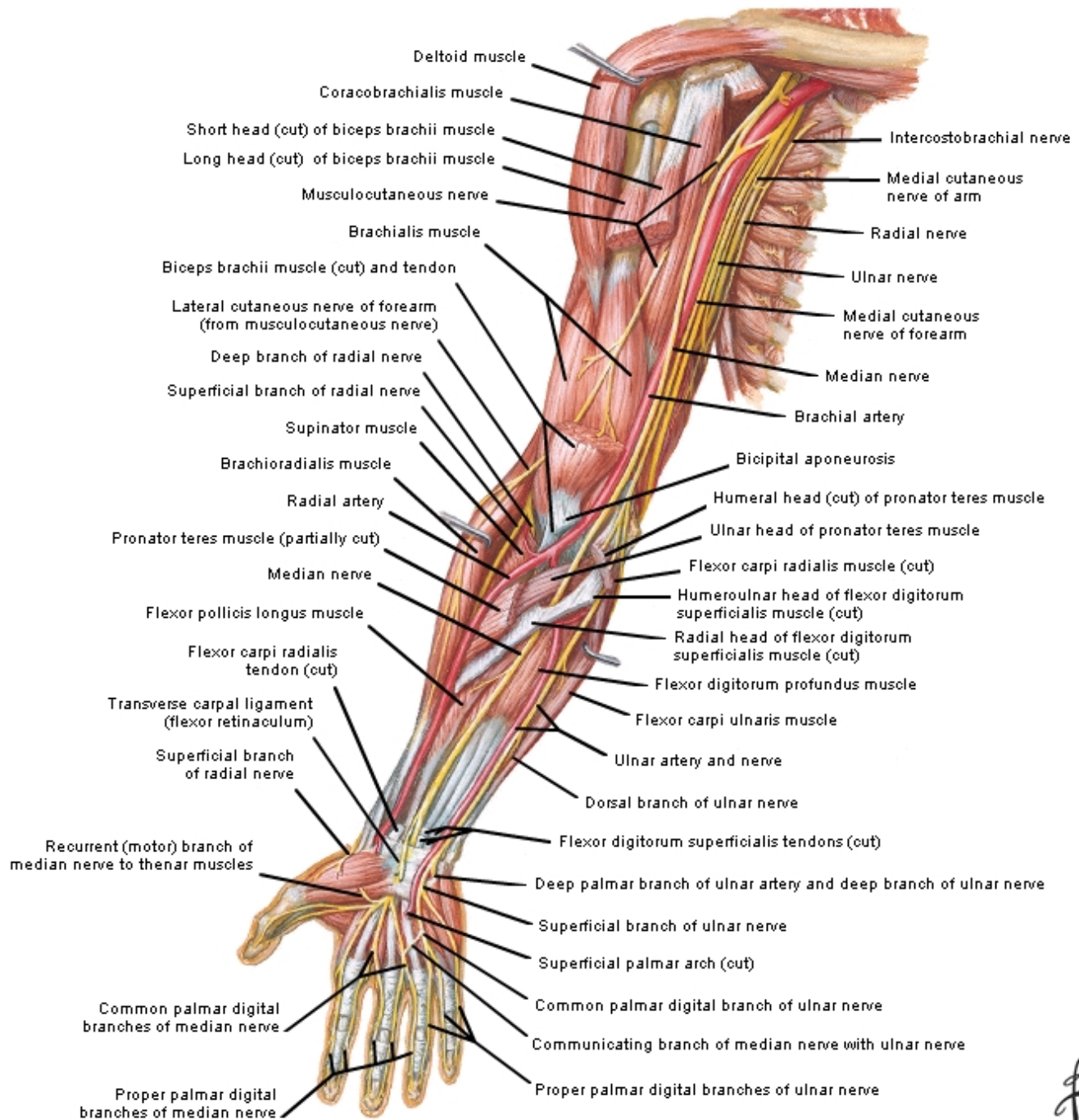
Cutaneous Innervation of Wrist and Hand: Posterior View



F. Netter M.D.
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UPPER LIMB

Arteries and Nerves of Upper Limb: Anterior View

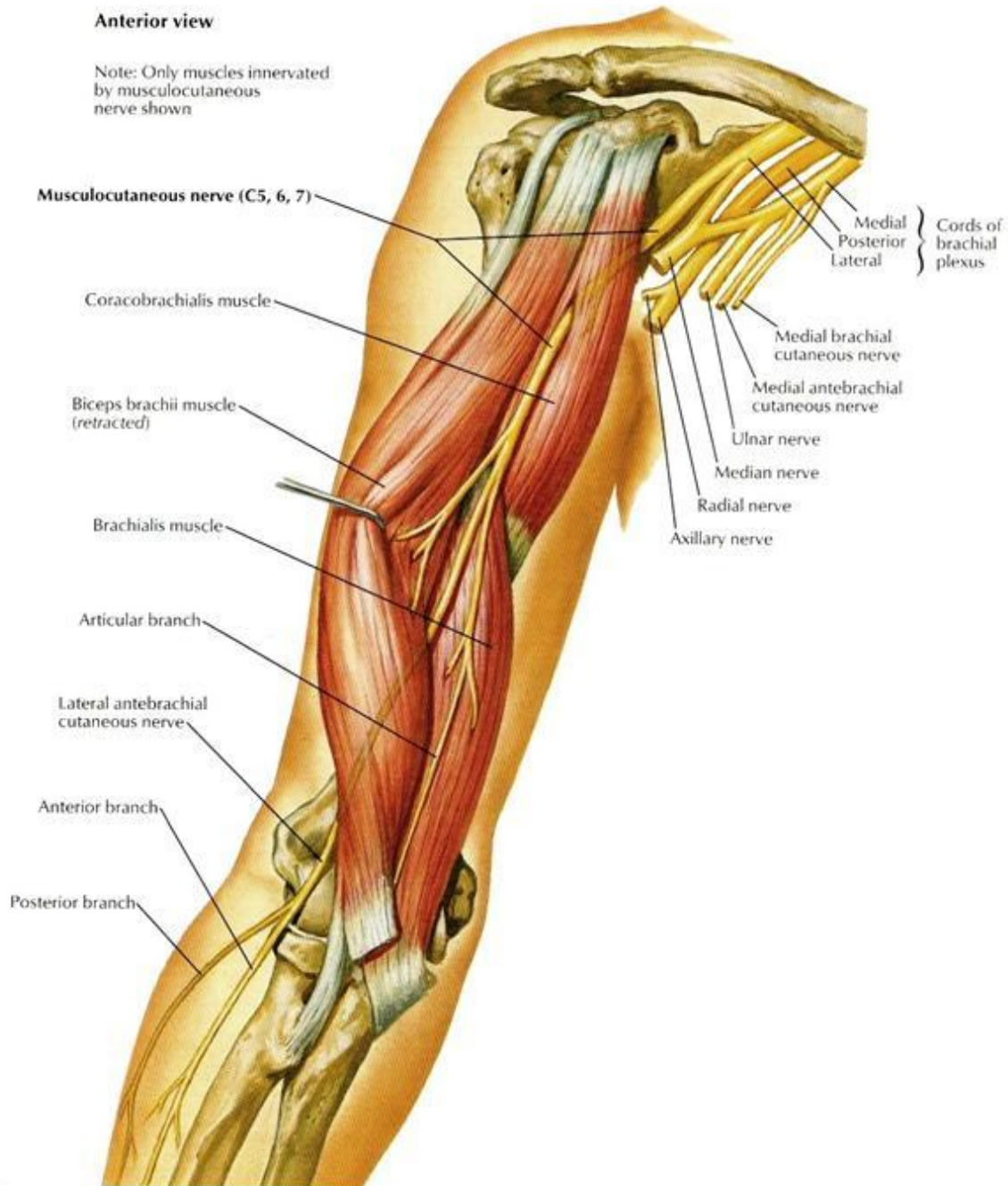


*F. Netter
M.D.*
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Musculocutaneous Nerve

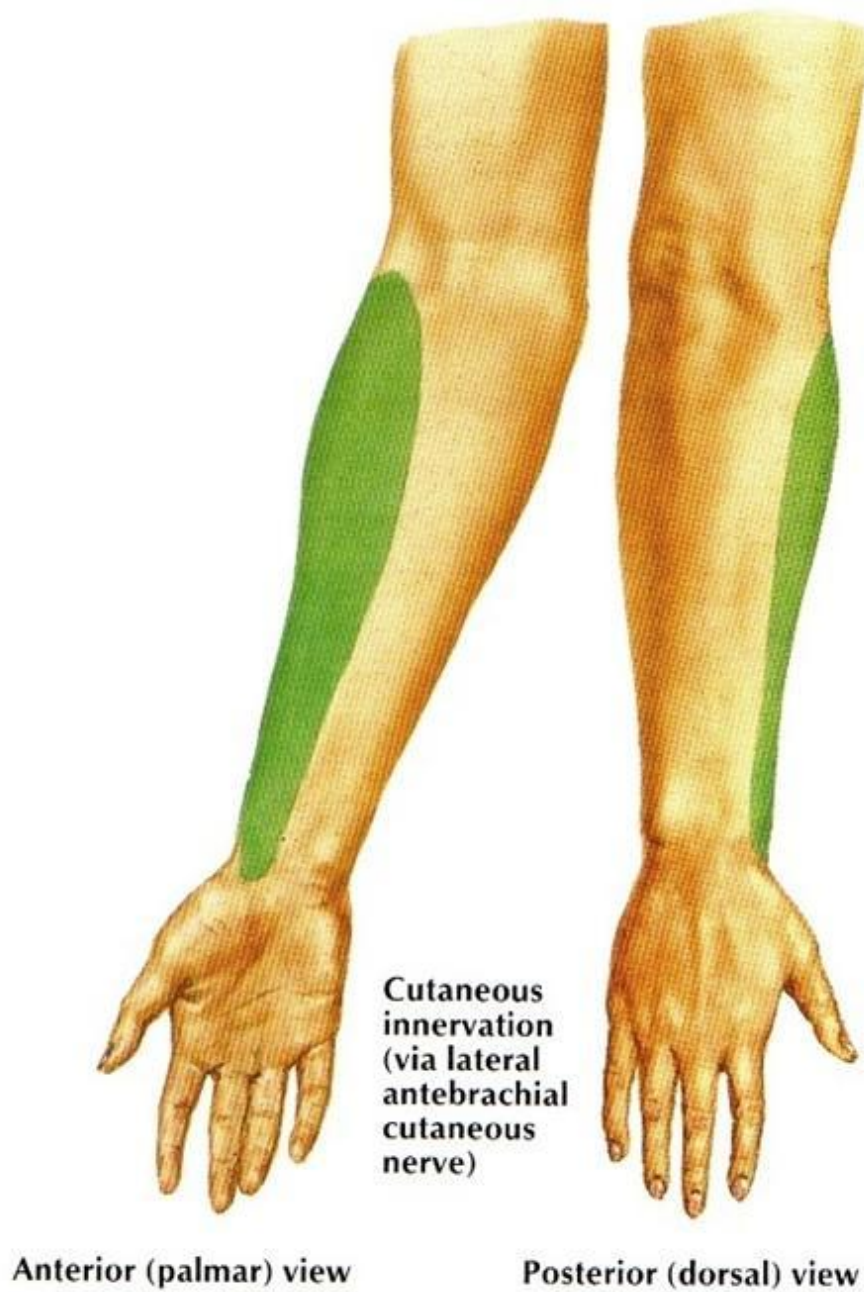
Anterior view

Note: Only muscles innervated by musculocutaneous nerve shown



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Musculocutaneous Nerve: Cutaneous Innervation



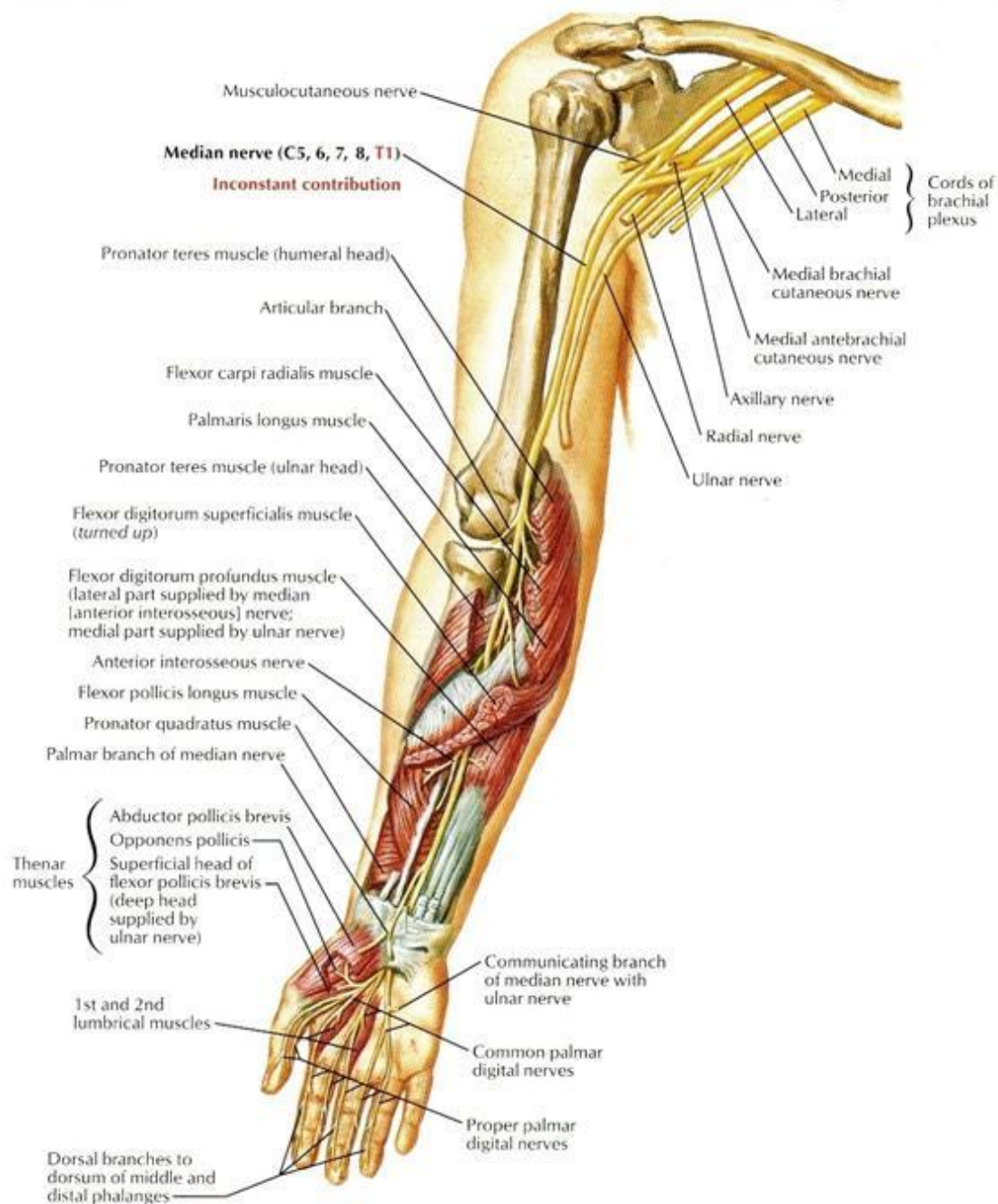
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UPPER LIMB

Median Nerve

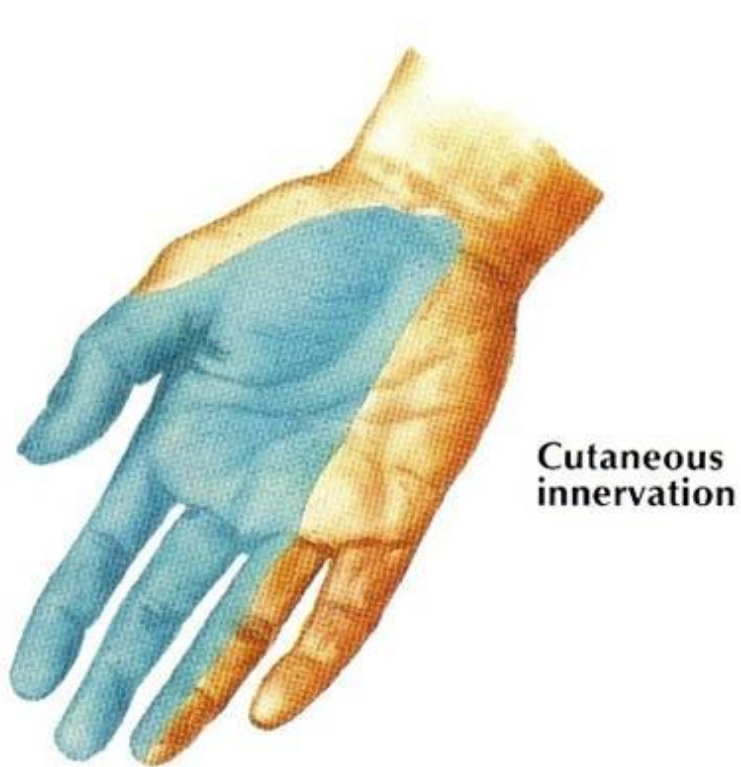
Anterior view

Note: Only muscles innervated by median nerve shown



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Median Nerve: Cutaneous Innervation



Palmar view

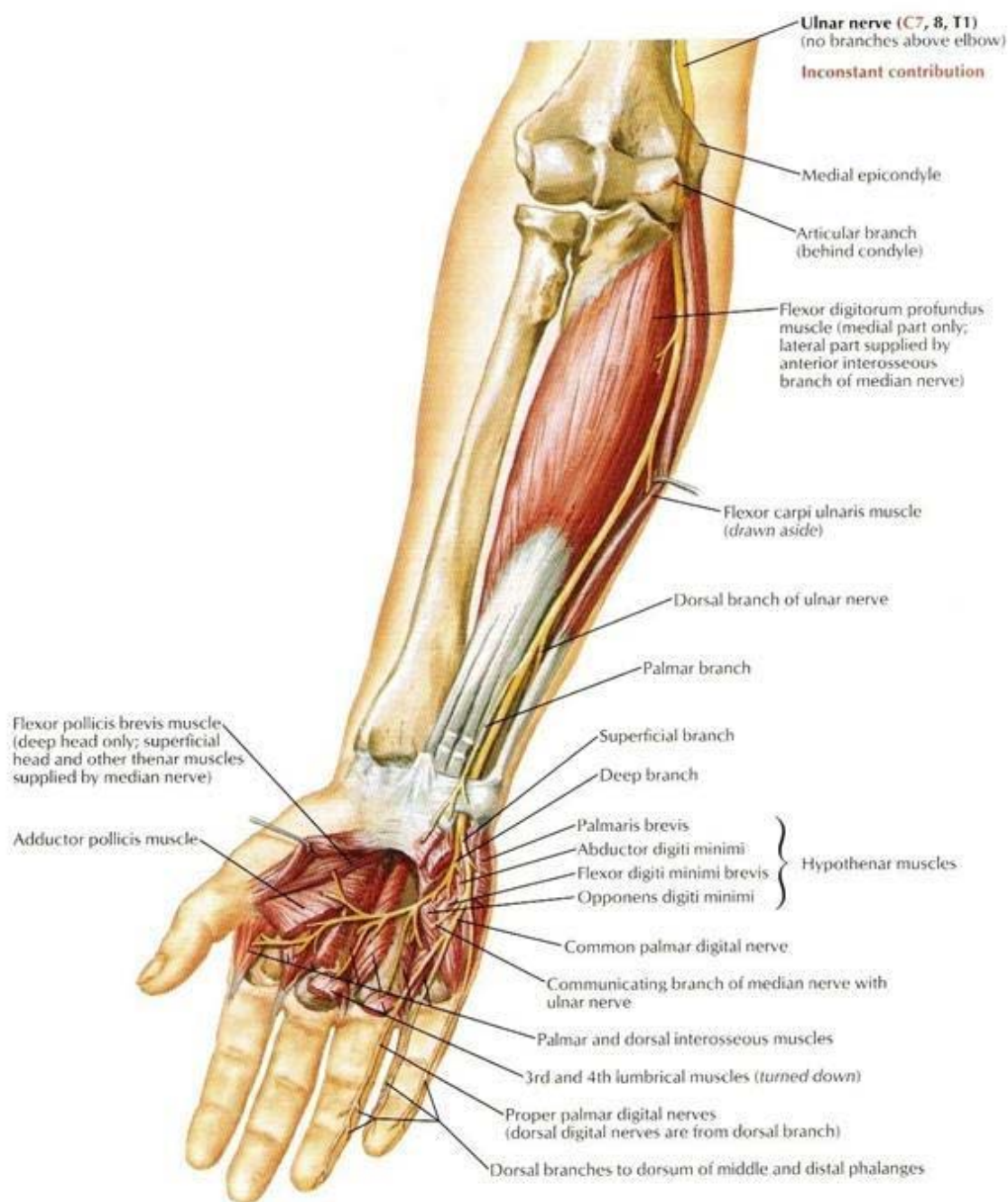


Posterior (dorsal) view

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UPPER LIMB

Ulnar Nerve

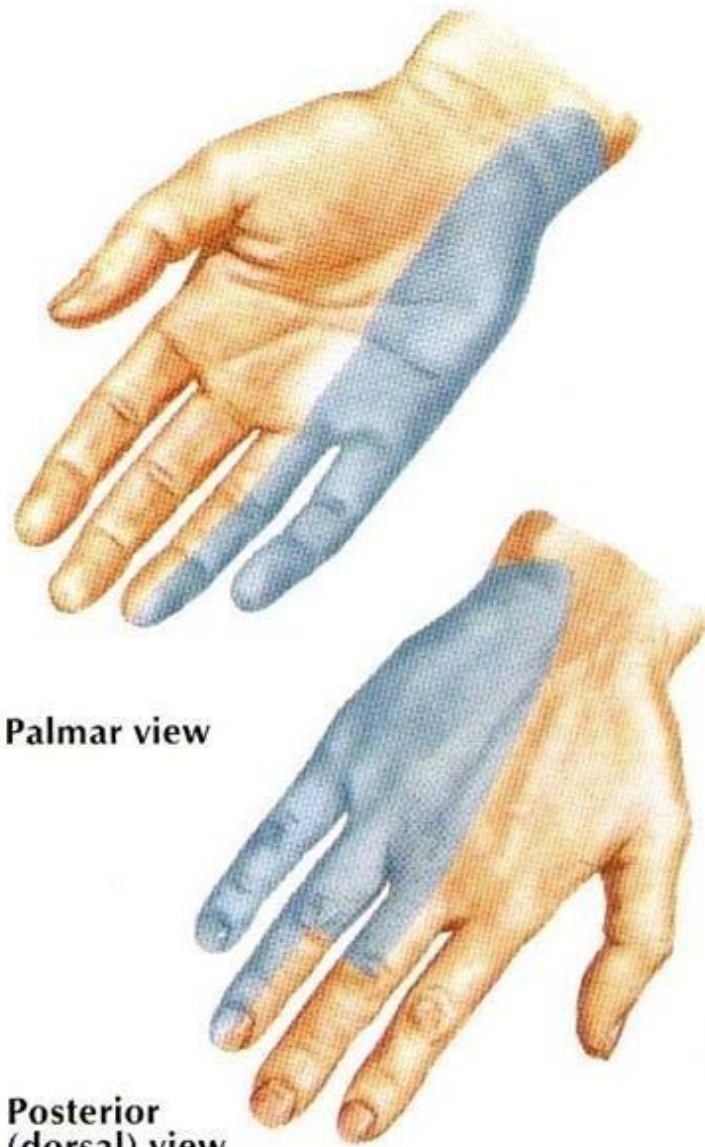


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Ulnar Nerve: Cutaneous Innervation

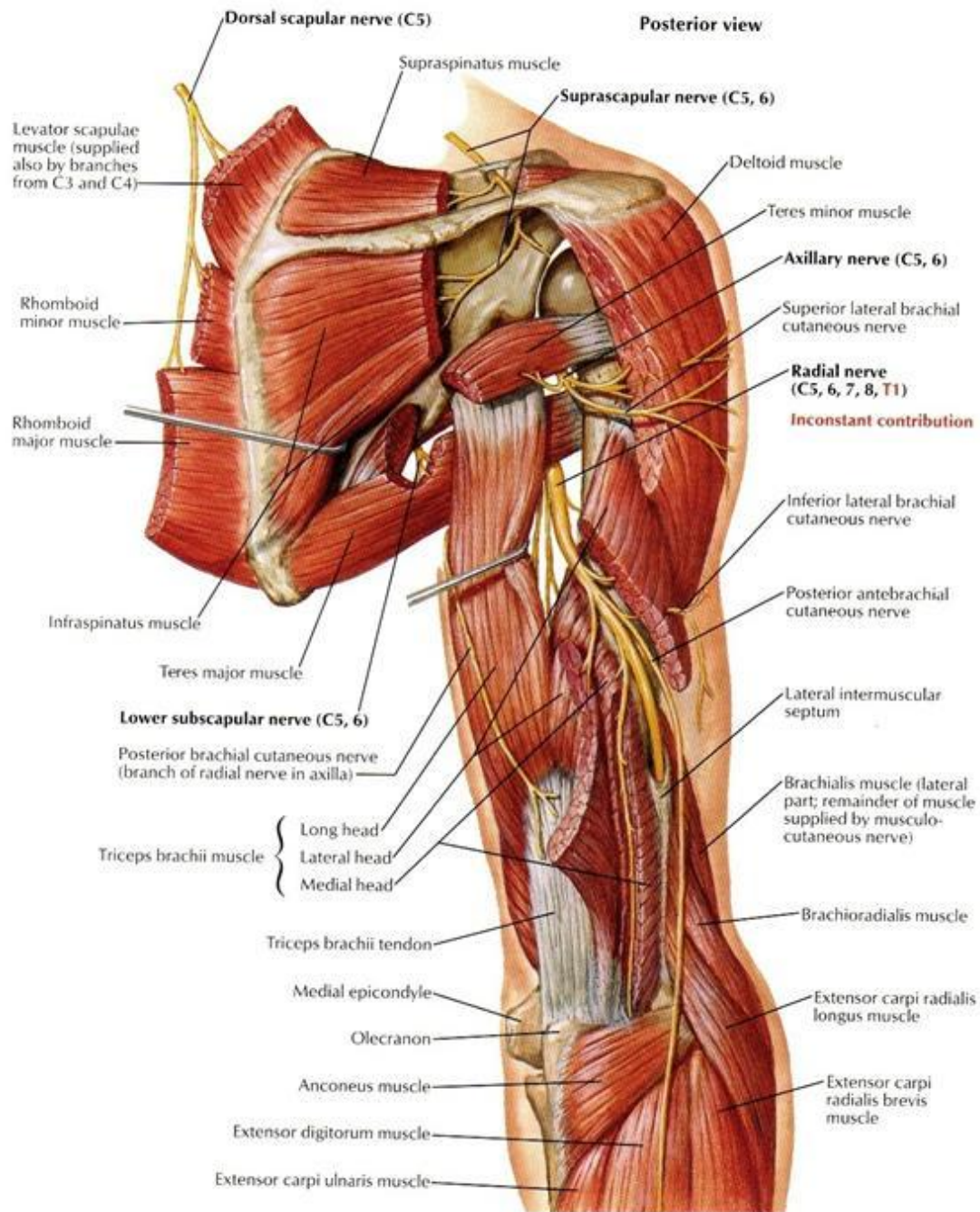
Anterior view

Note: Only muscles innervated by ulnar nerve shown



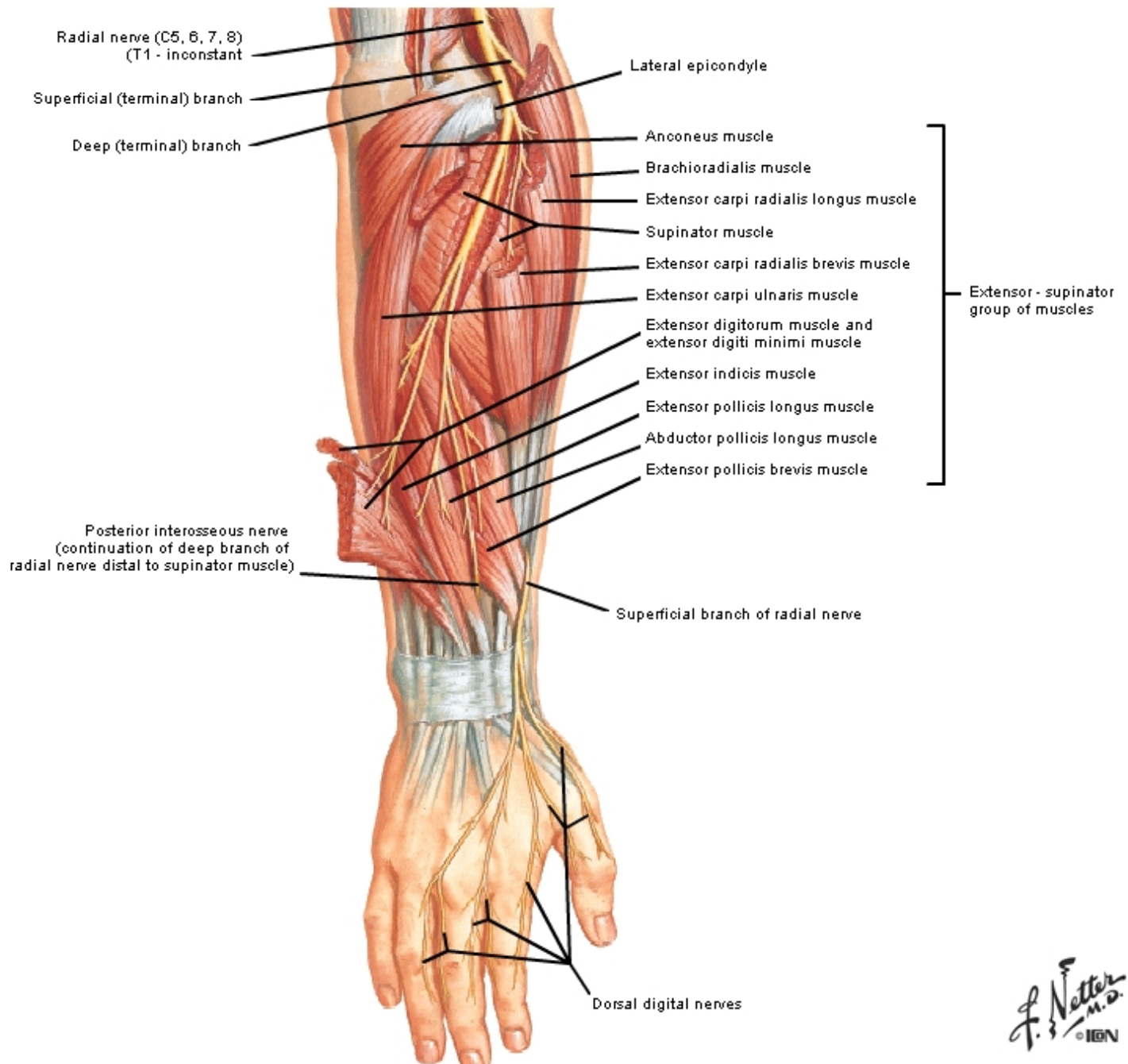
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Radial Nerve in Arm and Nerves of Posterior Shoulder



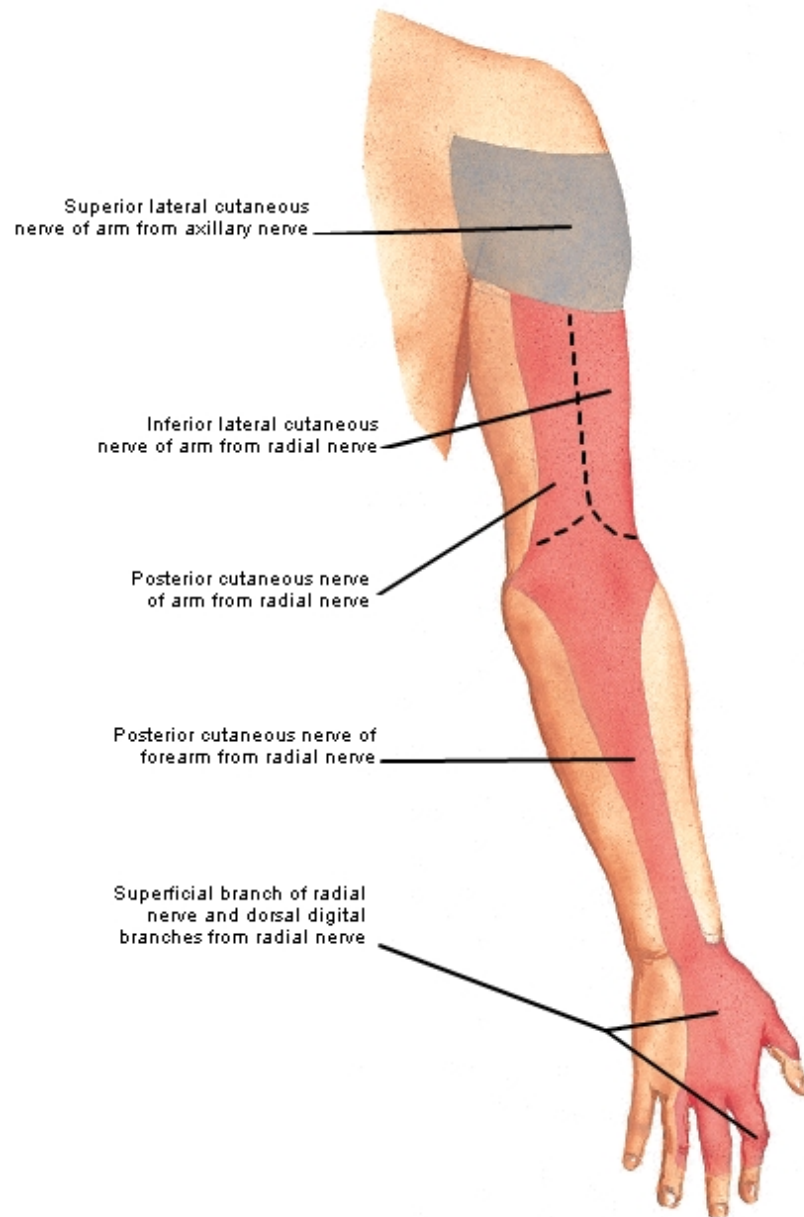
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Radial Nerve in Forearm Posterior View



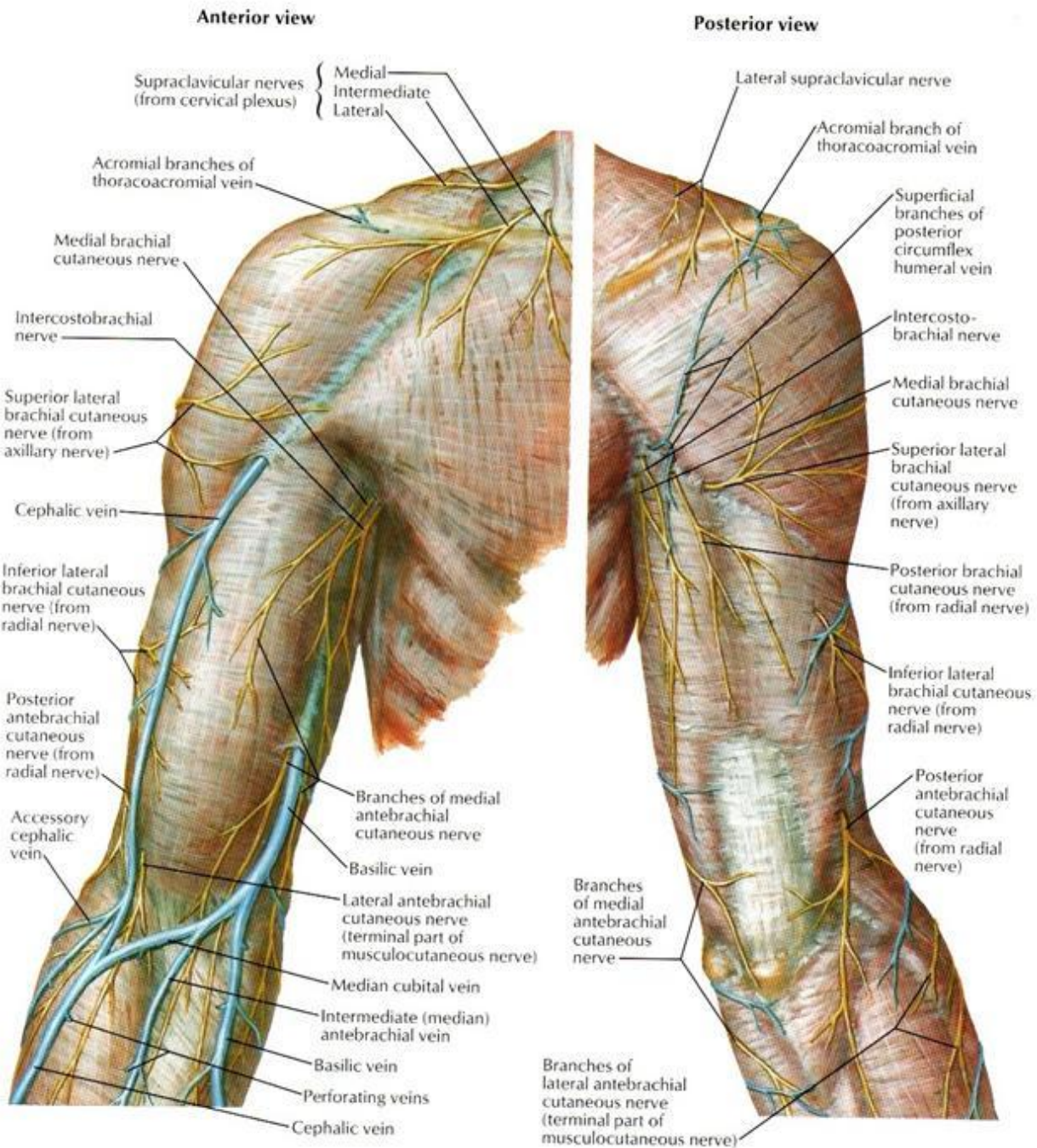
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Radial and Axillary Nerves Cutaneous Innervation



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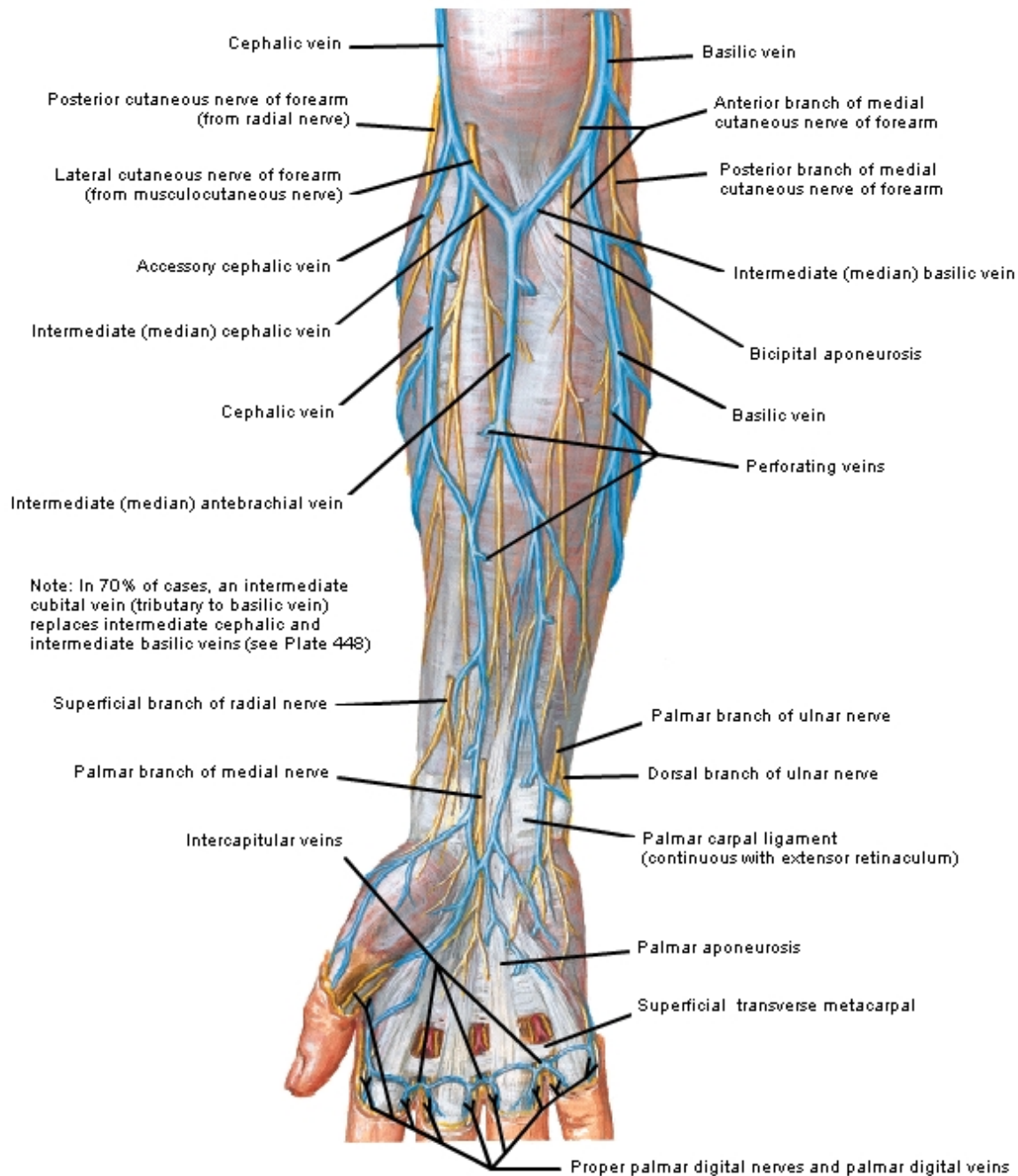
Cutaneous Nerves and Superficial Veins of Shoulder and Arm



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Cutaneous Nerves and Superficial Veins of Forearm

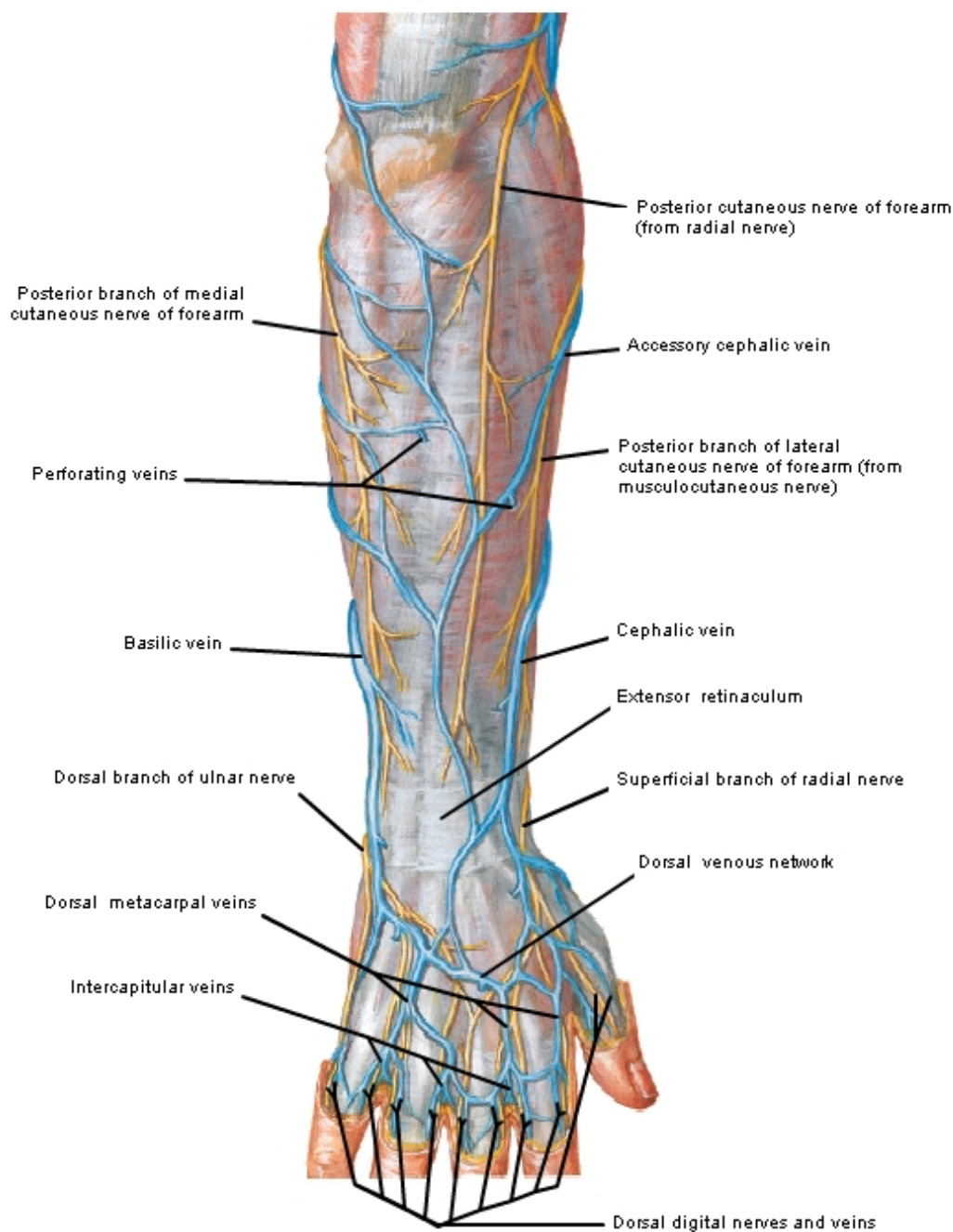
Anterior (Palmar) view



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Cutaneous Nerves and Superficial Veins of Forearm

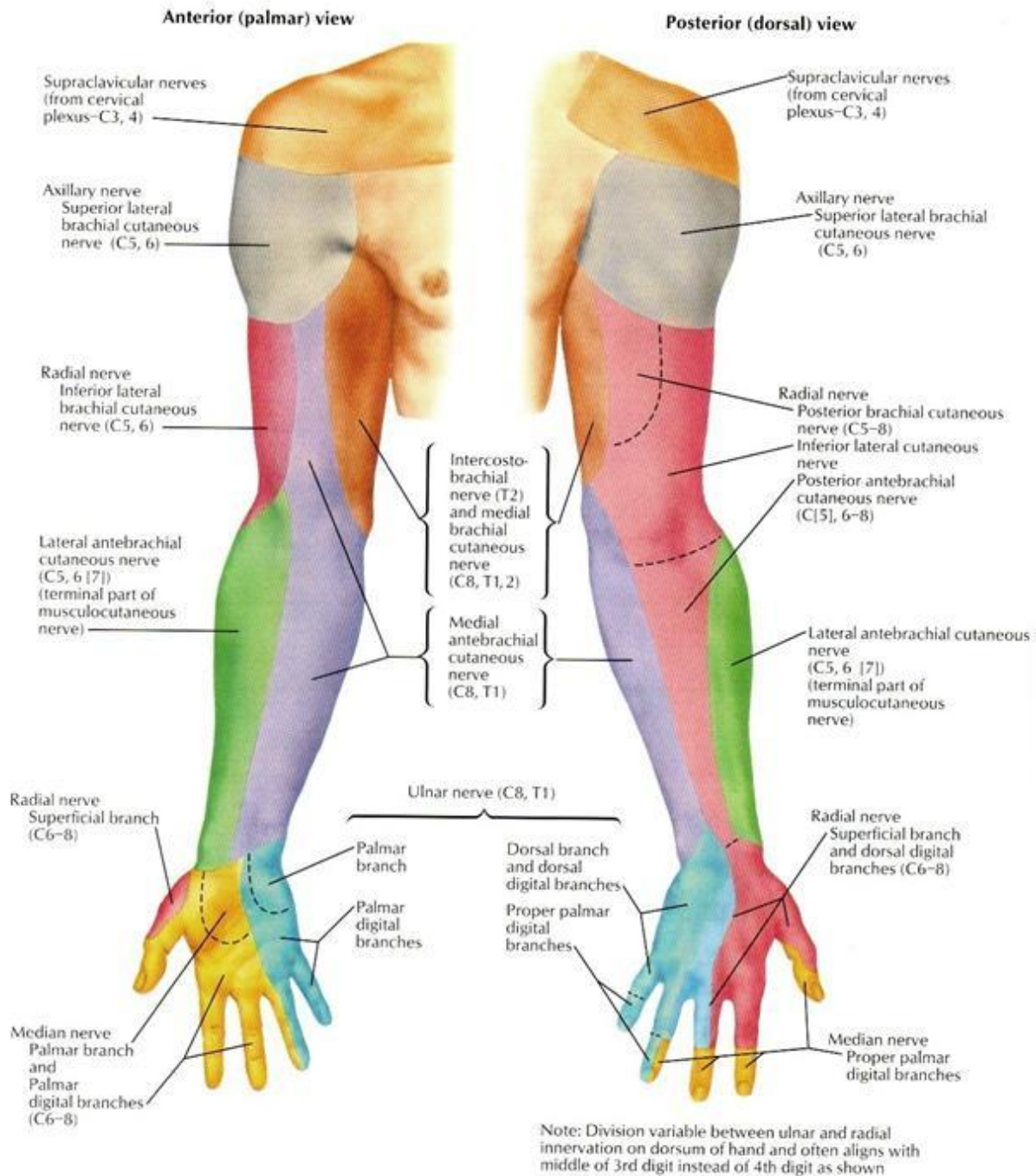
Posterior (Dorsal) view



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UPPER LIMB

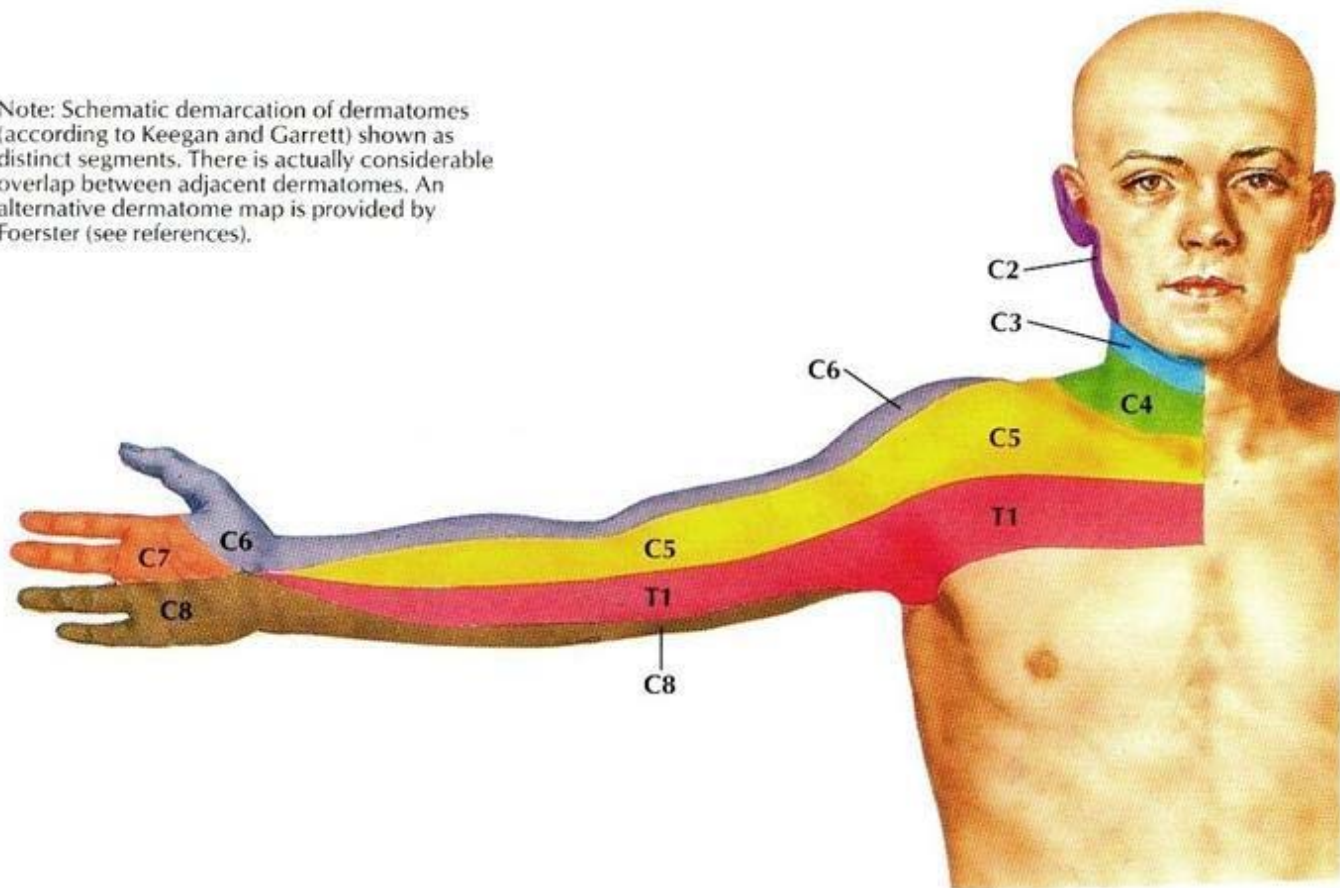
Cutaneous Innervation of Upper Limb



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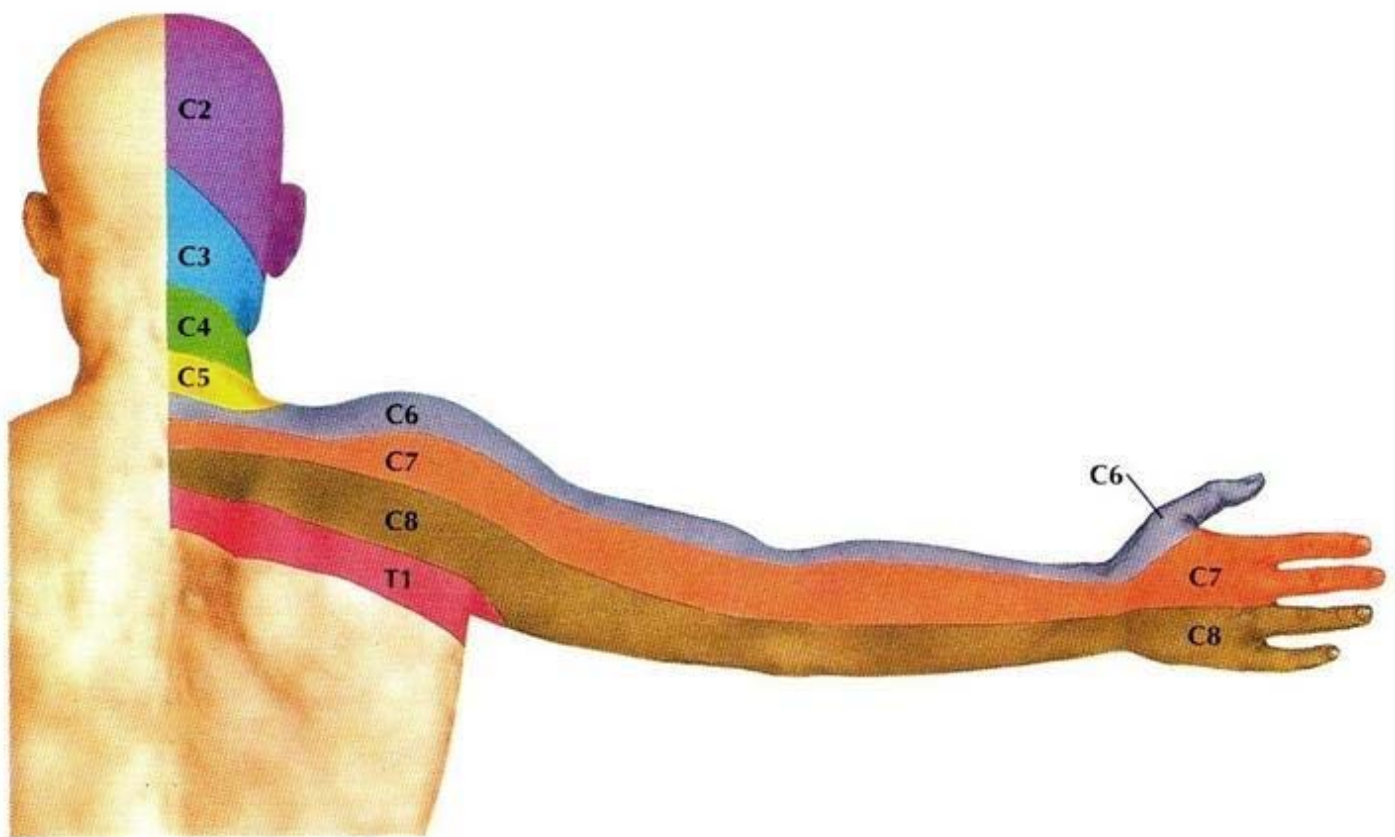
Dermatomes of Upper Limb: Anterior View

Note: Schematic demarcation of dermatomes (according to Keegan and Garrett) shown as distinct segments. There is actually considerable overlap between adjacent dermatomes. An alternative dermatome map is provided by Foerster (see references).



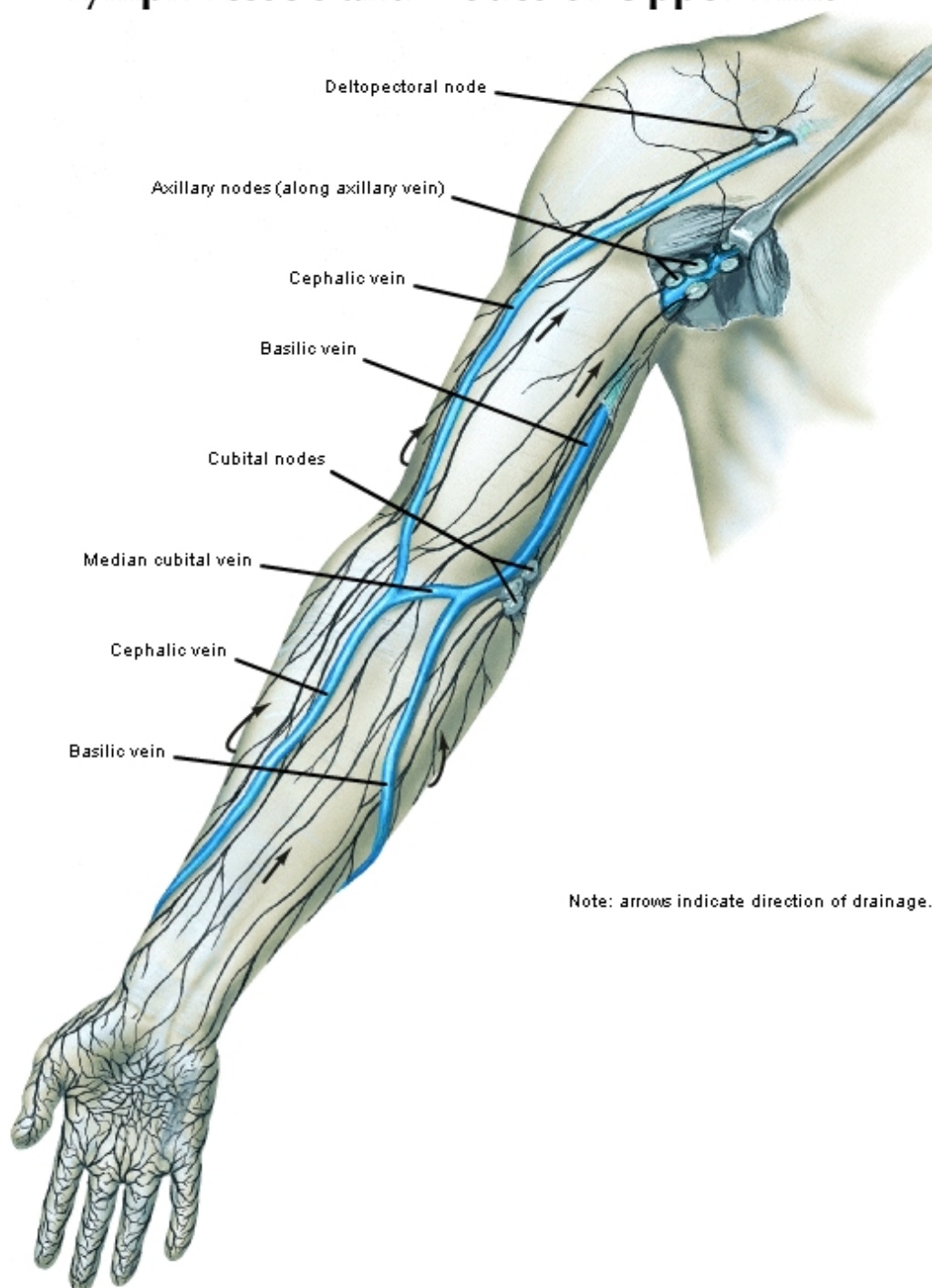
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Dermatomes of Upper Limb: Posterior View



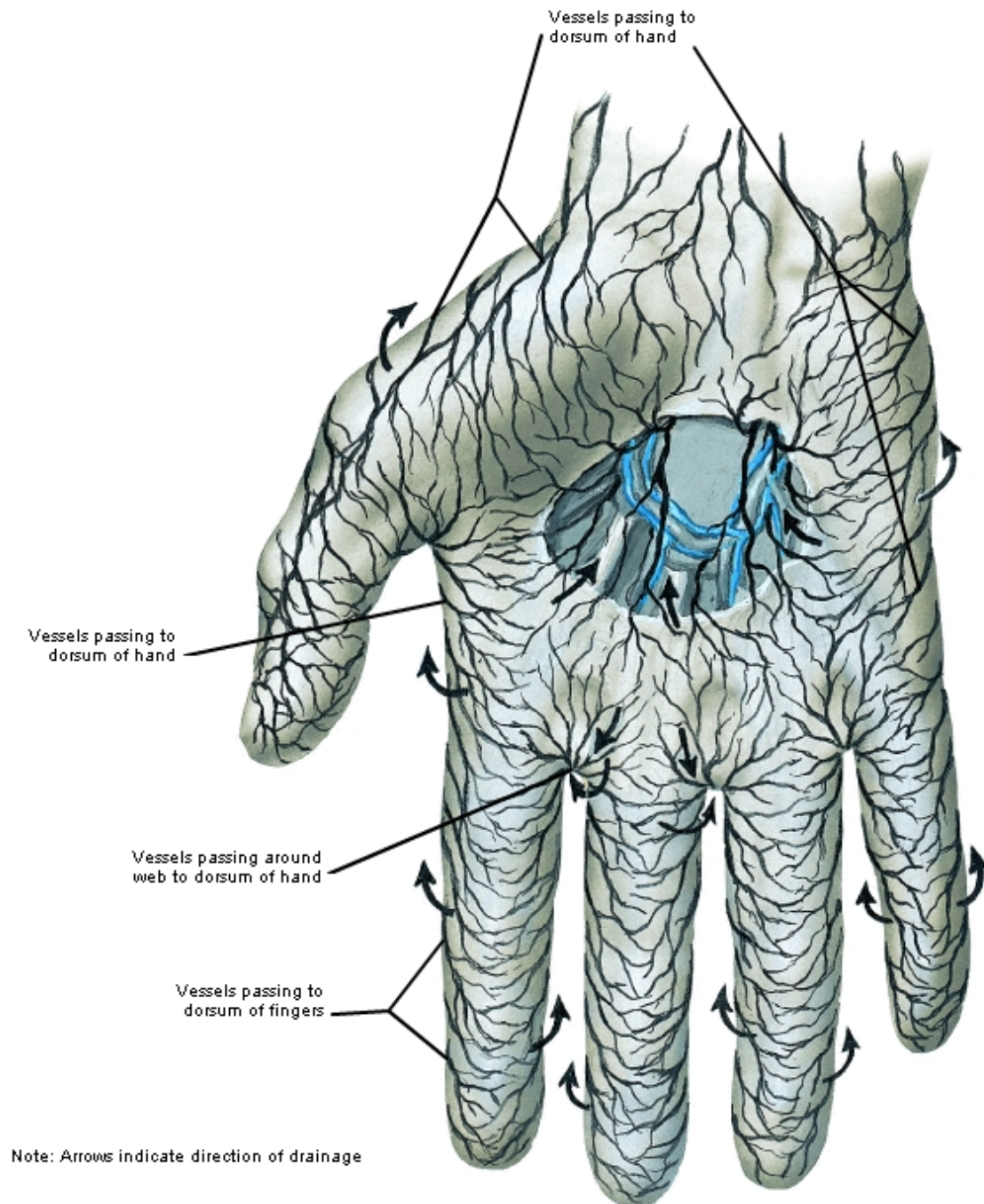
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Lymph Vessels and Nodes of Upper Limb



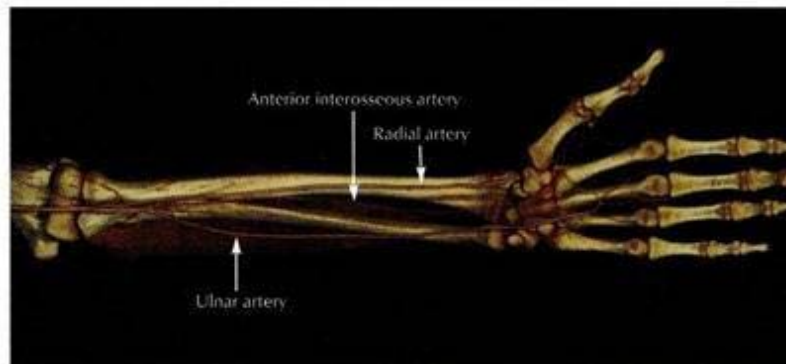
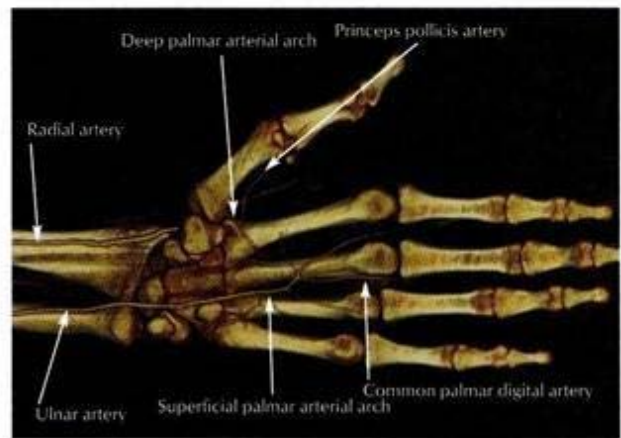
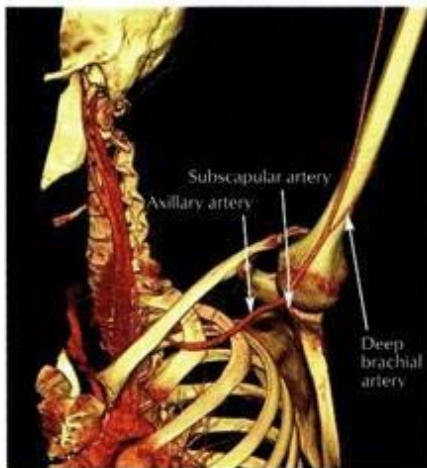
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Lymph Vessels of Hand



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CT Angiograms of Arteries of the Upper Limb

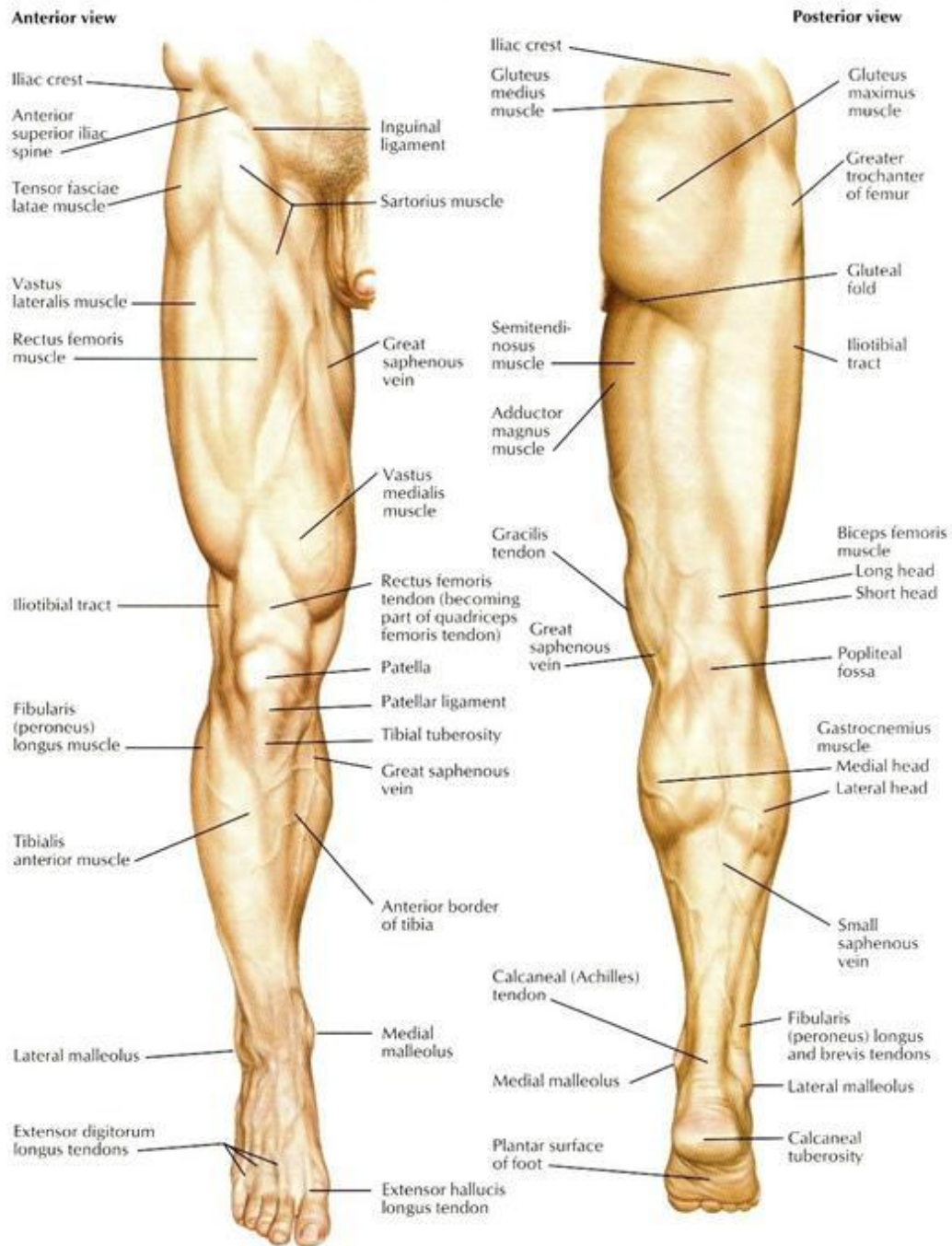


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Section 7 Lower Limb

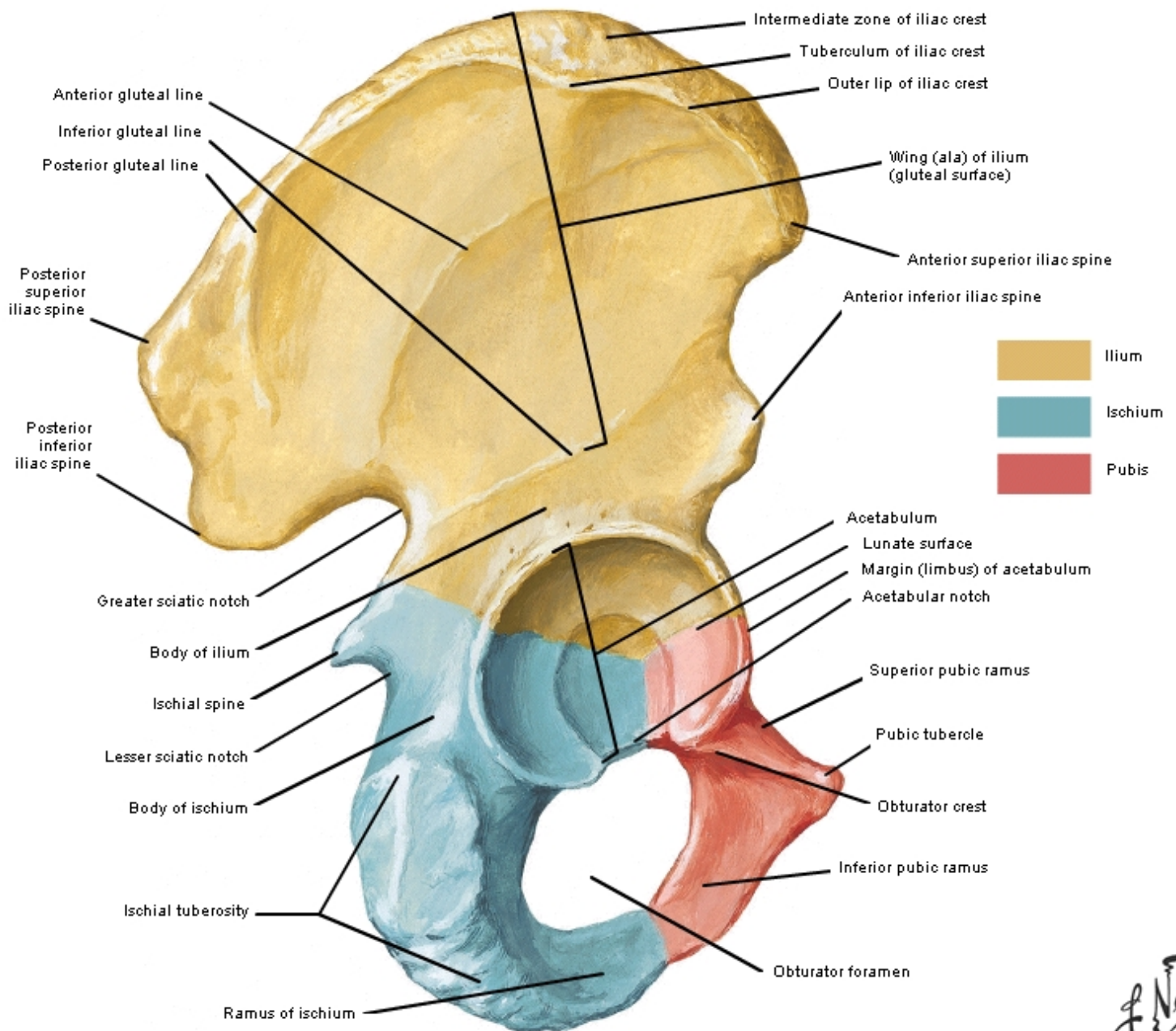
LOWER LIMB

Lower Limb



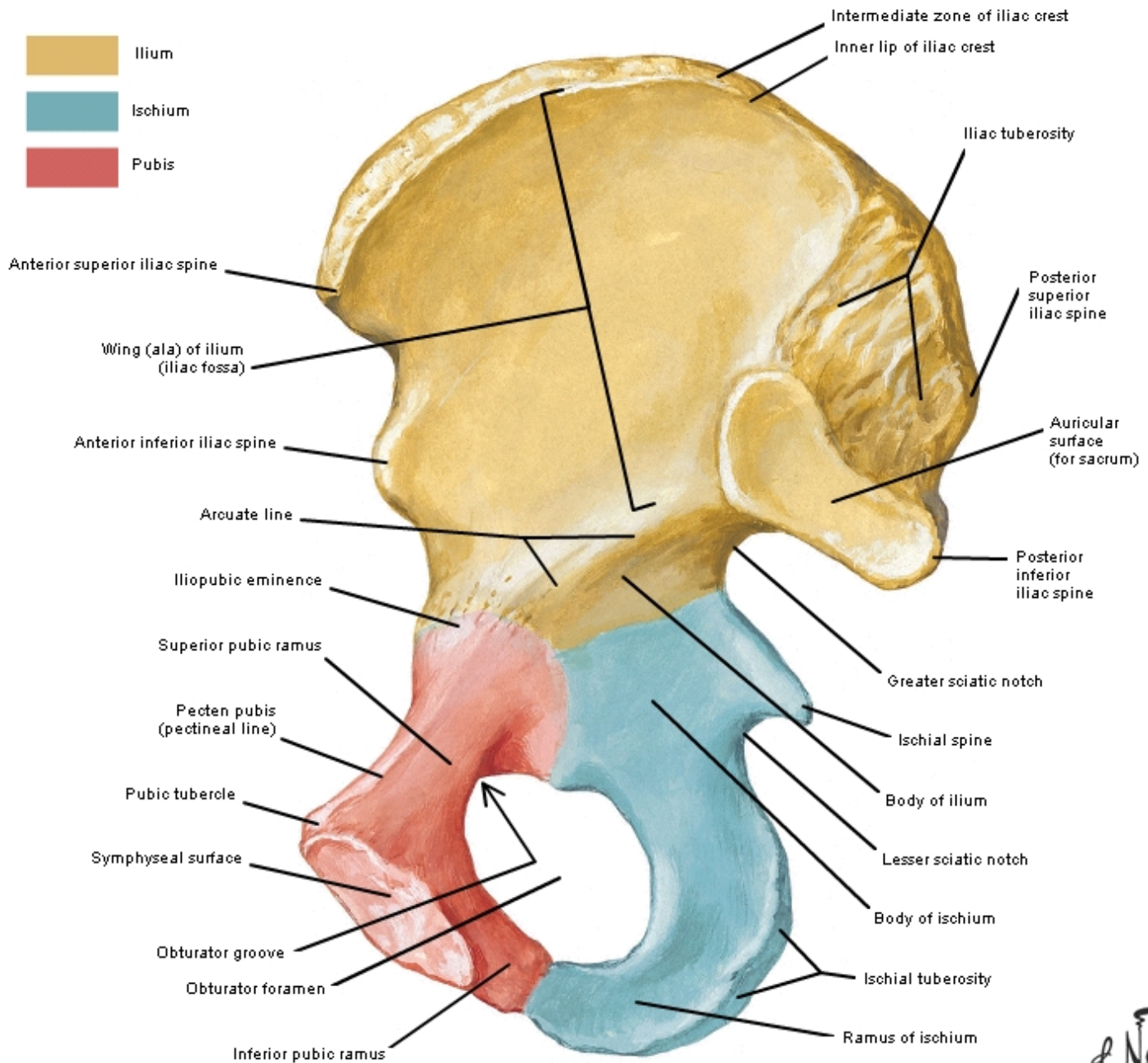
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Hip (Coxal) Bone Lateral View



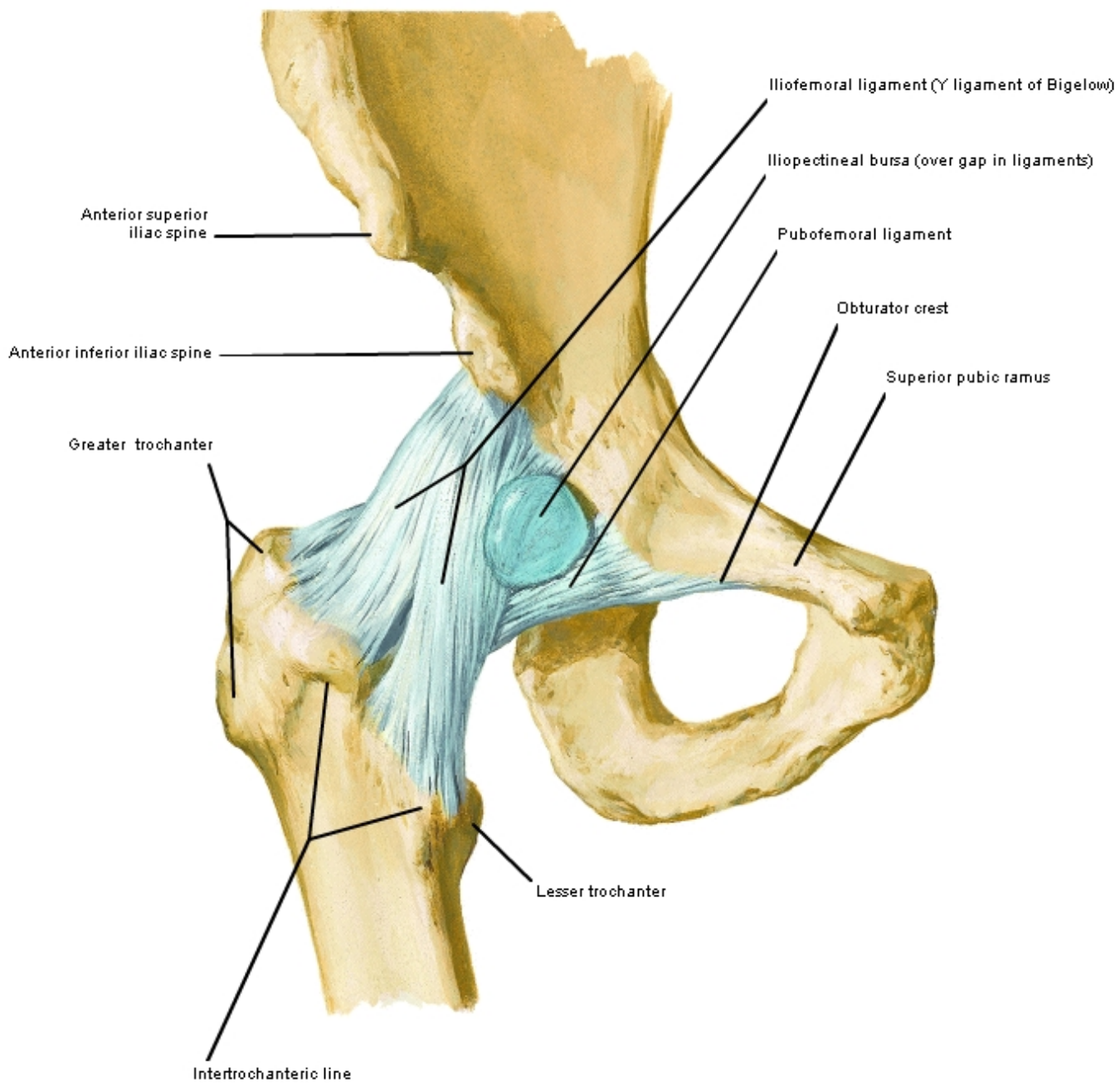
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Hip (Coxal) Bone Medial View



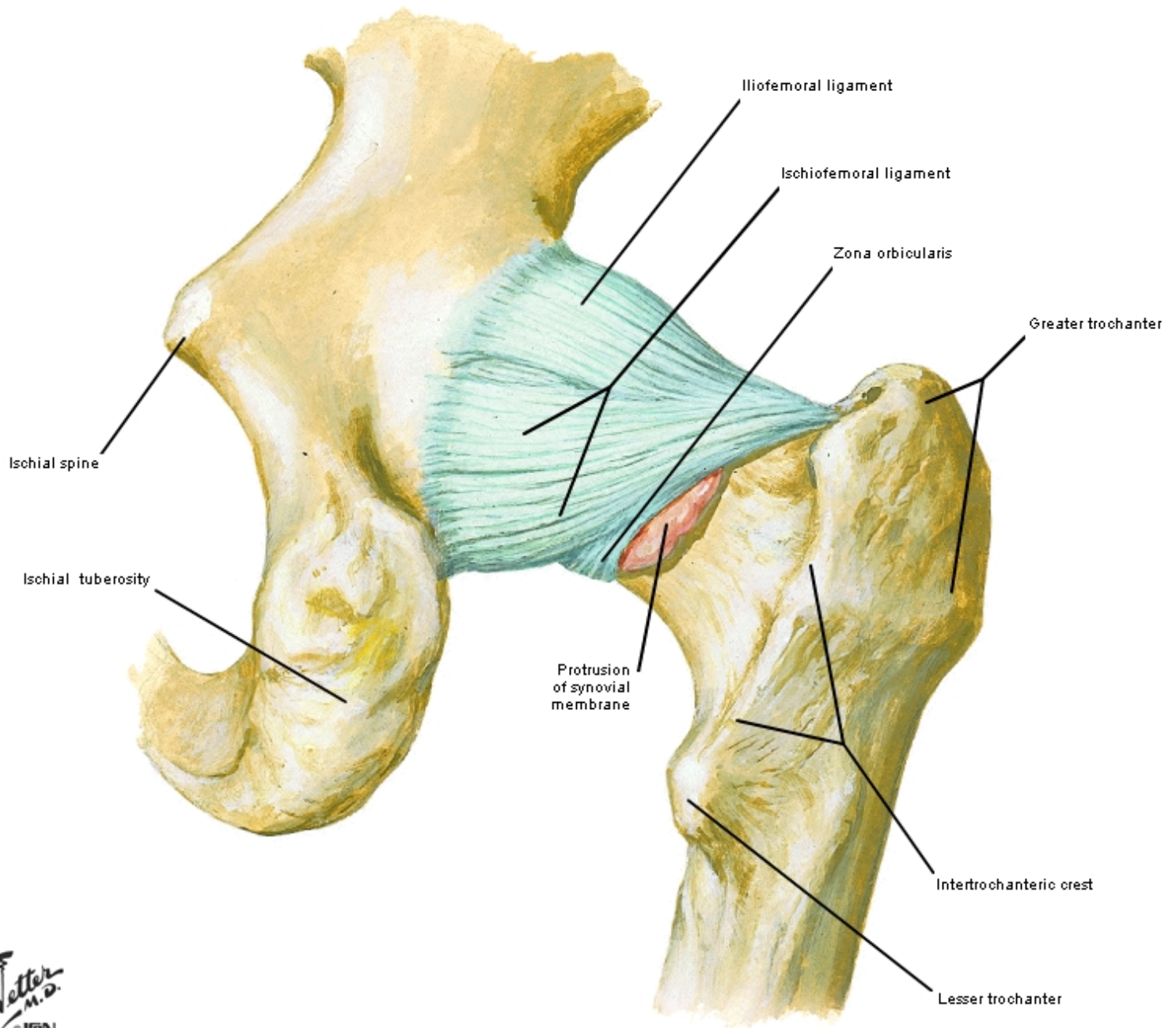
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Hip Joint Anterior View



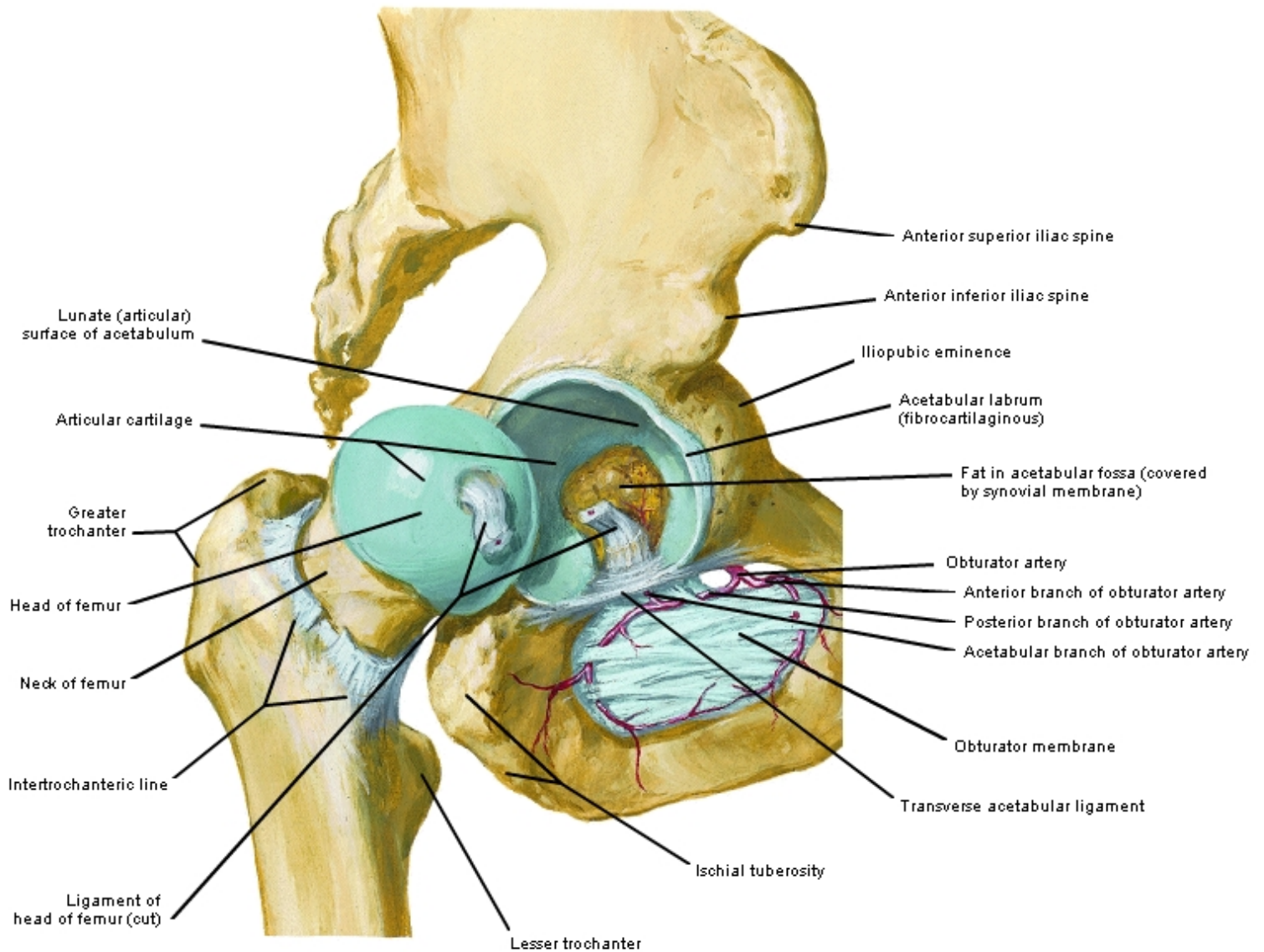
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Hip Joint Posterior View



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Hip Joint (Opened) Lateral View



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Hip Joint: Anteroposterior Radiograph

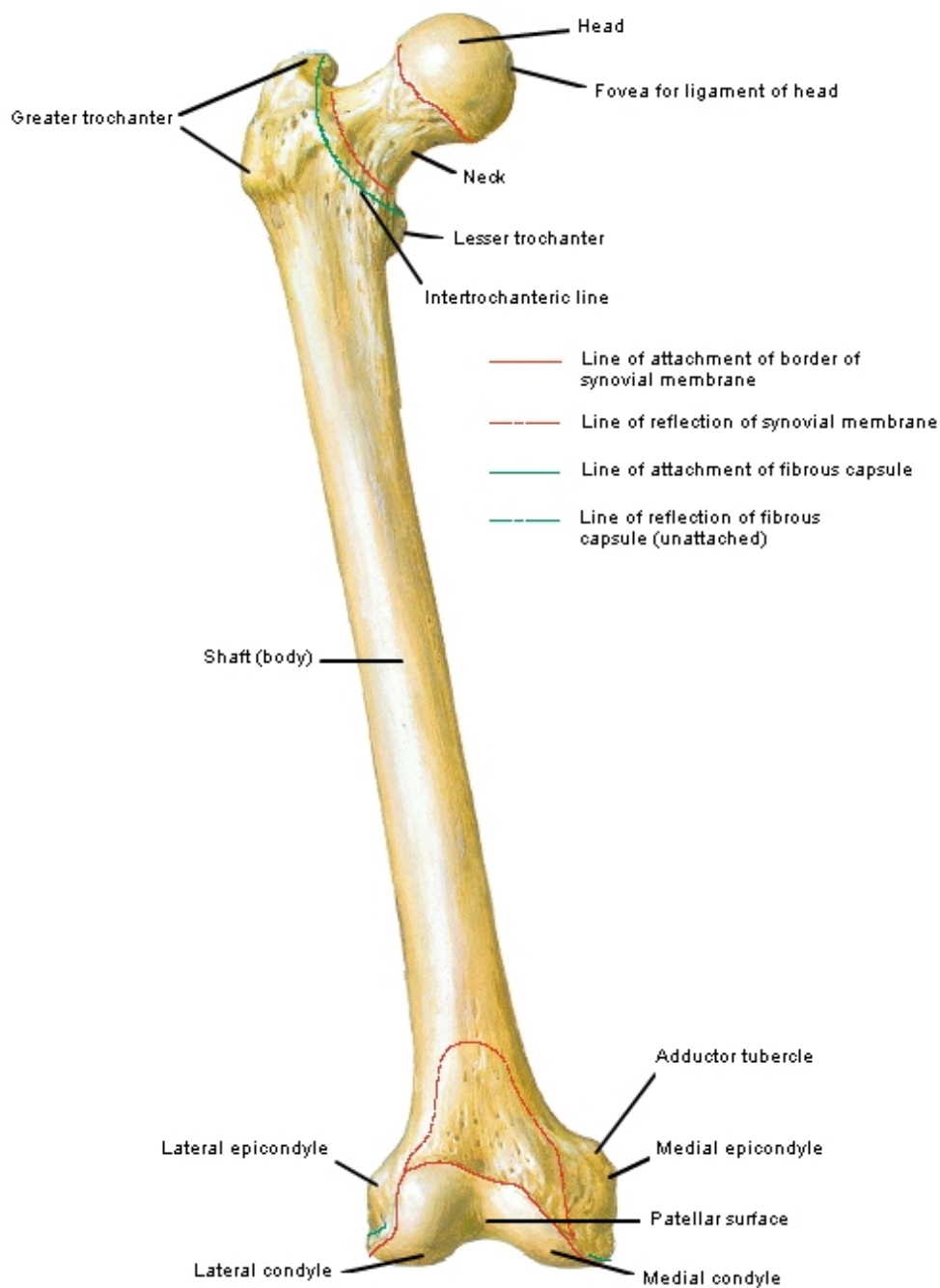


- A Acetabulum
- F Femur
- G Greater trochanter
- H Head of femur
- I Ischium
- IC Intertrochanteric crest
- IL Ilium
- IT Ischial tuberosity
- L Lesser trochanter
- N Neck
- O Obturator foramen
- P Pubis (superior ramus)

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LOWER LIMB

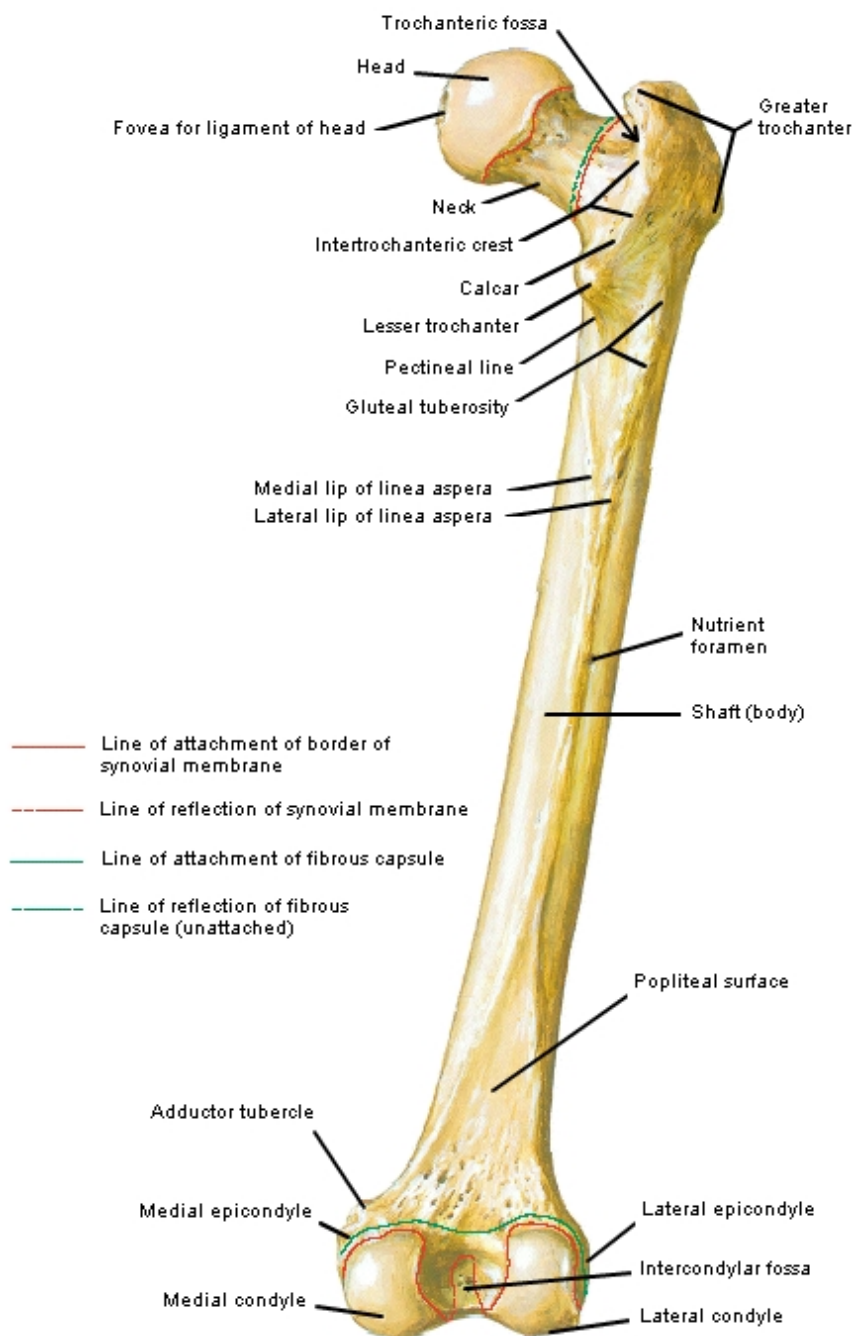
Femur Anterior View



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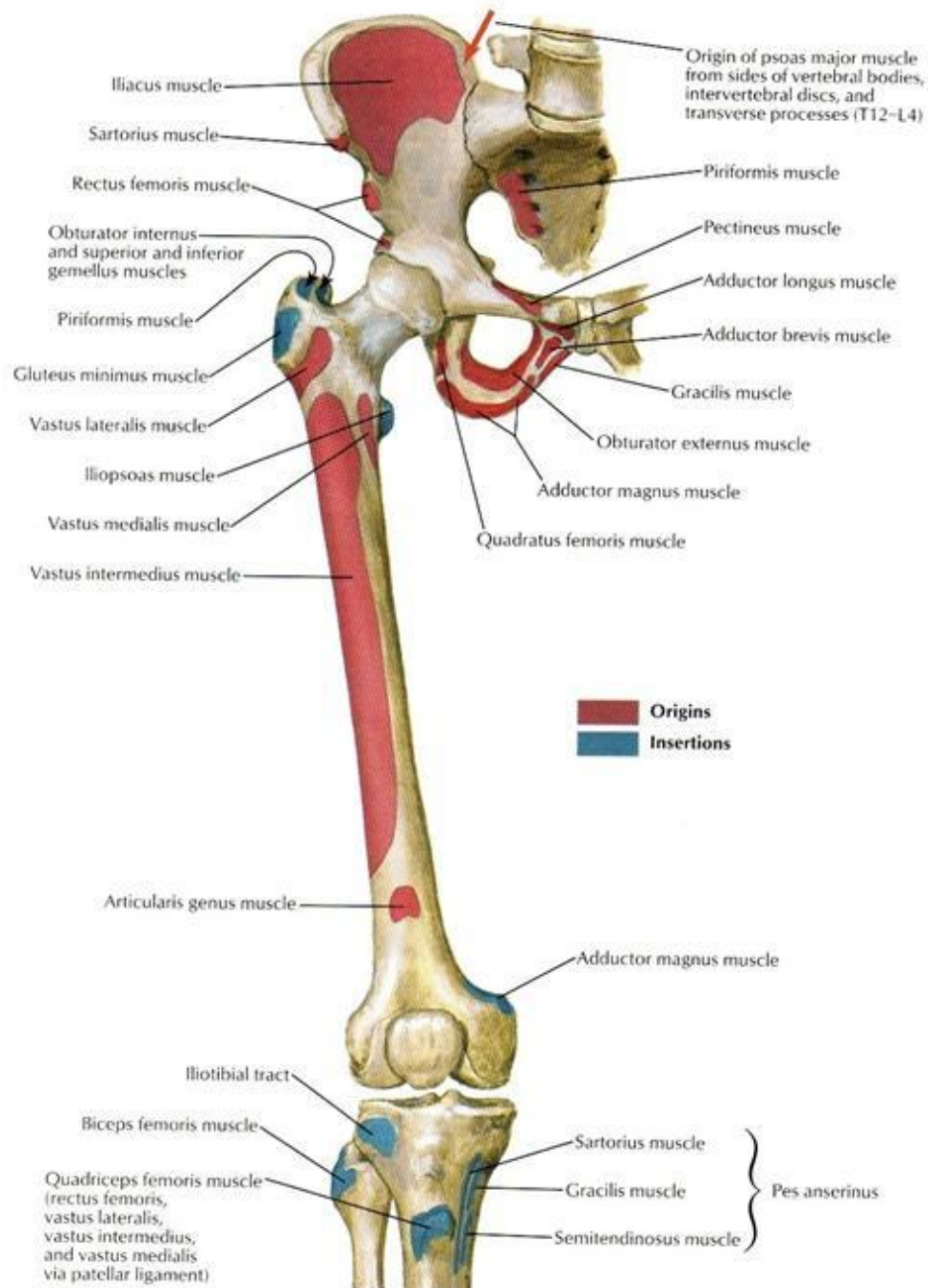
LOWER LIMB

Femur Posterior View



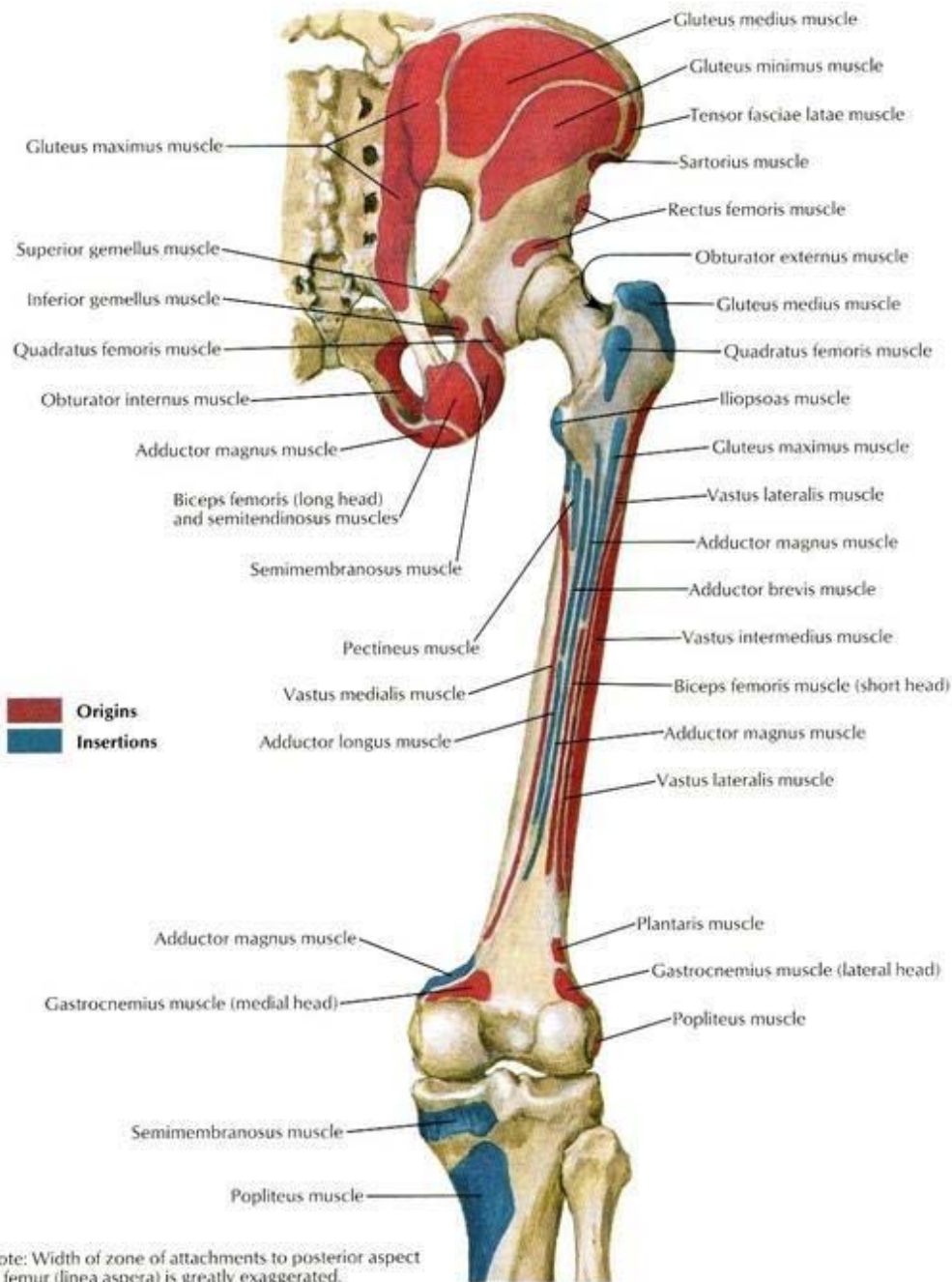
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Bony Attachments of Muscles of Hip and Thigh: Anterior View



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© IGV

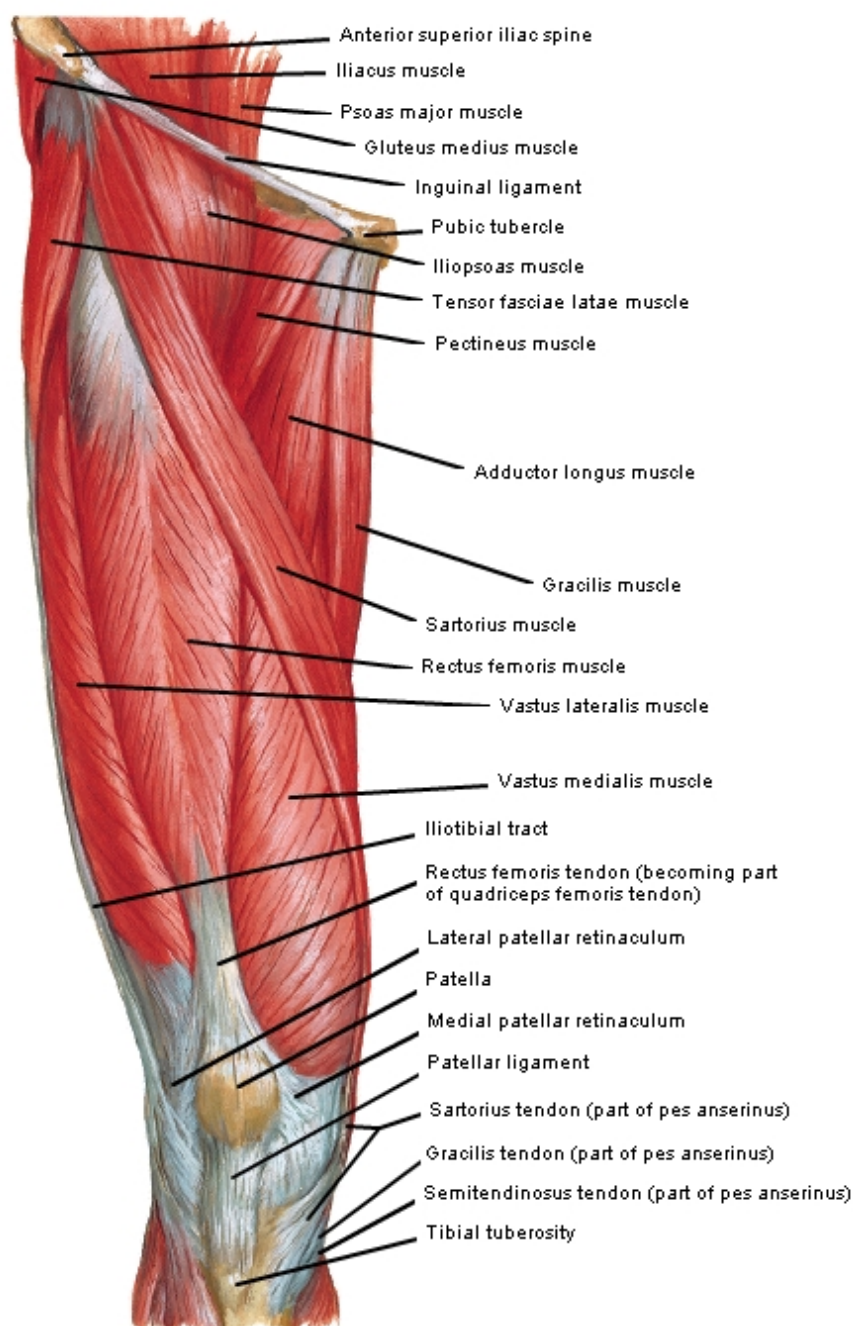
Bony Attachments of Muscles of Hip and Thigh: Posterior View



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LOWER LIMB

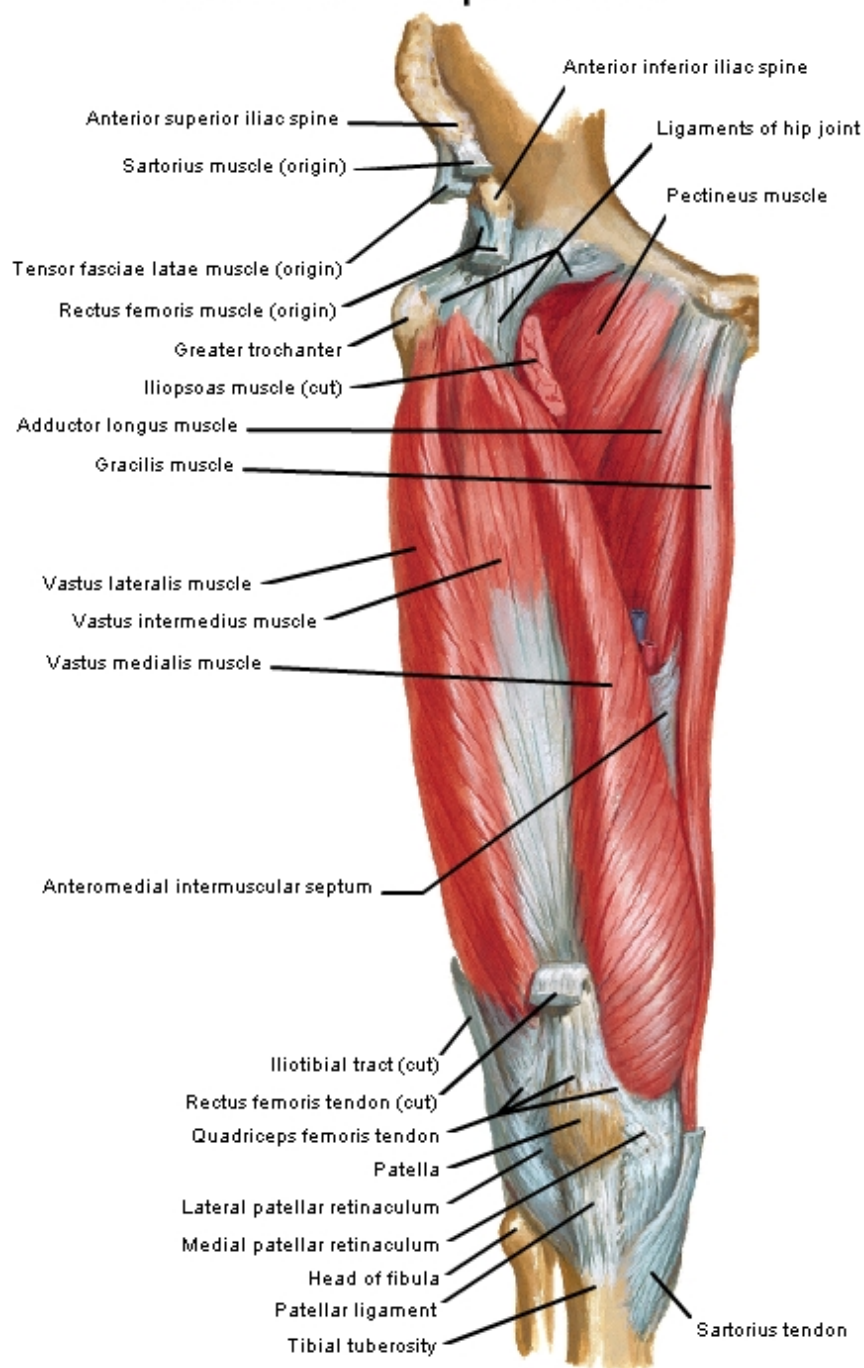
Muscles of Thigh Anterior View - Superficial Dissection



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LOWER LIMB

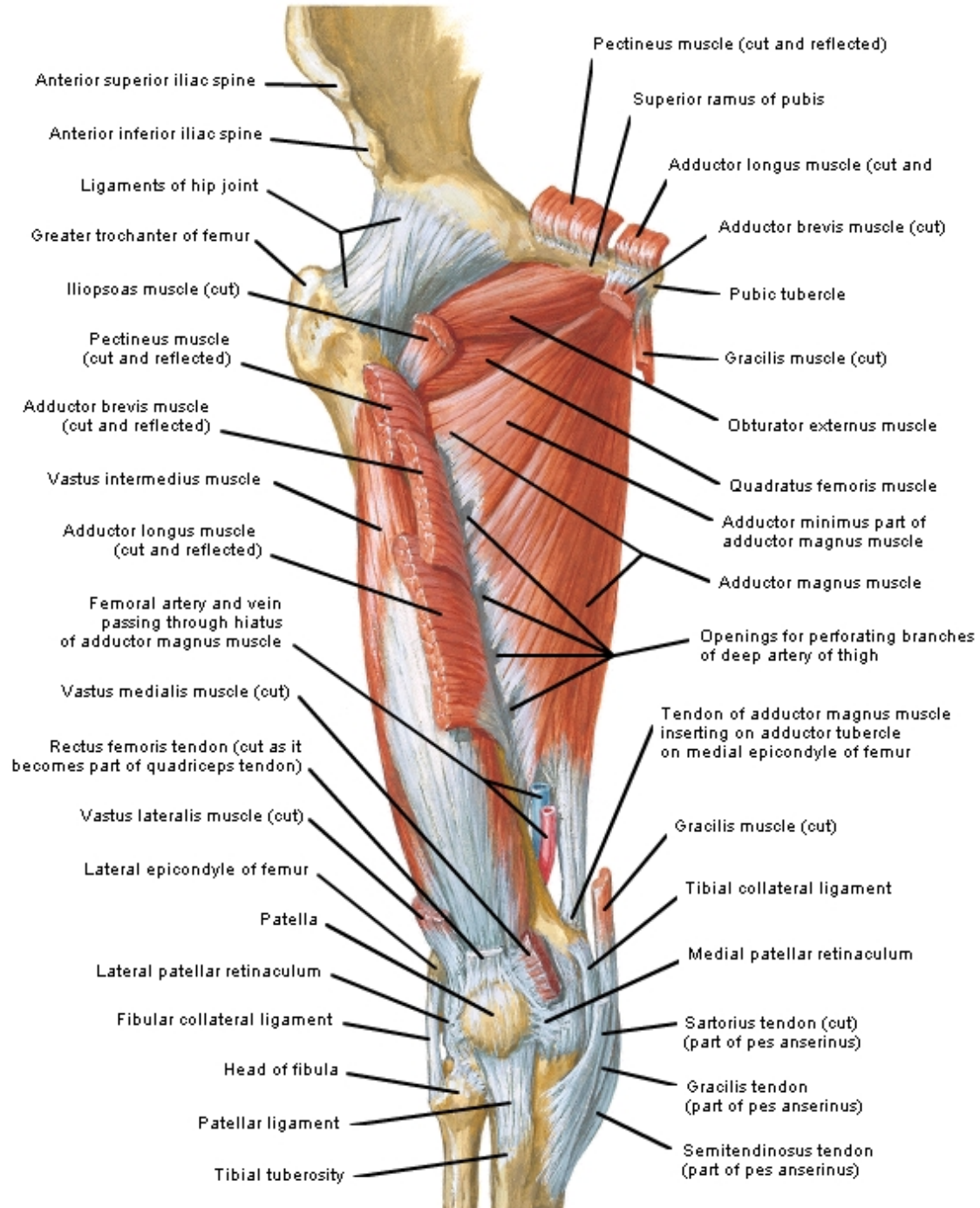
Muscles of Thigh Anterior View - Deeper Dissection



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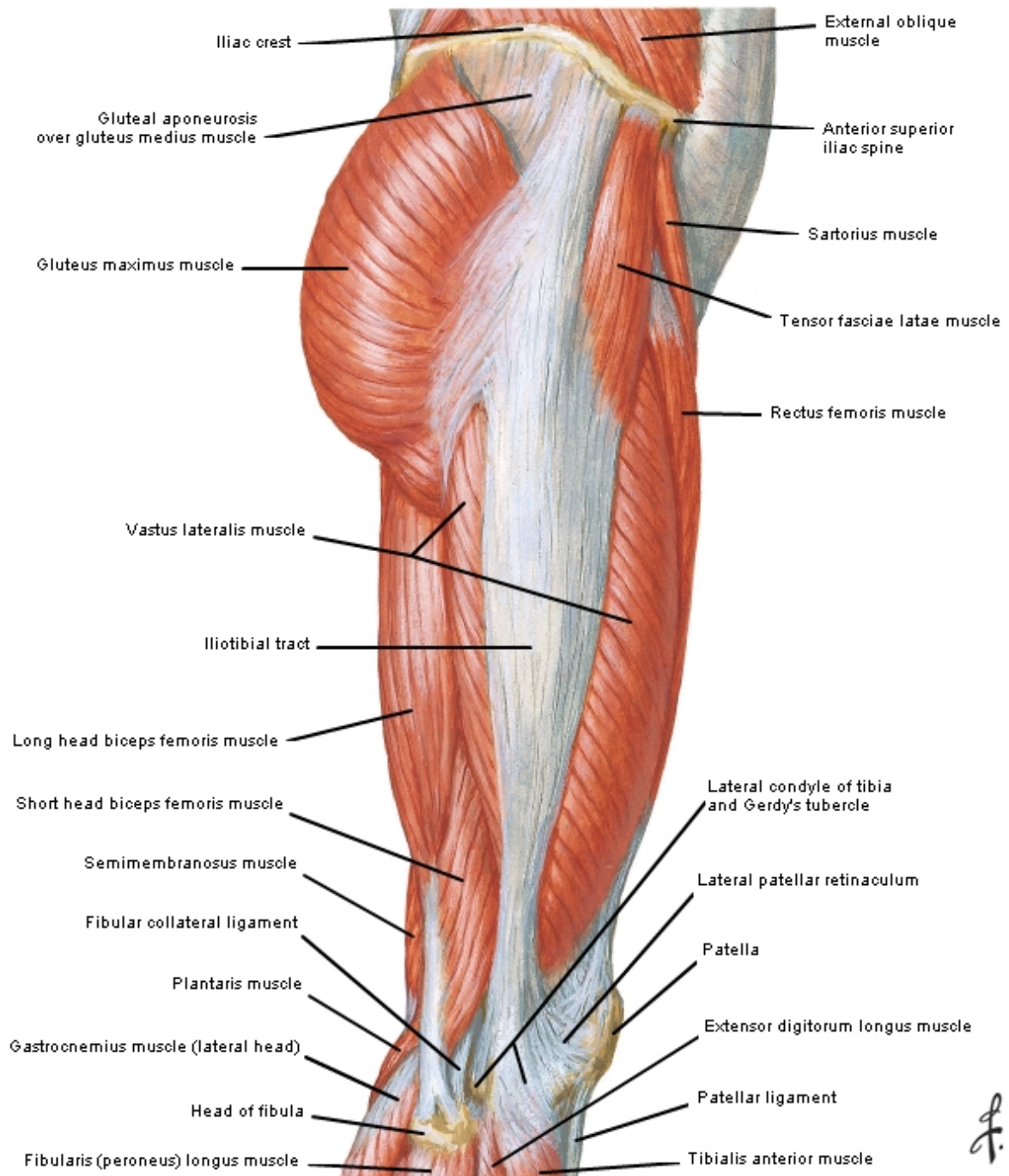
LOWER LIMB

Muscles of Thigh: Anterior View - Deepest Dissection



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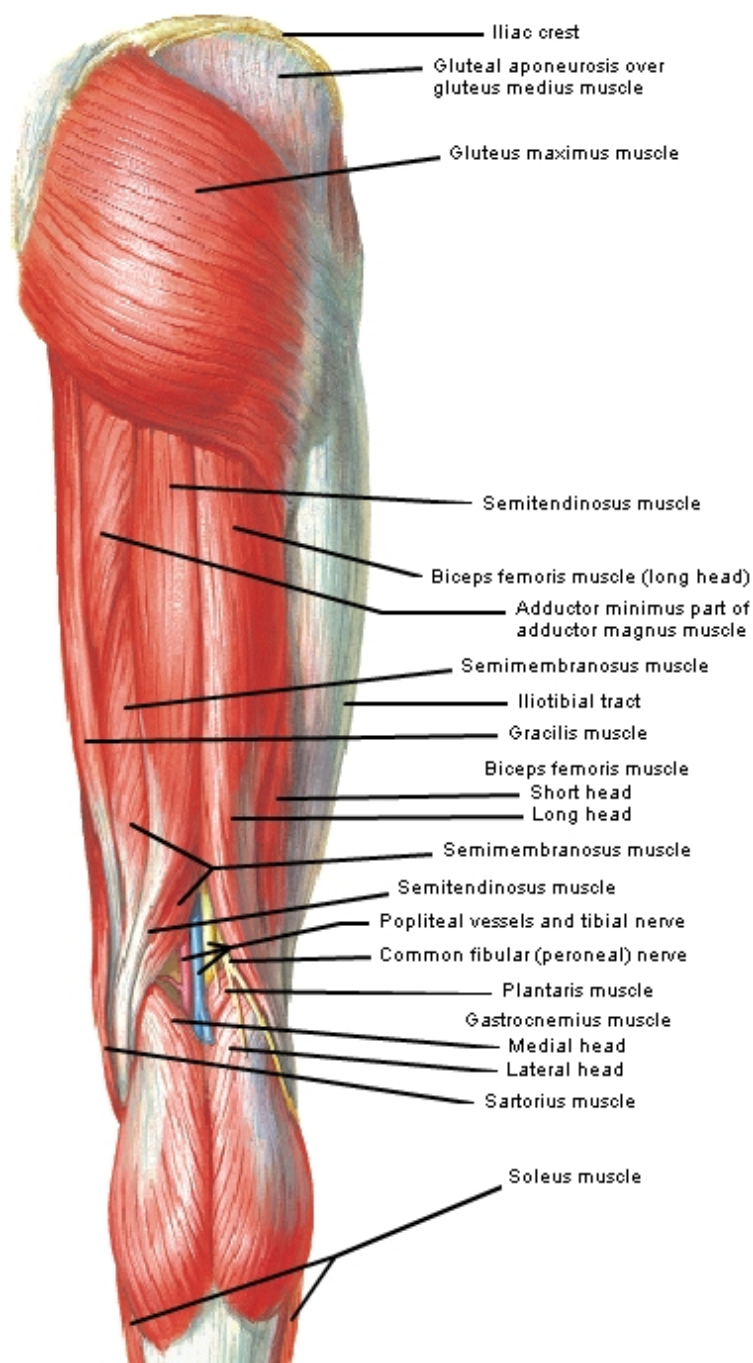
Muscles of Hip and Thigh: Lateral View



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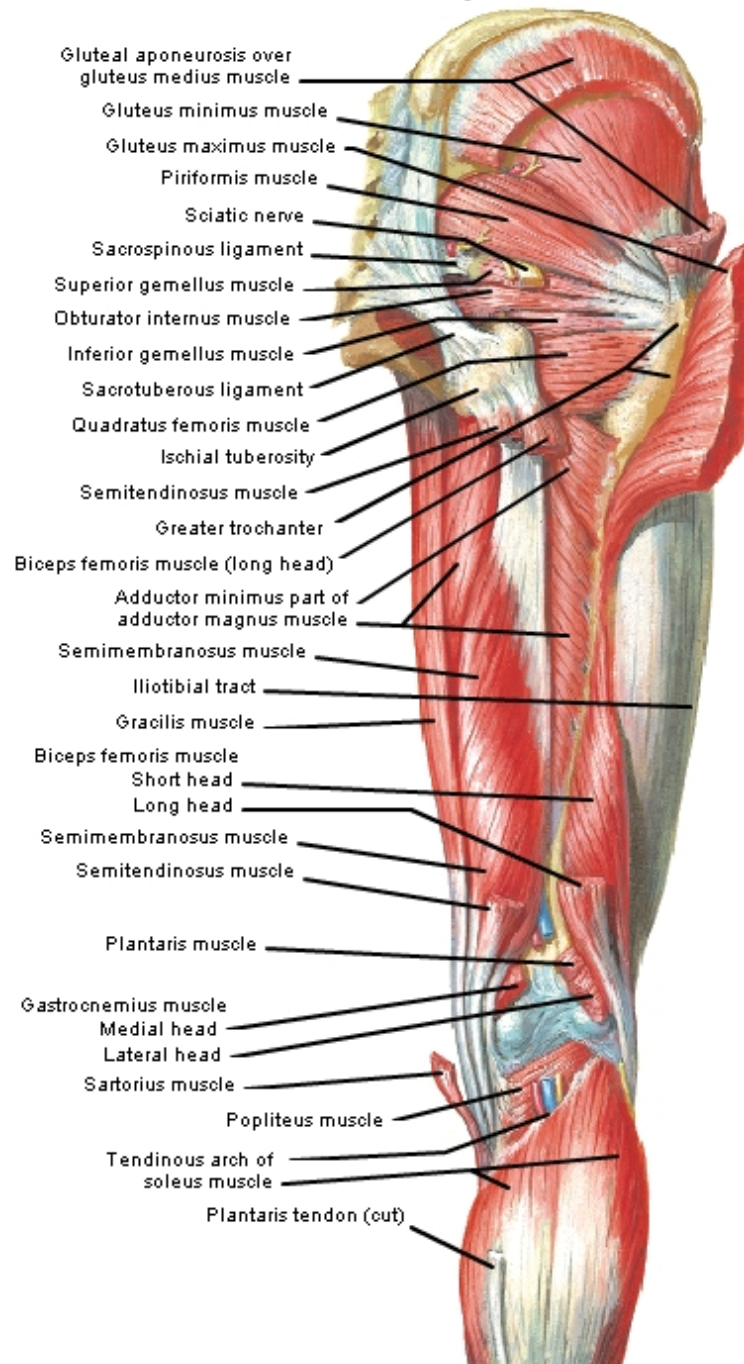
Muscles of Hip and Thigh

Posterior View - Superficial Dissection



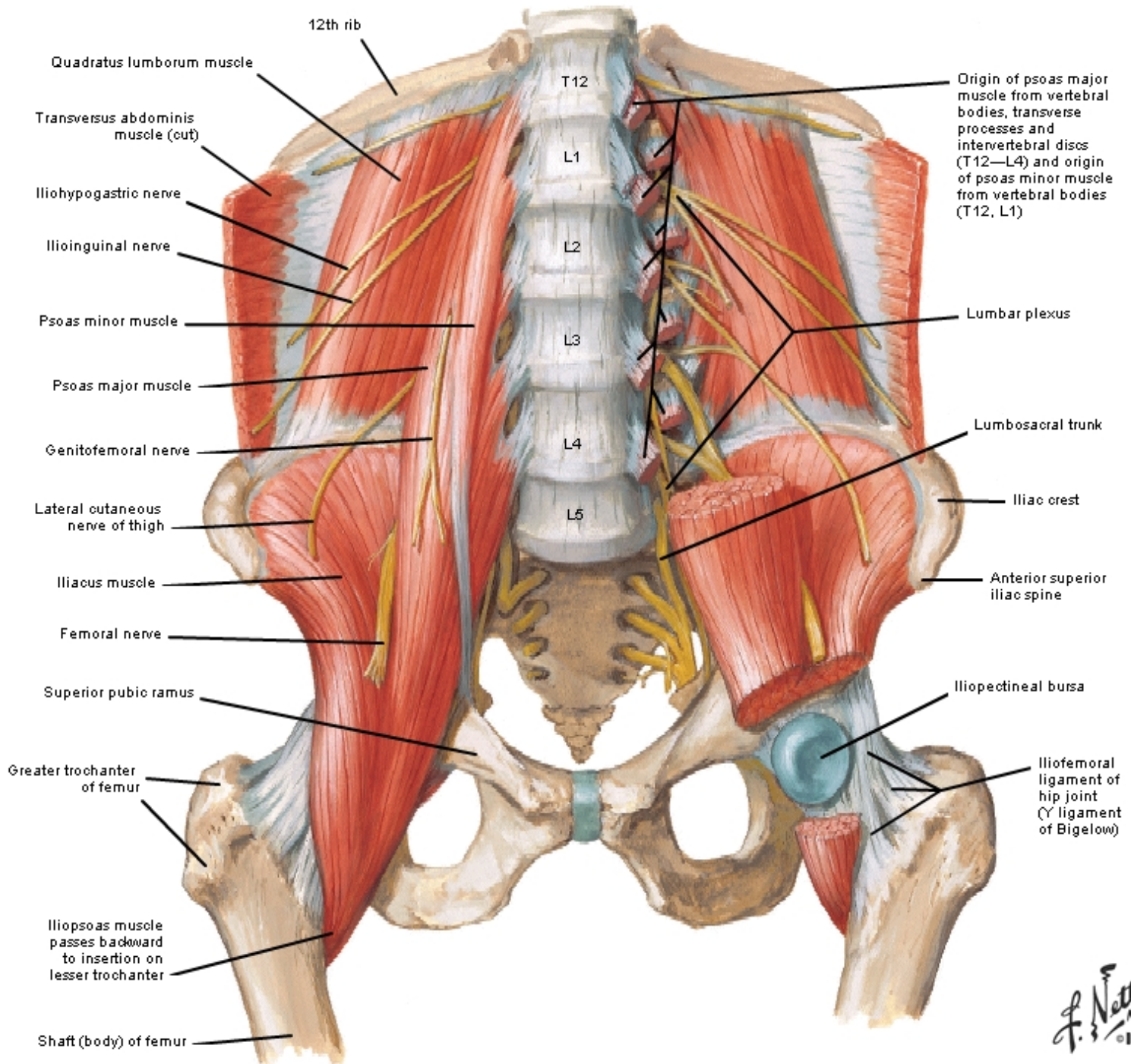
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Muscles of Hip and Thigh Posterior View - Deeper Dissection



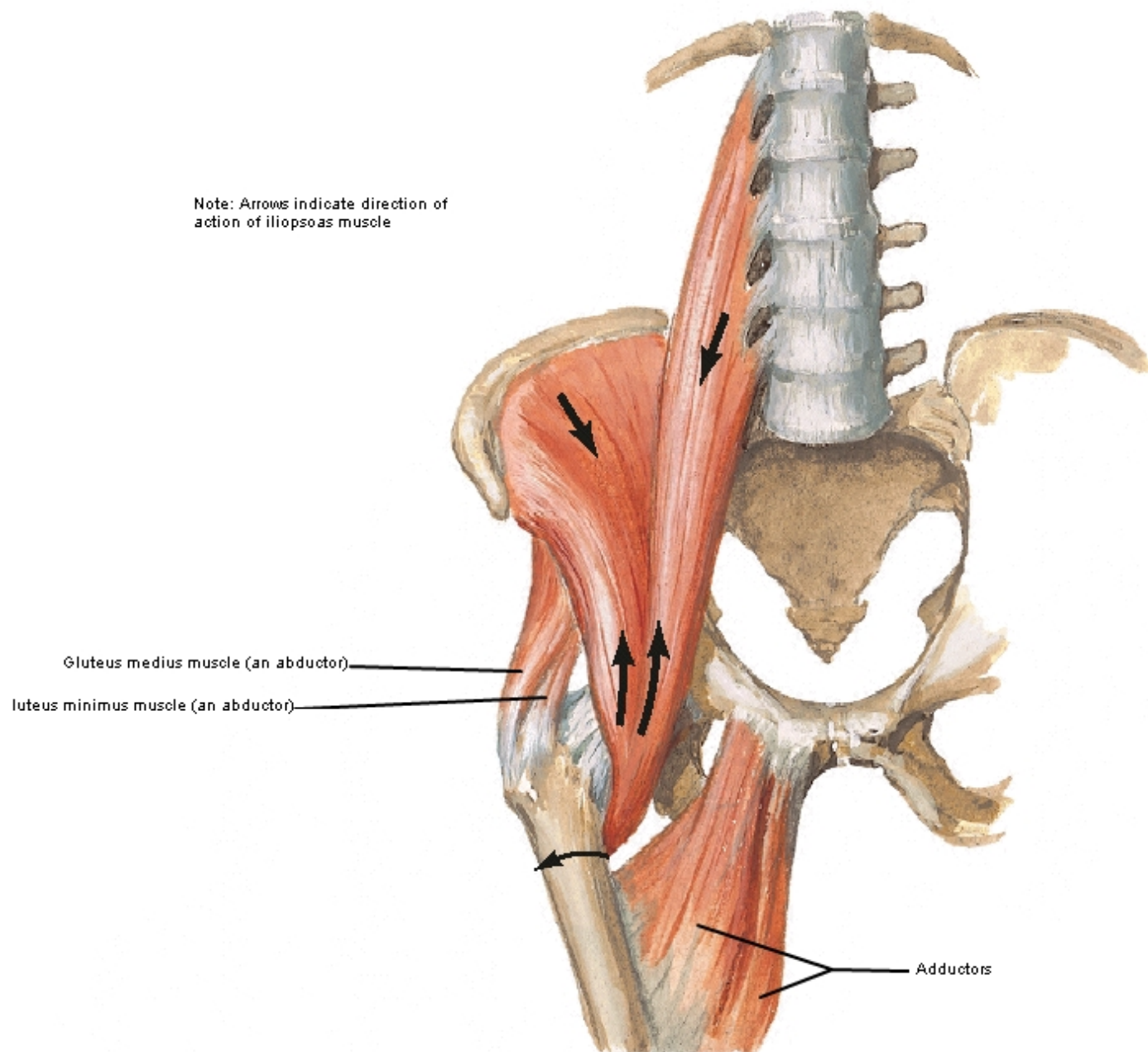
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Psoas and Iliacus Muscles

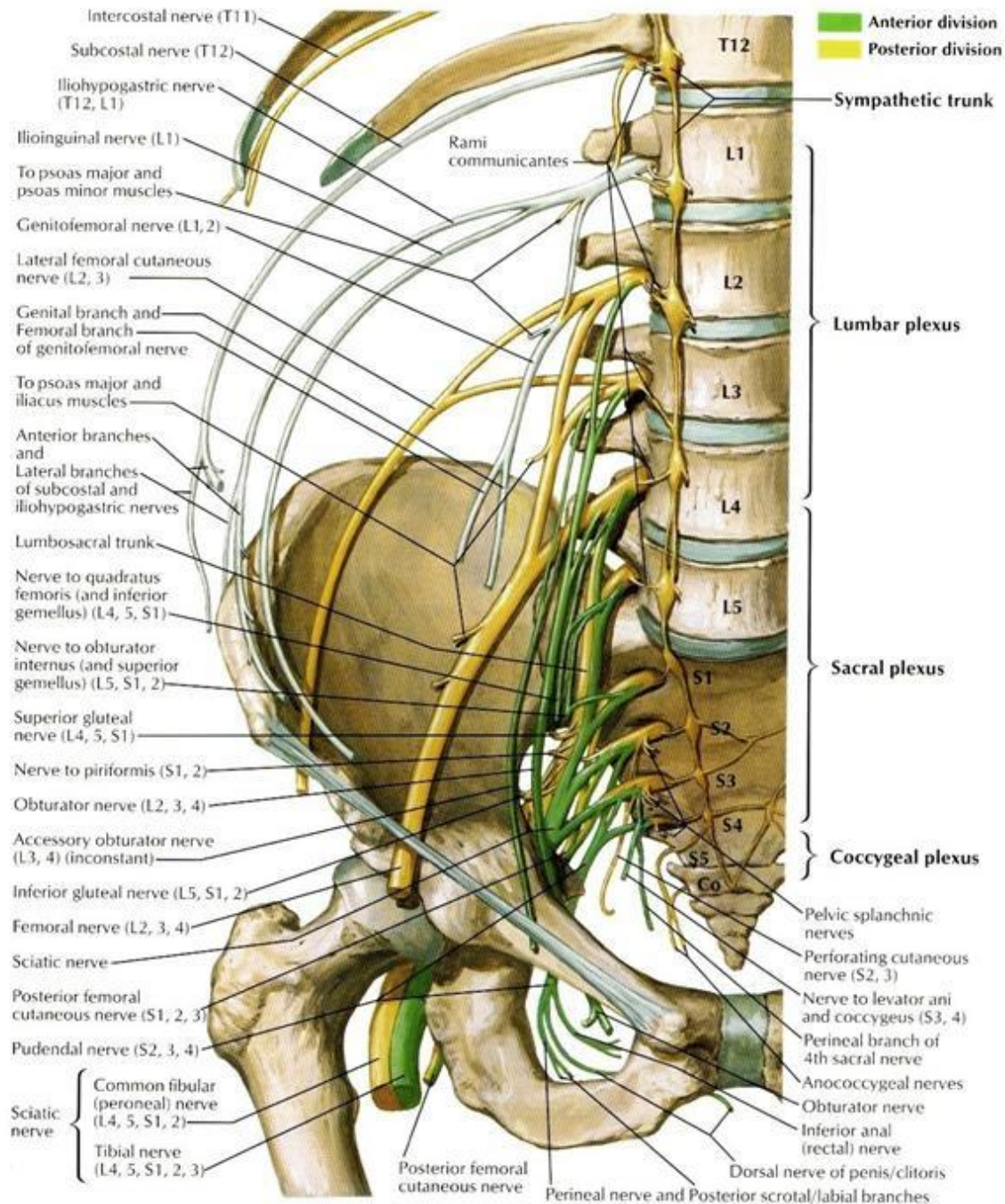


Psoas and Iliacus Muscles Action

Note: Arrows indicate direction of action of iliopsoas muscle

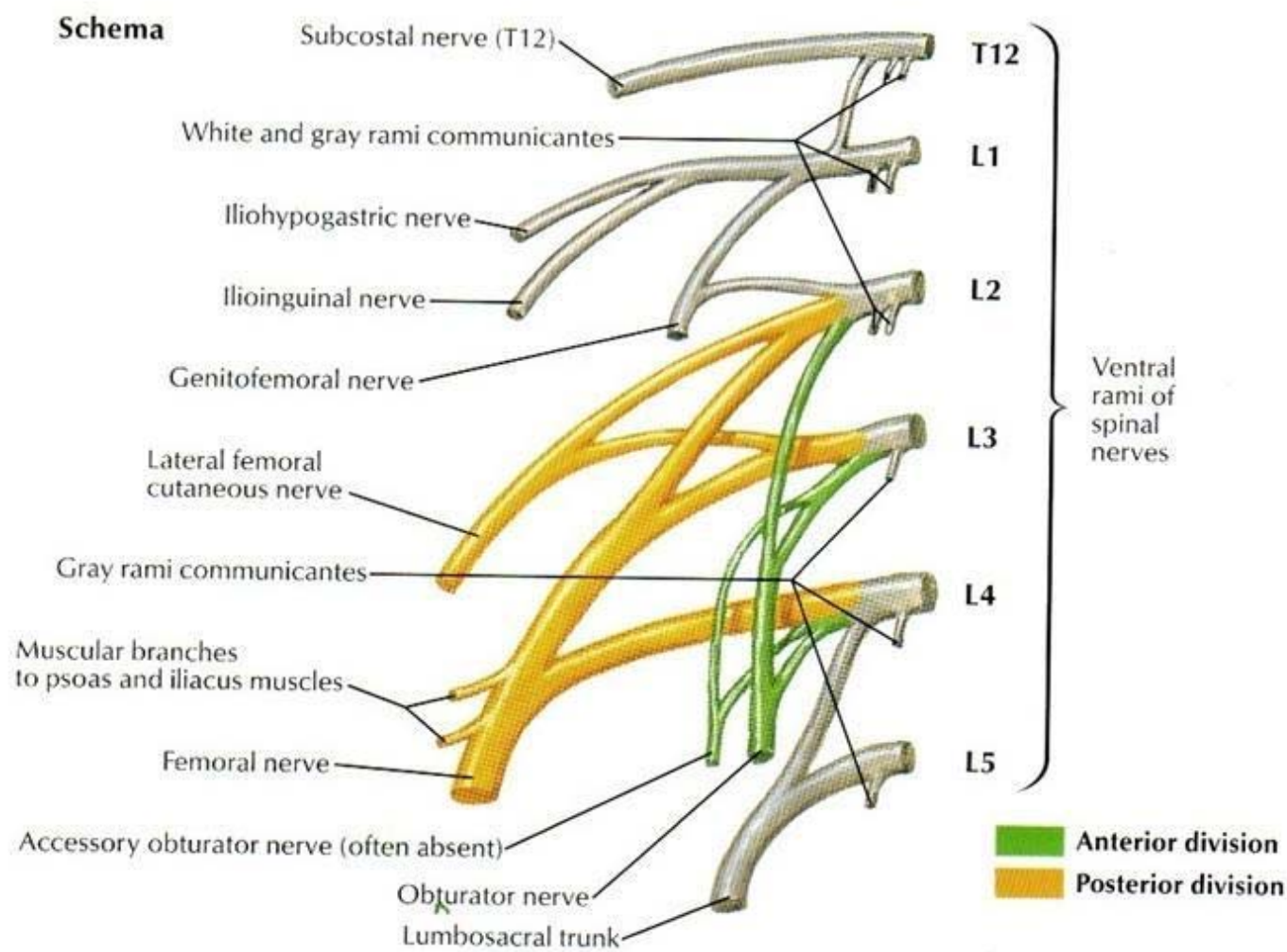


Lumbosacral and Coccygeal Plexuses



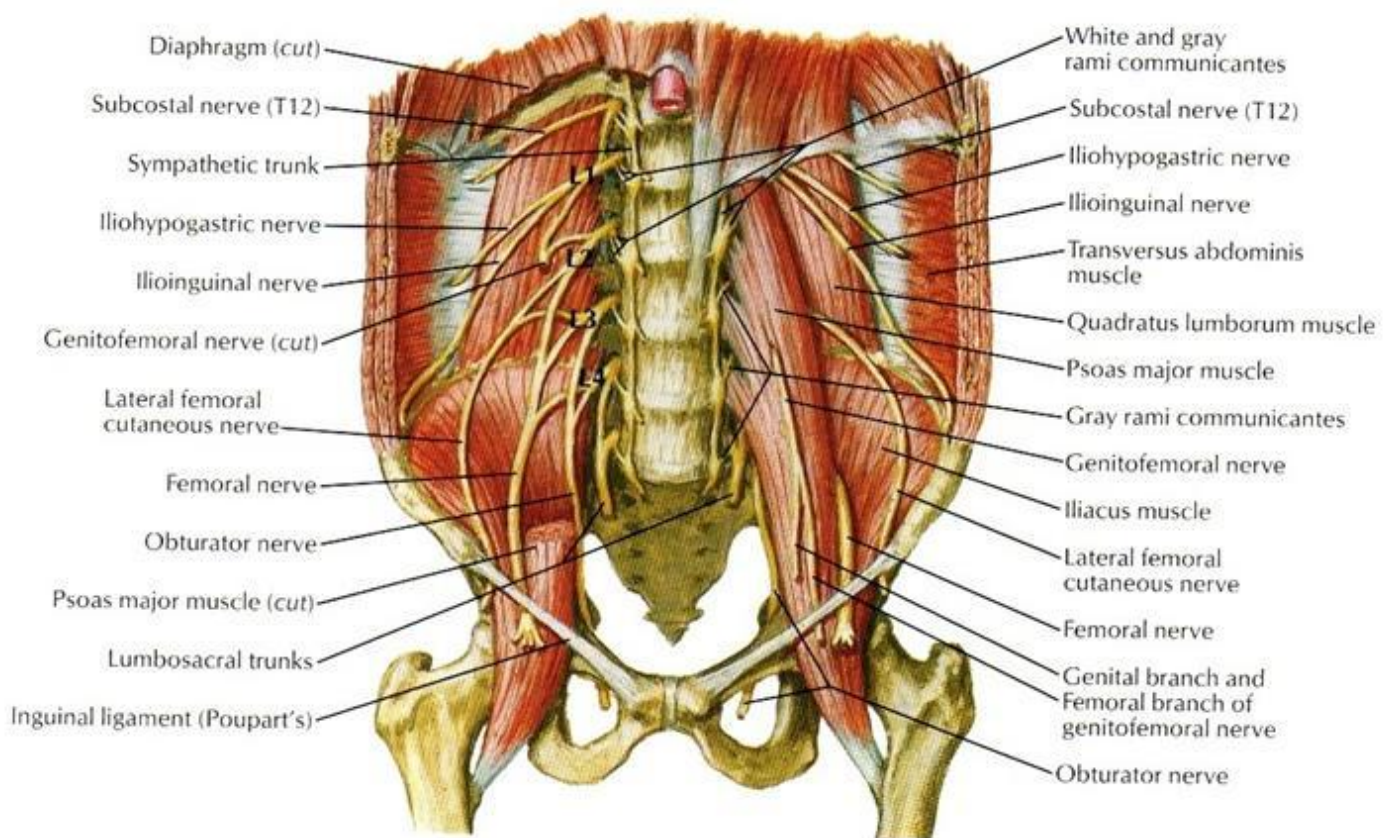
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Lumbar Plexus: Schema



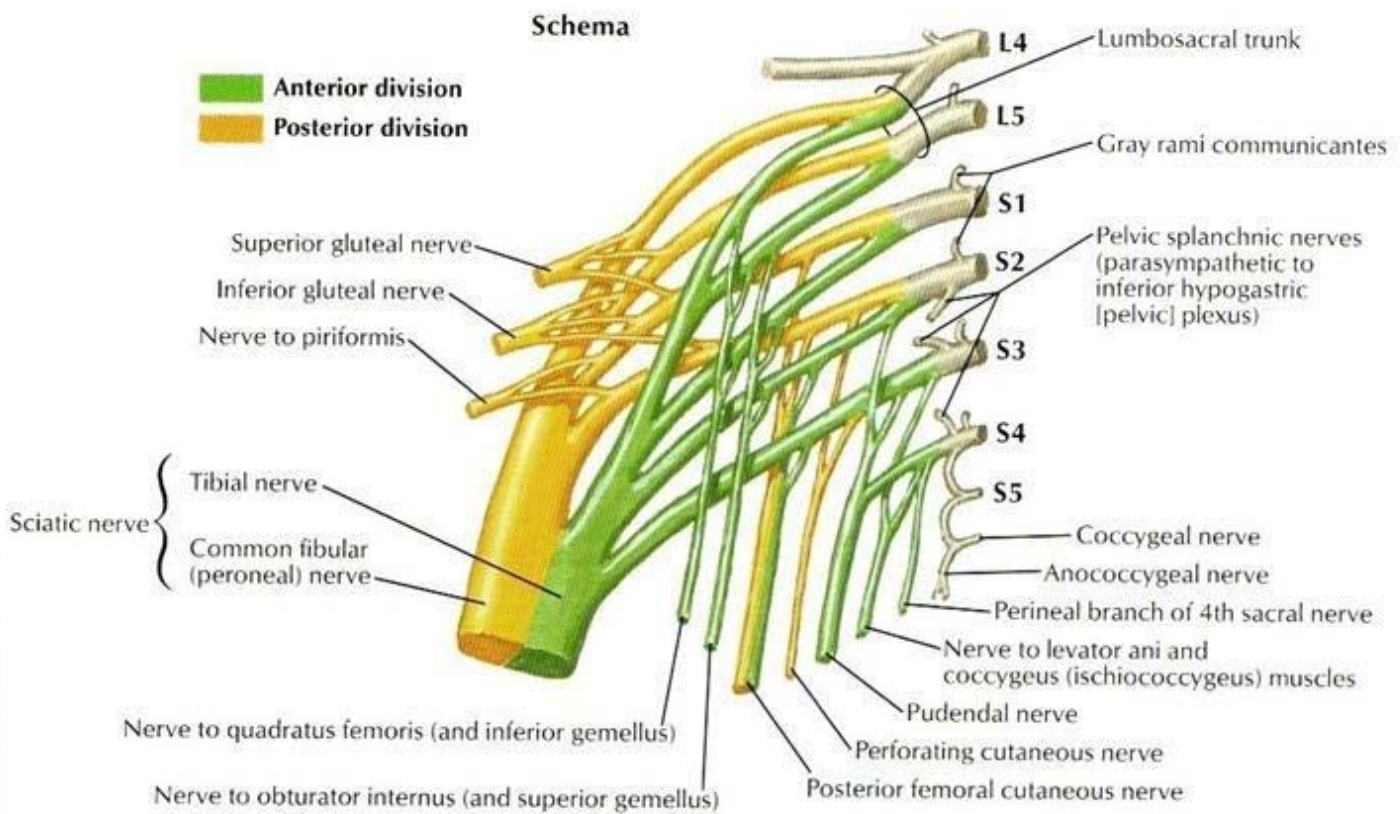
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Lumbar Plexus



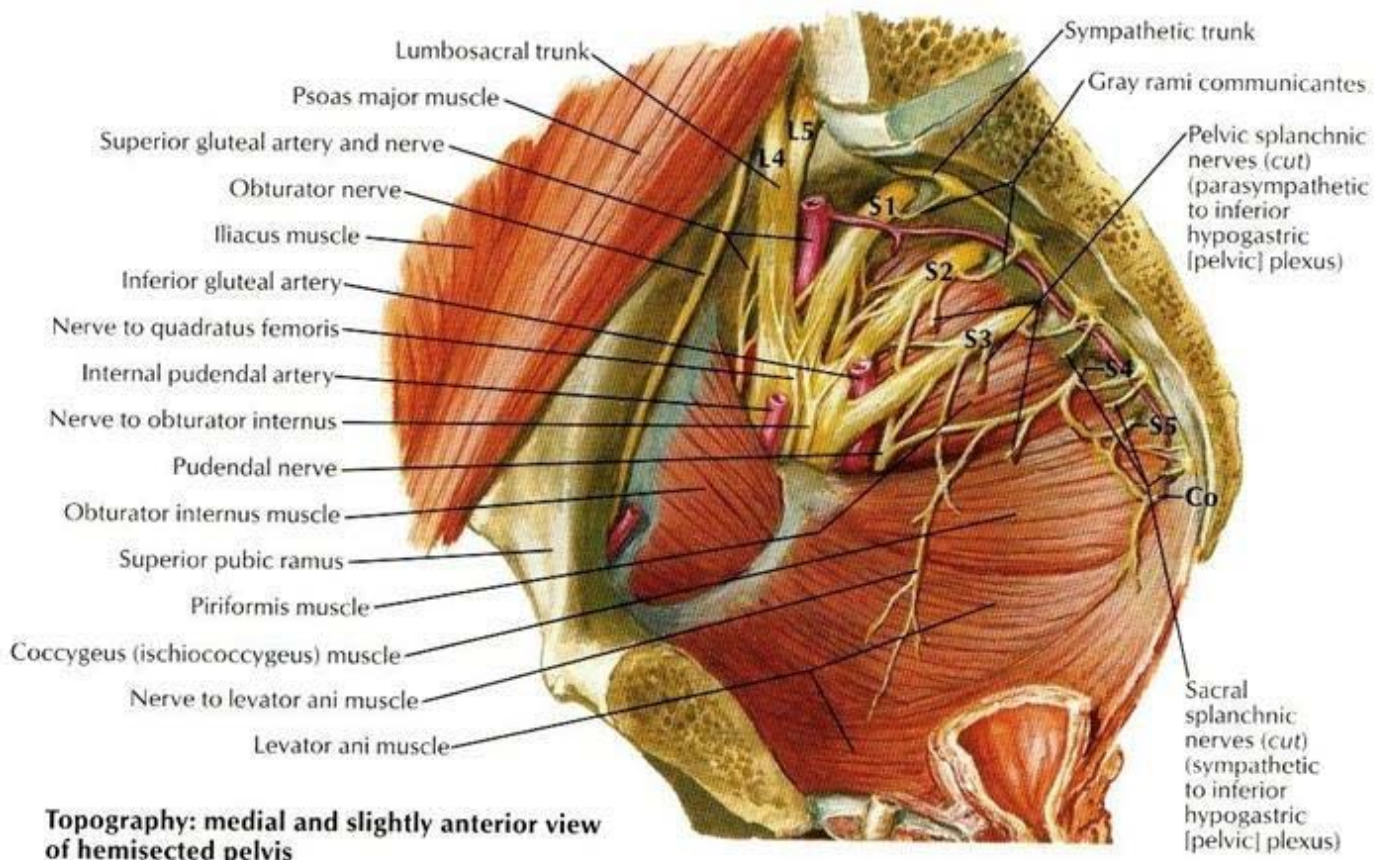
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Sacral and Coccygeal Plexuses: Schema



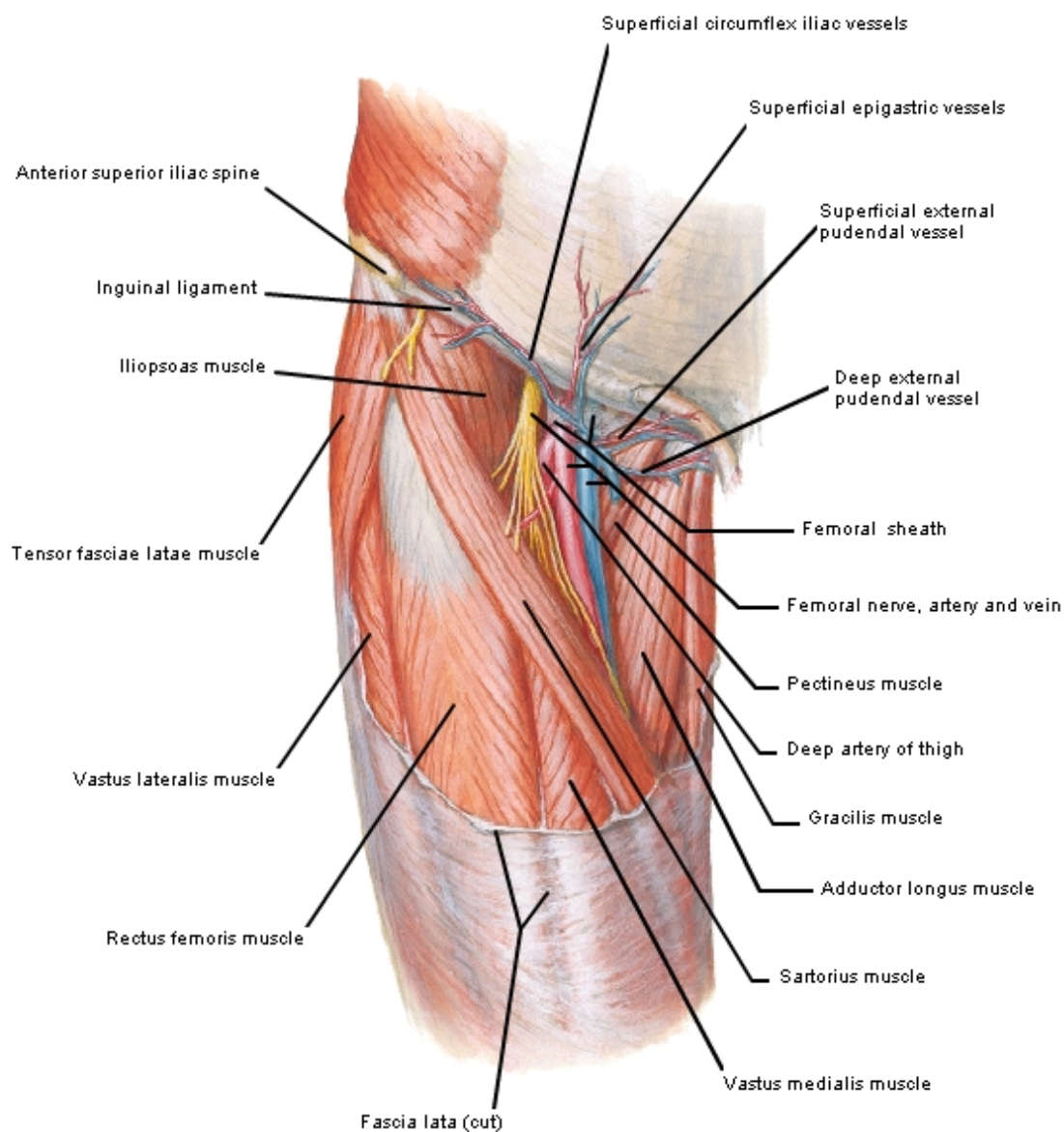
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Sacral and Coccygeal Plexuses



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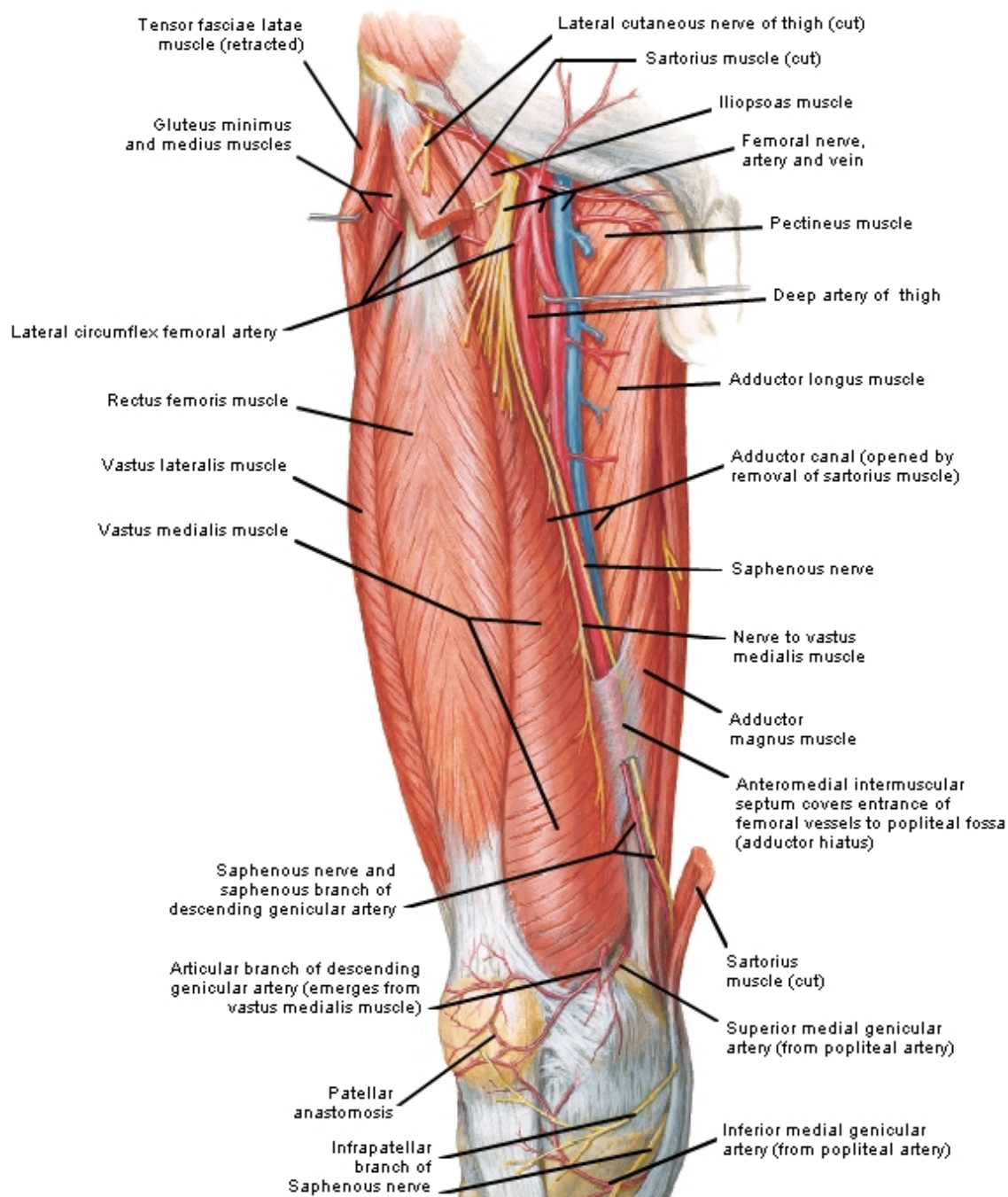
Arteries and Nerves of Thigh Superficial Anterior View



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LOWER LIMB

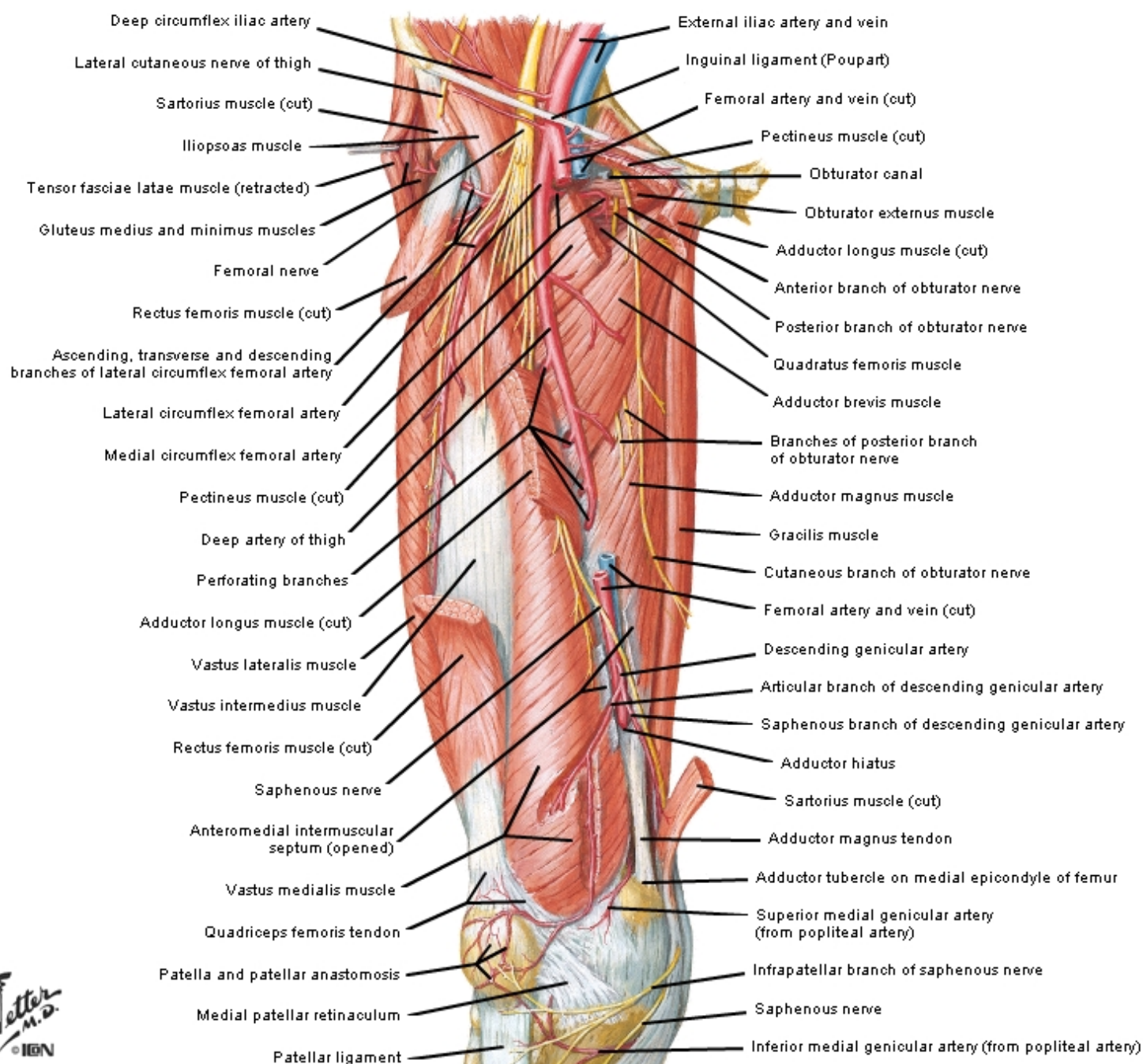
Arteries and Nerves of Thigh Deeper Anterior View - Superficial Dissections



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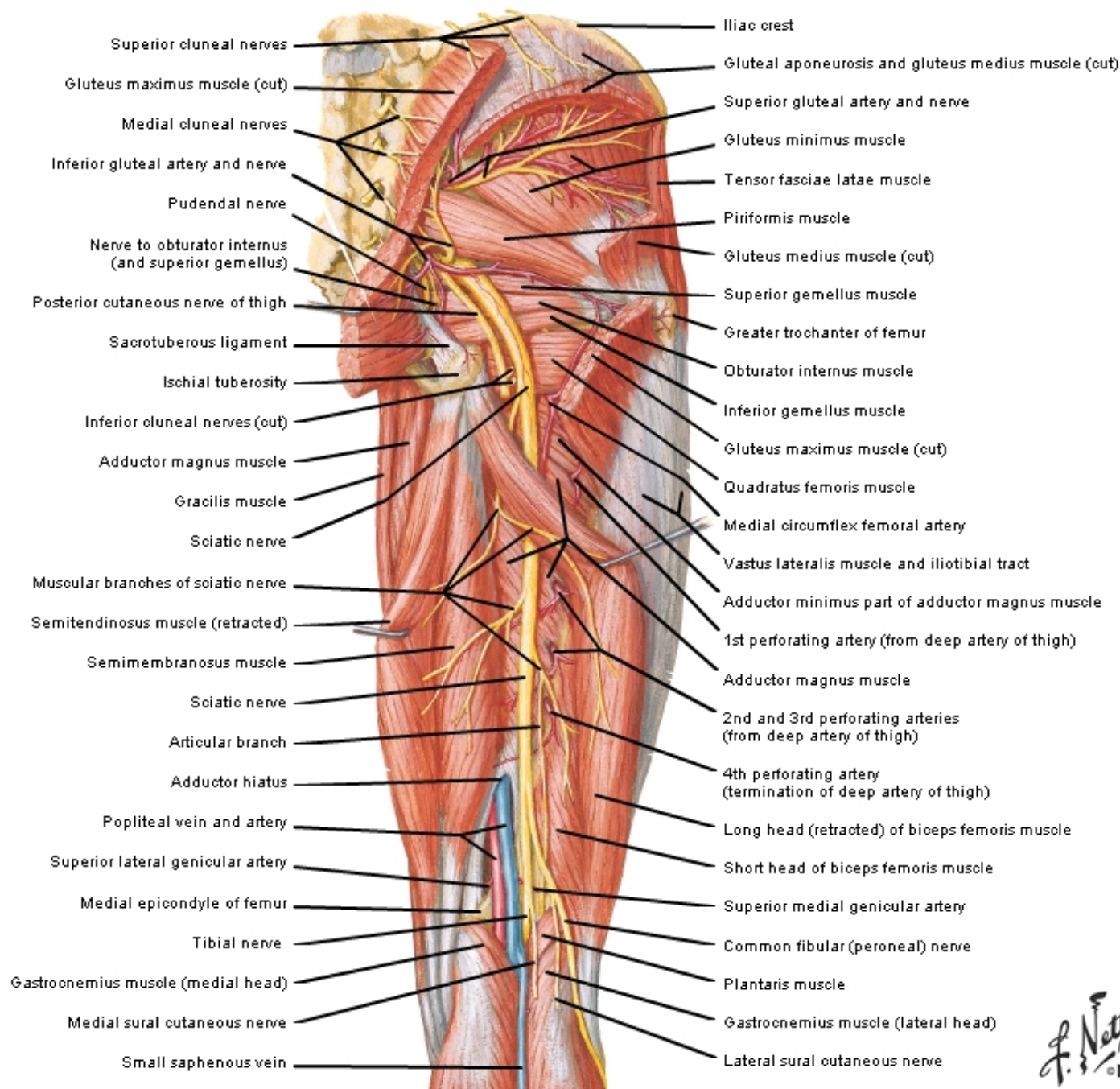
LOWER LIMB

Arteries and Nerves of Thigh (Deep Dissection) Anterior View



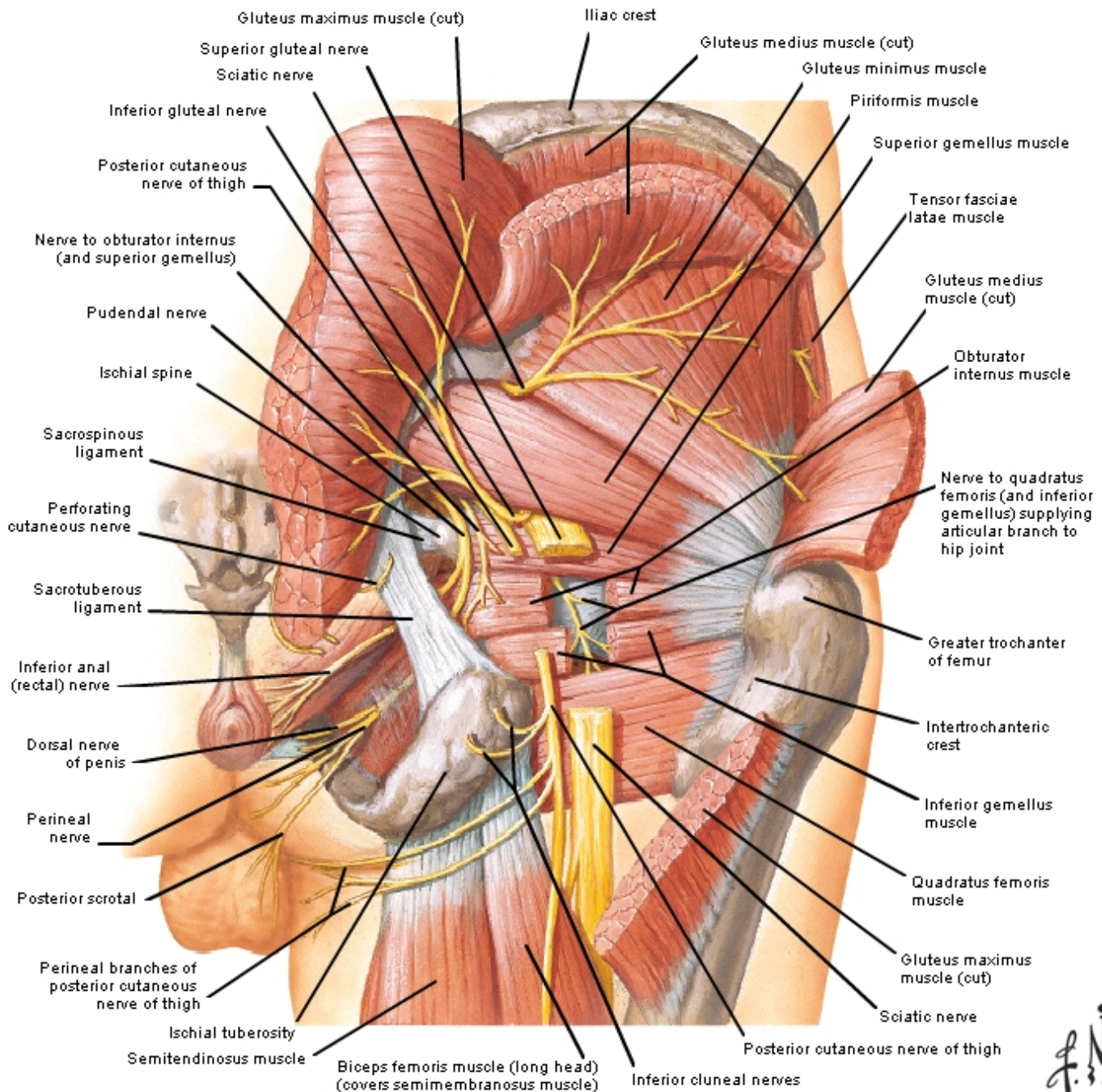
F. Netter M.D.
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Arteries and Nerves of Thigh (Deep Dissection) Posterior View



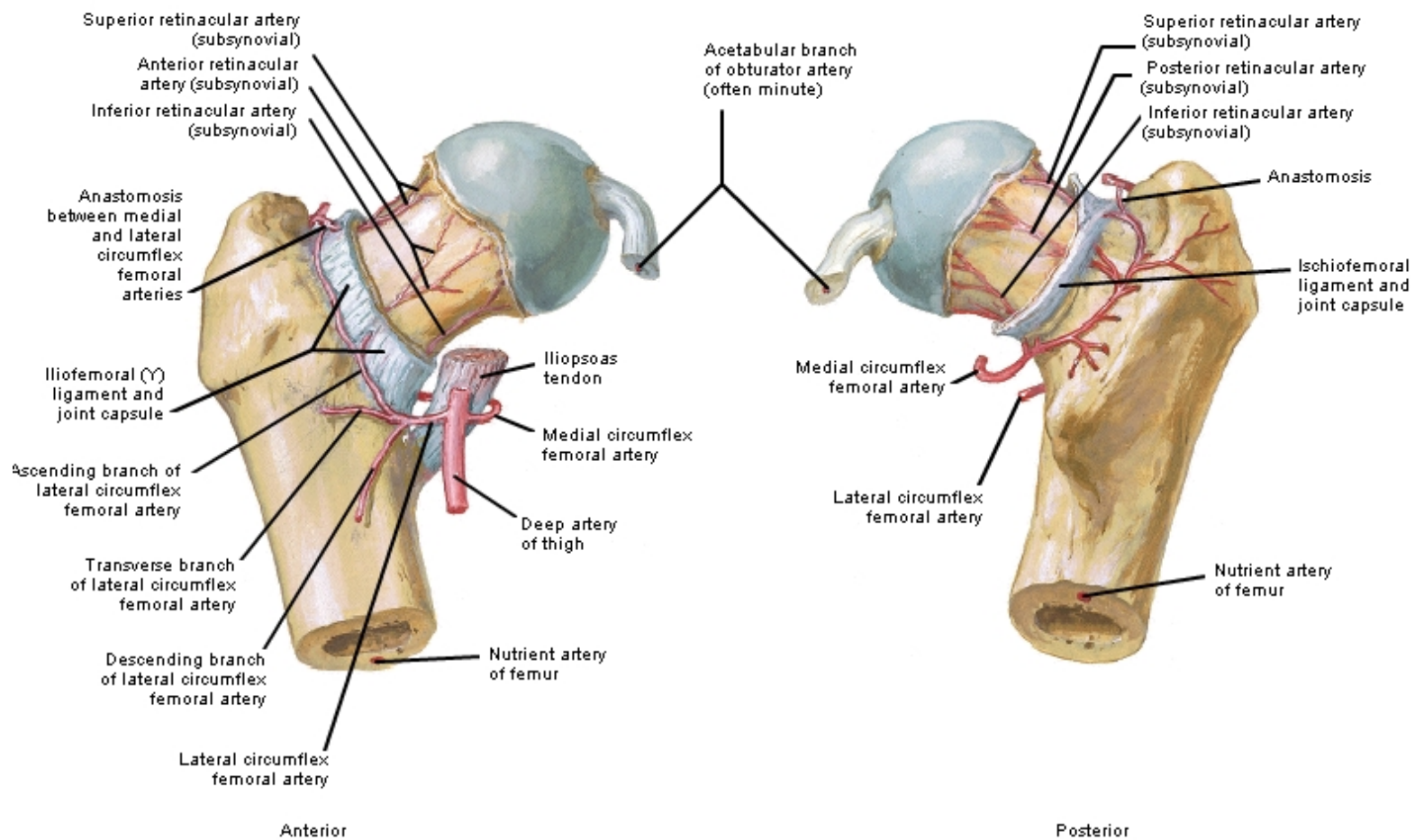
F. Netter M.D.
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Nerves of Hip and Buttock



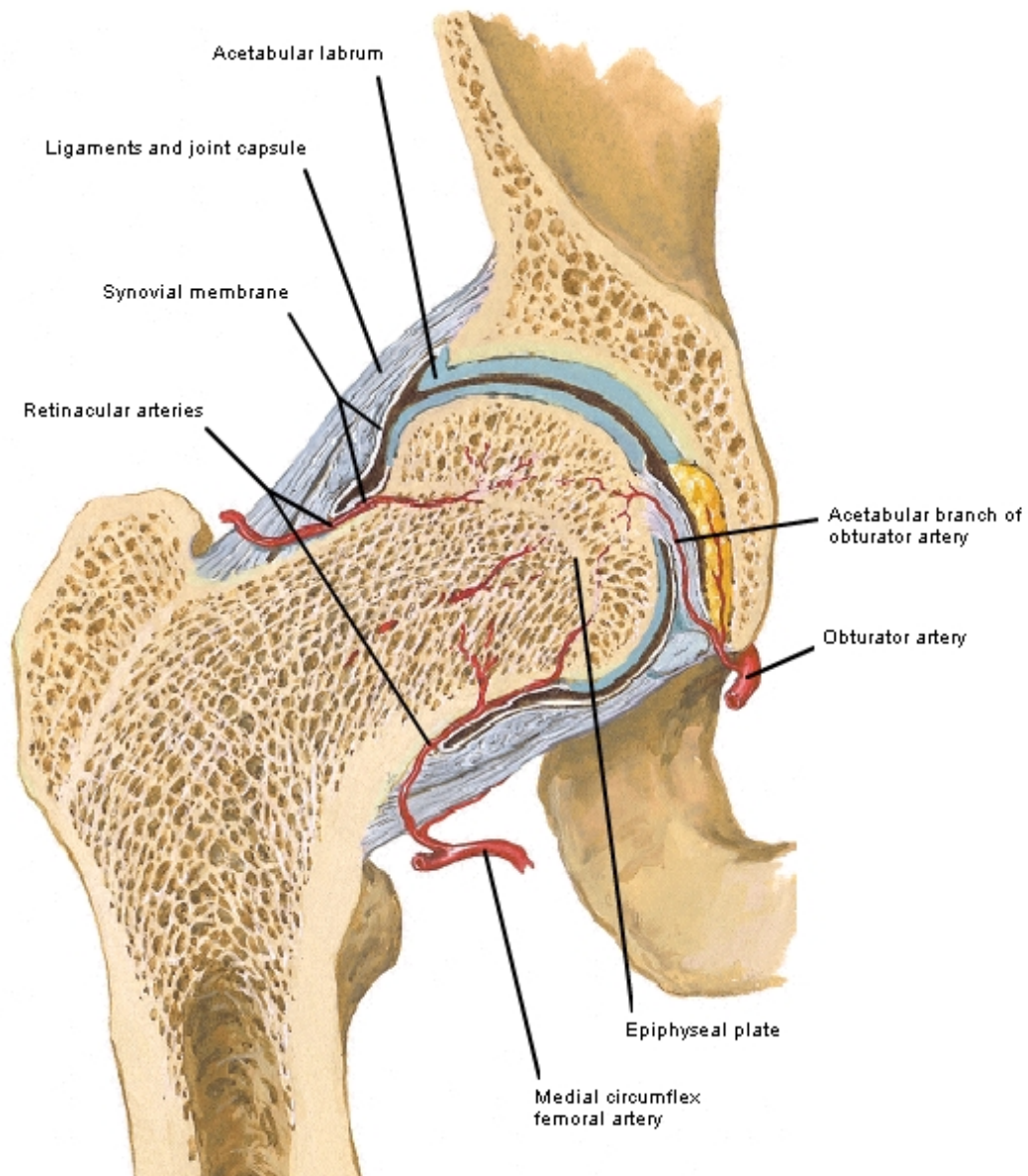
F. Netter M.D.
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Arteries of Femoral Head and Neck Anterior and Posterior view



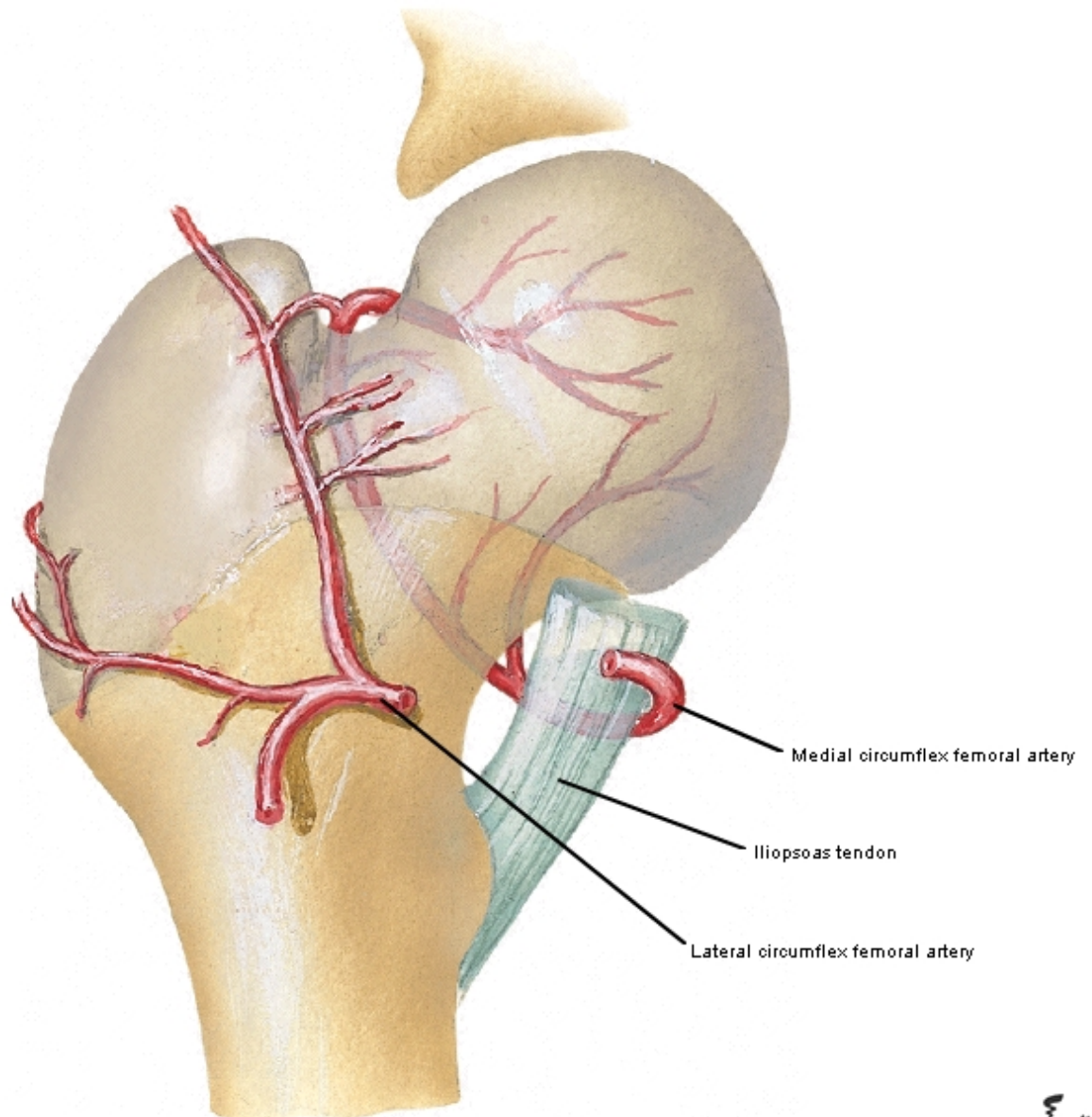
F. Netter M.D.
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Arteries of Femoral Head and Neck Coronal Section



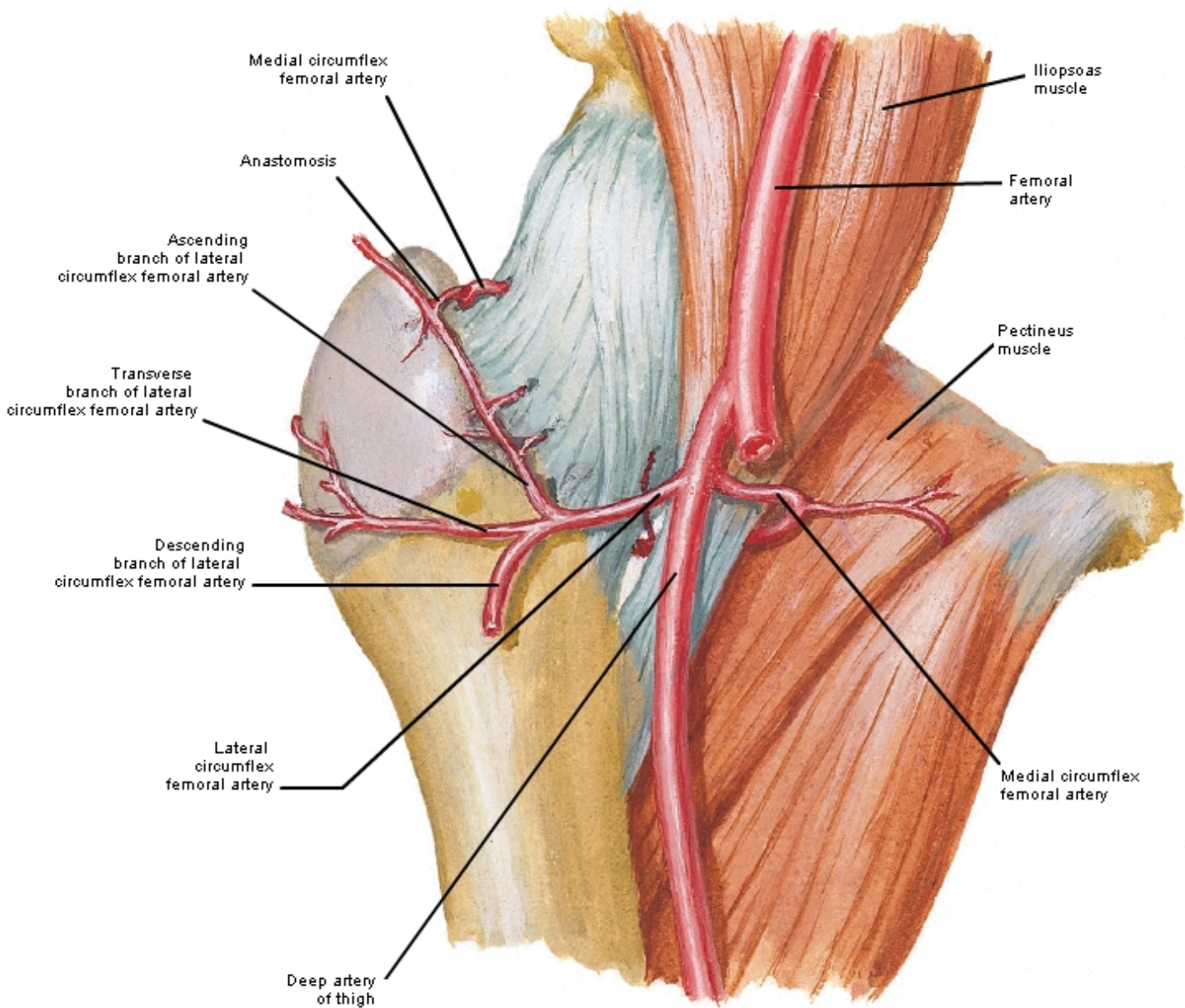
F. Netter M.D.
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Arteries of Femoral Head and Neck Femur of Child - Anterior View



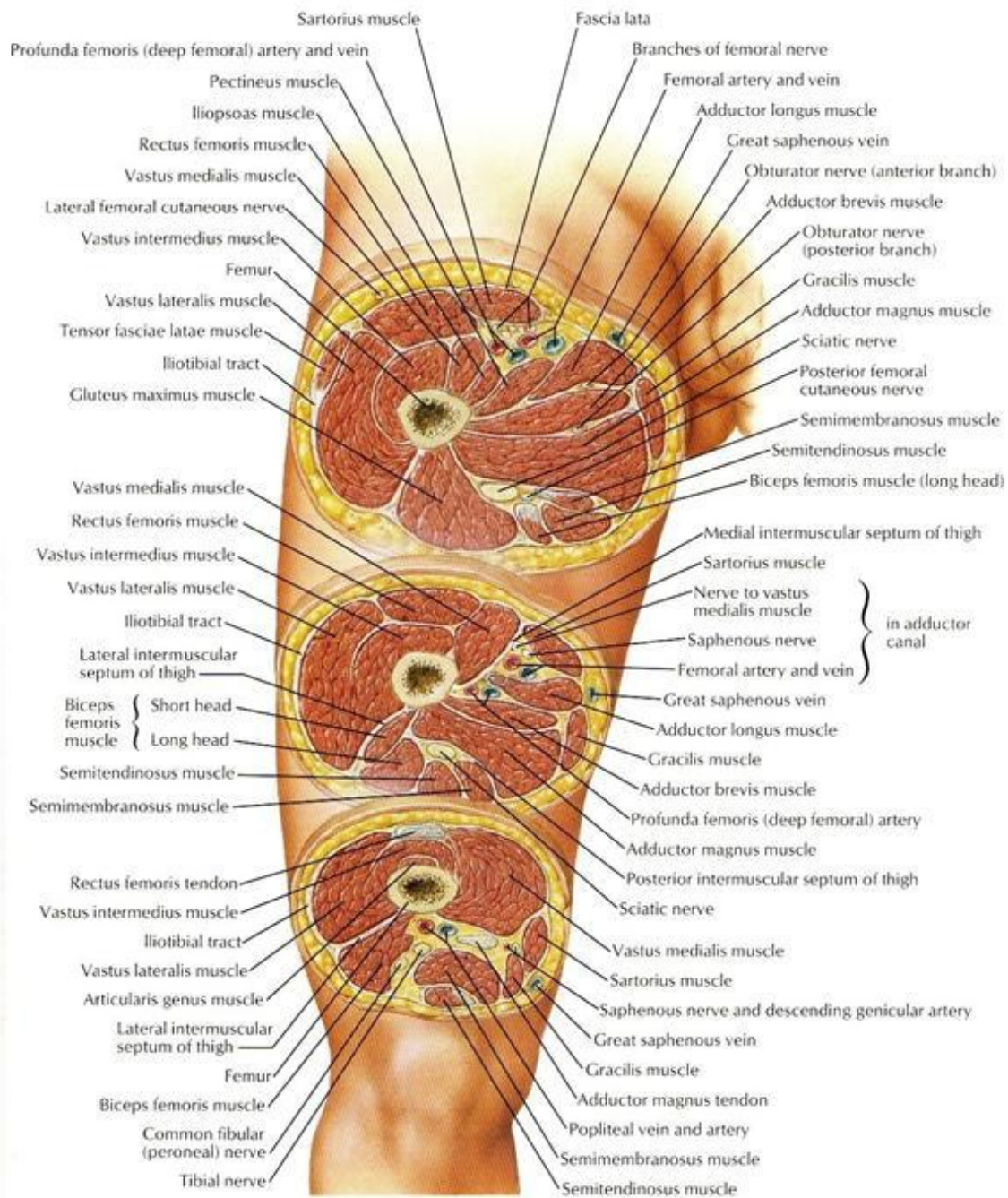
F. Netter M.D.
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Arteries of Femoral Head and Neck Anterior View In Situ



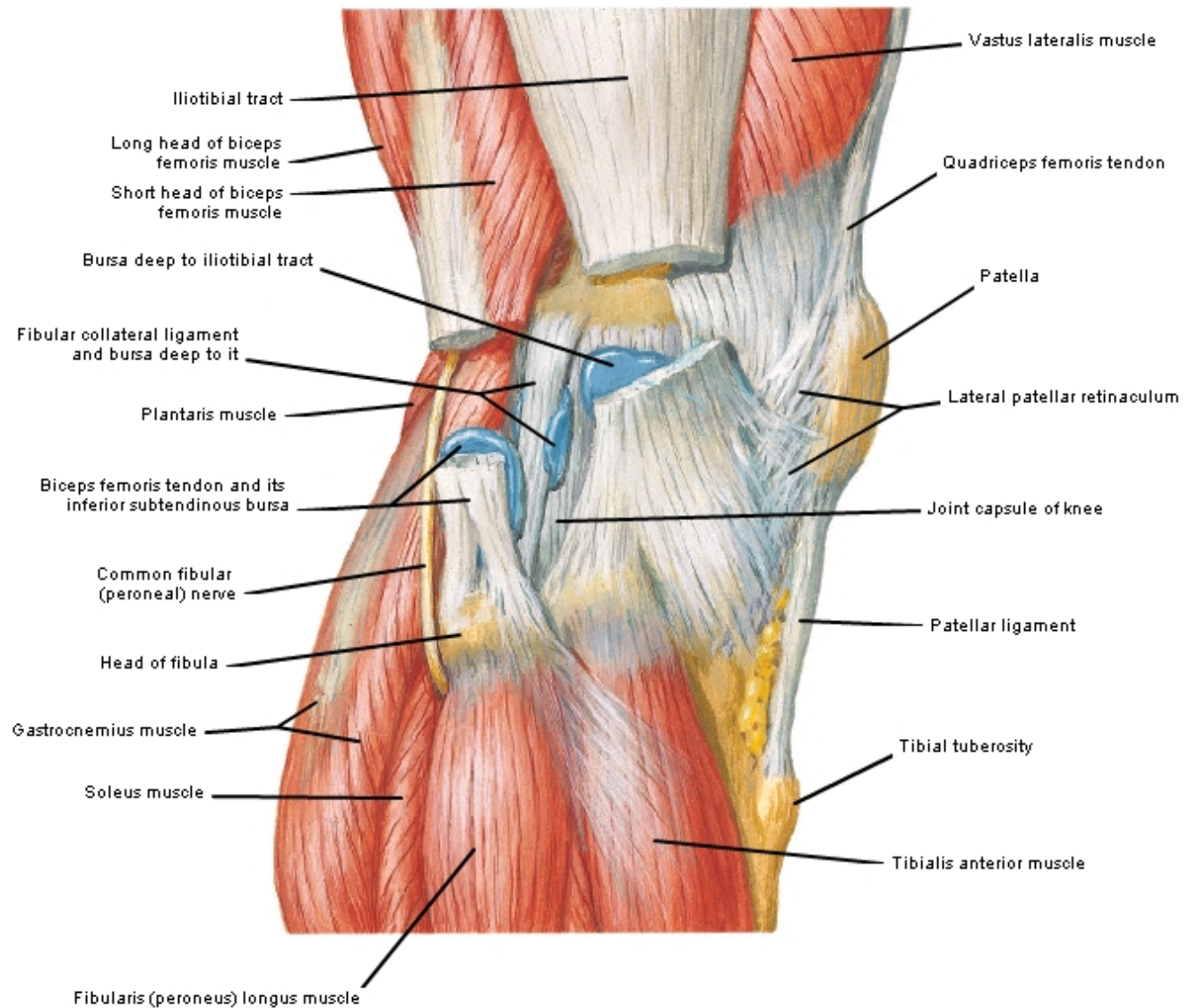
F. Netter M.D.
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Thigh: Serial Cross Sections



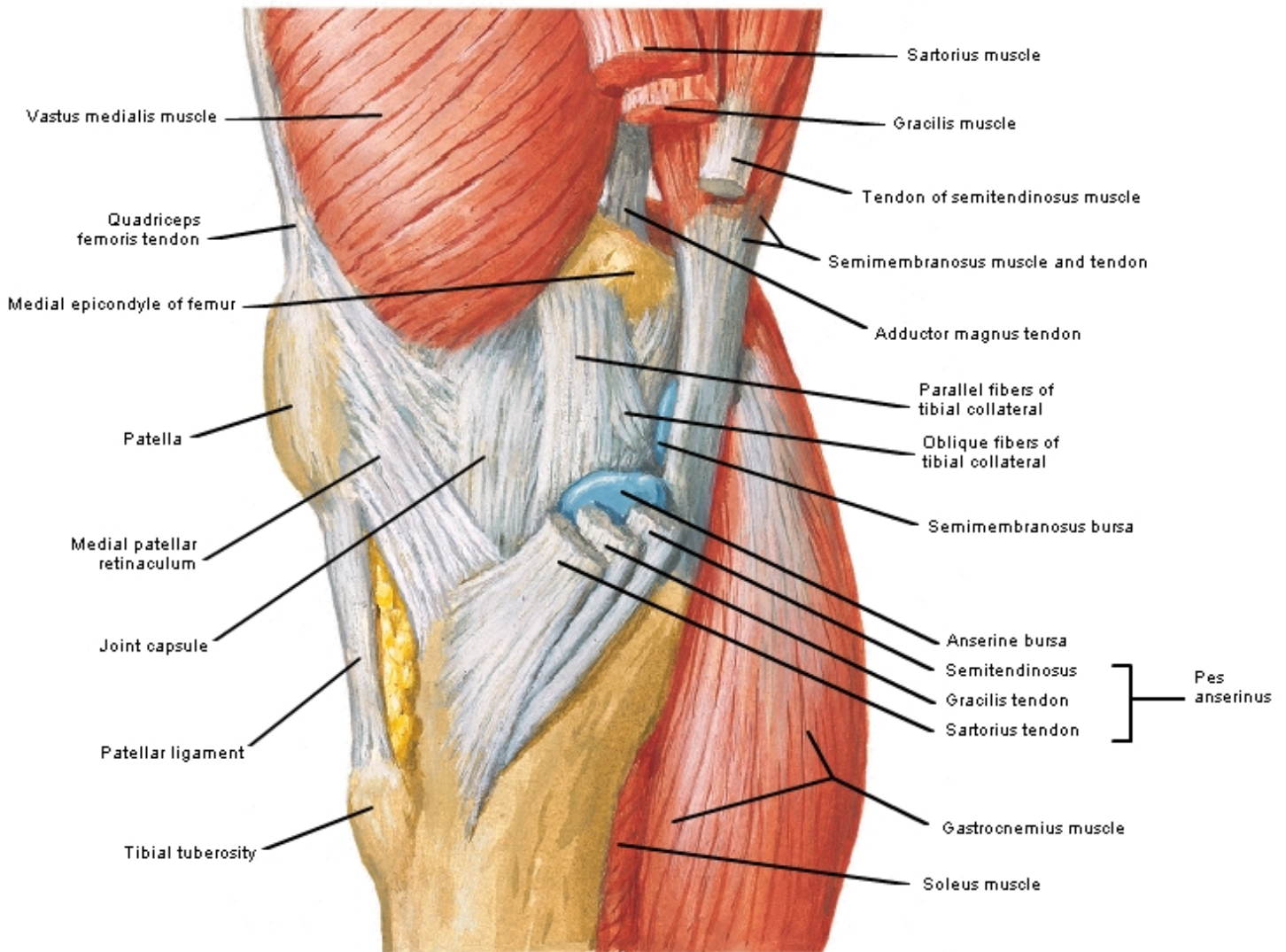
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Knee - Lateral View



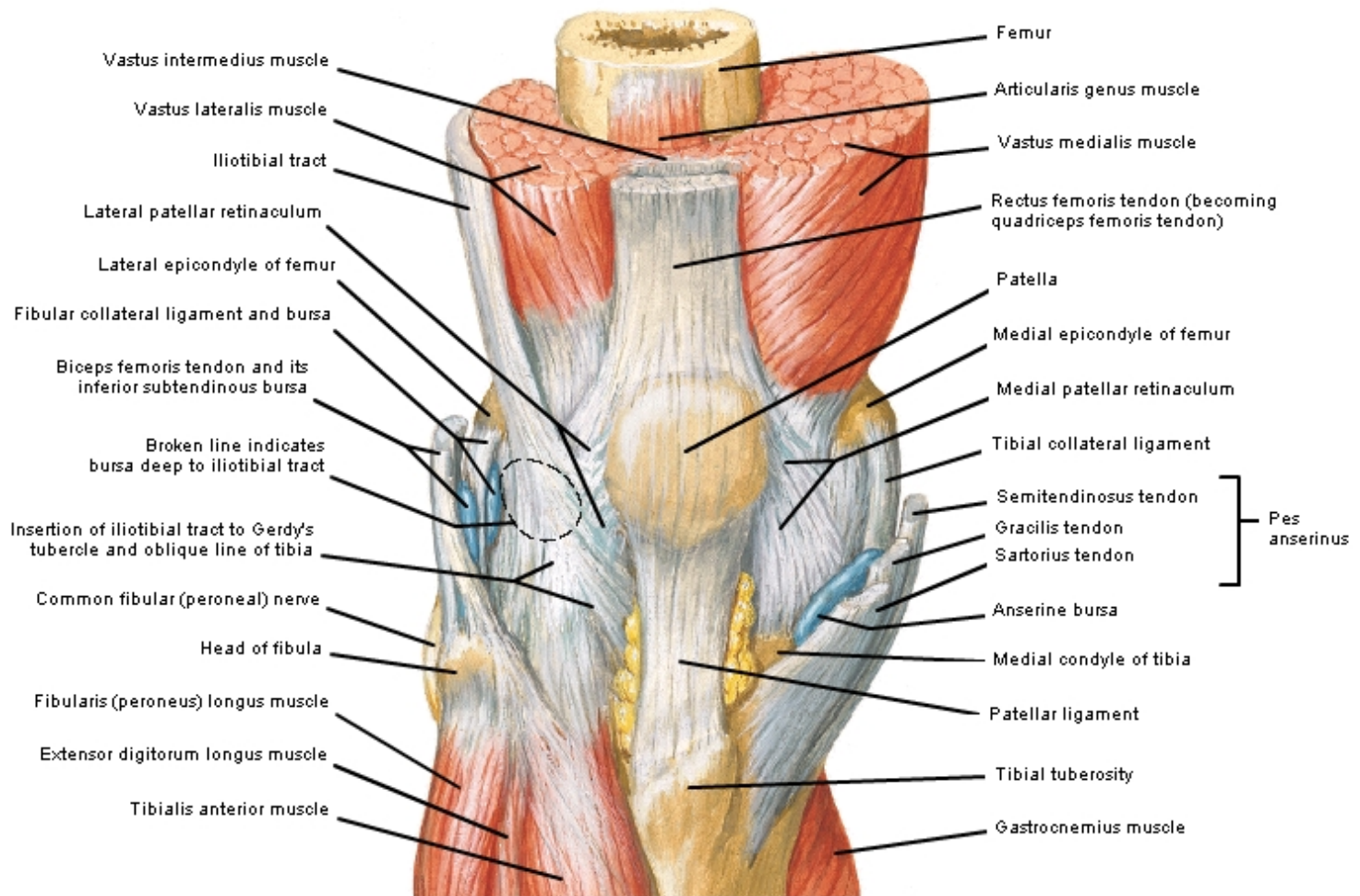
F. Netter M.D.
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Knee - Medial View



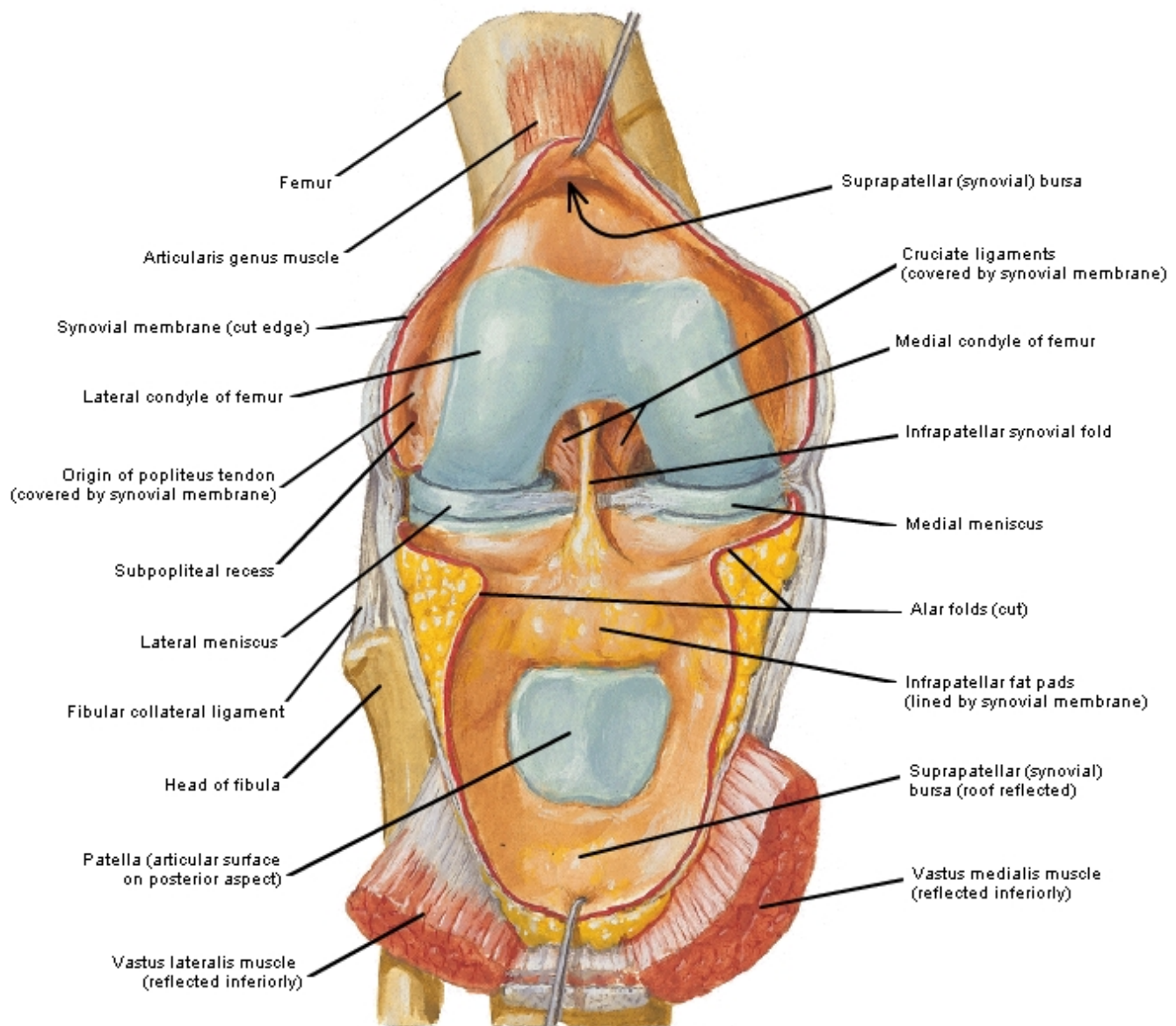
F. Netter M.D.
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Knee in Extension Right Knee: Anterior View



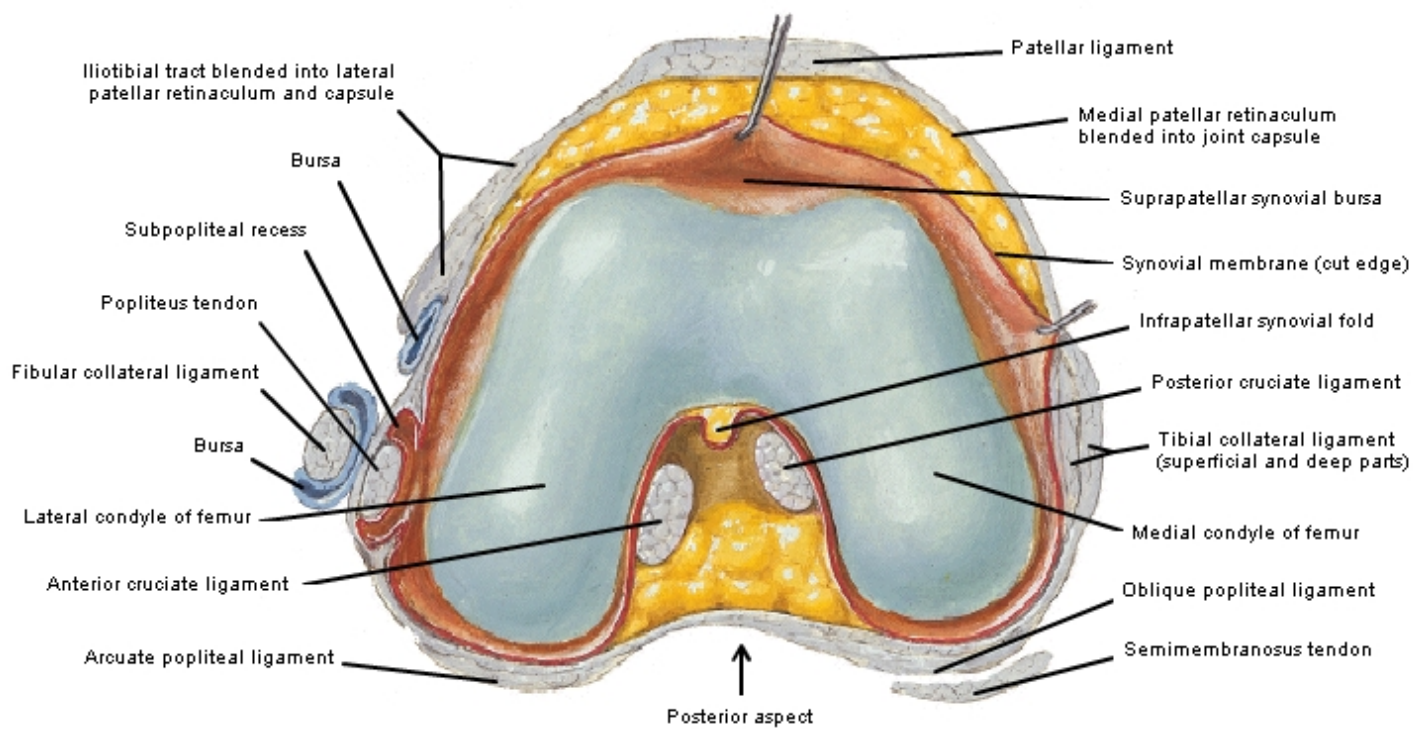
F. Netter M.D.
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Knee Right Knee Slightly in Flexion (Joint Opened)



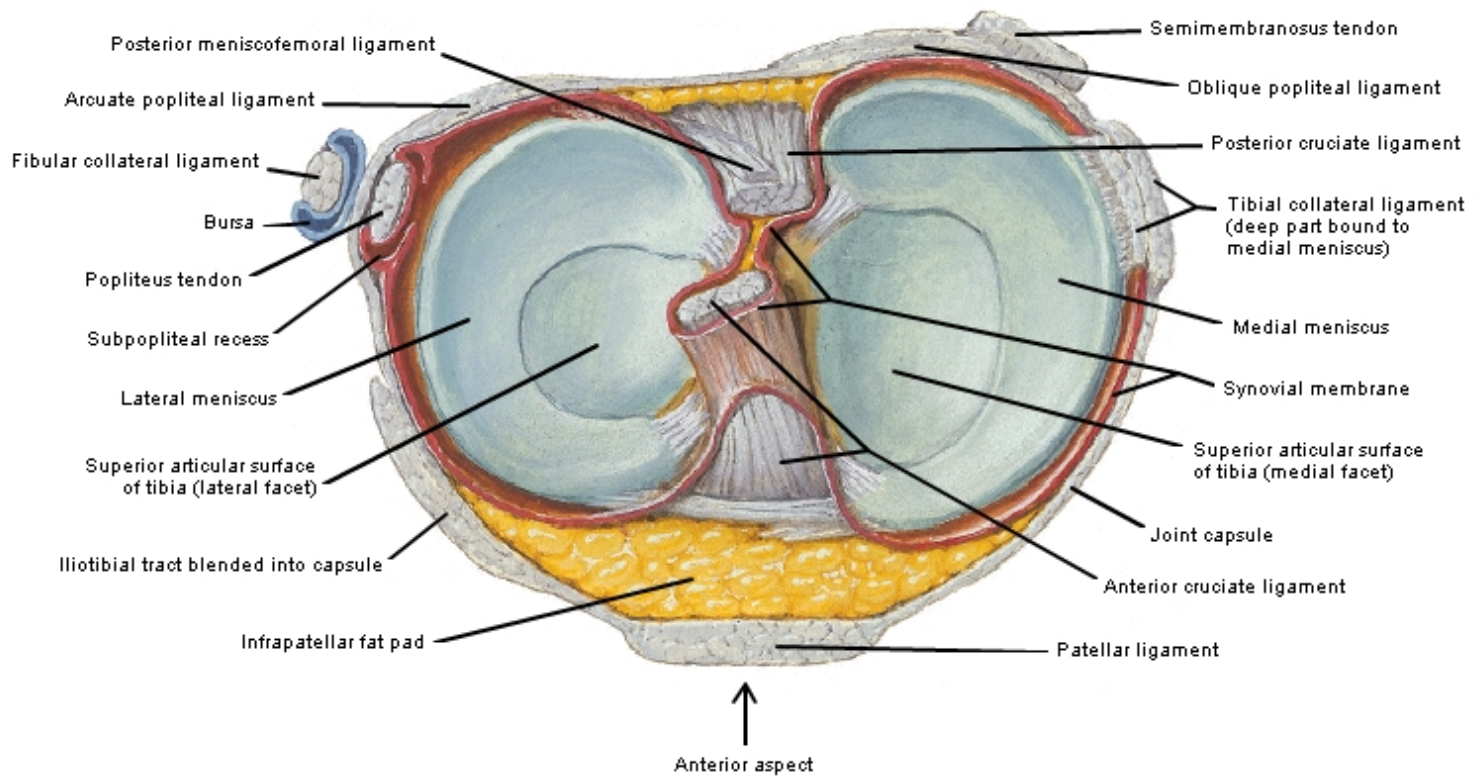
F. Netter M.D.
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Knee - Interior Inferior View



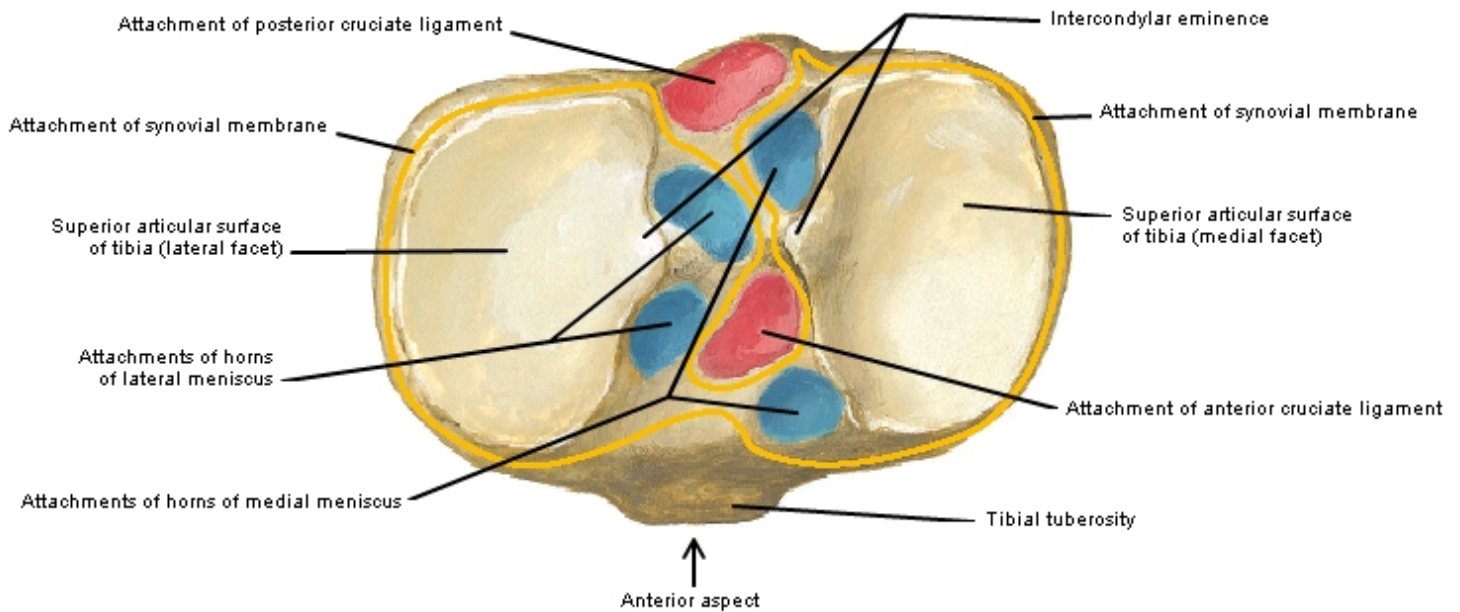
F. Netter M.D.
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Knee - Interior Superior View



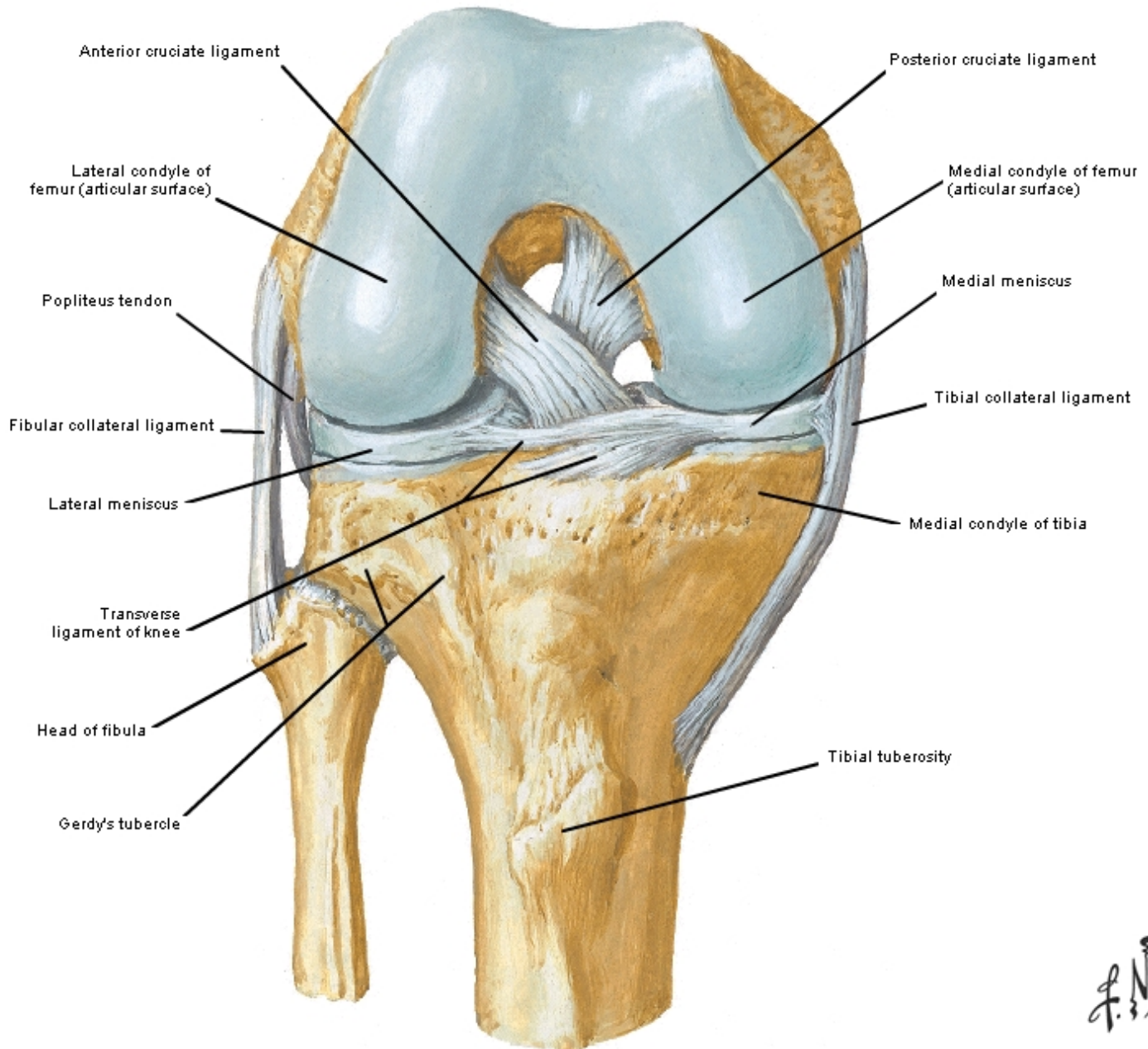
F. Netter M.D.
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Knee - Interior Superior View - Ligaments and Cartilage Removed



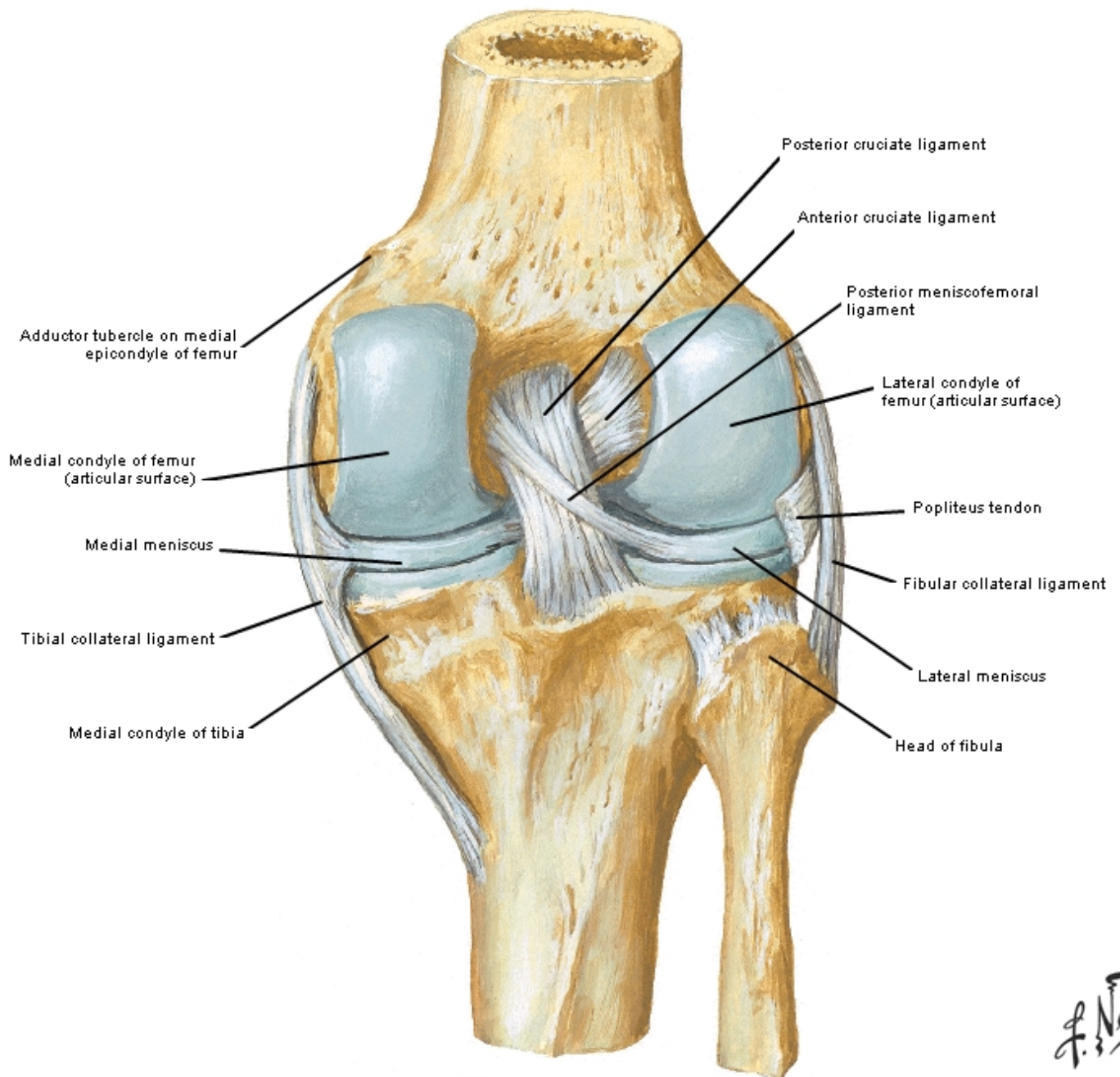
F. Netter M.D.
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Knee - Cruciate and Collateral Ligaments Right Knee in Flexion: Anterior View



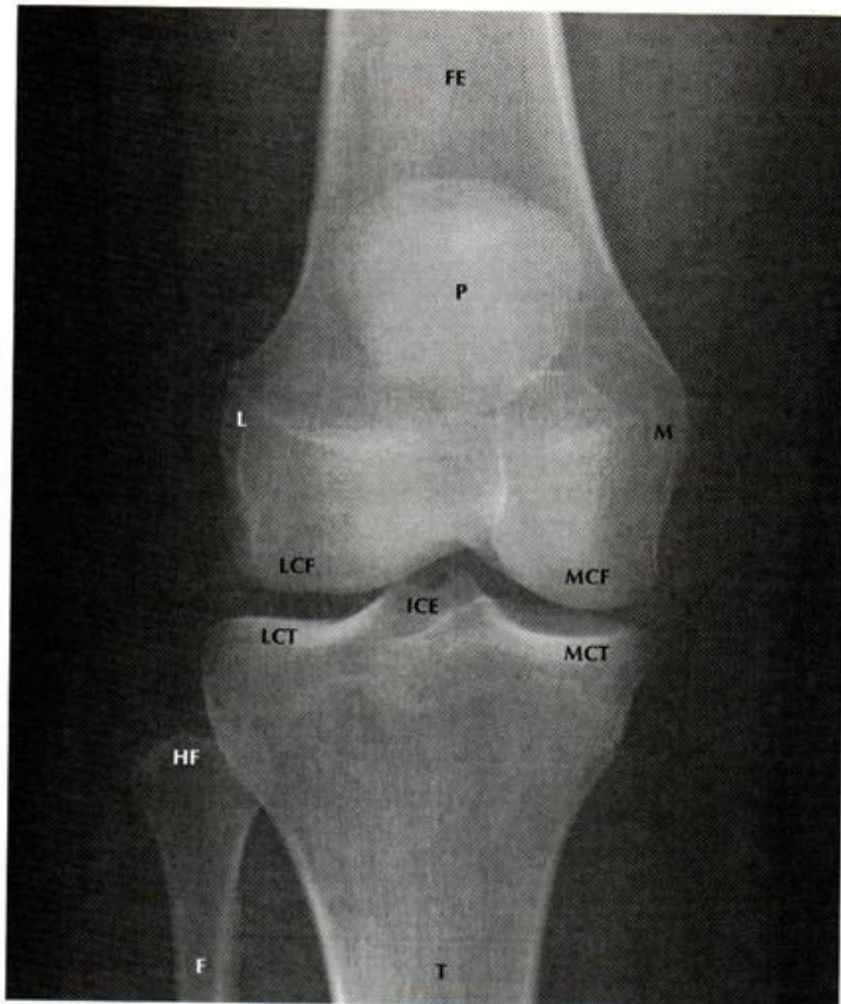
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Knee - Cruciate and Collateral Ligaments Right Knee in Extension: Posterior View



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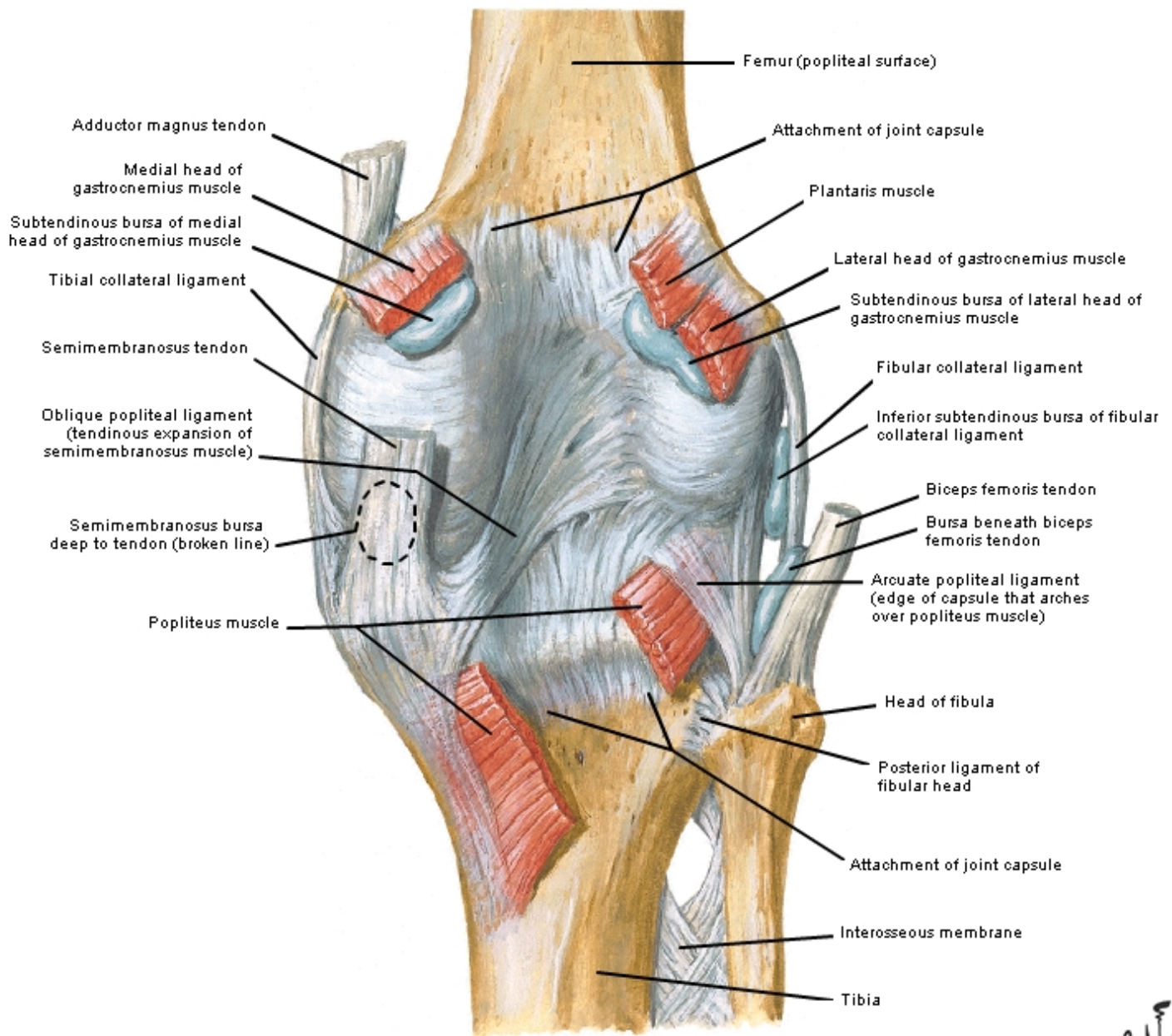
Knee: Anteroposterior Radiograph



- | | |
|-----|--------------------------|
| F | Fibula |
| FE | Femur |
| HF | Head of fibula |
| ICE | Intercondylar eminence |
| L | Lateral epicondyle |
| LCF | Lateral condyle of femur |
| LCT | Lateral condyle of tibia |
| M | Medial epicondyle |
| MCF | Medial condyle of femur |
| MCT | Medial condyle of tibia |
| P | Patella |
| T | Tibia |

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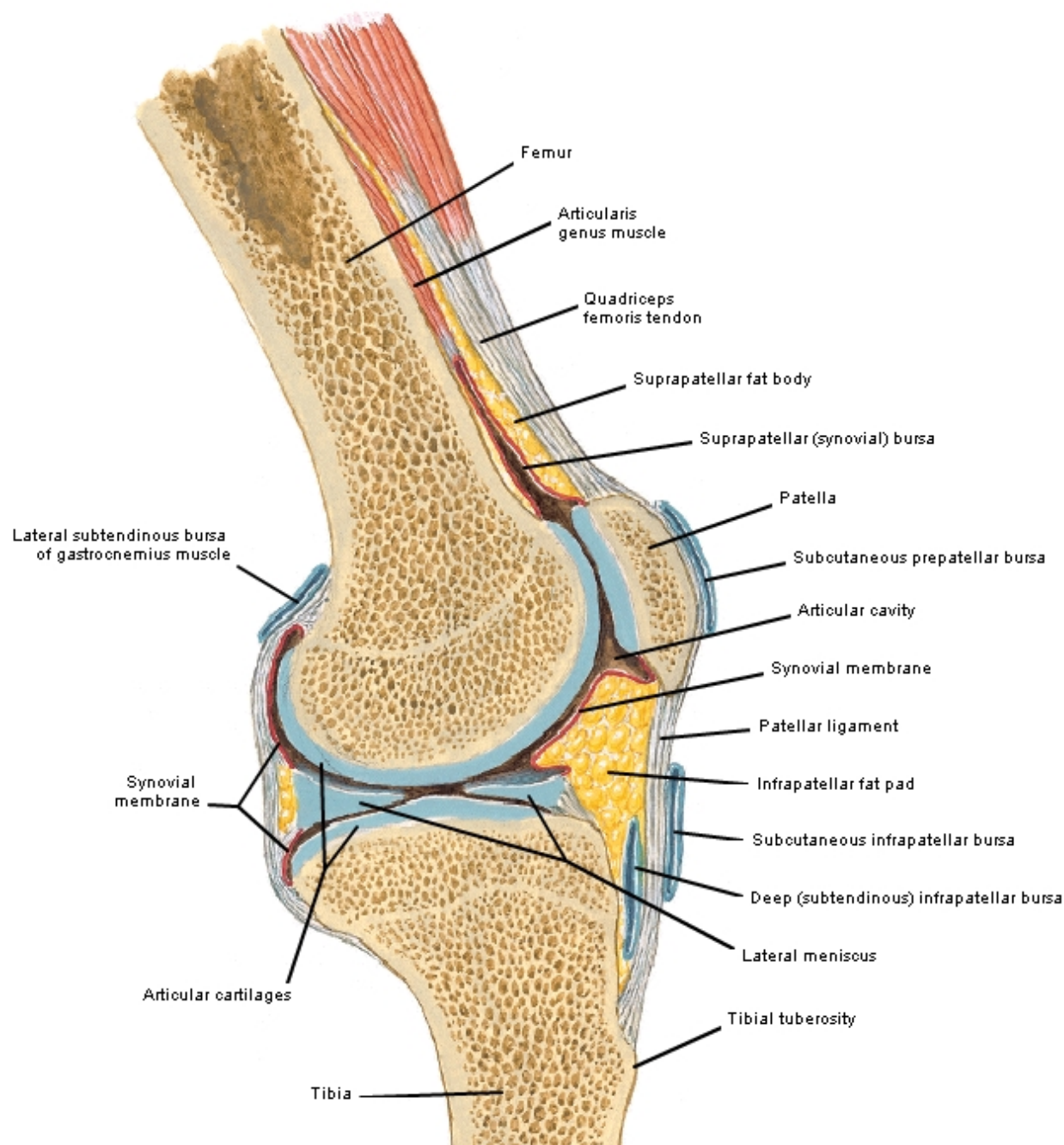
Right Knee Posterior View



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LOWER LIMB

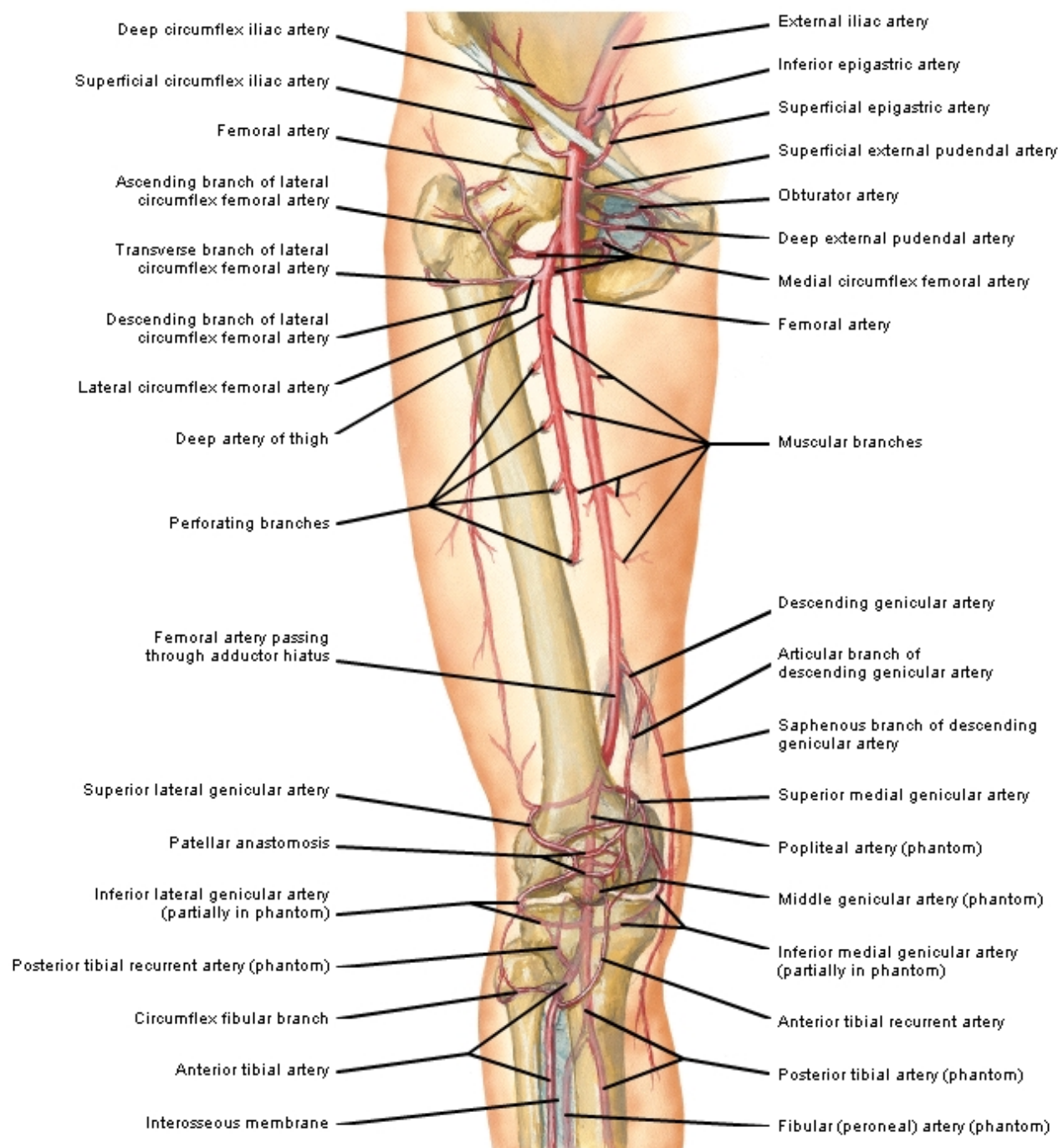
Knee Sagittal Section - (Lateral to Midline of Knee)



F. Netter M.D.
© 1964

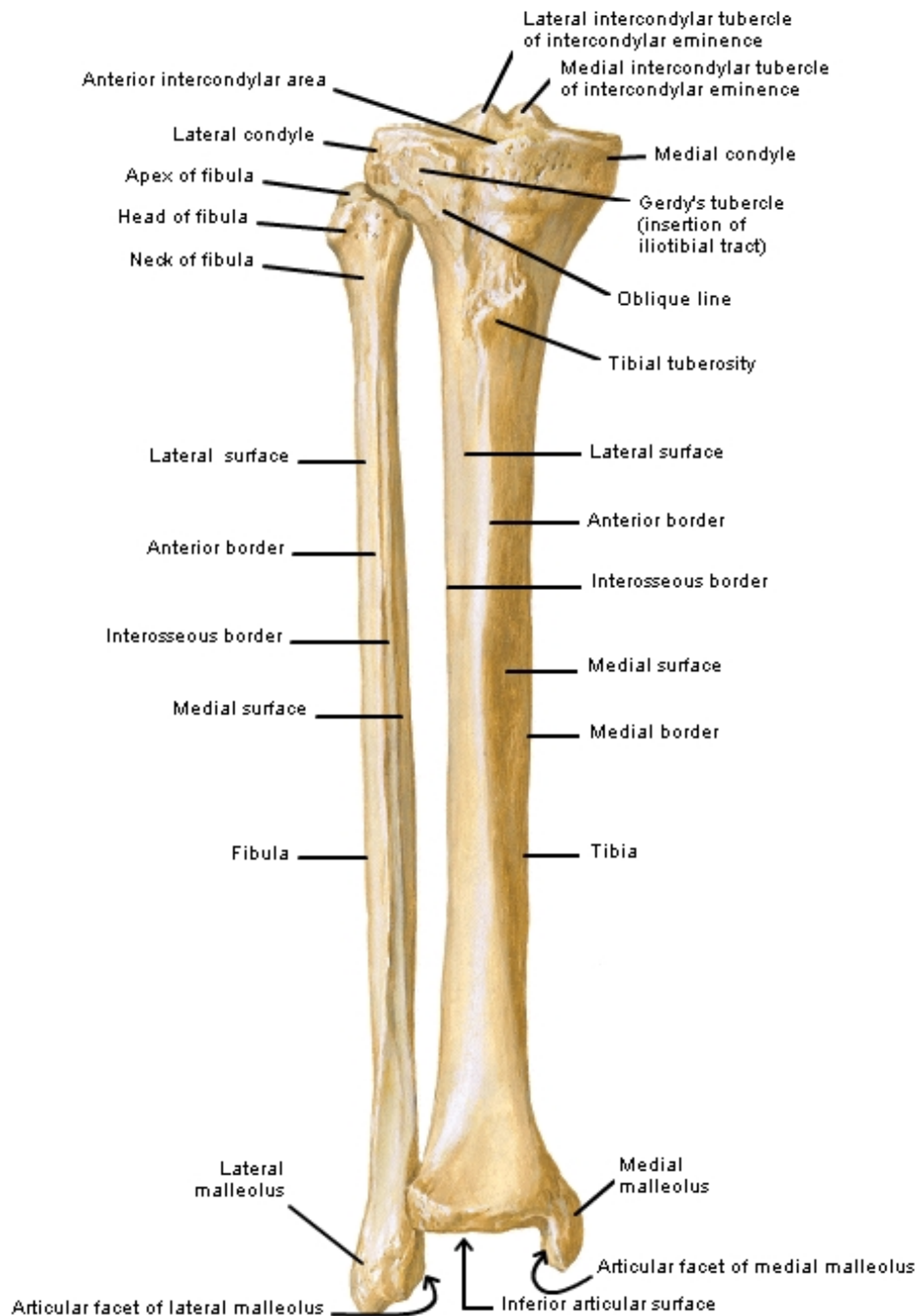
LOWER LIMB

Arteries of Thigh and Knee Schema



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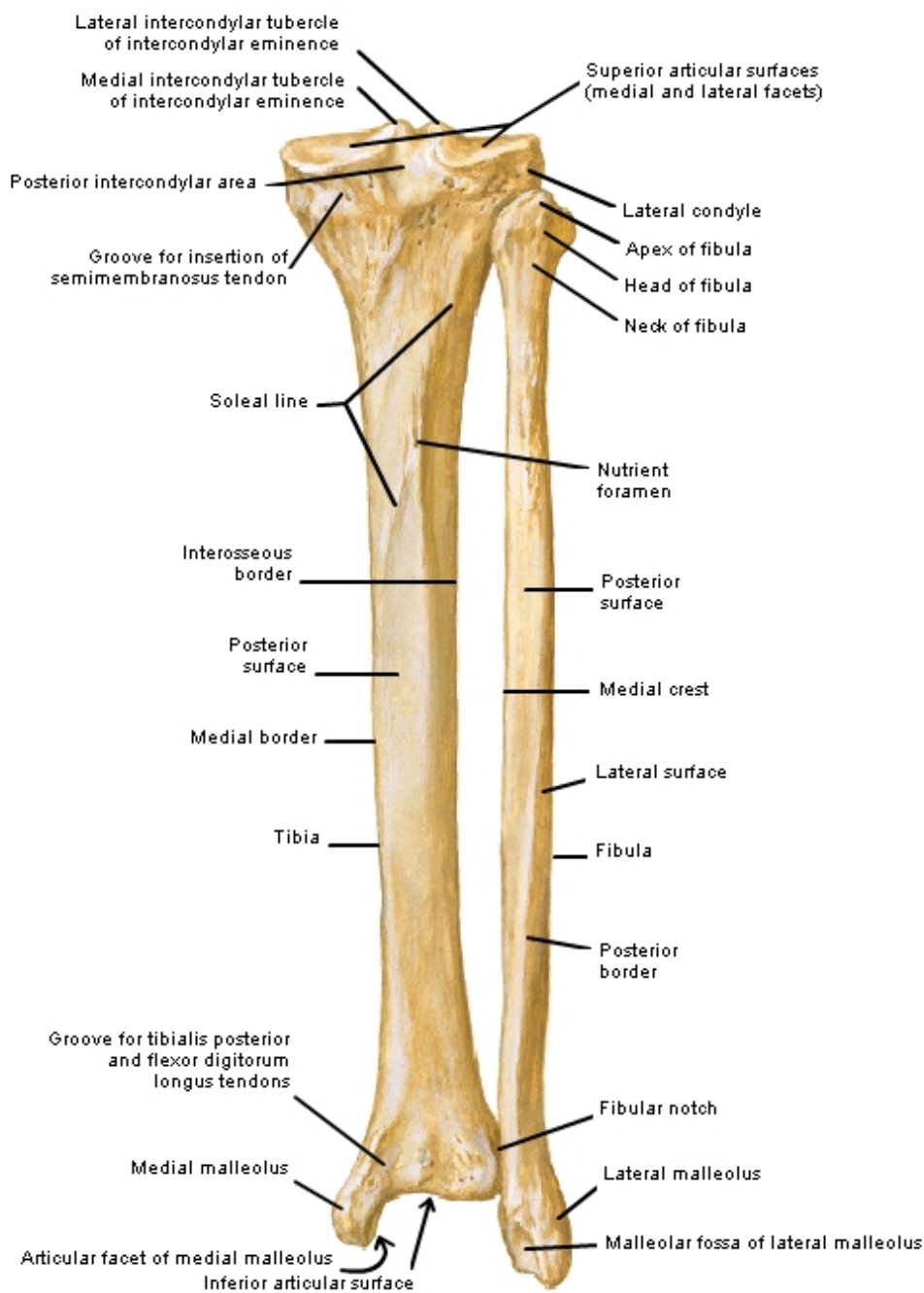
Tibia and Fibula of Right Leg Anterior View



F. Netter M.D.
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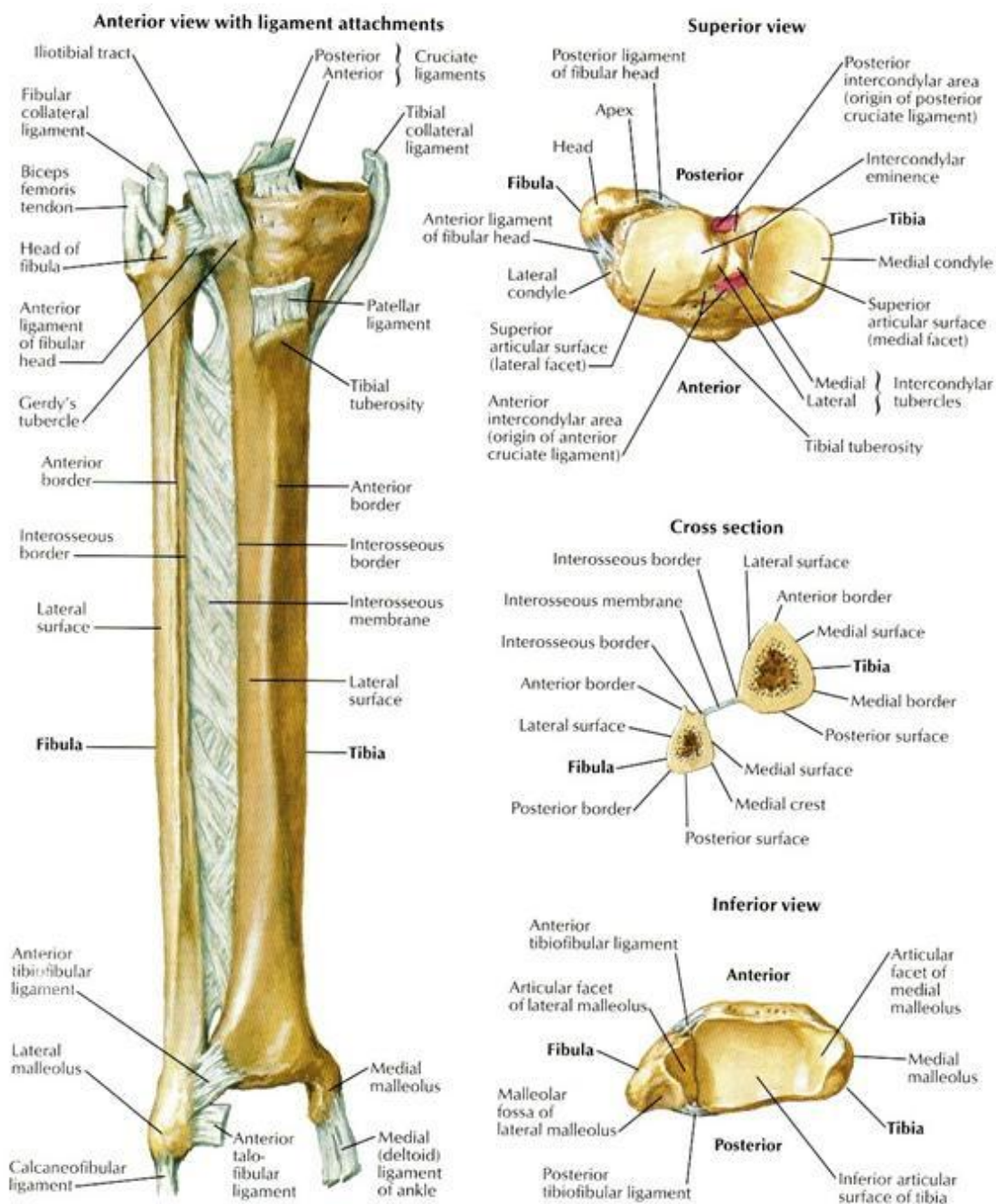
LOWER LIMB

Tibia and Fibula of Right Leg Posterior View



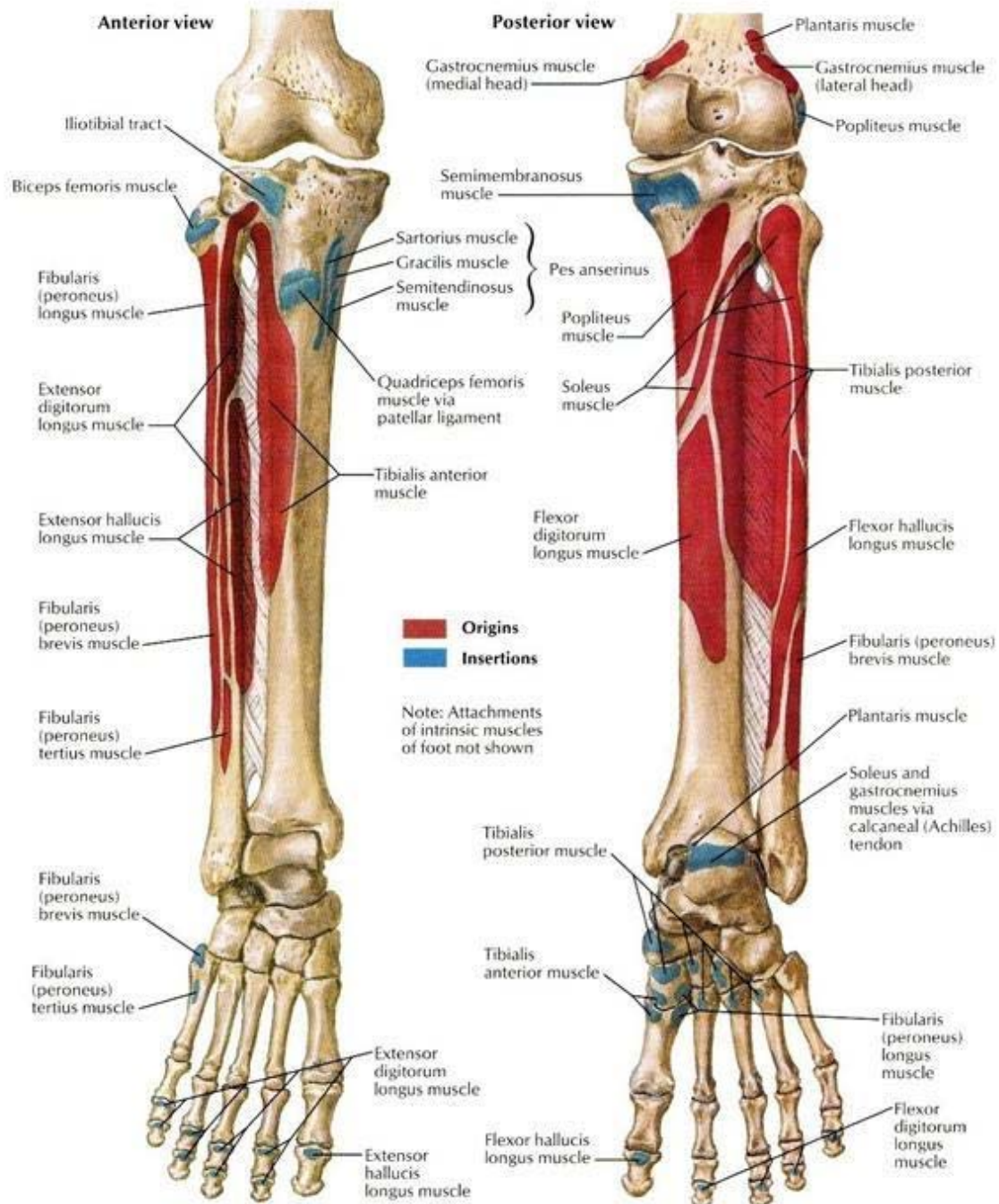
F. Netter M.D.
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Tibia and Fibula



F. Netter M.D.
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Attachments of Muscles of Leg

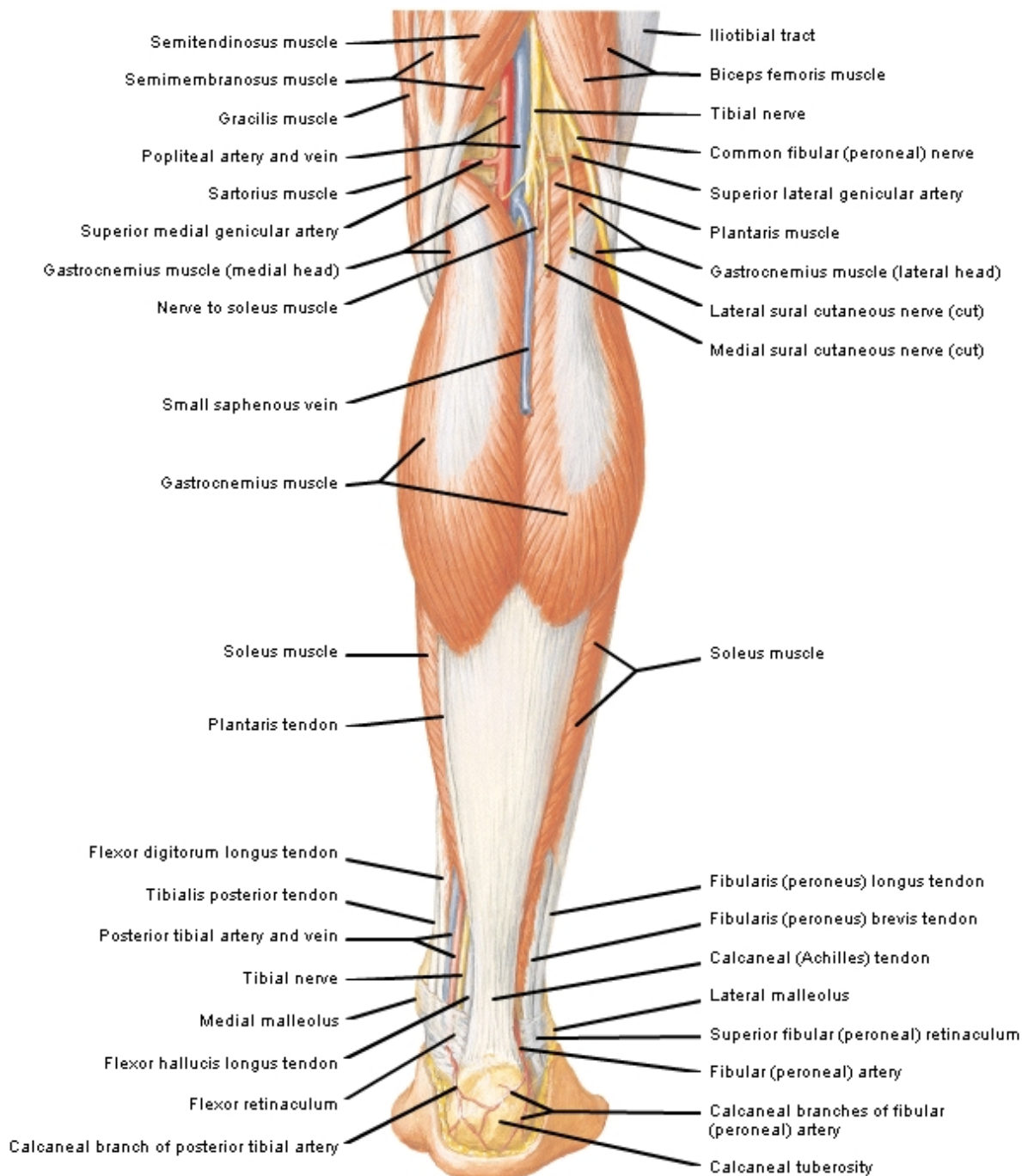


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LOWER LIMB

Muscles of Leg (Superficial Dissection)

Posterior View

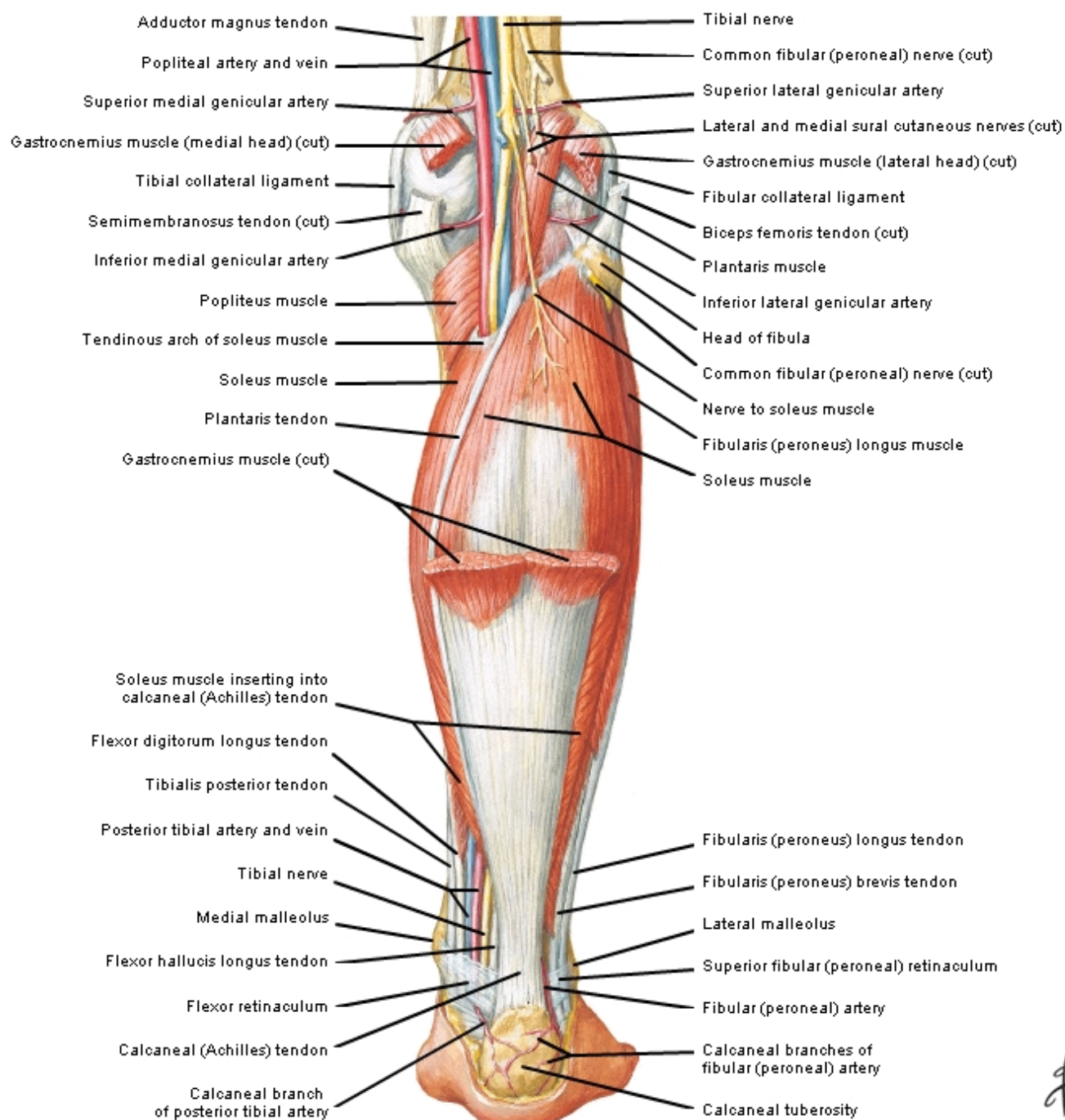


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LOWER LIMB

Muscles of Leg (Intermediate Dissection)

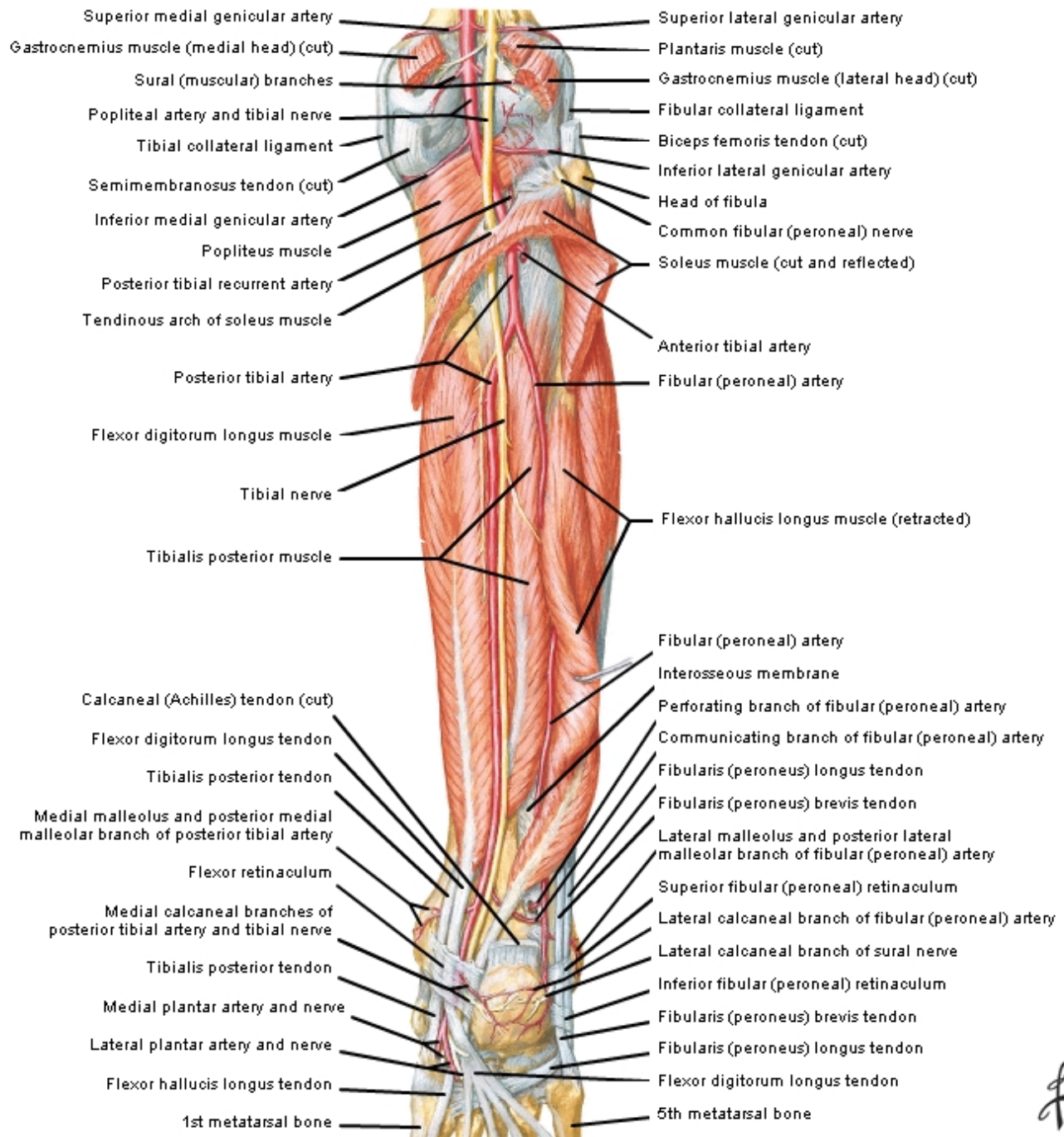
Posterior View



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Muscles of Leg (Deep Dissection)

Posterior View

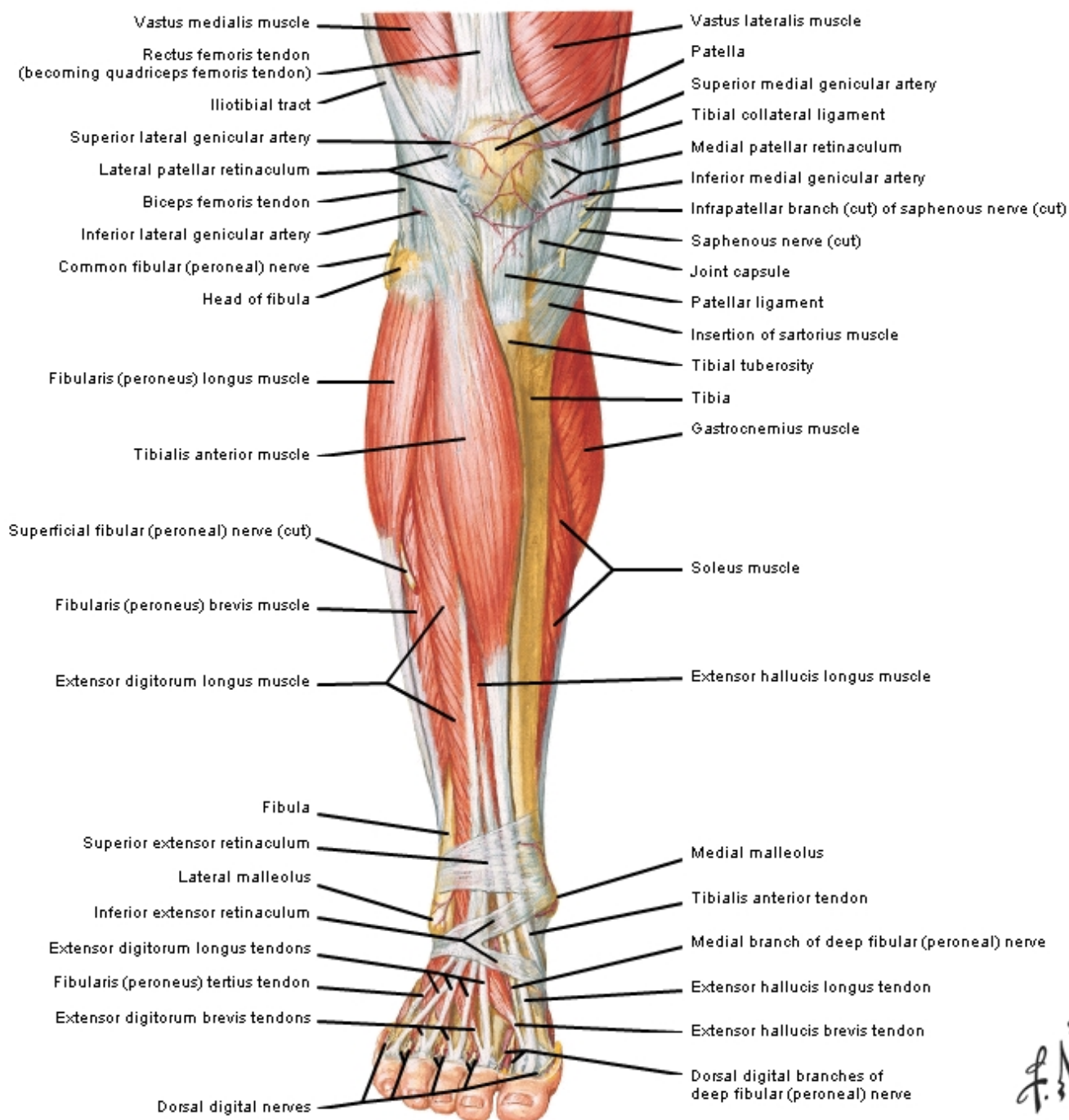


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LOWER LIMB

Muscles of Leg (Superficial Dissection)

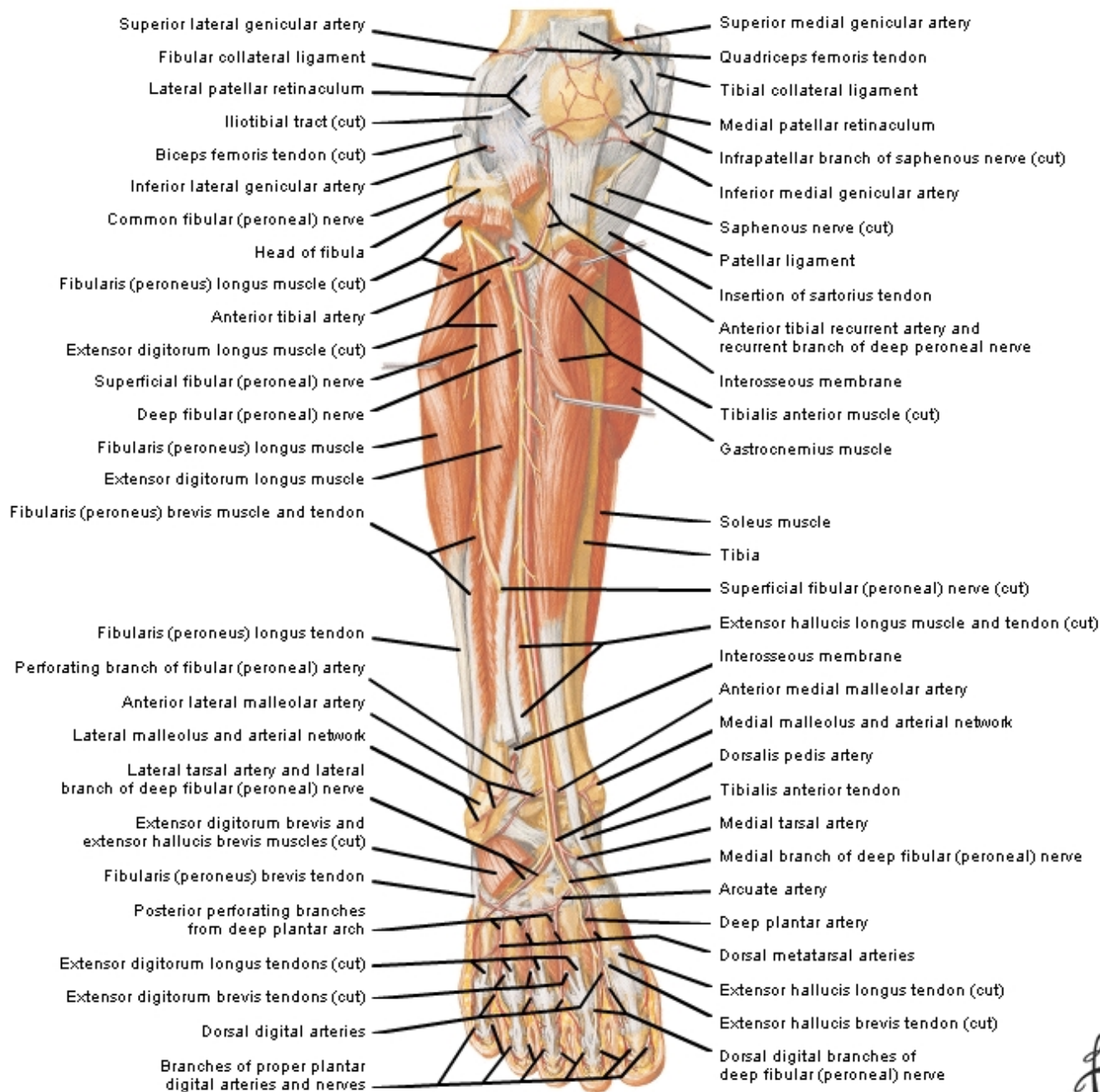
Anterior View



F. Netter M.D.
© IGV

LOWER LIMB

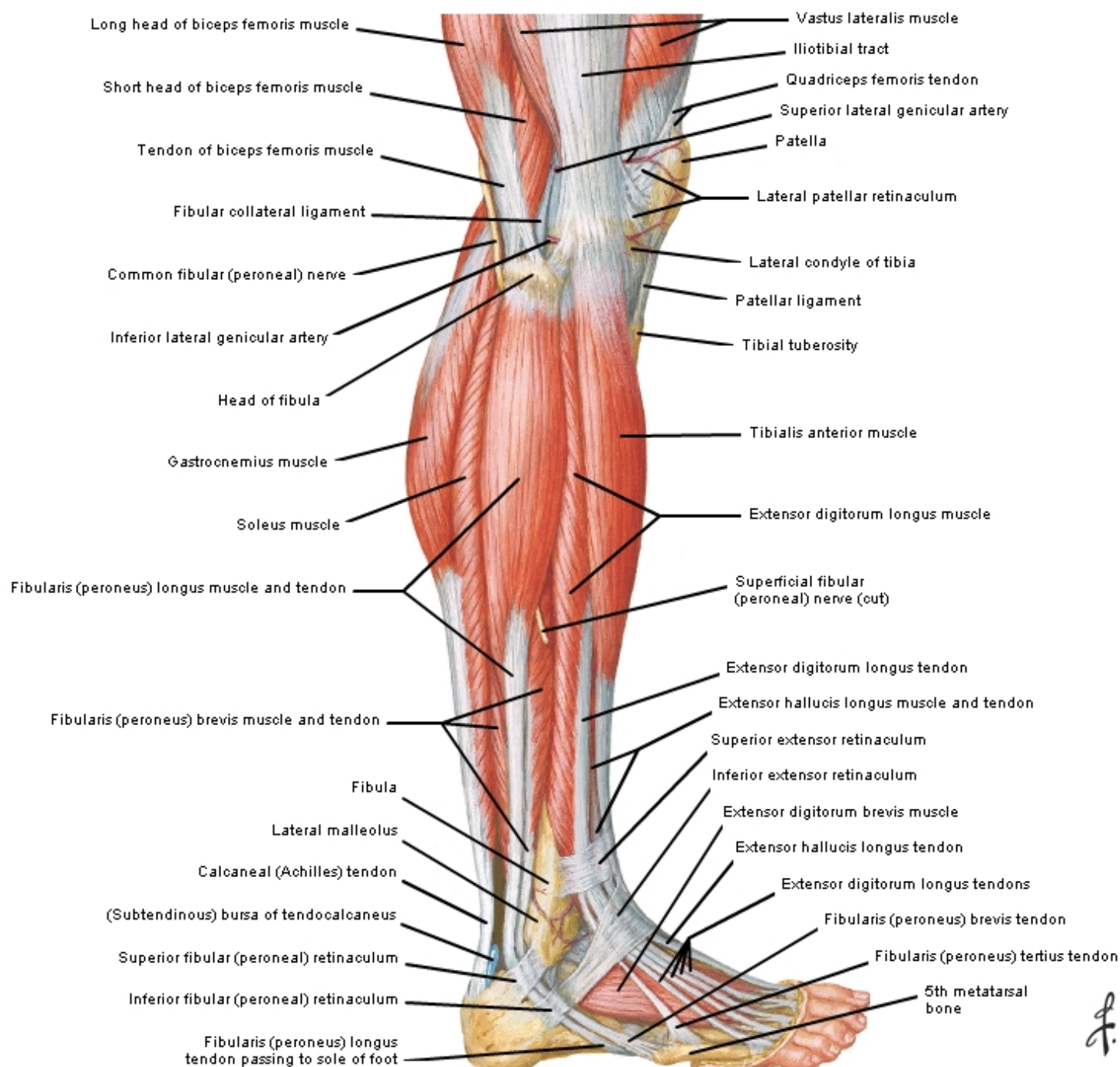
Muscles of Leg (Deep Dissection) Anterior View



F. Netter M.D.
© IGV

LOWER LIMB

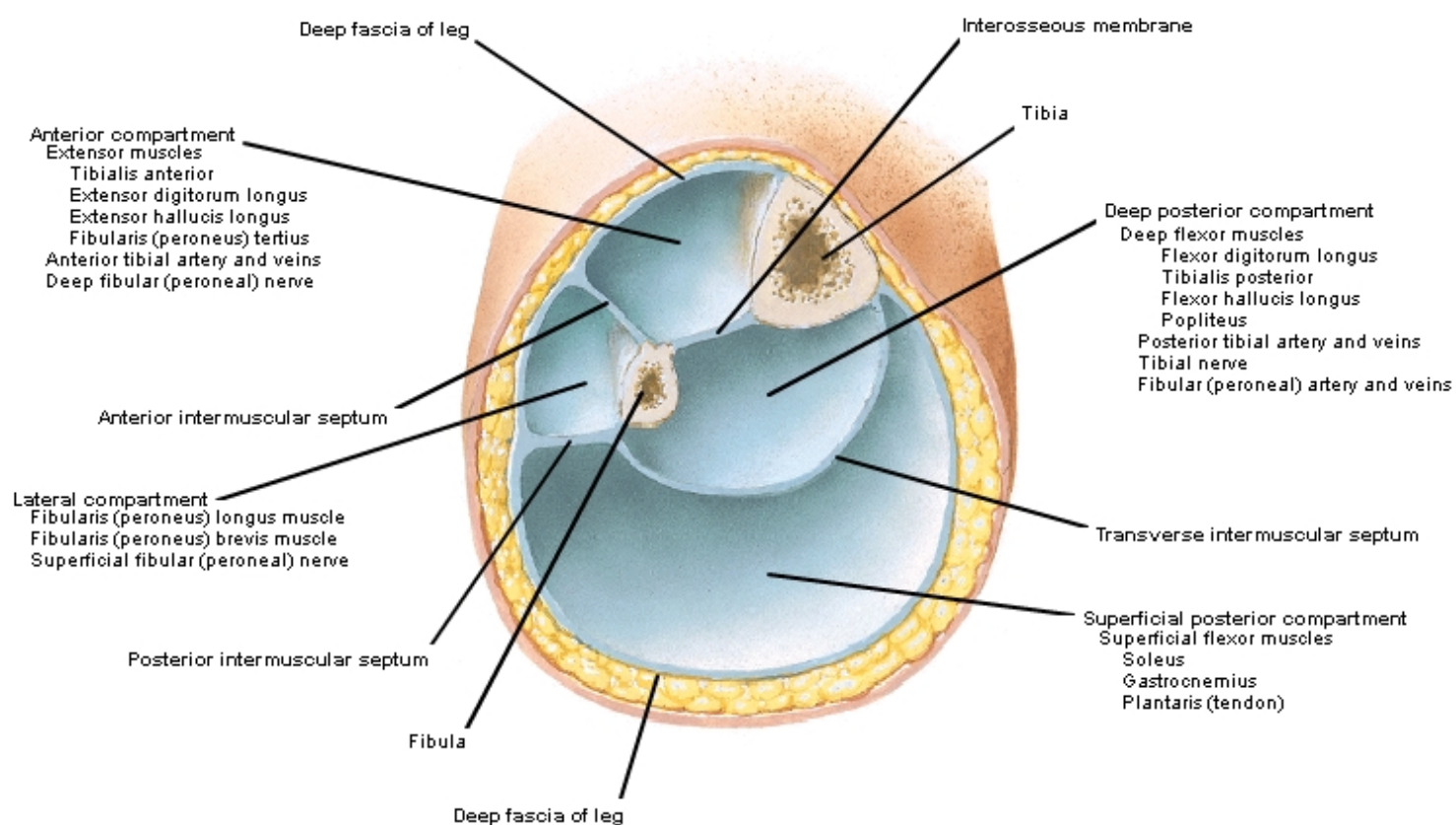
Muscles of Leg Lateral View



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LOWER LIMB

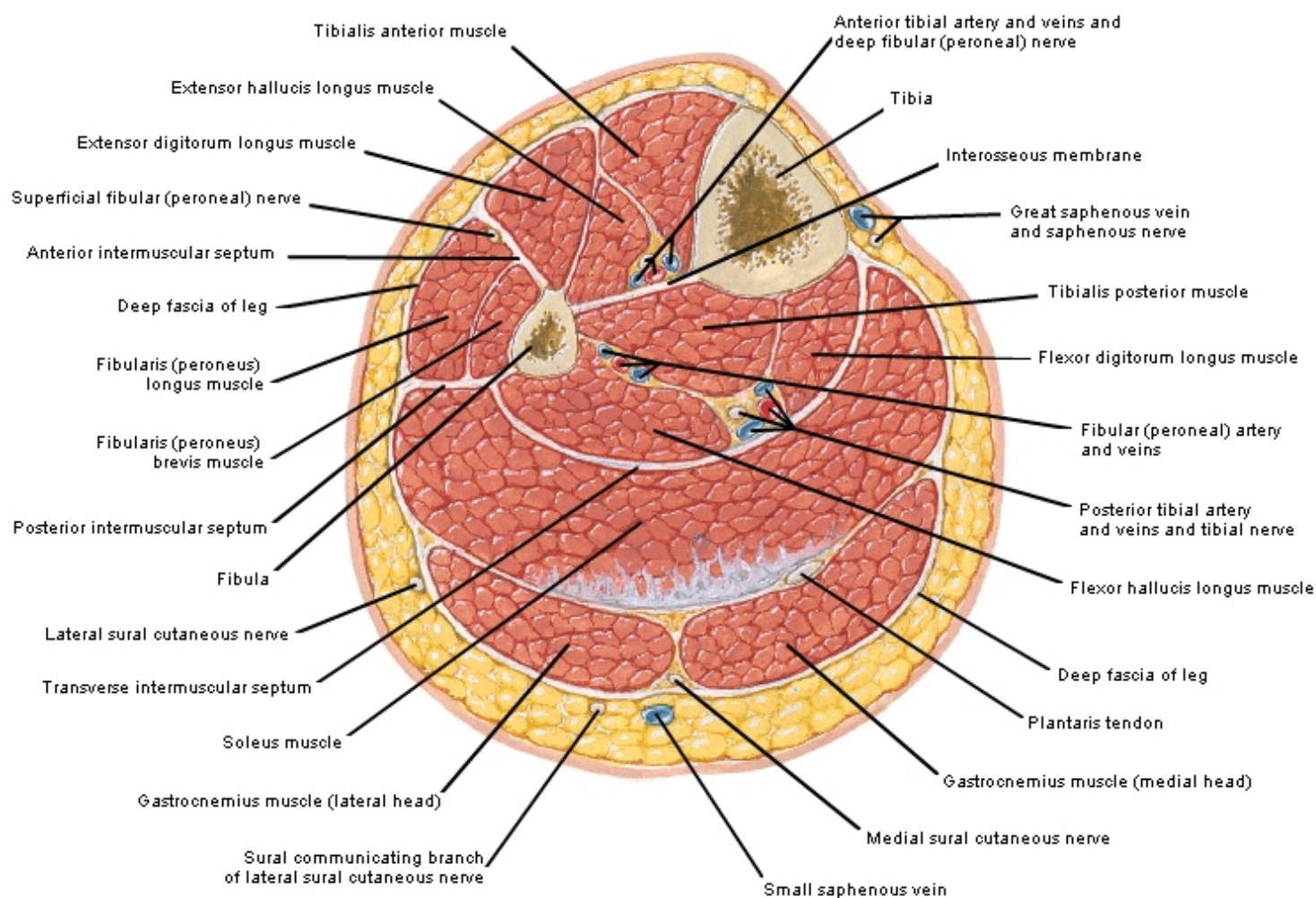
Leg Cross Section - Fascial Compartments



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LOWER LIMB

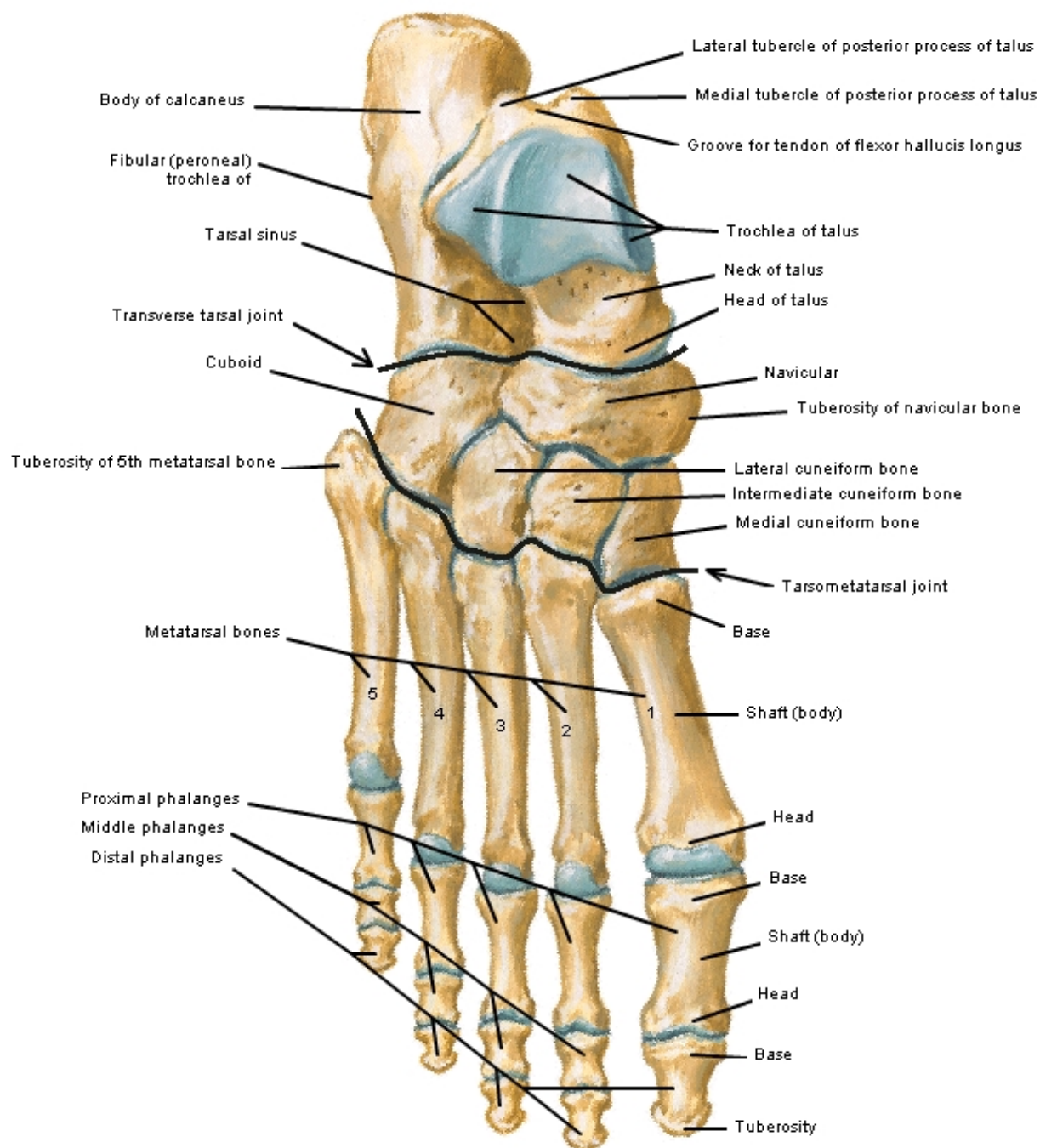
Leg Cross Section just above Middle of Leg



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LOWER LIMB

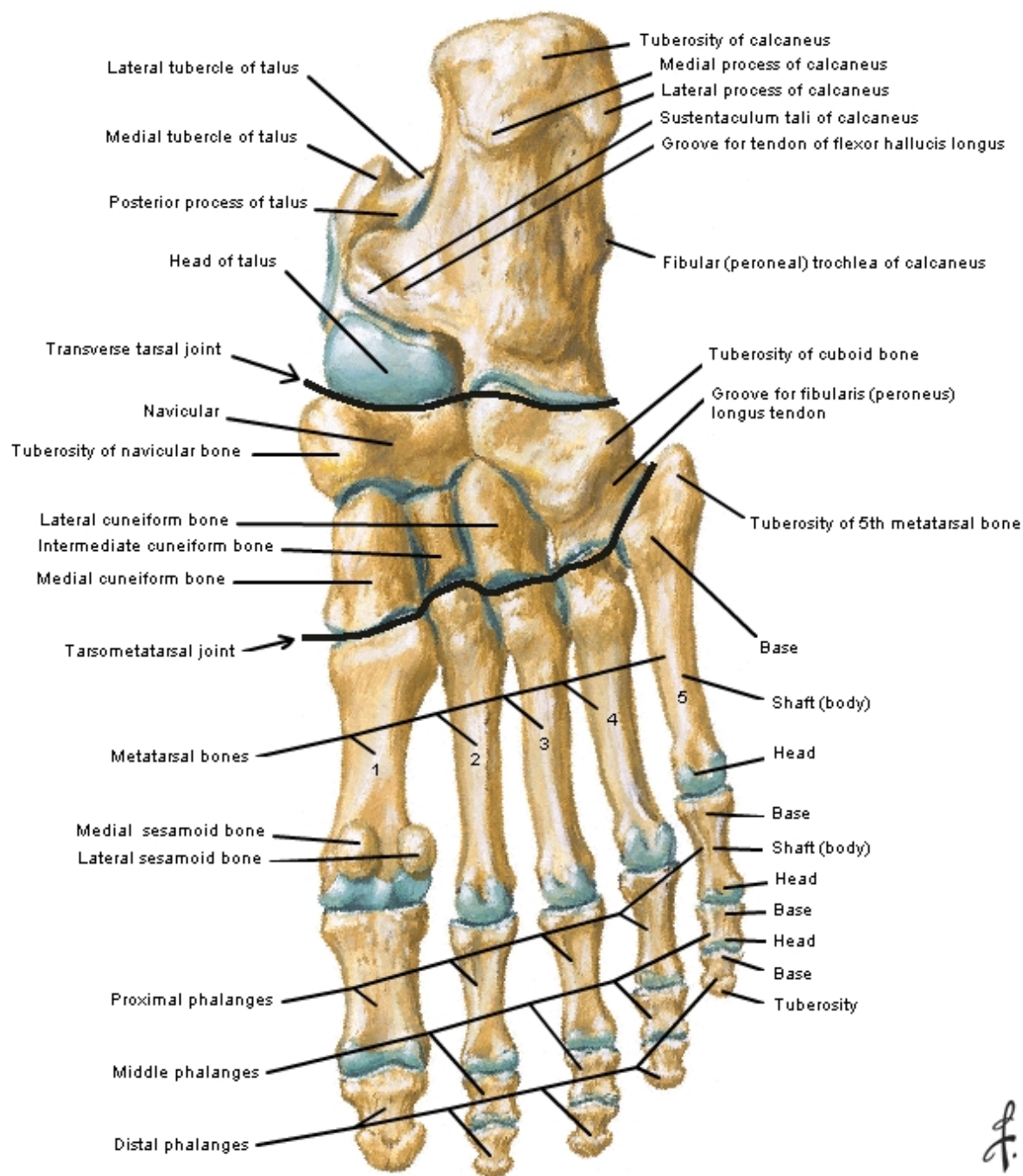
Bones of Foot Dorsal View



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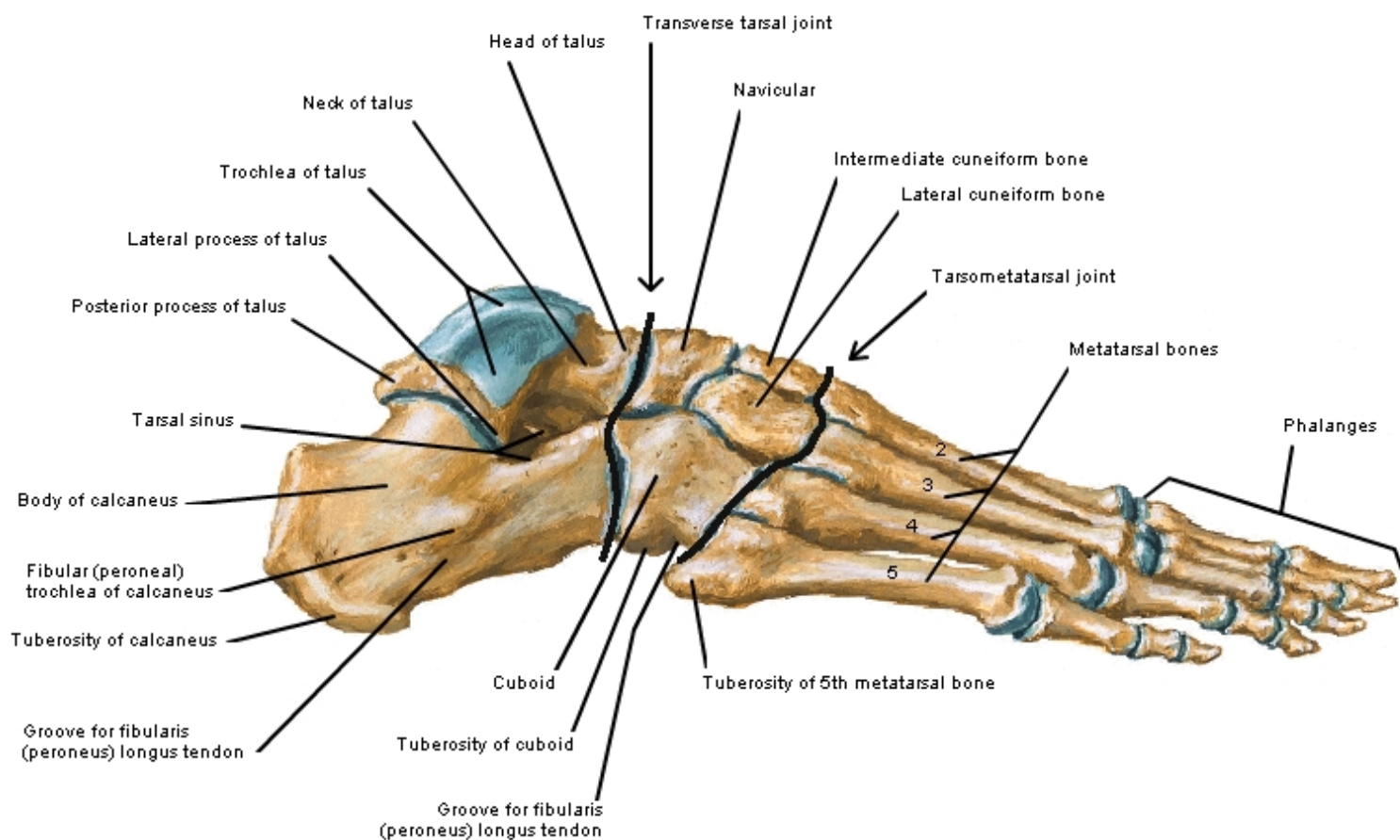
LOWER LIMB

Bones of Foot Plantar View



LOWER LIMB

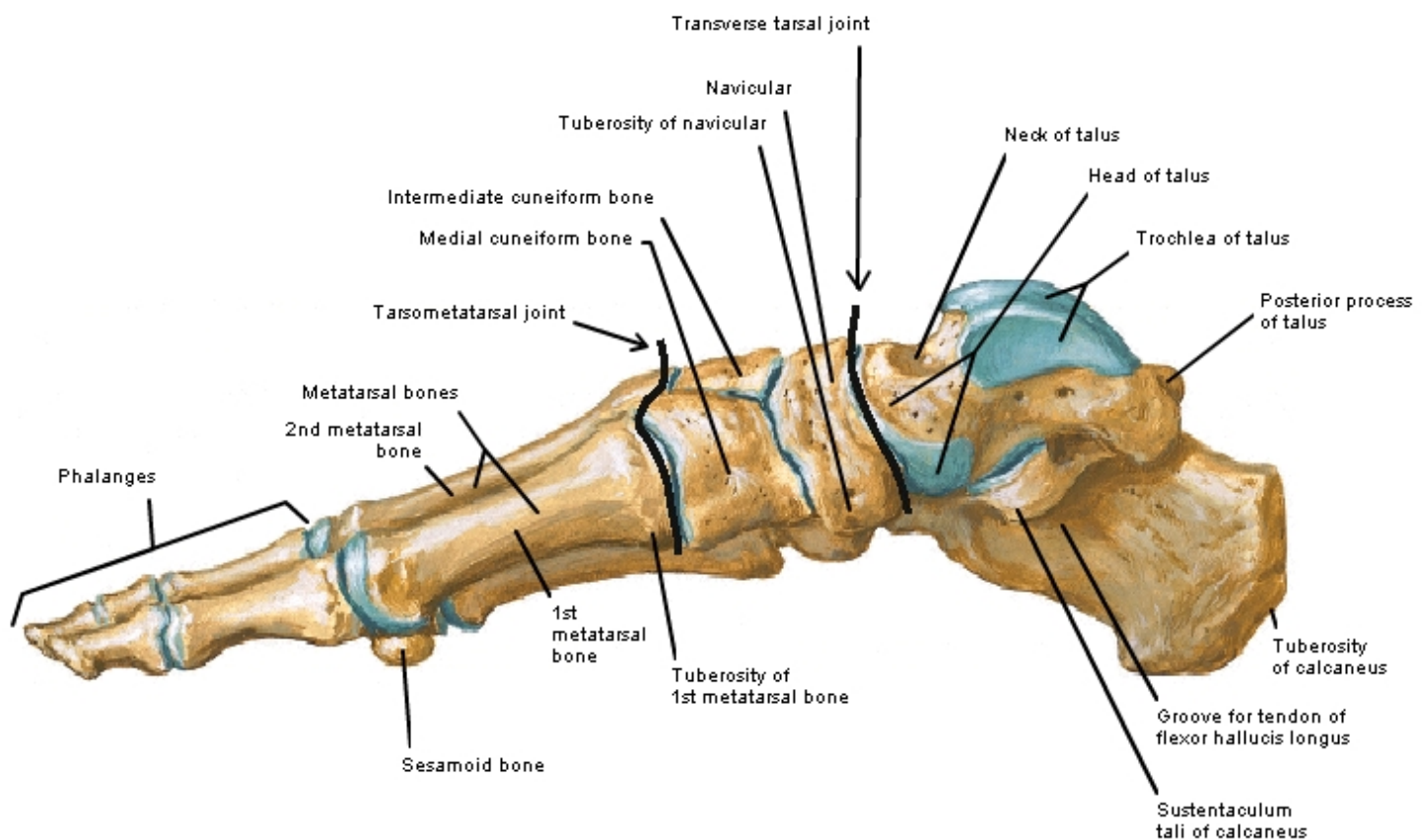
Bones of Foot Lateral View



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LOWER LIMB

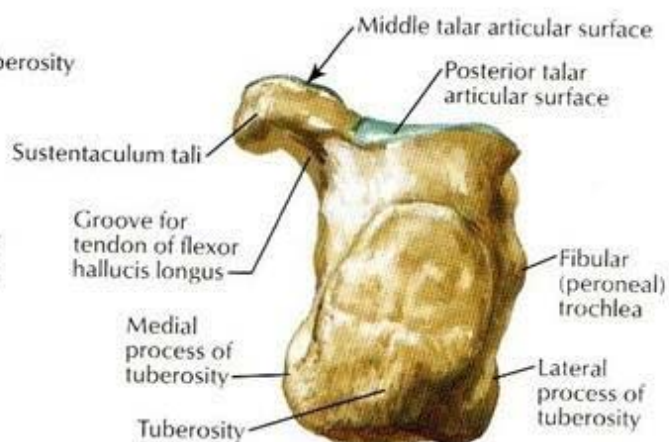
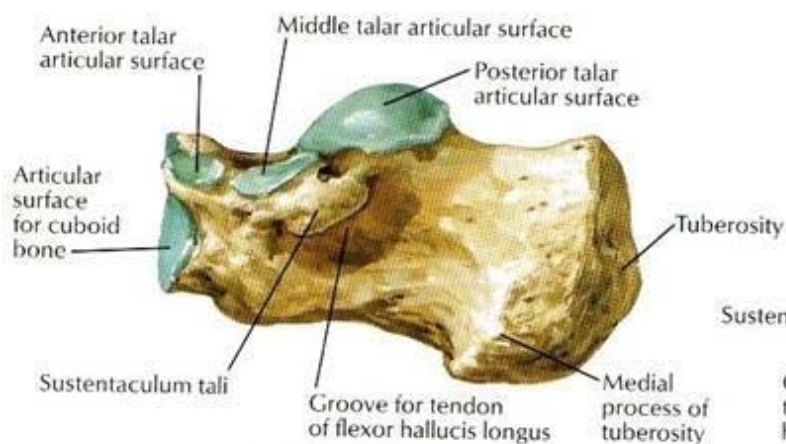
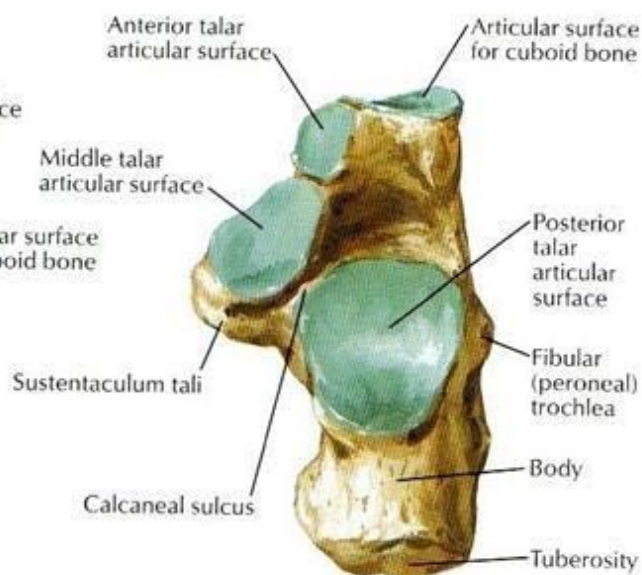
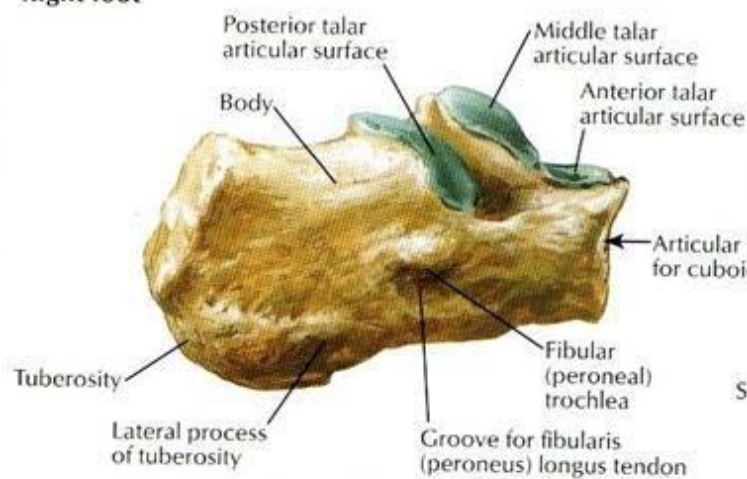
Bones of Foot Medial View



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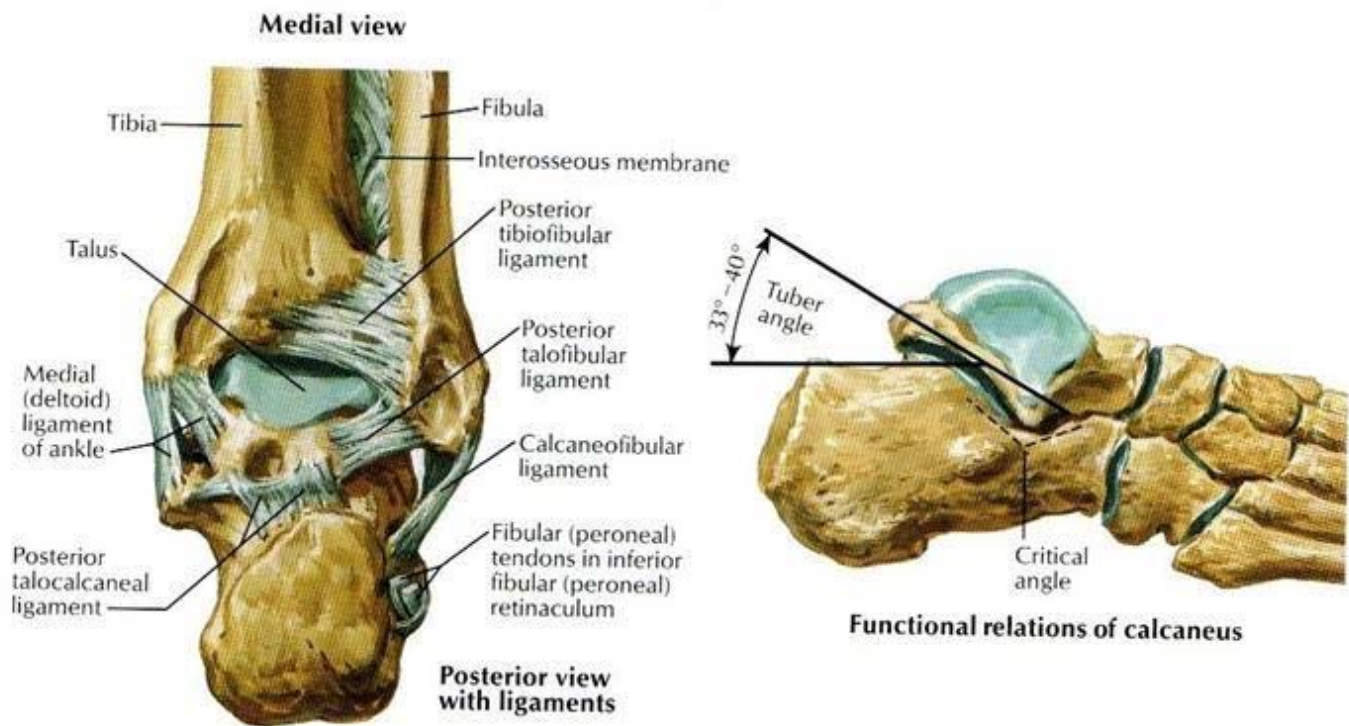
Calcaneus

Right foot



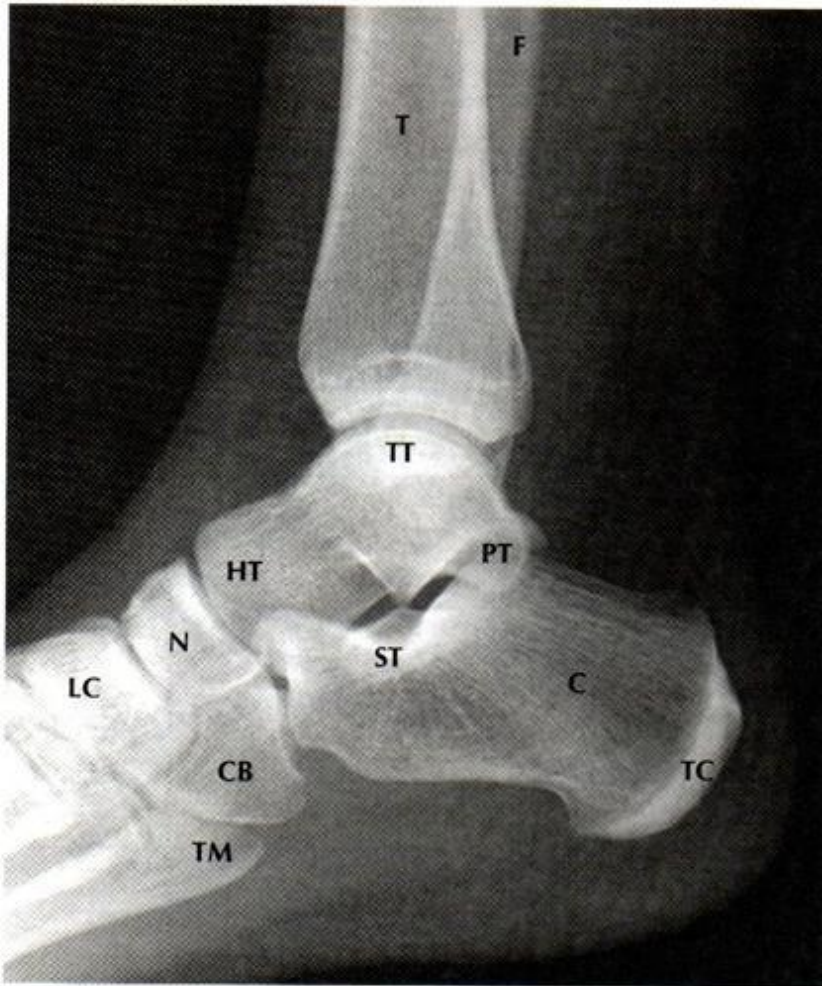
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Calcaneus



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Ankle: Radiograph Lateral View

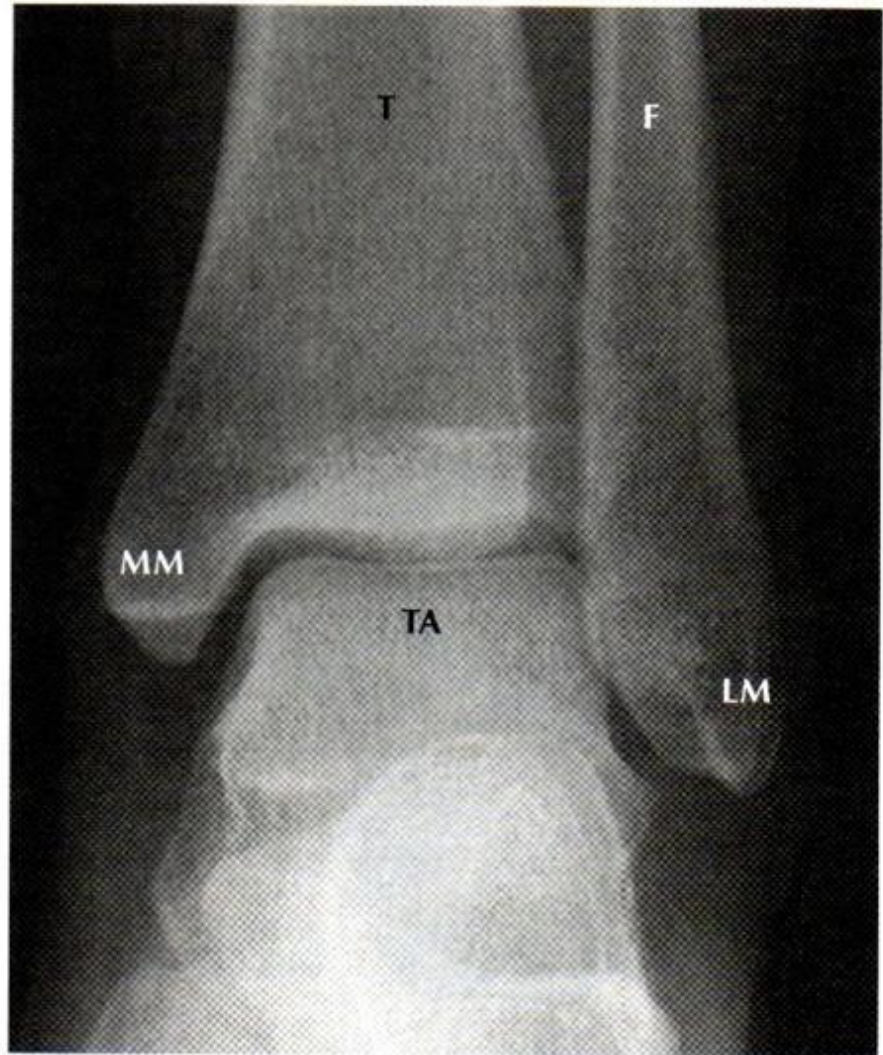


- C Calcaneus
- CB Cuboid
- F Fibula
- HT Head of talus
- LC Lateral cuneiform
- N Navicular
- PT Posterior process of talus
- ST Sustentaculum tali of calcaneus
- T Tibia
- TC Tuberosity of calcaneus
- TM Tuberosity of 5th metatarsal
- TT Trochlea of talus

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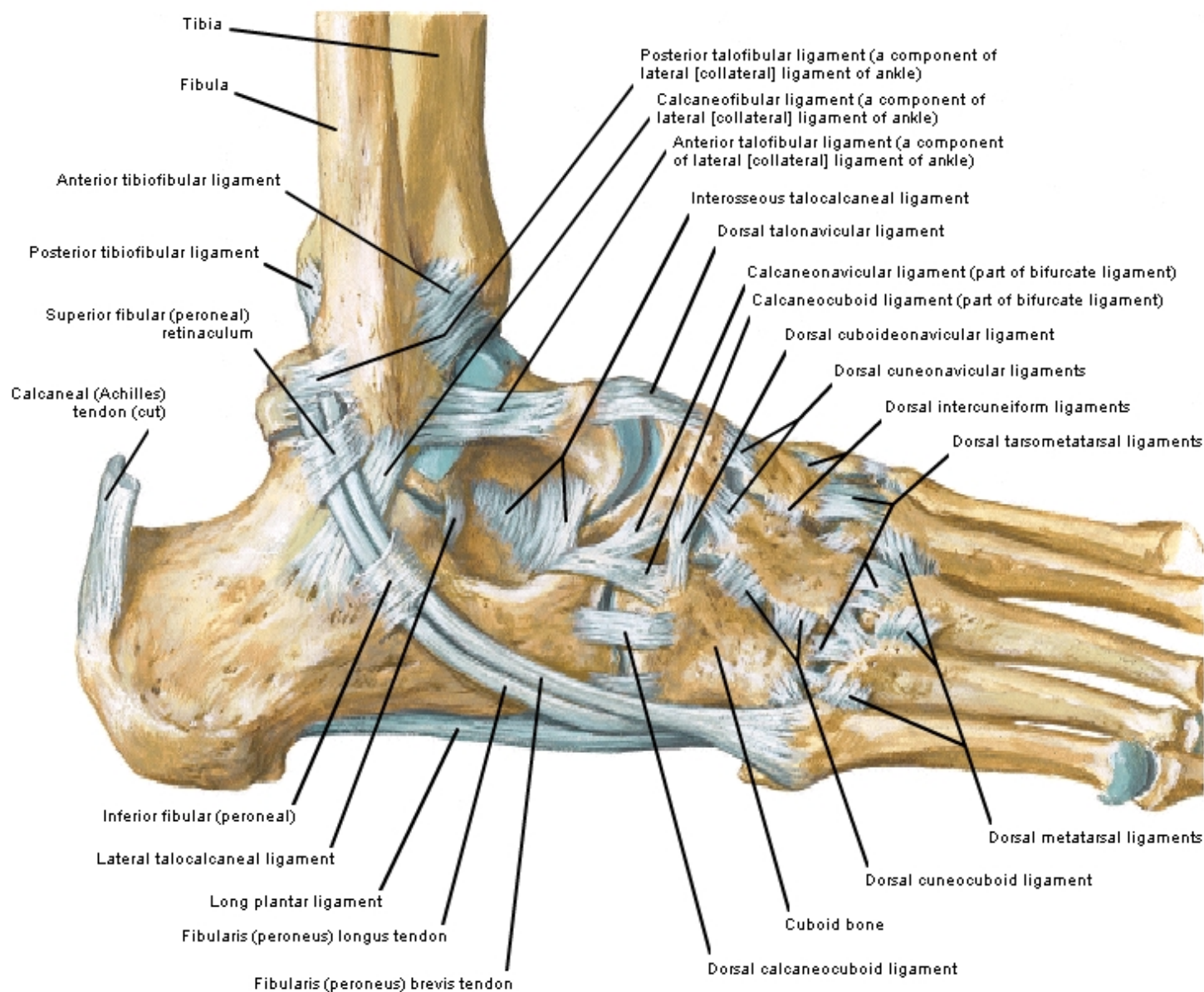
Ankle: Radiograph Anterior View

- F** Fibula
- LM** Lateral malleolus
- MM** Medial malleolus
- T** Tibia
- TA** Talus



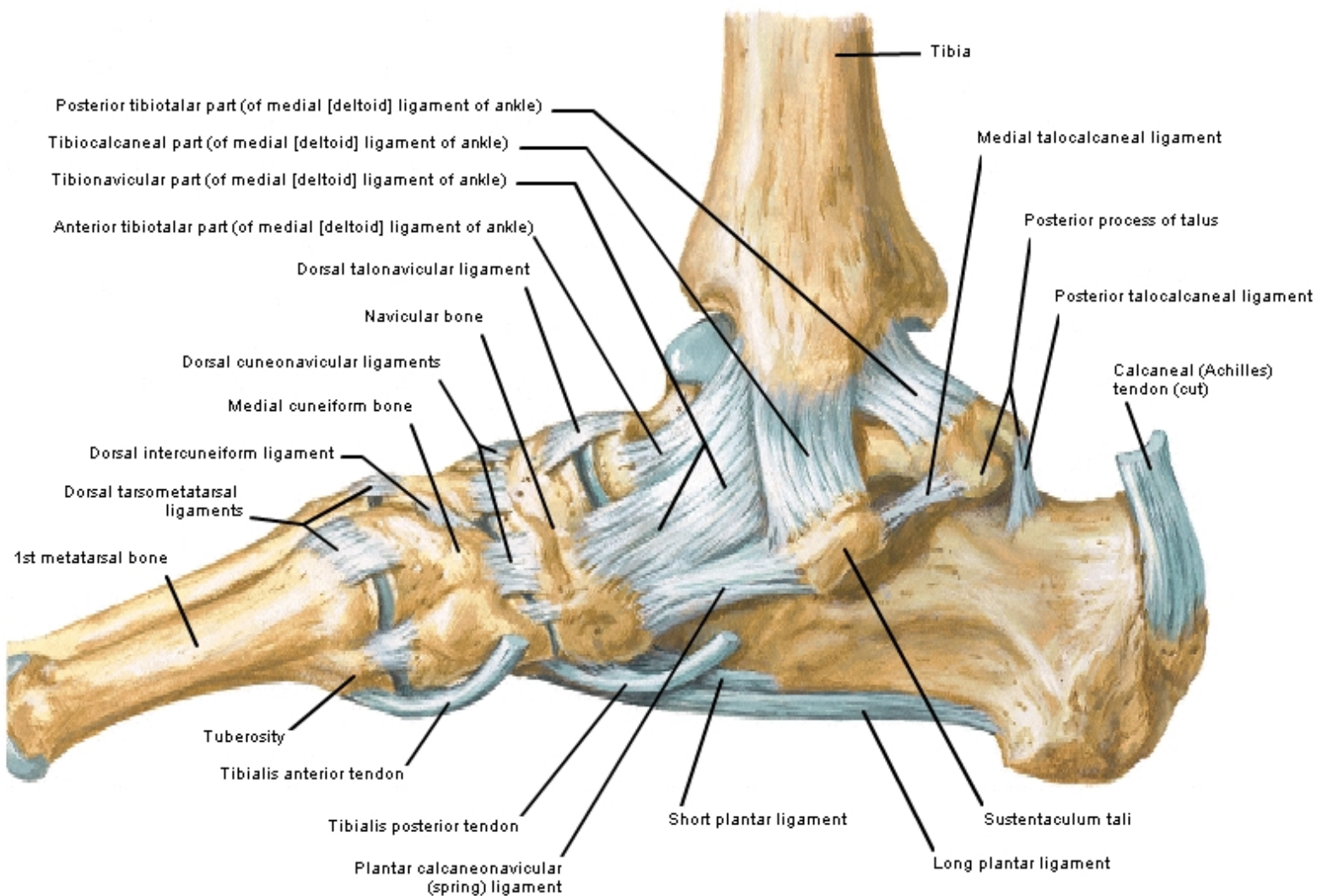
F. Netter M.D.
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Ligaments and Tendons of Right Ankle Lateral View



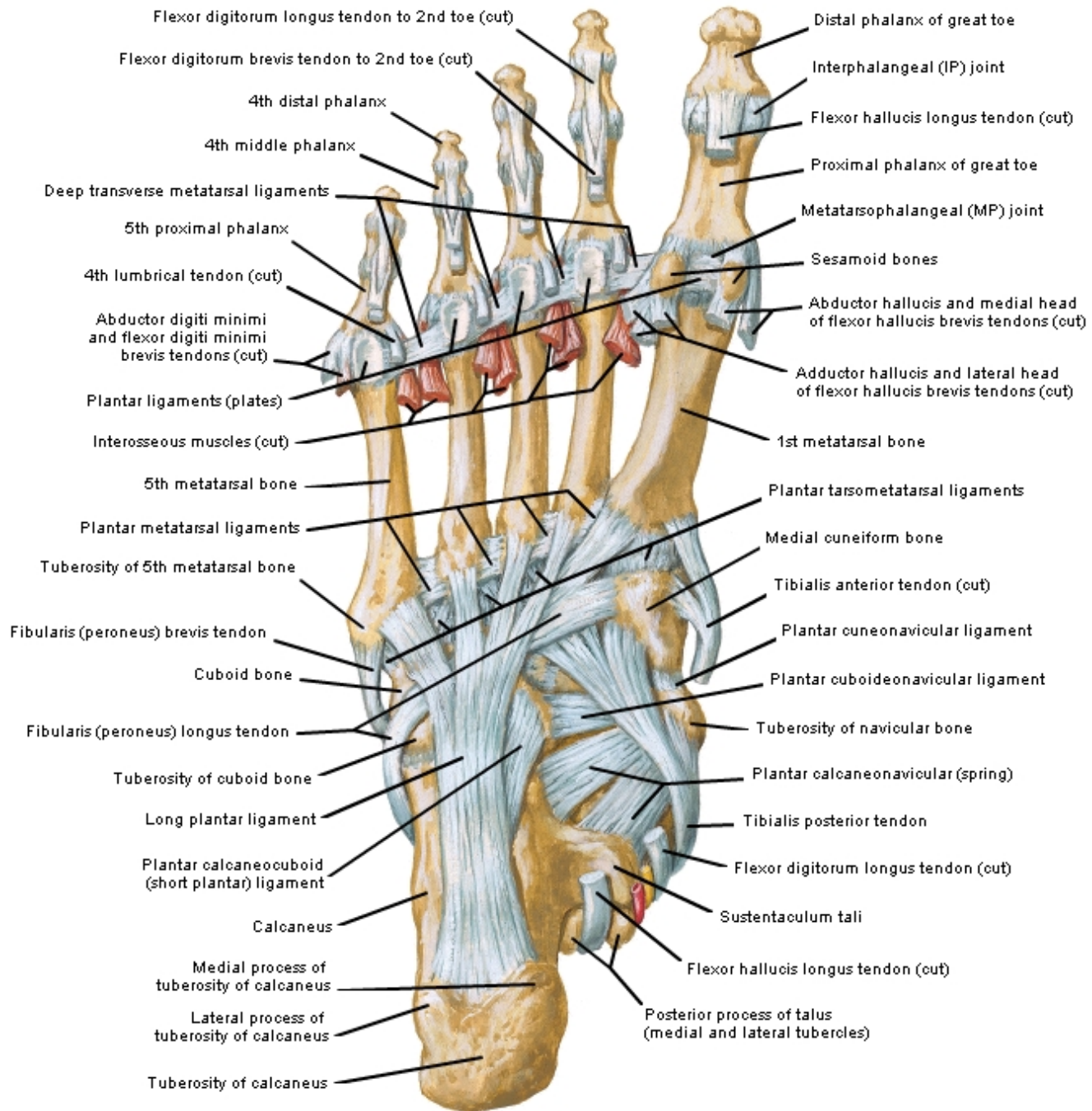
F. Netter M.D.
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Ligaments and Tendons of Right Ankle Medial View



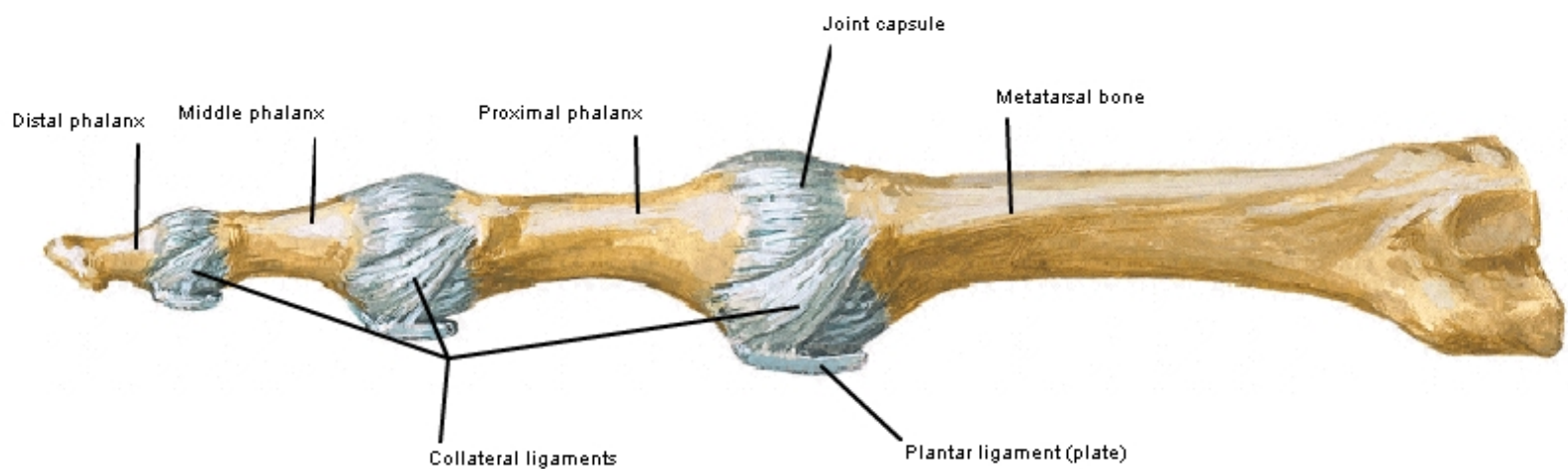
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Ligaments and Tendons of Foot Plantar View



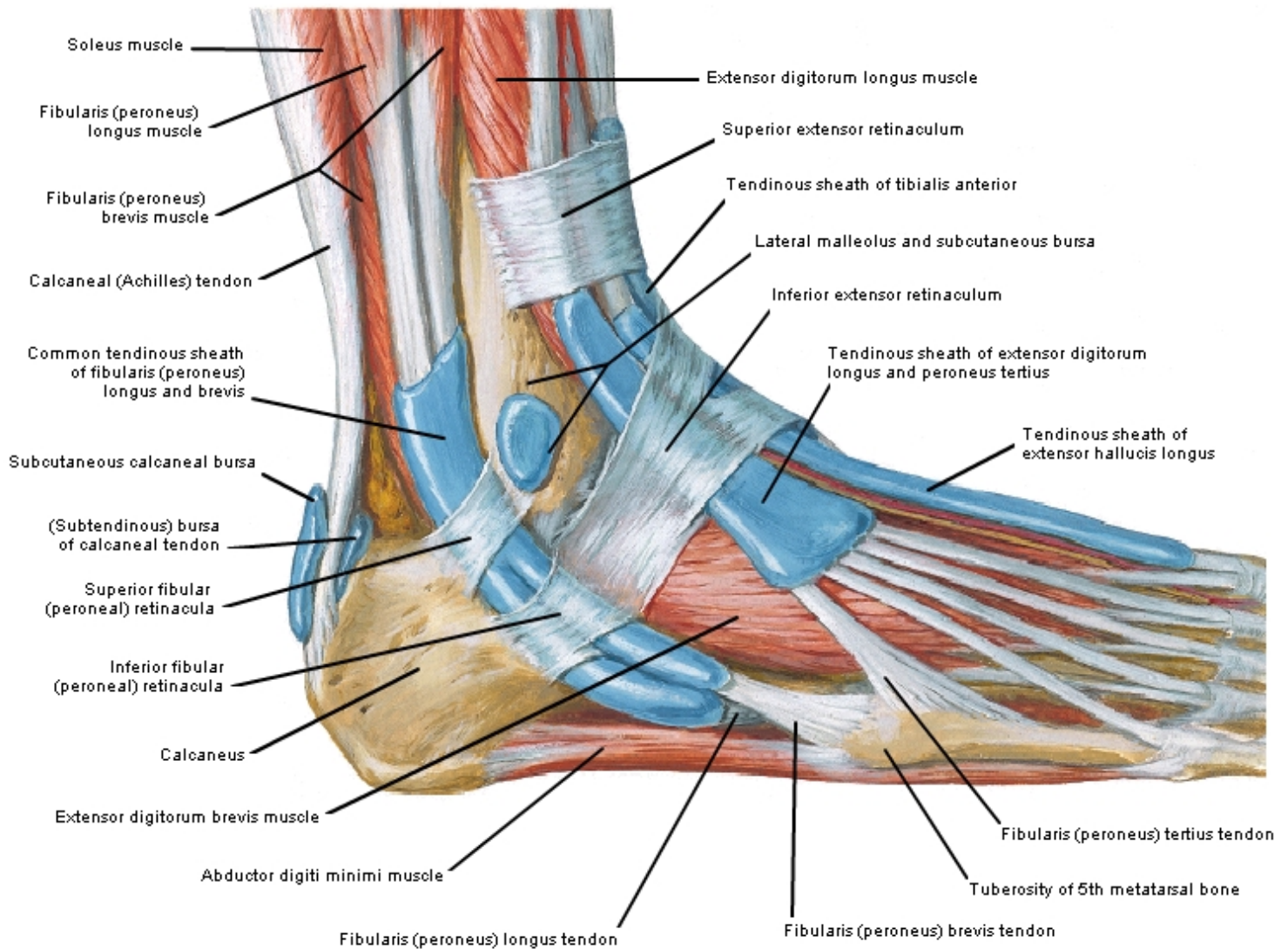
F. Netter M.D.
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Metatarsophalangeal and Interphalangeal Joints Lateral View



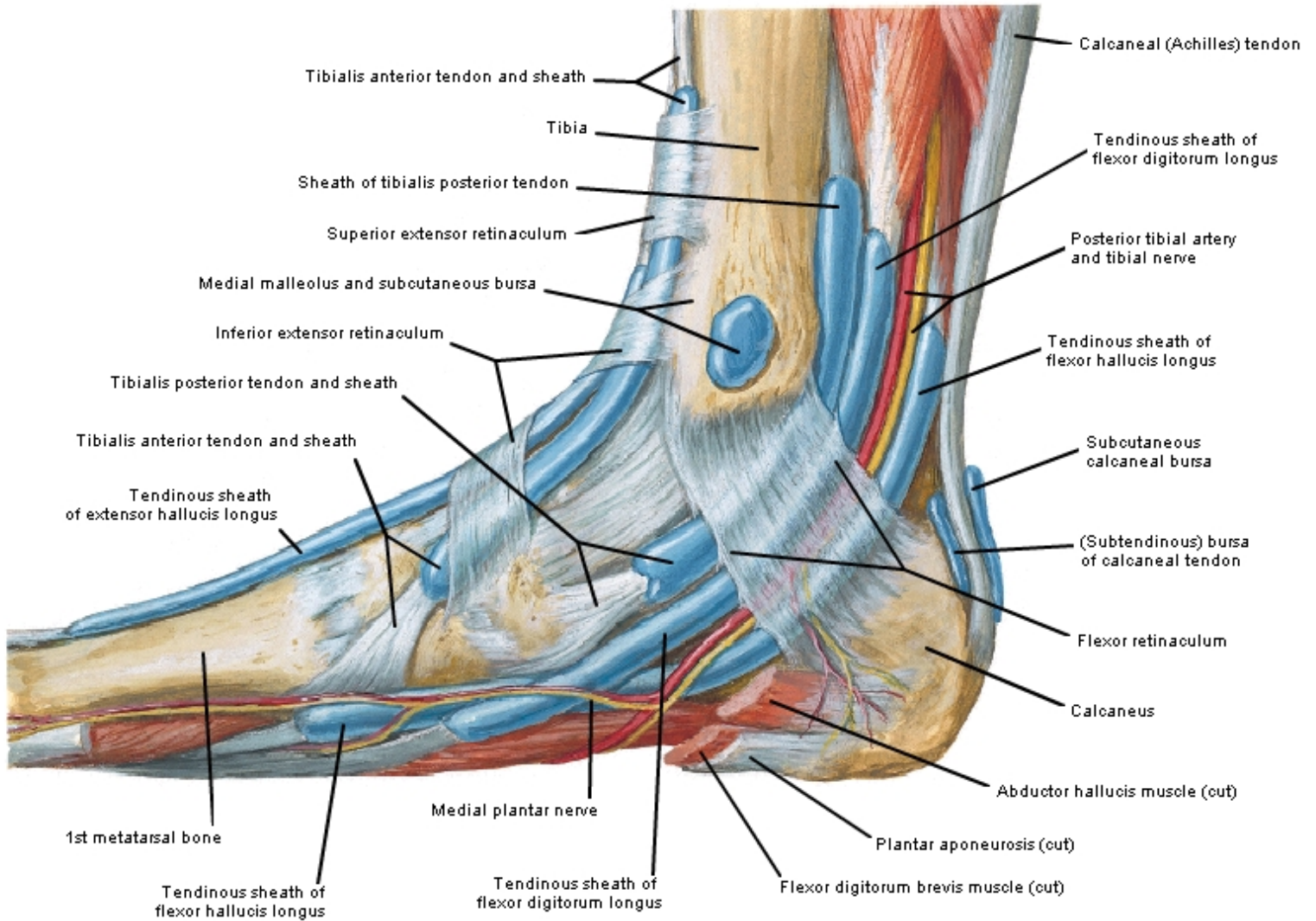
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Tendon Sheaths of Ankle Lateral View



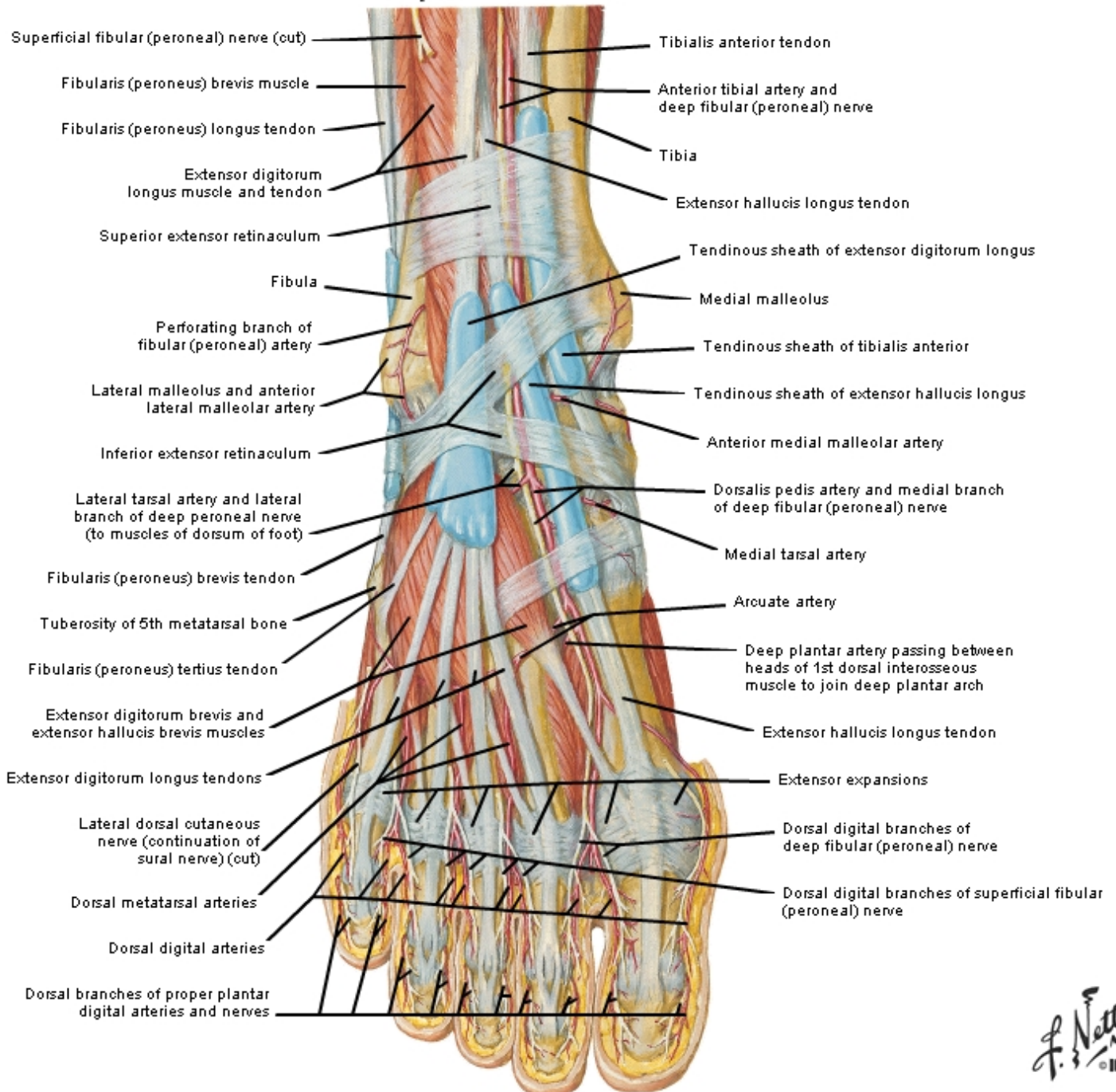
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Tendon Sheaths of Ankle Medial View



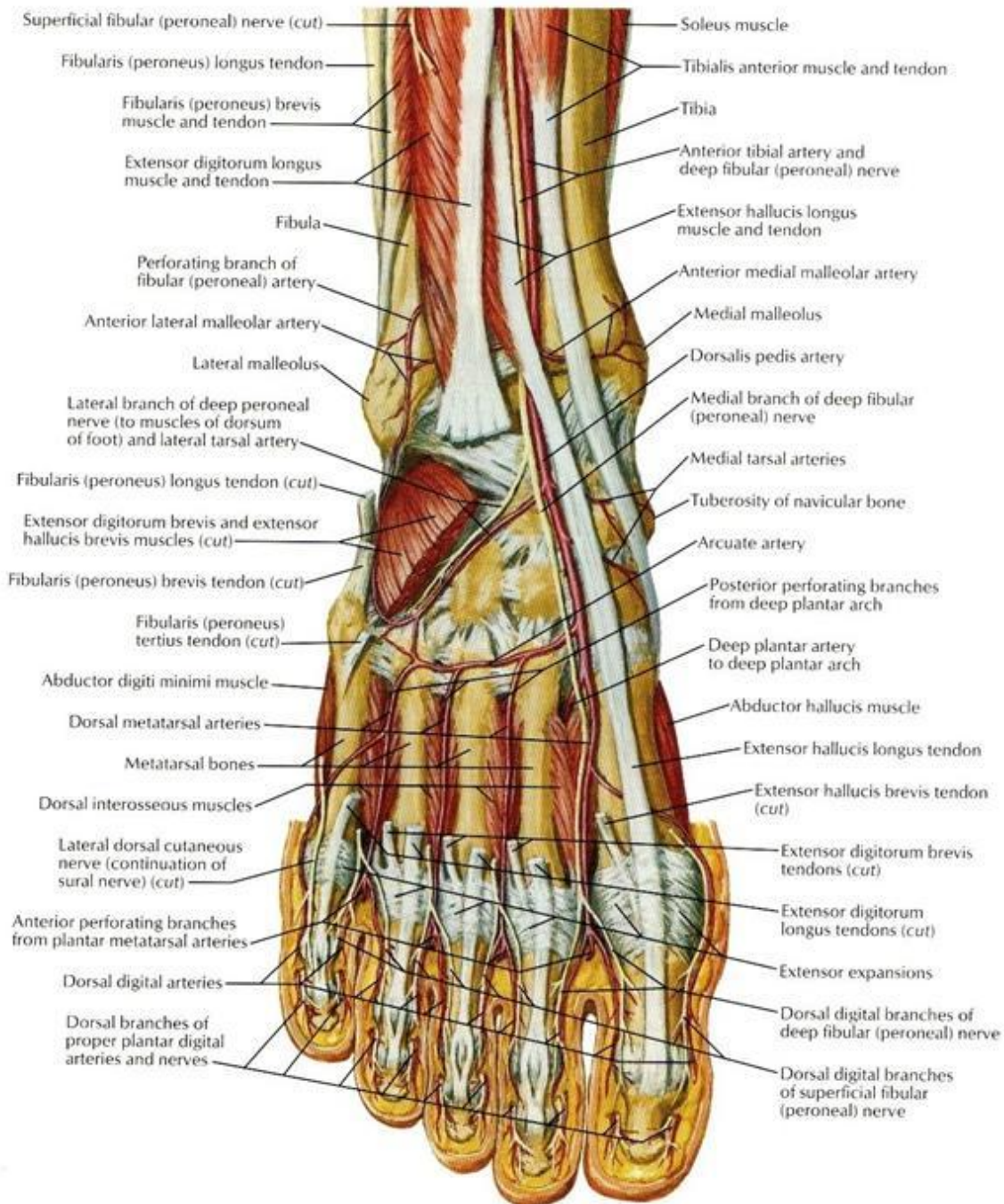
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Muscles of Dorsum of Foot Superficial Dissection



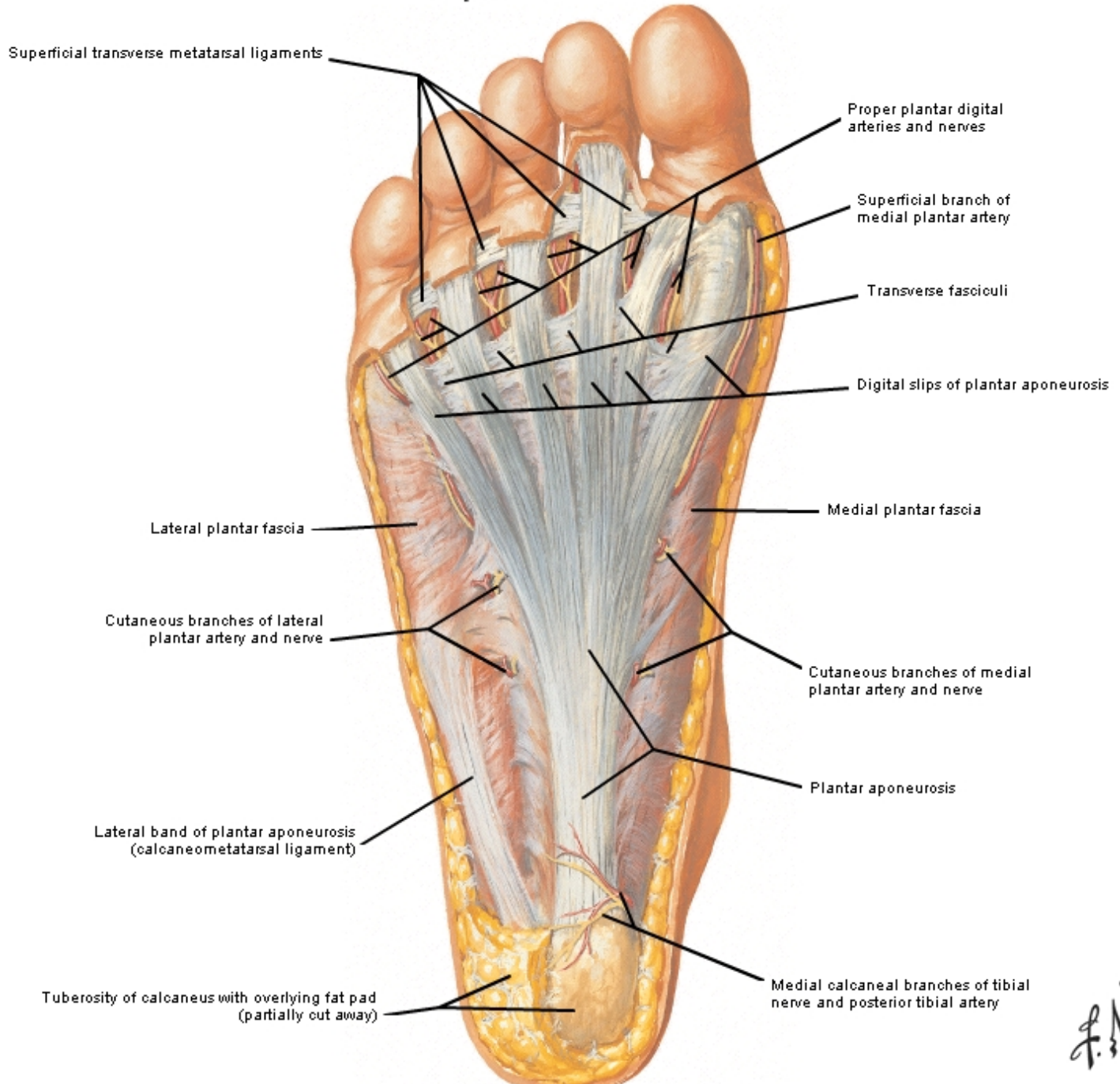
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Dorsum of Foot: Deep Dissection



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Sole of Foot Superficial Dissection



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Muscles of Sole of Foot First Layer



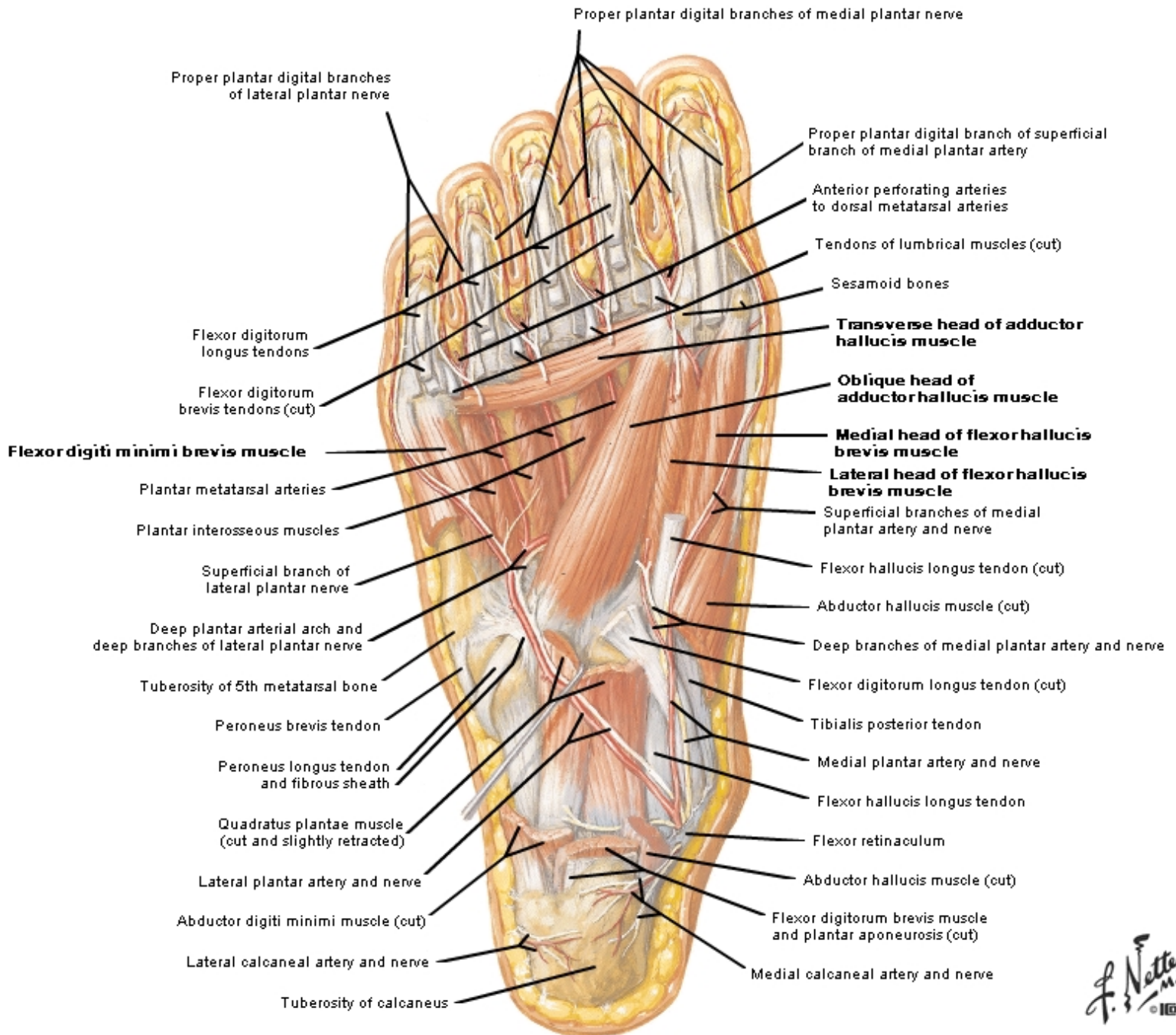
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Muscles of Sole of Foot Second Layer



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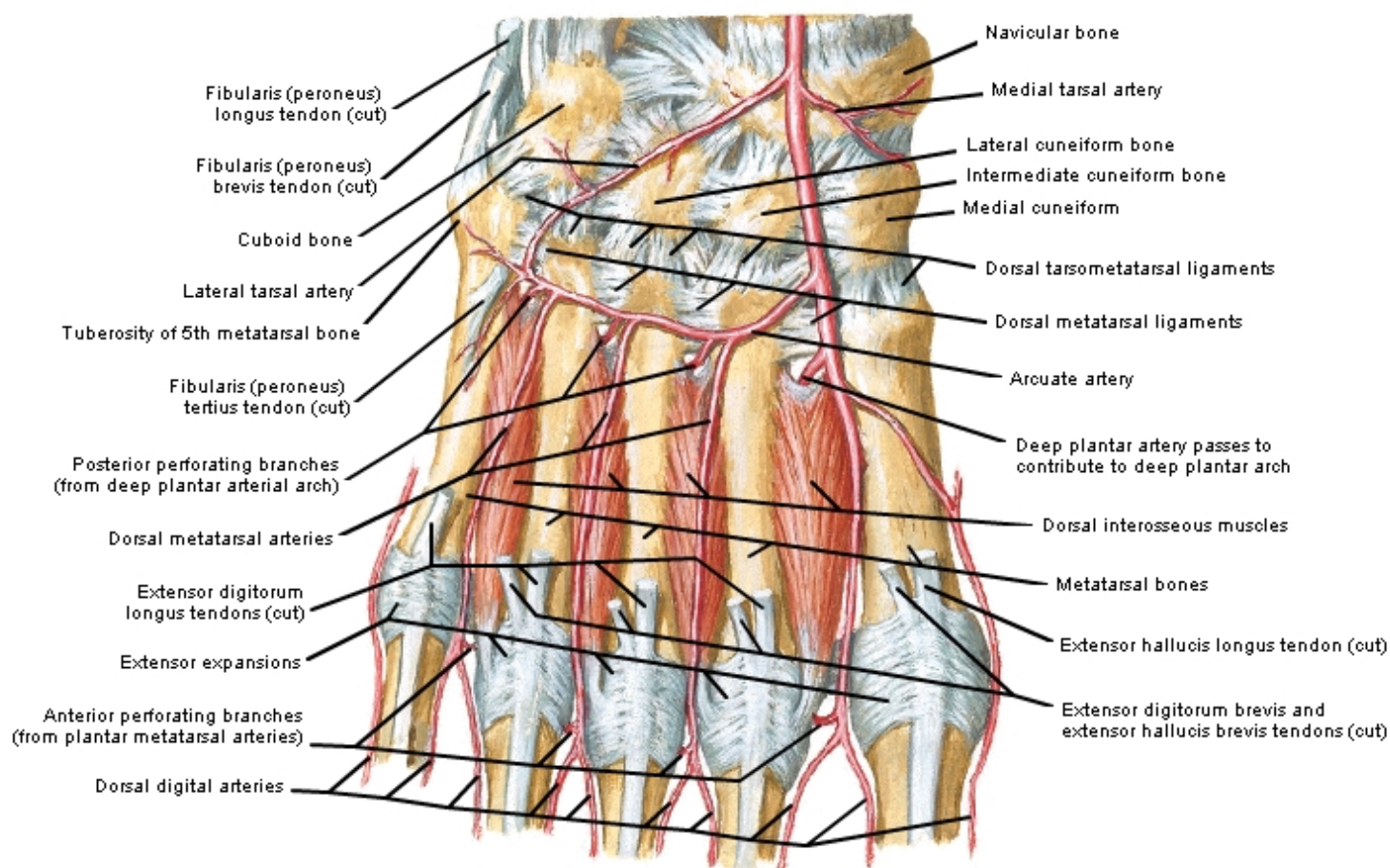
Muscles of Sole of Foot Third Layer



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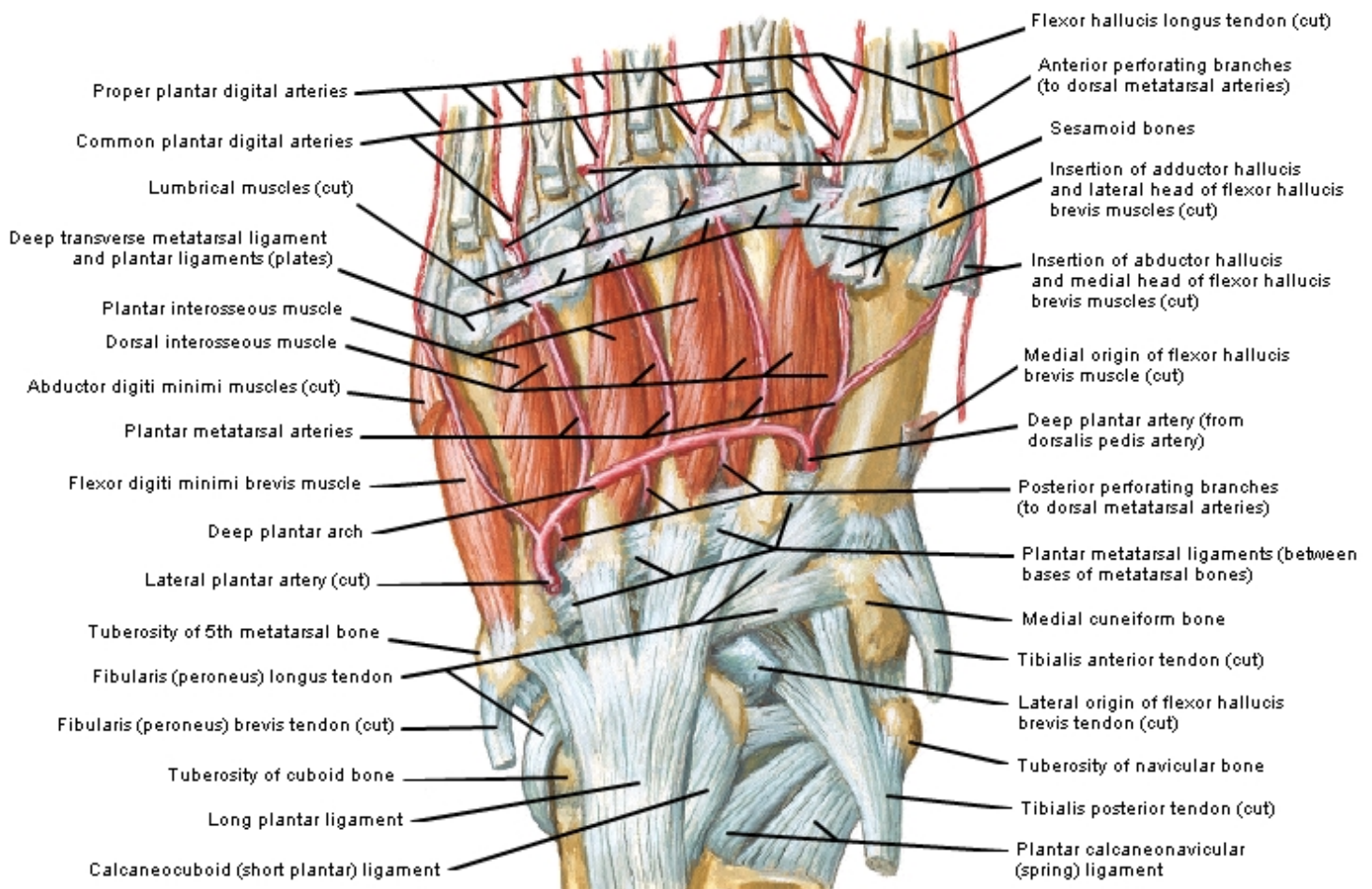
LOWER LIMB

Interosseous Muscles and Deep Arteries of Foot Dorsal View



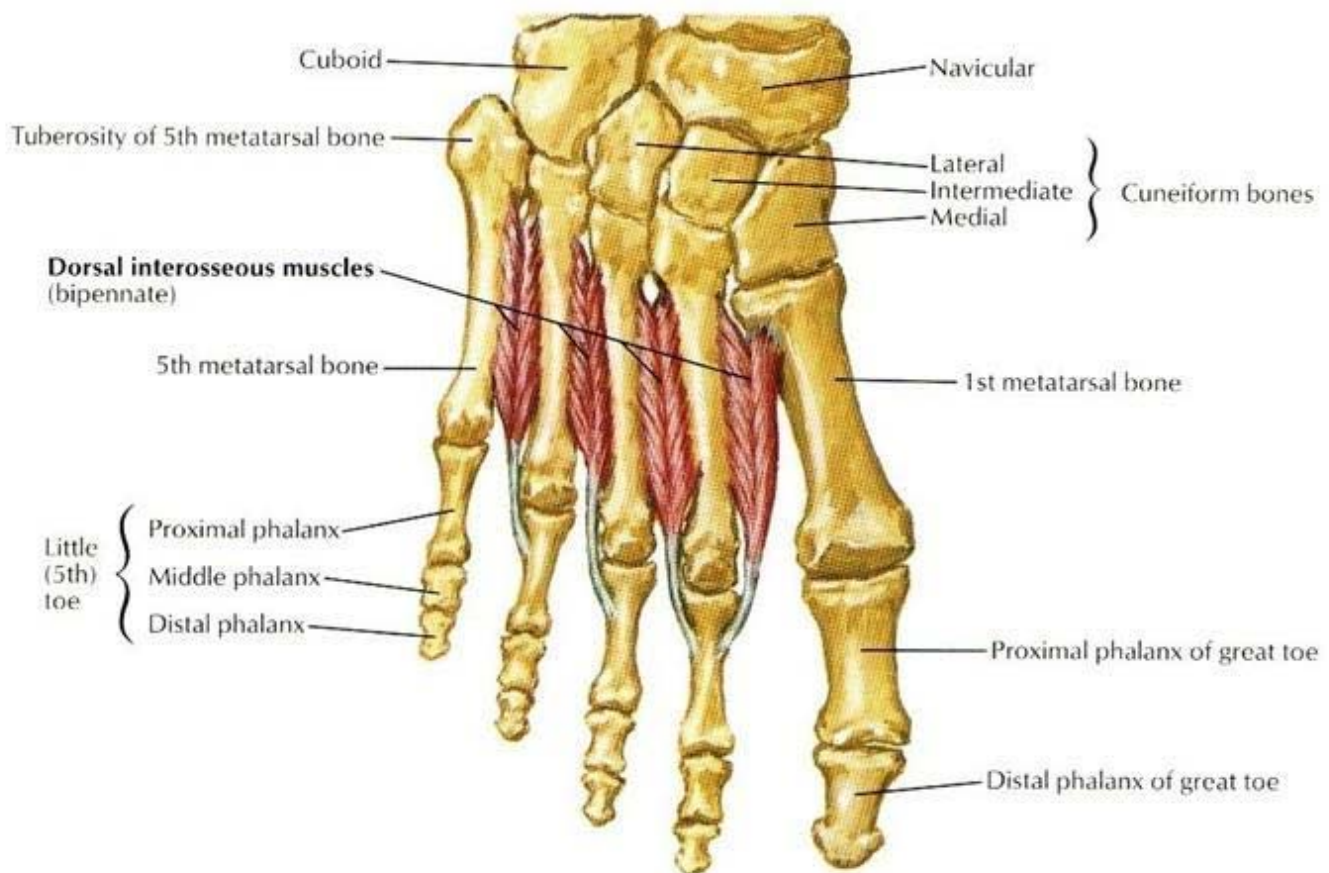
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Interosseous Muscles and Deep Arteries of Foot Plantar View



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Interosseous Muscles of Foot: Dorsal View



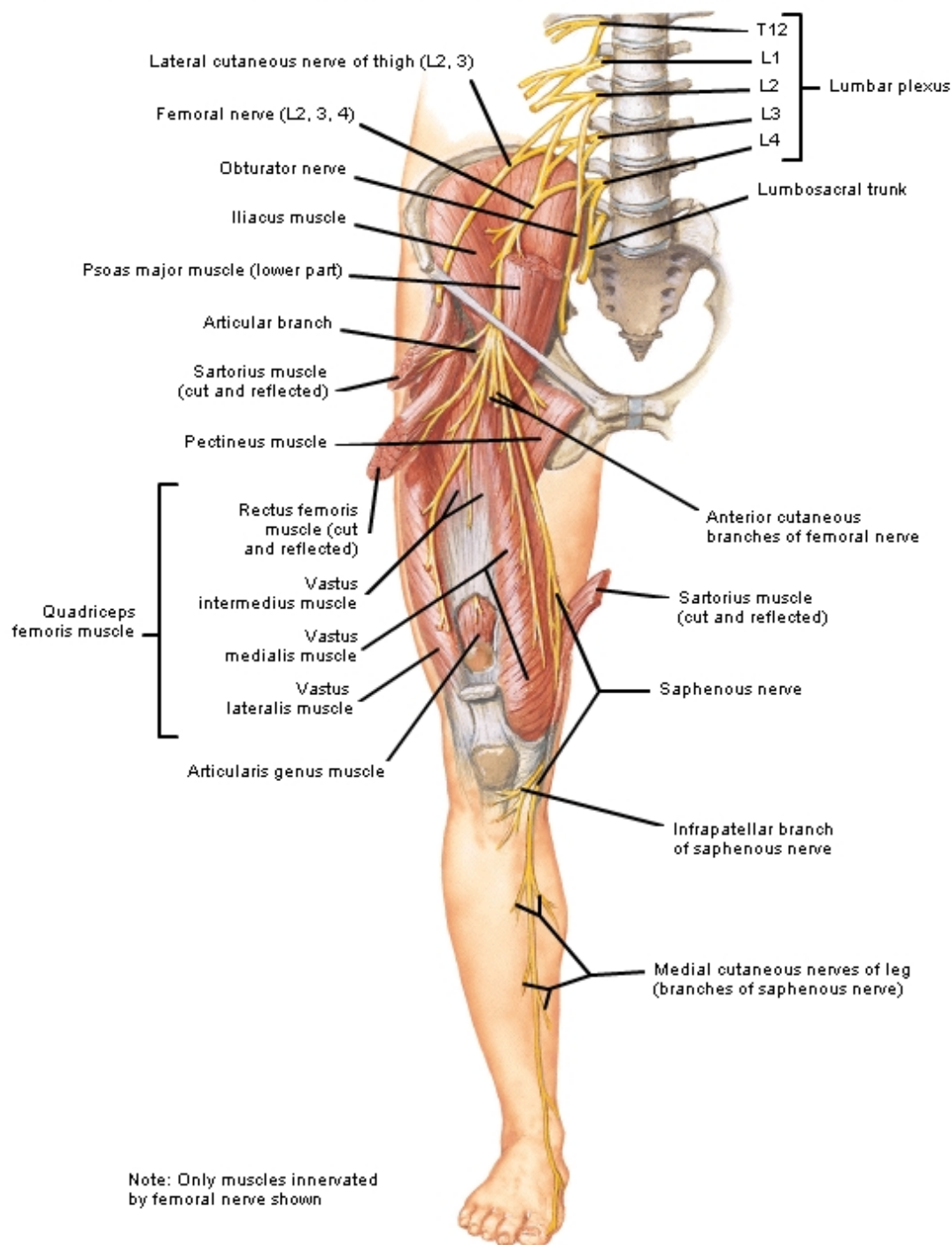
F. Netter M.D.
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Interosseous Muscles of Foot: Planter View



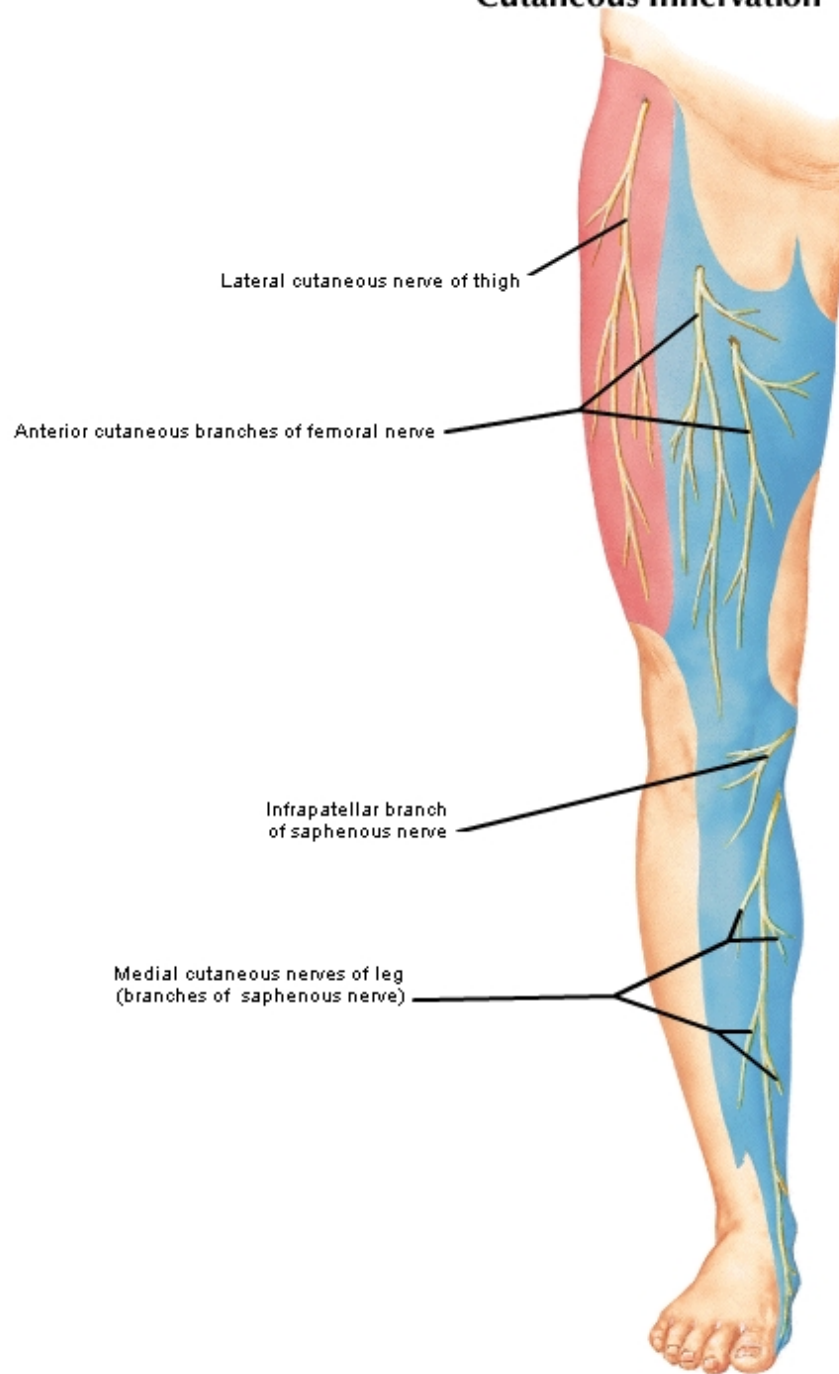
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Femoral Nerve and Lateral Cutaneous Nerve of Thigh



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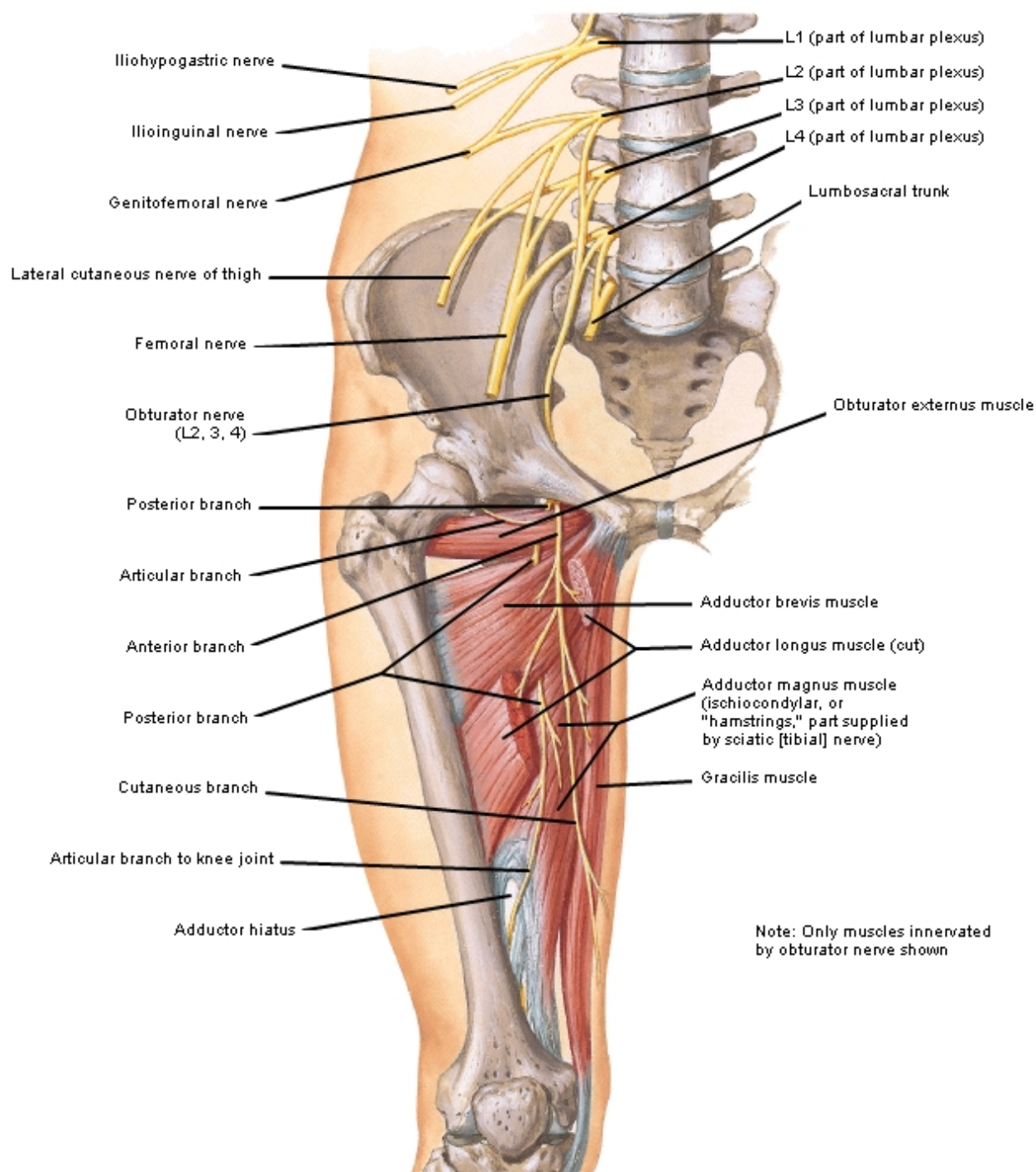
Femoral Nerve and Lateral Cutaneous Nerve of Thigh Cutaneous Innervation



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LOWER LIMB

Obturator Nerve



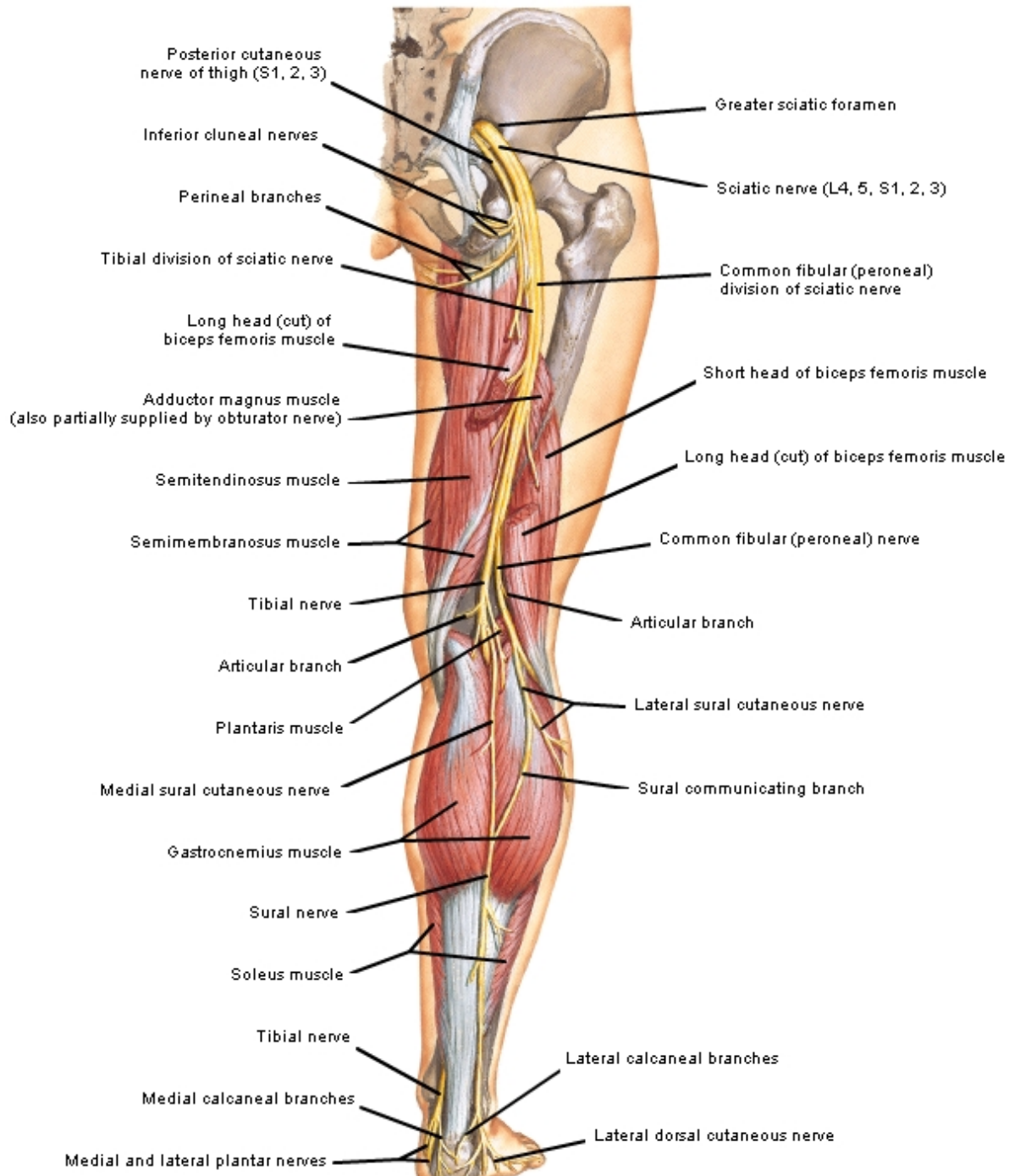
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Obturator Nerve Cutaneous Innervation



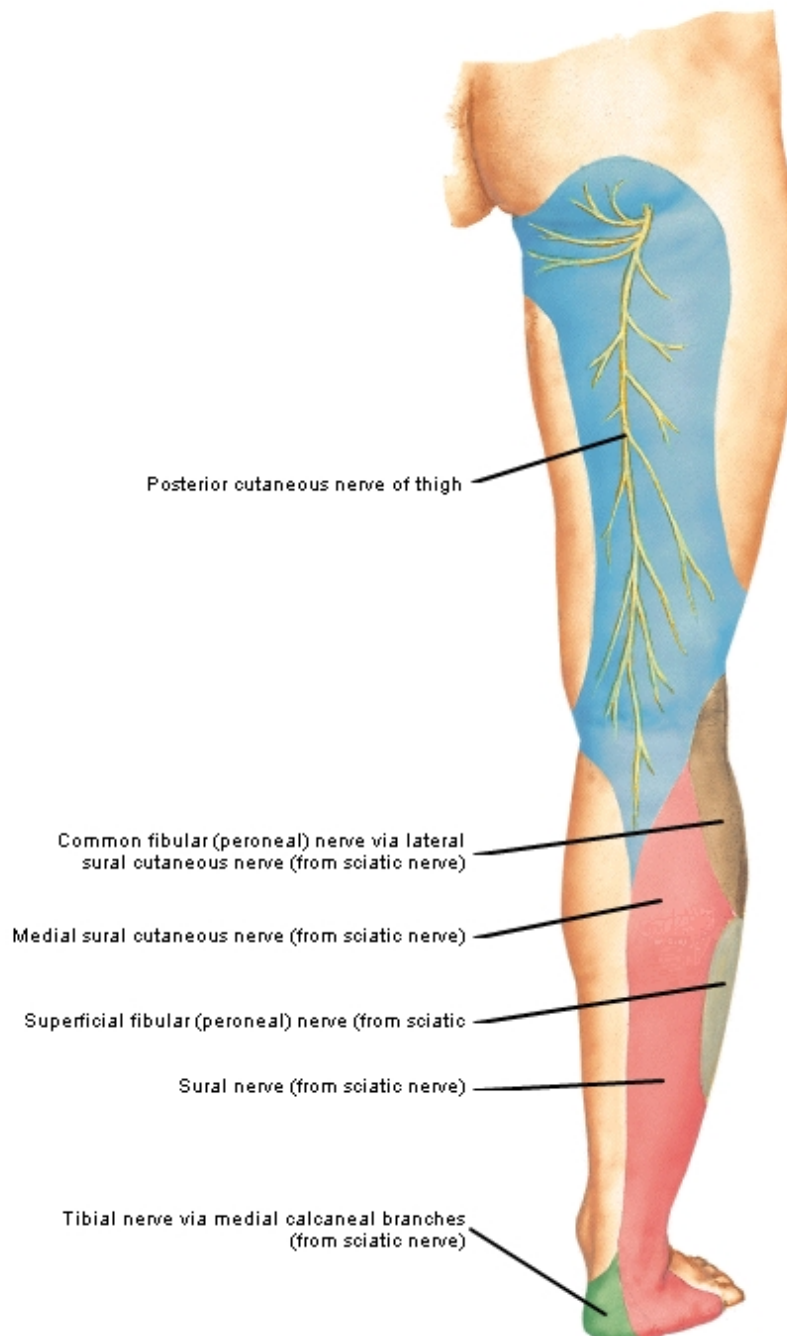
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Sciatic Nerve and Posterior Cutaneous Nerve of Thigh

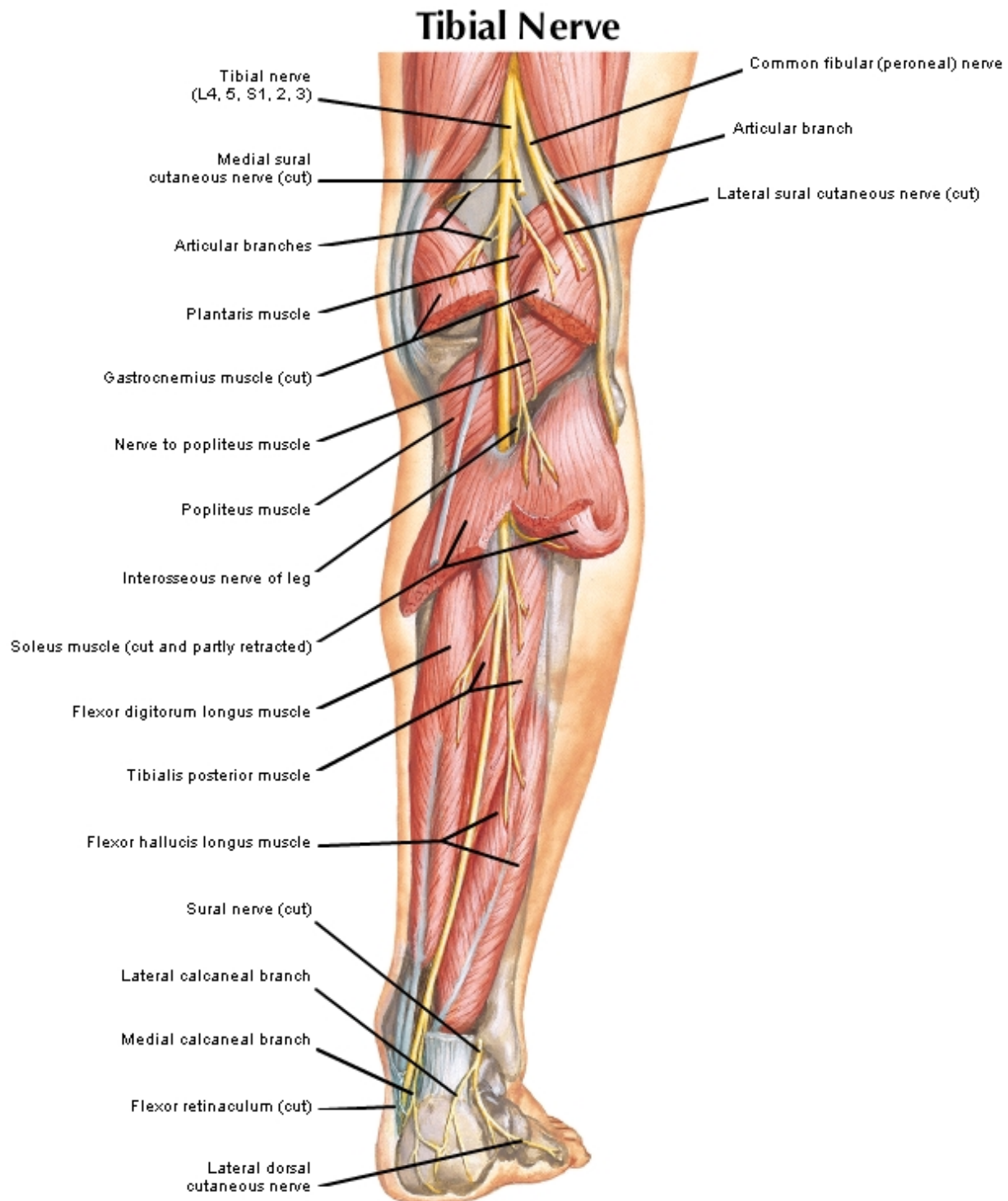


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Sciatic Nerve and Posterior Cutaneous Nerve of Thigh Cutaneous Innervation



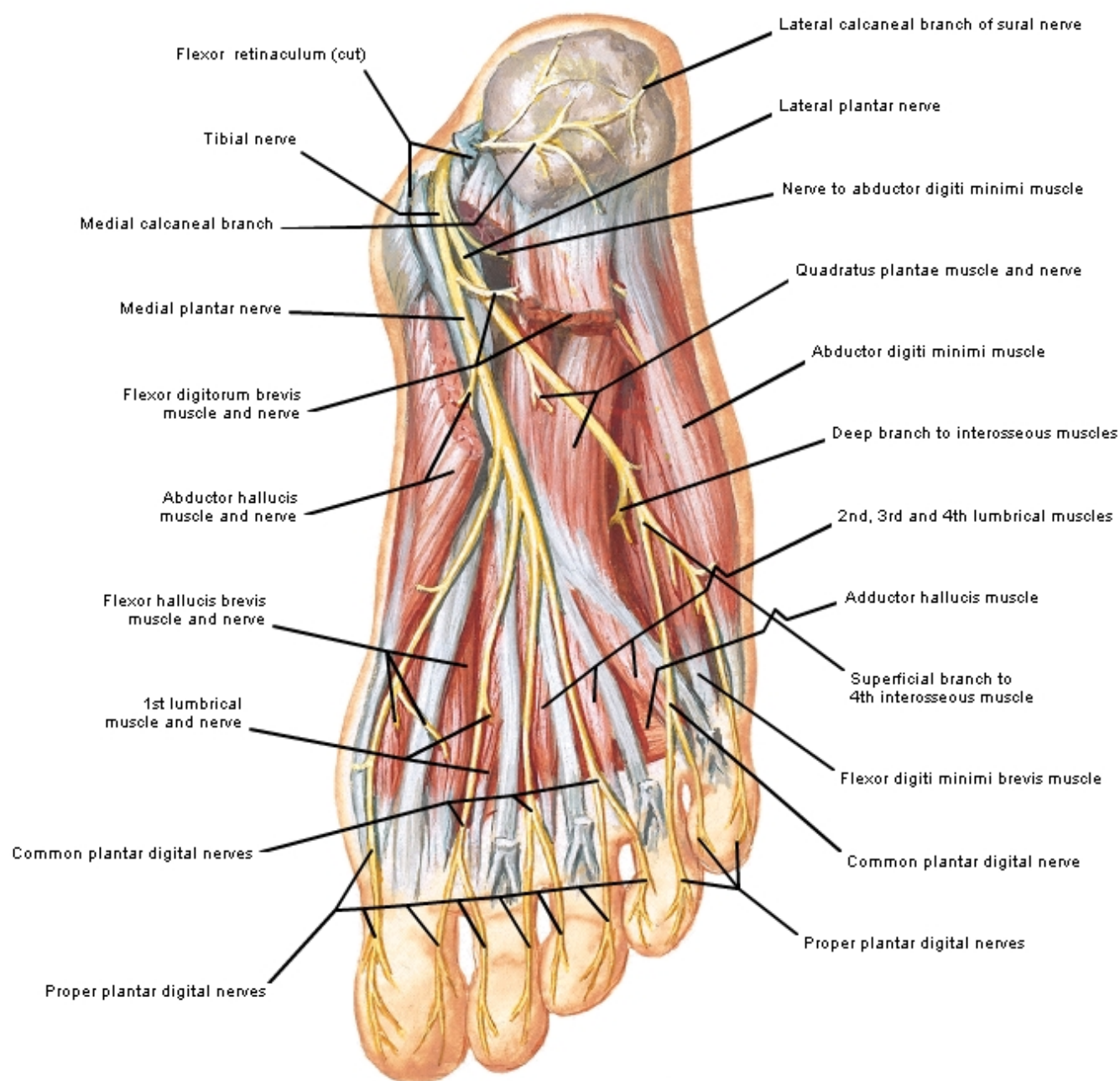
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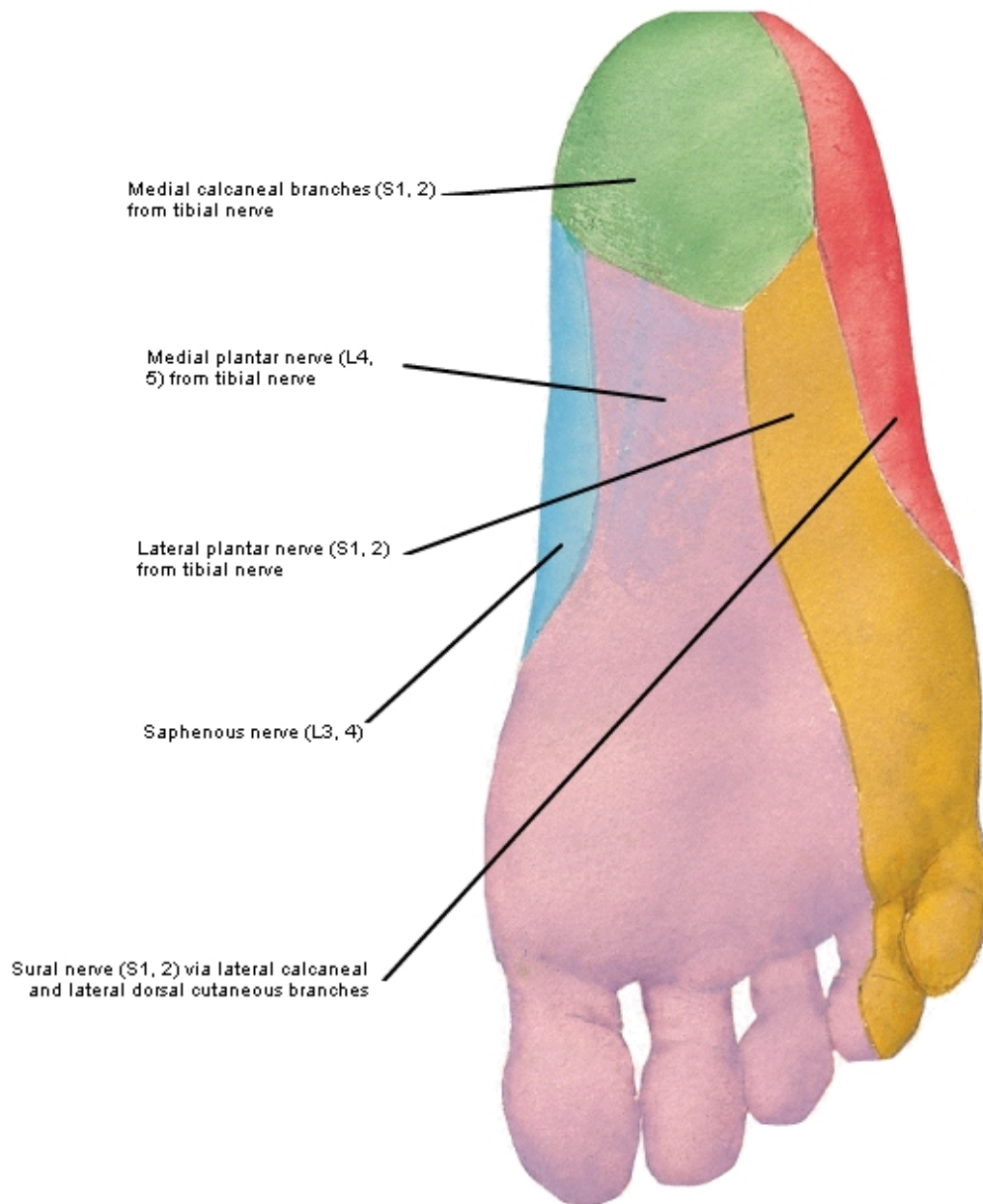
LOWER LIMB

Tibial Nerve Plantar View



F. Netter M.D.
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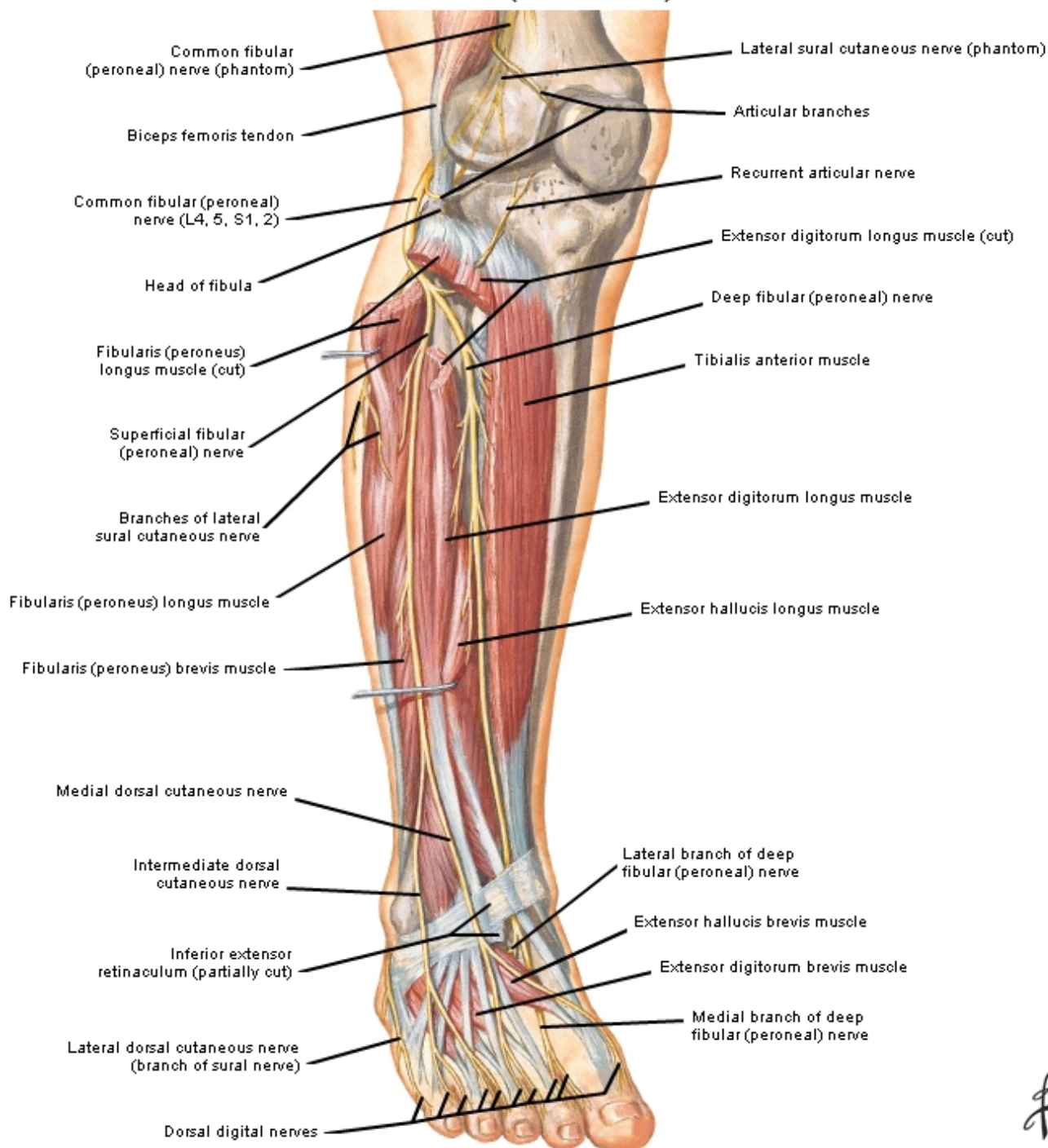
Tibial Nerve Cutaneous Innervation of Sole of Foot



F. Netter M.D.
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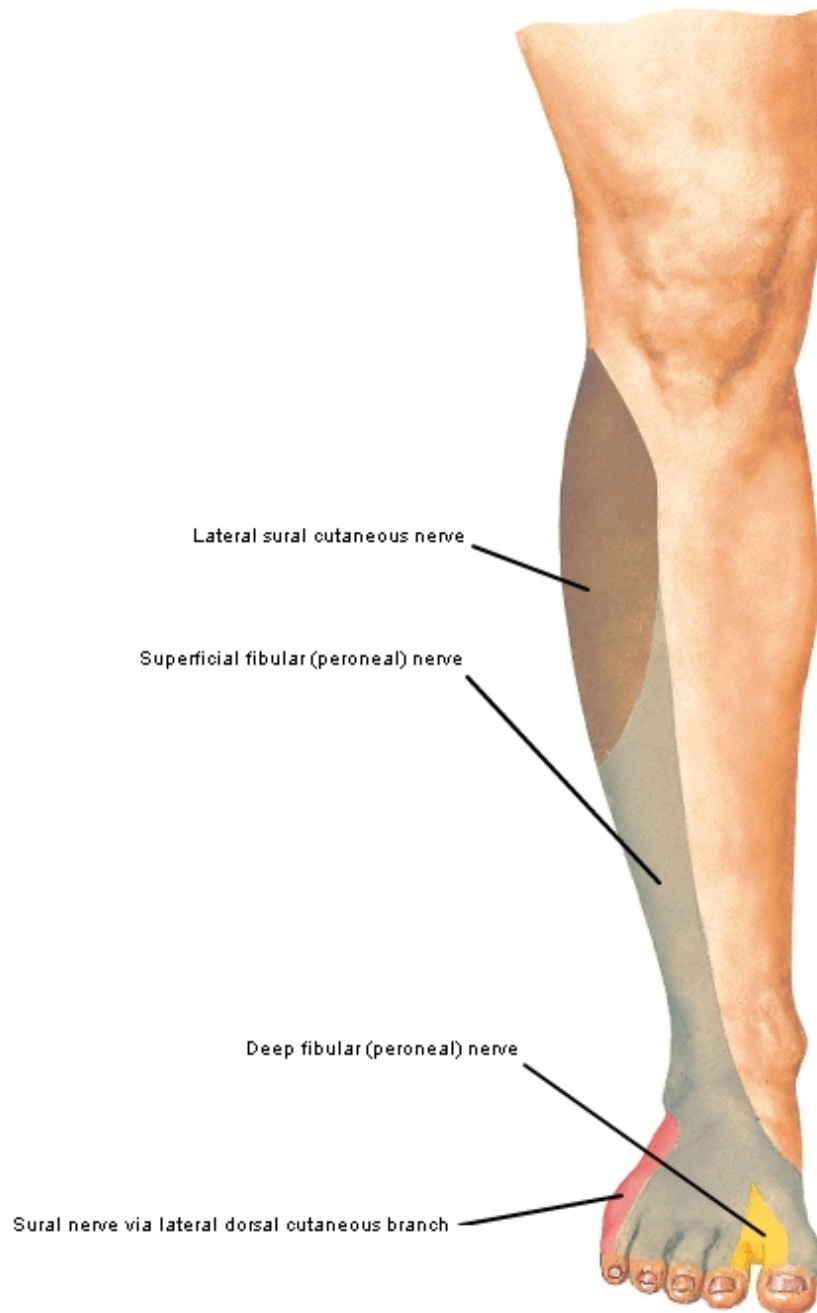
LOWER LIMB

Common Fibular (Peroneal) Nerve



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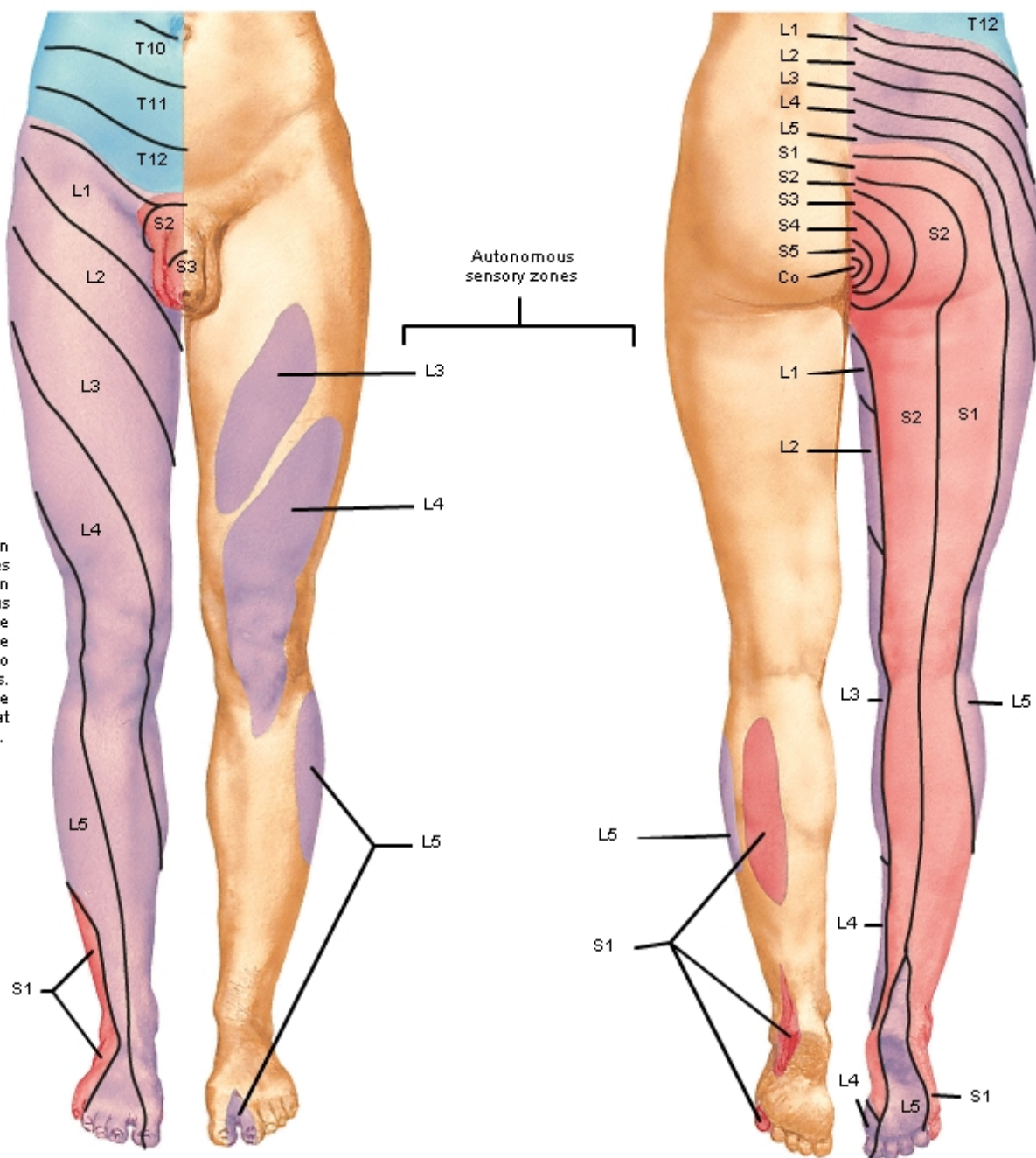
Common Fibular (Peroneal) Nerve Cutaneous Innervation



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LOWER LIMB

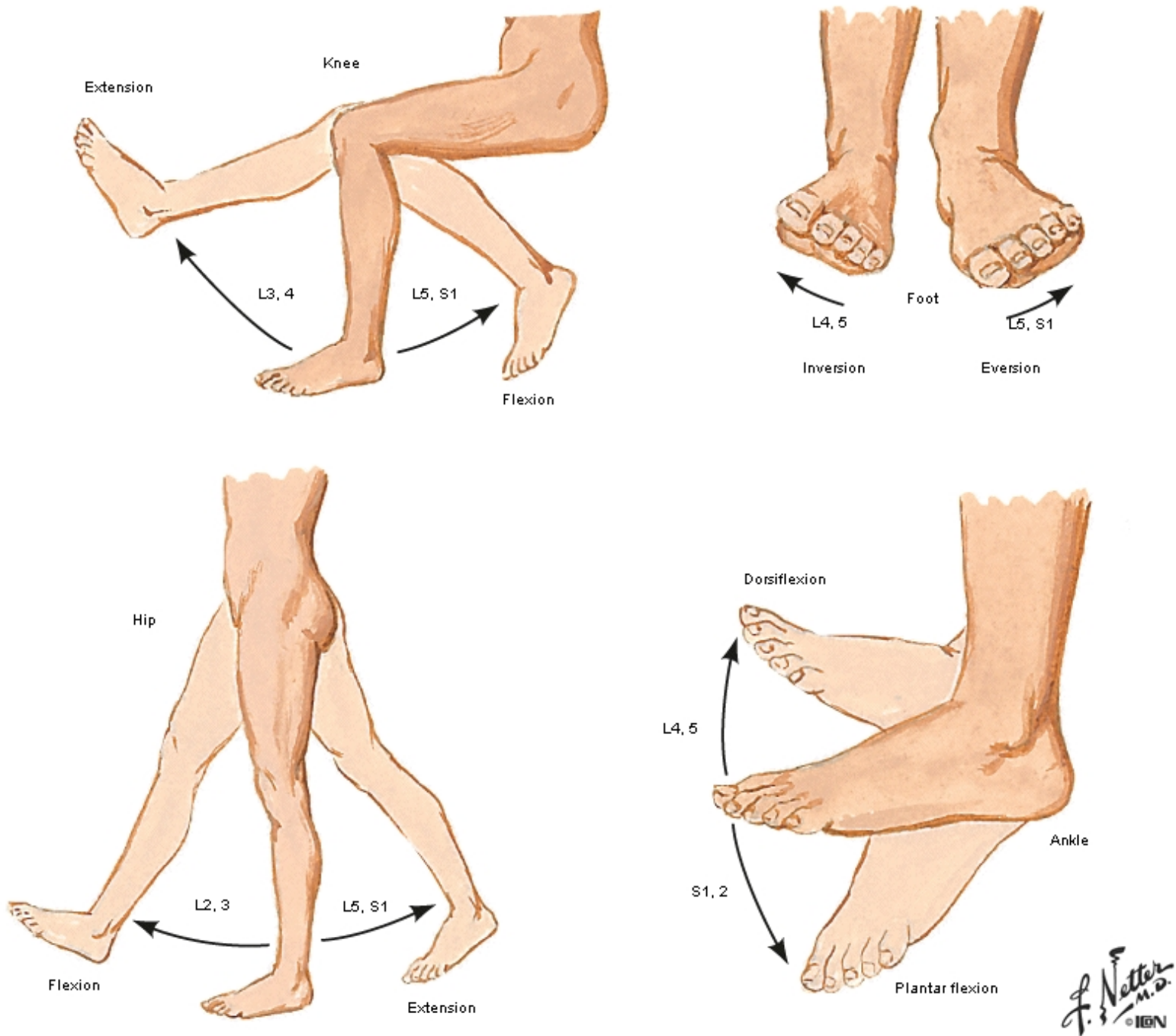
Dermatomes of Lower Limb Anterior and Posterior Views



Schematic demarcation of dermatomes (according to Keegan and Garrett) shown as distinct segments. There is actually considerable overlap between any two adjacent dermatomes. An alternative dermatome map is that provided by Foerster.

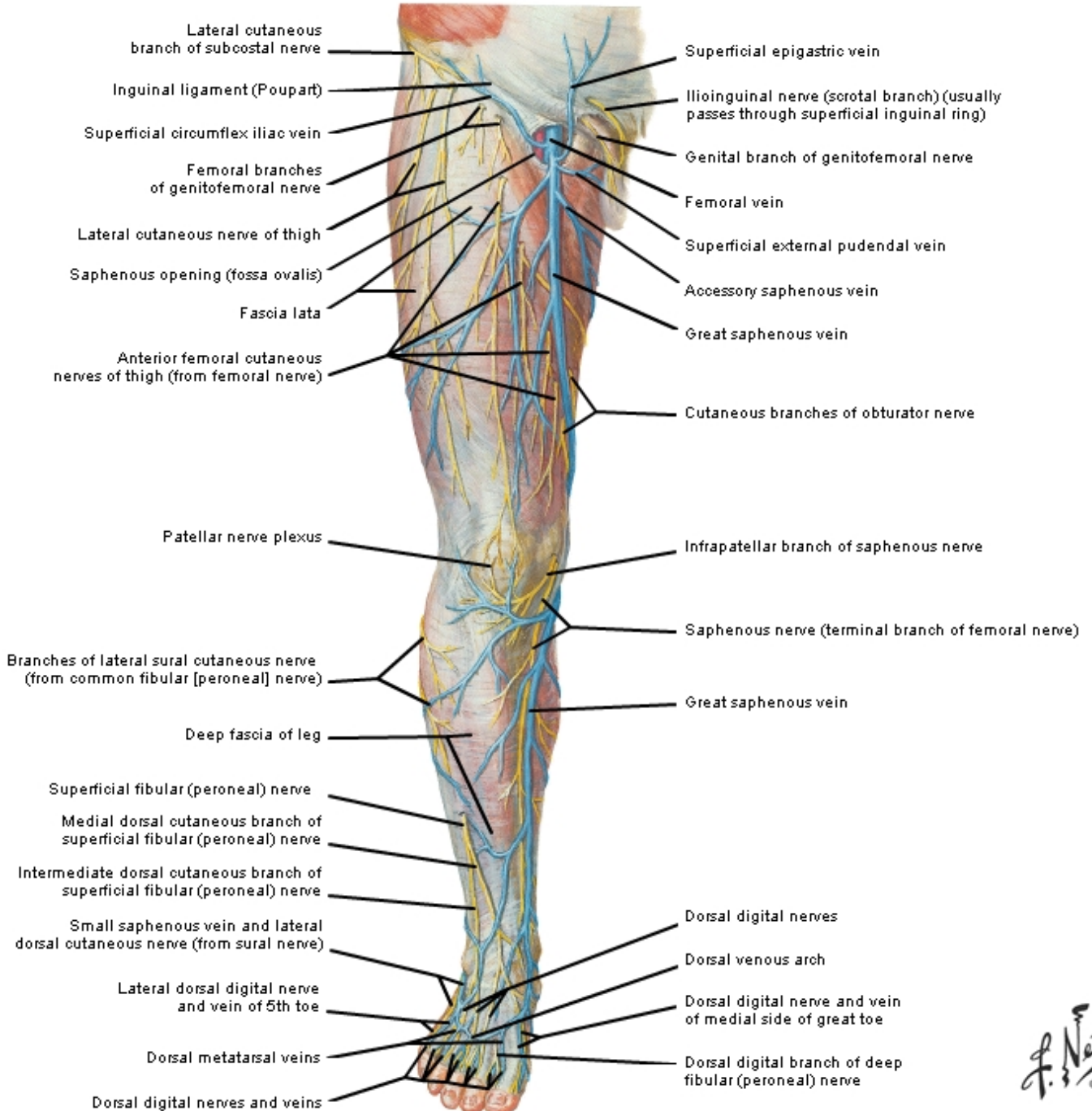
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Segmental Innervation of Lower Limb Movements



Superficial Nerves and Veins of Lower Limb

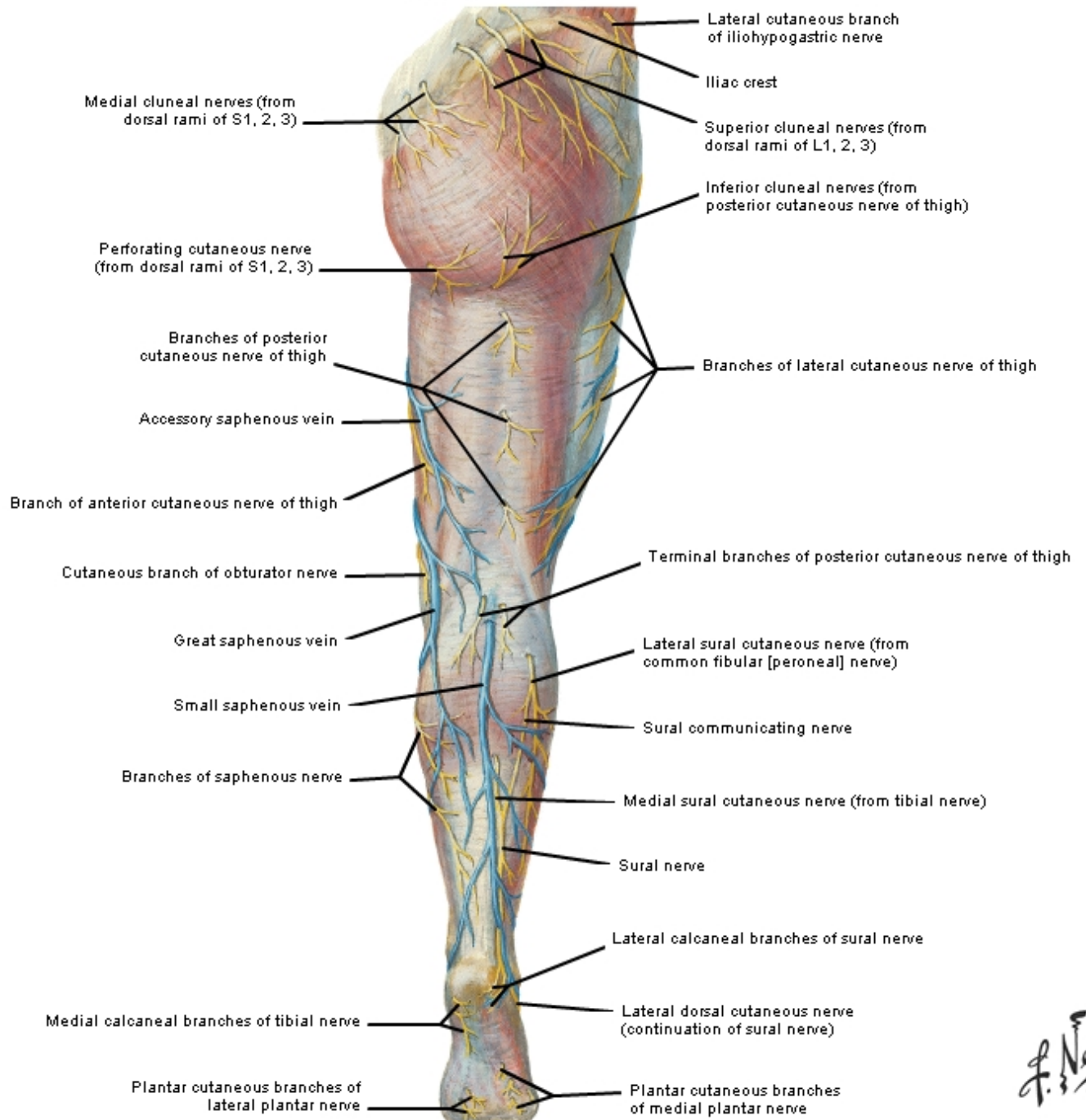
Anterior View



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Superficial Nerves and Veins of Lower Limb

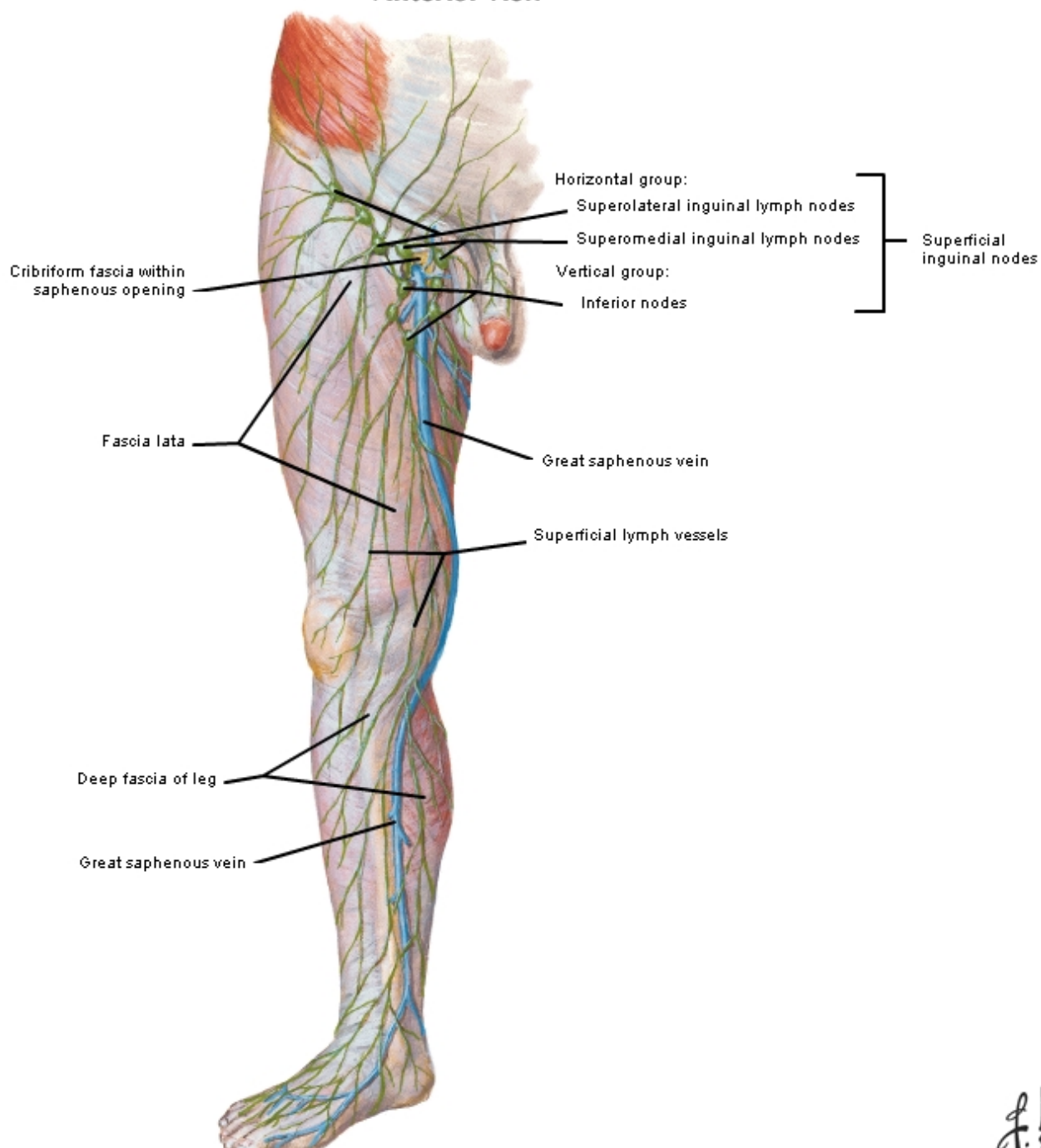
Posterior View



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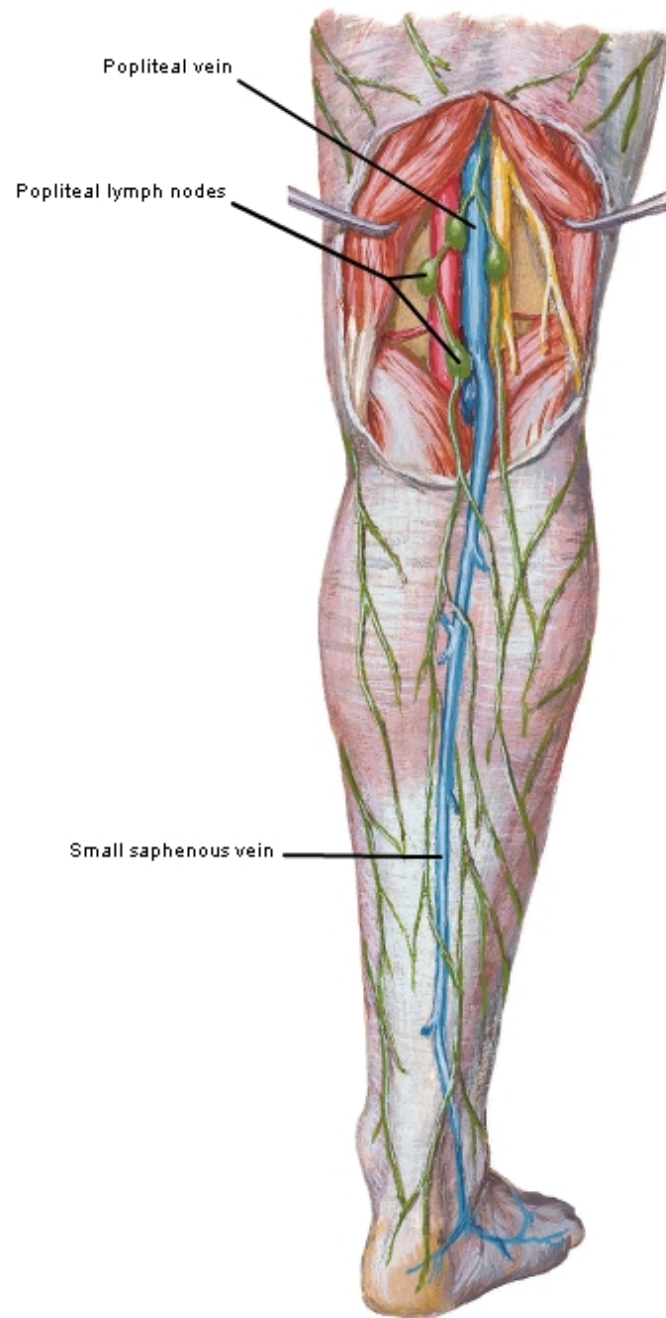
Lymph Vessels and Nodes of Lower Limb

Anterior View



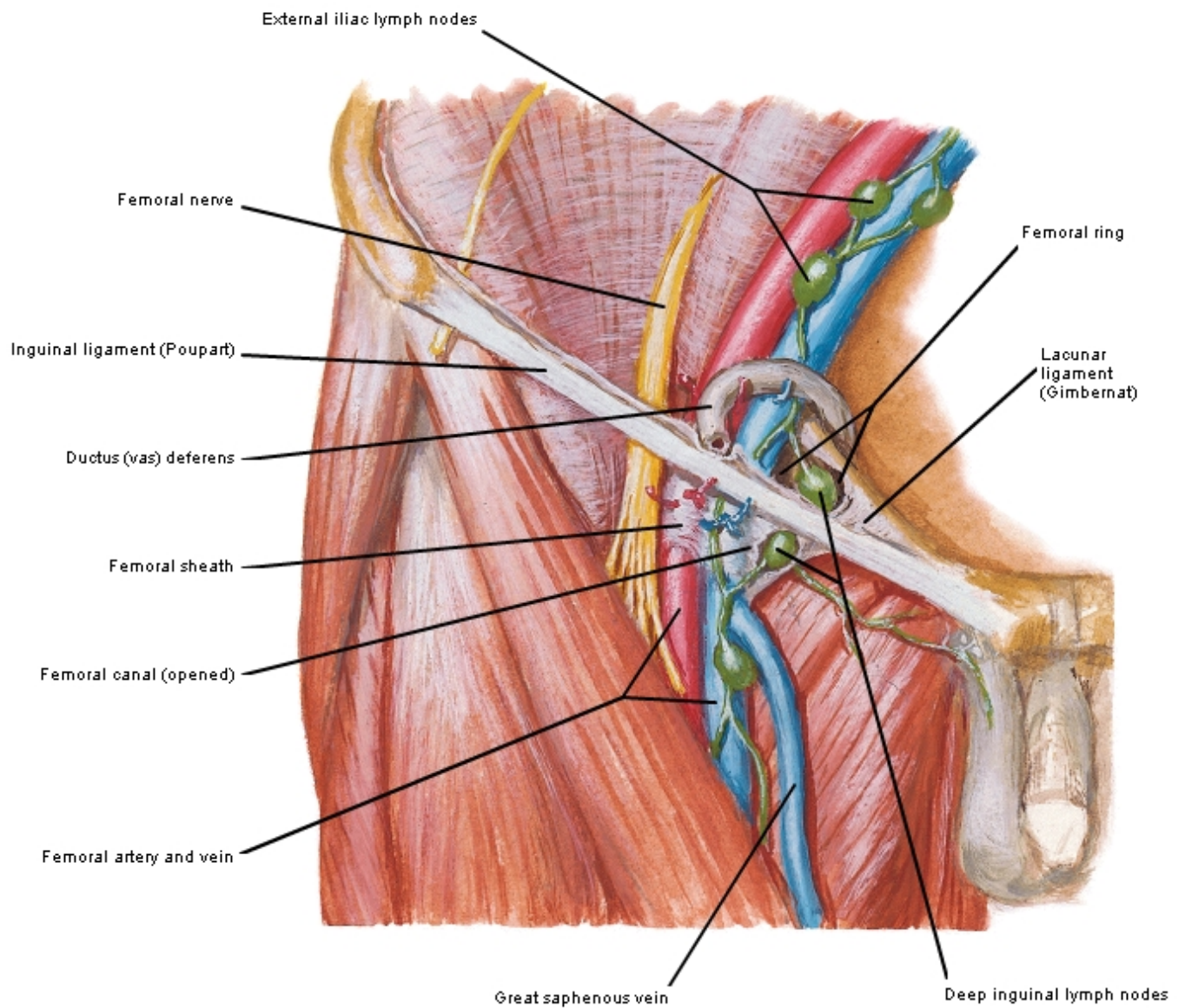
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Lymph Vessels and Nodes of Lower Limb Posterior View



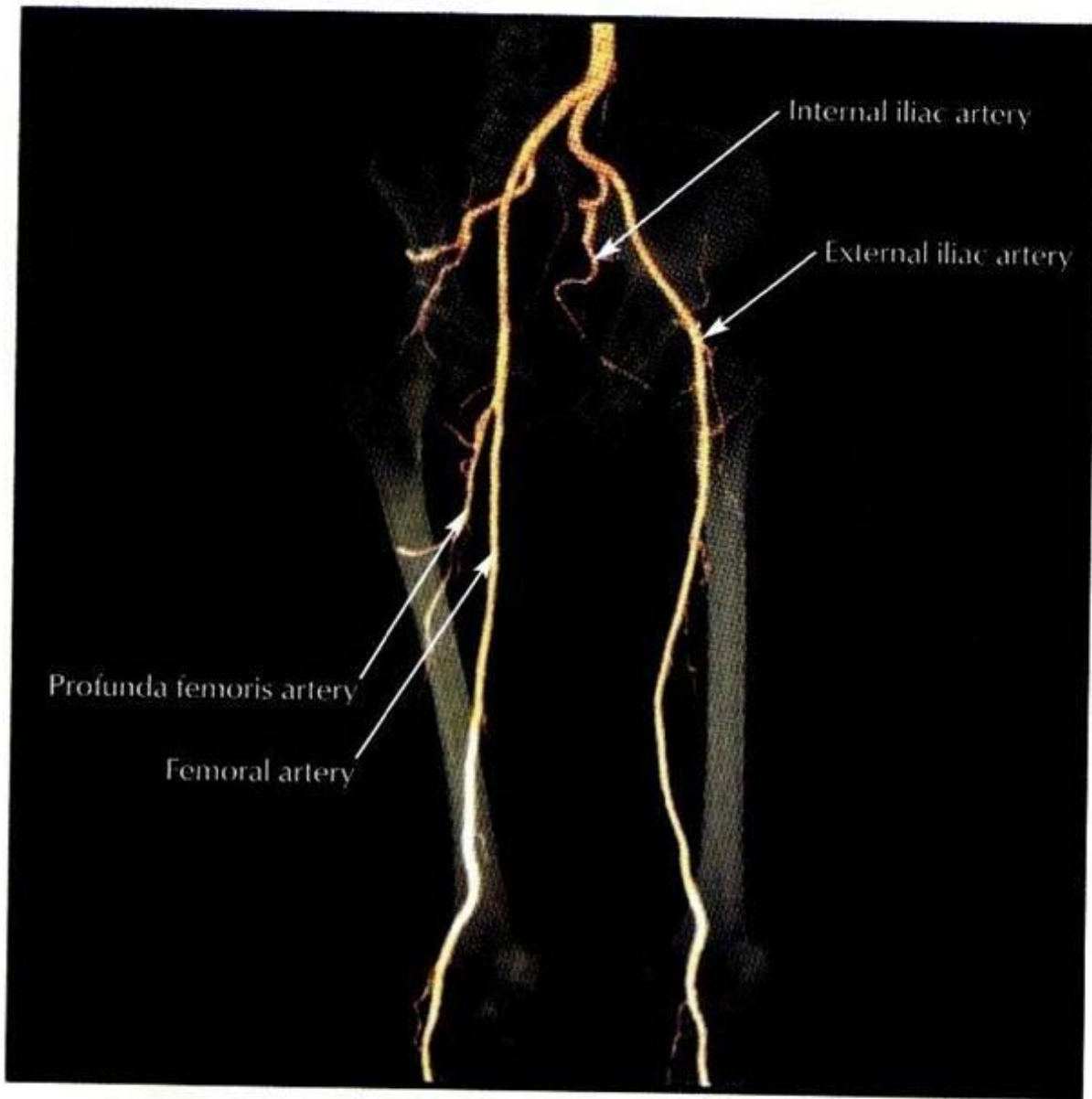
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Lymph Vessels and Nodes of Lower Limb Inguinal Region



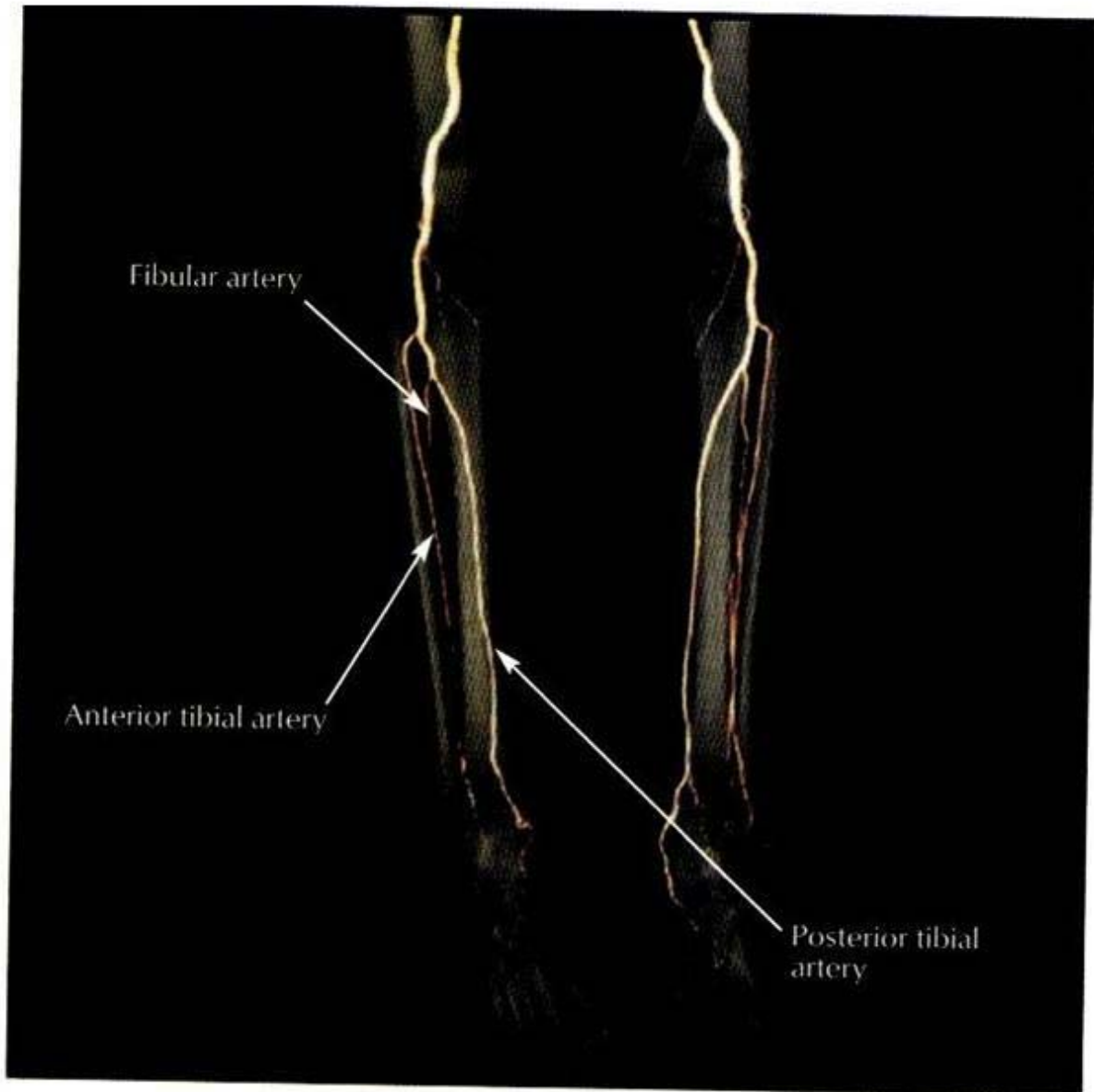
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CT Angiograms of Arteries of the Lower Limb



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CT Angiograms of Arteries of the Lower Limb

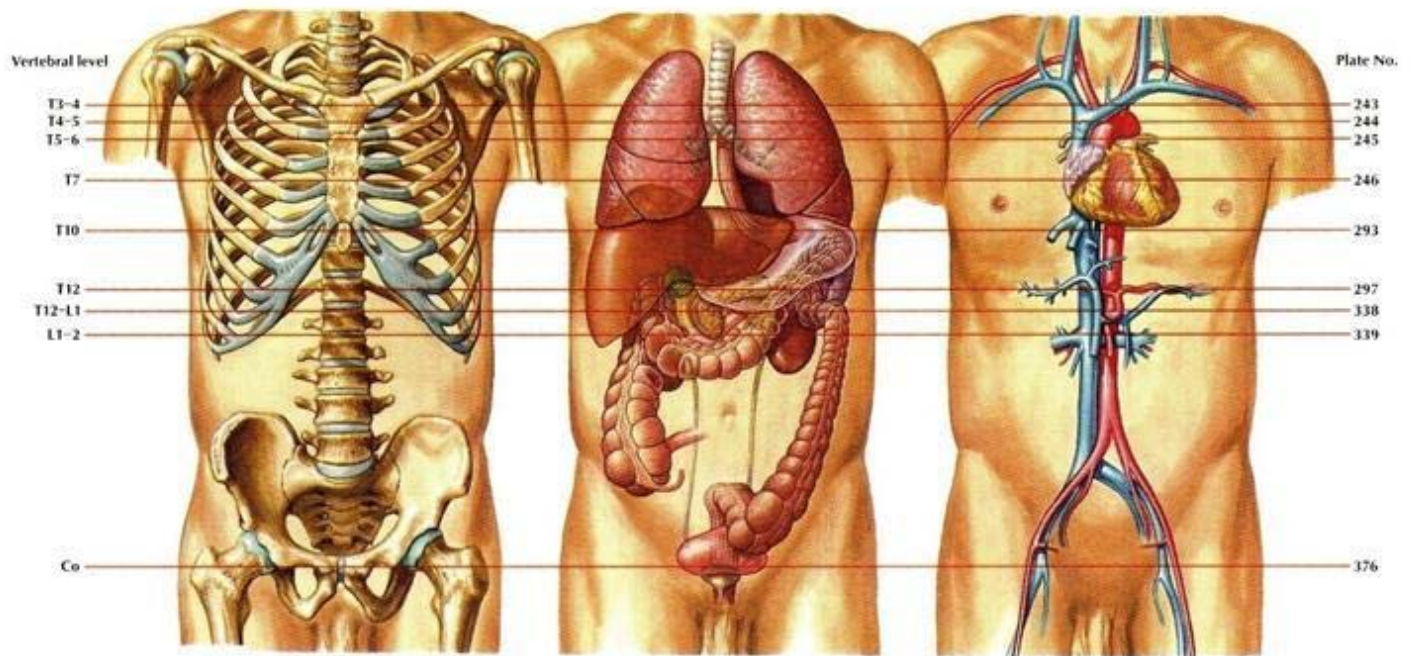


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Section 8 Cross – Sectional Anatomy

CROSS – SECTIONAL ANATOMY

Key Figure for Cross Sections



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