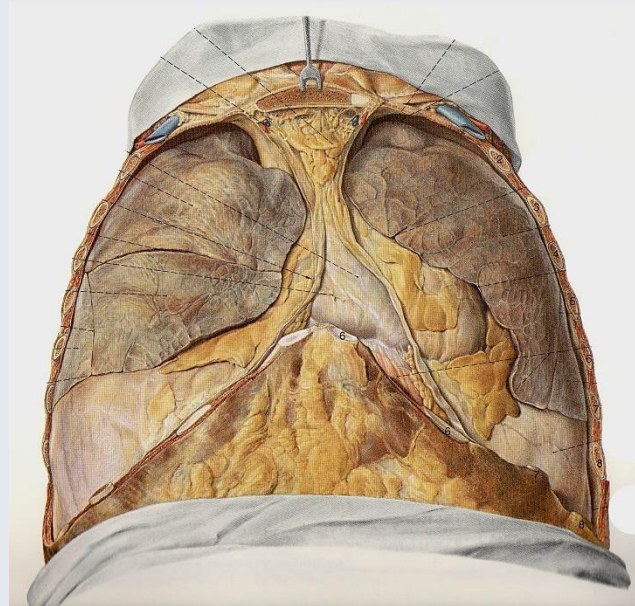
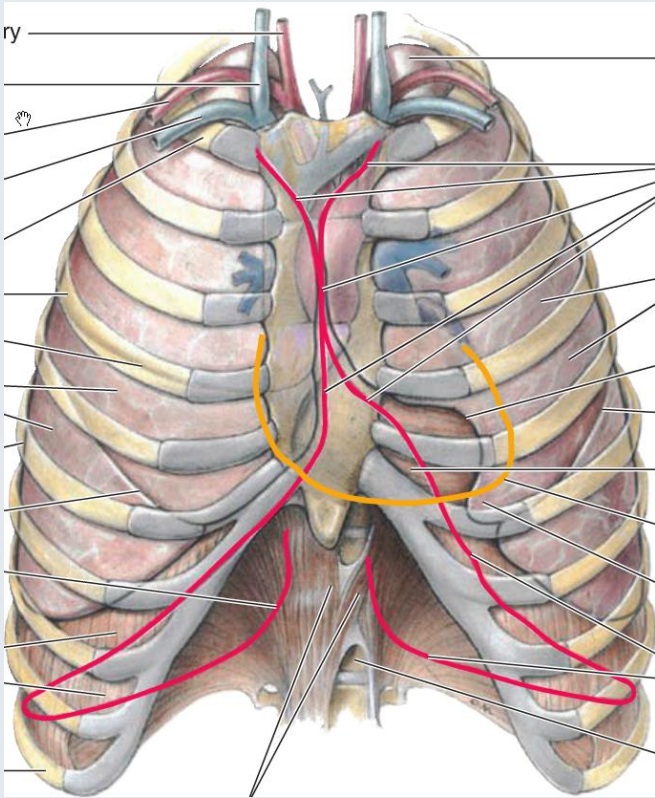


# Brusthöhle, Mediastinum mit Lymphabfluss. Luftröhre, Lunge. Speiseröhre



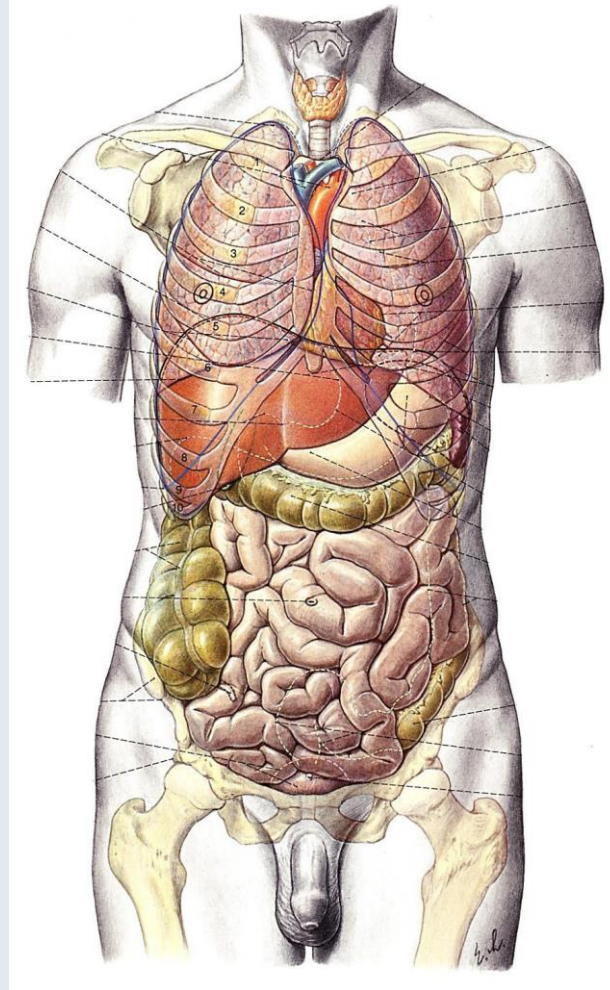
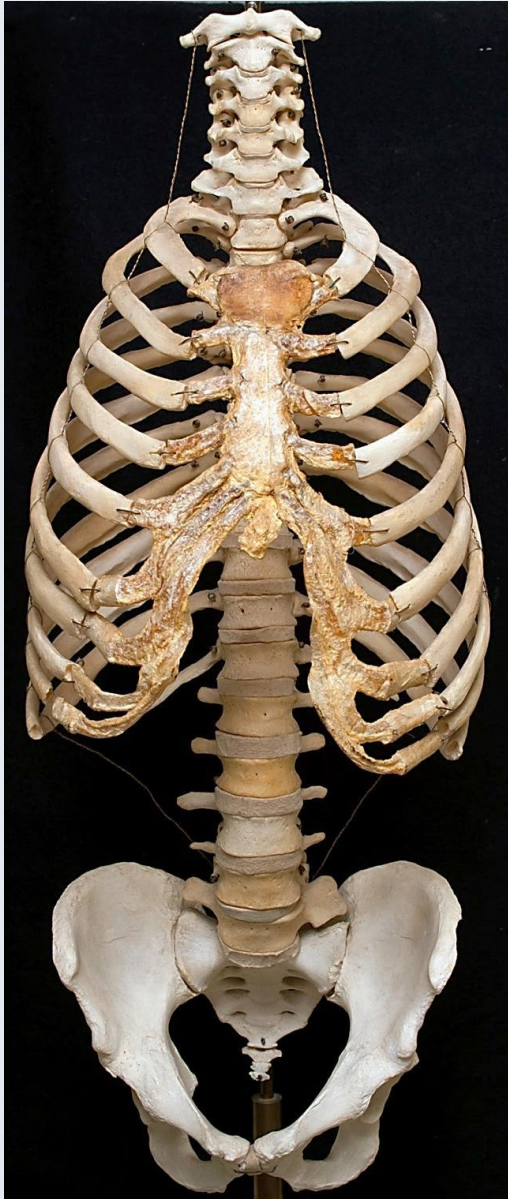
Ph.D., Dr. Dávid Lendvai  
Anatomisches, Histologisches und Embryologisches  
Institut  
2020.

# Cavum thoracis

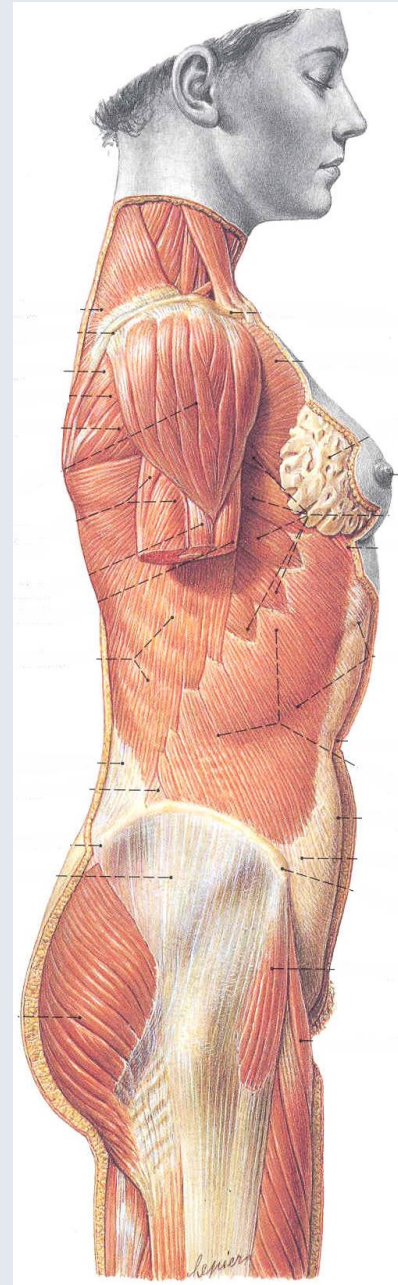
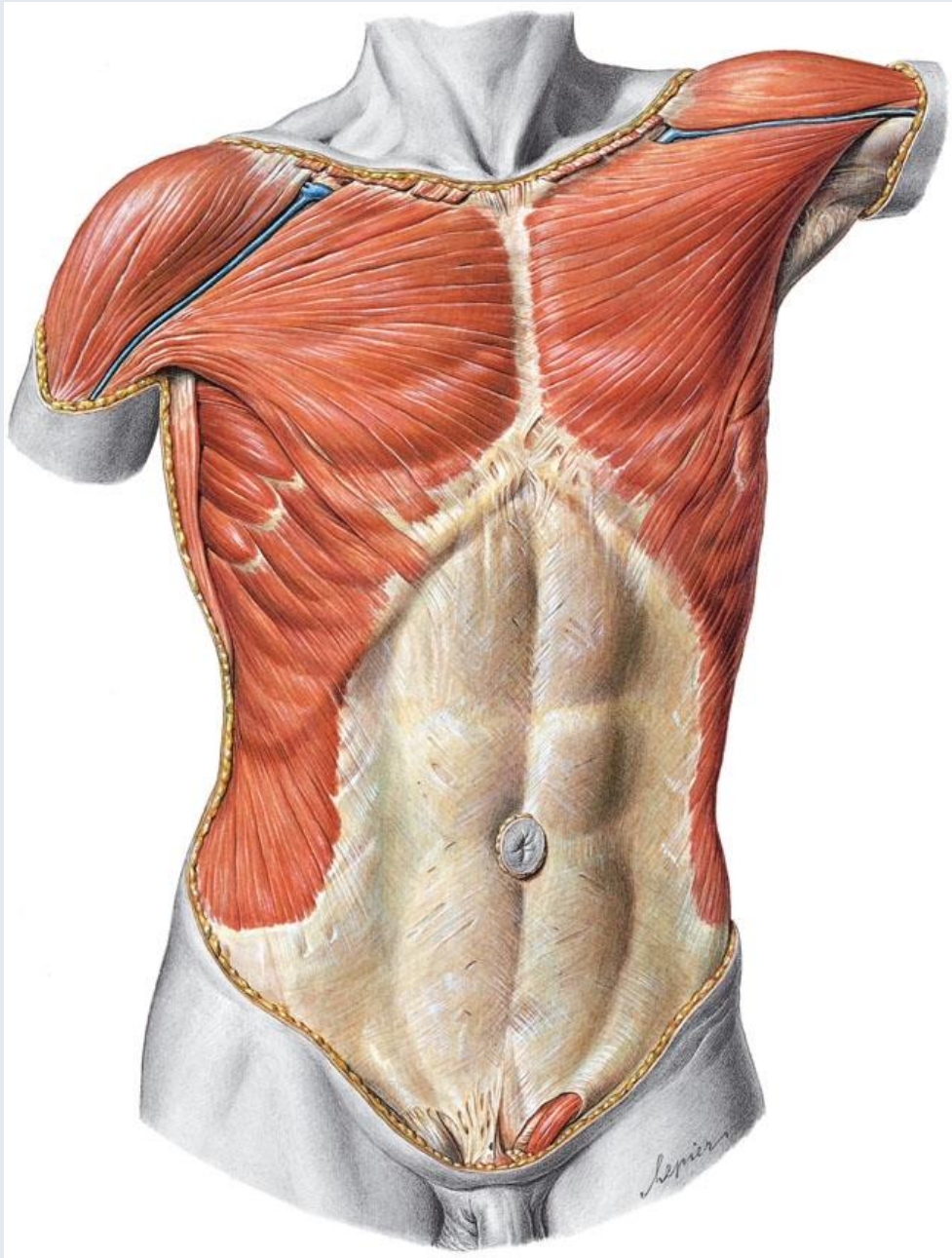


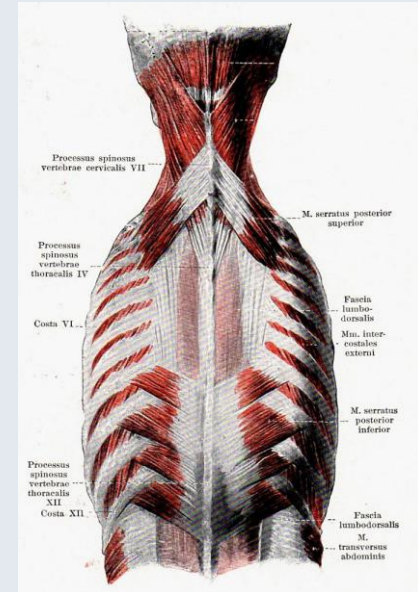
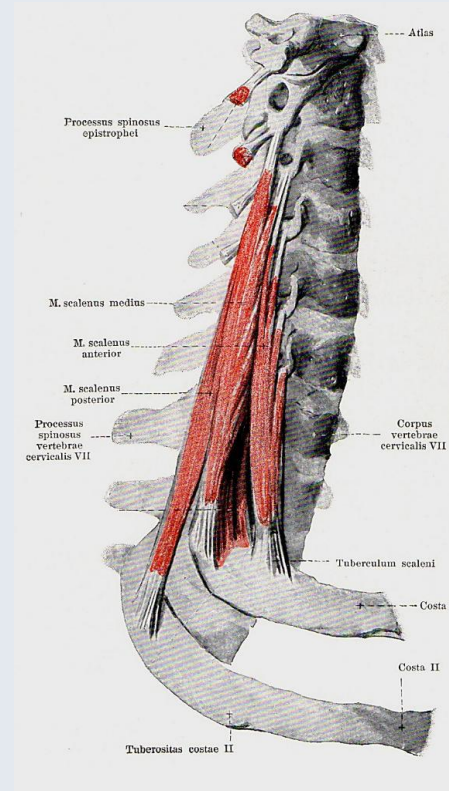
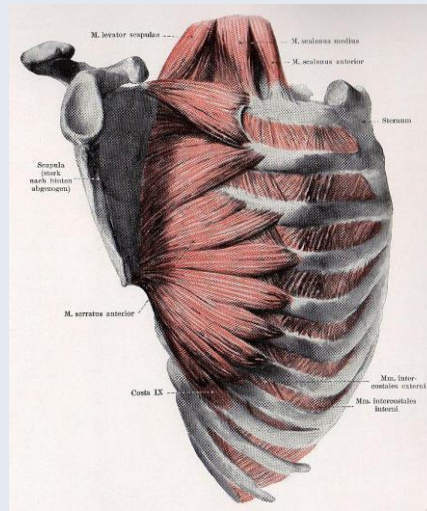
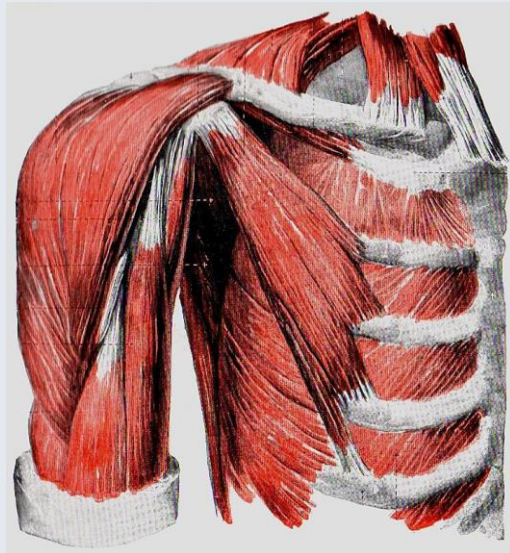
- Thorax (Knochen, Bänder)
- Oberflächliche Anatomie
- Mediastinum
- Brustwand, Zwerchfell
- Region

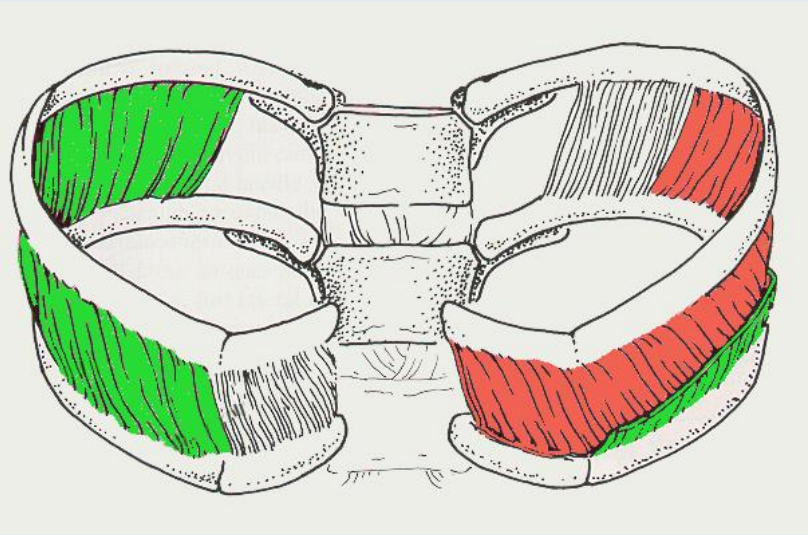
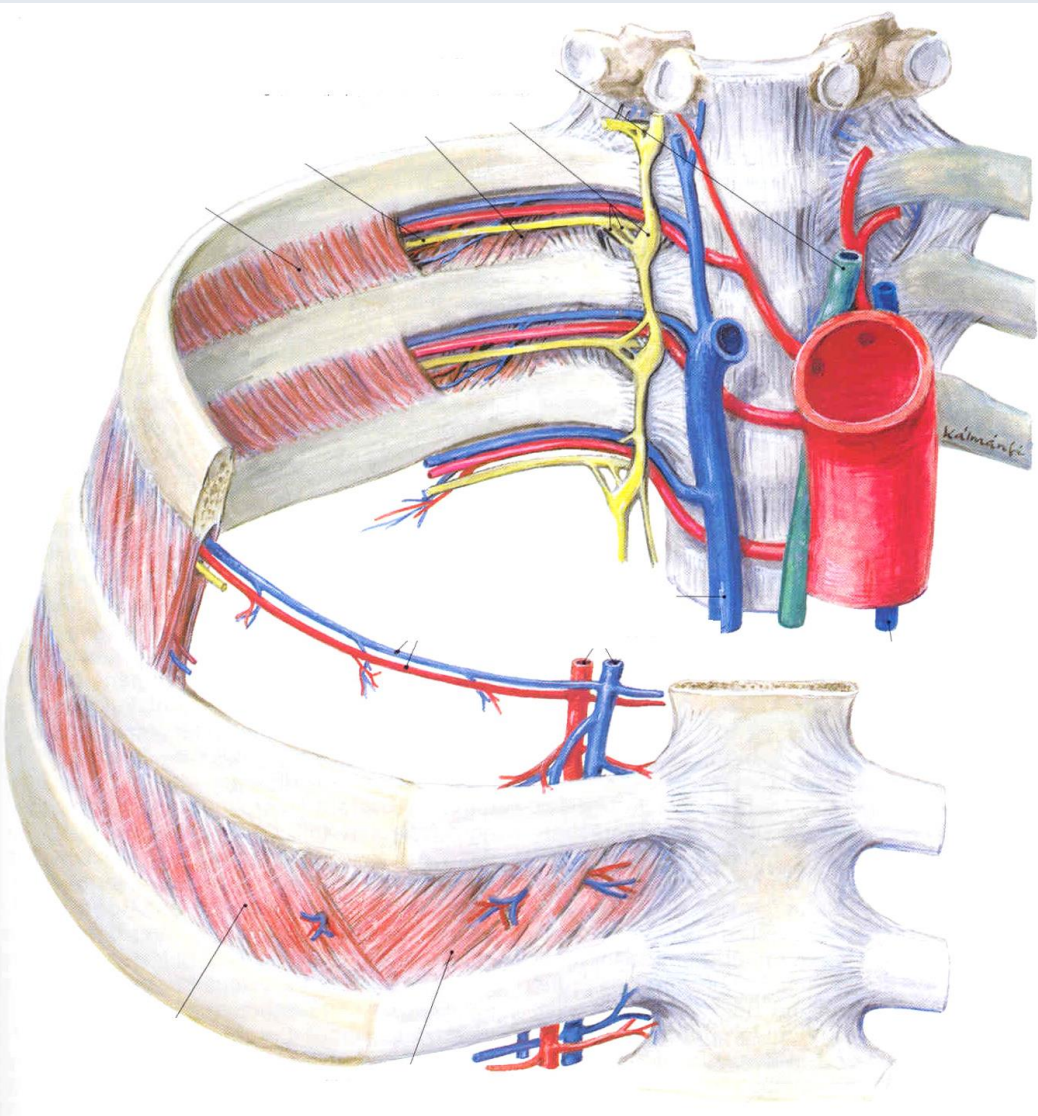
# Allgemeine Aspekte der Brusthöhle





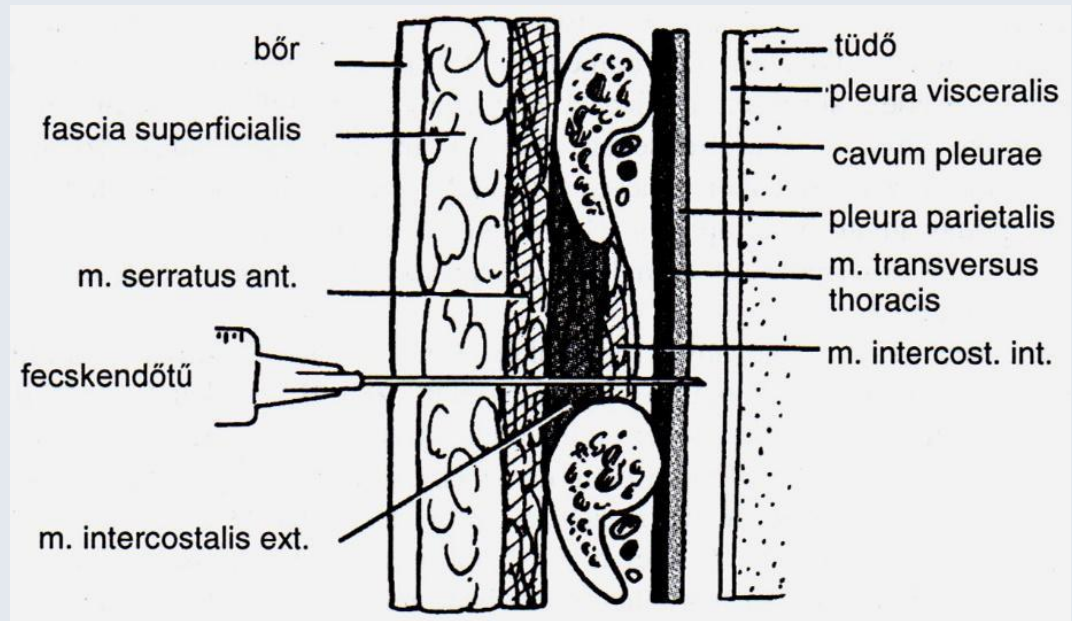
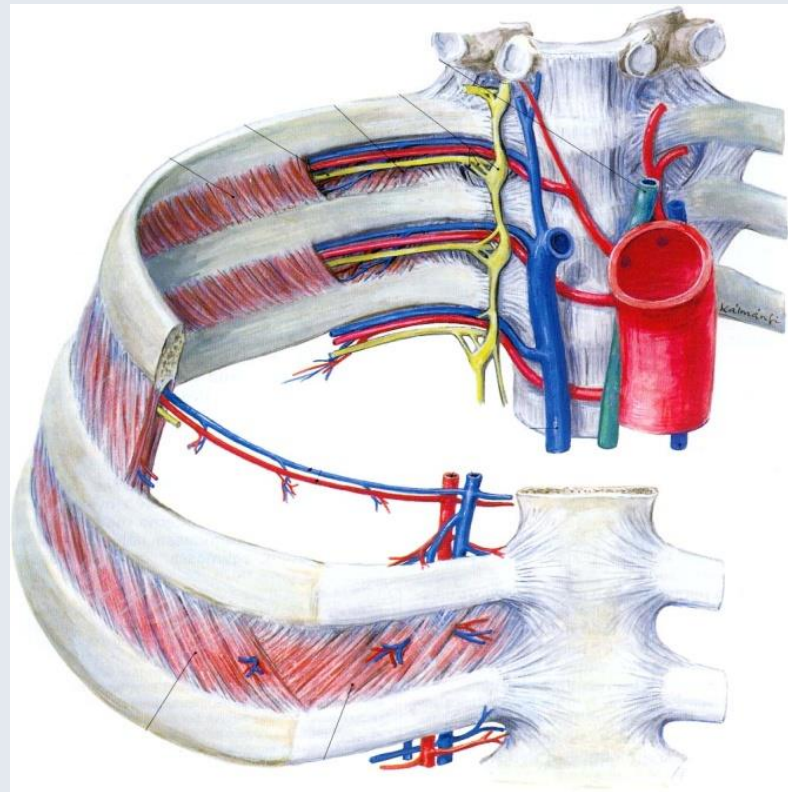








## Mellkas punctio (intercostalis drainage)



## MALFORMACIÓK

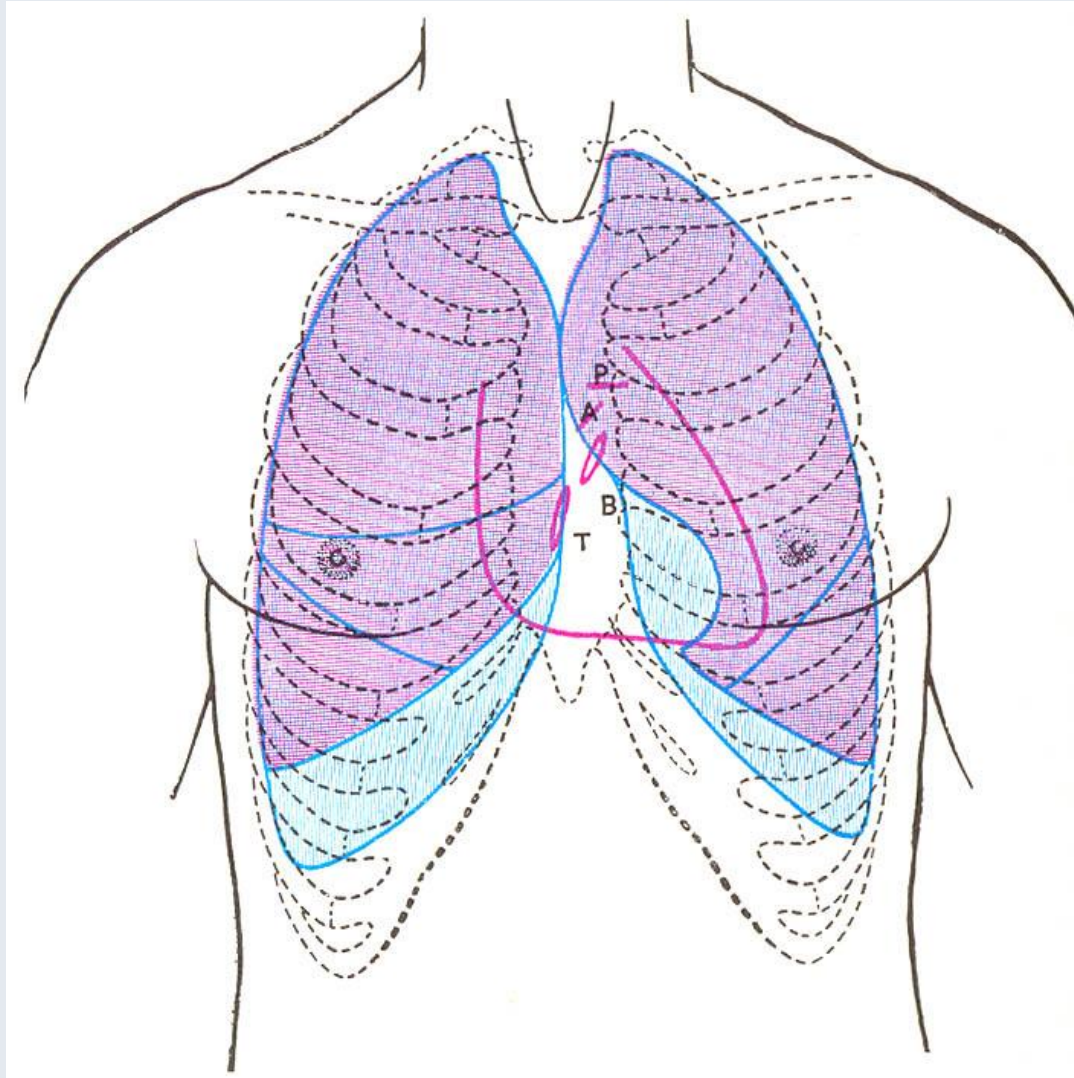


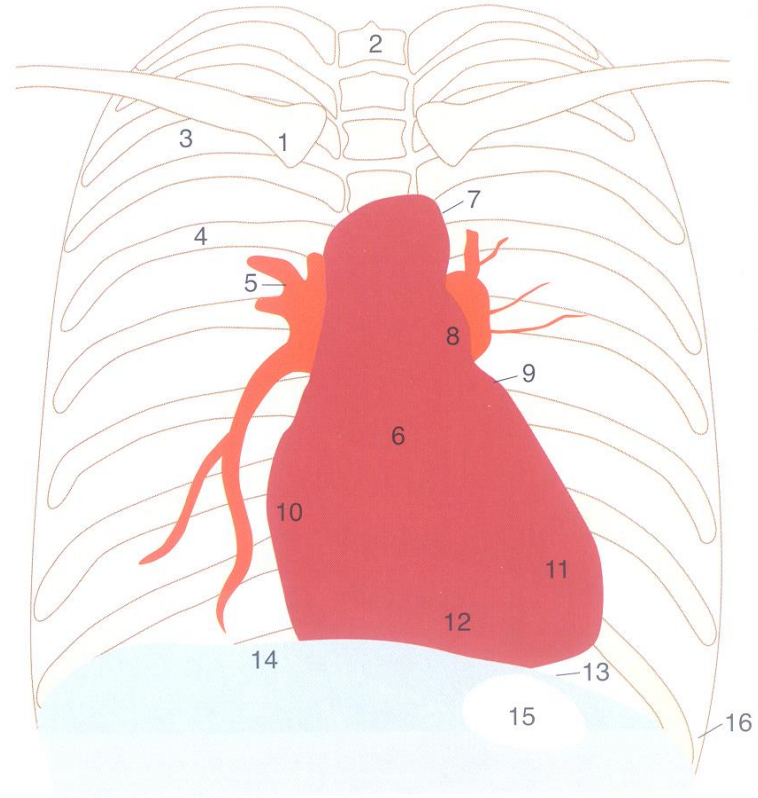
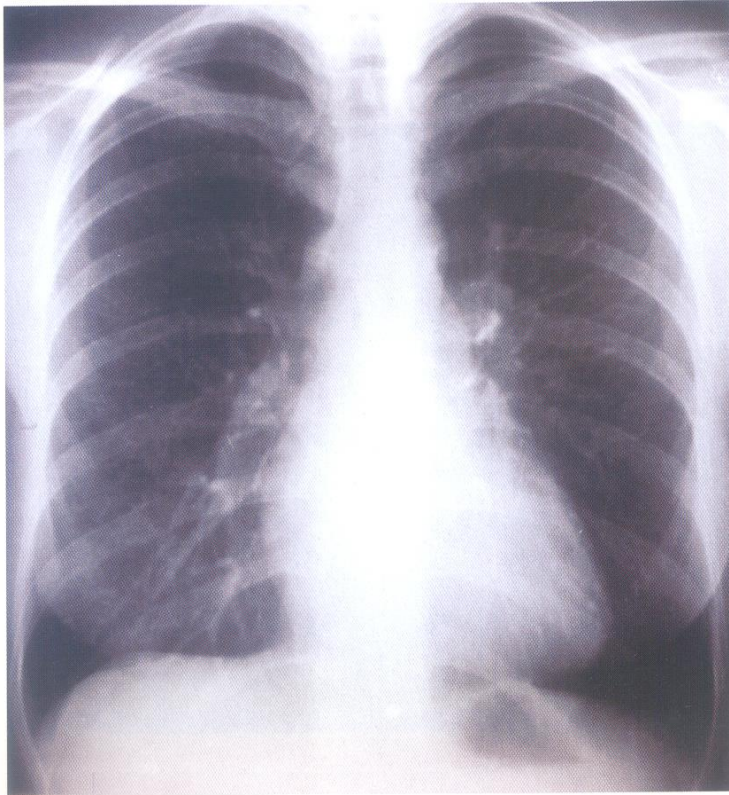
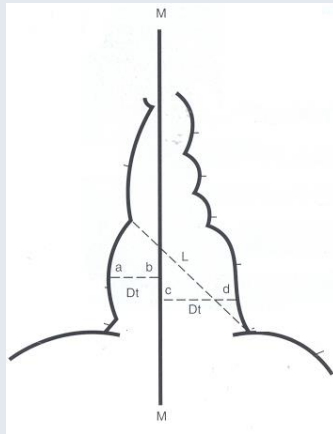
**Pectus excavatum**



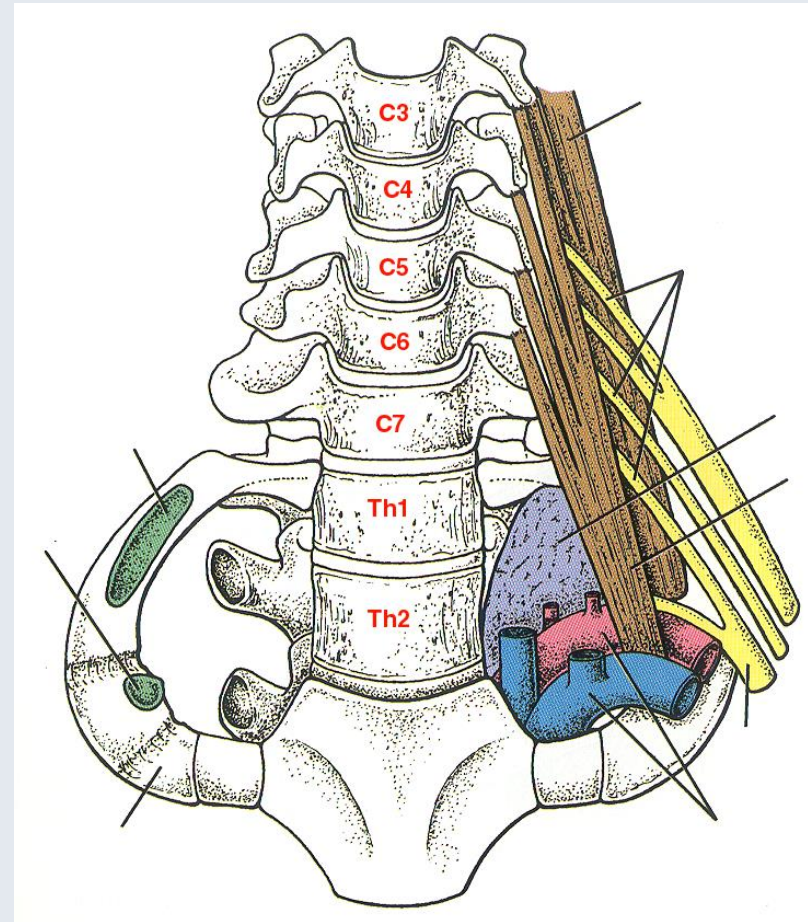
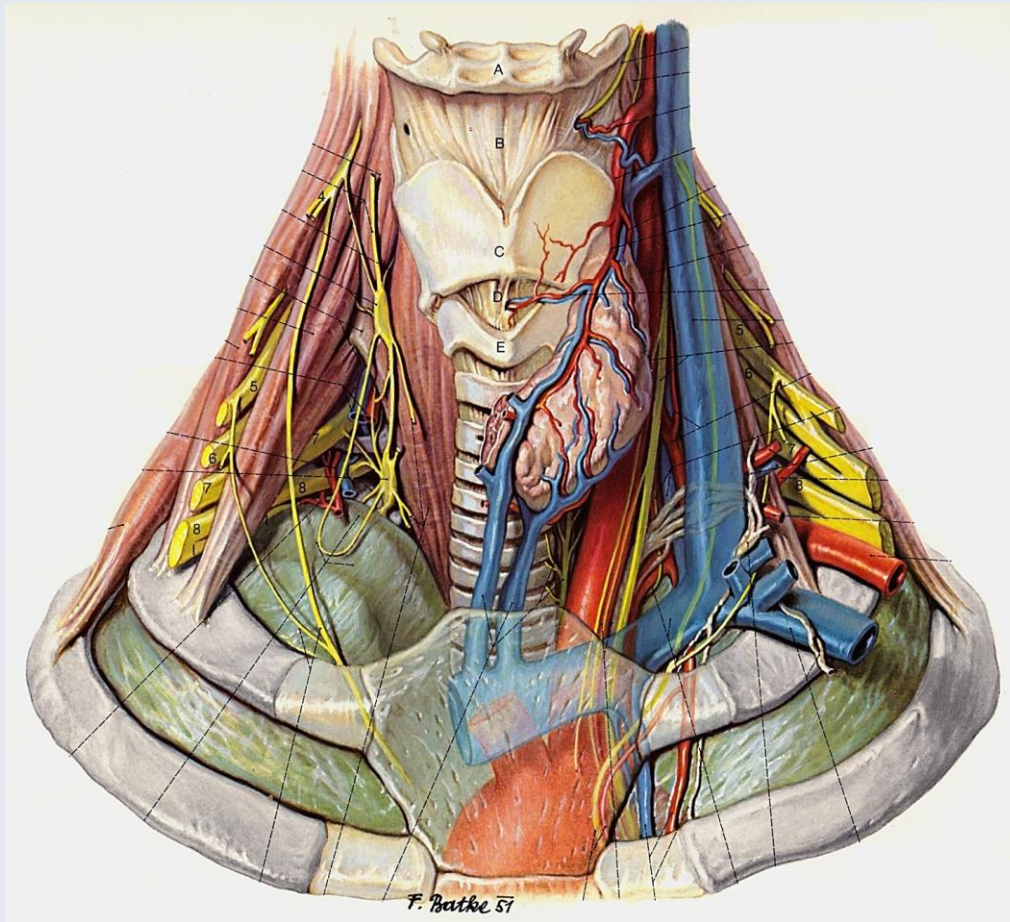
**Pectus carinatum**

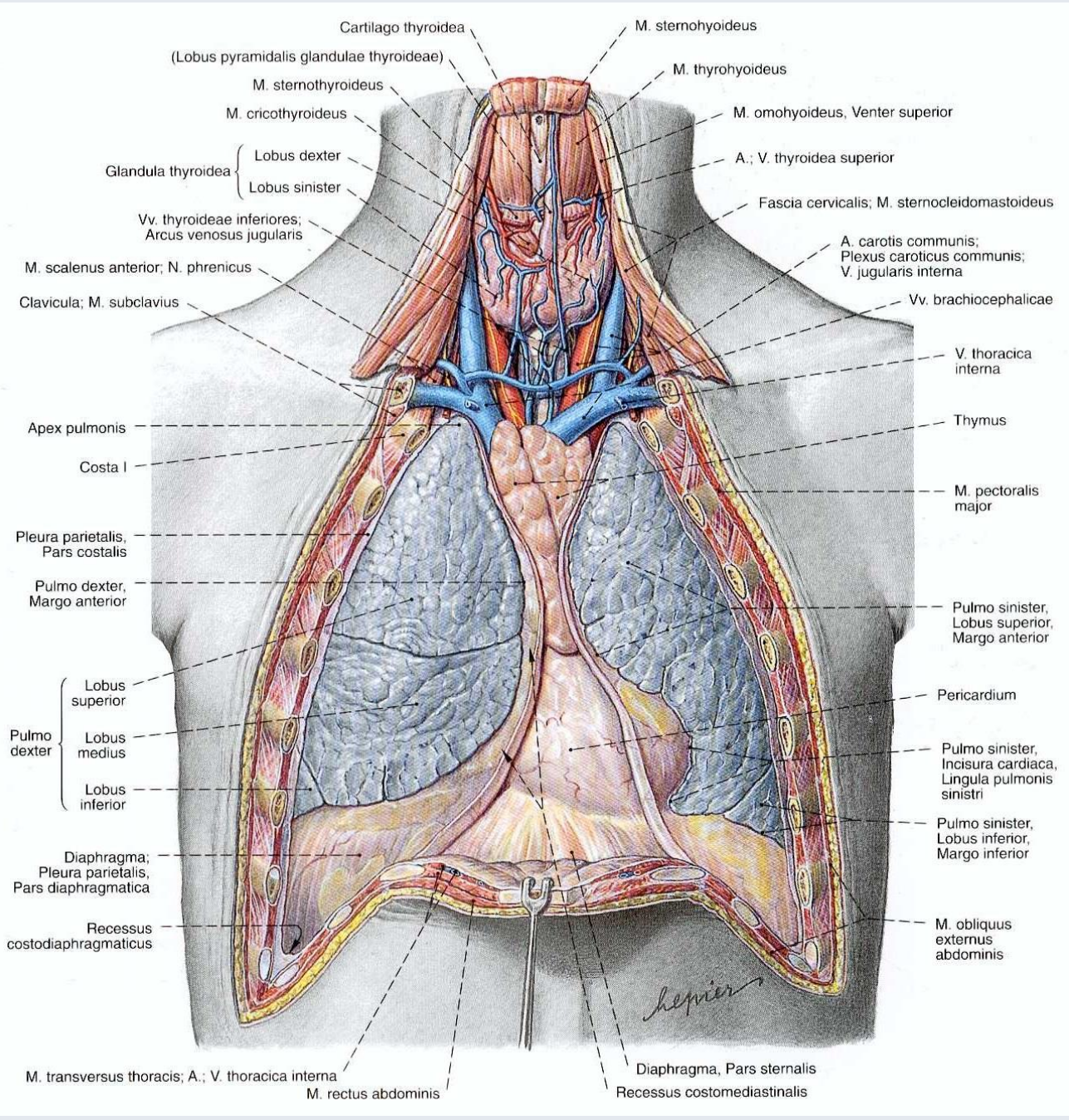
# Oberflächentopographie





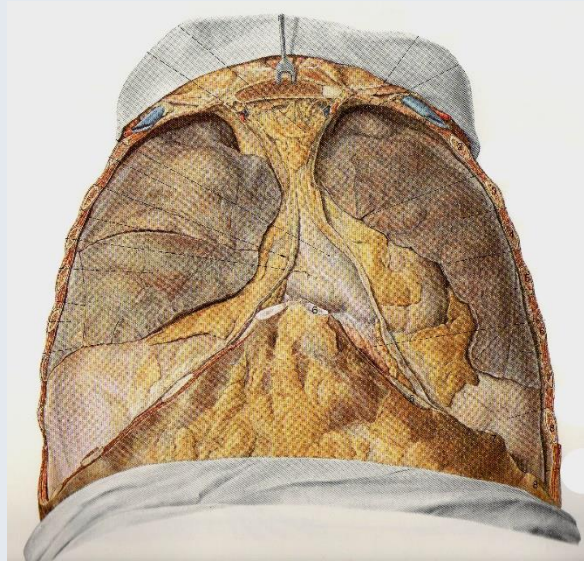
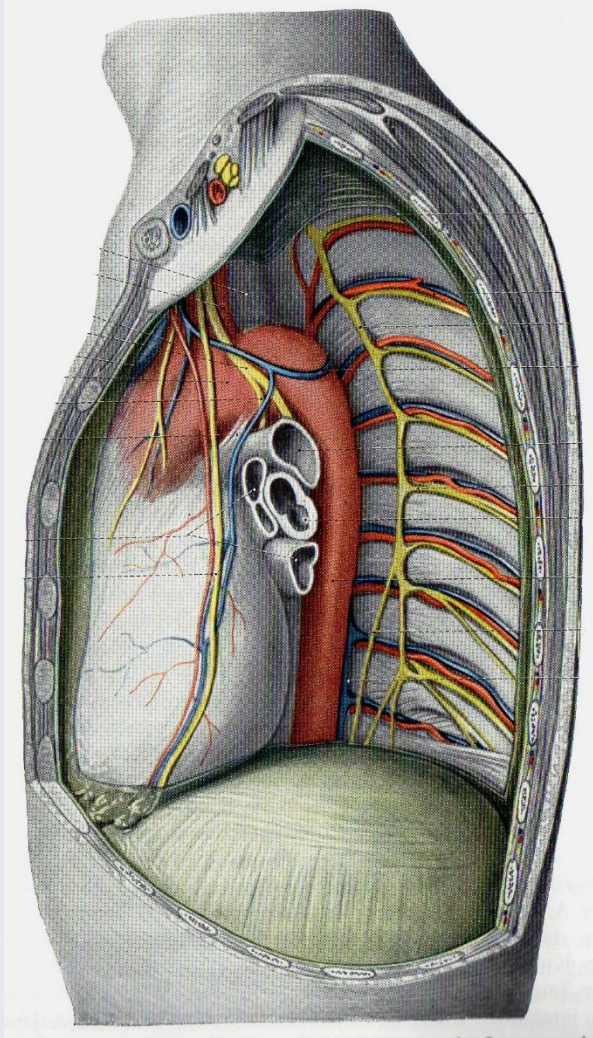
# APERTURA THORACIS SUPERIOR „Eingang zur Brusthöhle“





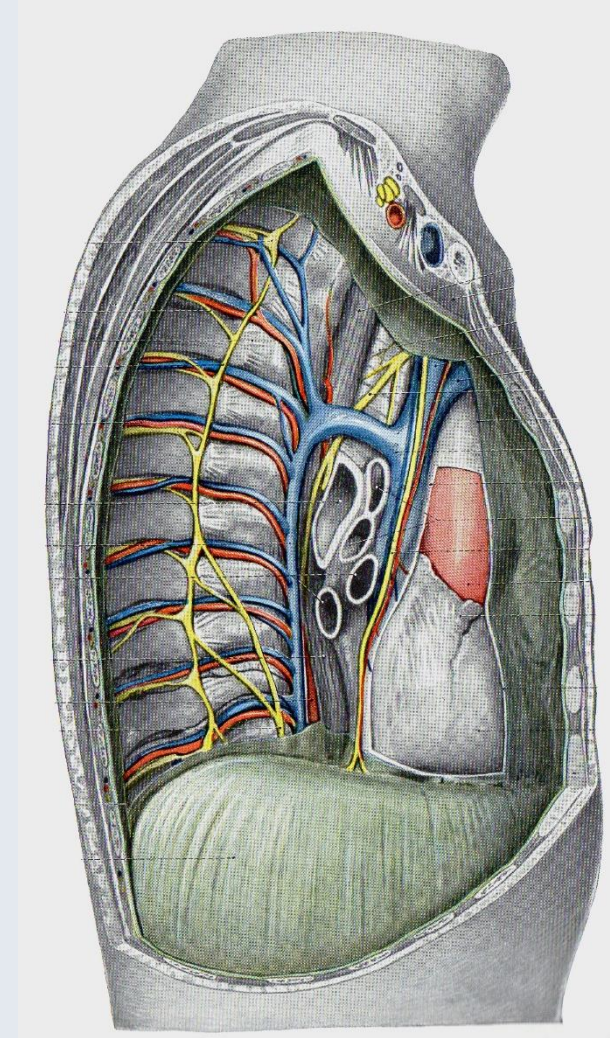
# Mediastinum

Hafferl



Pernkopf

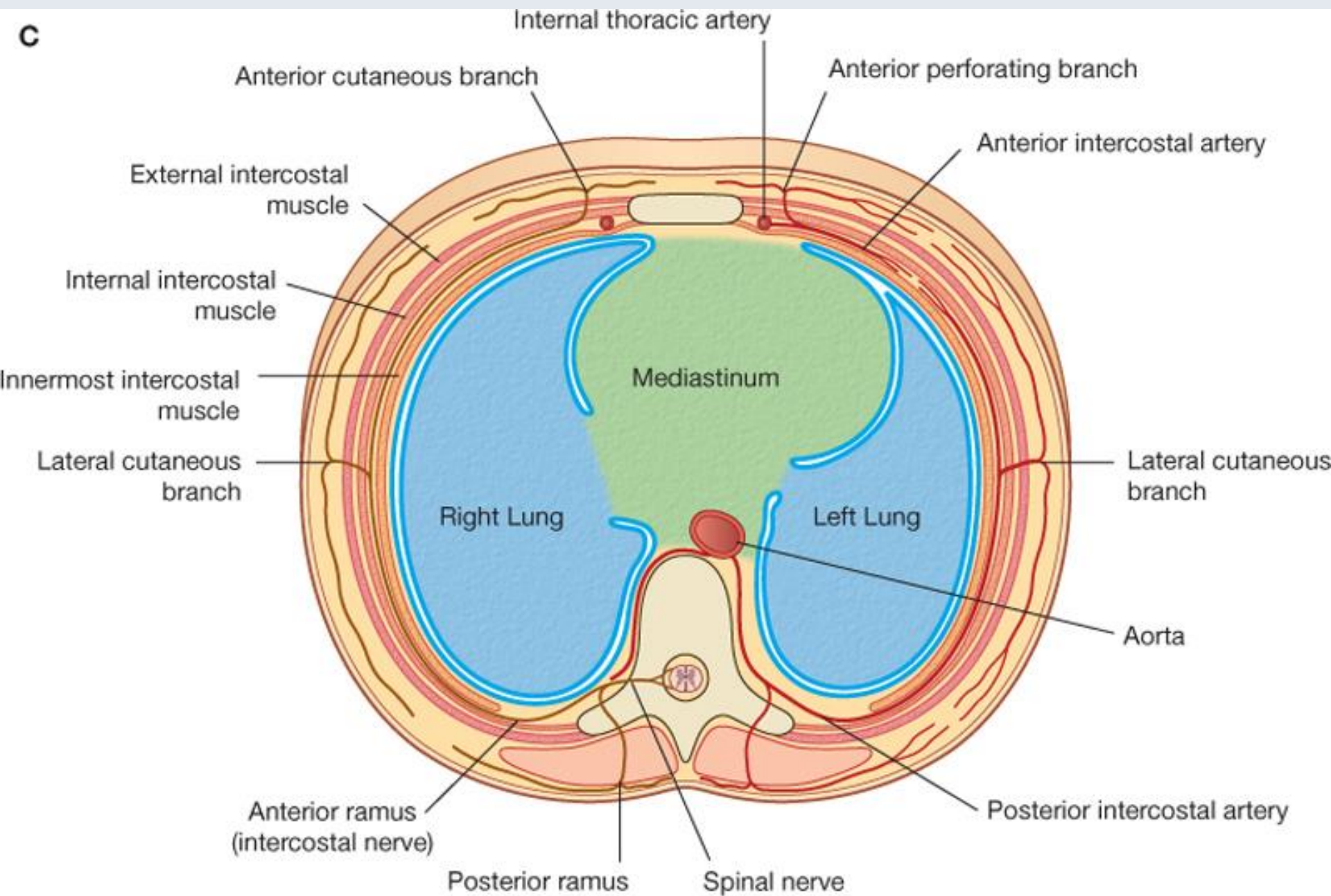
Hafferl



Grenzen:

- Sternum, Rippenknorpel
- Wirbel
- Apertura thoracis sup. *et inf.*
- Pleurae mediastinales
- Diaphragma

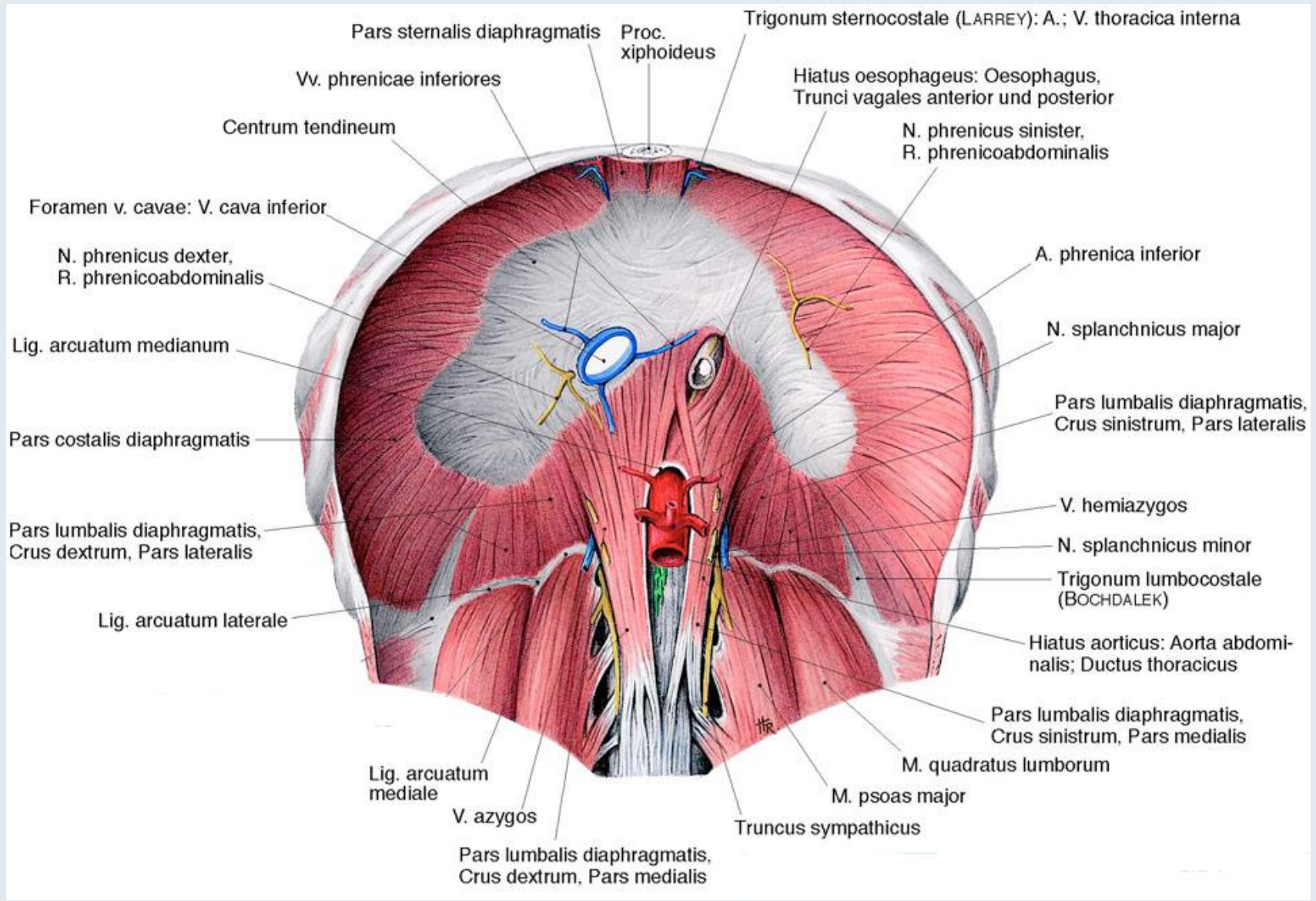
C

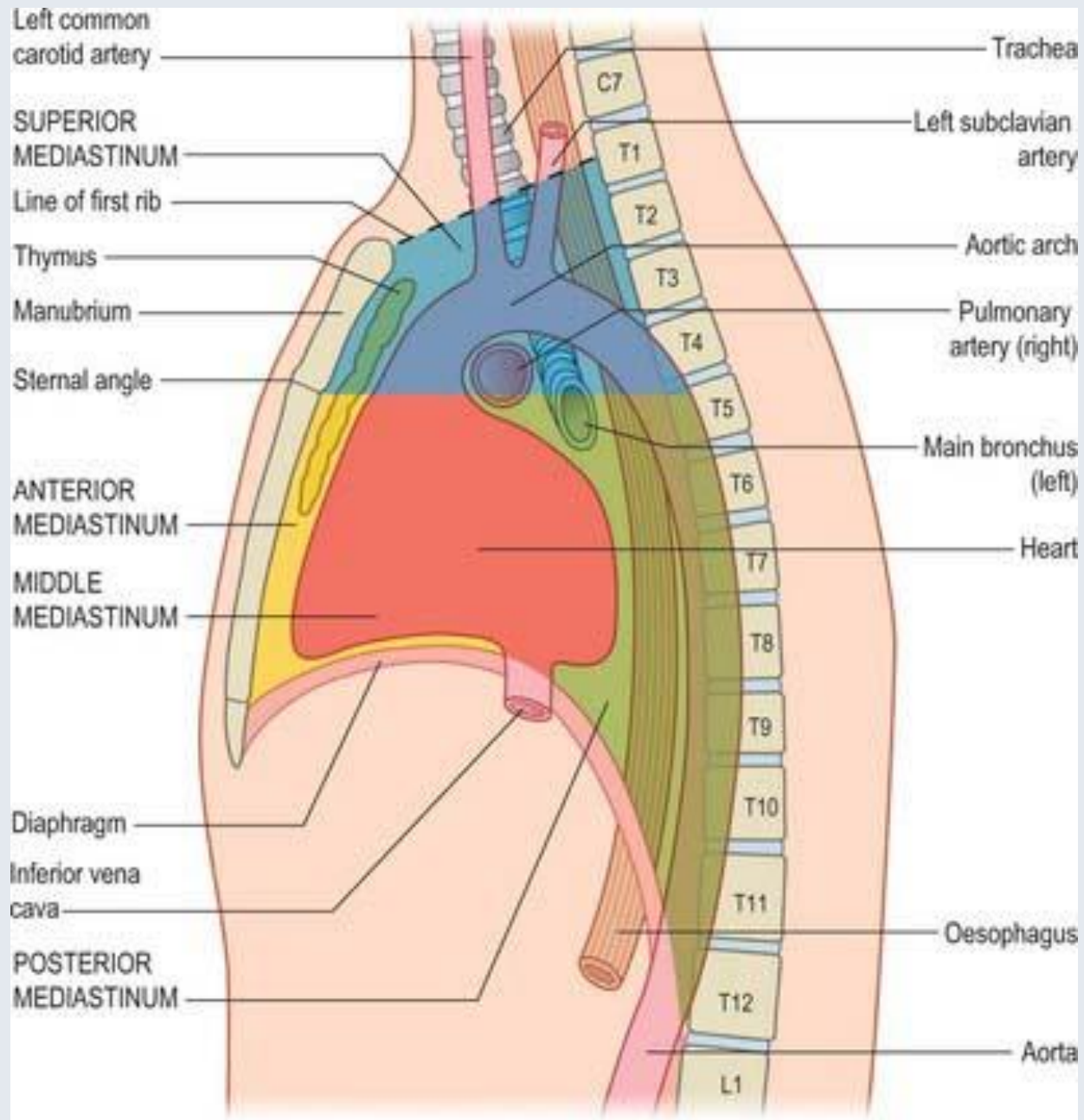


Drake: Gray's Anatomy for Students, 2nd Edition.

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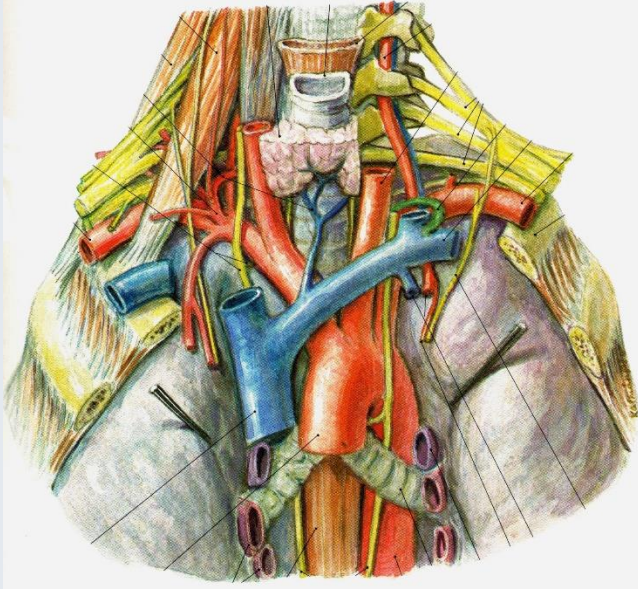






# Mediastinum

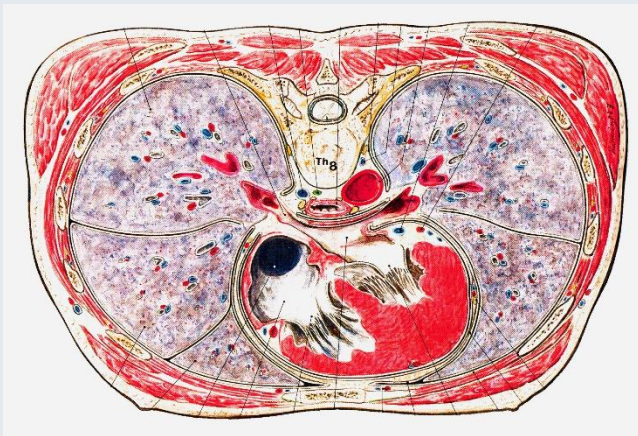
Tömböl



Mediastinum **anterius** (*cardiacum* et *supracardiacum*)  
**posterius**

Mediastinum supracardiacum: 5 „Schichten“

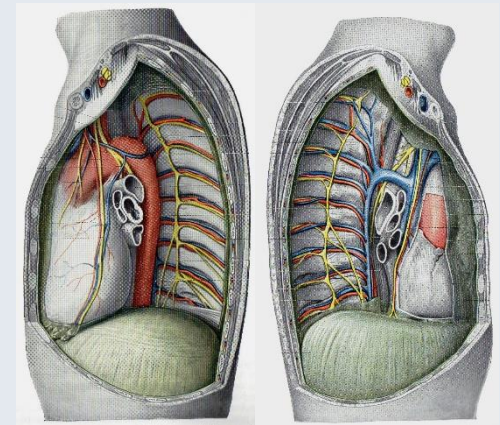
- Corpus adiposum retrosternale (Rest vom Thymus)
- Venen (VCS, Vv. brachiocephalicae)
- Nerven (Nn. vagi et phrenici)
- Arterien (Truncus et Aa. pulmonales, Arcus aortae)
- Trachea et bronchi principales



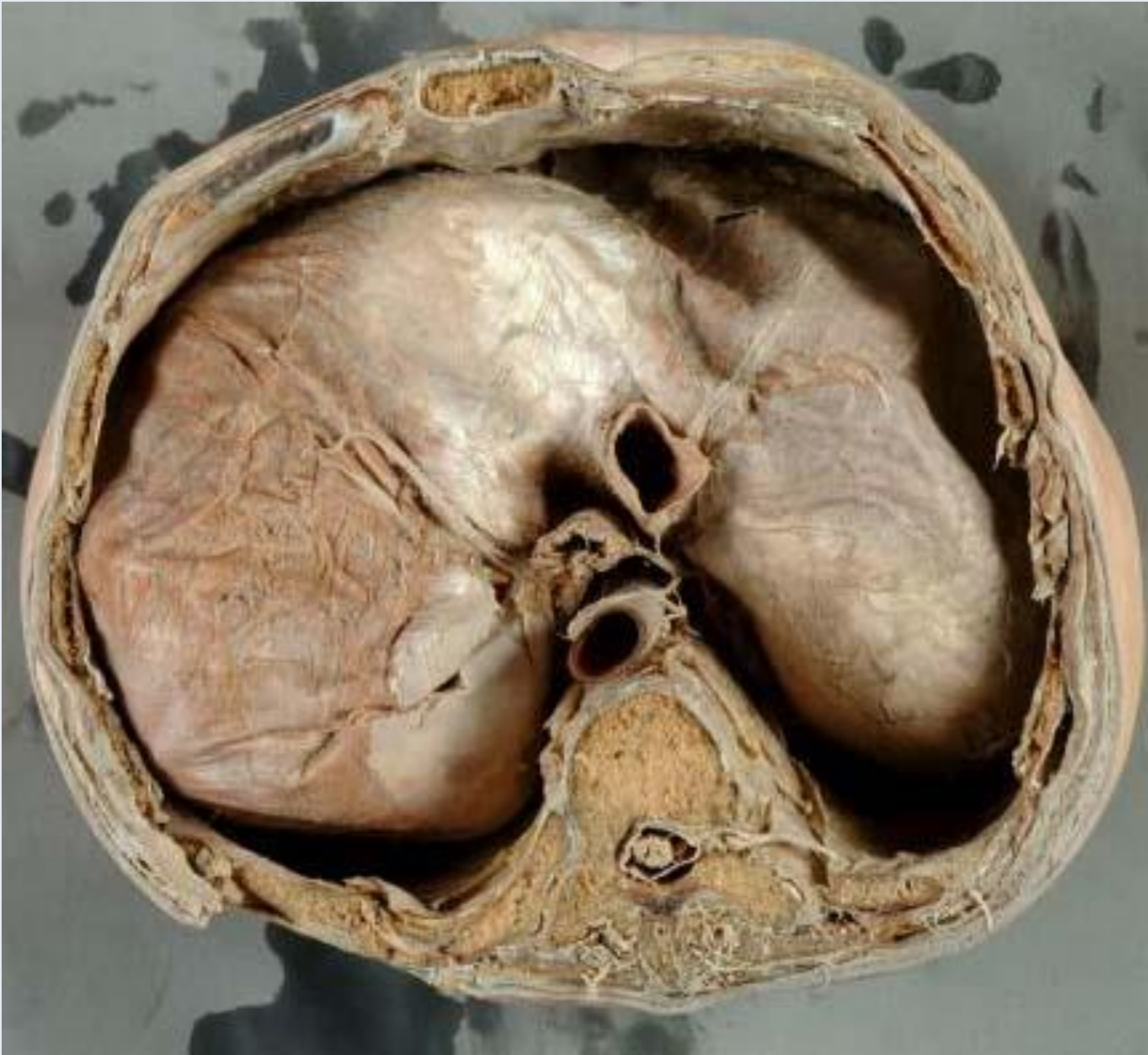
Tömböl

Mediastinum posterius:

- Oesophagus
- Aorta thoracica
- VCI; v. azygos, hemiazygos
- Tr. sympathicus
- ...



Haffnerl



## Th4 **Bifurcatio trachea**

Anfang und Ende der Aorta (Arcus)

V. Azygos mündet in die VCS (2. sternocostal Gelenk)

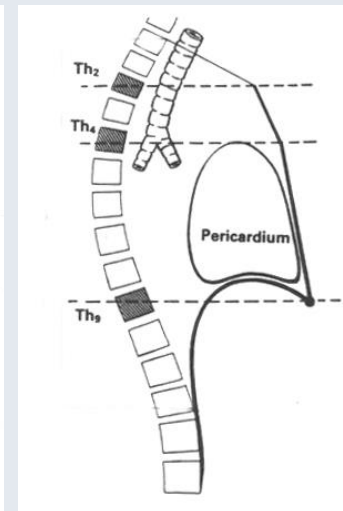
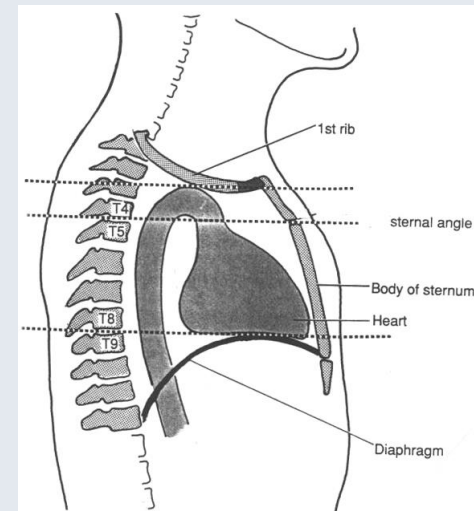
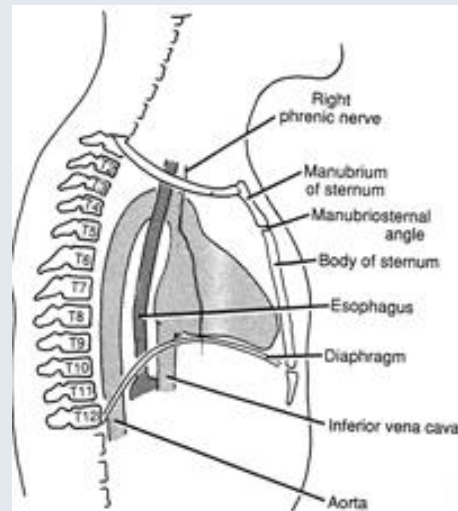
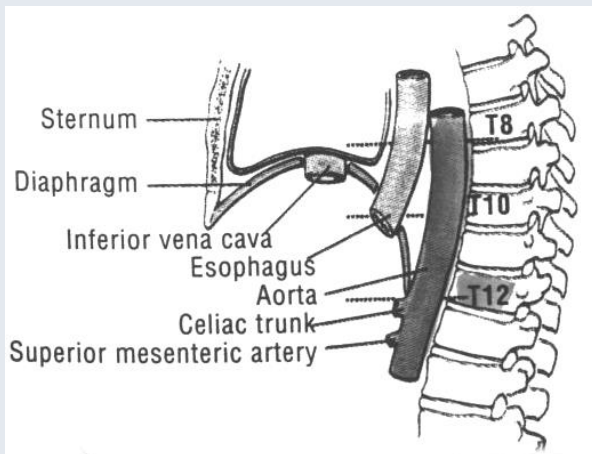
Th5-6 Hilum pulmonis

Th8 Foramen Vena cava inf.

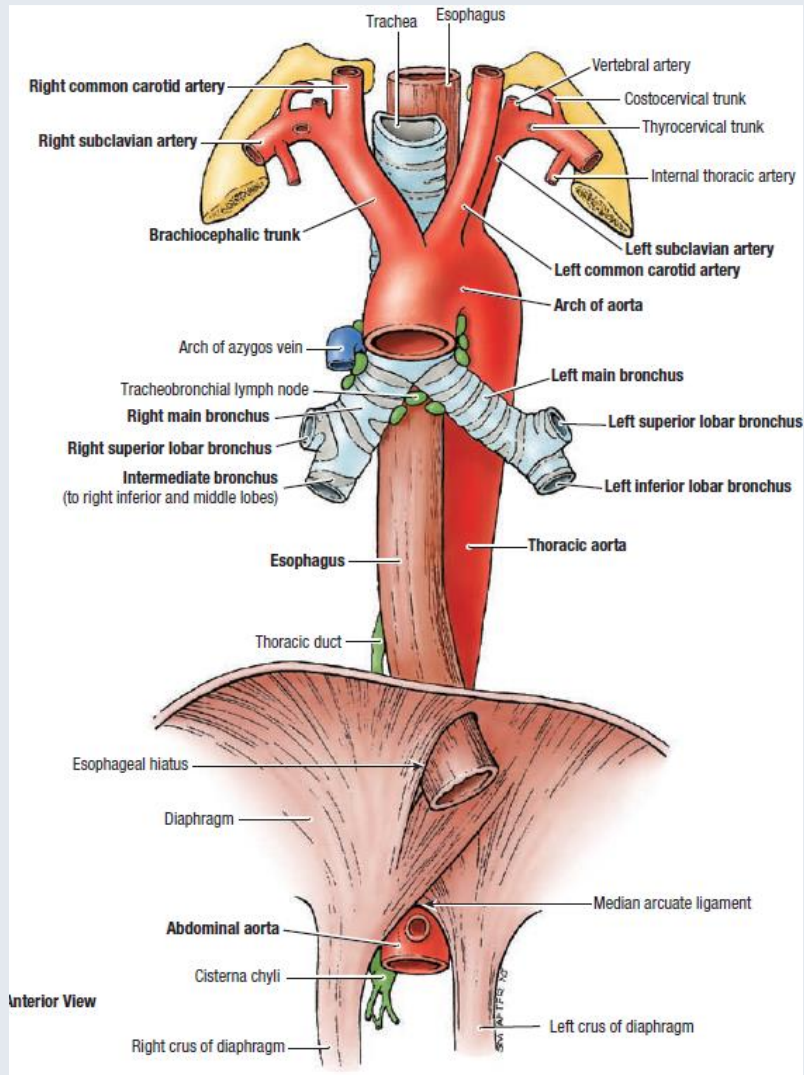
Th10 hiatus **esophageus**

Th11 **Cardia**

Th12 hiatus **aortae** (aorta + ductus thoracicus)



Speiseröhre (oesophagus)



Oesophagus

cervicalis  
thoracalis  
abdominalis

C6 - Th11 linke Seite

„obere oesophagus sphincter“  
(m. cricopharyngeus)  
„untere oesophagus sphincter“ (cardia)

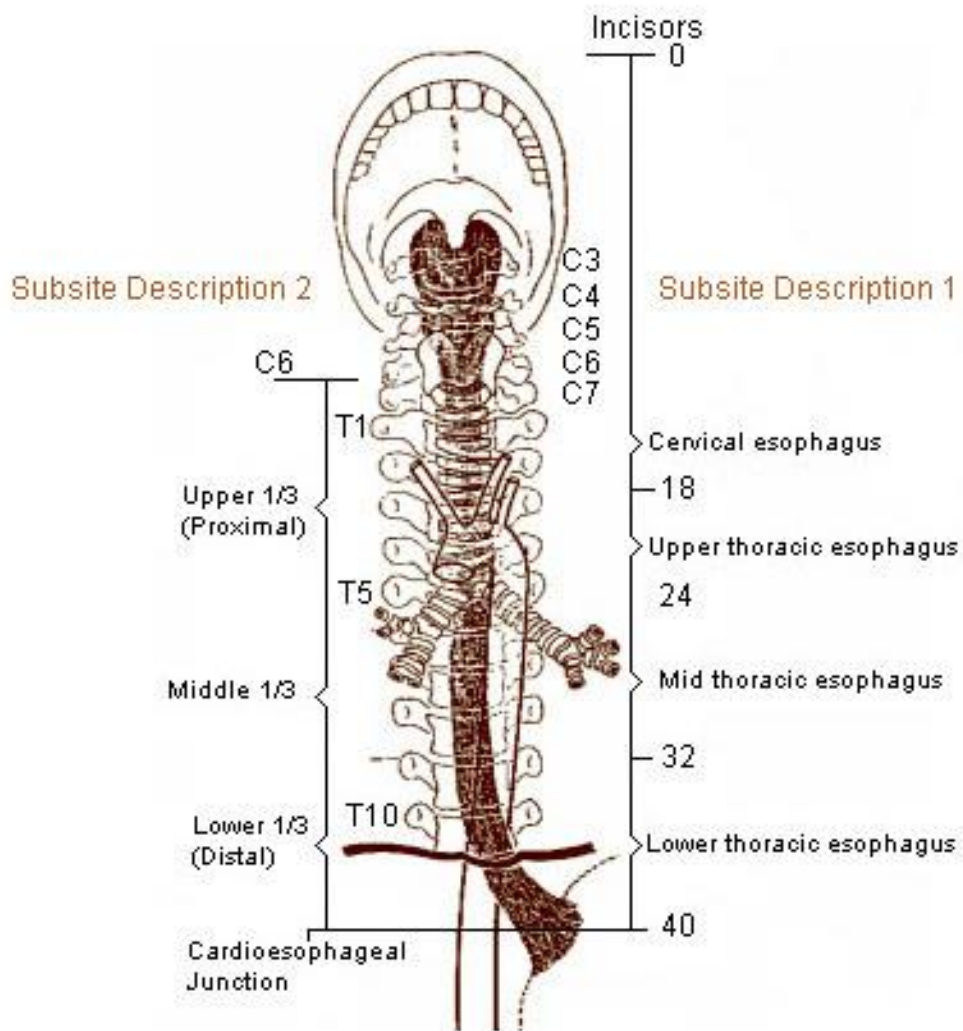
Verengungen:

- cart. Cricoidea
- arcus Aortae
- linke Bronchus principalis
- Diaphragma, hiatus oesophageus

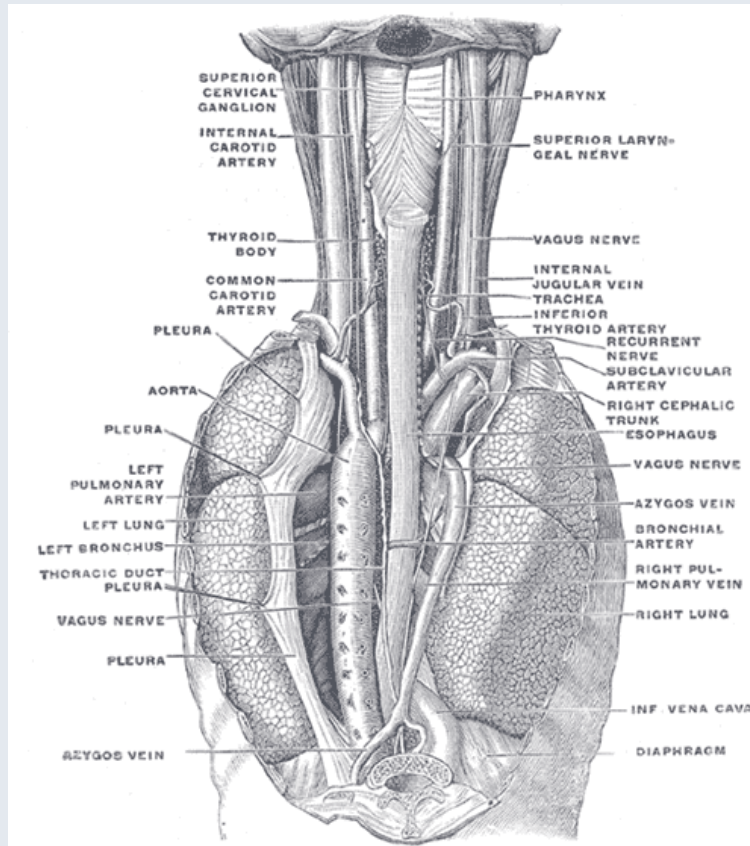
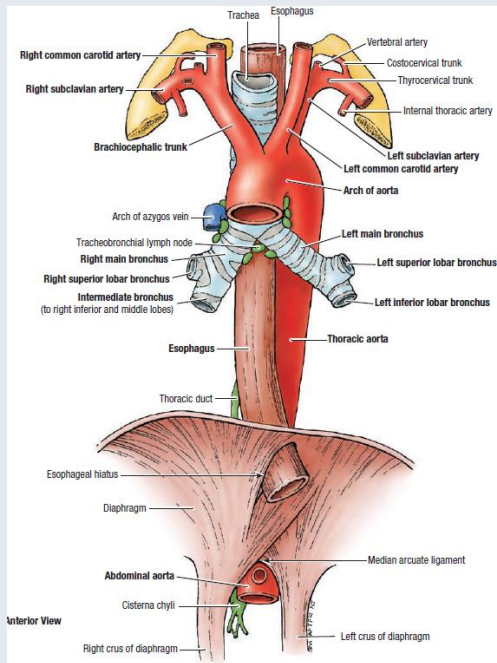
ABCD

Entfernung der Verengungen zu den  
Schneidezähnen :

- 15 cm
- 23 cm
- 24 cm
- 40 cm







## Oesophagus

vor der Fascia prevertebralis (alar) und Fascia buccopharyngeal

hinter der Luftröhre

Arcus Aortae zu seiner Rechten

medial zu einer rechten Lunge

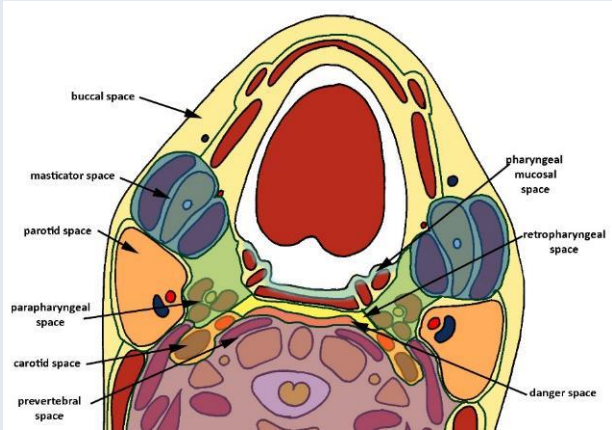
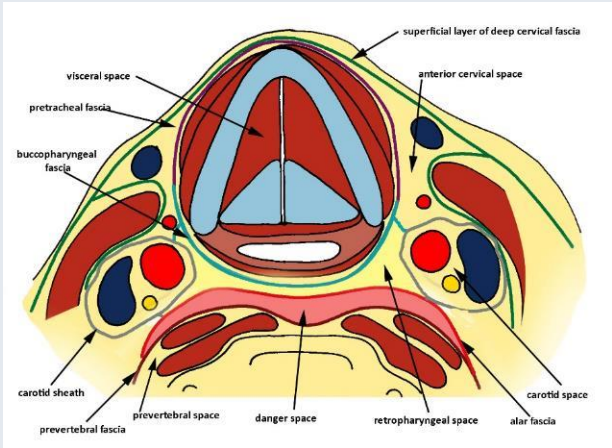
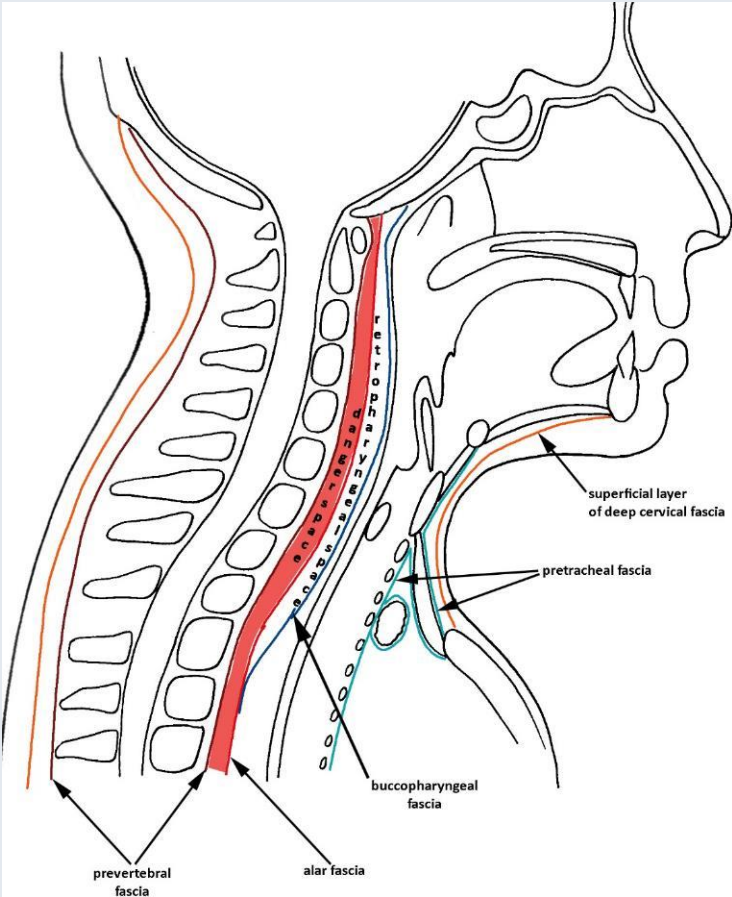
hinter dem linken Atrium

vor und rechts von der absteigenden Aorta

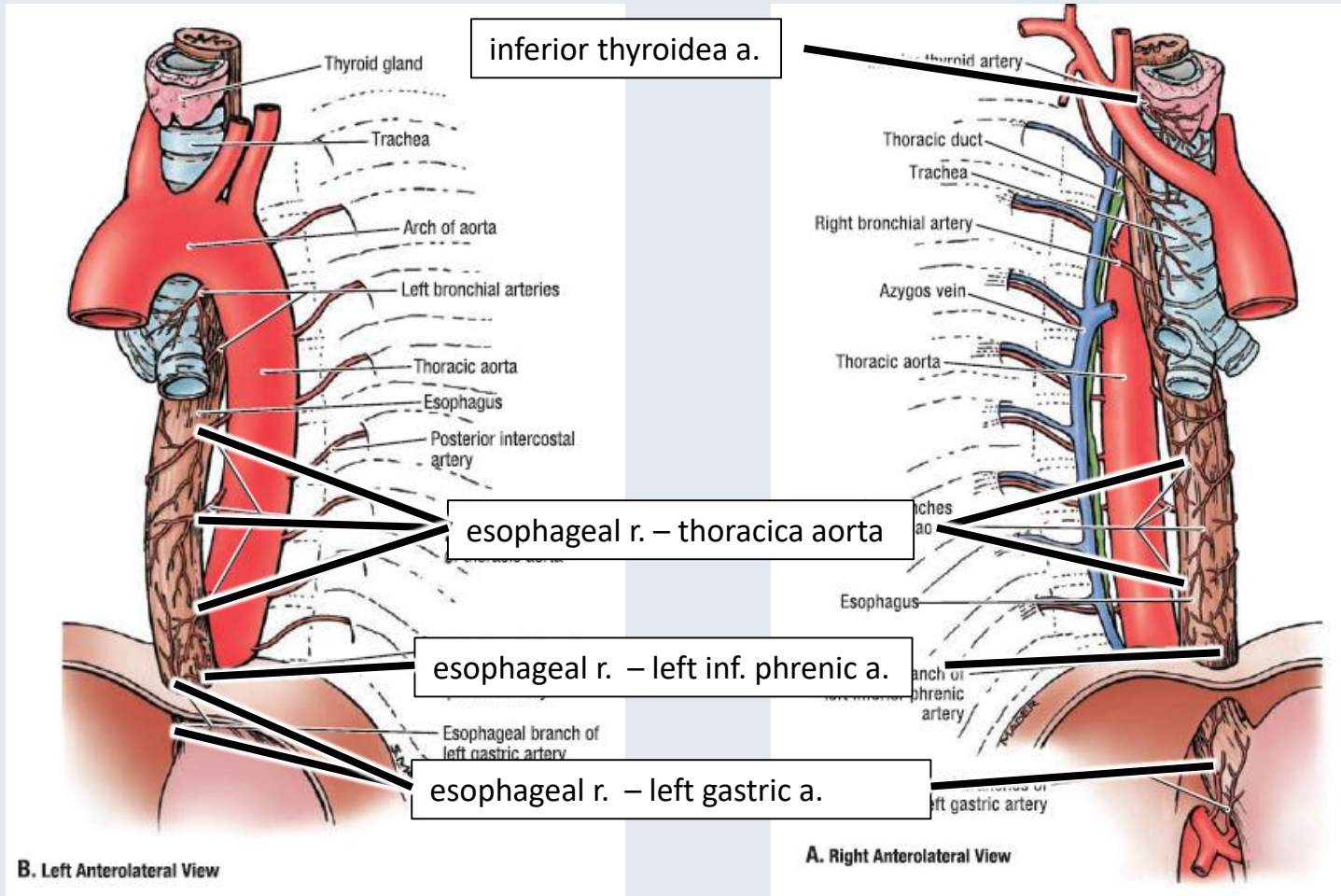
Zwerchfell, Hiatus oesophagei

N. laryngeus recurrens,  
N. vagus (vorne links, hinten rechts)

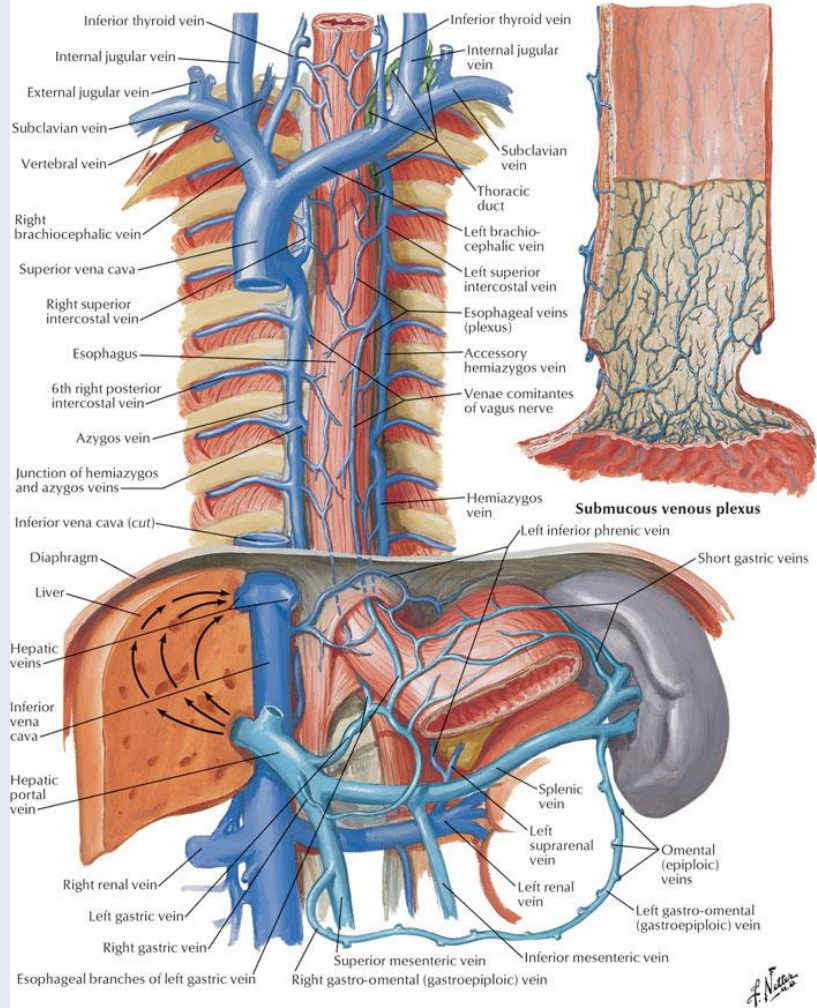
# Oesophagus, Spatien des Halses

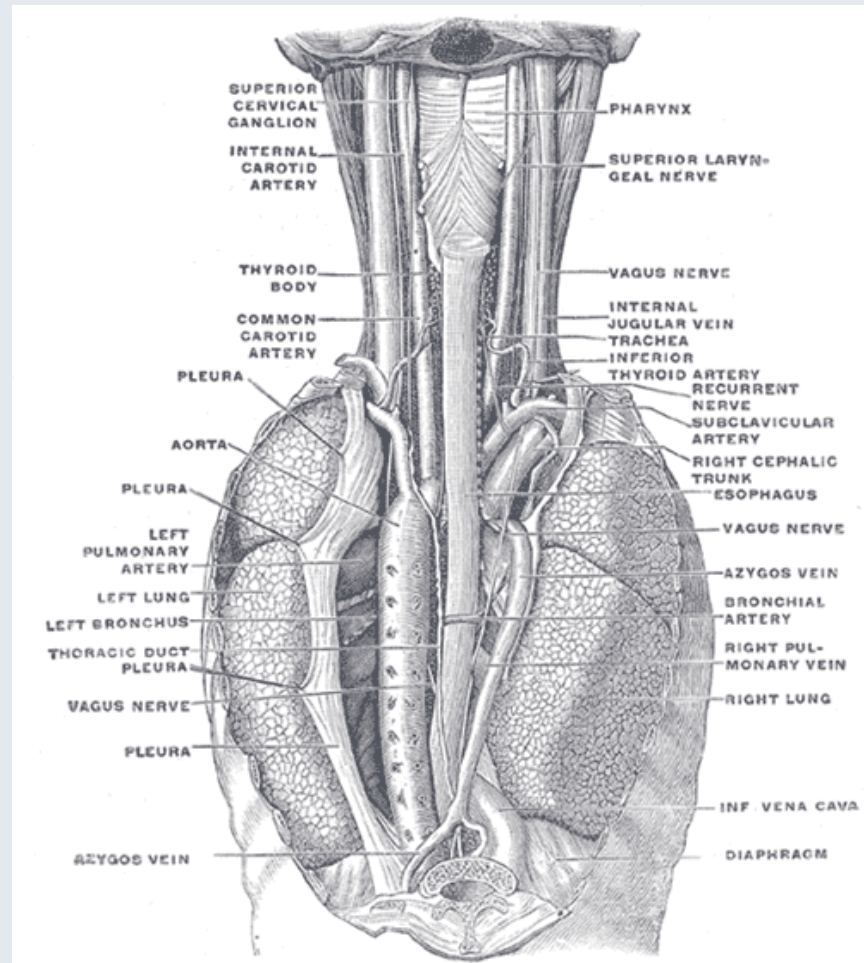


# Blutversorgung der Speiseröhre



## Veins of Esophagus





# Oesophagus – Venen Varicosität

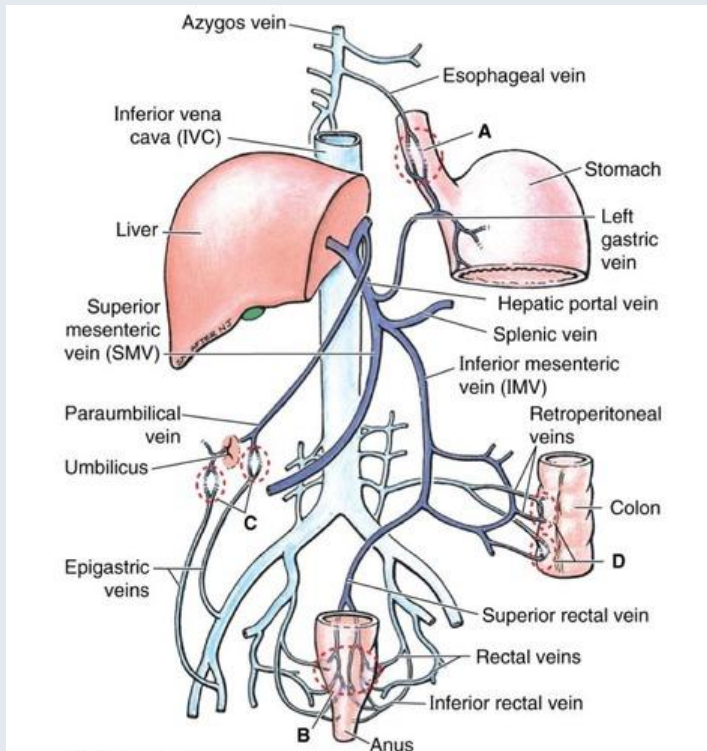
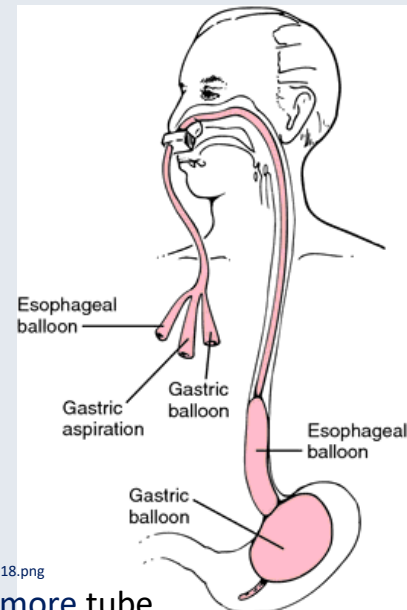
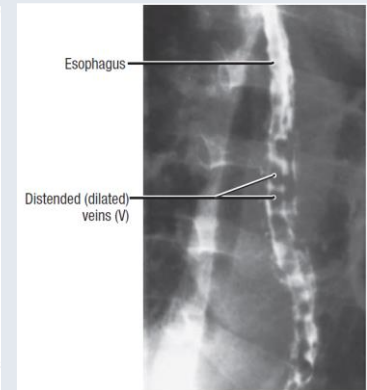


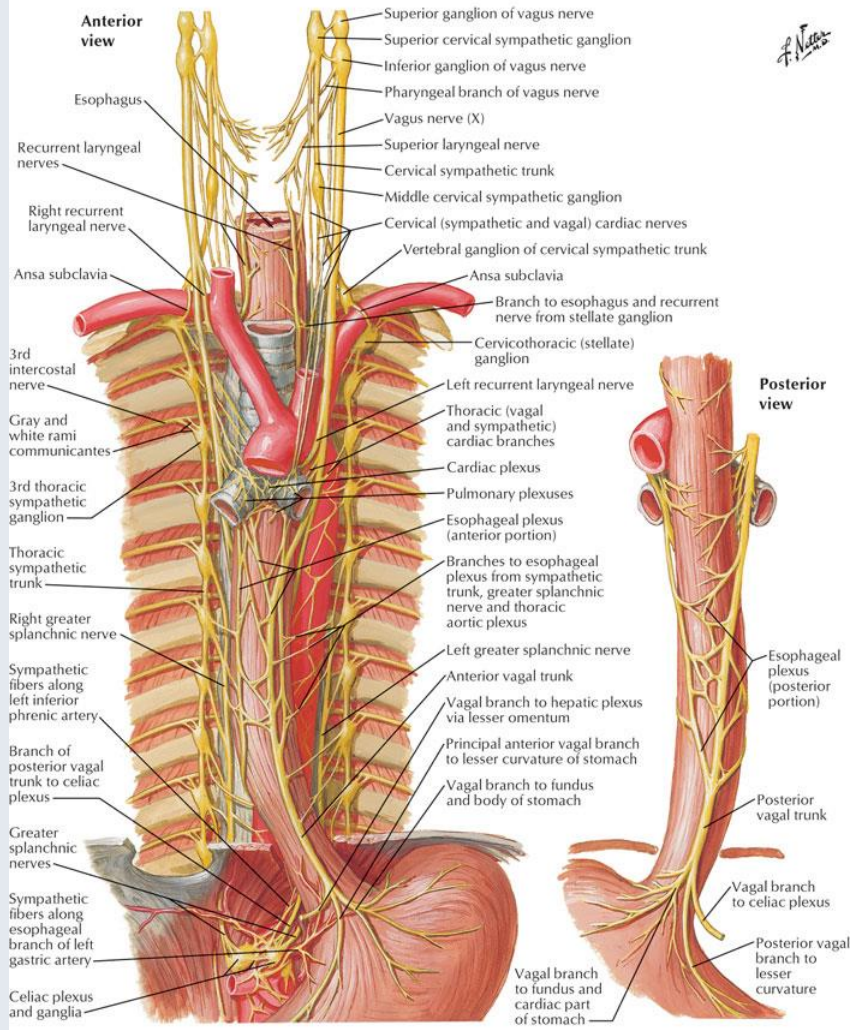
Figure 1 Large esophageal varices at EGD.



<http://img.tfd.com/mk/S/X2604-S-18.png>

Sengstaken-Blakemore tube

## Nerves of Esophagus



## Innervierung

nn. vagus  
truncus sympatheticus

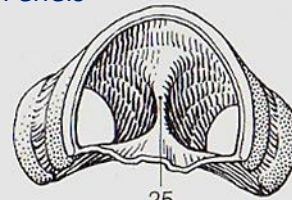
plexus oesophageus

# Luftröhre (Trachea)

Pars cervicalis (C6 – Th1)  
Pars thoracalis (Th1 – Th5)

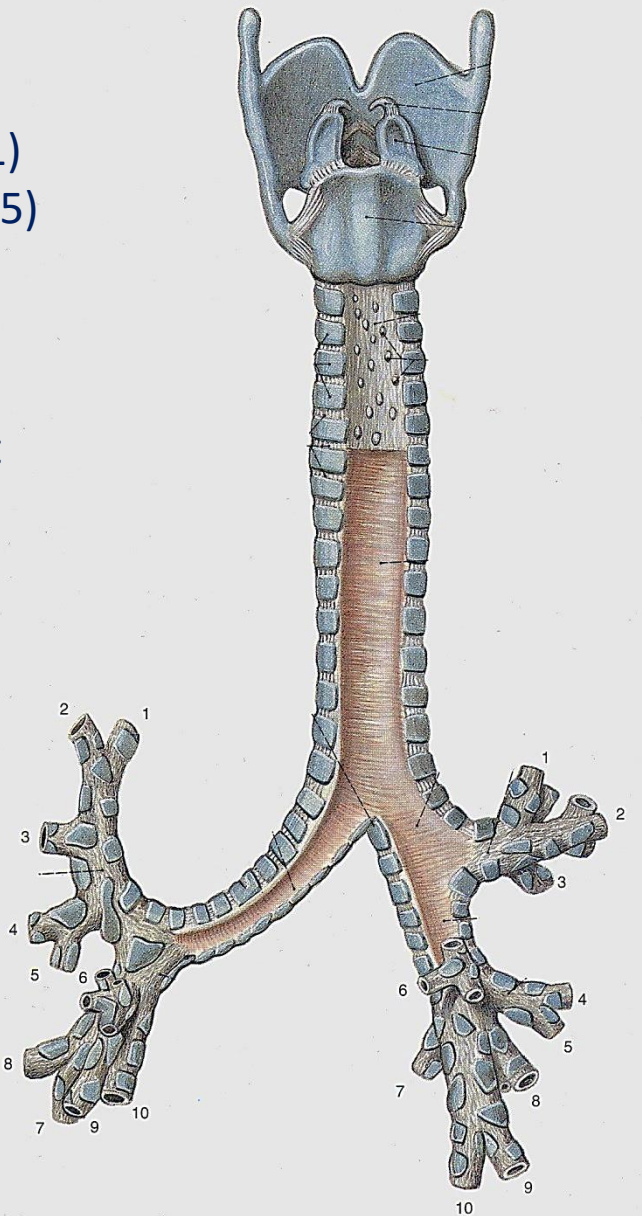
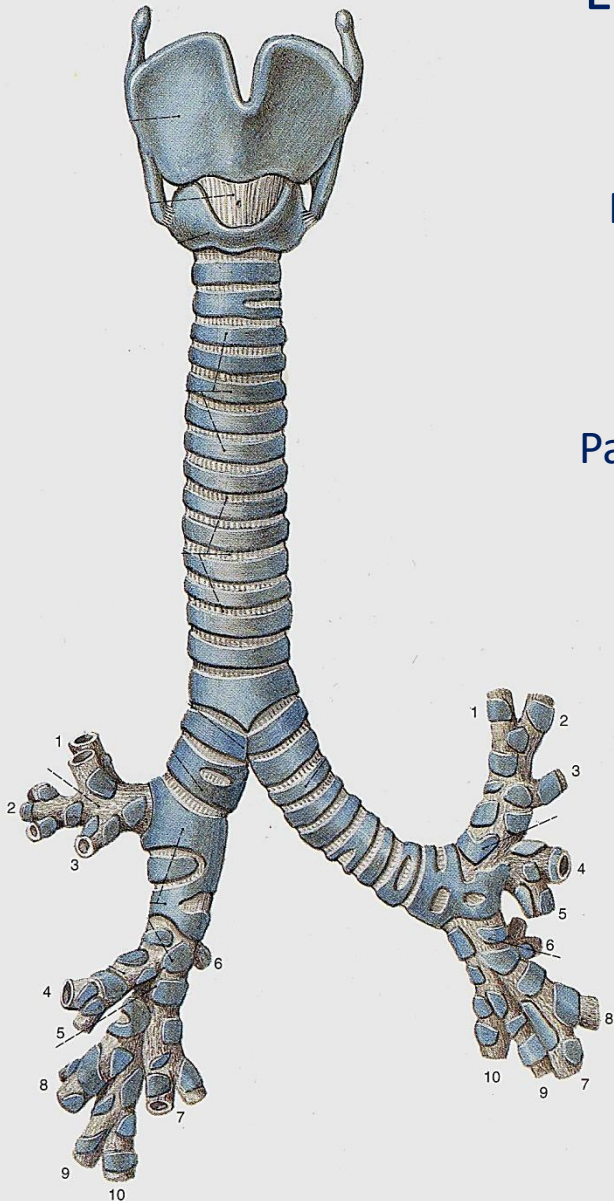
Paries membranaceus mit  
M. trachealis

Feneis

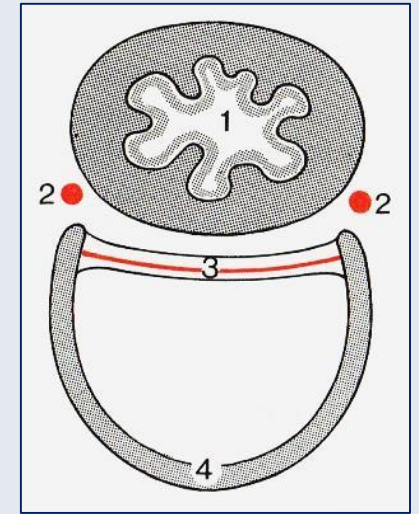
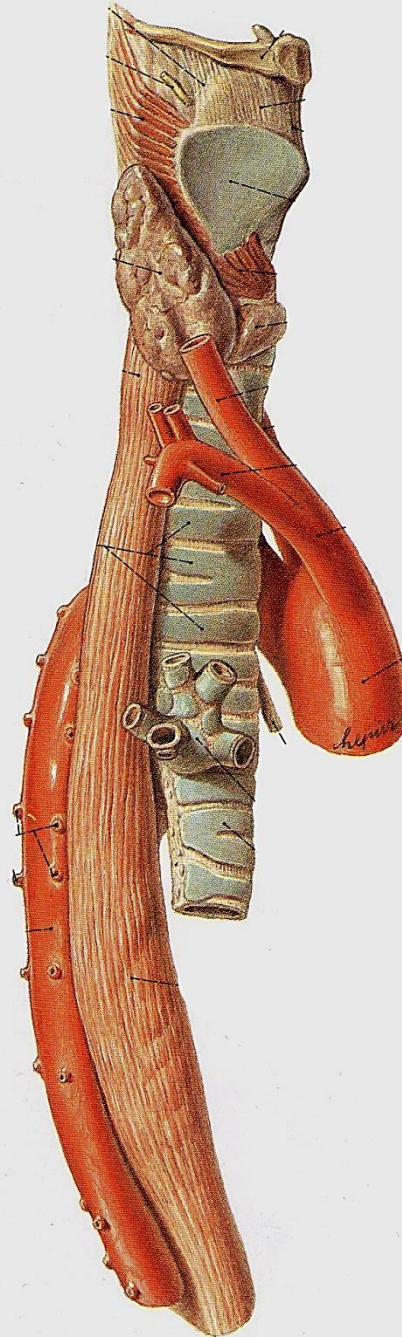
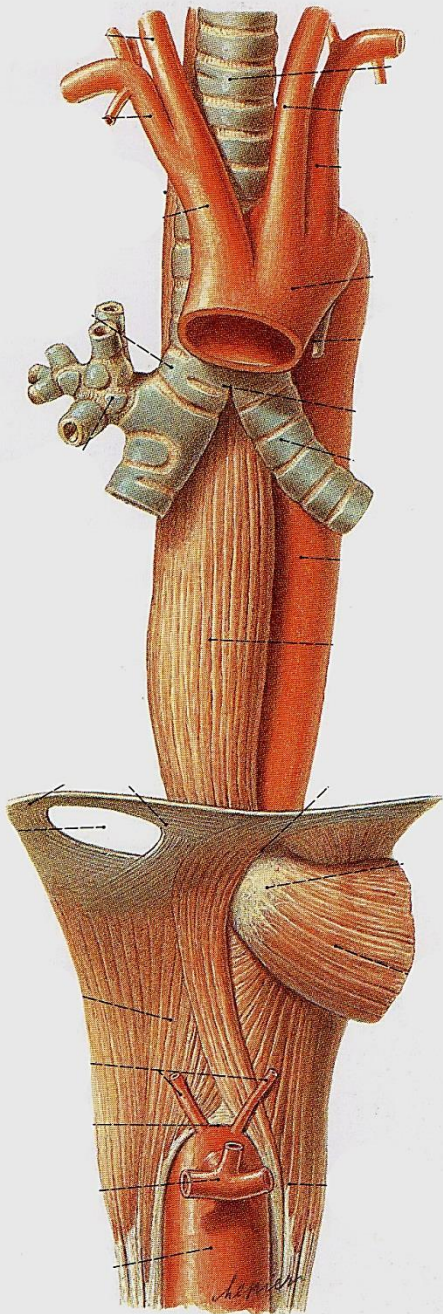


Bifurcatio v. oben

Bifurkatio:  
Carina tracheae  
Th 4-5







Faller

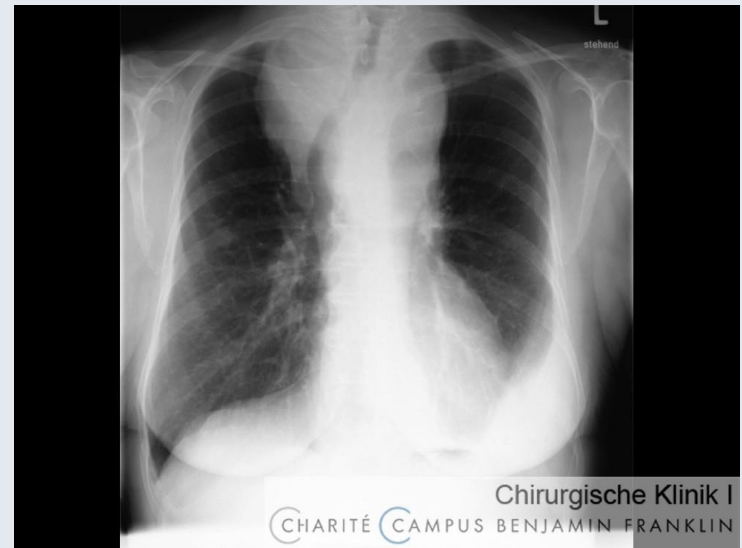
Sulcus oesophagotrachealis:  
N. laryngeus recurrens dexter  
et sinister



[kepalkotas.blog.hu](http://kepalkotas.blog.hu)



[egeszsegere.com](http://egeszsegere.com)



[chilearning.charite.de](http://chilearning.charite.de)

Chirurgische Klinik I  
CHARITÉ CAMPUS BENJAMIN FRANKLIN



# rechte Lunge (Pulmo dexter)



Sobotta

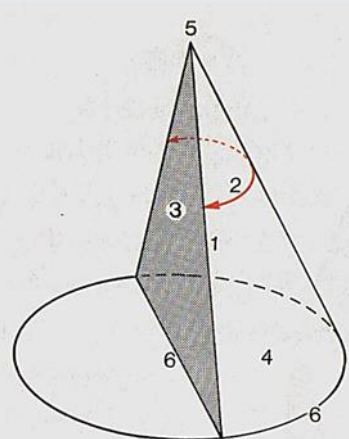
## Drei Lappen (Lobi):

- superior
- medius
- inferior

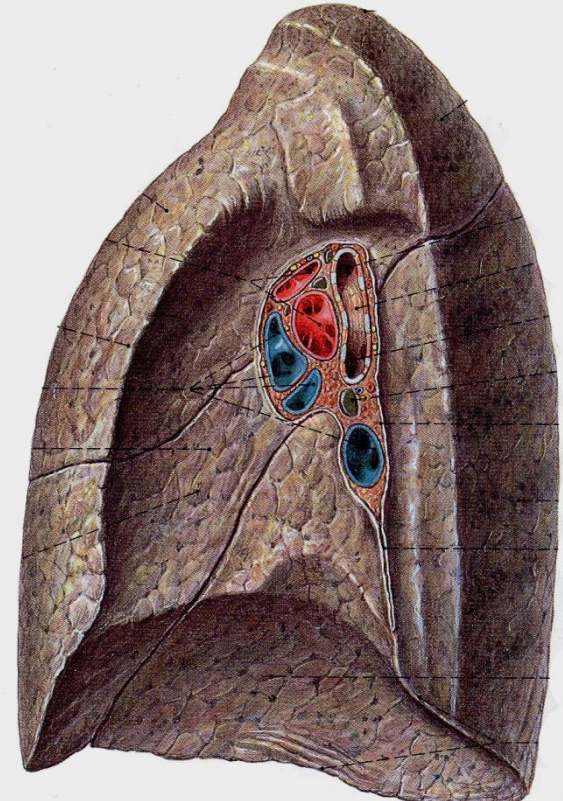
Apex - Basis

Fissura horizontalis

Fissura obliqua



Faller



Sobotta

## Facies costalis

Margo anterior

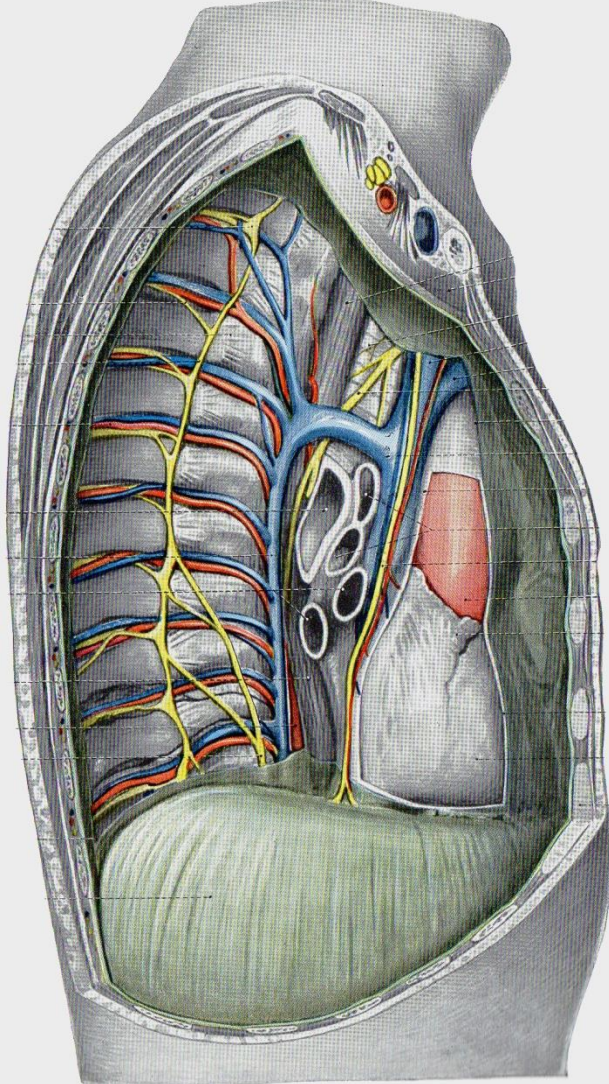
Margo inferior

## Facies medialis:

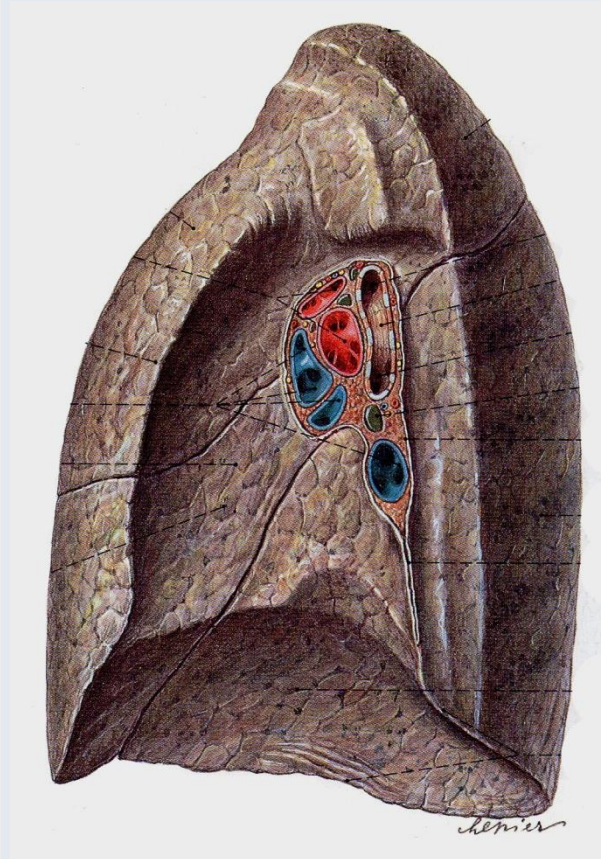
- Pars mediastinalis
- Pars vertebralis

## Facies diaphragmatica

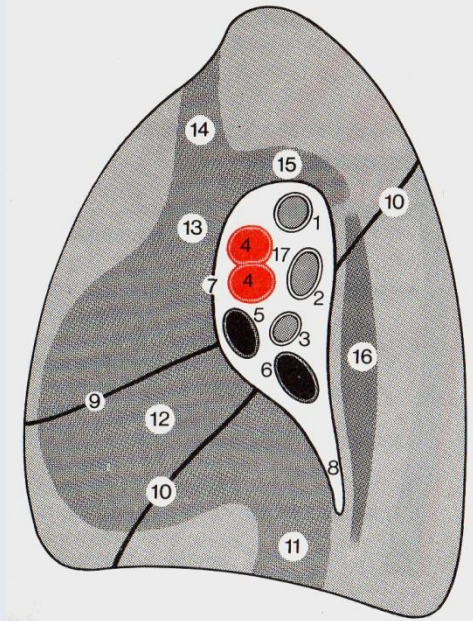
# rechte Lunge (Pulmo dexter)



Hafferl



Sobotta



Faller

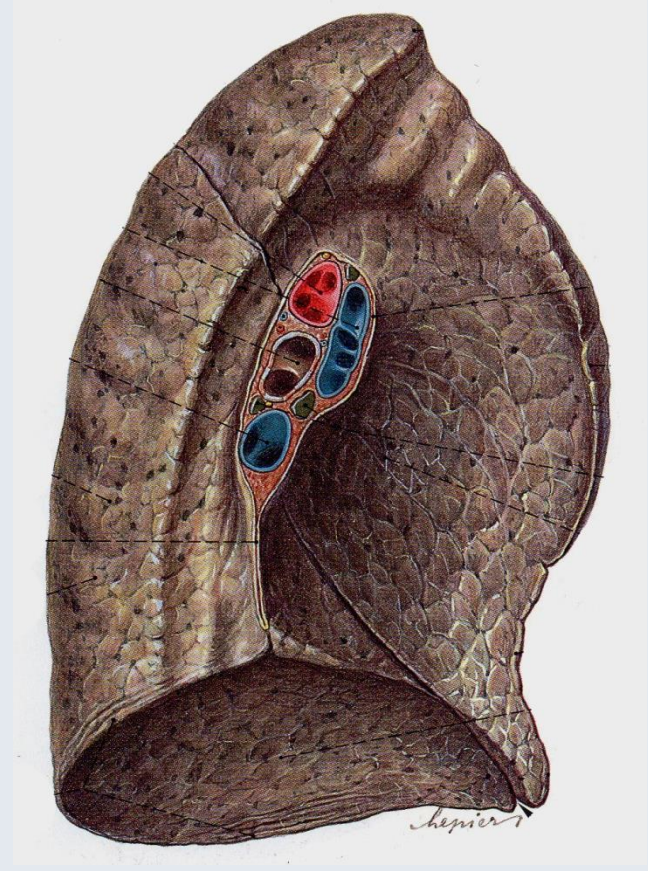
## Impressio ~:

- (12) cardiaca (Auricula dextra)
- (11) venae cavae inferioris
- (13) venae cavae superioris
- (14) venae brachiocephalicae
- (15) der Vena azygos
- (16) oesophagei

# linke Lunge (Pulmo sinister)



Sobotta

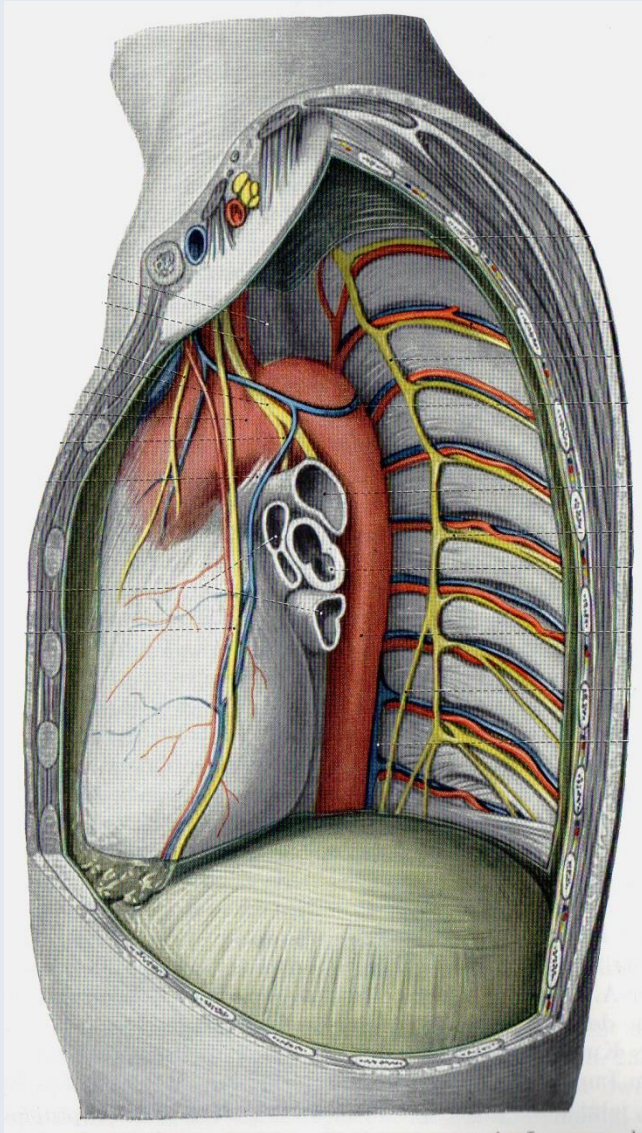


Sobotta

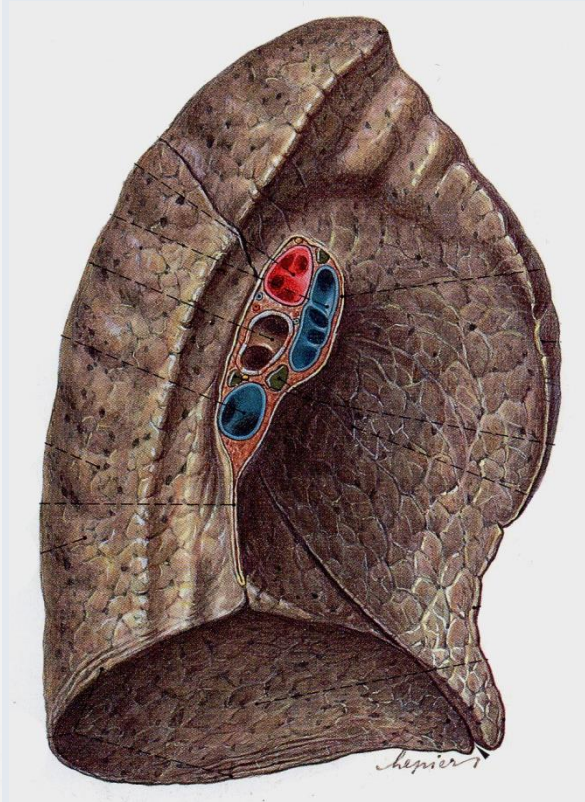
verfügt über zwei Lappen: Lobus superior et inferior  
Trennung: Fissura obliqua

Incisura cardiaca  
Lingula pulmonis

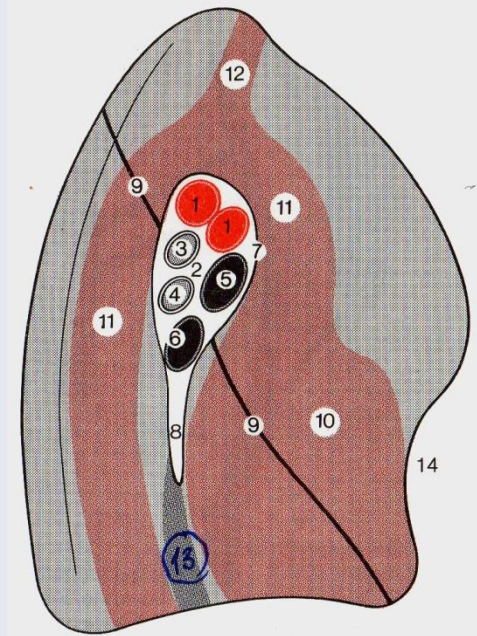
# linke Lunge (Pulmo sinister)



Hafferl



Sobotta

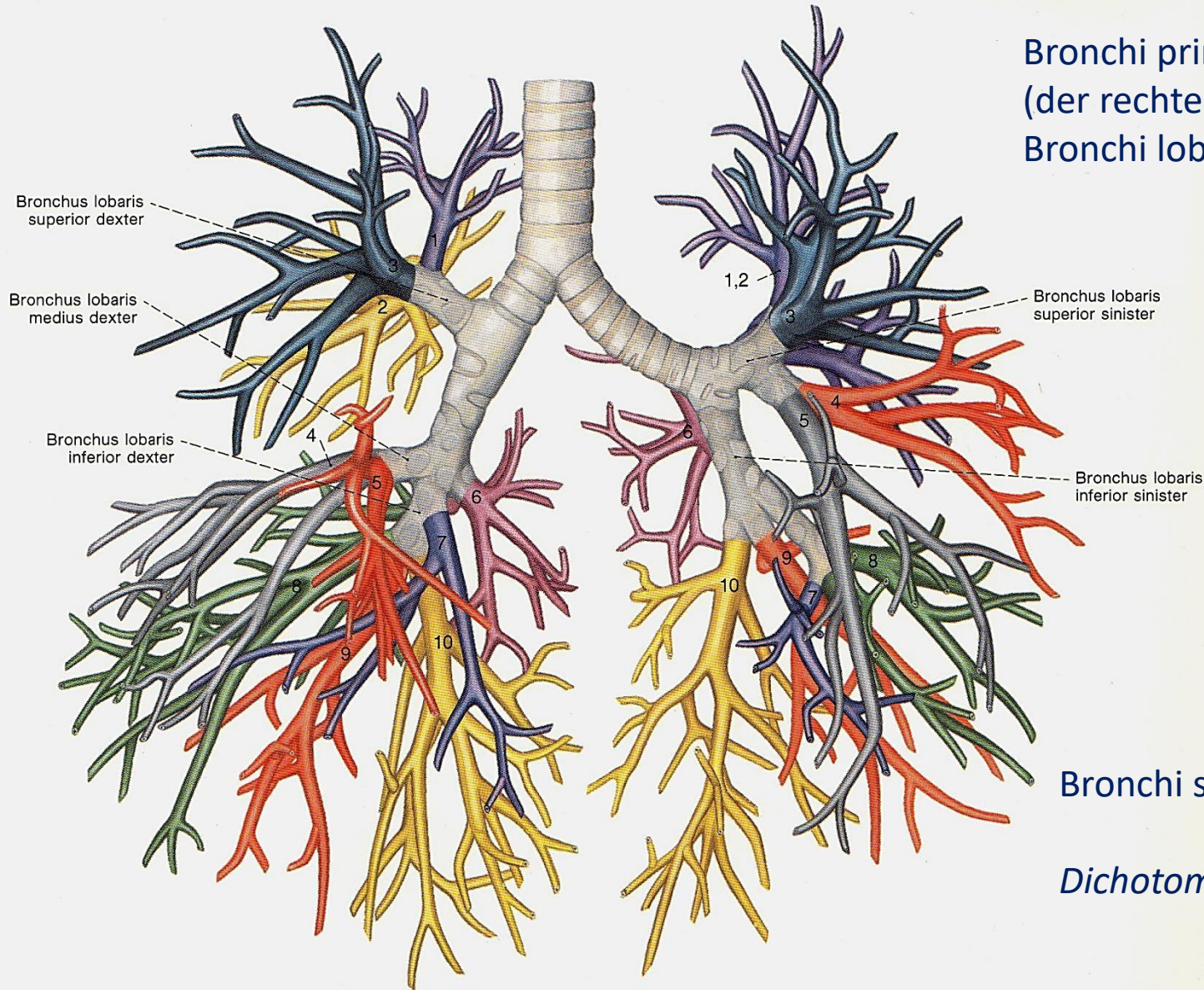


Faller

## Impressio ~:

- (10) cardiaca (Ventr. sin.)
- (11) aortae
- (12) A. subclaviae sinistrae
- (13) oesophagei

# Bronchen



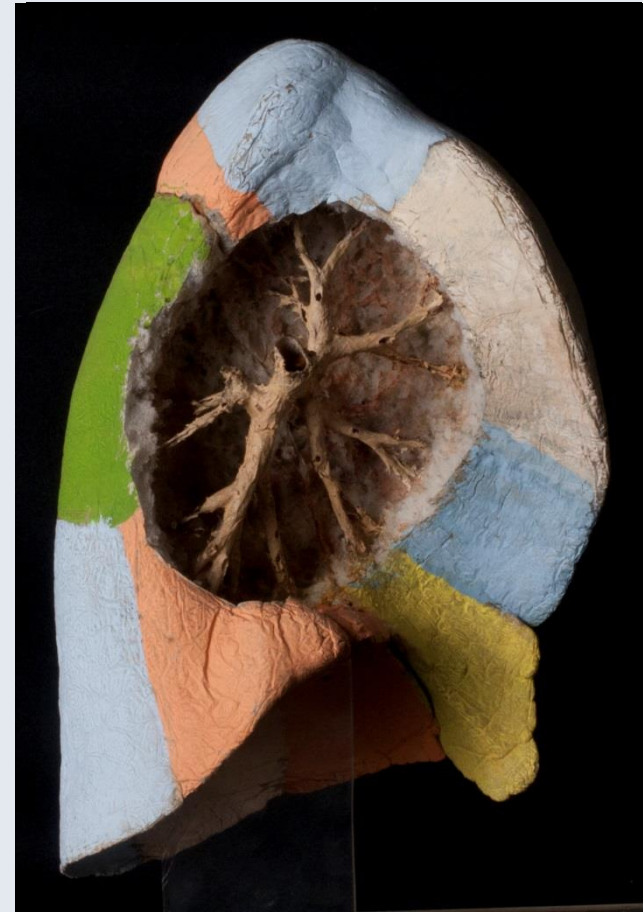
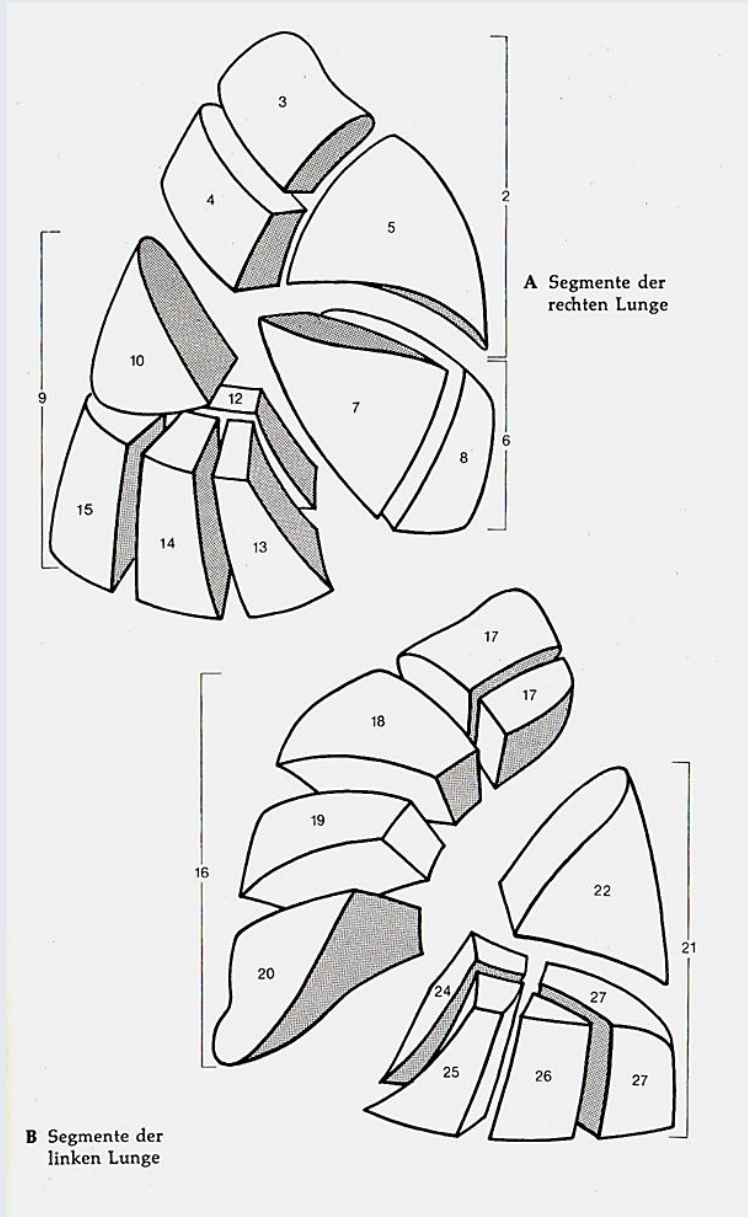
Bronchi principales  
(der rechte steiler!!)  
Bronchi lobares

Bronchi segmentales  
*Dichotome Teilung*



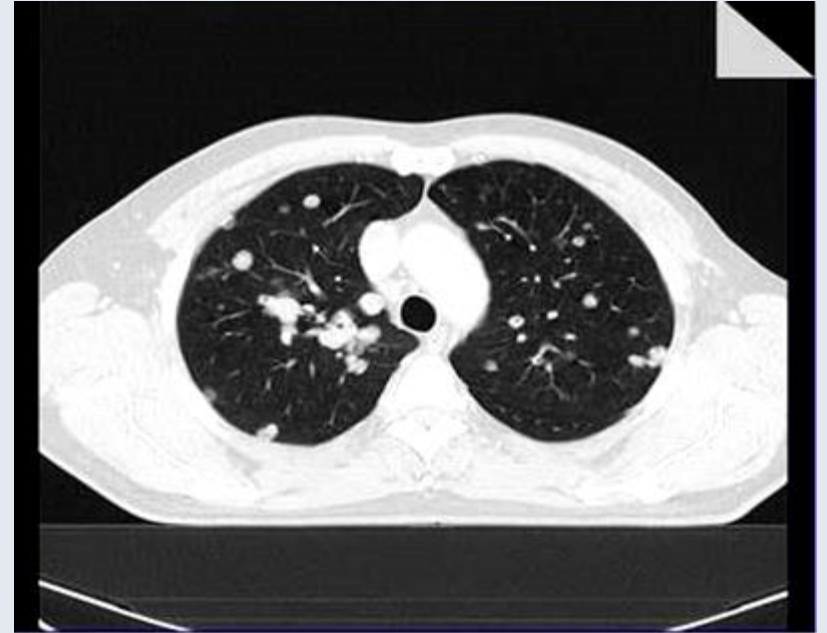
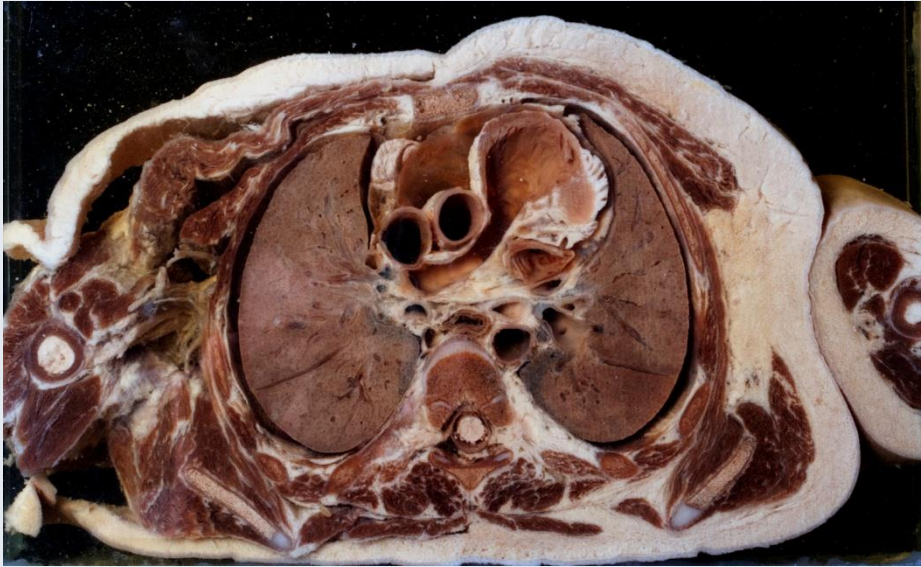


# Segmente

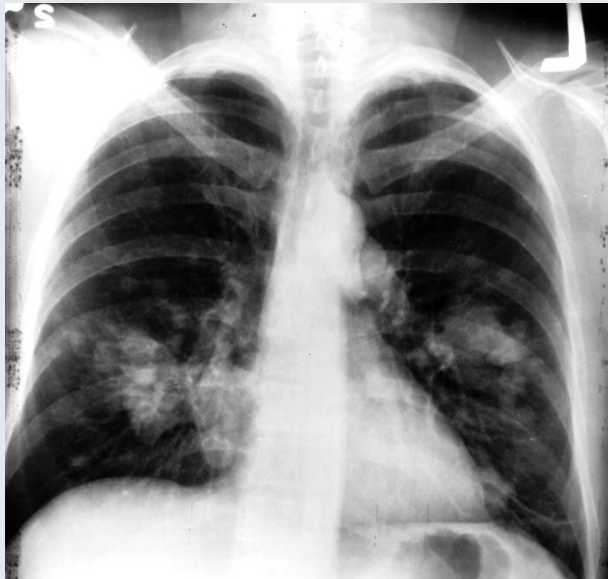


rechts: 3 + 2 + 5 (+ evt. „Azygos –Lappe“)

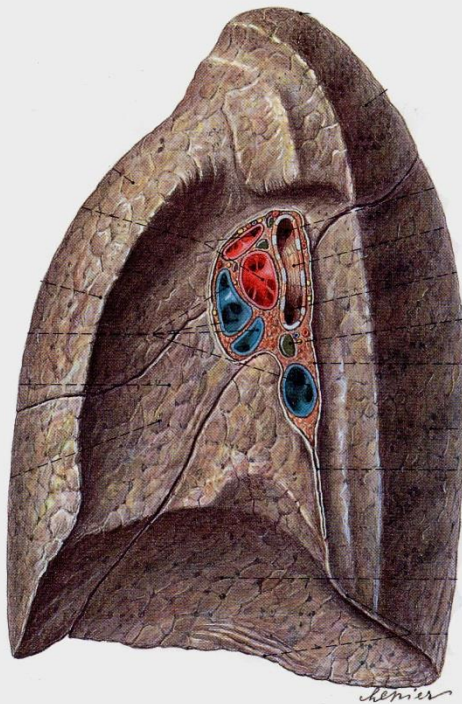
links: 5 + 5



[klinikaikozpont.u-szeged.hu](http://klinikaikozpont.u-szeged.hu)



[hu.wikipedia.org](http://hu.wikipedia.org)



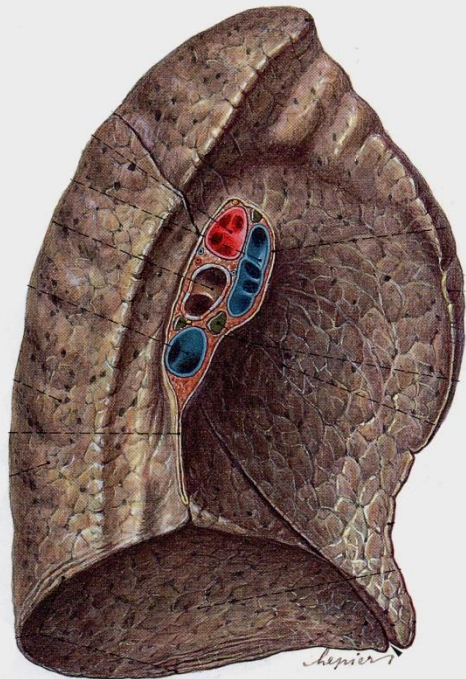
## Hilus – Radix pulmonis

### rechts:

Venen vorne unten

Arterien hinter denen („hypobronchial“)

Bronchus oben („ep(i)arterielle“ Lage)



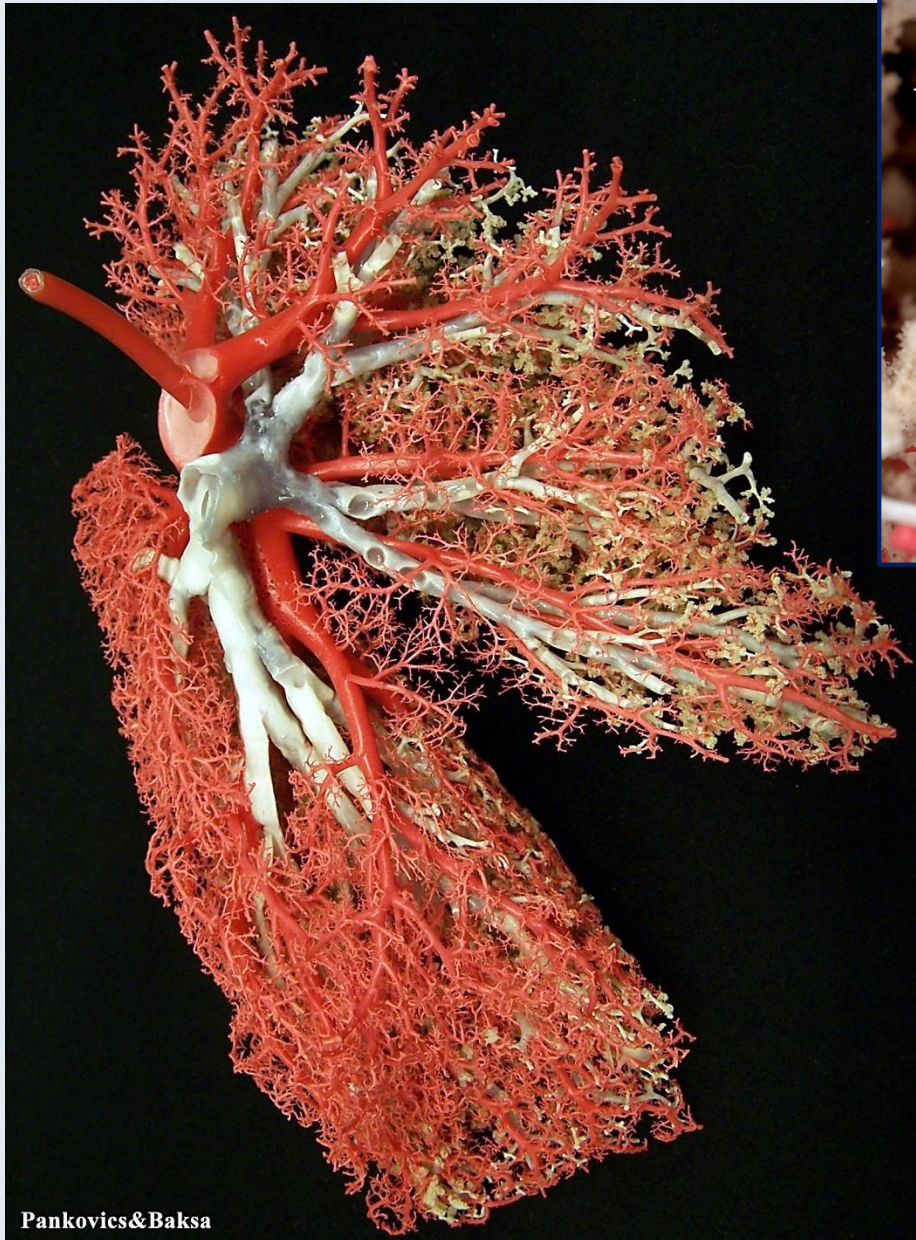
### links:

Venen vorne

Arterien hinter denen und oben („epibronchial“)

Bronchus darunter („hyp(o)arterielle“ Lage)

*Ligamentum pulmonale*



**Blutgefäße:**

Vasa publica (Aa. et Vv. pulmonales)

Vasa privata (Aa. bronchiales)

Arterien den Bronchen und Bronchien  
parallel

Venen an den Läppchengrenzen

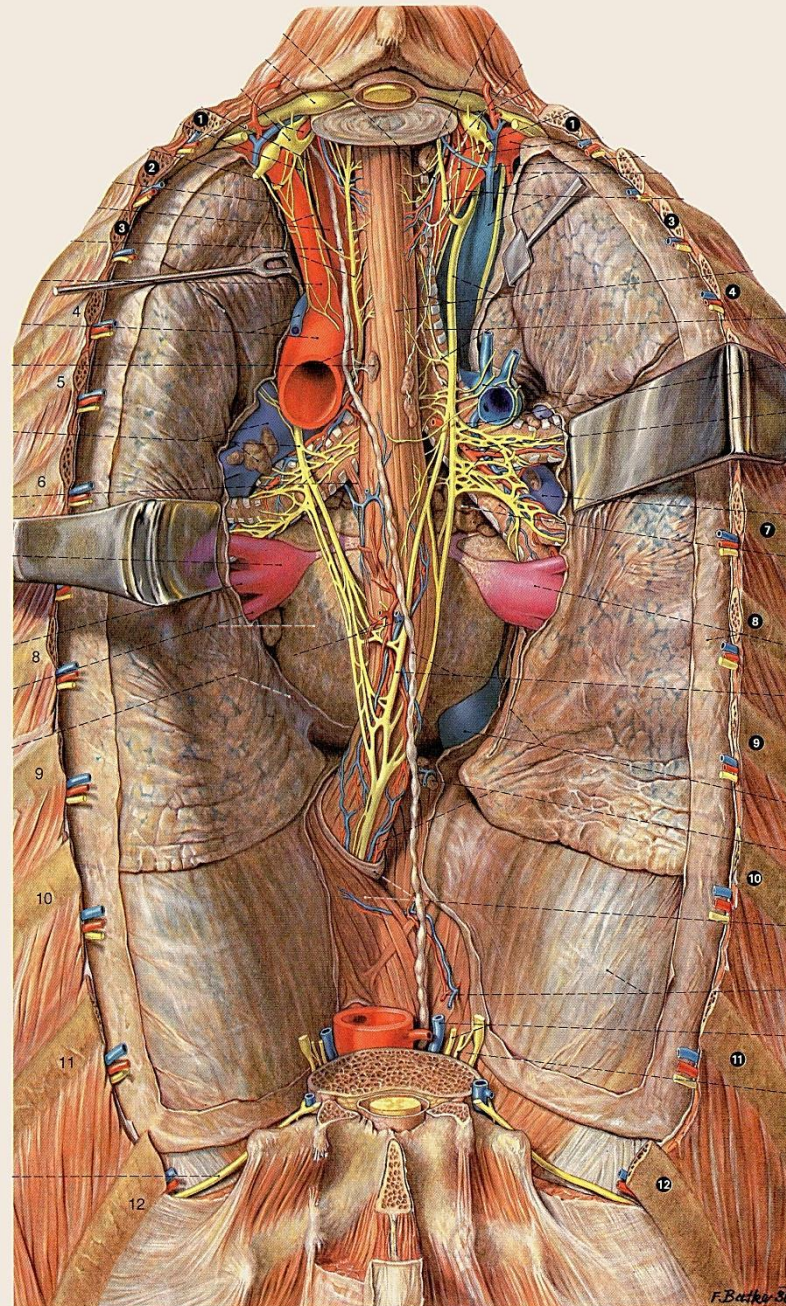
Nerven:

Parasympathische ~ aus dem Nervus vagus (N. X.)

Bronchokonstriktion!  
Sekretion!  
(siehe Asthma bronchiale)

Plexus pulmonalis anterior et posterior

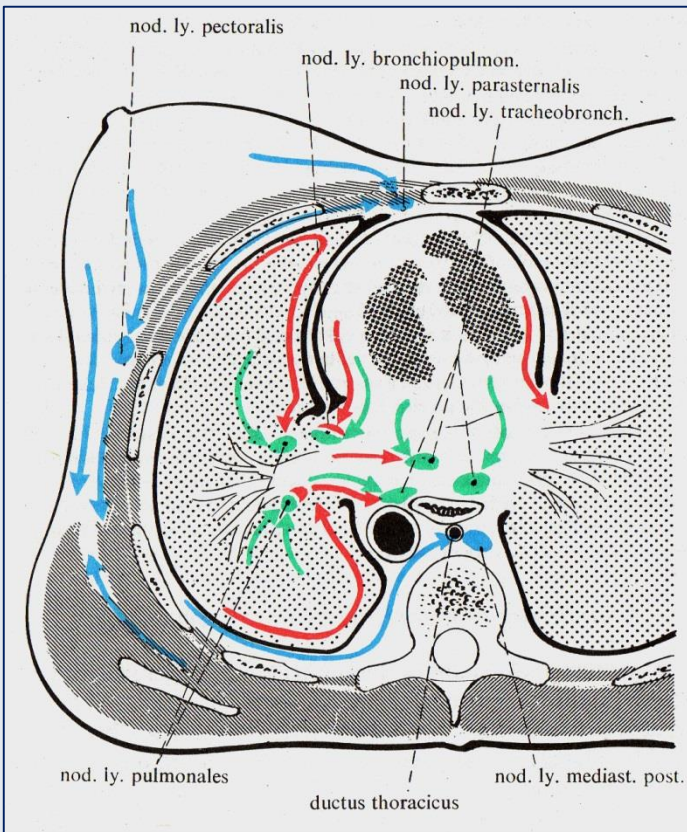
Rr. bronchiales



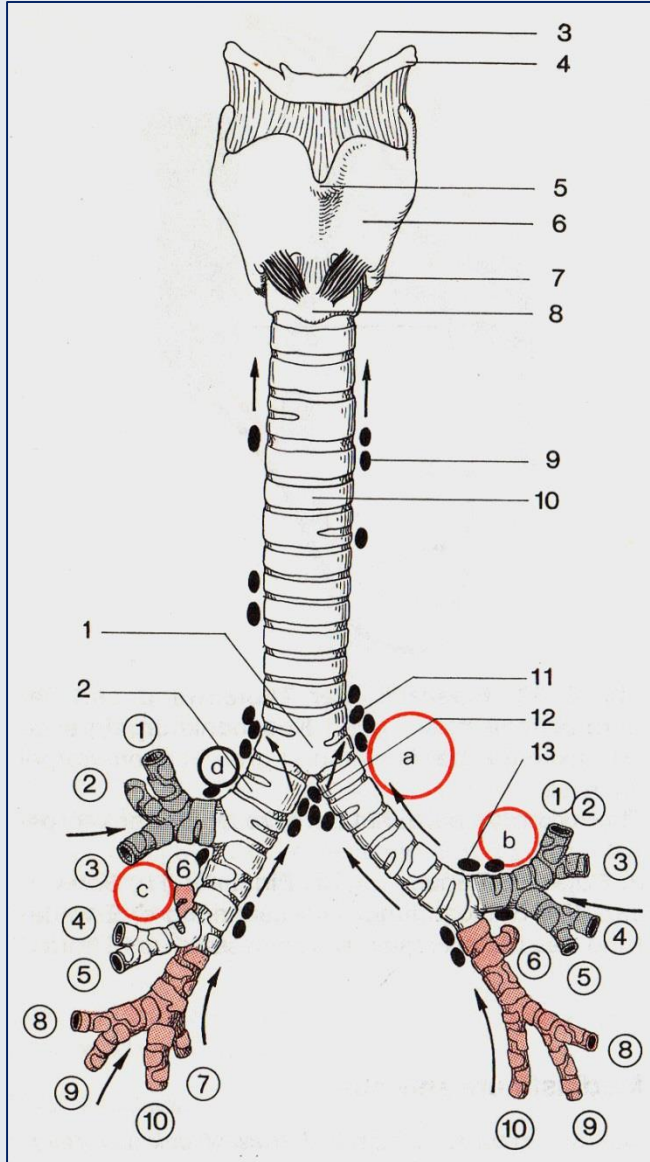
Sympathische ~ aus dem Truncus sympathicus

Bronchodilatation!  
siehe Pharmakologie  
(Sympathomimetika, selektive  $\beta$ -Agonisten)

# Lymphabfluß



Szentágothai&Réthelyi



Faller

Nodi lymphatici ~

- pulmonales
- bronchopulmonales (einige: hilares)
- tracheobronchiales (sup. et inf.)
- (para)tracheales

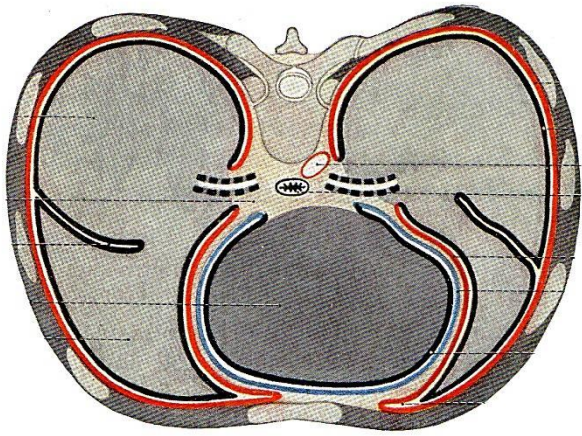
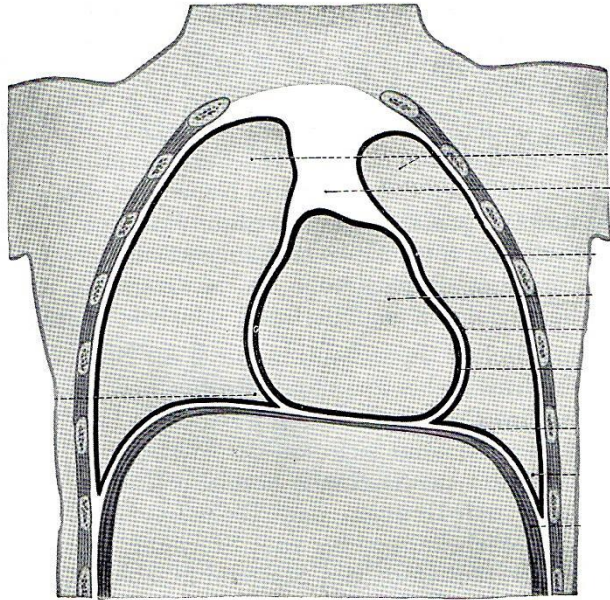
Nodi lymphatici ~

- parasternales
- mediastinales anteriores
- mediastinales posteriores

viszerales subseröses und perikanalikuläres System

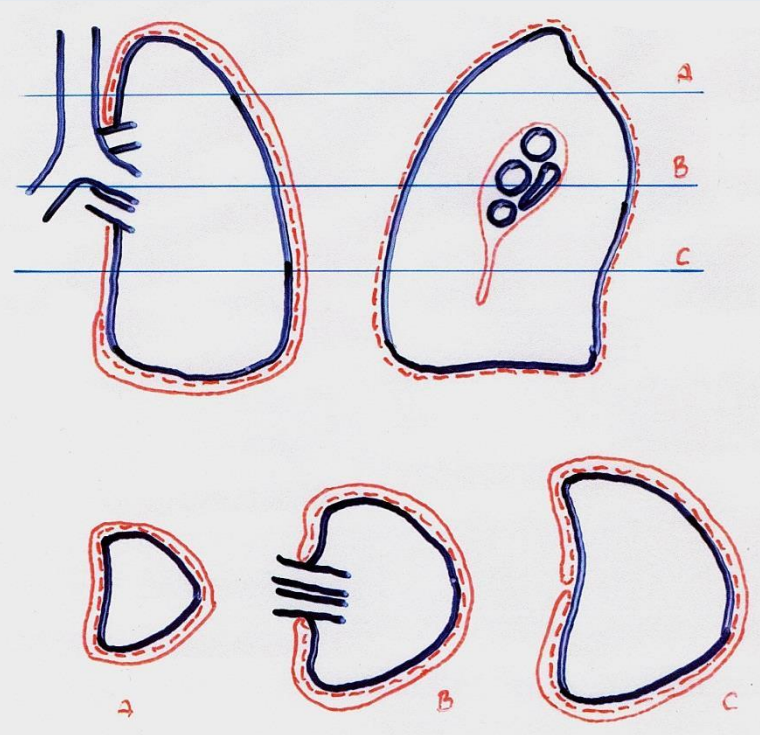
Truncus bronchomediast.  
Ductus thoracicus  
Truncus lymphaticus dext.

Parietales subseröses System:  
**Lungenmetastasen von Brustkarzinomen!**



# Pleura

Szél



- - - Pleura visceralis      ——— Pleura parietalis  
 ——— Lunge

parietales Blatt

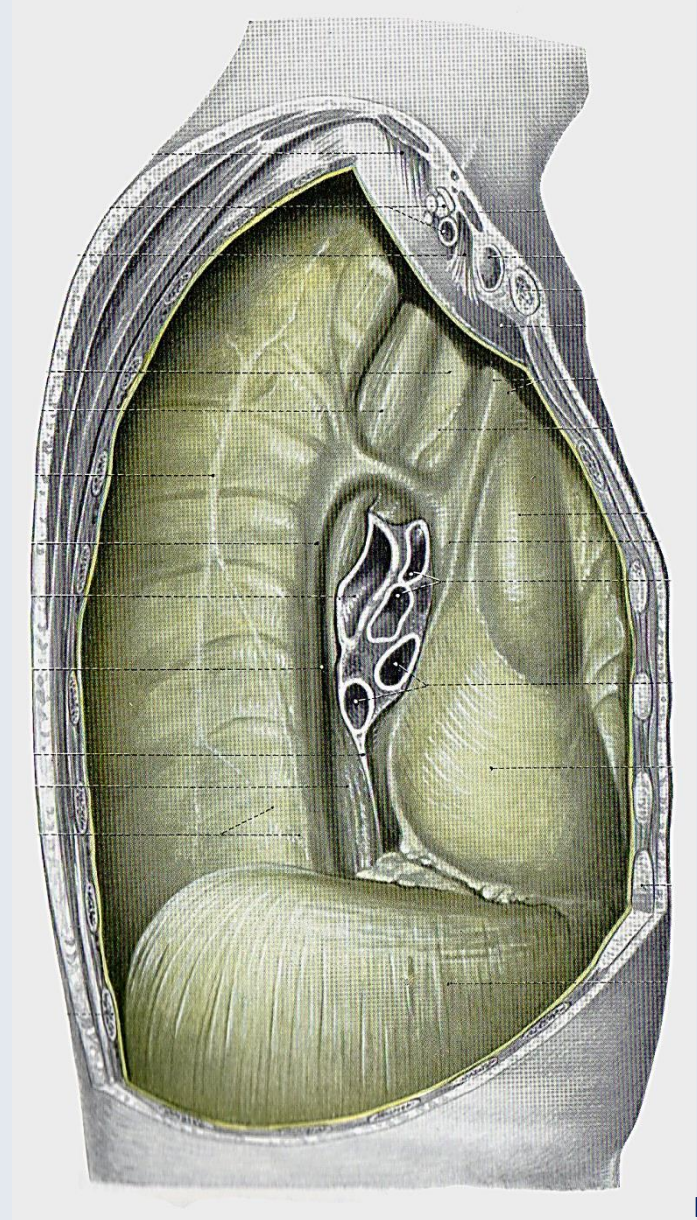
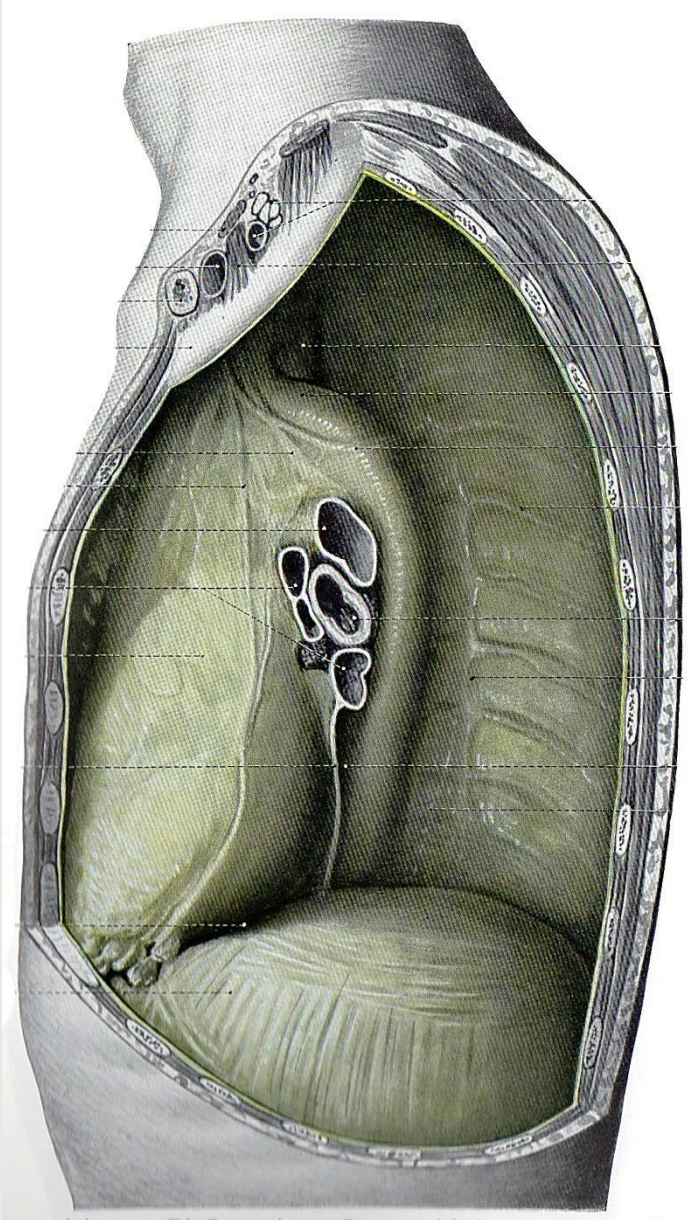
viscerales Blatt (Pleura pulmonalis)

Umschlaglinie beim Hilus und Lig. pulmonale

Cavum pleurae



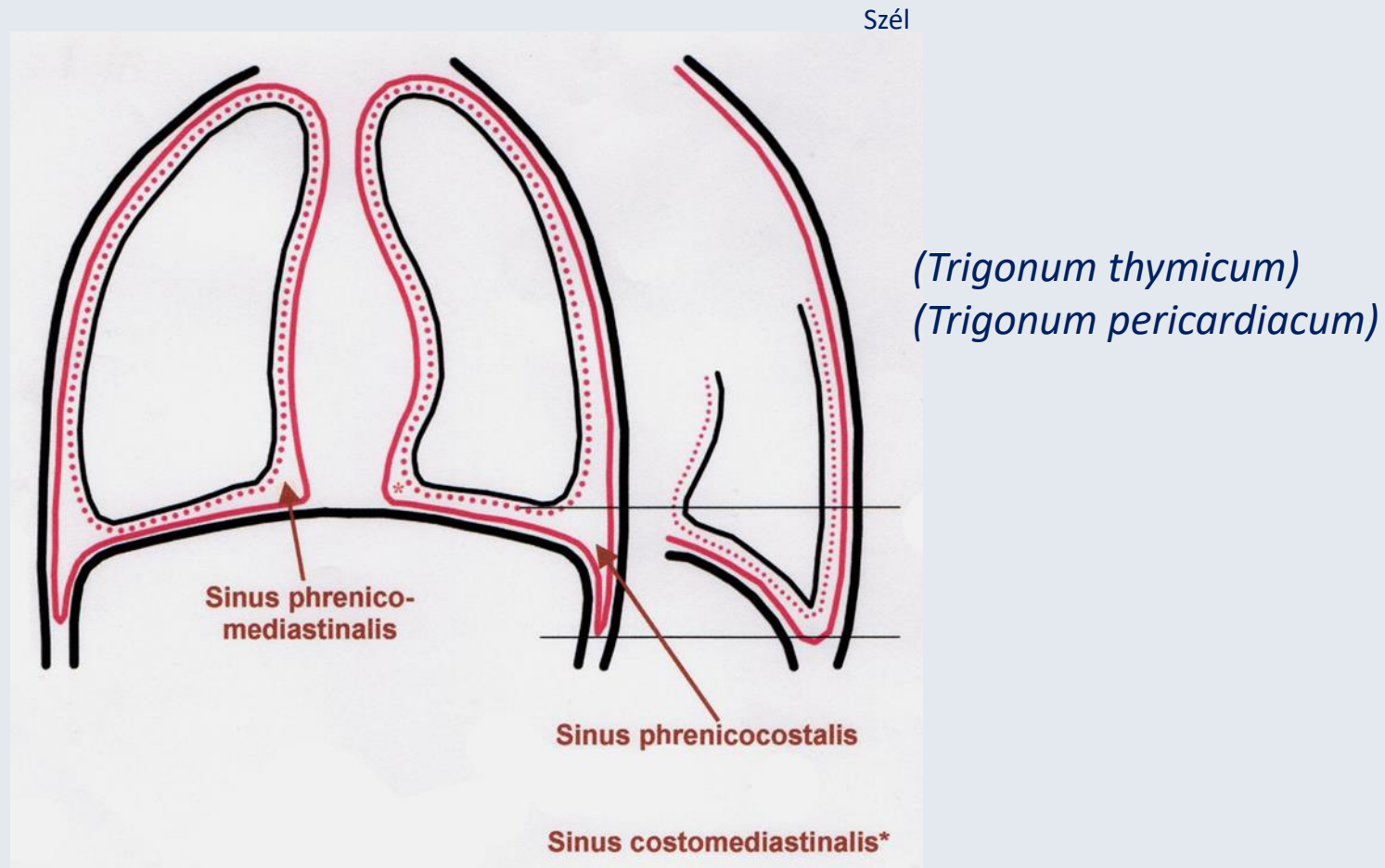
# Ligamentum pulmonale



# Sinus pleurae (Recessi)

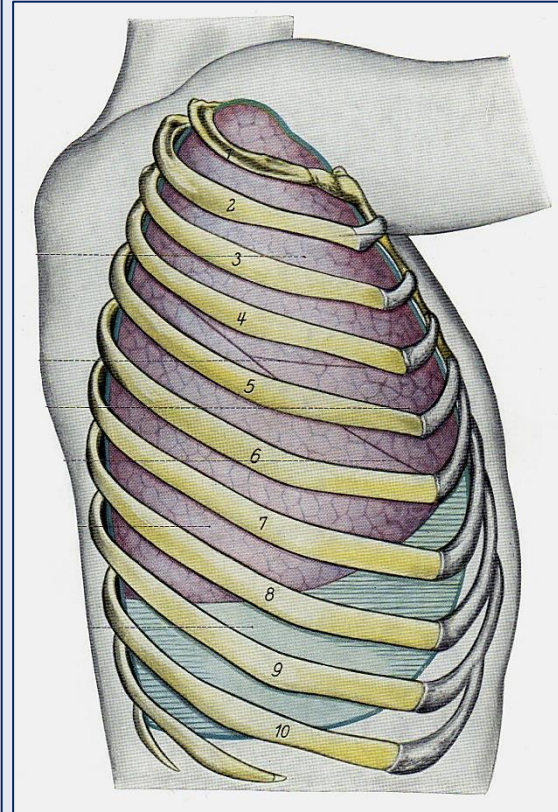
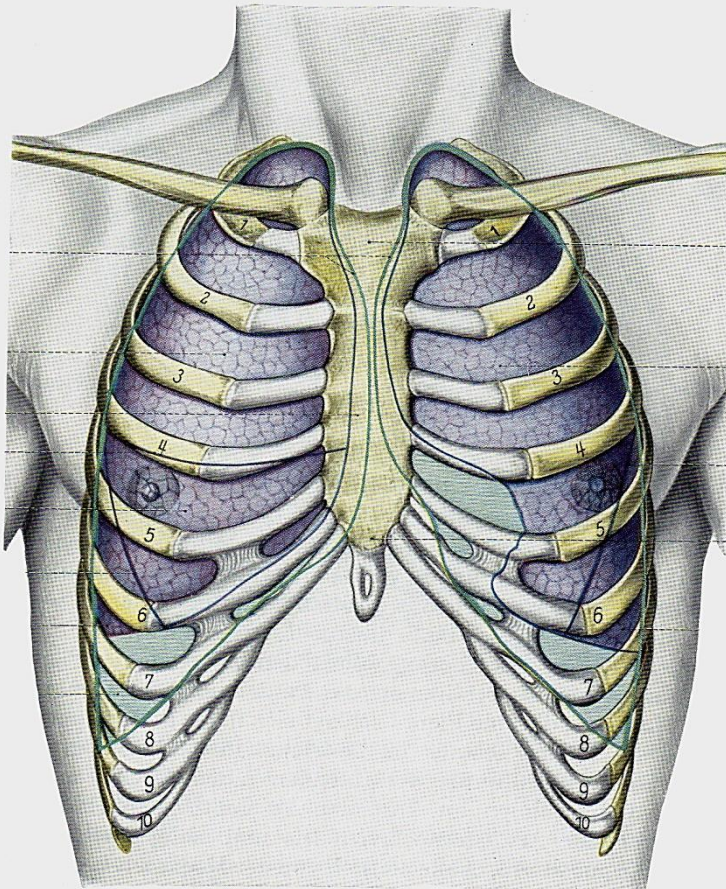
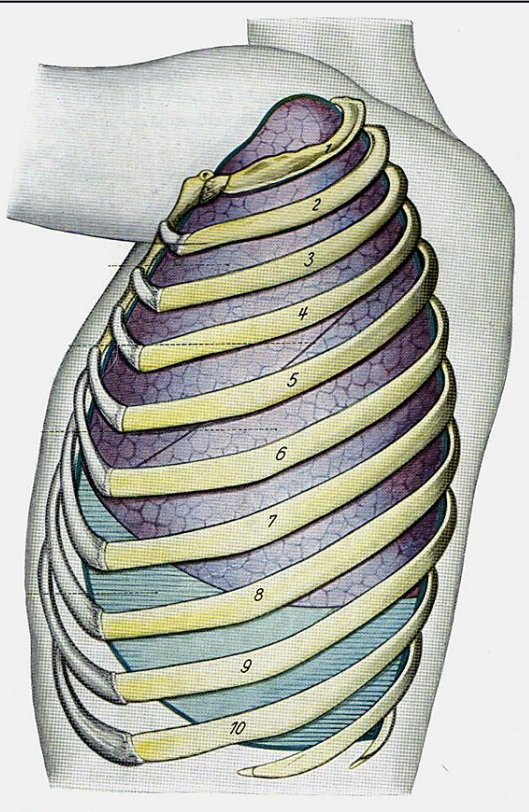
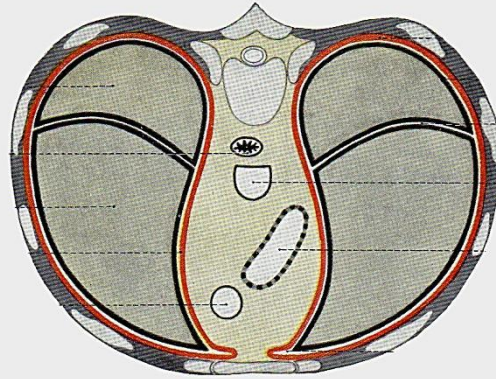
## Pleura ~

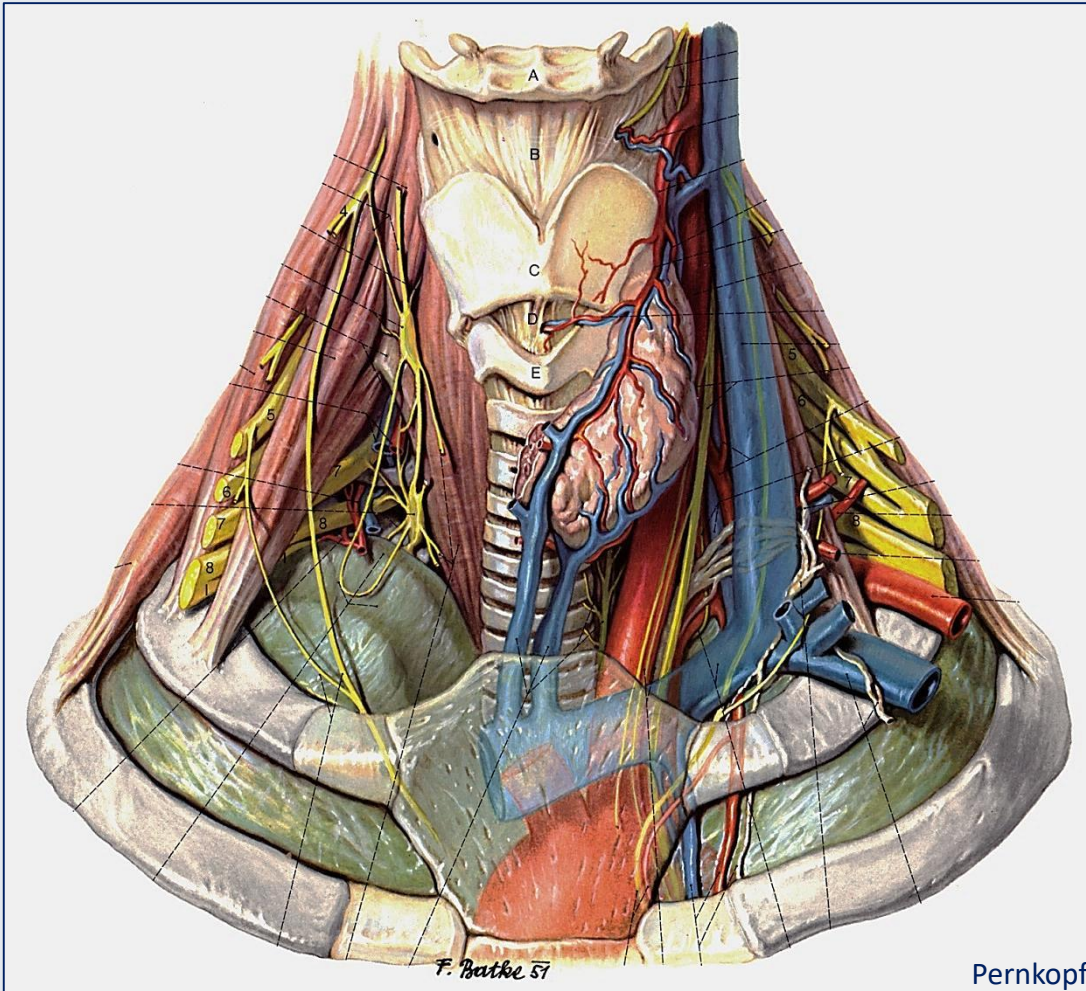
- costalis
- diaphragmatica
- mediastinalis
- (pericardiaca)



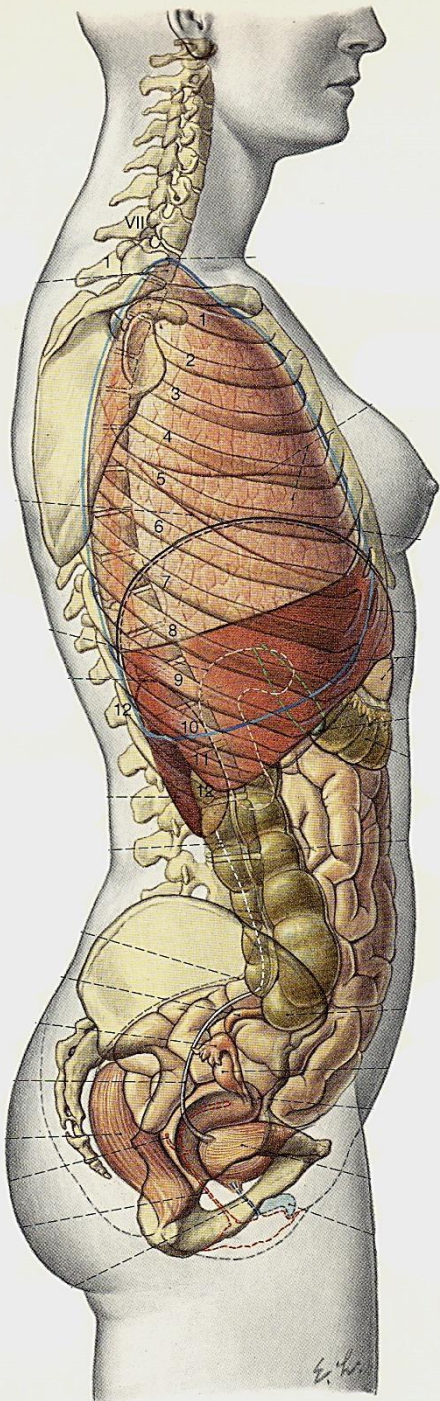
Sinus phrenicocostalis: erste Auftretsstelle von Pleuraergüssen

*Sinus costovertebralis*

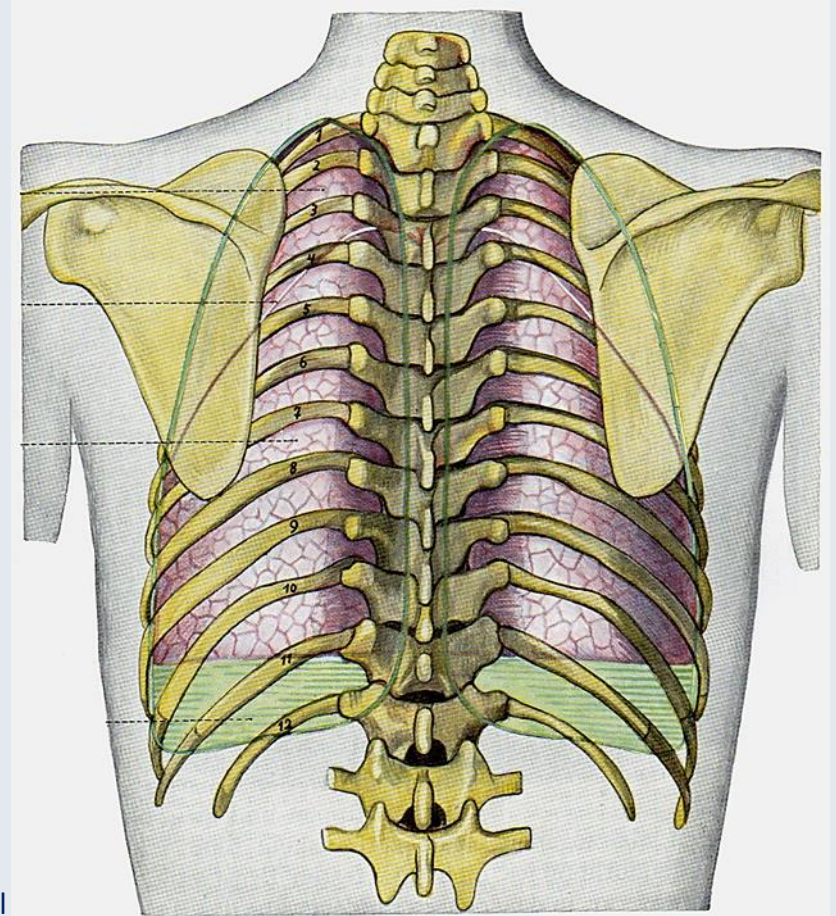




Cupula pleura unter den Scalenus-Muskeln  
A. et V. subclavia und Plexus brachialis

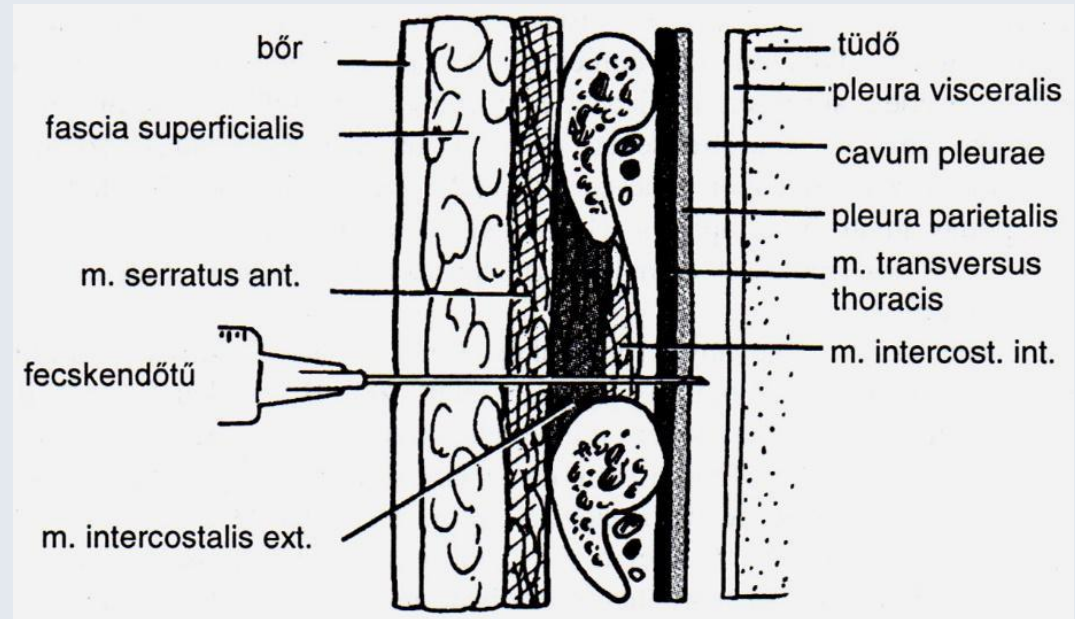
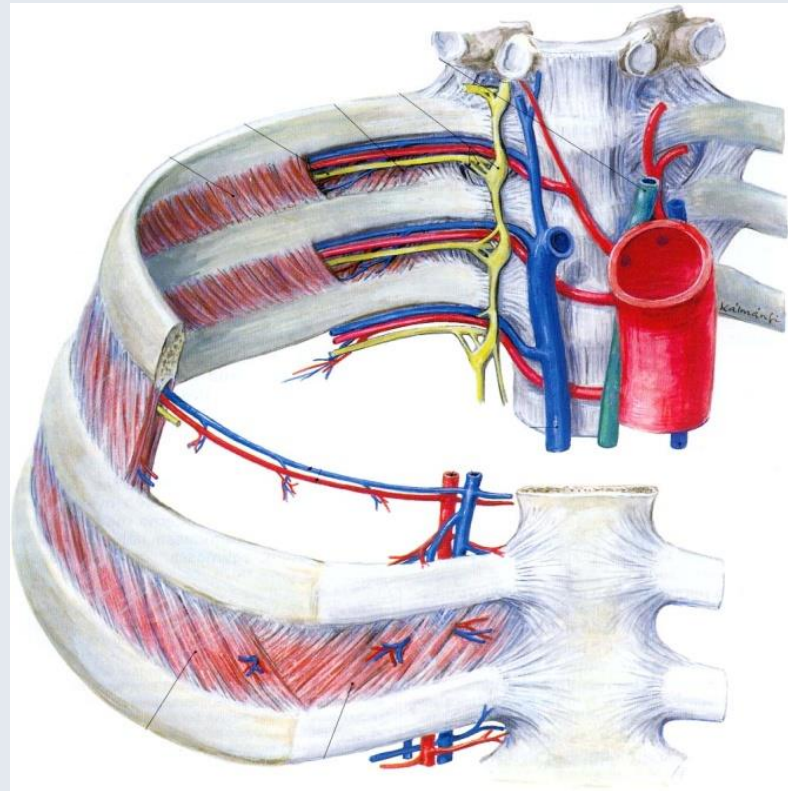


Punktionsstelle:  
zw. Linea scapularis und Linea axillaris posterior



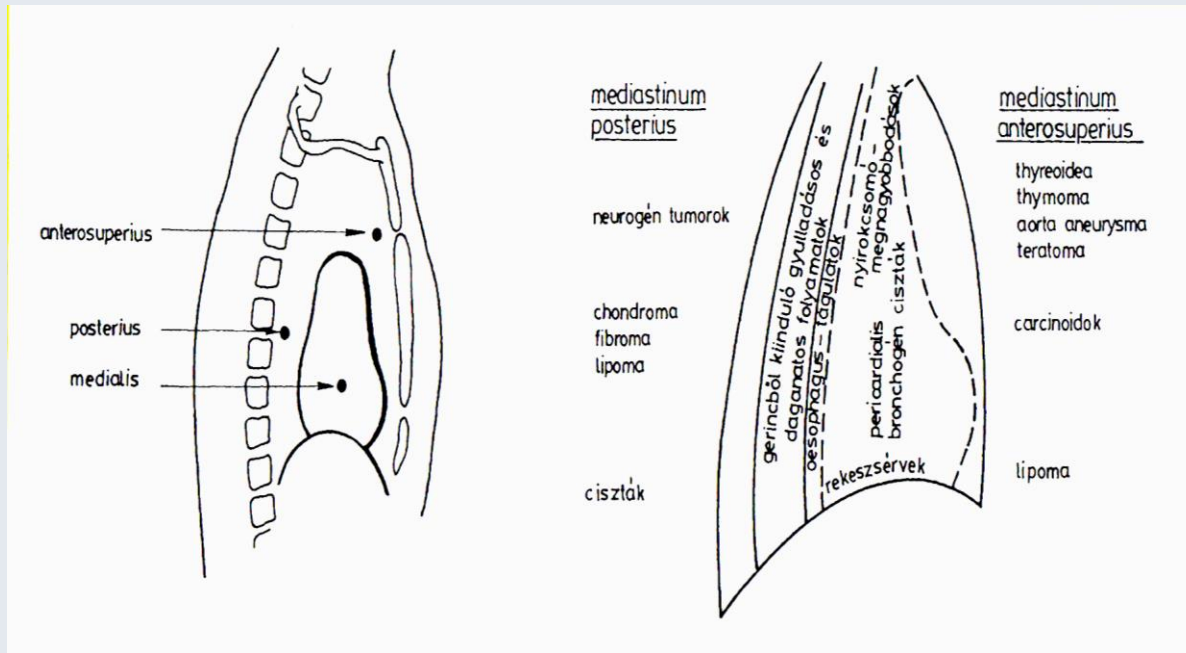
Durch Recessus phrenicocostalis auch Leber- und Nierenbiopsien möglich (bei Ausatmung steht die Pleura auch hier eine Rippe tiefer als die Lunge)

## Punktionsstelle

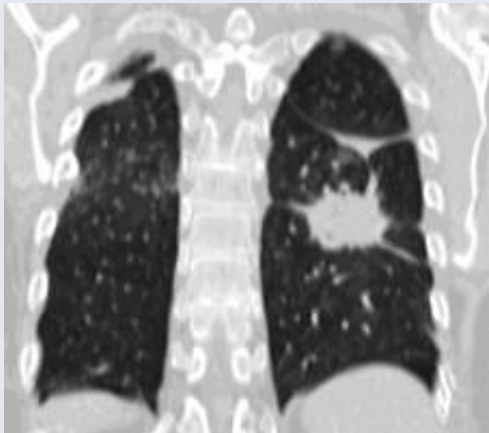


# Mediastinum

Magyar



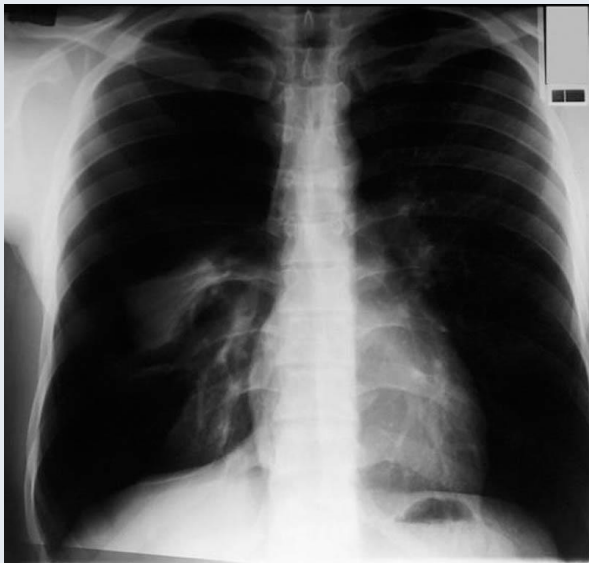
Gliederung vom Mediastinum sieht in der klinischen Praxis anders aus.



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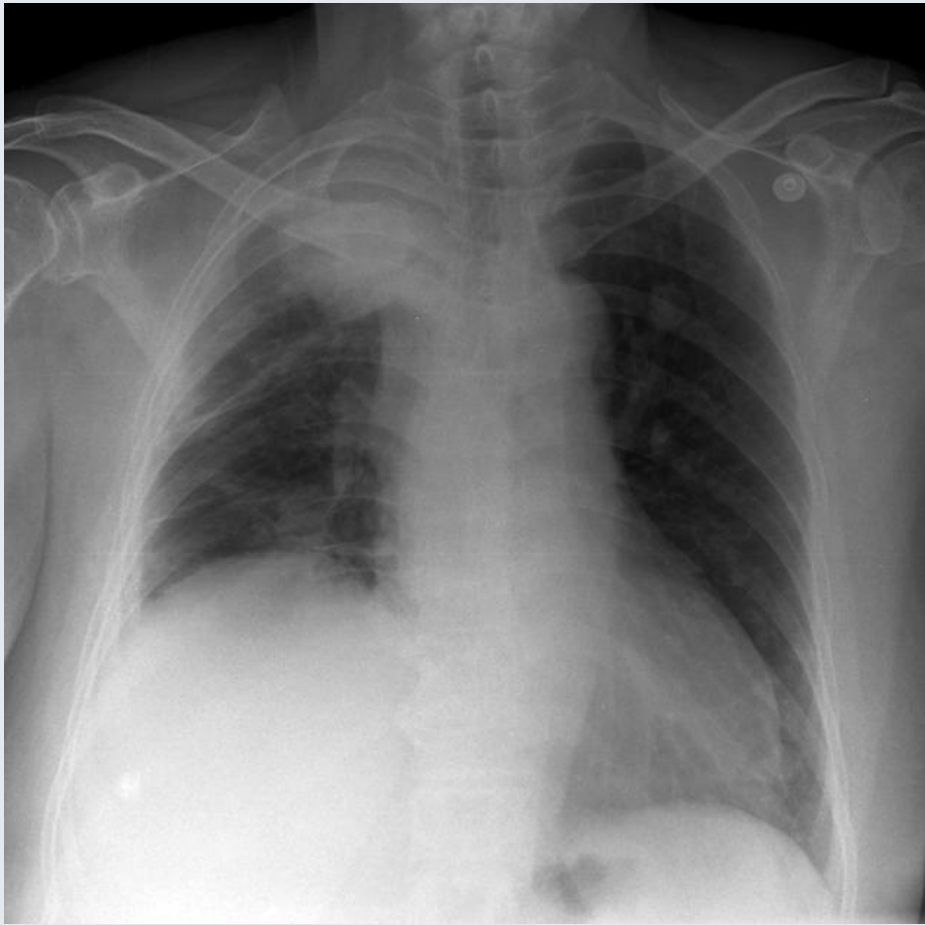


[deszkikorhaz.hu](http://deszkikorhaz.hu)



[bronchotraining.org](http://bronchotraining.org)







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