Anatomia in Ecoendoscopia

Cosa si vede dall'esofago con strumento radiale

Andrea Lisotti
UOC Gastroenterologia – Ospedale di Imola
Università di Bologna

Perugia, 2 Febbraio 2023

ALMA MATER STUDIORUM - UNIVERSITÀ DI BOLOGNA
IL PRESENTE MATERIALE È RISERVATO AL PERSONALE DELL'UNIVERSITÀ DI BOLOGNA E NON PUÒ ESSERE UTILIZZATO AI TERMINI DI LEGGE DA ALTRE PERSONE O PER FINI NON ISTITUZIONALI

Agenda

Thoracic and mediastinal anatomy (for dummies)

Radial EUS examination

- Esophageal wall

- Mediastinal anatomy

How I do it

Quiz

Agenda

Thoracic and mediastinal anatomy (for dummies)

Radial EUS examination

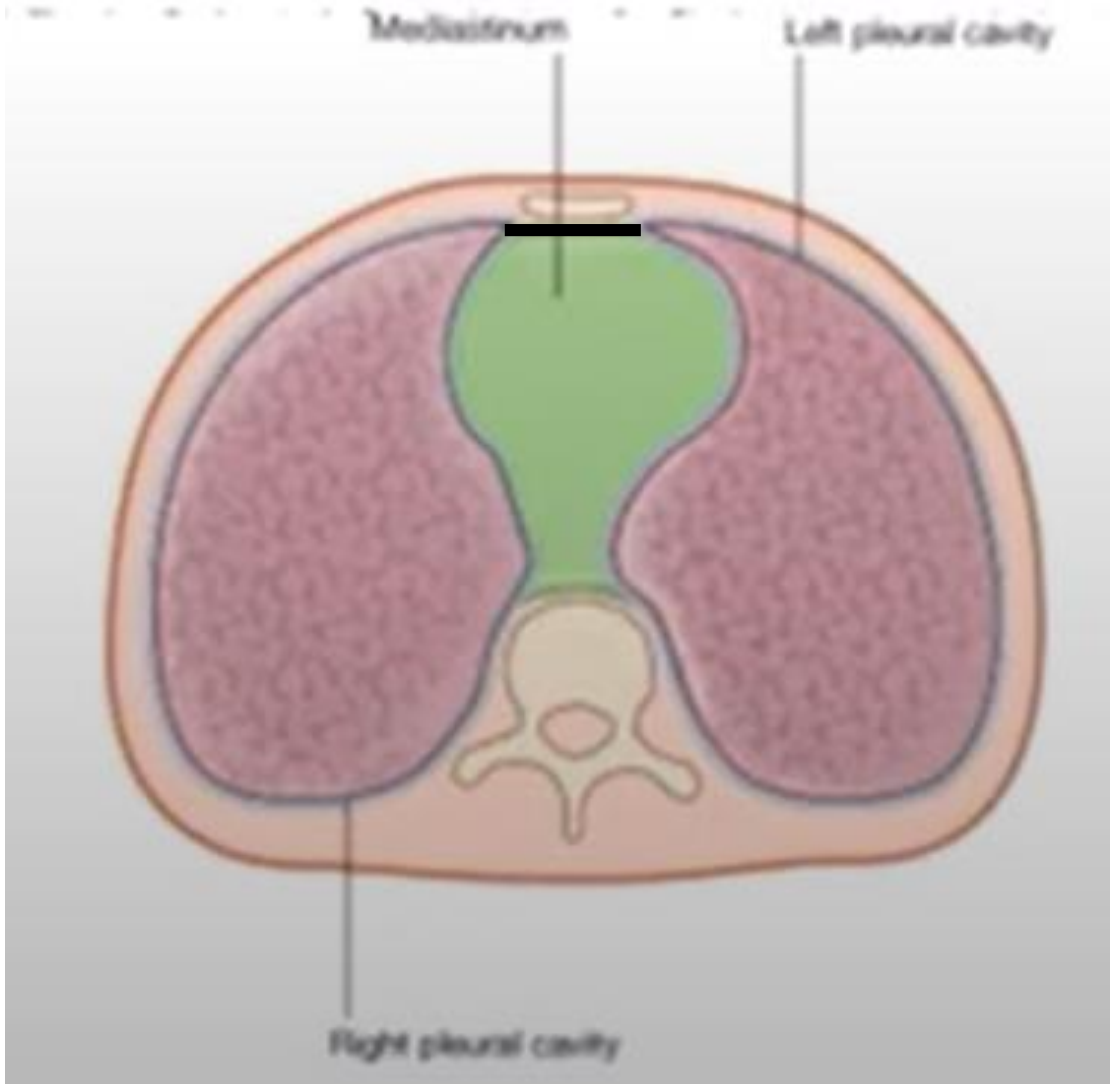
- Esophageal wall

- Mediastinal anatomy

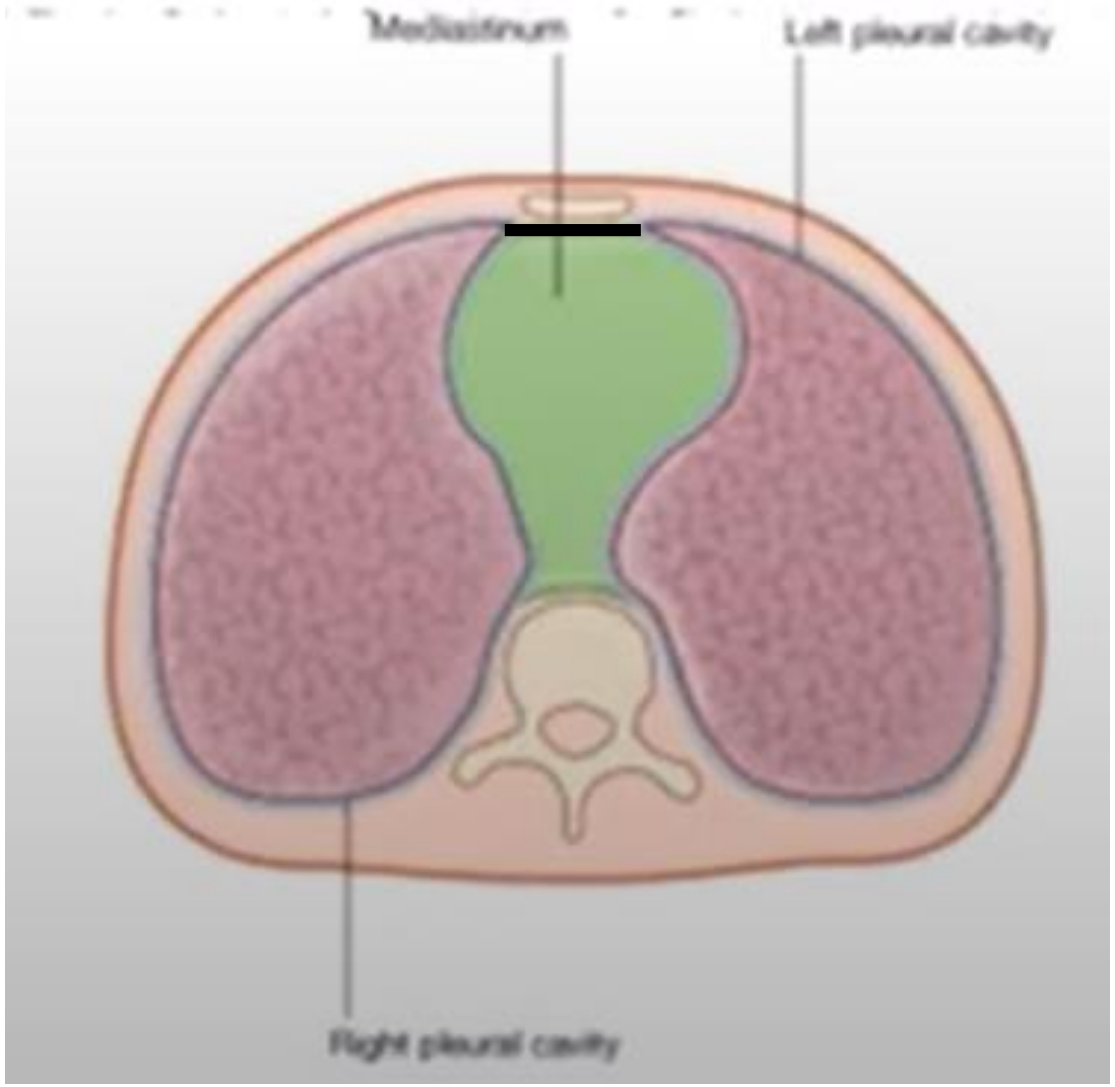
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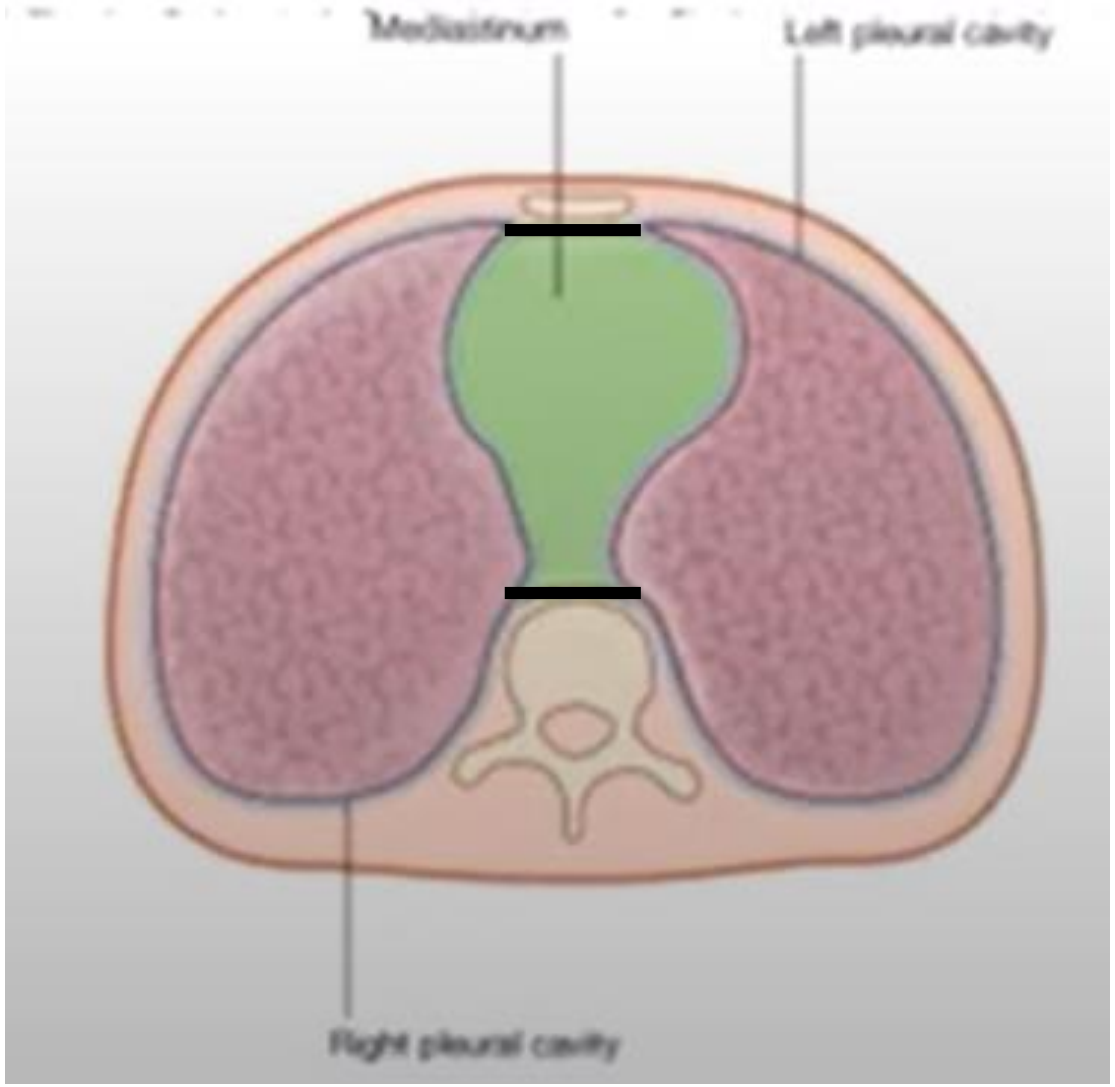
Anatomy



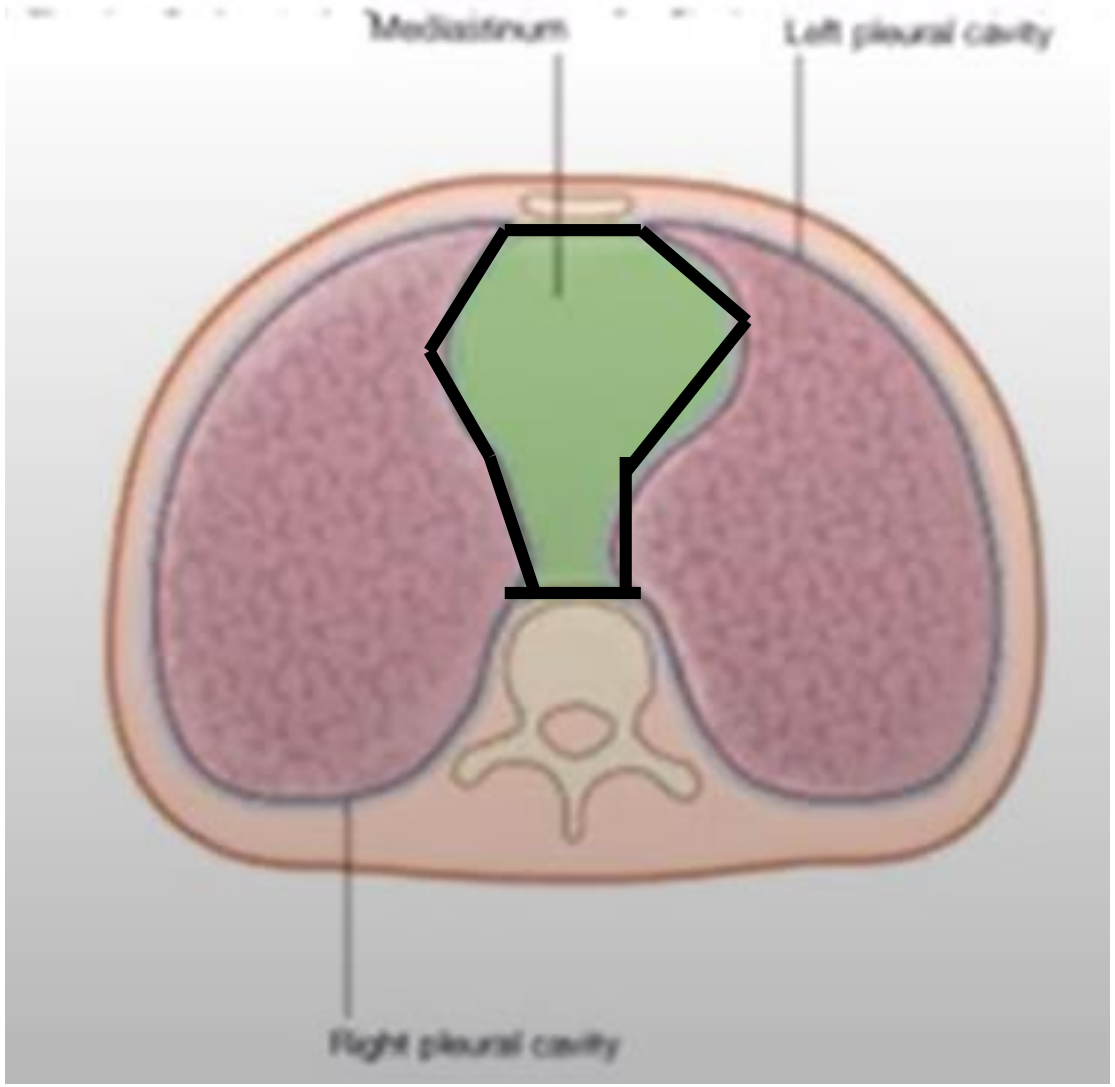
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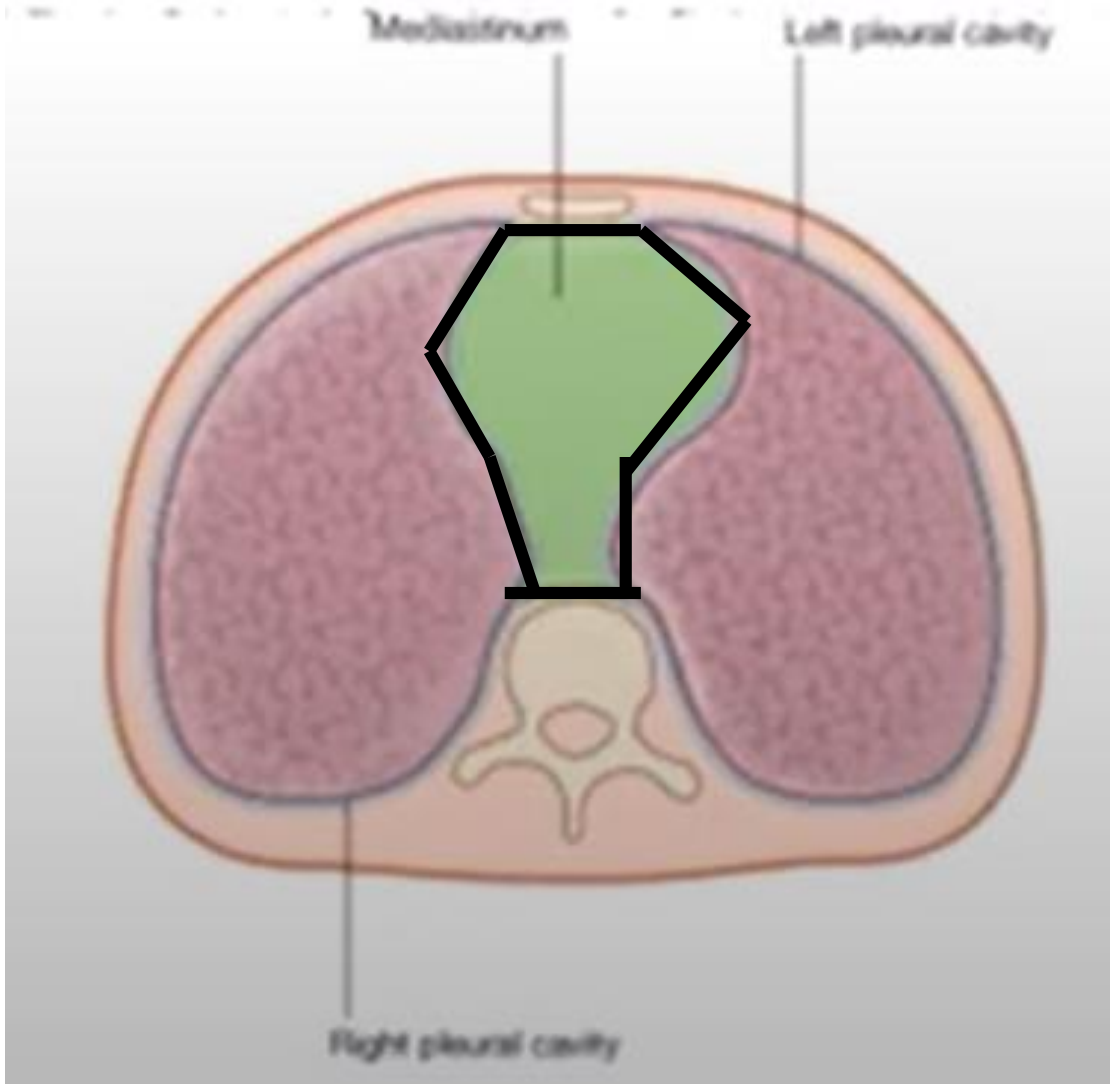
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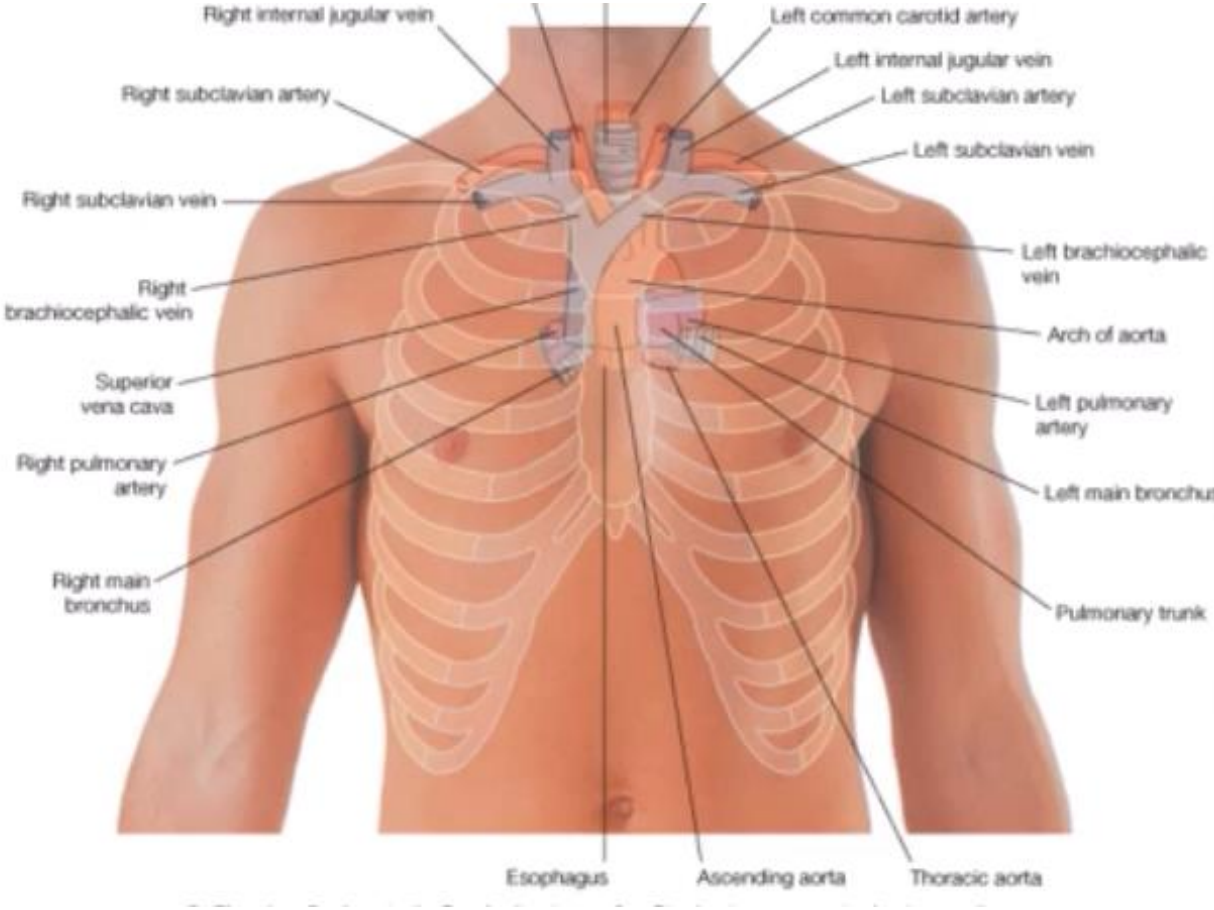


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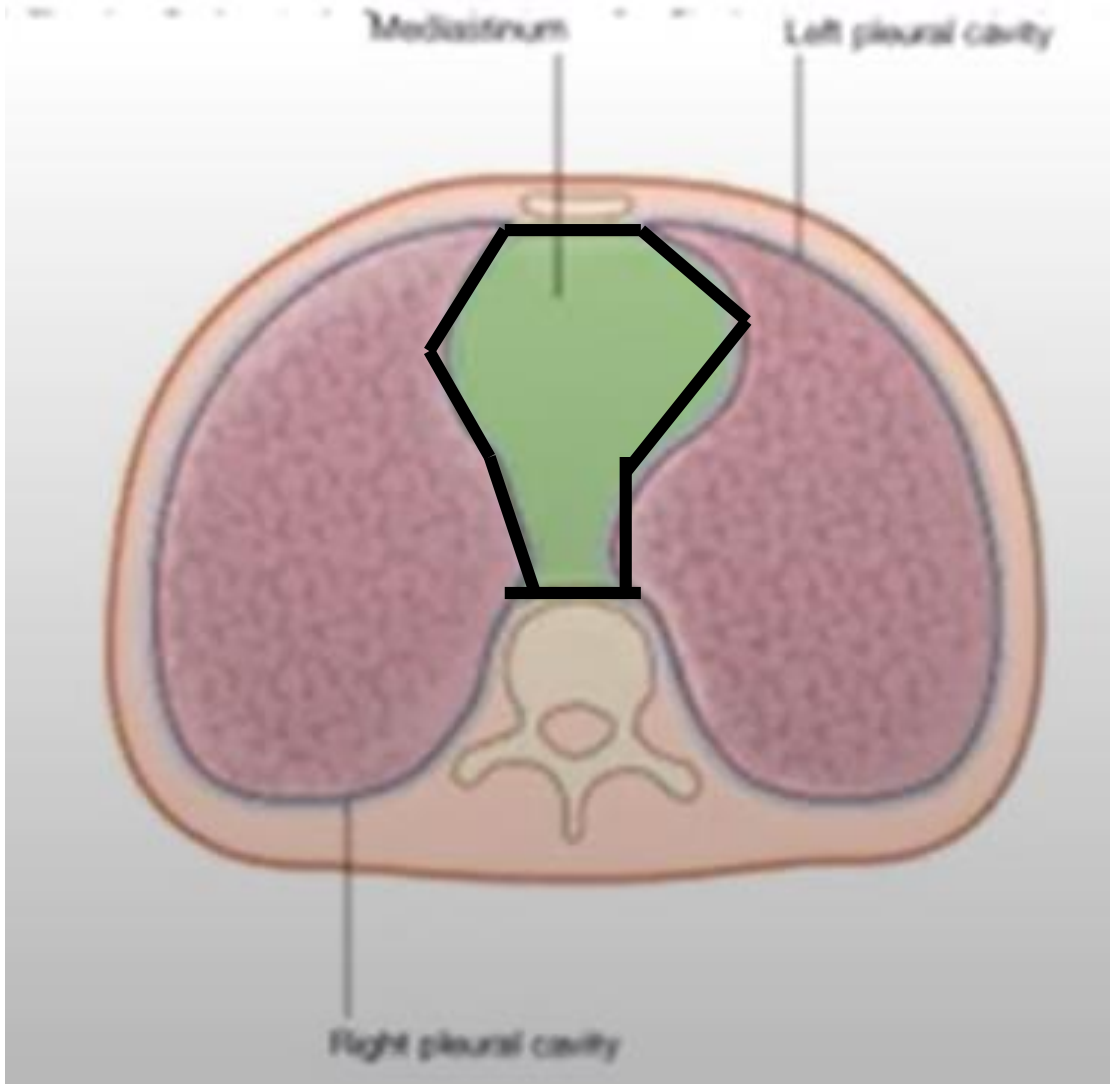


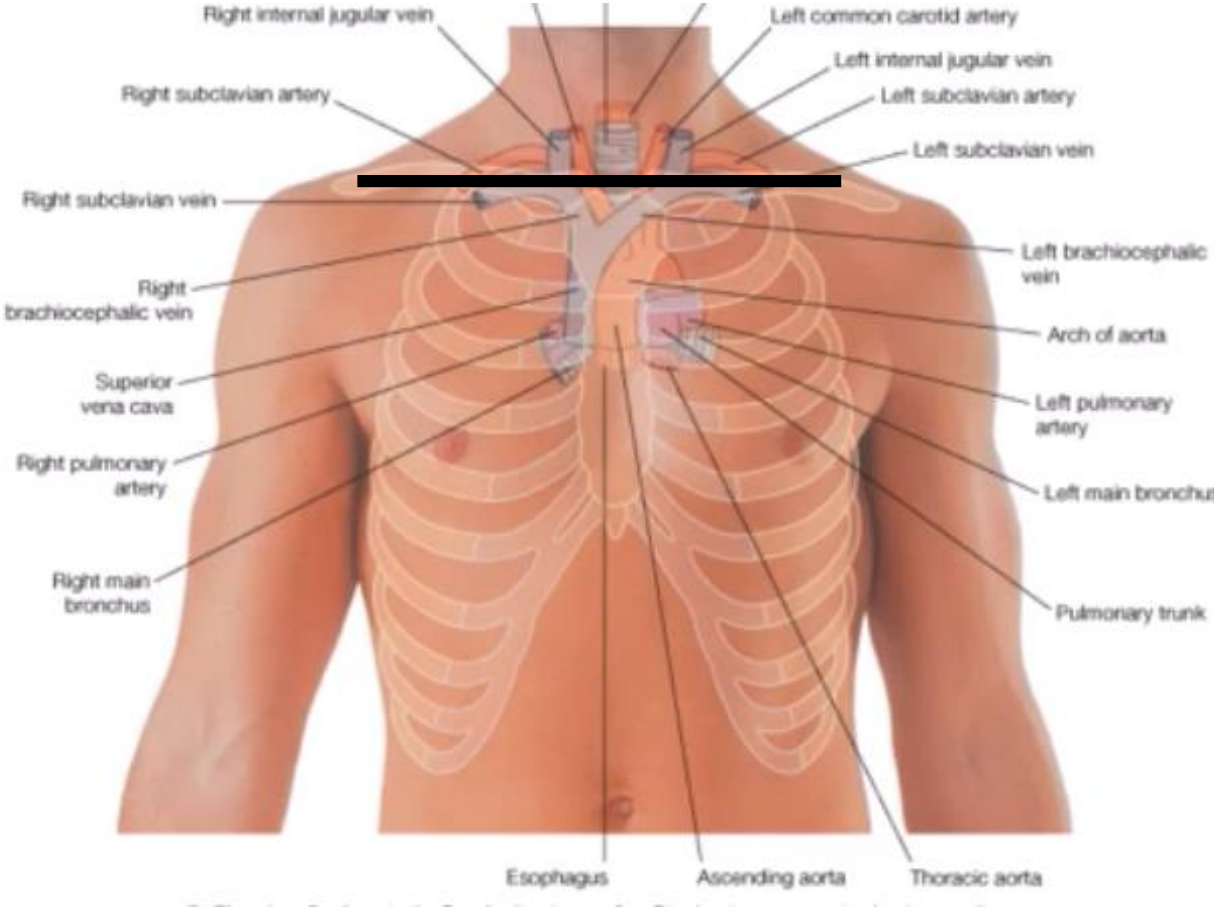
Anatomy


Mediastinum
Left pleural cavity
Right pleural cavity

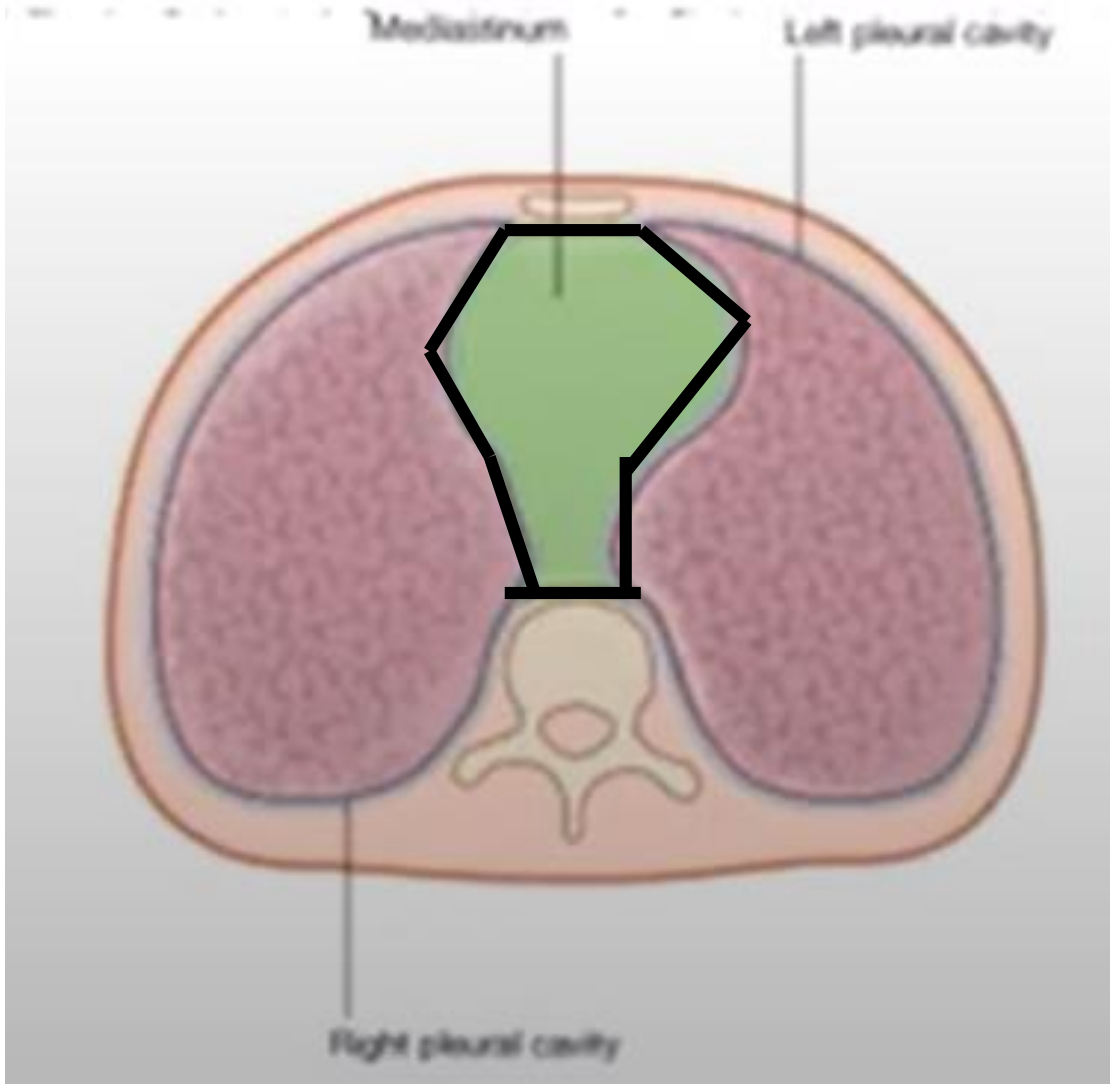

Right internal jugular vein
Left common carotid artery
Left internal jugular vein
Right subclavian artery
Left subclavian artery
Left subclavian vein
Right subclavian vein
Left brachiocephalic vein
Right brachiocephalic vein
Arch of aorta
Superior vena cava
Left pulmonary artery
Right pulmonary artery
Left main bronchus
Right main bronchus
Pulmonary trunk
Esophagus
Ascending aorta
Thoracic aorta

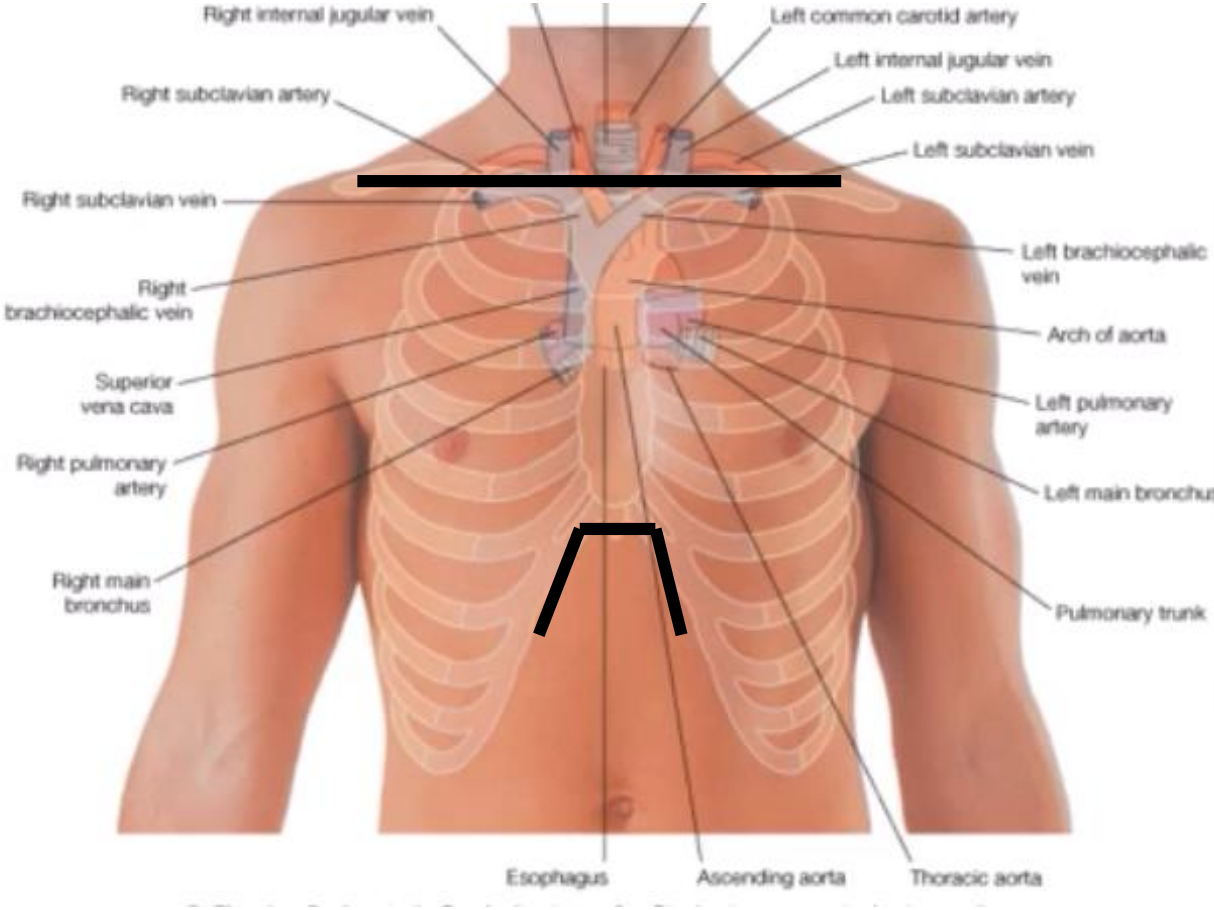
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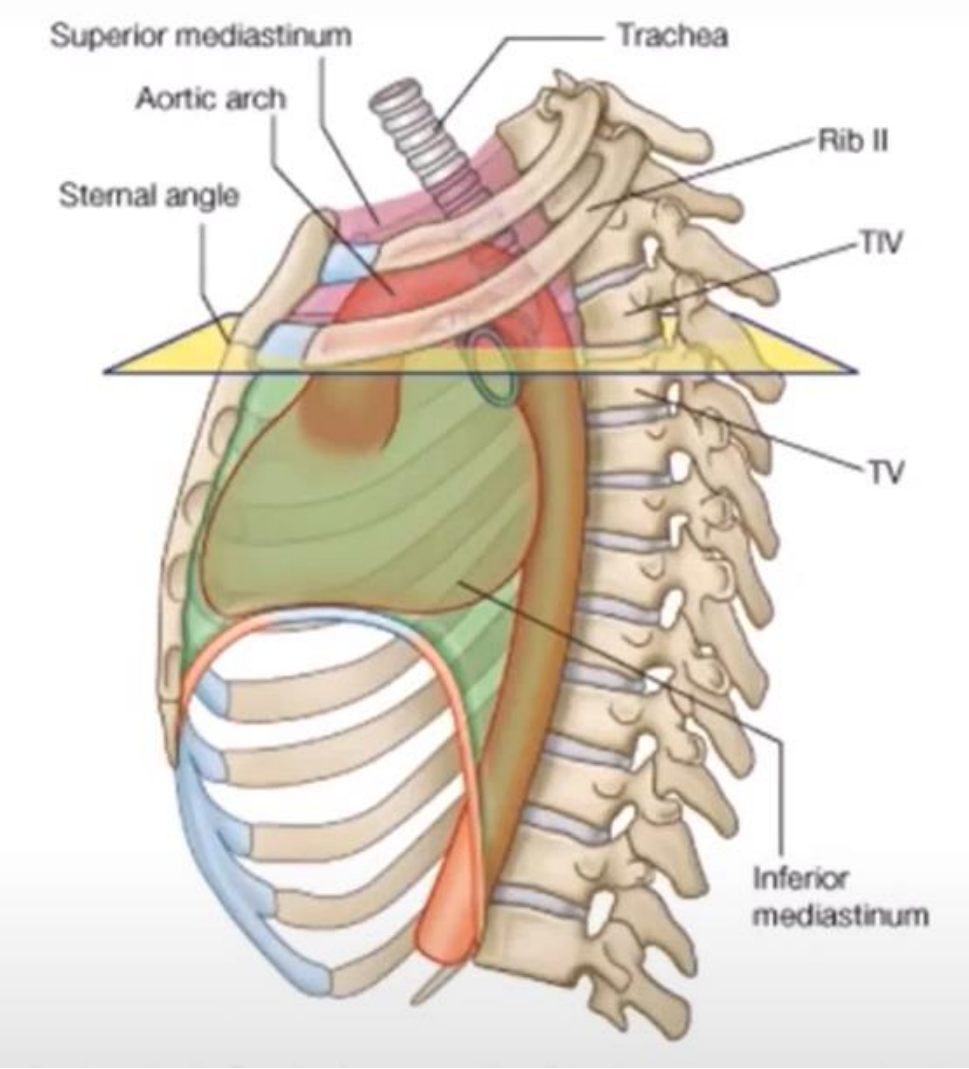

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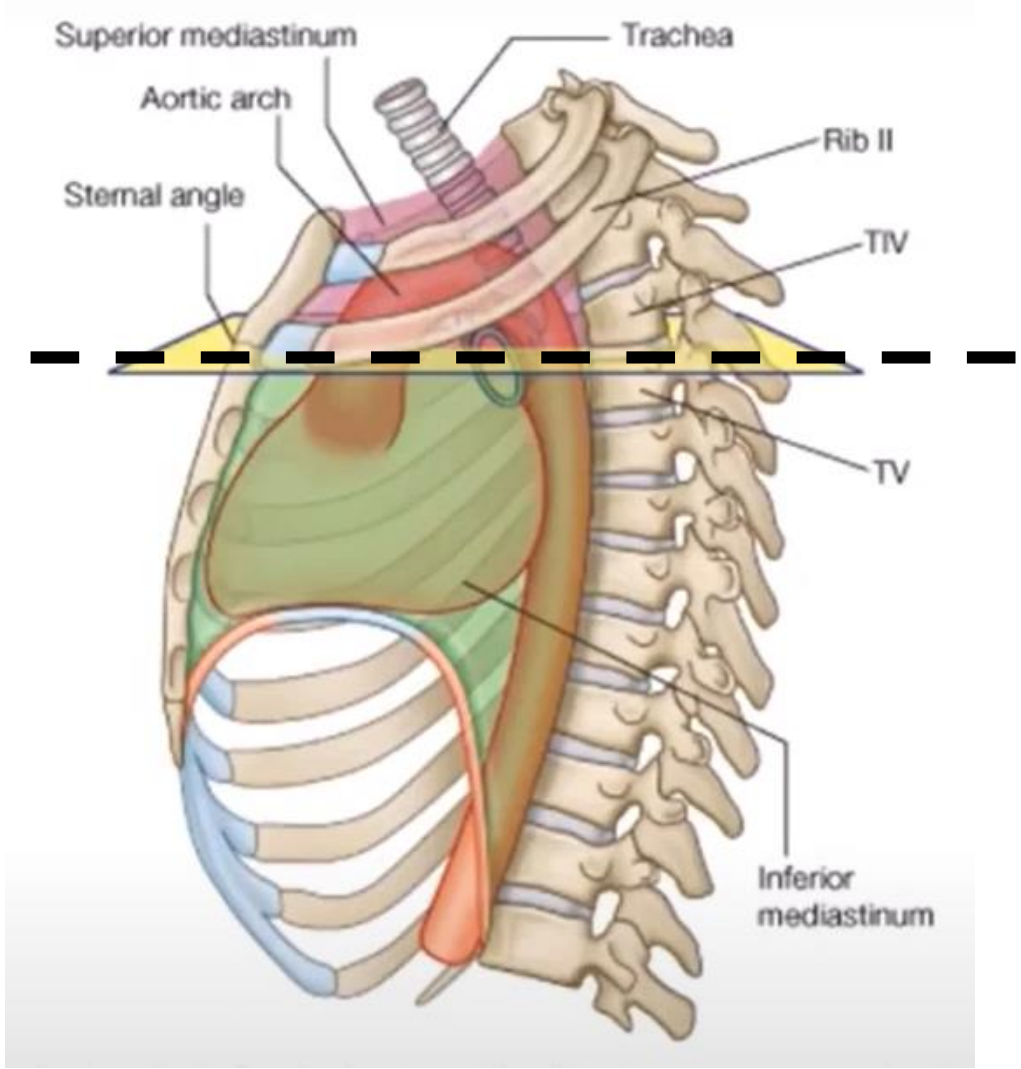

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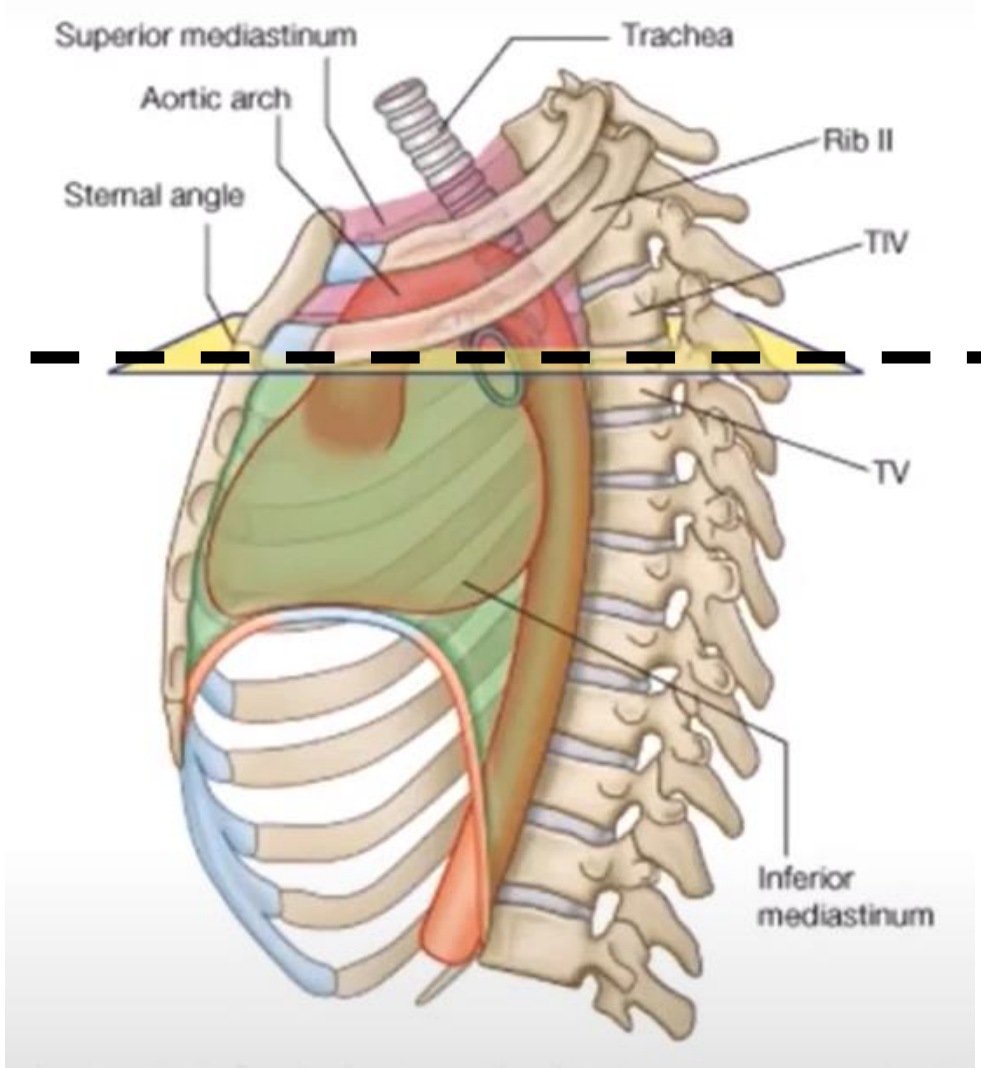
Anatomy


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

Anatomy

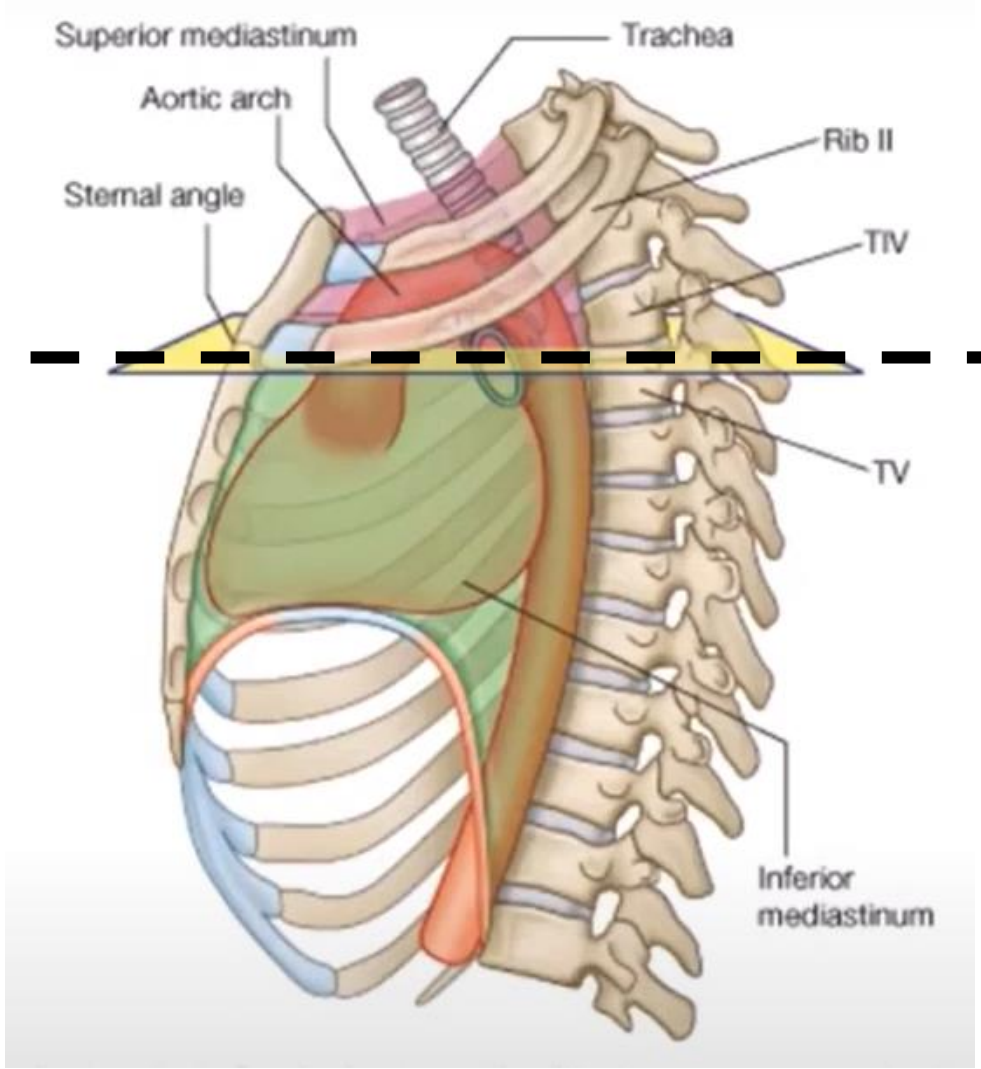

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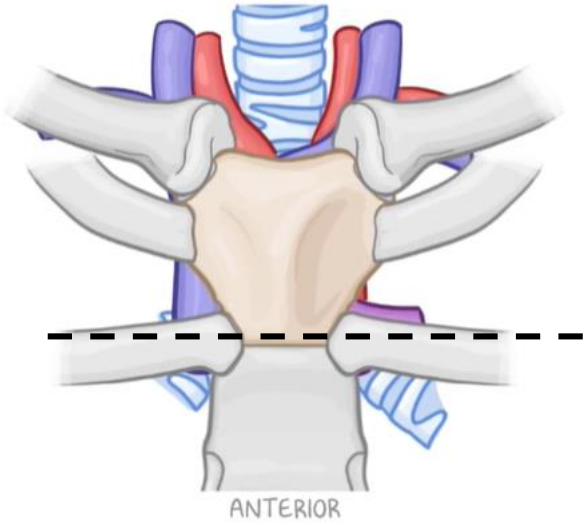


Transverse thoracic plane

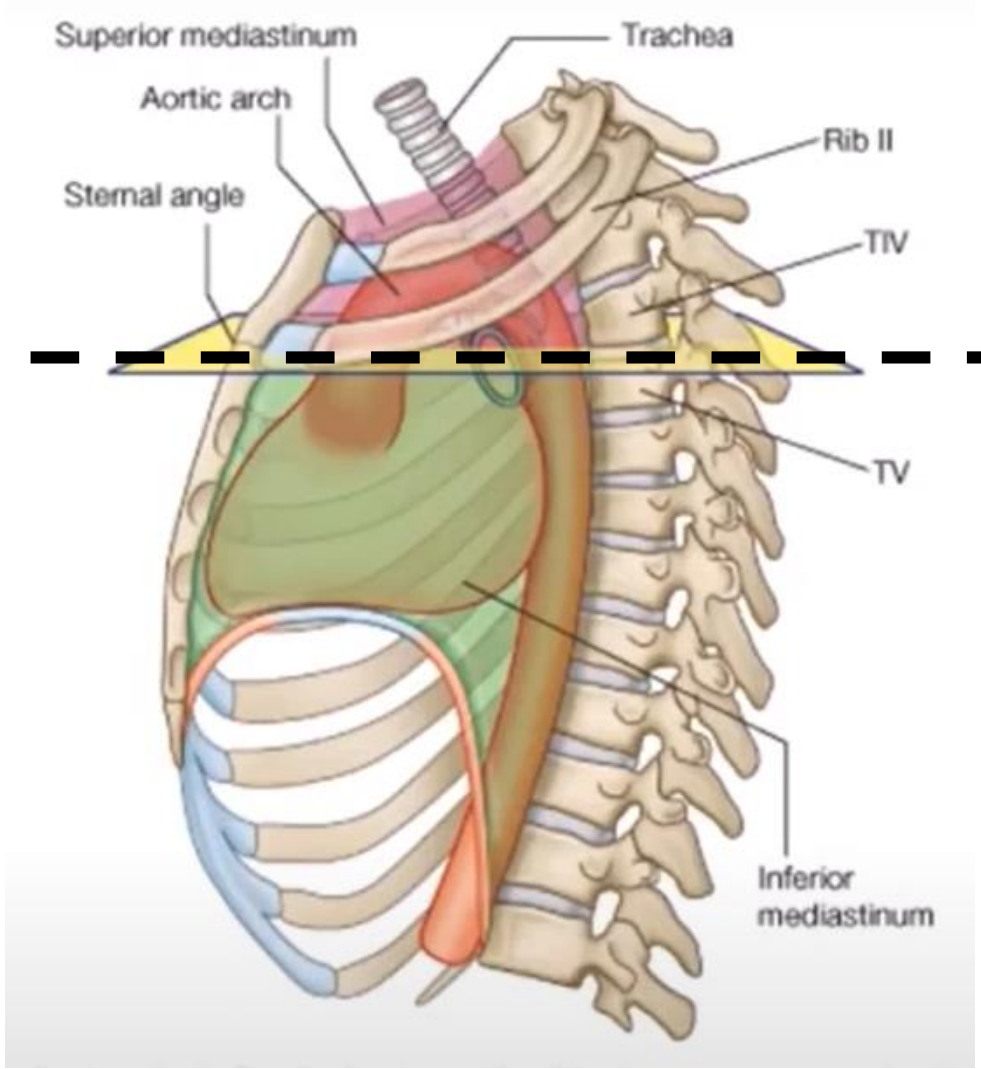
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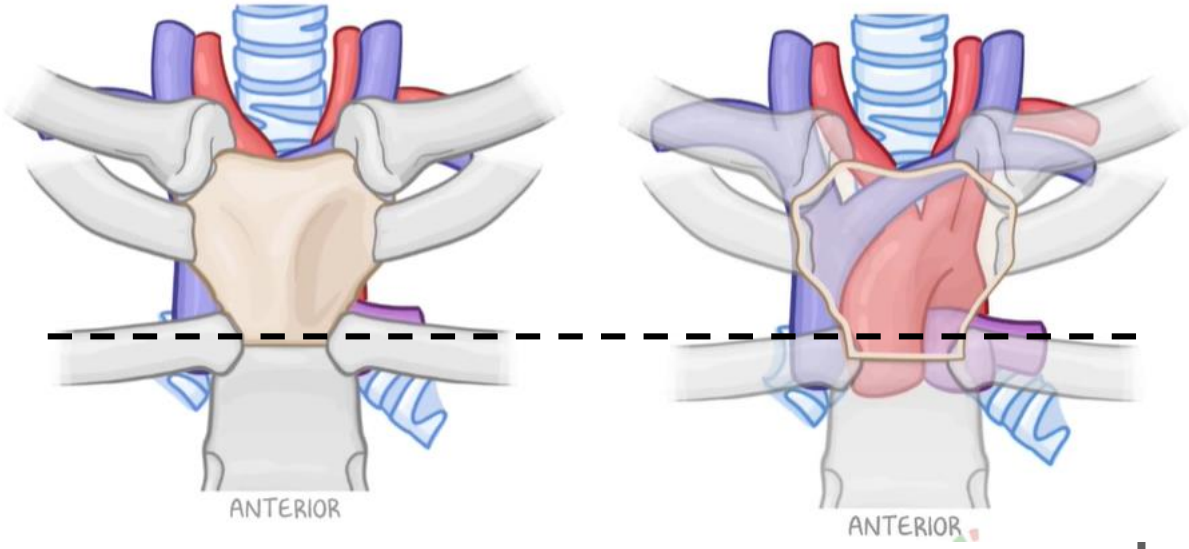
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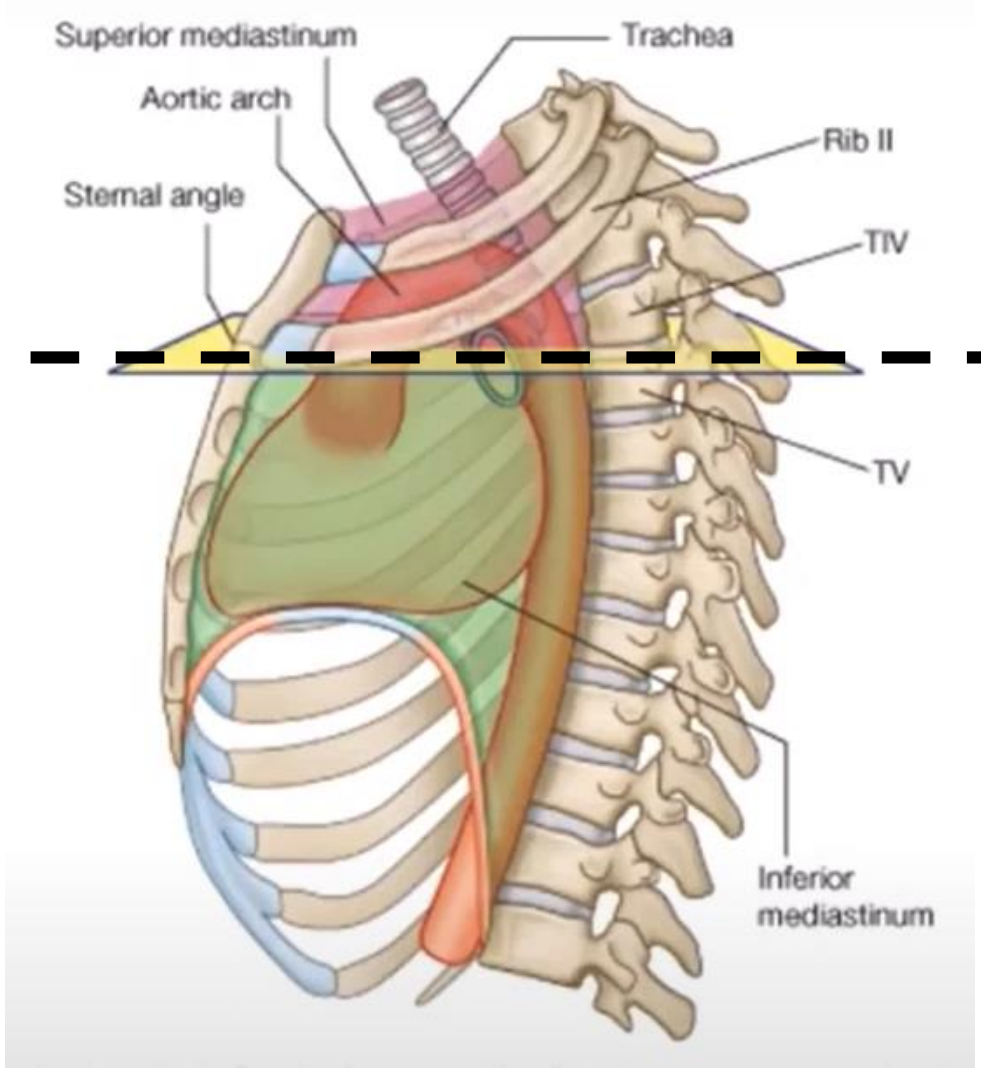
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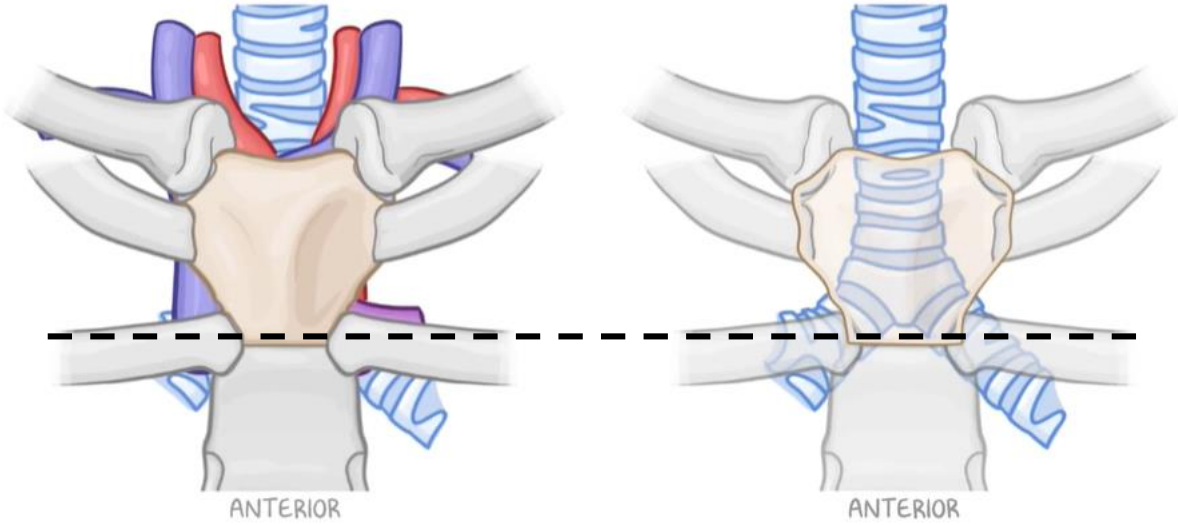
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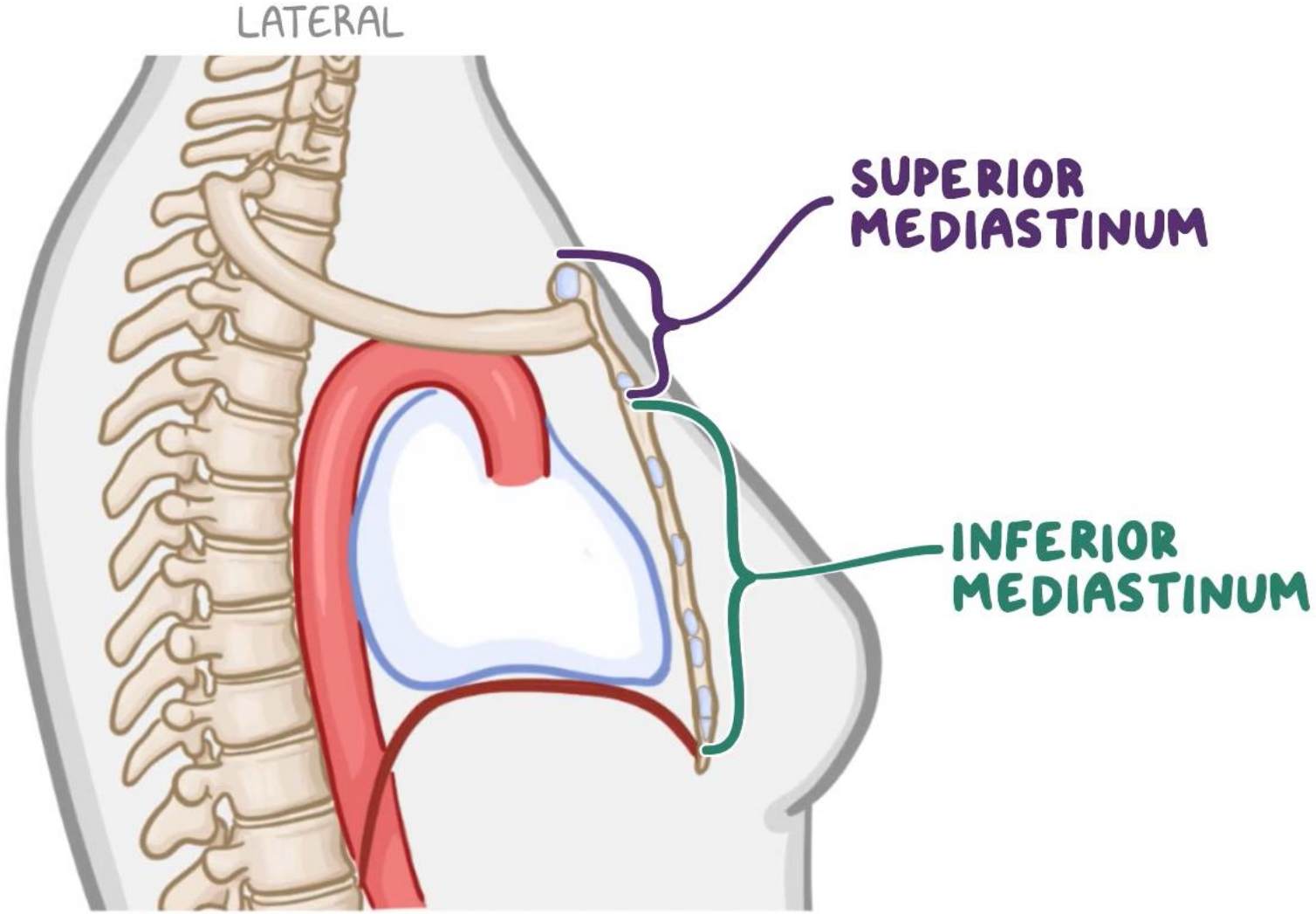
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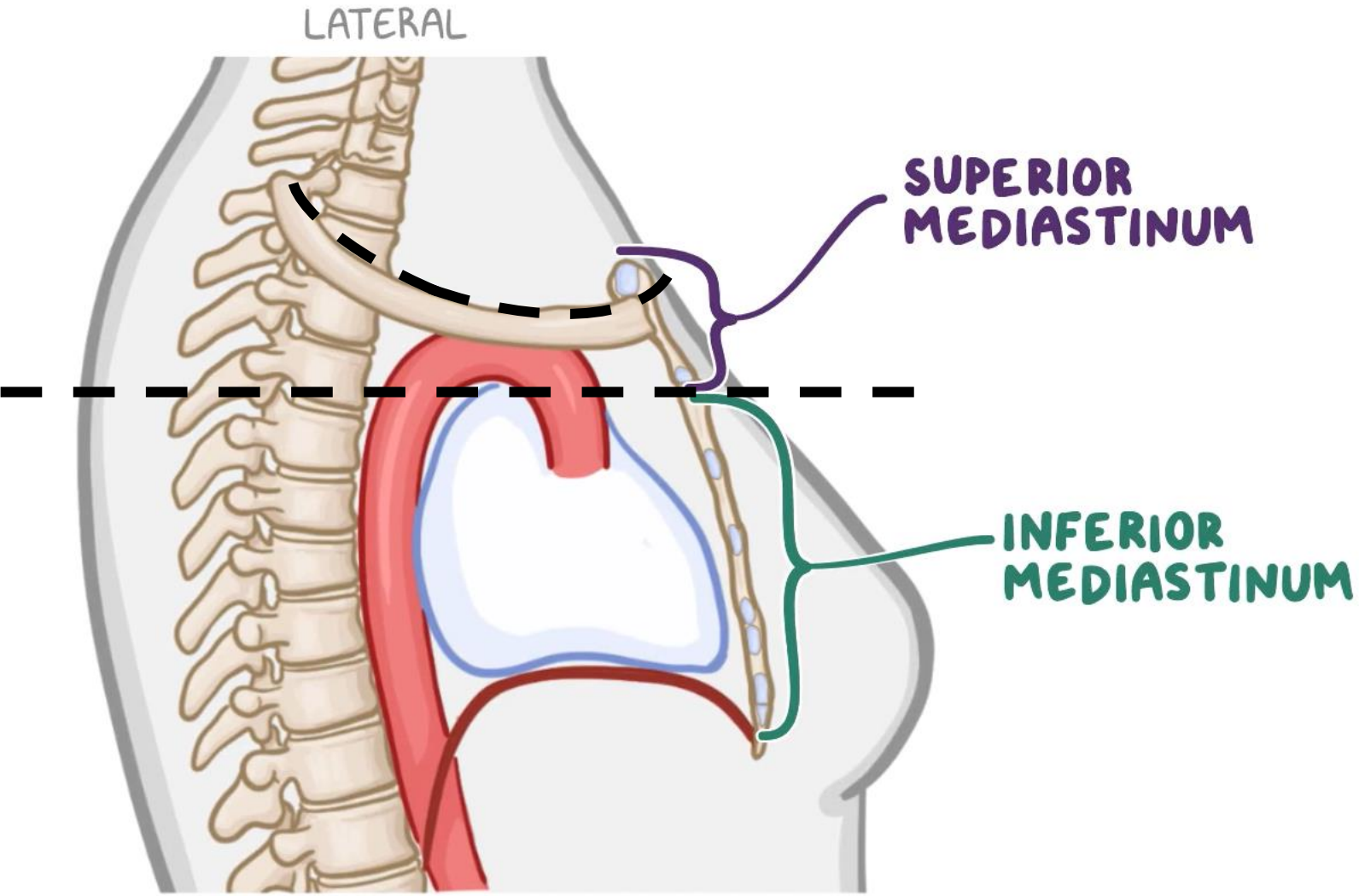
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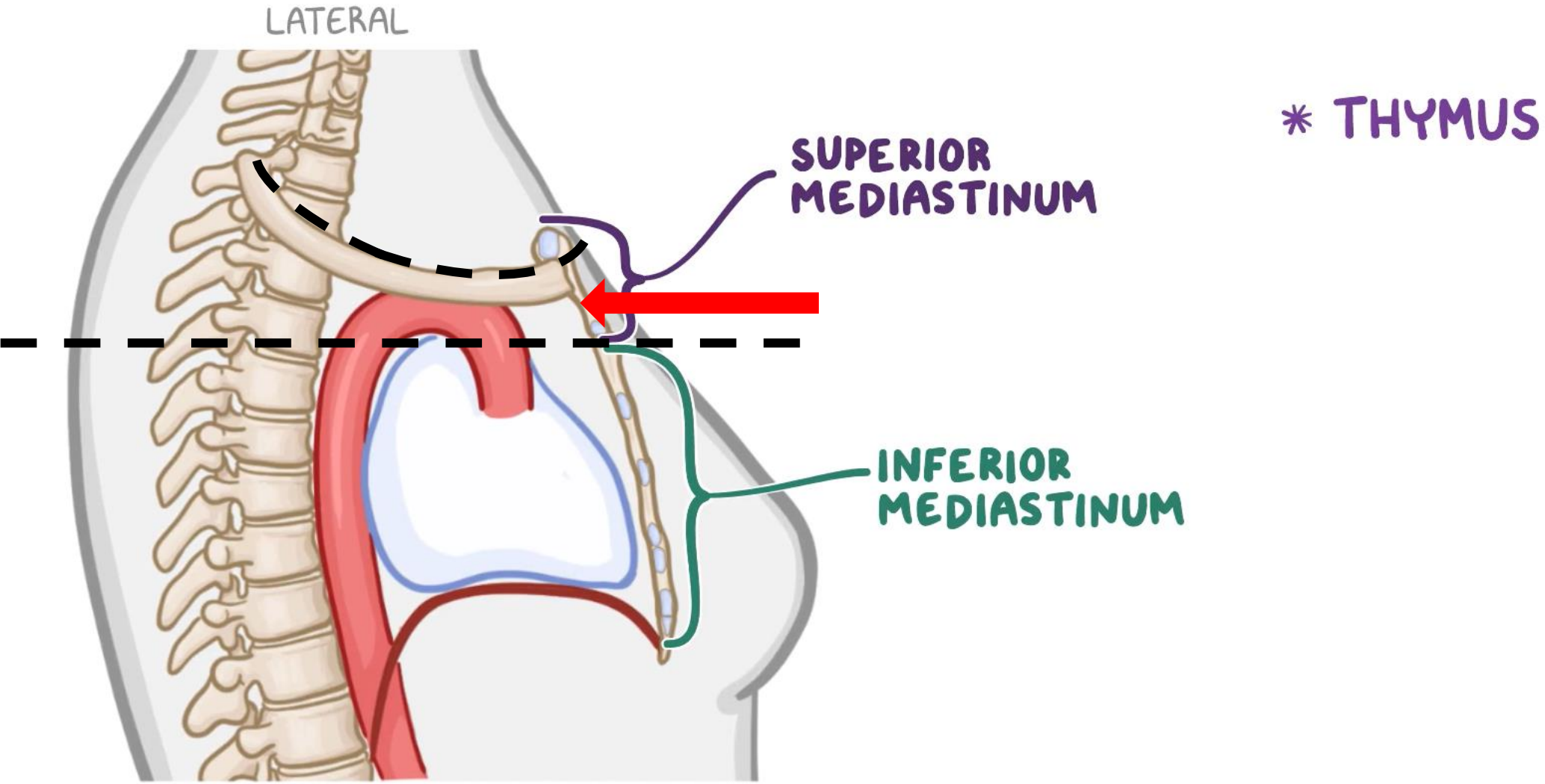
Anatomy – Superior mediastinum



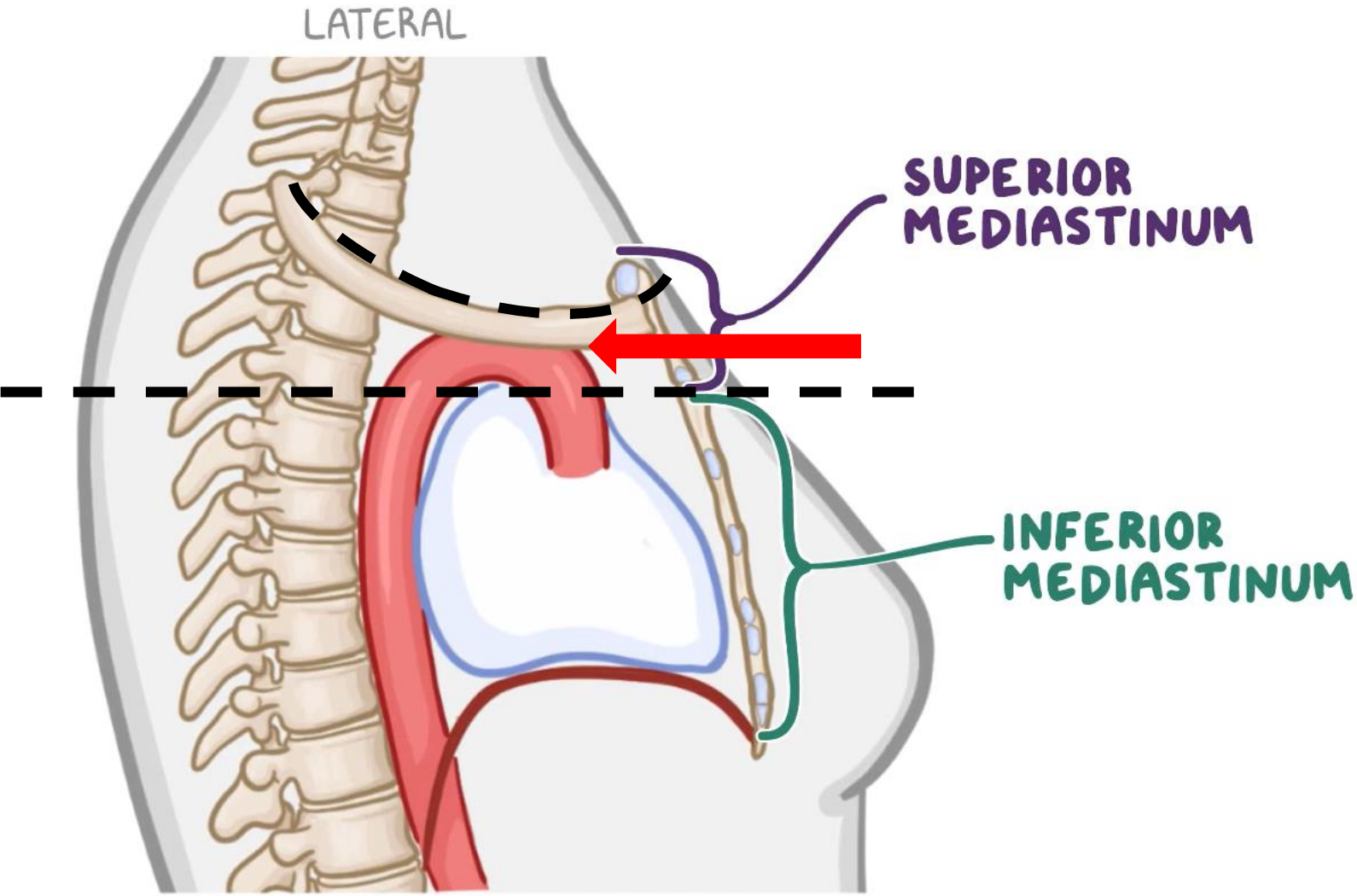
Anatomy – Superior mediastinum



Anatomy – Superior mediastinum

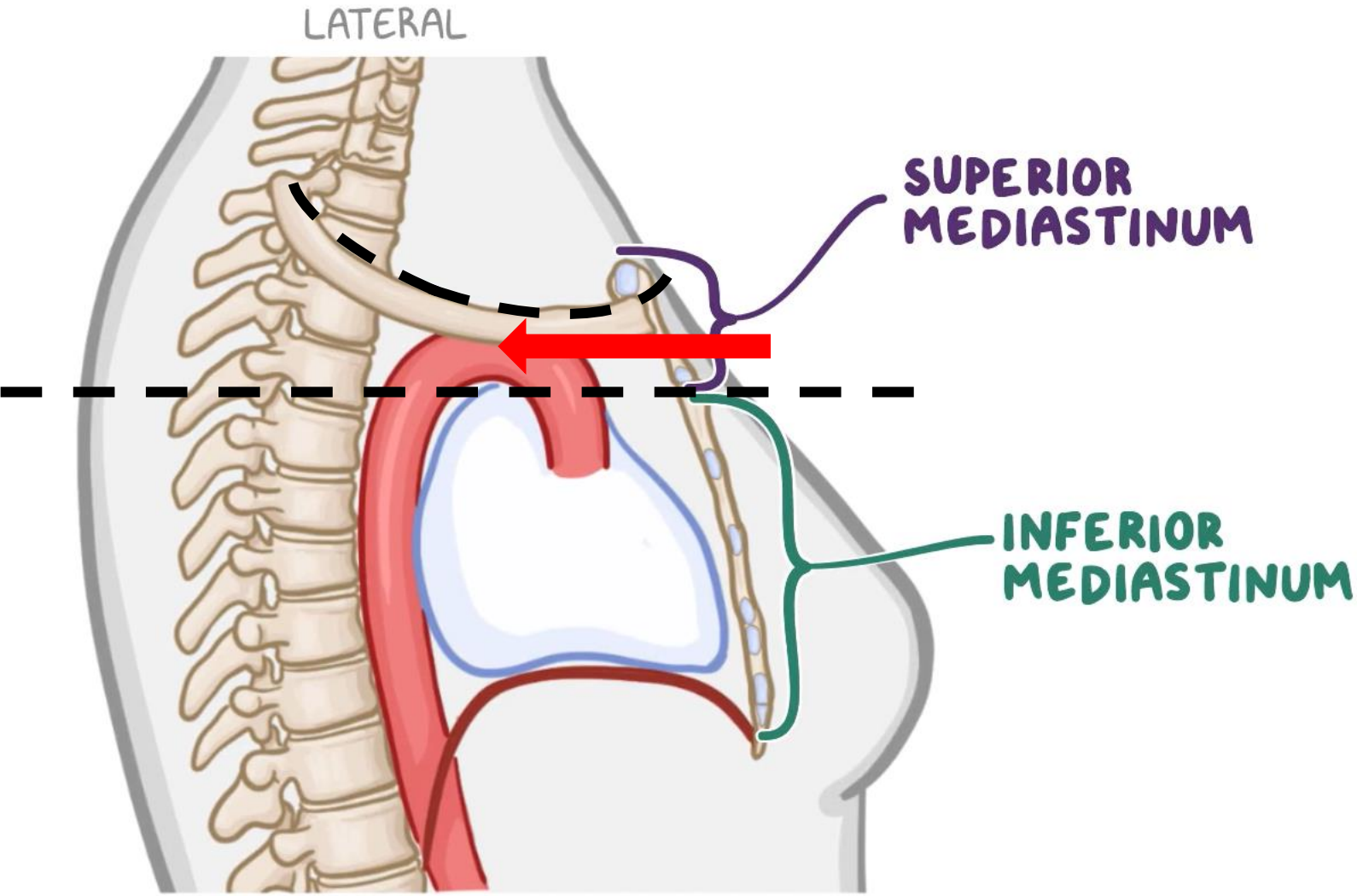


Anatomy – Superior mediastinum



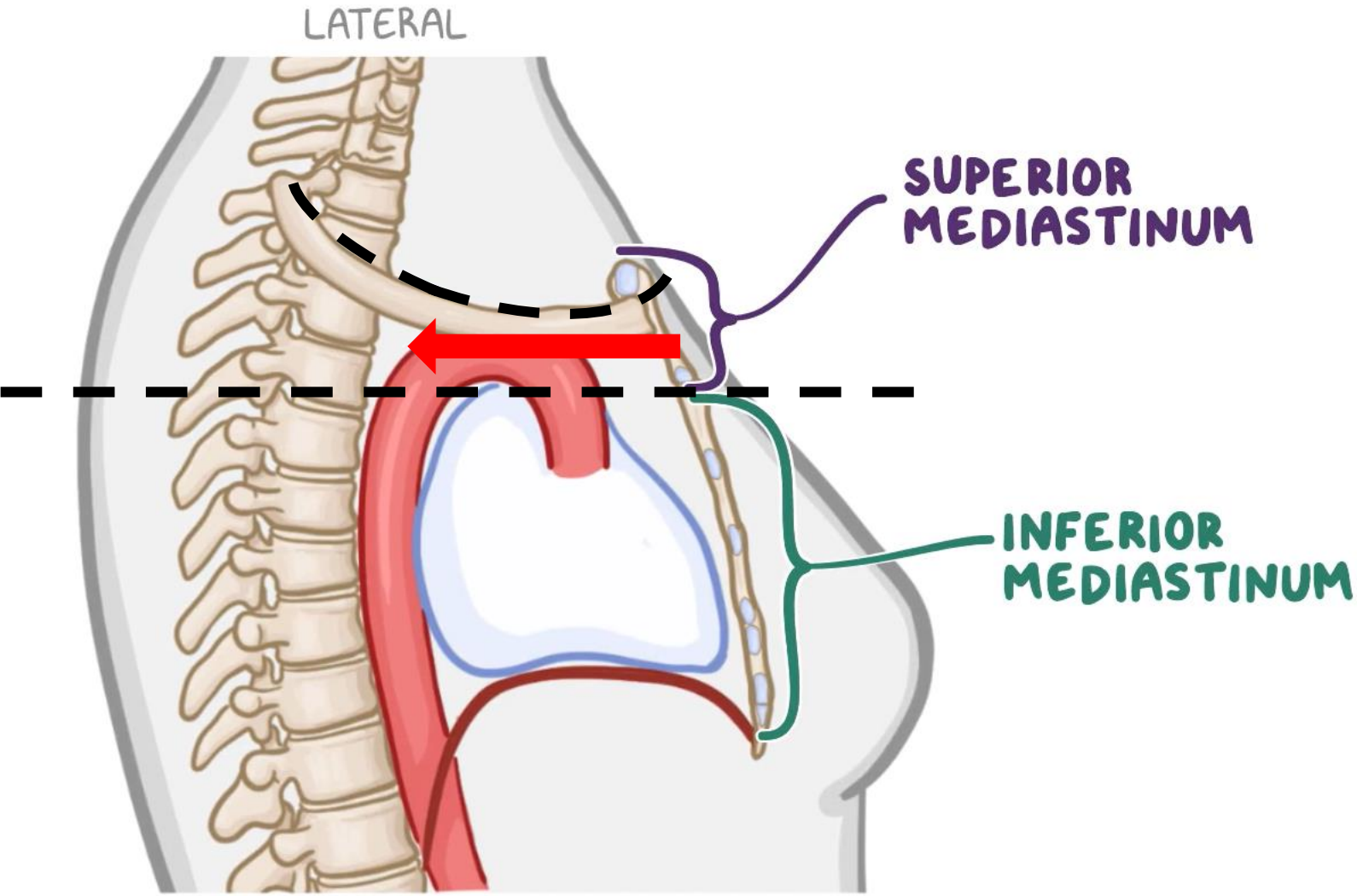
* THYMUS
* GREAT VESSELS

Anatomy – Superior mediastinum



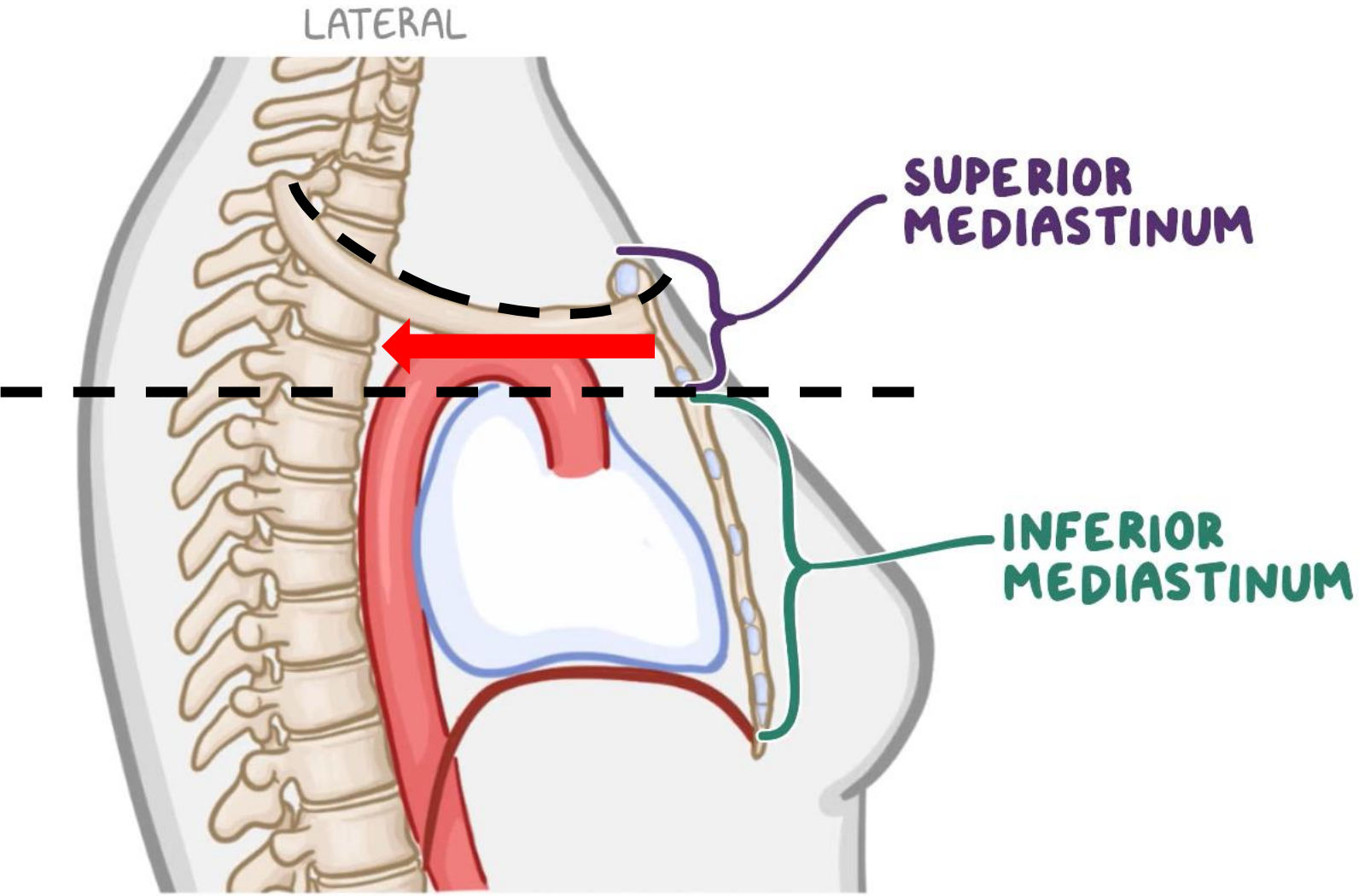
* THYMUS
* GREAT VESSELS
* TRACHEA

Anatomy – Superior mediastinum



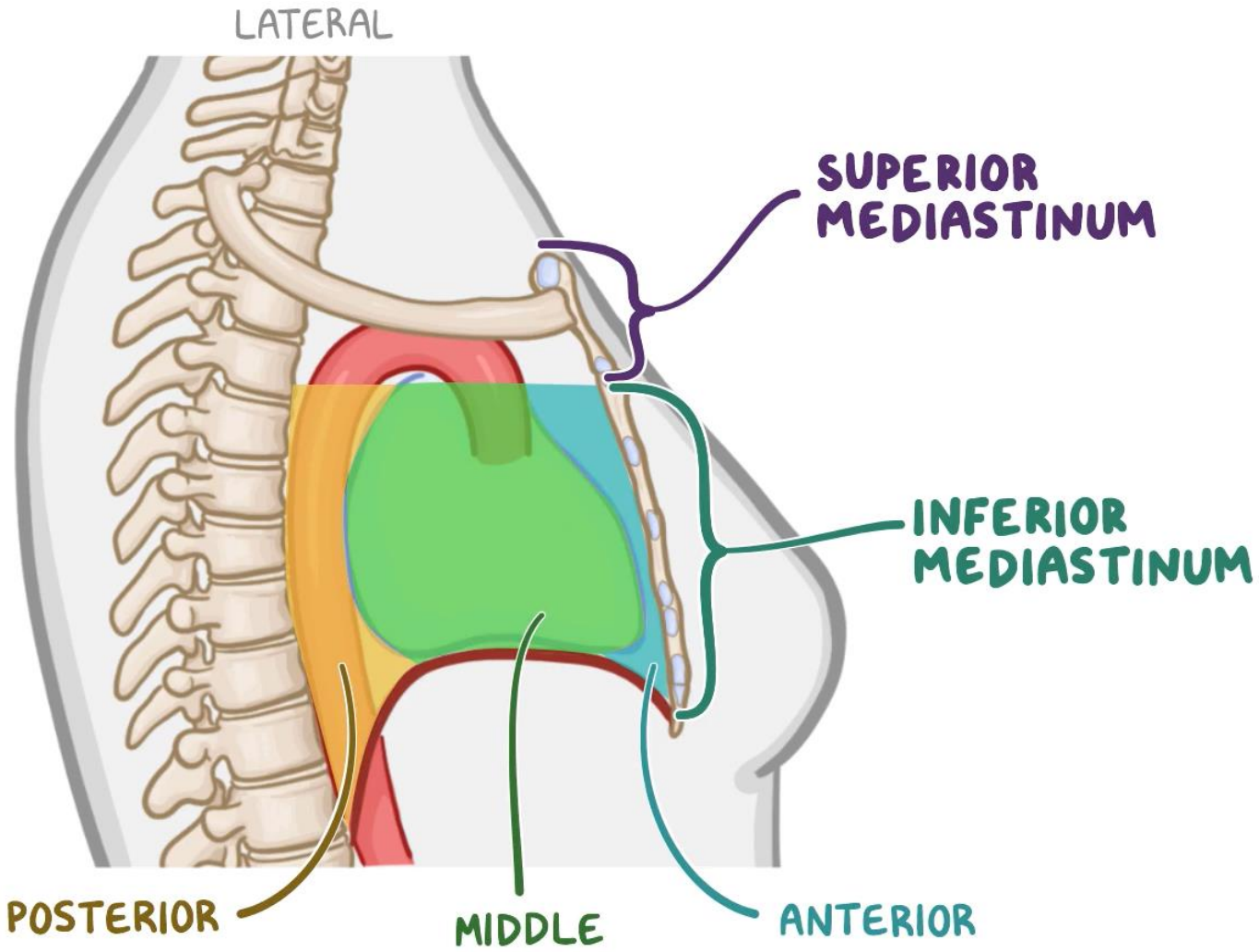
* THYMUS
* GREAT VESSELS
* TRACHEA
* ESOPHAGUS

Anatomy – Superior mediastinum

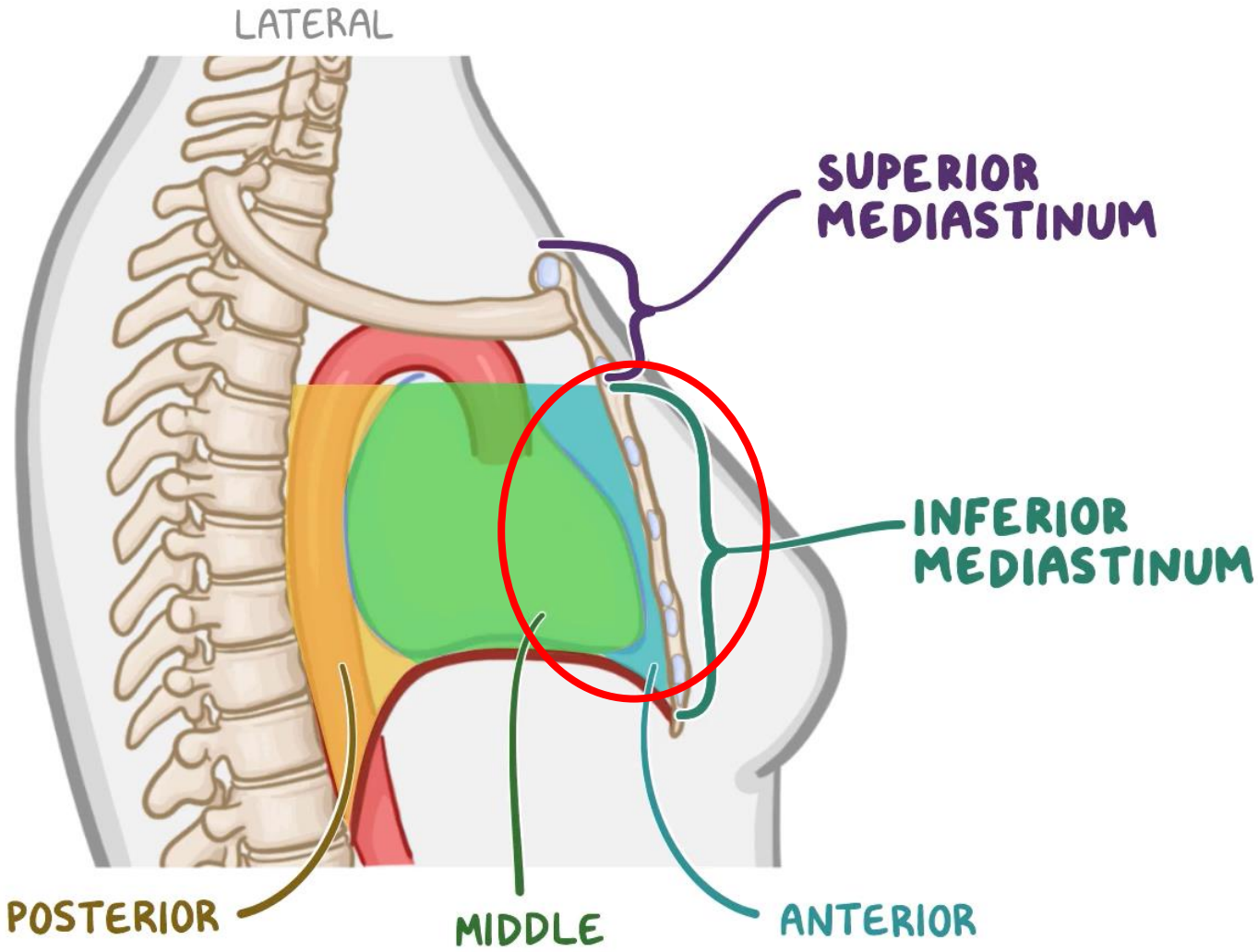


* THYMUS
* GREAT VESSELS
* TRACHEA
* ESOPHAGUS
* THORACIC DUCT & LYMPHATIC TRUNKS

Anatomy


LATERAL
SUPERIOR MEDIASTINUM
INFERIOR MEDIASTINUM
POSTERIOR
MIDDLE
ANTERIOR

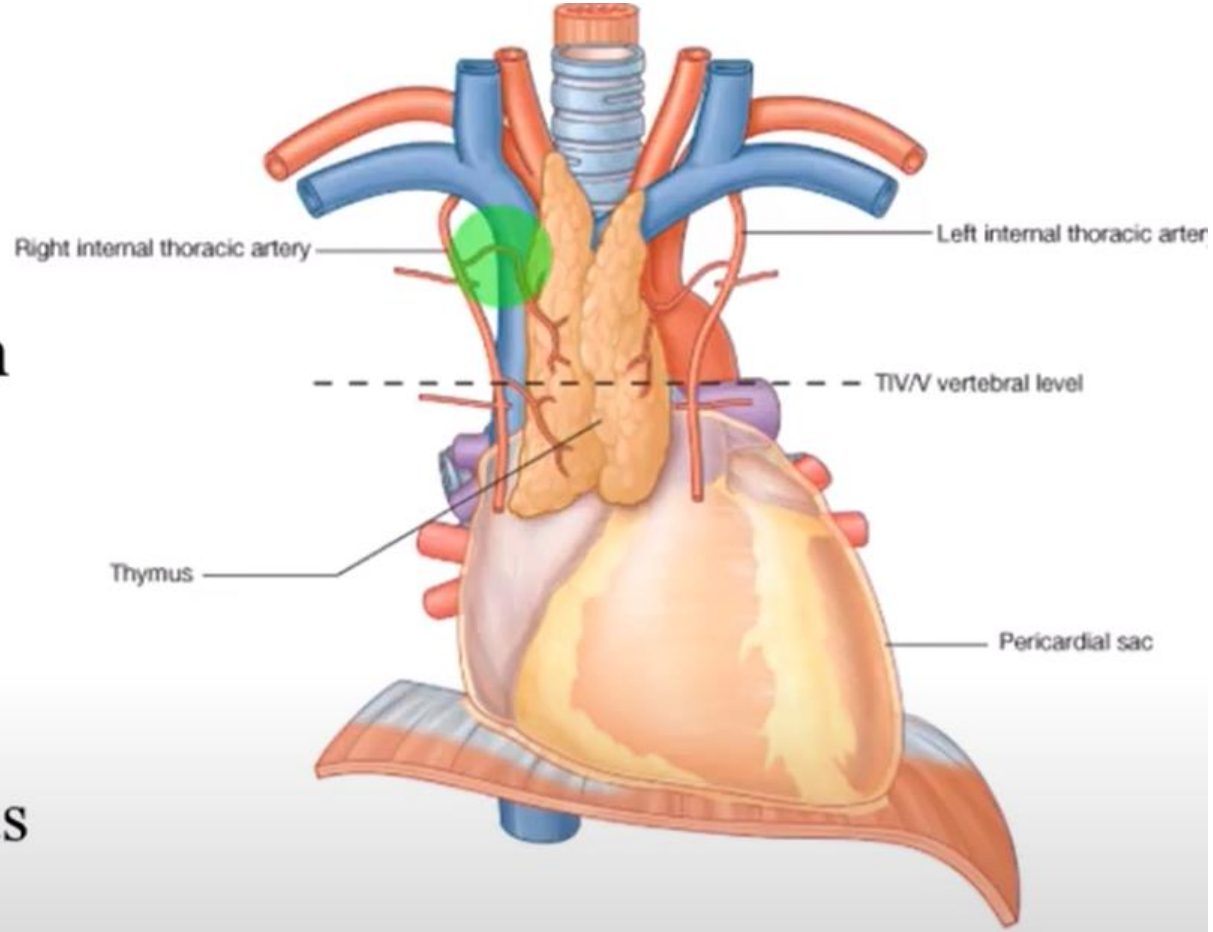
Anatomy


LATERAL
SUPERIOR MEDIASTINUM
INFERIOR MEDIASTINUM
POSTERIOR
MIDDLE
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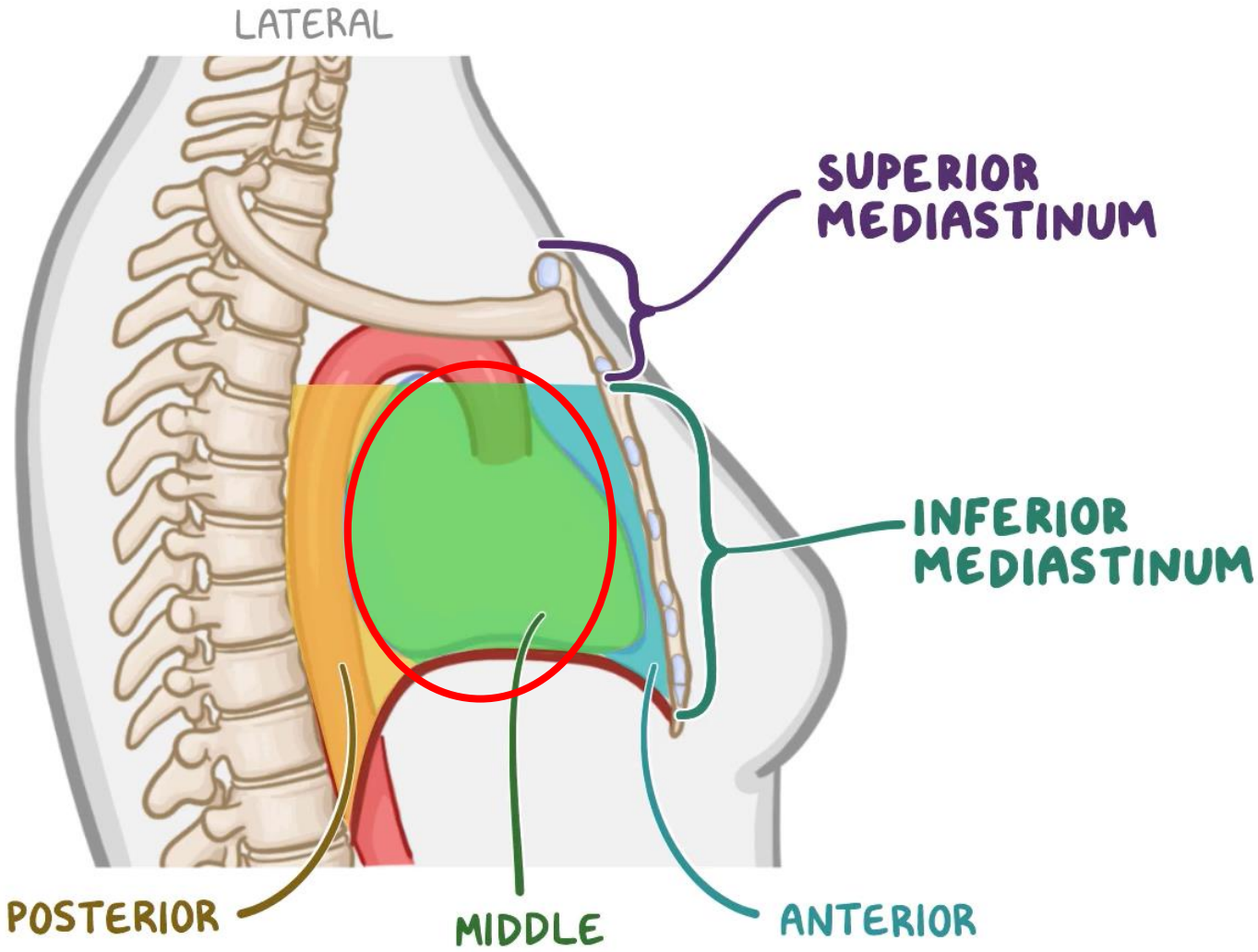
Anatomy – Inferior anterior mediastinum

Contents:

1. Sternopericardial ligaments
2. 2-3 lymph nodes with lymphatics
3. Small mediastinal branches of internal thoracic artery
4. Lowest part of thymus
5. Areolar tissue



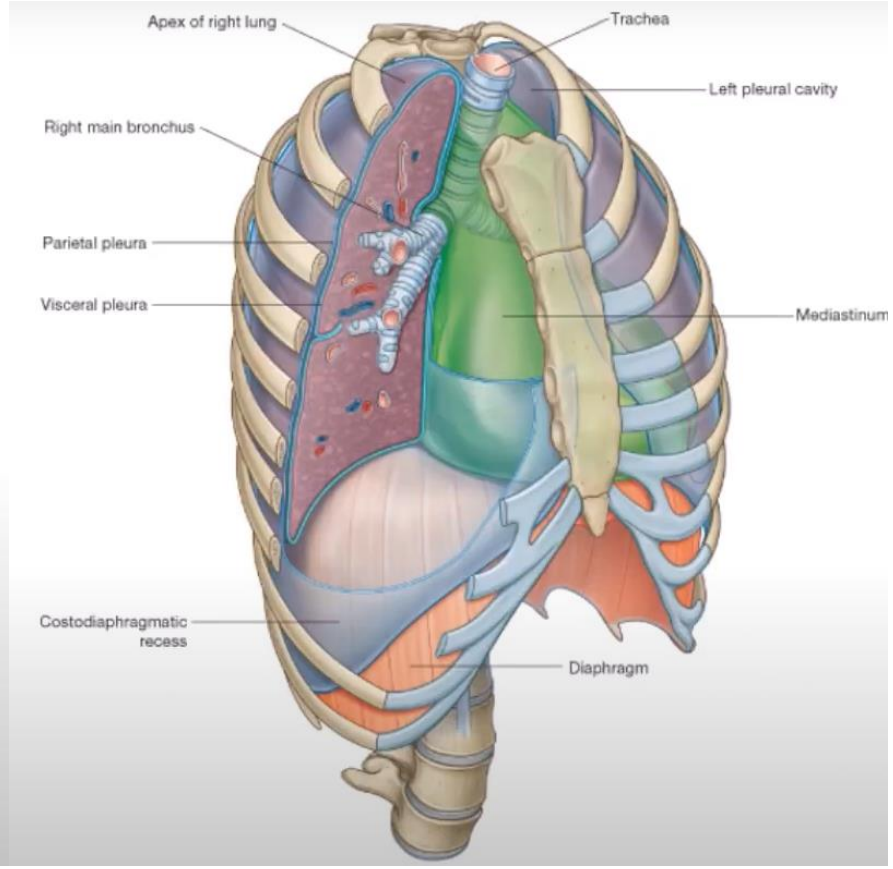
Anatomy


LATERAL
SUPERIOR MEDIASTINUM
INFERIOR MEDIASTINUM
POSTERIOR
MIDDLE
ANTERIOR

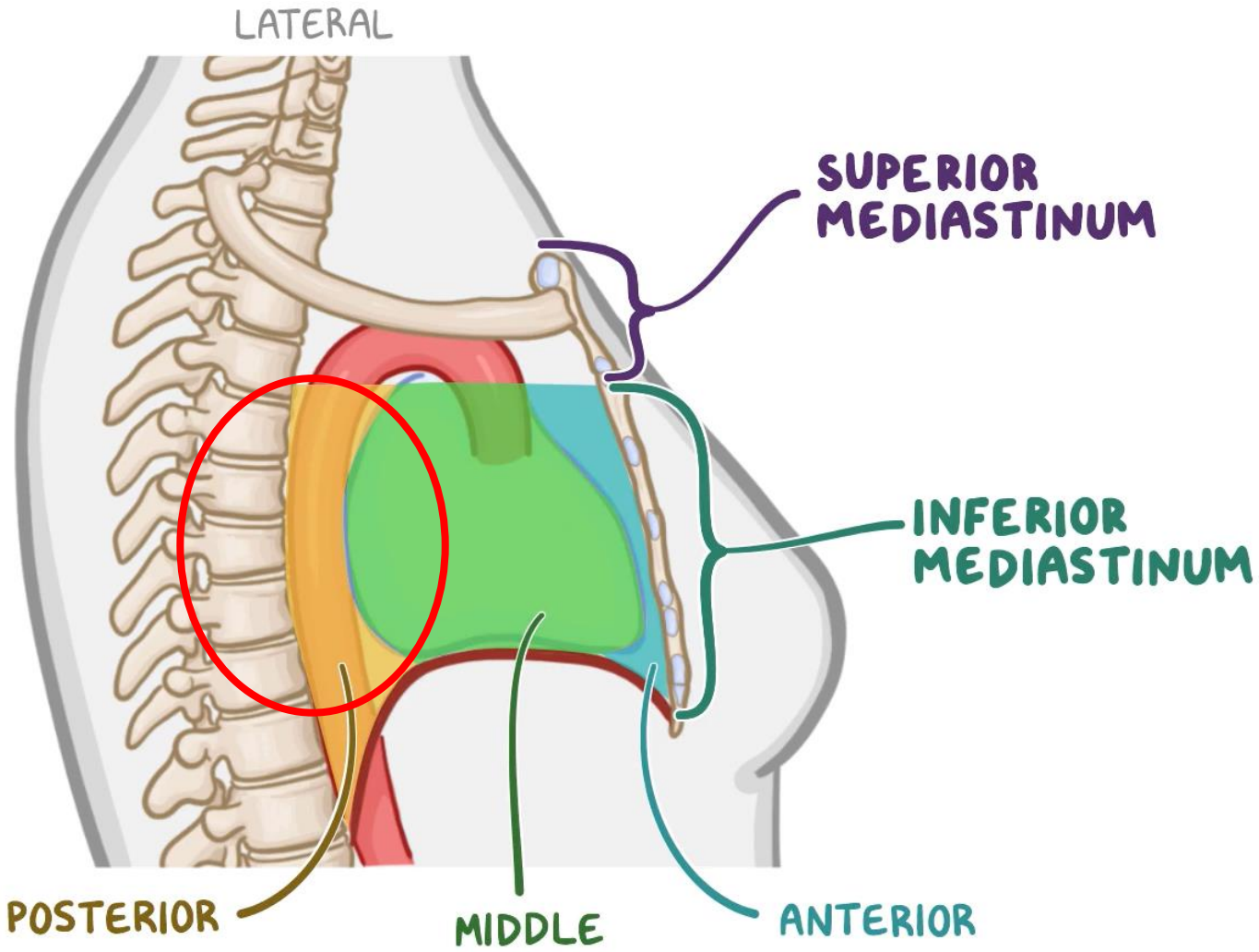
Anatomy – Inferior middle mediastinum

Contents:

1. Heart with its pericardium
2. Arteries: Ascending aorta, pulmonary trunk & 2 pulmonary arteries
3. Veins: Lower half of SVC, terminal part of azygos vein, right & left pulmonary veins
4. Nerves: Phrenic & deep cardiac plexus
5. Lymph nodes: Tracheobronchial nodes
6. Tubes: Bifurcation of trachea with 2 principal bronchi



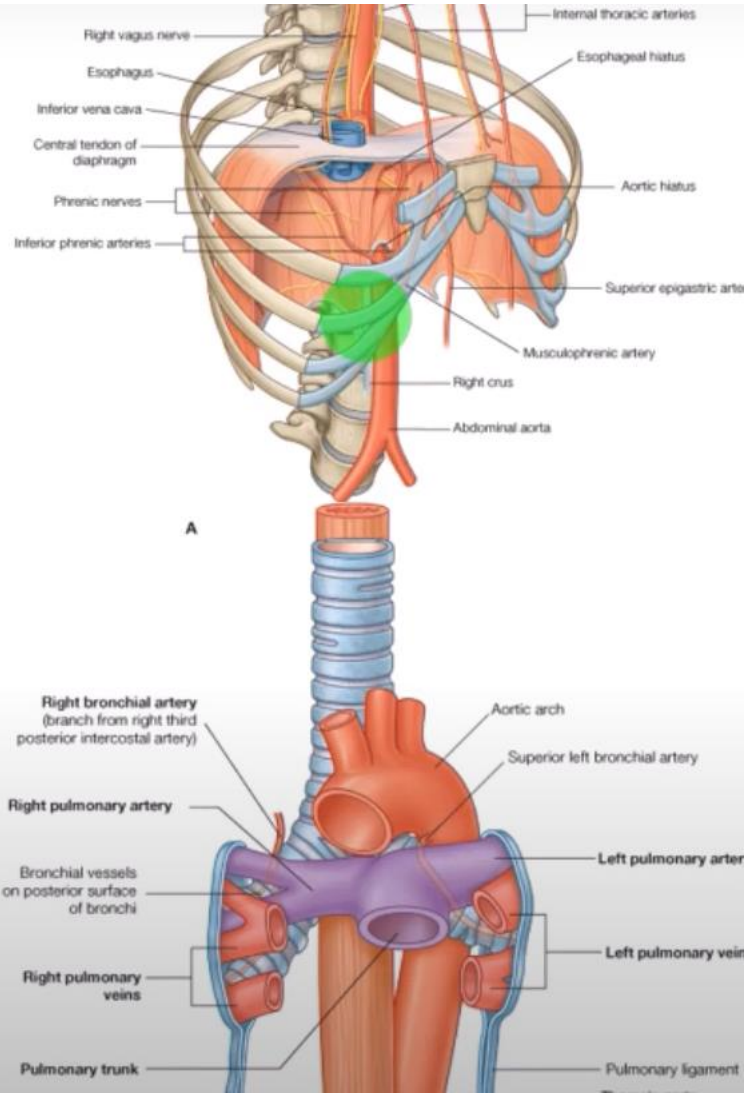
Anatomy


LATERAL
SUPERIOR MEDIASTINUM
INFERIOR MEDIASTINUM
POSTERIOR
MIDDLE
ANTERIOR

Anatomy – Inferior posterior mediastinum

Contents:

1. Arteries: Descending thoracic aorta & its branches
2. Veins: Azygos vein, hemiazygos vein & accessory hemiazygos vein
3. Nerves: Vagi, greater, lesser & least splanchnic nerves
4. Lymph nodes & lymphatics: Posterior mediastinal lymph nodes alongside aorta & thoracic duct
5. Tube: Oesophagus



Agenda

Thoracic and mediastinal anatomy (for dummies)

Radial EUS examination

- Esophageal wall

- Mediastinal anatomy

How I do it

Quiz

Agenda

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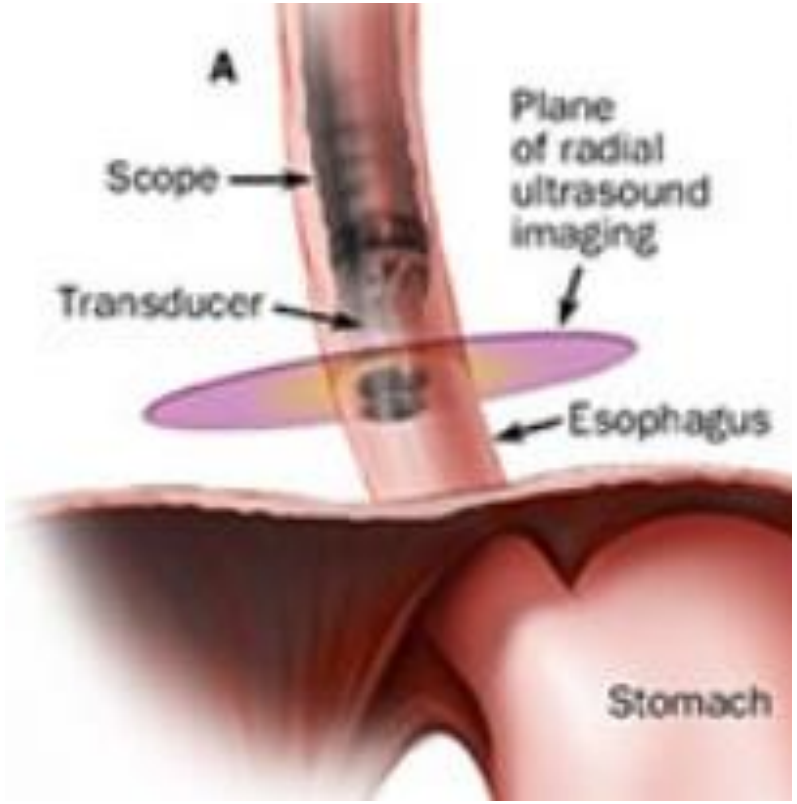
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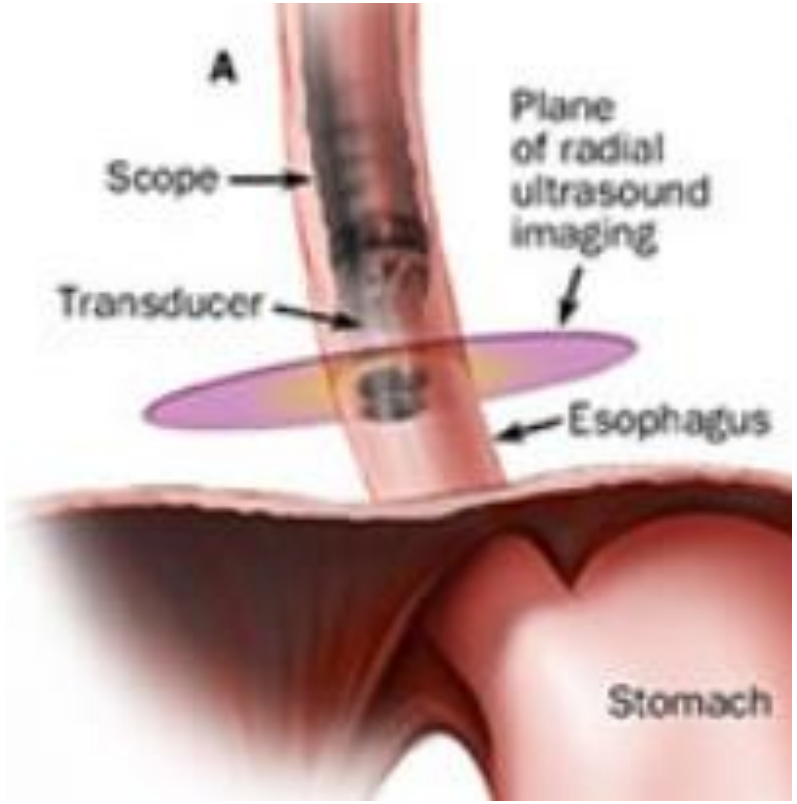
How I do it

Quiz

Radial EUS - Esophagus



Radial EUS - Esophagus



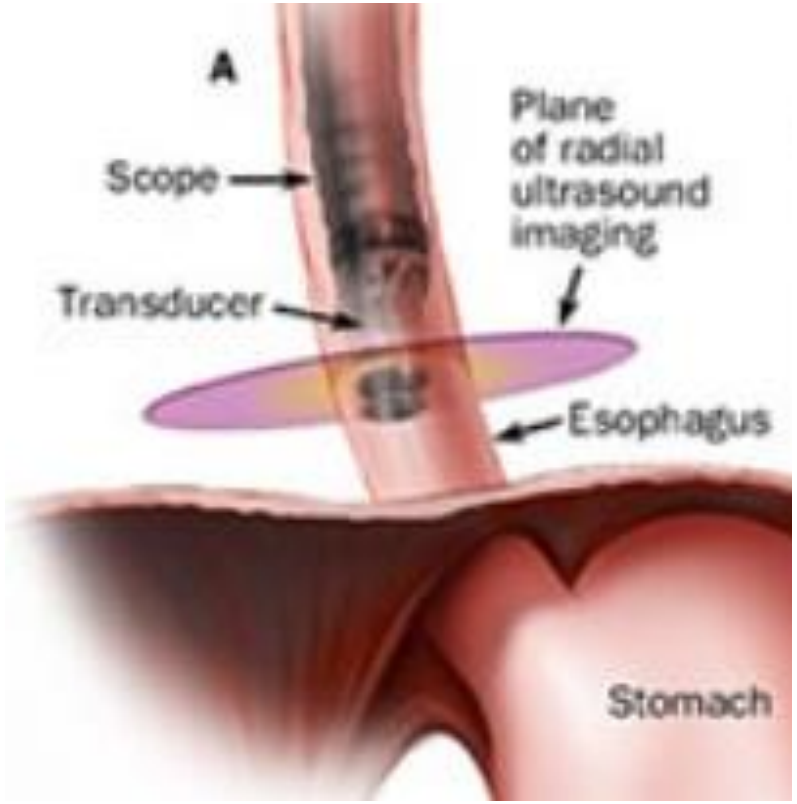
Esophageal wall:

G-E junction carcinoma

Esophageal carcinoma

Sub-epithelial tumor

Radial EUS - Esophagus



Esophageal wall:

G-E junction carcinoma

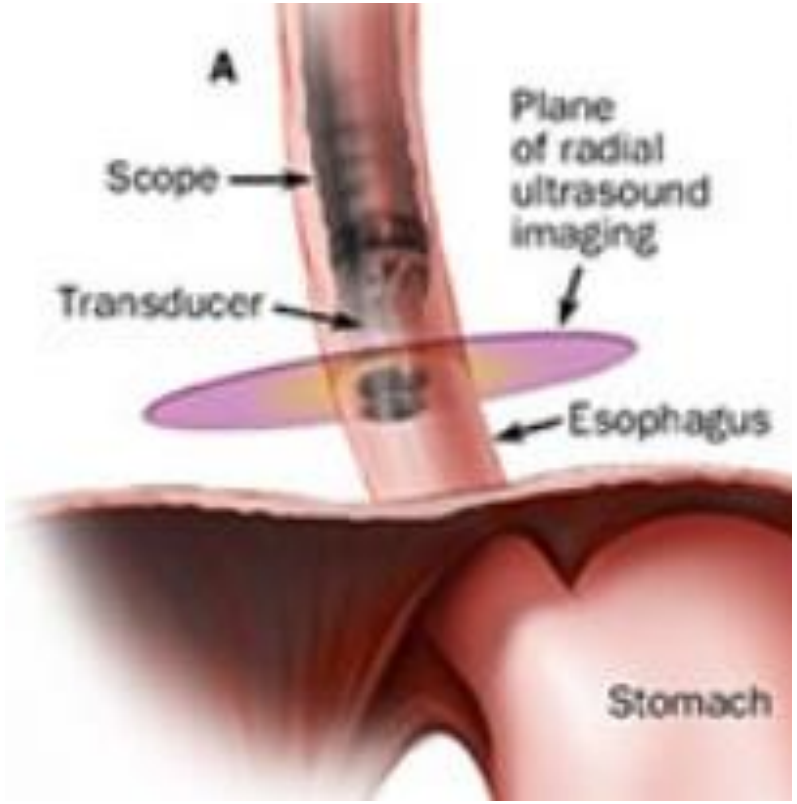
Esophageal carcinoma

Sub-epithelial tumor

Increase US frequency

Reduce image depth

Radial EUS - Esophagus



Esophageal wall:

G-E junction carcinoma

Esophageal carcinoma

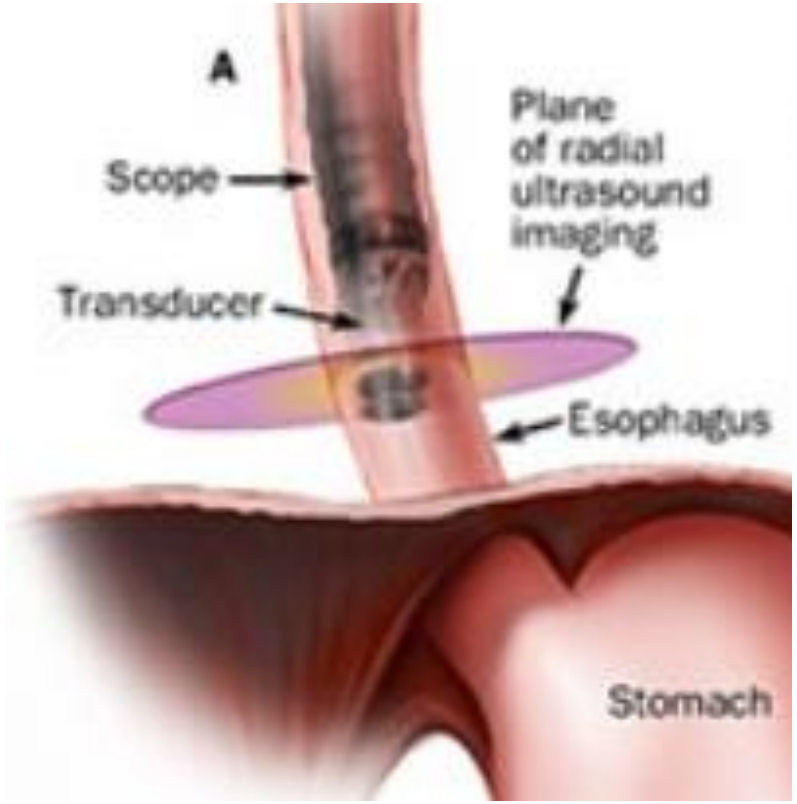
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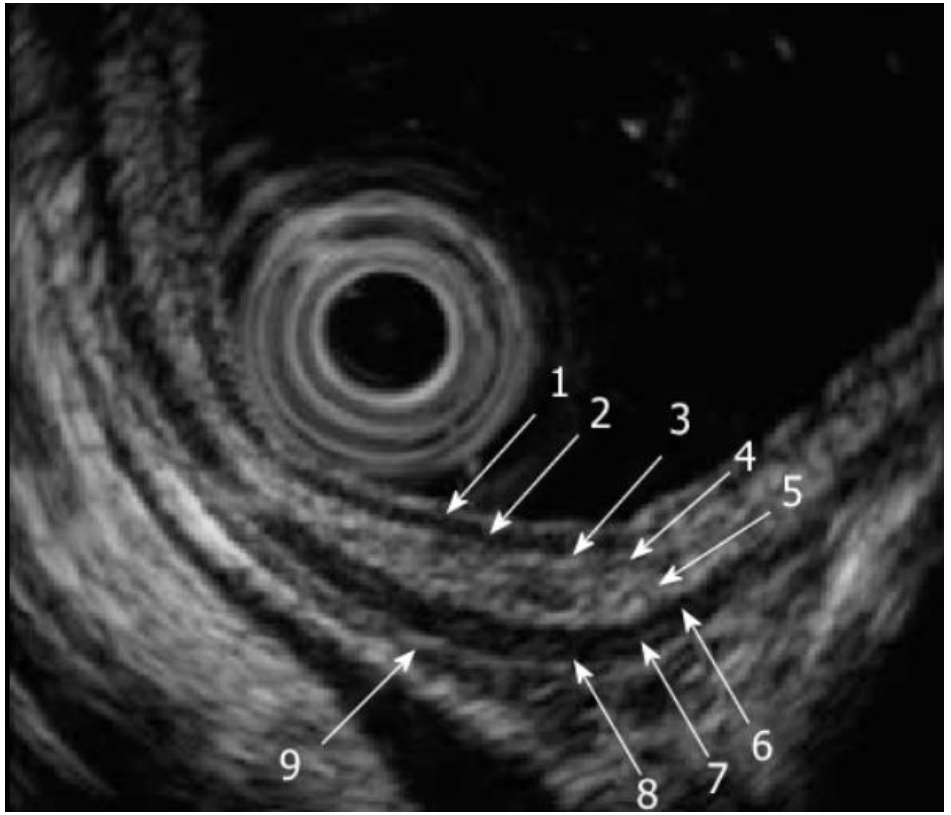
Reduce image depth

Measure from mouth and cardia

Radial EUS - Esophagus

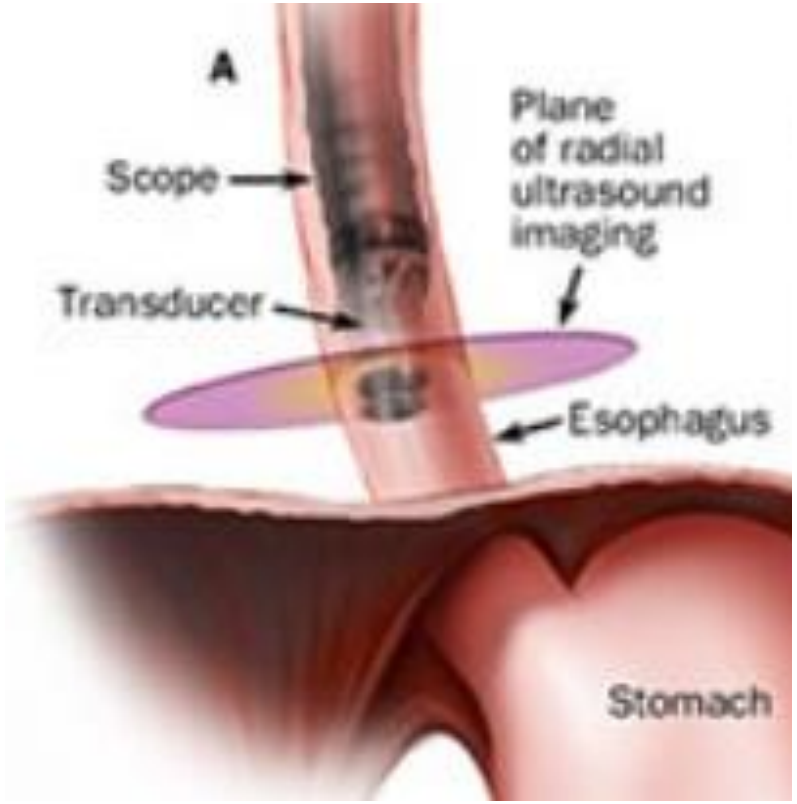


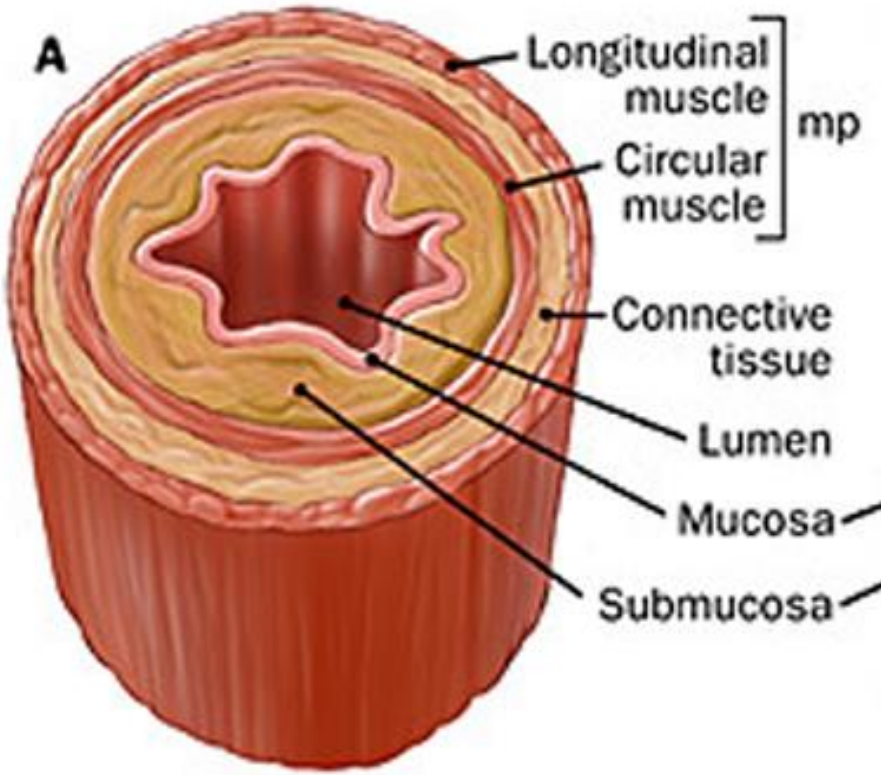
Normal Esophageal wall

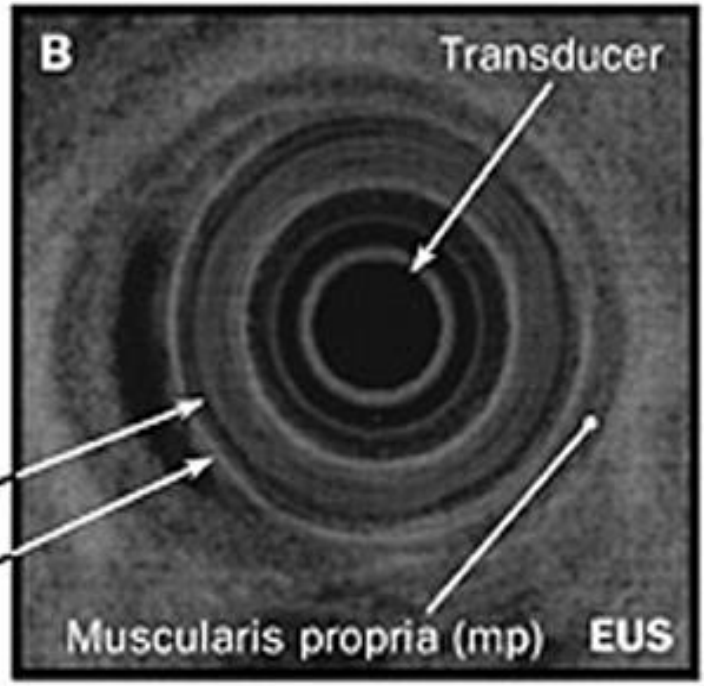


Radial EUS - Esophagus

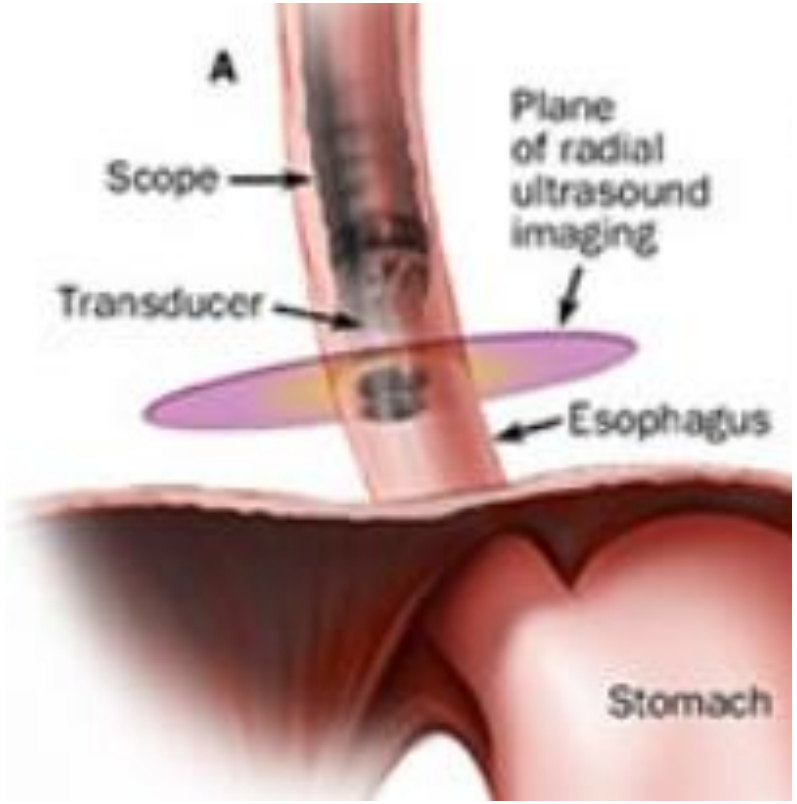
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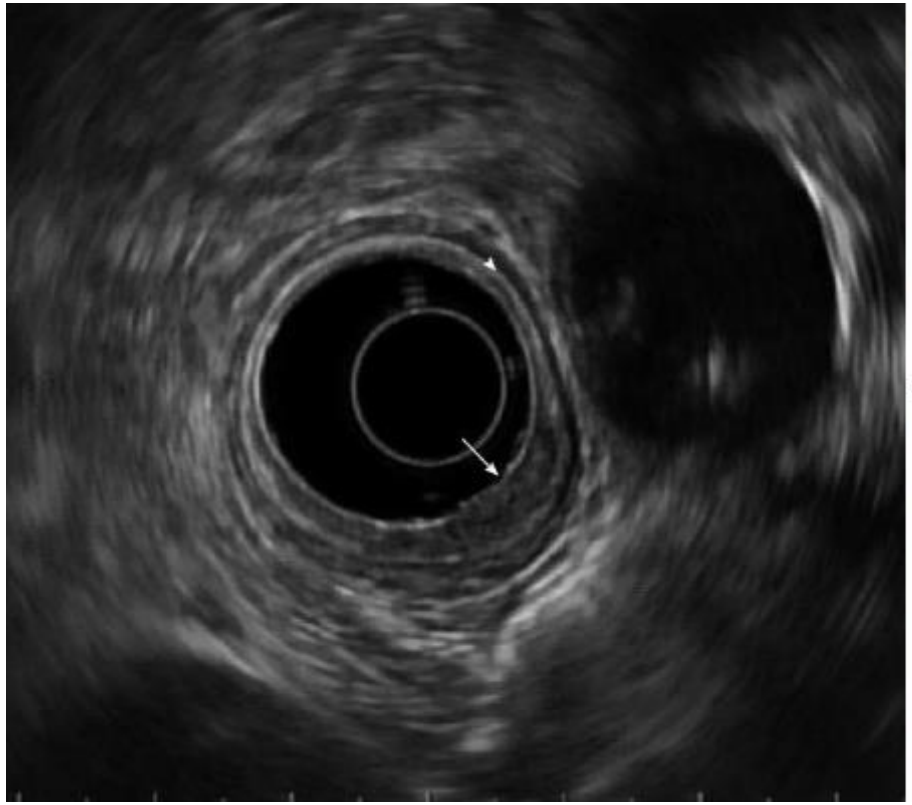




Radial EUS - Esophagus



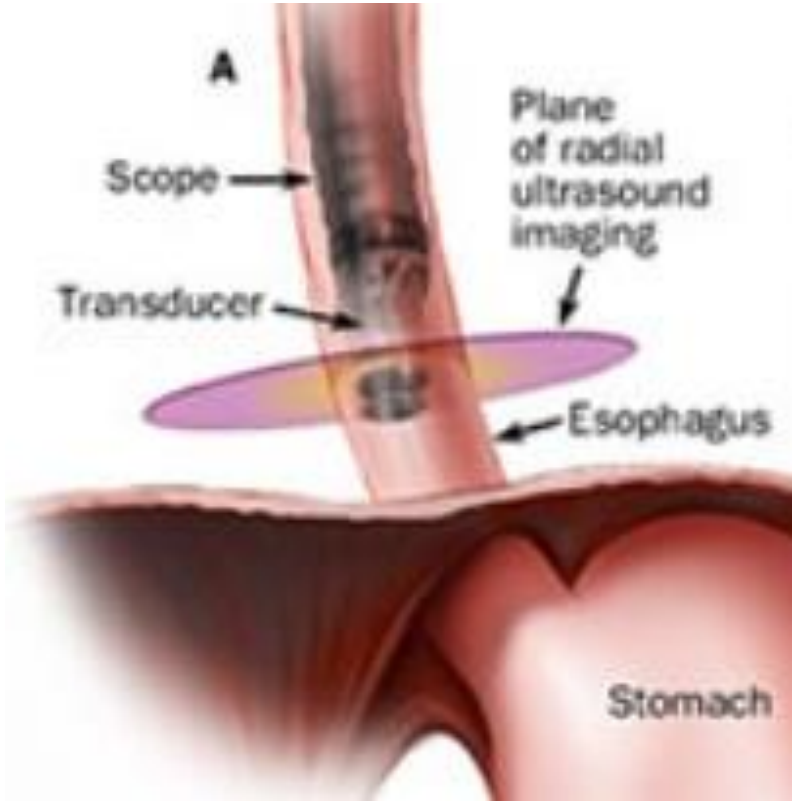
Superficial esophageal adenocarcinoma



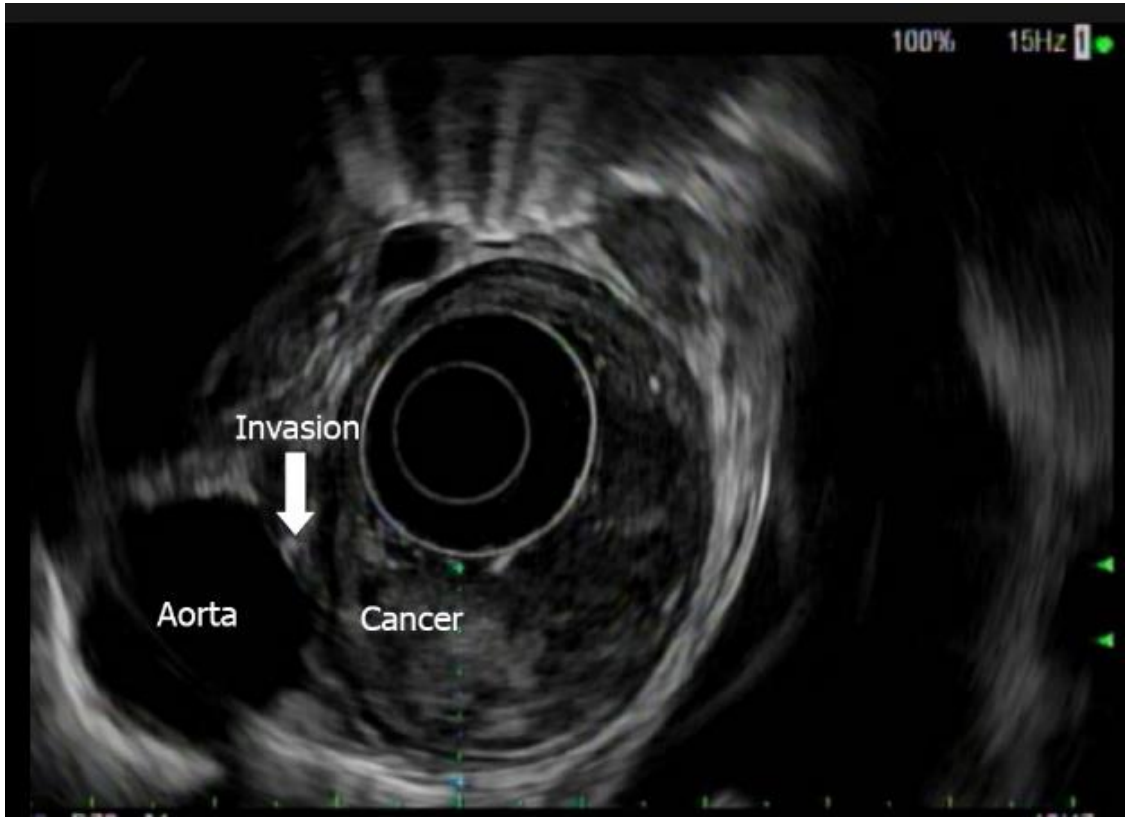




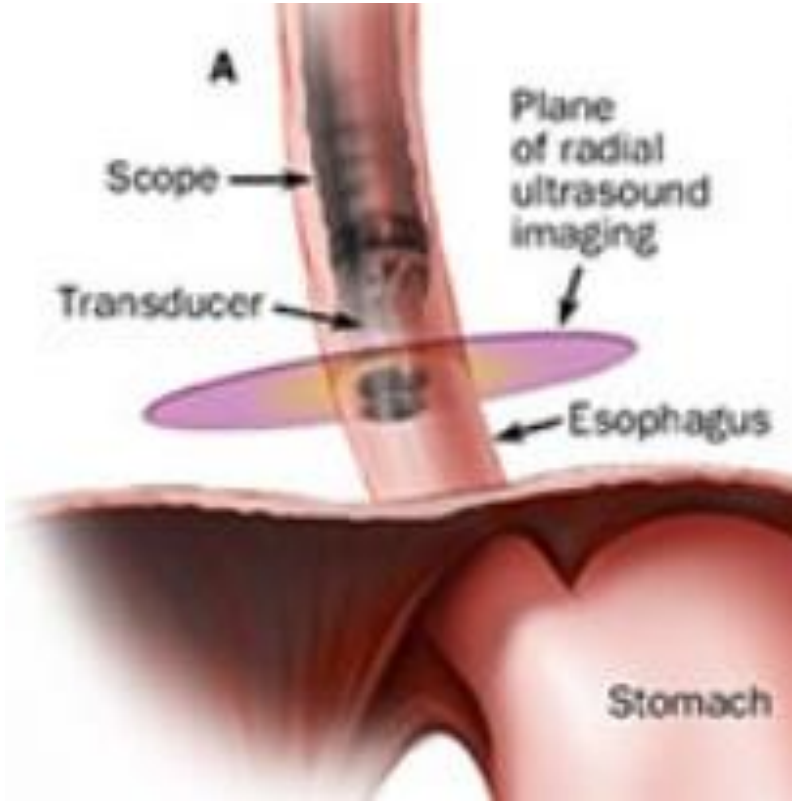
Radial EUS - Esophagus



Invasive esophageal adenocarcinoma



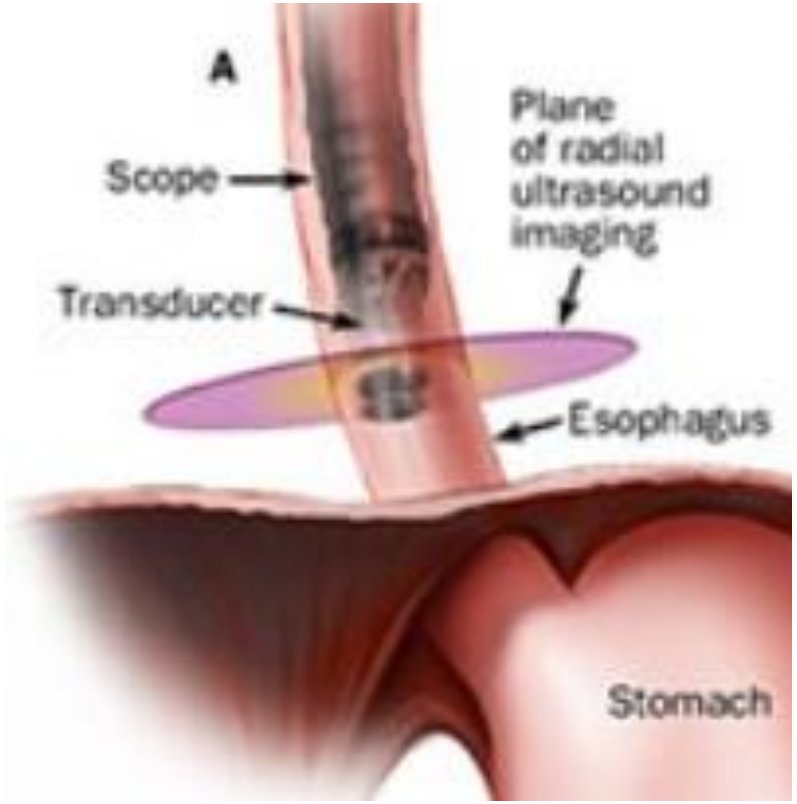
Radial EUS - Esophagus



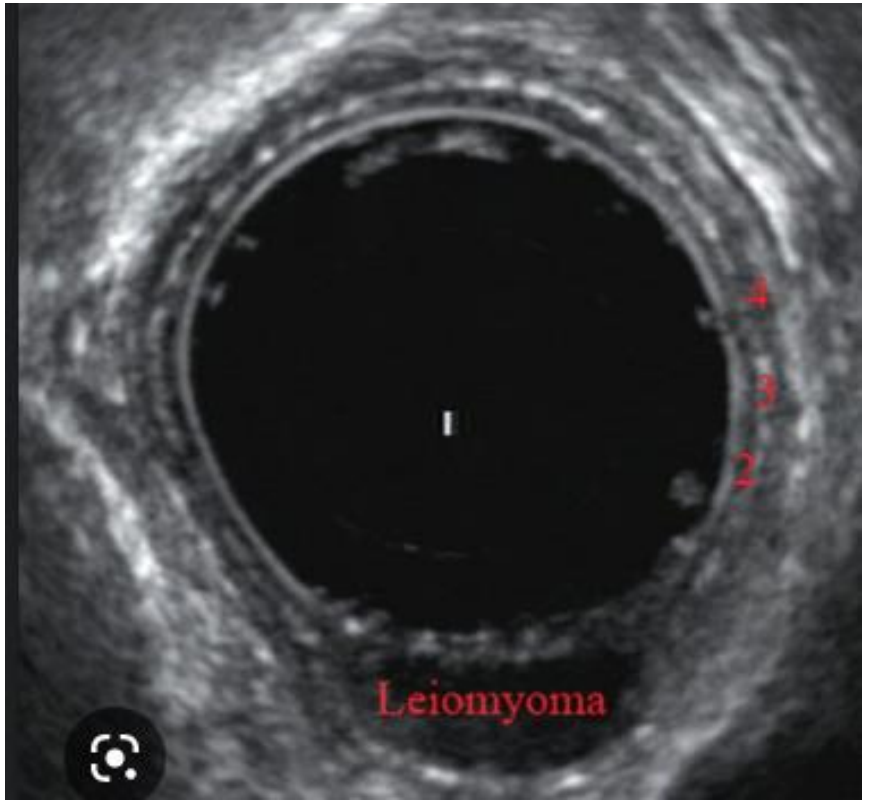
Esophageal sub-epithelial cyst (duplication)



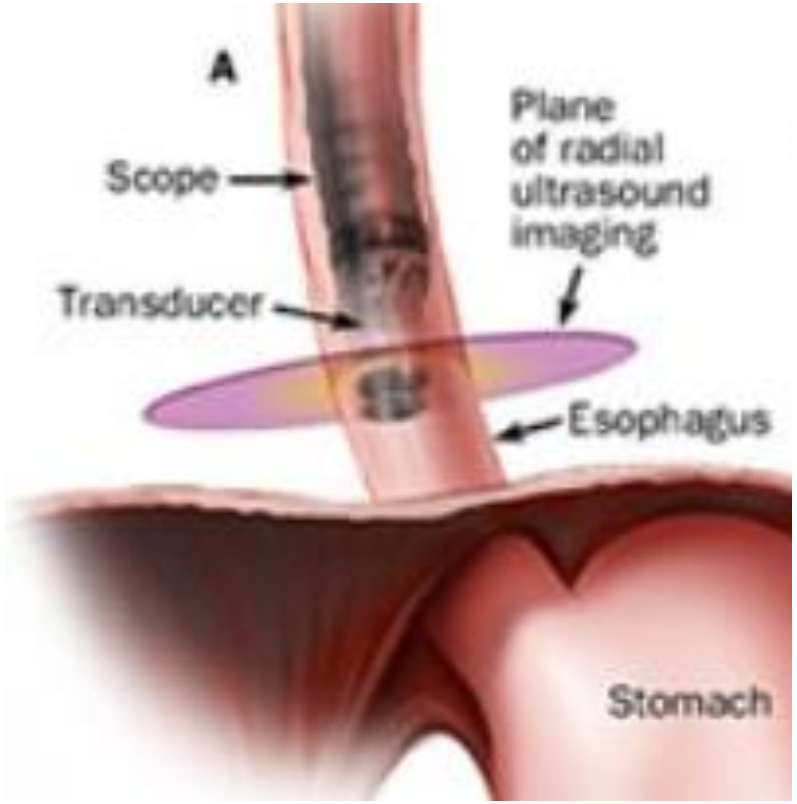
Radial EUS - Esophagus



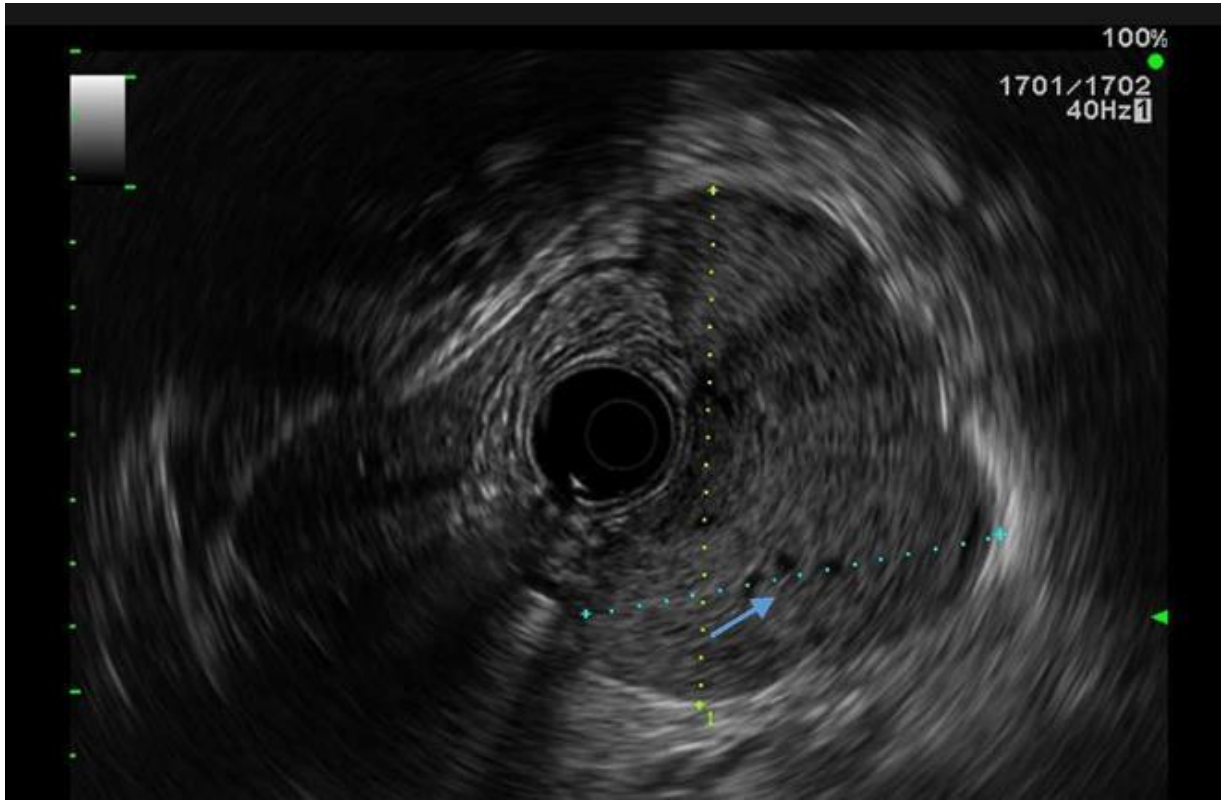
Esophageal sub-epithelial tumor



Radial EUS - Esophagus

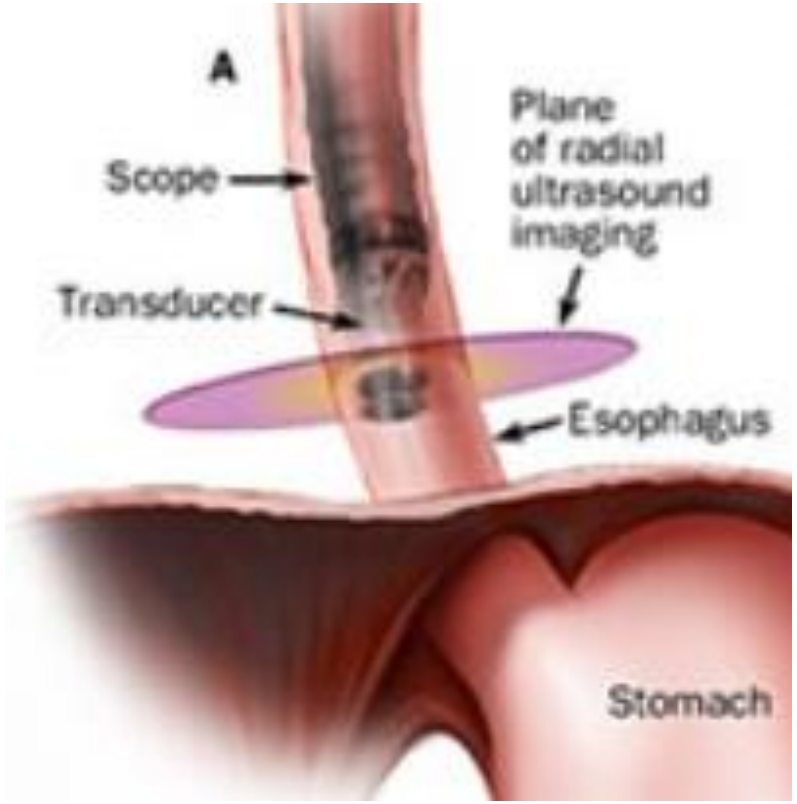


Esophageal GIST

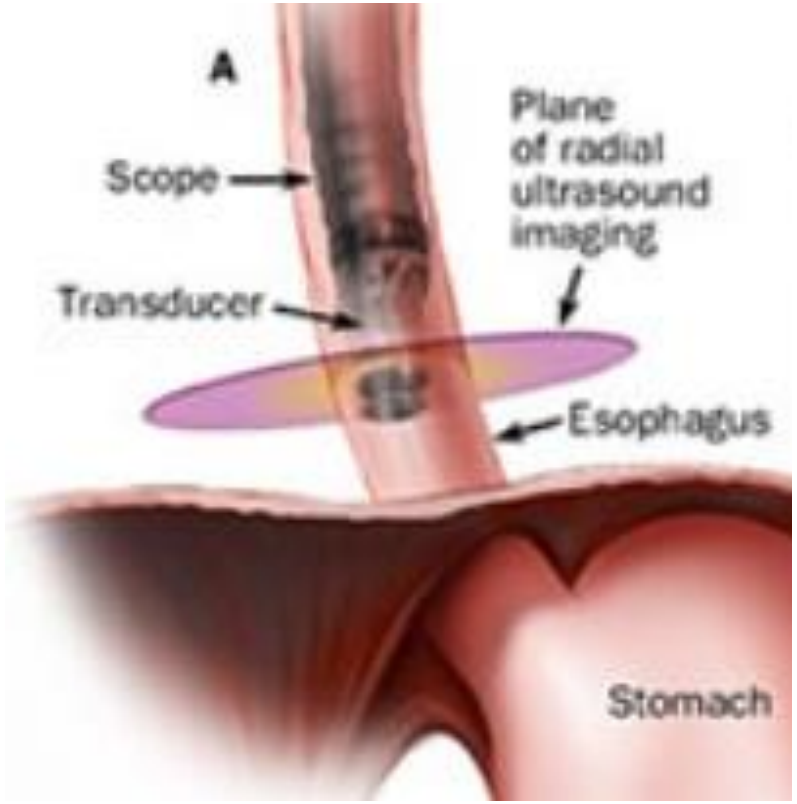


Radial EUS - Esophagus

Mediastinal structures



Radial EUS - Esophagus



Mediastinal structures

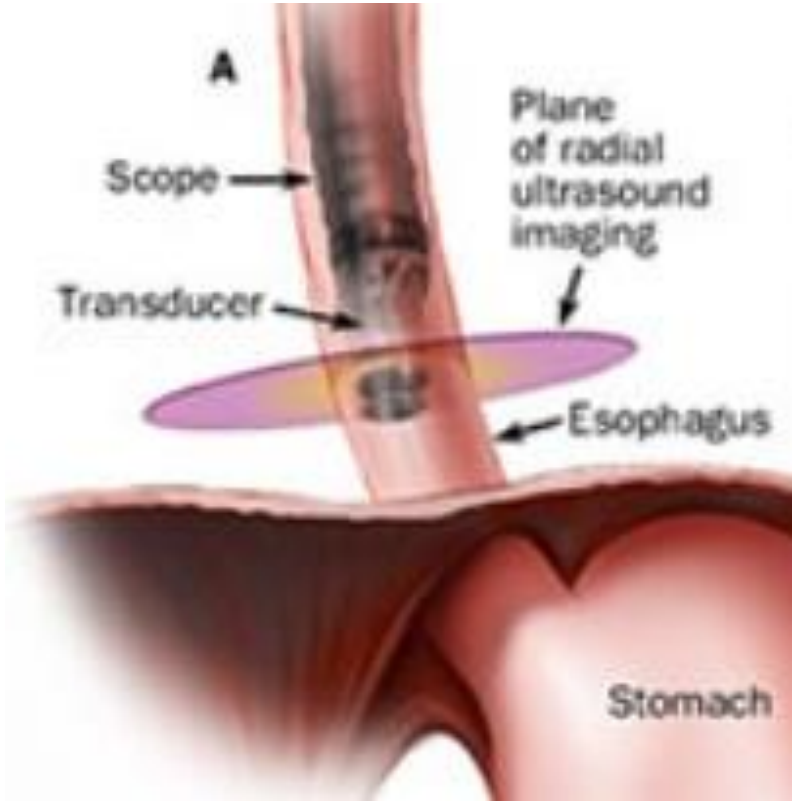
Lymph node staging

Mediastinal mass

Mediastinal lymphoma

Lung cancers staging

Radial EUS - Esophagus



Mediastinal structures

Lymph node staging

Mediastinal mass

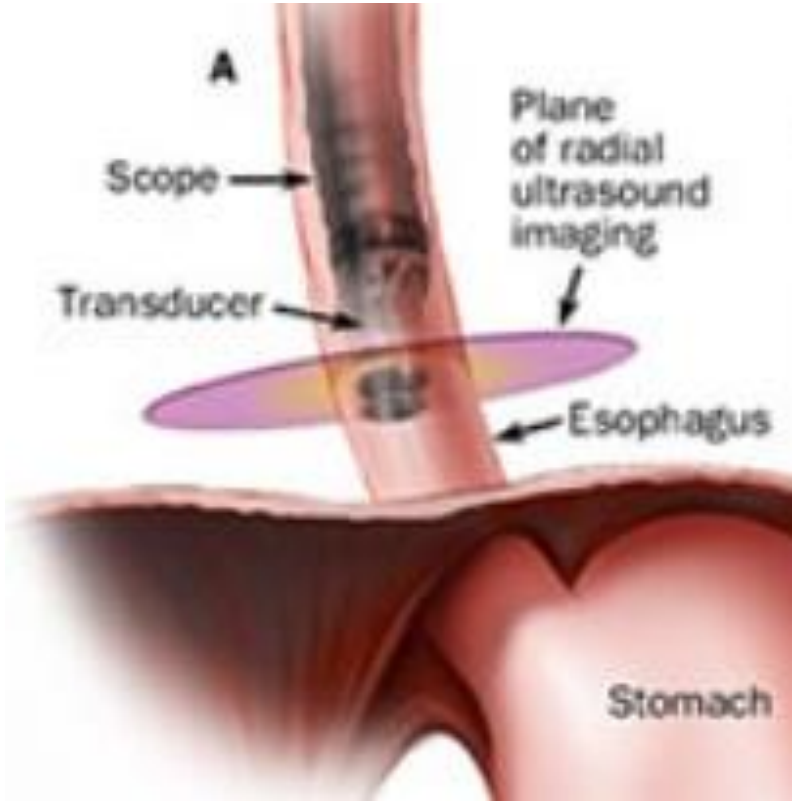
Mediastinal lymphoma

Lung cancers staging

Reduce US frequency

Increase image depth

Radial EUS - Esophagus



Mediastinal structures

Lymph node staging

Mediastinal mass

Mediastinal lymphoma

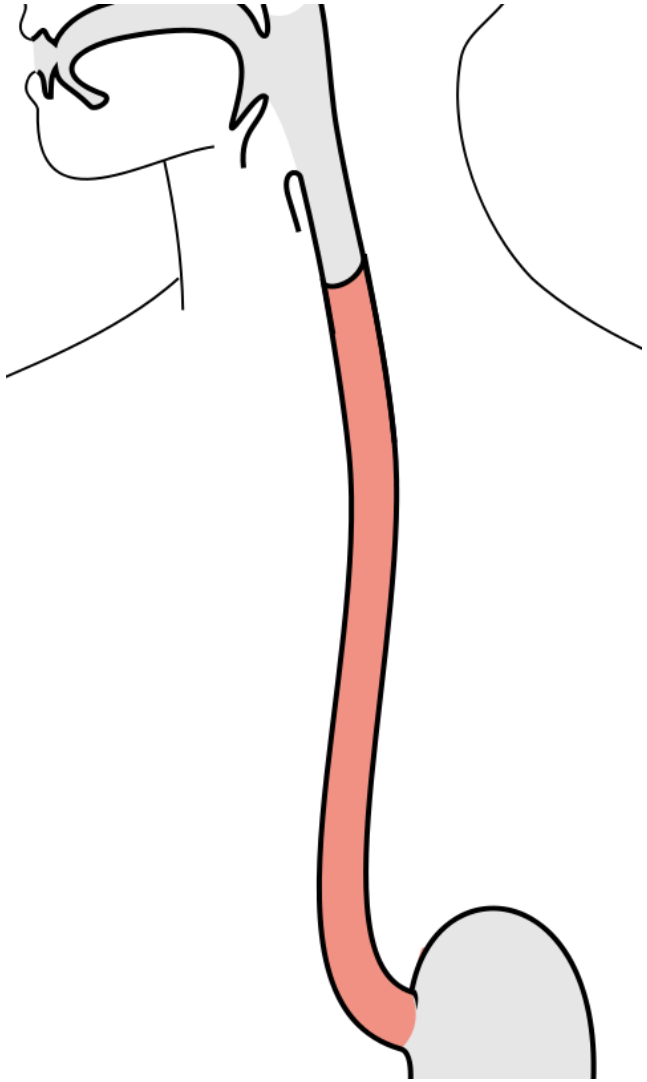
Lung cancers staging

Reduce US frequency

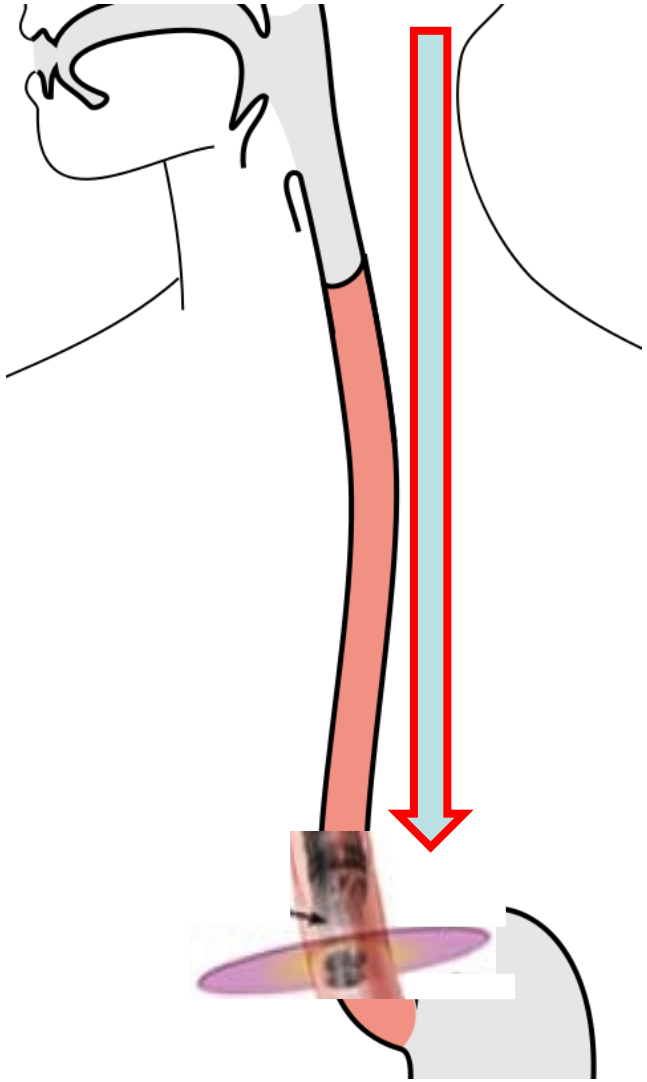
Increase image depth

Anatomical landmarks

Mediastinal landmarks



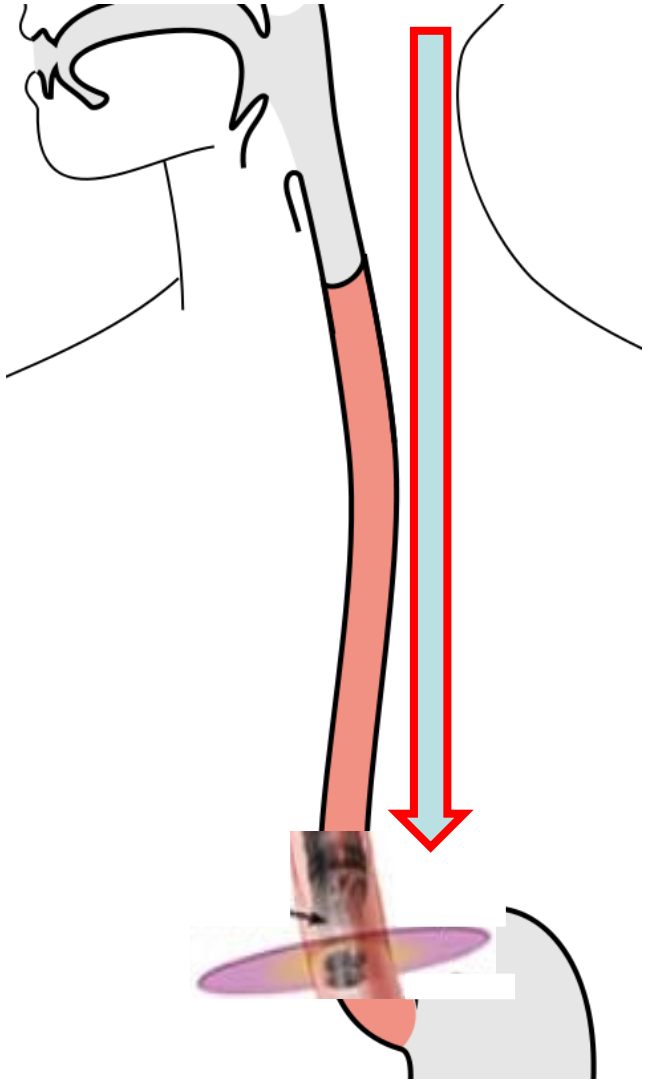
Mediastinal landmarks



Lower esophagus

35 – 40 cm from mouth

Mediastinal landmarks



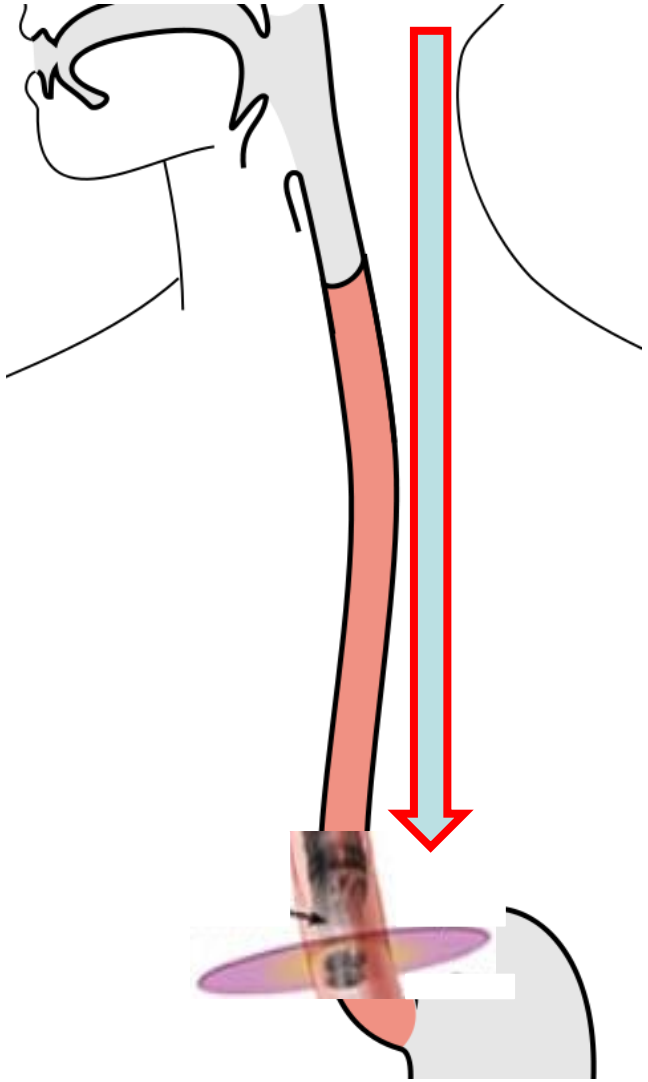
Lower esophagus

35 – 40 cm from mouth

Structures - landmarks



Mediastinal landmarks



Lower esophagus

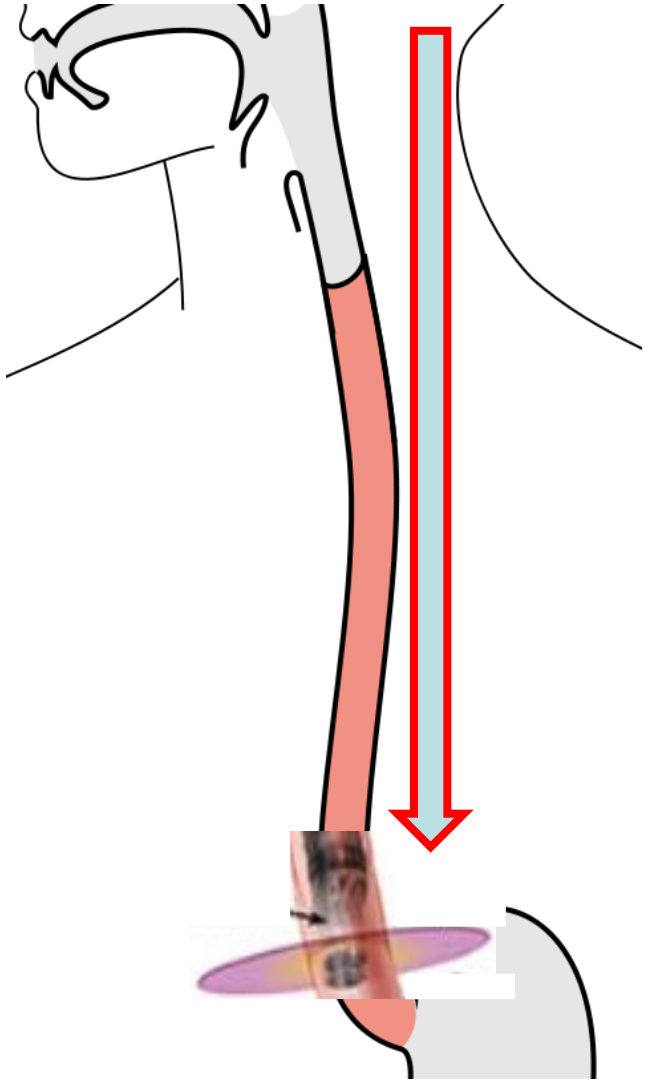
35 – 40 cm from mouth

Structures - landmarks

G-E junction



Mediastinal landmarks



Lower esophagus

35 – 40 cm from mouth

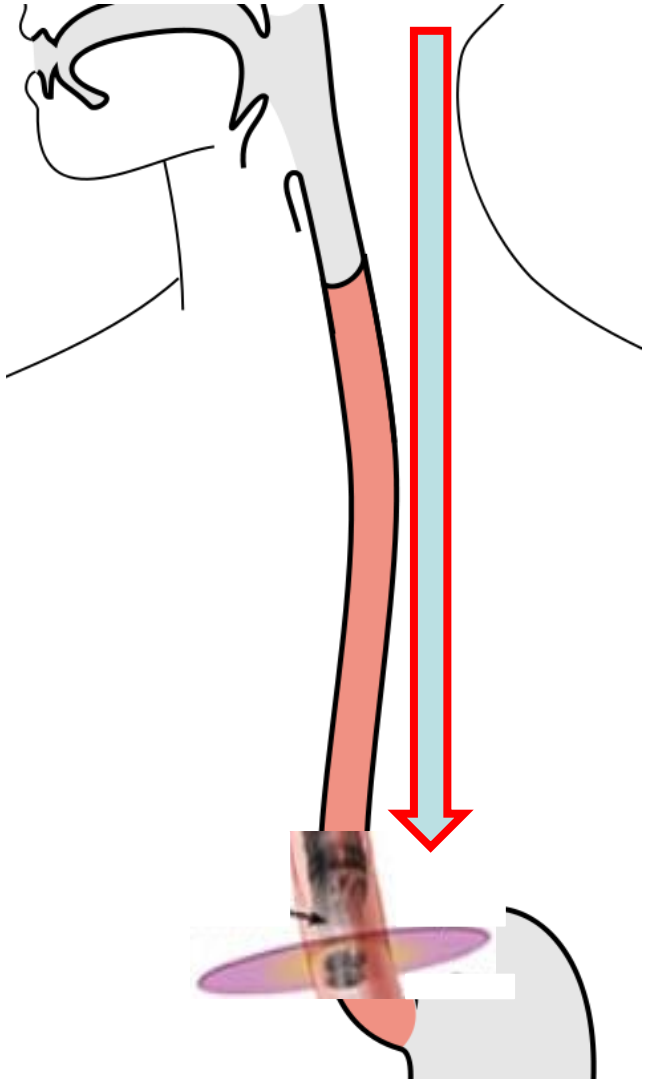
Structures - landmarks

G-E junction

Descending aorta



Mediastinal landmarks



Lower esophagus

35 – 40 cm from mouth

Structures - landmarks

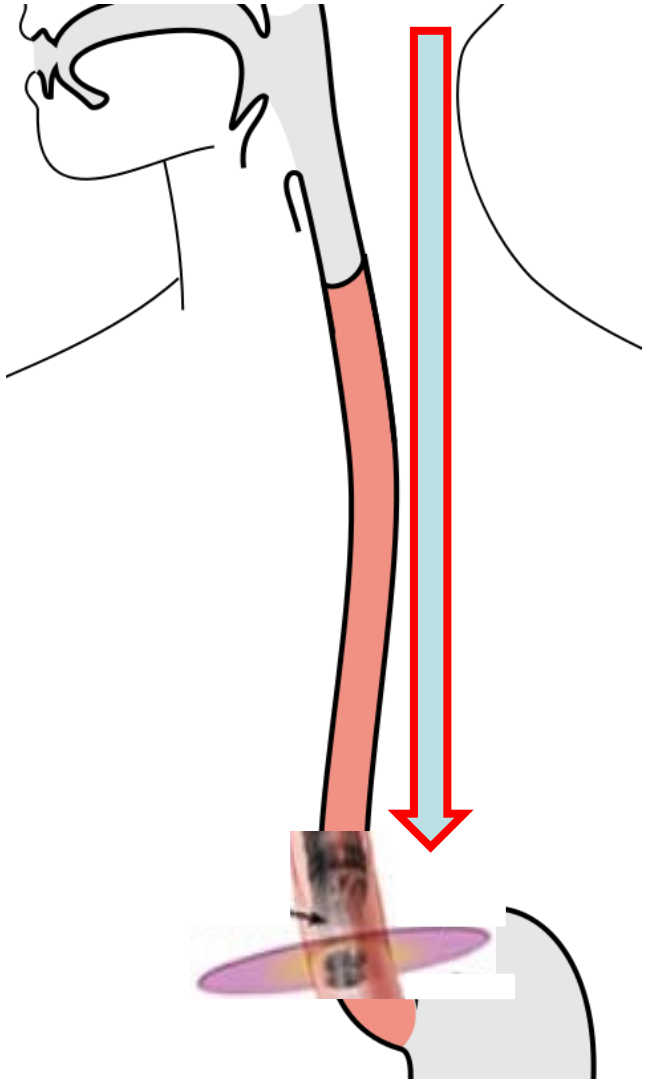
G-E junction

Descending aorta

Hepatic veins and IVC



Mediastinal landmarks



Lower esophagus

35 – 40 cm from mouth

Structures - landmarks

G-E junction

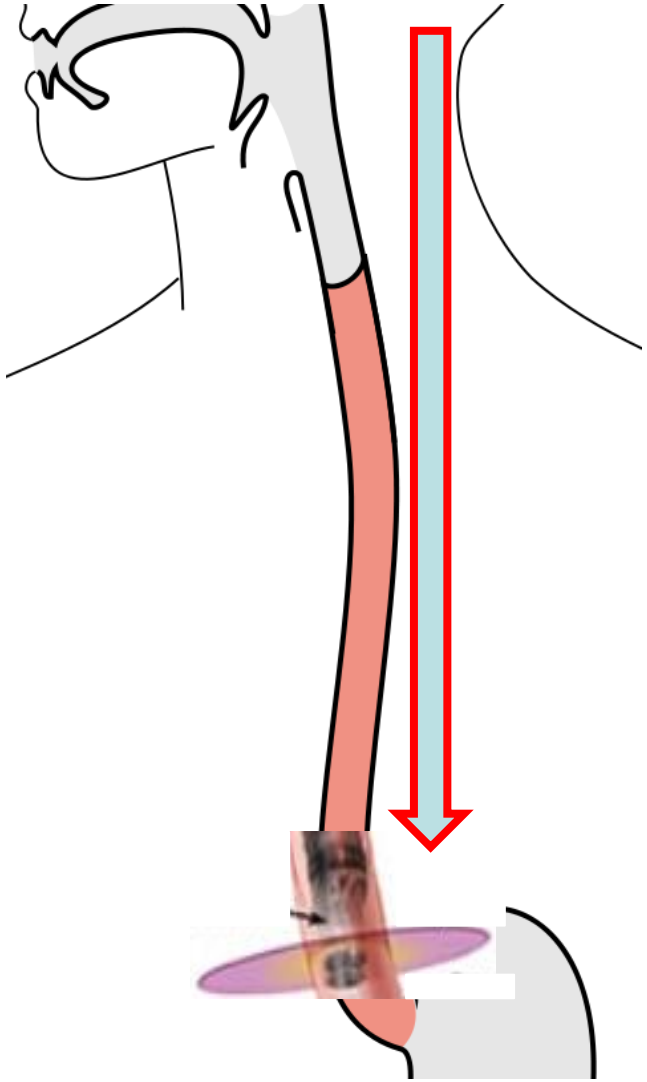
Descending aorta

Hepatic veins and IVC

Liver parenchyma



Mediastinal landmarks



Lower esophagus

35 – 40 cm from mouth

Structures - landmarks

G-E junction

Descending aorta

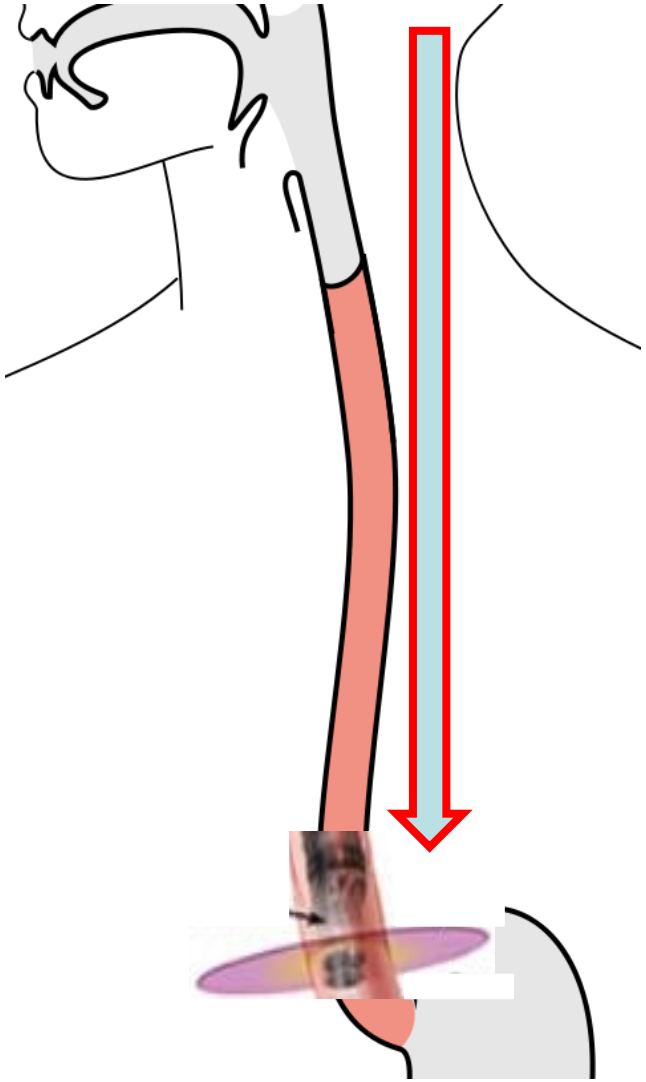
Hepatic veins and IVC

Liver parenchyma

Diaphragmatic crus



Mediastinal landmarks



Lower esophagus

35 – 40 cm from mouth

Structures - landmarks

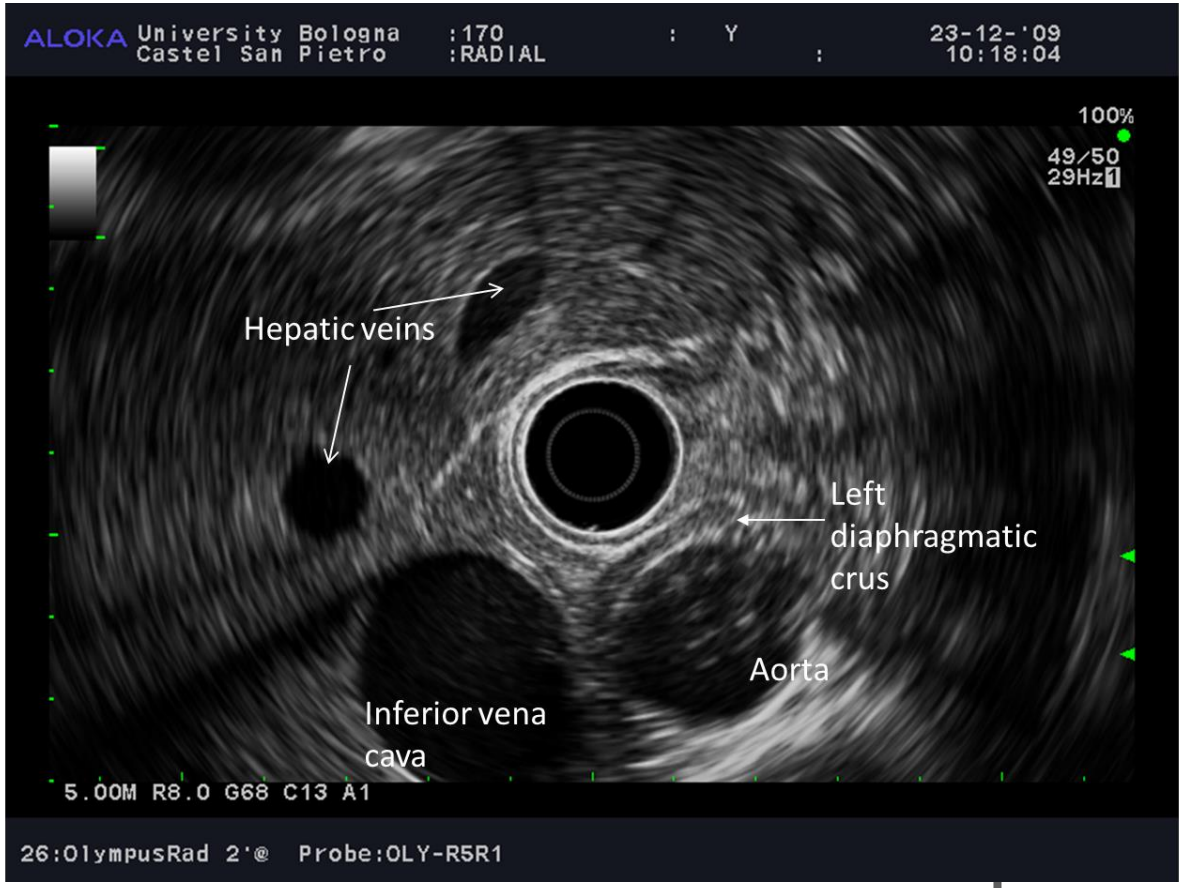
G-E junction

Descending aorta

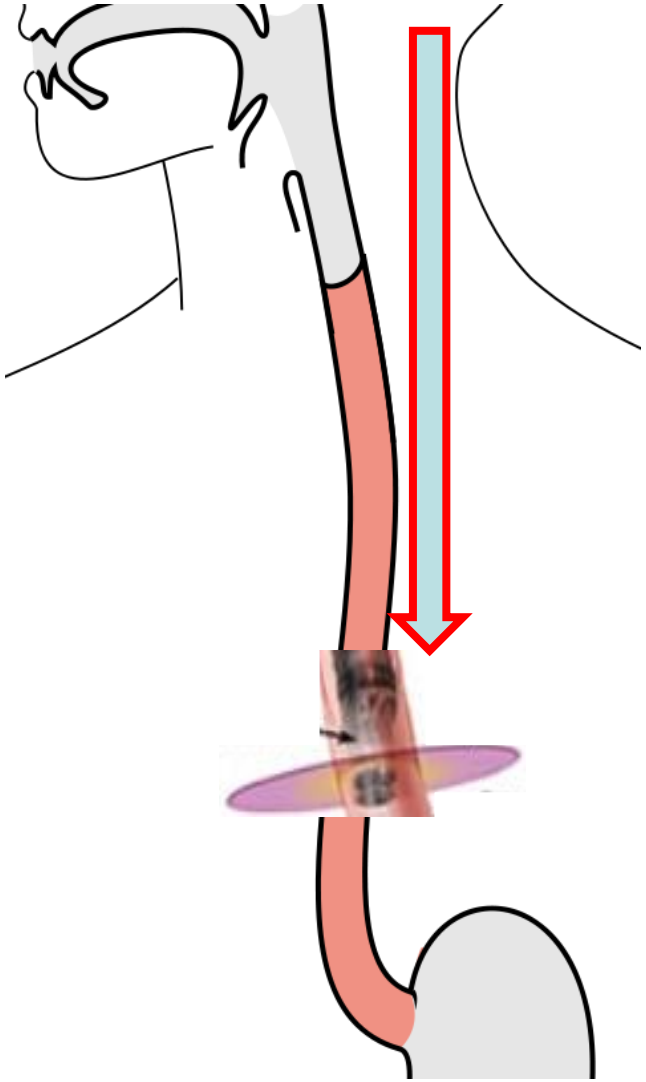
Hepatic veins and IVC

Liver parenchyma

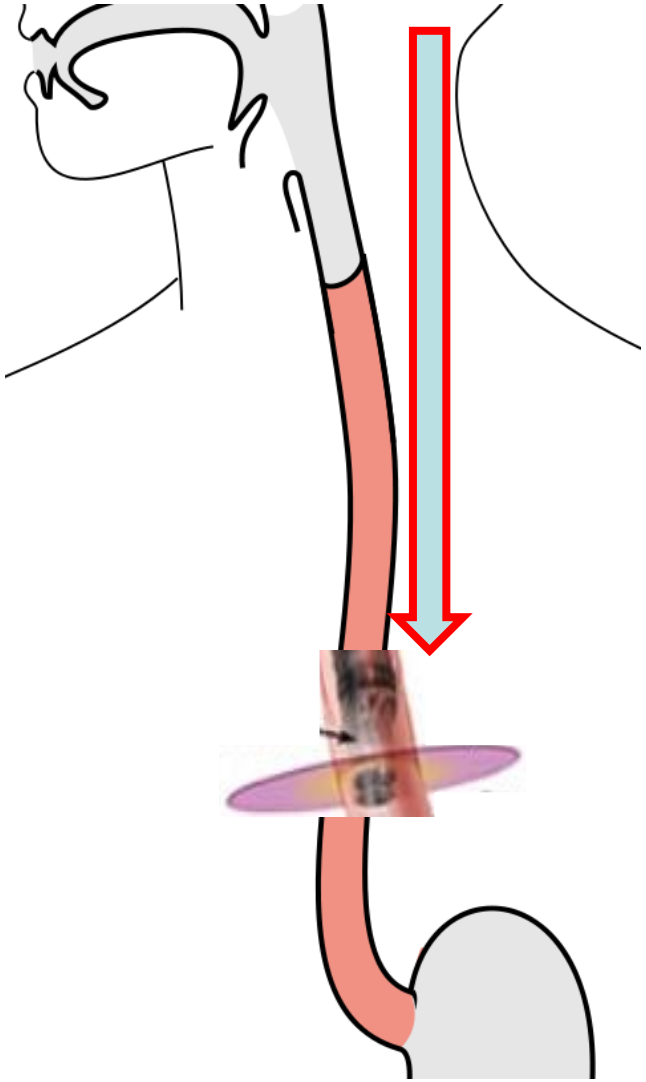
Diaphragmatic crus



Mediastinal landmarks



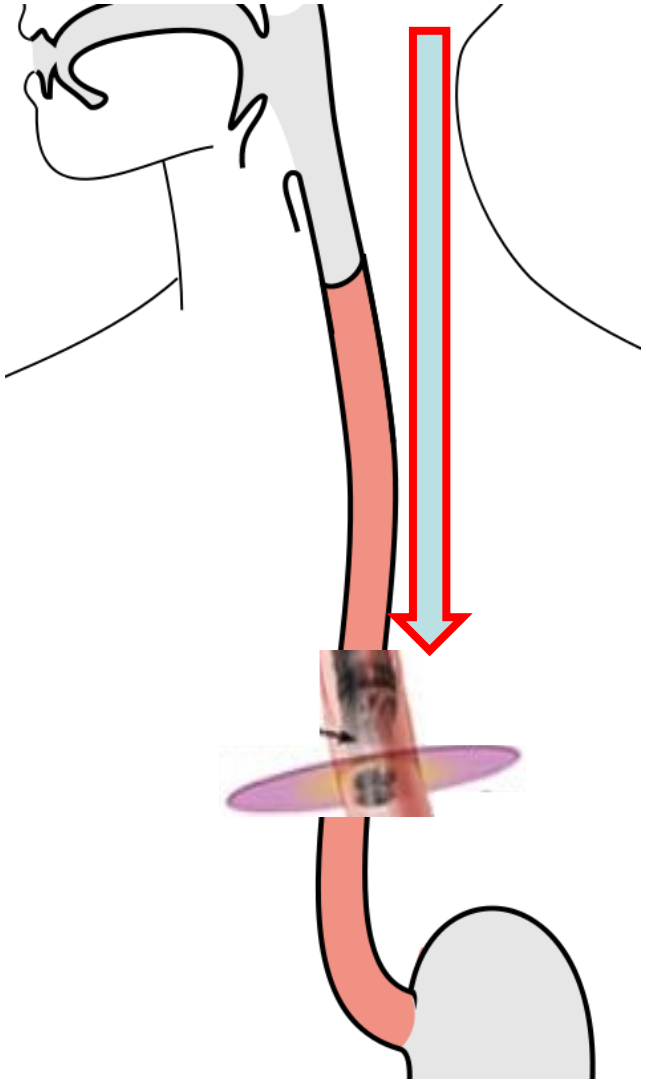
Mediastinal landmarks



Subcarinal space

28 – 33 cm from mouth

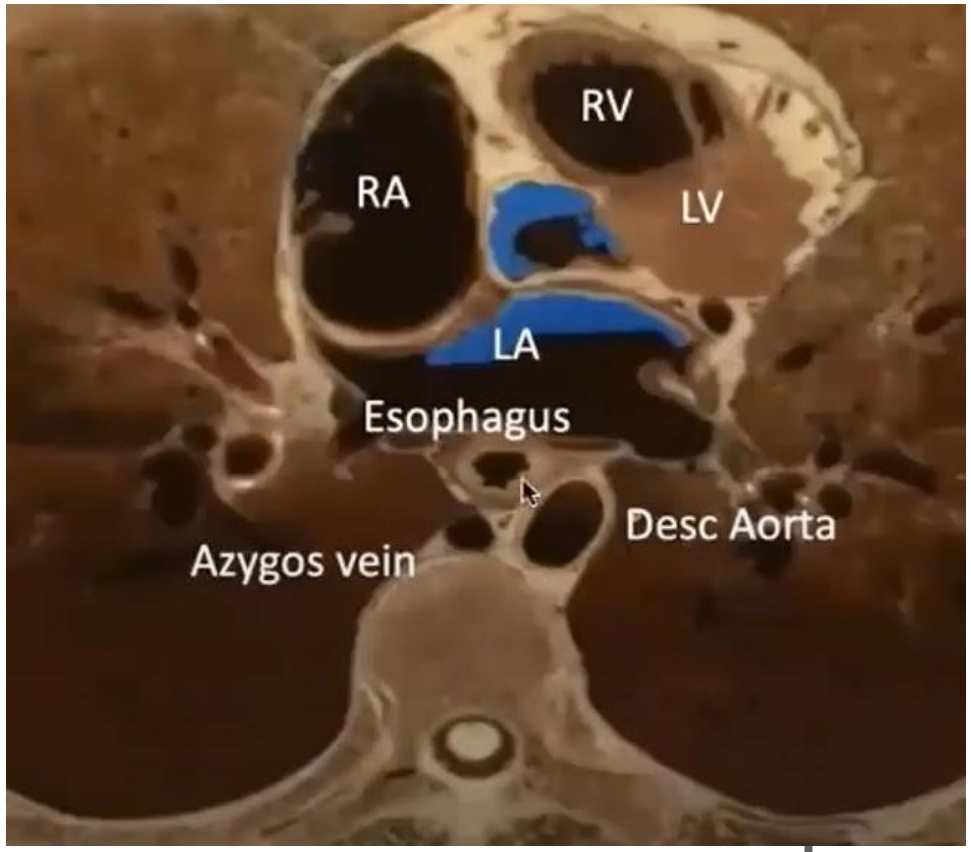
Mediastinal landmarks



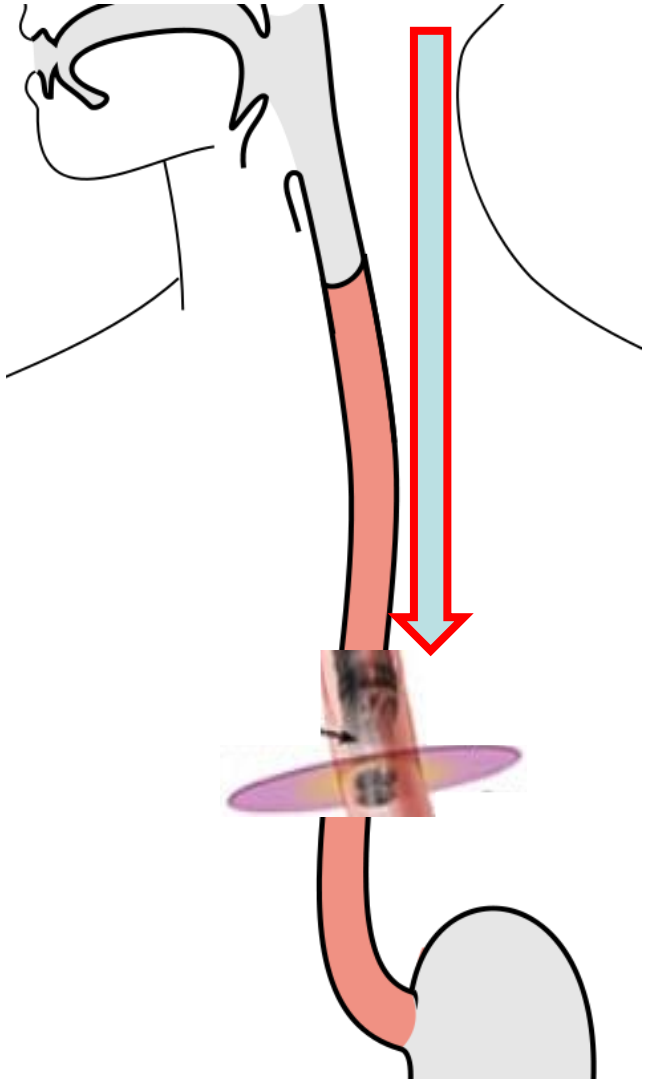
Subcarinal space

28 – 33 cm from mouth

Structures - landmarks



Mediastinal landmarks

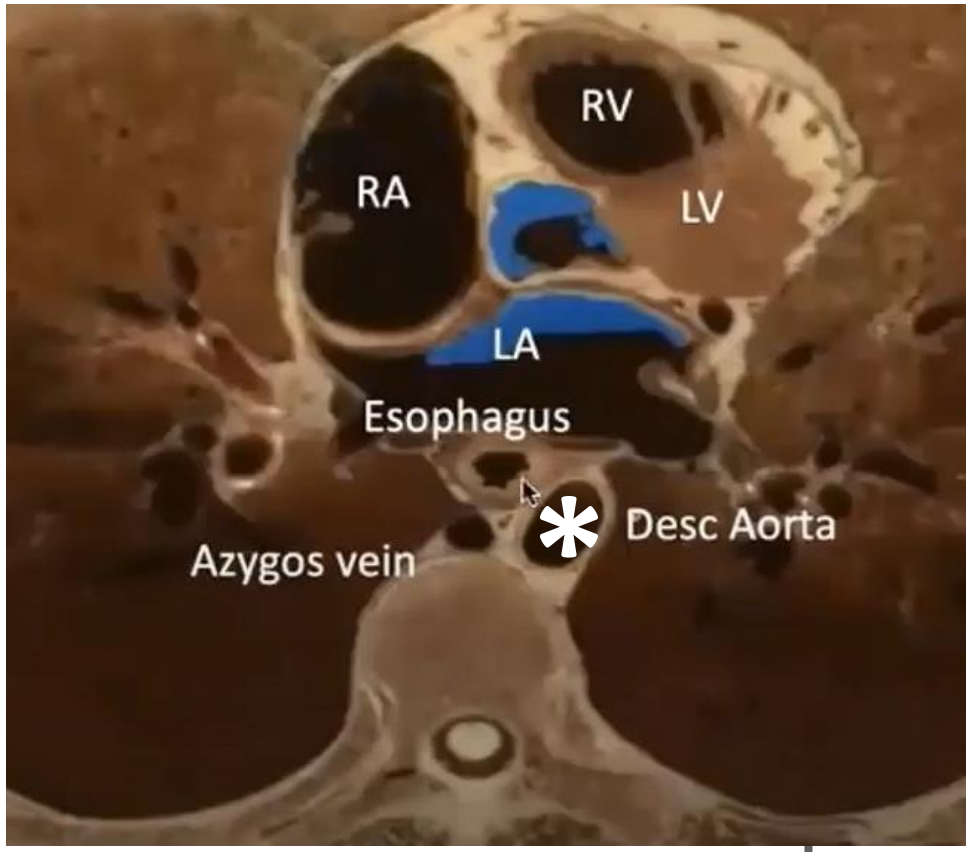


Subcarinal space

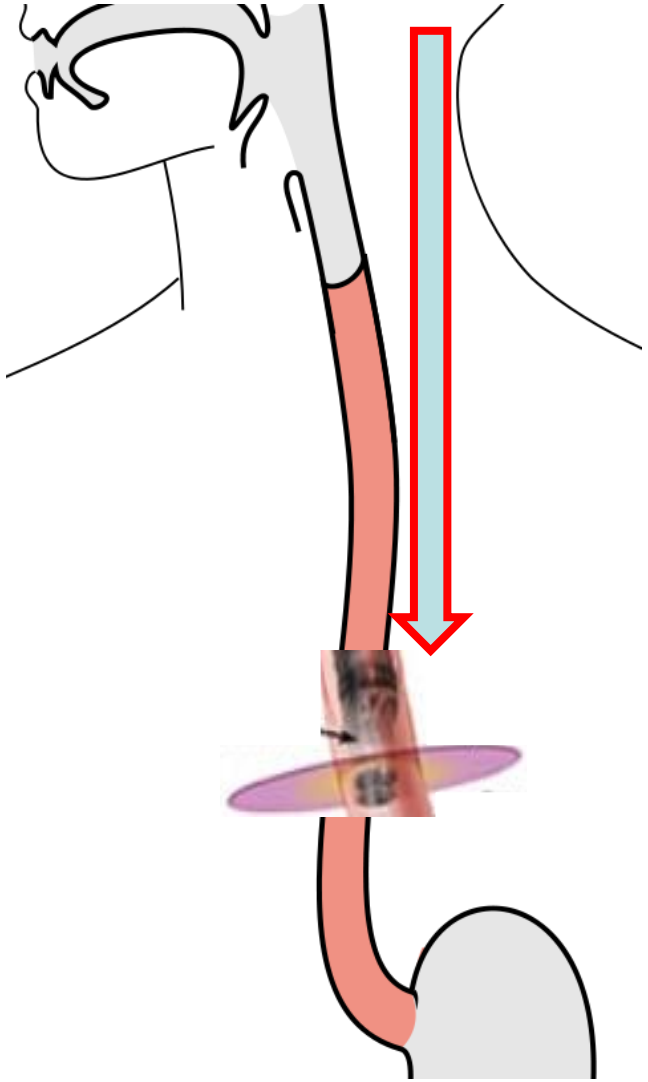
28 – 33 cm from mouth

Structures - landmarks

Descending aorta



Mediastinal landmarks



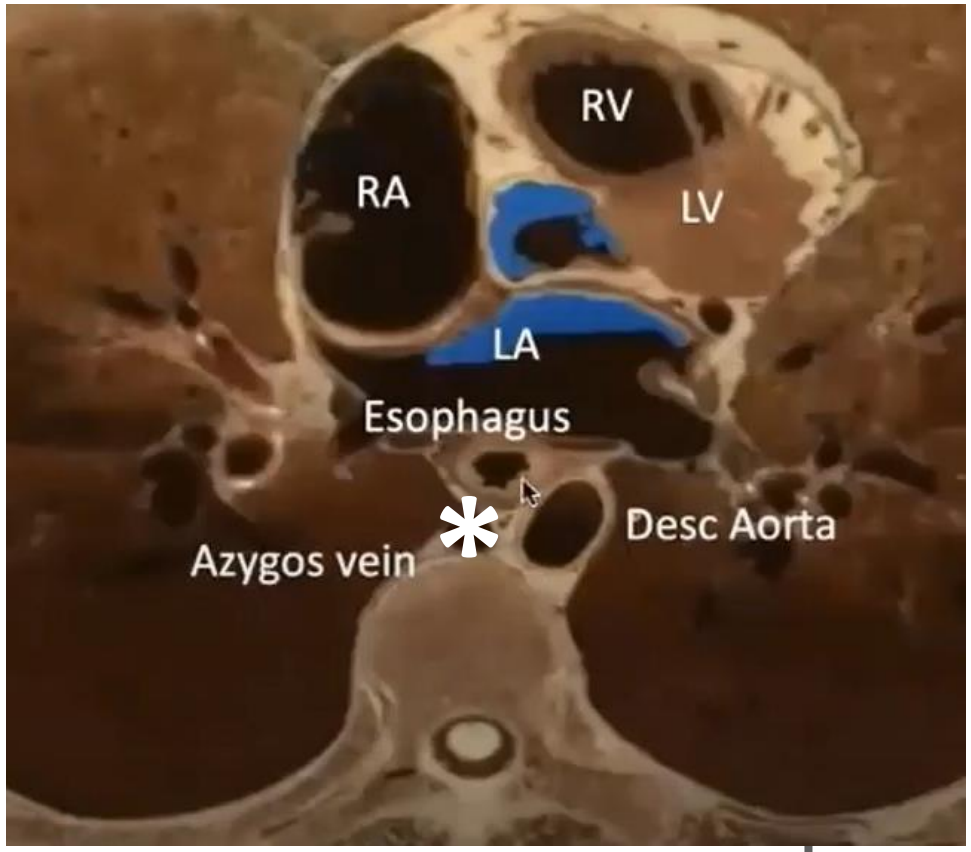
Subcarinal space

28 – 33 cm from mouth

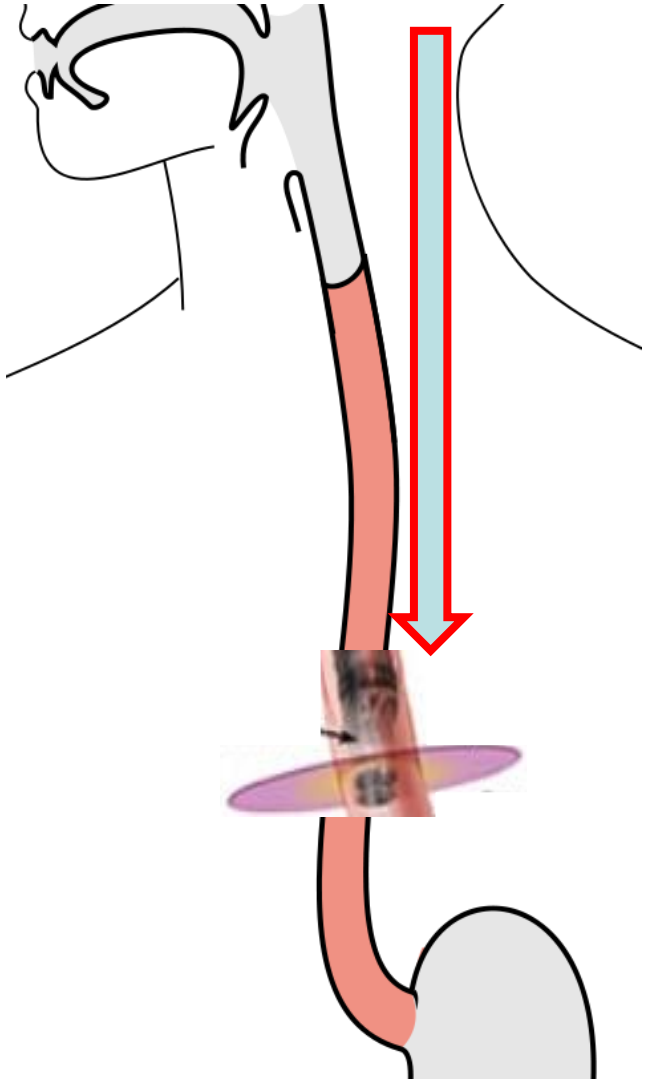
Structures - landmarks

Descending aorta

Azygos vein



Mediastinal landmarks



Subcarinal space

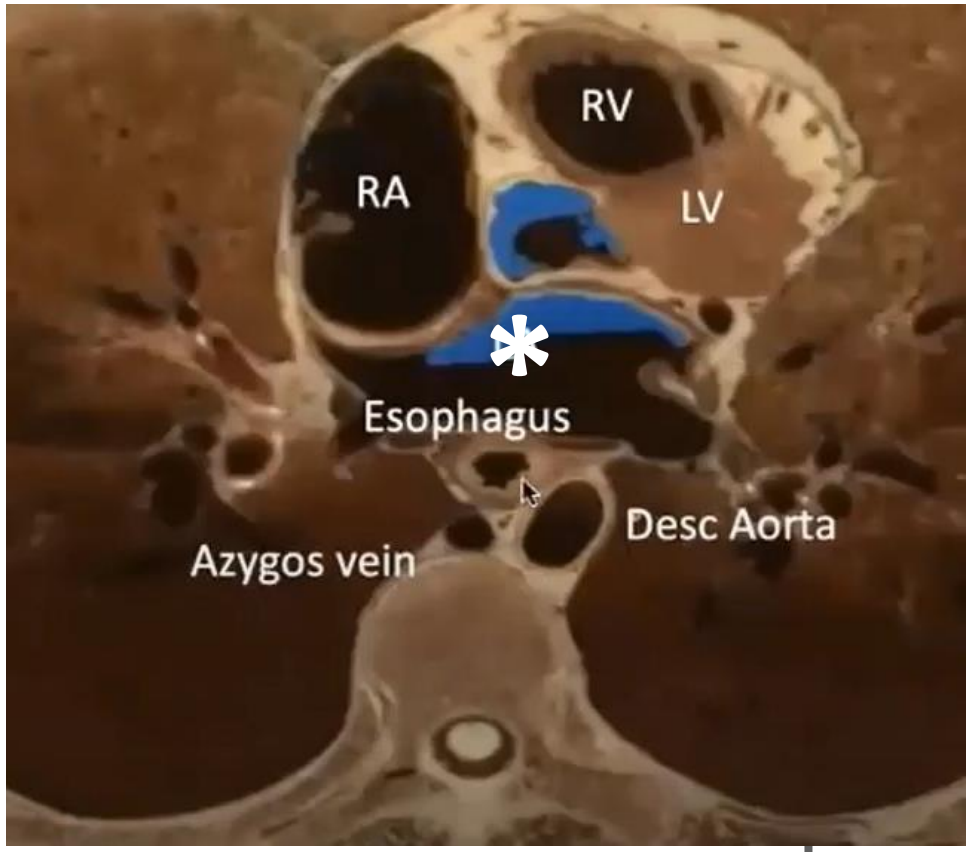
28 – 33 cm from mouth

Structures - landmarks

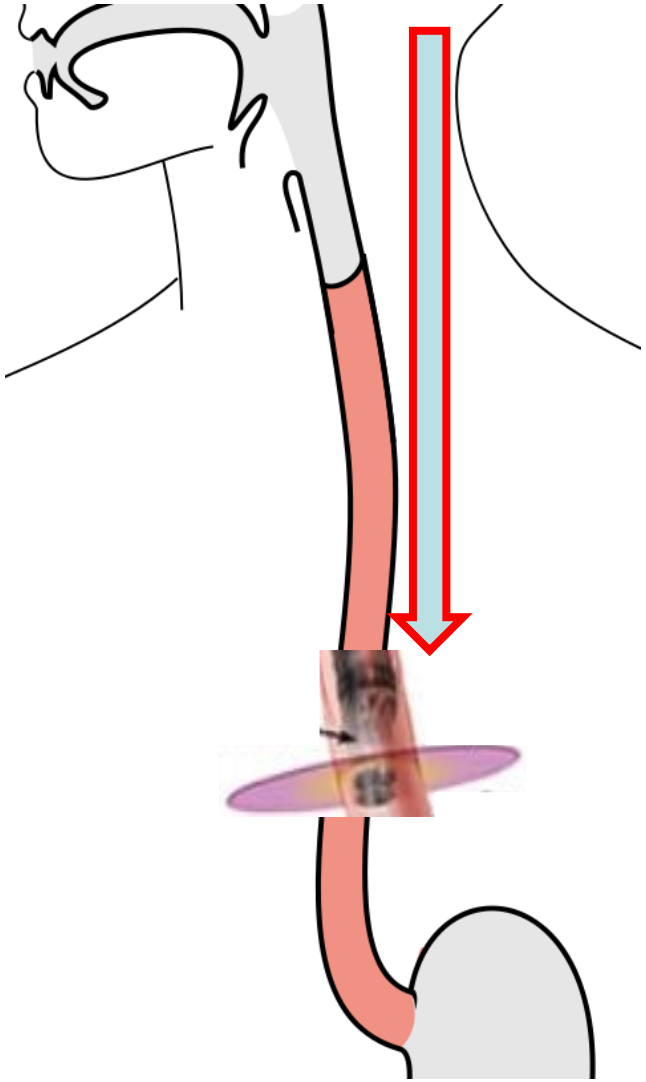
Descending aorta

Azygos vein

Left atrium



Mediastinal landmarks



Subcarinal space

28 – 33 cm from mouth

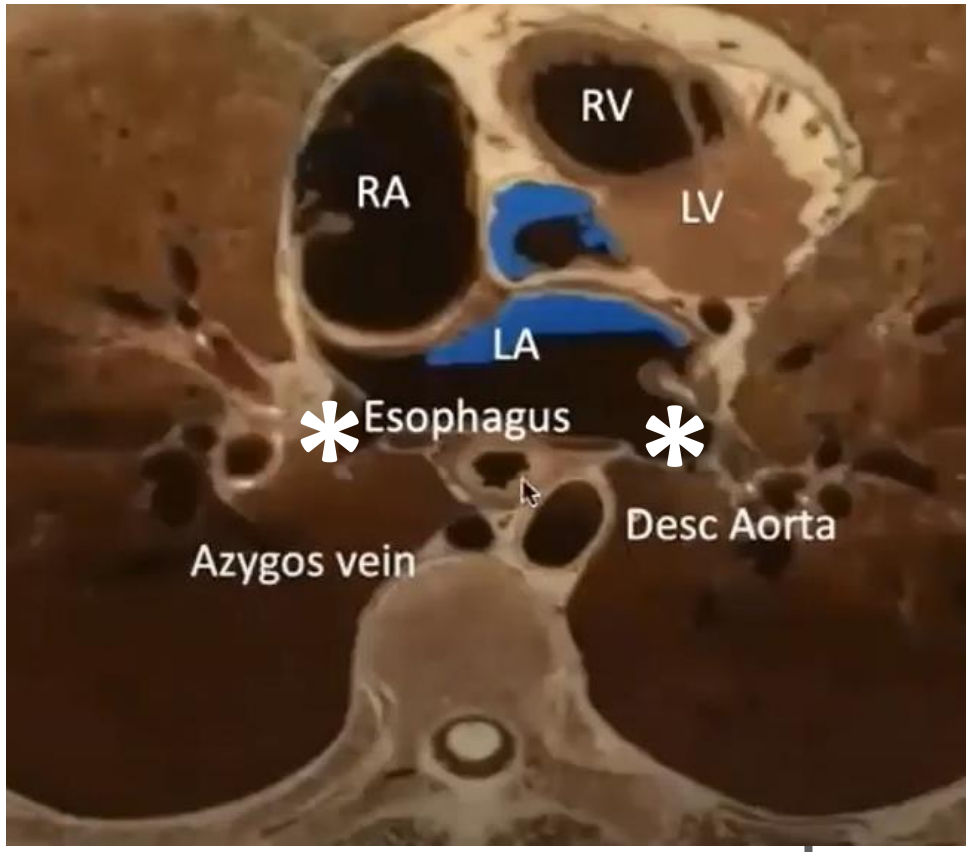
Structures - landmarks

Descending aorta

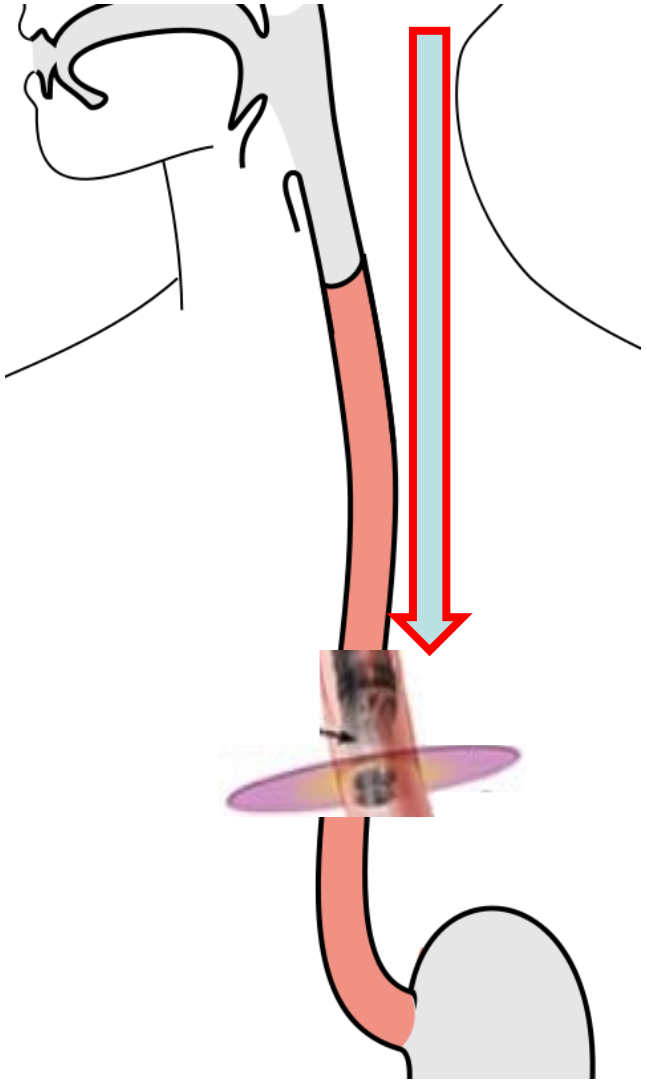
Azygos vein

Left atrium

Left and right bronchus



Mediastinal landmarks



Subcarinal space

28 – 33 cm from mouth

Structures - landmarks

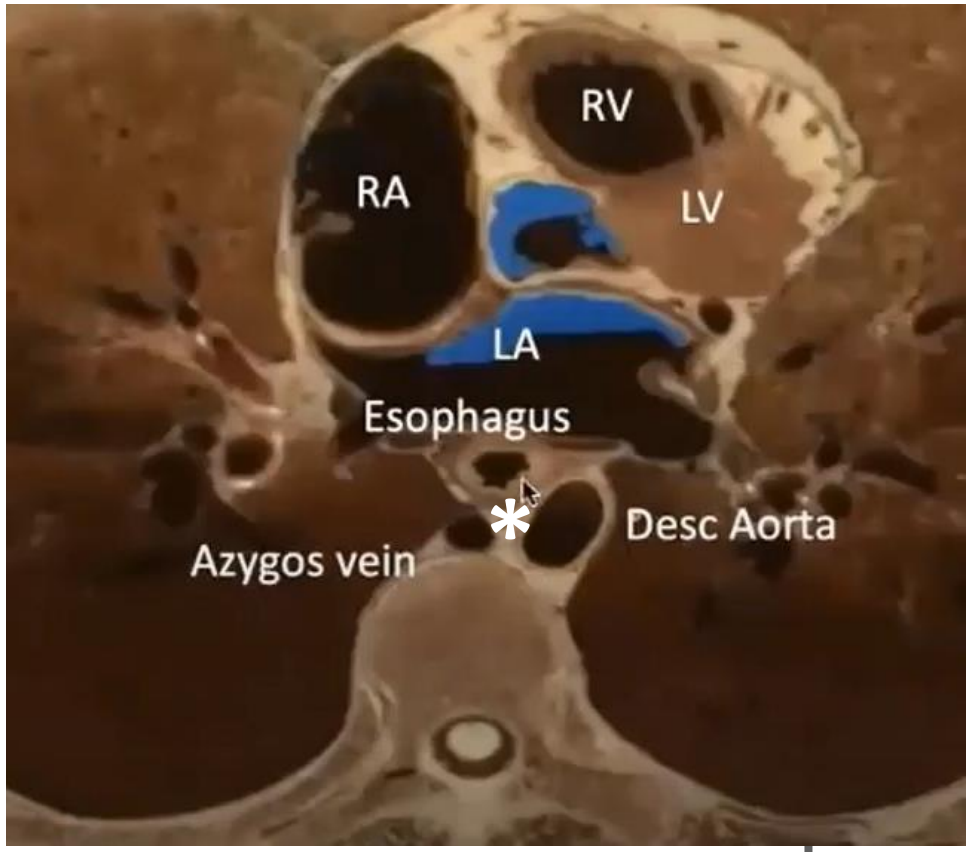
Descending aorta

Azygos vein

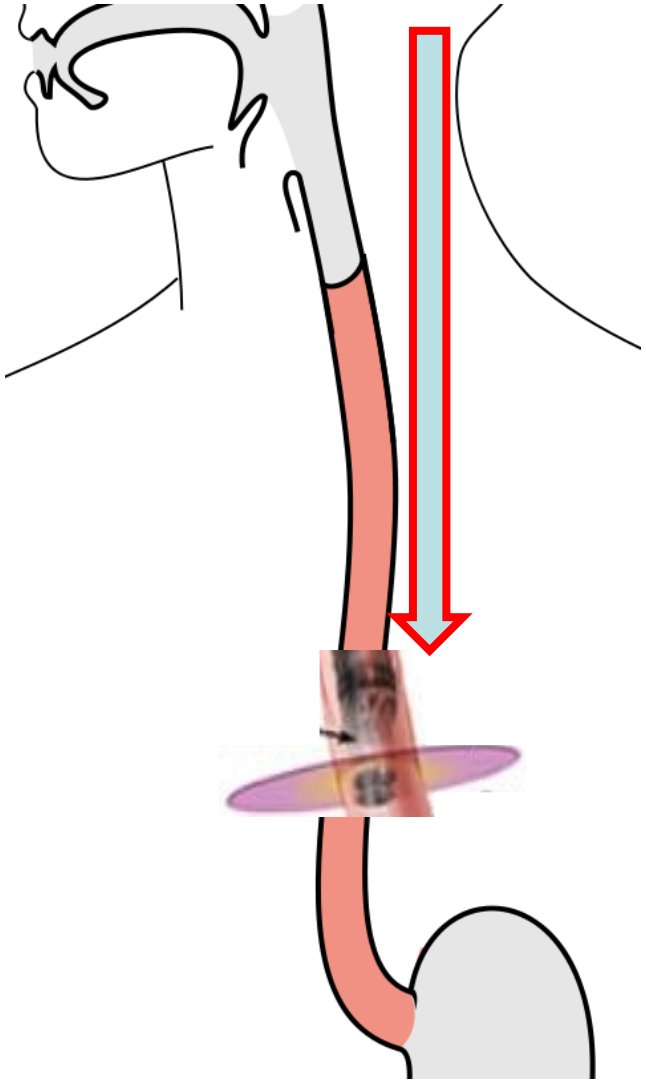
Left atrium

Left and right bronchus

Thoracic duct



Mediastinal landmarks



Subcarinal space

28 – 33 cm from mouth

Structures - landmarks

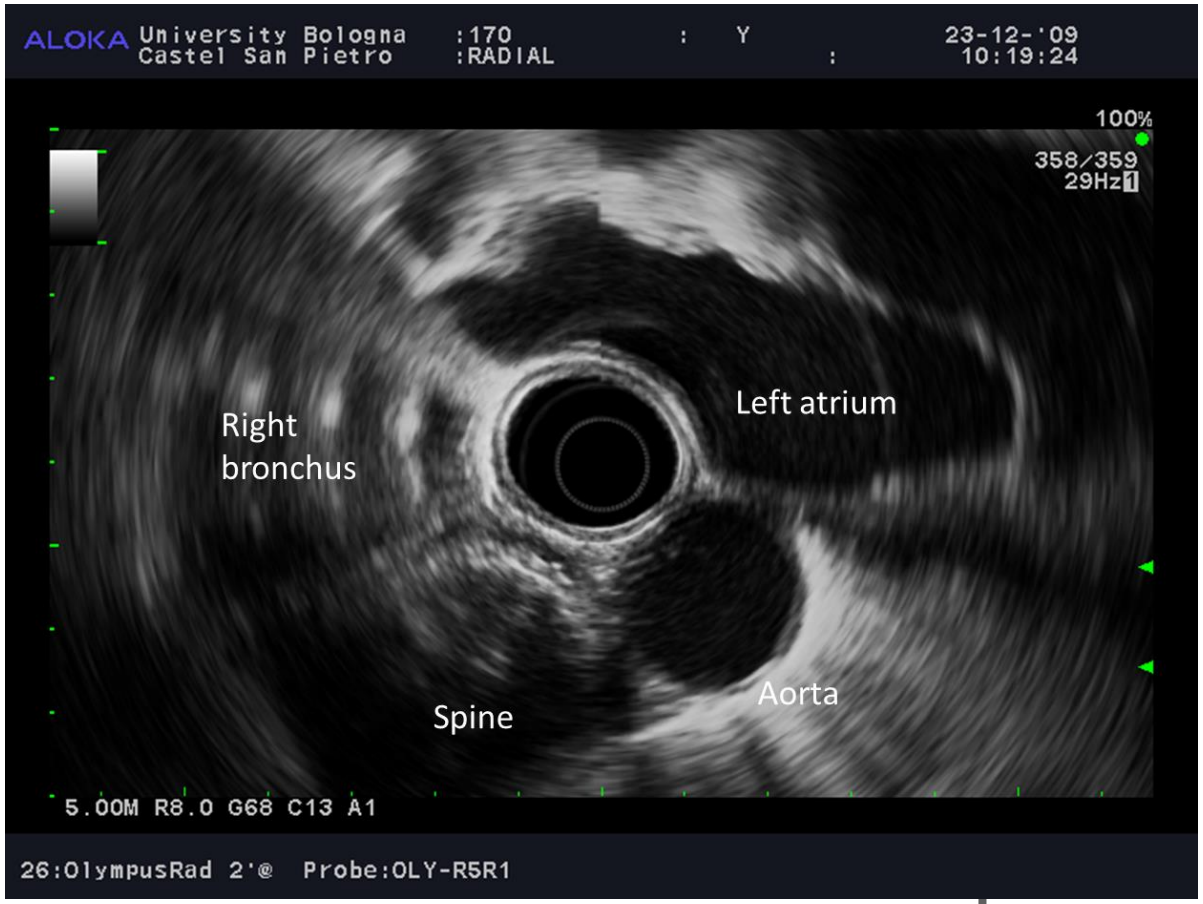
Descending aorta

Azygos vein

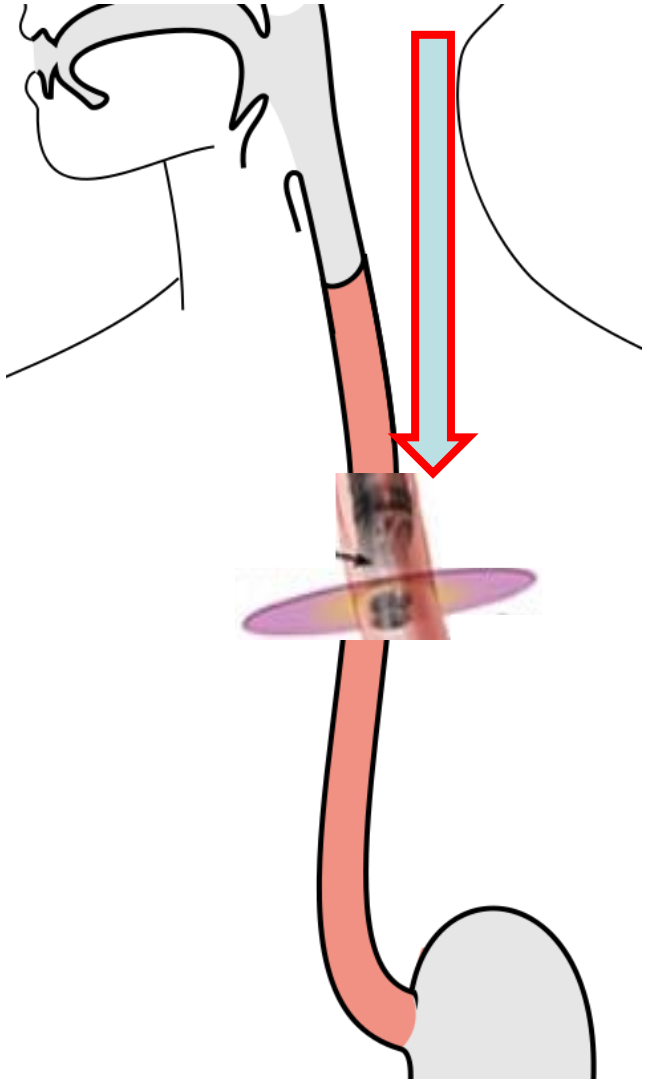
Left atrium

Left and right bronchus

Thoracic duct



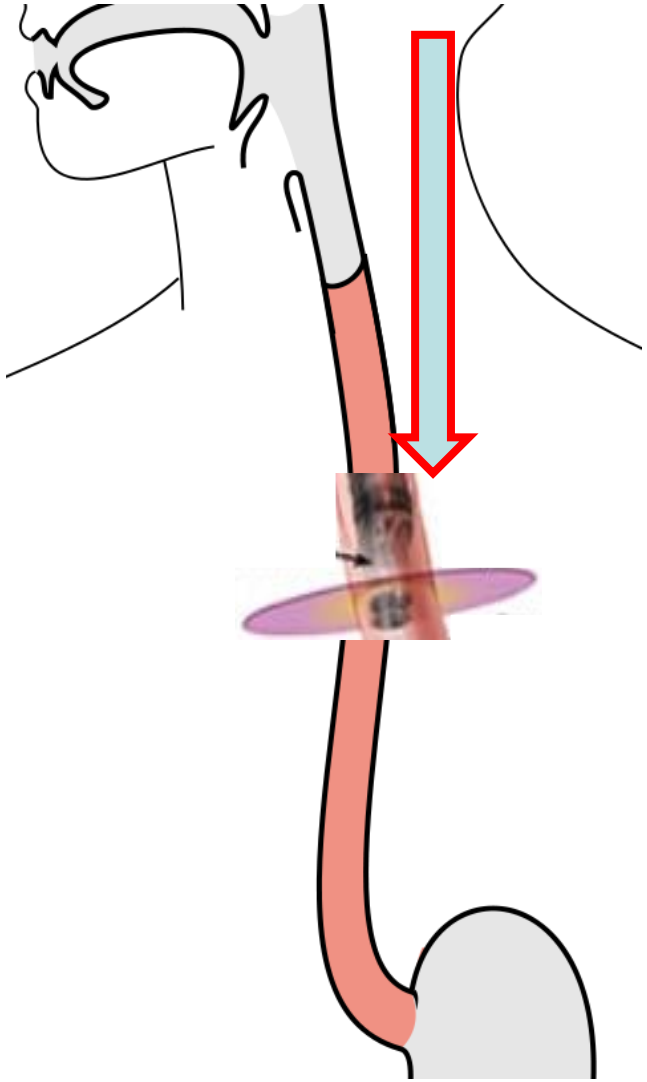
Mediastinal landmarks



Aorto-pulmonary window

25 – 30 cm from mouth

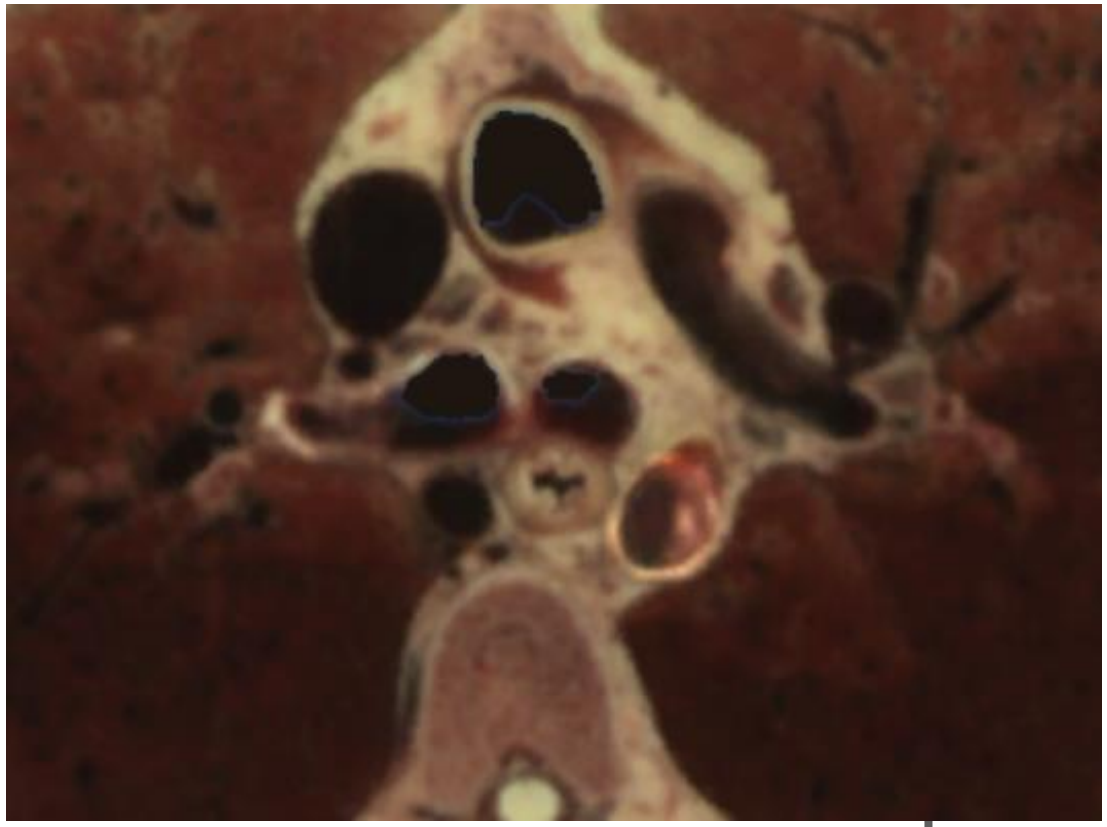
Mediastinal landmarks



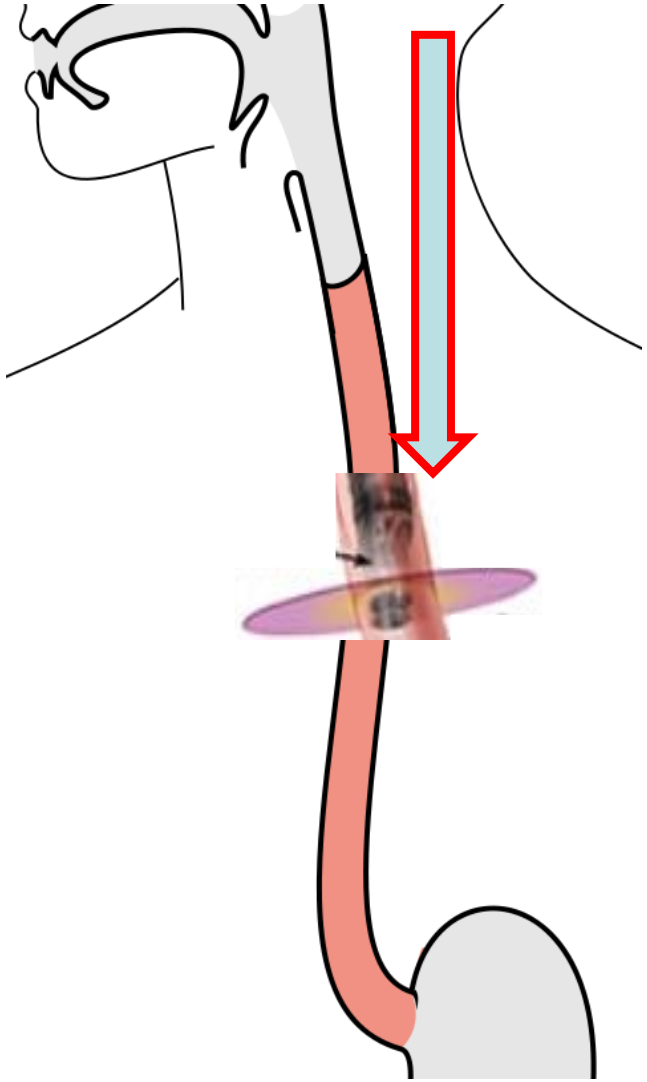
Aorto-pulmonary window

25 – 30 cm from mouth

Structures - landmarks



Mediastinal landmarks

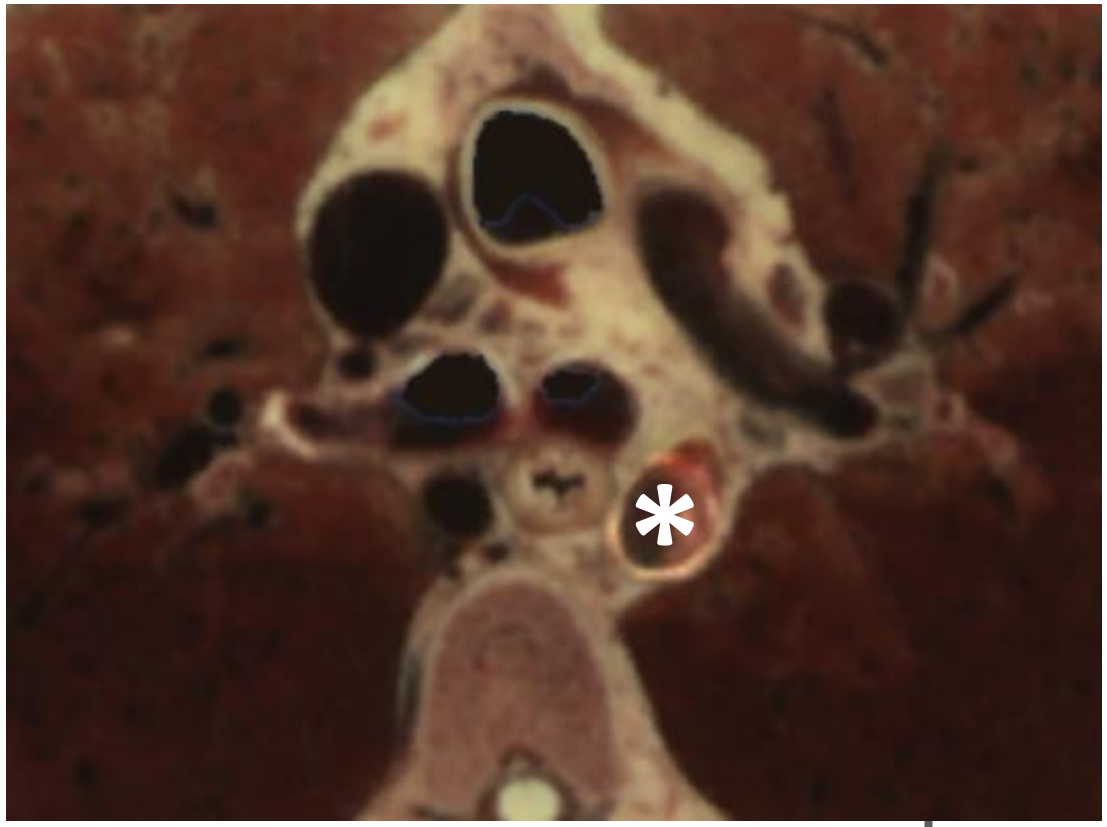


Aorto-pulmonary window

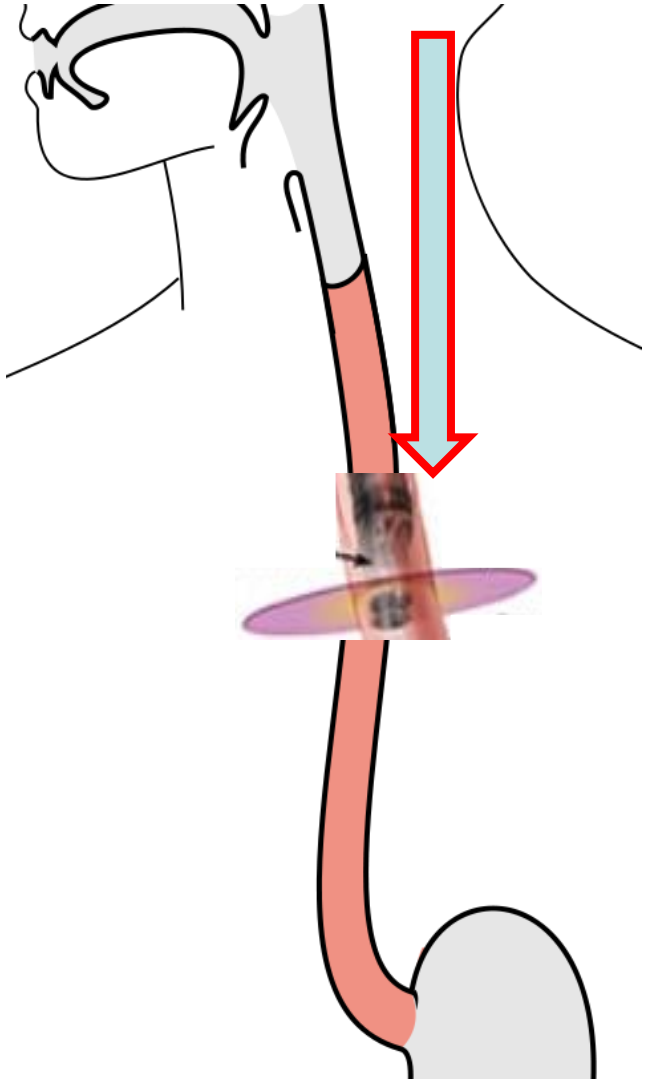
25 – 30 cm from mouth

Structures - landmarks

Descending aorta



Mediastinal landmarks



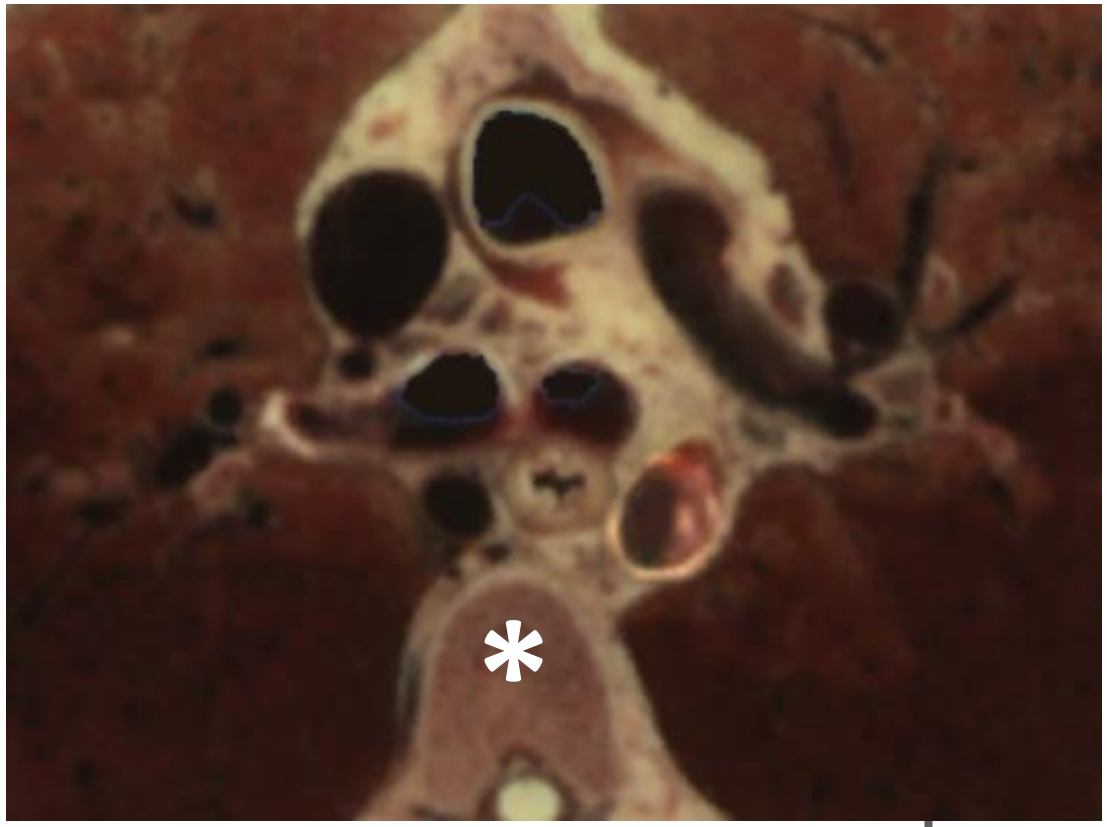
Aorto-pulmonary window

25 – 30 cm from mouth

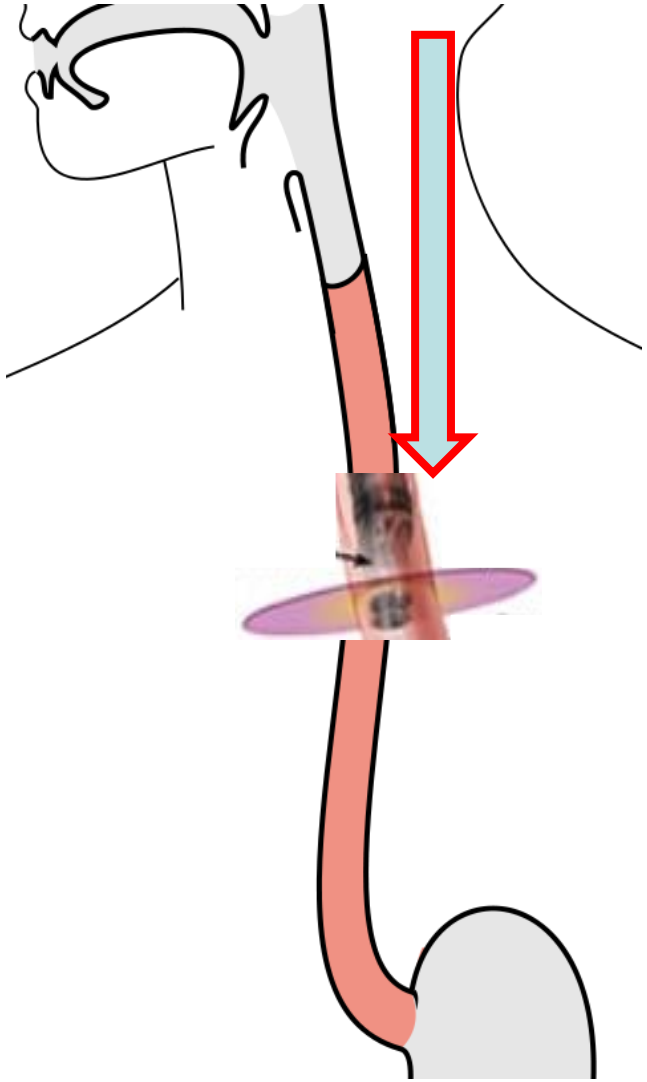
Structures - landmarks

Descending aorta

Spine



Mediastinal landmarks



Aorto-pulmonary window

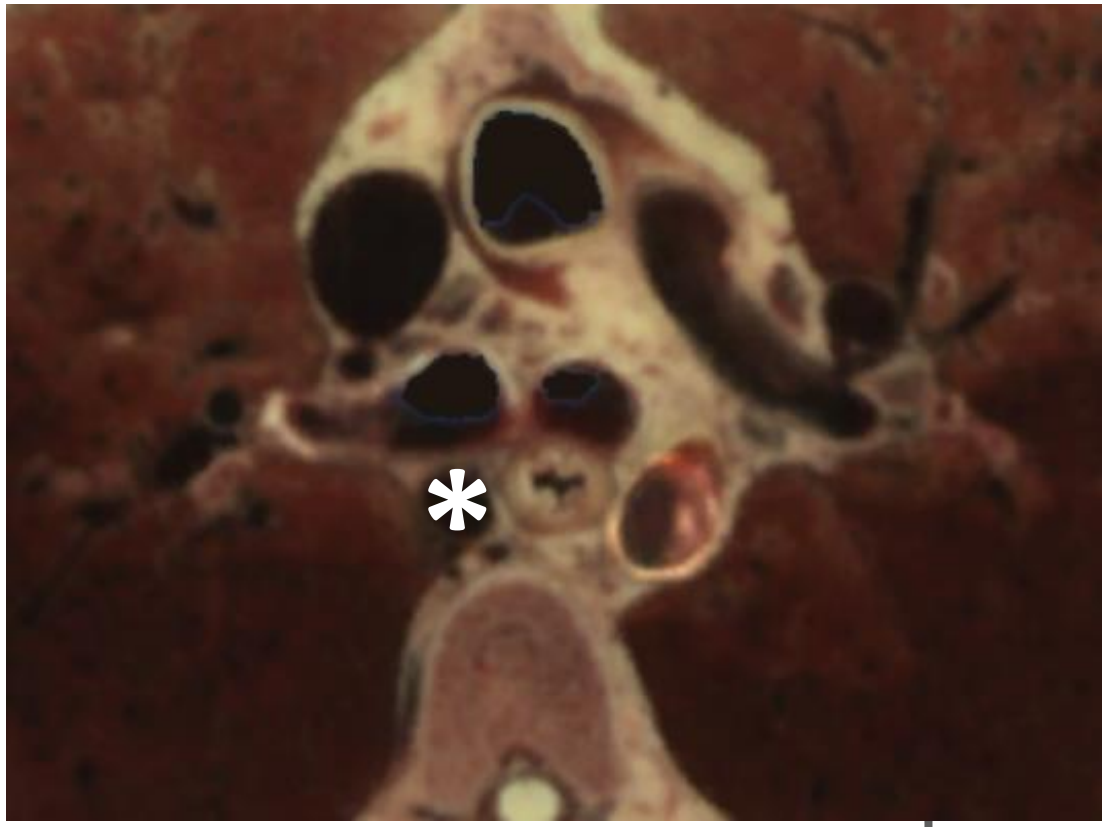
25 – 30 cm from mouth

Structures - landmarks

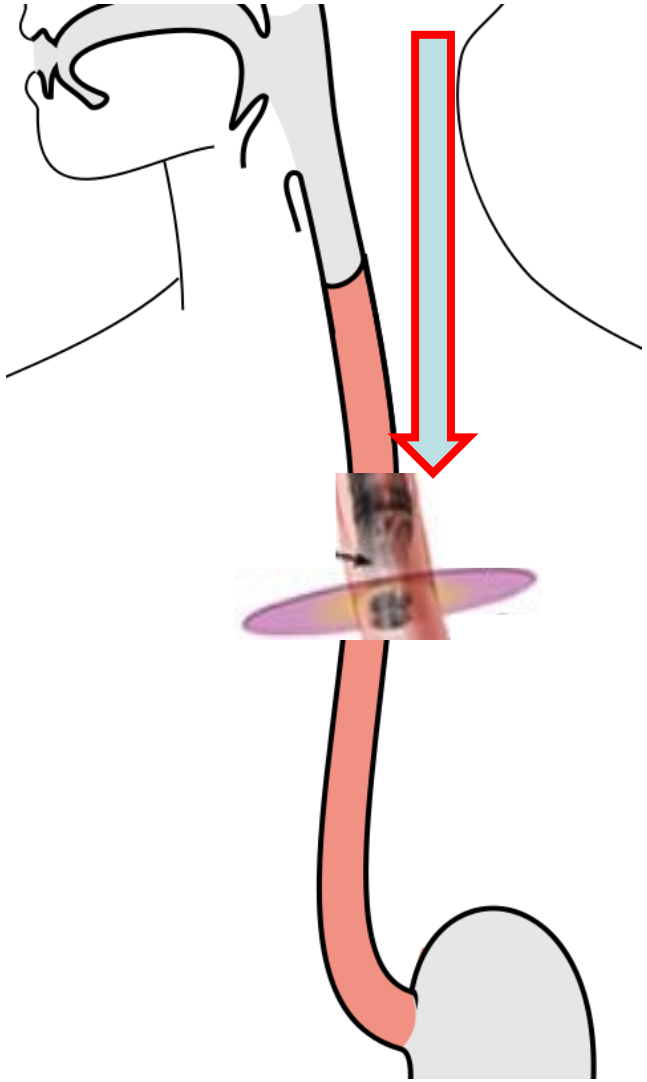
Descending aorta

Spine

Azygos arch



Mediastinal landmarks



Aorto-pulmonary window

25 – 30 cm from mouth

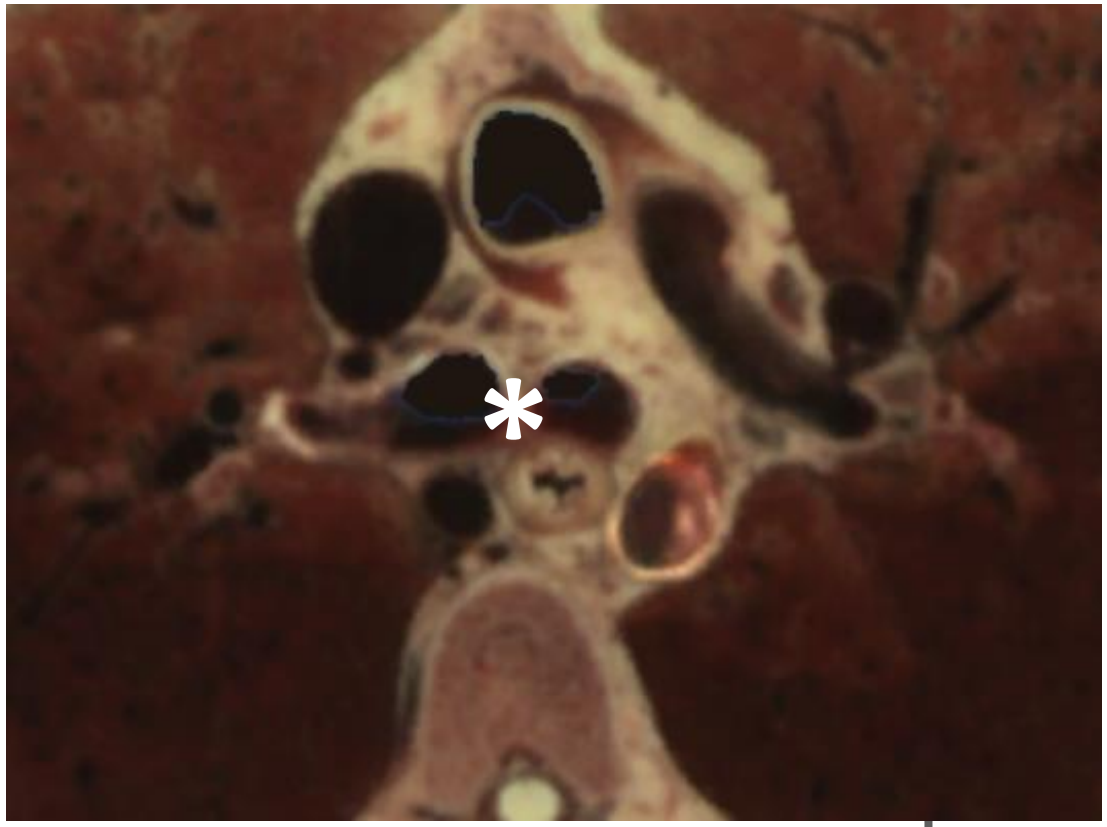
Structures - landmarks

Descending aorta

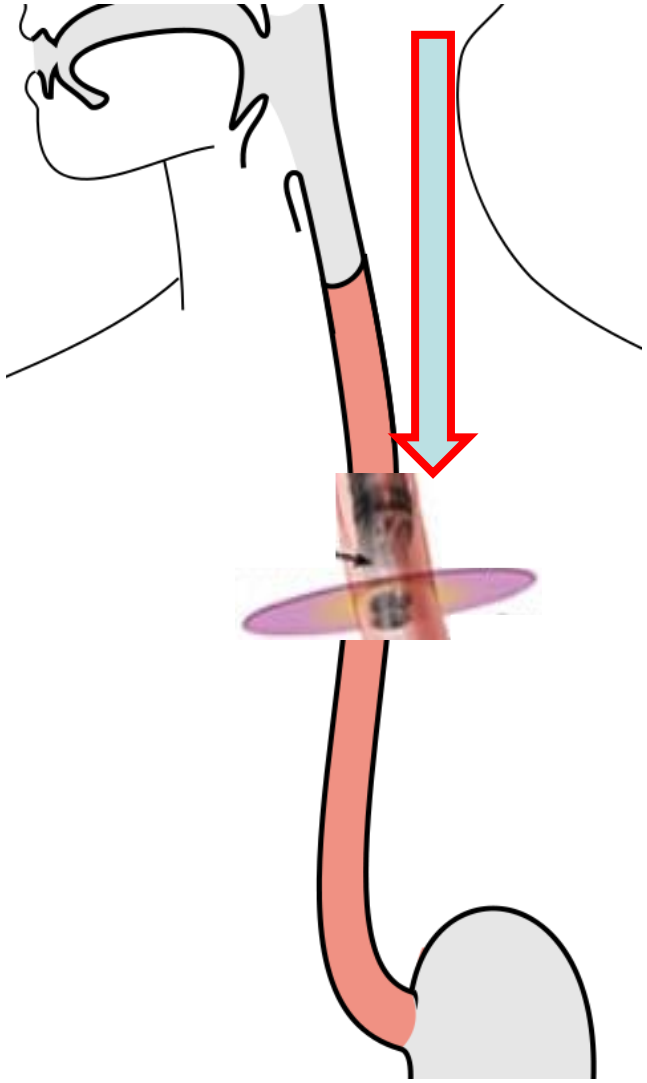
Spine

Azygos arch

Bronchi and trachea



Mediastinal landmarks



Aorto-pulmonary window

25 – 30 cm from mouth

Structures - landmarks

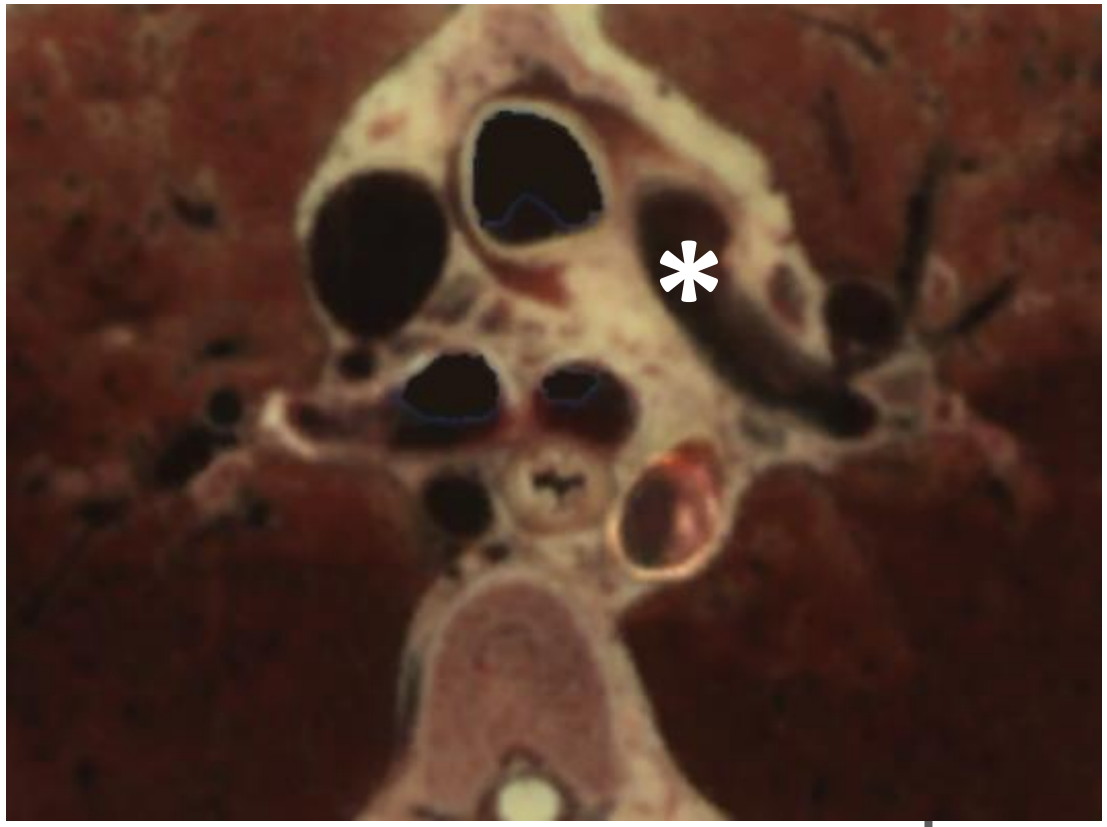
Descending aorta

Spine

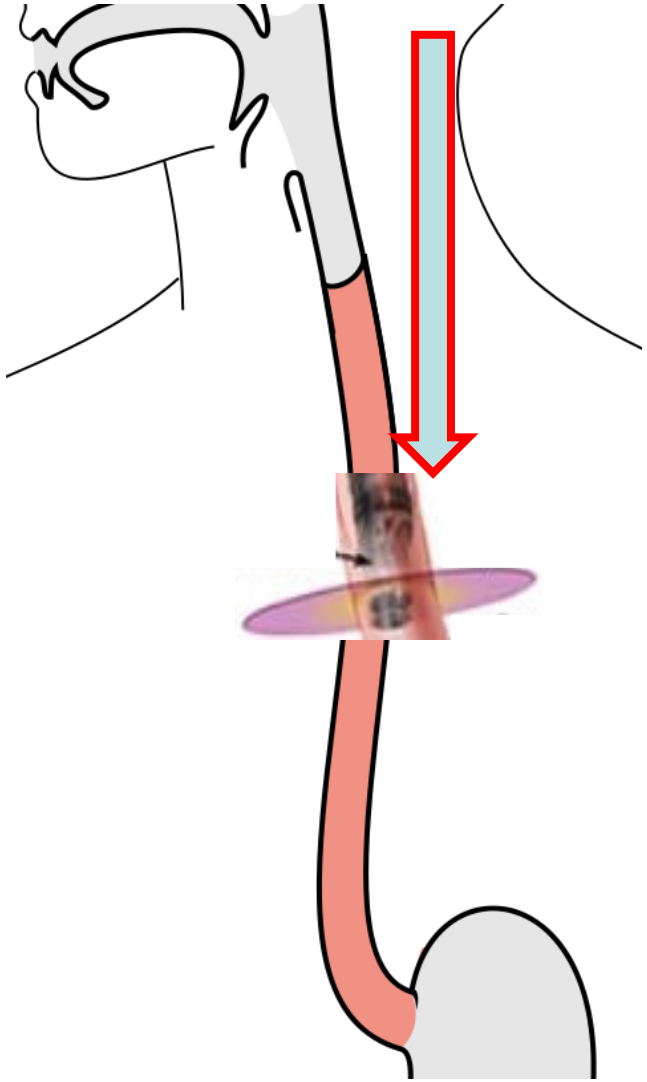
Azygos arch

Bronchi and trachea

Left pulmonary artery



Mediastinal landmarks



Aorto-pulmonary window

25 – 30 cm from mouth

Structures - landmarks

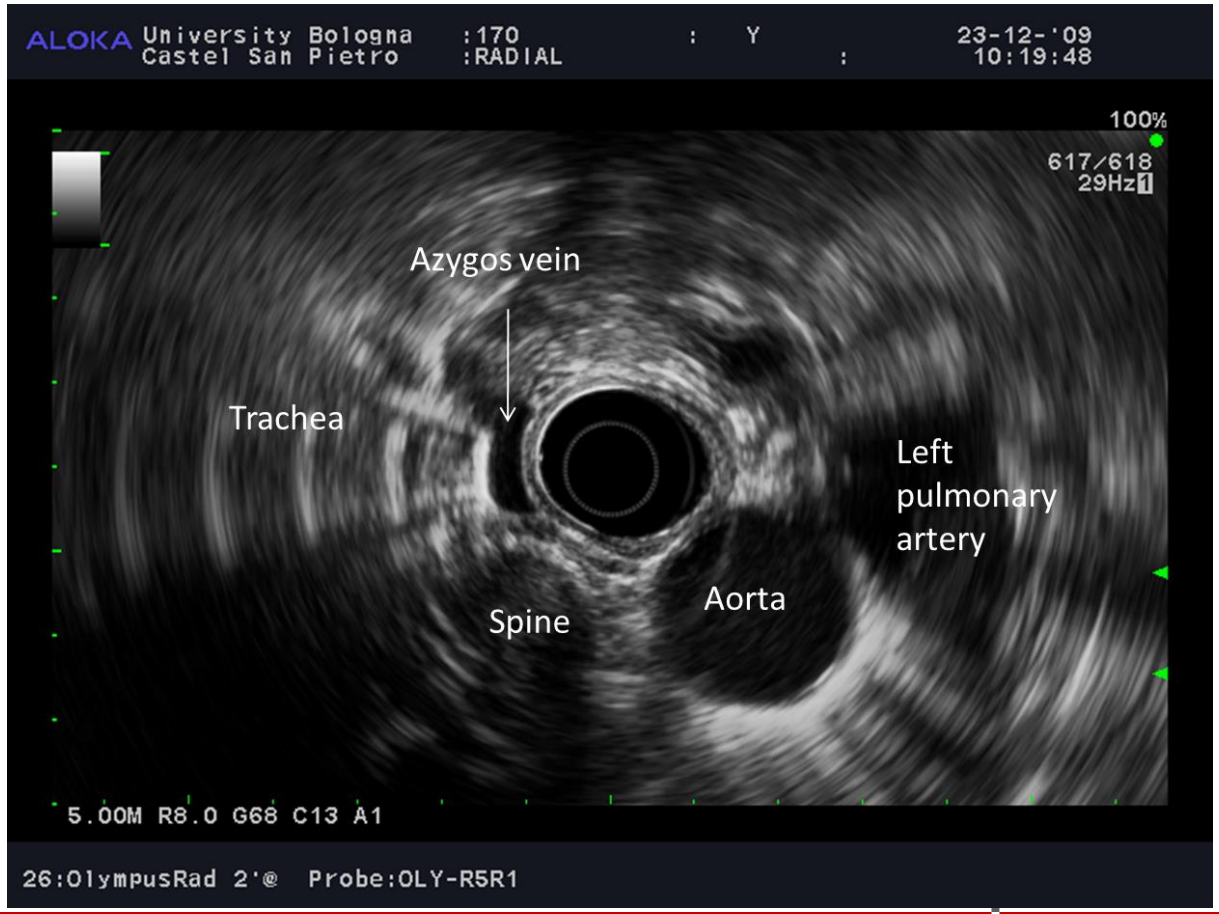
Descending aorta

Spine

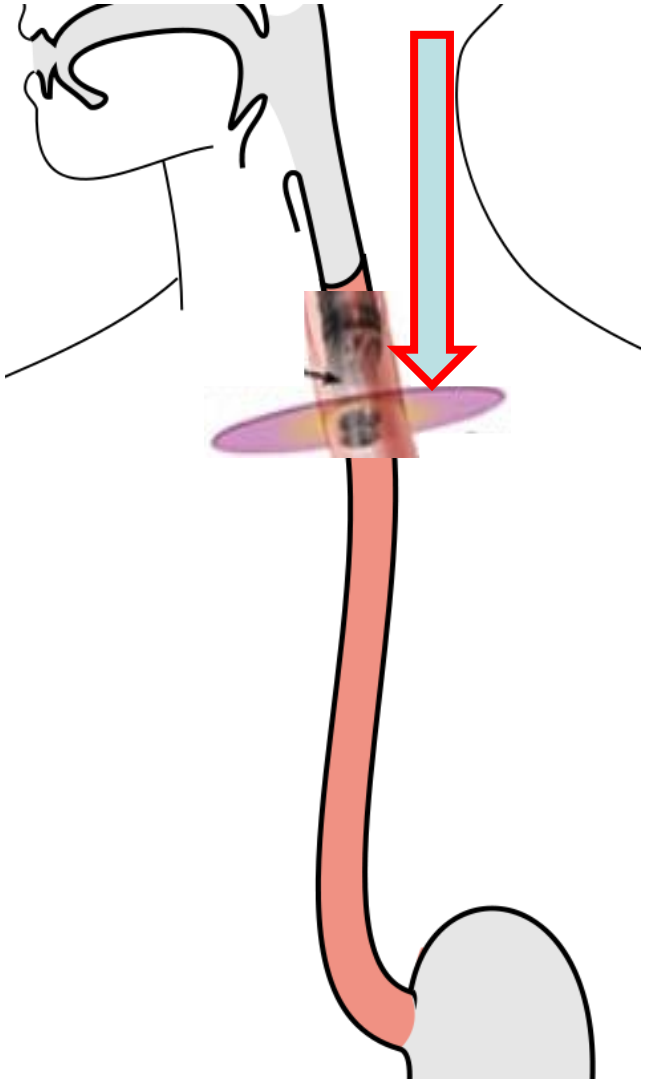
Azygos arch

Bronchi and trachea

Left pulmonary artery



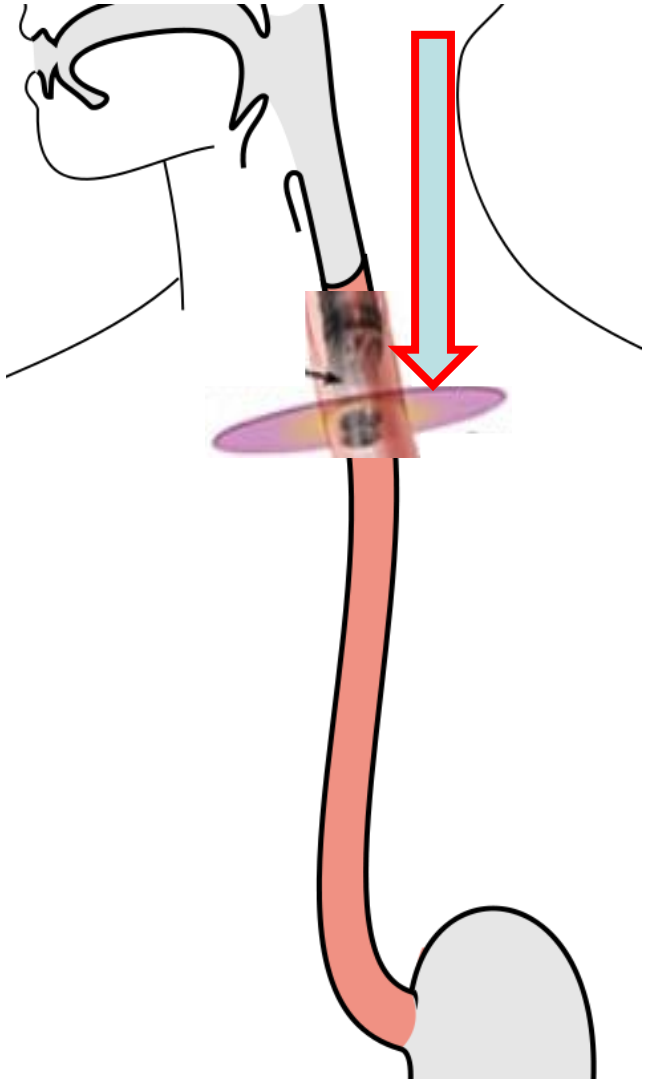
Mediastinal landmarks



Upper esophagus

25 cm from mouth

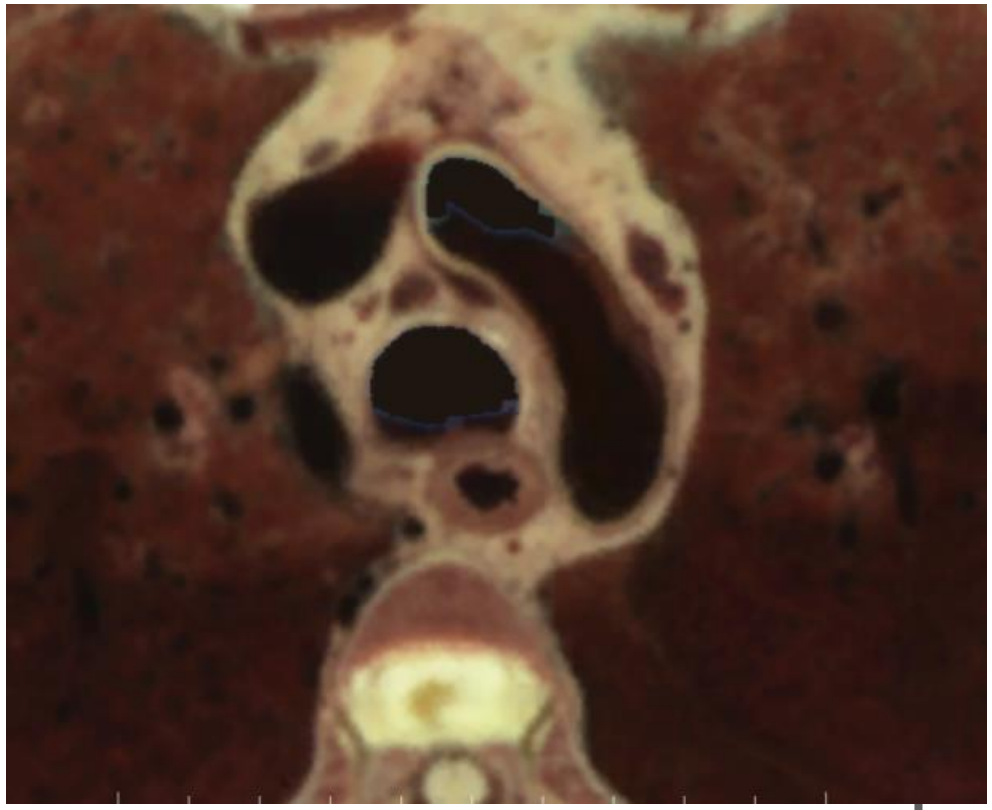
Mediastinal landmarks



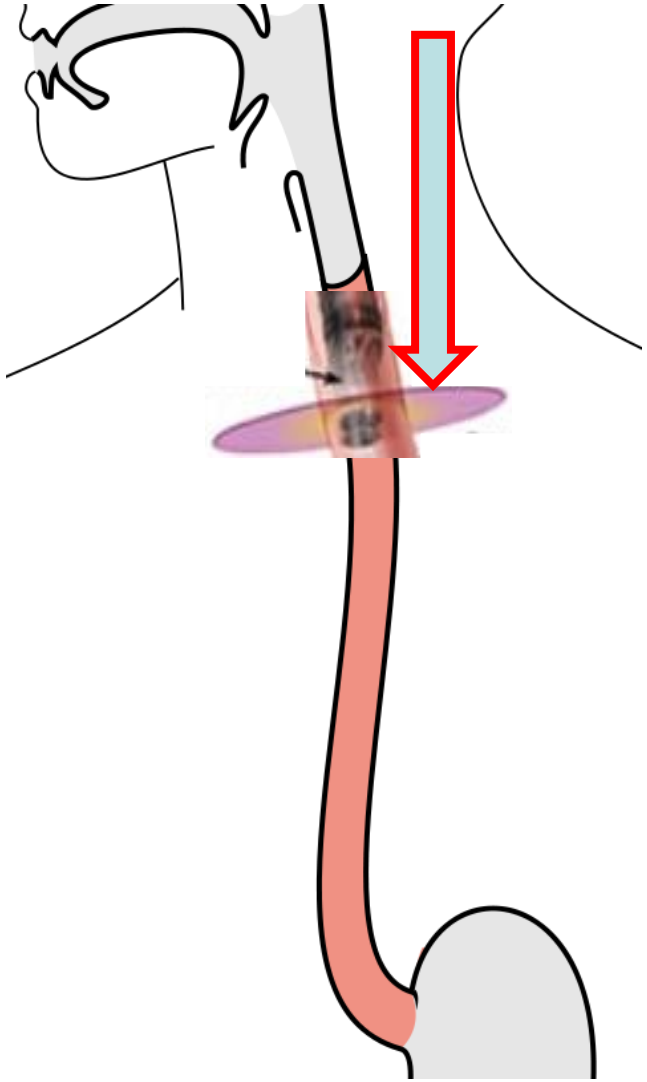
Upper esophagus

25 cm from mouth

Structures - landmarks



Mediastinal landmarks

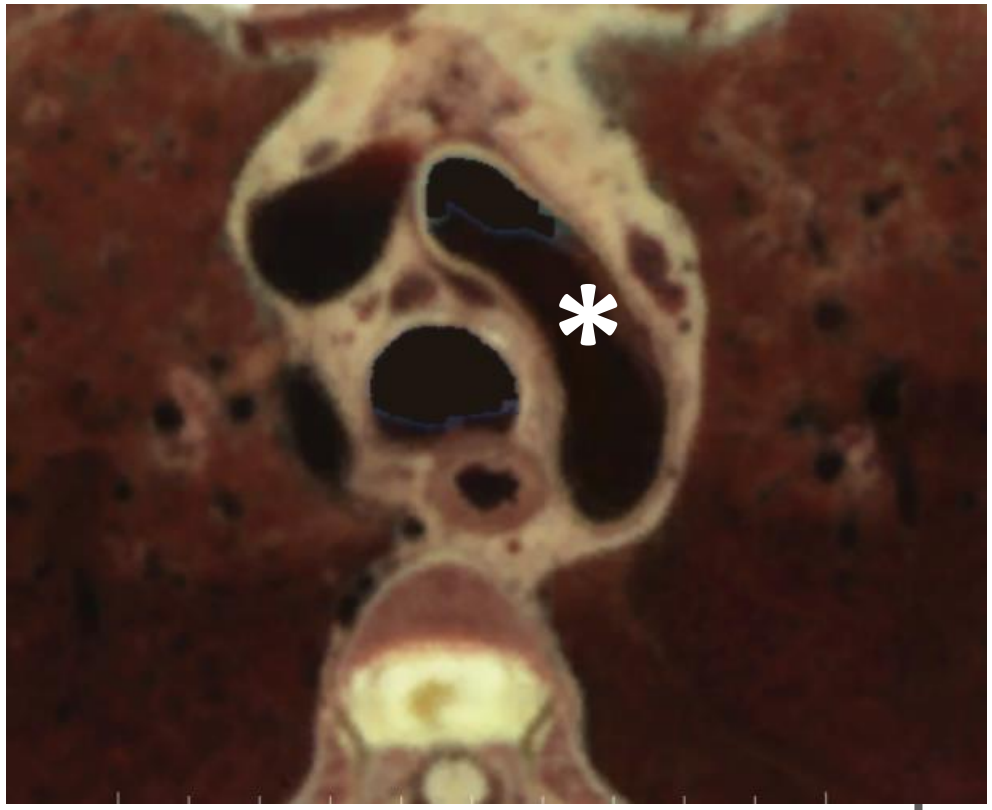


Upper esophagus

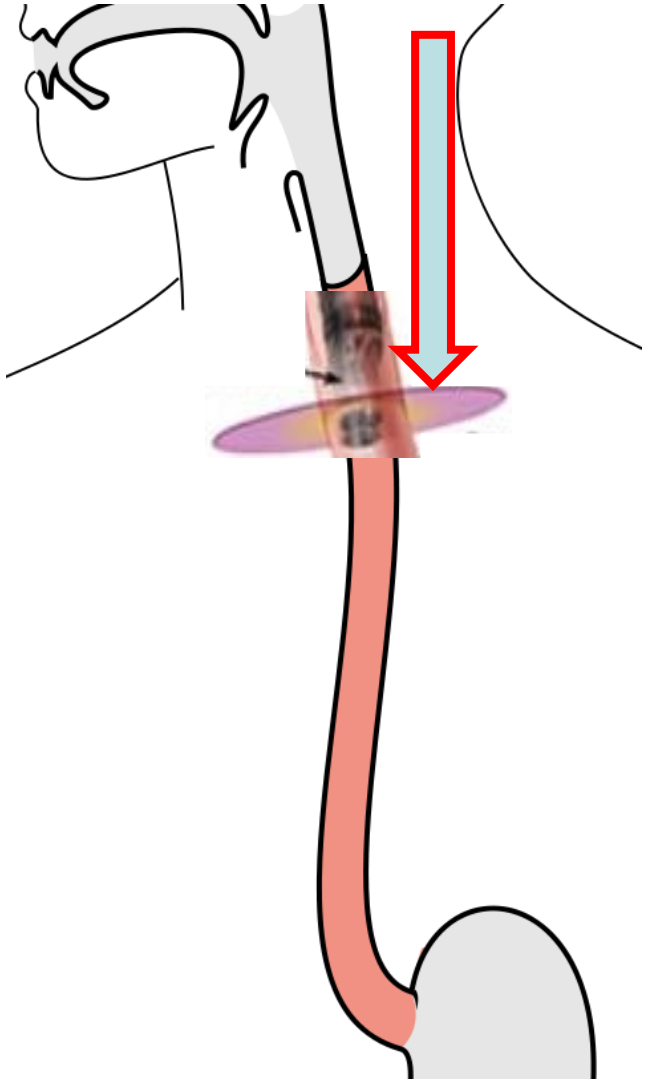
25 cm from mouth

Structures - landmarks

Aortic arch



Mediastinal landmarks



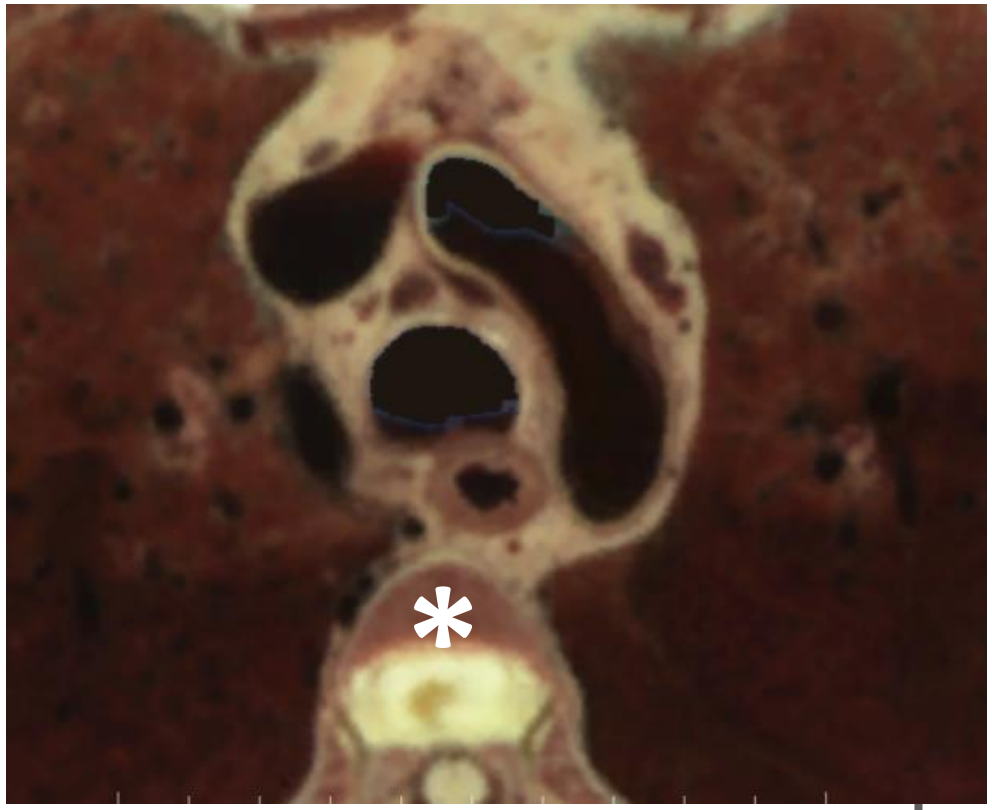
Upper esophagus

25 cm from mouth

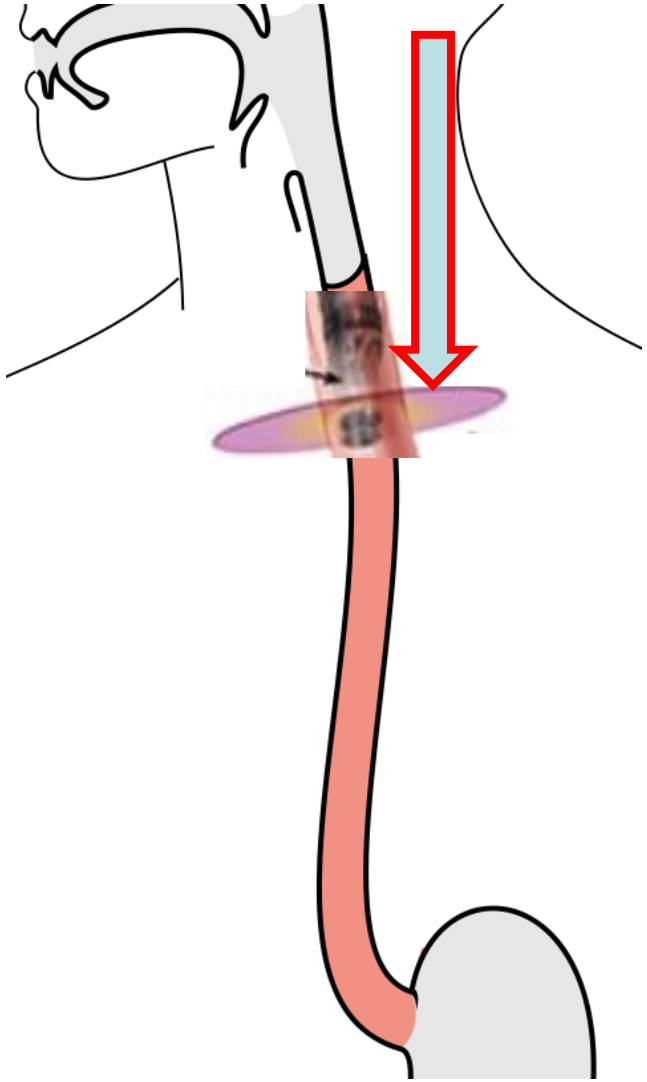
Structures - landmarks

Aortic arch

Spine



Mediastinal landmarks



Upper esophagus

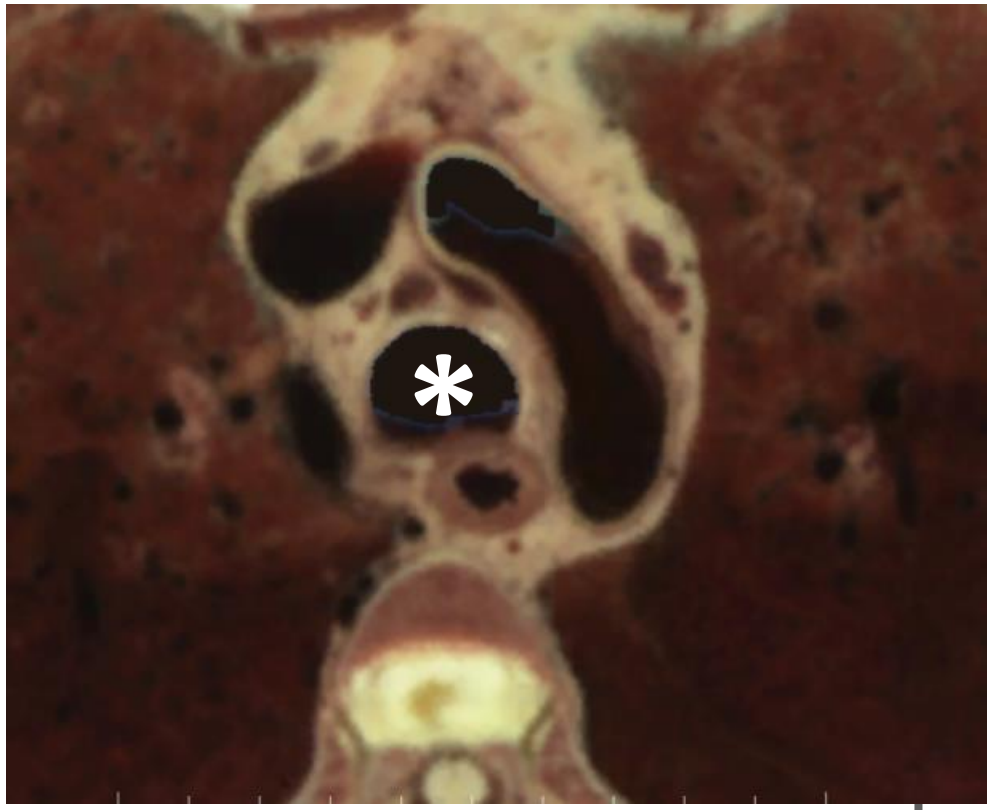
25 cm from mouth

Structures - landmarks

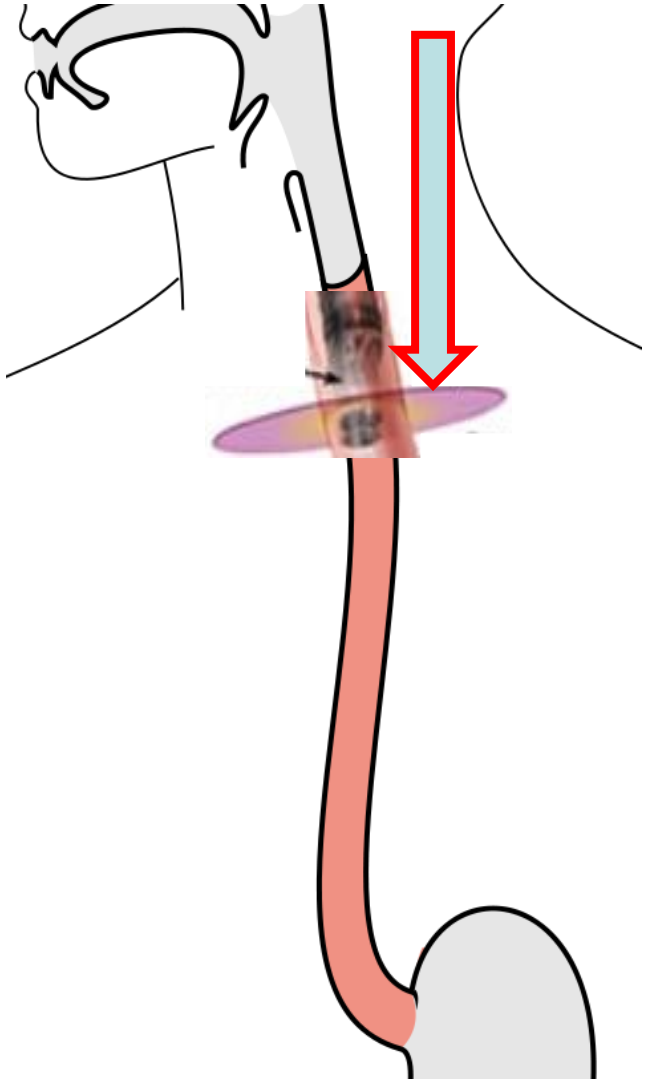
Aortic arch

Spine

Trachea



Mediastinal landmarks



Upper esophagus

25 cm from mouth

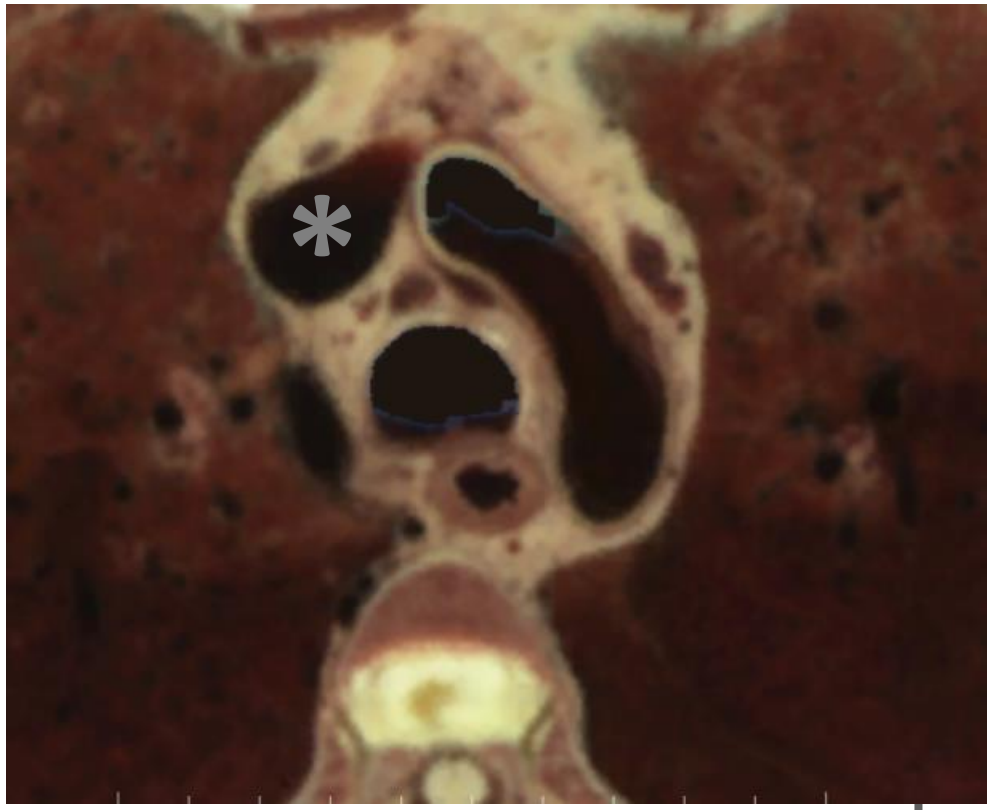
Structures - landmarks

Aortic arch

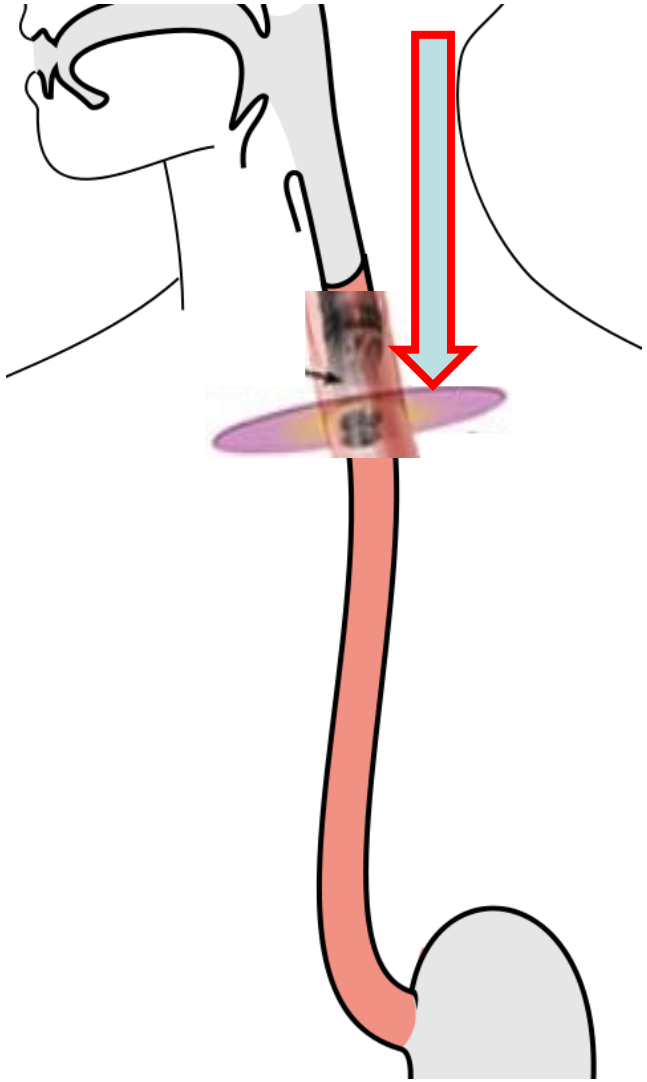
Spine

Trachea

Superior vena cava



Mediastinal landmarks



Upper esophagus

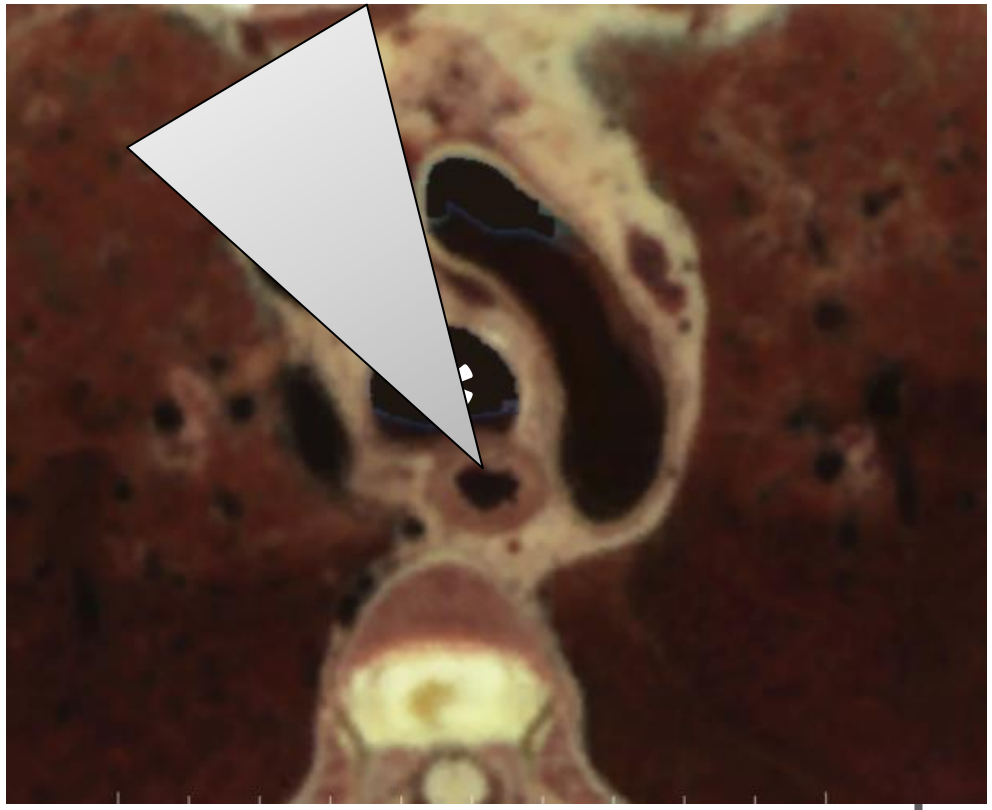
25 cm from mouth

Structures - landmarks

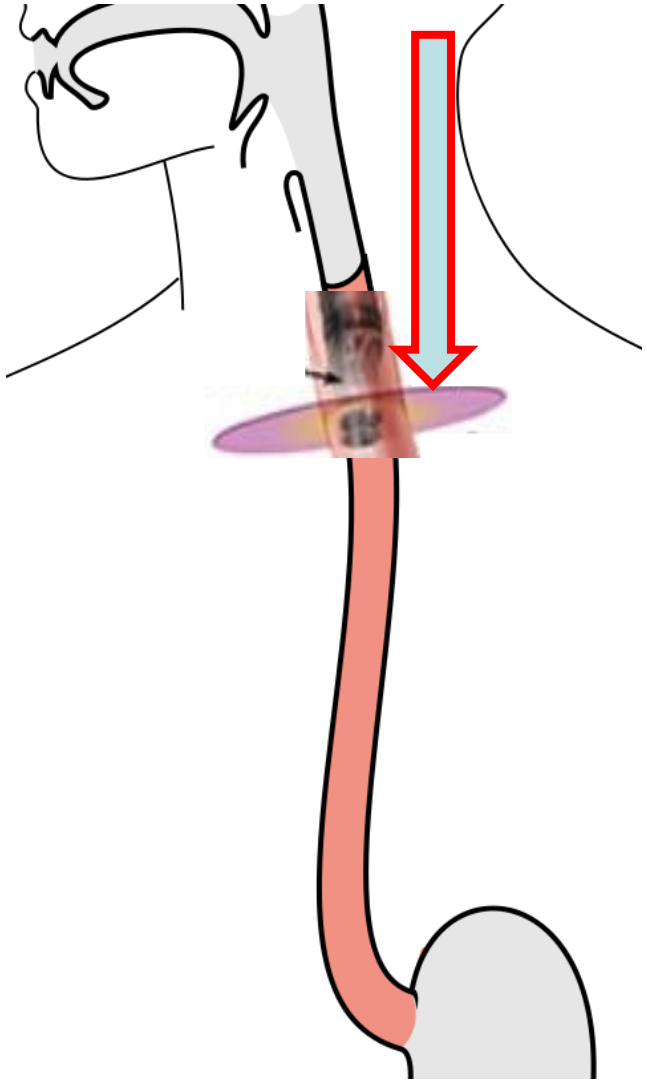
Aortic arch

Spine

Trachea



Mediastinal landmarks



Upper esophagus

25 cm from mouth

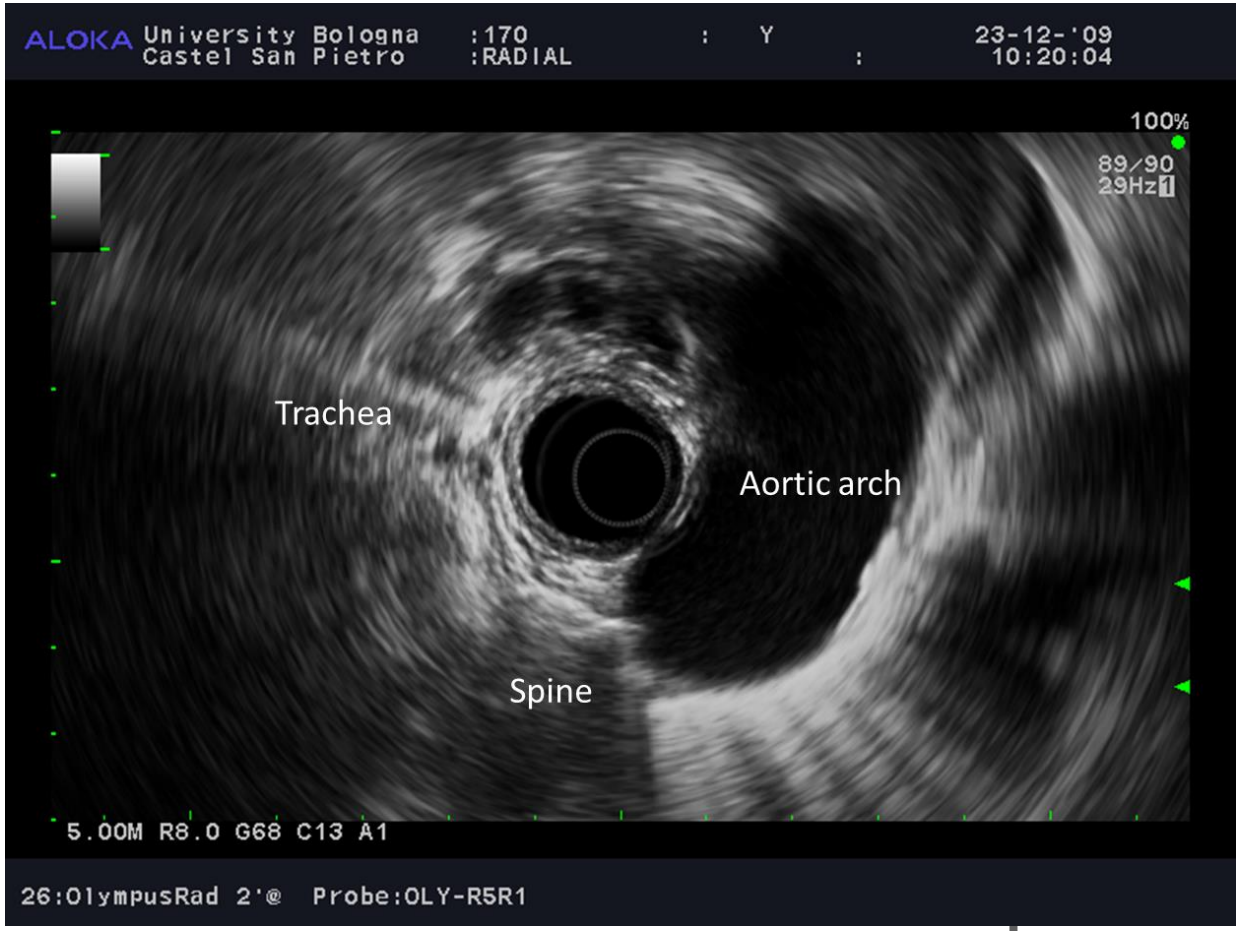
Structures - landmarks

Aortic arch

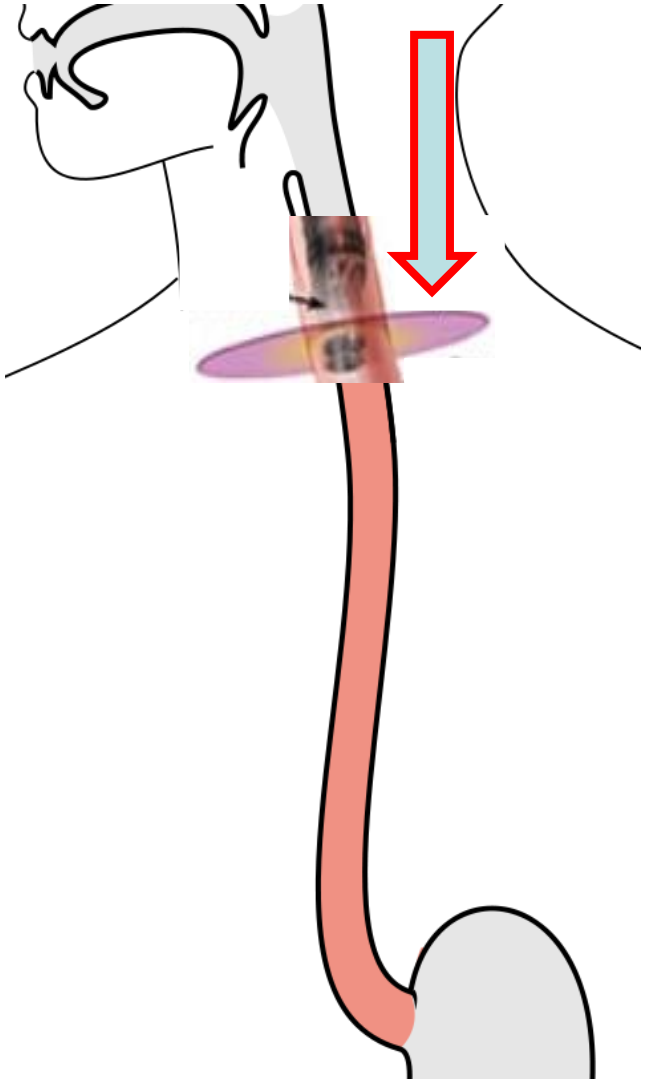
Spine

Trachea

Superior vena cava



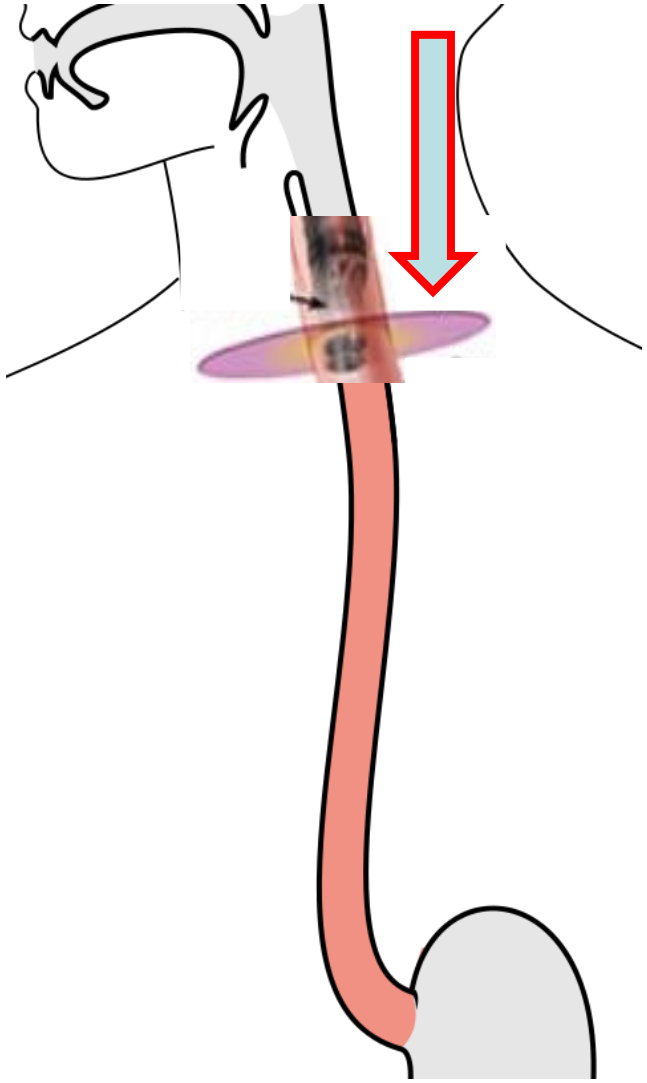
Mediastinal landmarks



Upper esophagus

20 cm from mouth

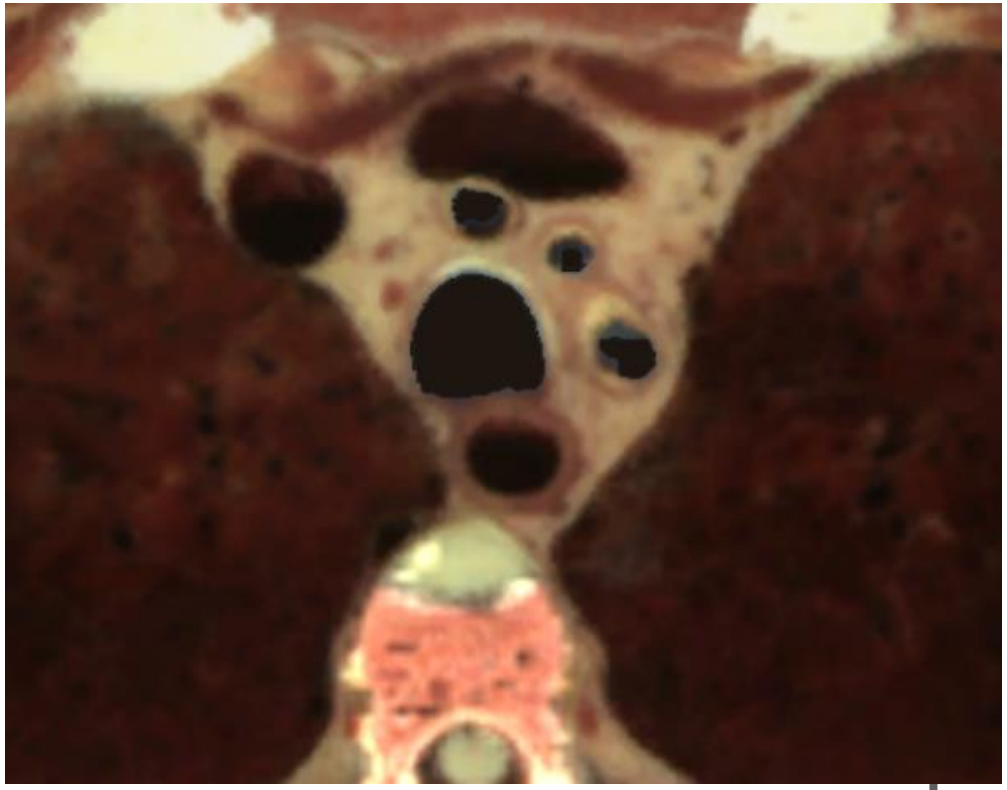
Mediastinal landmarks



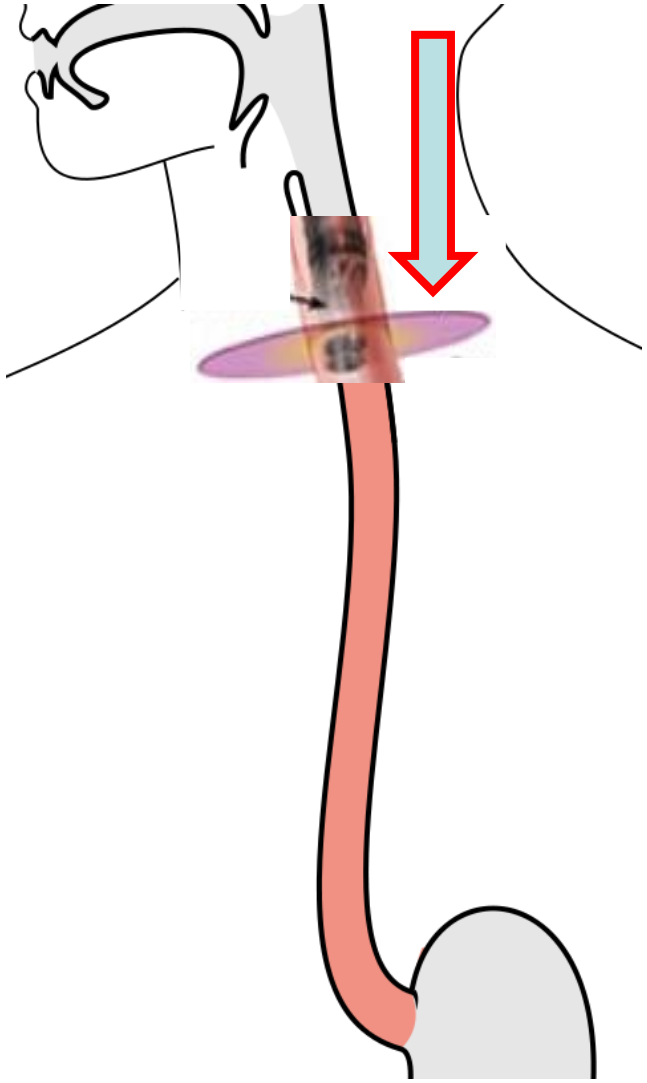
Upper esophagus

20 cm from mouth

Structures – landmarks



Mediastinal landmarks

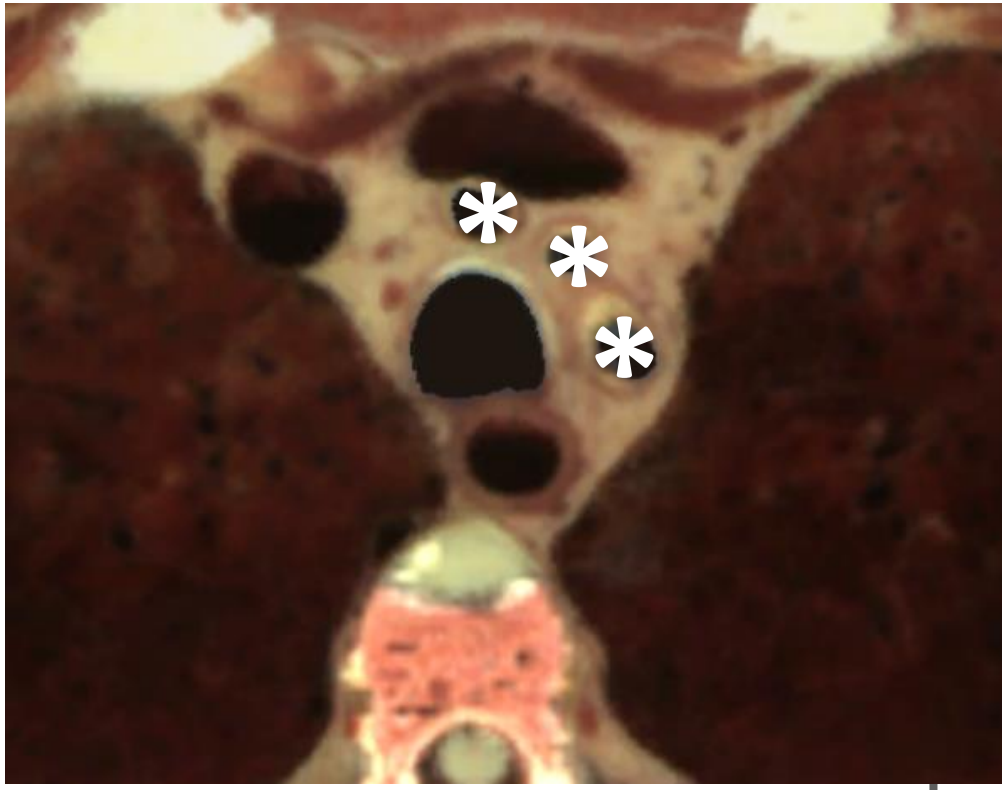


Upper esophagus

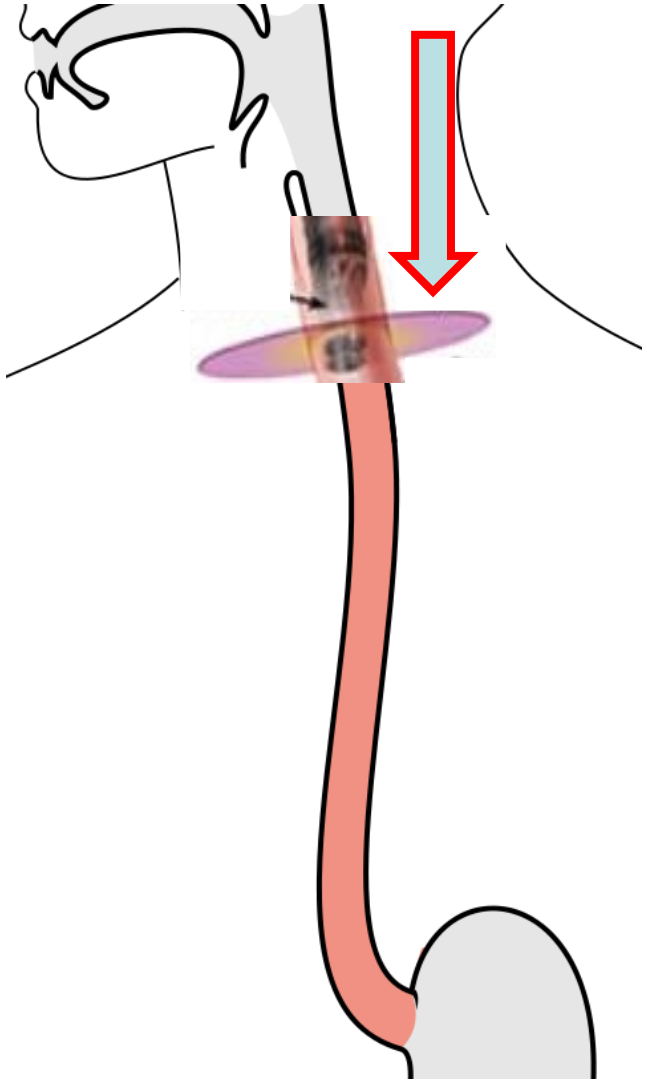
20 cm from mouth

Structures – landmarks

Supra aortic trunks



Mediastinal landmarks



Upper esophagus

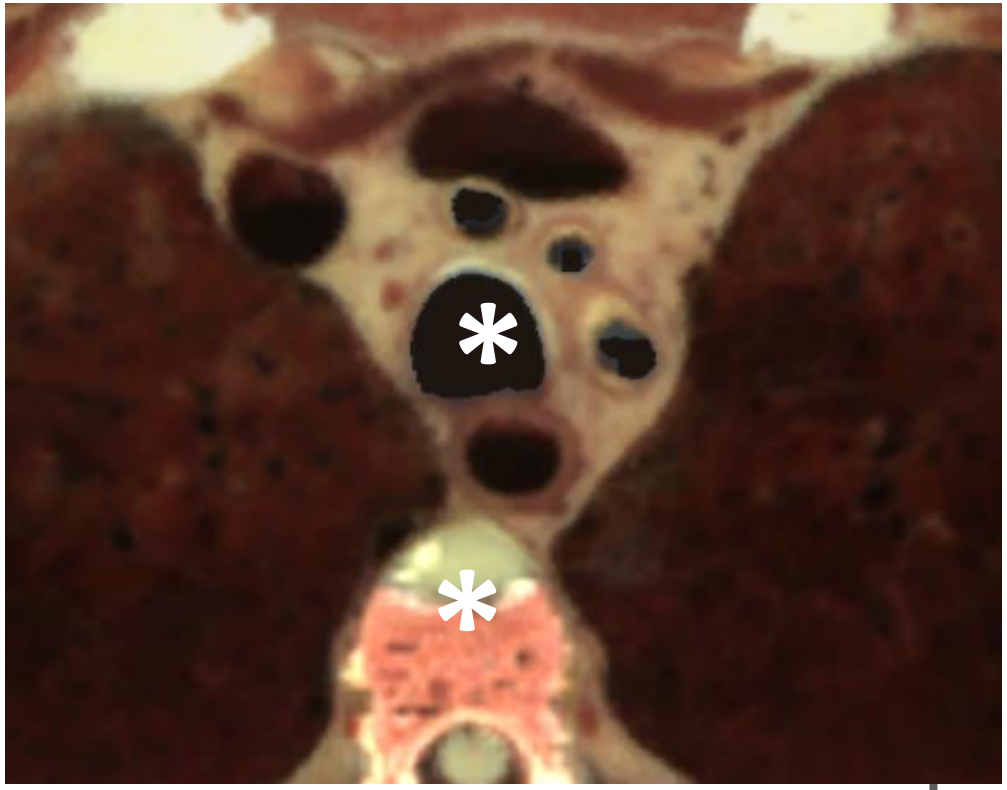
20 cm from mouth

Structures – landmarks

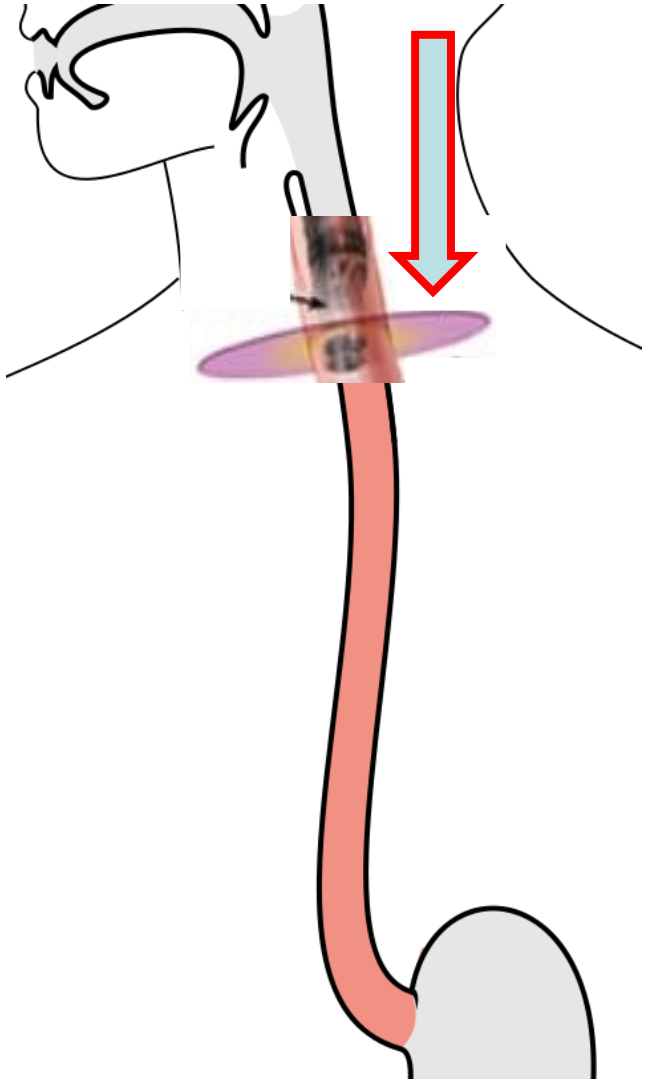
Supra aortic trunks

Spine

Trachea



Mediastinal landmarks



Upper esophagus

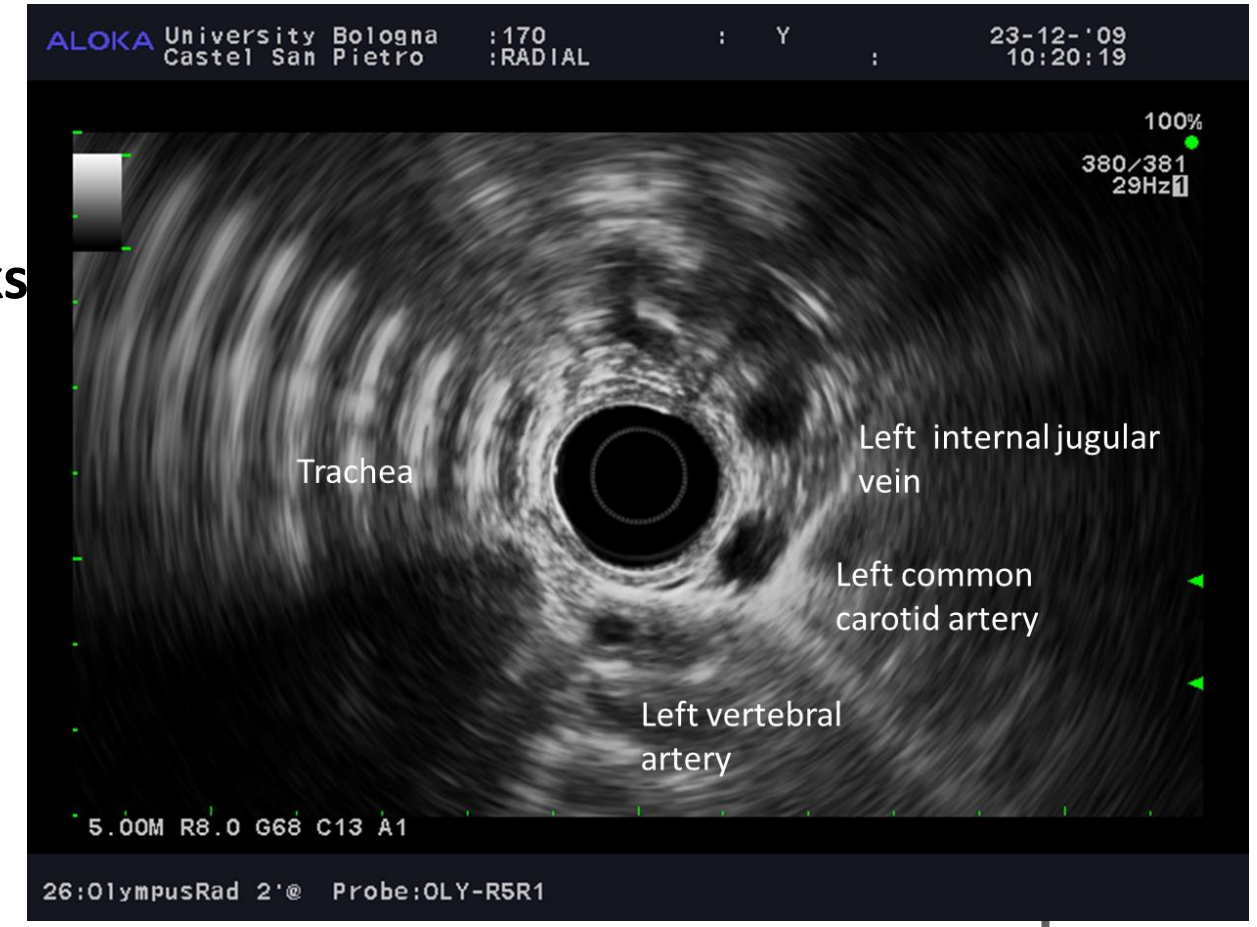
20 cm from mouth

Structures – landmarks

Supra aortic trunks

Spine

Trachea



Agenda

Thoracic and mediastinal anatomy (for dummies)

Radial EUS examination

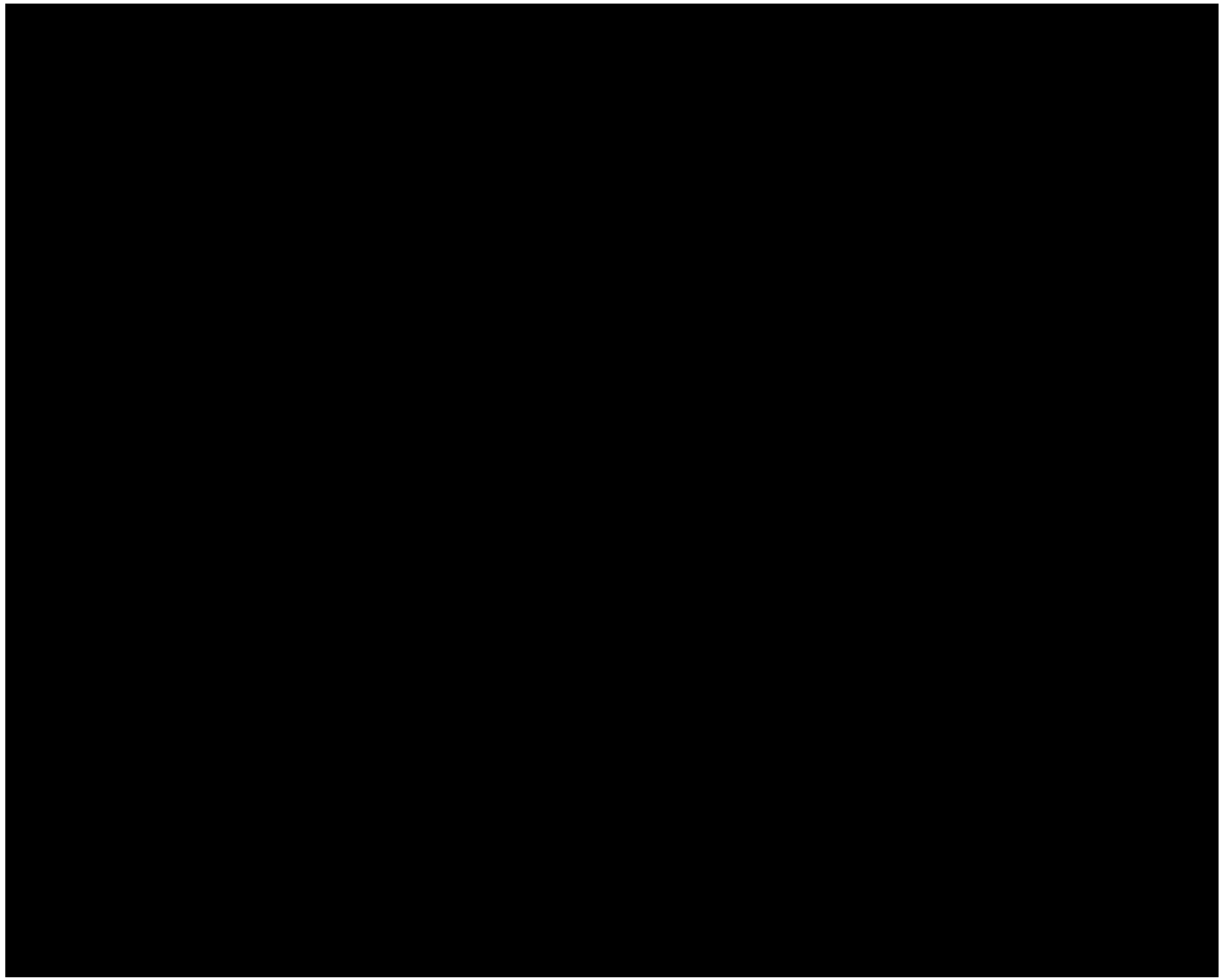
- Esophageal wall

- Mediastinal anatomy

How I do it

Quiz

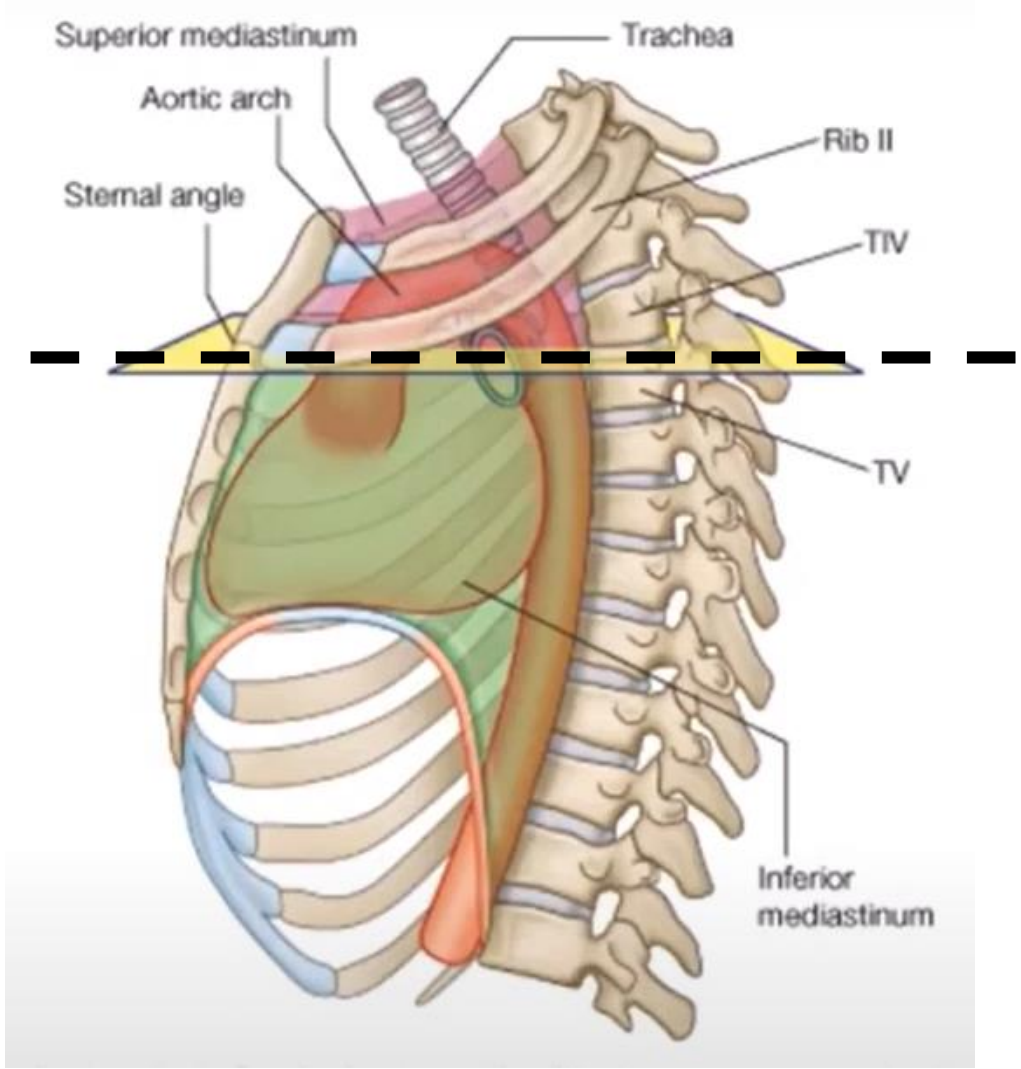
How I do it

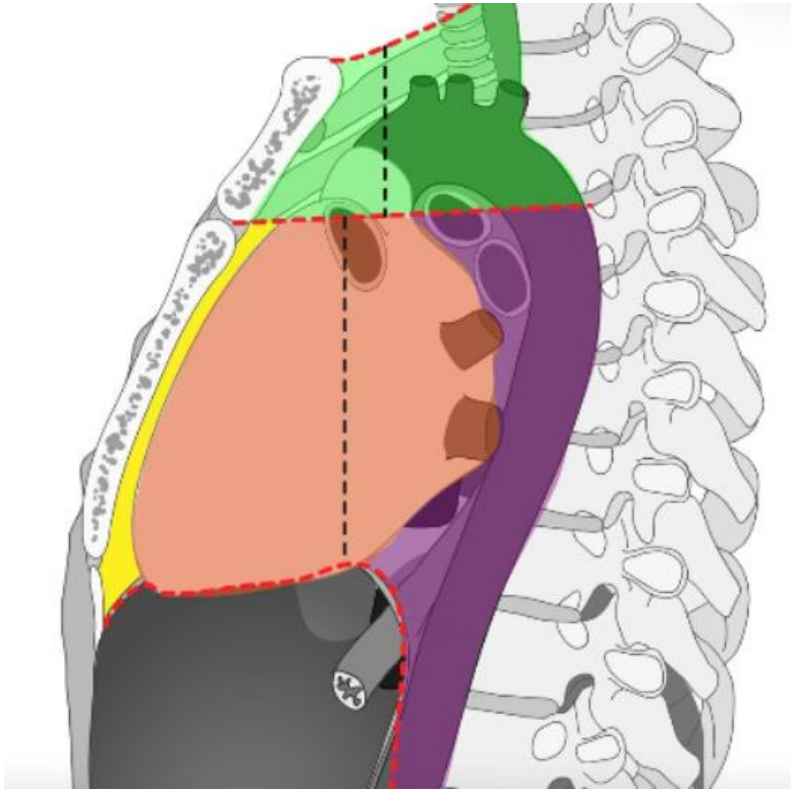


Grazie per l’attenzione!

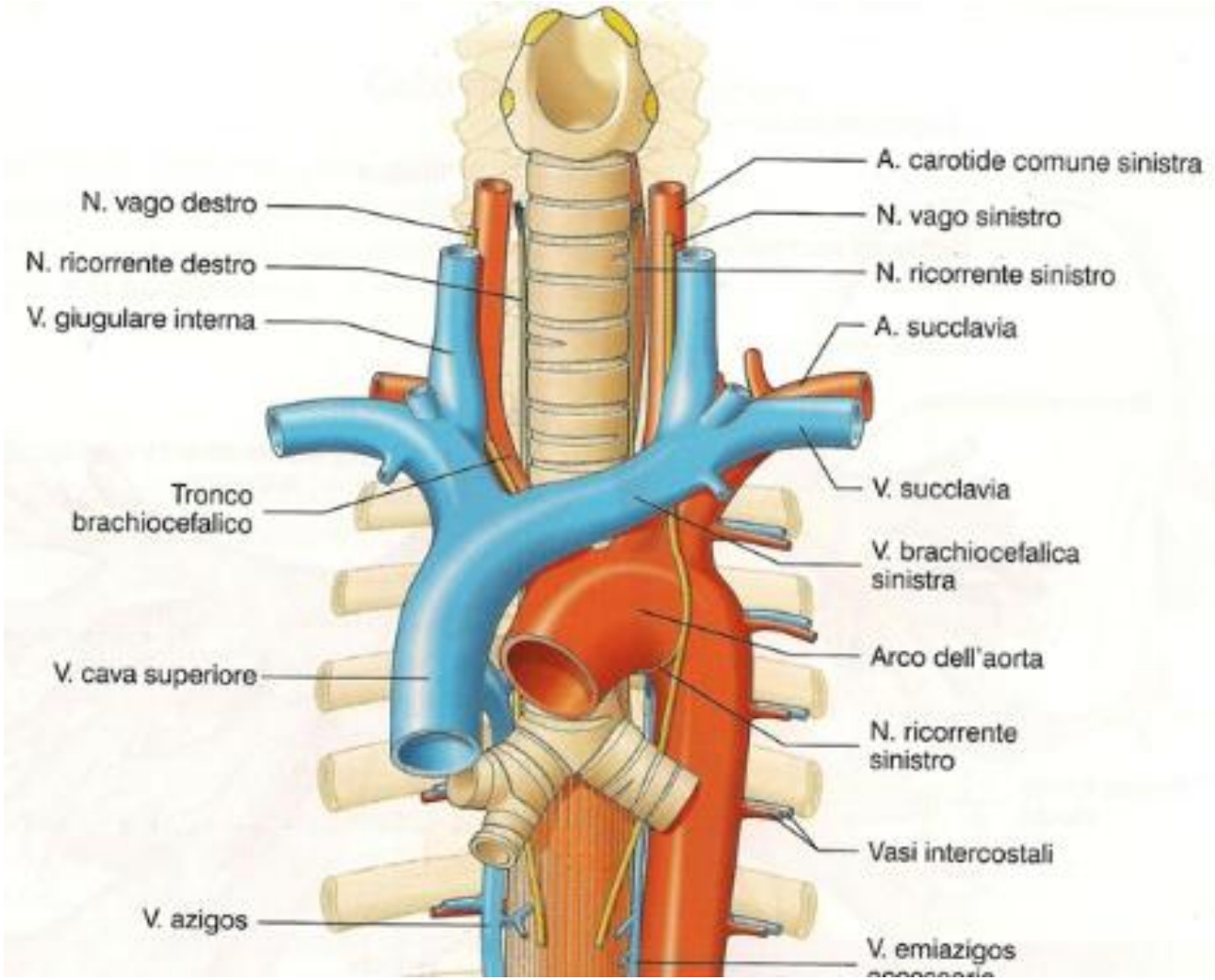
Dott. Andrea Lisotti
lisotti.andrea@gmail.com

Anatomy


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

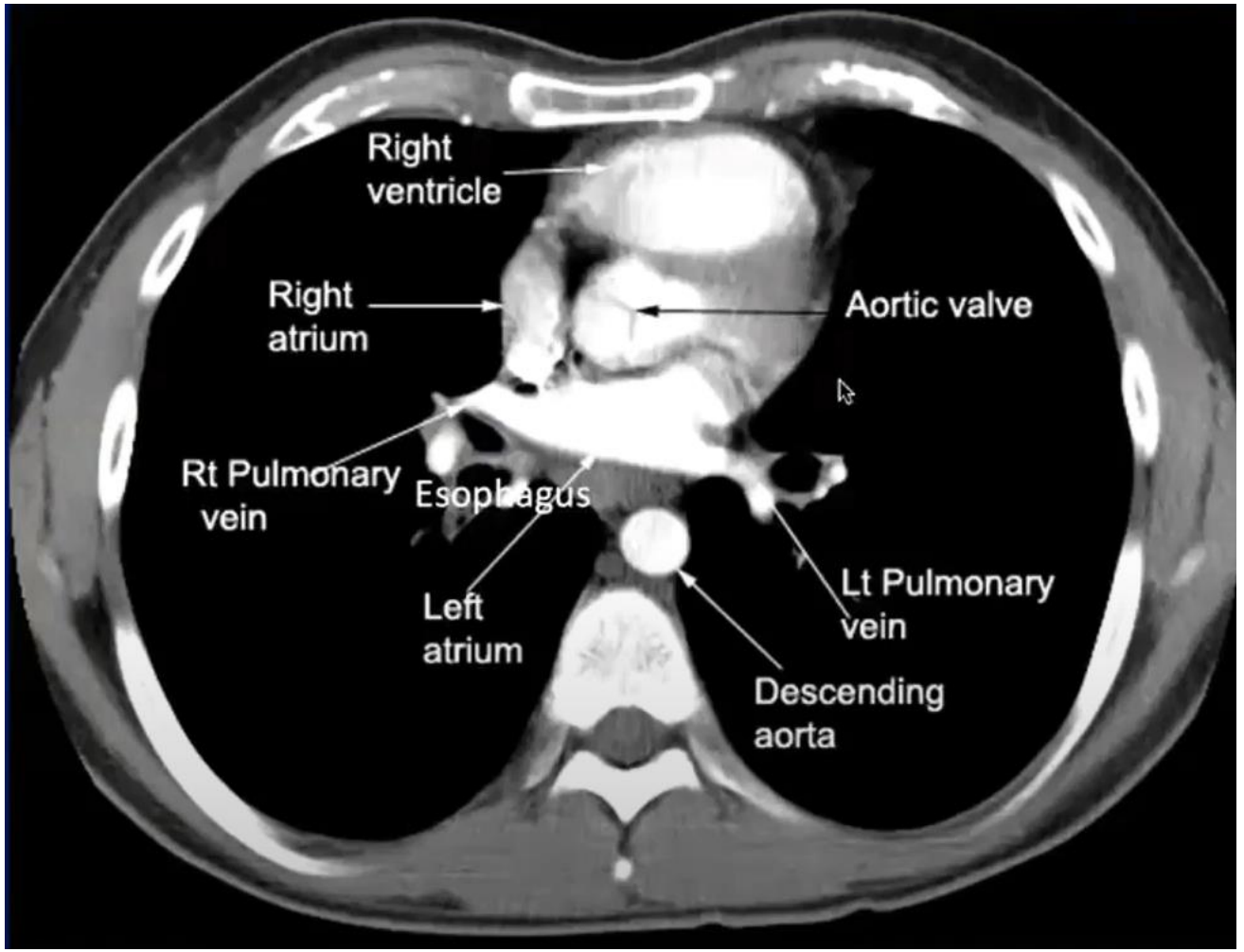


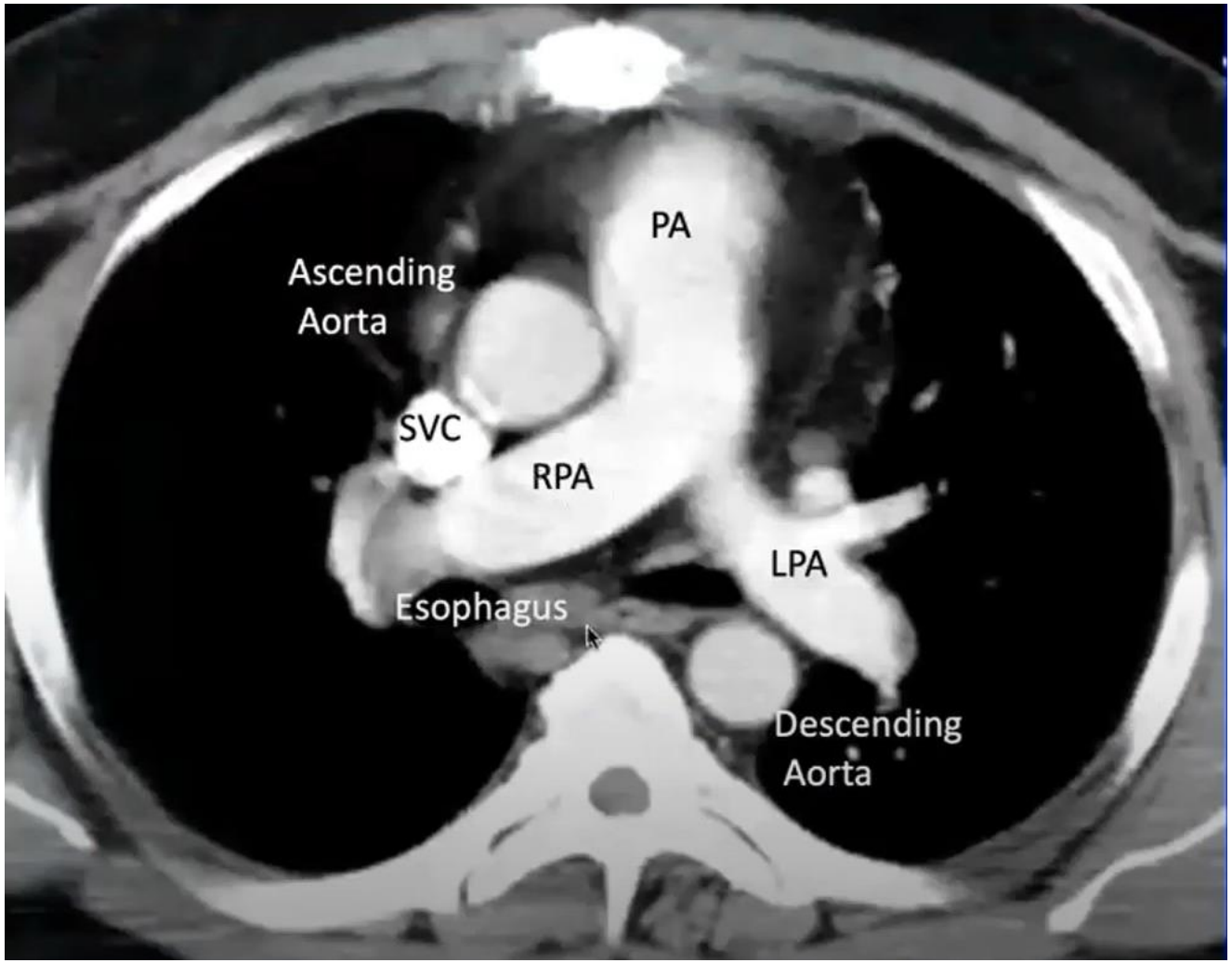
Anatomy


N. vago destro
N. ricorrente destro
V. giugulare interna
Tronco brachiocefalico
V. cava superiore
V. azigos
A. carotide comune sinistra
N. vago sinistro
N. ricorrente sinistro
A. succlavia
V. succlavia
V. brachiocefalica sinistra
Arco dell'aorta
N. ricorrente sinistro
Vasi intercostali
V. emiazigos

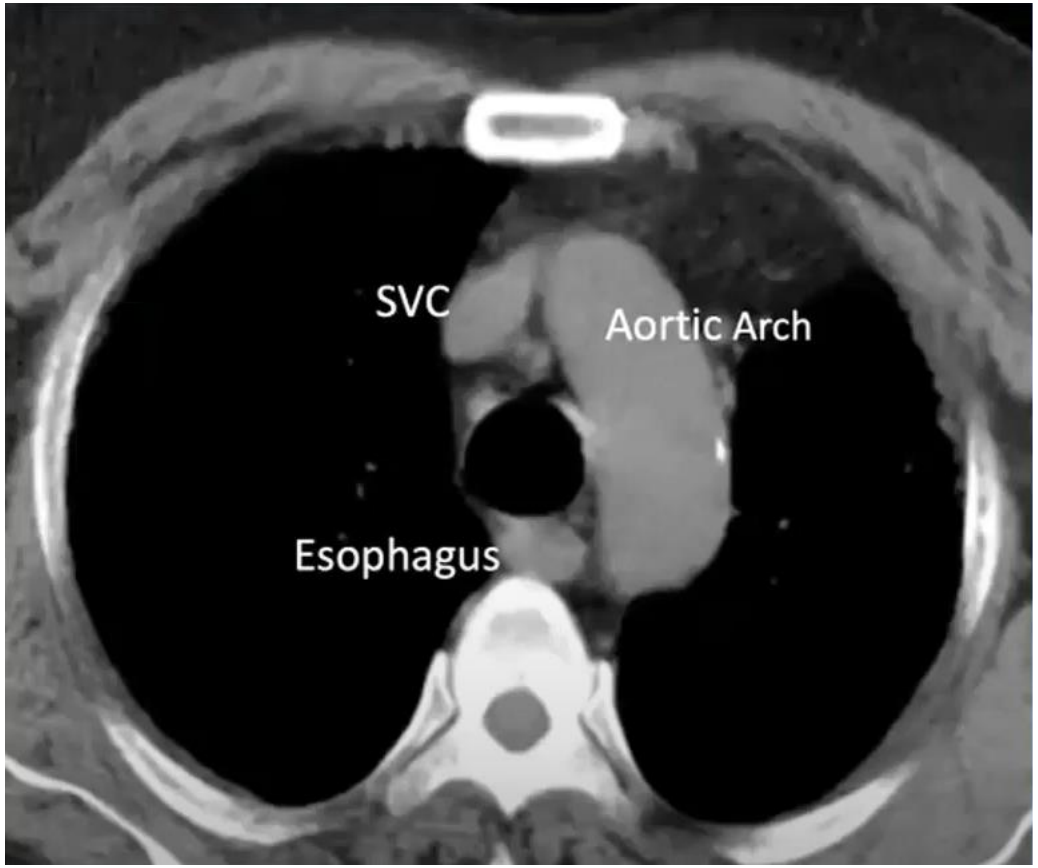


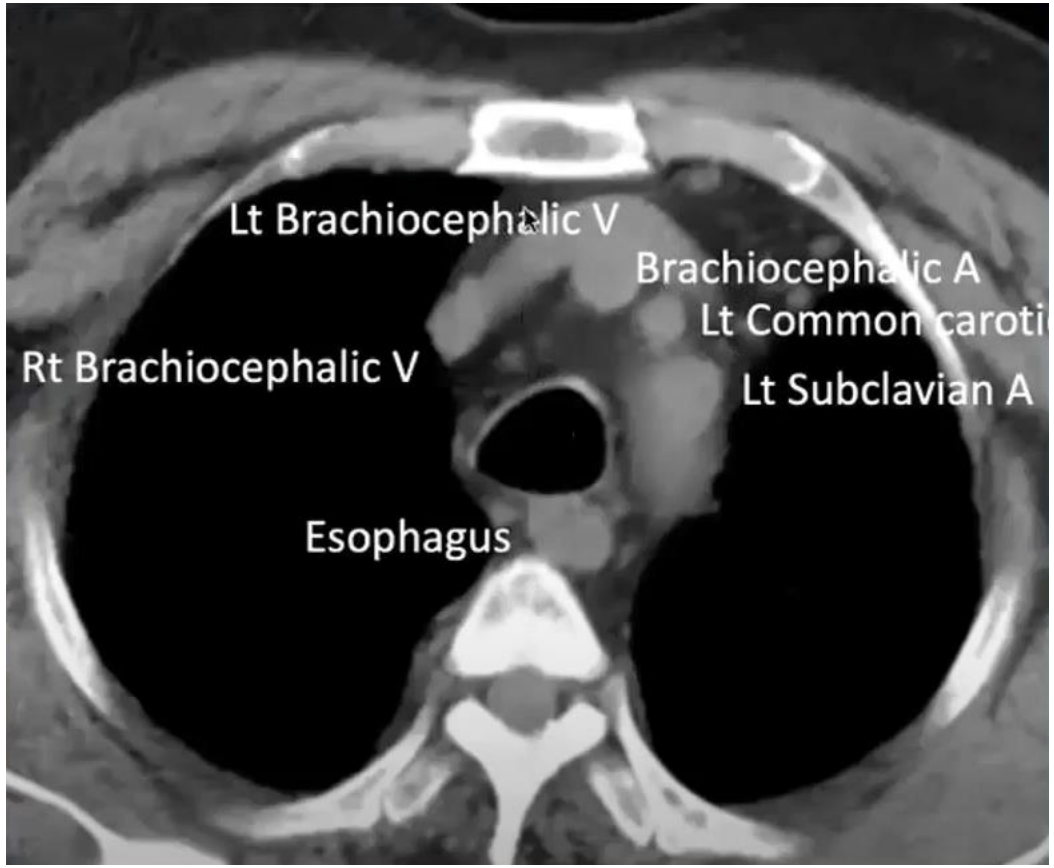



Right ventricle
Right atrium
Aortic valve
Rt Pulmonary vein
Esophagus
Left atrium
Lt Pulmonary vein
Descending aorta

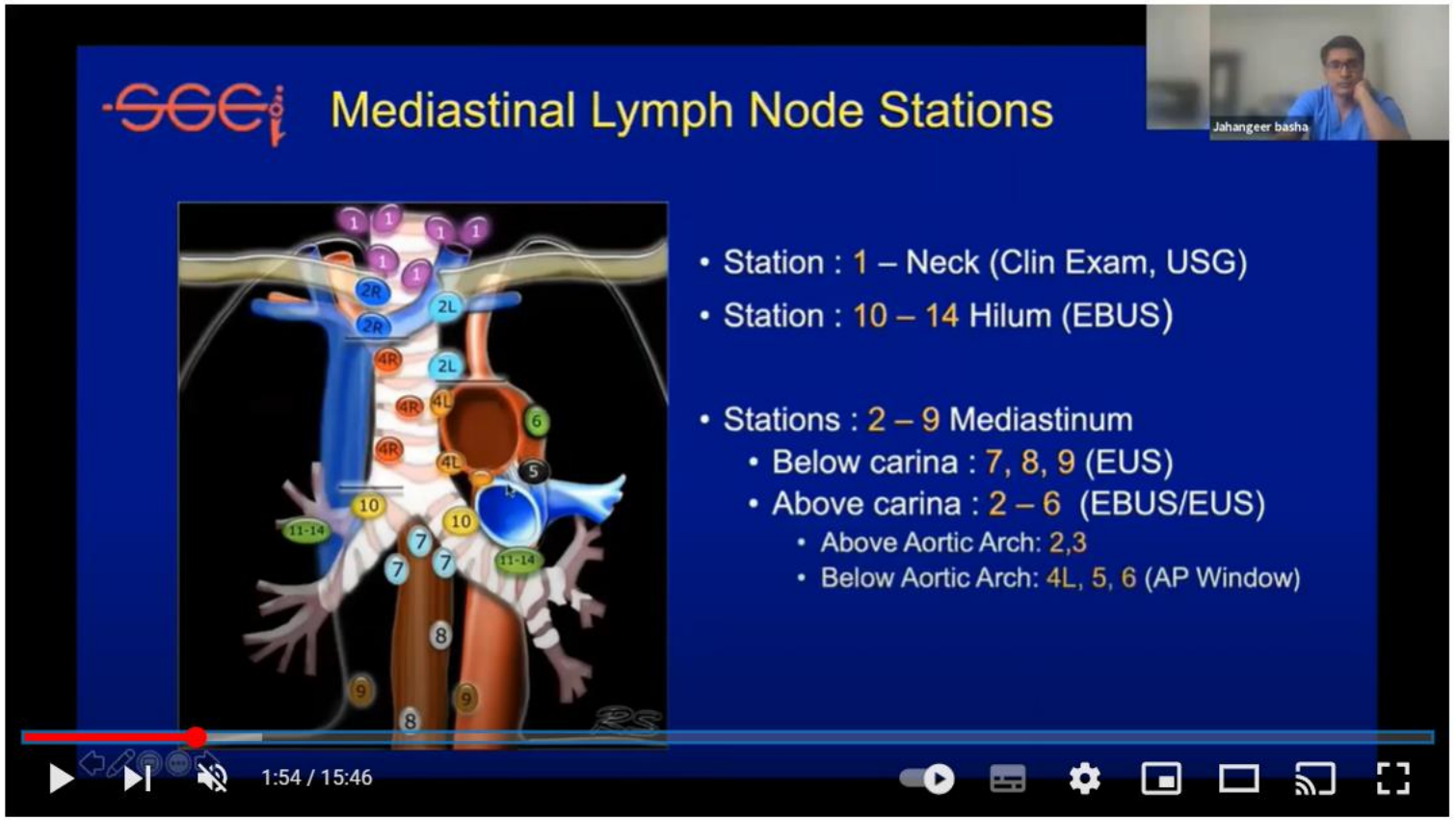

PA
Ascending
Aorta
SVC
RPA
LPA
Esophagus
Descending
Aorta

Anatomy – Superior mediastinum





Another Brick In The W | subcarinal space anatomy a | Mediastinal Anatomy by Dr | Posta in arrivo (15) - lisotti | esophagUS - Ricerca Goog | esophageal_cancer.pdf
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Mediastinal Anatomy by Dr Jahangeer Basha in EUS Masterclass Season 2 Episode 1

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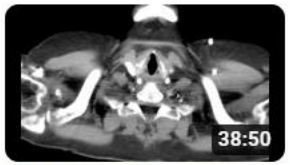
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