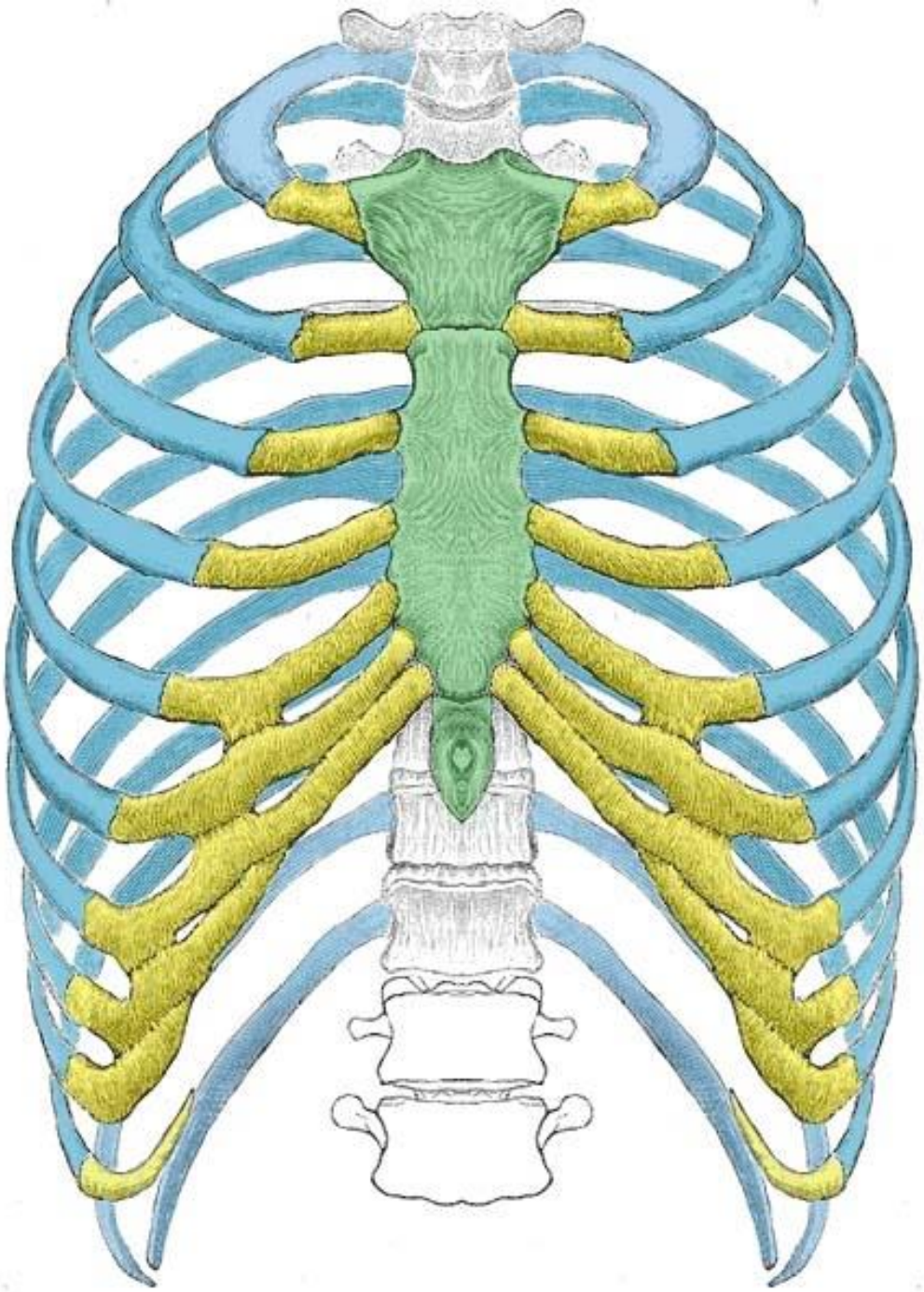
Thorax
thoracic cavity and thoracic viscras

By Dr Qaisar Afridi



Ribs

Costal Cartilage

Sternum

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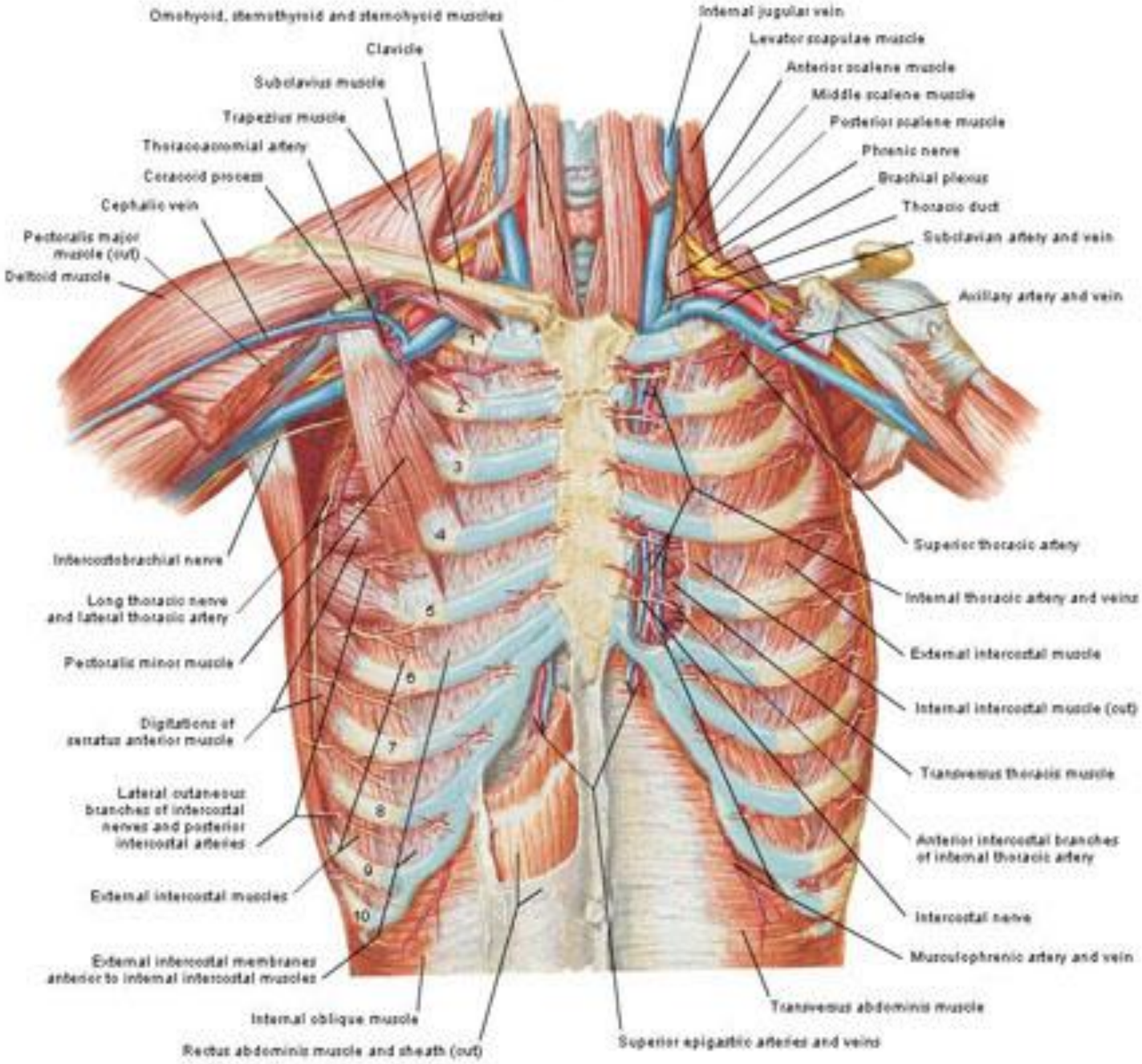
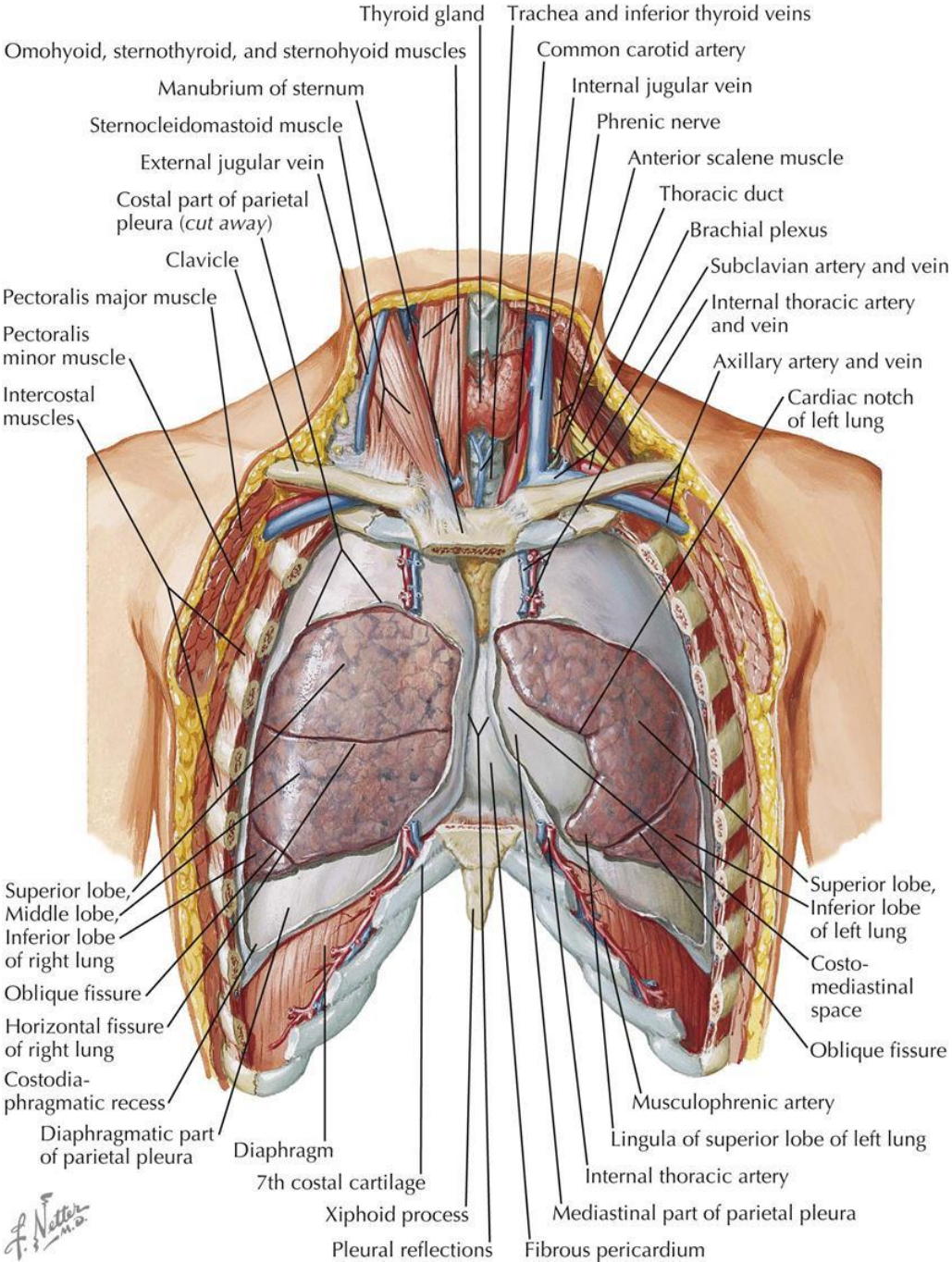
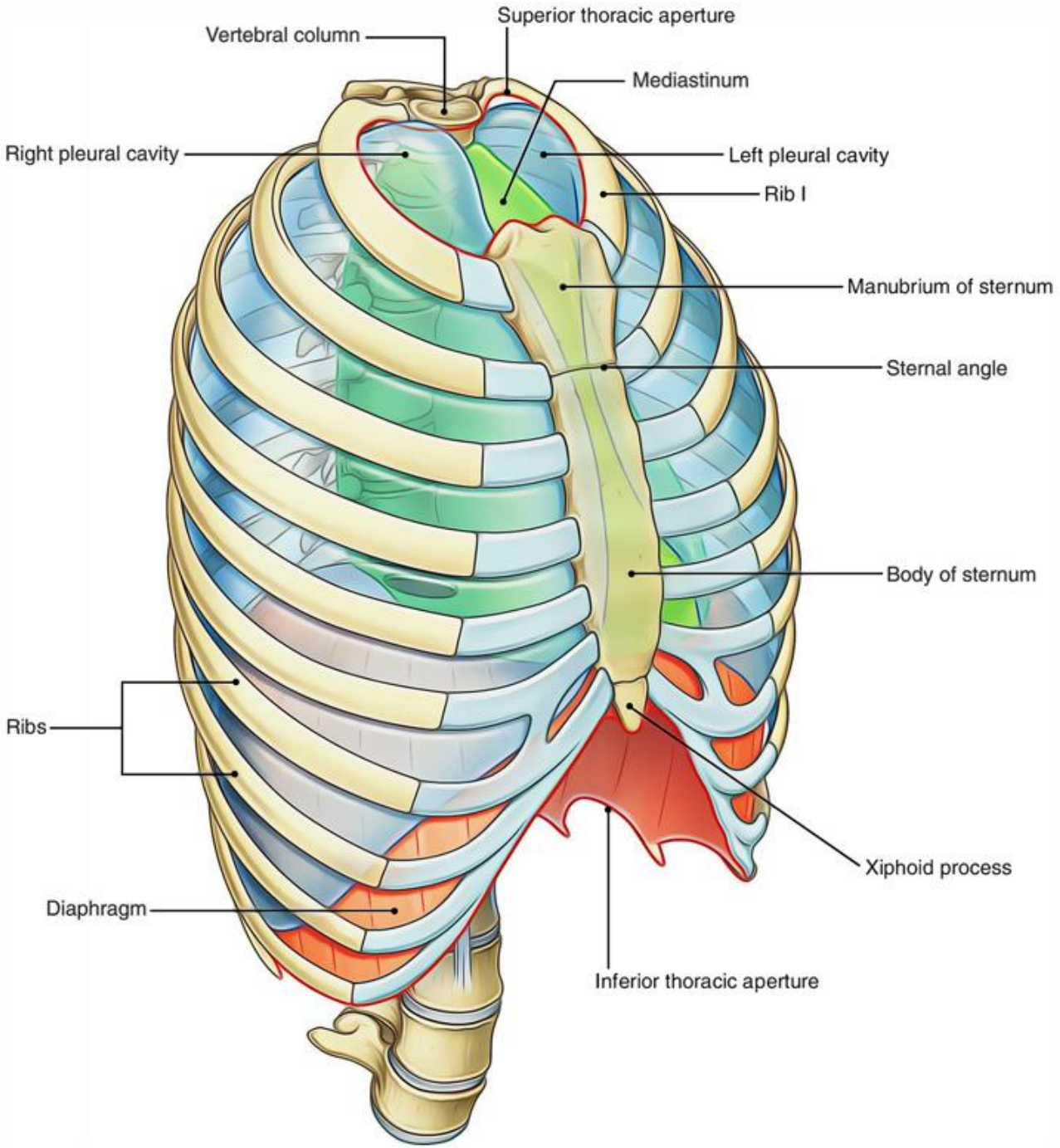
The #1 Applied Human Anatomy Site on the Web.

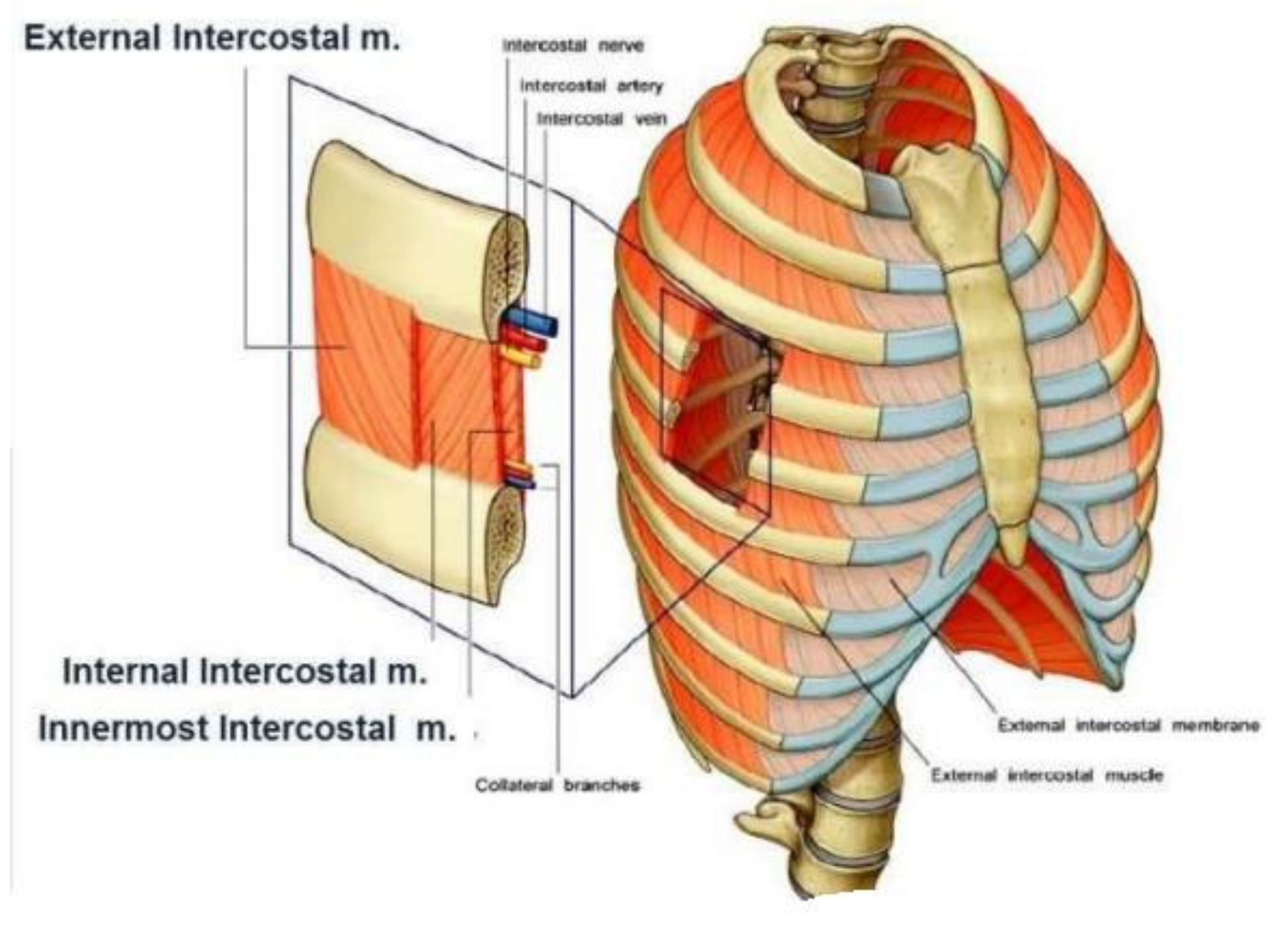
Anterior Thoracic Wall: Deep Dissection



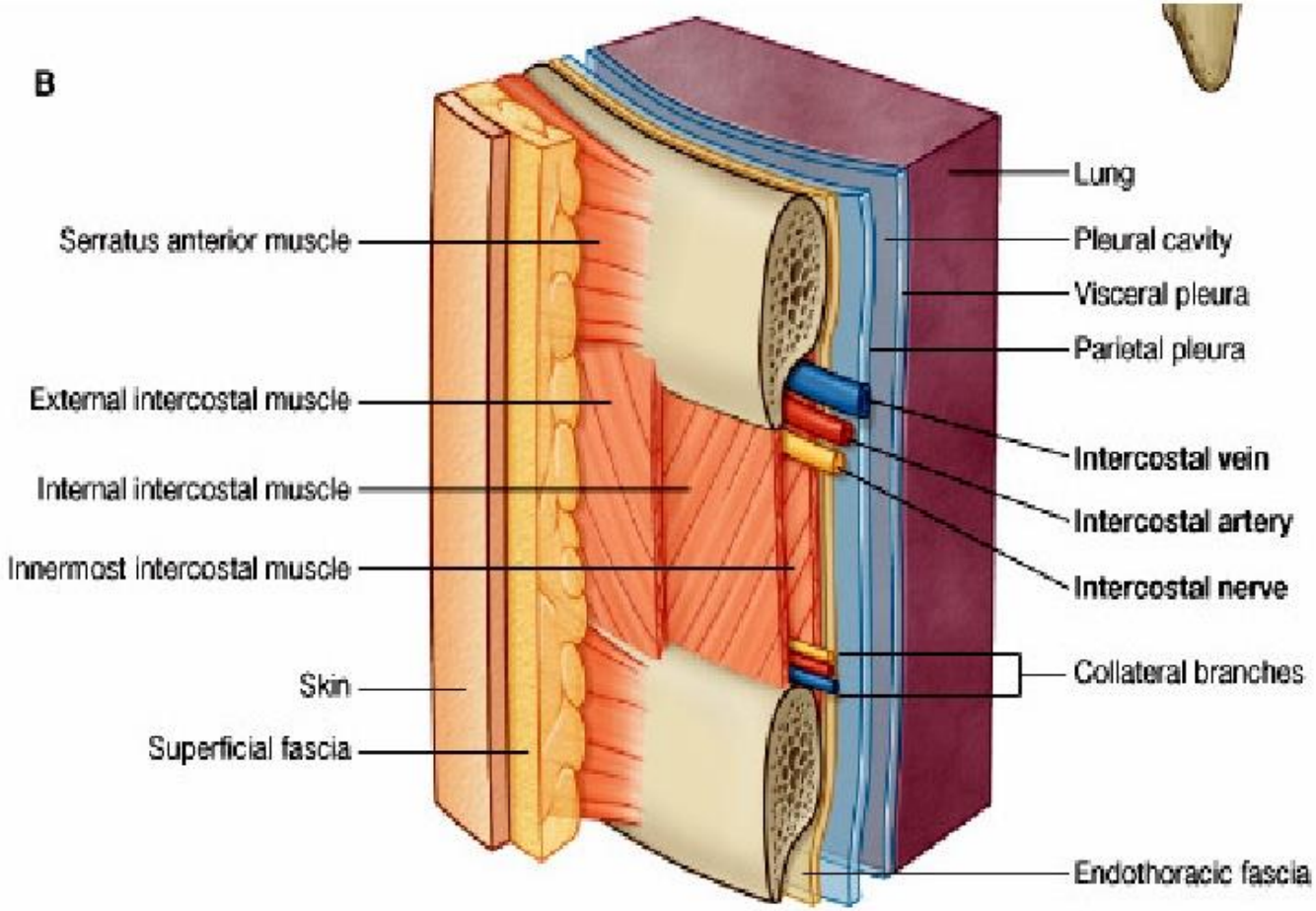
Lungs in Situ: Anterior View




Vertebral column
Superior thoracic aperture
Mediastinum
Right pleural cavity
Left pleural cavity
Rib I
Manubrium of sternum
Sternal angle
Body of sternum
Ribs
Xiphoid process
Diaphragm
Inferior thoracic aperture


External Intercostal m.
intercostal nerve
intercostal artery
intercostal vein
Internal Intercostal m.
Innermost Intercostal m.
Collateral branches
External intercostal membrane
External intercostal muscle

B . Details of an intercostal space and relationships



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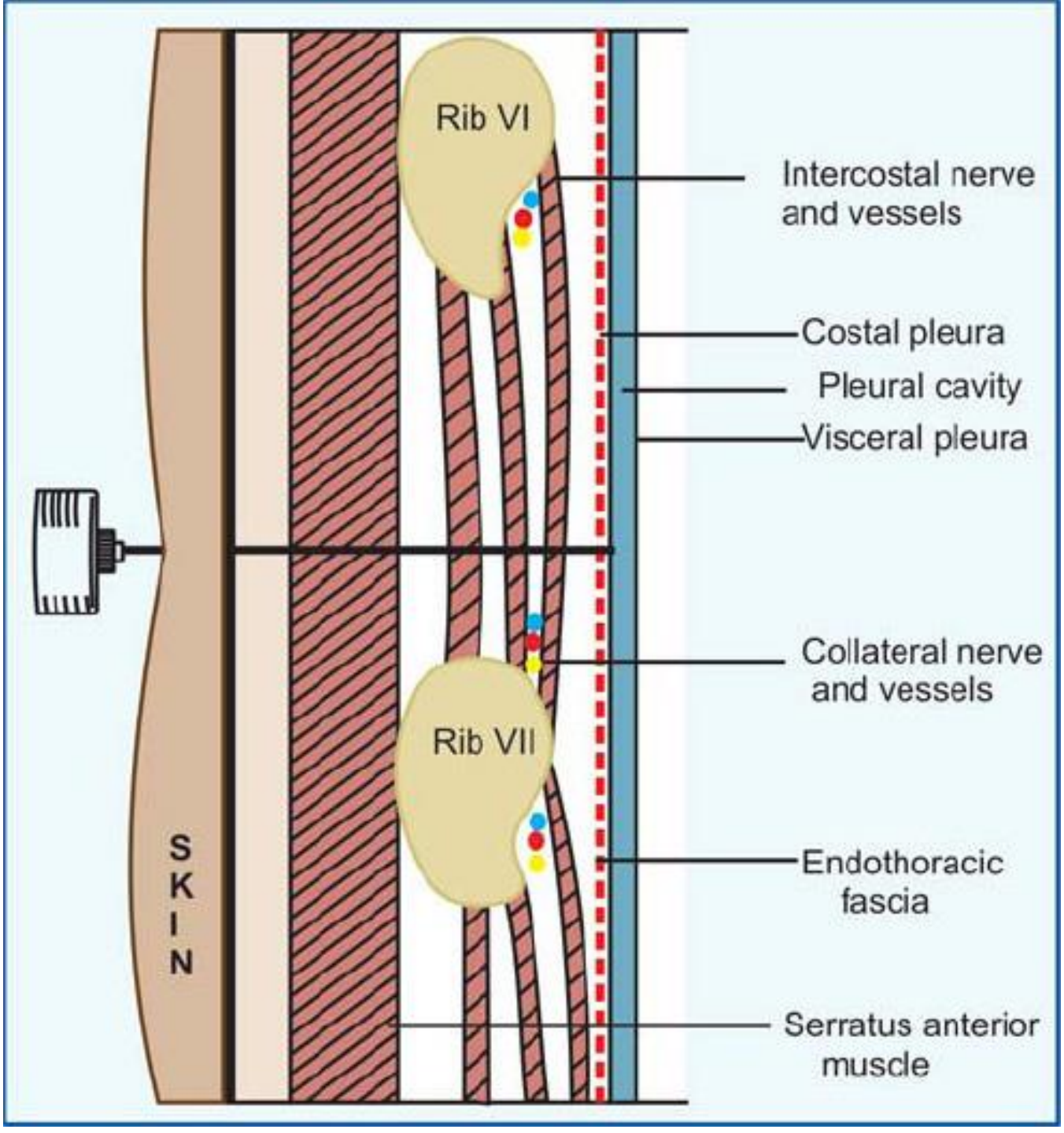
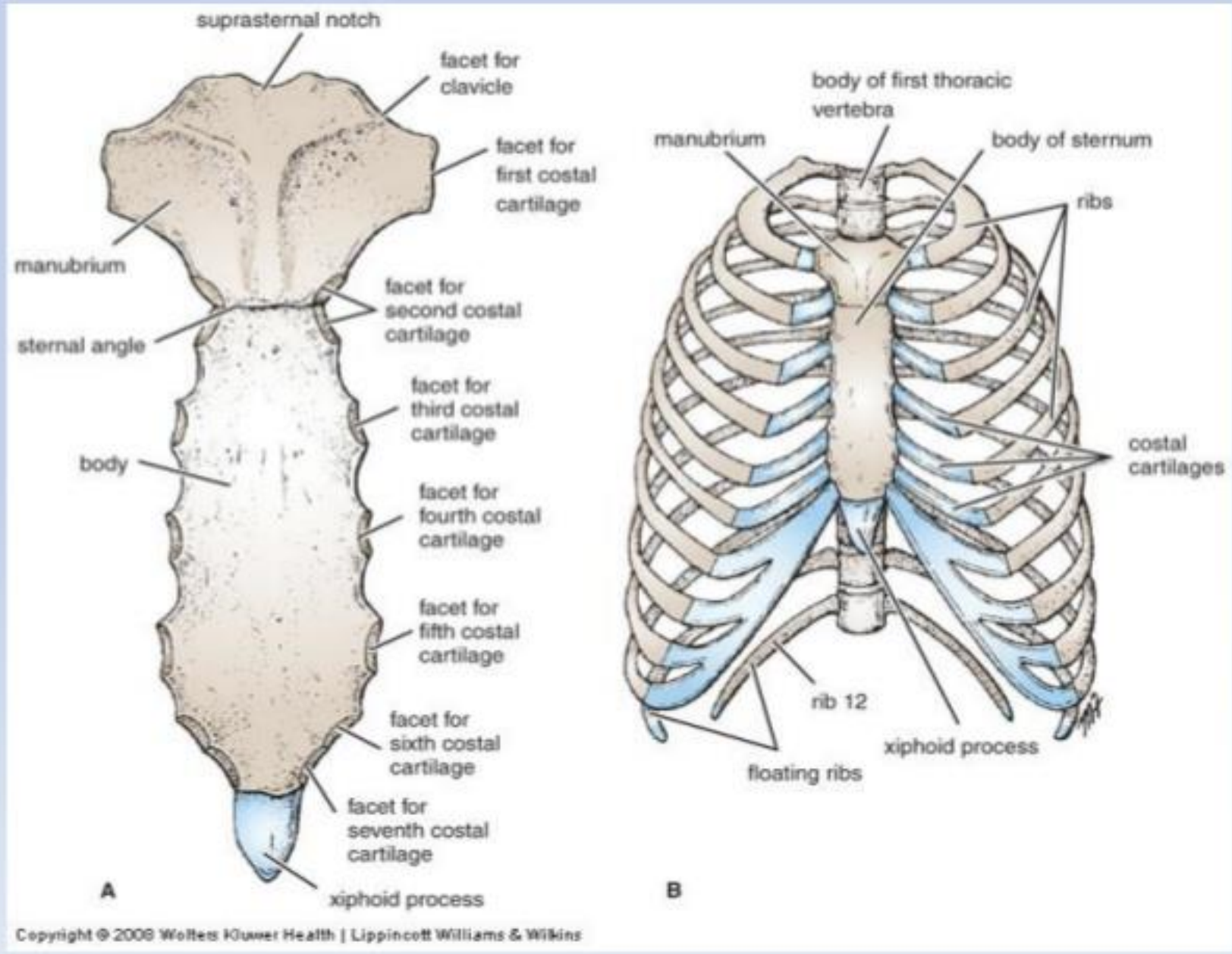

Rib VI
Intercostal nerve and vessels
Costal pleura
Pleural cavity
Visceral pleura
Collateral nerve and vessels
Rib VII
Endothoracic fascia
Serratus anterior muscle
SKIN


suprasternal notch
facet for clavicle
facet for first costal cartilage
manubrium
facet for second costal cartilage
sternal angle
facet for third costal cartilage
body
facet for fourth costal cartilage
facet for fifth costal cartilage
facet for sixth costal cartilage
facet for seventh costal cartilage
xiphoid process
A
body of first thoracic vertebra
manubrium
body of sternum
ribs
costal cartilages
rib 12
xiphoid process
floating ribs
B
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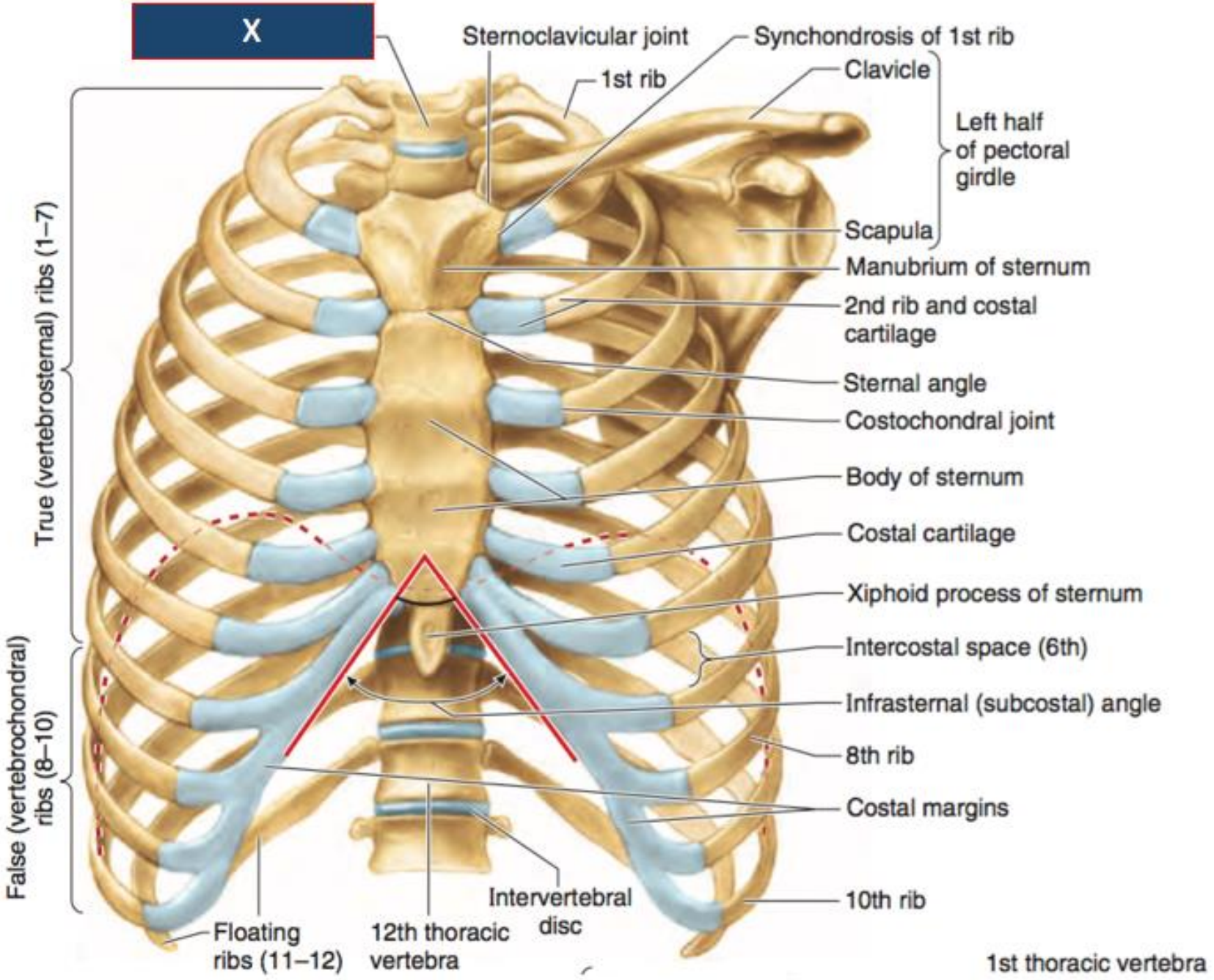
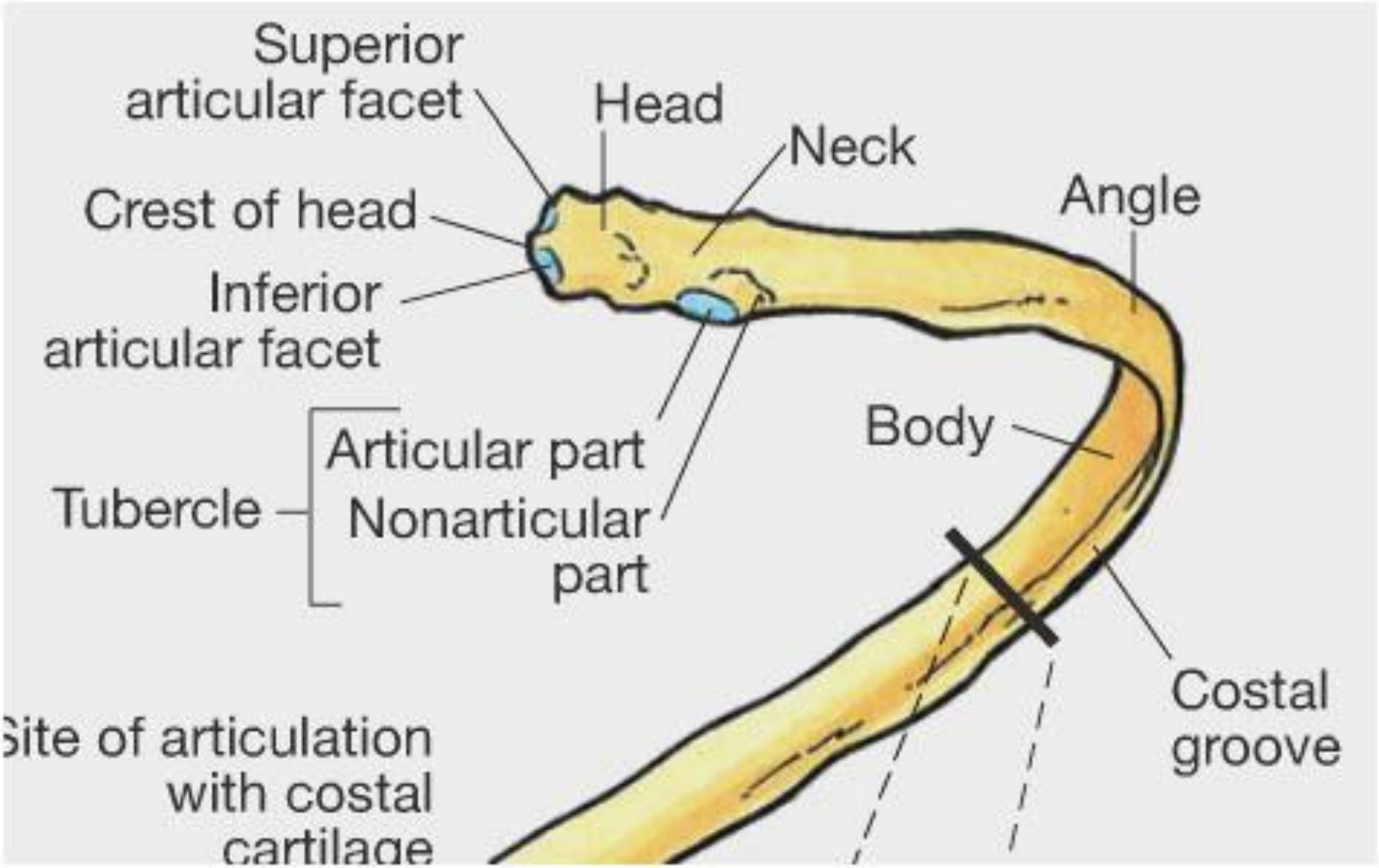
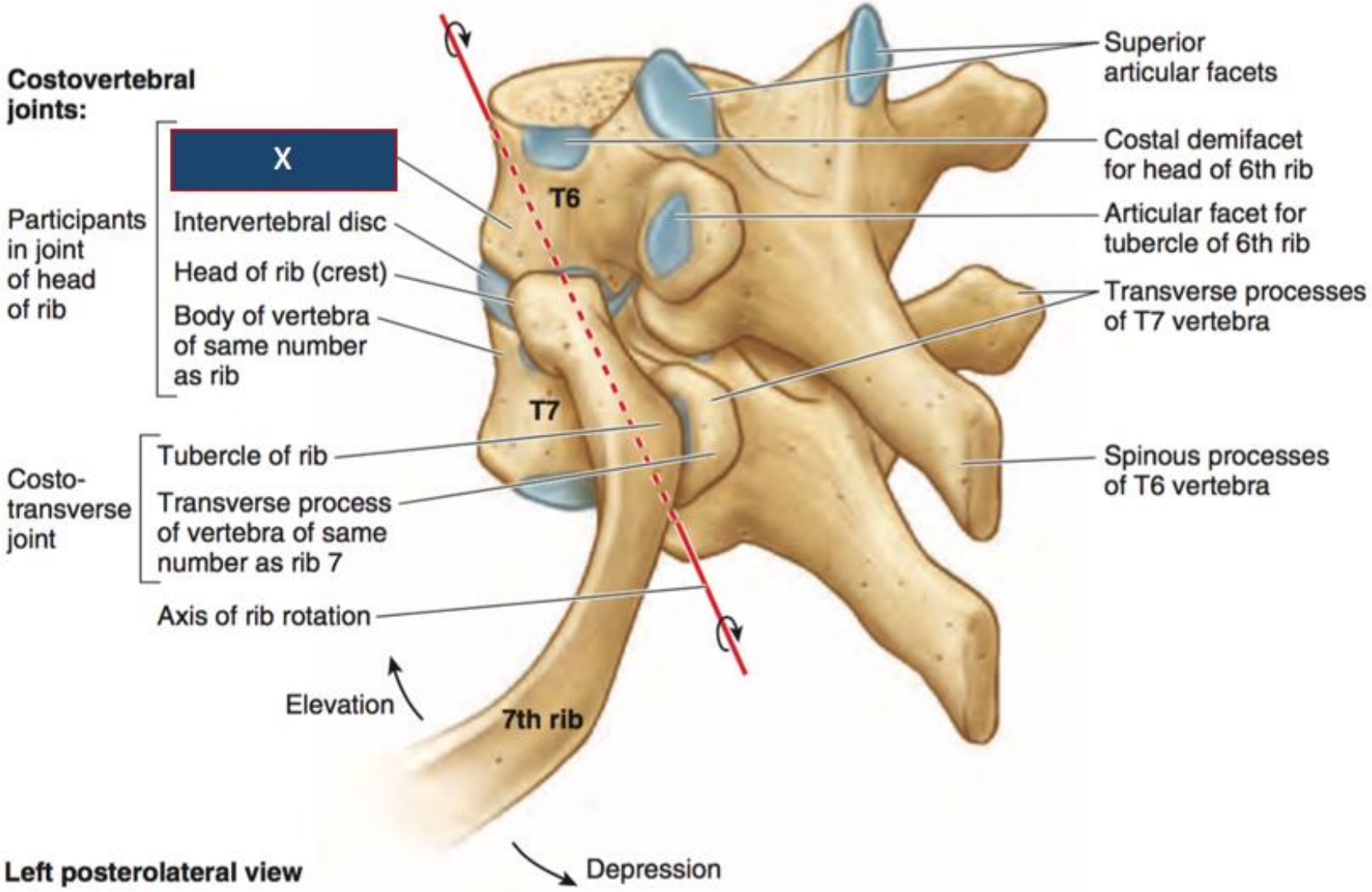
X


Sternoclavicular joint
Synchondrosis of 1st rib
1st rib
Clavicle
Left half of pectoral girdle
Scapula
Manubrium of sternum
2nd rib and costal cartilage
Sternal angle
Costochondral joint
Body of sternum
Costal cartilage
Xiphoid process of sternum
Intercostal space (6th)
Infrasternal (subcostal) angle
8th rib
Costal margins
10th rib
True (vertebrosternal) ribs (1–7)
False (vertebrochondral) ribs (8–10)
Floating ribs (11–12)
12th thoracic vertebra
Intervertebral disc
1st thoracic vertebra


Superior articular facet
Head
Neck
Crest of head
Angle
Inferior articular facet
Body
Articular part
Tubercle
Nonarticular part
Costal groove
Site of articulation with costal cartilage


Costovertebral joints:
X
Participants in joint of head of rib
Intervertebral disc
Head of rib (crest)
Body of vertebra of same number as rib
Costo-transverse joint
Tubercle of rib
Transverse process of vertebra of same number as rib 7
Axis of rib rotation
Elevation
Depression
T6
T7
7th rib
Superior articular facets
Costal demifacet for head of 6th rib
Articular facet for tubercle of 6th rib
Transverse processes of T7 vertebra
Spinous processes of T6 vertebra
Left posterolateral view

Vertebra Anatomy

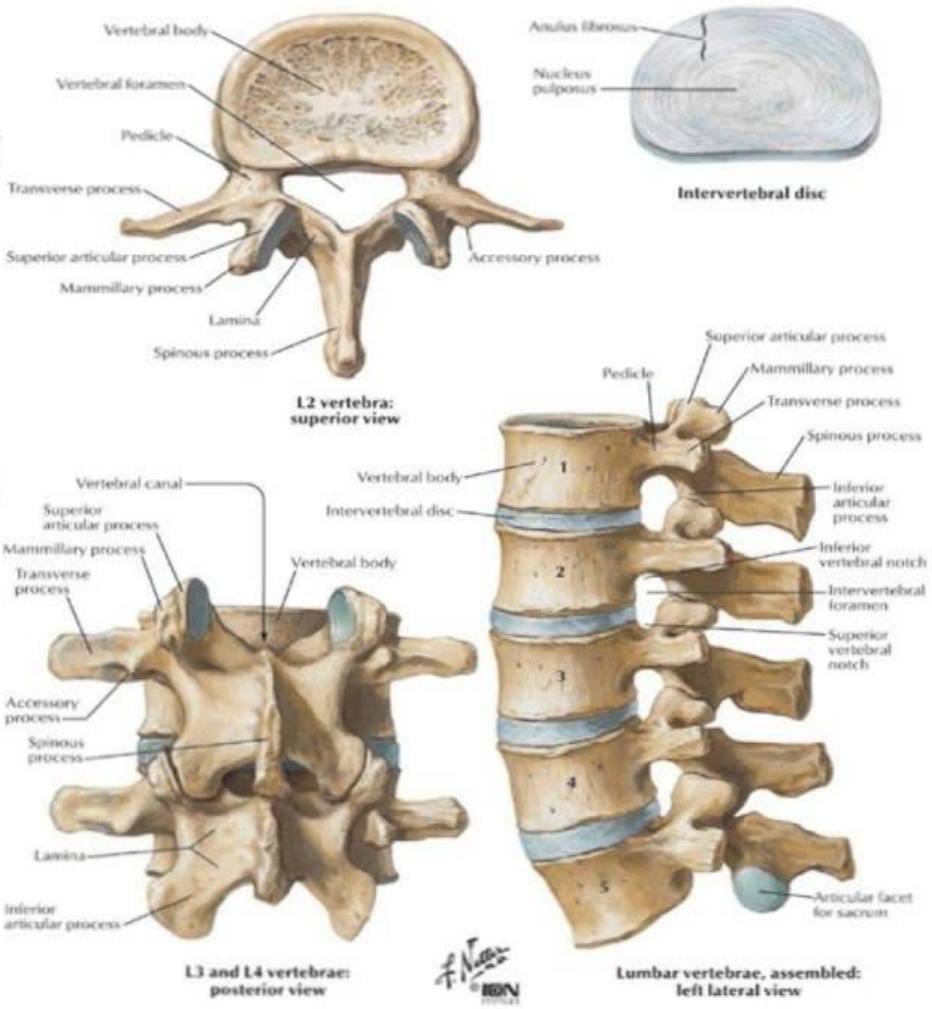
The body is made if spongy bone that contains red bone marrow, bears the weight, and is covered by compact bone

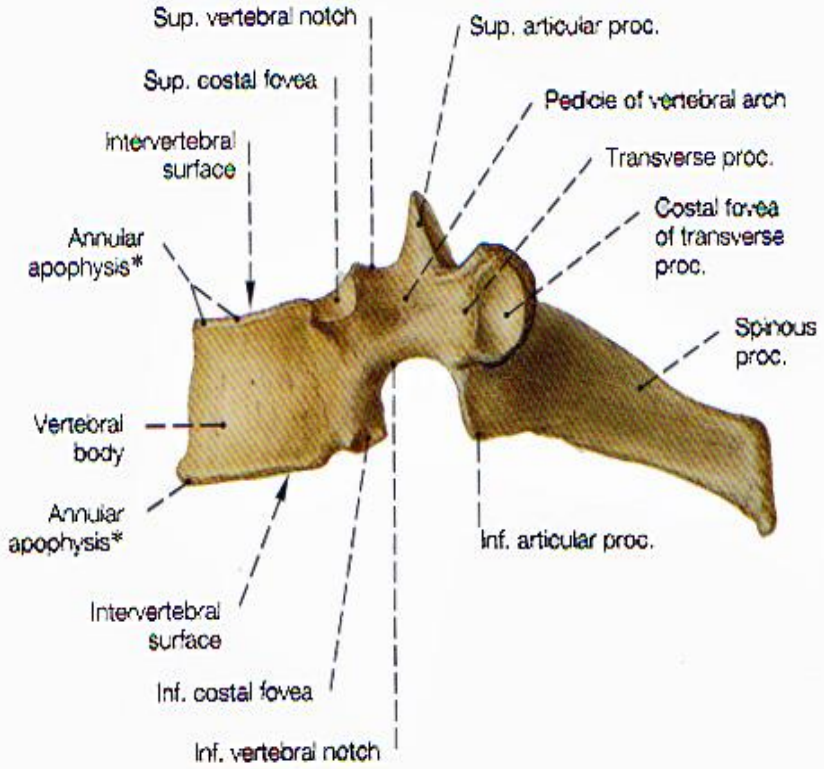
The foramina forms the vertebral canal for the spinal cord

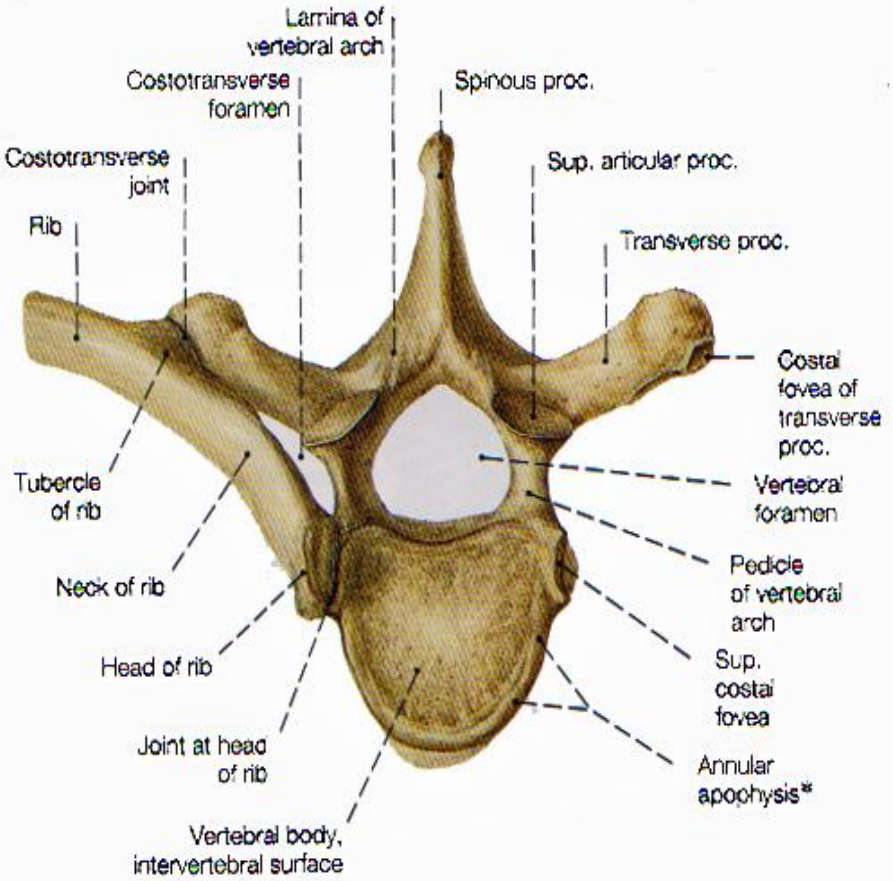
Superior articular processes project upward from one vertebra

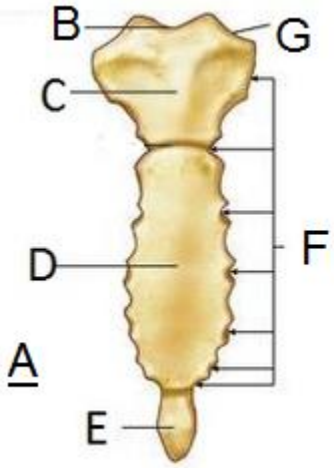
Facets are flat articular surfaces covered with hyaline cartilage

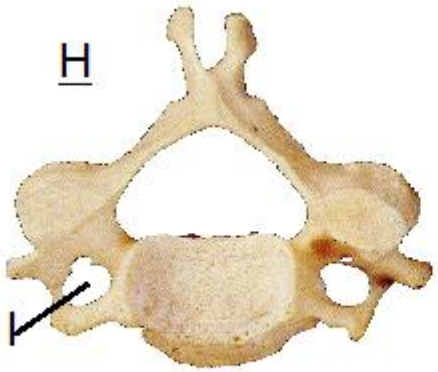
Intervertebral disks are a pad that has a gelatinous core surrounded by a ring of fibrocartilage

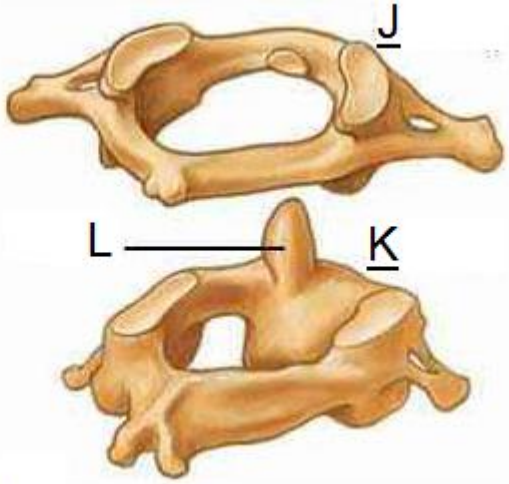


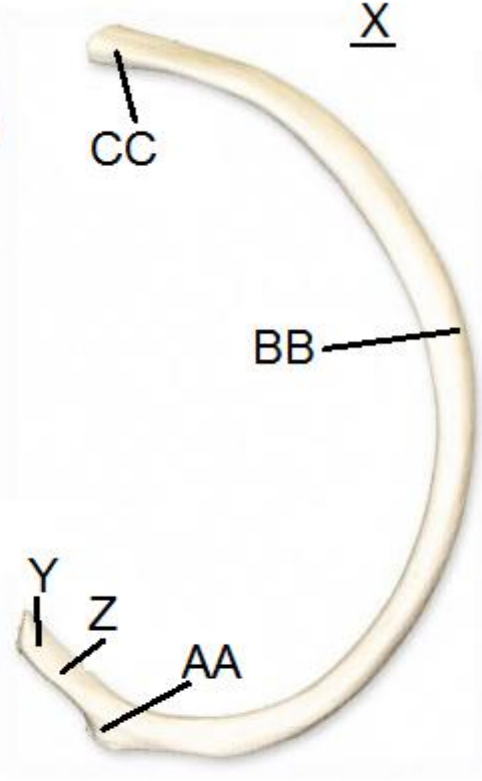

Sup. vertebral notch
Sup. articular proc.
Sup. costal fovea
Pedicle of vertebral arch
Intervertebral surface
Transverse proc.
Costal fovea of transverse proc.
Annular apophysis*
Spinous proc.
Vertebral body
Annular apophysis*
Inf. articular proc.
Intervertebral surface
Inf. costal fovea
Inf. vertebral notch

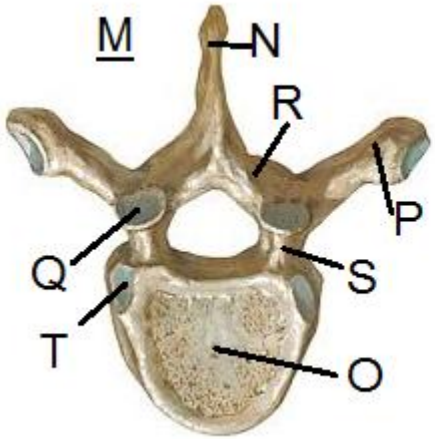

Lamina of vertebral arch
Costotransverse foramen
Spinous proc.
Costotransverse joint
Sup. articular proc.
Rib
Transverse proc.
Costal fovea of transverse proc.
Tubercle of rib
Vertebral foramen
Pedicle of vertebral arch
Neck of rib
Sup. costal fovea
Head of rib
Joint at head of rib
Annular apophysis*
Vertebral body, intervertebral surface

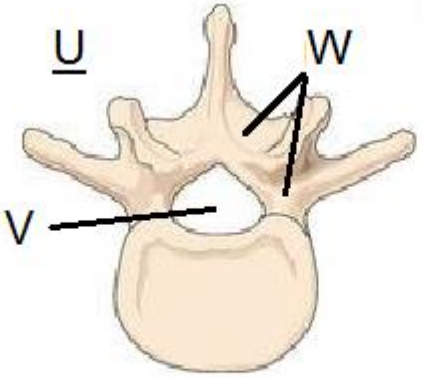

B
G
C
F
D
A
E

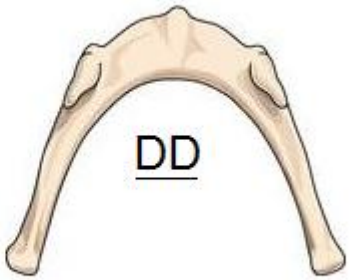

H
I

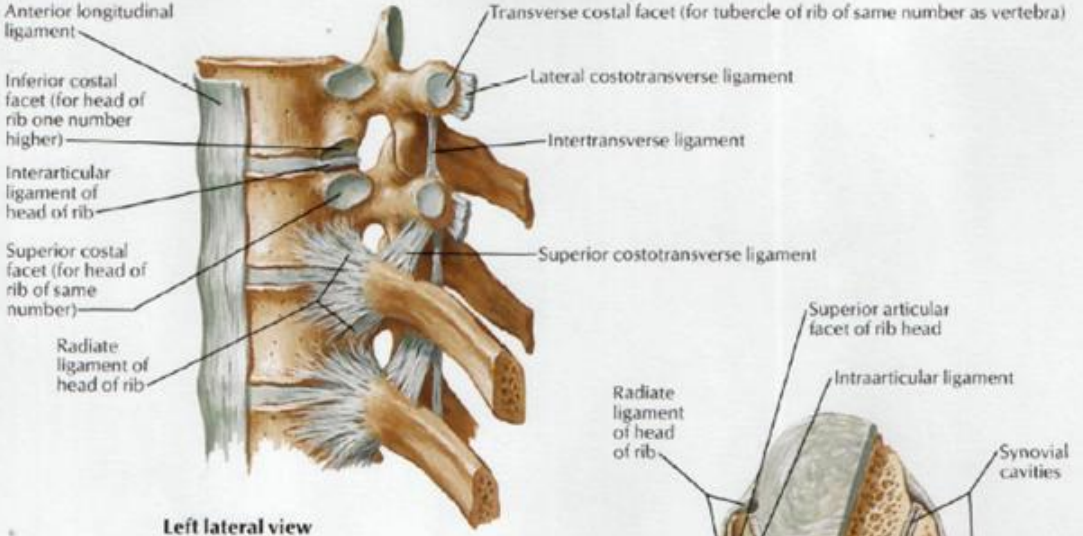

J
L
K


X
CC
BB
Y
Z
AA

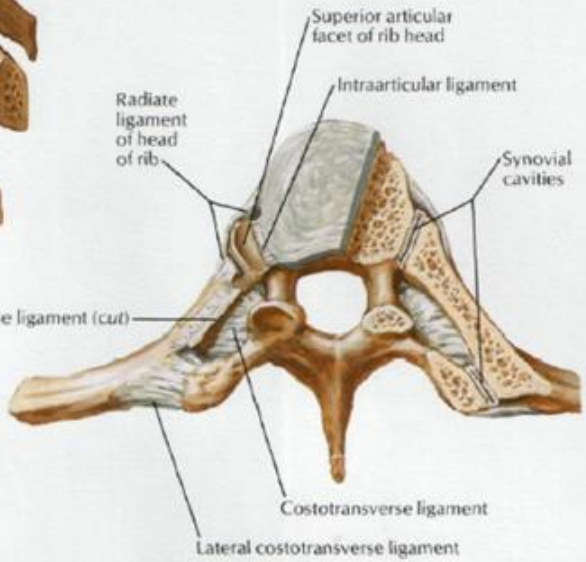

M
N
R
P
Q
S
T
O


U
W
V

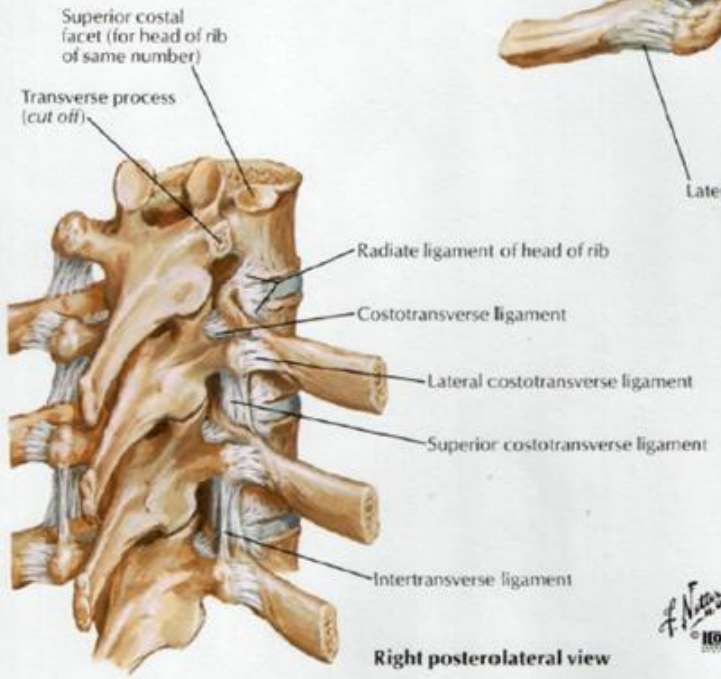

DD



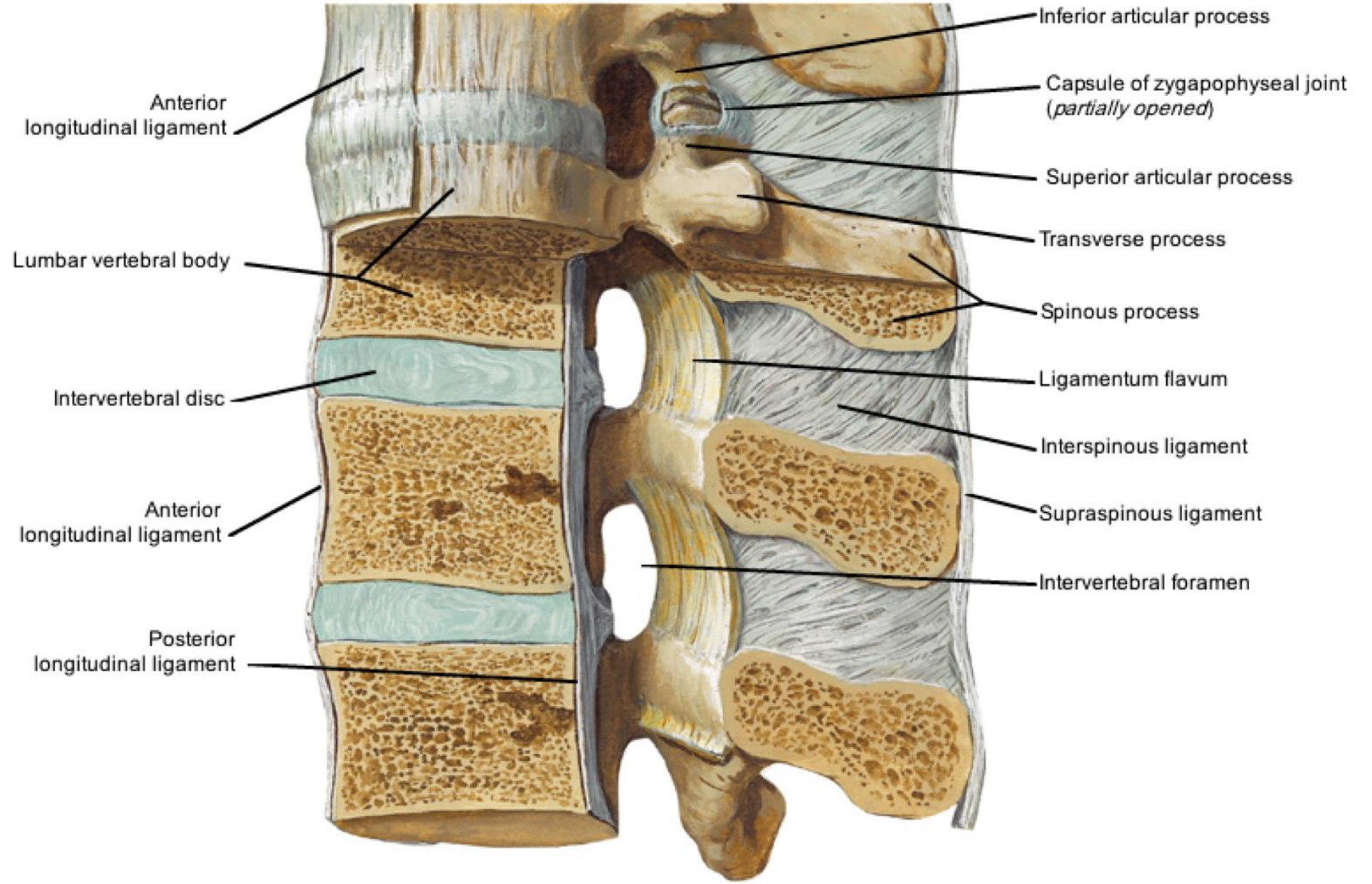
Left lateral view



Transverse section: superior view



Right posterolateral view


Inferior articular process
Capsule of zygapophyseal joint
(*partially opened*)
Superior articular process
Transverse process
Spinous process
Ligamentum flavum
Interspinous ligament
Supraspinous ligament
Intervertebral foramen
Anterior
longitudinal ligament
Lumbar vertebral body
Intervertebral disc
Anterior
longitudinal ligament
Posterior
longitudinal ligament

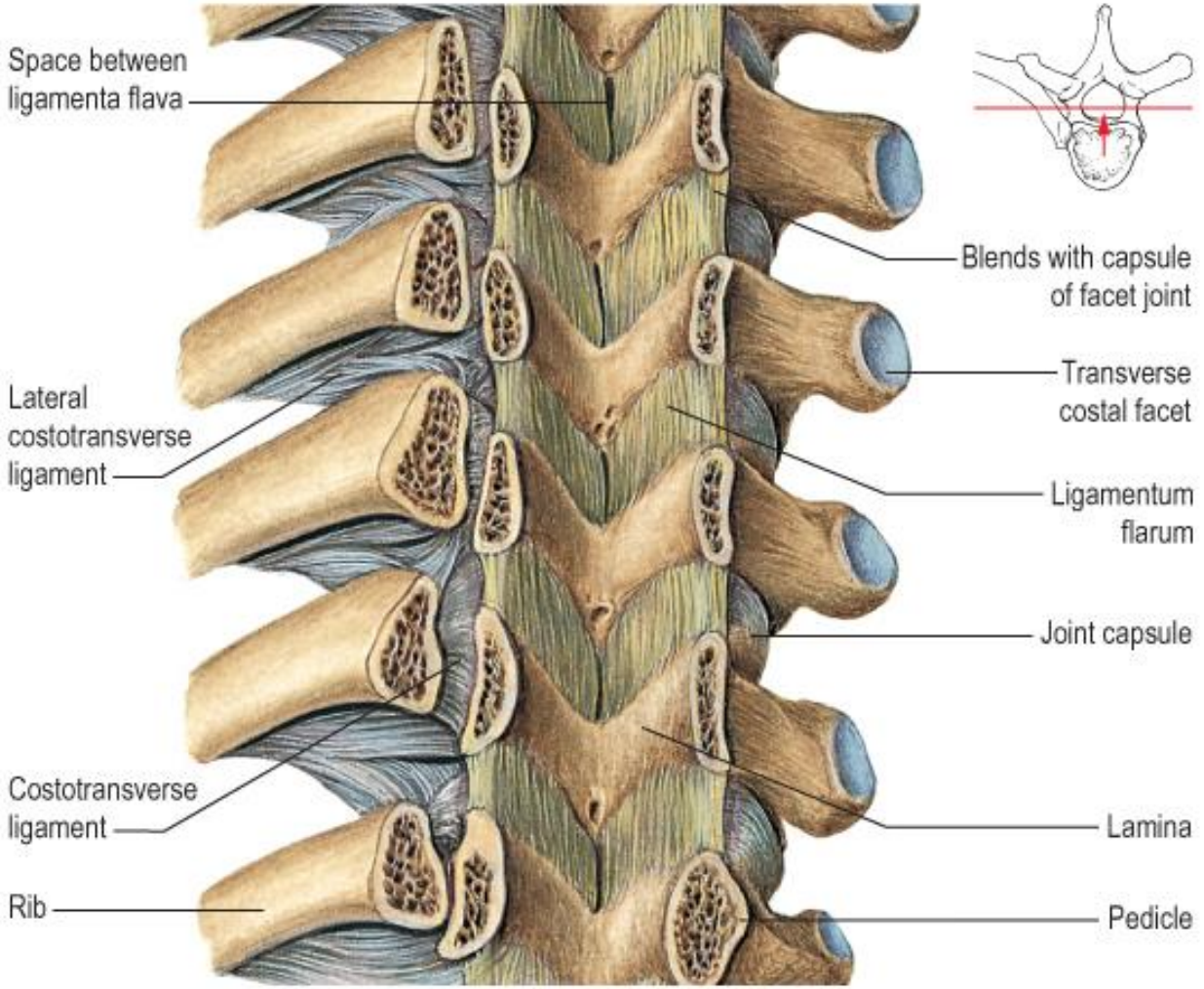
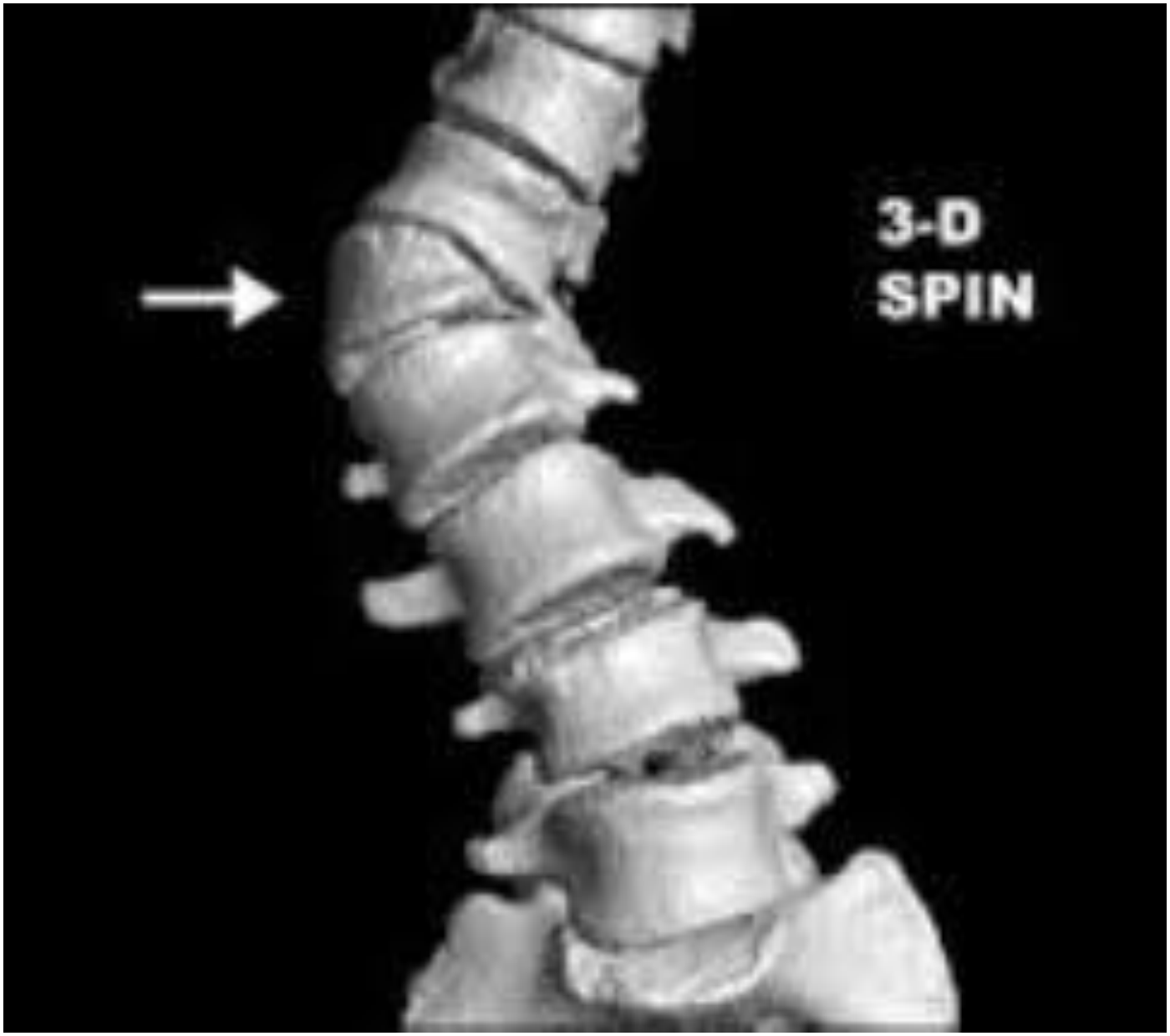
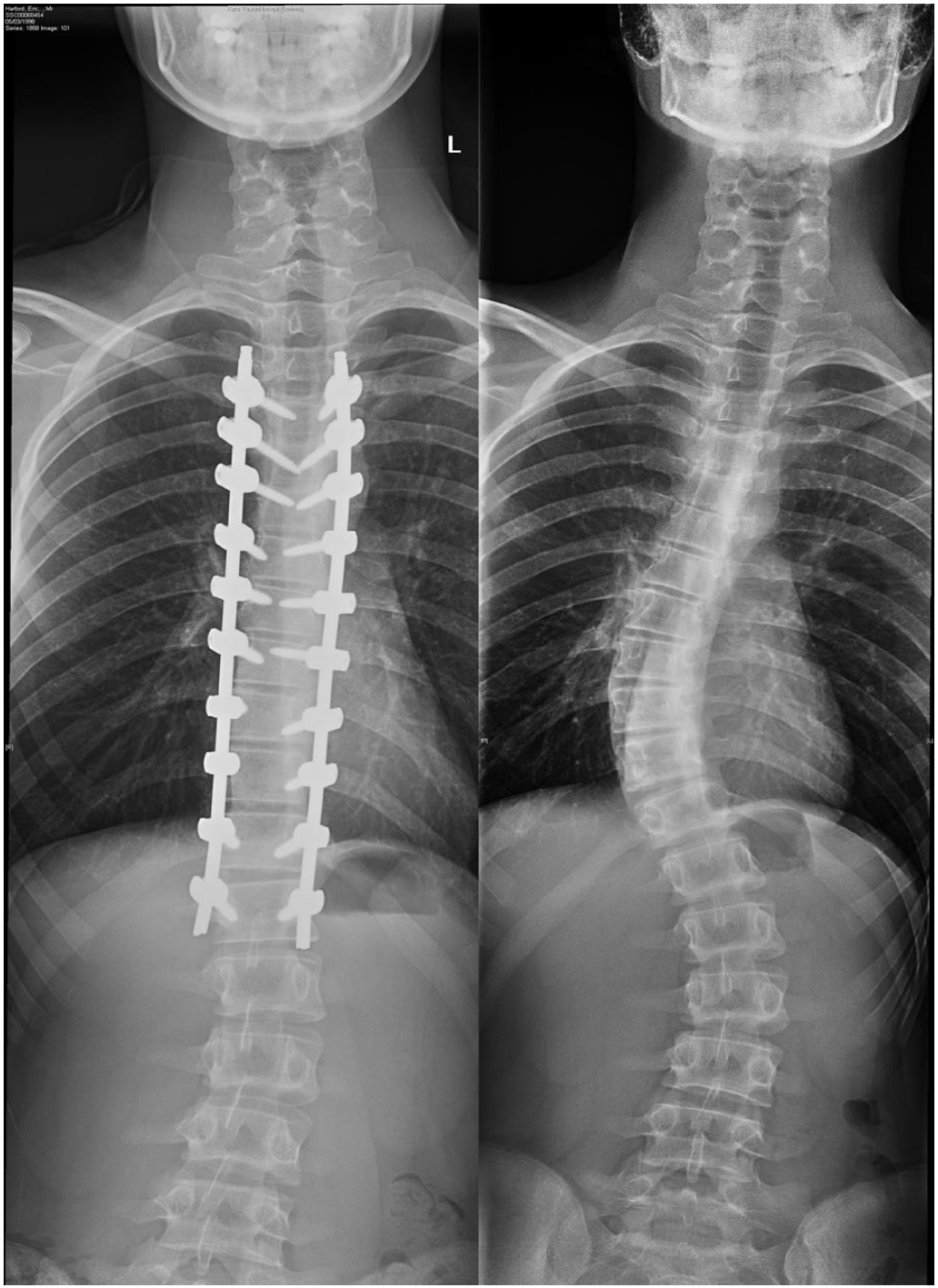


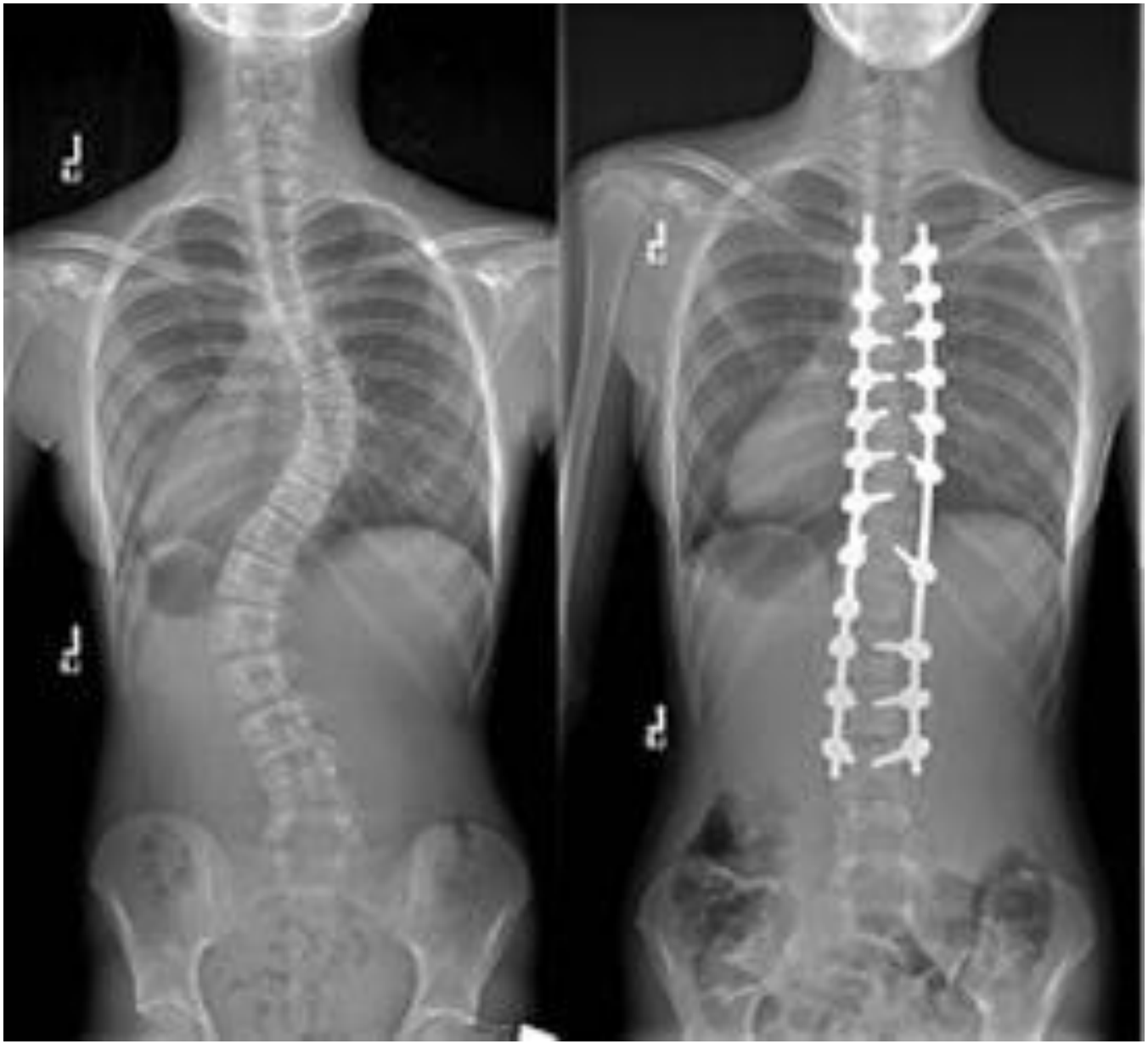
Fig. 42.42 Ligamenta flava and costotransverse ligaments (ventral aspect).

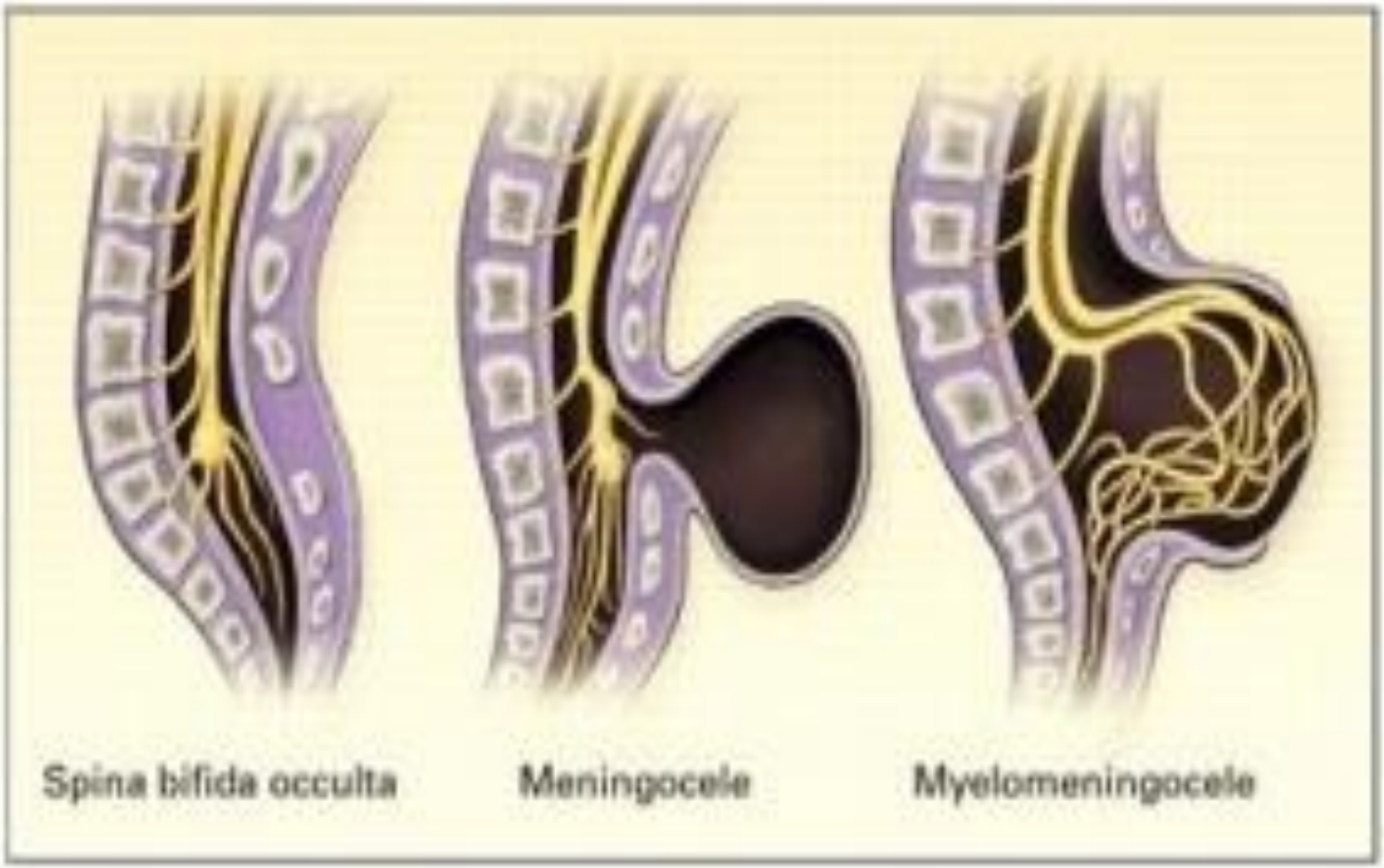
From Standring, Gray's Anatomy, 40th edn. Churchill Livingstone/Elsevier, Philadelphia, 2009 with permission.

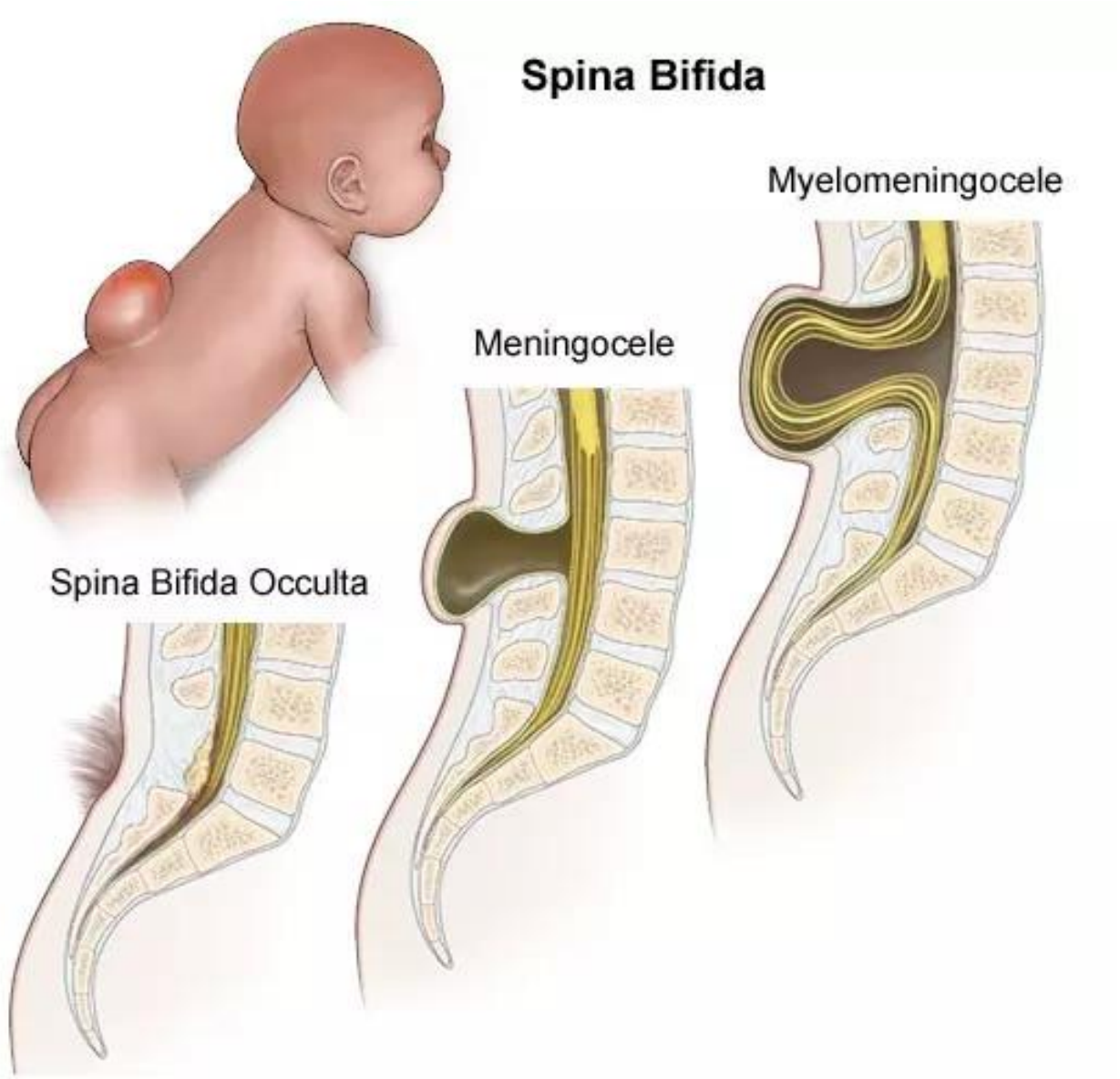

3-D
SPIN

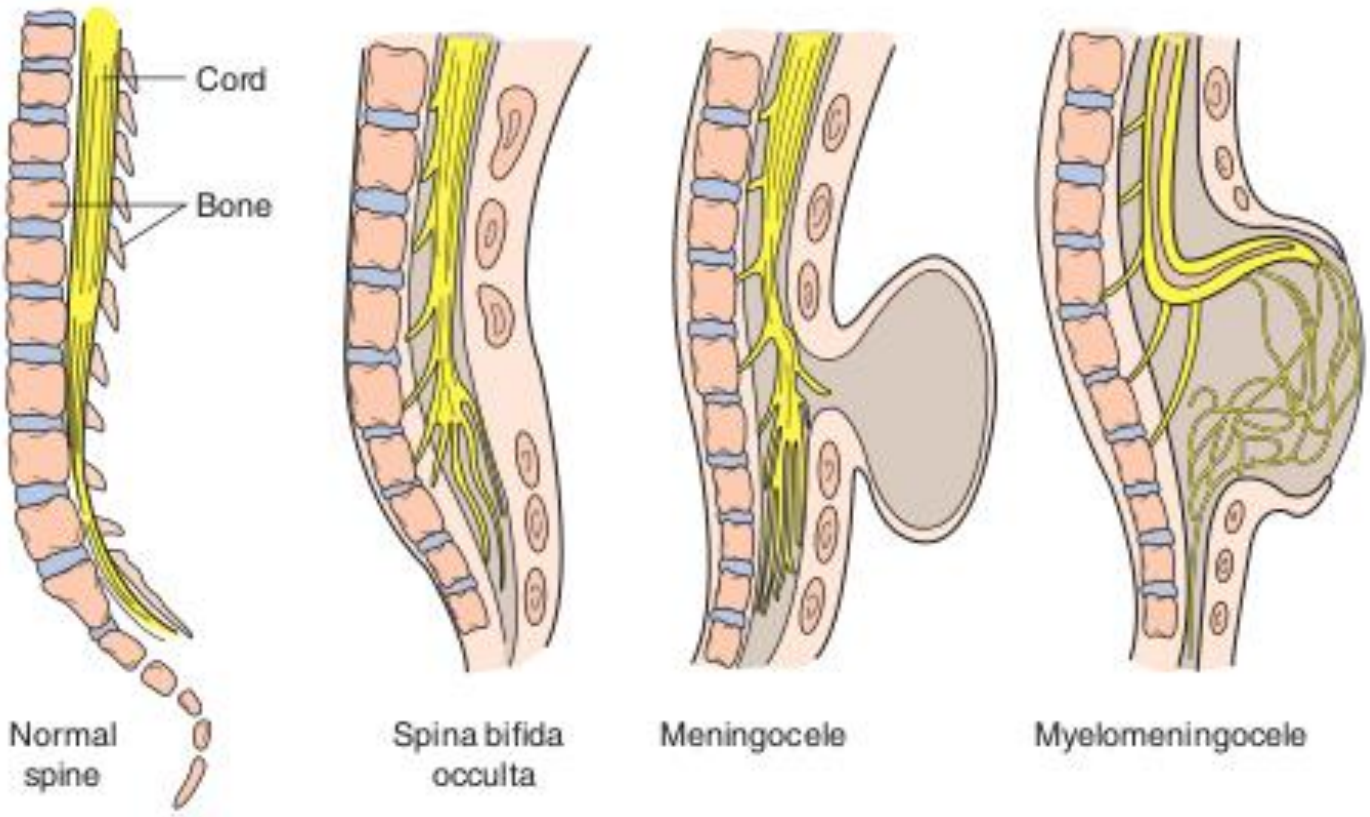

VERITAS heal


L




Spina bifida occulta
Meningocele
Myelomeningocele


Spina Bifida
Myelomeningocele
Meningocele
Spina Bifida Occulta


Cord
Bone
Normal spine
Spina bifida occulta
Meningocele
Myelomeningocele

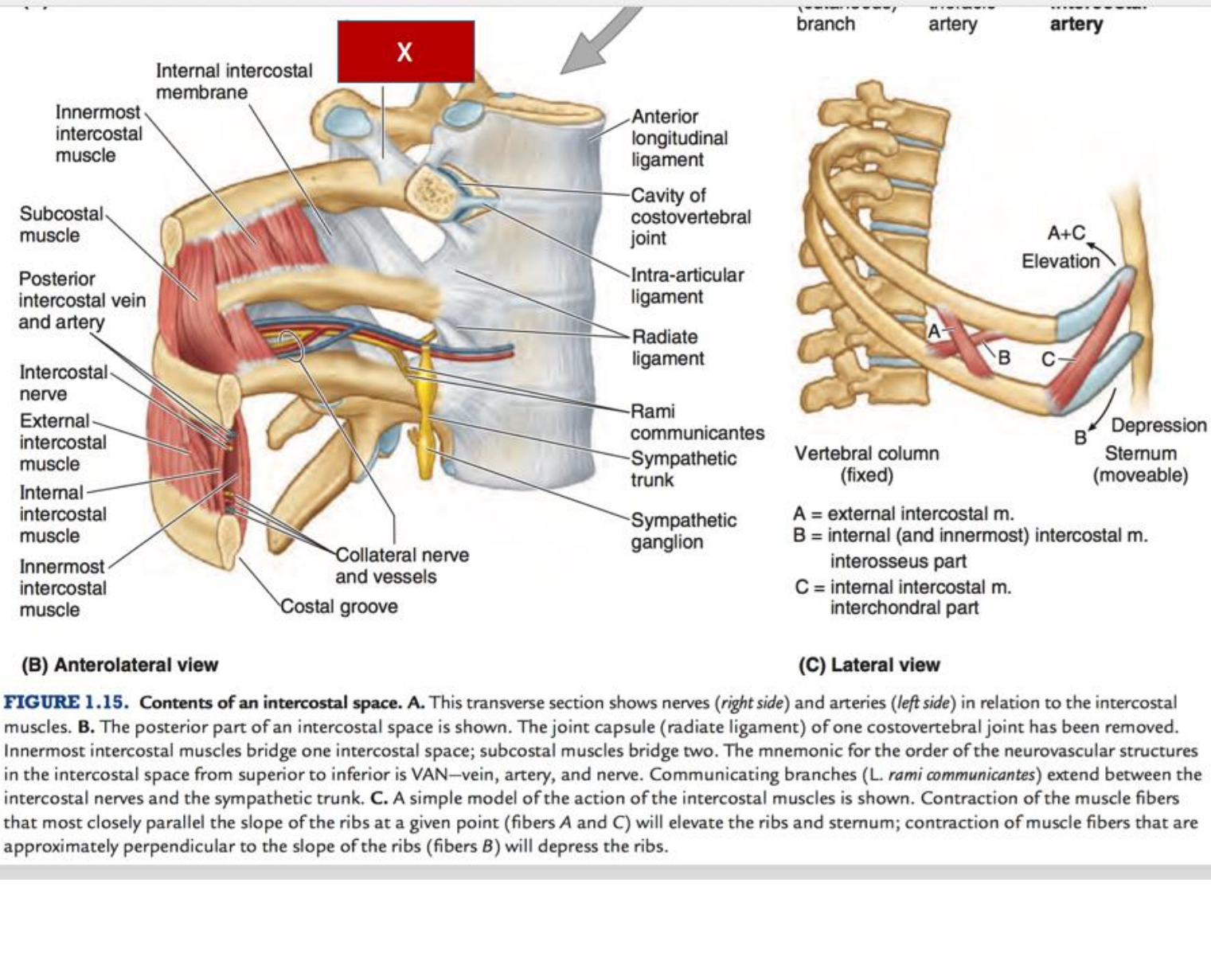
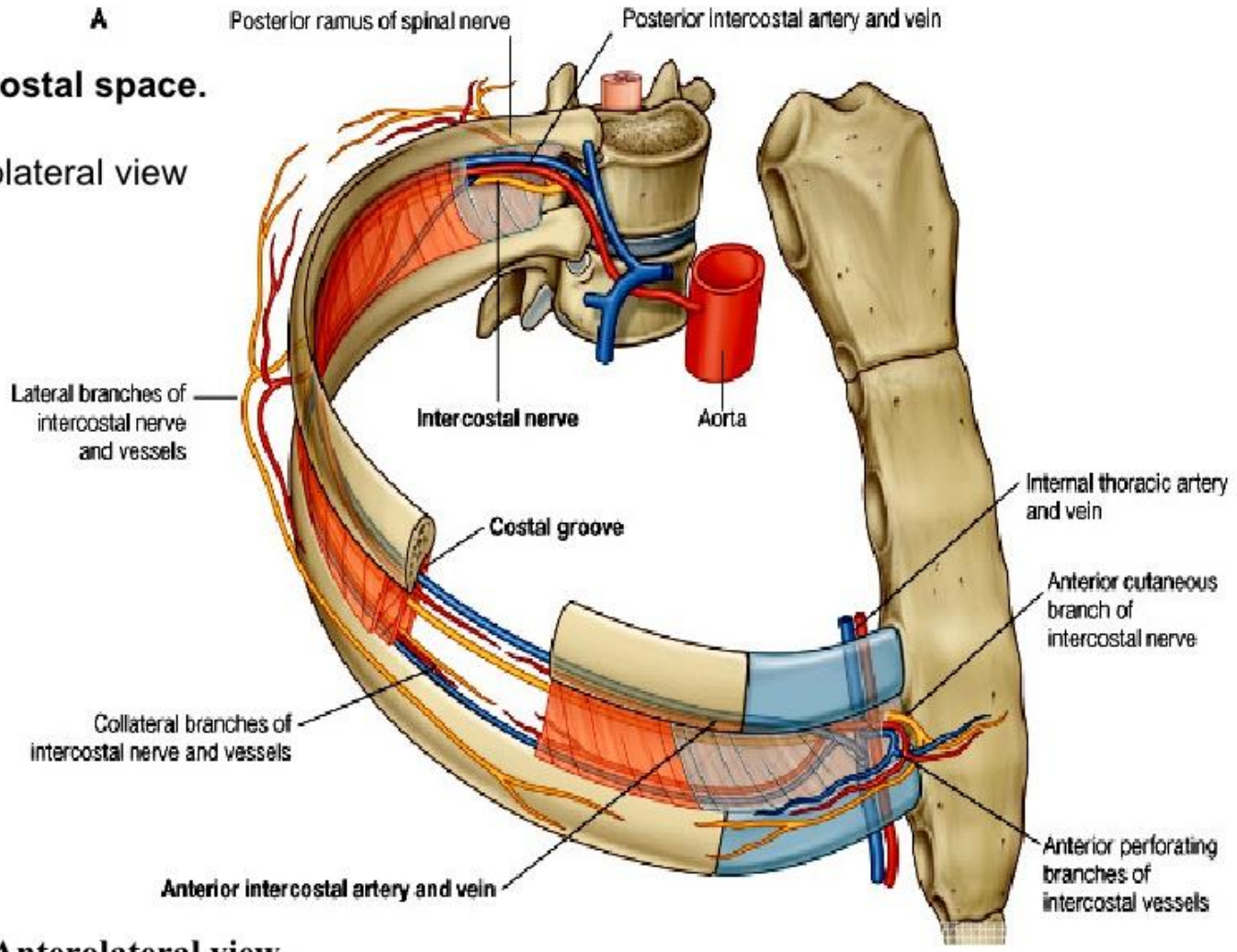


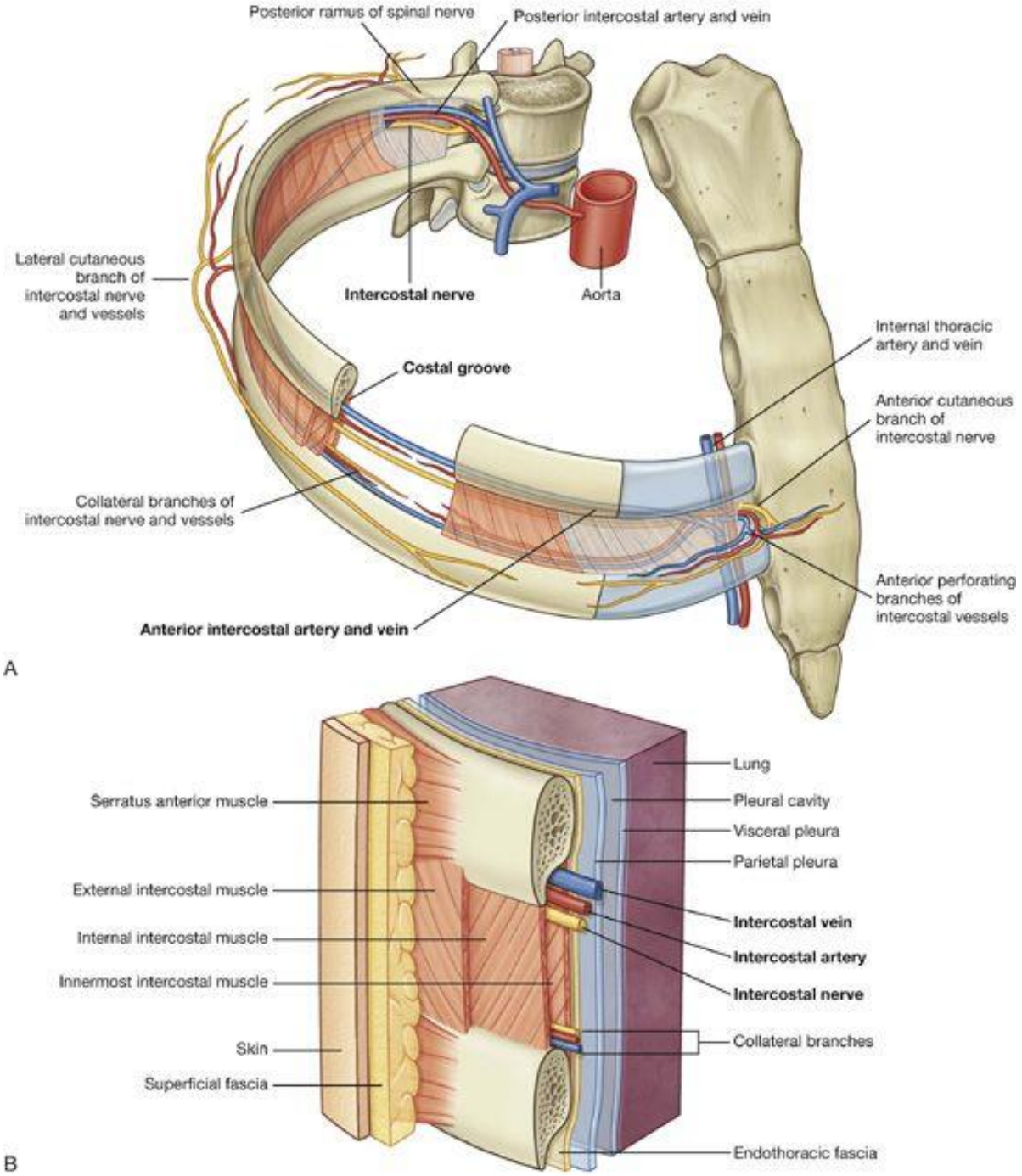
FIGURE 1.15. Contents of an intercostal space. A. This transverse section shows nerves (*right side*) and arteries (*left side*) in relation to the intercostal muscles. **B.** The posterior part of an intercostal space is shown. The joint capsule (radiate ligament) of one costovertebral joint has been removed. Innermost intercostal muscles bridge one intercostal space; subcostal muscles bridge two. The mnemonic for the order of the neurovascular structures in the intercostal space from superior to inferior is VAN—vein, artery, and nerve. Communicating branches (L. *rami communicantes*) extend between the intercostal nerves and the sympathetic trunk. **C.** A simple model of the action of the intercostal muscles is shown. Contraction of the muscle fibers that most closely parallel the slope of the ribs at a given point (fibers *A* and *C*) will elevate the ribs and sternum; contraction of muscle fibers that are approximately perpendicular to the slope of the ribs (fibers *B*) will depress the ribs.

Intercostal space.

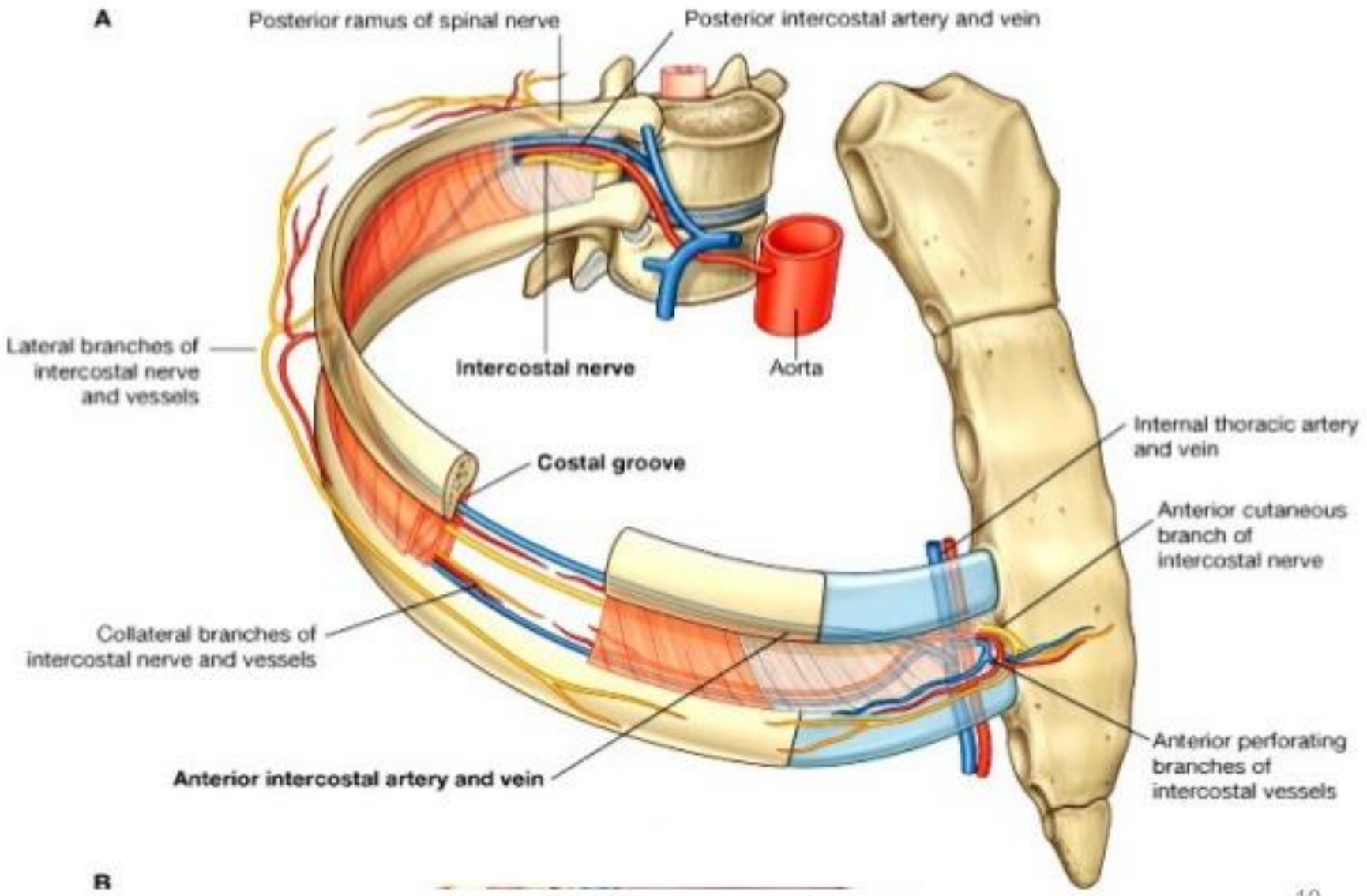
A. Anterolateral view

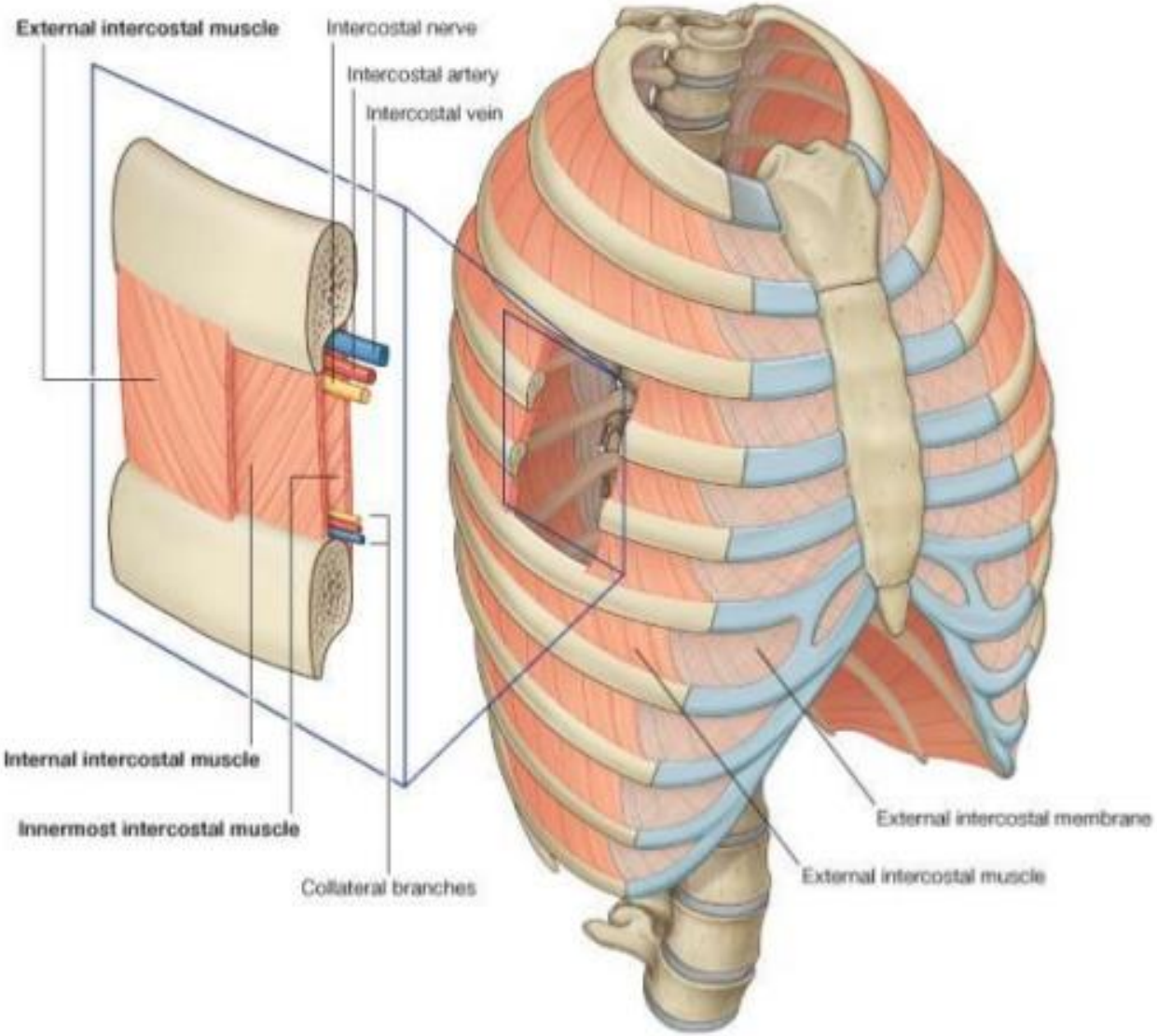


A. Anterolateral view.


Posterior ramus of spinal nerve
Posterior intercostal artery and vein
Lateral cutaneous branch of intercostal nerve and vessels
Intercostal nerve
Aorta
Internal thoracic artery and vein
Costal groove
Anterior cutaneous branch of intercostal nerve
Collateral branches of intercostal nerve and vessels
Anterior perforating branches of intercostal vessels
Anterior intercostal artery and vein
A
Lung
Serratus anterior muscle
Pleural cavity
Visceral pleura
Parietal pleura
External intercostal muscle
Intercostal vein
Internal intercostal muscle
Intercostal artery
Innermost intercostal muscle
Intercostal nerve
Skin
Collateral branches
Superficial fascia
Endothoracic fascia
B

Intercostal arteries, nerves, and vein





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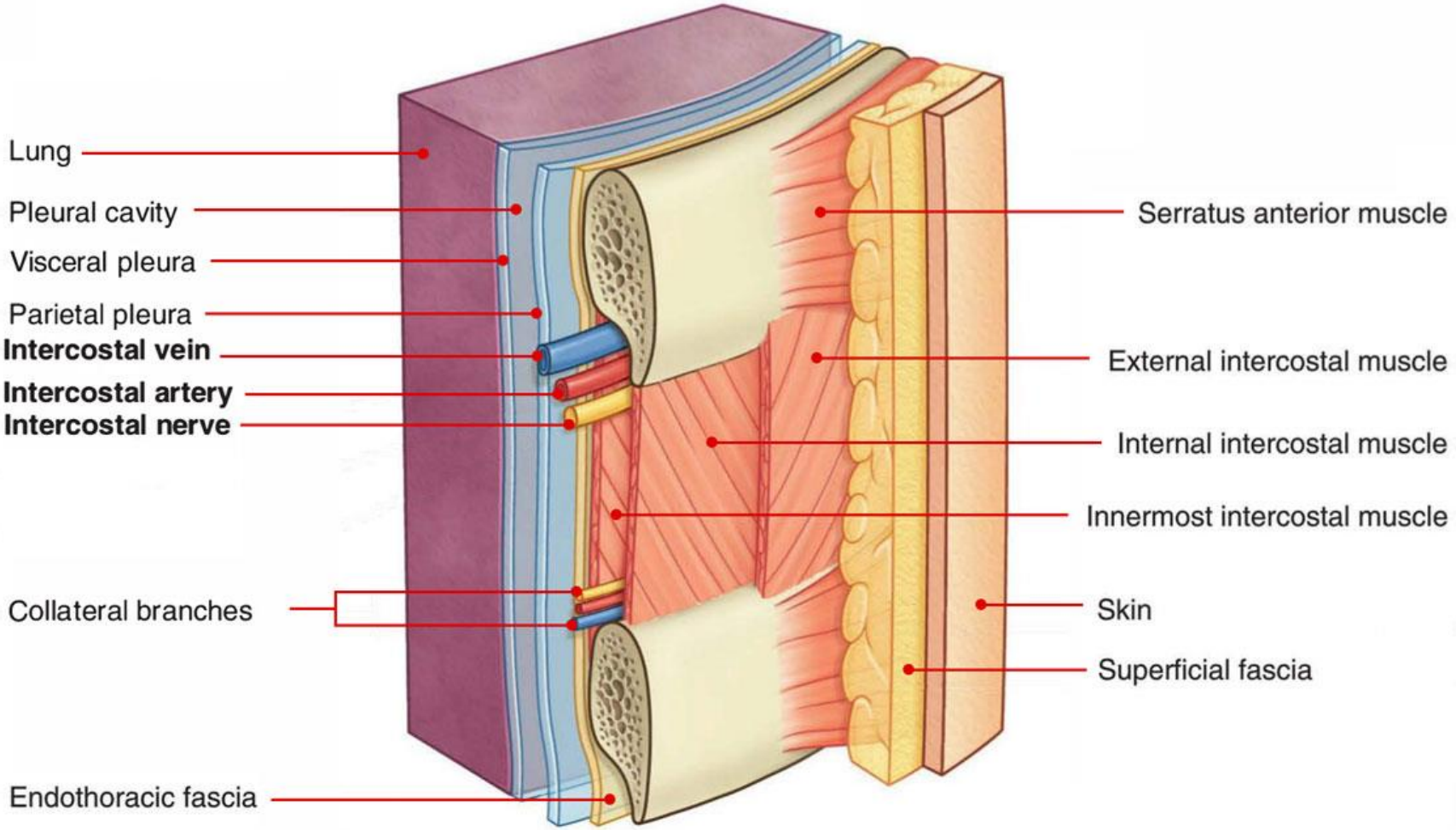
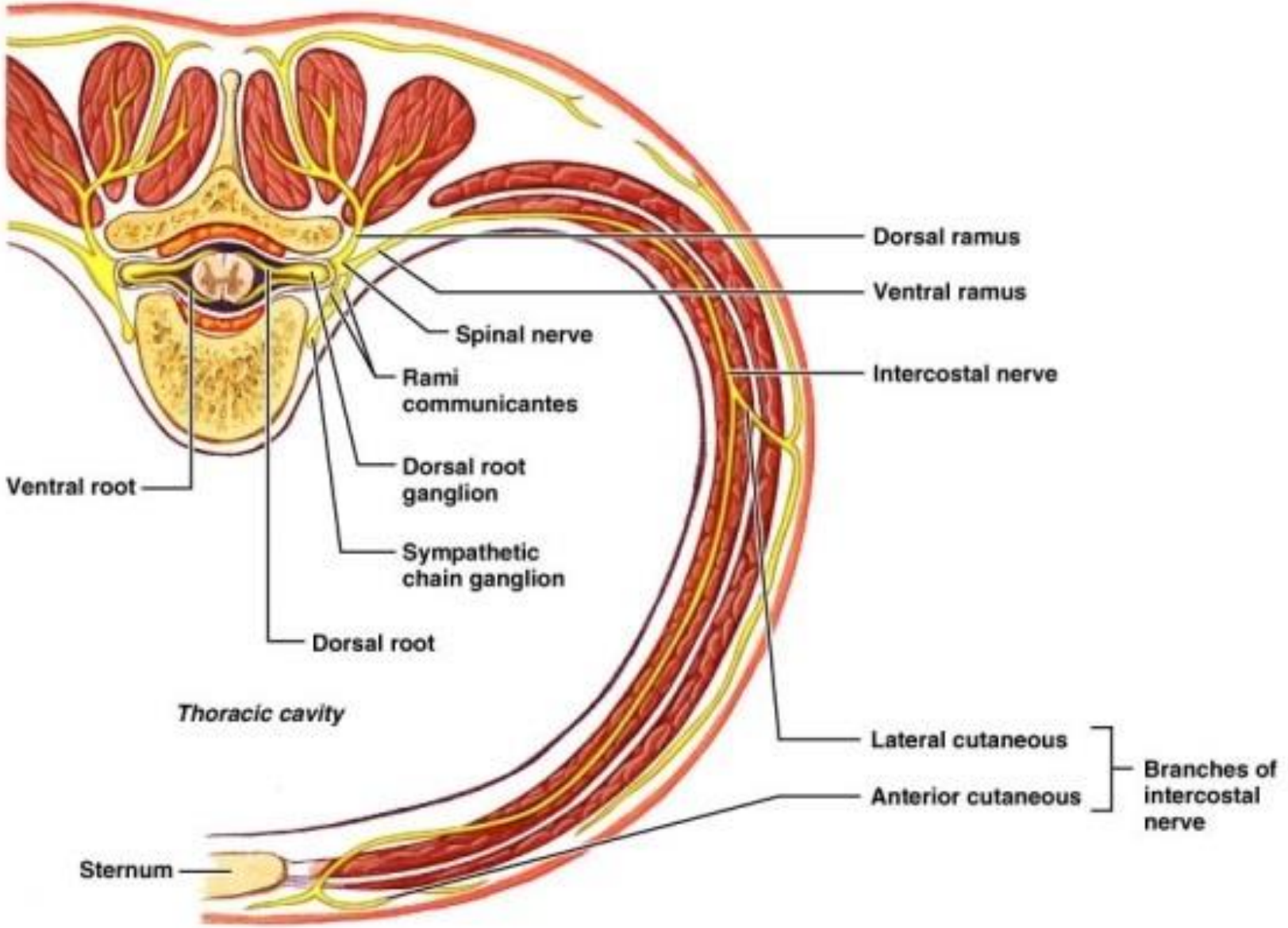
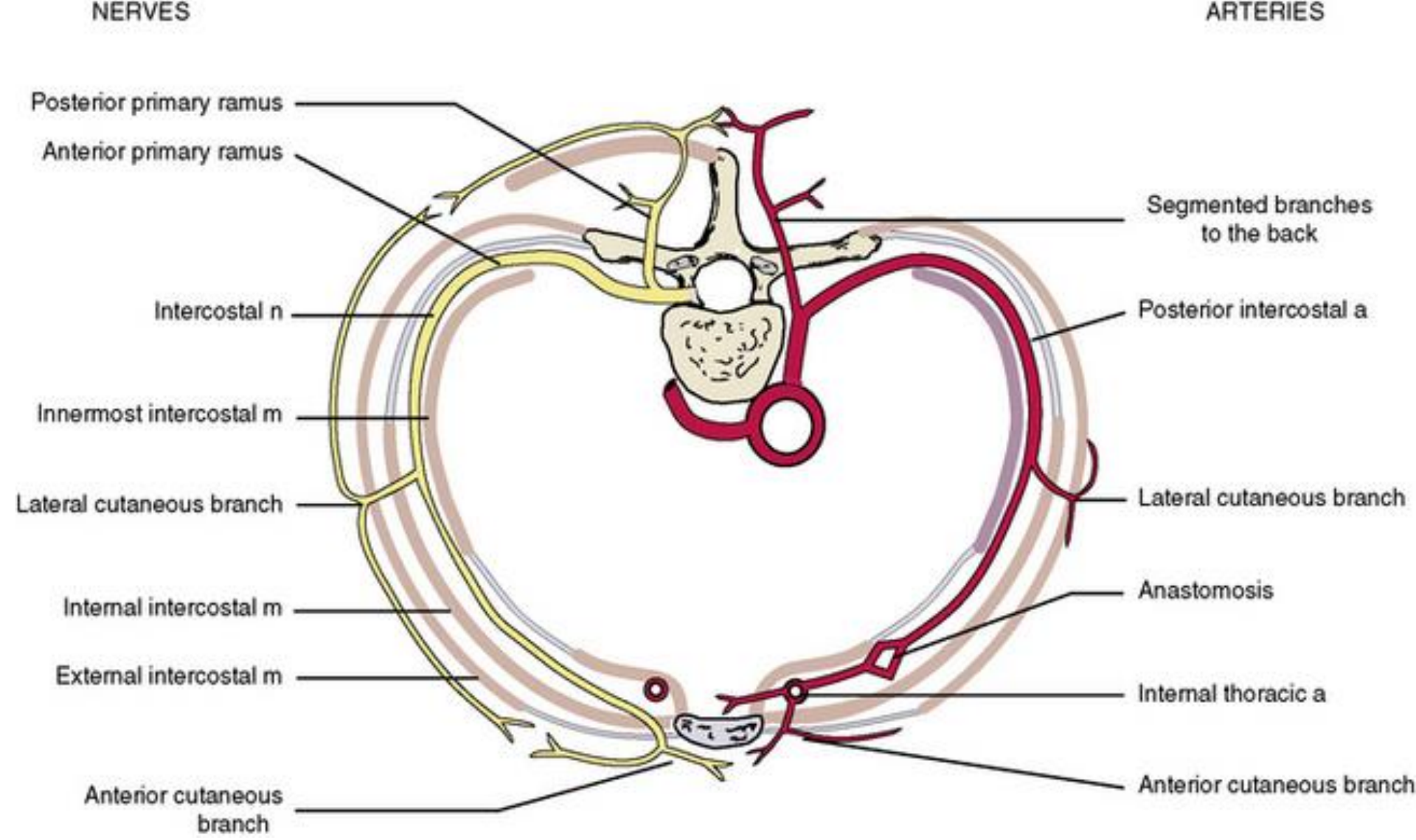
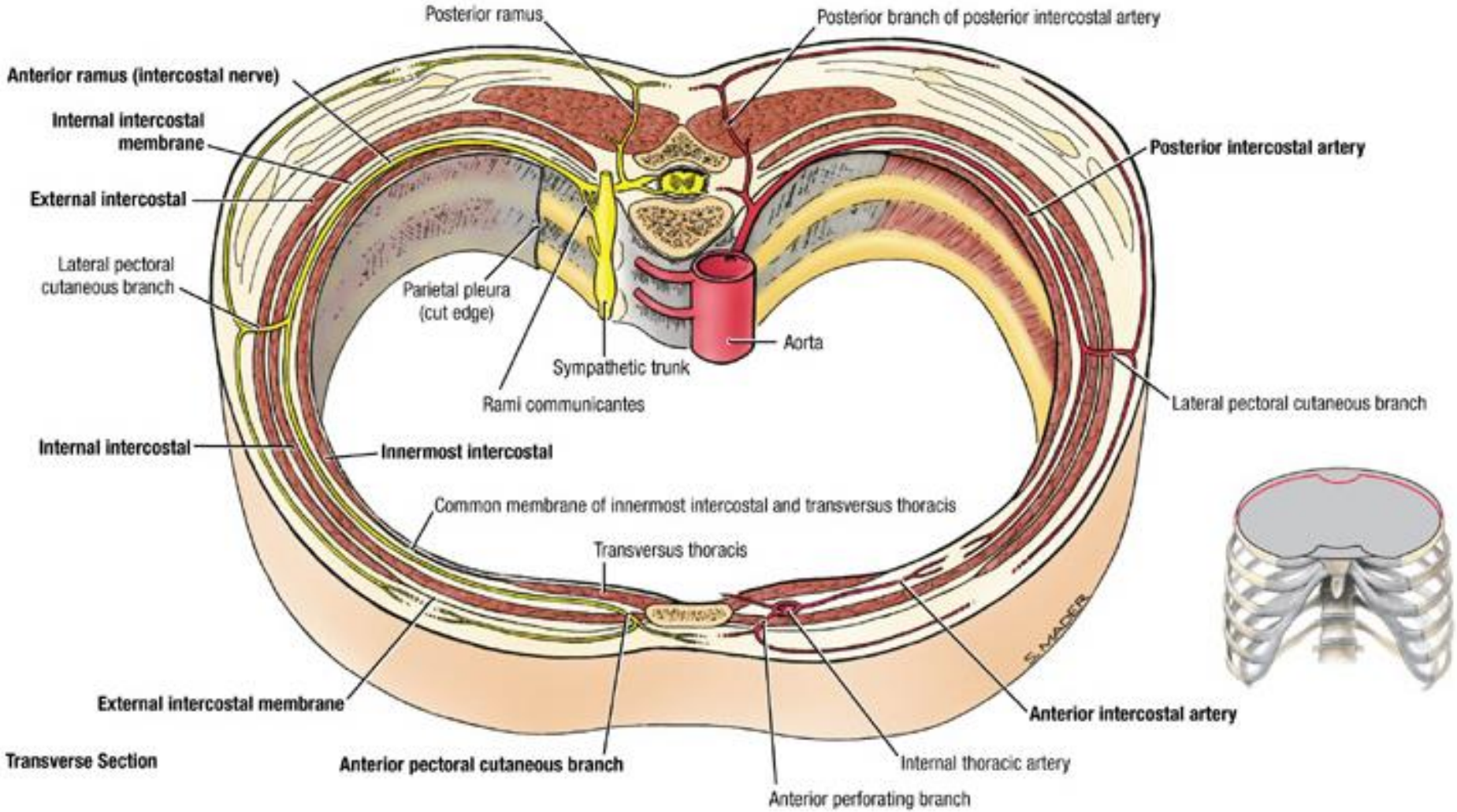

Lung
Pleural cavity
Visceral pleura
Parietal pleura
Intercostal vein
Intercostal artery
Intercostal nerve
Collateral branches
Endothoracic fascia
Serratus anterior muscle
External intercostal muscle
Internal intercostal muscle
Innermost intercostal muscle
Skin
Superficial fascia


Dorsal ramus
Ventral ramus
Spinal nerve
Intercostal nerve
Rami communicantes
Dorsal root ganglion
Ventral root
Sympathetic chain ganglion
Dorsal root
Thoracic cavity
Lateral cutaneous
Anterior cutaneous
Branches of intercostal nerve
Sternum


NERVES
ARTERIES
Posterior primary ramus
Anterior primary ramus
Intercostal n
Innermost intercostal m
Lateral cutaneous branch
Internal intercostal m
External intercostal m
Anterior cutaneous branch
Segmented branches to the back
Posterior intercostal a
Lateral cutaneous branch
Anastomosis
Internal thoracic a
Anterior cutaneous branch



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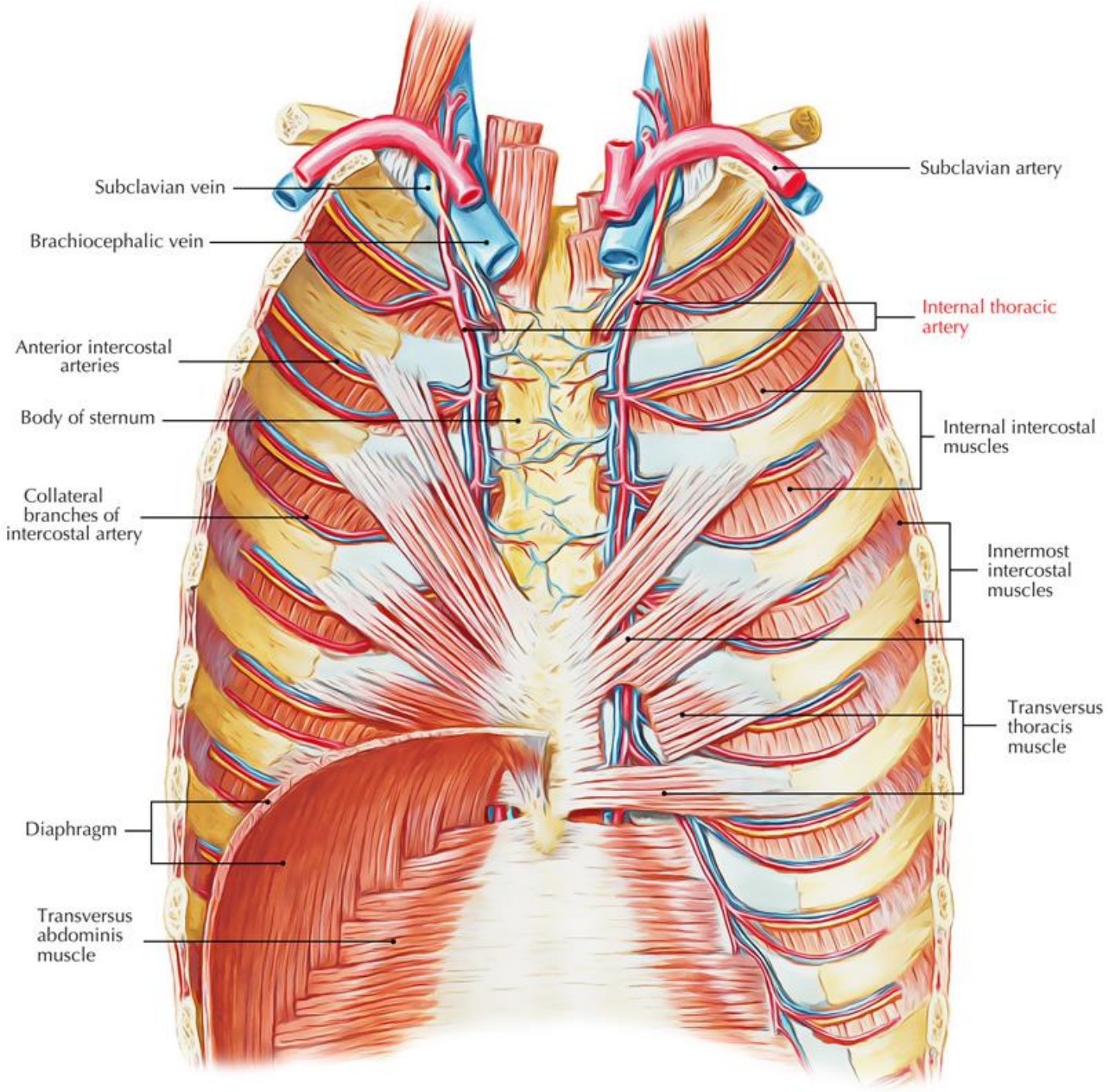
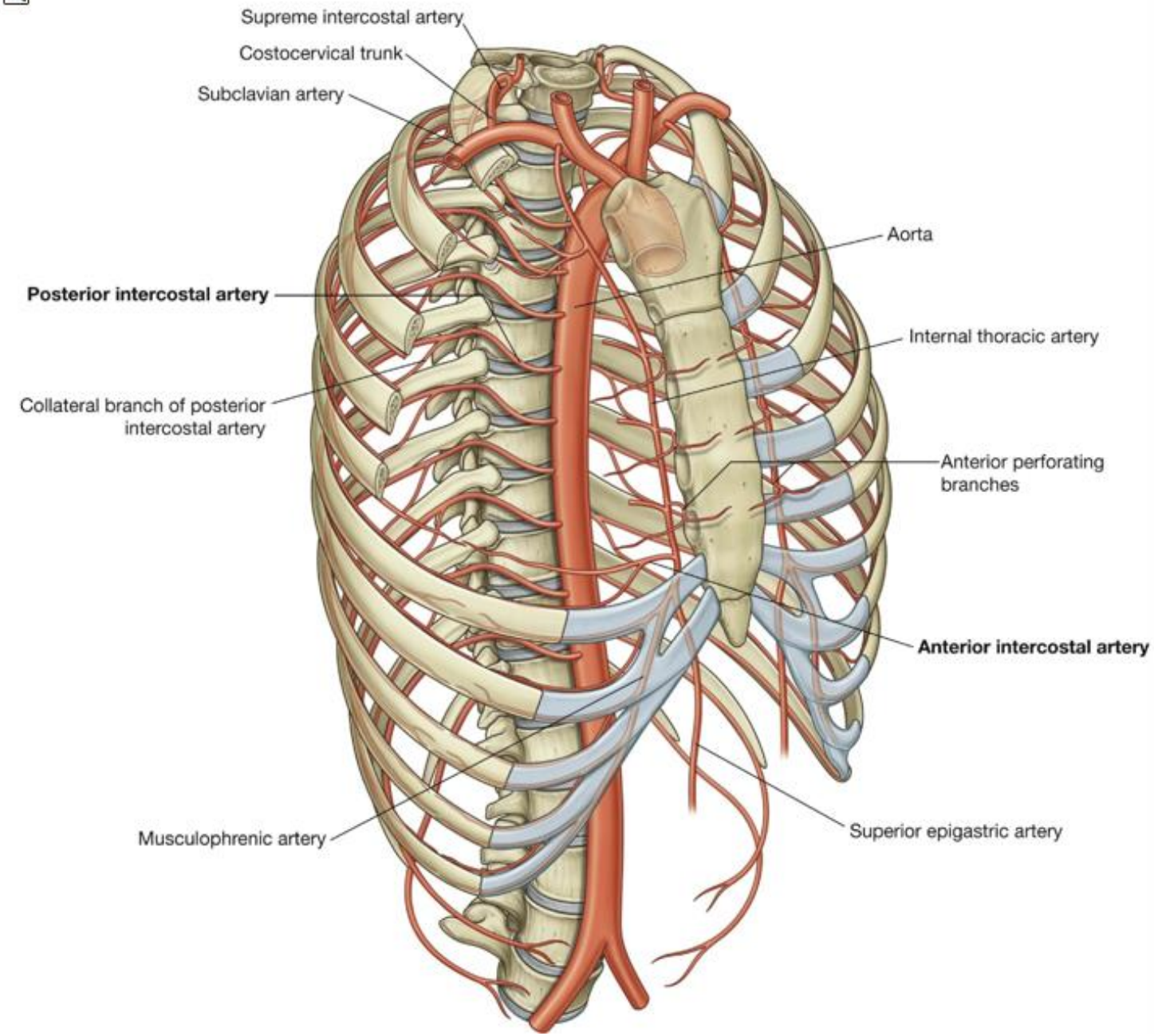
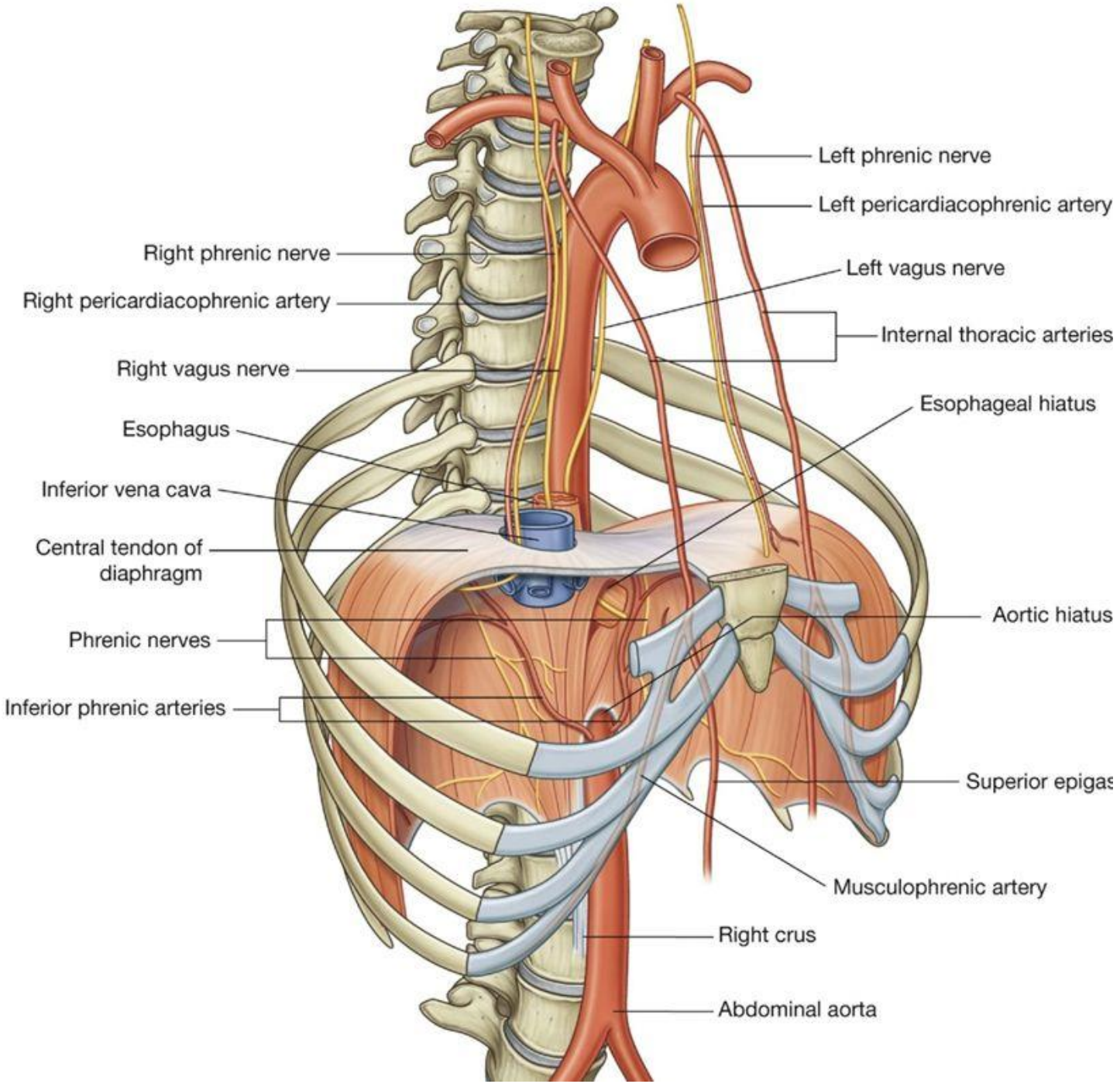
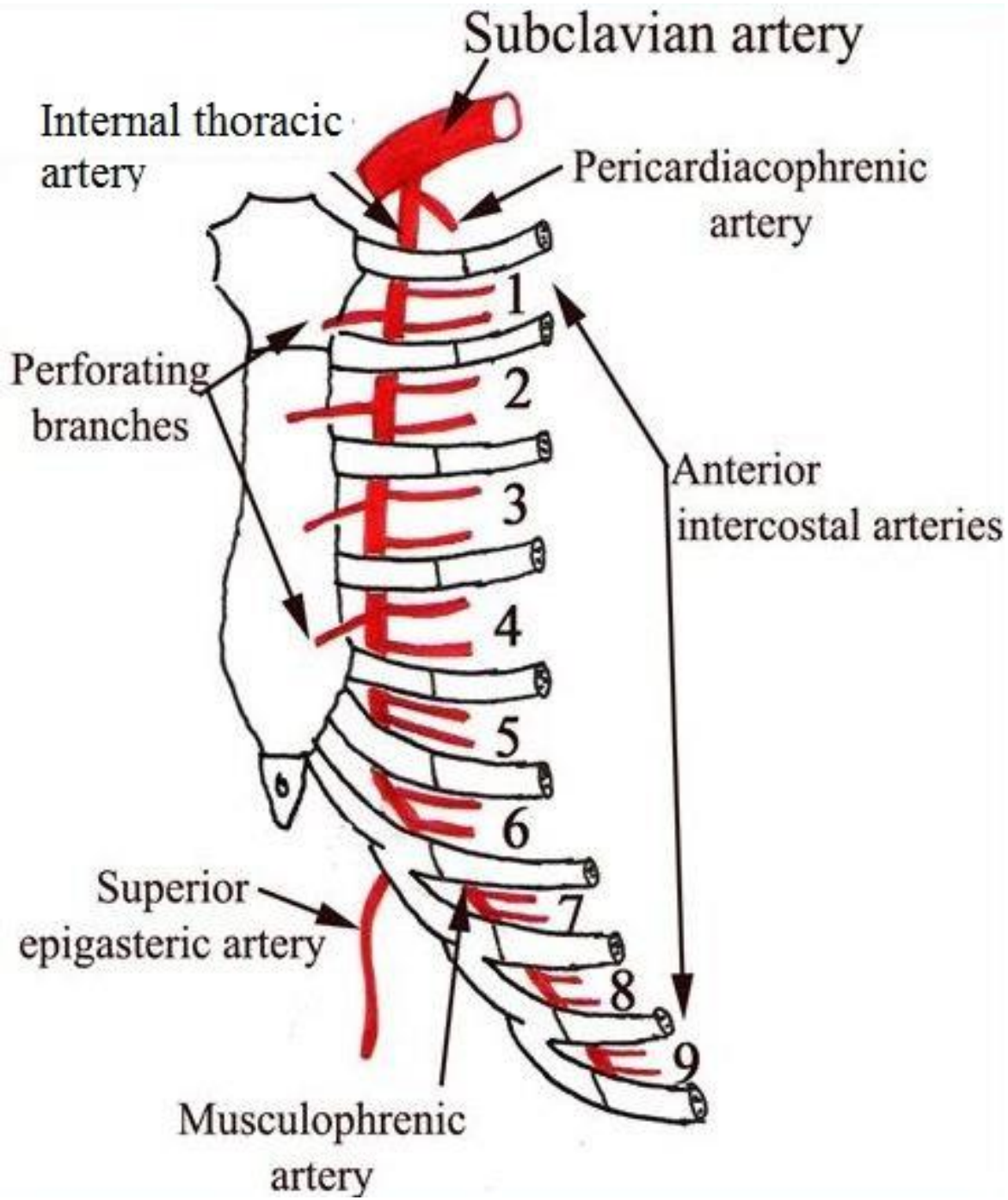
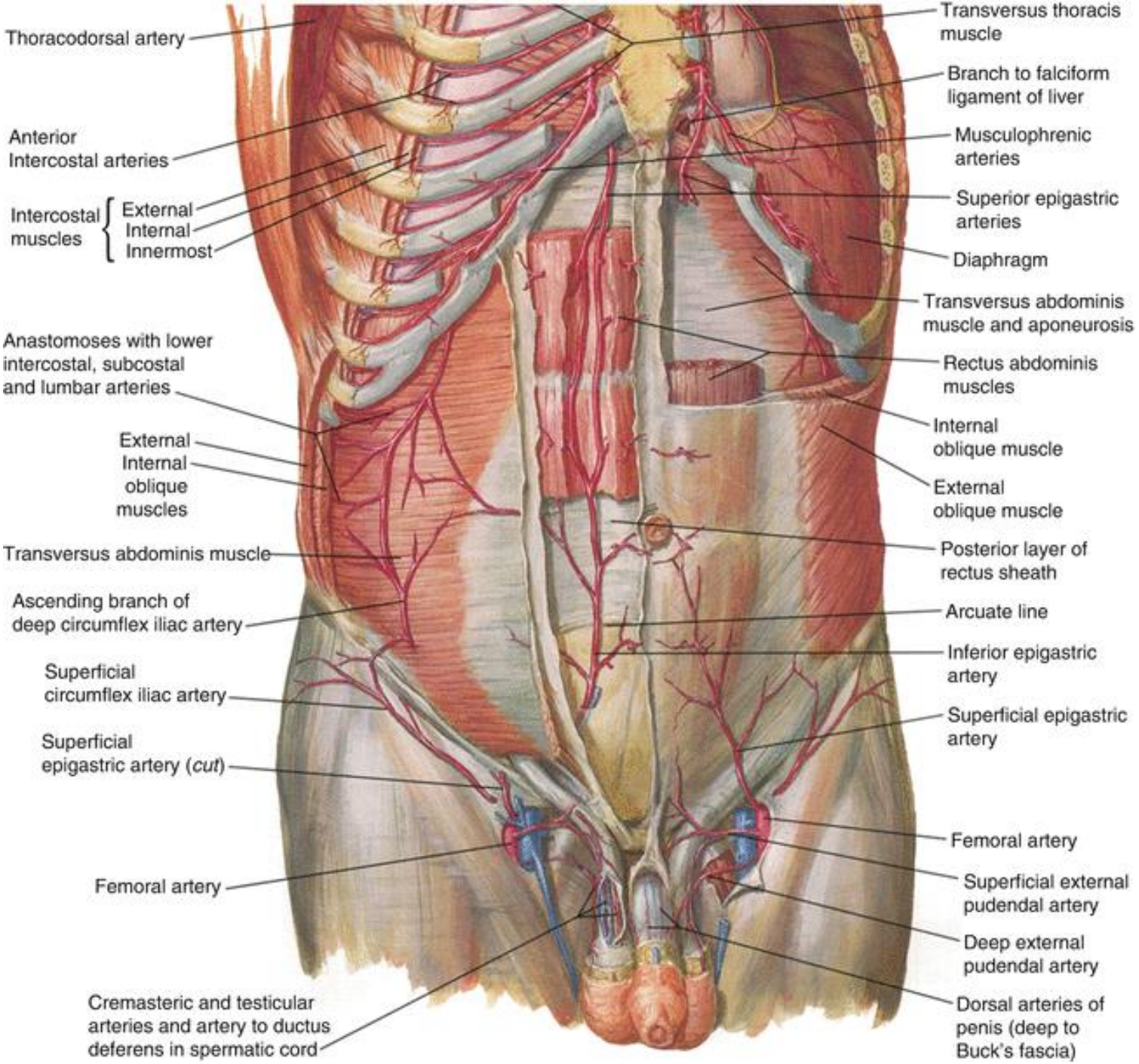

Subclavian vein
Brachiocephalic vein
Anterior intercostal arteries
Body of sternum
Collateral branches of intercostal artery
Diaphragm
Transversus abdominis muscle
Subclavian artery
Internal thoracic artery
Internal intercostal muscles
Innermost intercostal muscles
Transversus thoracis muscle

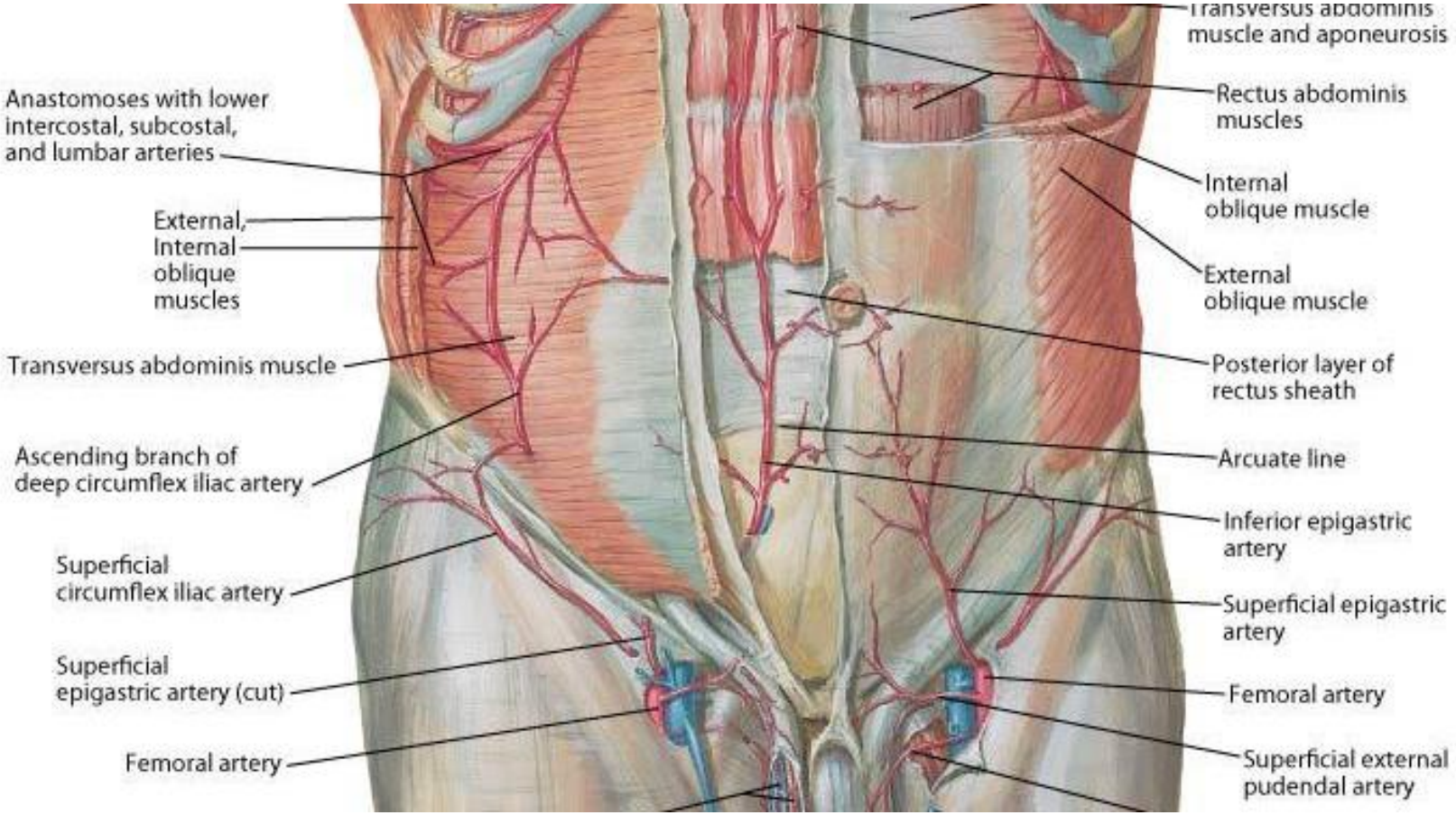
Fig. 3.29 Arteries of the thoracic wall.

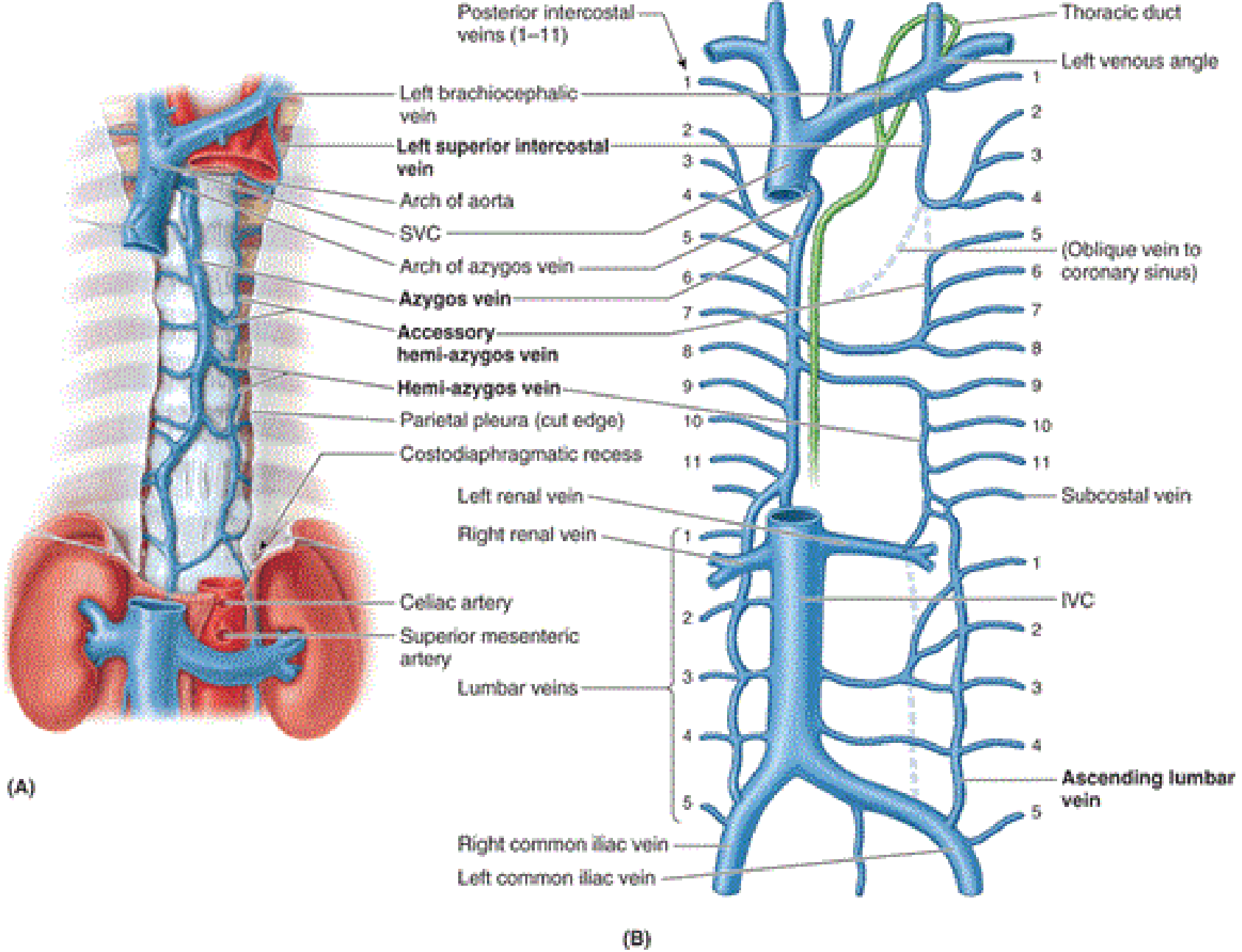



Left phrenic nerve
Left pericardiacophrenic artery
Right phrenic nerve
Left vagus nerve
Right pericardiacophrenic artery
Internal thoracic arteries
Right vagus nerve
Esophageal hiatus
Esophagus
Inferior vena cava
Central tendon of diaphragm
Aortic hiatus
Phrenic nerves
Inferior phrenic arteries
Superior epigas
Musculophrenic artery
Right crus
Abdominal aorta

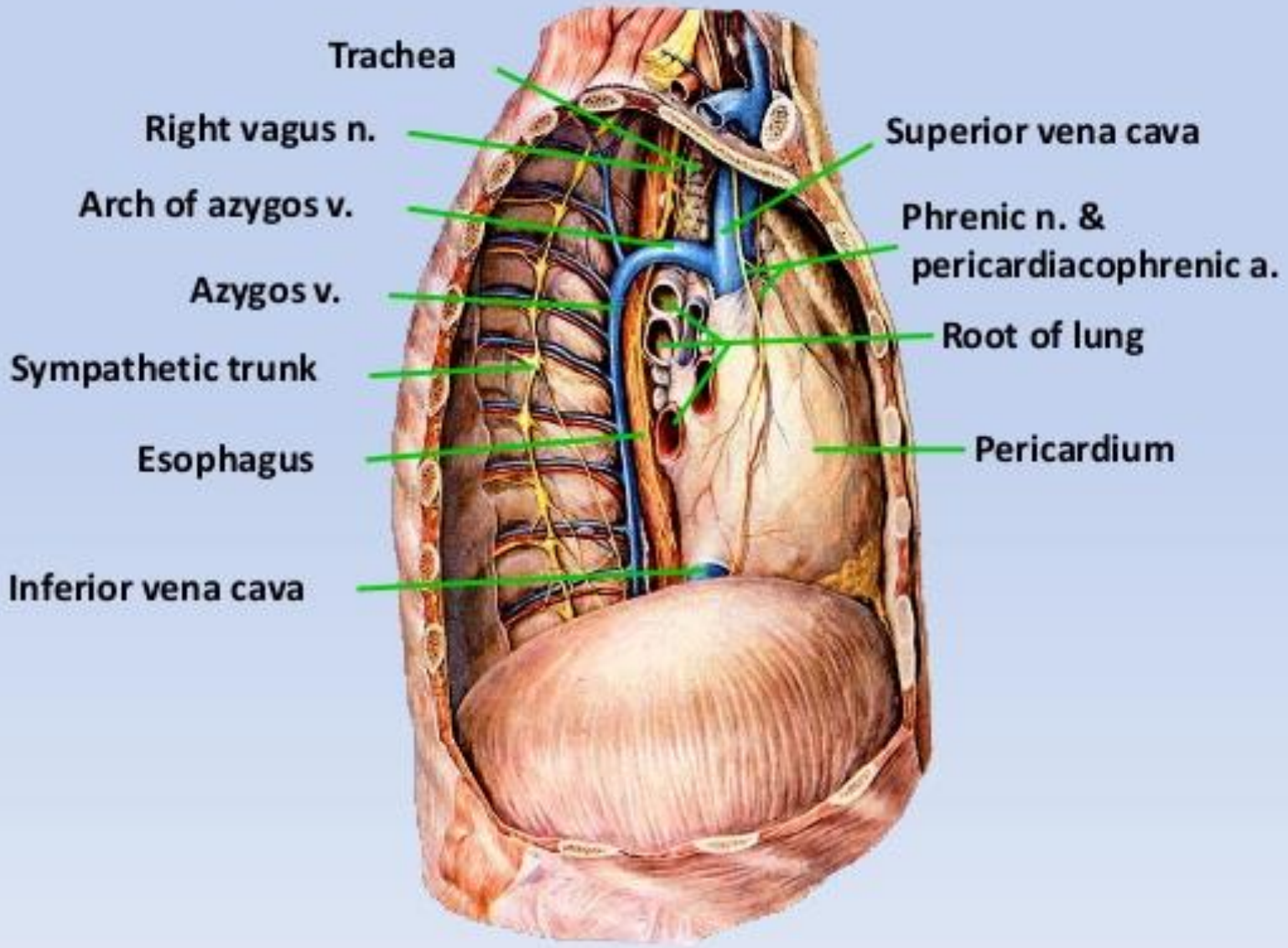

Subclavian artery
Internal thoracic artery
Pericardiacophrenic artery
1
Perforating branches
2
3
Anterior intercostal arteries
4
5
6
Superior epigasteric artery
7
8
9
Musculophrenic artery

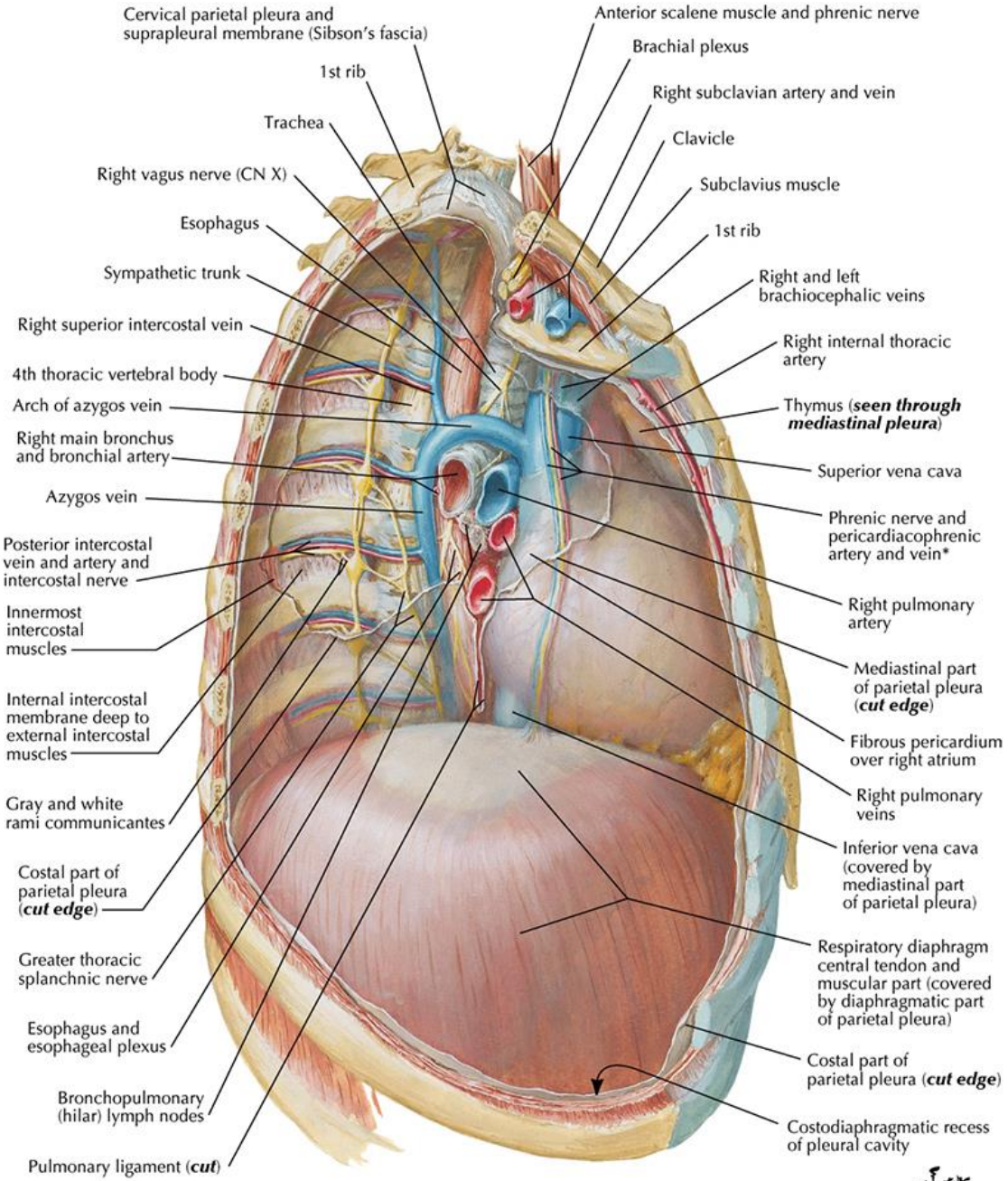

Thoracodorsal artery
Anterior Intercostal arteries
Intercostal muscles
External
Internal
Innermost
Anastomoses with lower intercostal, subcostal and lumbar arteries
External
Internal
oblique
muscles
Transversus abdominis muscle
Ascending branch of deep circumflex iliac artery
Superficial circumflex iliac artery
Superficial epigastric artery (cut)
Femoral artery
Cremasteric and testicular arteries and artery to ductus deferens in spermatic cord
Transversus thoracis muscle
Branch to falciform ligament of liver
Musculophrenic arteries
Superior epigastric arteries
Diaphragm
Transversus abdominis muscle and aponeurosis
Rectus abdominis muscles
Internal oblique muscle
External oblique muscle
Posterior layer of rectus sheath
Arcuate line
Inferior epigastric artery
Superficial epigastric artery
Femoral artery
Superficial external pudendal artery
Deep external pudendal artery
Dorsal arteries of penis (deep to Buck's fascia)


Transversus abdominis muscle and aponeurosis
Anastomoses with lower intercostal, subcostal, and lumbar arteries
Rectus abdominis muscles
Internal oblique muscle
External, Internal oblique muscles
External oblique muscle
Transversus abdominis muscle
Posterior layer of rectus sheath
Ascending branch of deep circumflex iliac artery
Arcuate line
Inferior epigastric artery
Superficial circumflex iliac artery
Superficial epigastric artery
Superficial epigastric artery (cut)
Femoral artery
Femoral artery
Superficial external pudendal artery


Posterior intercostal veins (1–11)
Left brachiocephalic vein
Left superior intercostal vein
Arch of aorta
SVC
Arch of azygos vein
Azygos vein
Accessory hemi-azygos vein
Hemi-azygos vein
Parietal pleura (cut edge)
Costodiaphragmatic recess
Left renal vein
Right renal vein
Celiac artery
Superior mesenteric artery
Lumbar veins
Right common iliac vein
Left common iliac vein
Thoracic duct
Left venous angle
(Oblique vein to coronary sinus)
Subcostal vein
IVC
Ascending lumbar vein
1
2
3
4
5
6
7
8
9
10
11
(A)
(B)

Right side of mediastinum





Nerve and vessels commonly run independently.

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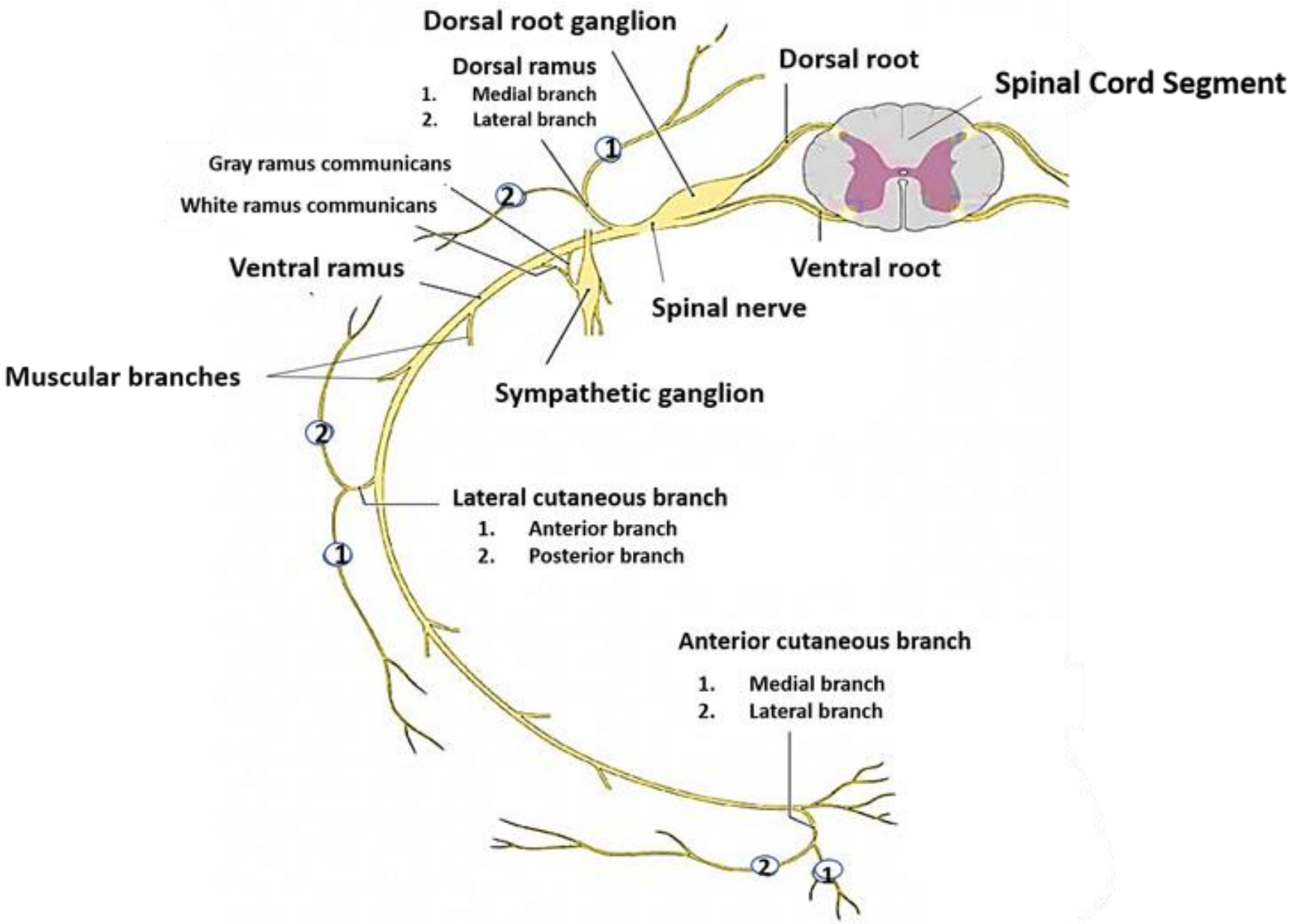

Dorsal root ganglion
Dorsal ramus
1. Medial branch
2. Lateral branch
Dorsal root
Spinal Cord Segment
Gray ramus communicans
White ramus communicans
Ventral ramus
Ventral root
Spinal nerve
Muscular branches
Sympathetic ganglion
Lateral cutaneous branch
1. Anterior branch
2. Posterior branch
Anterior cutaneous branch
1. Medial branch
2. Lateral branch

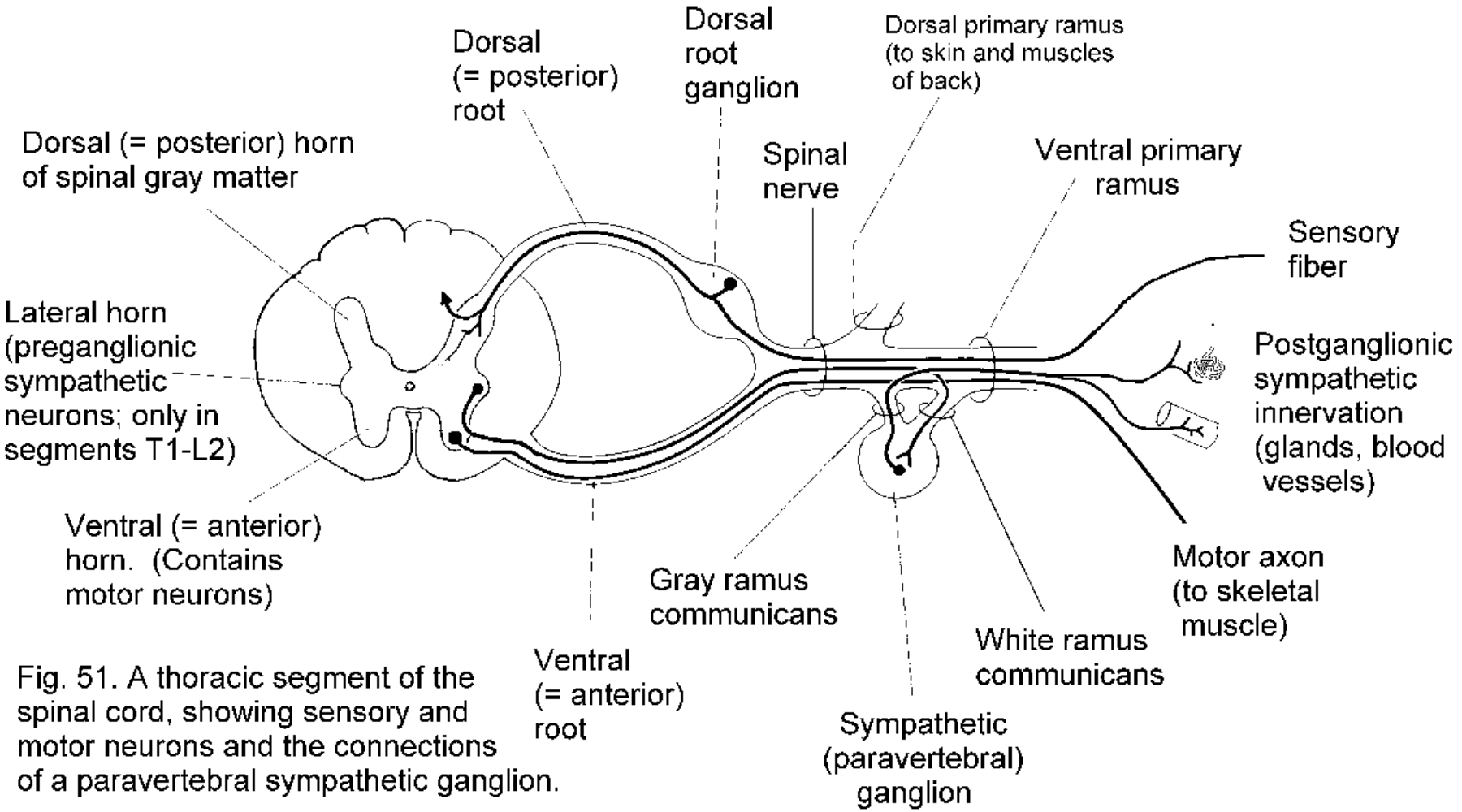
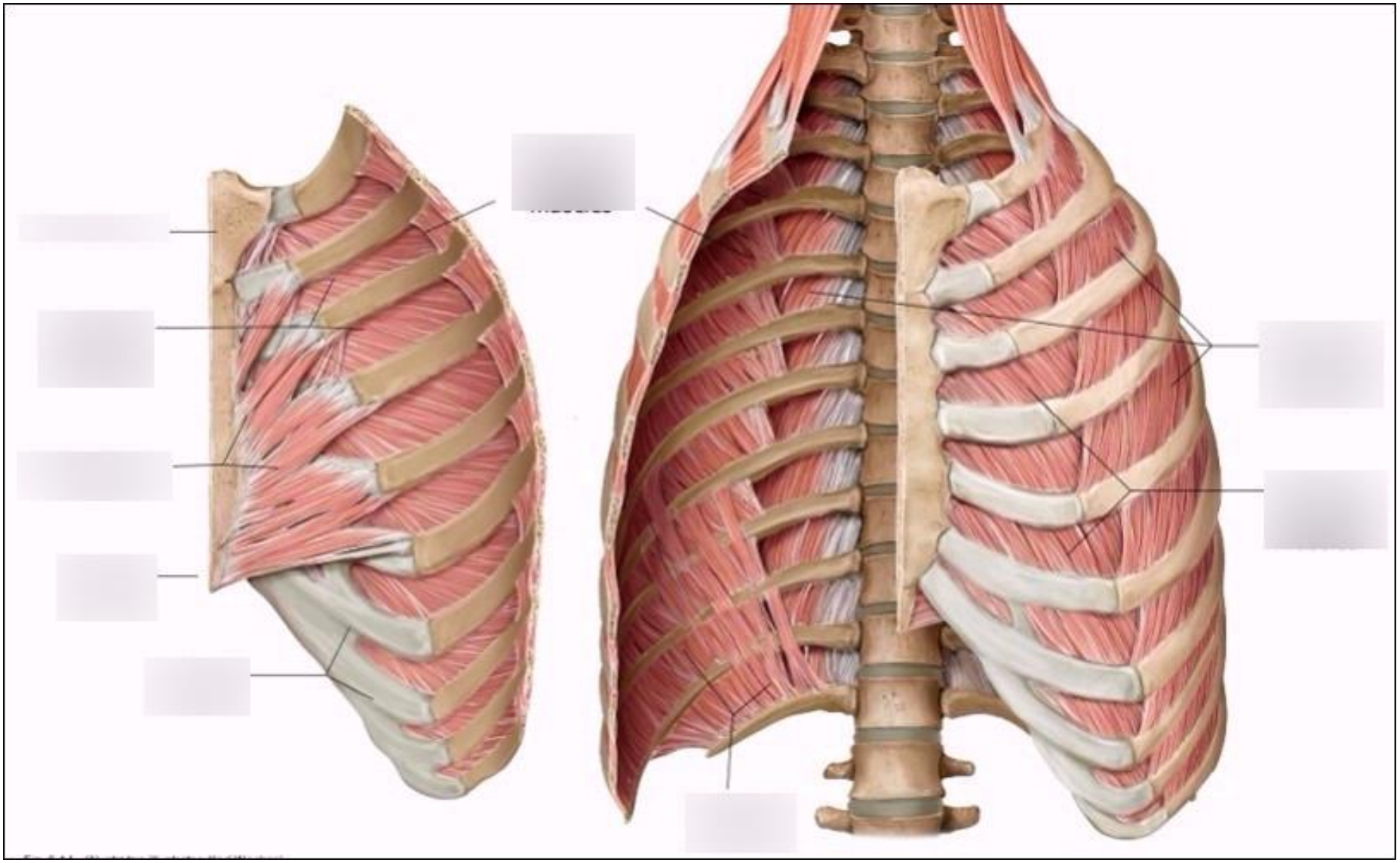
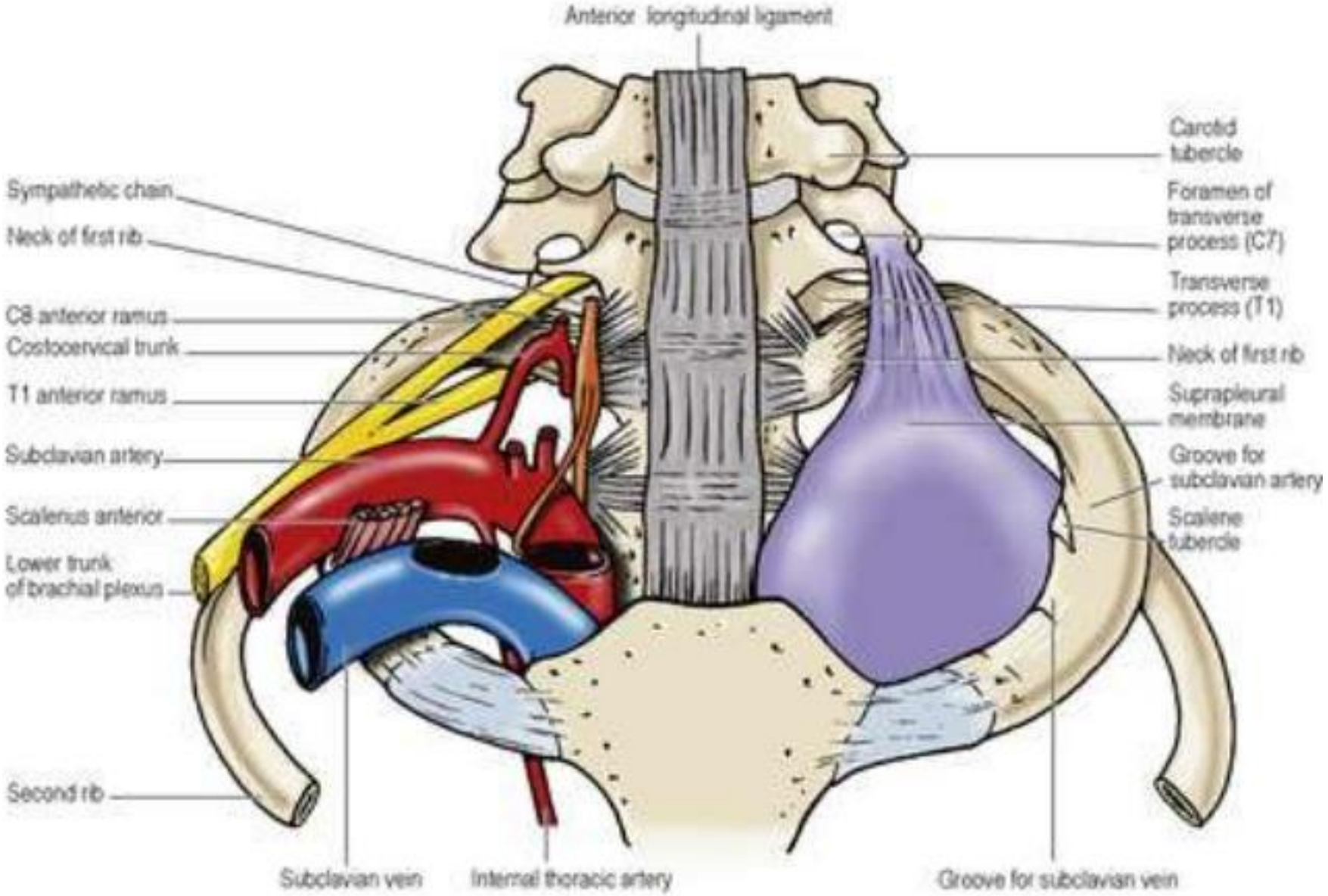
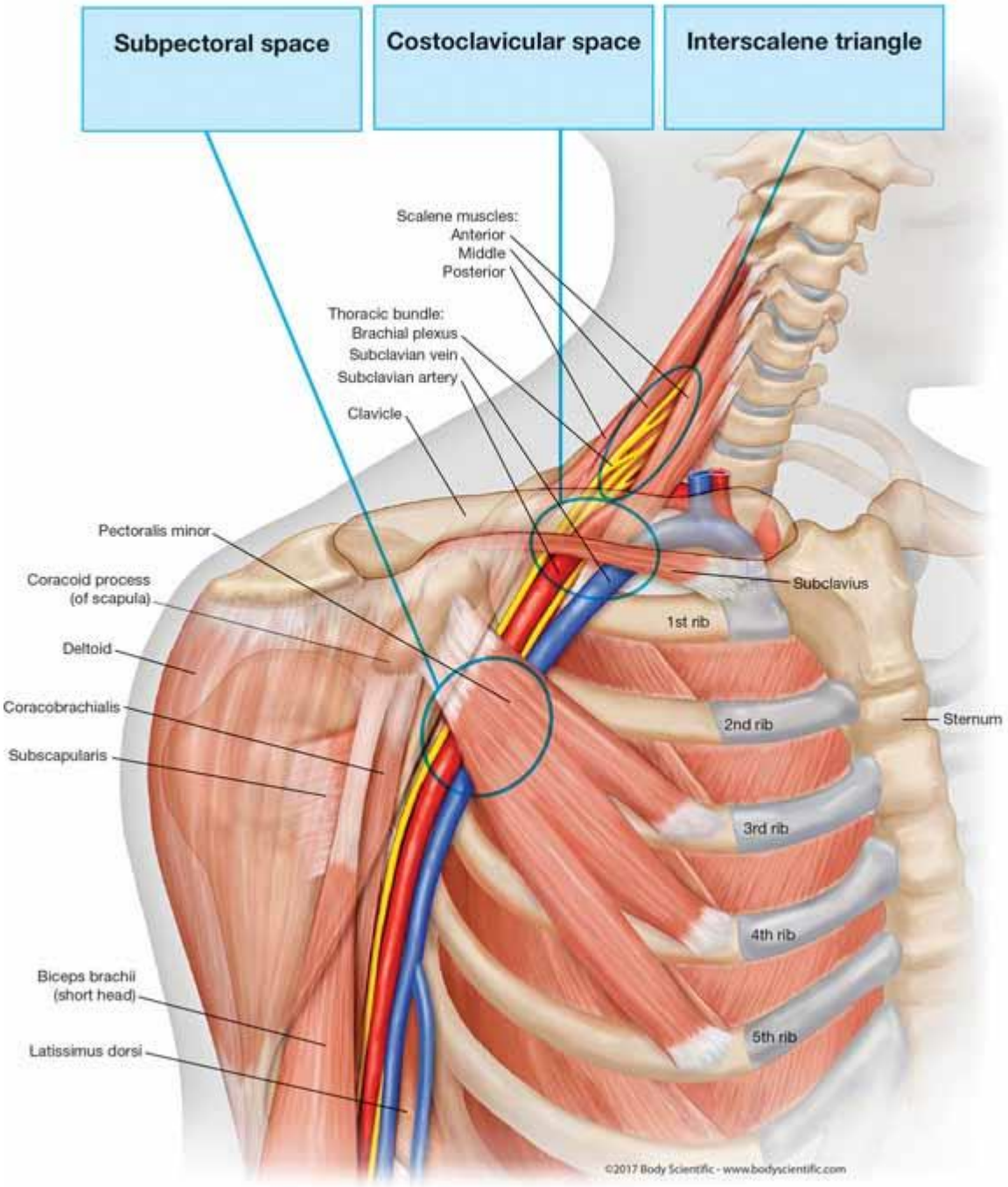


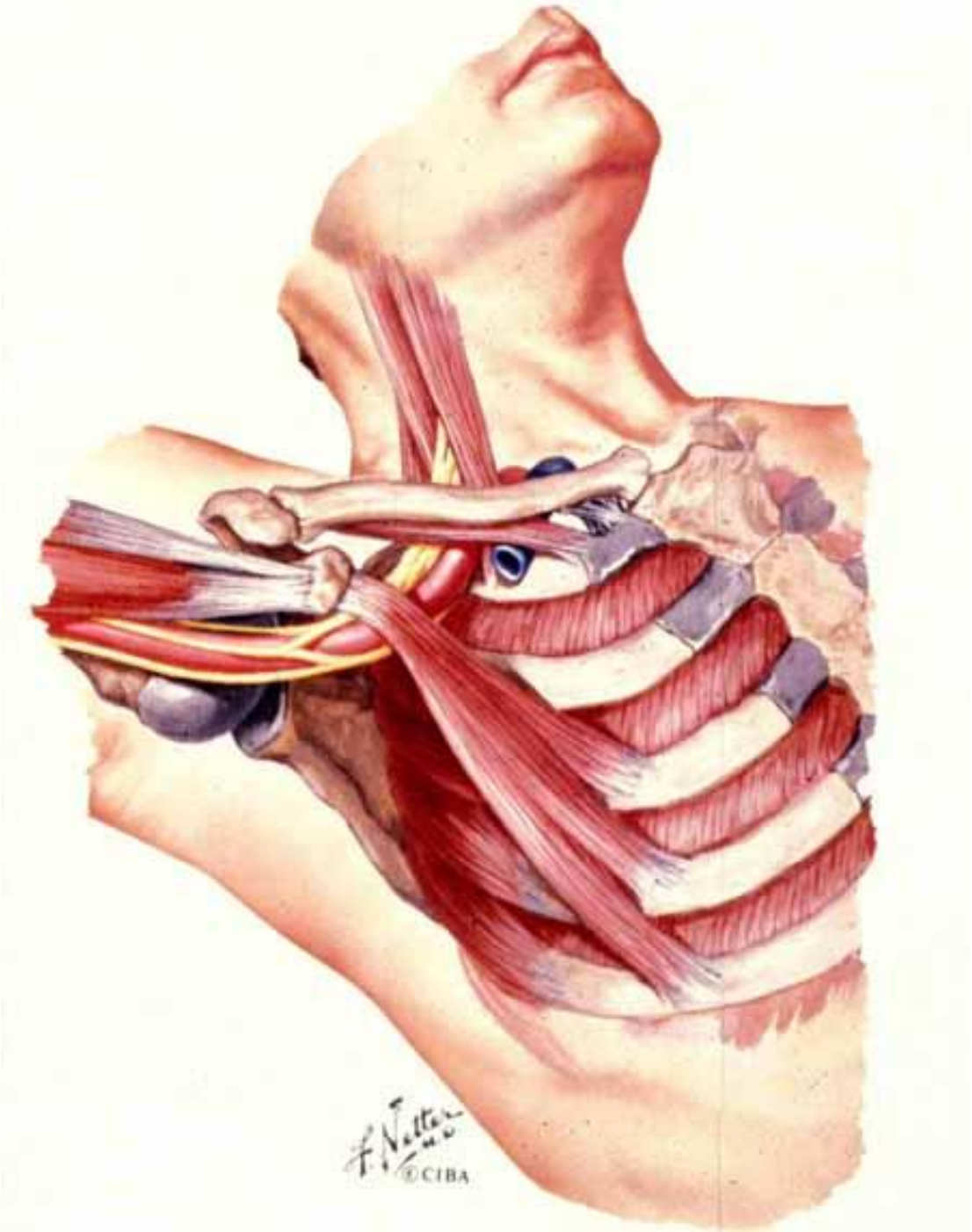
Fig. 51. A thoracic segment of the spinal cord, showing sensory and motor neurons and the connections of a paravertebral sympathetic ganglion.



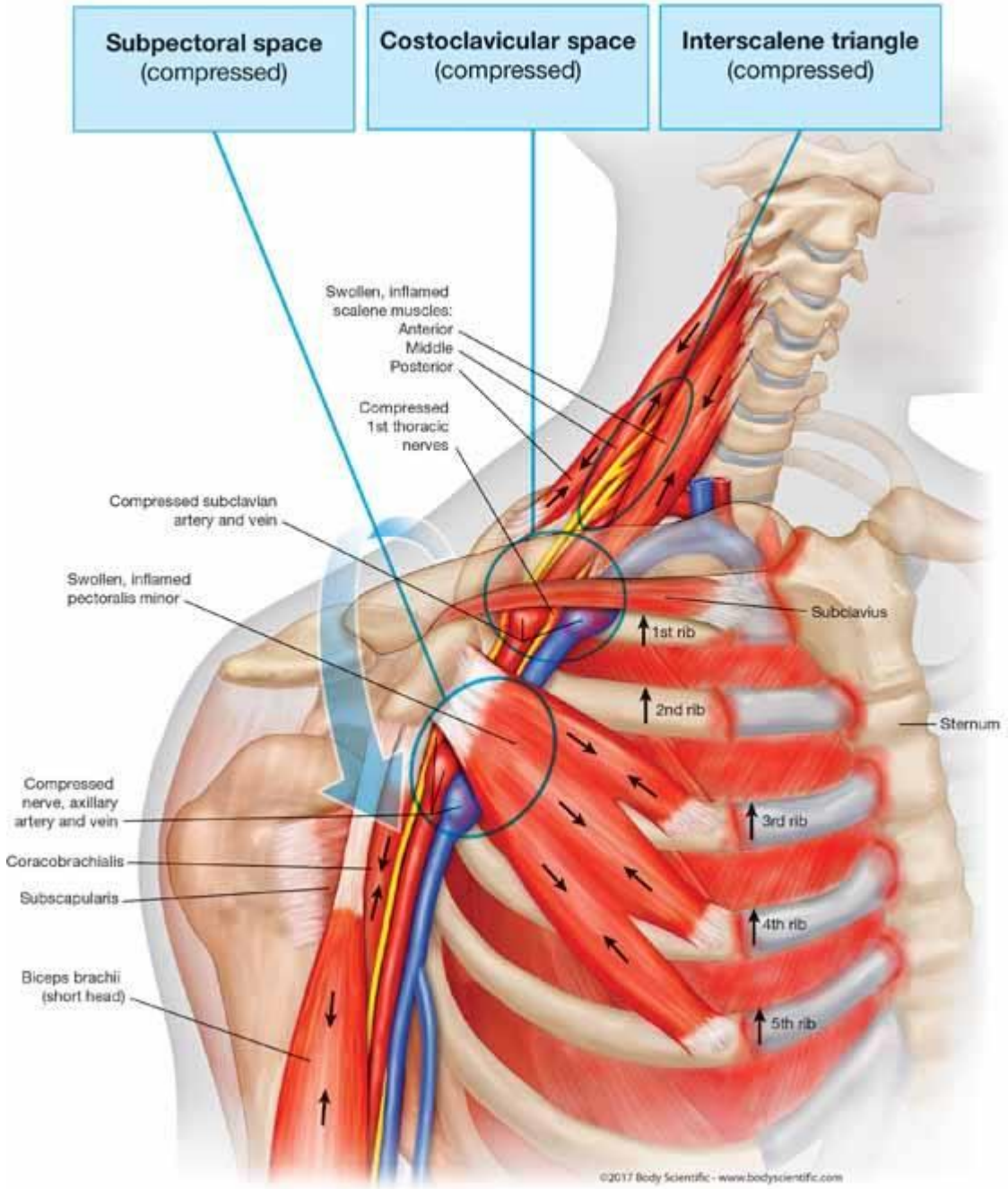

Anterior longitudinal ligament
Carotid tubercle
Foramen of transverse process (C7)
Transverse process (T1)
Neck of first rib
Suprapleural membrane
Groove for subclavian artery
Scalene tubercle
Sympathetic chain
Neck of first rib
C8 anterior ramus
Costocervical trunk
T1 anterior ramus
Subclavian artery
Scalenus anterior
Lower trunk of brachial plexus
Second rib
Subclavian vein
Internal thoracic artery
Groove for subclavian vein

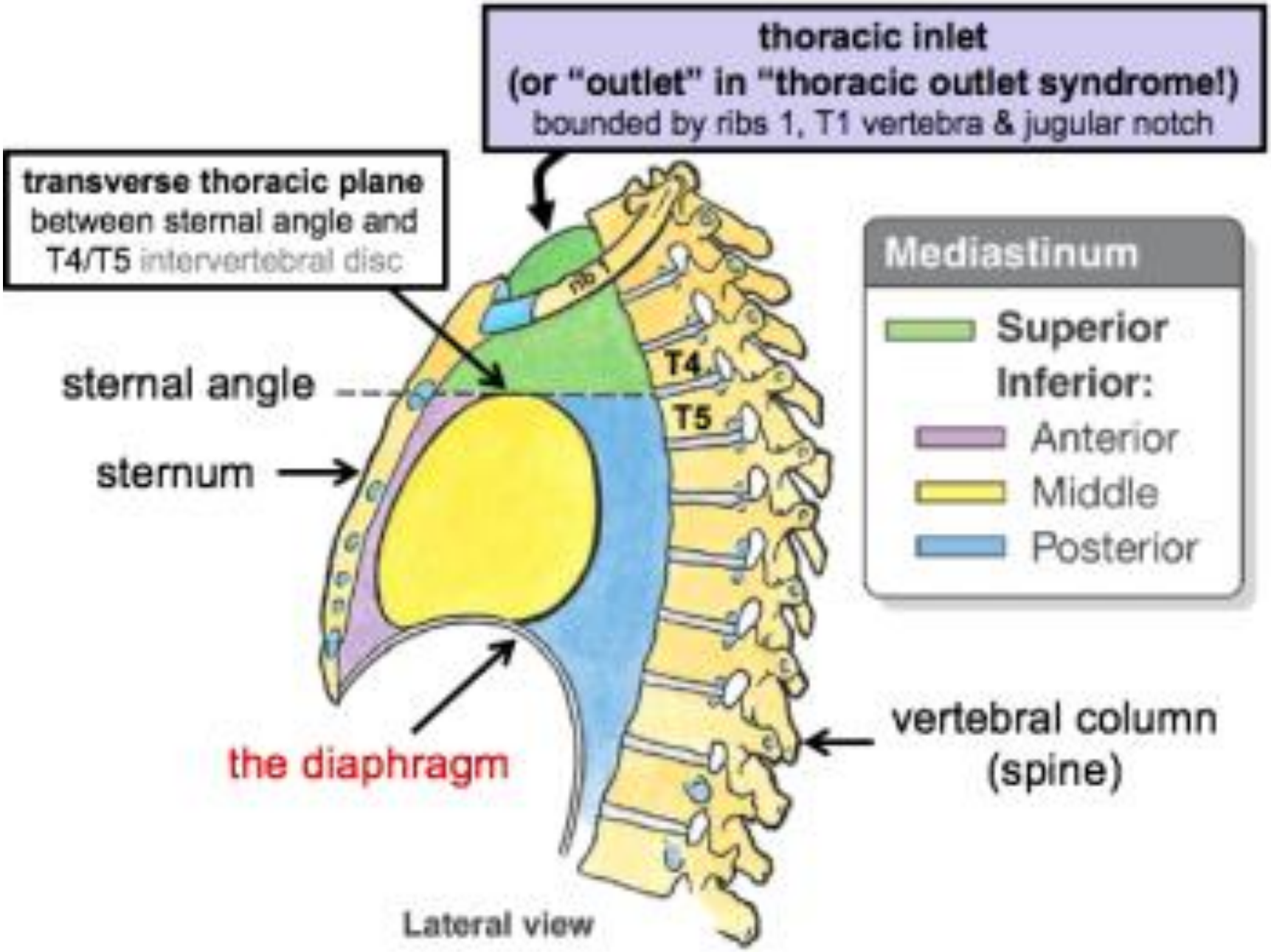
Normal Anatomy of the Thoracic Outlet Region

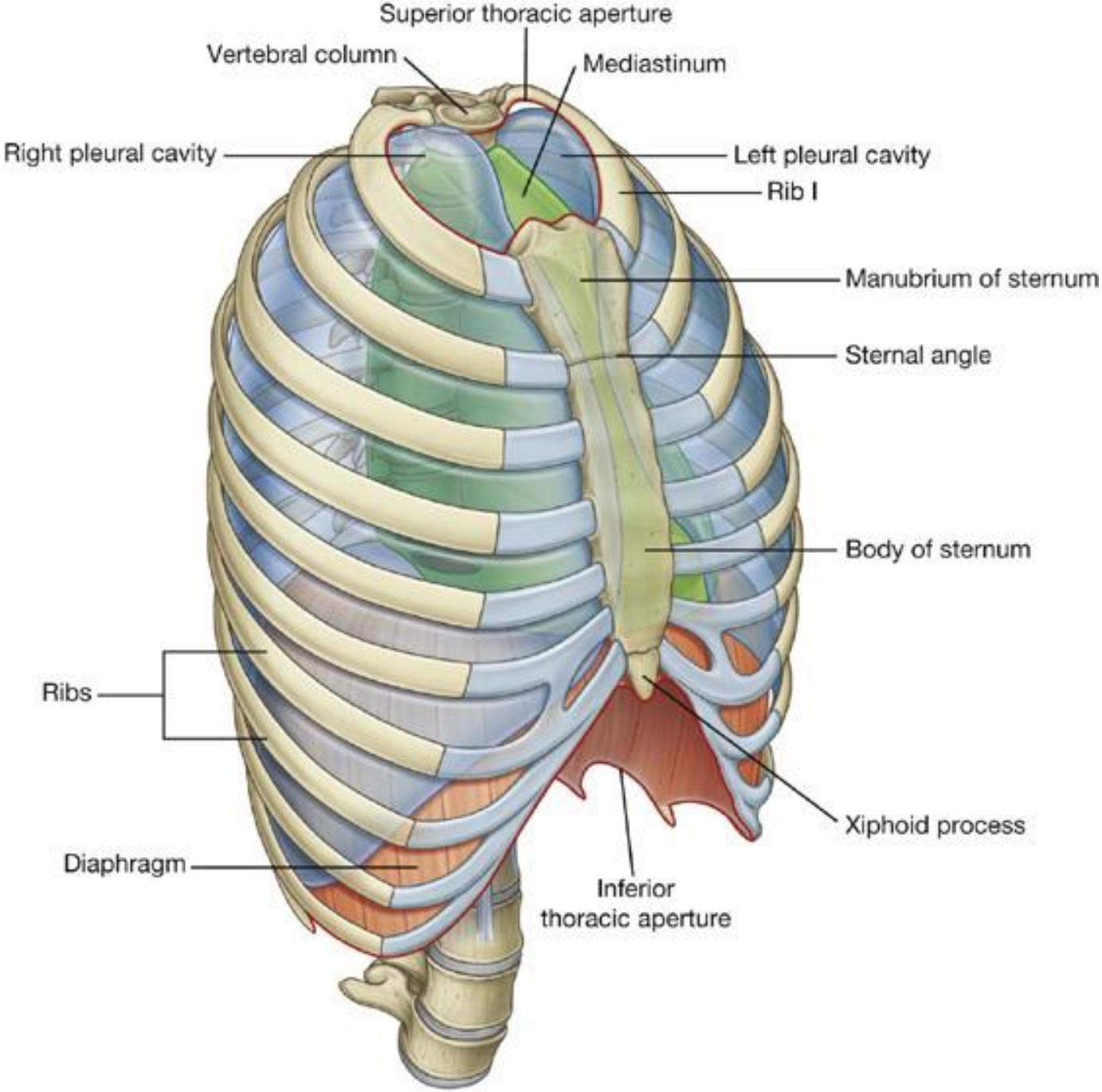


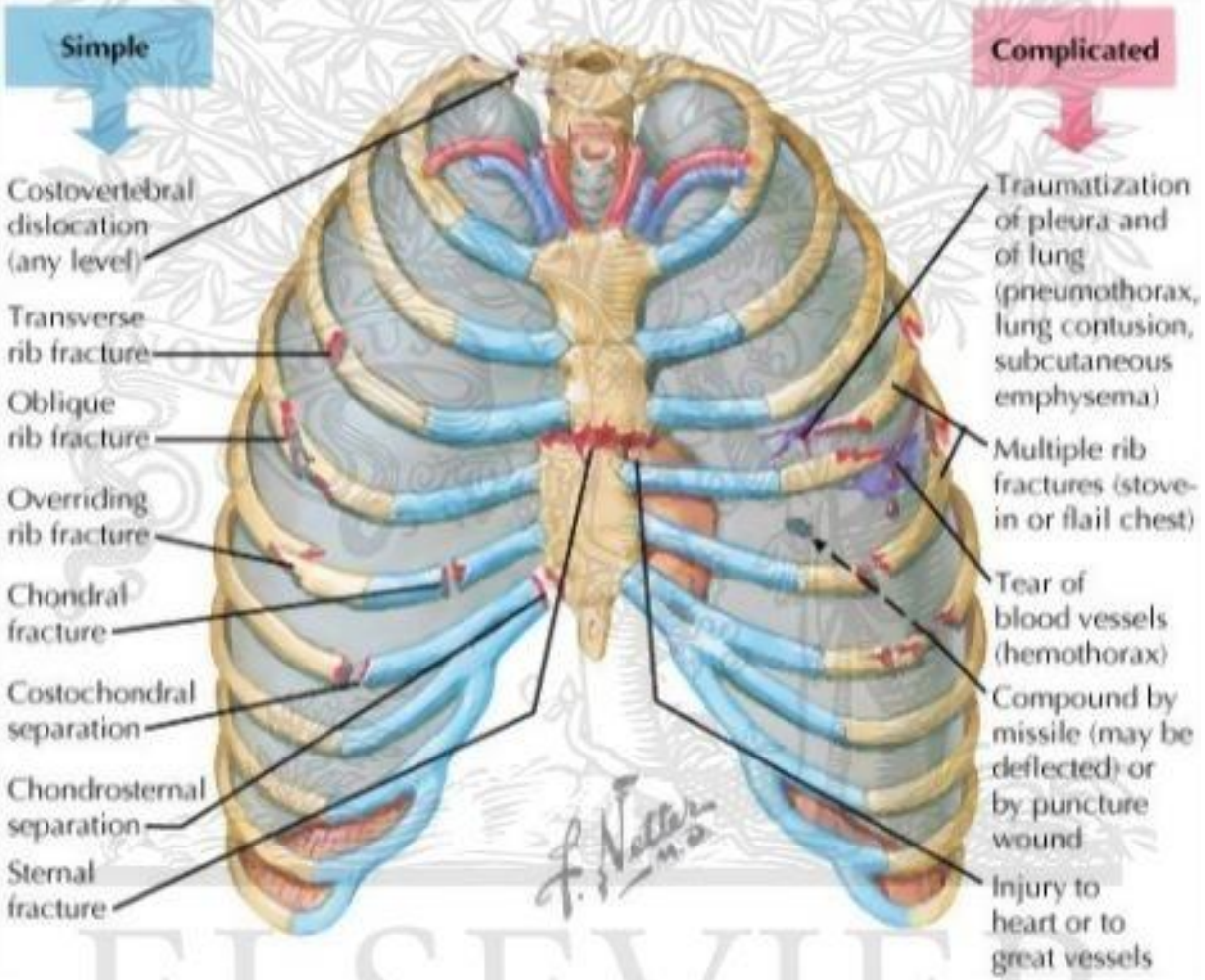

©CIBA

Causes of Rib Cage and Upper Back Pain in Patients with TOS




thoracic inlet
(or "outlet" in "thoracic outlet syndrome!)
bounded by ribs 1, T1 vertebra & jugular notch
transverse thoracic plane
between sternal angle and
T4/T5 intervertebral disc
sternal angle
sternum
the diaphragm
rib 1
T4
T5
Mediastinum
Superior
Inferior:
Anterior
Middle
Posterior
vertebral column
(spine)
Lateral view


Superior thoracic aperture
Vertebral column
Mediastinum
Right pleural cavity
Left pleural cavity
Rib I
Manubrium of sternum
Sternal angle
Body of sternum
Ribs
Xiphoid process
Diaphragm
Inferior
thoracic aperture



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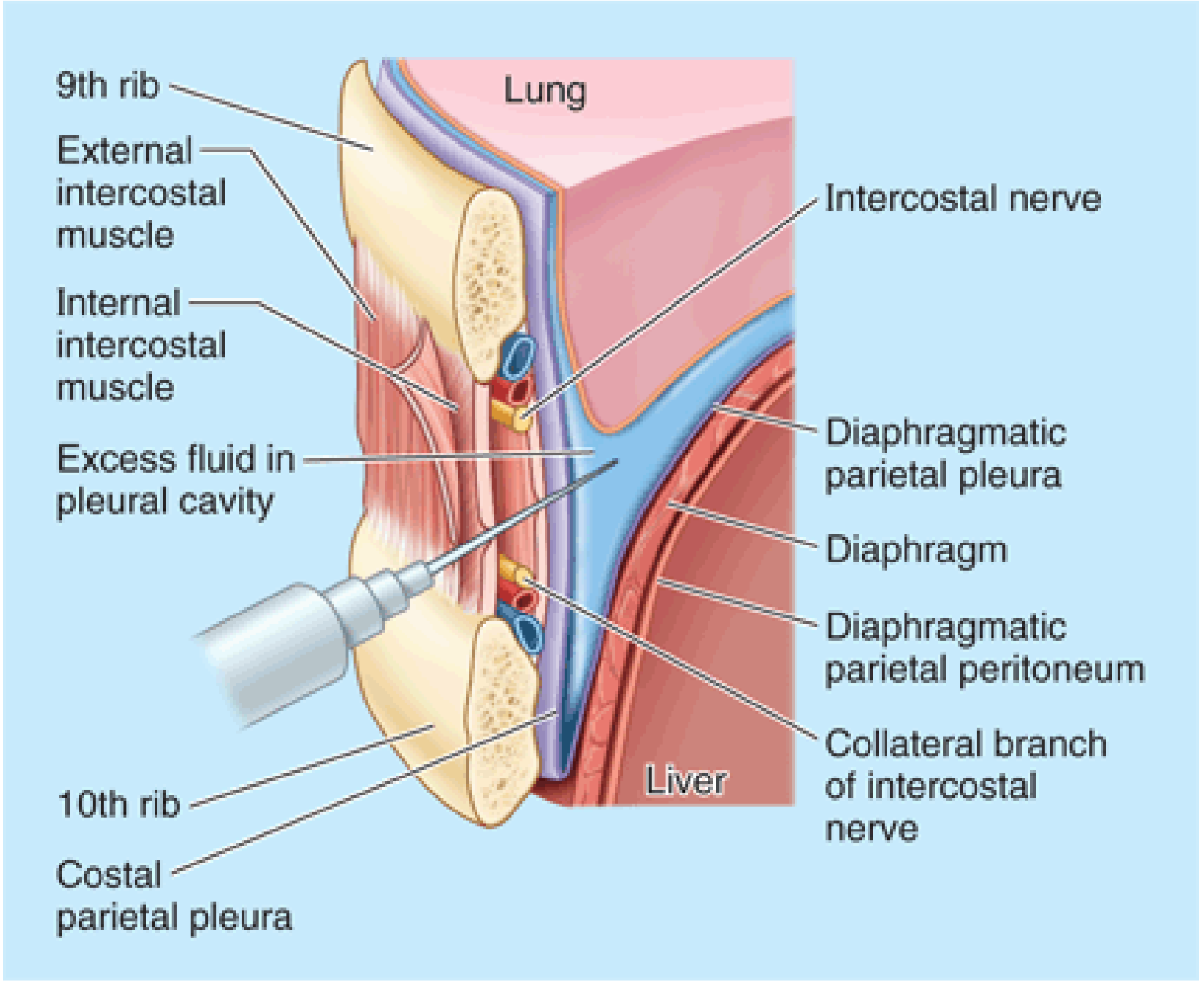
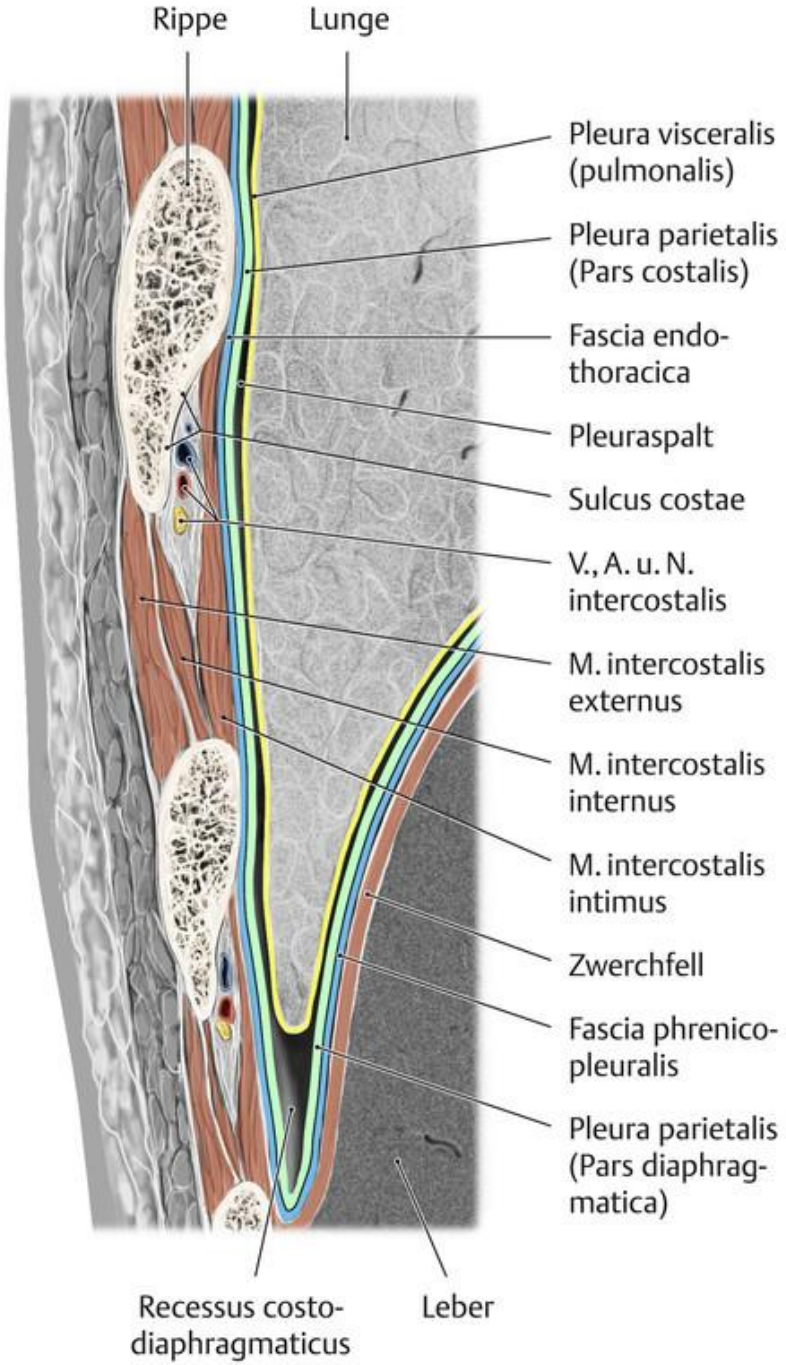
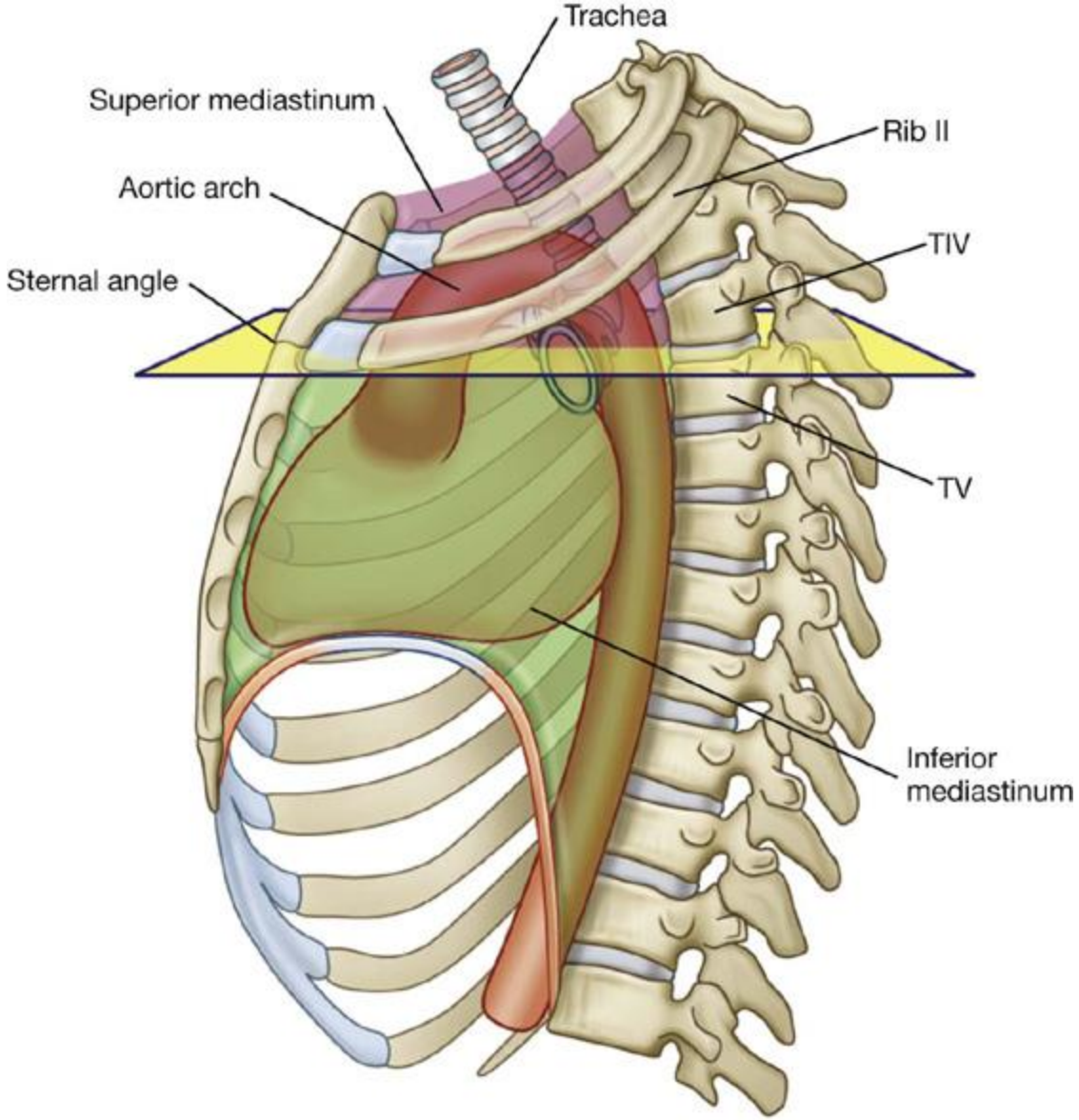
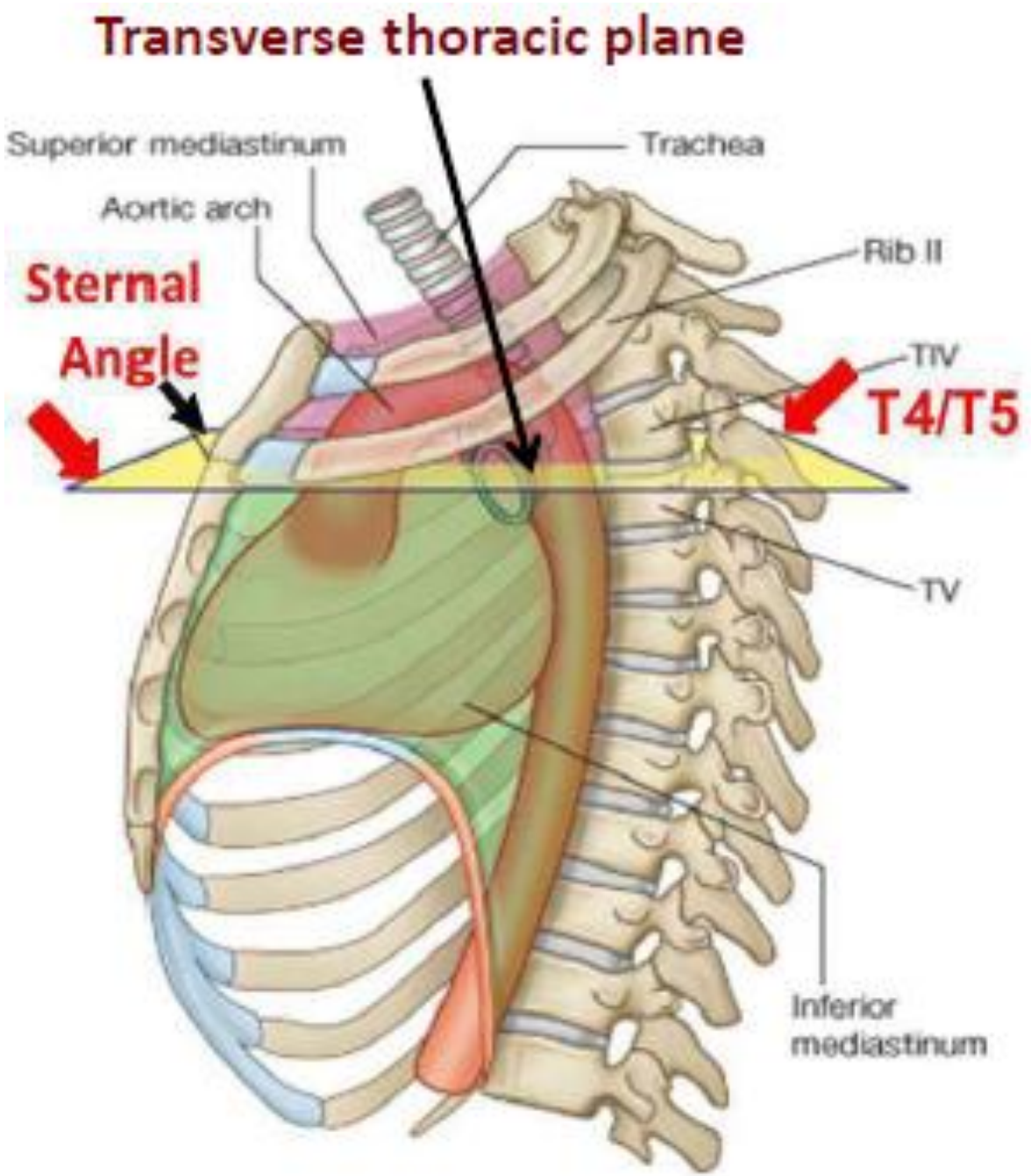
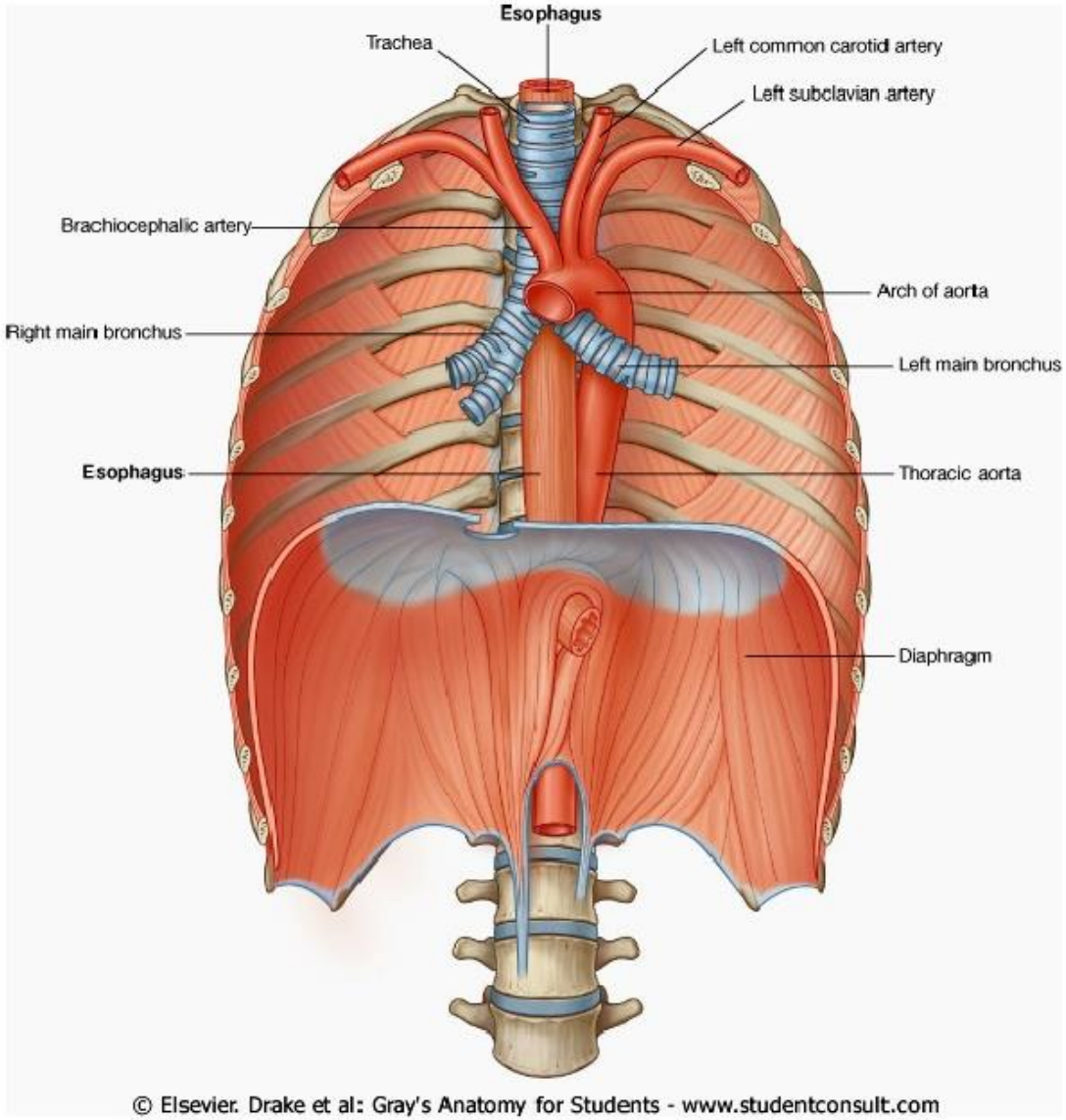

9th rib
External intercostal muscle
Internal intercostal muscle
Excess fluid in pleural cavity
10th rib
Costal parietal pleura
Lung
Intercostal nerve
Diaphragmatic parietal pleura
Diaphragm
Diaphragmatic parietal peritoneum
Collateral branch of intercostal nerve
Liver


Rippe
Lunge
Pleura visceralis (pulmonalis)
Pleura parietalis (Pars costalis)
Fascia endo-thoracica
Pleuraspalt
Sulcus costae
V., A. u. N. intercostalis
M. intercostalis externus
M. intercostalis internus
M. intercostalis intimus
Zwerchfell
Fascia phrenico-pleuralis
Pleura parietalis (Pars diaphrag-matica)
Recessus costo-diaphragmaticus
Leber

c


Trachea
Superior mediastinum
Rib II
Aortic arch
TIV
Sternal angle
TV
Inferior
mediastinum


Transverse thoracic plane
Superior mediastinum
Trachea
Aortic arch
Rib II
Sternal Angle
TIV
T4/T5
TV
Inferior mediastinum


Esophagus
Trachea
Left common carotid artery
Left subclavian artery
Brachiocephalic artery
Arch of aorta
Right main bronchus
Left main bronchus
Esophagus
Thoracic aorta
Diaphragm
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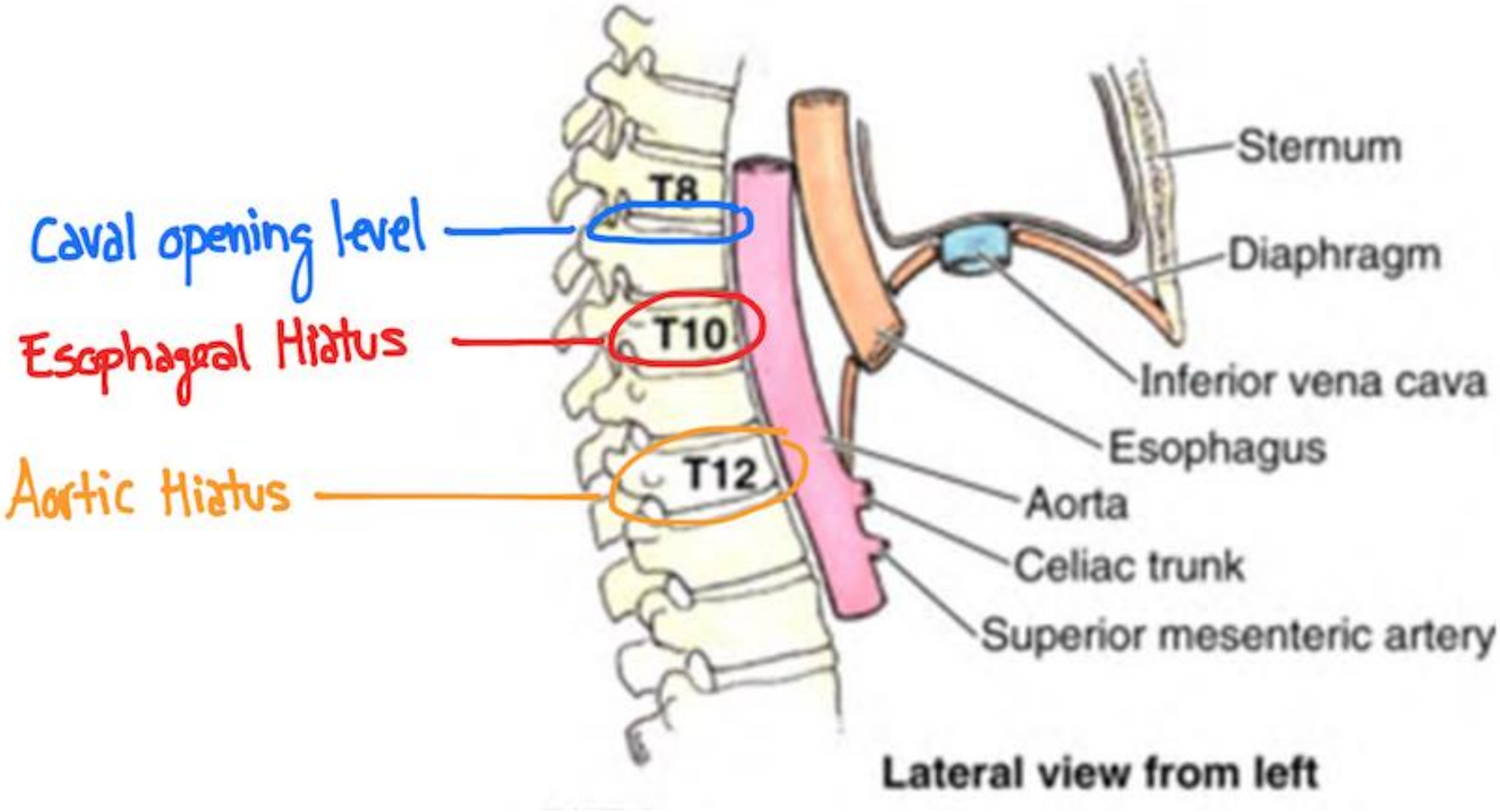
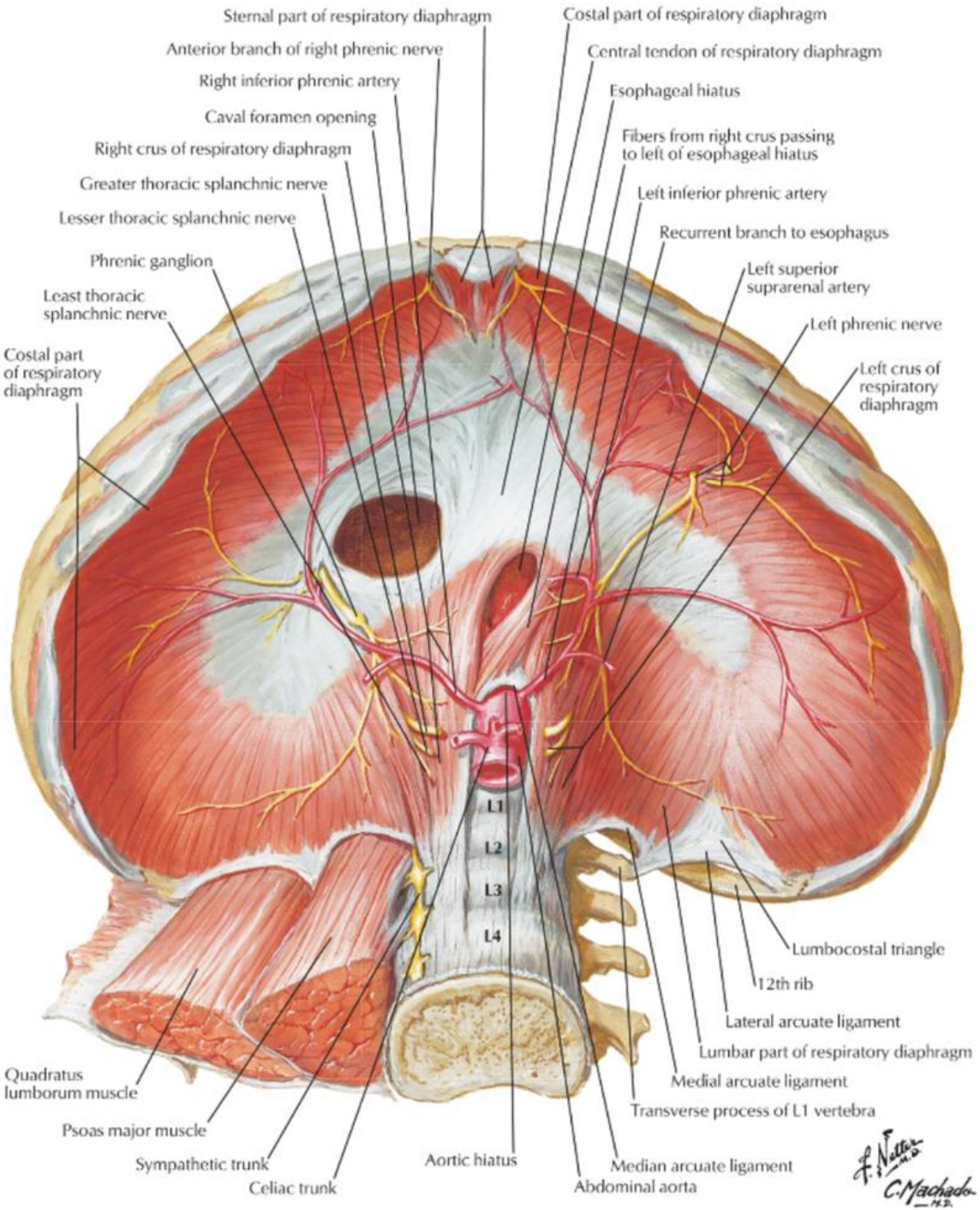
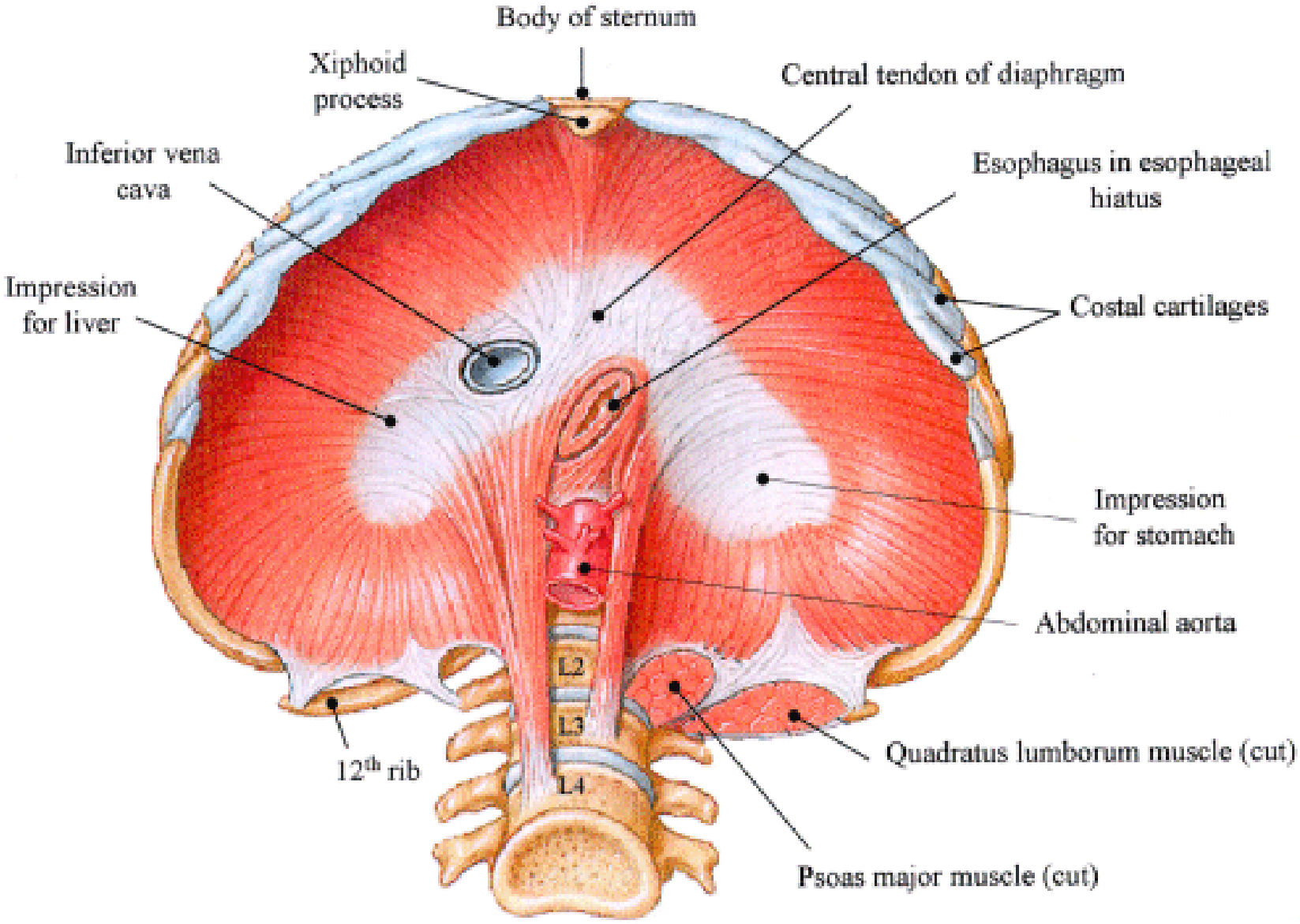
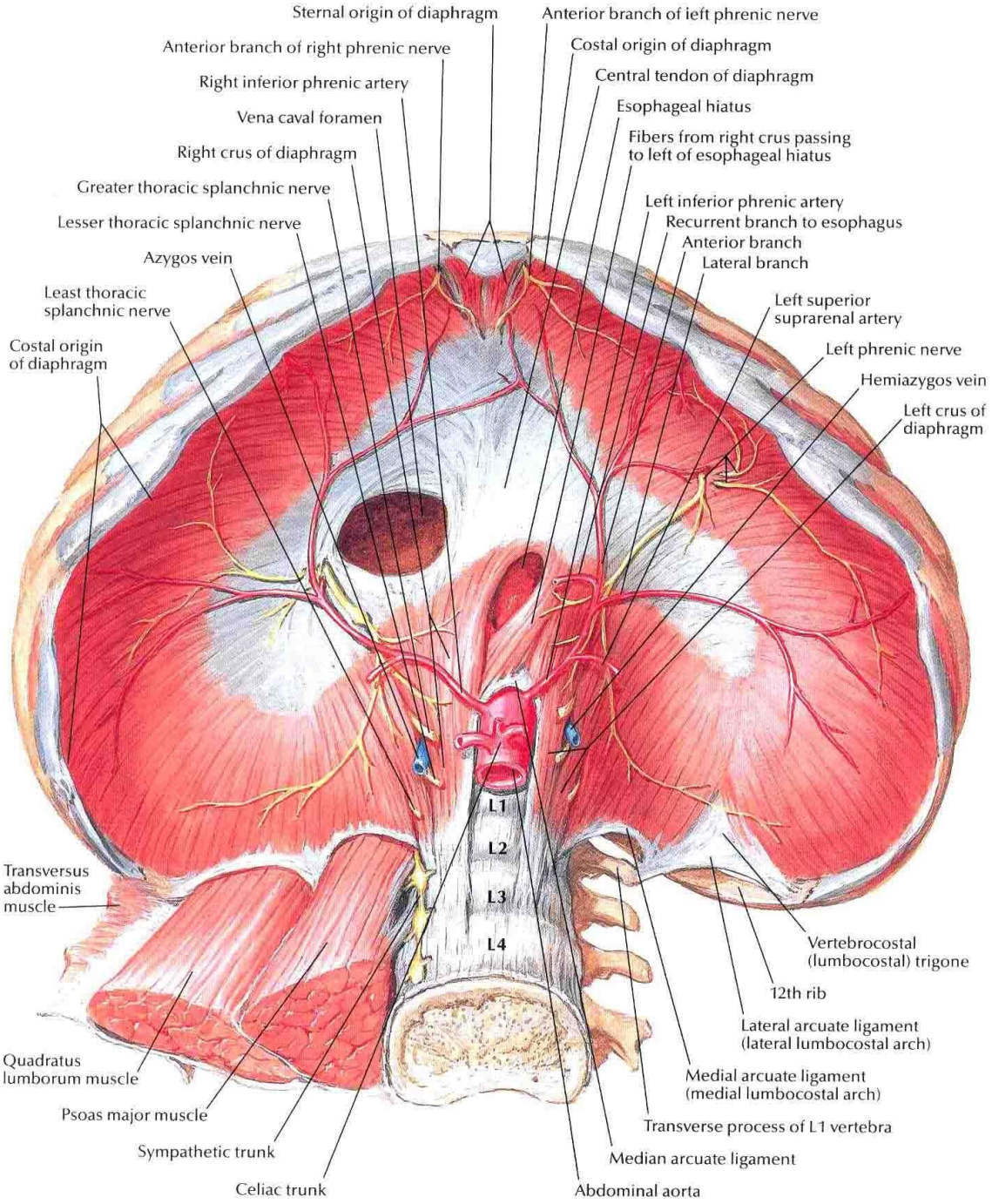
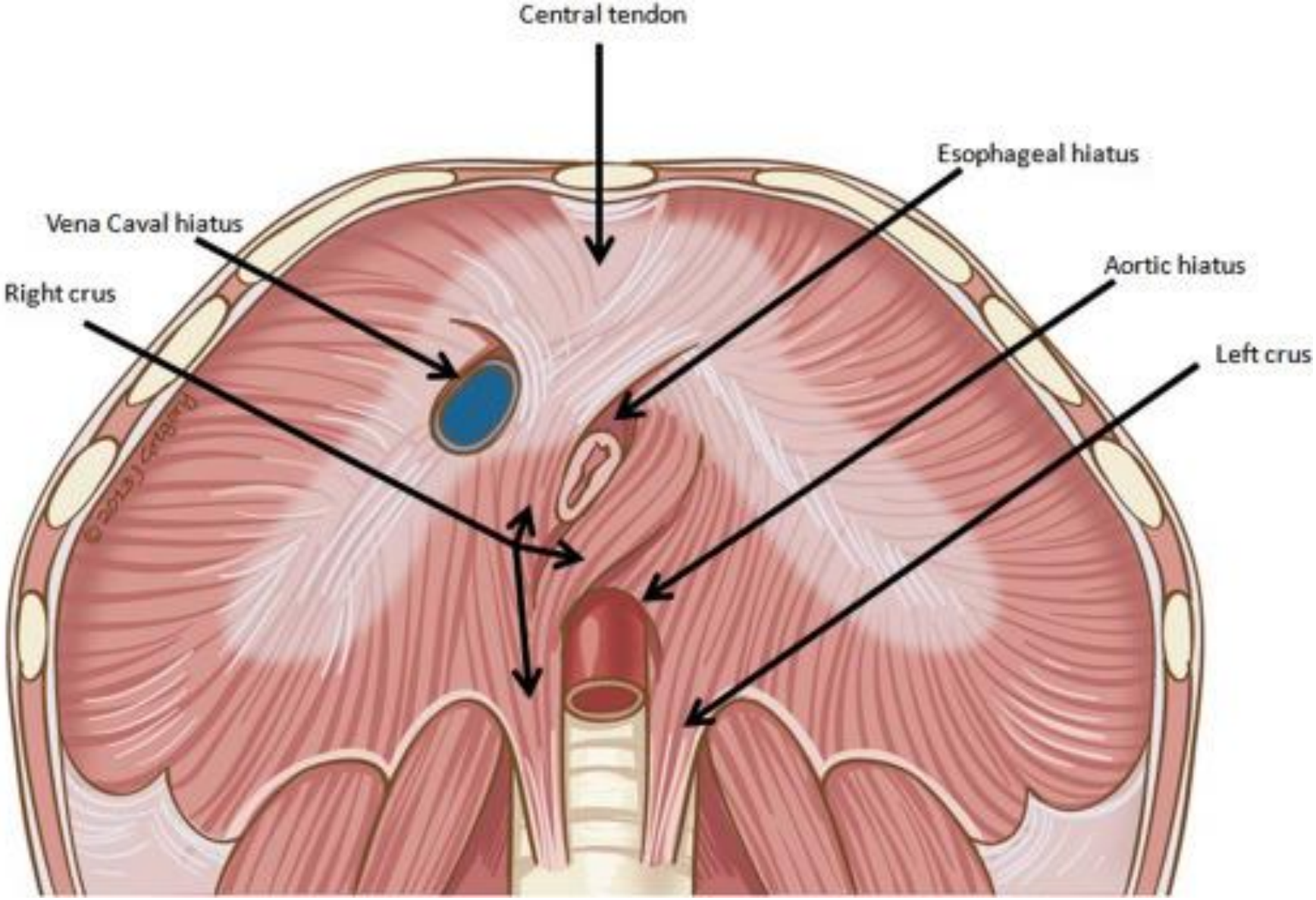
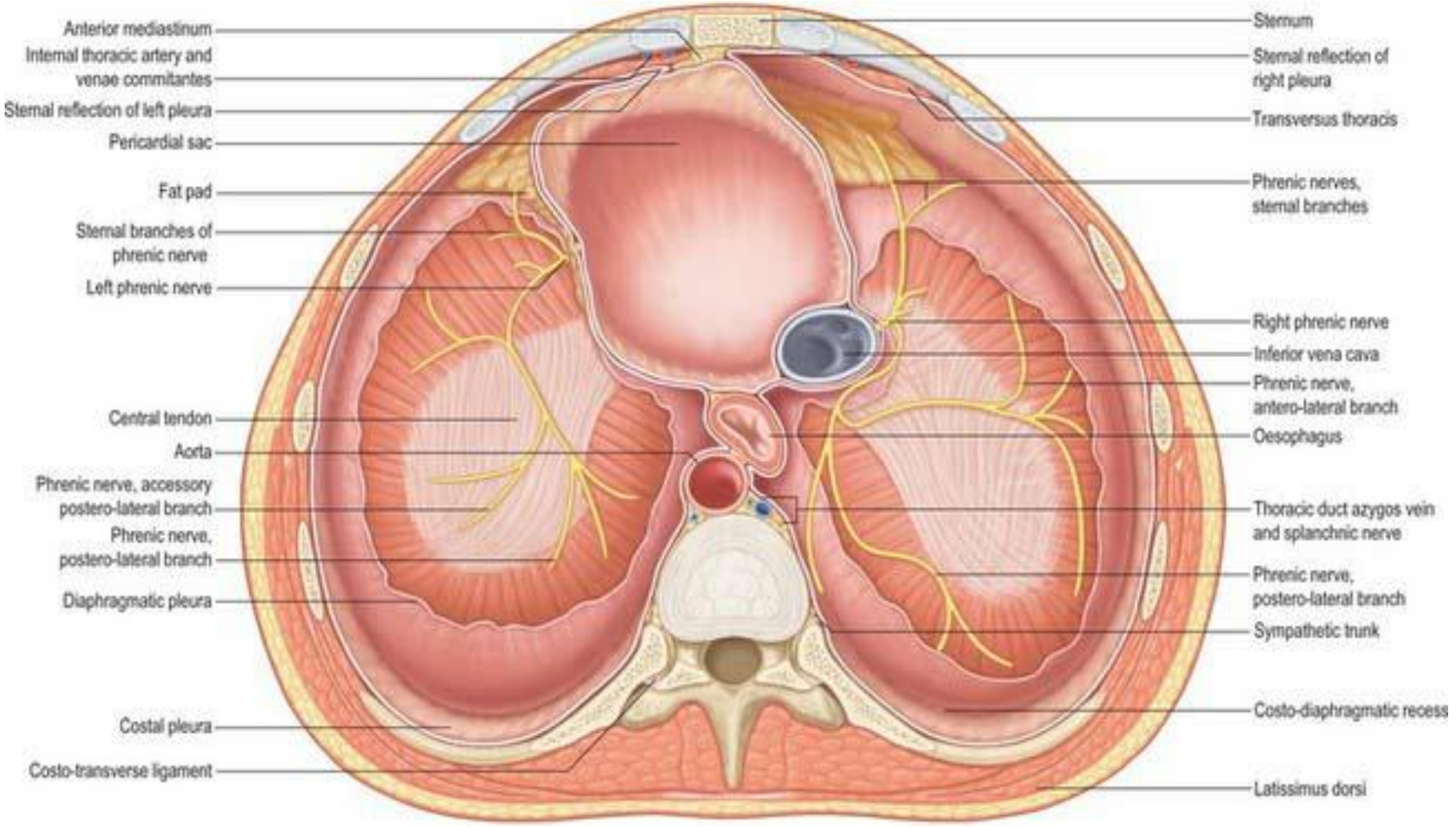

Caval opening level
Esophageal Hiatus
Aortic Hiatus
T8
T10
T12
Sternum
Diaphragm
Inferior vena cava
Esophagus
Aorta
Celiac trunk
Superior mesenteric artery
Lateral view from left

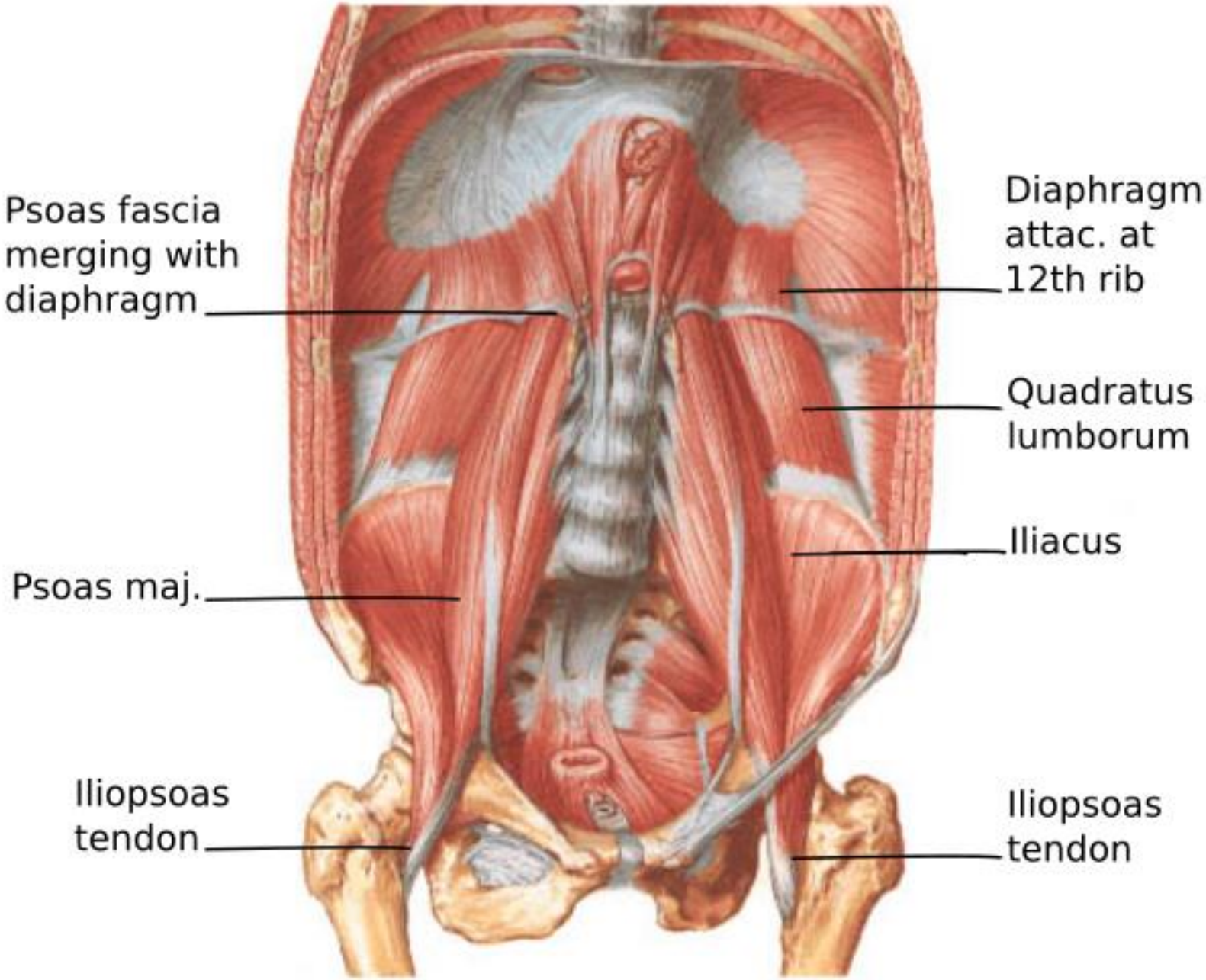

Sternal part of respiratory diaphragm
Costal part of respiratory diaphragm
Anterior branch of right phrenic nerve
Central tendon of respiratory diaphragm
Right inferior phrenic artery
Esophageal hiatus
Caval foramen opening
Fibers from right crus passing to left of esophageal hiatus
Right crus of respiratory diaphragm
Greater thoracic splanchnic nerve
Left inferior phrenic artery
Lesser thoracic splanchnic nerve
Recurrent branch to esophagus
Phrenic ganglion
Left superior suprarenal artery
Least thoracic splanchnic nerve
Left phrenic nerve
Costal part of respiratory diaphragm
Left crus of respiratory diaphragm
L1
L2
L3
L4
Lumbocostal triangle
12th rib
Lateral arcuate ligament
Lumbar part of respiratory diaphragm
Medial arcuate ligament
Quadratus lumborum muscle
Transverse process of L1 vertebra
Psoas major muscle
Sympathetic trunk
Aortic hiatus
Median arcuate ligament
Celiac trunk
Abdominal aorta
F. Netter M.D.
C. Machado M.D.


Body of sternum
Xiphoid process
Central tendon of diaphragm
Inferior vena cava
Esophagus in esophageal hiatus
Impression for liver
Costal cartilages
Impression for stomach
Abdominal aorta
L2
L3
L4
12th rib
Quadratus lumborum muscle (cut)
Psoas major muscle (cut)

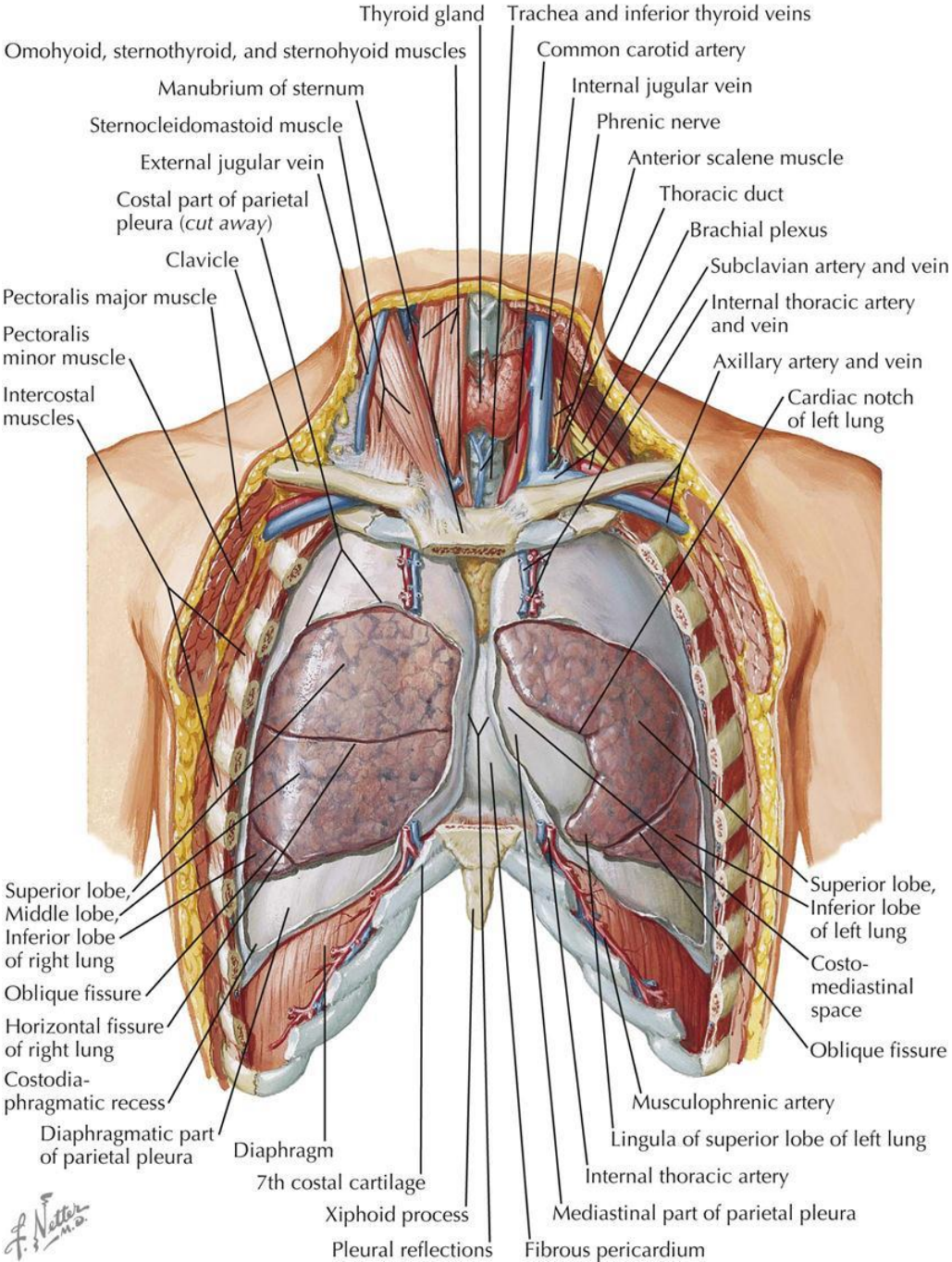

Sternal origin of diaphragm
Anterior branch of left phrenic nerve
Anterior branch of right phrenic nerve
Costal origin of diaphragm
Right inferior phrenic artery
Central tendon of diaphragm
Vena caval foramen
Esophageal hiatus
Right crus of diaphragm
Fibers from right crus passing to left of esophageal hiatus
Greater thoracic splanchnic nerve
Left inferior phrenic artery
Lesser thoracic splanchnic nerve
Recurrent branch to esophagus
Azygos vein
Anterior branch
Lateral branch
Least thoracic splanchnic nerve
Left superior suprarenal artery
Costal origin of diaphragm
Left phrenic nerve
Hemiazygos vein
Left crus of diaphragm
L1
L2
L3
L4
Transversus abdominis muscle
Vertebrocostal (lumbocostal) trigone
12th rib
Lateral arcuate ligament (lateral lumbocostal arch)
Quadratus lumborum muscle
Medial arcuate ligament (medial lumbocostal arch)
Psoas major muscle
Transverse process of L1 vertebra
Sympathetic trunk
Median arcuate ligament
Celiac trunk
Abdominal aorta


Central tendon
Esophageal hiatus
Vena Caval hiatus
Aortic hiatus
Right crus
Left crus

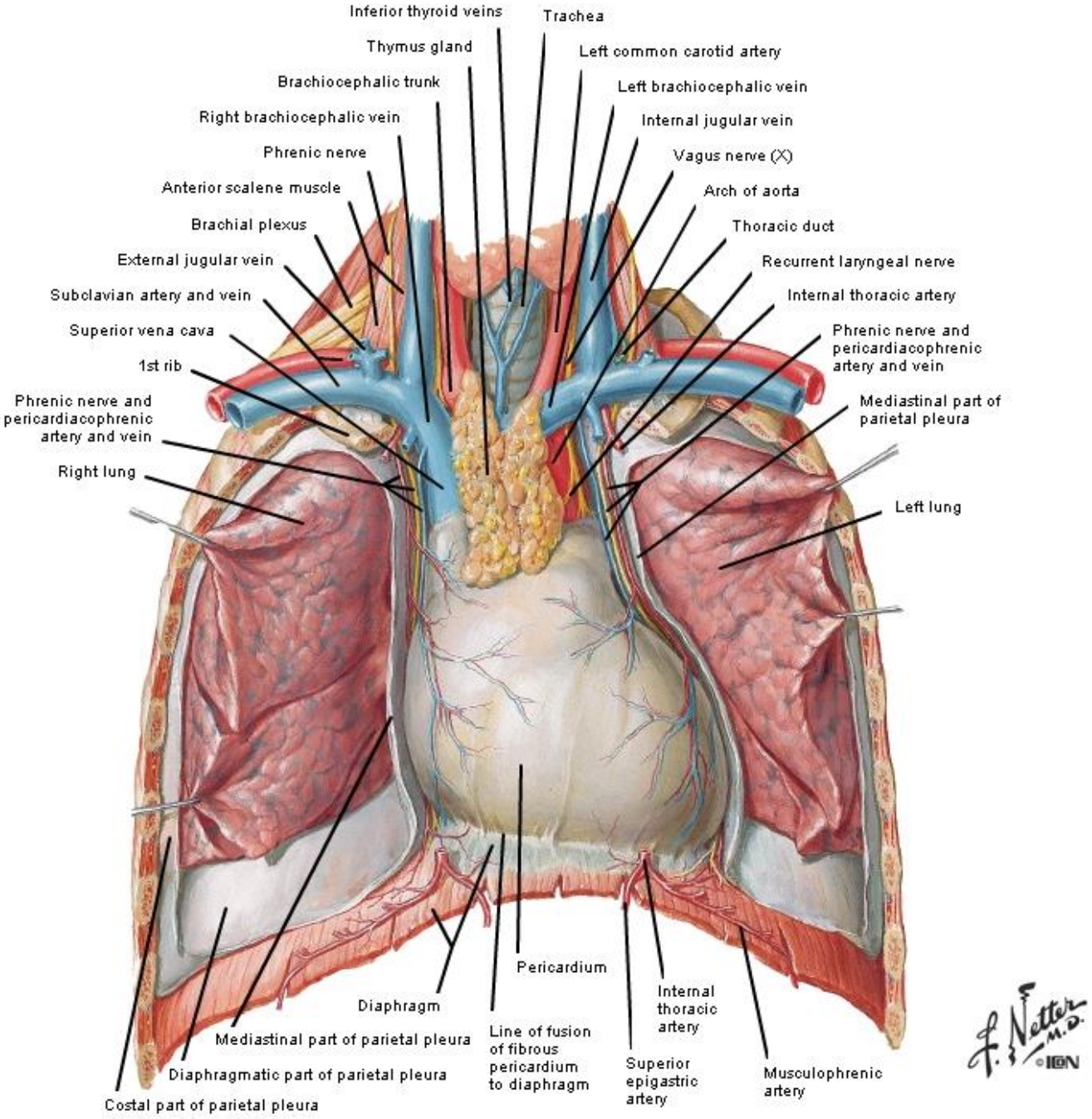

Anterior mediastinum
Internal thoracic artery and venae commitantes
Sternal reflection of left pleura
Pericardial sac
Fat pad
Sternal branches of phrenic nerve
Left phrenic nerve
Central tendon
Aorta
Phrenic nerve, accessory postero-lateral branch
Phrenic nerve, postero-lateral branch
Diaphragmatic pleura
Costal pleura
Costo-transverse ligament
Sternum
Sternal reflection of right pleura
Transversus thoracis
Phrenic nerves, sternal branches
Right phrenic nerve
Inferior vena cava
Phrenic nerve, antero-lateral branch
Oesophagus
Thoracic duct azygos vein and splanchnic nerve
Phrenic nerve, postero-lateral branch
Sympathetic trunk
Costo-diaphragmatic recess
Latissimus dorsi


Psoas fascia merging with diaphragm
Diaphragm attac. at 12th rib
Quadratus lumborum
Iliacus
Psoas maj.
Iliopsoas tendon
Iliopsoas tendon

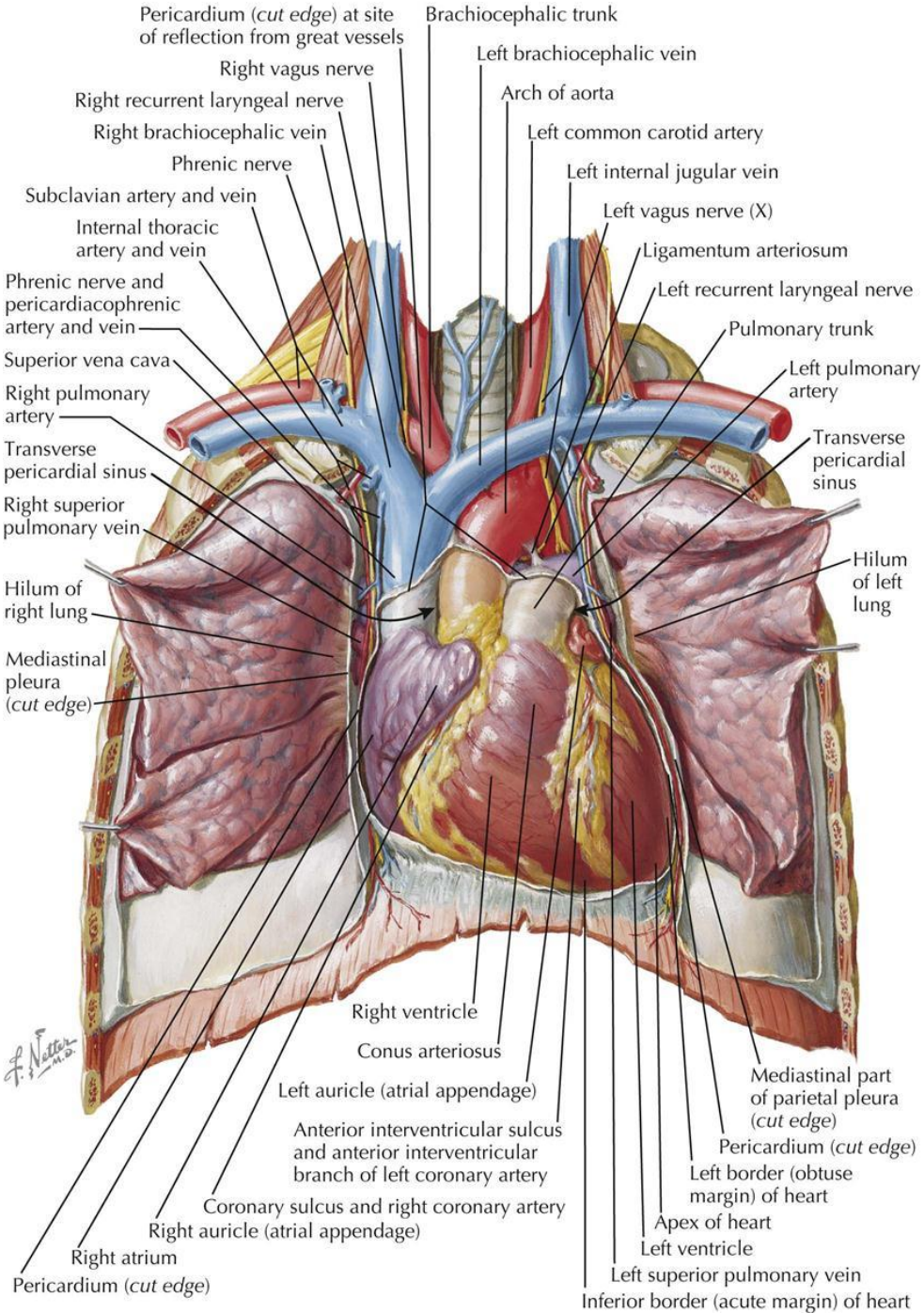
Lungs in Situ: Anterior View



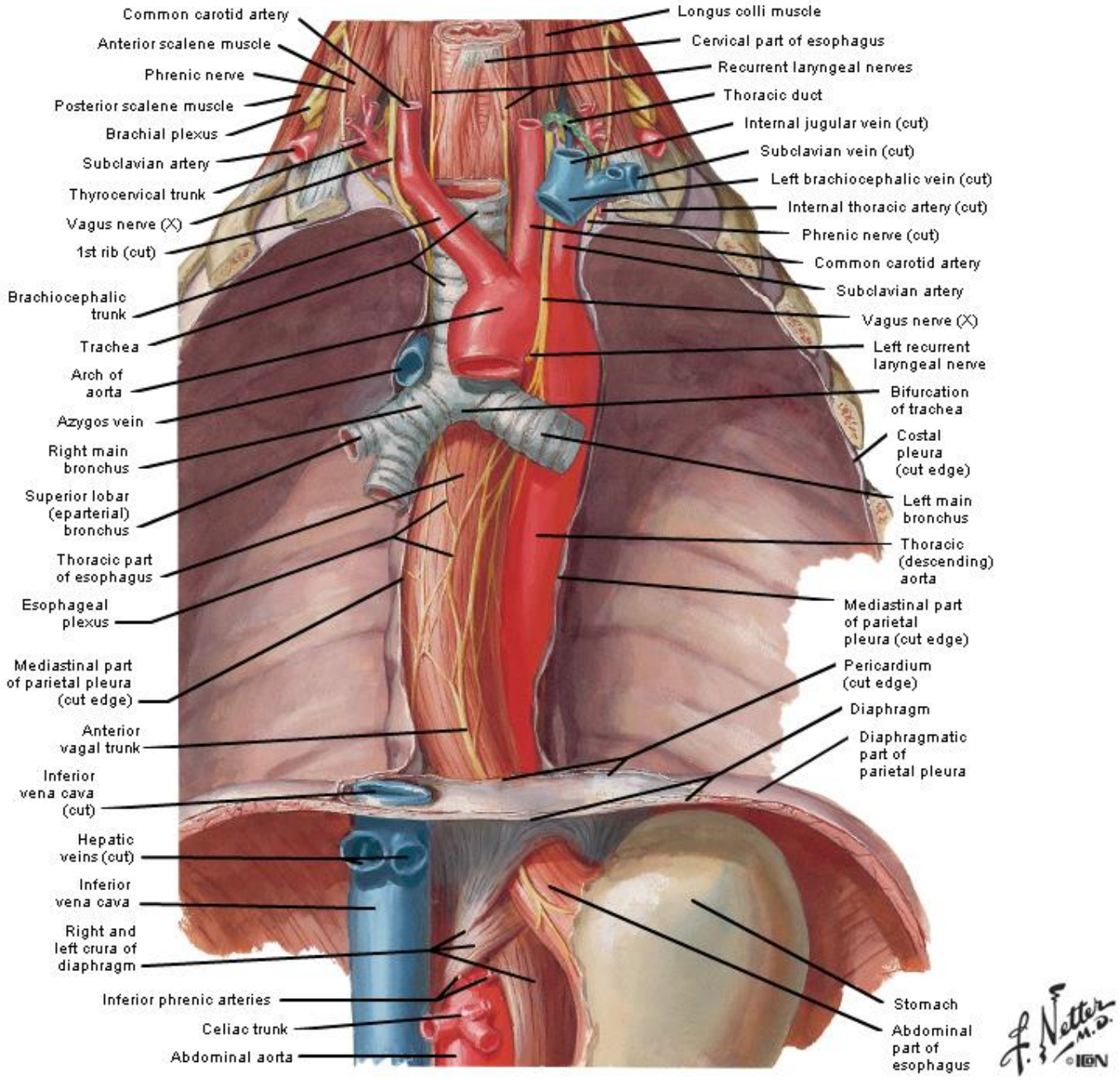
Heart In Situ



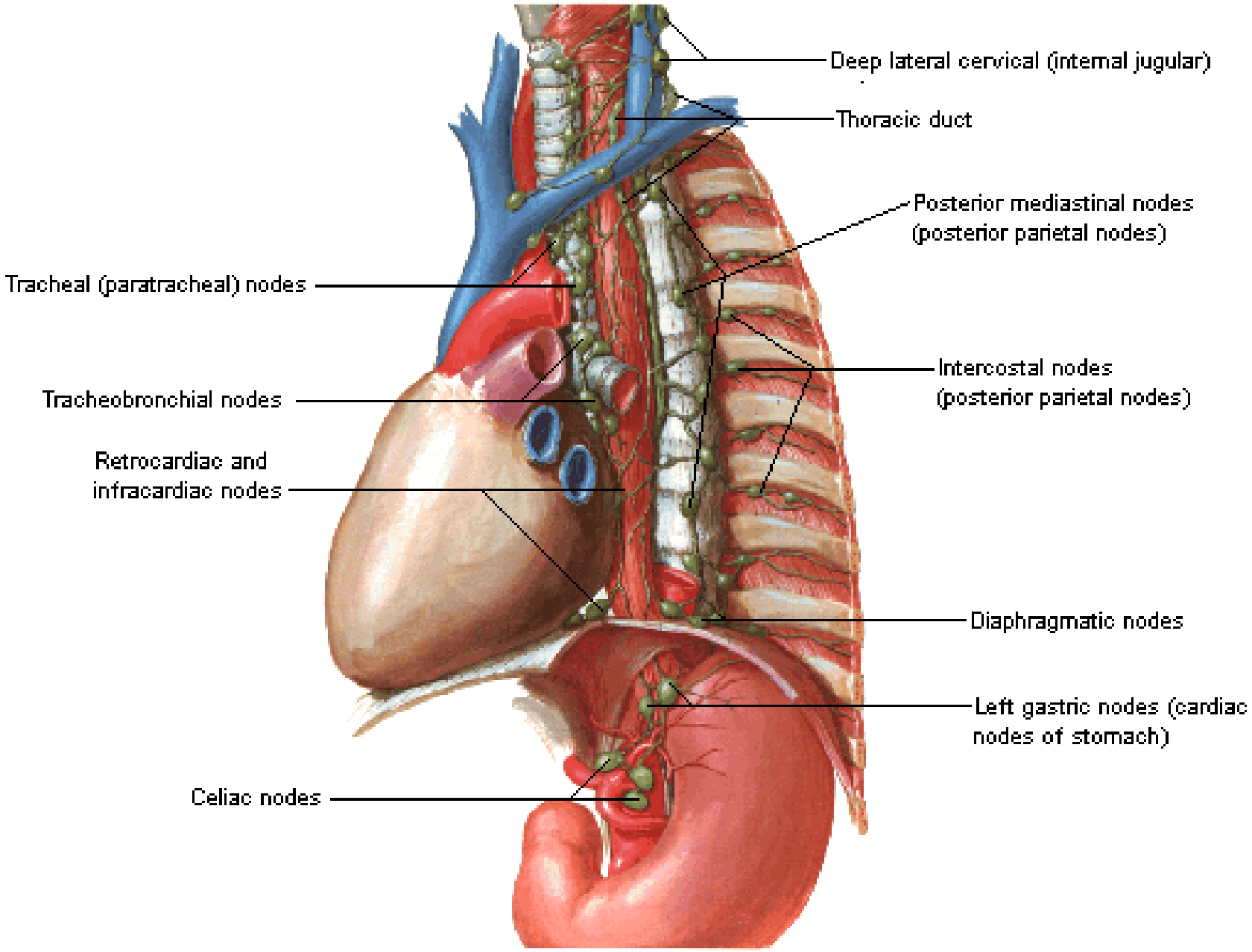
Anterior Exposure

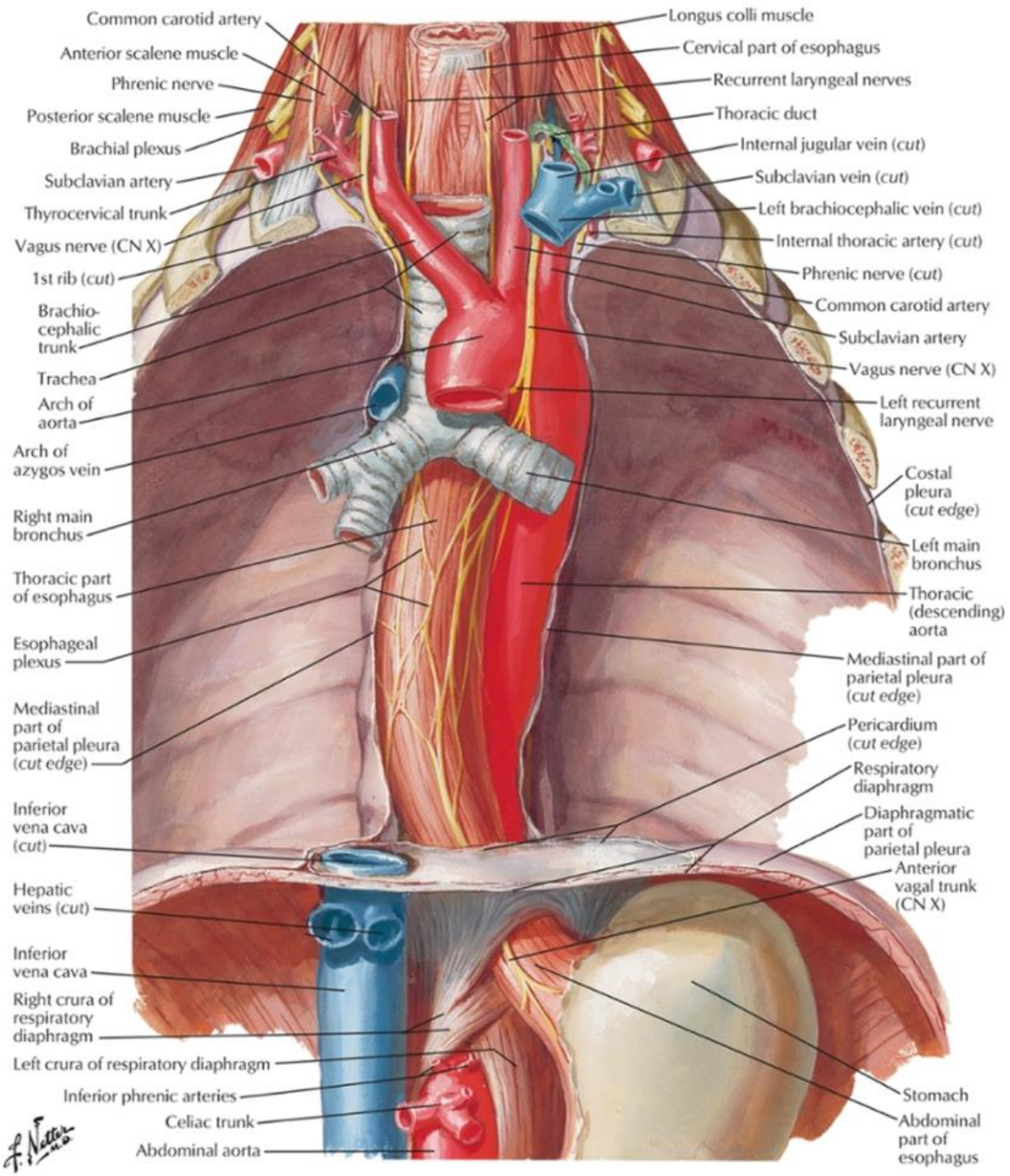


Esophagus In Situ

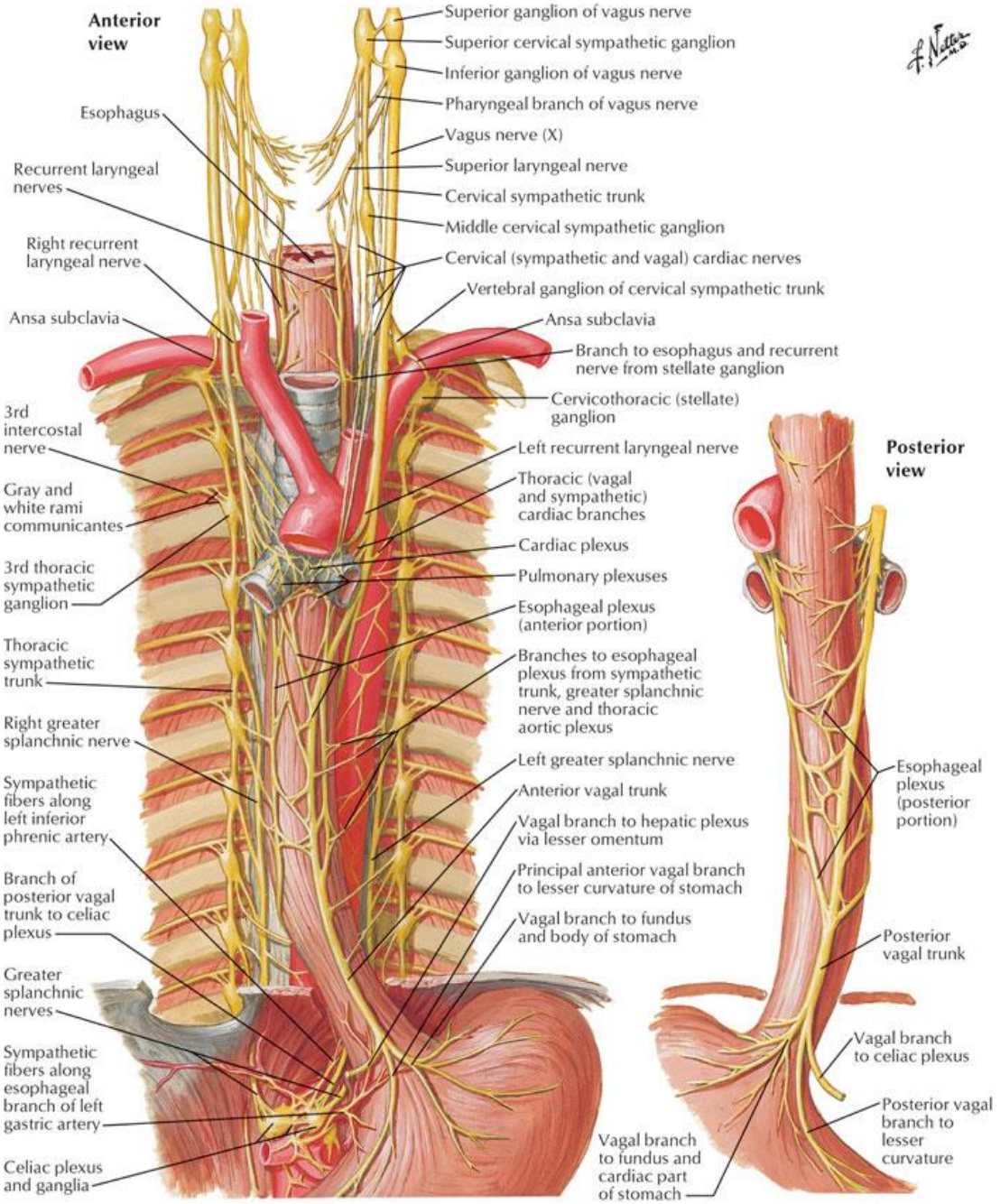


Lymph Vessels and Nodes of Esophagus




Common carotid artery
Anterior scalene muscle
Phrenic nerve
Posterior scalene muscle
Brachial plexus
Subclavian artery
Thyrocervical trunk
Vagus nerve (CN X)
1st rib (cut)
Brachio-cephalic trunk
Trachea
Arch of aorta
Arch of azygos vein
Right main bronchus
Thoracic part of esophagus
Esophageal plexus
Mediastinal part of parietal pleura (cut edge)
Inferior vena cava (cut)
Hepatic veins (cut)
Inferior vena cava
Right crura of respiratory diaphragm
Left crura of respiratory diaphragm
Inferior phrenic arteries
Celiac trunk
Abdominal aorta
Longus colli muscle
Cervical part of esophagus
Recurrent laryngeal nerves
Thoracic duct
Internal jugular vein (cut)
Subclavian vein (cut)
Left brachiocephalic vein (cut)
Internal thoracic artery (cut)
Phrenic nerve (cut)
Common carotid artery
Subclavian artery
Vagus nerve (CN X)
Left recurrent laryngeal nerve
Costal pleura (cut edge)
Left main bronchus
Thoracic (descending) aorta
Mediastinal part of parietal pleura (cut edge)
Pericardium (cut edge)
Respiratory diaphragm
Diaphragmatic part of parietal pleura
Anterior vagal trunk (CN X)
Stomach
Abdominal part of esophagus

Nerves of Esophagus



Sympathetic Innervation

Abdominopelvic splanchnic nn.

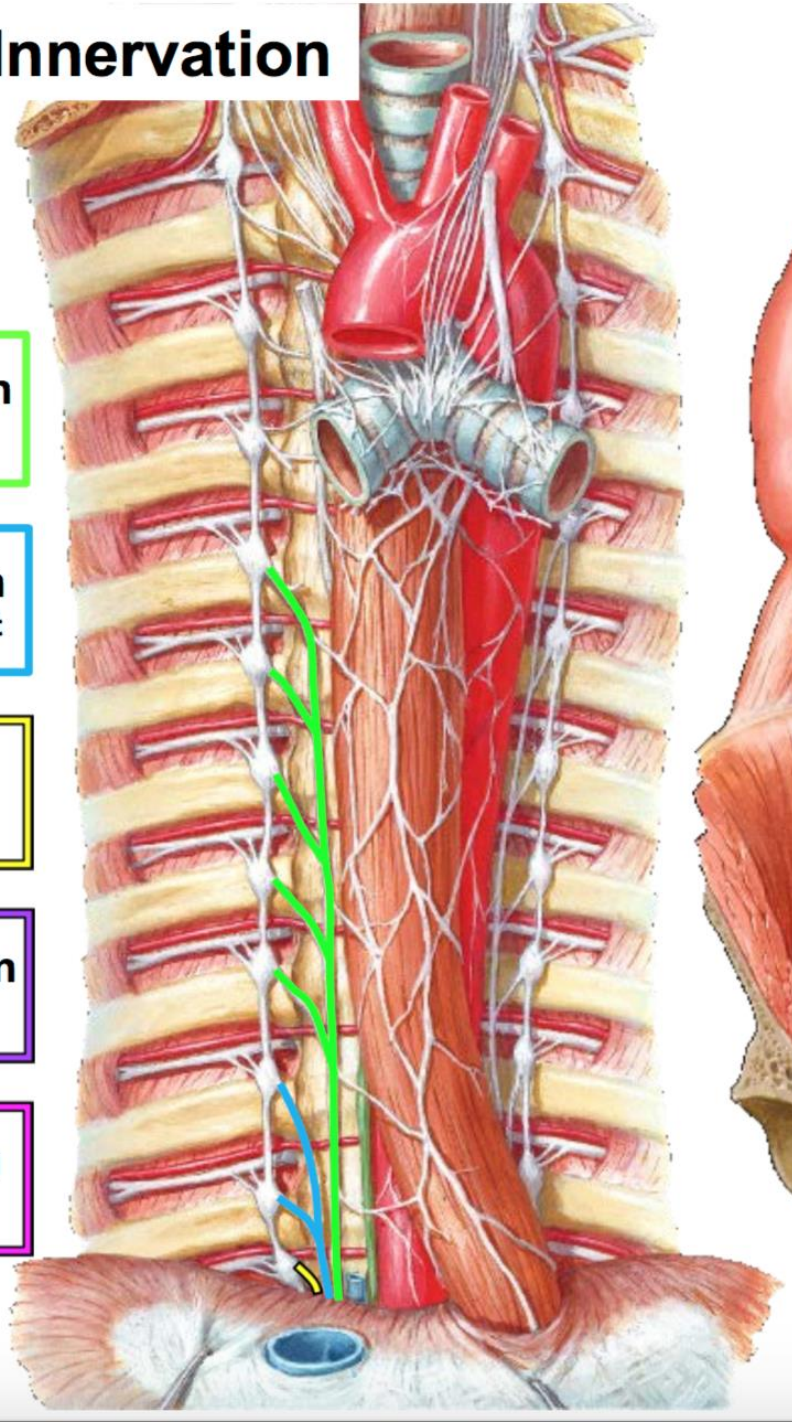
Greater splanchnic n
T5-T9 spinal cord segment

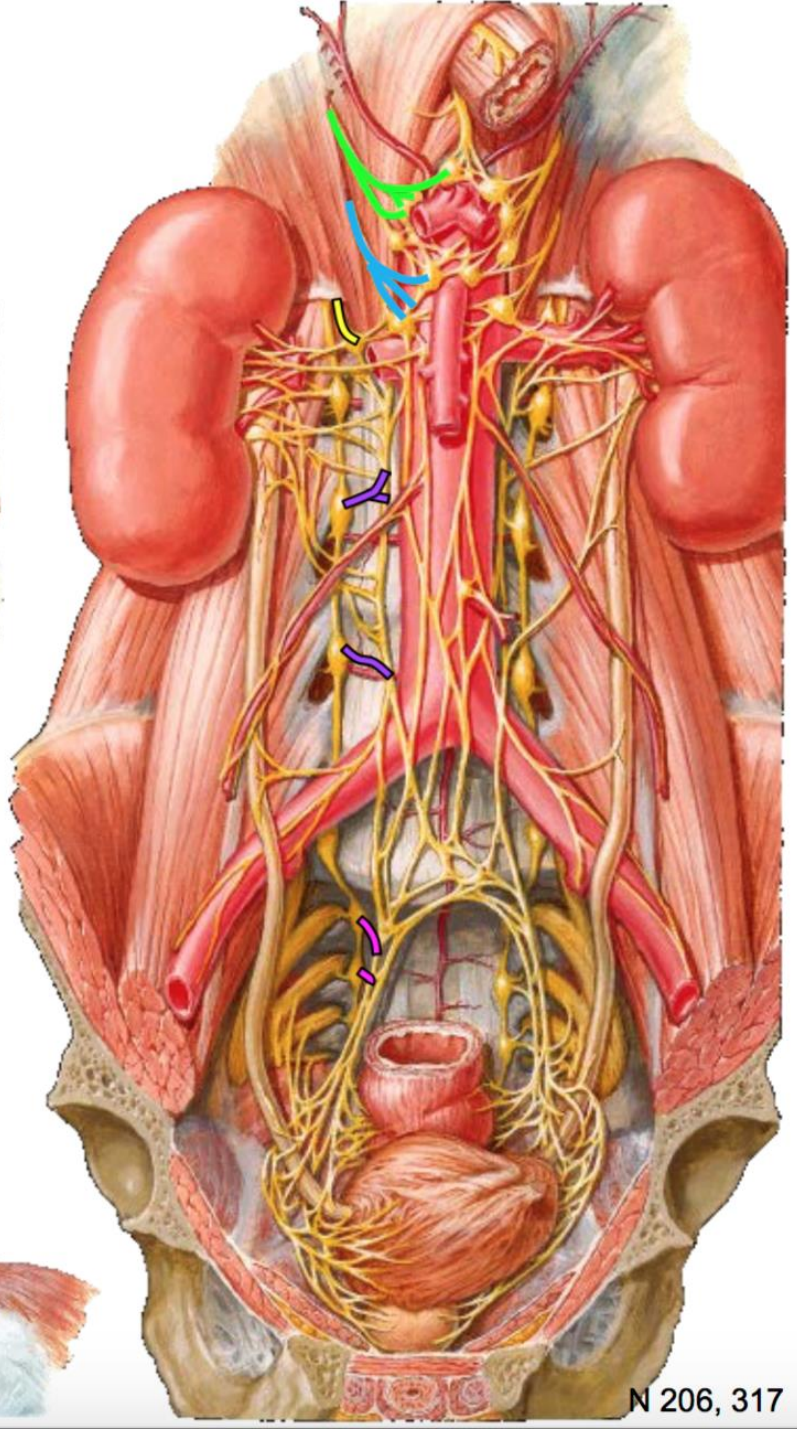
Lesser splanchnic n
T10-T11 spinal cord segment

Least splanchnic n
T12 spinal cord segment

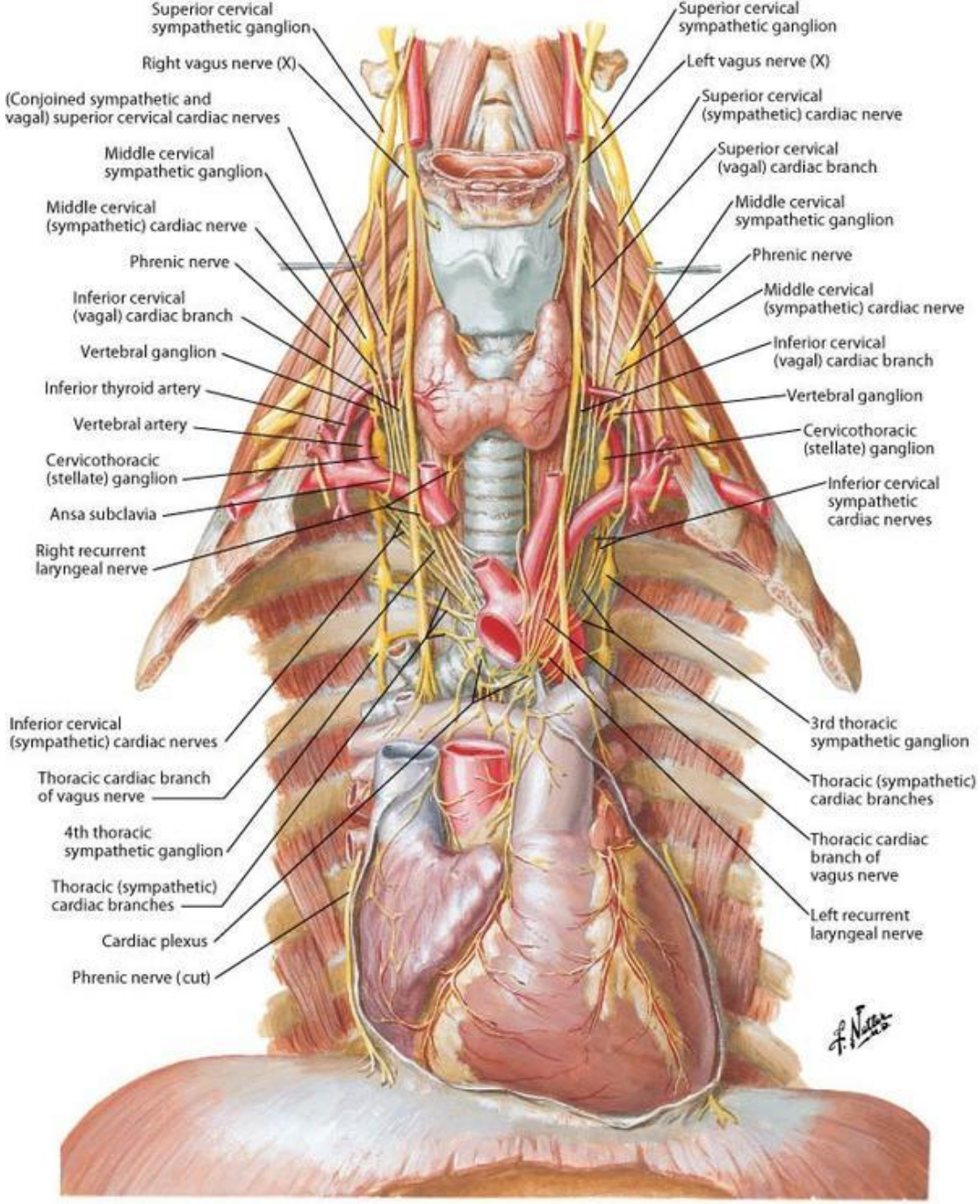
Lumbar splanchnic n
L1-L2 spinal cord segment

Sacral splanchnic n
L1-L2 spinal cord segment





N 206, 317



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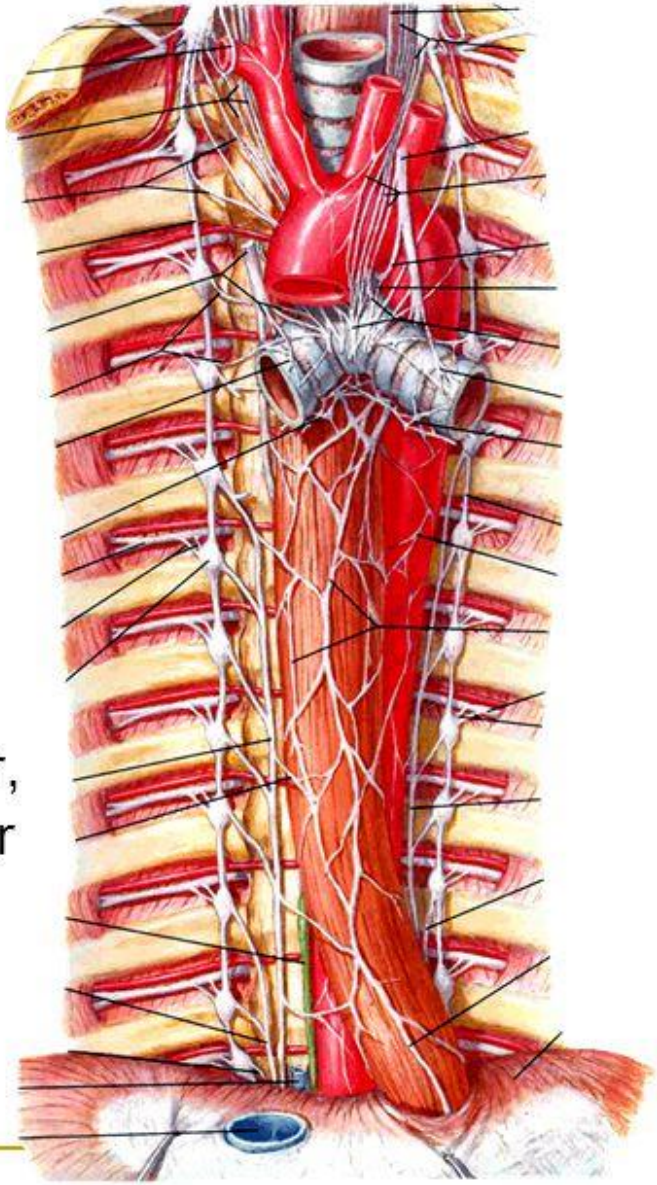
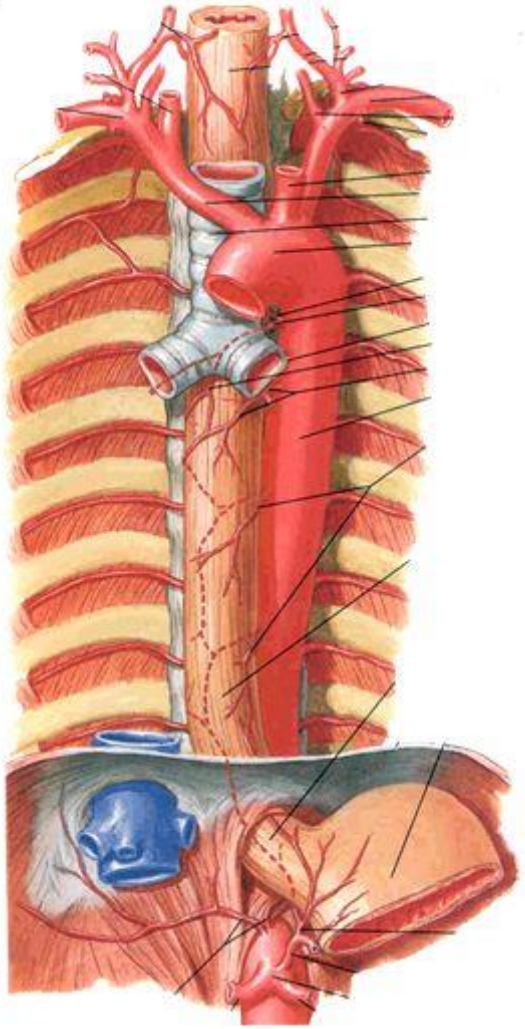
Thoracic sympathetic trunk

- Branches of sympathetic trunk to thoracic plexuses
- **Greater splanchnic nerve** - formed by preganglionic fibers from T5~T9 ganglia, and relay in celiac ganglion.
- **Lesser splanchnic nerve** - formed by preganglionic fibers from T10~T12 ganglia, and relay in aorticorenal ganglion.
- The postganglionic fibers supply the liver, spleen, kidney and alimentary tract as far as the left colic flexure.



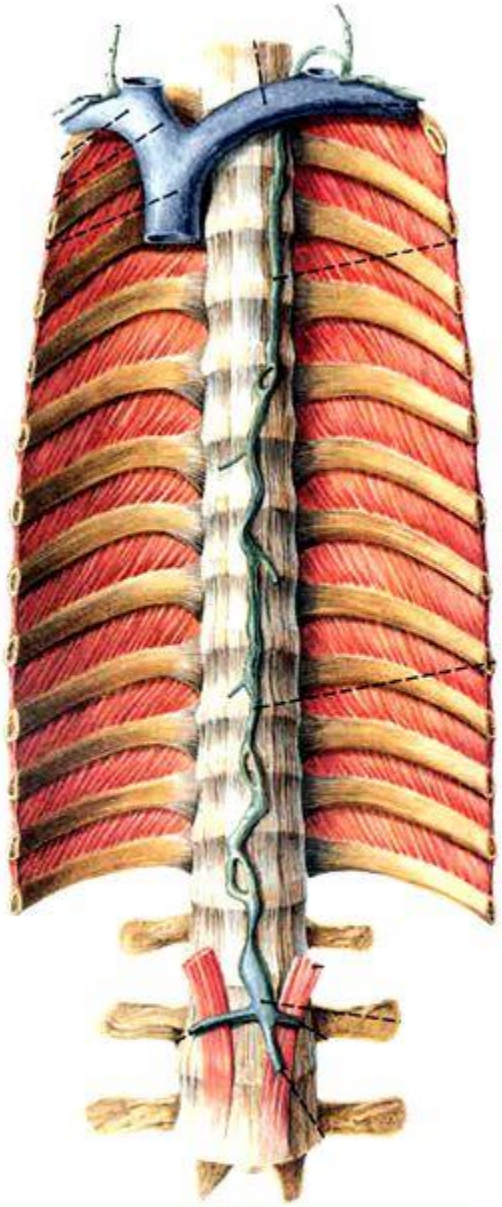
Thoracic aorta

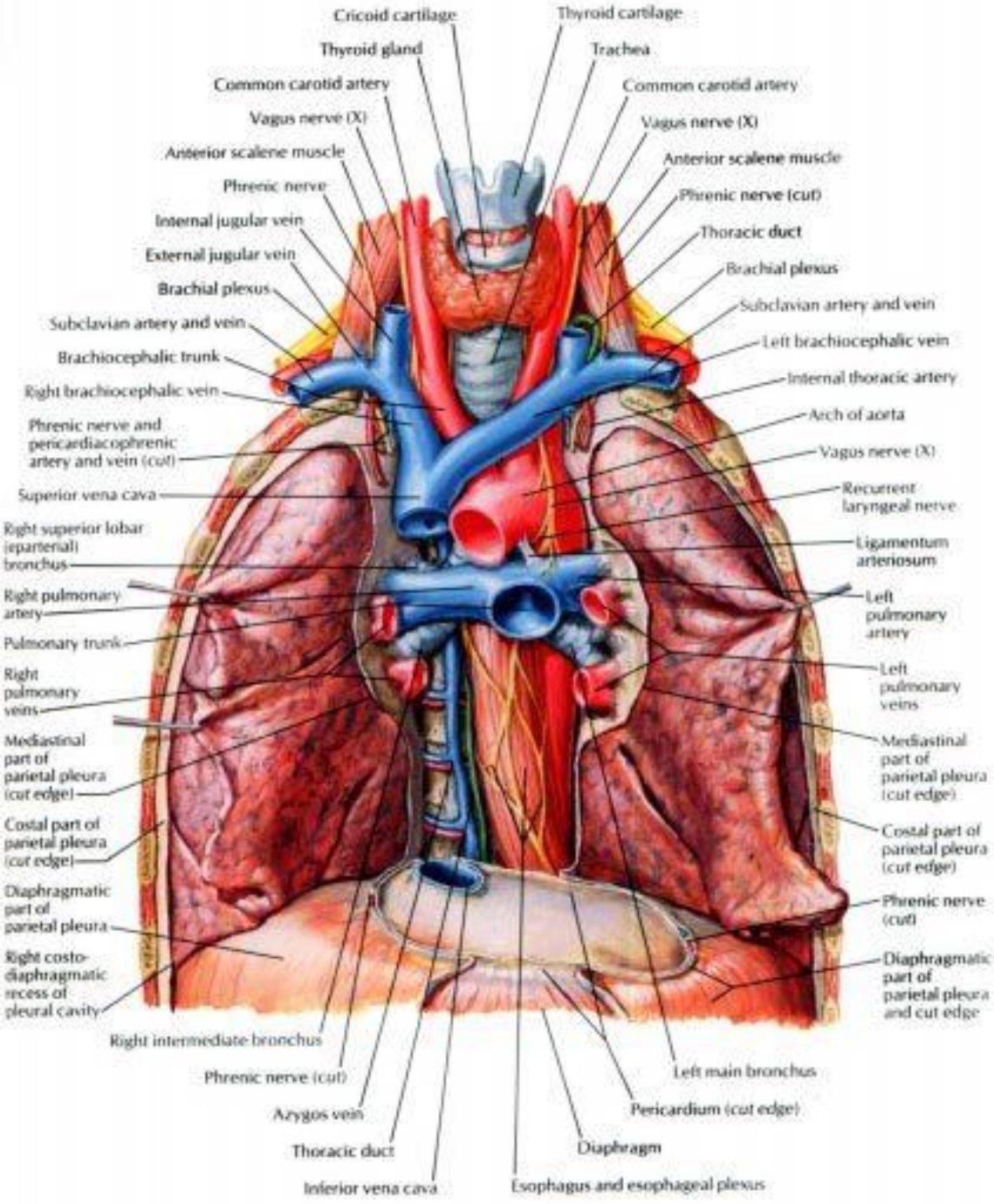
- Continuation of aortic arch at lower border of T4
- Courses downward on left side of, then in front of vertebral column
- Passes through aortic hiatus of diaphragm at level of T12 vertebra to enter abdominal cavity
- Main branches
  - Parietal branches
    - Nine pairs **posterior intercostals arteries**
    - One pair **subcostal artery**
    - For lower nine intercostals spaces and upper part of abdominal wall; superior phrenic arteries supply the superior surface of the diaphragm.
  - Visceral branches
    - Bronchial branches: one or two for each lung
    - Esophageal branches
    - Pericardial branches

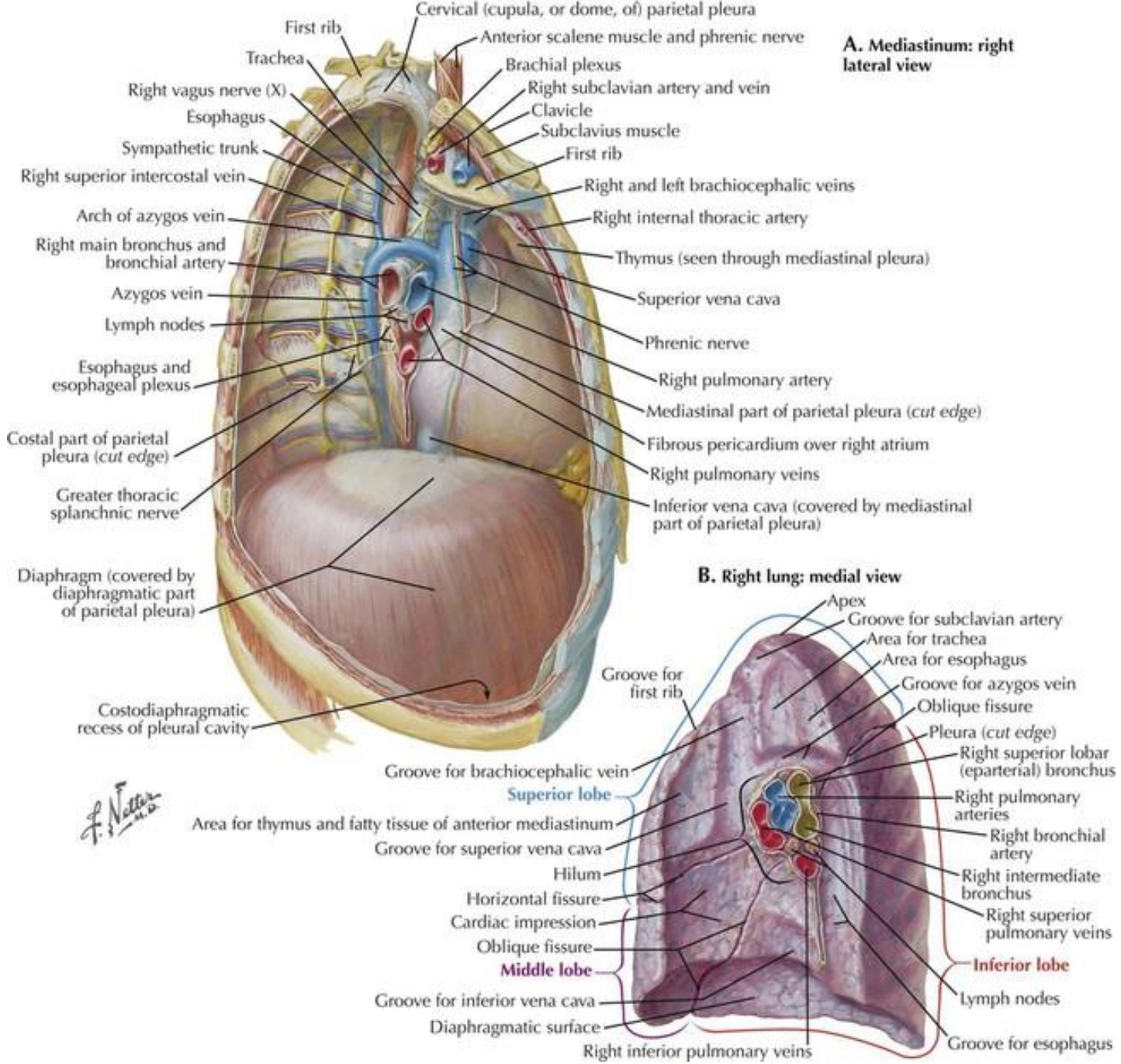


Thoracic duct

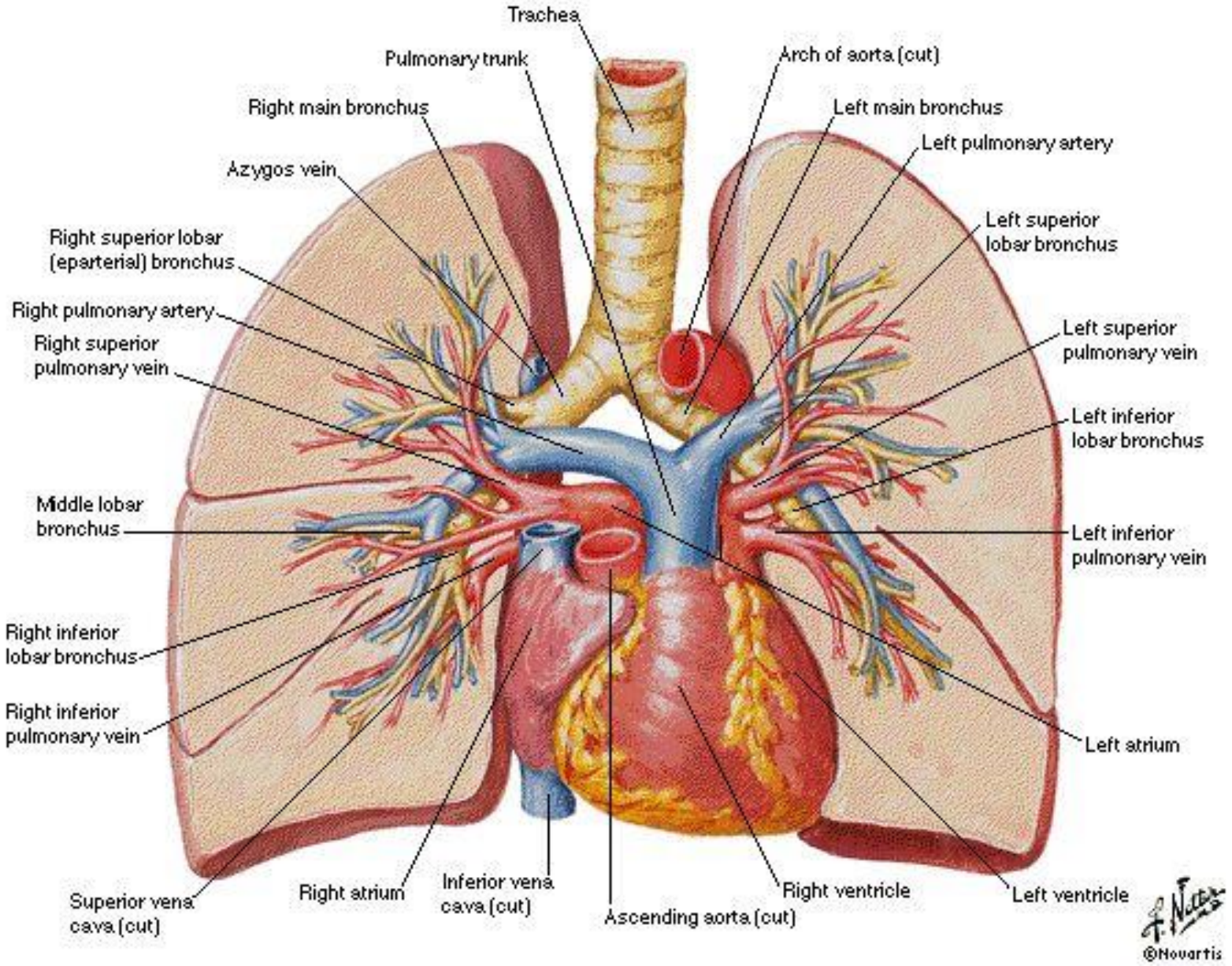
- Begins in front of L1 as a dilated sac, the cisterna chyli, which formed by joining of left and right lumbar trunks and intestinal trunk
- Enter thoracic cavity by passing through the aortic hiatus of the diaphragm and ascends along on the front of the vertebral column, between thoracic aorta and azygos vein
- Travels upward, veering to the left at the level of T5
- At the roof of the neck, it turns laterally and arches forwards and descends to enter the left venous angle

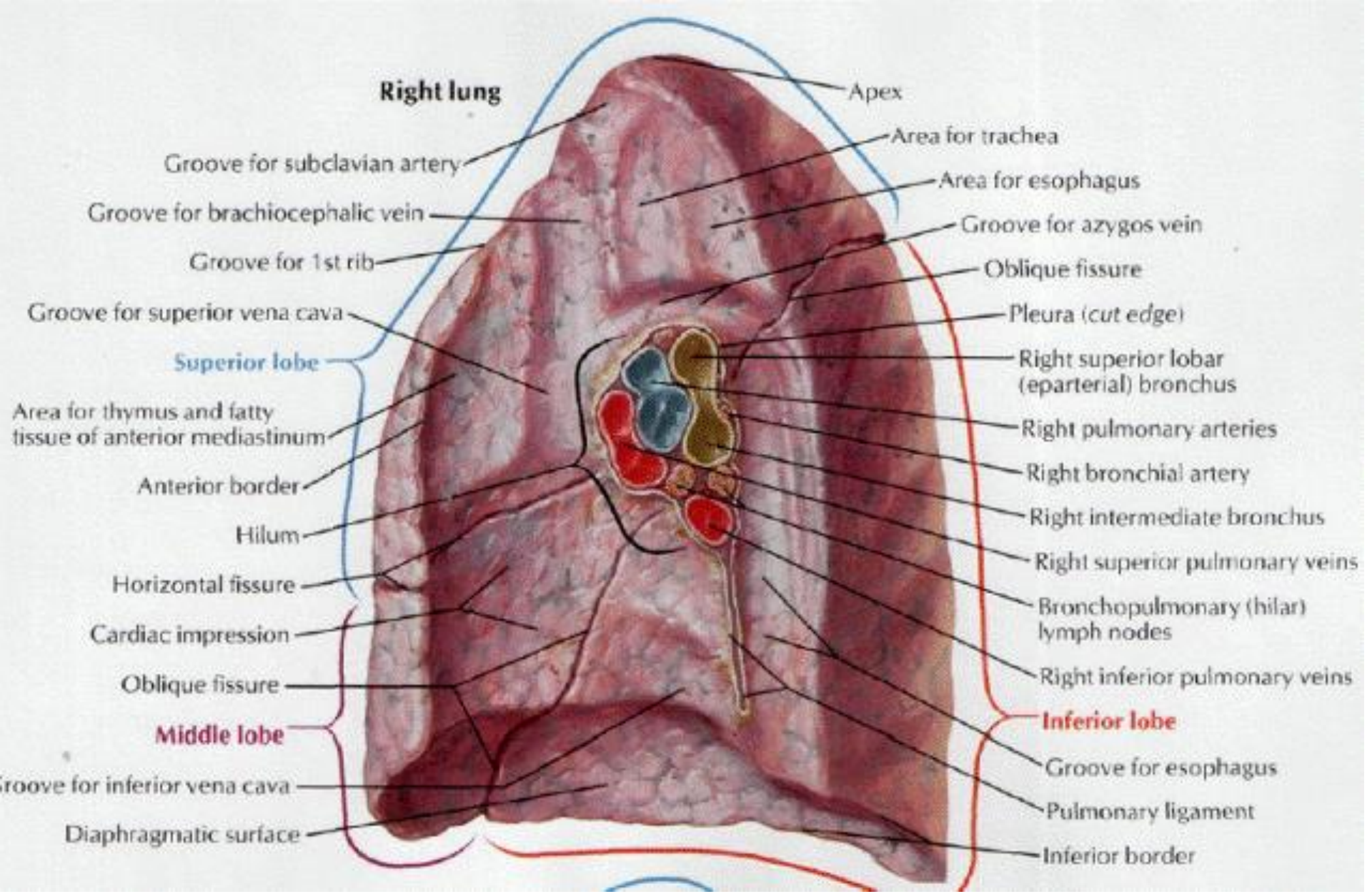


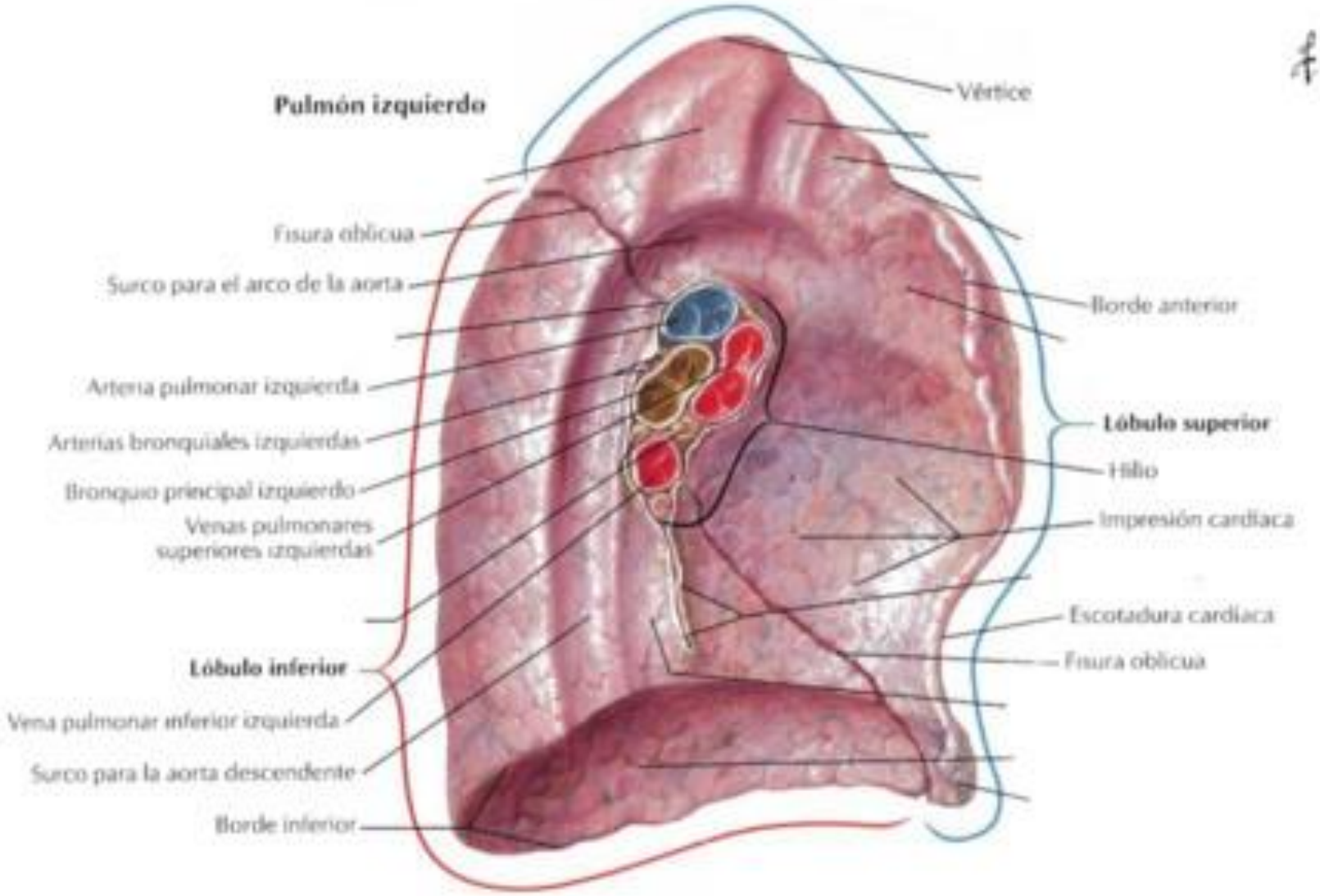

Cricoid cartilage
Thyroid cartilage
Thyroid gland
Trachea
Common carotid artery
Common carotid artery
Vagus nerve (X)
Vagus nerve (X)
Anterior scalene muscle
Anterior scalene muscle
Phrenic nerve
Phrenic nerve (cut)
Internal jugular vein
Thoracic duct
External jugular vein
Brachial plexus
Brachial plexus
Subclavian artery and vein
Subclavian artery and vein
Brachiocephalic trunk
Left brachiocephalic vein
Right brachiocephalic vein
Internal thoracic artery
Phrenic nerve and pericardiacophrenic artery and vein (cut)
Arch of aorta
Vagus nerve (X)
Superior vena cava
Recurrent laryngeal nerve
Right superior lobar (eparterial) bronchus
Ligamentum arteriosum
Right pulmonary artery
Left pulmonary artery
Pulmonary trunk
Left pulmonary veins
Right pulmonary veins
Mediastinal part of parietal pleura (cut edge)
Mediastinal part of parietal pleura (cut edge)
Costal part of parietal pleura (cut edge)
Costal part of parietal pleura (cut edge)
Diaphragmatic part of parietal pleura
Phrenic nerve (cut)
Right costo-diaphragmatic recess of pleural cavity
Diaphragmatic part of parietal pleura and cut edge
Right intermediate bronchus
Left main bronchus
Phrenic nerve (cut)
Pericardium (cut edge)
Azygos vein
Diaphragm
Thoracic duct
Esophagus and esophageal plexus
Inferior vena cava

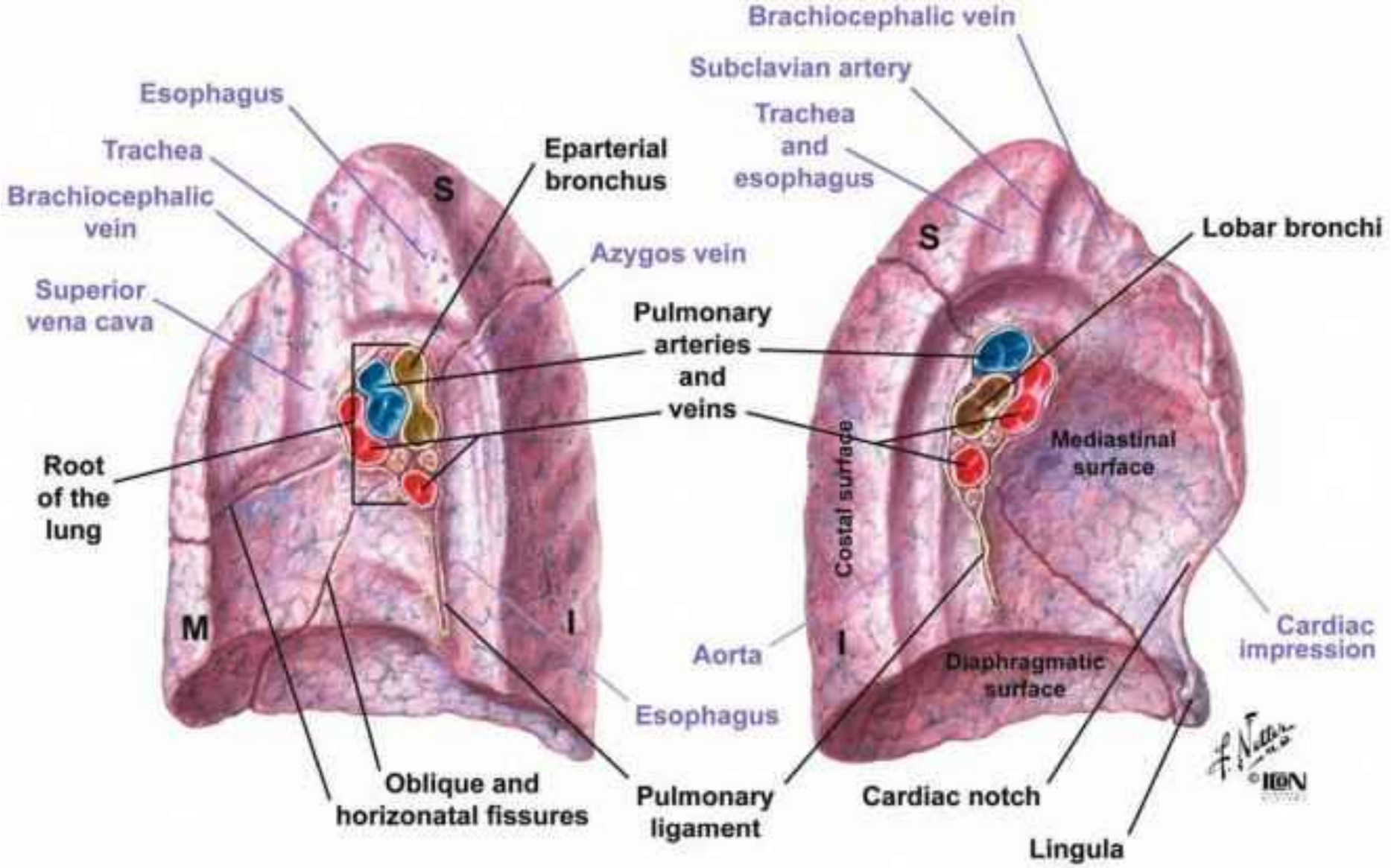

A. Mediastinum: right lateral view
Cervical (cupula, or dome, of) parietal pleura
First rib
Anterior scalene muscle and phrenic nerve
Trachea
Brachial plexus
Right vagus nerve (X)
Right subclavian artery and vein
Esophagus
Clavicle
Subclavius muscle
Sympathetic trunk
First rib
Right superior intercostal vein
Right and left brachiocephalic veins
Arch of azygos vein
Right internal thoracic artery
Right main bronchus and bronchial artery
Thymus (seen through mediastinal pleura)
Azygos vein
Superior vena cava
Lymph nodes
Phrenic nerve
Esophagus and esophageal plexus
Right pulmonary artery
Mediastinal part of parietal pleura (cut edge)
Costal part of parietal pleura (cut edge)
Fibrous pericardium over right atrium
Right pulmonary veins
Greater thoracic splanchnic nerve
Inferior vena cava (covered by mediastinal part of parietal pleura)
Diaphragm (covered by diaphragmatic part of parietal pleura)
Costodiaphragmatic recess of pleural cavity
B. Right lung: medial view
Apex
Groove for subclavian artery
Area for trachea
Area for esophagus
Groove for first rib
Groove for azygos vein
Oblique fissure
Pleura (cut edge)
Right superior lobar (eparterial) bronchus
Groove for brachiocephalic vein
Superior lobe
Right pulmonary arteries
Area for thymus and fatty tissue of anterior mediastinum
Right bronchial artery
Groove for superior vena cava
Hilum
Right intermediate bronchus
Horizontal fissure
Right superior pulmonary veins
Cardiac impression
Oblique fissure
Middle lobe
Inferior lobe
Lymph nodes
Groove for inferior vena cava
Diaphragmatic surface
Groove for esophagus
Right inferior pulmonary veins

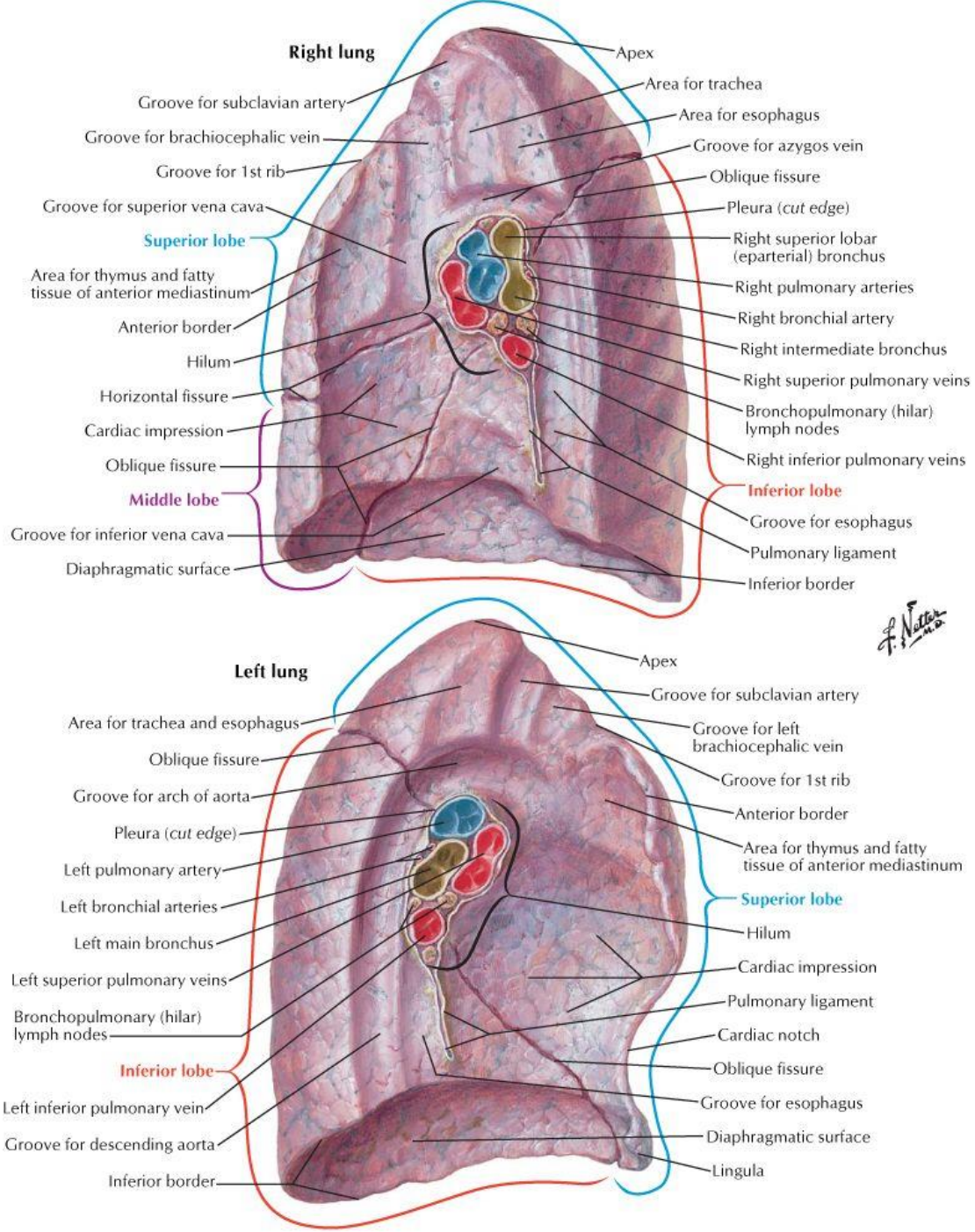
Pulmonary Arteries and Veins




Right lung
Apex
Area for trachea
Area for esophagus
Groove for azygos vein
Oblique fissure
Pleura (cut edge)
Right superior lobar (eparterial) bronchus
Right pulmonary arteries
Right bronchial artery
Right intermediate bronchus
Right superior pulmonary veins
Bronchopulmonary (hilar) lymph nodes
Right inferior pulmonary veins
Inferior lobe
Groove for esophagus
Pulmonary ligament
Inferior border
Groove for subclavian artery
Groove for brachiocephalic vein
Groove for 1st rib
Groove for superior vena cava
Superior lobe
Area for thymus and fatty tissue of anterior mediastinum
Anterior border
Hilum
Horizontal fissure
Cardiac impression
Oblique fissure
Middle lobe
Groove for inferior vena cava
Diaphragmatic surface


Pulmón izquierdo
Vértice
Fisura oblicua
Surco para el arco de la aorta
Borde anterior
Arteria pulmonar izquierda
Lóbulo superior
Arterias bronquiales izquierdas
Hilio
Bronquio principal izquierdo
Impresión cardiaca
Venas pulmonares superiores izquierdas
Escotadura cardiaca
Lóbulo inferior
Fisura oblicua
Vena pulmonar inferior izquierda
Surco para la aorta descendente
Borde inferior


Esophagus
Trachea
Brachiocephalic vein
Superior vena cava
Root of the lung
Eparterial bronchus
Azygos vein
Pulmonary arteries and veins
S
M
I
Oblique and horizonatal fissures
Pulmonary ligament
Esophagus
Brachiocephalic vein
Subclavian artery
Trachea and esophagus
Lobar bronchi
Costal surface
Mediastinal surface
Aorta
Diaphragmatic surface
Cardiac impression
Cardiac notch
Lingula
©IBN



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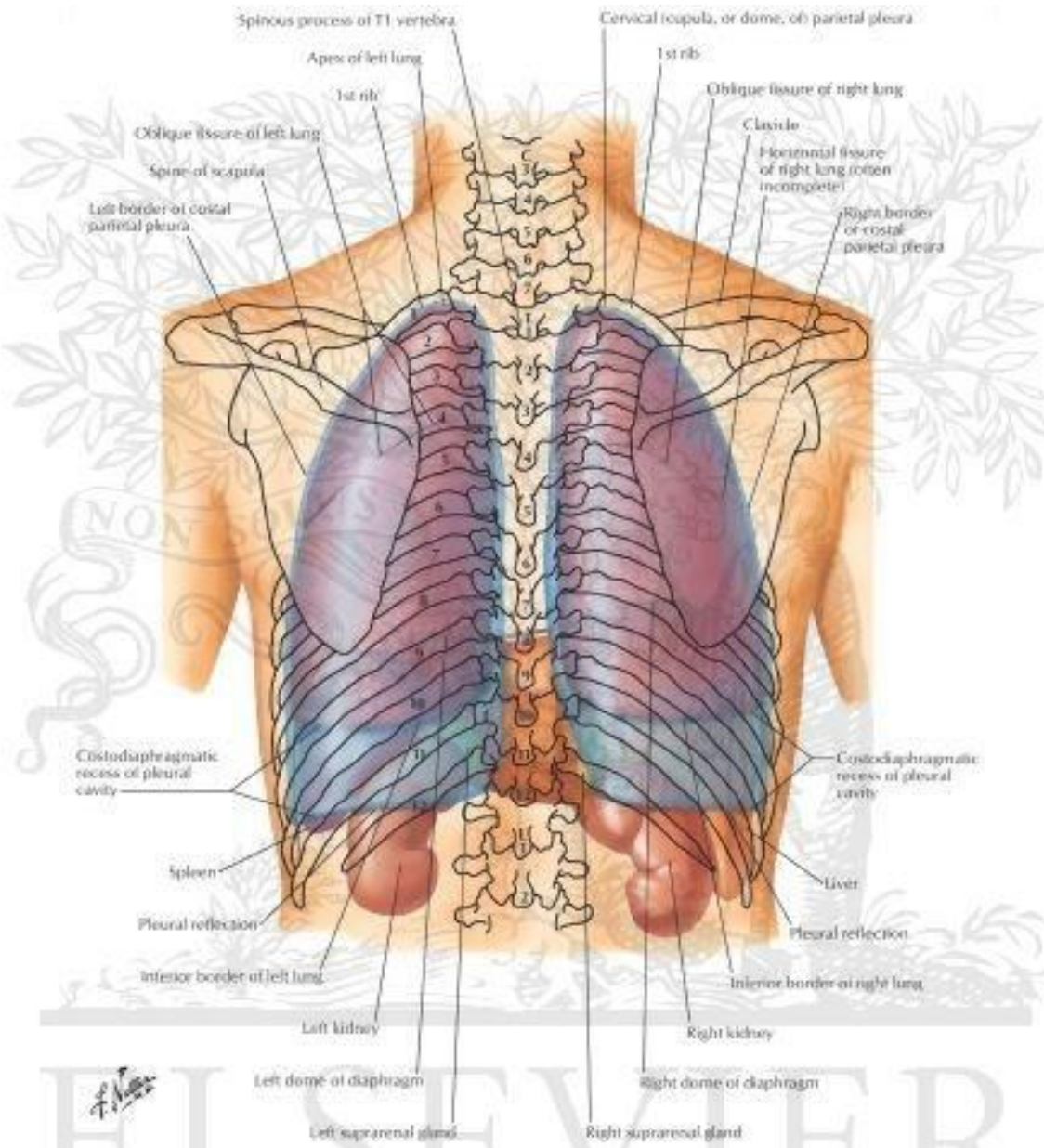

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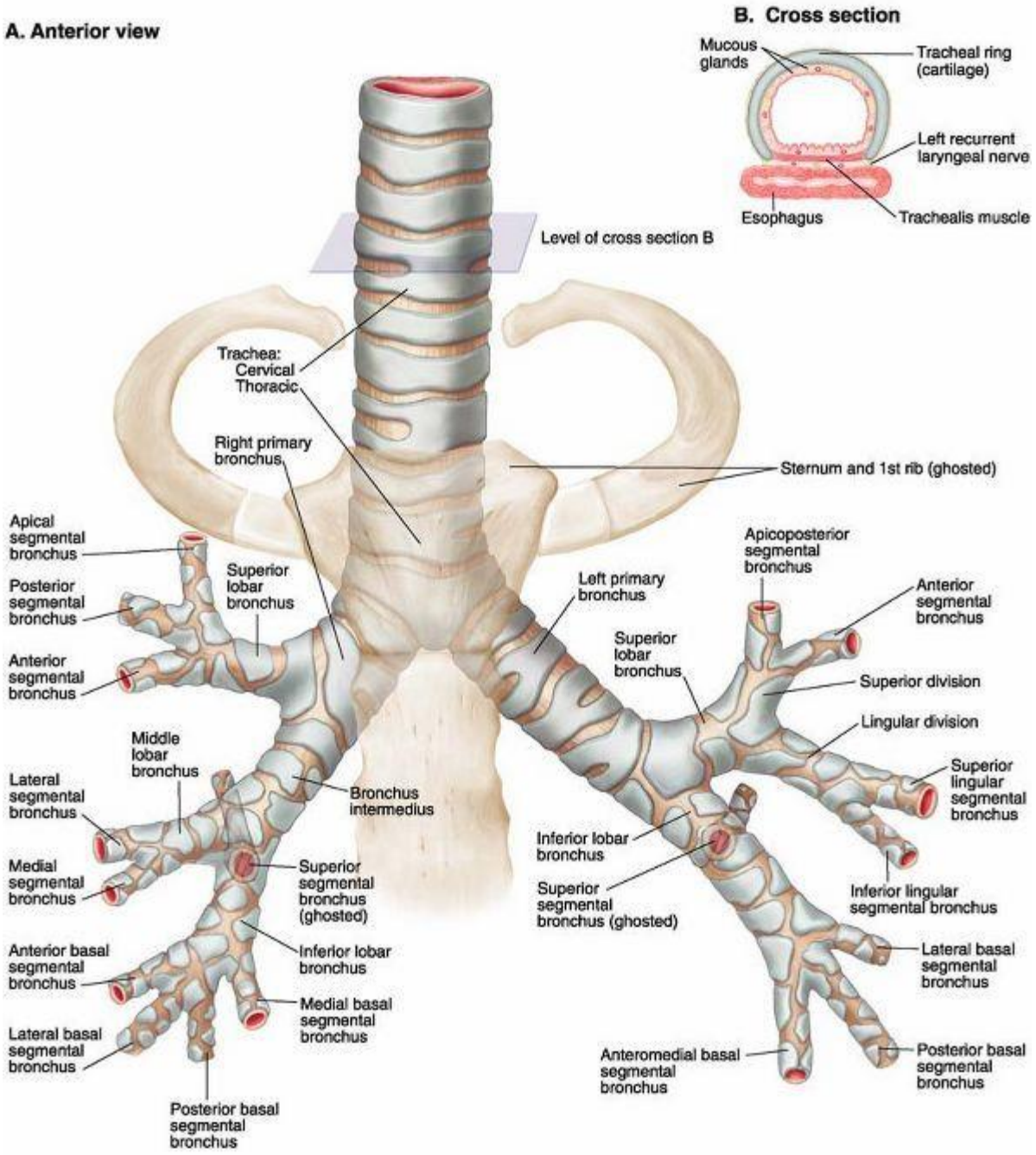
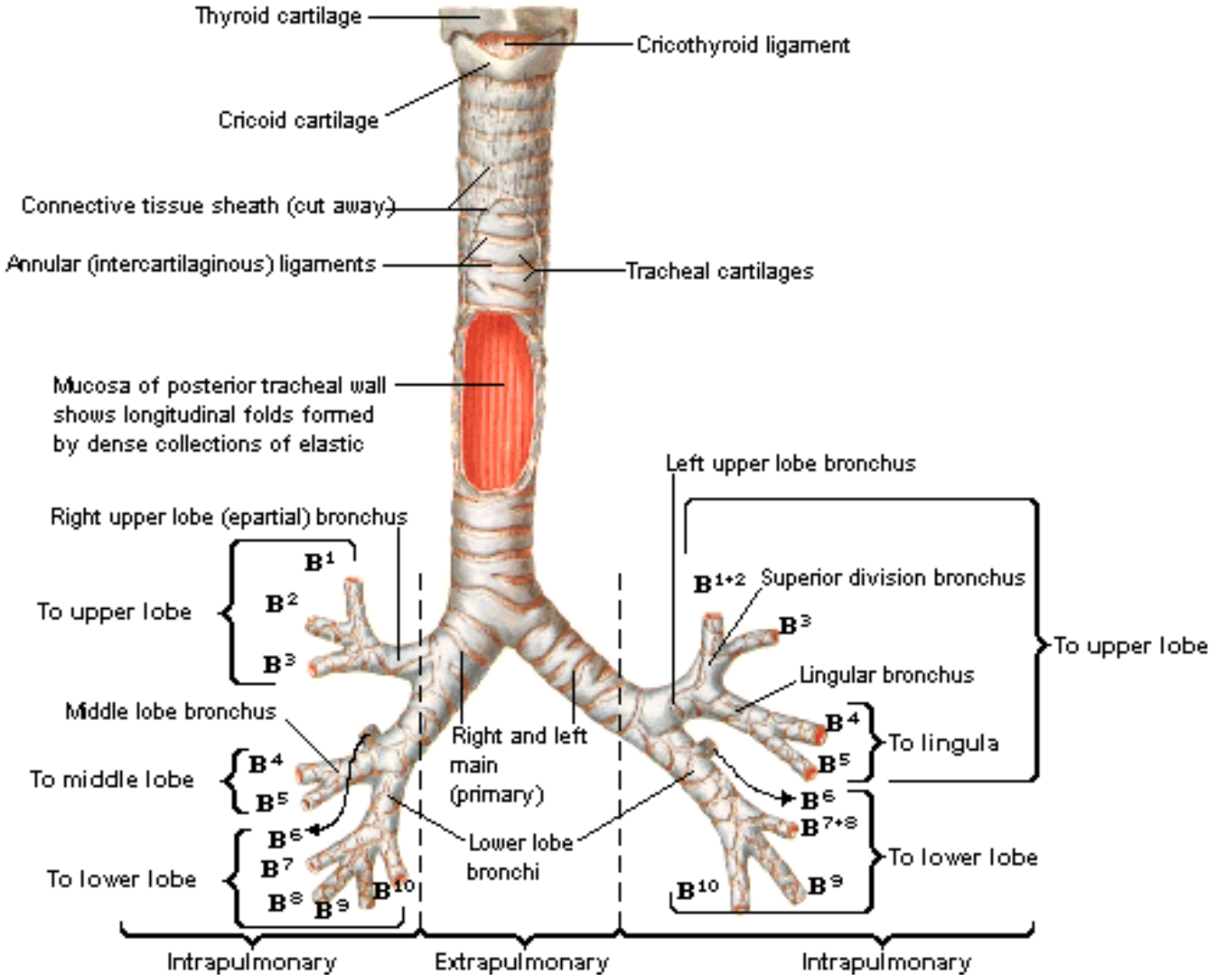
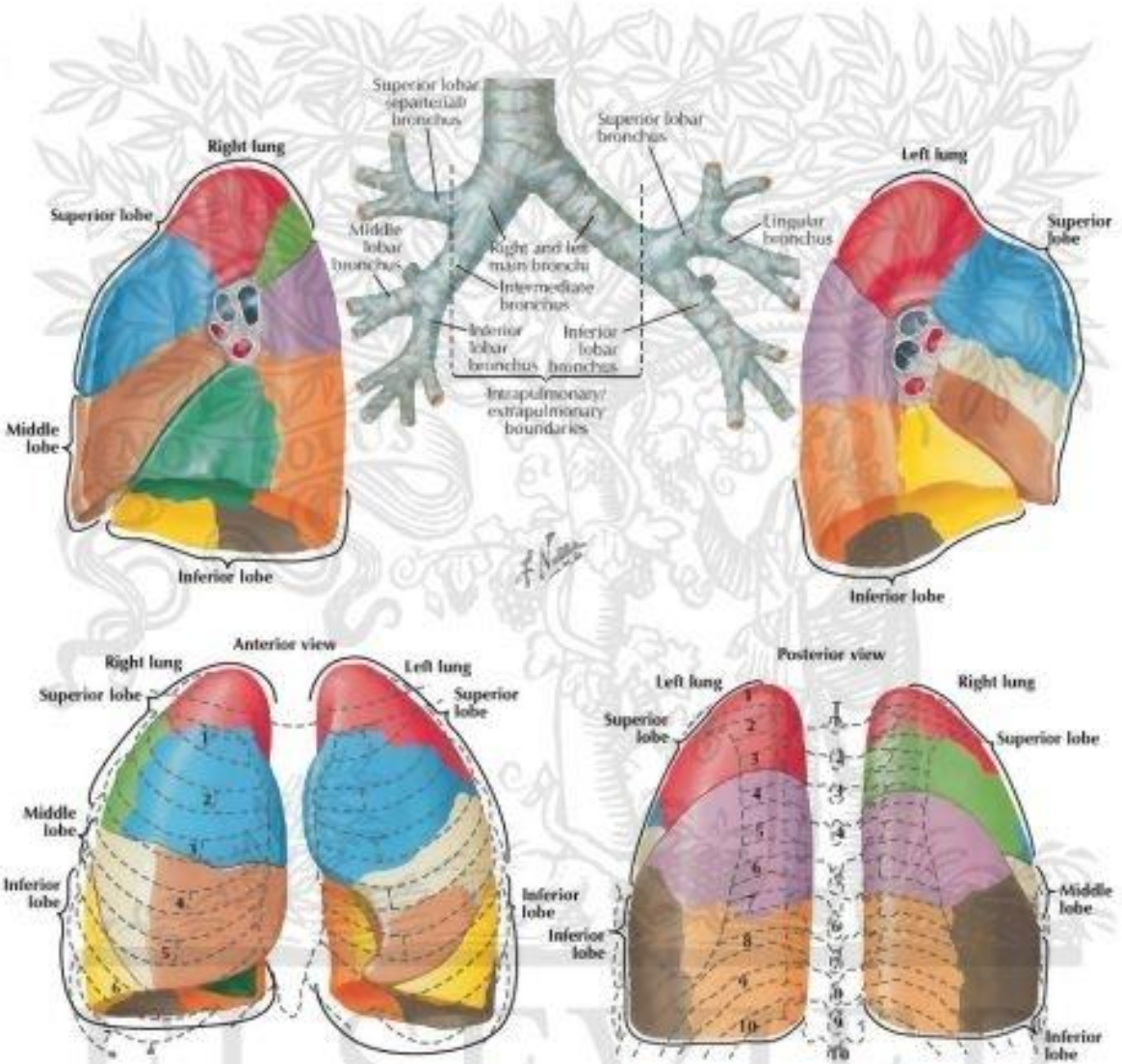

A. Anterior view
B. Cross section
Mucous glands
Tracheal ring (cartilage)
Left recurrent laryngeal nerve
Esophagus
Trachealis muscle
Level of cross section B
Trachea:
Cervical
Thoracic
Right primary bronchus
Sternum and 1st rib (ghosted)
Apical segmental bronchus
Posterior segmental bronchus
Anterior segmental bronchus
Superior lobar bronchus
Middle lobar bronchus
Lateral segmental bronchus
Medial segmental bronchus
Bronchus intermedius
Superior segmental bronchus (ghosted)
Anterior basal segmental bronchus
Inferior lobar bronchus
Medial basal segmental bronchus
Lateral basal segmental bronchus
Posterior basal segmental bronchus
Left primary bronchus
Apicoposterior segmental bronchus
Anterior segmental bronchus
Superior lobar bronchus
Superior division
Lingular division
Superior lingular segmental bronchus
Inferior lobar bronchus
Superior segmental bronchus (ghosted)
Inferior lingular segmental bronchus
Lateral basal segmental bronchus
Anteromedial basal segmental bronchus
Posterior basal segmental bronchus

Trachea and Major Bronchi

Anterior View





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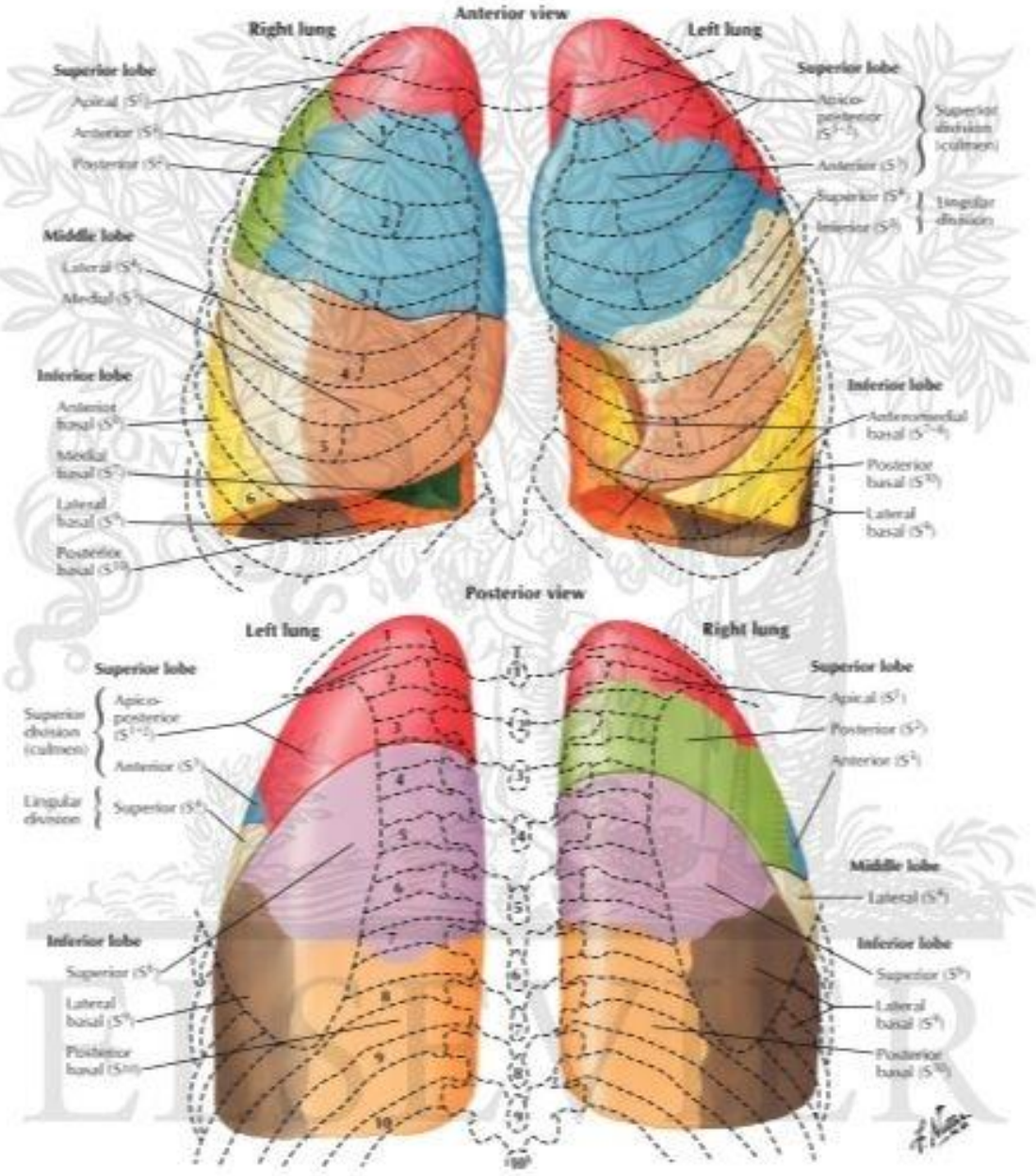
Bronchopulmonary Segments



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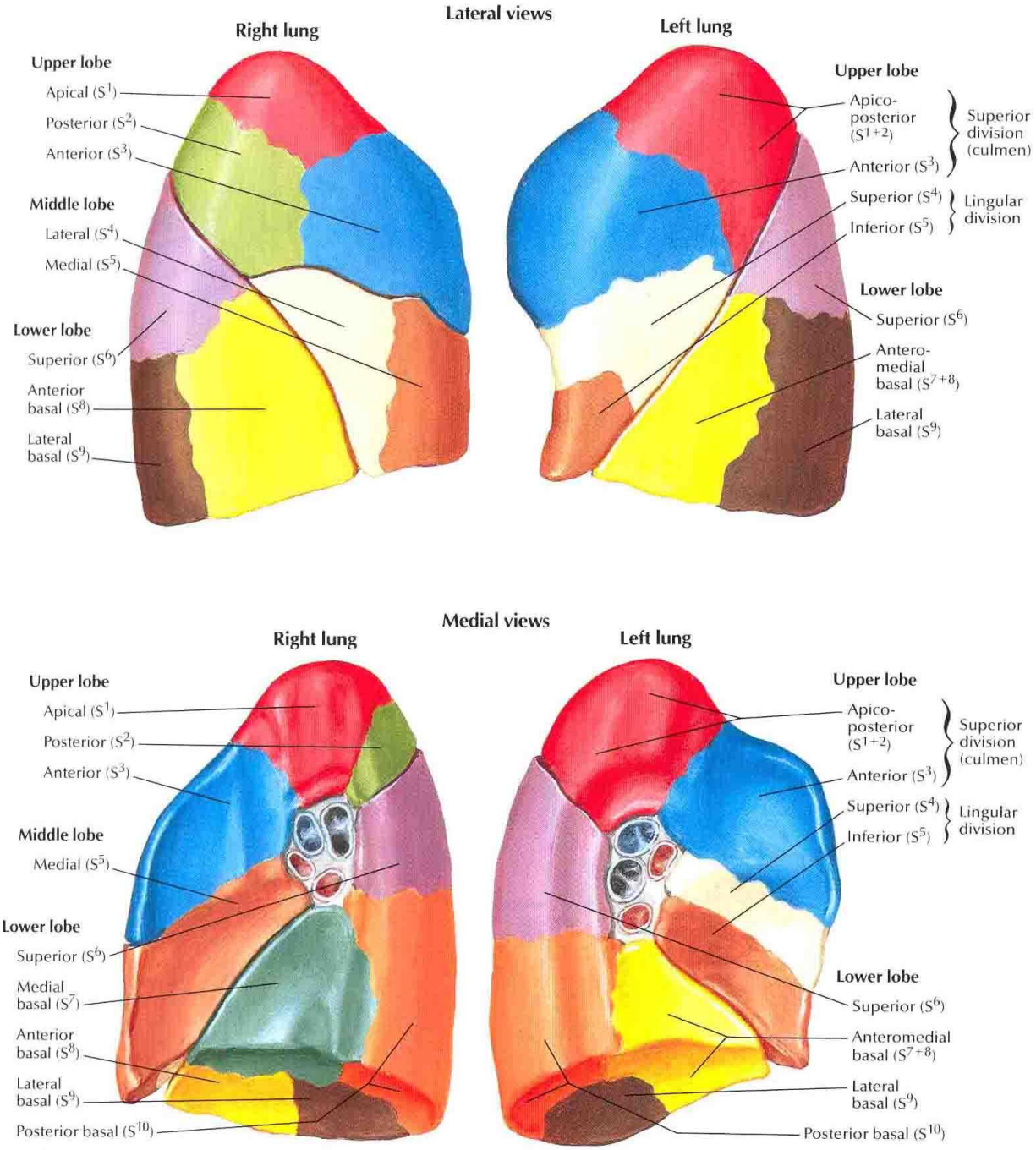
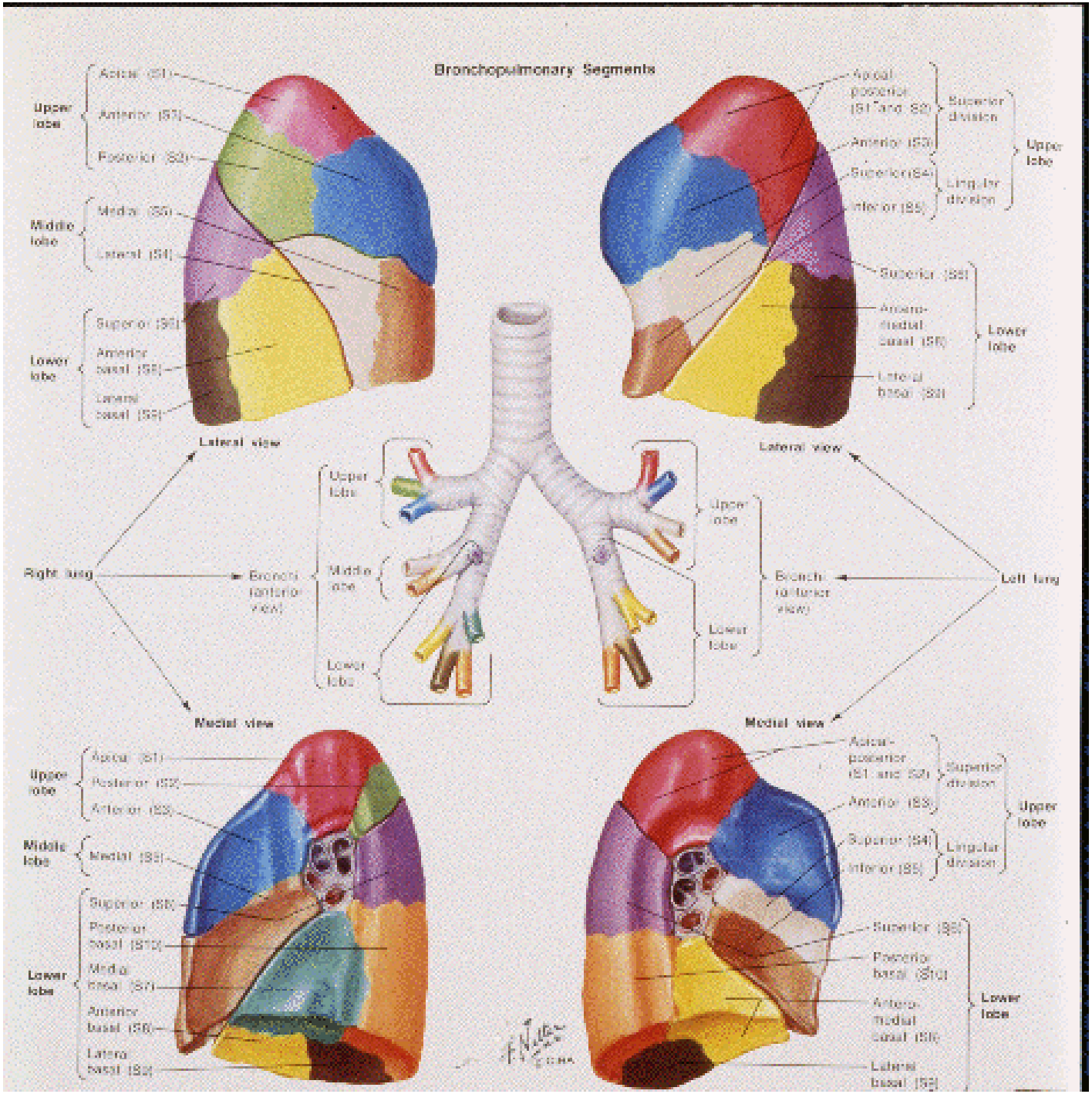
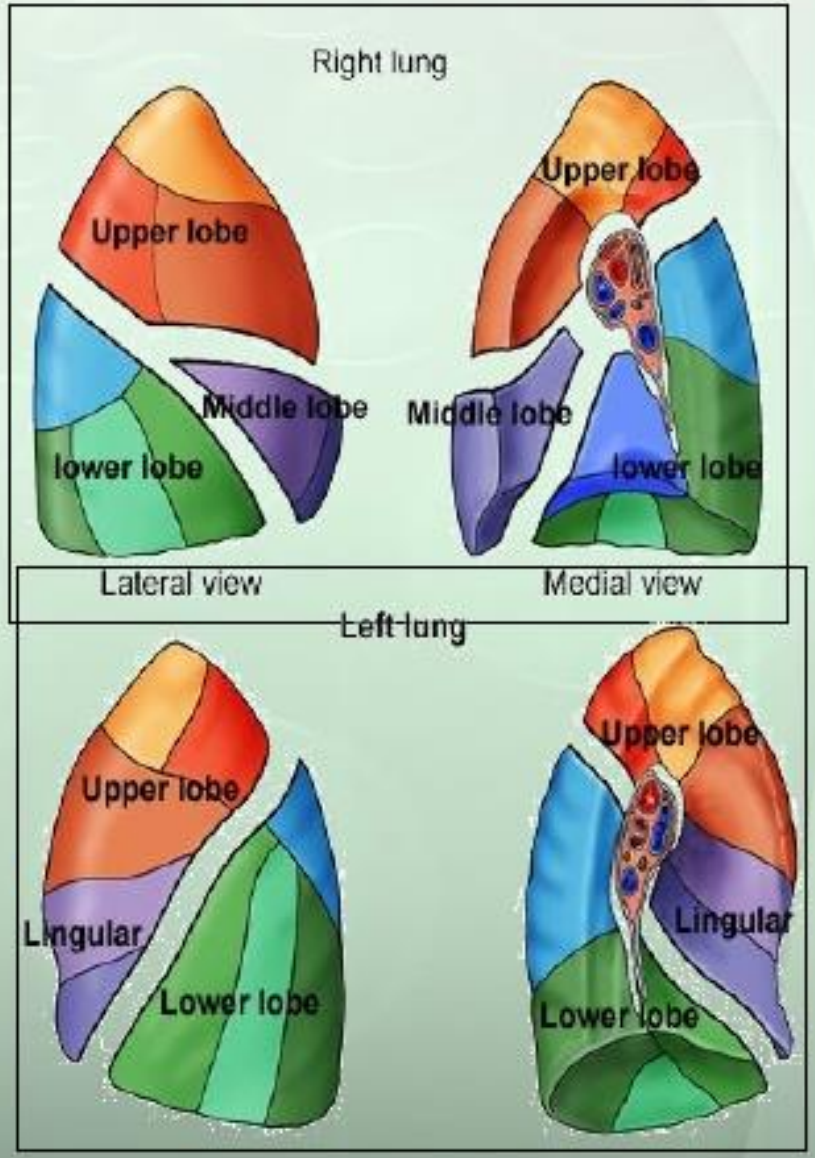
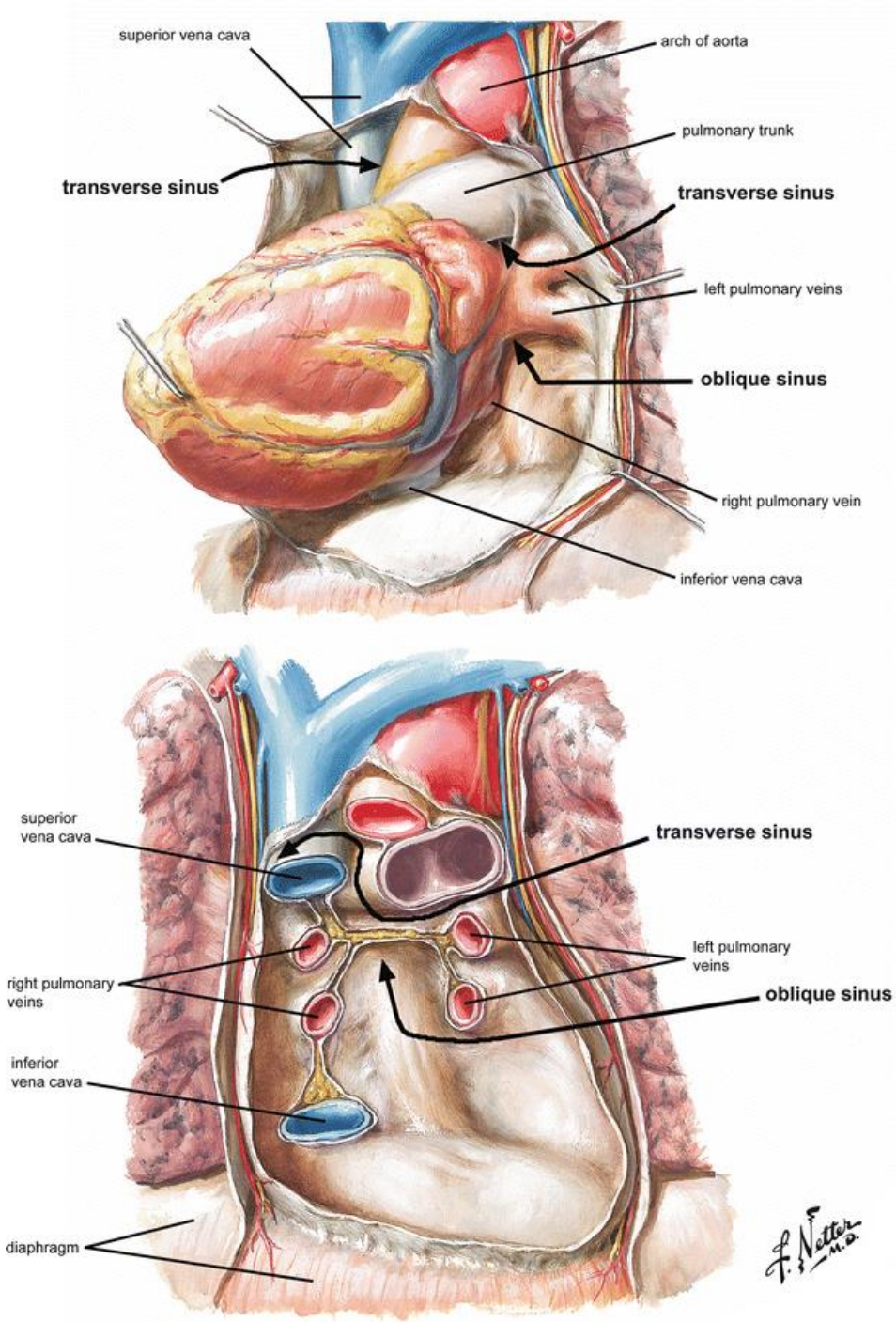

Lateral views
Right lung
Upper lobe
Apical (S1)
Posterior (S2)
Anterior (S3)
Middle lobe
Lateral (S4)
Medial (S5)
Lower lobe
Superior (S6)
Anterior basal (S8)
Lateral basal (S9)
Left lung
Upper lobe
Apico-posterior (S1+2)
Anterior (S3)
Superior division (culmen)
Superior (S4)
Inferior (S5)
Lingular division
Lower lobe
Superior (S6)
Antero-medial basal (S7+8)
Lateral basal (S9)
Medial views
Right lung
Upper lobe
Apical (S1)
Posterior (S2)
Anterior (S3)
Middle lobe
Medial (S5)
Lower lobe
Superior (S6)
Medial basal (S7)
Anterior basal (S8)
Lateral basal (S9)
Posterior basal (S10)
Left lung
Upper lobe
Apico-posterior (S1+2)
Anterior (S3)
Superior division (culmen)
Superior (S4)
Inferior (S5)
Lingular division
Lower lobe
Superior (S6)
Anteromedial basal (S7+8)
Lateral basal (S9)
Posterior basal (S10)

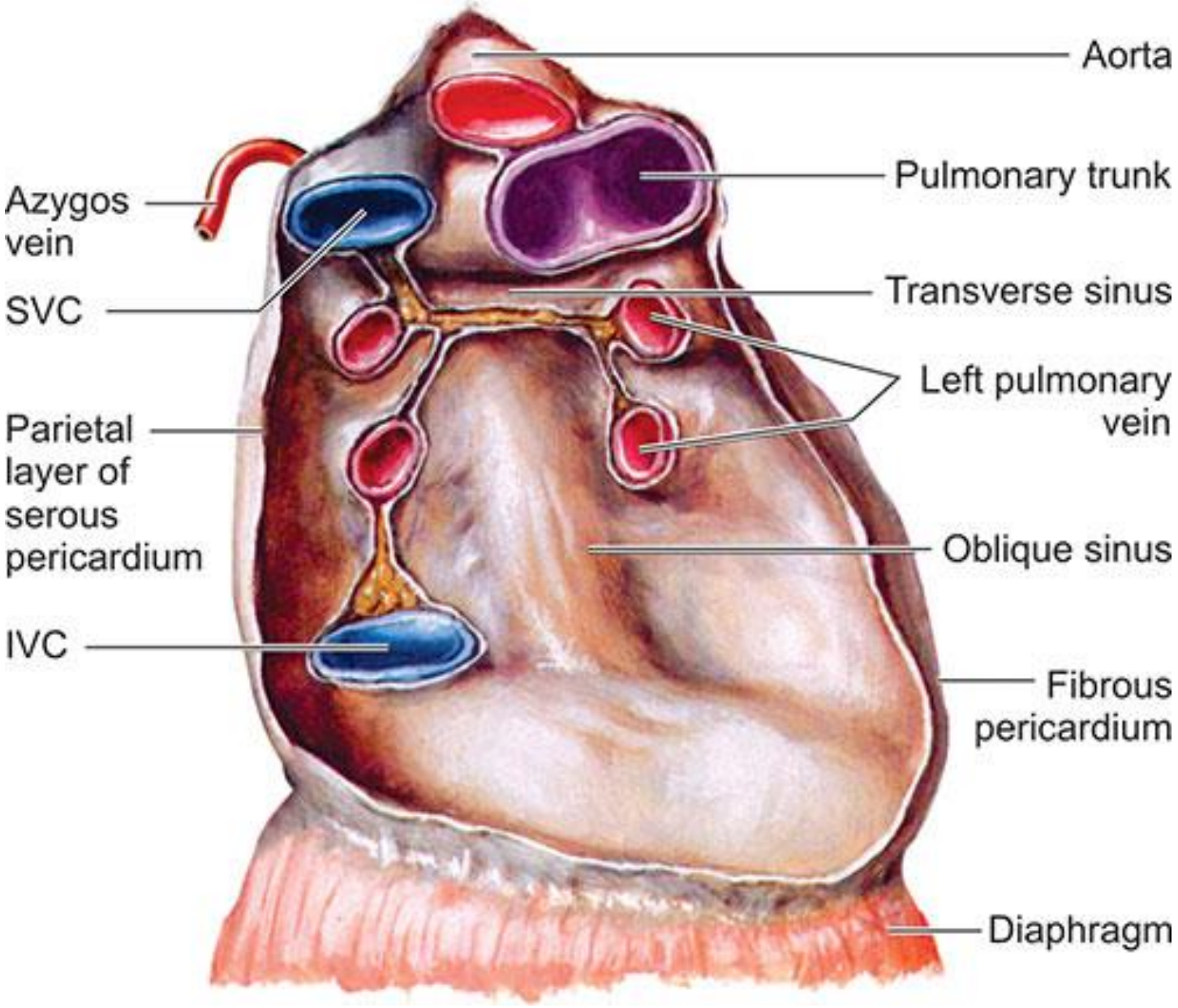

Bronchopulmonary Segments
Upper lobe
Middle lobe
Lower lobe
Lateral view
Lateral view
Right lung
Left lung
Bronchi (anterior view)
Bronchi (anterior view)
Upper lobe
Middle lobe
Lower lobe
Medial view
Medial view
Superior division
Lingular division

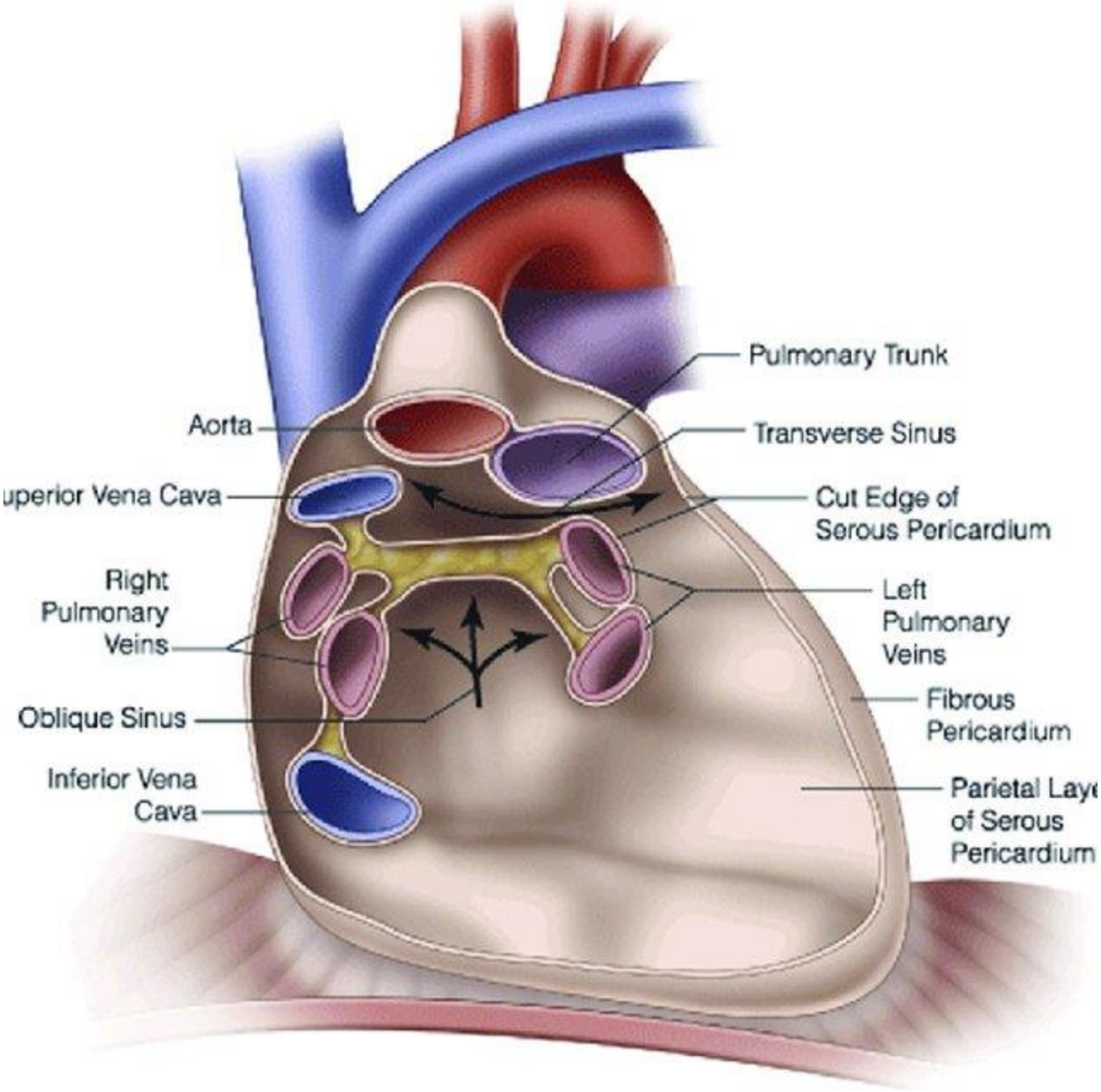
Bronchopulmonary segments

- Independent anatomical & functional subunits of lungs
- Number: 10 in each lung
- Each segment has a centrally located:
  - Segmental bronchus
  - Segmental branch of pulmonary artery
  - Segmental branch of bronchial artery
- The pulmonary veins and lymphatics are intersegmental in position.
- Early malignant pathology is usually confined to the segment from which it originates.



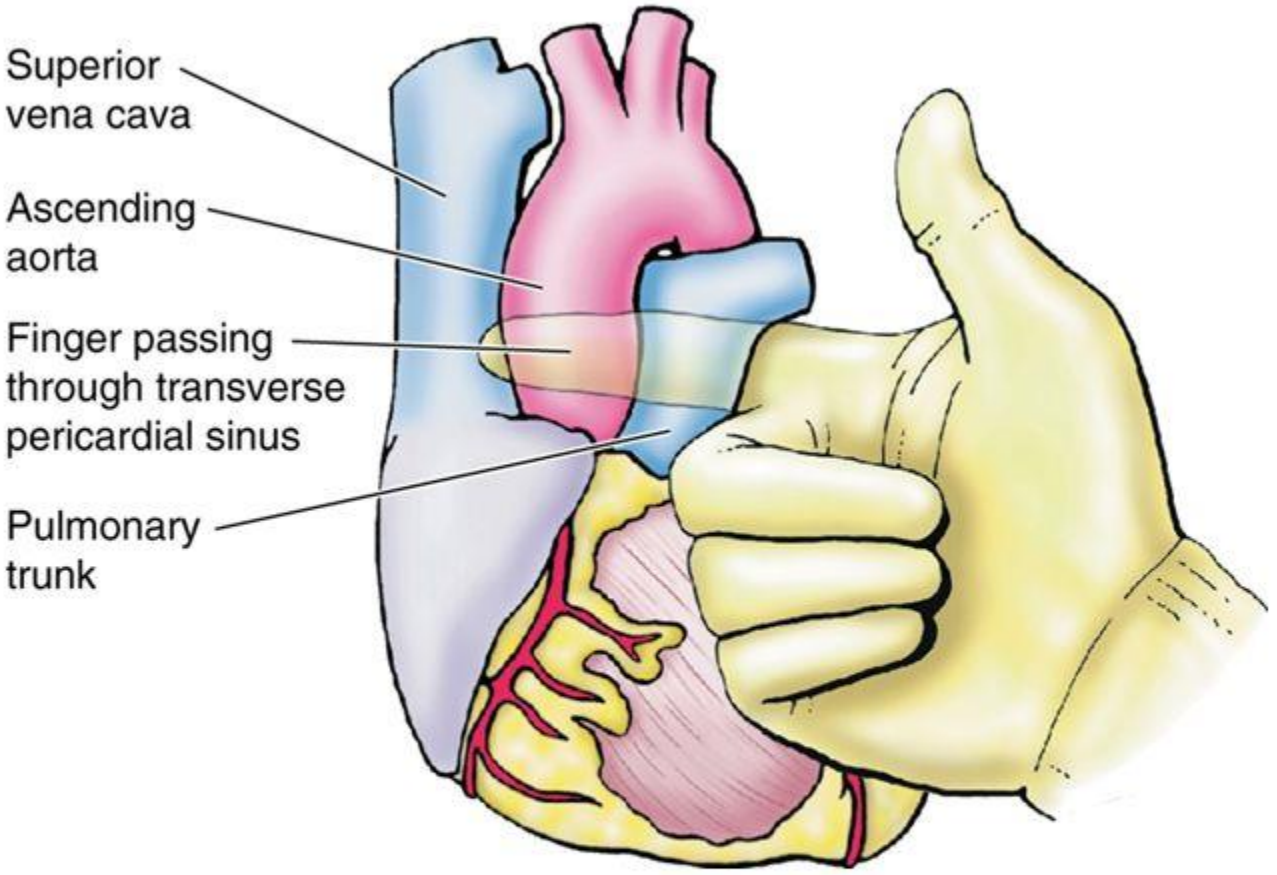

superior vena cava
arch of aorta
pulmonary trunk
transverse sinus
transverse sinus
left pulmonary veins
oblique sinus
right pulmonary vein
inferior vena cava
superior
vena cava
transverse sinus
left pulmonary
veins
right pulmonary
veins
oblique sinus
inferior
vena cava
diaphragm
F. Netter M.D.


Aorta
Pulmonary trunk
Azygos vein
SVC
Transverse sinus
Left pulmonary vein
Parietal layer of serous pericardium
Oblique sinus
IVC
Fibrous pericardium
Diaphragm

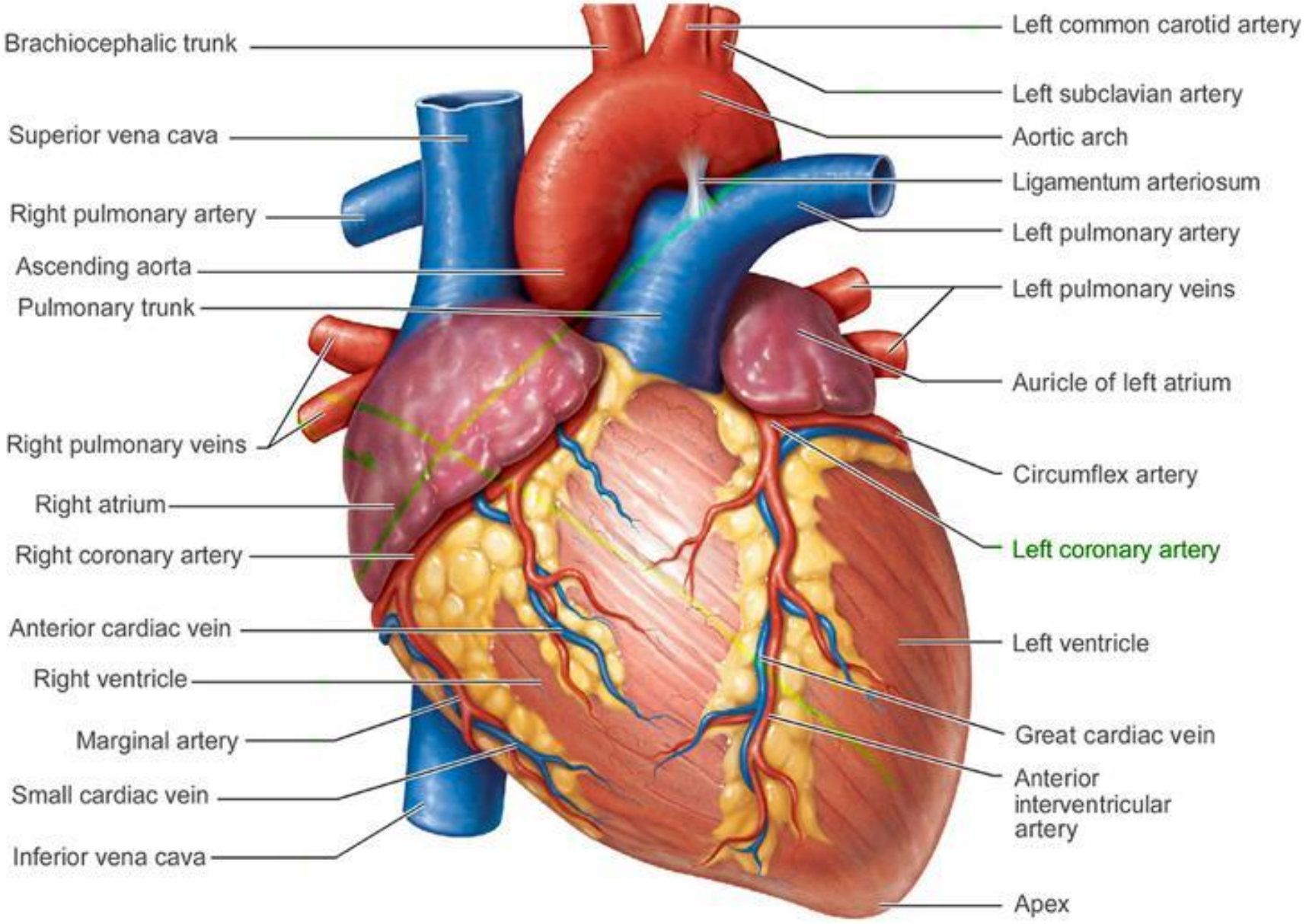

Pulmonary Trunk
Aorta
Transverse Sinus
uperior Vena Cava
Cut Edge of
Serous Pericardium
Right
Pulmonary
Veins
Left
Pulmonary
Veins
Fibrous
Pericardium
Oblique Sinus
Inferior Vena
Cava
Parietal Laye
of Serous
Pericardium

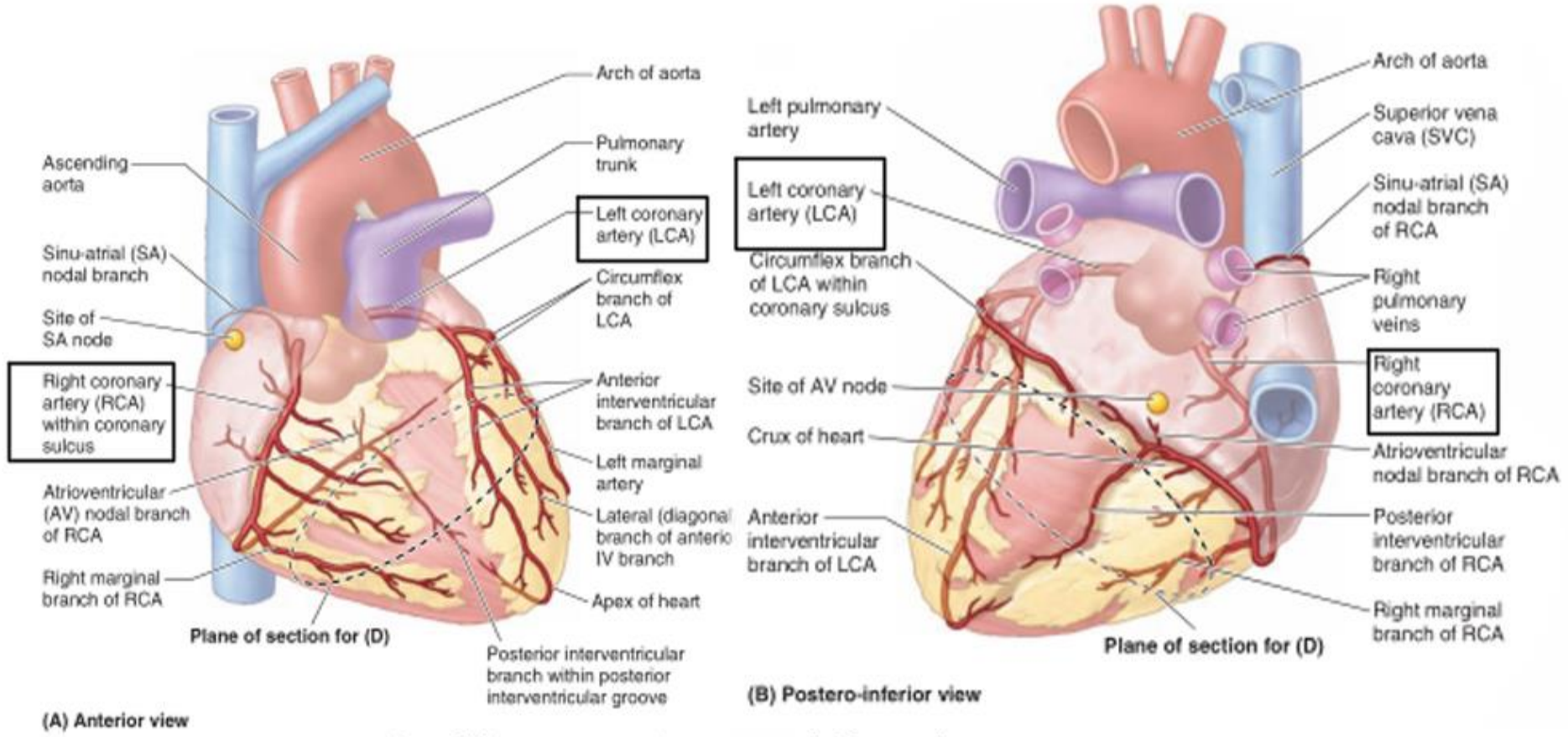
Surgical Significance of the Transverse Pericardial Sinus

- The transverse pericardial sinus is especially important to cardiac surgeons.
- After the pericardial sac is opened anteriorly, a finger can be passed through the transverse pericardial sinus posterior to the aorta and pulmonary trunk. grafting.



- By passing a surgical clamp or placing a ligature around these vessels, inserting the tubes of a coronary bypass machine, and then tightening the ligature, surgeons can stop or divert the circulation of blood in these large arteries while performing cardiac surgery, such as coronary artery bypass


Brachiocephalic trunk
Superior vena cava
Right pulmonary artery
Ascending aorta
Pulmonary trunk
Right pulmonary veins
Right atrium
Right coronary artery
Anterior cardiac vein
Right ventricle
Marginal artery
Small cardiac vein
Inferior vena cava
Left common carotid artery
Left subclavian artery
Aortic arch
Ligamentum arteriosum
Left pulmonary artery
Left pulmonary veins
Auricle of left atrium
Circumflex artery
Left coronary artery
Left ventricle
Great cardiac vein
Anterior interventricular artery
Apex



Cited from Moore's Essential Clinical Anatomy, p. 91.

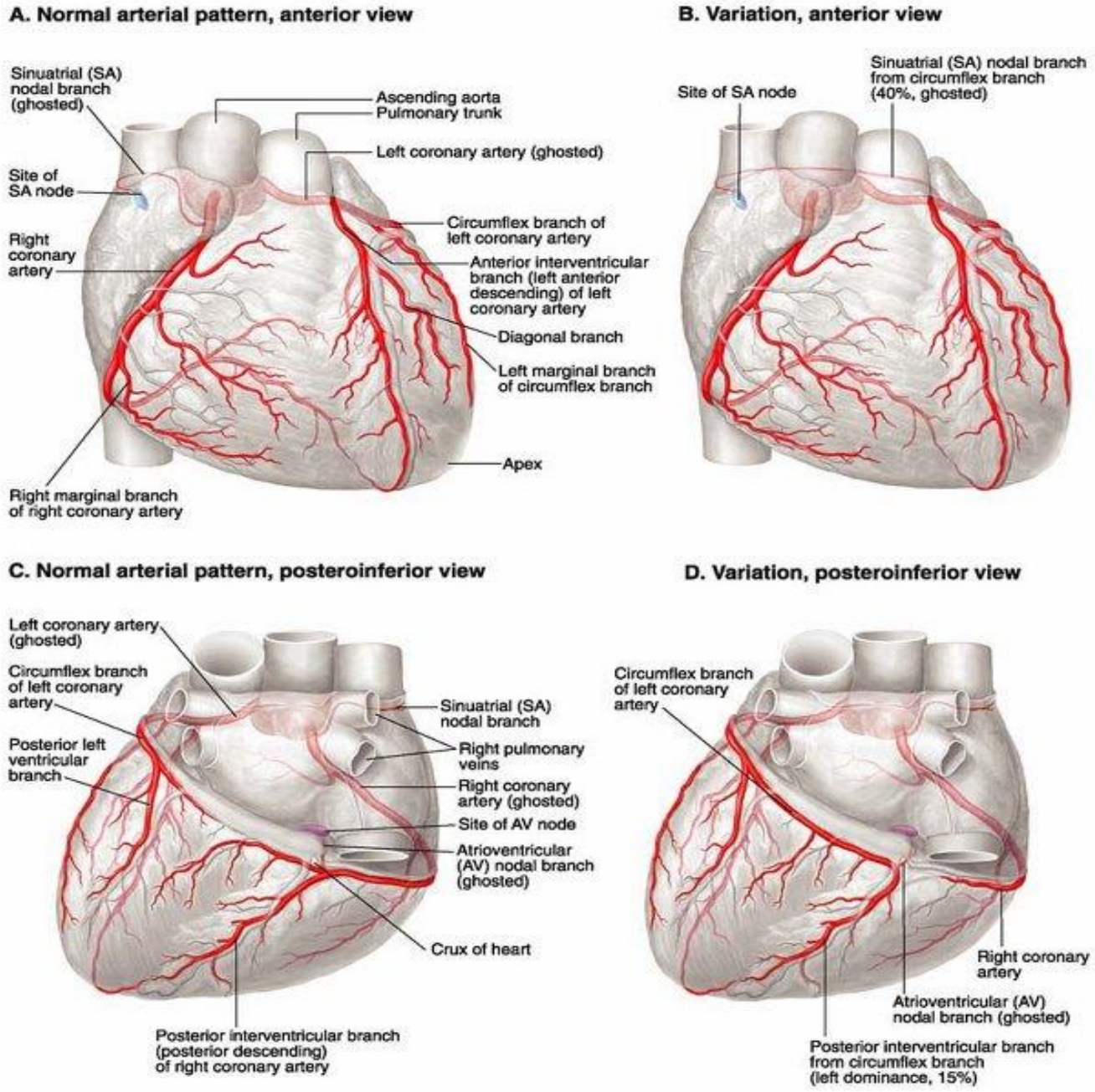
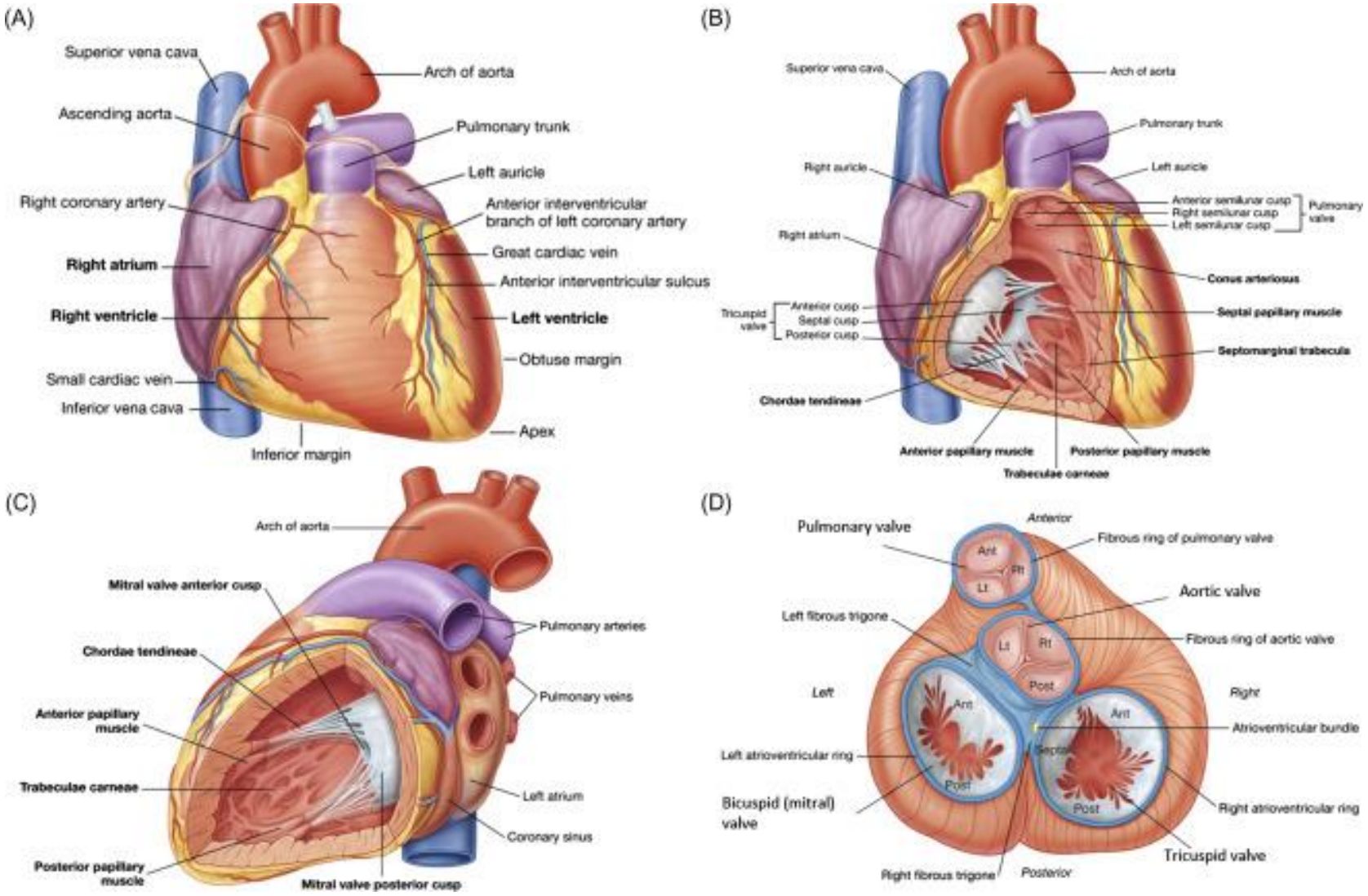
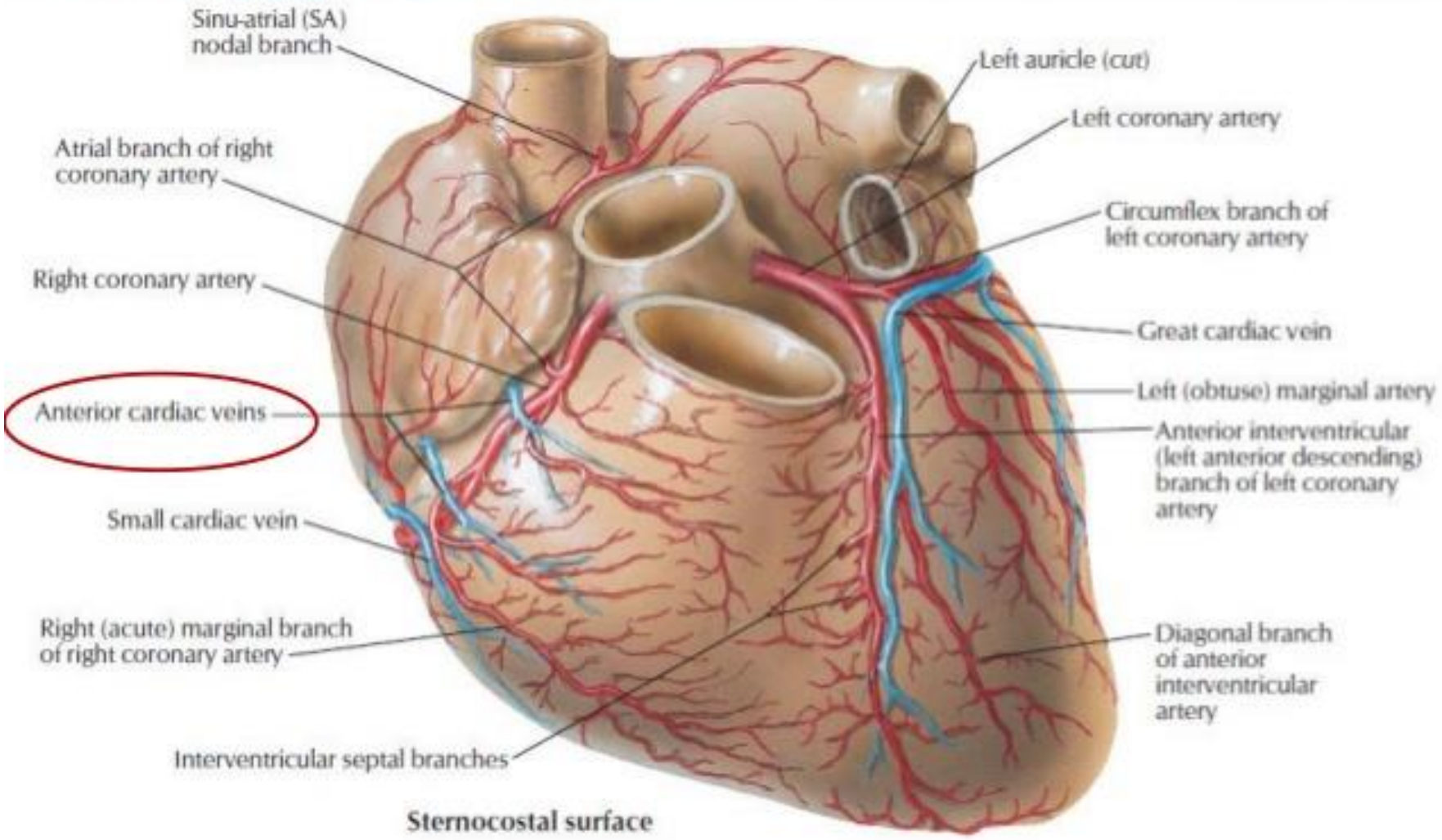


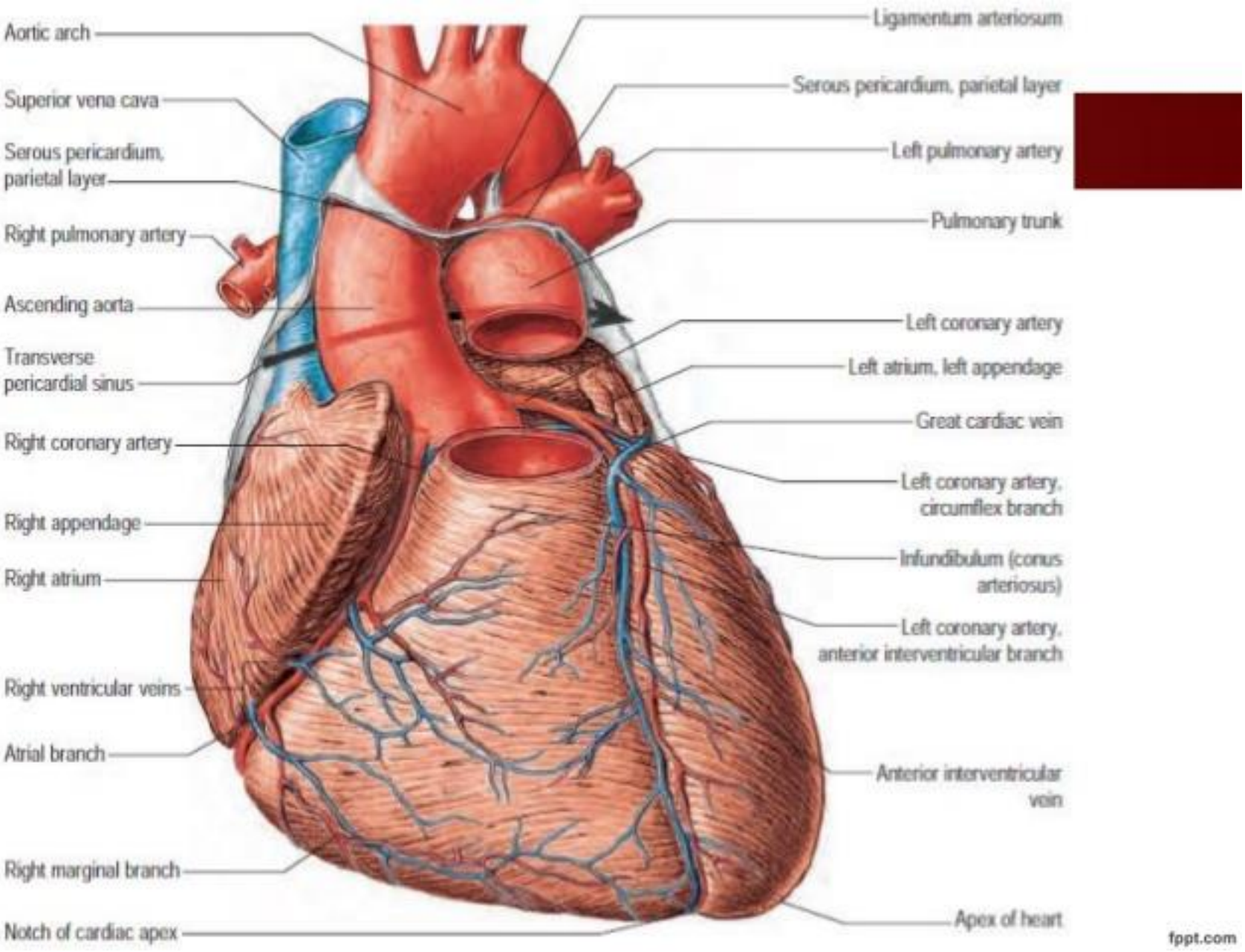
Plate 4-23 Coronary Arteries, Normal Patterns and Variations


(A)
Superior vena cava
Arch of aorta
Ascending aorta
Pulmonary trunk
Left auricle
Right coronary artery
Anterior interventricular branch of left coronary artery
Great cardiac vein
Right atrium
Anterior interventricular sulcus
Right ventricle
Left ventricle
Obtuse margin
Small cardiac vein
Inferior vena cava
Apex
Inferior margin
(B)
Superior vena cava
Arch of aorta
Pulmonary trunk
Right auricle
Left auricle
Anterior semilunar cusp
Right semilunar cusp
Left semilunar cusp
Pulmonary valve
Right atrium
Conus arteriosus
Tricuspid valve
Anterior cusp
Septal cusp
Posterior cusp
Septal papillary muscle
Septomarginal trabecula
Chordae tendineae
Anterior papillary muscle
Posterior papillary muscle
Trabeculae carneae
(C)
Arch of aorta
Mitral valve anterior cusp
Pulmonary arteries
Chordae tendineae
Pulmonary veins
Anterior papillary muscle
Trabeculae carneae
Left atrium
Coronary sinus
Posterior papillary muscle
Mitral valve posterior cusp
(D)
Pulmonary valve
Anterior
Fibrous ring of pulmonary valve
Ant
Rt
Lt
Aortic valve
Left fibrous trigone
Fibrous ring of aortic valve
Left
Right
Post
Atrioventricular bundle
Left atrioventricular ring
Right atrioventricular ring
Bicuspid (mitral) valve
Tricuspid valve
Right fibrous trigone
Posterior

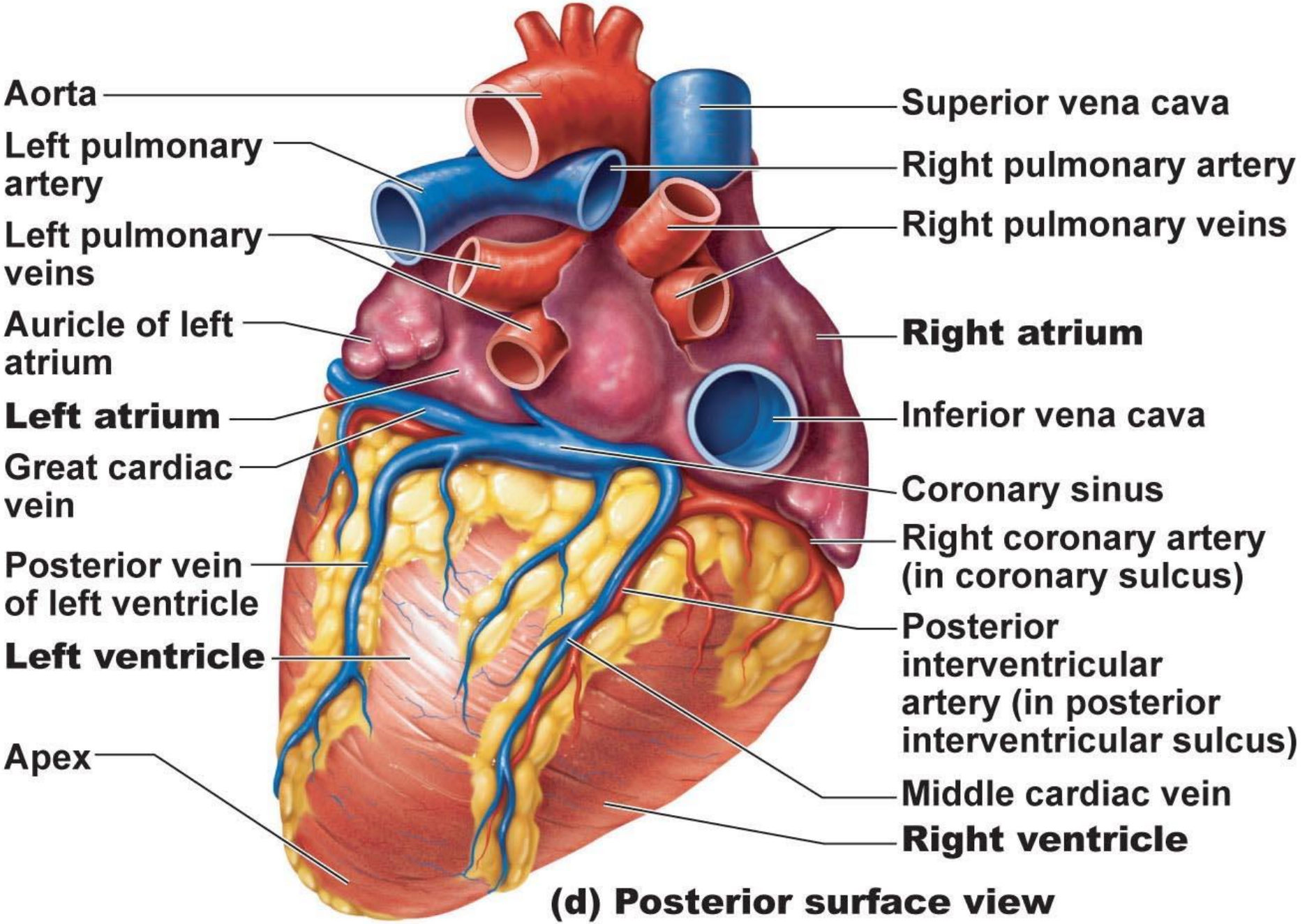


Sternocostal surface

fppt.com


Aortic arch
Superior vena cava
Serous pericardium, parietal layer
Right pulmonary artery
Ascending aorta
Transverse pericardial sinus
Right coronary artery
Right appendage
Right atrium
Right ventricular veins
Atrial branch
Right marginal branch
Notch of cardiac apex
Ligamentum arteriosum
Serous pericardium, parietal layer
Left pulmonary artery
Pulmonary trunk
Left coronary artery
Left atrium, left appendage
Great cardiac vein
Left coronary artery, circumflex branch
Infundibulum (conus arteriosus)
Left coronary artery, anterior interventricular branch
Anterior interventricular vein
Apex of heart

fppt.com



(d) Posterior surface view

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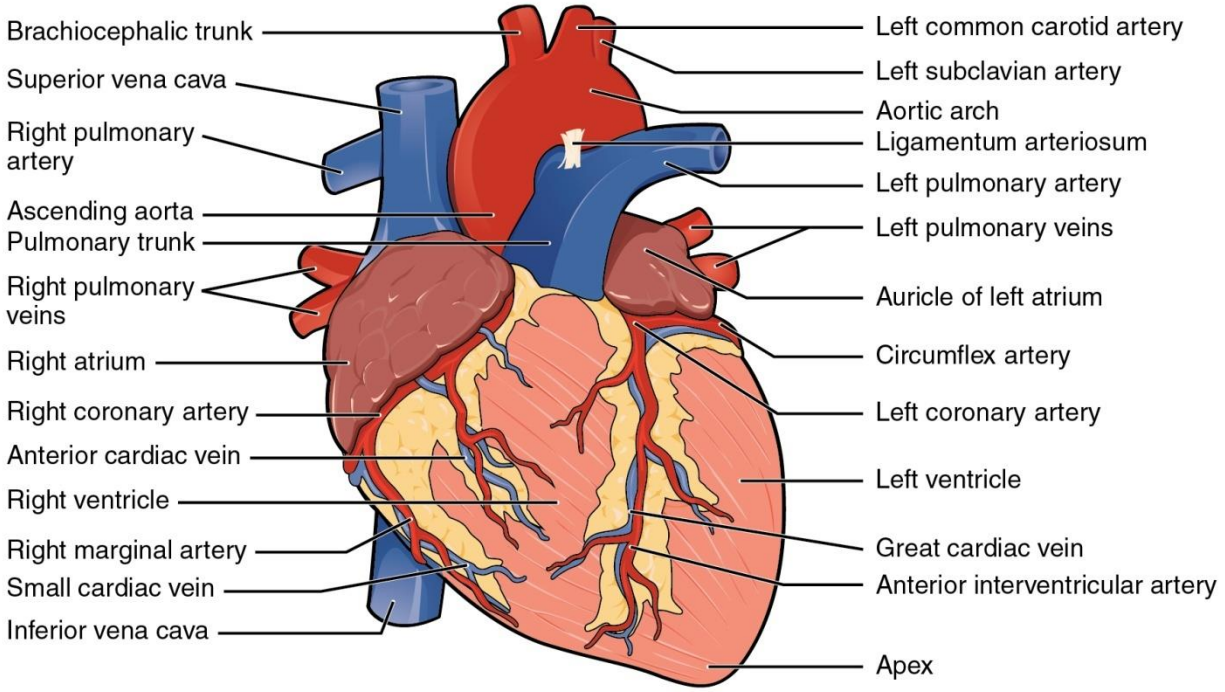
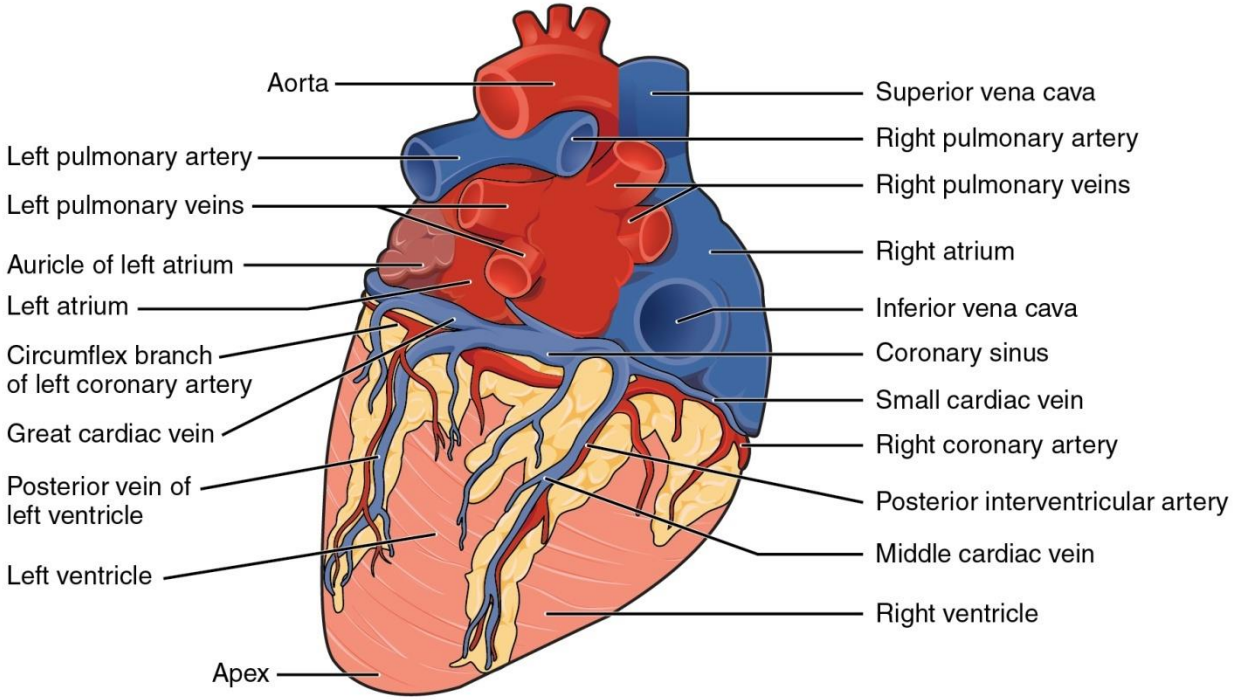
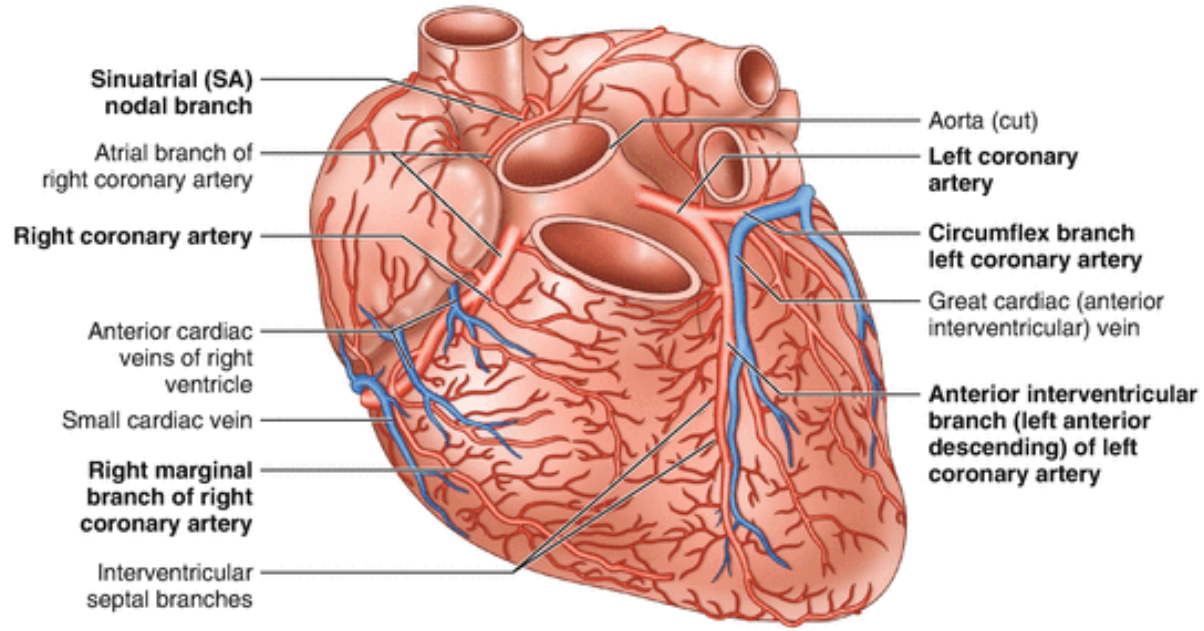
Anterior view

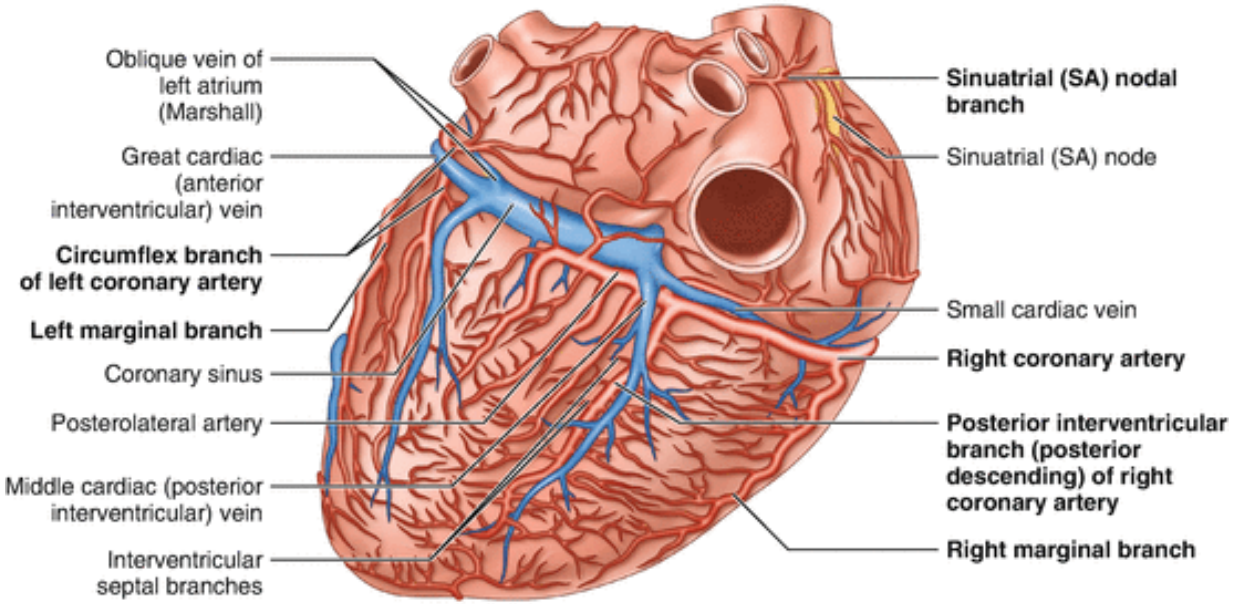


Posterior view

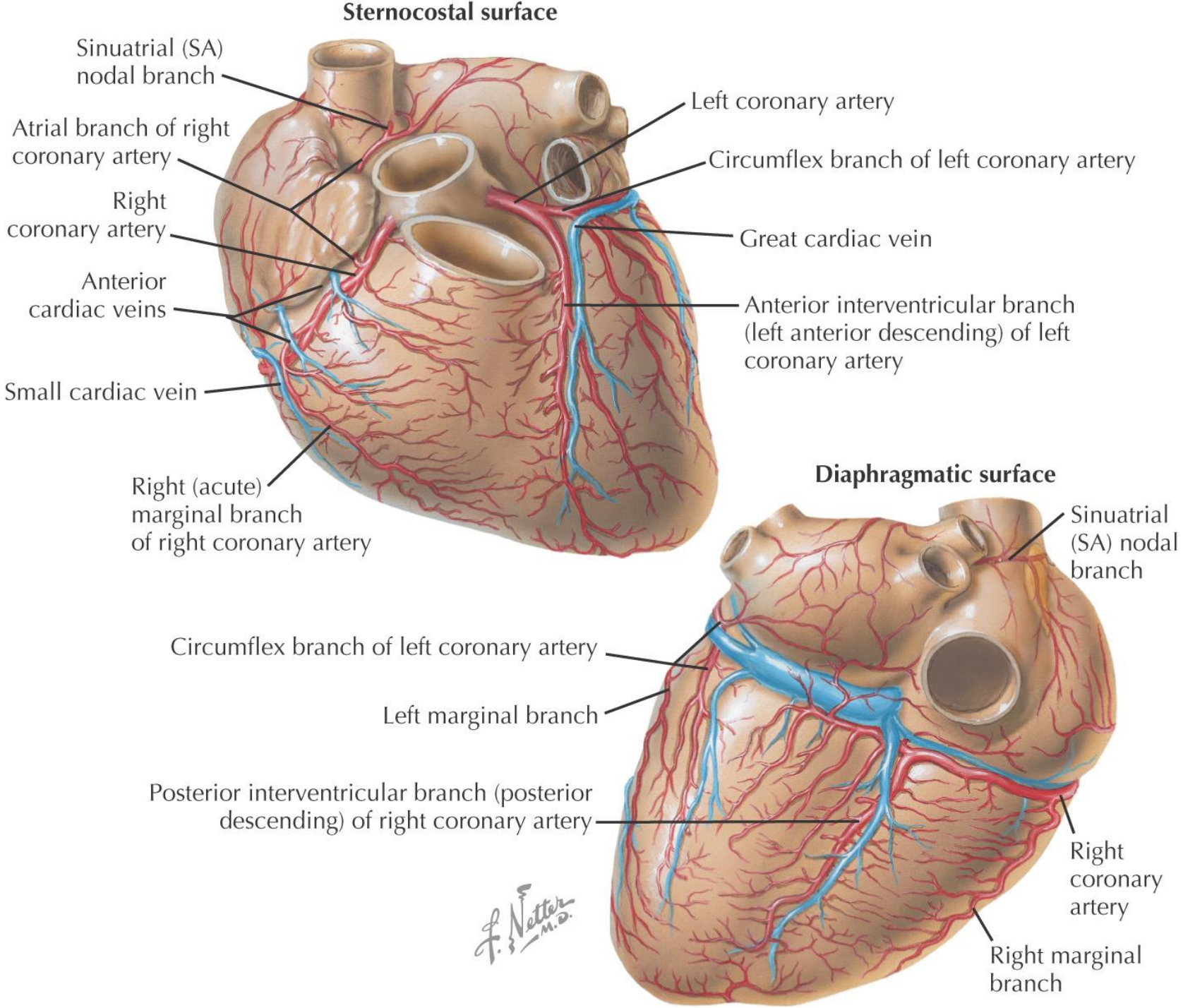


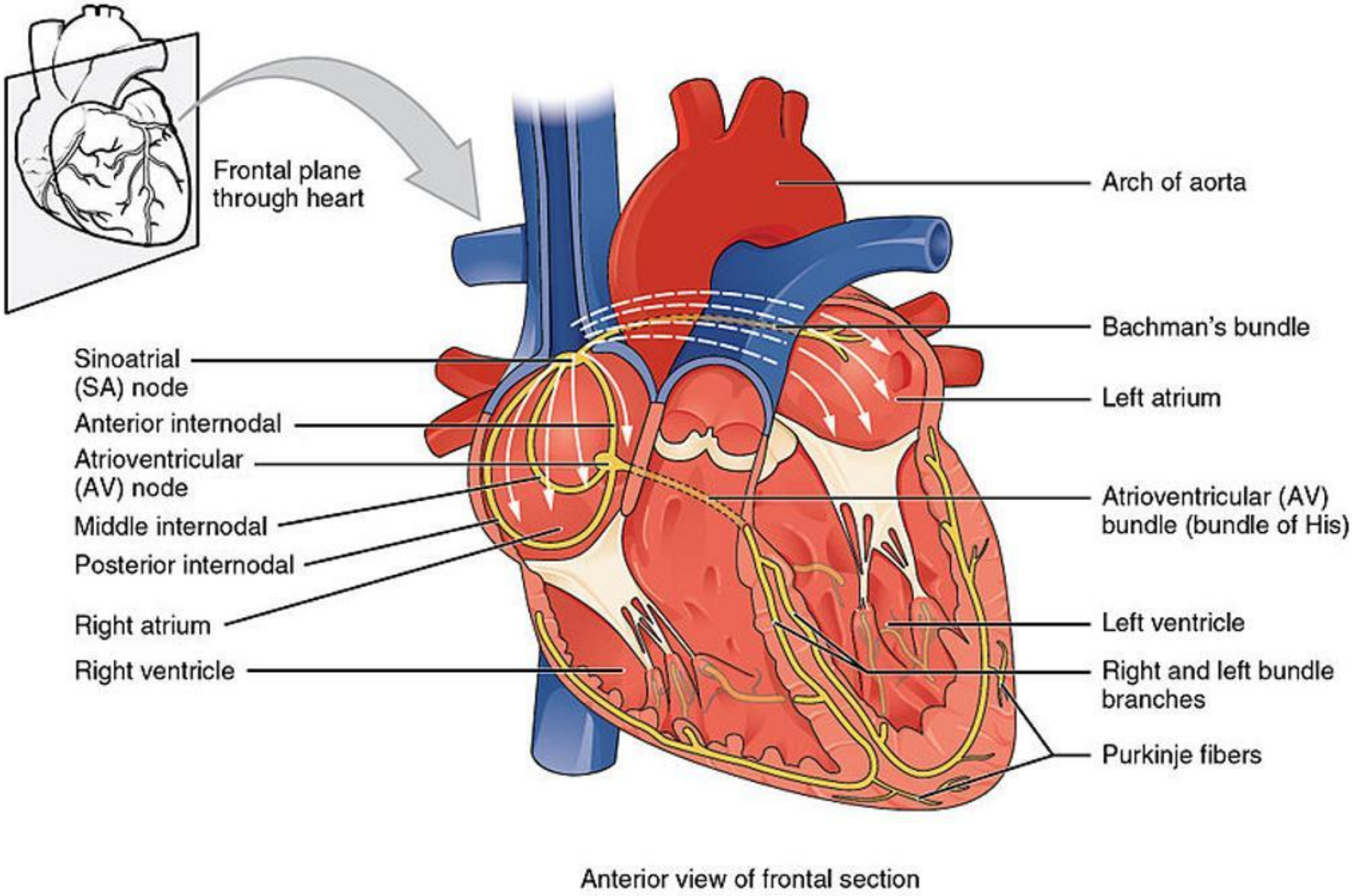


Sternocostal surface



Diaphragmatic surface

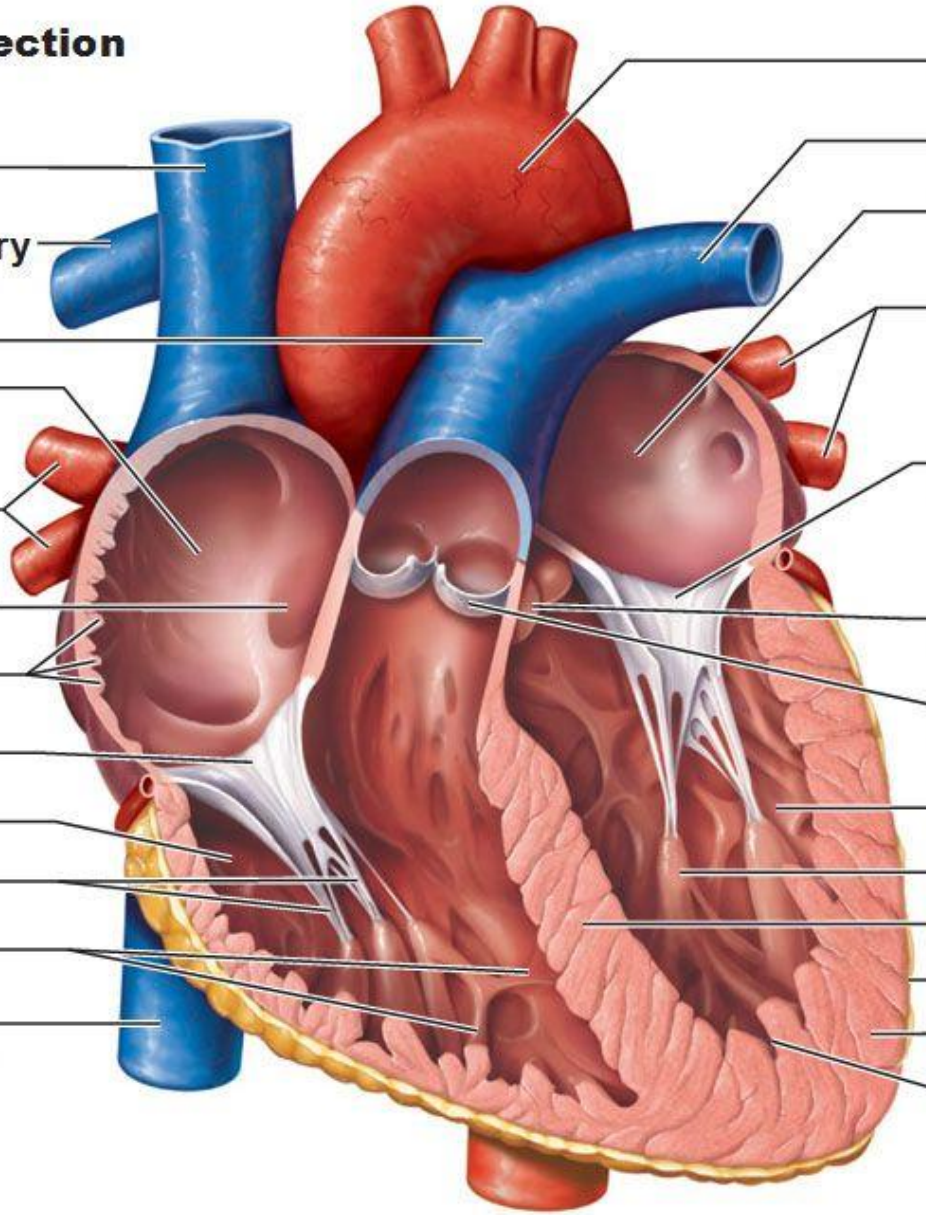

Sternocostal surface
Sinuatrial (SA) nodal branch
Atrial branch of right coronary artery
Right coronary artery
Anterior cardiac veins
Small cardiac vein
Right (acute) marginal branch of right coronary artery
Left coronary artery
Circumflex branch of left coronary artery
Great cardiac vein
Anterior interventricular branch (left anterior descending) of left coronary artery
Diaphragmatic surface
Sinuatrial (SA) nodal branch
Circumflex branch of left coronary artery
Left marginal branch
Posterior interventricular branch (posterior descending) of right coronary artery
Right coronary artery
Right marginal branch
F. Netter M.D.



Anterior view of frontal section

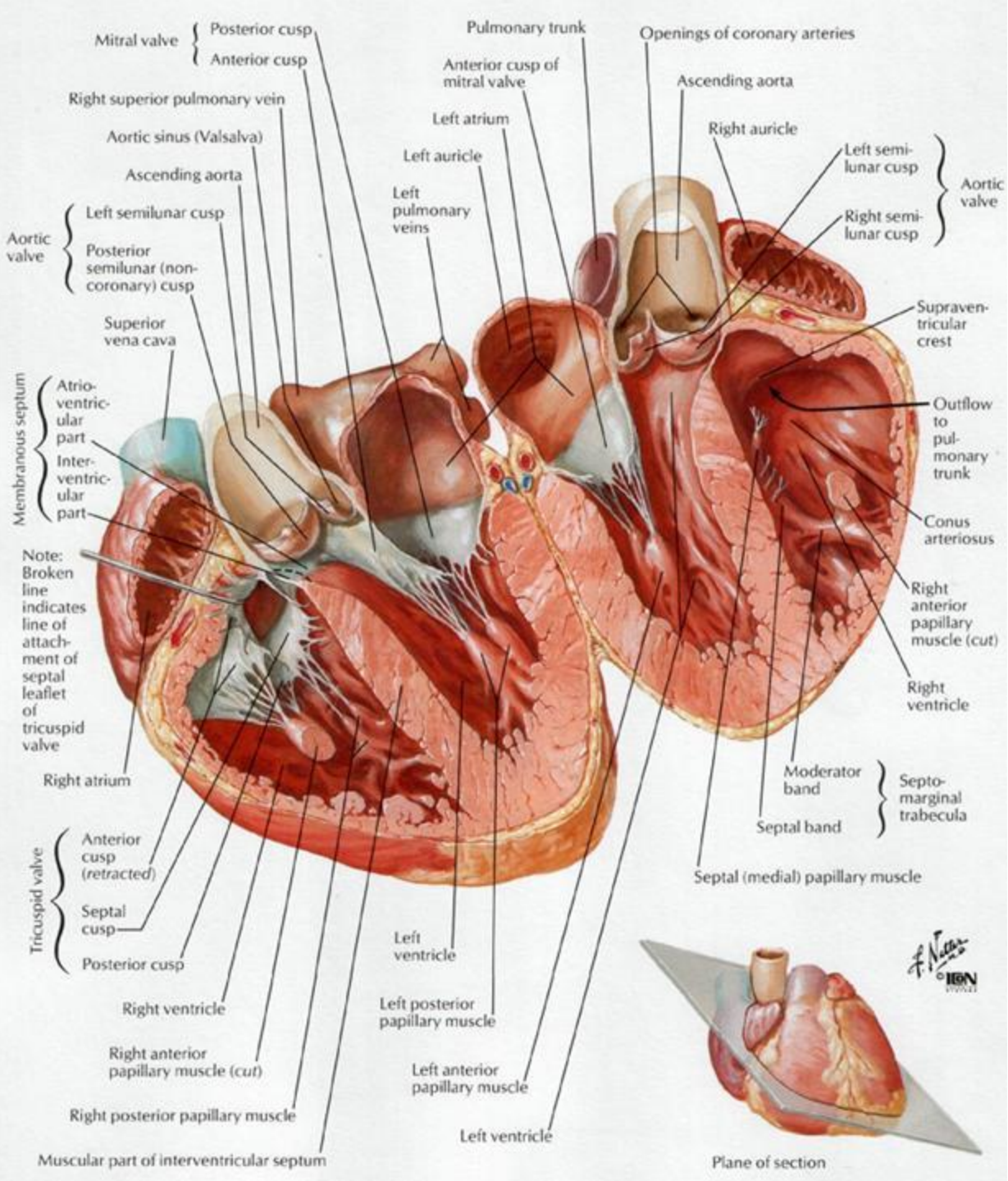
Heart Interior

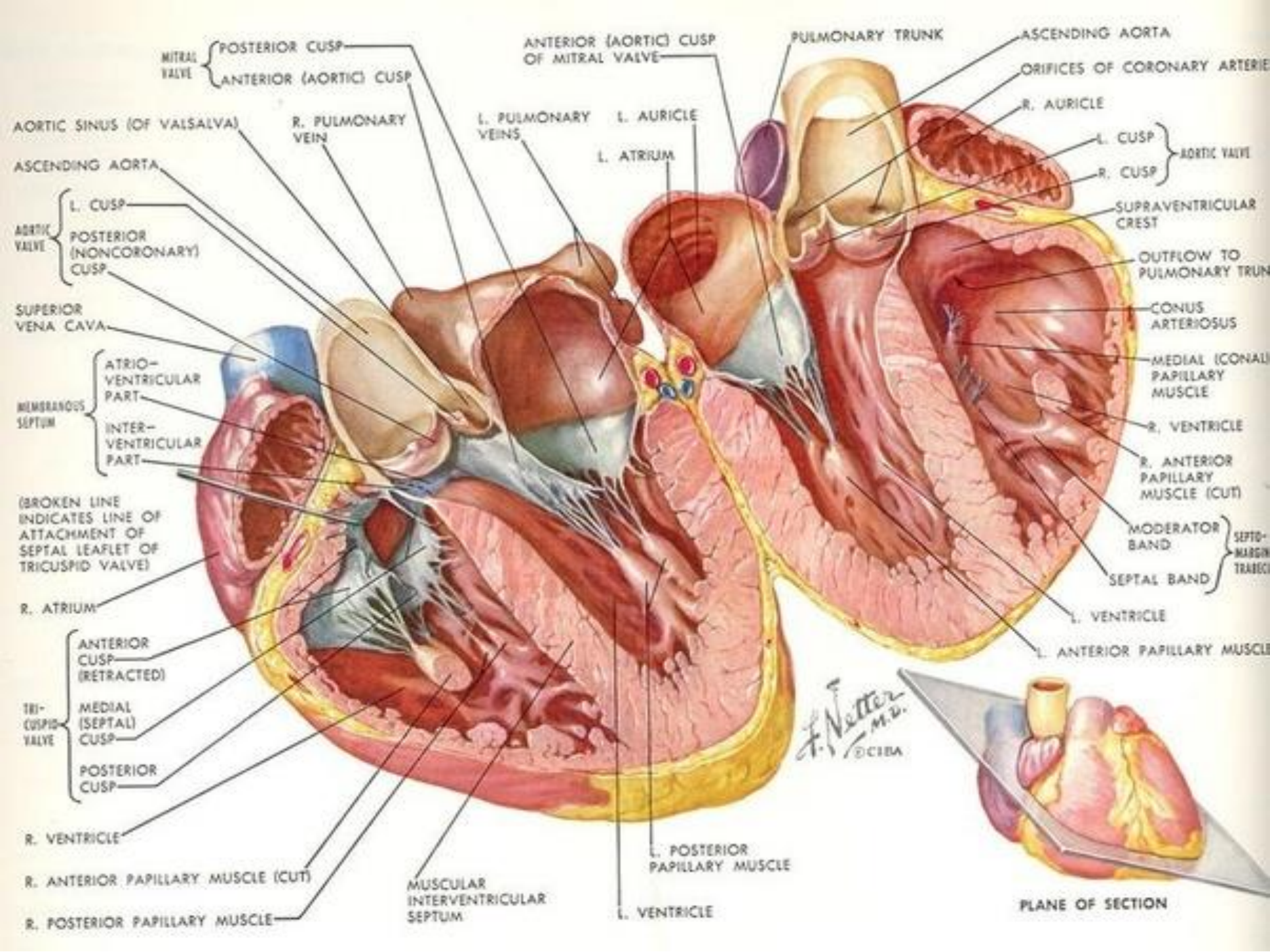
Frontal section

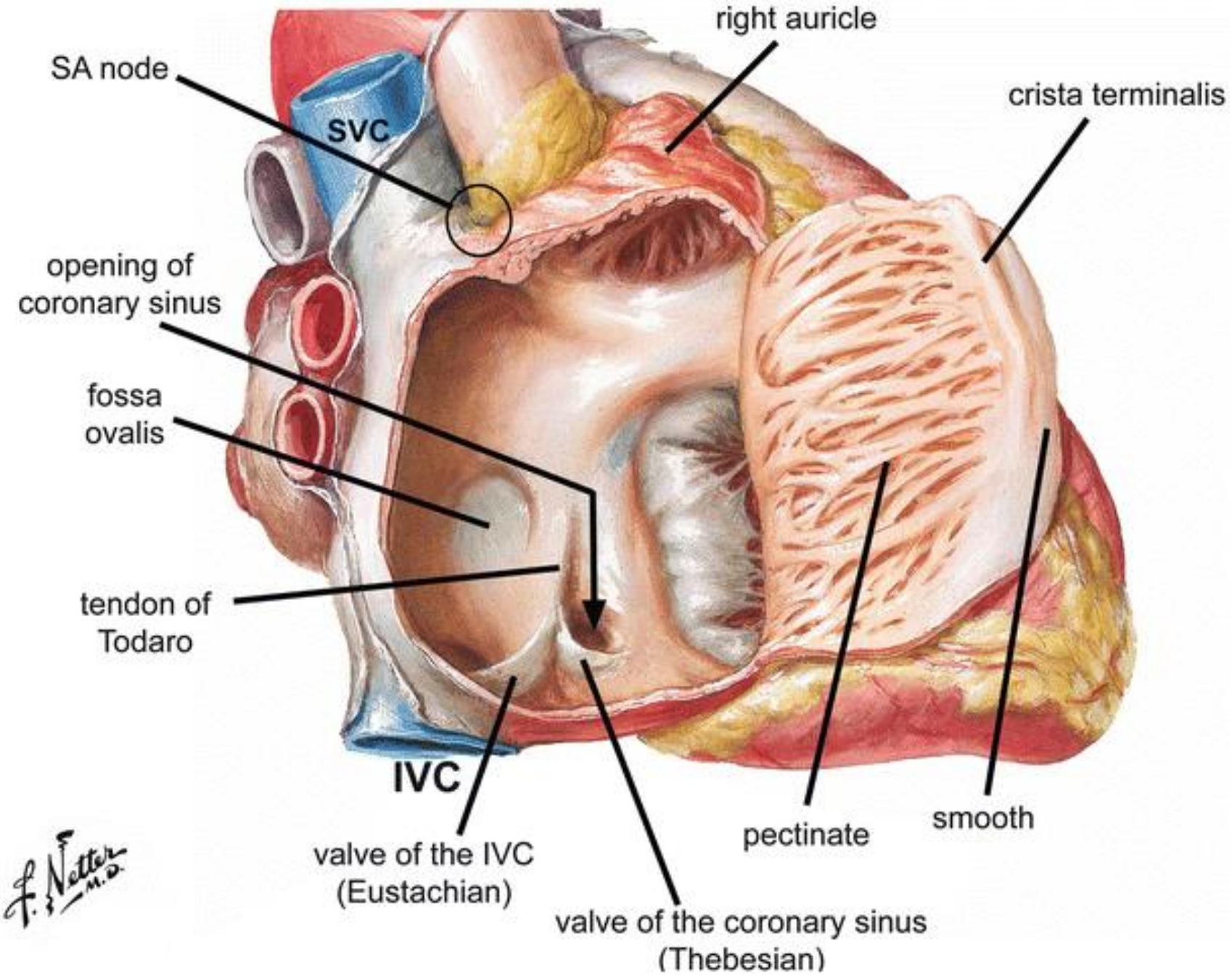


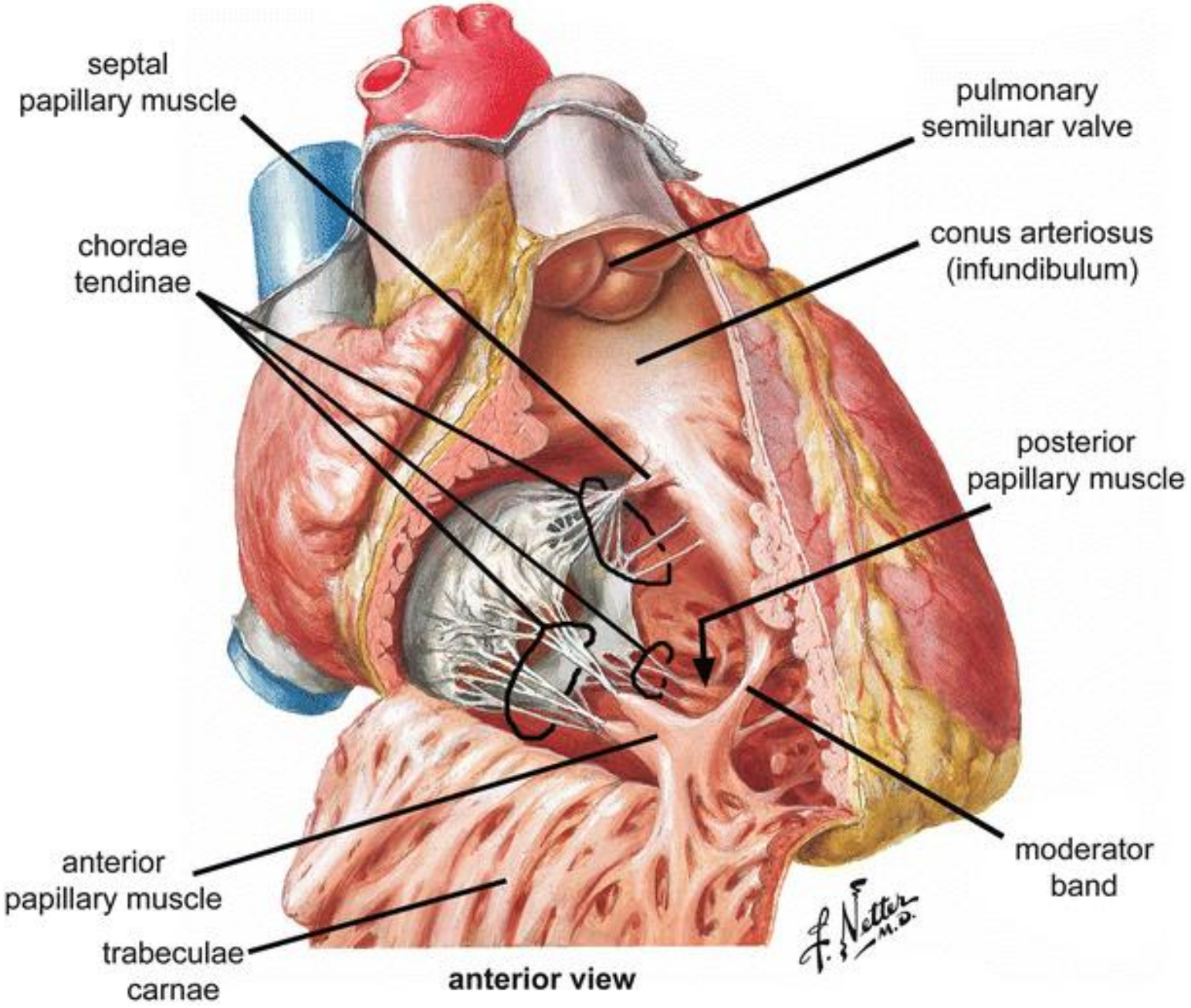
Aorta
Left pulmonary artery
Left atrium
Left pulmonary veins
Mitral (bicuspid) valve
Aortic semilunar valve
Pulmonary semilunar valve
Left ventricle
Papillary muscles
Interventricular septum
Epicardium
Myocardium
Endocardium

Superior vena cava
Right pulmonary artery
Pulmonary trunk
Right atrium
Right pulmonary veins
Fossa ovalis
Pectinate muscles
(horizontal muscle ridges)
Tricuspid valve
Right ventricle
Chordae tendineae
(held by Papillary muscles)
Trabeculae carneae
(irregular muscle ridges)
Inferior vena cava

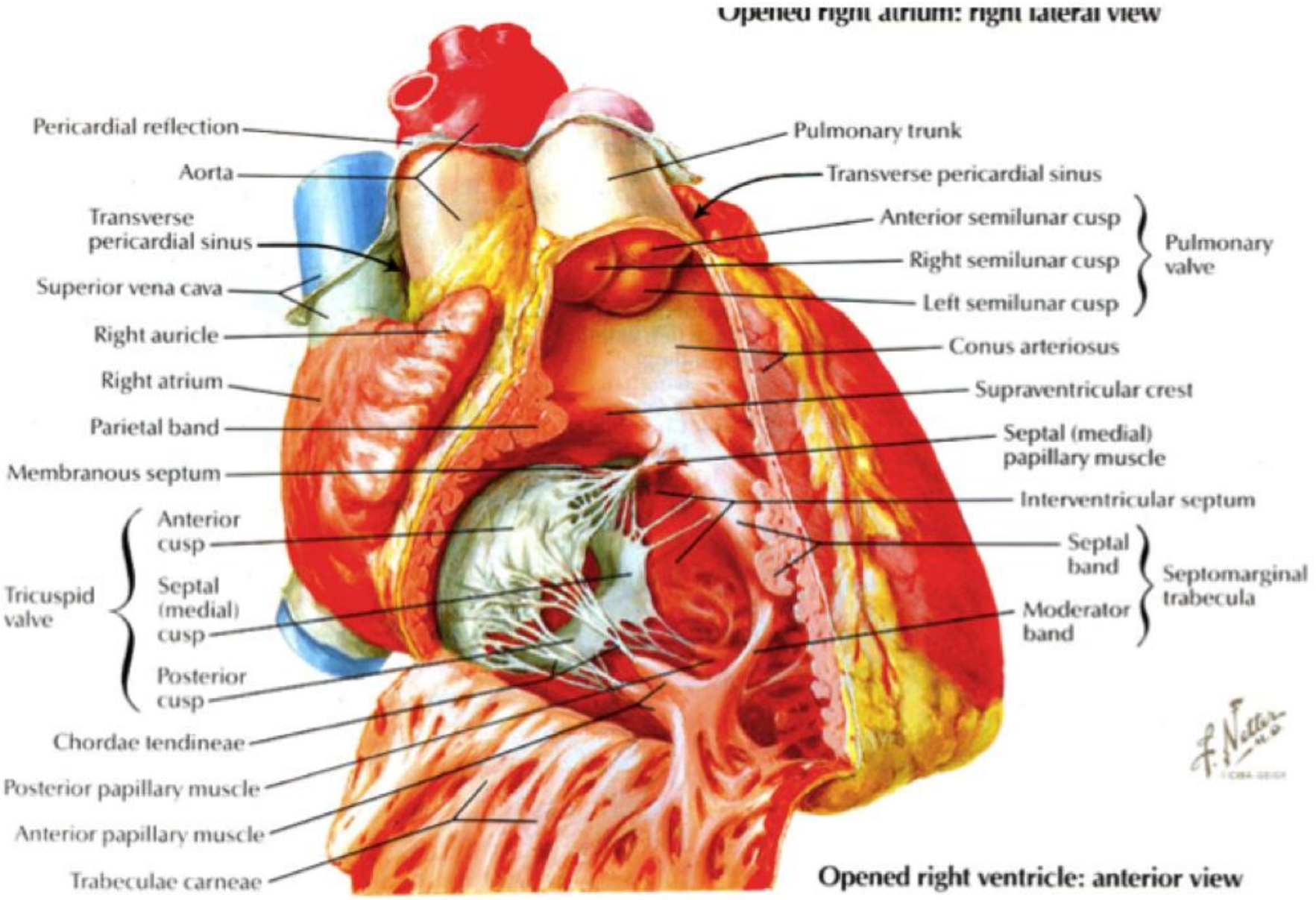

Mitral valve
Posterior cusp
Anterior cusp
Right superior pulmonary vein
Aortic sinus (Valsalva)
Ascending aorta
Aortic valve
Left semilunar cusp
Posterior semilunar (non-coronary) cusp
Superior vena cava
Membranous septum
Atrio-ventricular part
Inter-ventricular part
Note: Broken line indicates line of attachment of septal leaflet of tricuspid valve
Right atrium
Tricuspid valve
Anterior cusp (retracted)
Septal cusp
Posterior cusp
Right ventricle
Right anterior papillary muscle (cut)
Right posterior papillary muscle
Muscular part of interventricular septum
Pulmonary trunk
Anterior cusp of mitral valve
Left atrium
Left auricle
Left pulmonary veins
Left ventricle
Left posterior papillary muscle
Left anterior papillary muscle
Left ventricle
Openings of coronary arteries
Ascending aorta
Right auricle
Left semi-lunar cusp
Right semi-lunar cusp
Aortic valve
Supraven-tricular crest
Outflow to pul-monary trunk
Conus arteriosus
Right anterior papillary muscle (cut)
Right ventricle
Moderator band
Septo-marginal trabecula
Septal band
Septal (medial) papillary muscle
Plane of section


MITRAL VALVE
POSTERIOR CUSP
ANTERIOR (AORTIC) CUSP
AORTIC SINUS (OF VALSALVA)
ASCENDING AORTA
AORTIC VALVE
L. CUSP
POSTERIOR (NONCORONARY) CUSP
SUPERIOR VENA CAVA
MEMBRANOUS SEPTUM
ATRIO-VENTRICULAR PART
INTER-VENTRICULAR PART
(BROKEN LINE INDICATES LINE OF ATTACHMENT OF SEPTAL LEAFLET OF TRICUSPID VALVE)
R. ATRIUM
TRI-CUSPID VALVE
ANTERIOR CUSP (RETRACTED)
MEDIAL (SEPTAL) CUSP
POSTERIOR CUSP
R. VENTRICLE
R. ANTERIOR PAPILLARY MUSCLE (CUT)
R. POSTERIOR PAPILLARY MUSCLE
R. PULMONARY VEIN
L. PULMONARY VEINS
L. AURICLE
L. ATRIUM
ANTERIOR (AORTIC) CUSP OF MITRAL VALVE
MUSCULAR INTERVENTRICULAR SEPTUM
L. VENTRICLE
L. POSTERIOR PAPILLARY MUSCLE
PULMONARY TRUNK
ASCENDING AORTA
ORIFICES OF CORONARY ARTERIES
R. AURICLE
L. CUSP
R. CUSP
AORTIC VALVE
SUPRAVENTRICULAR CREST
OUTFLOW TO PULMONARY TRUNK
CONUS ARTERIOSUS
MEDIAL (CONAL) PAPILLARY MUSCLE
R. VENTRICLE
R. ANTERIOR PAPILLARY MUSCLE (CUT)
MODERATOR BAND
SEPTAL BAND
SEPTO-MARGINAL TRABECULA
L. VENTRICLE
L. ANTERIOR PAPILLARY MUSCLE
F. Netter M.D.
CIBA
PLANE OF SECTION


right auricle
SA node
SVC
crista terminalis
opening of
coronary sinus
fossa
ovalis
tendon of
Todaro
IVC
valve of the IVC
(Eustachian)
valve of the coronary sinus
(Thebesian)
pectinate
smooth
F. Netter M.D.



anterior view


Opened right atrium: right lateral view
Pericardial reflection
Aorta
Transverse pericardial sinus
Superior vena cava
Right auricle
Right atrium
Parietal band
Membranous septum
Tricuspid valve
Anterior cusp
Septal (medial) cusp
Posterior cusp
Chordae tendineae
Posterior papillary muscle
Anterior papillary muscle
Trabeculae carneae
Pulmonary trunk
Transverse pericardial sinus
Anterior semilunar cusp
Right semilunar cusp
Left semilunar cusp
Pulmonary valve
Conus arteriosus
Supraventricular crest
Septal (medial) papillary muscle
Interventricular septum
Septal band
Moderator band
Septomarginal trabecula
Opened right ventricle: anterior view

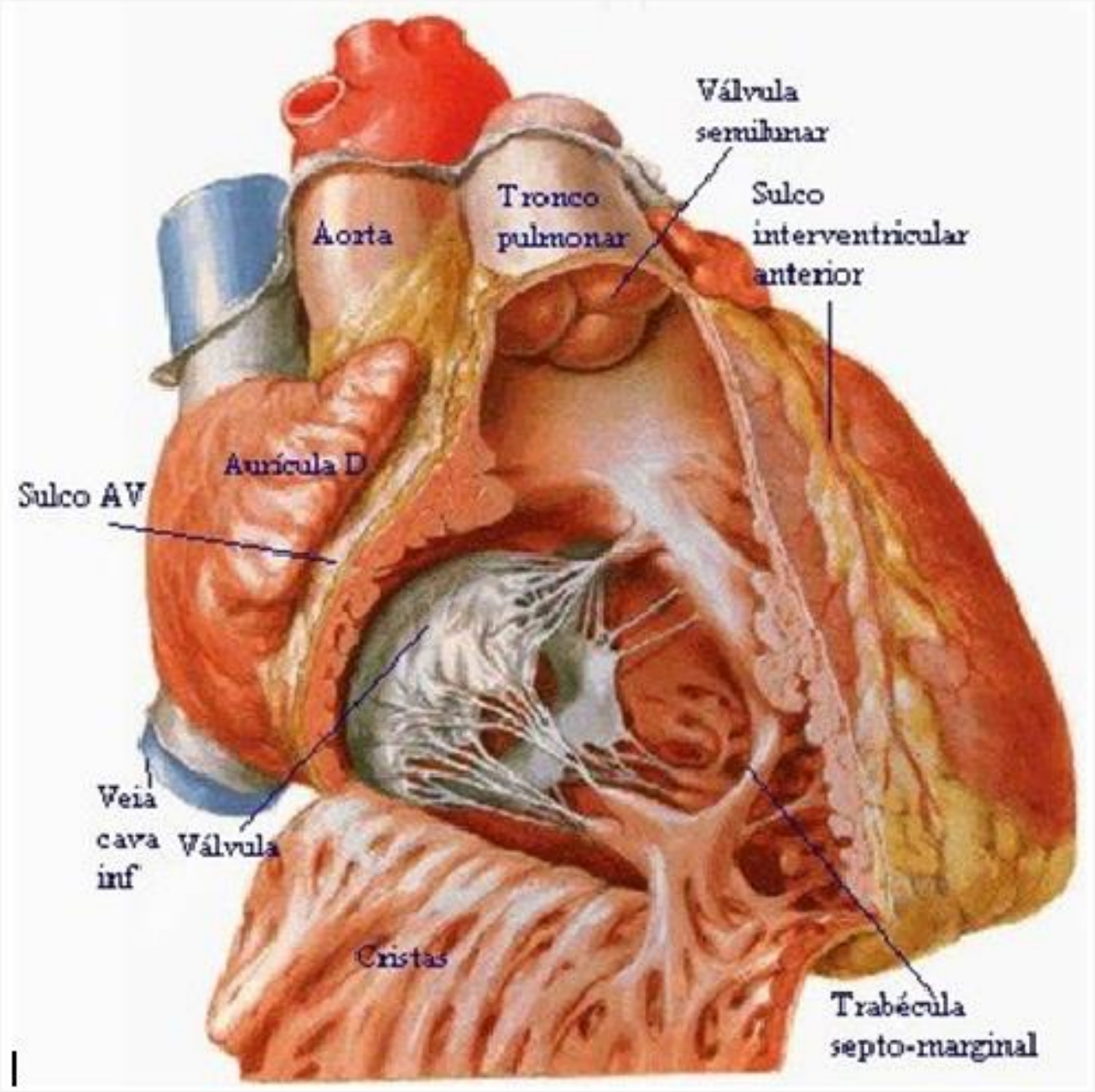
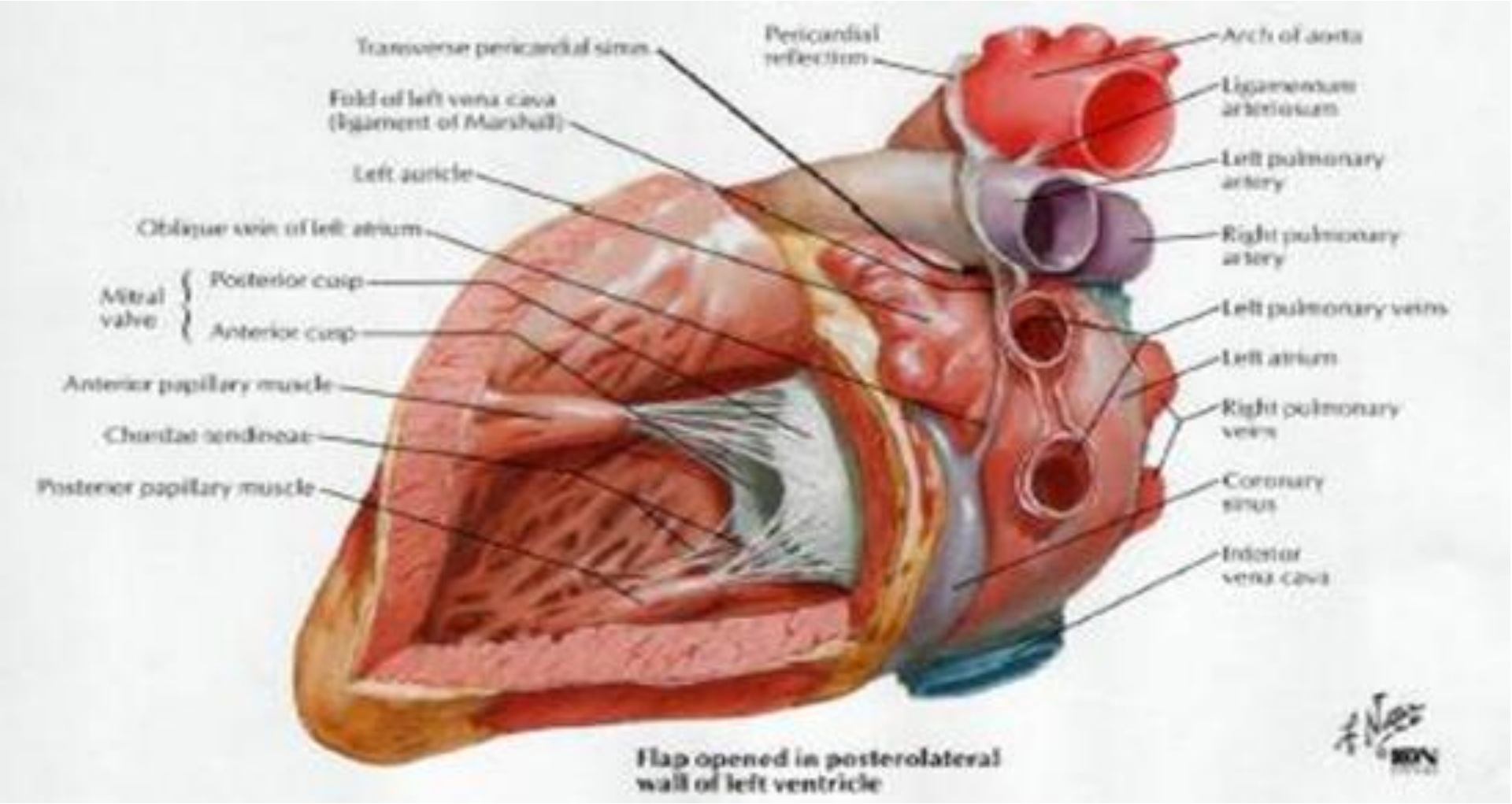
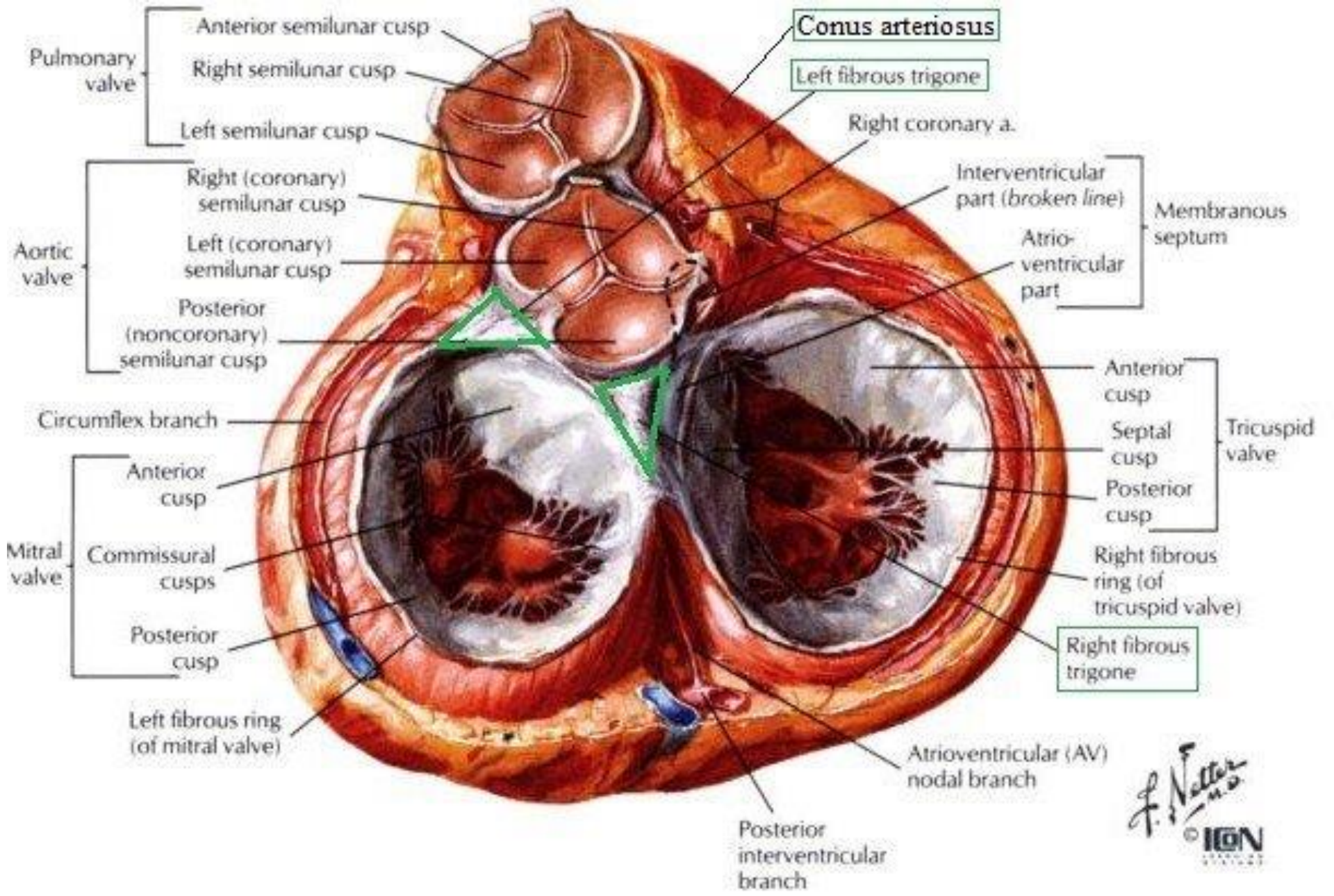


Figure 1: Interior of the right ventricle.



Flap opened in posterolateral wall of left ventricle


Pulmonary valve
Anterior semilunar cusp
Right semilunar cusp
Left semilunar cusp
Conus arteriosus
Left fibrous trigone
Right coronary a.
Aortic valve
Right (coronary) semilunar cusp
Left (coronary) semilunar cusp
Posterior (noncoronary) semilunar cusp
Interventricular part (broken line)
Atrio-ventricular part
Membranous septum
Circumflex branch
Anterior cusp
Septal cusp
Posterior cusp
Tricuspid valve
Mitral valve
Anterior cusp
Commissural cusps
Posterior cusp
Right fibrous ring (of tricuspid valve)
Right fibrous trigone
Left fibrous ring (of mitral valve)
Atrioventricular (AV) nodal branch
Posterior interventricular branch
F. Netter M.D.
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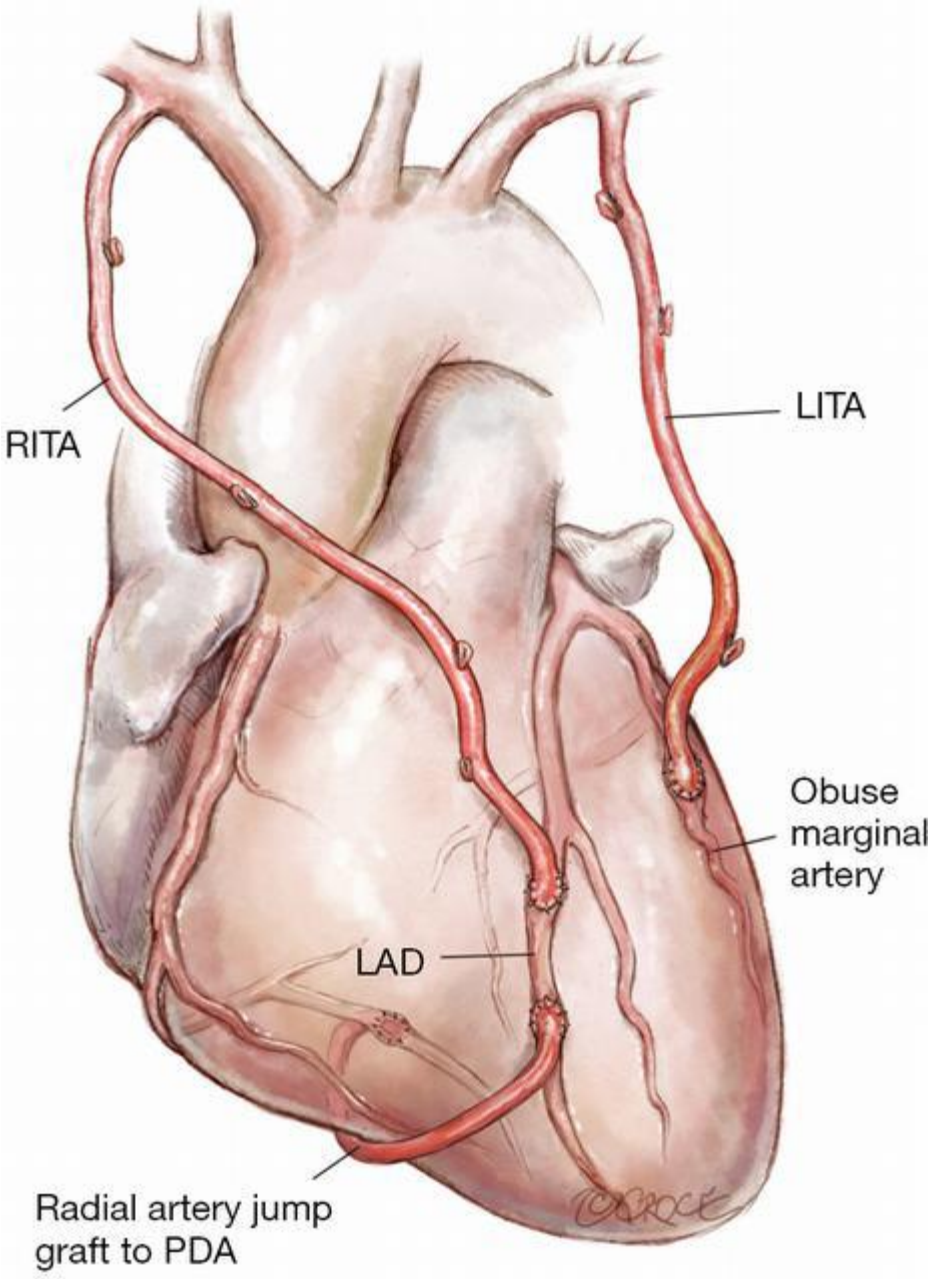
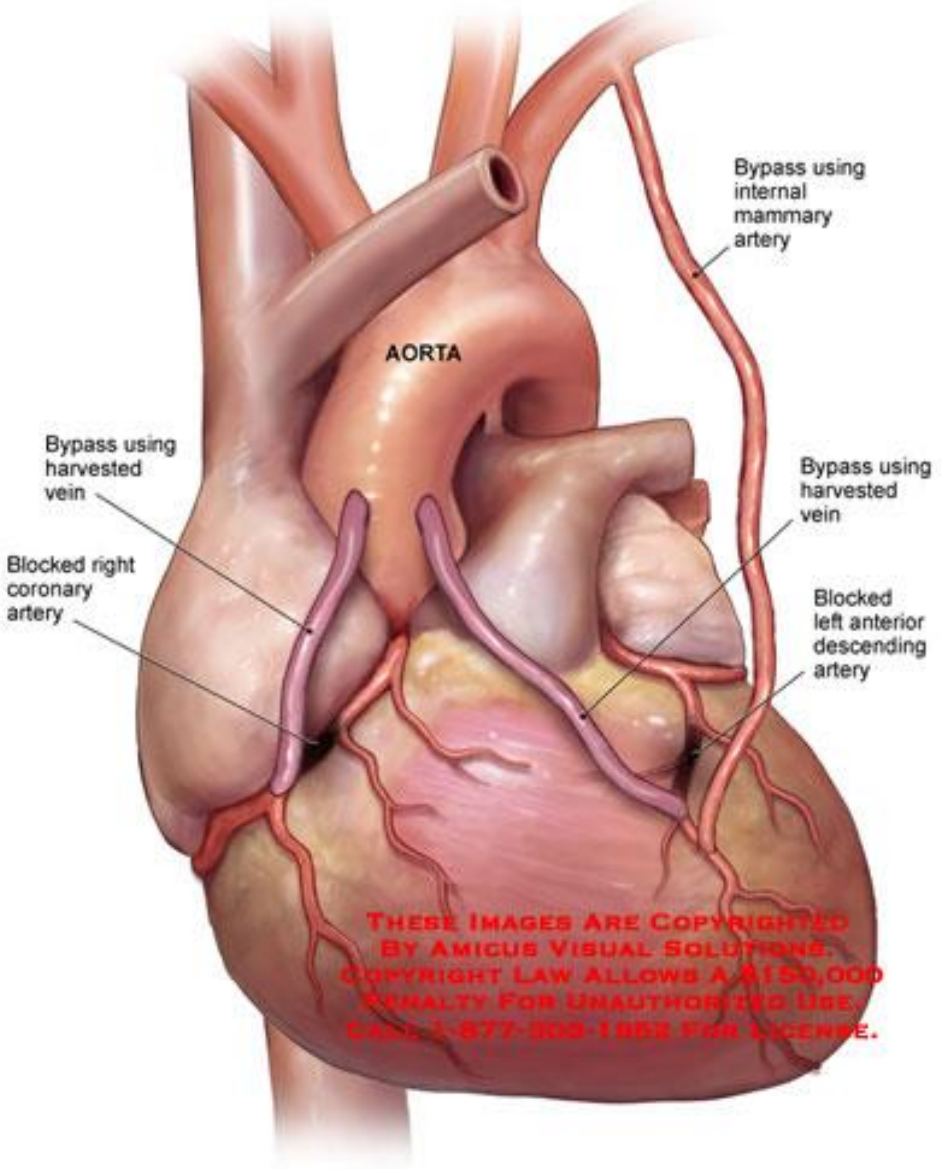
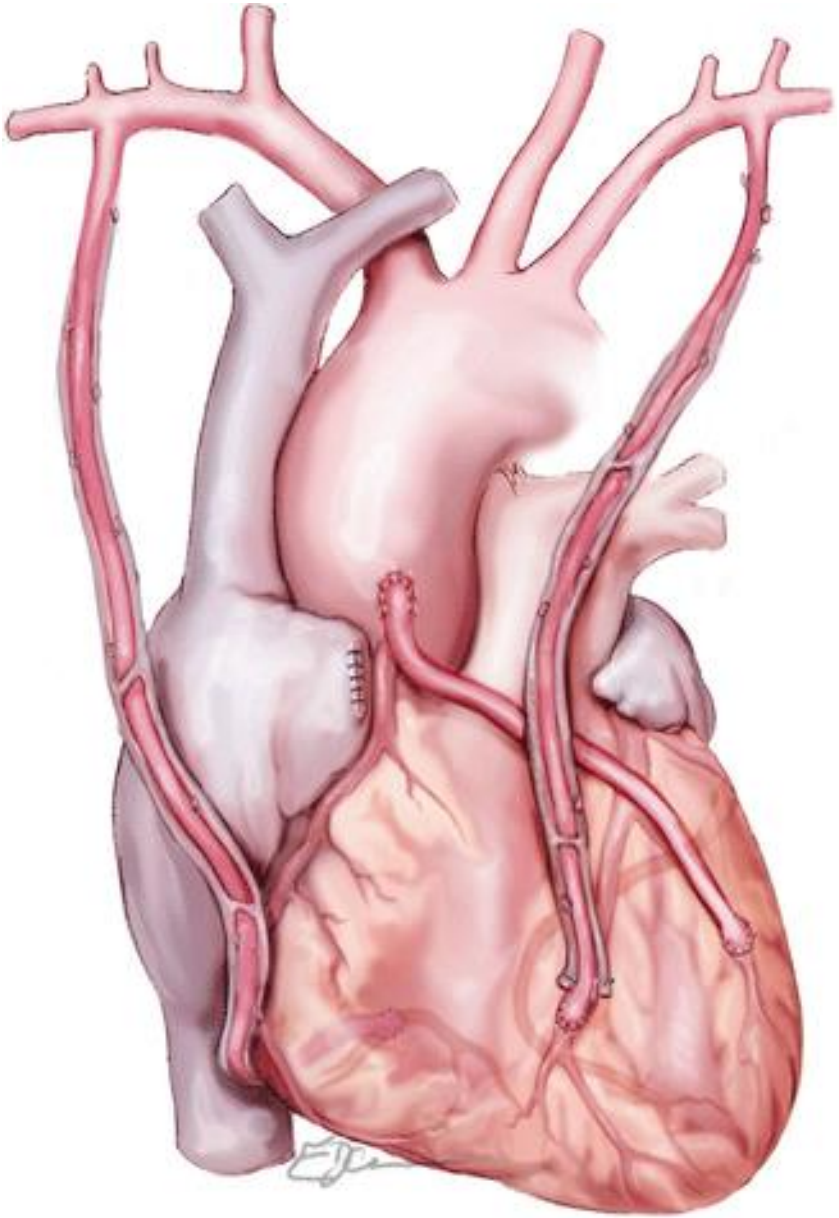
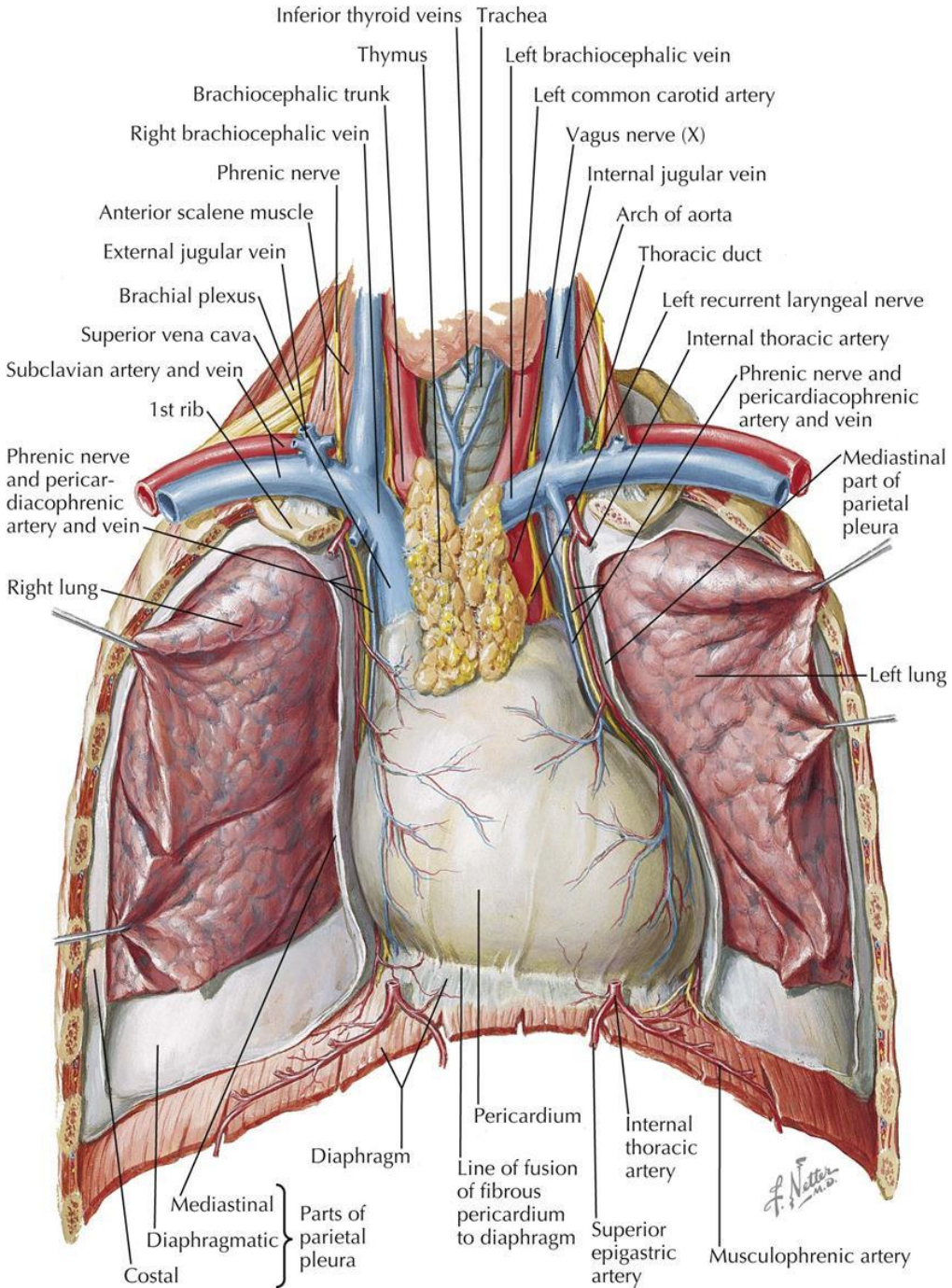

RITA
LITA
Obuse
marginal
artery
LAD
Radial artery jump
graft to PDA

Common Coronary Bypass Grafts

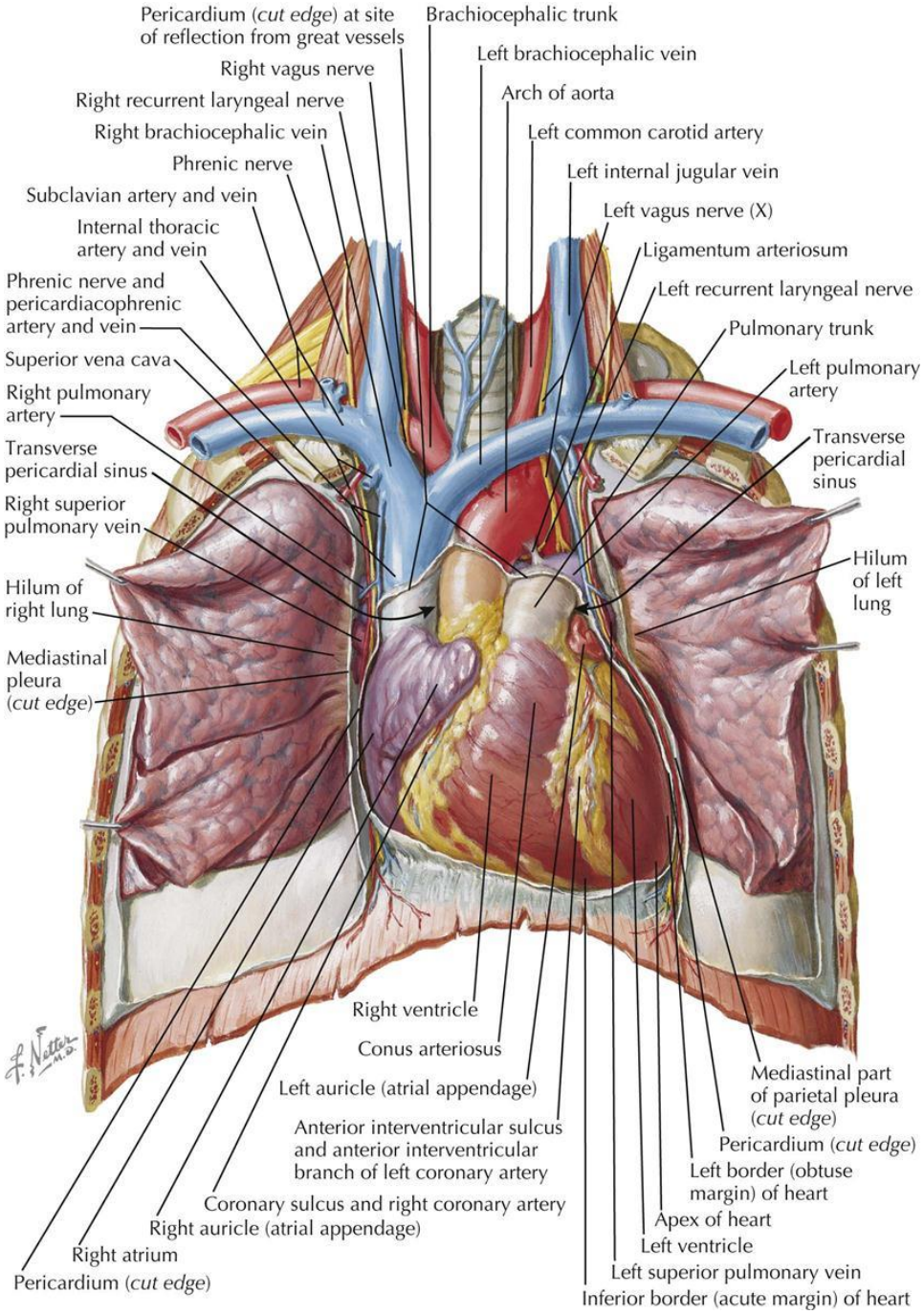


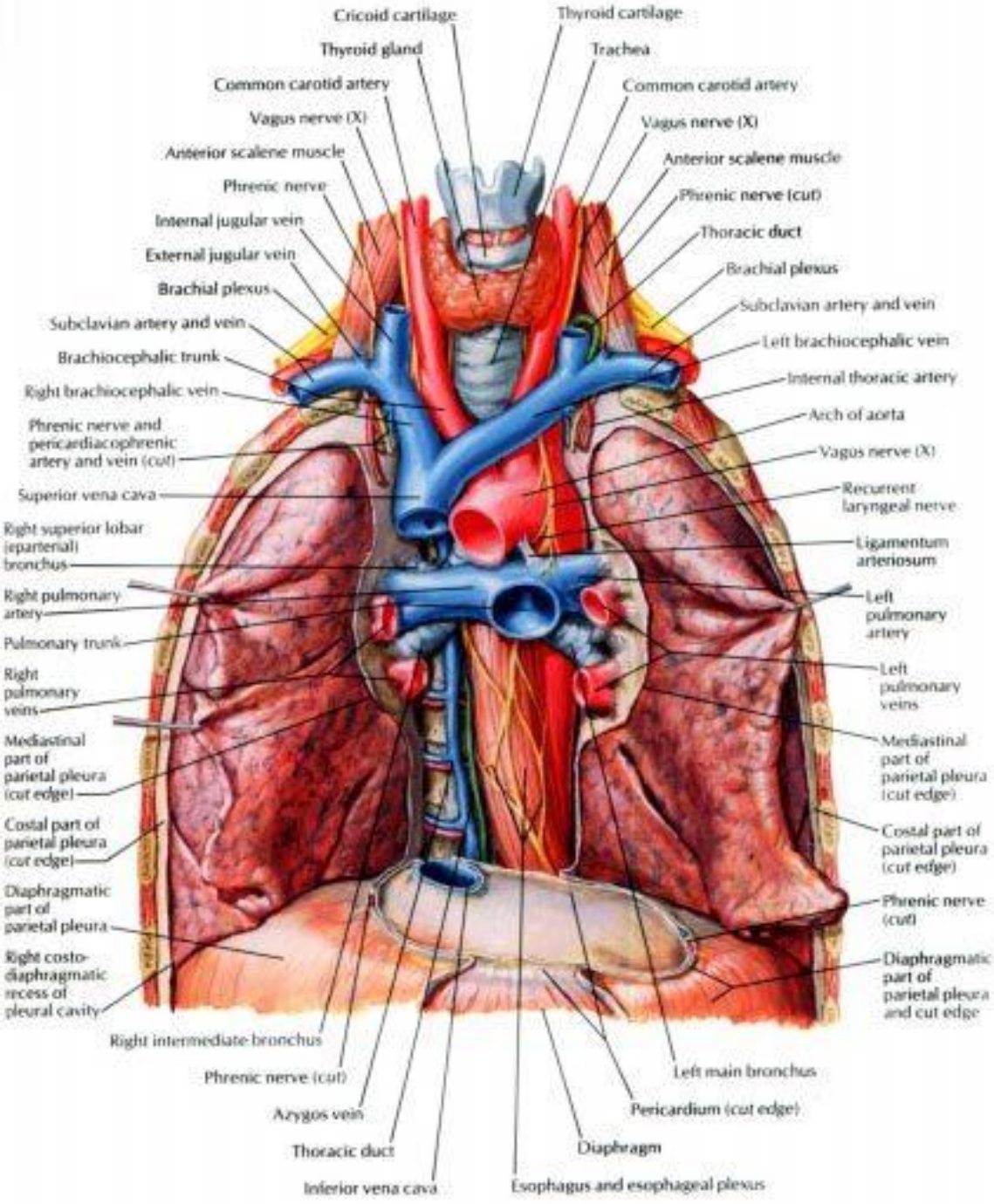


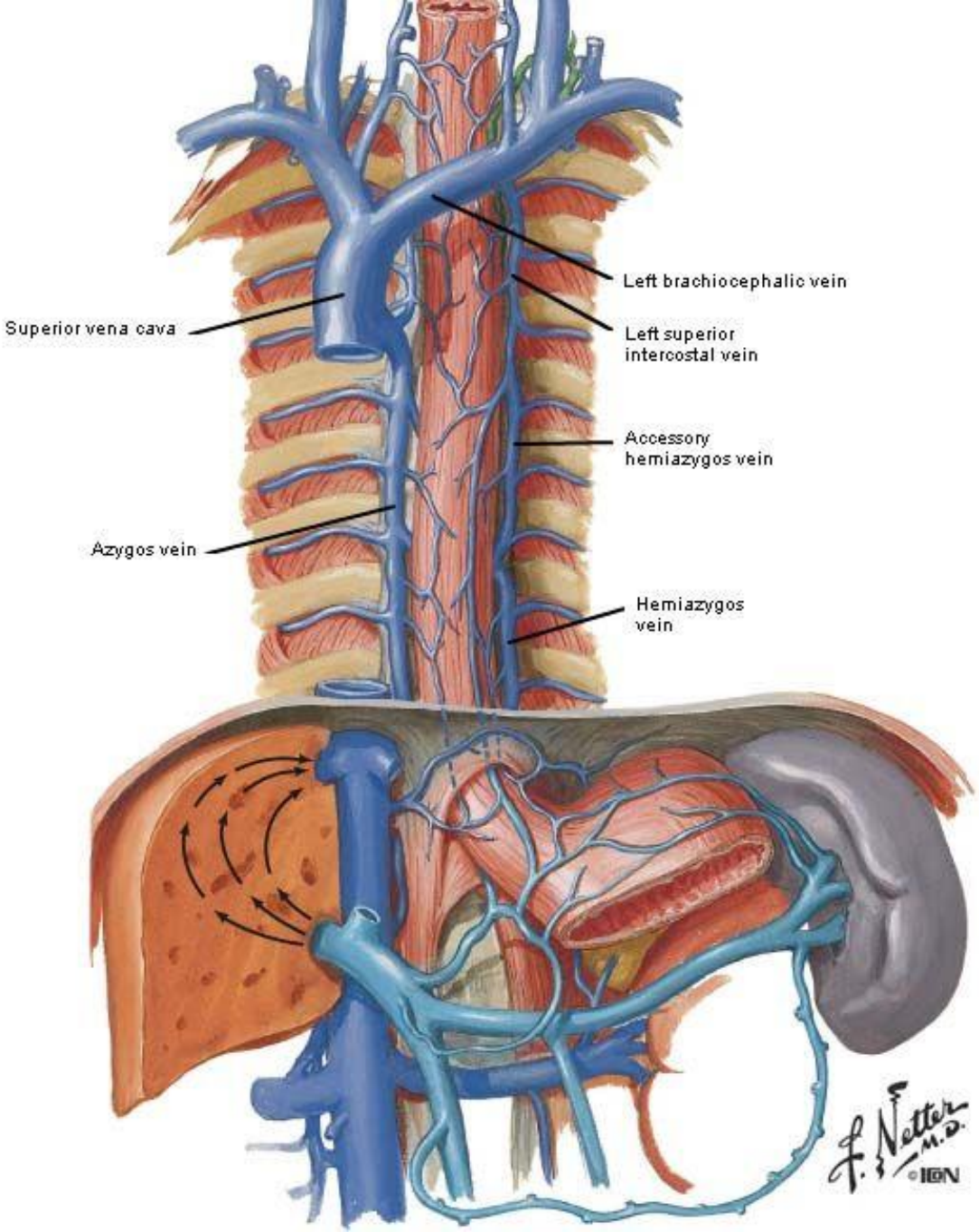
Heart in Situ



Anterior Exposure




Cricoid cartilage
Thyroid cartilage
Thyroid gland
Trachea
Common carotid artery
Common carotid artery
Vagus nerve (X)
Vagus nerve (X)
Anterior scalene muscle
Anterior scalene muscle
Phrenic nerve
Phrenic nerve (cut)
Internal jugular vein
Thoracic duct
External jugular vein
Brachial plexus
Brachial plexus
Subclavian artery and vein
Subclavian artery and vein
Brachiocephalic trunk
Left brachiocephalic vein
Right brachiocephalic vein
Internal thoracic artery
Phrenic nerve and pericardiacophrenic artery and vein (cut)
Arch of aorta
Vagus nerve (X)
Superior vena cava
Recurrent laryngeal nerve
Right superior lobar (eparterial) bronchus
Ligamentum arteriosum
Right pulmonary artery
Left pulmonary artery
Pulmonary trunk
Left pulmonary veins
Right pulmonary veins
Mediastinal part of parietal pleura (cut edge)
Mediastinal part of parietal pleura (cut edge)
Costal part of parietal pleura (cut edge)
Costal part of parietal pleura (cut edge)
Diaphragmatic part of parietal pleura
Phrenic nerve (cut)
Right costo-diaphragmatic recess of pleural cavity
Diaphragmatic part of parietal pleura and cut edge
Right intermediate bronchus
Left main bronchus
Phrenic nerve (cut)
Pericardium (cut edge)
Azygos vein
Diaphragm
Thoracic duct
Esophagus and esophageal plexus
Inferior vena cava


Left brachiocephalic vein
Superior vena cava
Left superior intercostal vein
Accessory hemiazygos vein
Azygos vein
Hemiazygos vein
F. Netter M.D.
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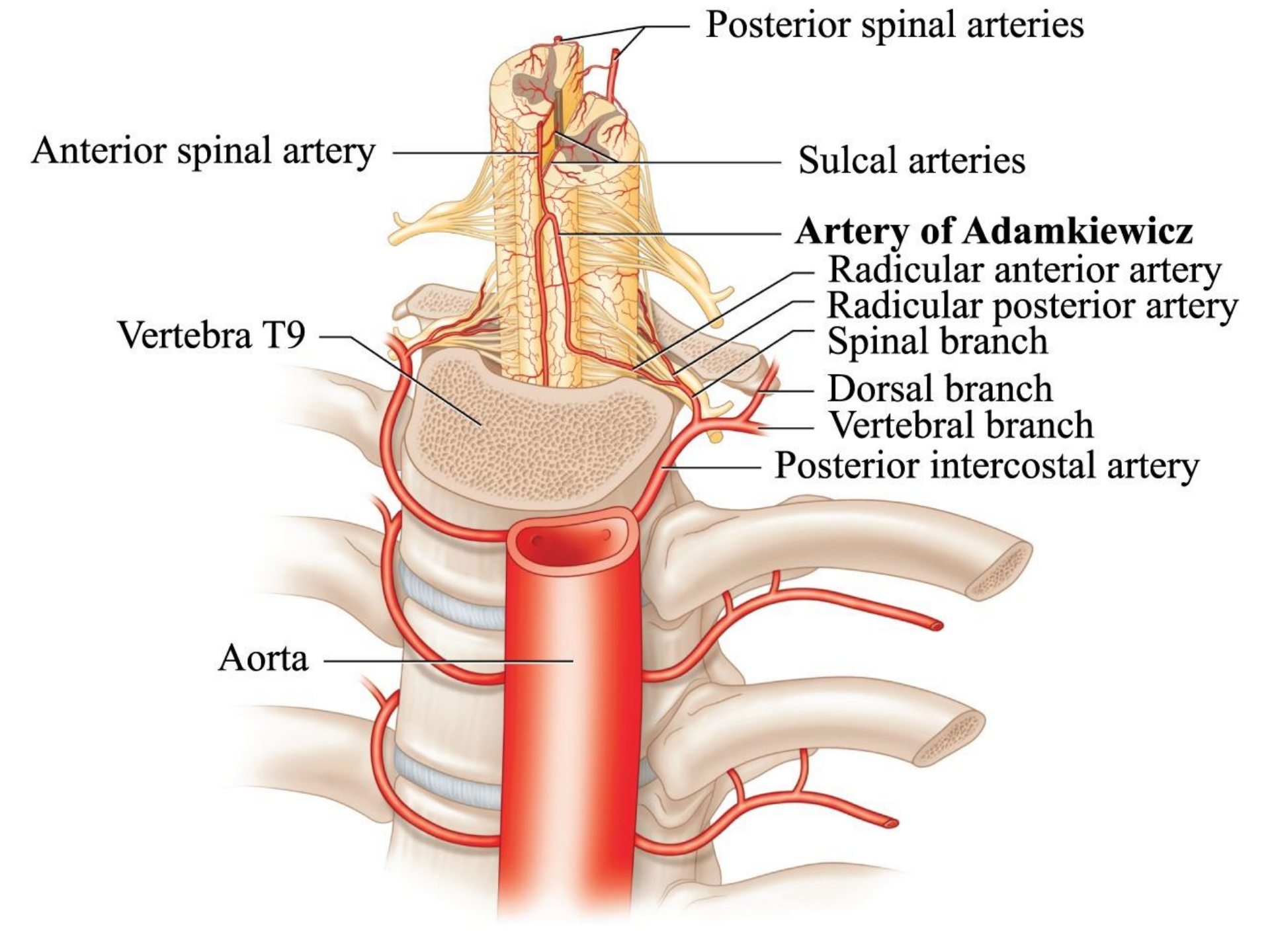
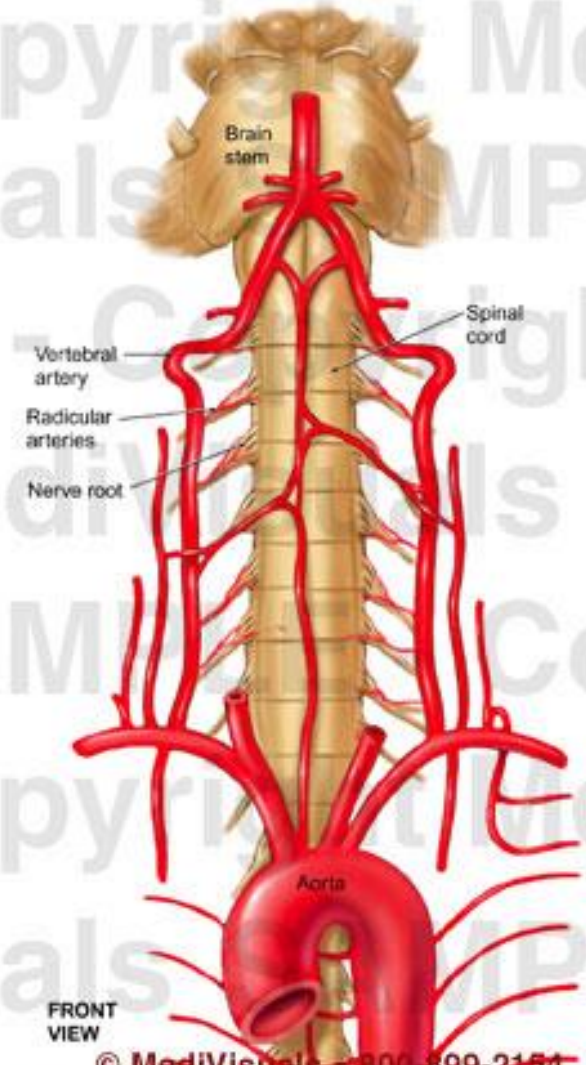

Posterior spinal arteries
Anterior spinal artery
Sulcal arteries
Artery of Adamkiewicz
Radicular anterior artery
Radicular posterior artery
Vertebra T9
Spinal branch
Dorsal branch
Vertebral branch
Posterior intercostal artery
Aorta

Cervical Spine and Brainstem
Neural and Vascular Anatomy



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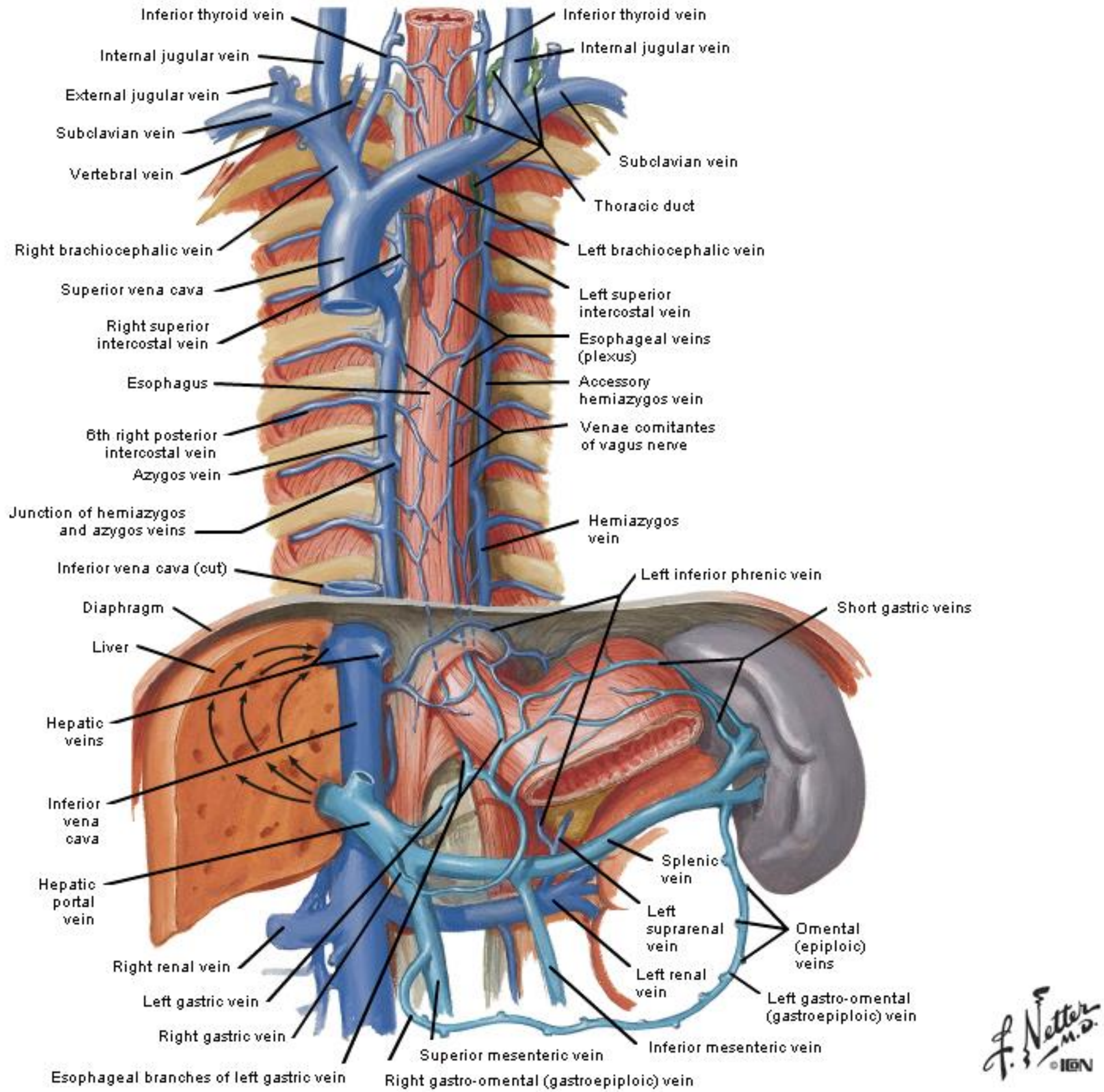
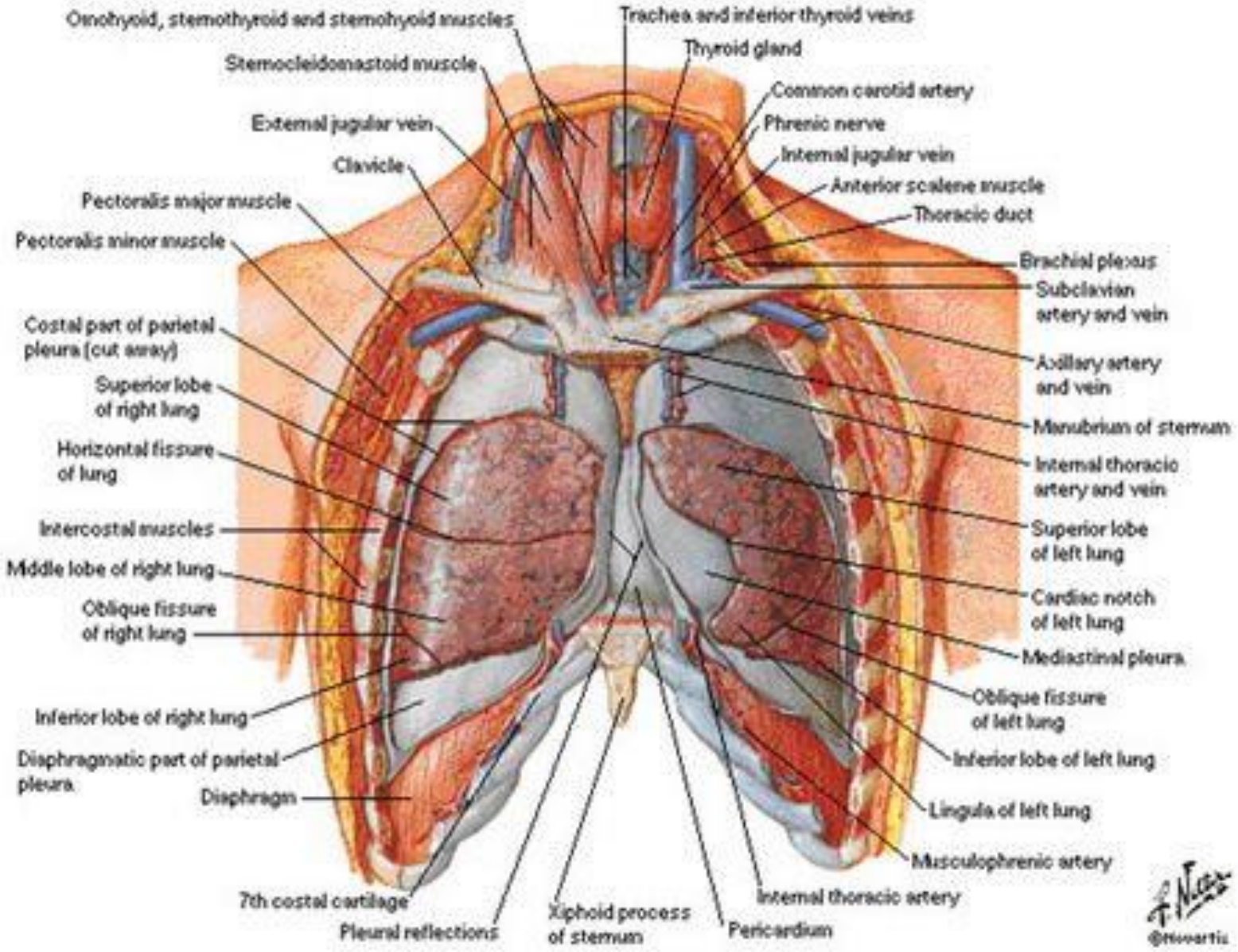
Exhibit# 305304-03XG

Veins of Esophagus

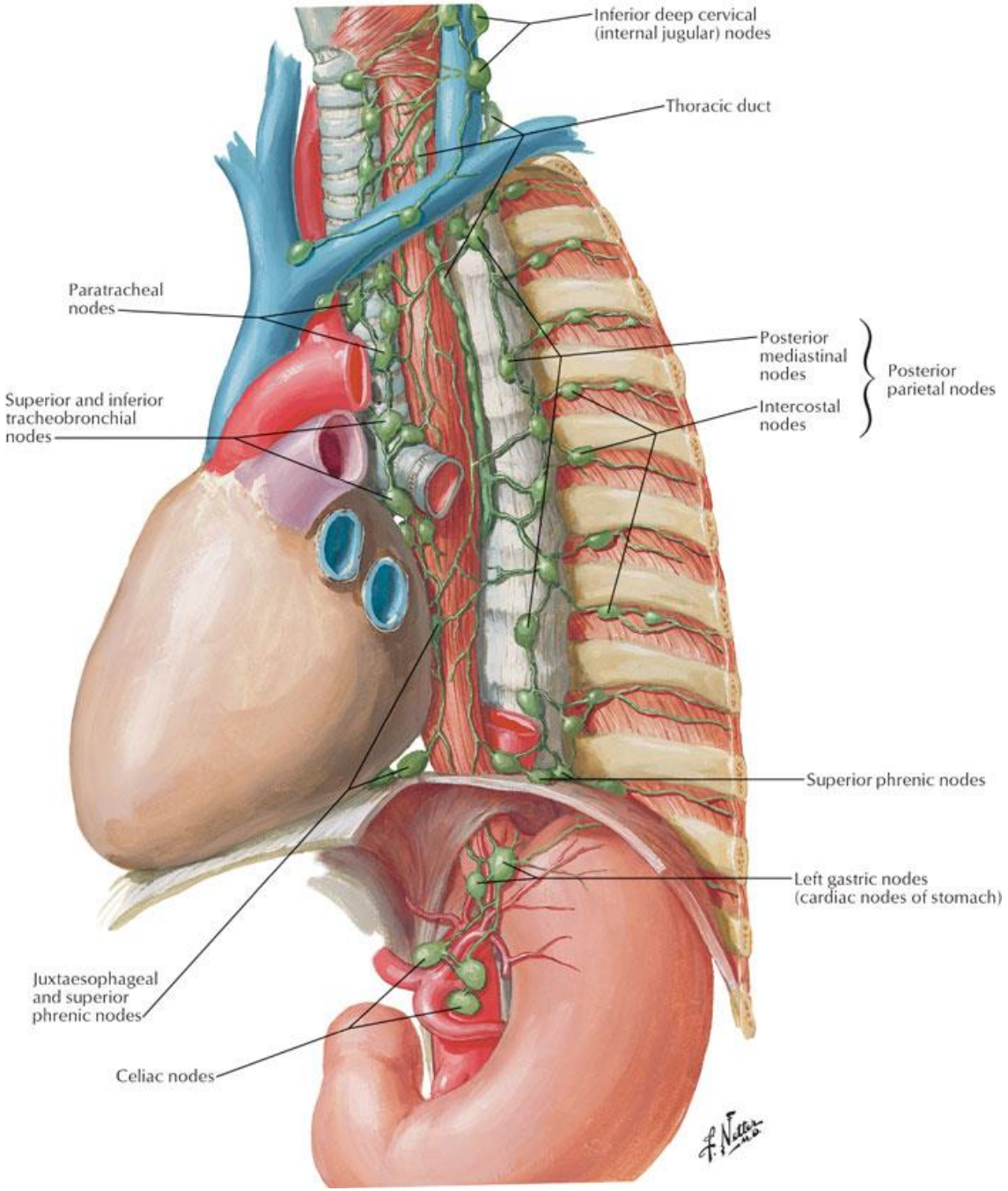


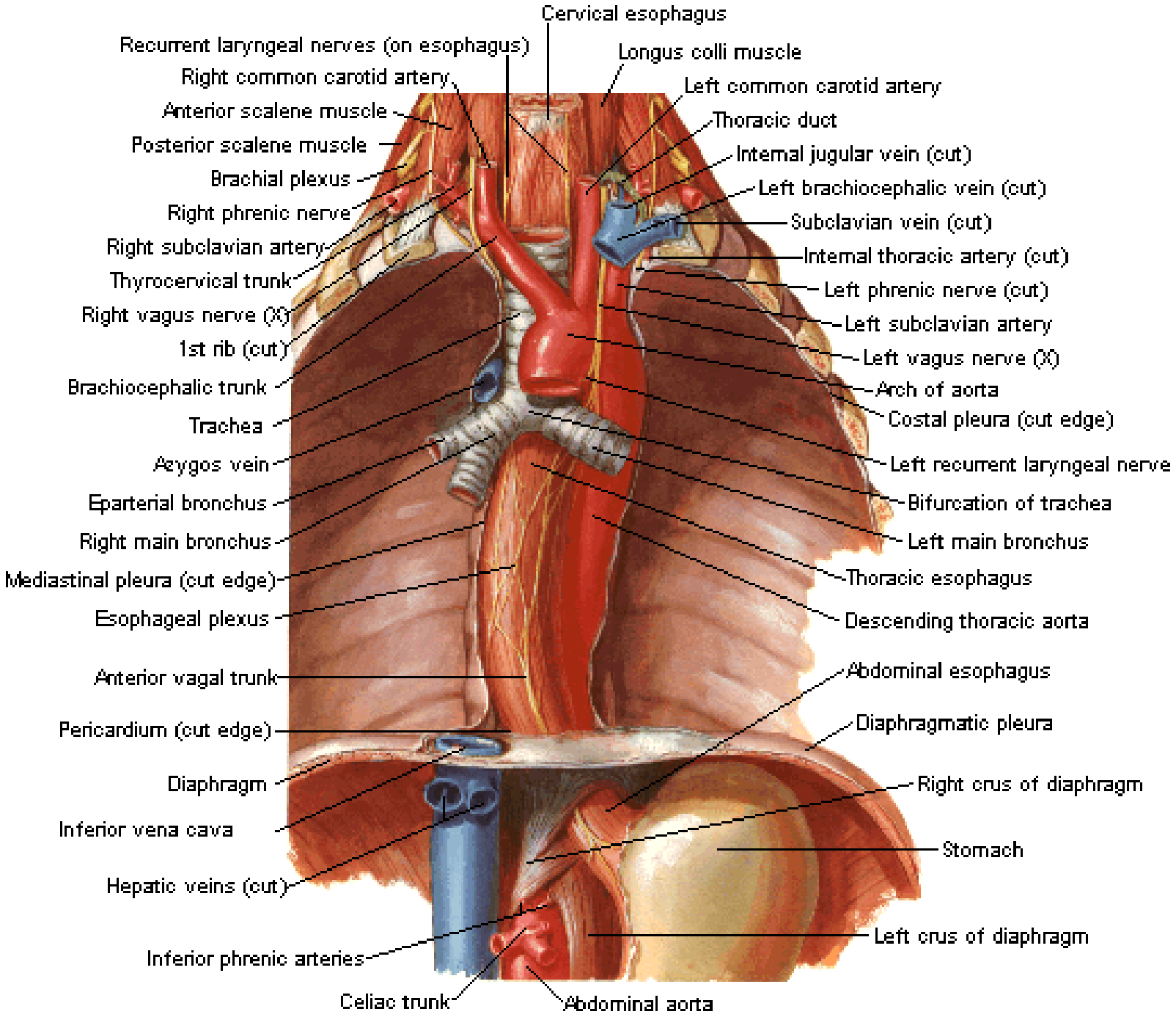
Lungs in Situ

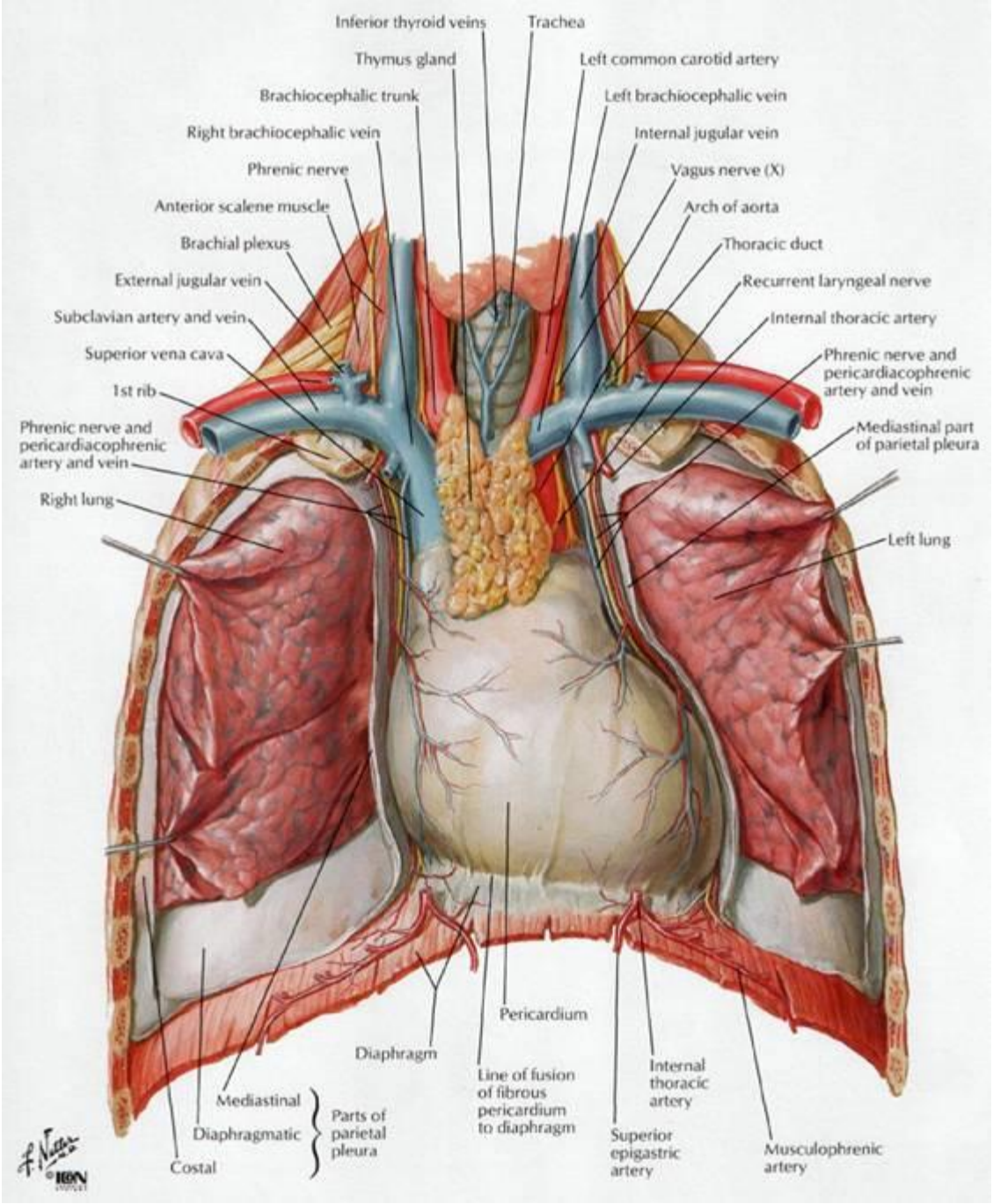
Anterior View



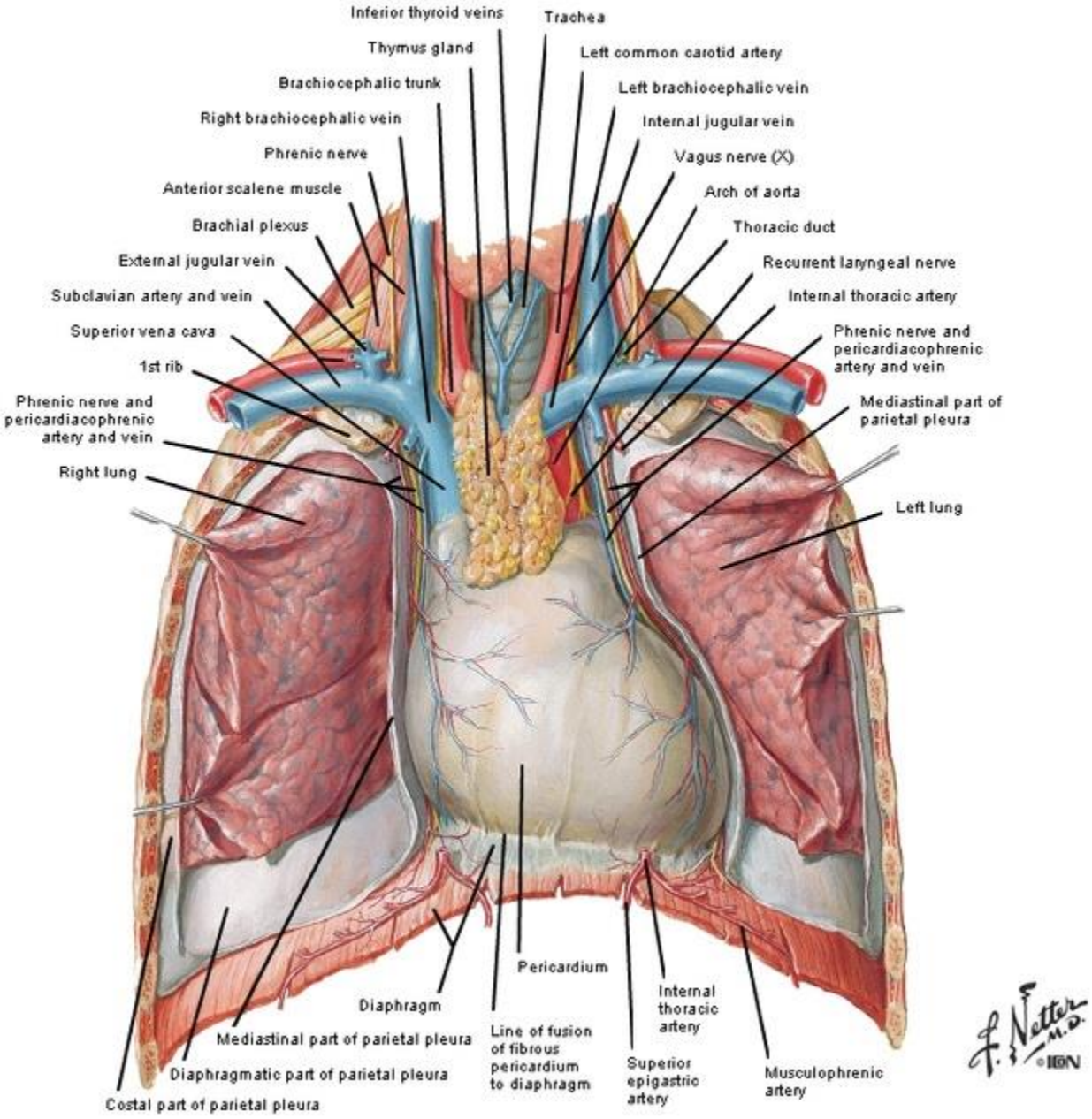
Lymph Vessels and Nodes of Esophagus



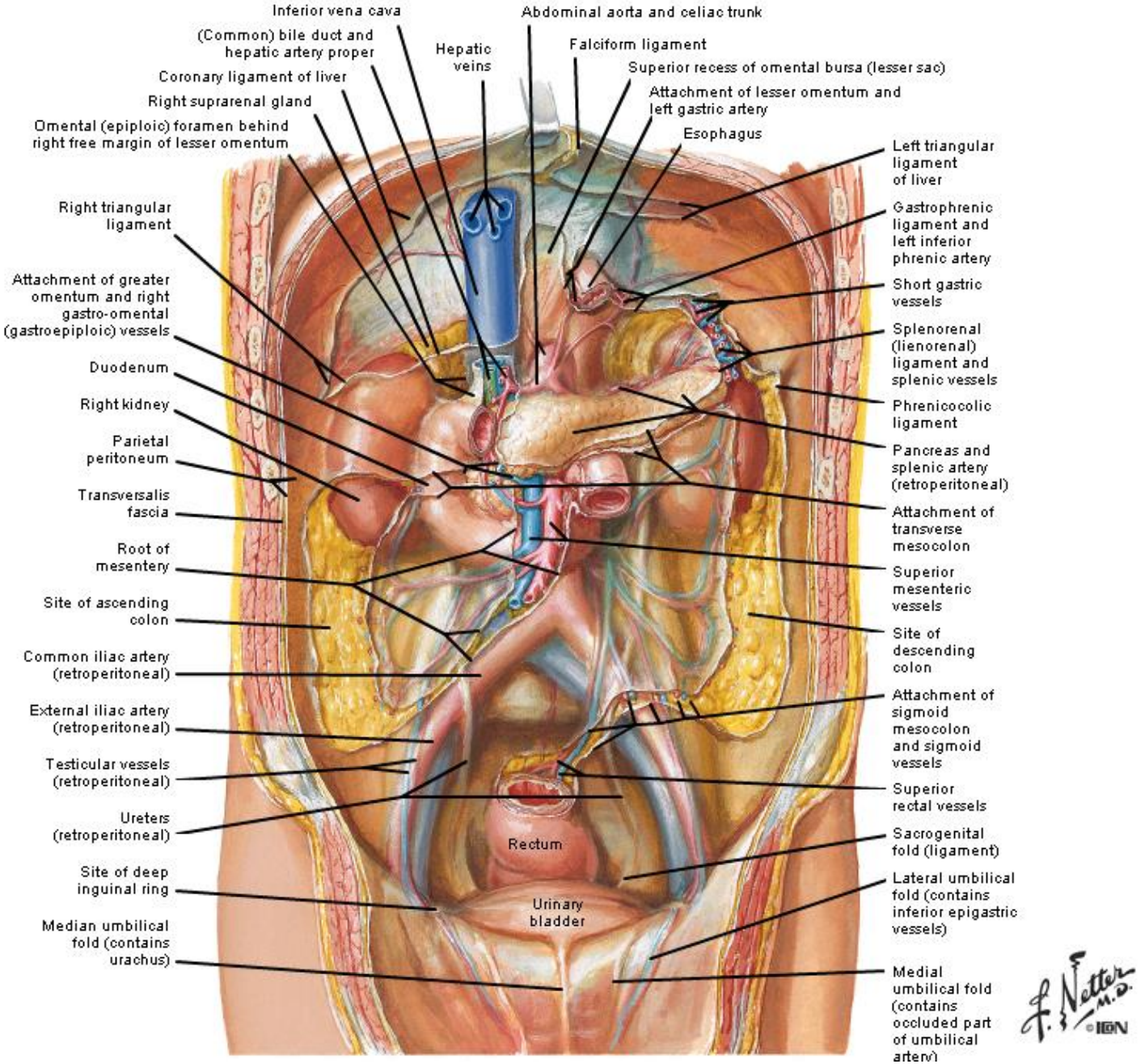

Cervical esophagus
Recurrent laryngeal nerves (on esophagus)
Longus colli muscle
Right common carotid artery
Left common carotid artery
Anterior scalene muscle
Thoracic duct
Posterior scalene muscle
Internal jugular vein (cut)
Brachial plexus
Left brachiocephalic vein (cut)
Right phrenic nerve
Subclavian vein (cut)
Right subclavian artery
Internal thoracic artery (cut)
Thyrocervical trunk
Left phrenic nerve (cut)
Right vagus nerve (X)
Left subclavian artery
1st rib (cut)
Left vagus nerve (X)
Brachiocephalic trunk
Arch of aorta
Trachea
Costal pleura (cut edge)
Azygos vein
Left recurrent laryngeal nerve
Eparterial bronchus
Bifurcation of trachea
Right main bronchus
Left main bronchus
Mediastinal pleura (cut edge)
Thoracic esophagus
Esophageal plexus
Descending thoracic aorta
Anterior vagal trunk
Abdominal esophagus
Pericardium (cut edge)
Diaphragmatic pleura
Diaphragm
Right crus of diaphragm
Inferior vena cava
Stomach
Hepatic veins (cut)
Left crus of diaphragm
Inferior phrenic arteries
Celiac trunk
Abdominal aorta


Inferior thyroid veins
Trachea
Thymus gland
Left common carotid artery
Brachiocephalic trunk
Left brachiocephalic vein
Right brachiocephalic vein
Internal jugular vein
Phrenic nerve
Vagus nerve (X)
Anterior scalene muscle
Arch of aorta
Brachial plexus
Thoracic duct
External jugular vein
Recurrent laryngeal nerve
Subclavian artery and vein
Internal thoracic artery
Superior vena cava
Phrenic nerve and pericardiacophrenic artery and vein
1st rib
Phrenic nerve and pericardiacophrenic artery and vein
Mediastinal part of parietal pleura
Right lung
Left lung
Pericardium
Diaphragm
Line of fusion of fibrous pericardium to diaphragm
Internal thoracic artery
Mediastinal
Diaphragmatic
Costal
Parts of parietal pleura
Superior epigastric artery
Musculophrenic artery

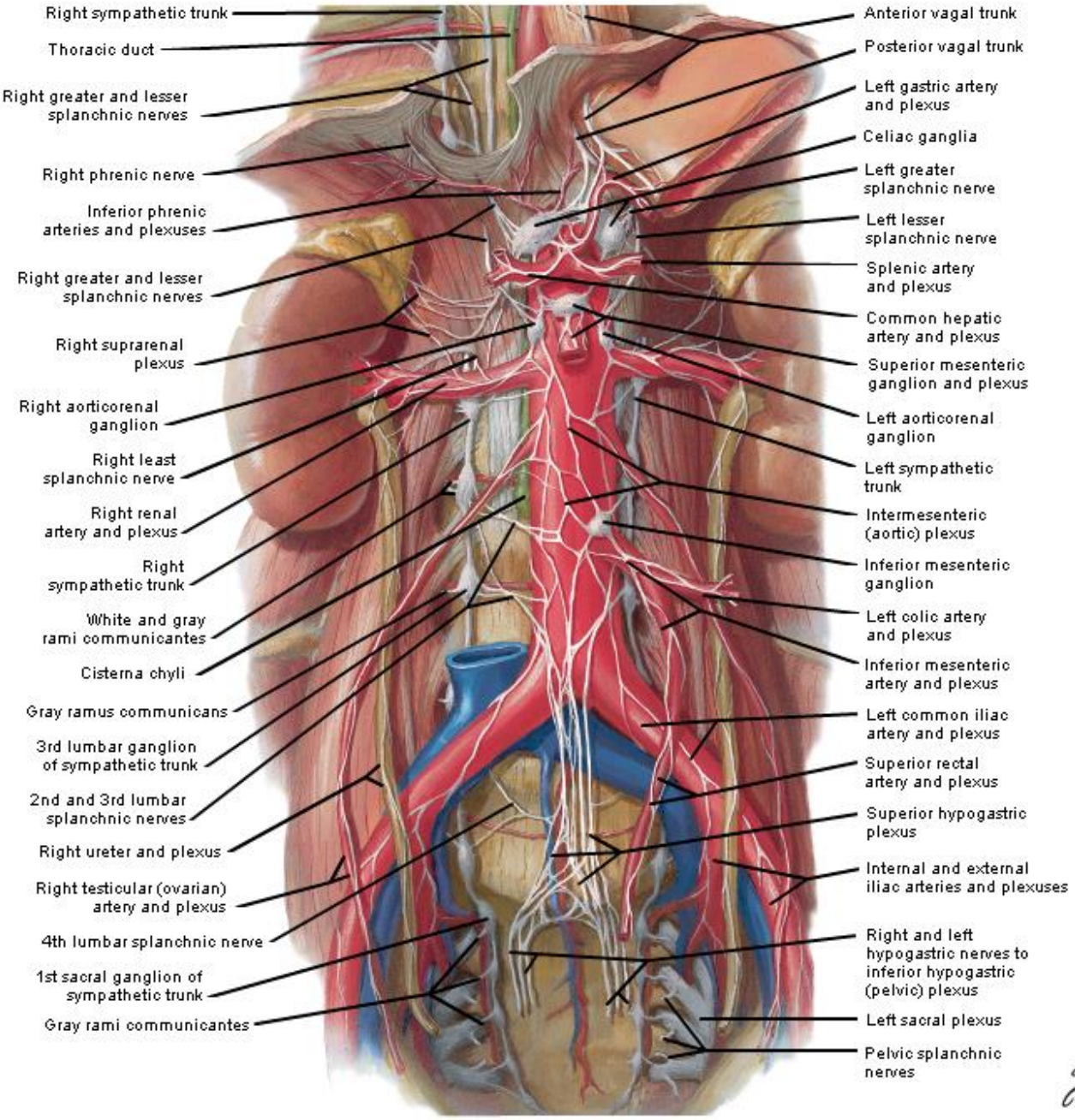
Heart In Situ



Peritoneum of Posterior Abdominal Wall



Autonomic Nerves and Ganglia of Abdomen



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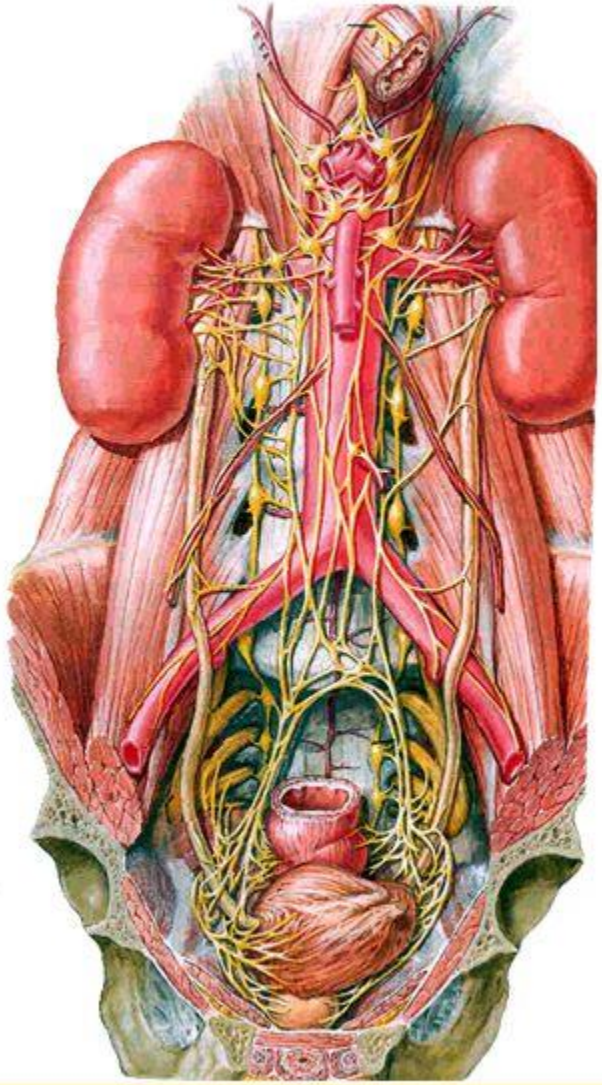
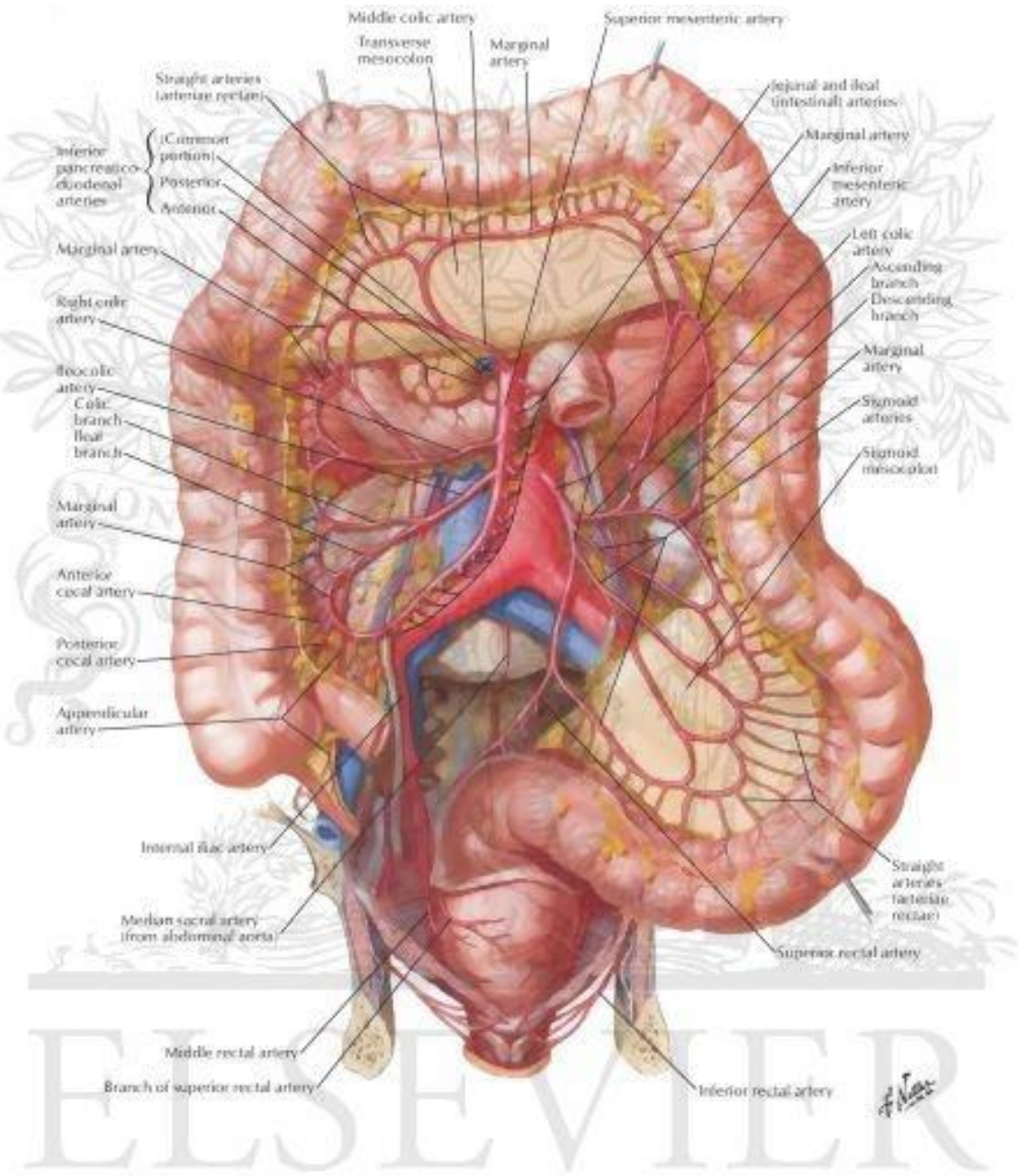
Prevertebral ganglia 椎前节

- Lie anterior to vertebral column and near the arteries for which they are named
- **Celiac ganglion** 腹腔神经节
- **Aorticorenal ganglion** 主动脉肾节
- **Superior mesenteric ganglion** 肠系膜上神经节
- **Inferior mesenteric ganglion**肠系膜下神经节





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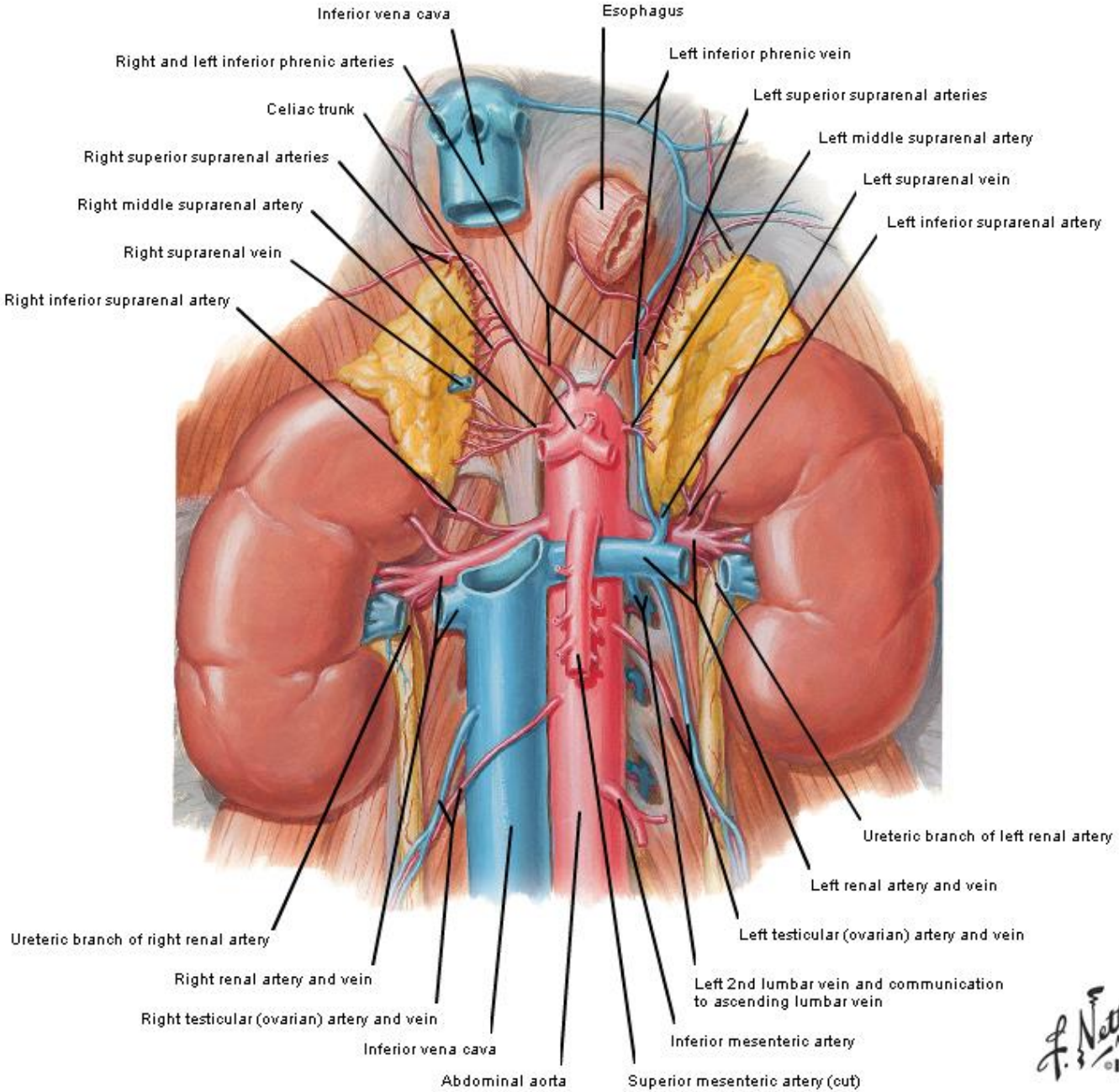
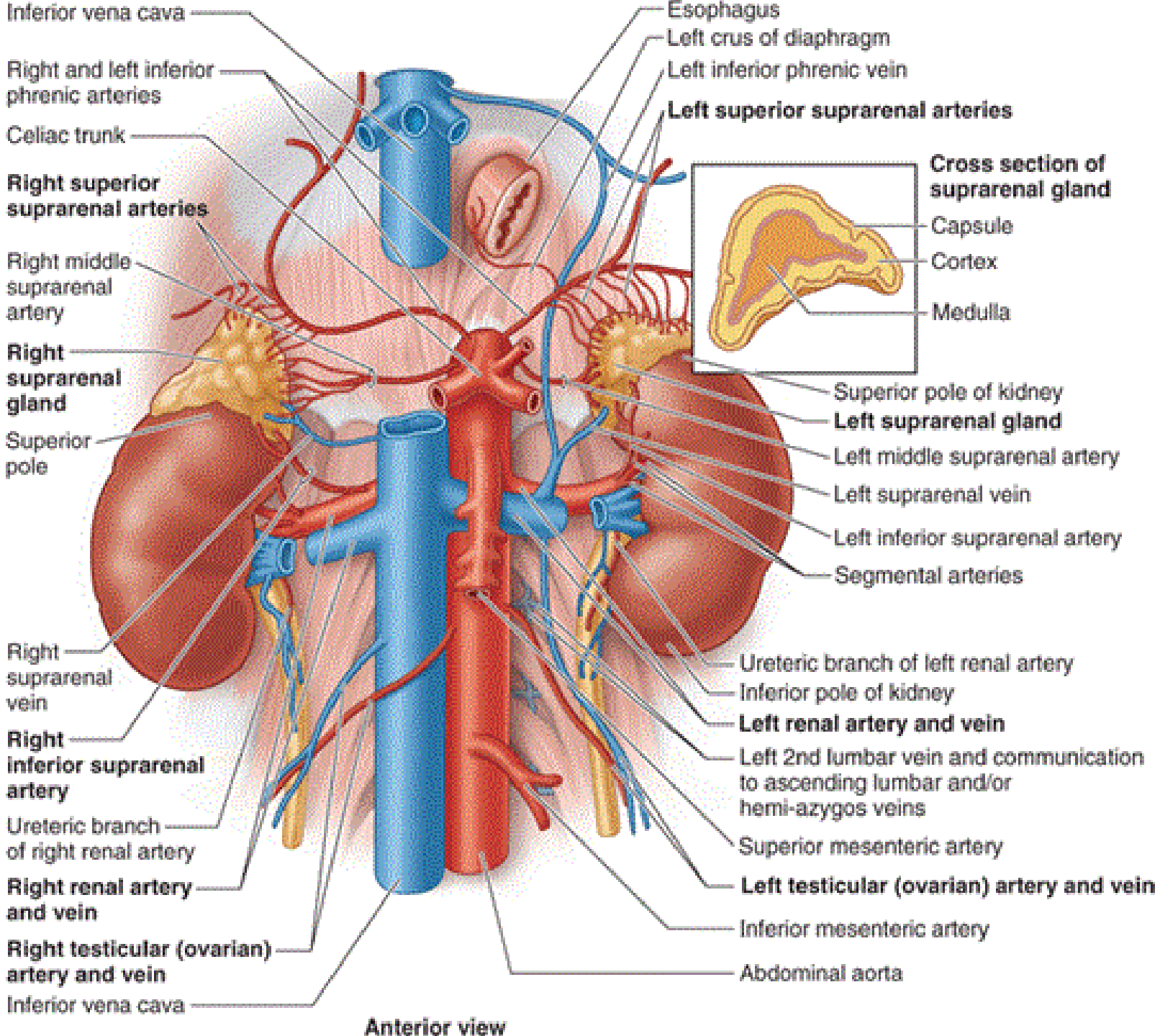
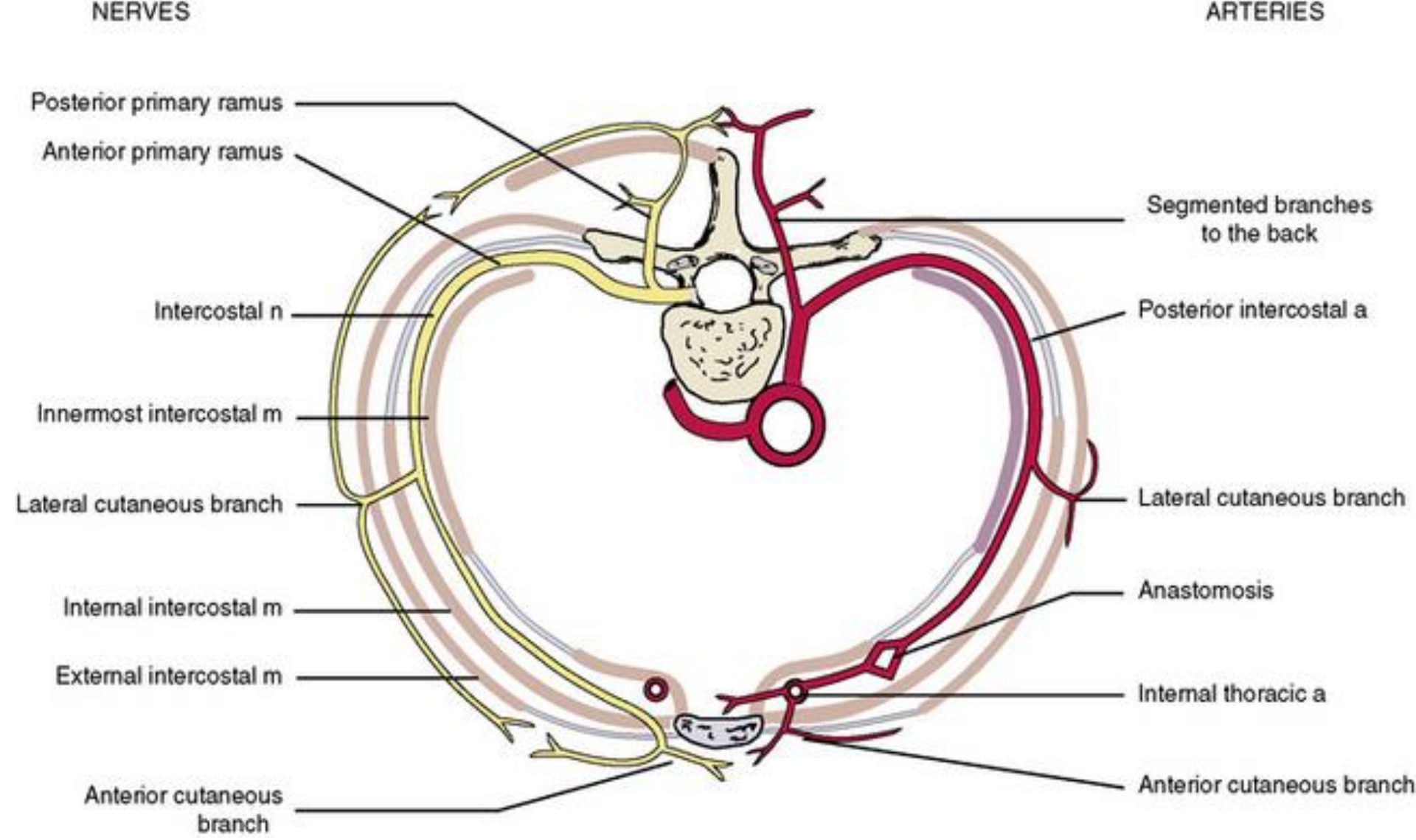
Renal Artery and Vein In Situ



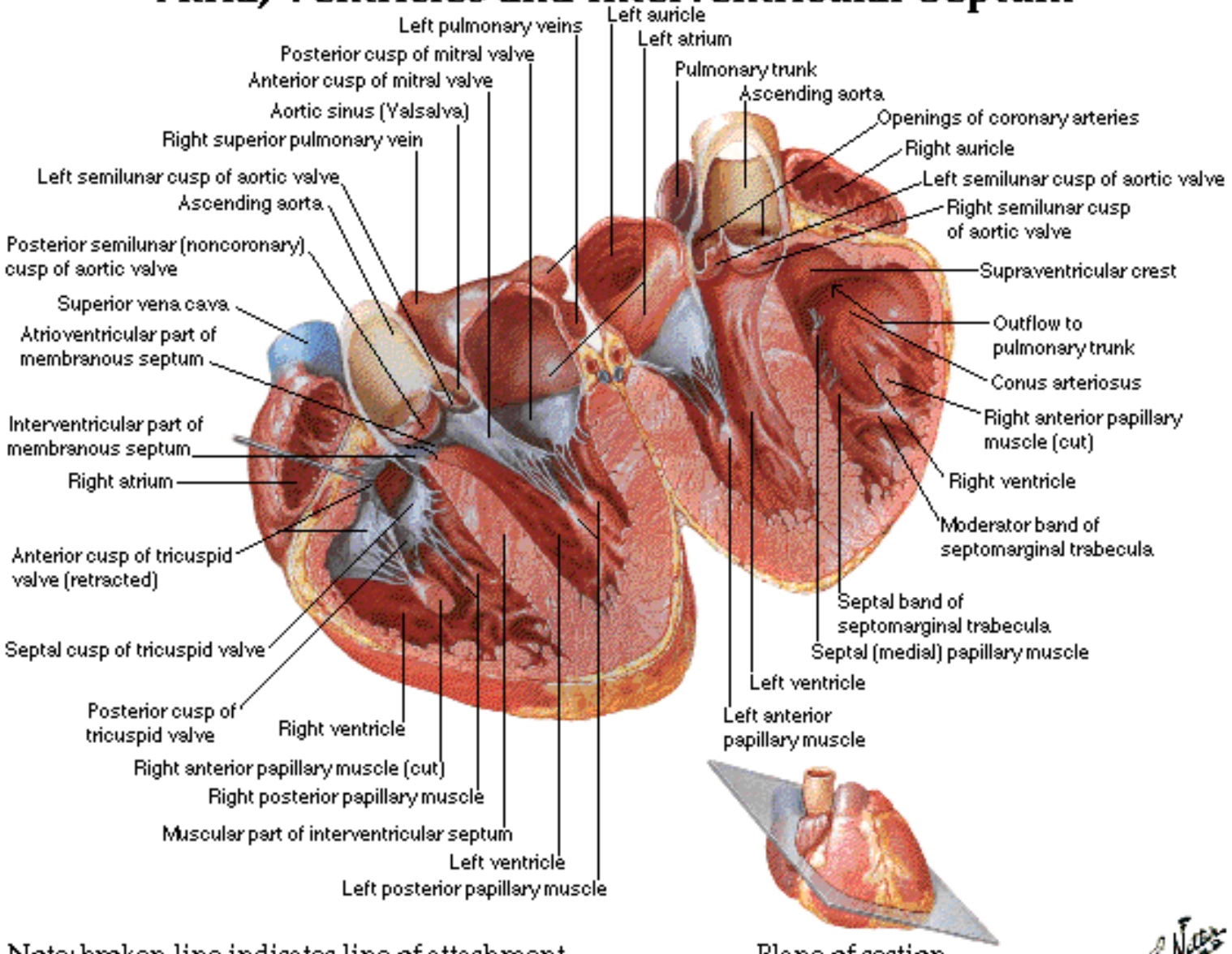
F. Netter M.D. ©IGN



Anterior view


NERVES
ARTERIES
Posterior primary ramus
Anterior primary ramus
Intercostal n
Innermost intercostal m
Lateral cutaneous branch
Internal intercostal m
External intercostal m
Anterior cutaneous branch
Segmented branches to the back
Posterior intercostal a
Lateral cutaneous branch
Anastomosis
Internal thoracic a
Anterior cutaneous branch

Atria, Ventricles and Interventricular Septum



Note: broken line indicates line of attachment of septal leaflet of tricuspid valve.

Plane of section

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