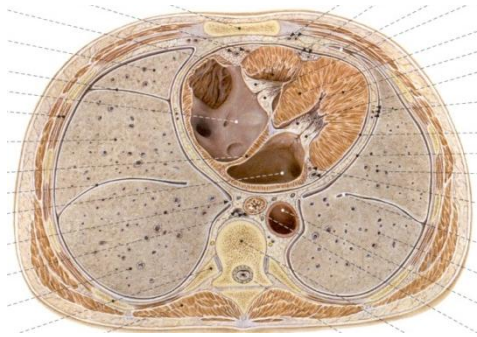


Mellkasi szervek topográfiája, a mellkas metszetanatómiája



*Pleura- és pericardiumpunkció
Coronaria bypass műtét topográfiája*

Dr. Székely Andrea Dorottya

Semmelweis Egyetem

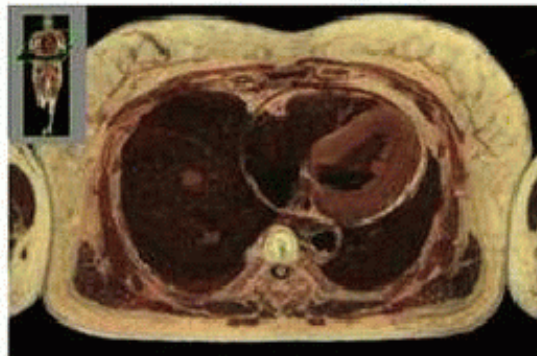
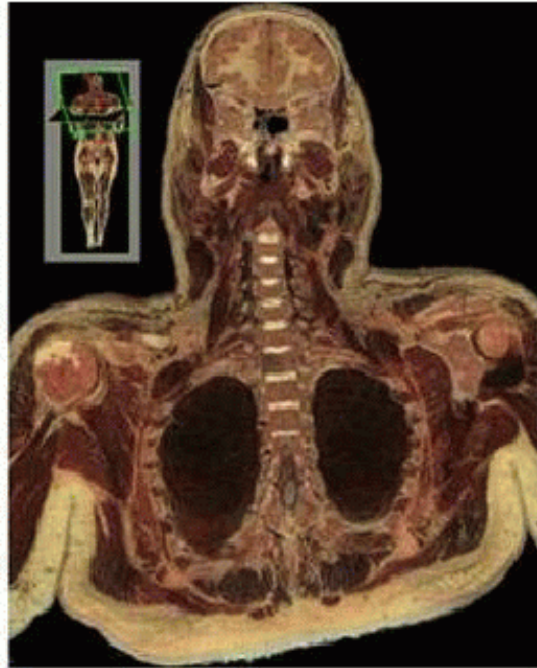
Általános Orvostudományi Kar

Anatomiai, Szövet- és Fejlődéstani Intézet

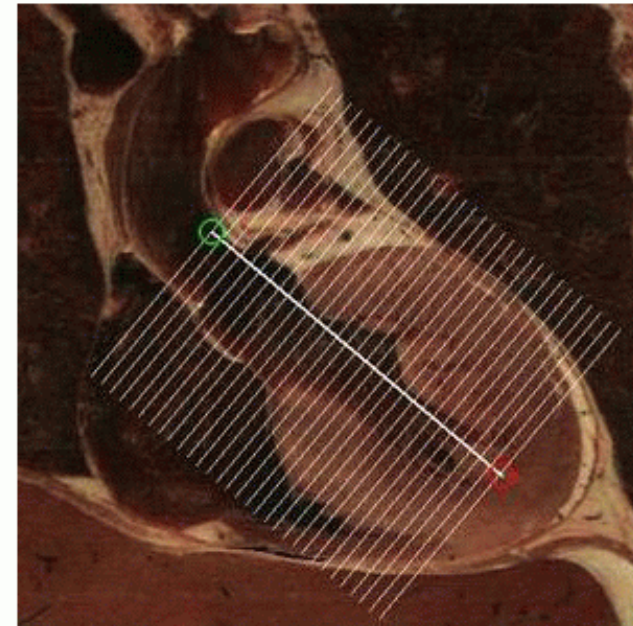
Budapest



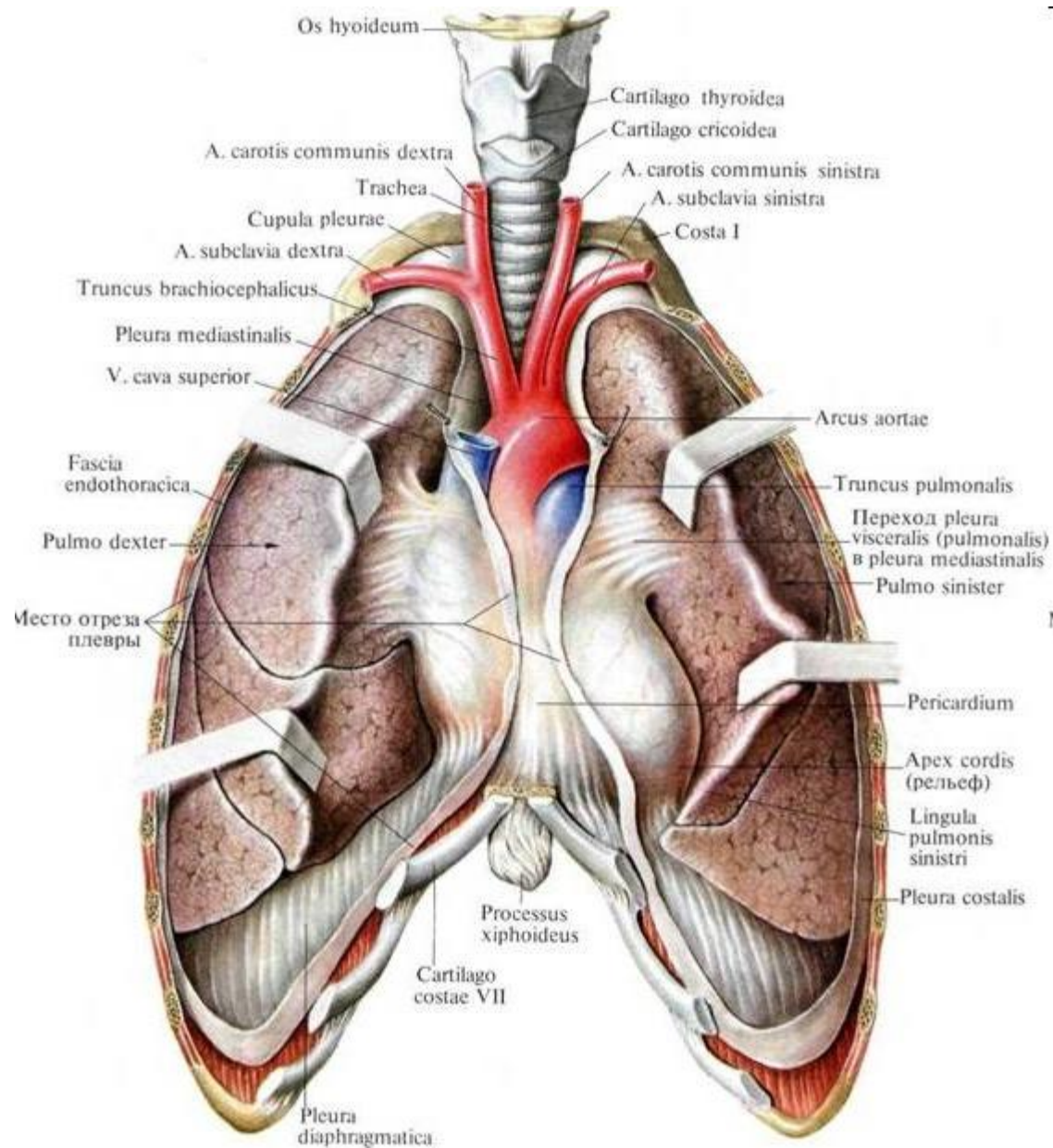
A MELLKASI SZERVEK ELHELYEZKEDÉSE



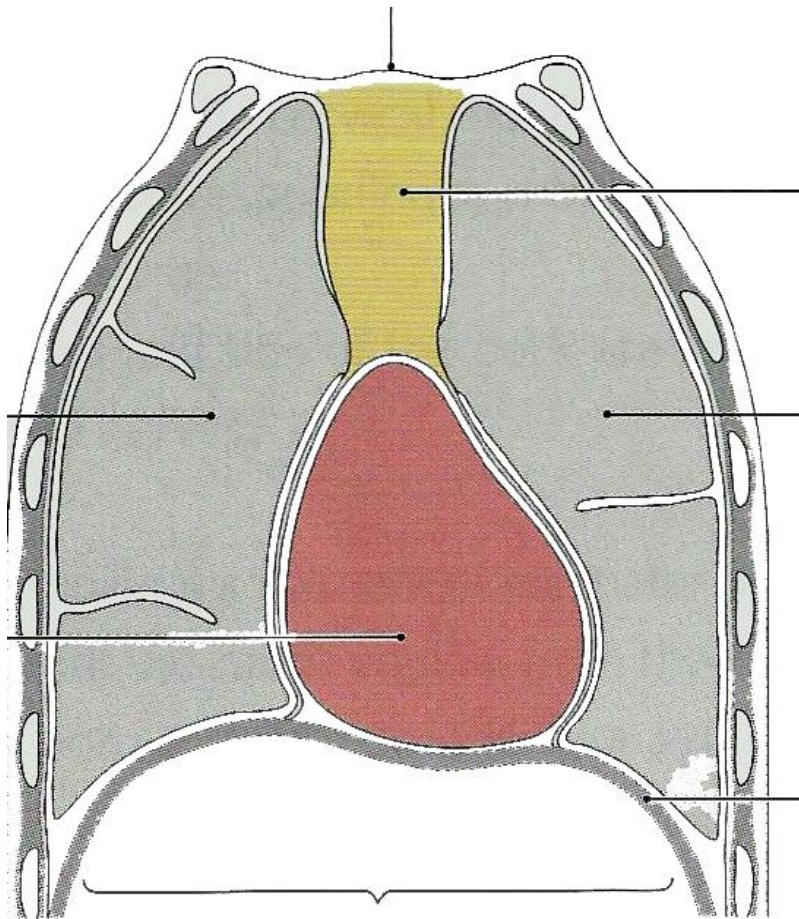
To begin, click on any icon.
For a complete tour there is no need to return to the main page except to view more movies. You can access all still images by following the links on the following pages.
Some movies were not cross-linked from the stills, therefore you need to access them from the movie page. They are best viewed clicking through them step by step, instead of playing them at the standard rate.
Click on an image for a larger view.



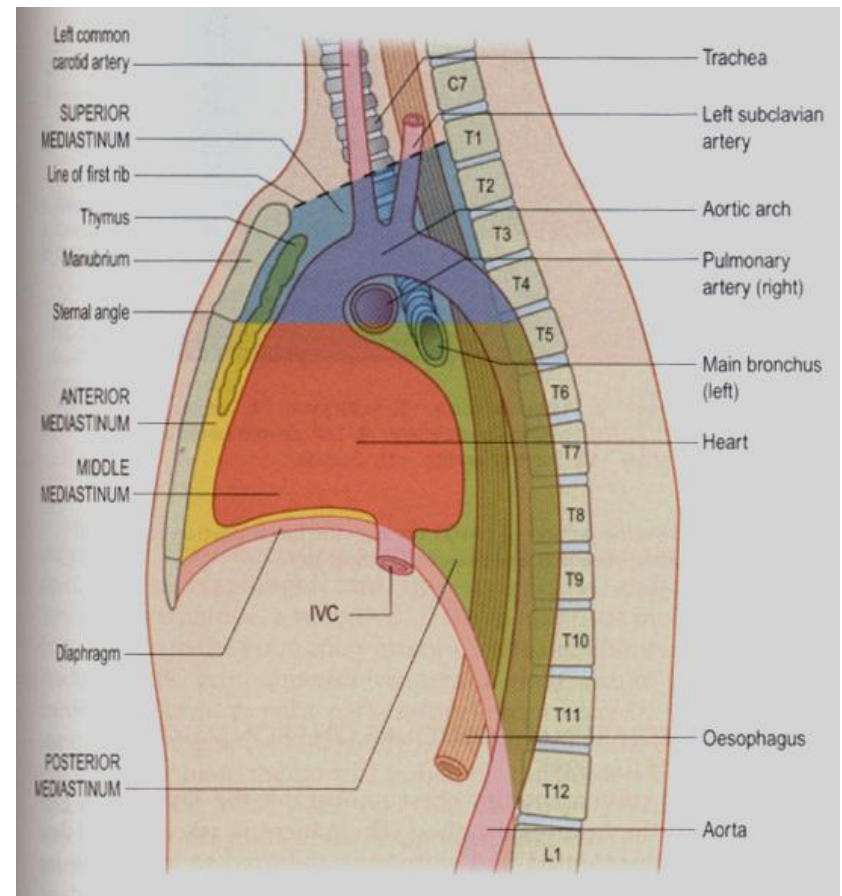
MELKASI TOPOGRAPHIA



A MELLKAS TEREI

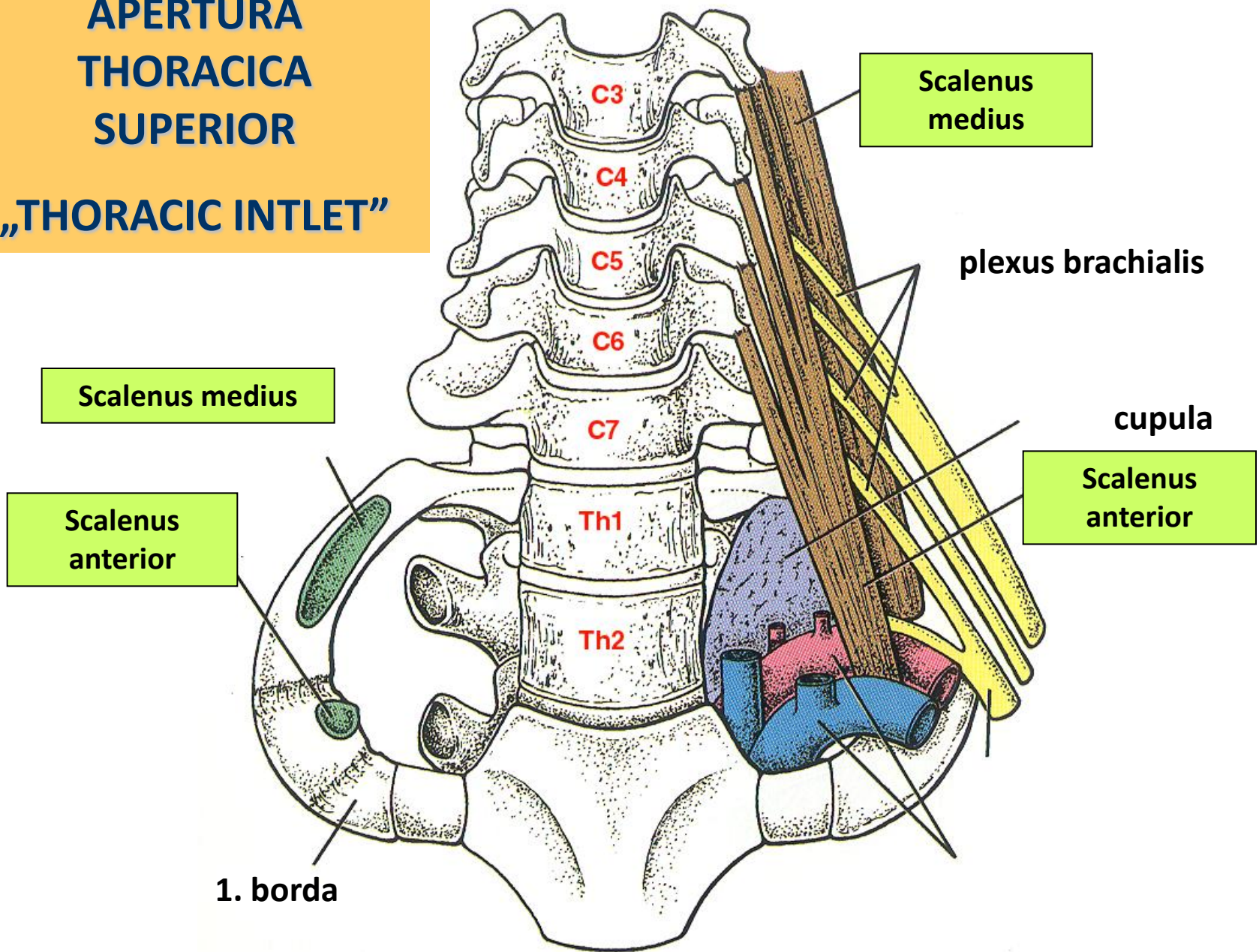


MEDIASTINUM

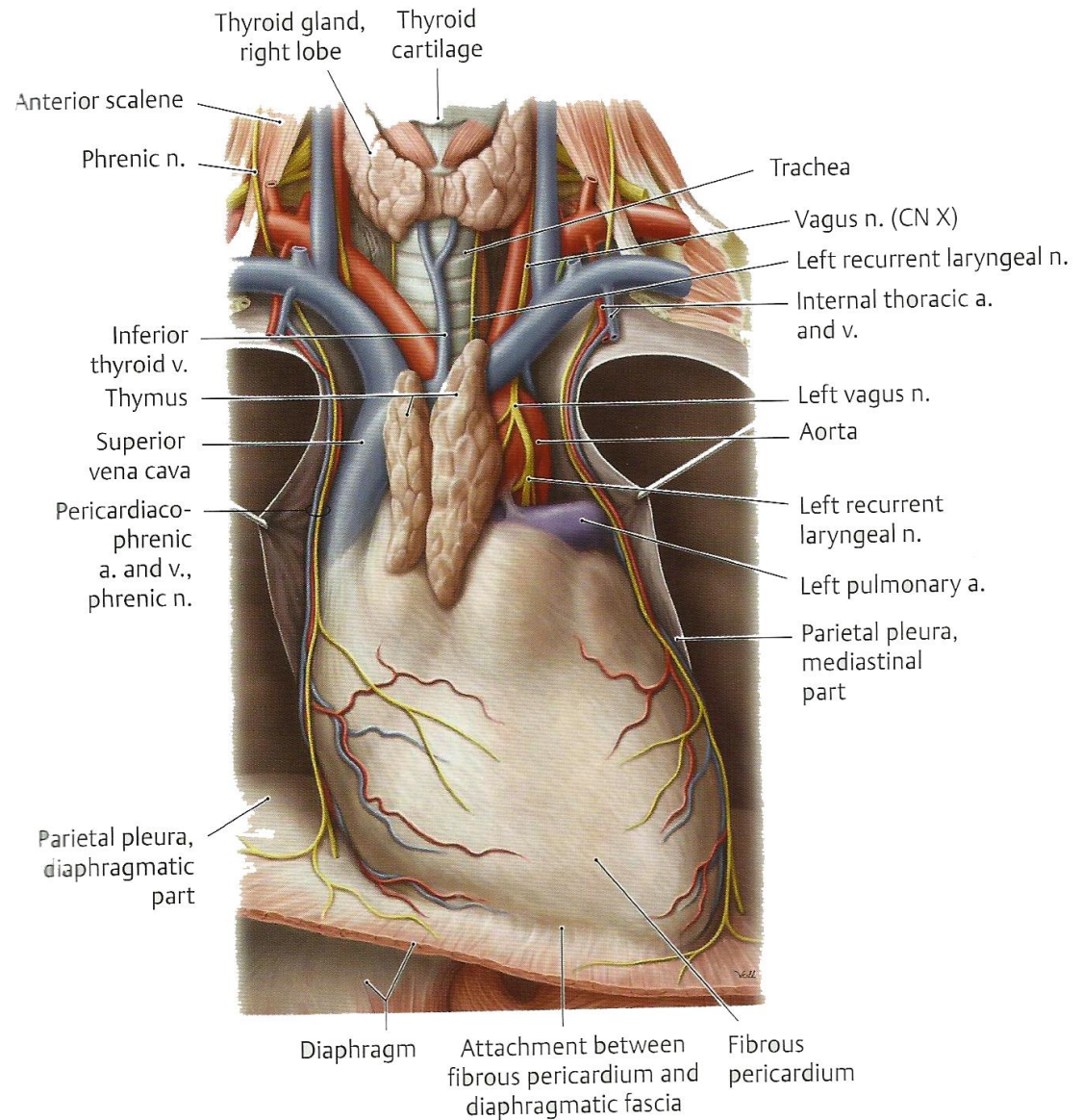
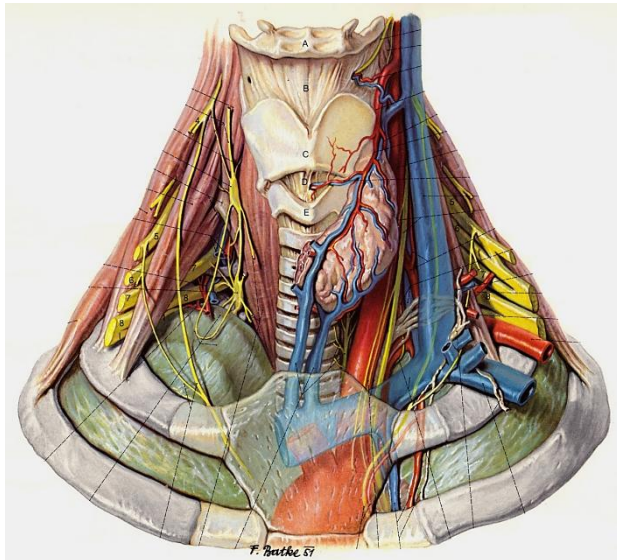
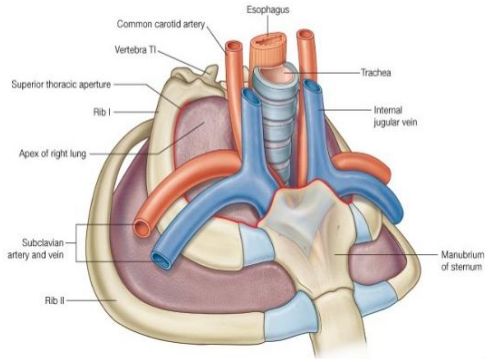


APERTURA THORACICA SUPERIOR

„THORACIC INTLET“



APERTURA THORACICA SUPERIOR



TRACHEA – ÁLTALÁNOS LEÍRÁS

Elsődleges szerep:

levegő transzport **BE**
„piszok” transzport **KI**

- Légcső kezdete : gége
- Vége: bifurcatio tracheae
 - bronchi principales
 - **Carina**

konduktív rész

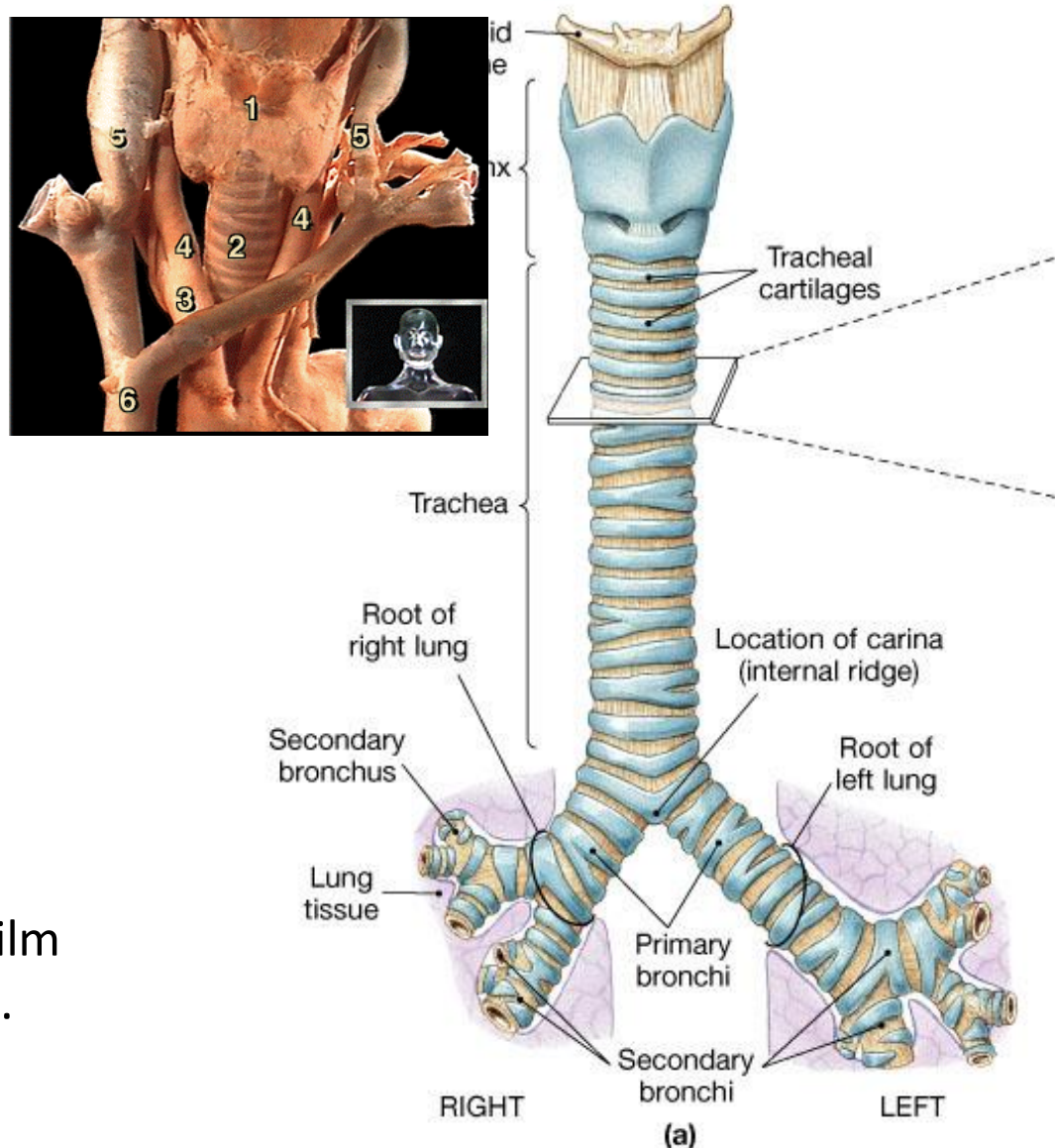
(nincs gázcsere csak passzázs)

melegít, hűt, nedvesít és **tisztít**

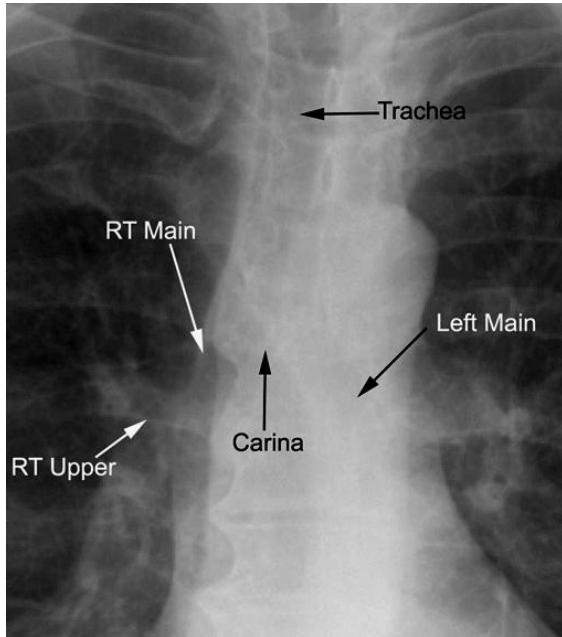
Kehelysejtek, mirigyek - nyálkafilm

Kinociliumok kifelé csapkodnak.

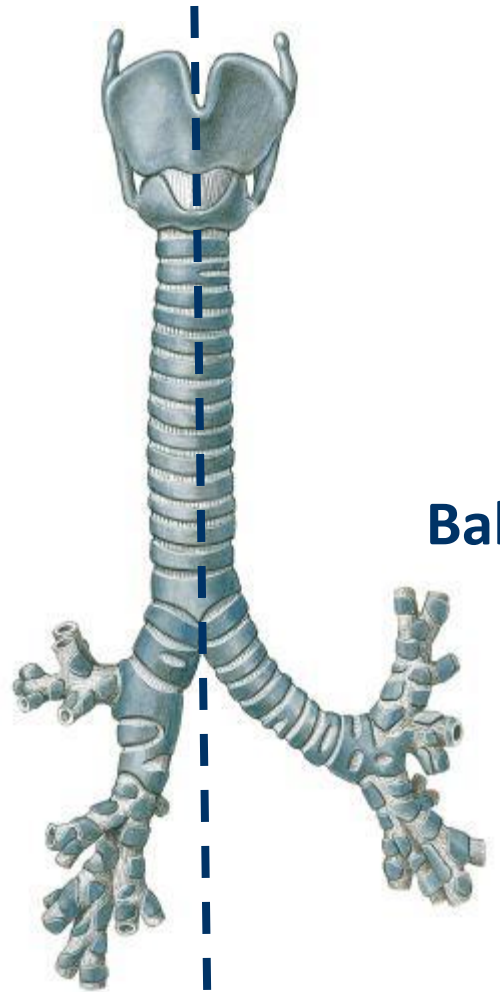
cca **15 mm / perc**



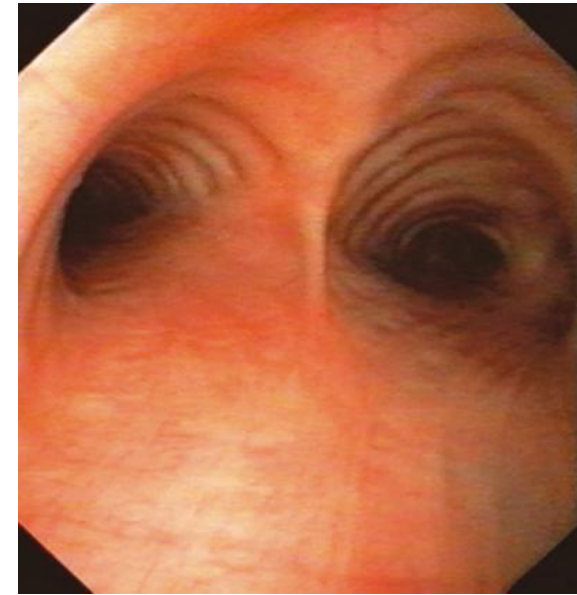
CARINA TRACHEAE



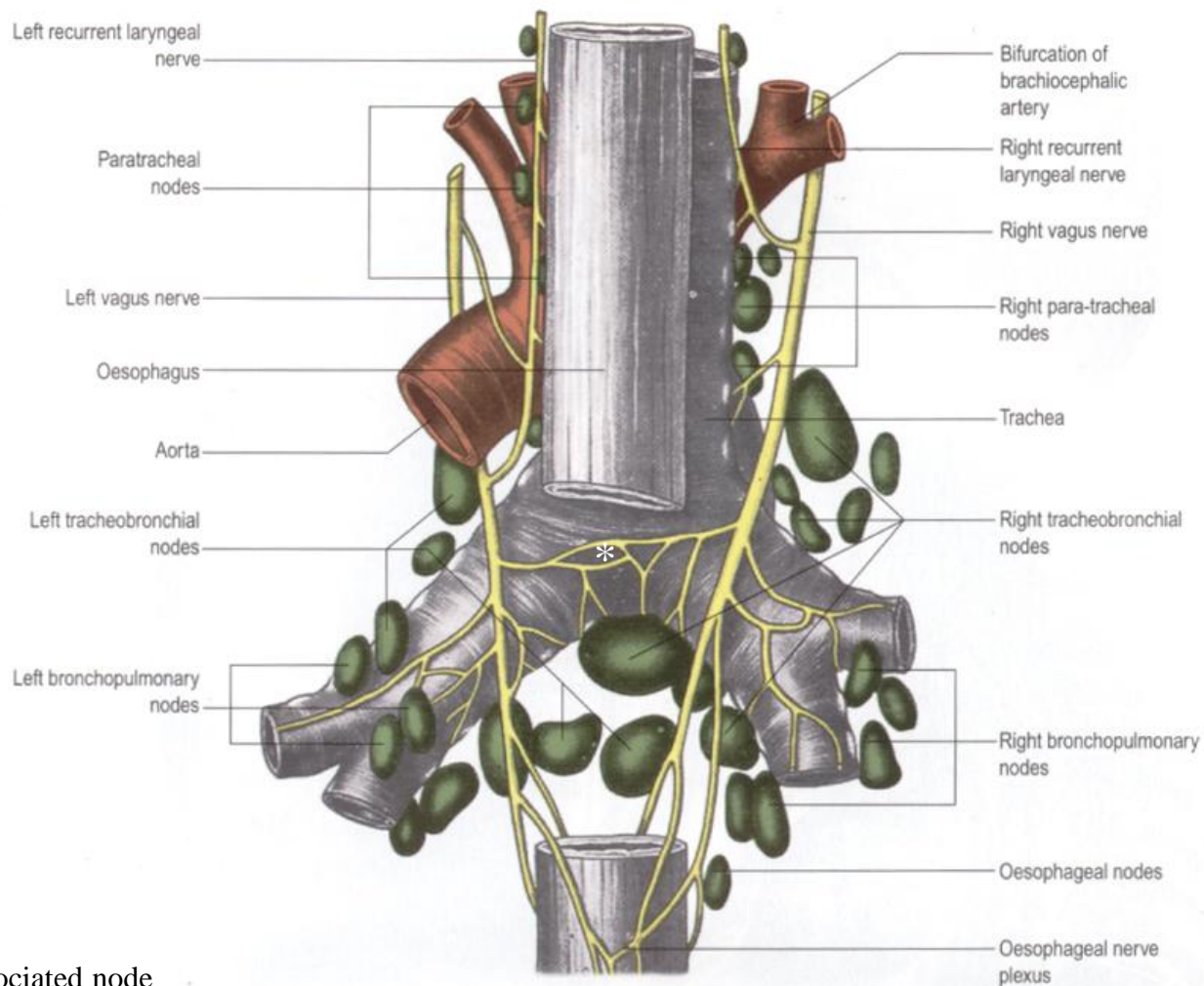
Jobb



25° 45°

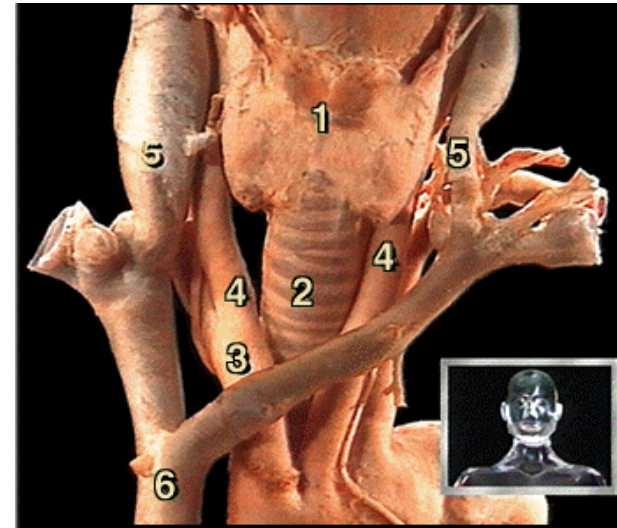
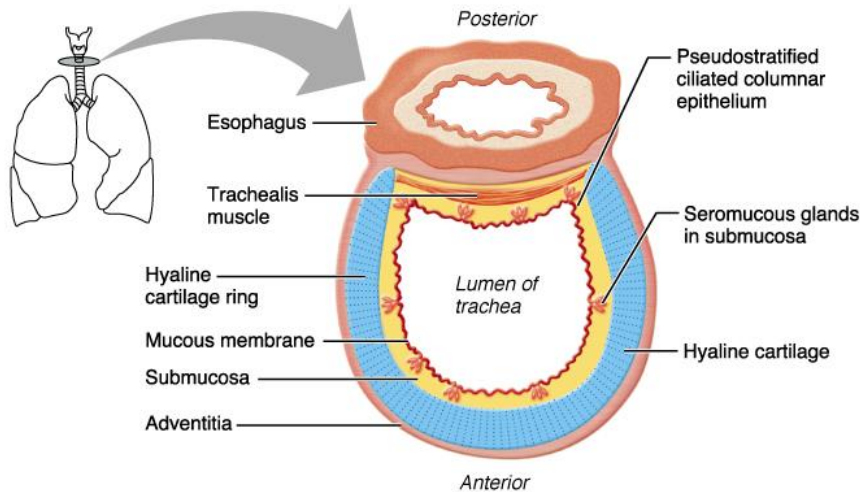


TRACHEALIS, TRACHEOBRONCHIALIS NYIROKCSOMÓK



* Carina-associated node

TRACHEA – TOPOGRAPHIA



Oesophagus

Glandula thyroidea

(és nyaki fasciák + izmok + sternum)

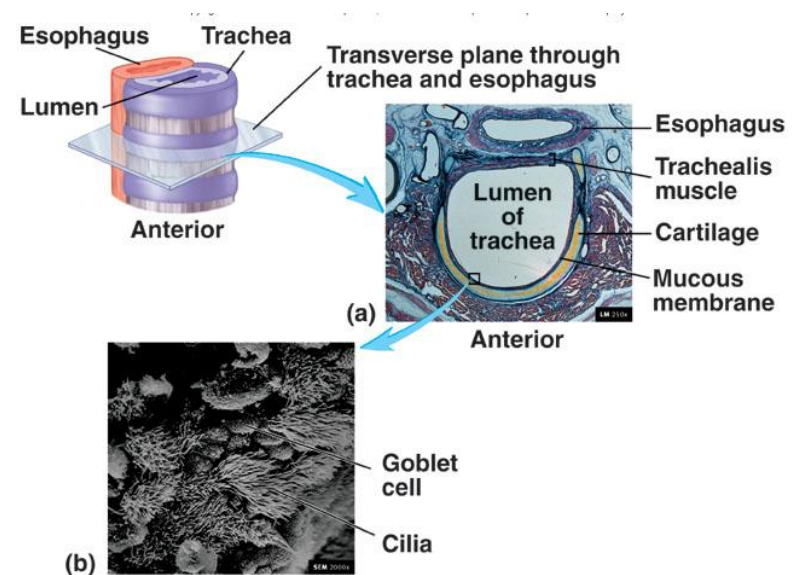
Vagina carotica (*Fossa scalenotrachealis*)

Venák

Arcus aortae és ágai

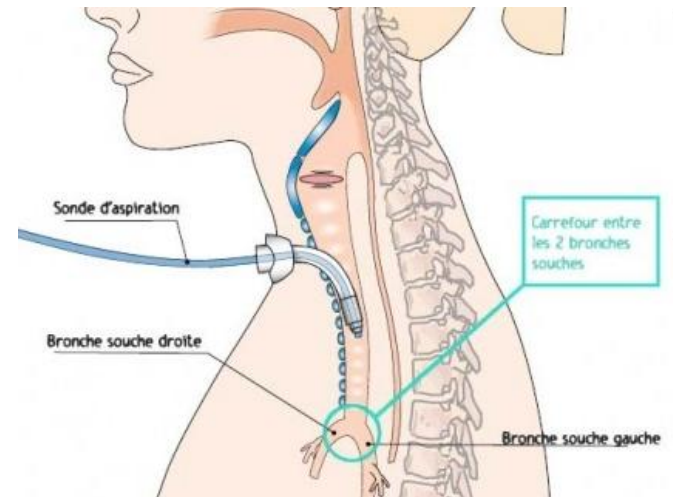
N. vagus, (n. laryngeus recurrens !)

Pleura



TRACHEOTOMIA, TRACHEOSTOMA

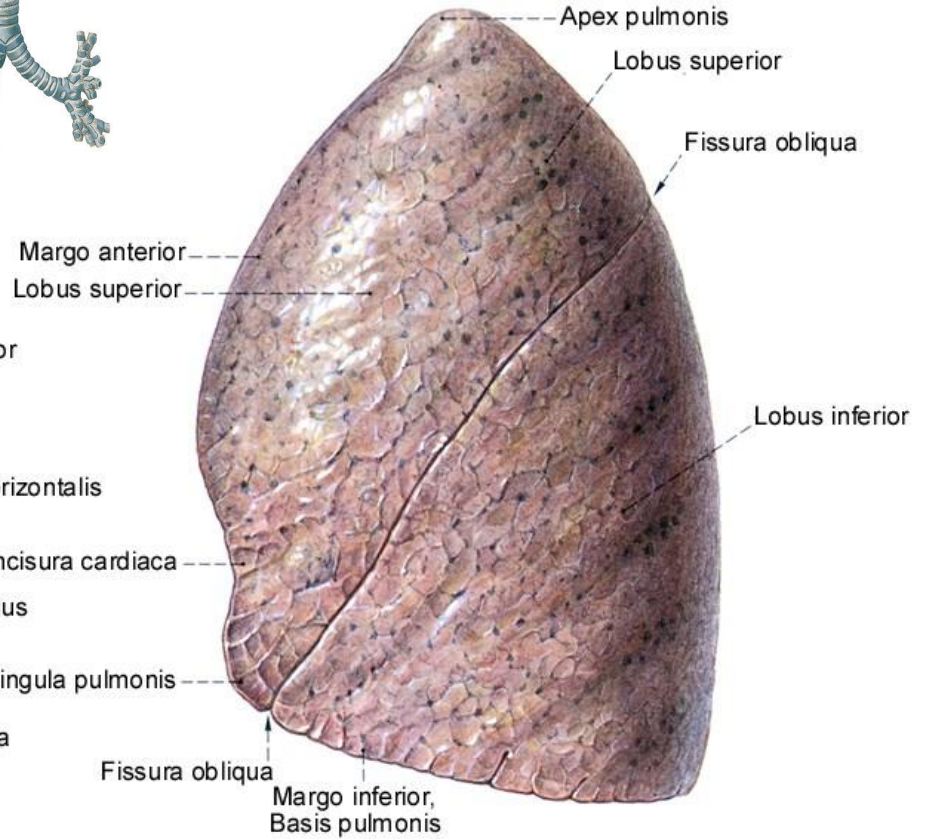
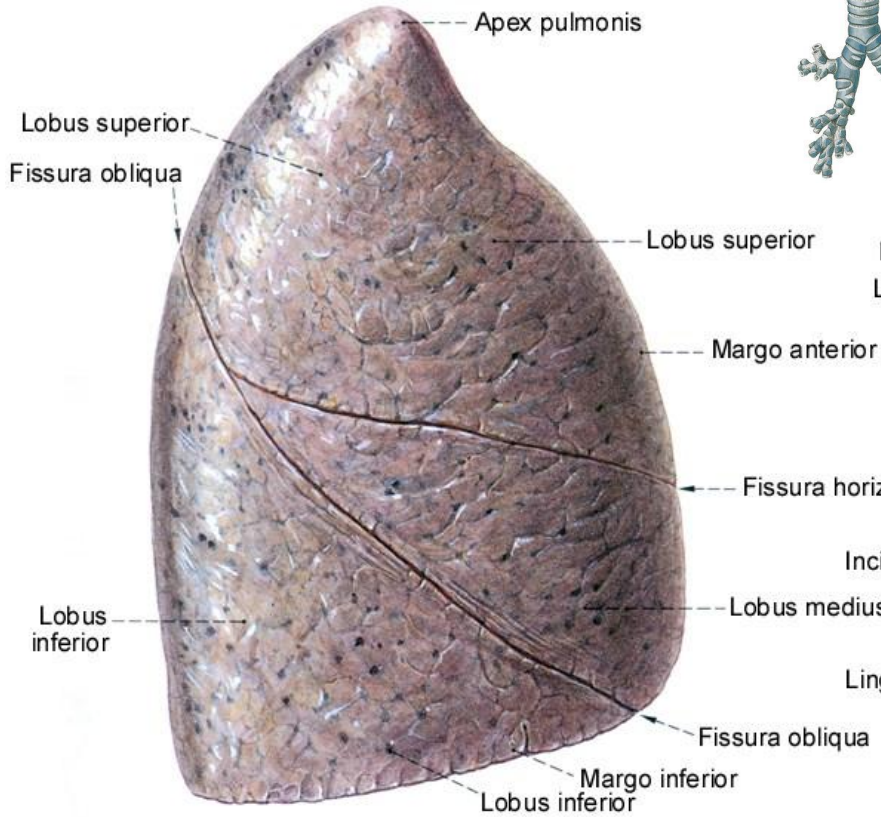
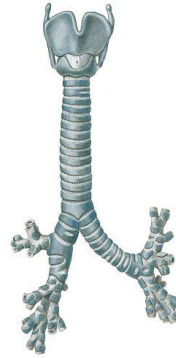
Localis anaesthesia. Hosszanti vagy haránt metszés a gyűrűporc alatt. A linea albán élesen behatolva szétválasztjuk a lapos nyelv alatti izmokat (mm. sternohyoideus, mm. sternothyrohyoideus) és elpreparáljuk őket a pajzsmirigyektől (lateralisan 2 db négyágú kosaras sebészeti kampó). A pajzsmirigy isthmusát Kocher-féle érfogók között átvágjuk, lekötjük a lobus pyramidalist. A pajzsmirigy sebszéleit „8”-as öltésekkel, felszívódó fonállal aláöltjük. **Bose metszés** (Bose szalag = a pajzsmirigyet köti össze a trachea felső szélével). Az isthmus ezáltal a tracheáról lefelé tolhatóvá válik (**Stiel-tupfer**). A pajzsporcot horoggal cranial irányba kampózzuk, caudal irányba Desmarres kanál behelyezése. A trachea most már szabadon fekszik előttünk. Szükség szerint a tracheába érzéstelenítő oldatot fecskendezünk. **A tracheát a 2.-3. porc között nyitjuk meg** (15-ös szike + horgas csipesz vagy Hartmann-féle conchotom), melybe gégekanül vagy ballonos tubus/kanül kerül. **Az izmokat felszívódó öltésekkel egyesítjük, majd a nyakat rétegesen zárjuk. Ügyelni kell arra, hogy ne alkalmazzunk szoros öltéseket a bőr alatti emphysema kialakulásának elkerülése érdekében.** Fedőkötés.



PULMO

500-700 g

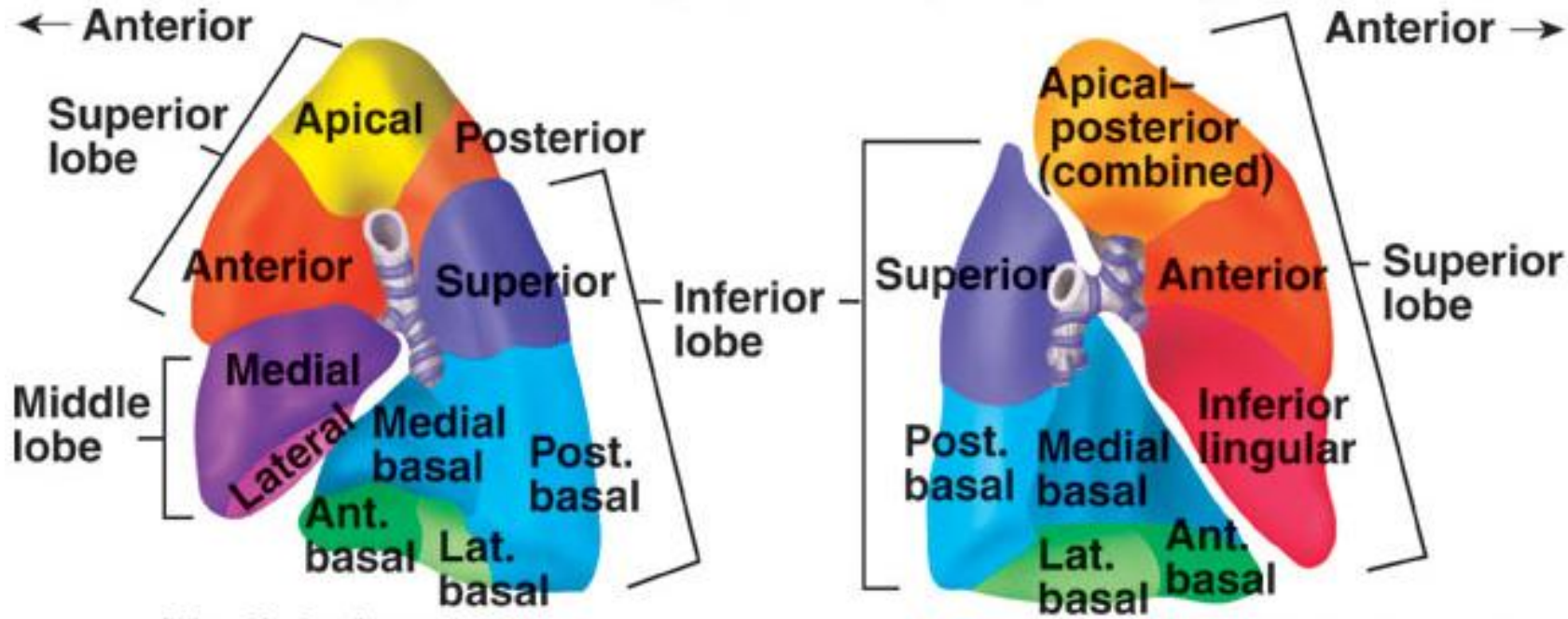
Bronchus lobaris – lobus



Pulmo dexter
3 lobus

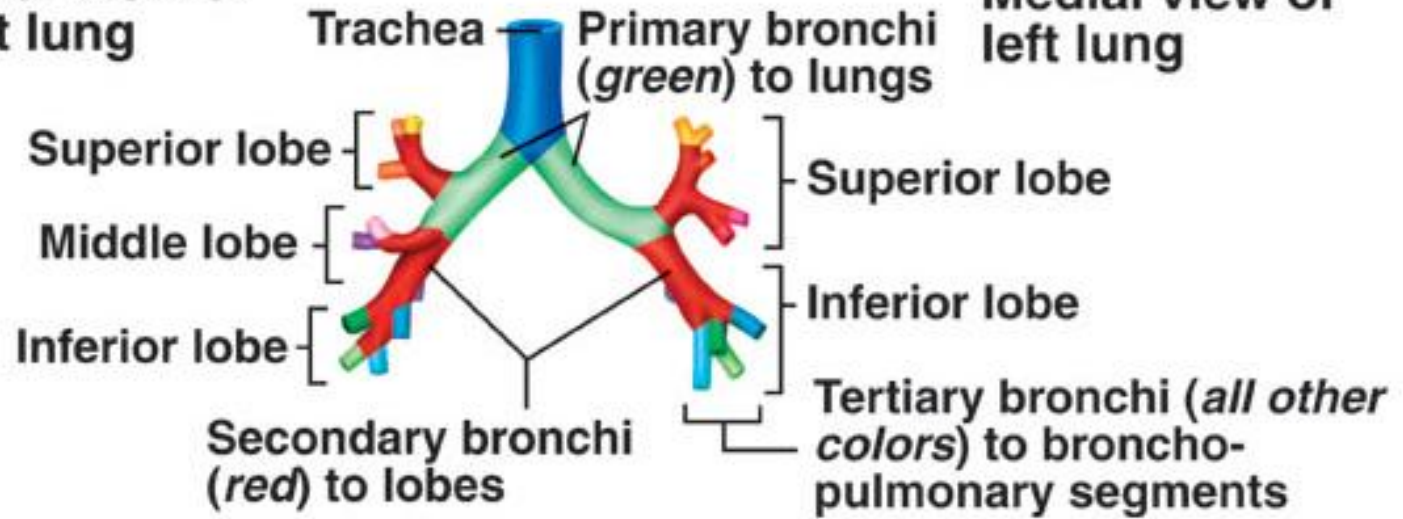
Pulmo sinister
2 lobus

TÜDŐSEGMENTUMOK



Medial view of right lung

Medial view of left lung

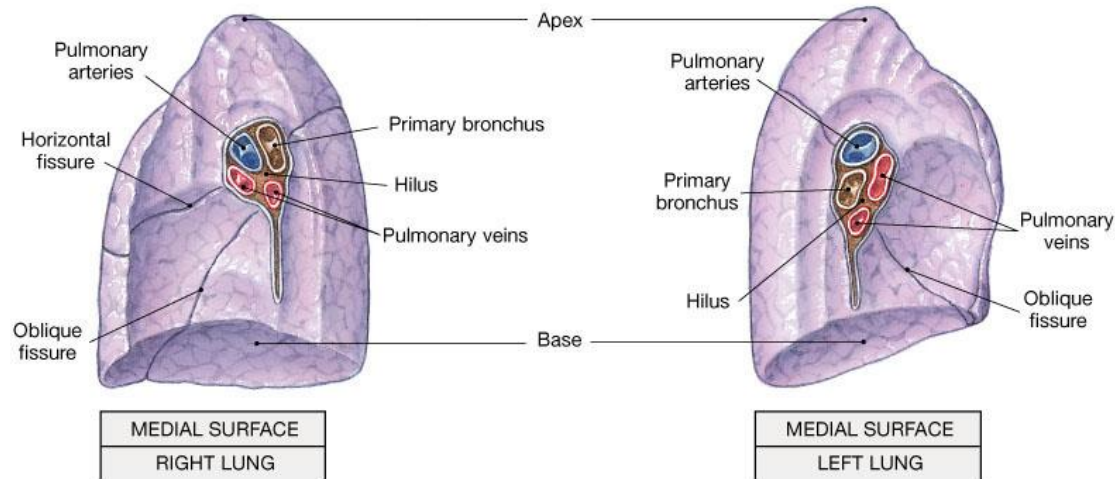
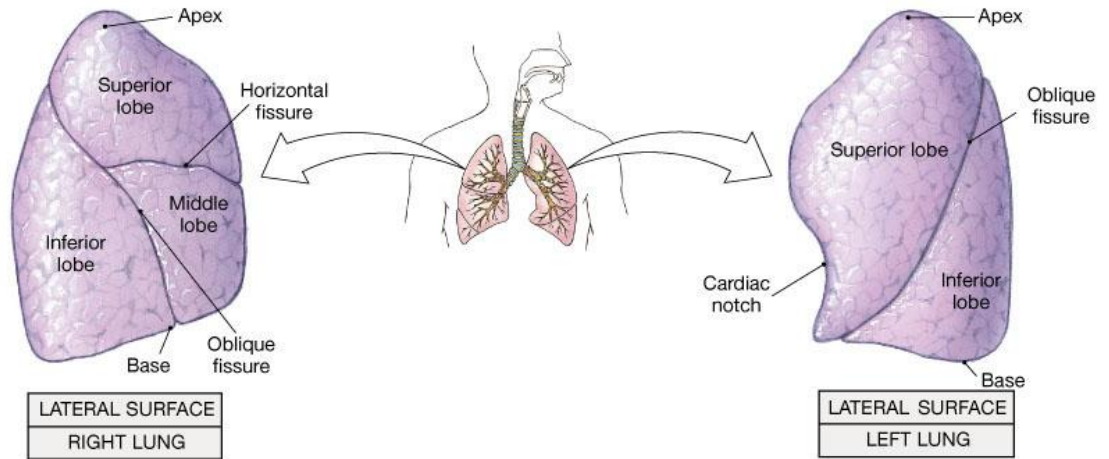


A TÜDŐK LEÍRÁSA

- **RADIX**
- **Facies costalis**
- **Apex**
- **Basis (Fac. diaphragmatica)**
- **Hilum (Fac. mediastinalis)**

- **PULMO SINISTER**
- **Incisura Cardiaca**
- **Fissura Obliqua**

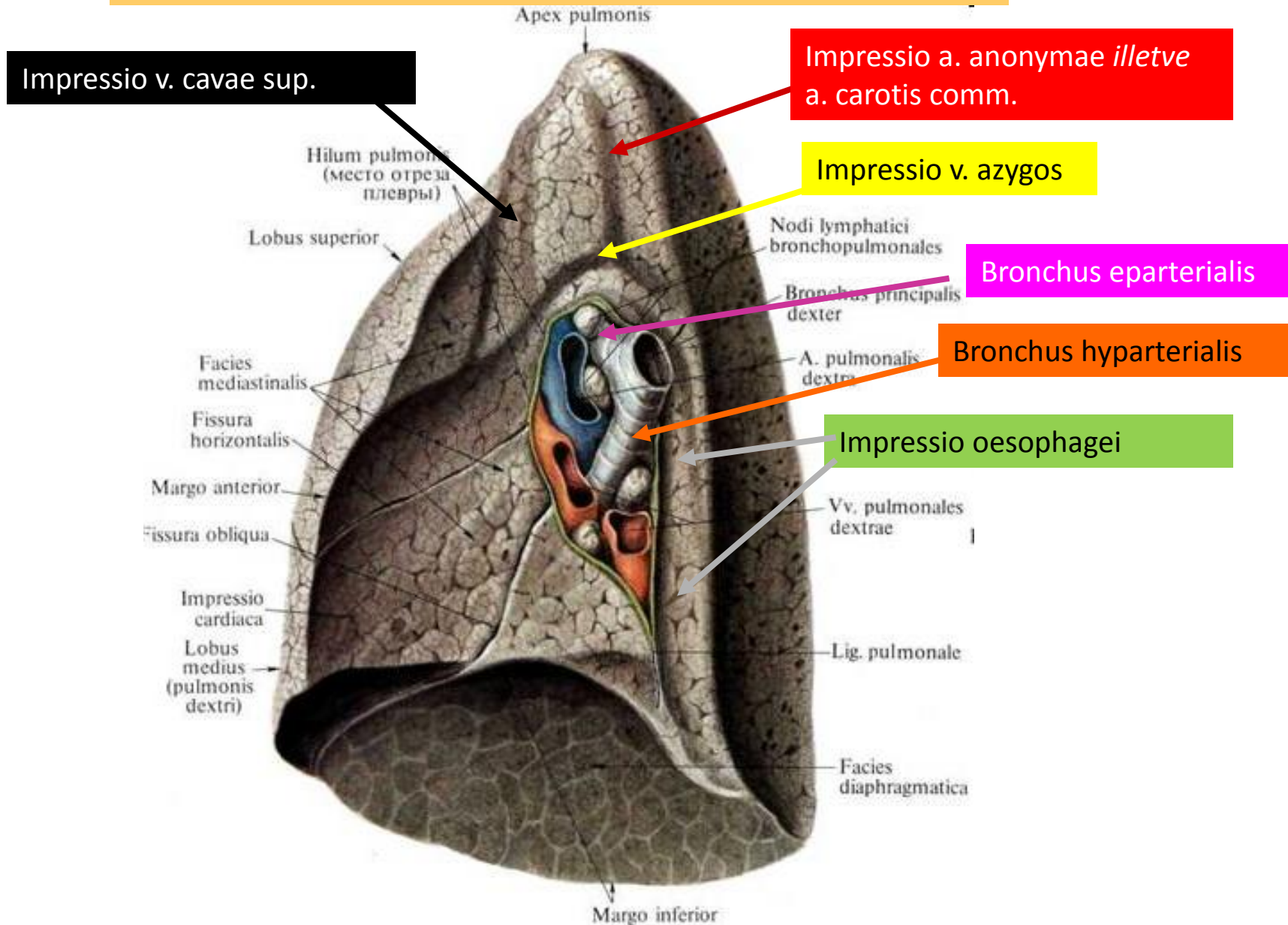
- **PULMO DEXTER**
- **Fissura Obliqua**
- **Fissura Horizontalis**
- **LOBI**



Segmentum Bronchopulmonale (10 – 10)

- **Lobuli**
- **Stroma (elasztikus ktsz)**

JOBB TÜDŐ – TOPOGRAPHIA

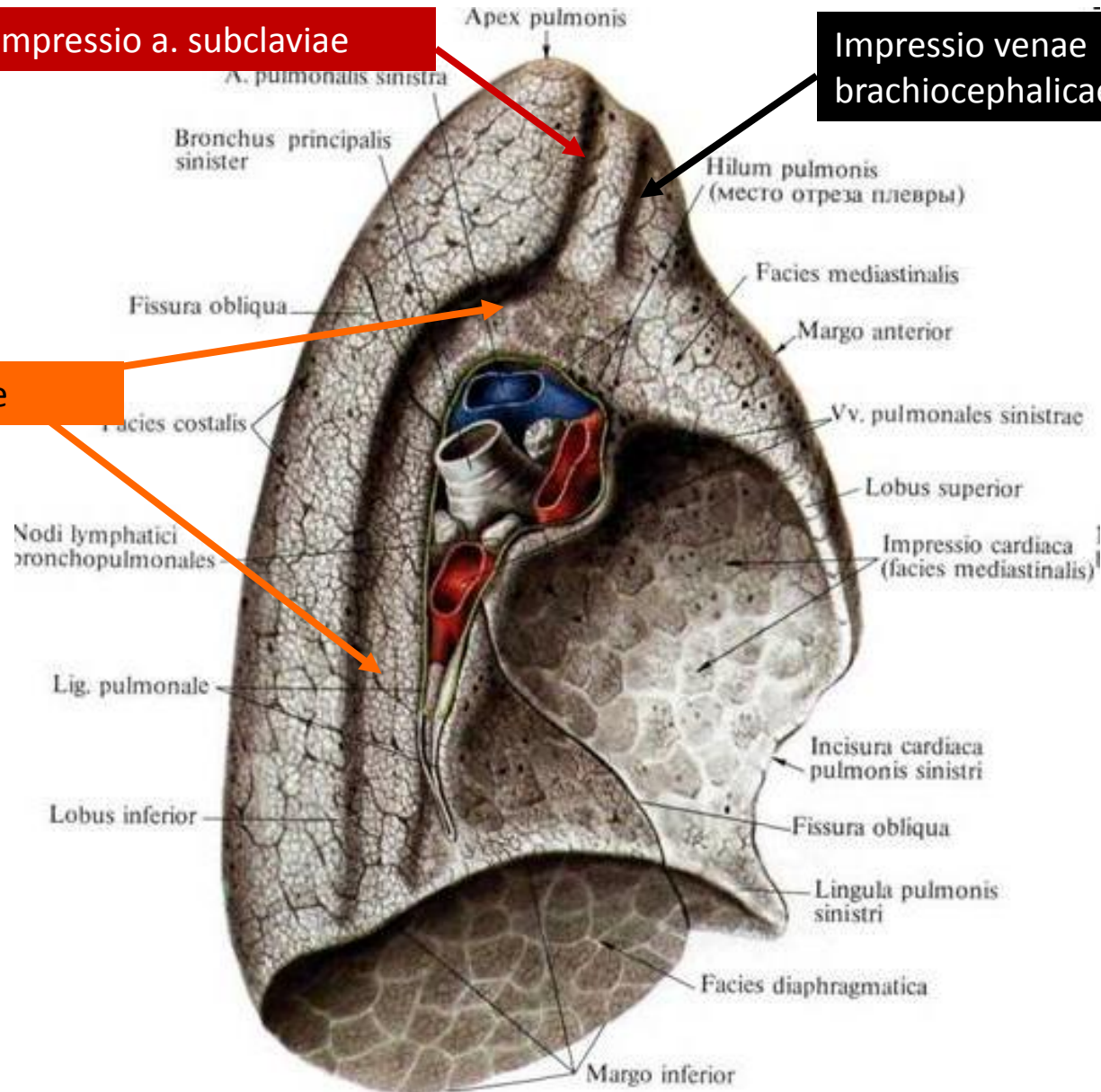


BAL TÜDŐ – TOPOGRAPHIA

Impressio a. subclaviae

Impressio venae
brachiocephalicae

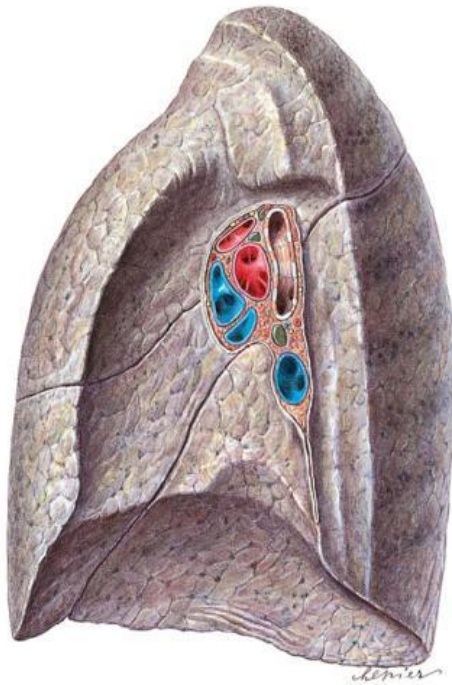
Impressio aortae



HILUM ET RADIX

B
A
V

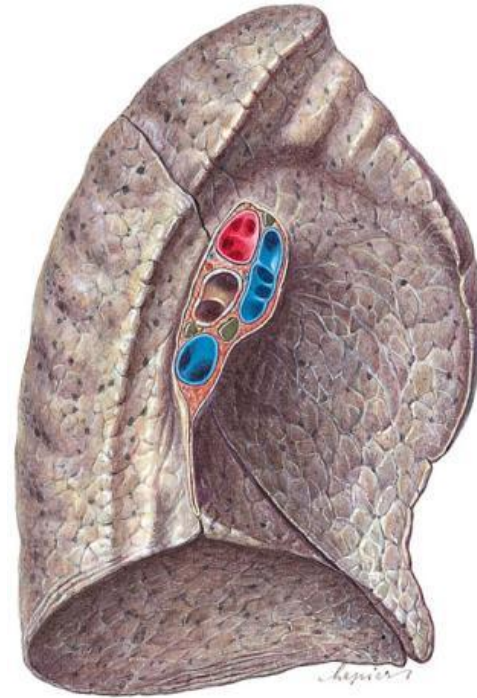
Ant.



Pulmo dexter

(V)
A
B
V

Ant.



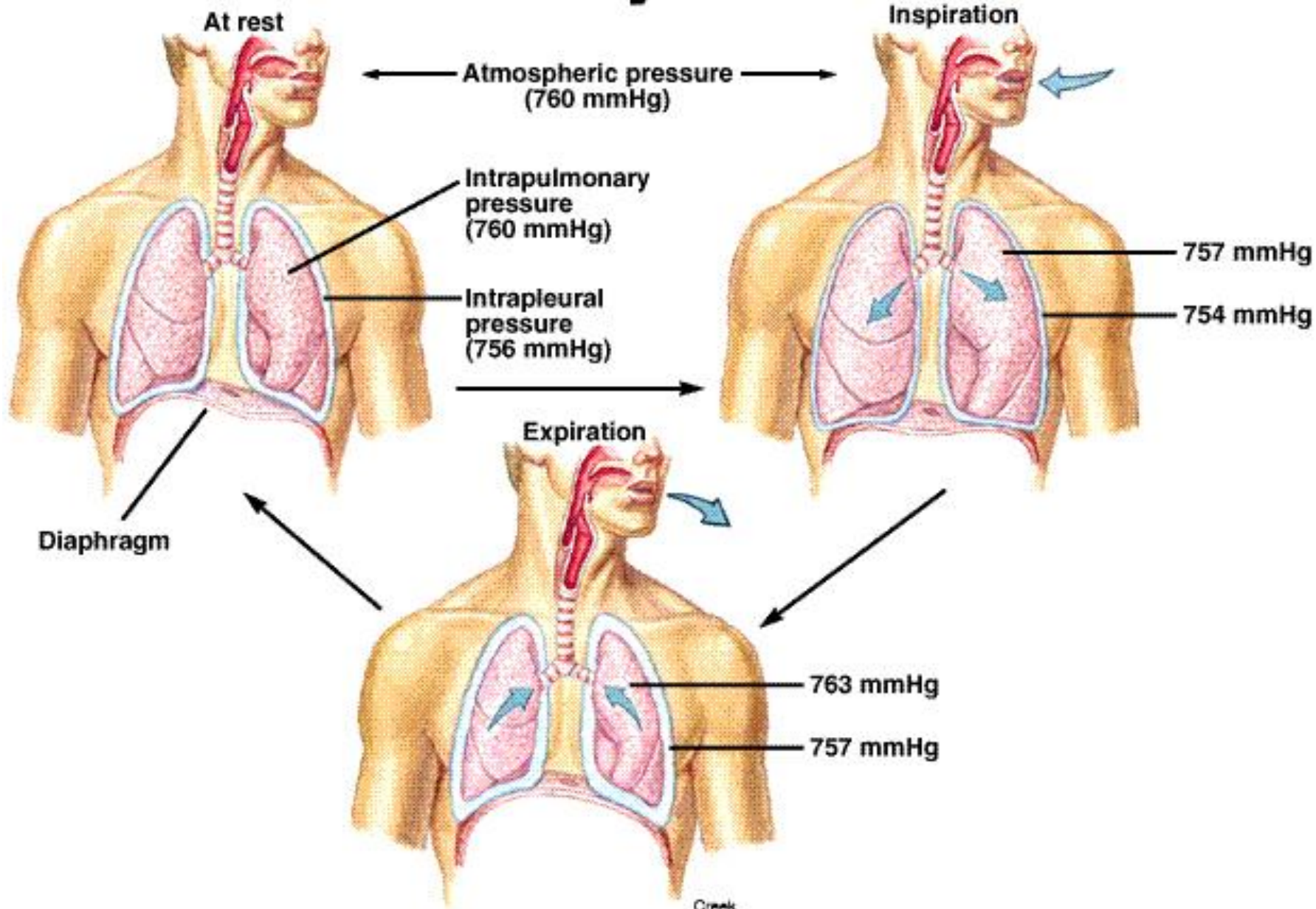
Pulmo sinister

Bronchus principalis hilyzete

eparterialis

hyarterialis

LÉGZÉS



BESZÉLNI VAGY LÉLEGEZNI 😊

- LÉGZÉS

- orr
- belégzés 40% (idő)
- kilégzés 60%
- 10 % Vitalkapacitás
- Thorax és diaphragma izmai

kilégzés

belégzés

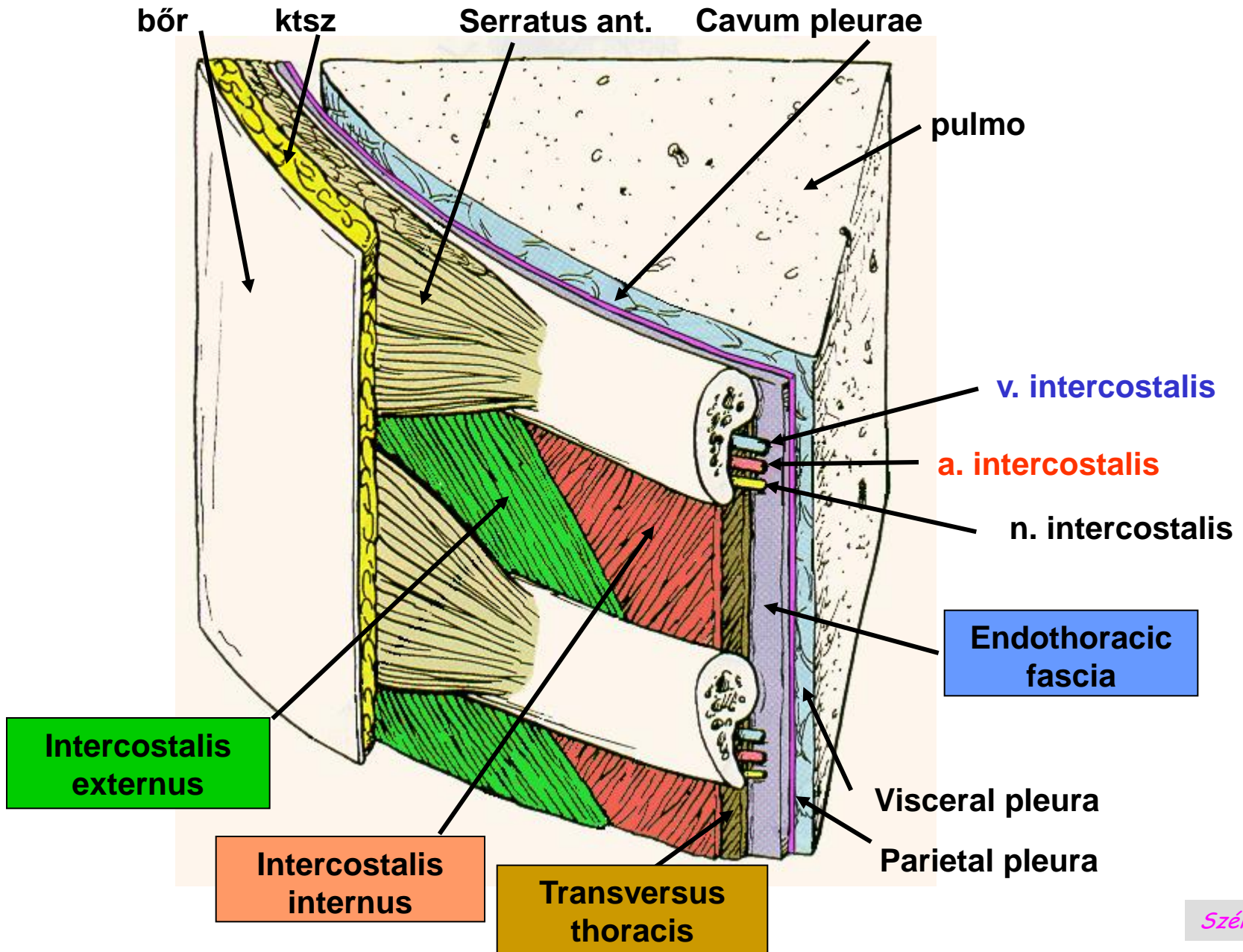
- BESZÉD

- száj
- belégzés 10% (idő)
- kilégzés 90%
- 20-25 % Vitalkapacitás
- Thorakoabdominalis izomzat

kilégzés

be

A MELLKASFAL ALKOTÓELEMEI



A PLEURA

Savós hártya

Pleura Parietalis

Pleura costalis

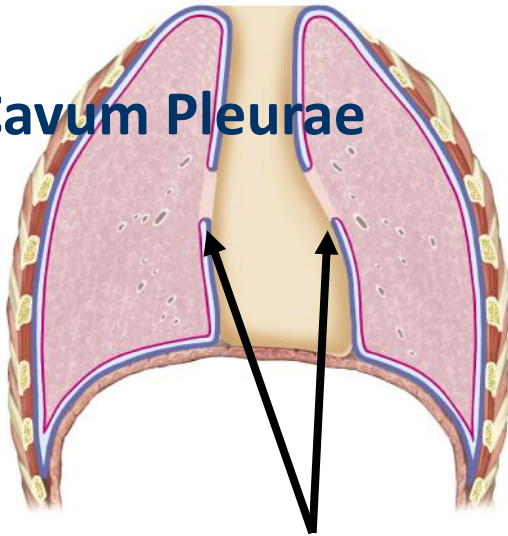
Pleura mediastinalis

Pleura diaphragmatica

Cupula pleurae

Pleura Visceralis

Cavum Pleurae



Ligamentum pulmonale

(frontalis helyzetű kettőzet)

VÉRELLÁTÁS

Pleura parietalis : aa. intercostales, a. thoracica lateralis,

Pleura visceralis: aa., vv. bronchiales

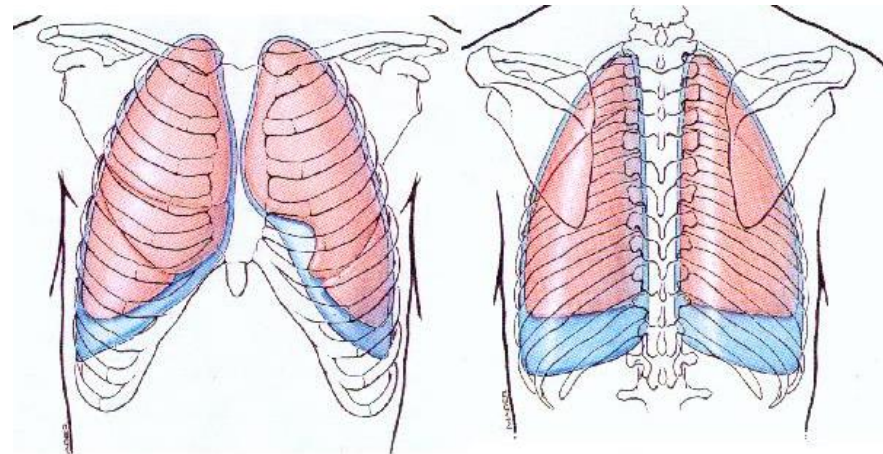
BEIDEGZÉS

Pleura parietalis: érző (fájdalom)

Pleura costalis: nn. intercostales;

Pleura mediastinalis, pleura diaphragmatica: n. phrenicus

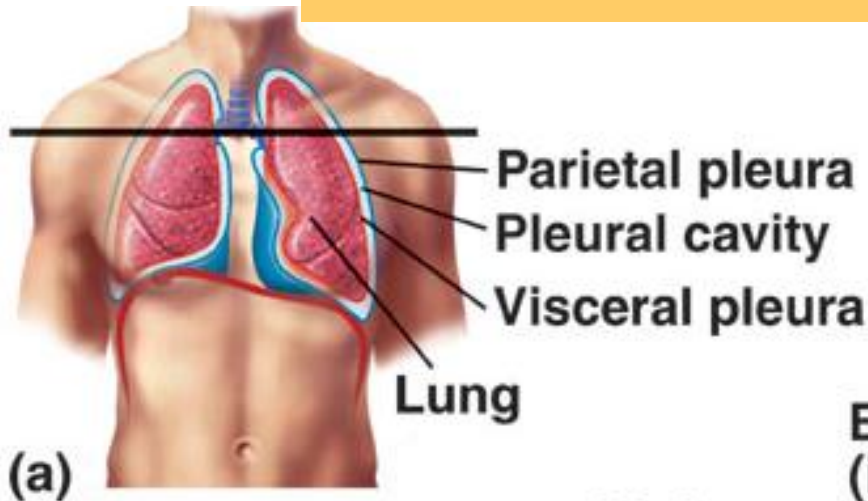
Pleura visceralis: (nincs fájdalomérzés)



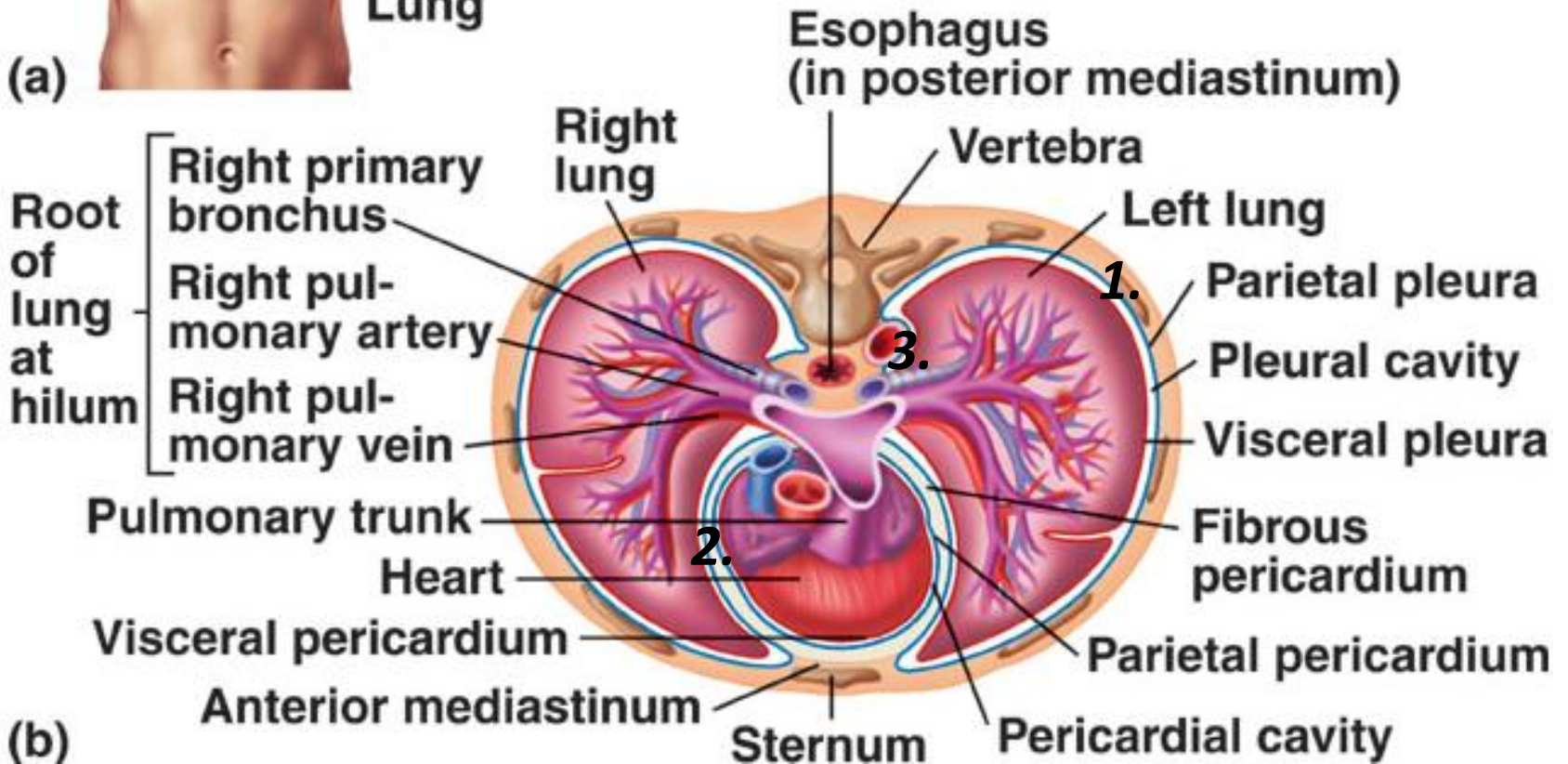
area interpleurica sup. (trigonum thymicum)

area interpleurica inf. (trigonum pericardiacum)

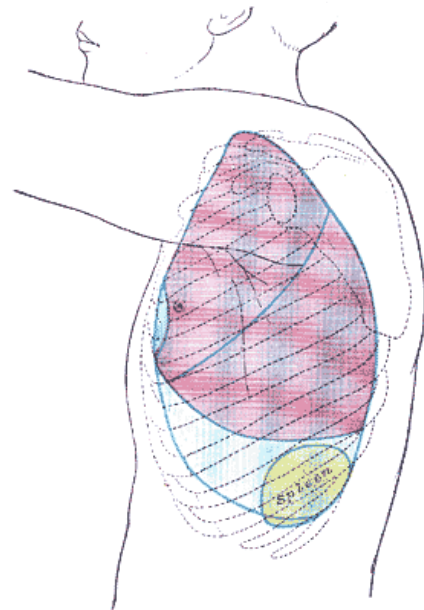
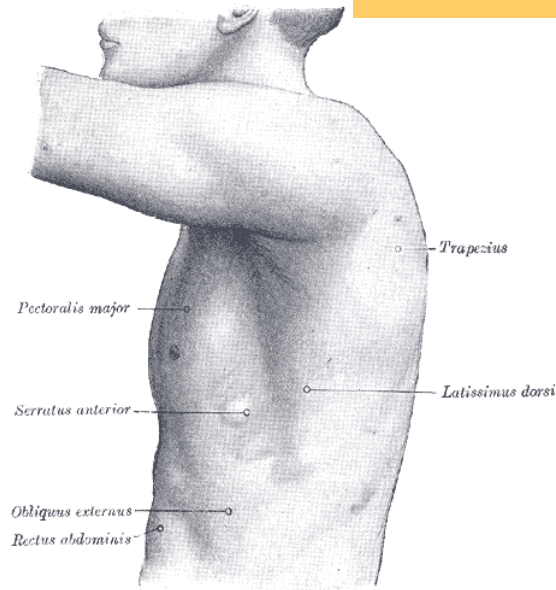
A PLEURAŰ RECESSUSAI



1. *COSTODIAPHRAGMATICUS*
2. *COSTOMEDIASTINALIS*
3. *DIAPHRAGMATICO-MEDIASTINALIS*

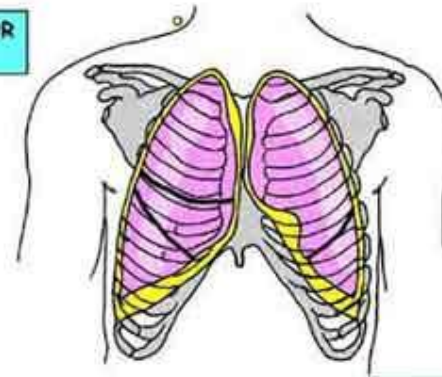


A TÜDŐ VETÜLETEI



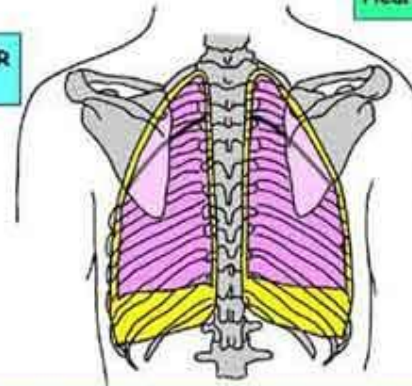
PLEURAL AND LUNG SURFACE MARKINGS

ANTERIOR VIEW



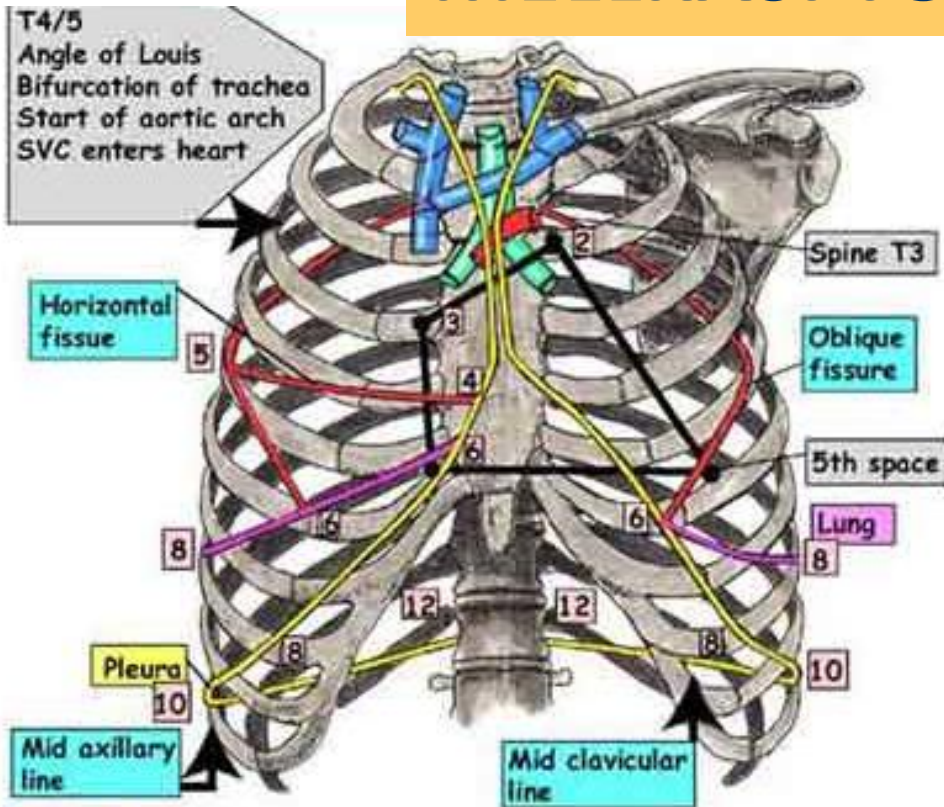
Lung is purple
Pleura is yellow

POSTERIOR VIEW



Note that the pleura extends just below the 12th rib posteriorly. This is important in approaching the kidney surgically from behind

MELLKASI TOPOGRAPHIA



Pleura Starts above middle of medial third of clavicle
Meet at rib 2. Diverge at rib 4 (left more than right)
Right is still parasternal at rib 6. Both rib 8 in mid clavicular line, rib 10 in mid axillary line and rib 12 posteriorly
(Mnemonic - 2-4-6-8-10-12)

Lung 2 spaces less than pleura below 6th rib

Heart 2nd left rib to 3rd right rib to 6th right rib (all parasternal)
to 5th intercostal space midclavicular line (9cm from midline)
(Mnemonic 2-3-6-5 1/2)

Oblique fissure Spine of T3 posteriorly to 6th rib anteriorly (medial border of abducted scapula)

Horizontal fissure 4th rib/costal cartilage anteriorly to 5th rib in mid axillary line (Mnemonic for both fissures 3-6-4-5)

PLEURA

TÜDŐ

LEBENYHATÁROK

BIFURCATIO TRACHEAE

PERICARDIUM

ARCUS AORTAE

*NAGY VÉNÁK (V. CAVA SUP.,
VV. BRACHIOCEPHALICAE)*

MEDIASTINUM

Elválasztó képlet a bifurcatio tracheae

MEDIASTINUM ANTERIUS

Mediastinum cardiacum

szív és szívburok

n. phrenicus, a, v pericardiophrenica

Mediastinum supracardiacum

corpus adiposum retrosternale

v. cava sup. ágai

aortaív és ágrendszere

MEDIASTINUM POSTERIUS

Oesophagus

N. vagus

N. laryngeus recurrens

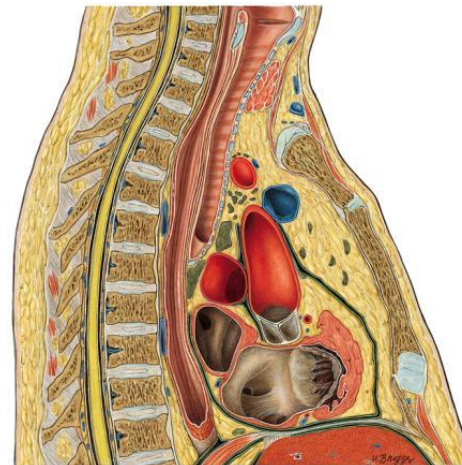
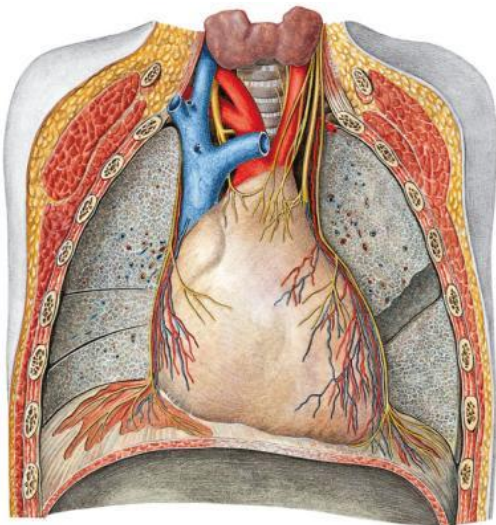
Aorta (+ páros ágak)

Duct. thoracicus

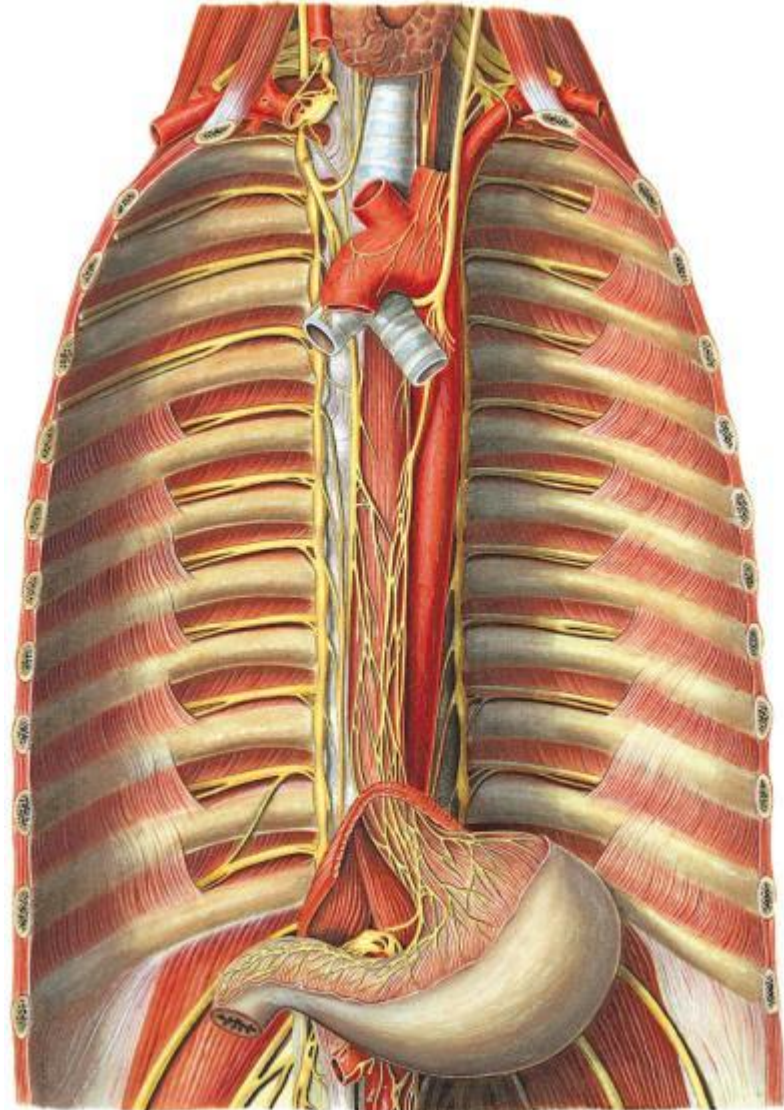
V. Azygos (+ vénái)

V. Hemiazygos et v. h.a. accessoria

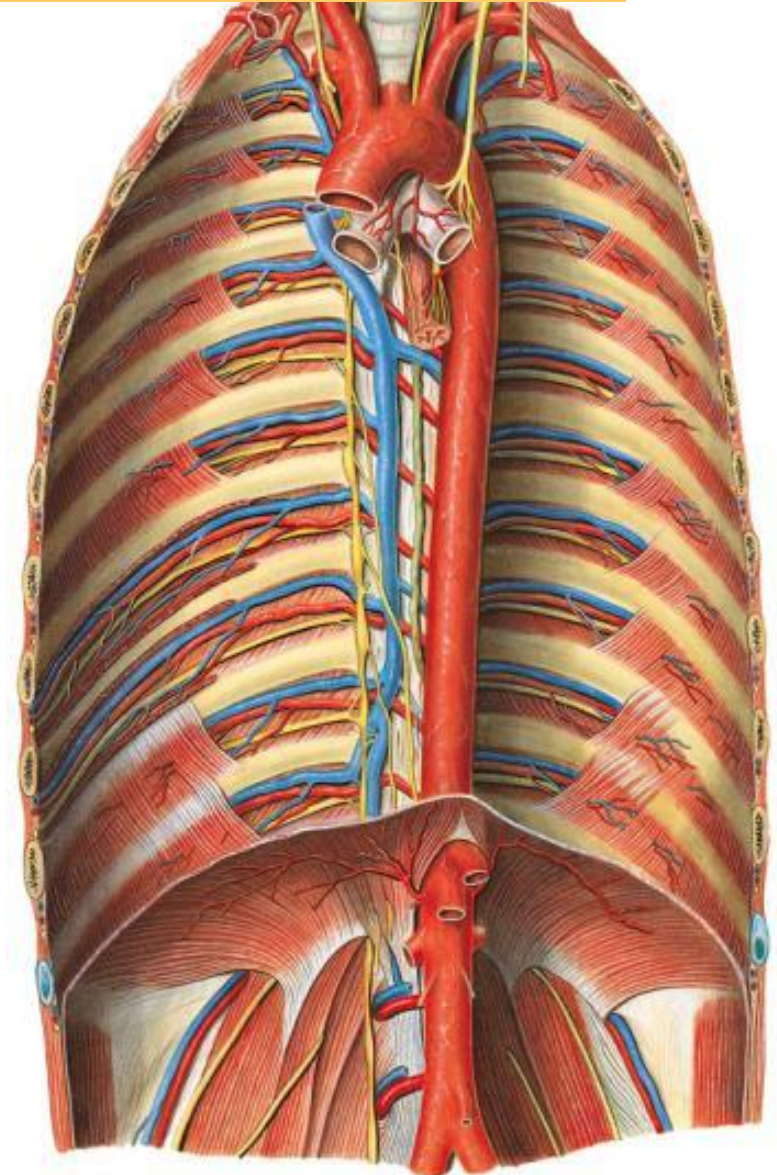
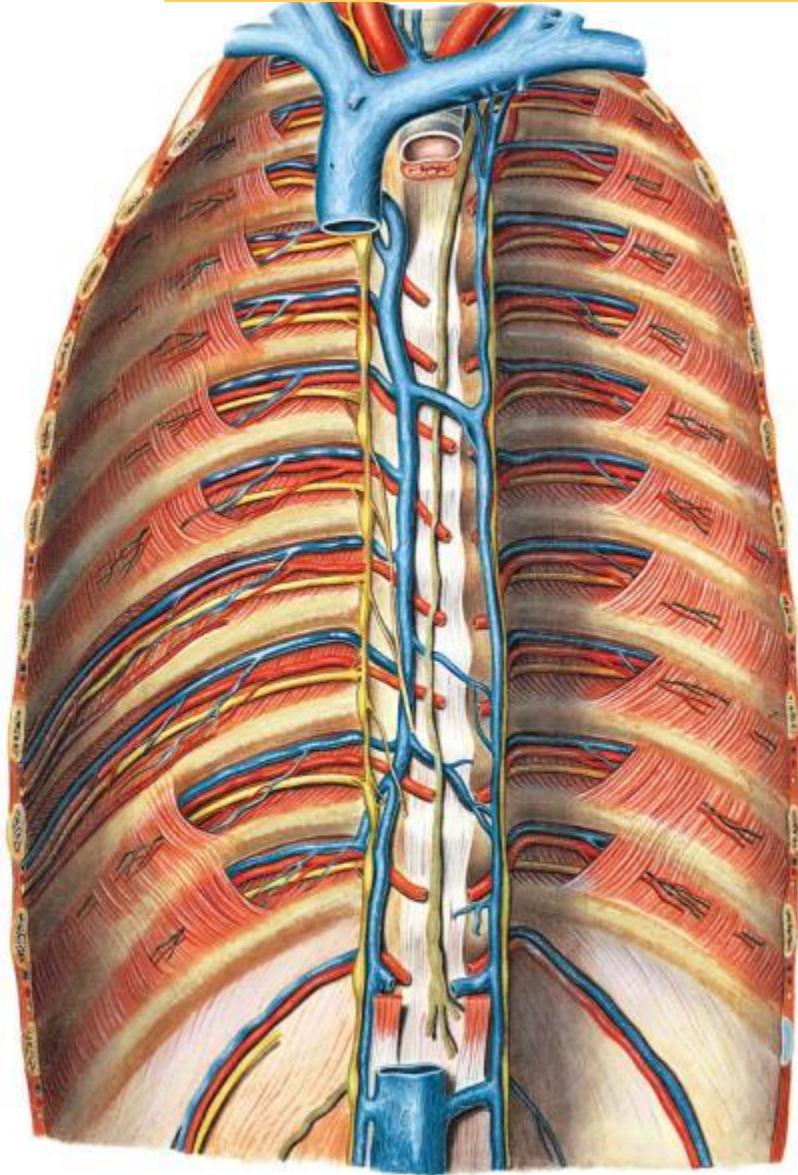
Truncus sympaticus (nn. Splanchnici)



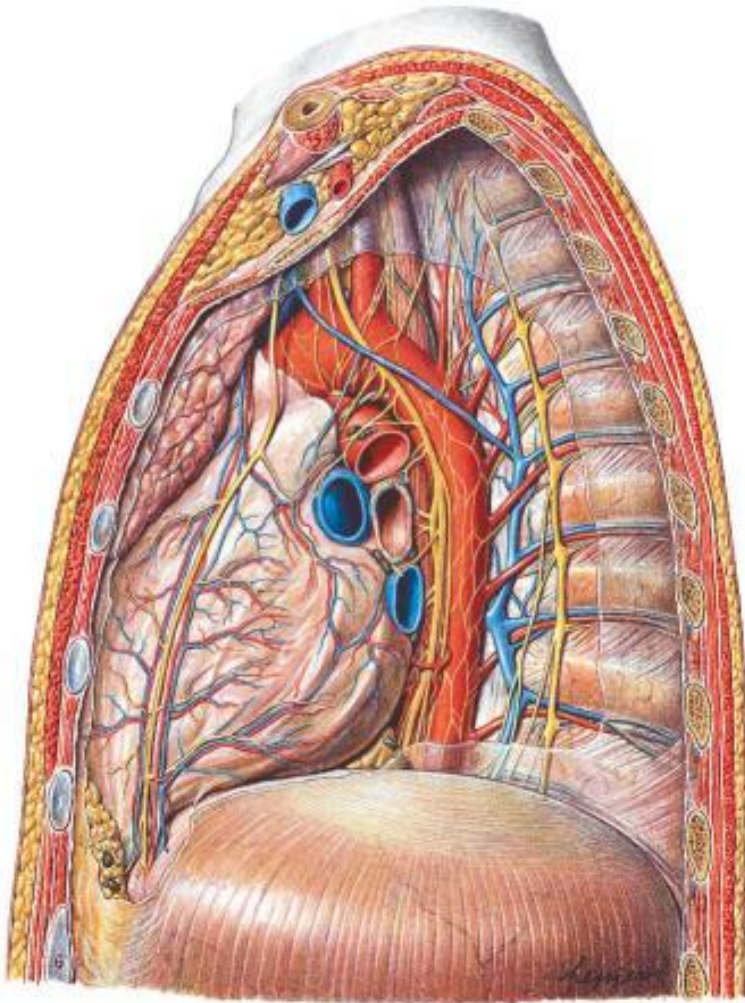
MEDIASTINUM POSTERIUS 1



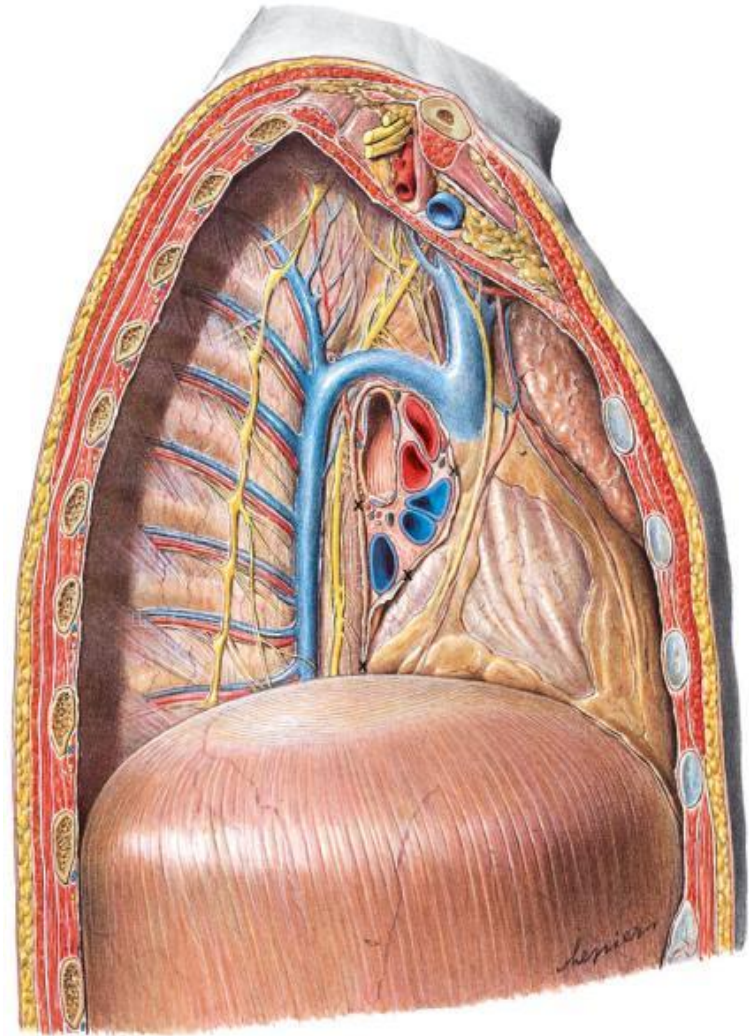
MEDIASTINUM POSTERIUS 2



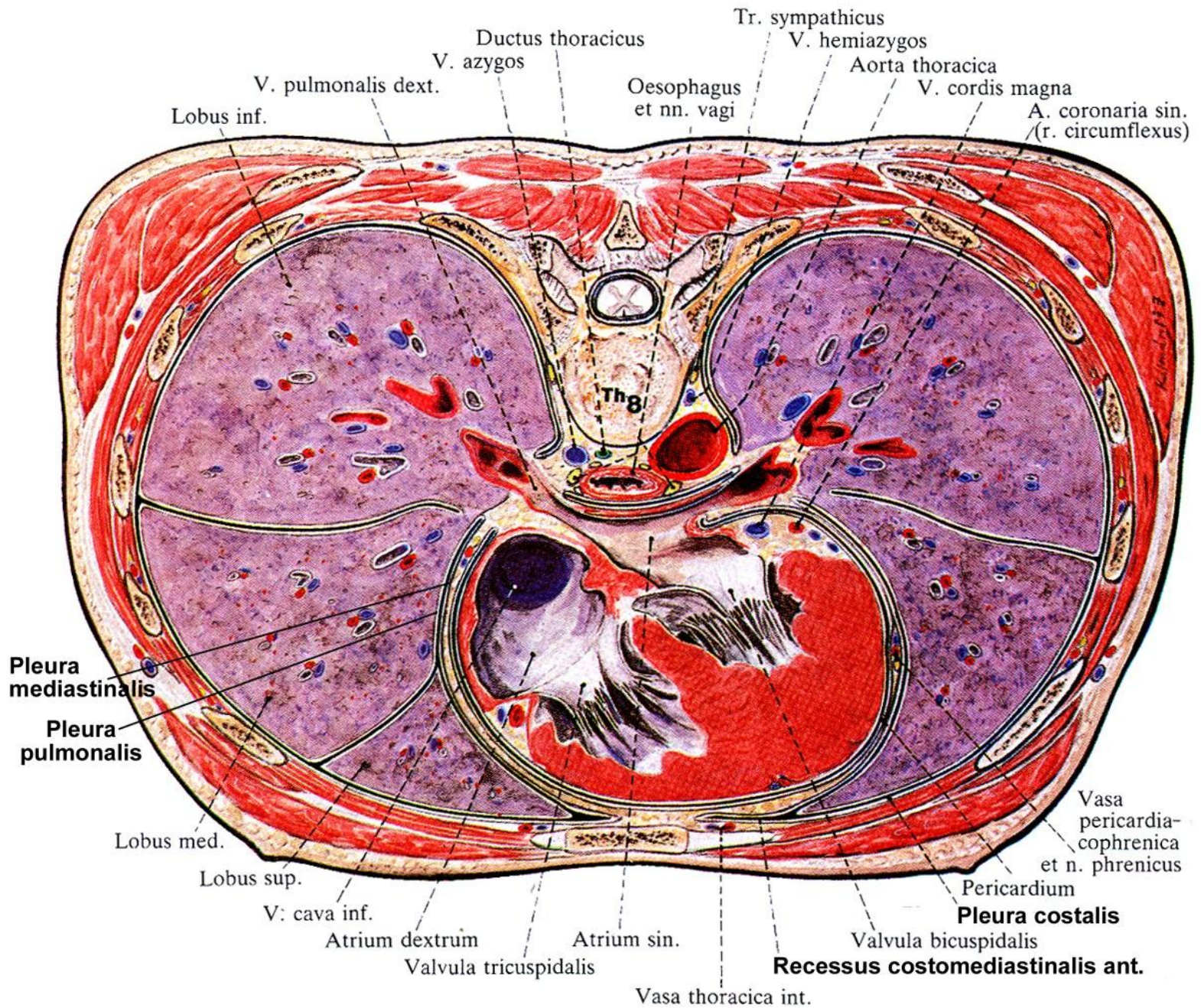
MEDIASTINUM POSTERIUS 3



bal

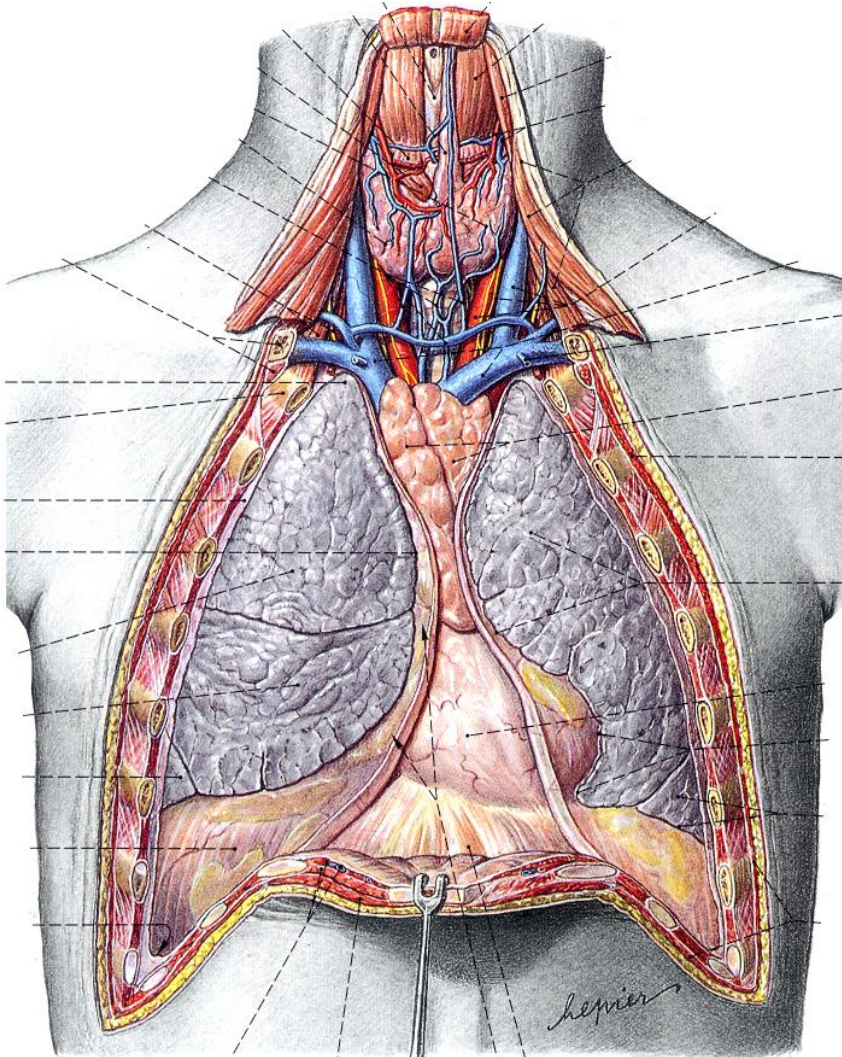


jobb



MEDIASTINUM ANTERIUS

A SZÍV ELHELYEZKEDÉSE



A SZÍV HELYZETE

A *mediastinum cardiacum* képlete.

alul - diaphragma *centrum tendineum*án fekszik,

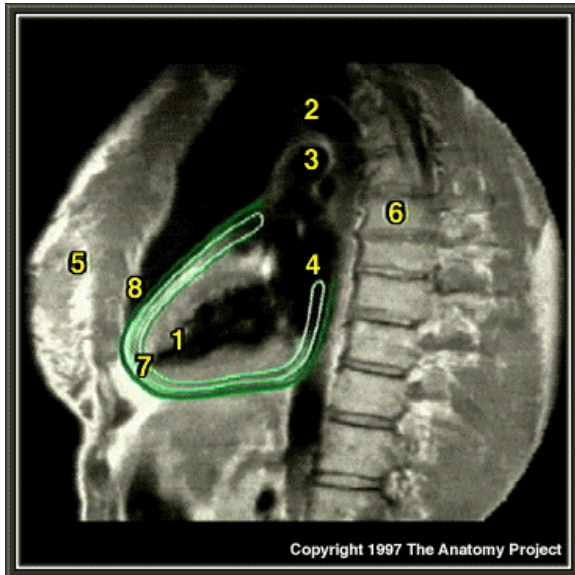
oldalt - tüdők határolják

felfelé - nagyerekben folytatódik (med. supracardiacum)

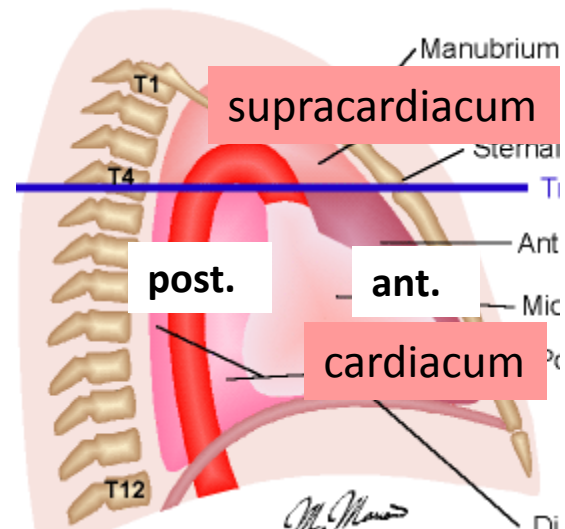
hátral - mediastinum posterius képleteivel érintkezik

Súlya 300 - 350 g, hossza: 12 -15 cm

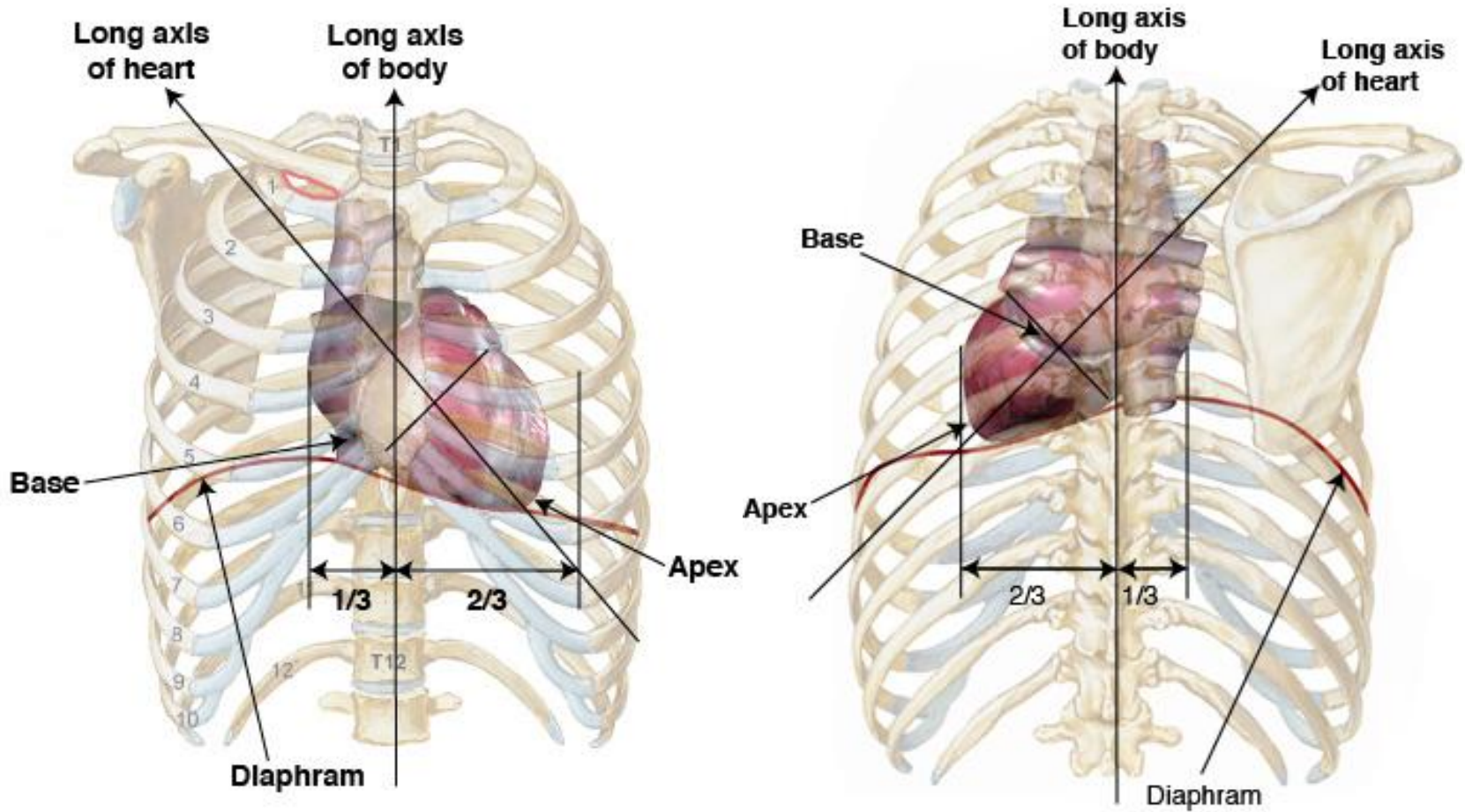
szélessége 9 -11 cm, „mélysége”: 5 -8 cm



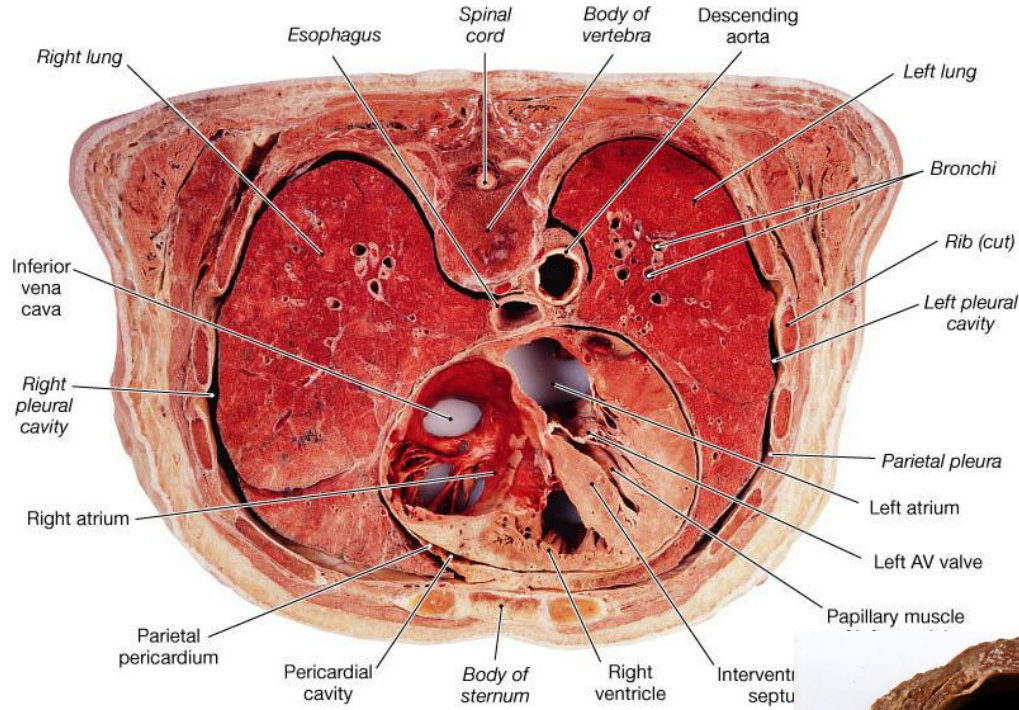
Mediastinum részei



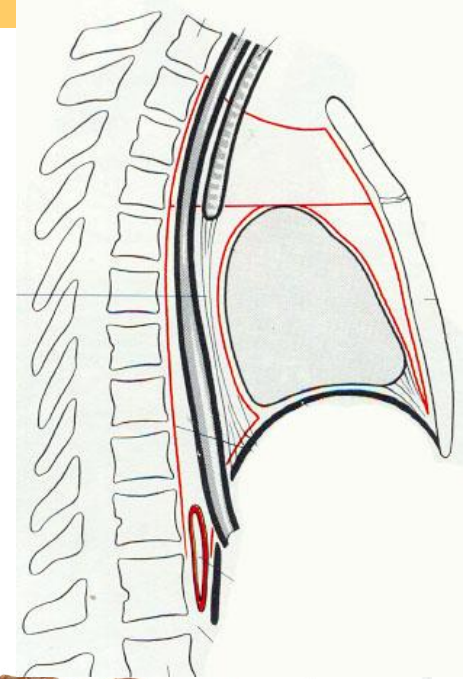
60 - 30 - 15



TOPOGRAPHIA



(d) Horizontal section



PERICARDIUM RÉSZEI, ÜREGE

Epicardium = Pericardium viscerale

Lamina visceralis (lamina serosa) a myocardiumot borítja (alatta subepicardialis zsír)

Pericardium parietale

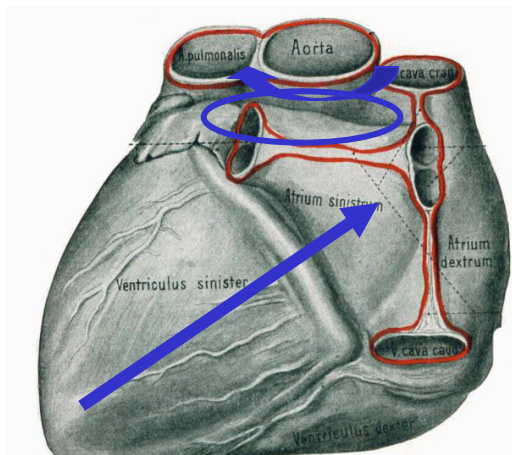
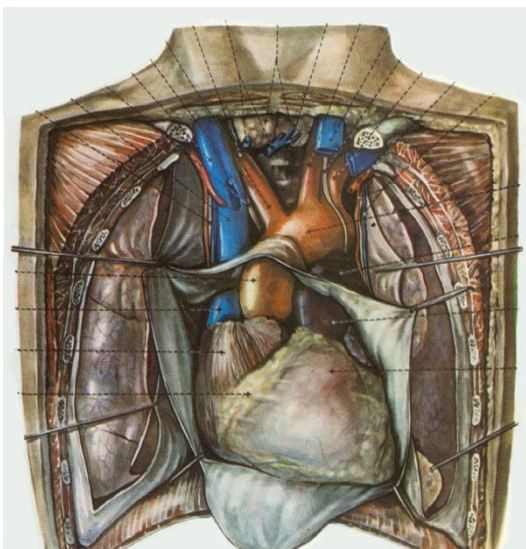
- lamina serosa

- lamina fibrosa (strata fibroelasticum et fibrillare)

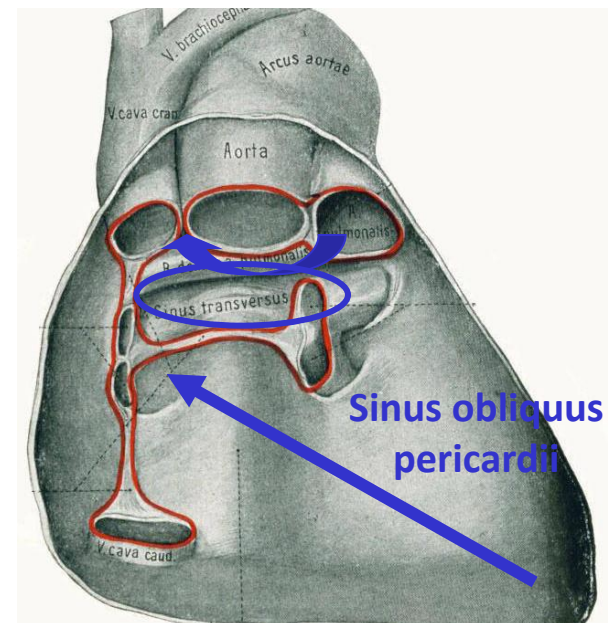
Fix helyei: Centrum tendineum

ligg. Sternopericardiaca

Áthajlások: arteriák körül és vénák körül

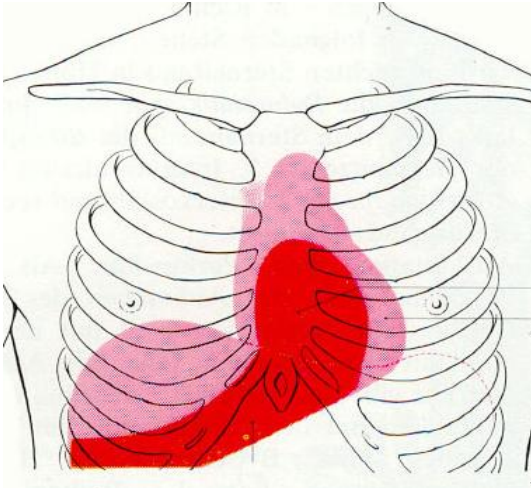


szív rekeszi felszíne

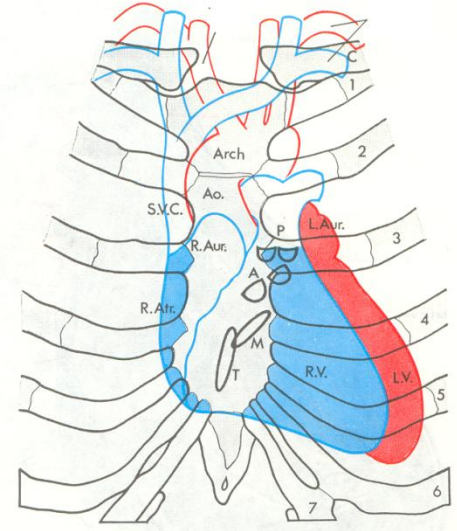


Pericardium ürege
szív eltávolítva

SZÍVTOMPULATOK



Abszolút szívtompulat
A sternum bal oldalán,
a IV-VI. bordák közötti
csecsemőtenyérnyi
terület, ahol nem
borítja tüdő a szívet.



Relatív szívtompulat határai

Bal oldalon parasternálisan a III. borda felső széle.

Balra a szívcsúslökés helye, vagy 1 hu-jal a medioclavicularis vonaltól
medial felé.

Jobbra a sternum jobb széle

Alul a jobb tüdő-rekesz határának medioclavicularis vonalban levő pontja
és a szívcsúcs-lökés közötti egyenes.

SITUS CORDIS

A SZÍV MELLKASFALI VETÜLETE

1. V. cava superior

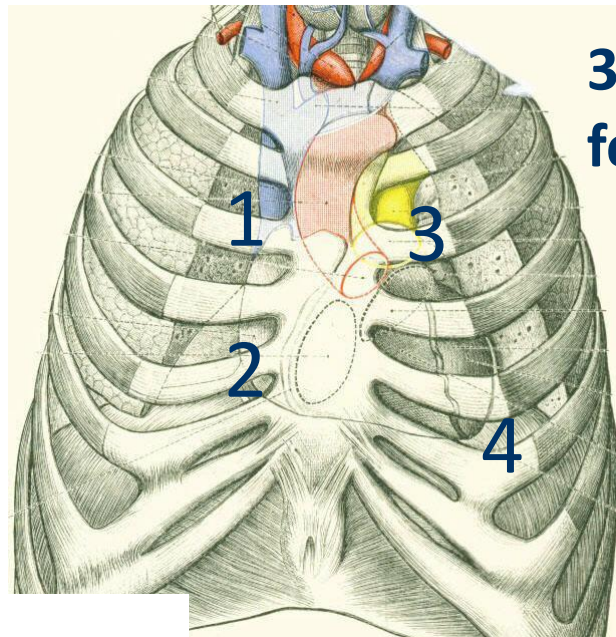
3. Bordaporc sternalis vége

2. V. cava inferior

6. Bordaporc sternalis vége

3. Sulcus coronarius felső vége

2. Spatium intercostale (bordaporc határán)



4. Apex cordis

5. Spatium intercostale területén, a medioclavicularis vonaltól medialisán

mediastinal

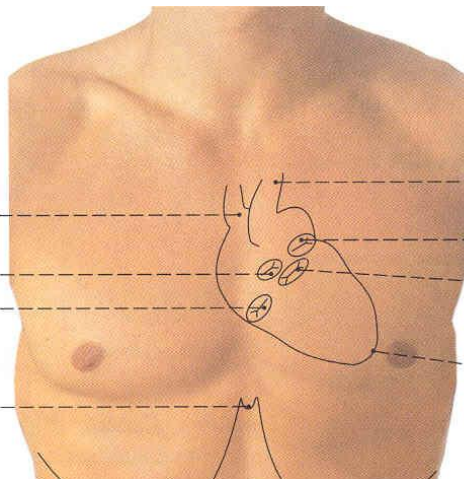
o)

V. cava superior

Valva aortae

Valva atrioventricularis dextra

Proc. xiphoideus



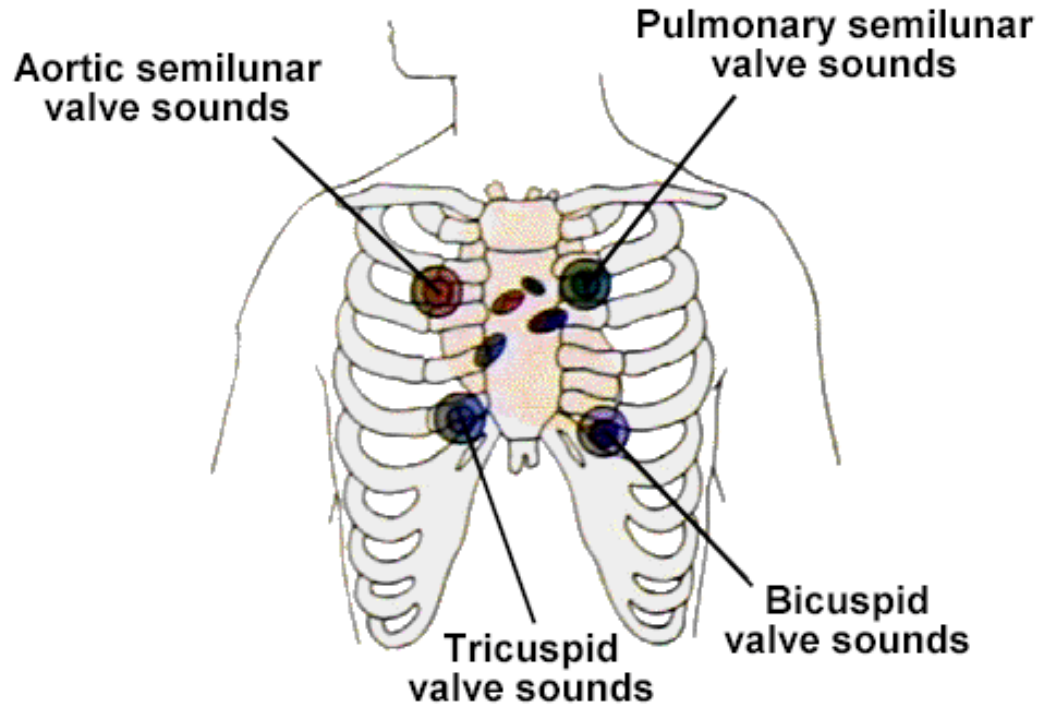
Aorta

Valva trunci pulmonalis

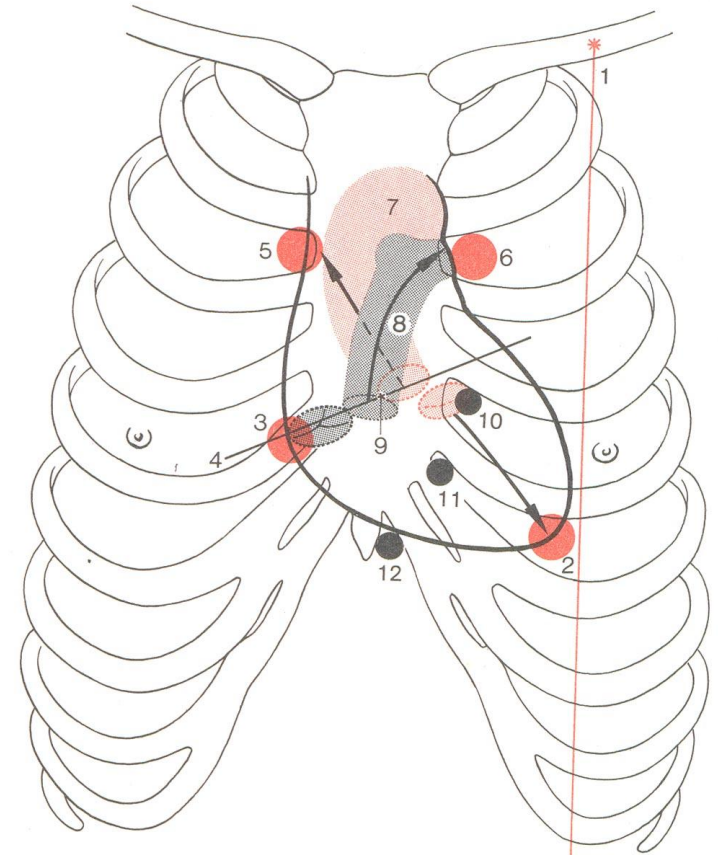
Valva atrioventricularis sinistra

Apex cordis

AUSCULTATIO – HALLGATÓZÁSI PONTOK



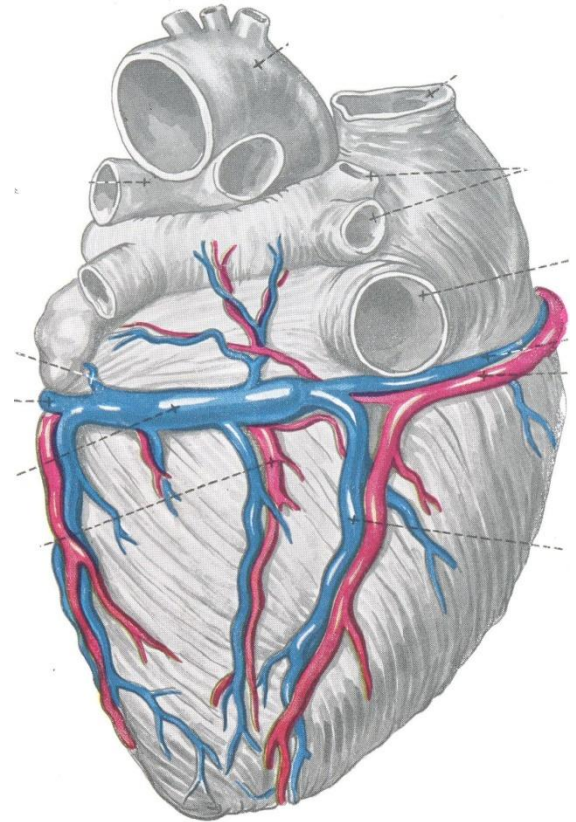
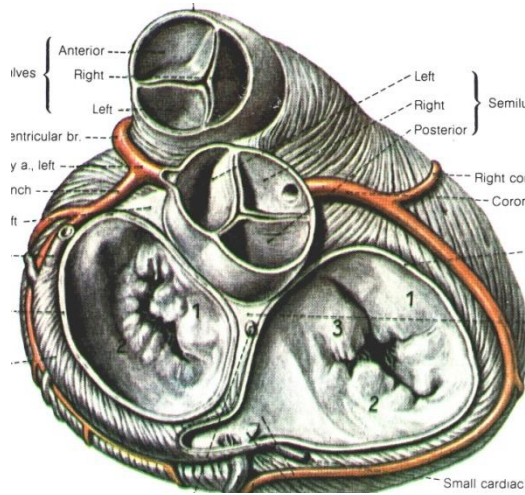
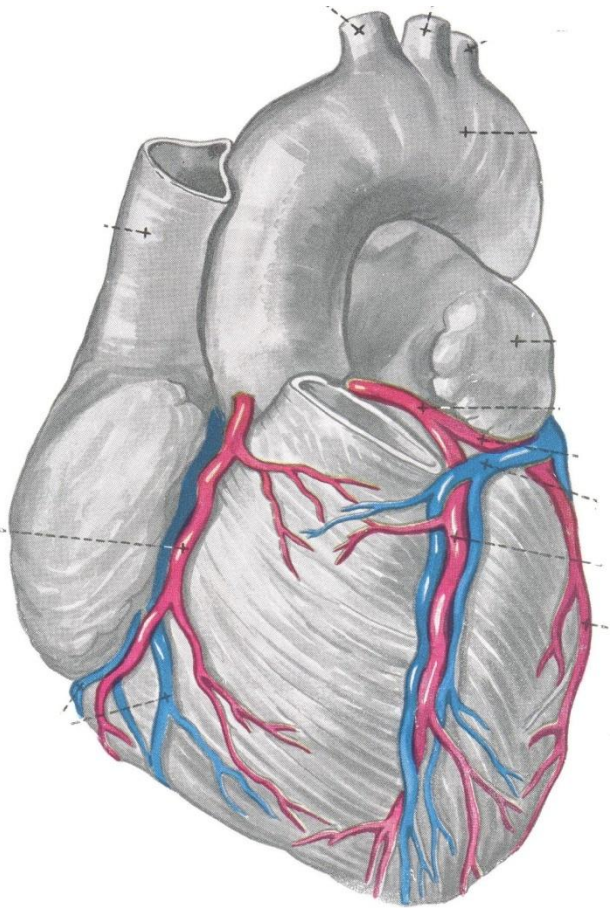
- P** Pulmonary - 2nd left space, parasternally
- A** Aortic - 2nd right space, parasternally
- M** Mitral - 5th left space, mid clavicular line (apex)
- T** Tricuspid - Over lower sternum



Első szívhang: kamrai systole elején, az AV-billentyűk záródásakor

Második szívhang: kamrai diastole elején, a semilunaris billentyűk záródásakor

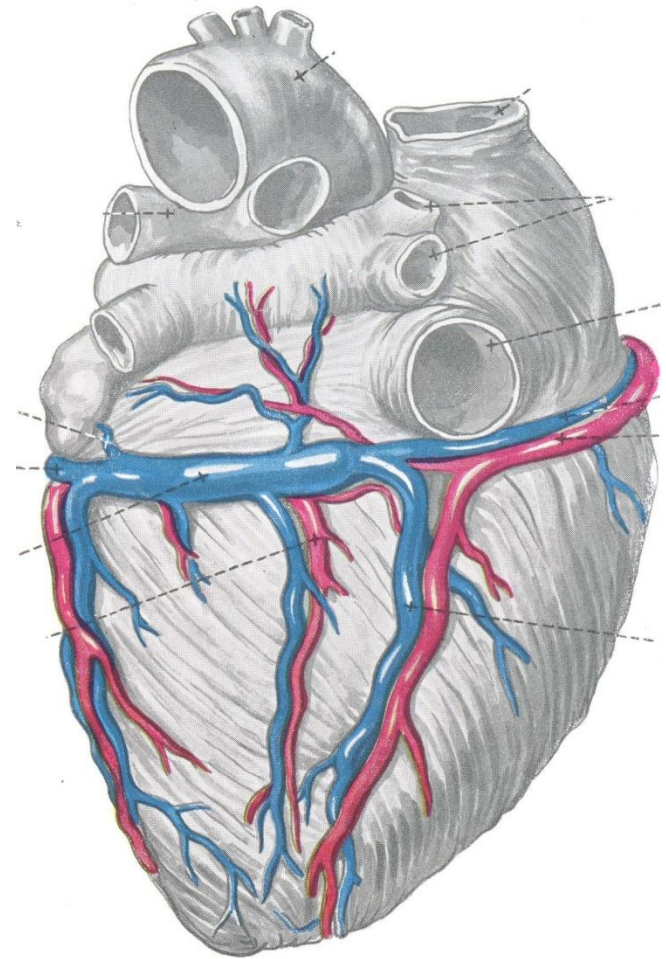
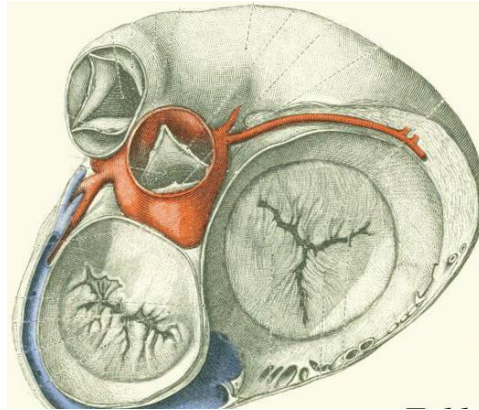
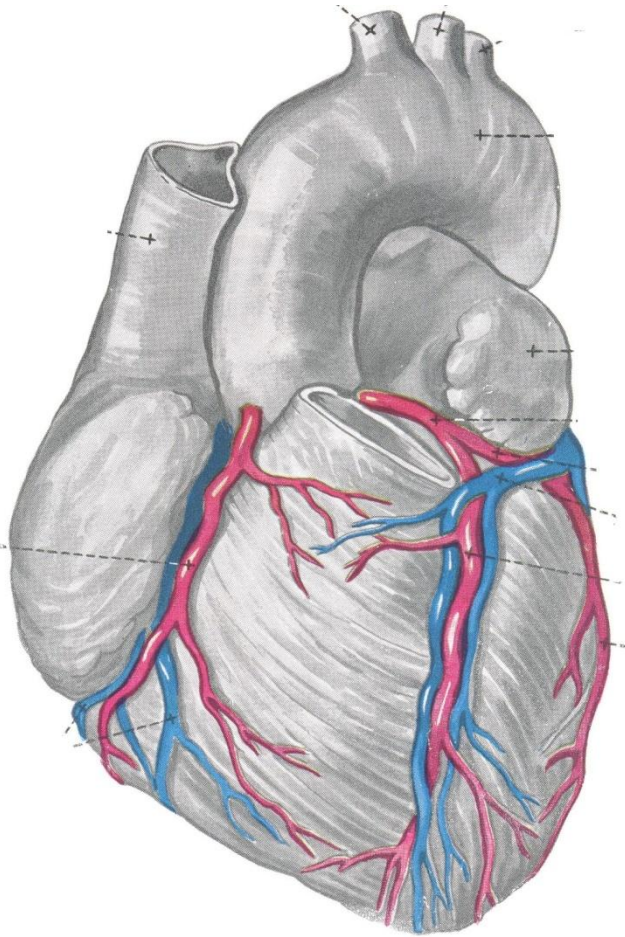
A SZÍV EREI



A. coronaria sinistra

- r. interventr. ant.*
- r. coni arteriosi*
- r. lateralis*
- rr. interventr. antt.*
- r. circumflexus*
- r. atrioventricularis*
- r. marg. sin.*
- rr. atriales*

A SZÍV EREI



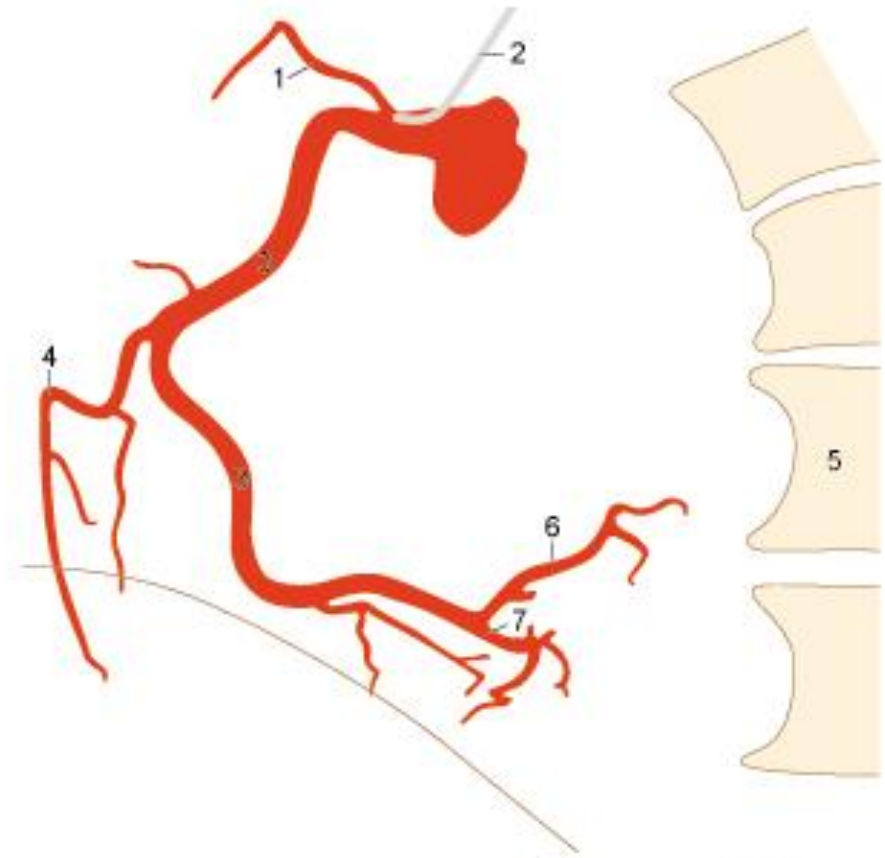
Sinus coronarius

- v. cordis magna
- v. cordis media
- v. cordis parva
- vv. post. ventrr. sinn.
- v. obliqua atrii sinistri
- vv. cordd. antt.
- vv. cordd. minimae

ANGIOCARDIOGRAM - a. coronaria dextra



1. Sinus artery
2. Catheter
3. Right coronary artery
4. Right ventricular branch



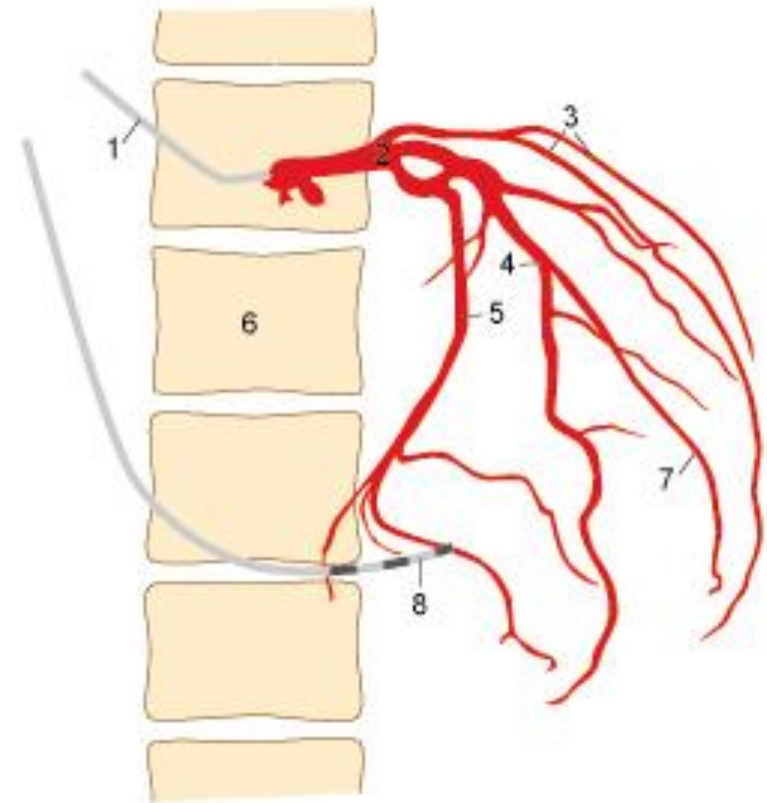
5. Vertebral column
6. Posterolateral branch
7. Posterior descending (interventricular branch)

T20

ANGIOCARDIOGRAM - a. coronaria sinistra



1. Catheter
2. Left main coronary artery
3. Obtuse marginals
4. Anterior descending (interventricular) artery
5. Circumflex artery



6. Vertebral column
7. Diagonal branch
8. Pacemaker in the right atrium with tip in right ventricle

INGERKELTŐ ÉS INGERVEZETŐ RENDSZER

Systema conducens cordis

Nodus sinuatrialis (Keith-Flack)

v. cava superiornál a crista terminalisban



Wenkebach, Bachmann, Thorel, Tandler
(pitvari izomnyalábok)



Nodus atrioventricularis (Aschoff-Tawara)

sinus coronariusnál a limbus fossae ovalisban



Truncus fasc. atrioventricularis (His-köteg)

(trig. fibr. dext.)



Crura sinistrum et dextrum

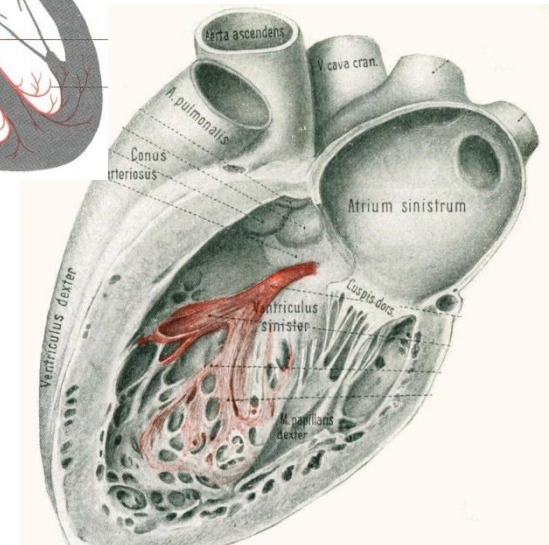
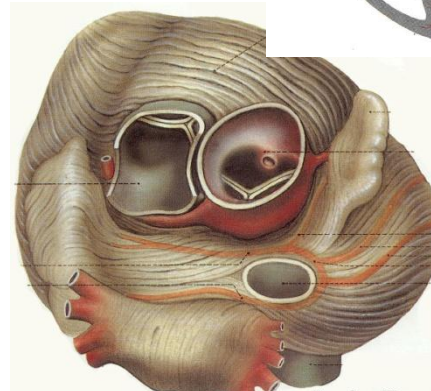
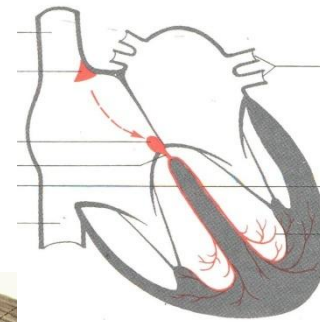
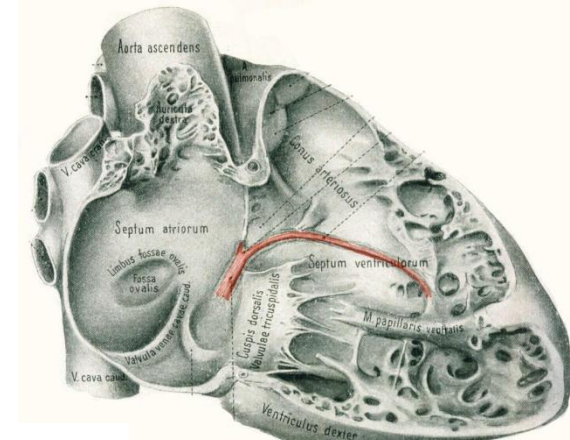
(Tawara)



Purkinje-rostok



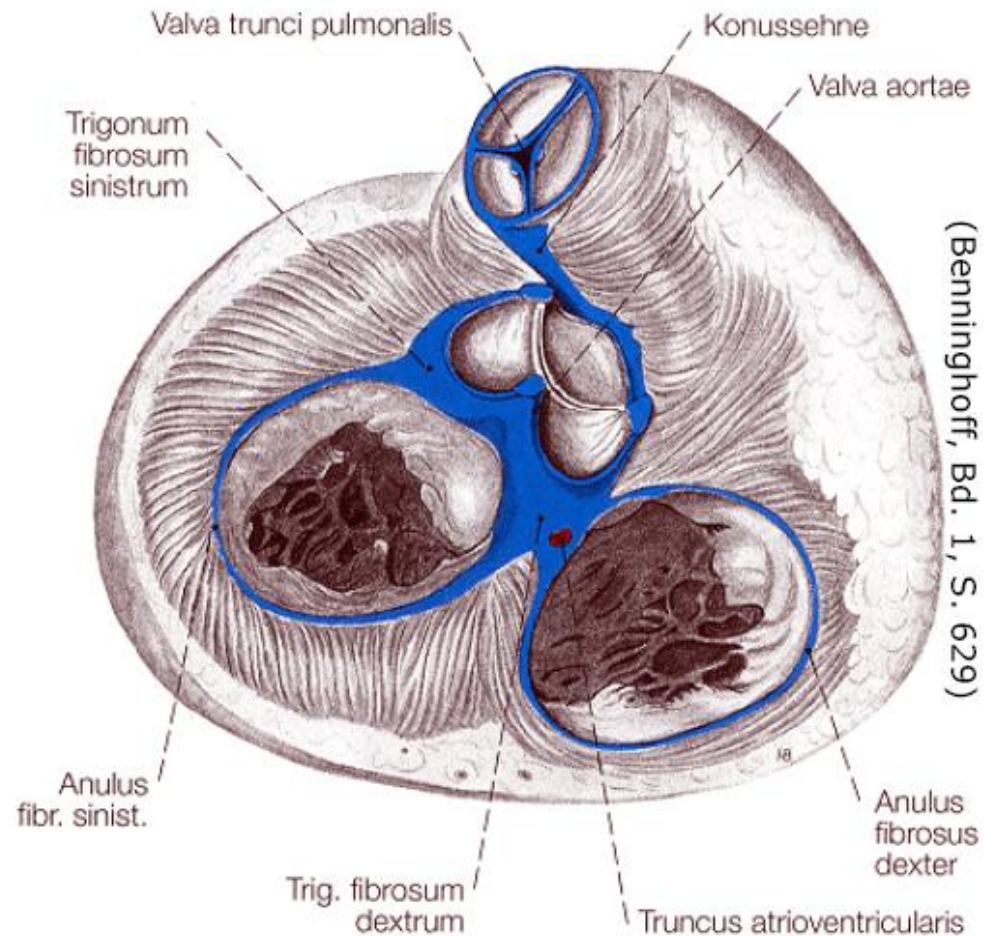
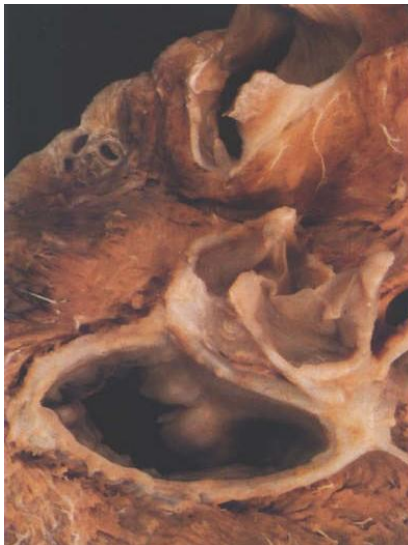
munkaizomzat



A SZÍV ROSTOS VÁZA – ANULUS FIBROSUS

A szájadékoknál található kollagén és elasztikus rostos (inkomplett) „gyűrűk” - 2x *filum coronarium*

SZEREPEK:
Kamrák és
pitvarok
elektromos
izolációja



A SZÍV BEIDEGZÉSE

AFFERENSEK

- fájdalomérzés
- Pressor-recepció
- Chemorecepció

EFFERENSEK

- chromotrop hatás (szívfrekvencia)
- inotrop hatás (kontrakció ereje)
- dromotrop hatás (vezetési idő)
(mind a csomókban, mind pedig a munkaizomzaton végződik)

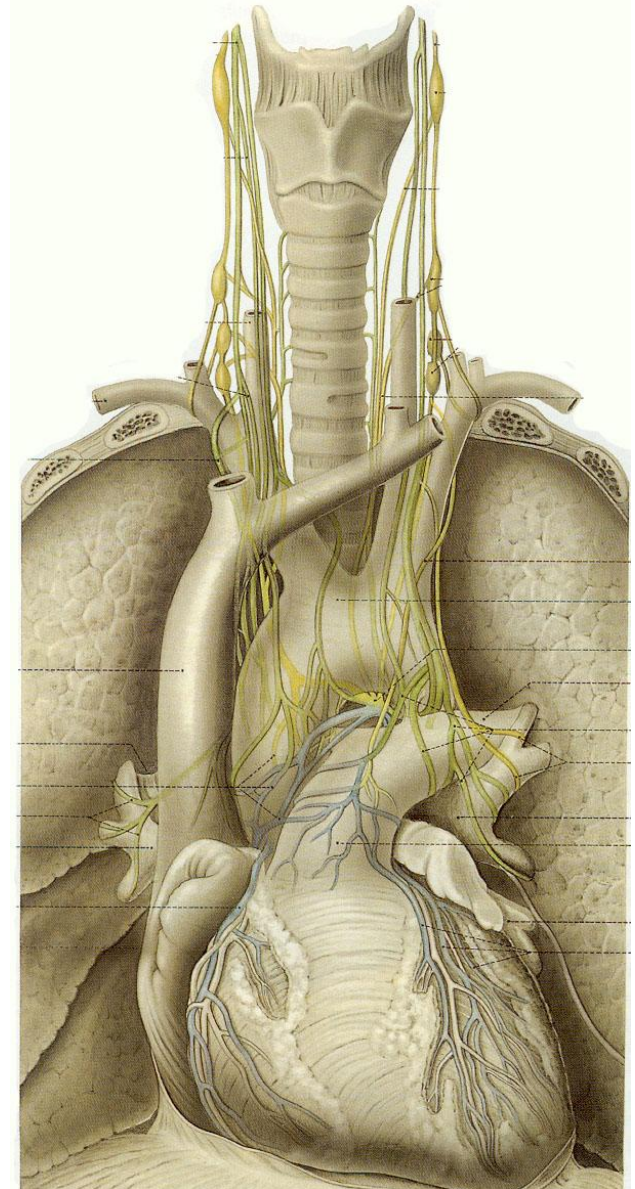
PLEXUS CARDIACUS

Sympathicus és
**Nn. cardiaci supp.,
medii et inferiores
thoracici**

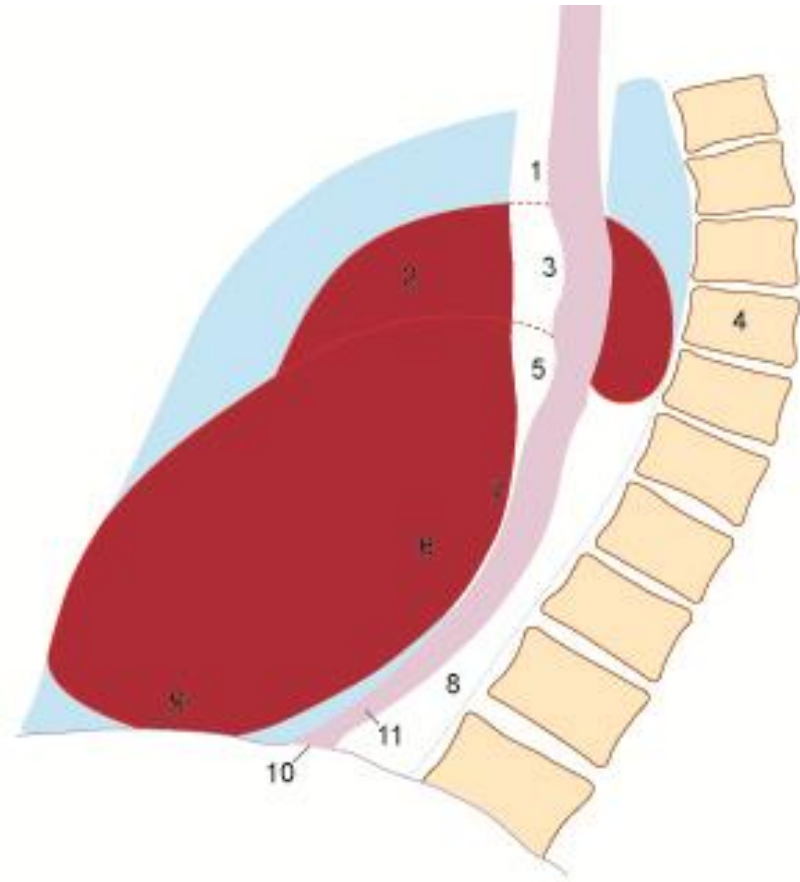
Tr. Sympathicus

Parasympathicus
**Rr. cardiaci supp.,medii,
et inferiores thoracici**

N. vagus



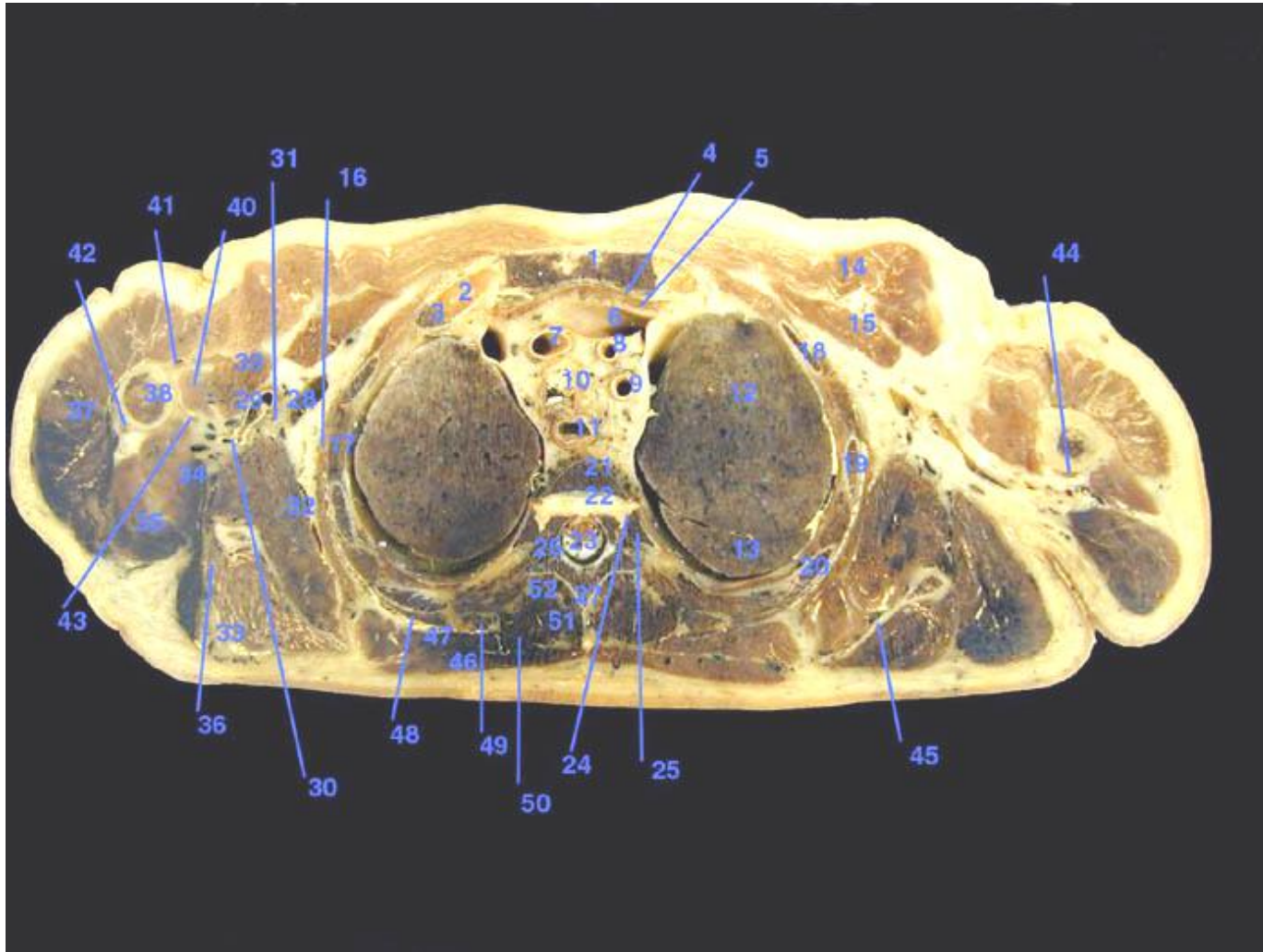
SITUS CORDIS



1. Trachea
2. Aorta ascendens
3. Impressio aortica
4. Columna vertebralis
5. Bal főhörgő benyomata
6. Bal pitvar

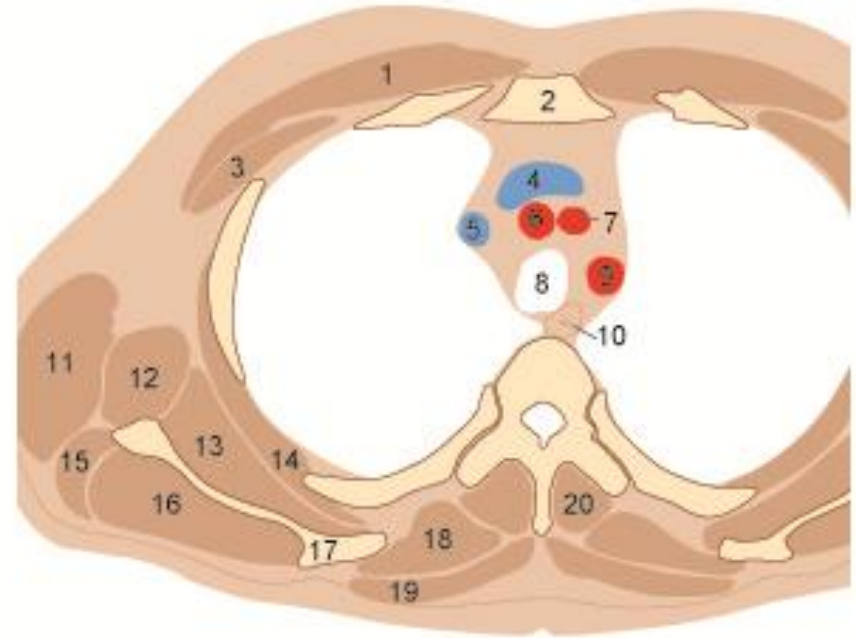
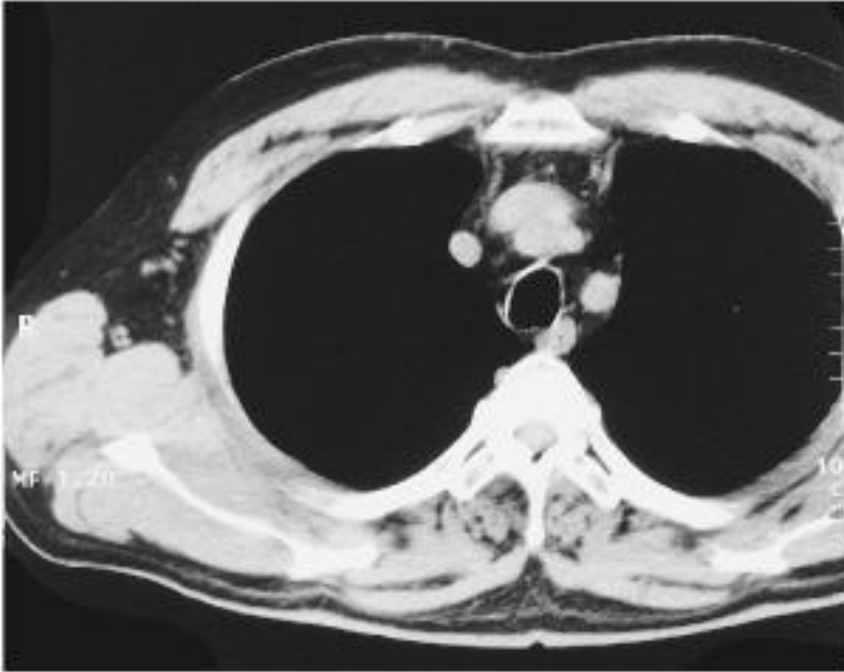
7. Impressio cardiaca
8. Spatium retrocardiacum
9. Diaphragma
10. Hiatus oesophageus (oesophago-gastricus átmenet)
11. Kontrasztanyag a nyelőcsőben

T51



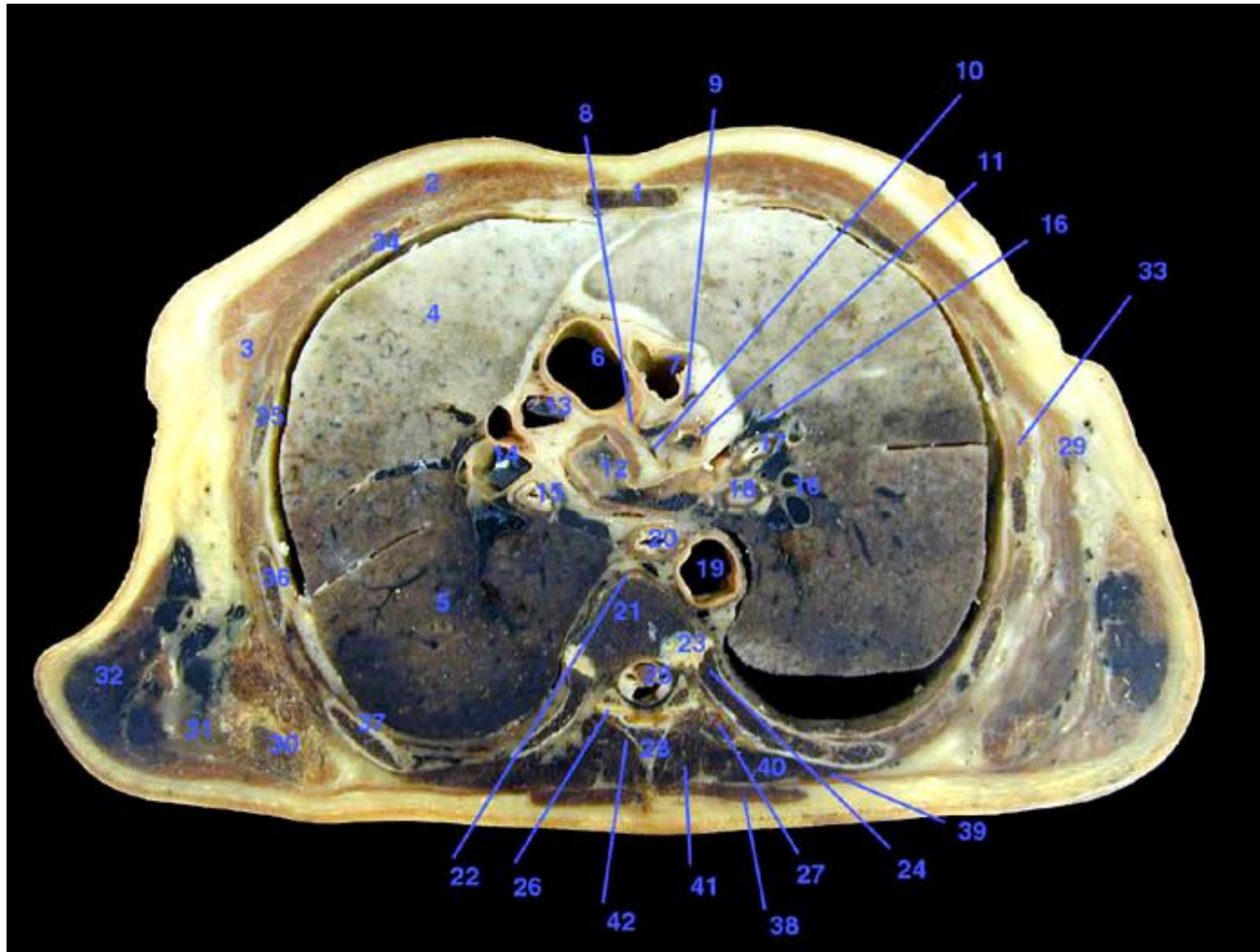
1. Manubrium sterni
2. Cartilago costalis
3. Costa 1
4. M. sternohyoideus
5. M. sternothyroideus
6. V. brachiocephalica sinistra
7. Truncus brachiocephalicus
8. A. carotis communis
9. A. subclavia
10. Trachea
11. Esophagus
12. Pulmo sinister, Lobus superior
13. Pulmo sinister, Lobus inferior
14. M. pectoralis major
15. M. pectoralis minor
16. M. serratus anterior
17. M. intercostalis
18. Costa 2
19. Costa 3
20. Costa 4
21. Corpus vertebrae thoracicae 4
22. Discus intervertebralis
23. Medulla spinalis
24. Articulatio capitae costae
25. Caput costae 4
26. Pediculus arcus vertebrae thoracicae 4
27. Processus spinosus Th4
28. V. axillaris
29. A. axillaris
30. A. circumflexa humeri posterior
31. Plexus brachialis, Fasciculi
32. M. subscapularis
33. M. infraspinatus
34. M. teres major
35. Caput longum m. tricipitis brachii
36. M. teres minor
37. M. deltoideus
38. Humerus
39. Caput breve m. bicipitis brachii
40. M. coracobrachialis
41. Caput longum m. bicipitis brachii
42. Caput laterale m. tricipitis brachii
43. Tendo m. latissimi dorsi
44. Caput mediale m. tricipitis brachii
45. Scapula
46. M. trapezius
47. M. rhomboideus major
48. M. serratus posterior superior
49. M. longissimus cervicis
50. M. semispinalis capitis
51. M. semispinalis thoracis
52. M. multifidus

AXIALIS CT



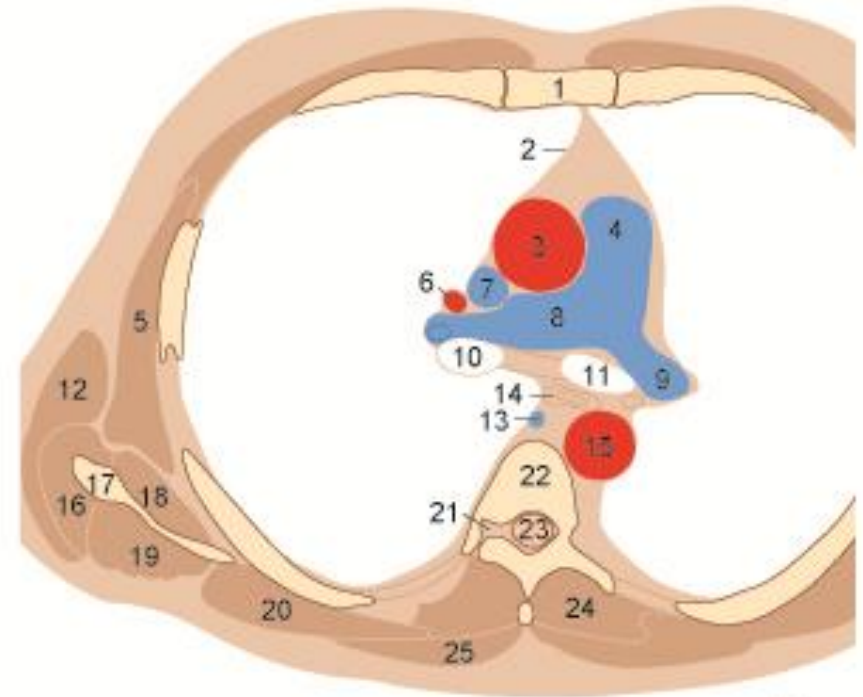
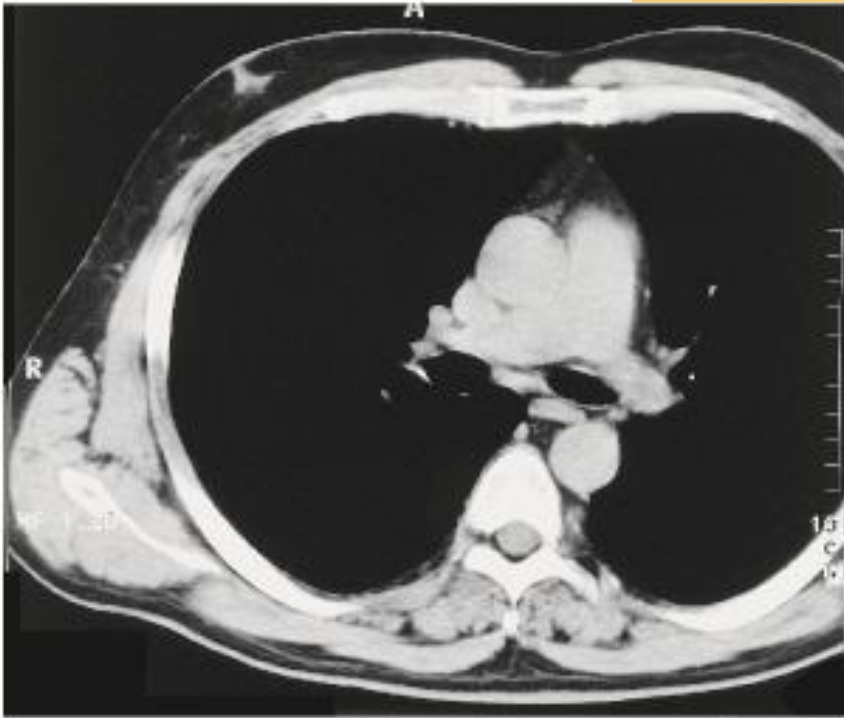
1. M. pectoralis major
2. Sternum
3. M. pectoralis minor
4. V. brachiocephalica sin.
5. V. brachiocephalica dext.
6. Art. brachiocephalica
7. Art. carotis commun. sin.
8. Trachea
9. Art. subclavia sin.
10. Oesophagus

11. M. latissimus dorsi
12. M. teres major
13. M. subscapularis
14. M. serratus ant.
15. M. teres minor
16. M. infraspinatus
17. Scapula
18. Mm. rhomboidei
19. M. trapezius
20. M. erector spinae



1. Corpus sterni
2. M. pectoralis major
3. M. pectoralis minor
4. Pulmo dexter, Lobus superior
5. Pulmo dexter, Lobus inferior
6. Aorta ascendens
7. Truncus pulmonalis
8. A. coronaria sinistra
9. Ramus interventricularis anterior
10. Ramus circumflexus
11. Auricula sinistra
12. Atrium sinistrum
13. V. cava superior
14. A. pulmonalis dextra, upper lobe artery
15. Bronchus principalis dexter
16. Vv. pulmonales sinistrae
17. Bronchus lobaris superior sinister
18. Bronchus lobaris inferior sinister
19. Aorta descendens
20. Esophagus
21. Corpus vertebrae thoracicae 7
22. Lig. longitudinale anterius
23. Articulatio capitae costae
24. Caput costae 8
25. Medulla spinalis
26. Articulatio zygapophysialis
27. Processus transversus Th8
28. Processus spinosus Th7
29. M. serratus anterior
30. Scapula
31. M. teres major
32. M. latissimus dorsi
33. M. intercostalis
34. Costa 4
35. Costa 5
36. Costa 6
37. Costa 7
38. M. trapezius
39. M. iliocostalis thoracis
40. M. longissimus thoracis
41. M. semispinalis thoracis
42. M. multifidus

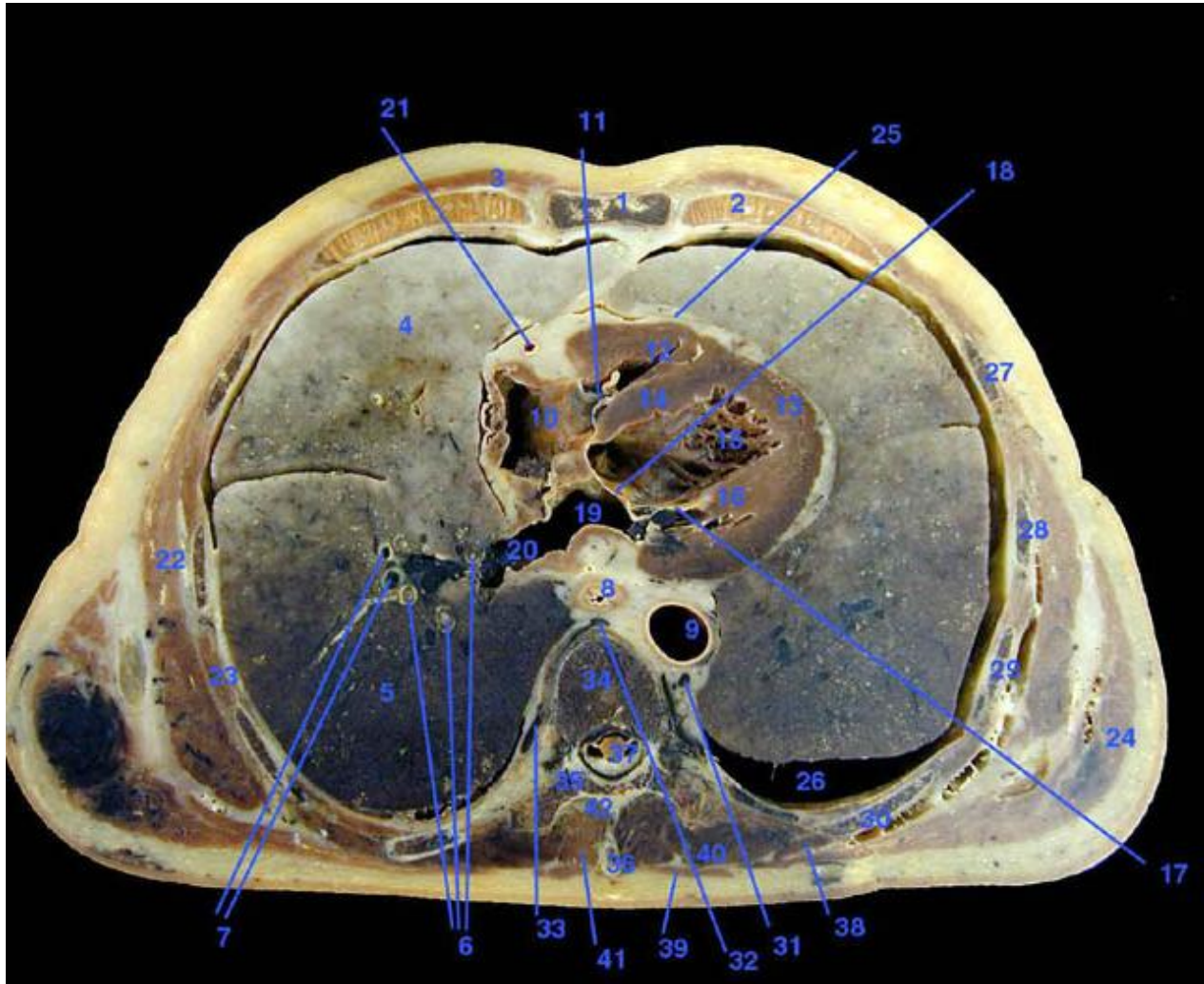
AXIALIS CT



1. Sternum
2. Pleura mediastinalis
3. Aorta ascendens
4. Truncus pulmonalis
5. M. serratus ant.
6. V. pulmonalis sup. dext.
7. V. cava sup.
8. Art. pulmonalis dext..
9. Art. pulmonalis sin.
10. Bronchus intermedius (dext.)
11. Bronchus principalis sin.
12. M. latissimus dorsi
13. V. azygos

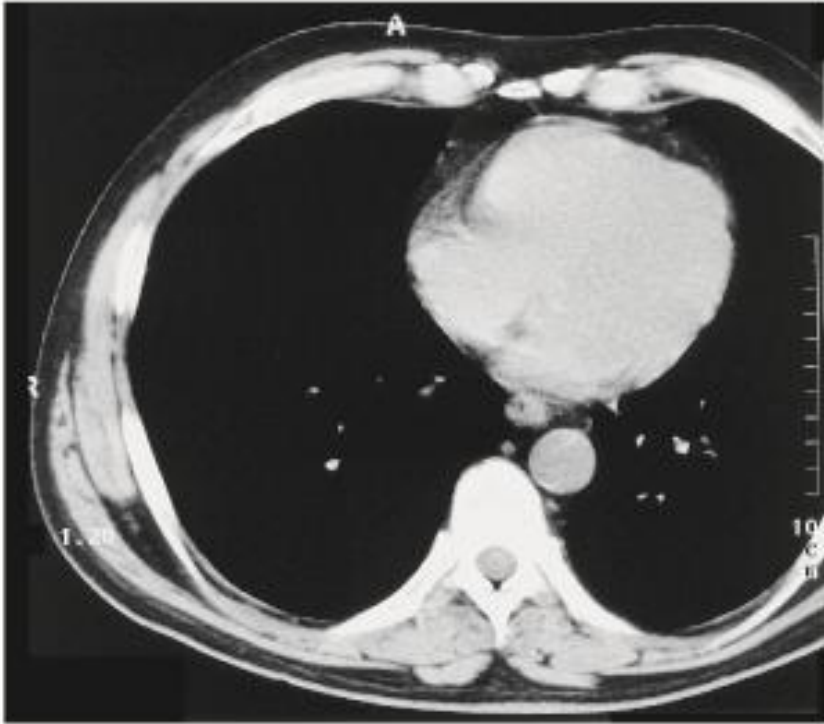
14. Oesophagus
15. Aorta thoracica desc.
16. M. teres major
17. Scapula
18. M. subscapularis
19. M. infraspinatus
20. Mm. rhomboidei
21. Foramen intervertebrale
22. Vertebra thoracica
23. Medulla spinalis
24. M. erector spinae
25. M. trapezius

T9

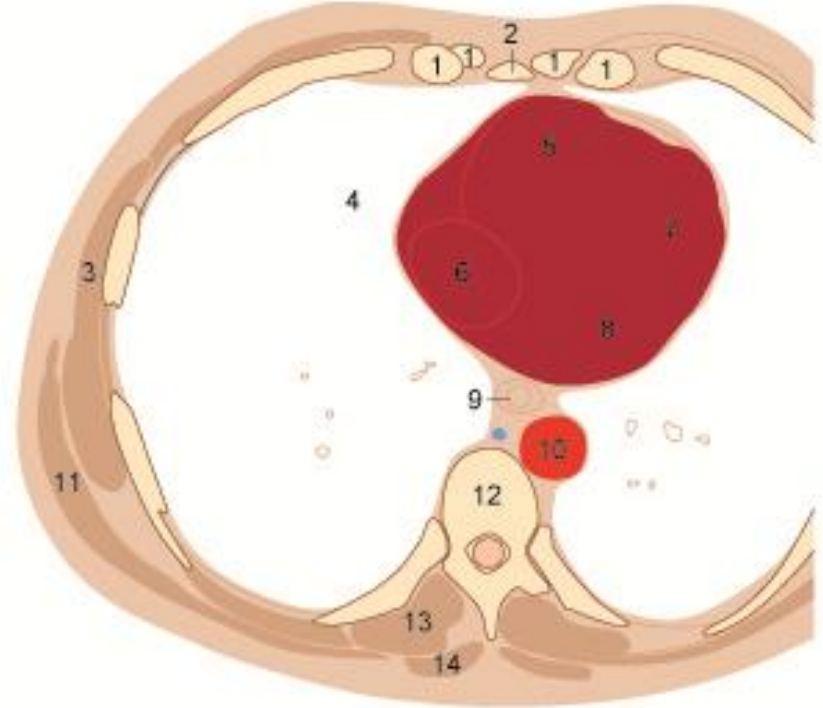


1. Corpus sterni
2. Cartilago costalis
3. M. pectoralis major
4. Pulmo dexter, Lobus superior
5. Pulmo dexter, Lobus inferior
6. Bronchi segmentales dextri
7. Branches of A. pulmonalis dextra
8. Esophagus
9. Aorta descendens
10. Atrium dextrum
11. Valva atrioventricularis dextra (tricuspidalis)
12. Ventriculus dexter
13. Ventriculus sinister, Myocardium
14. Septum interventriculare
15. Trabeculae carneae
16. Musculus papillaris anterior
17. Chordae tendineae
18. Valva atrioventricularis sinistra (mitralis)
19. Atrium sinisterum
20. V. pulmonalis dextra
21. A. coronaria dextra
22. M. serratus anterior
23. M. intercostalis
24. M. latissimus dorsi
25. Pericardium & Pleura mediastinalis
26. Cavitas pleurae
27. Costa 6
28. Costa 7
29. Costa 8
30. Costa 9
31. V. hemiazygos
32. V. azygos
33. V. intercostalis
34. Corpus vertebrae thoracicae 9
35. Processus transversus Th9
36. Processus spinosus Th8
37. Medulla spinalis
38. M. iliocostalis thoracis
39. M. trapezius
40. M. longissimus thoracis
41. M. semispinalis thoracis
42. M. multifidus

AXIALIS CT

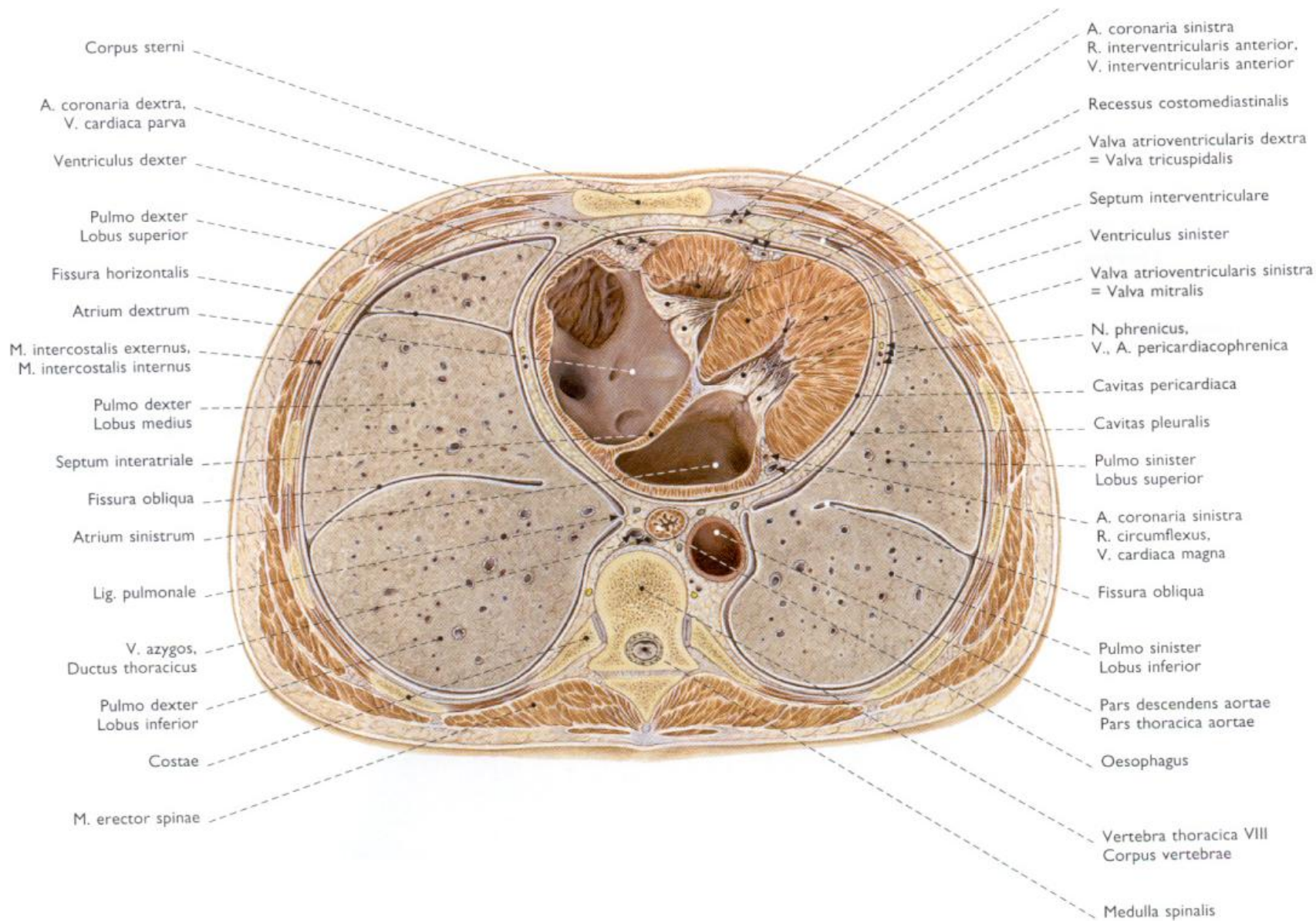


1. Cartilago costalis
2. Processus xiphoideus
3. M. serratus ant.
4. Pulmo (lobus medius)
5. Jobb kamra
6. Jobb pitvar
7. Bal kamra

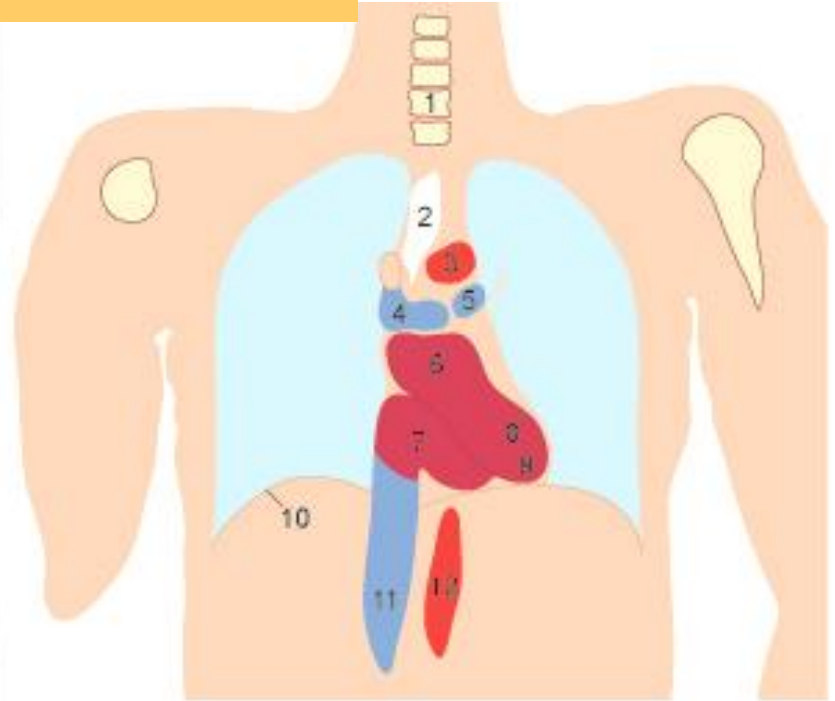
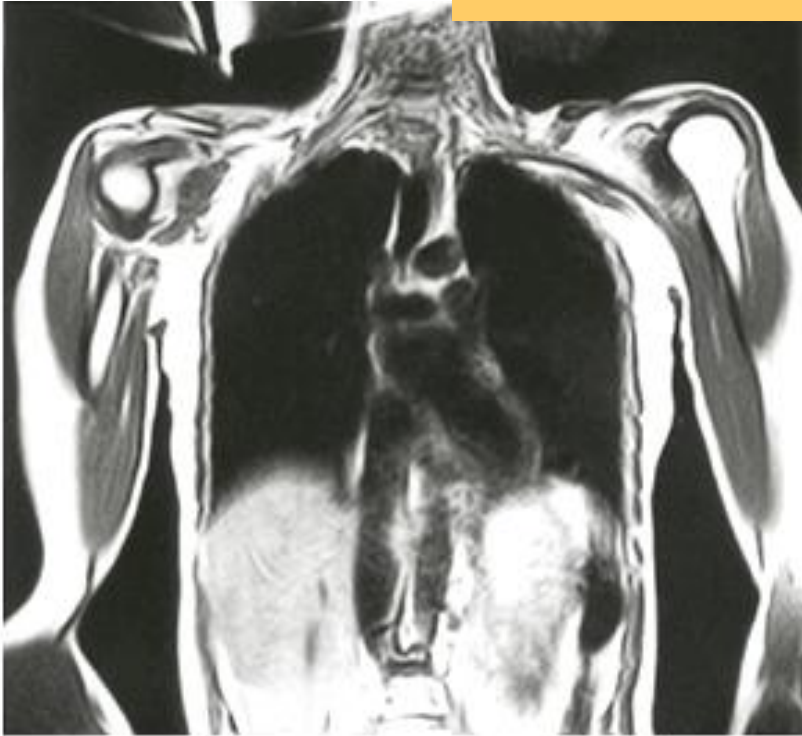


8. Bal pitvar
9. Oesophagus
10. Aorta thoracica desc.
11. M. latissimus dorsi
12. Vertebra thoracica
13. M. erector spinae
14. M. trapezius

T12



CORONALIS MR

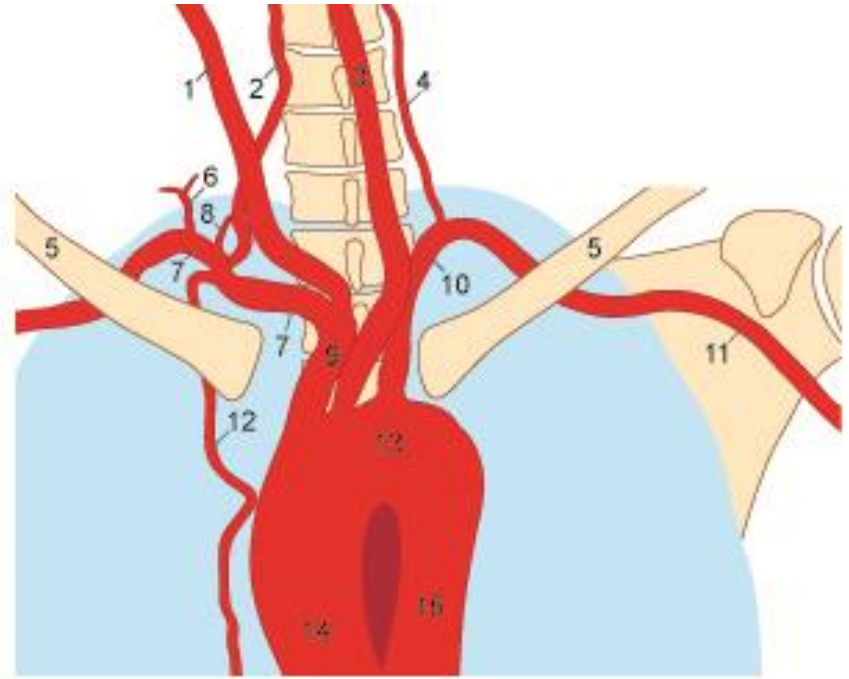
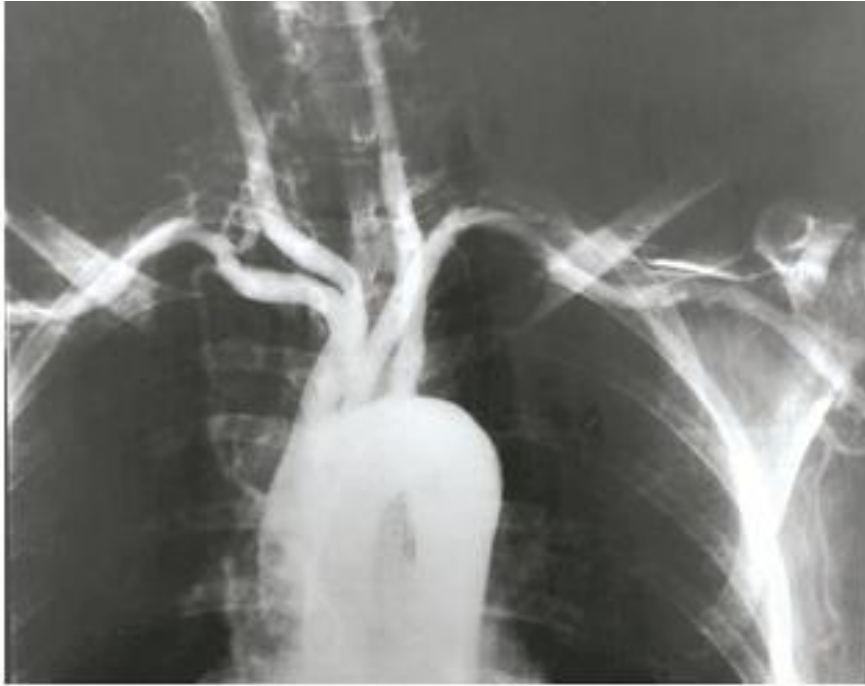


T45

1. Vertebrae cervicales
2. Trachea
3. Aorta gomb
4. Art. pulmonalis dext.
5. Art. pulmonalis sin.
6. Bal pitvar

7. Jobb pitvar
8. Bal kamra fala
9. Bal kamra ürege
10. Diaphragma
11. V. cava inf.
12. Aorta desc.

ANGIOGRAPHIA

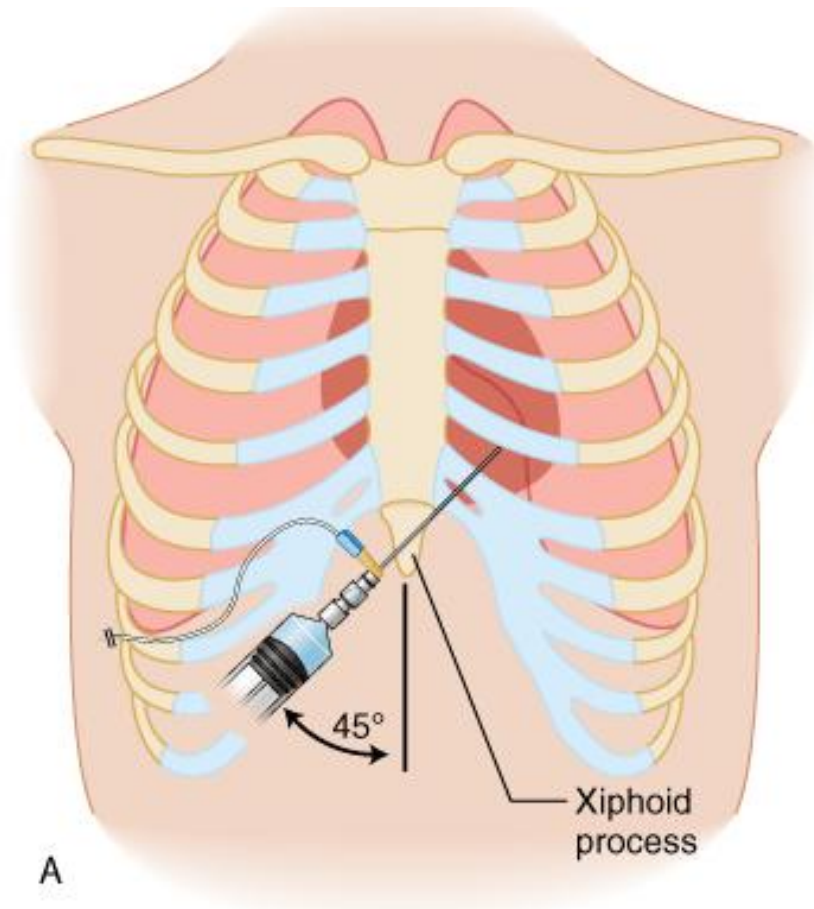


1. Art. carotis commun. dext.
2. Art. vertebralis dext.
3. Art. carotis commun. sin.
4. Art. vertebralis sin.
5. Clavicula
6. Truncus costocervicalis
7. Art. subclavia dext.
8. Truncus thyrocervicalis

9. Truncus brachiocephalicus
10. Art. subclavia sin.
11. Art. axillaris sin.
12. Art. thoracica int. dext.
13. Arcus aortae
14. Aorta ascendens
15. Aorta thoracica desc.

T50

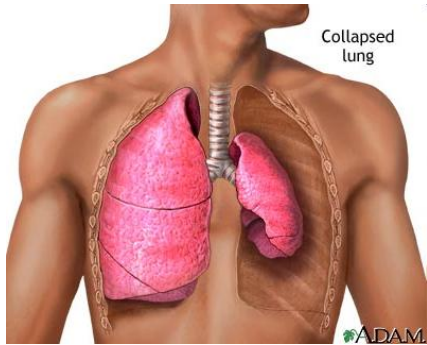
PERICARDIOCENTESIS



A pericardium üregéből általában 10-20 ml-t lehet lecsapolni (pathológiás esetben akár 250 ml-t is)

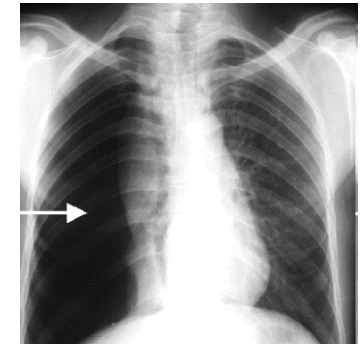
TŰ HELYE:

- *processus xyphoideus és a bal arcus costalis között*
- *30-45° fokos szögben a clavicula közepe felé irányítva.*

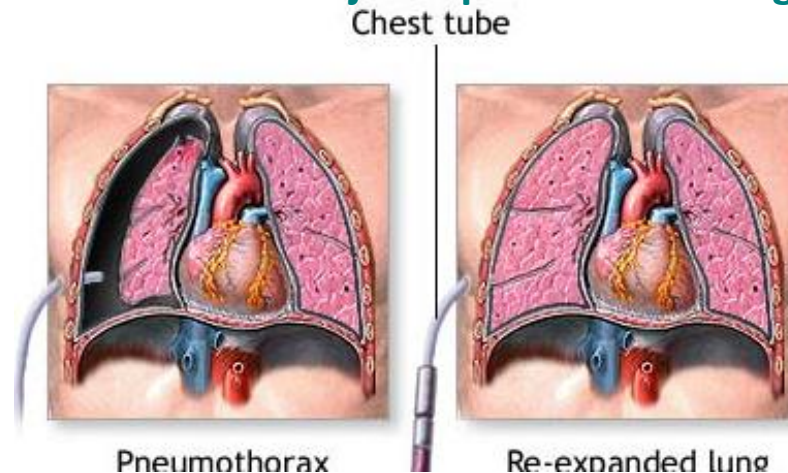


PLEURA

PNEUMOTHORAX

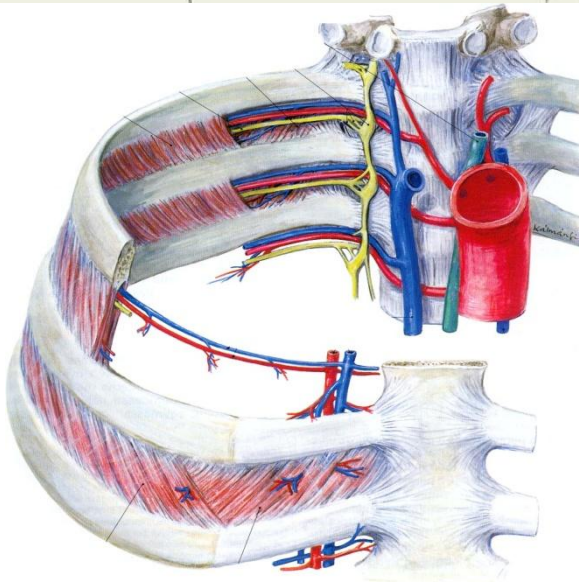
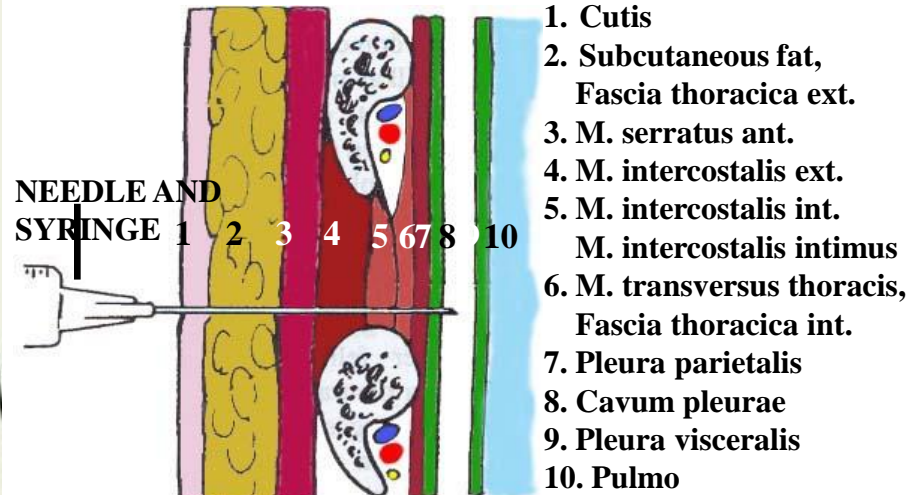
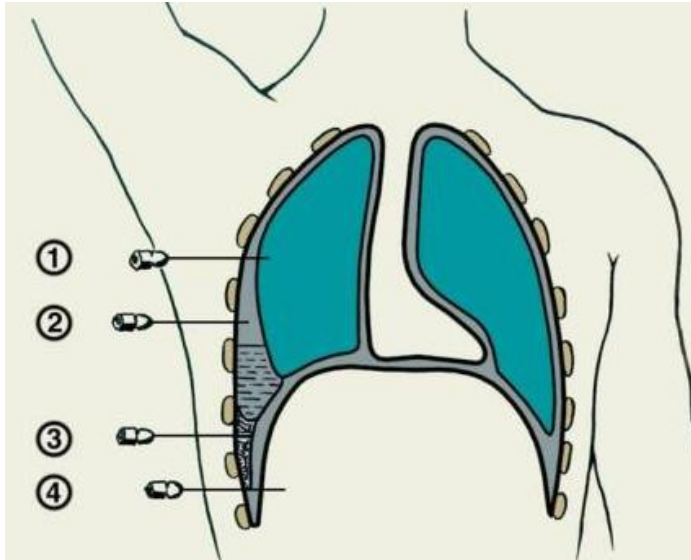


- **Spontan PTX** - nincs határozott oka, okozhatja valamilyen tüdőbetegség, COPD vagy TUBERCULOSIS
- **pneumothorax simplex** - a pleuraűrbe jutó levegőtől a tüdő kollabál, de nem terheli nyomás a környező képleteket.
- **tensiós pneumothorax** – ebben az esetben a mellűri nyomás fokozódása miatt a szív helyzete változhat, ez komoly szív-érrendszeri következményekhez vezet (életveszély)
- **traumás pneumothorax**, - áthatoló sérülés következtében jut a pleuraűrbe levegő

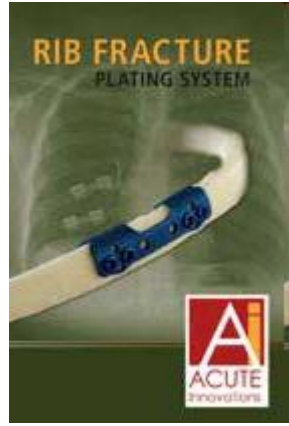
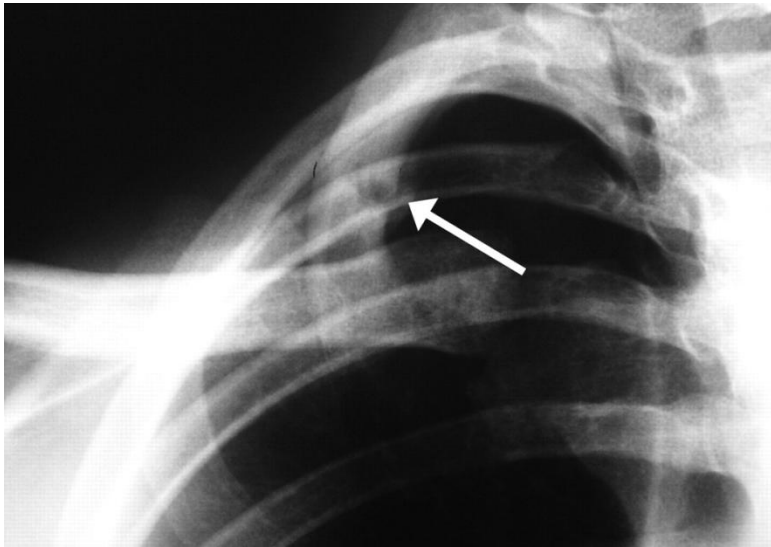


THORACOCENTESIS

(*Pleura-punctio*)



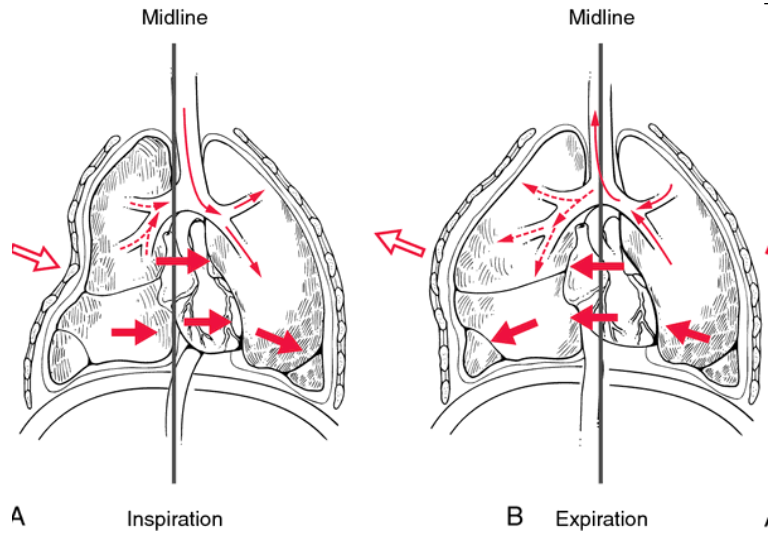
KLINIKUM - TRAUMATOLÓGIA



Surgical Fixation of Flail Chest with Plating of Ribs

Sample Use Only - Copyrighted

Surgical Fixation of Flail Chest with Plating of Ribs



Sample Use Only - Copyrighted

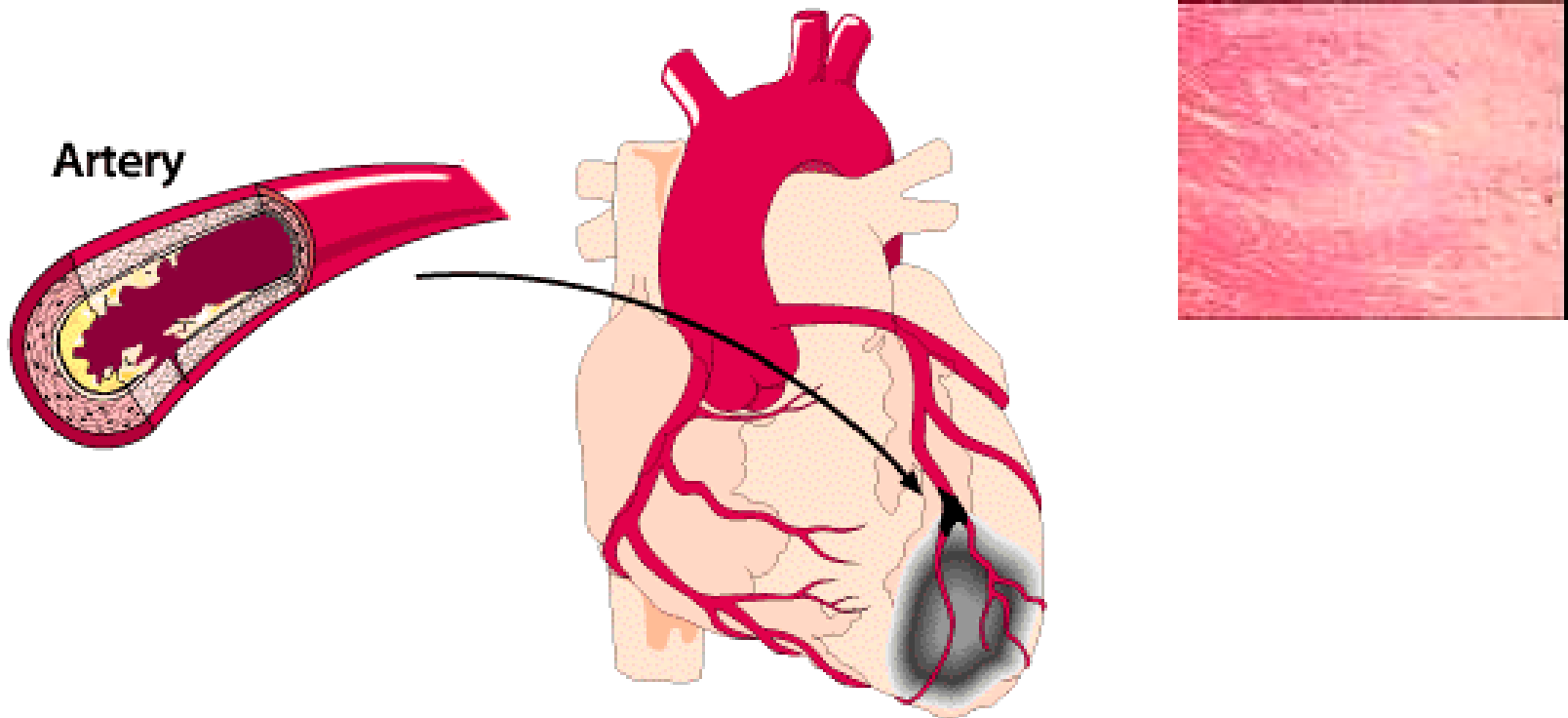
Sample Use Only - Copyrighted

MYOCARDIALIS INFARCTUS

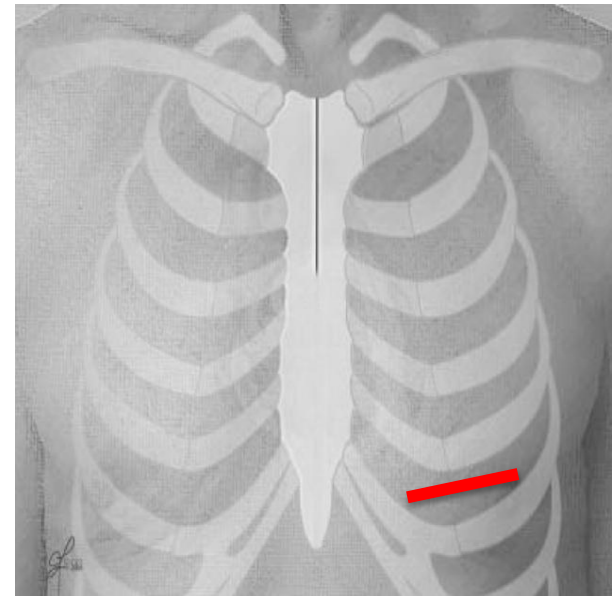
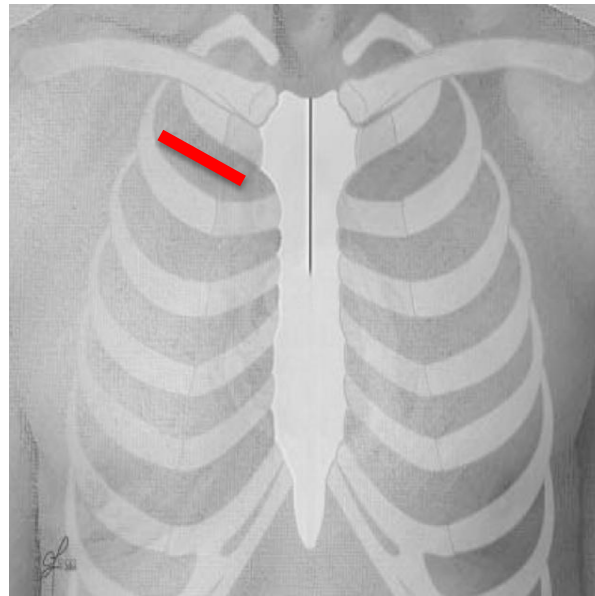
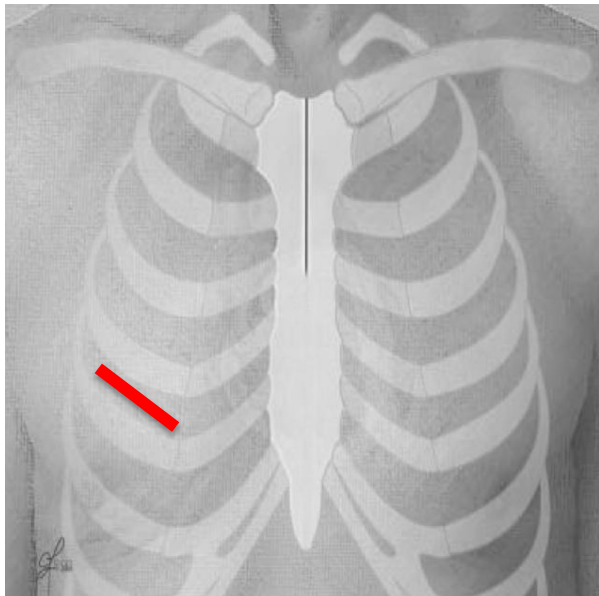
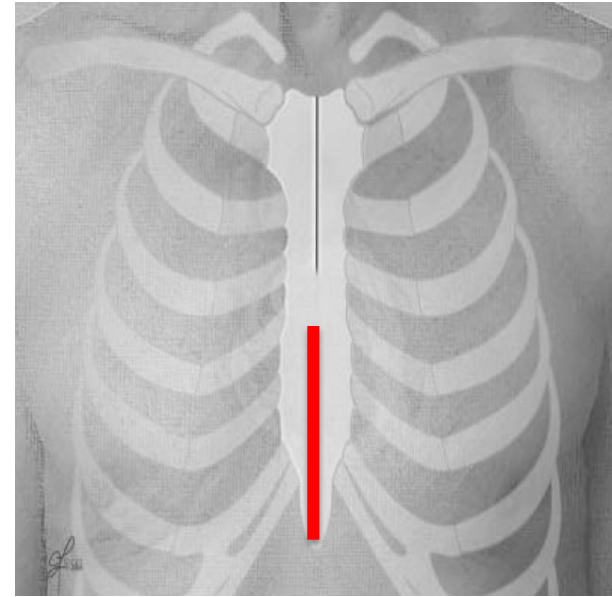
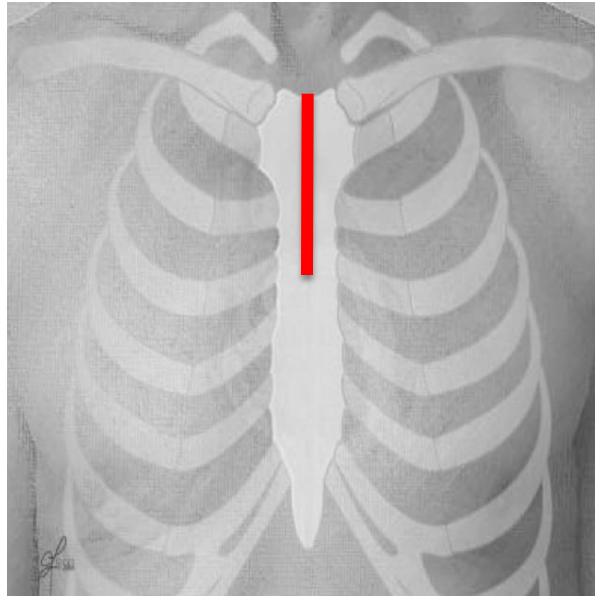
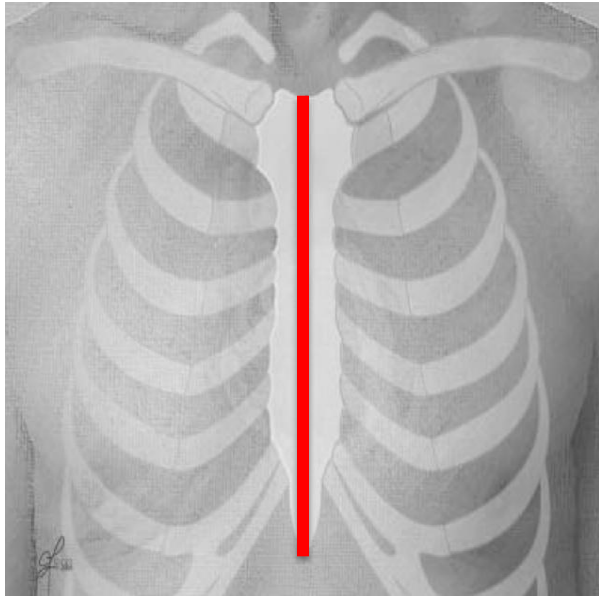
Nagyon gyakori előfordulású

Oka: a. coronaria egyik ágának thrombosisa

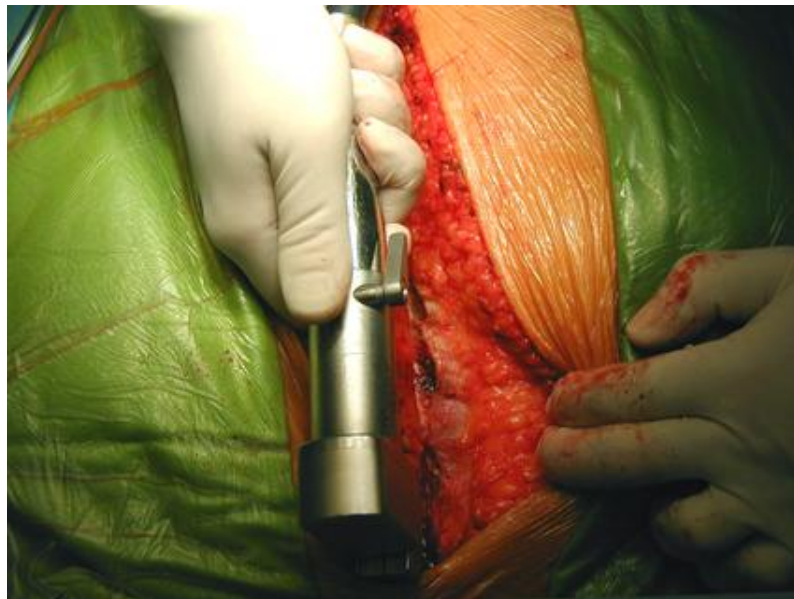
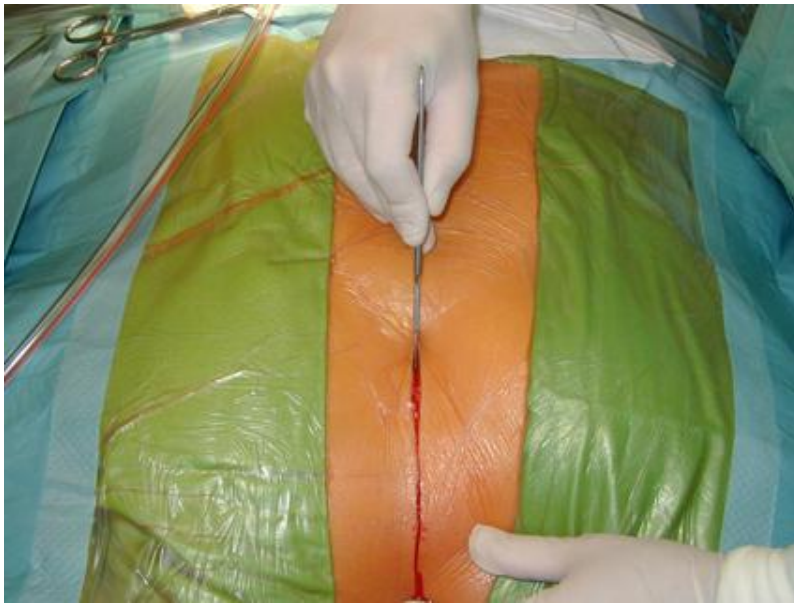
Az ischemiás terület sarjszövetesen gyógyul, ktsz helyettesíti a kamrafal egy részét – paradox mozgás – szívfali ruptura veszélye



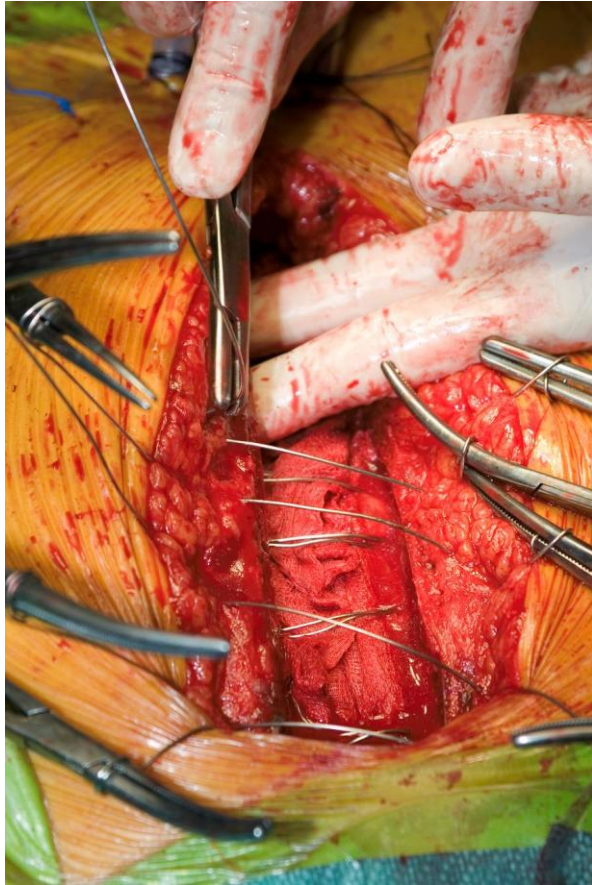
Sebészeti feltárások



Median sternotomy

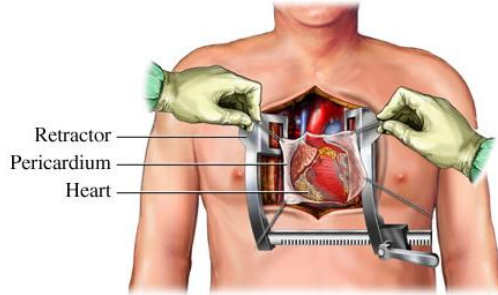


Median sternotomy



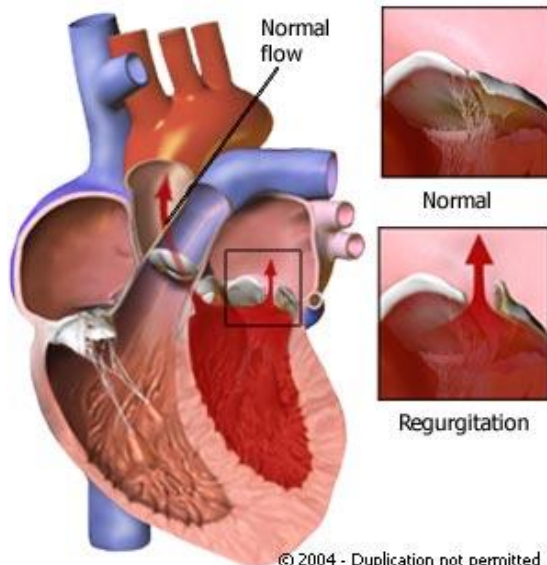
MEDIASTINUM CARDIACUM

THORACOTOMIA

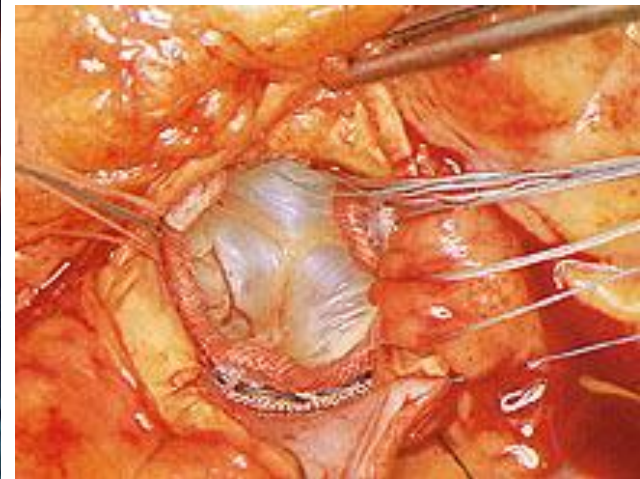
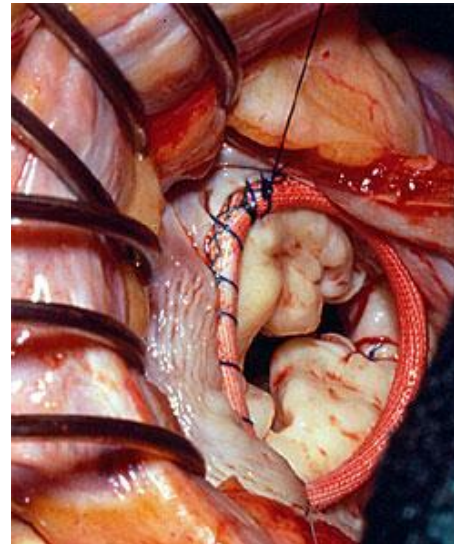
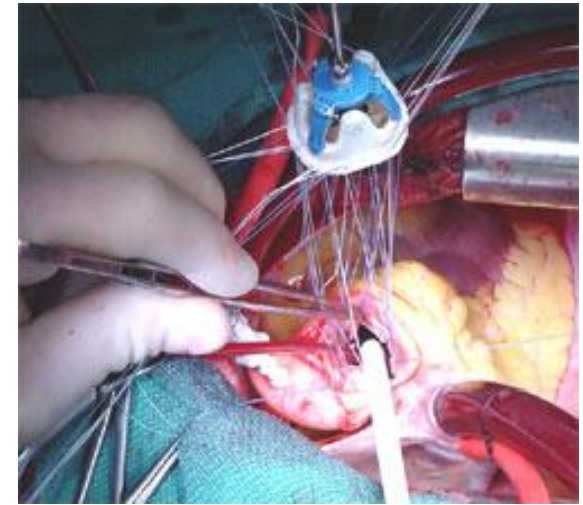
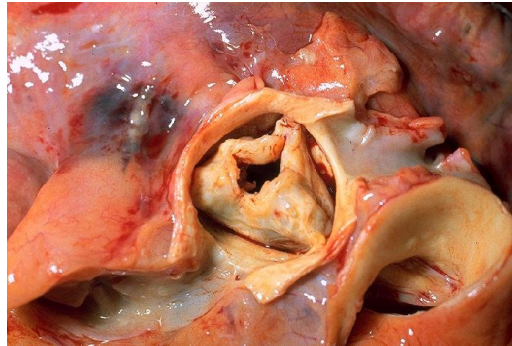


Valvular Regurgitation

A condition in which blood leaks in the wrong direction because one or more heart valves closes improperly. Mitral valve prolapse (illustrated here) is a common cause of regurgitation.



SZTENOTIKUS BILLENTYŰ CSERÉJE



Köszönöm szépen a figyelmet!



FORRÁSOK

<https://www.youtube.com/watch?v=8b1FQJcRE1k>

Előző intézeti előadások diái:

*(Dr. Csillag András, Dr. Ruttkay Tamás, Dr. Szél Ágoston,
Dr. Wenger Tibor)*

Standring, Gray's Anatomy, Elsevier, 2005

Csillag, Anatomy of the Living Human, Könemann 1999.

www.instantanatomy.net