

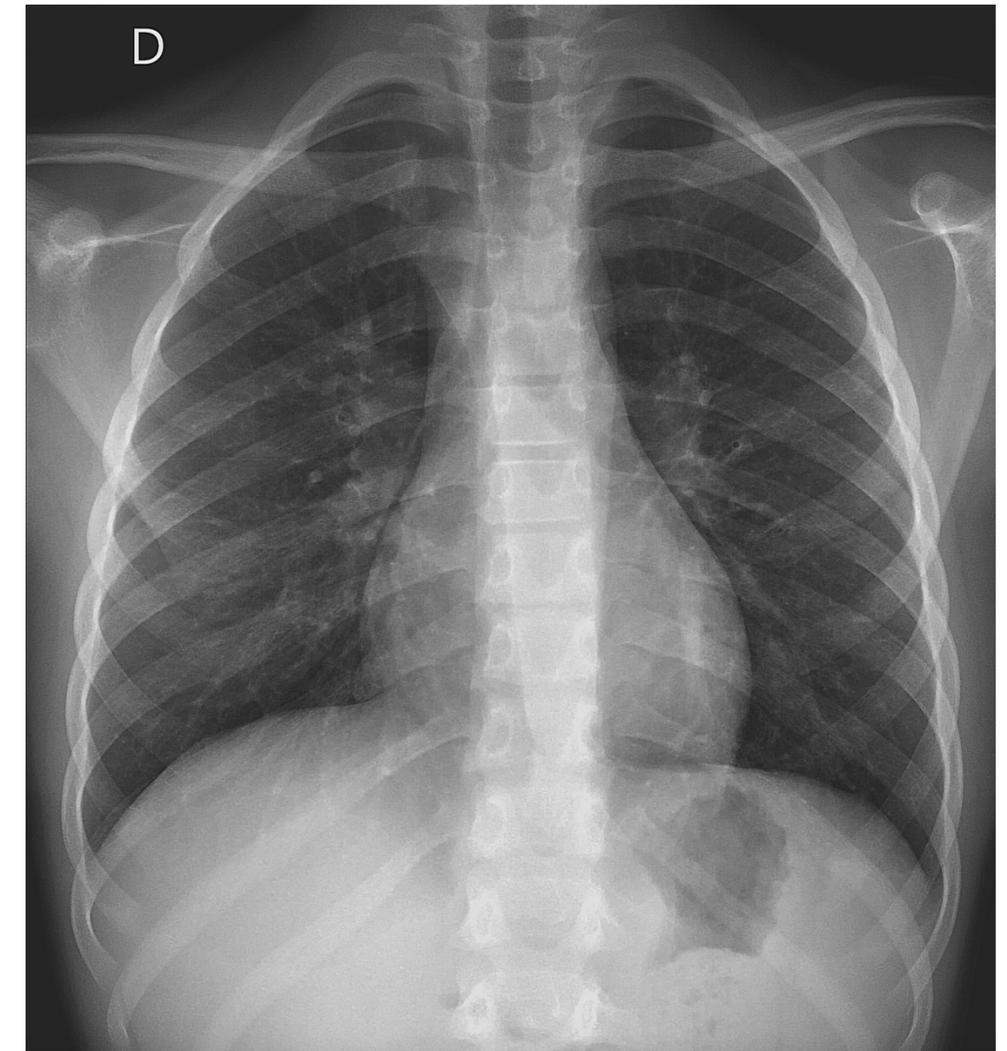
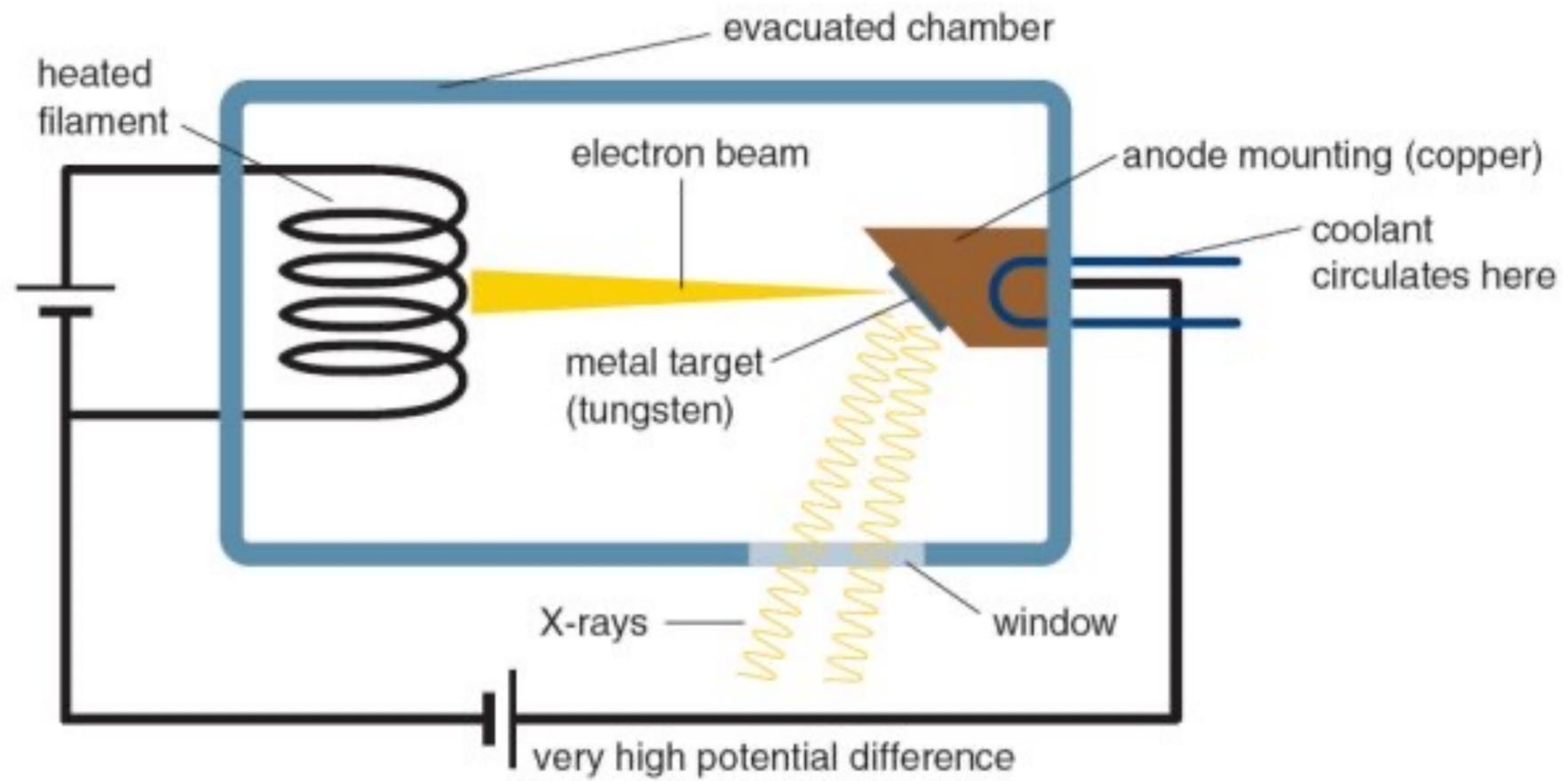


Raio-x do coração e grandes vasos

1702104 - Sistema Cardiocirculatório



Raio-x X radiografia





Técnica radiológica



Técnica

Padrão: Posteroanterior + Perfil

Posicionamento: ortostase (escápulas e braços fora do filme)

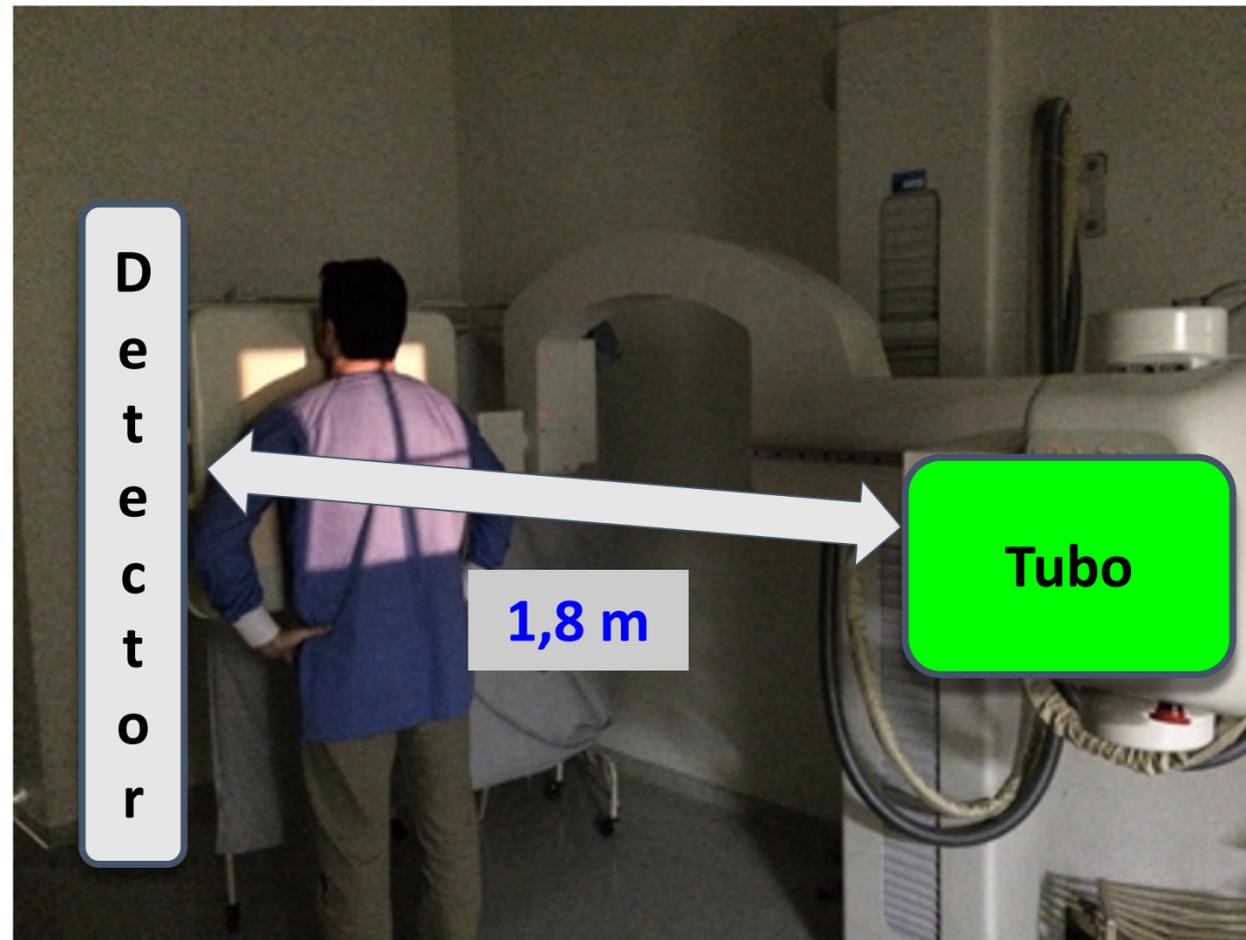
Distância foco-detector: 1,8 metros (mín.: 1,5 metros)

Divergência dos feixes de raio X: posteroanterior x anteroposterior

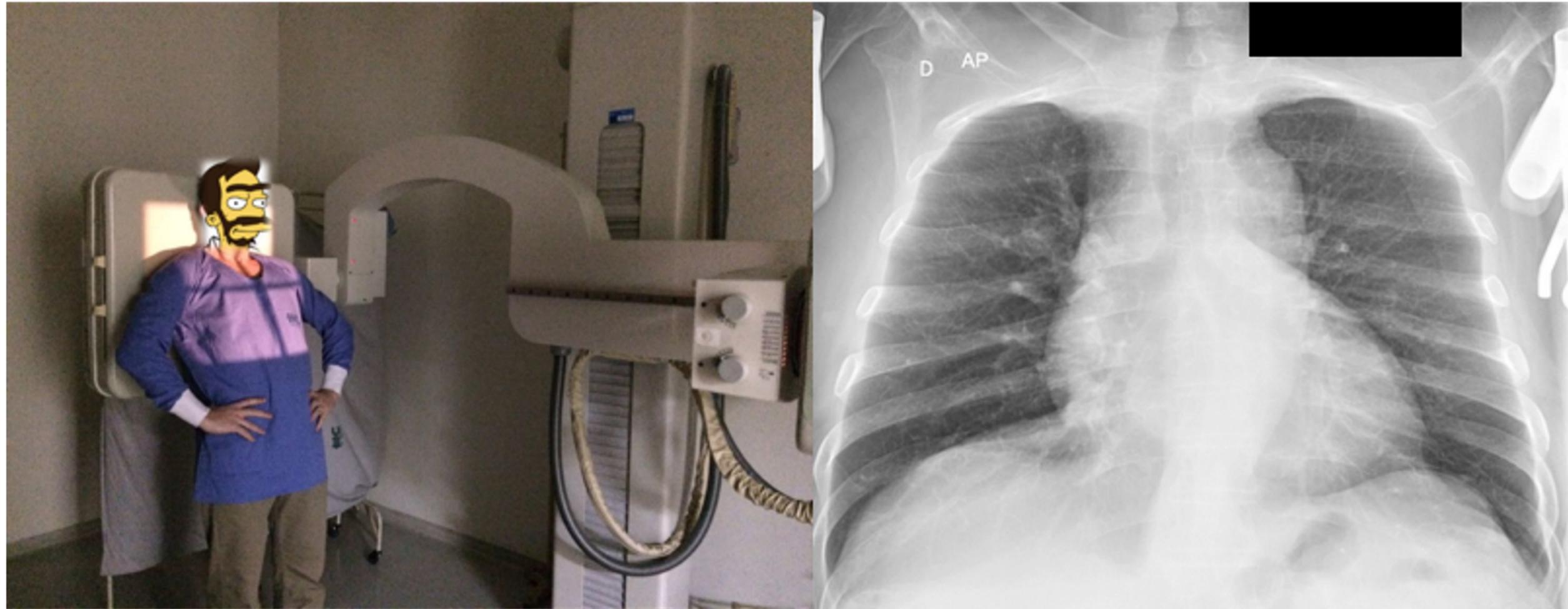
Inspiração correta

Alinhamento

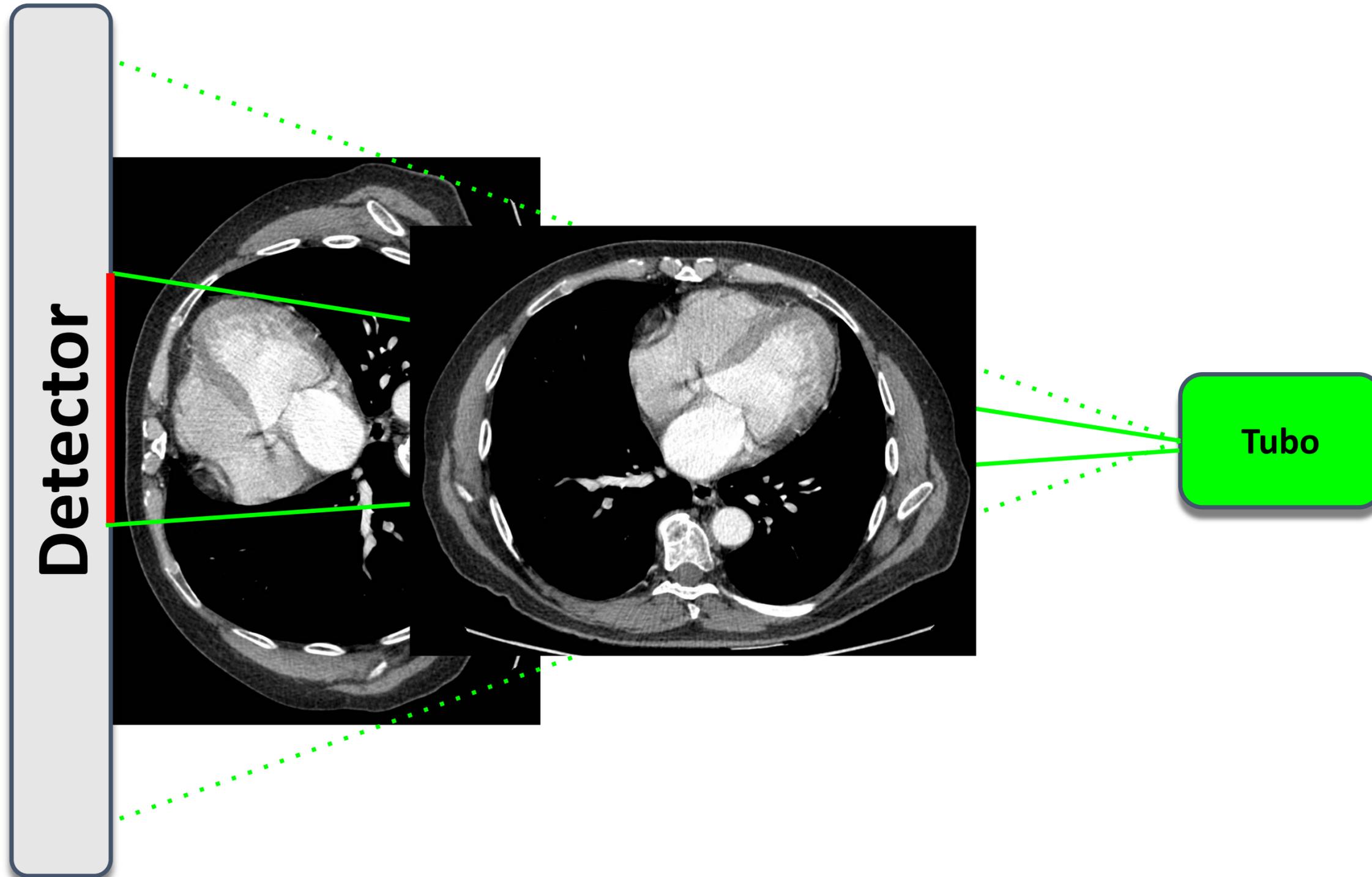
Posteroanterior



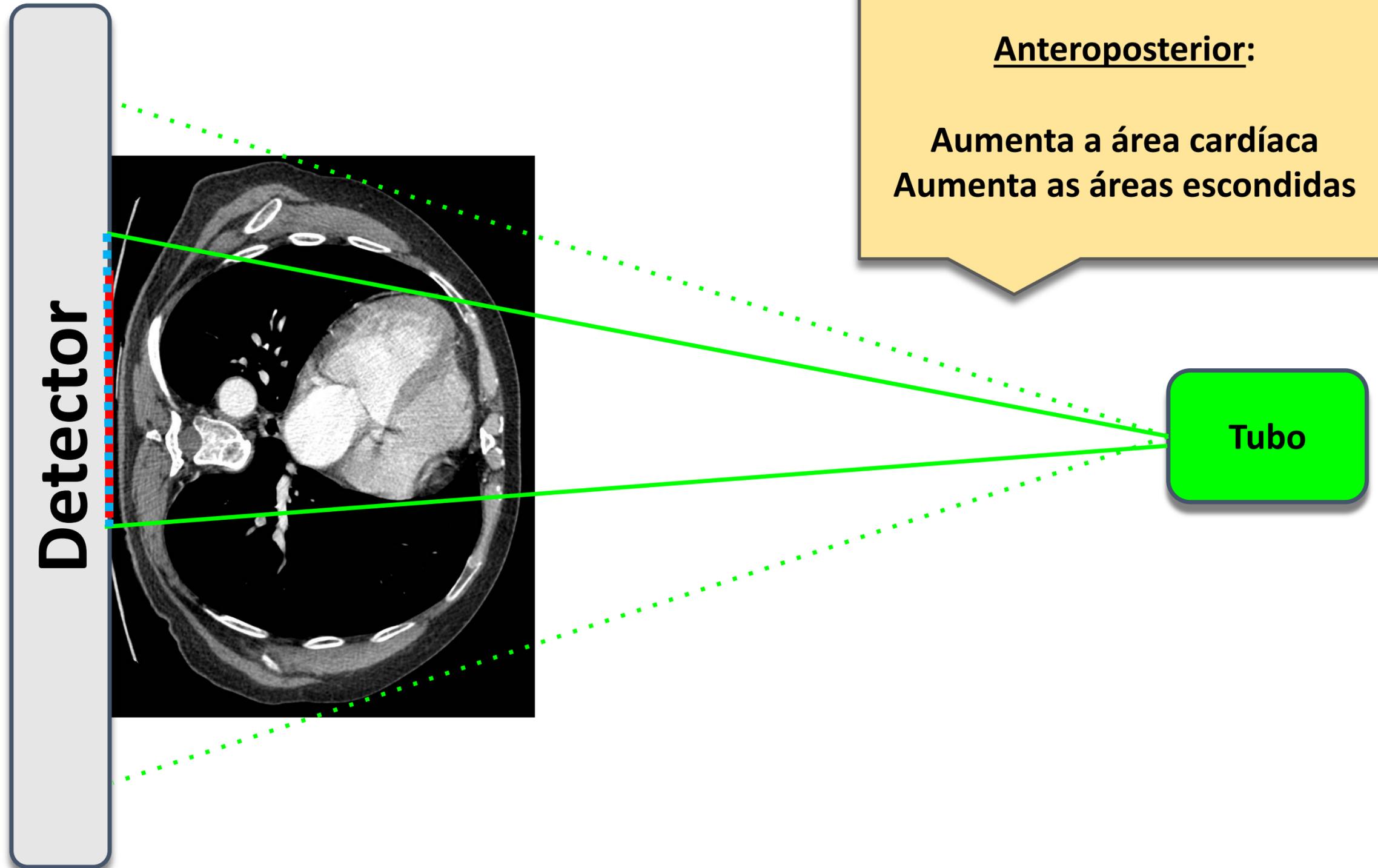
Anteroposterior



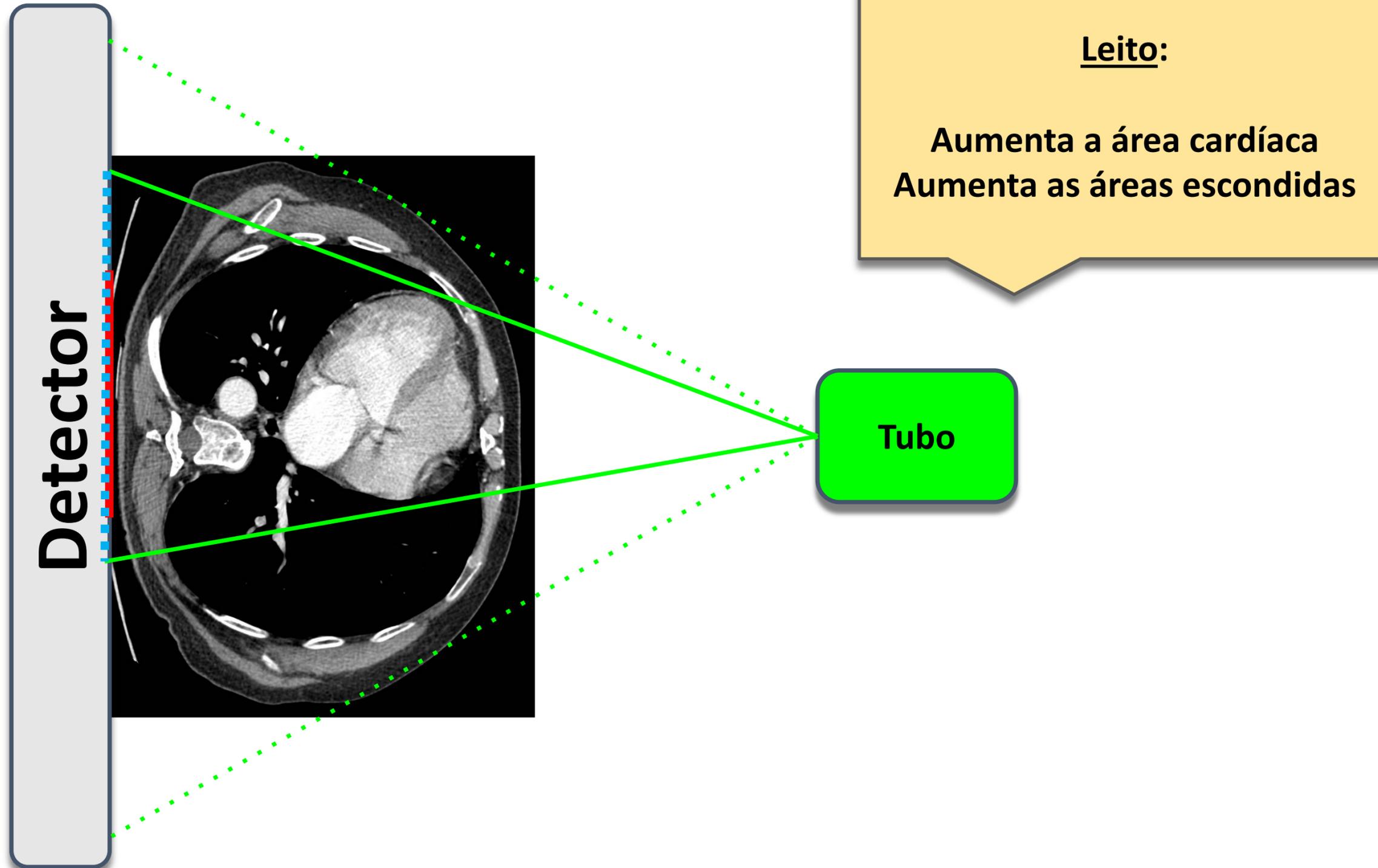
Posteroanterior



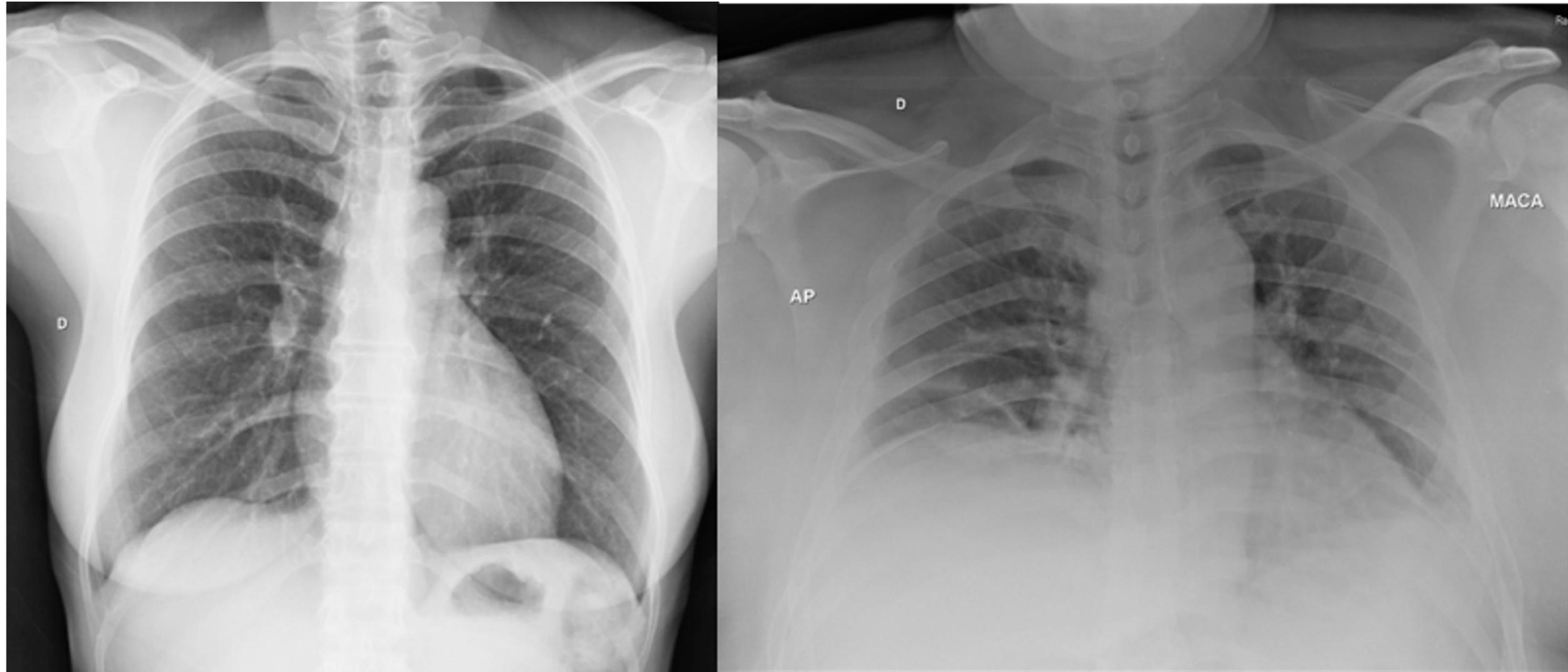
Anteroposterior



Anteroposterior no leito

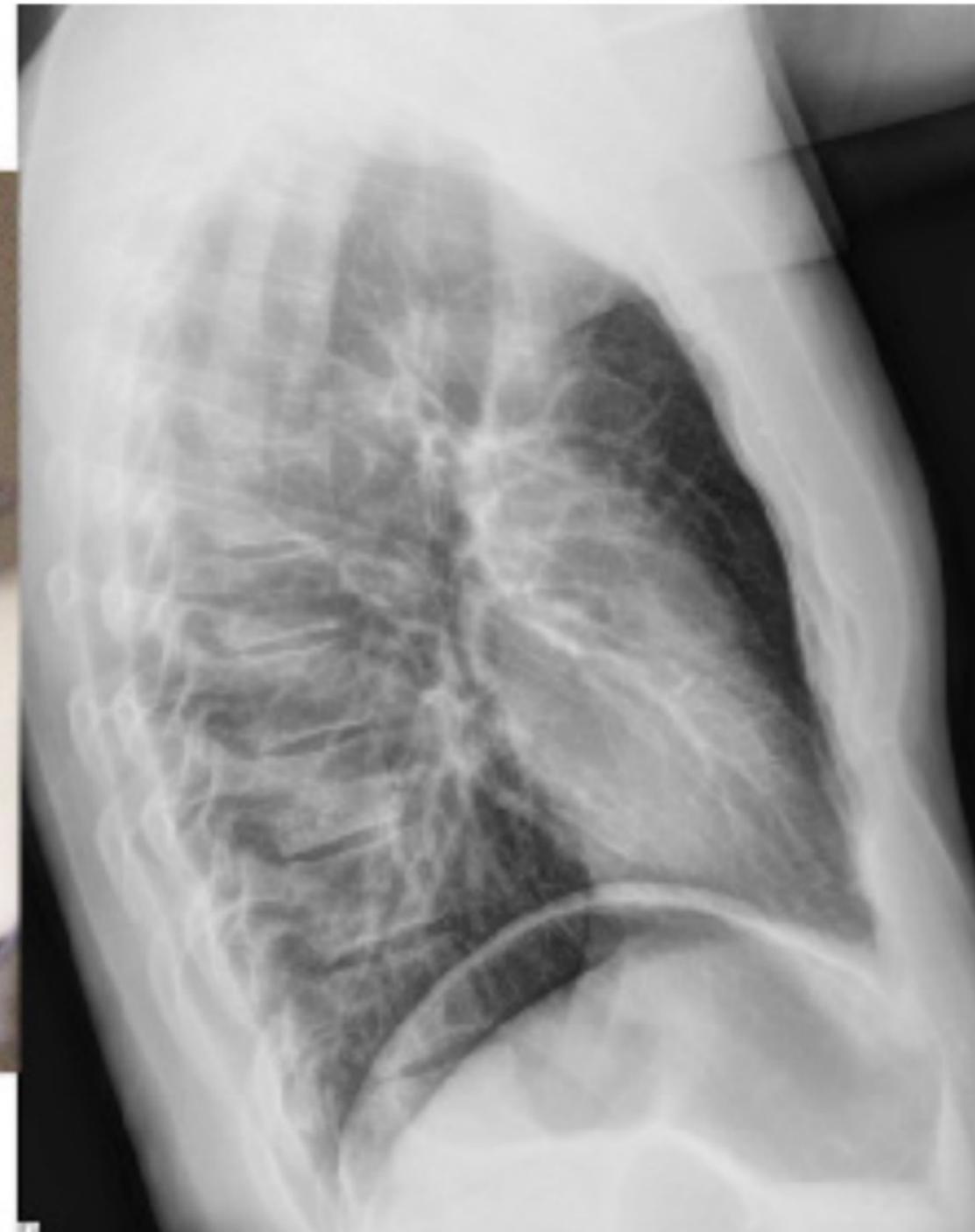


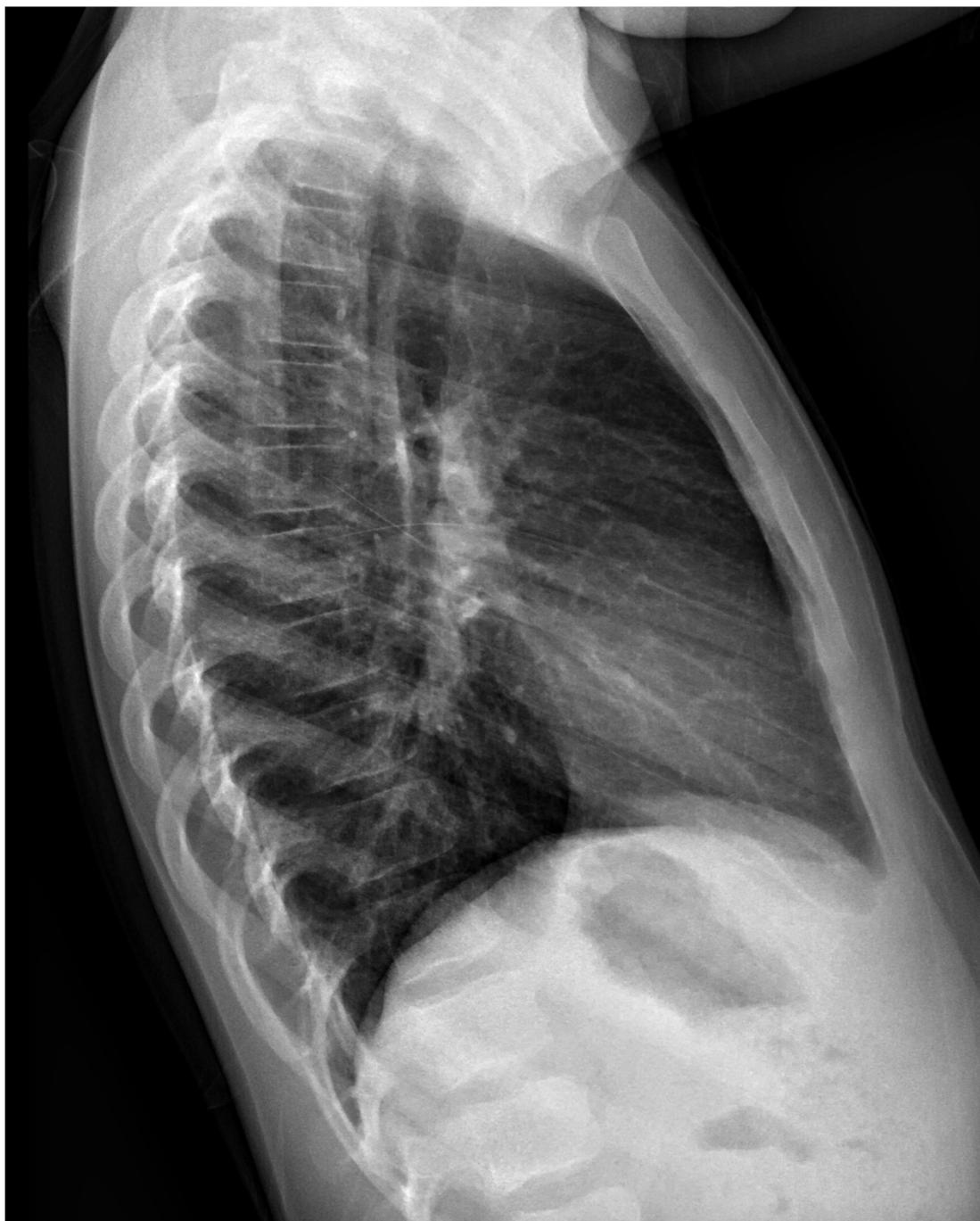
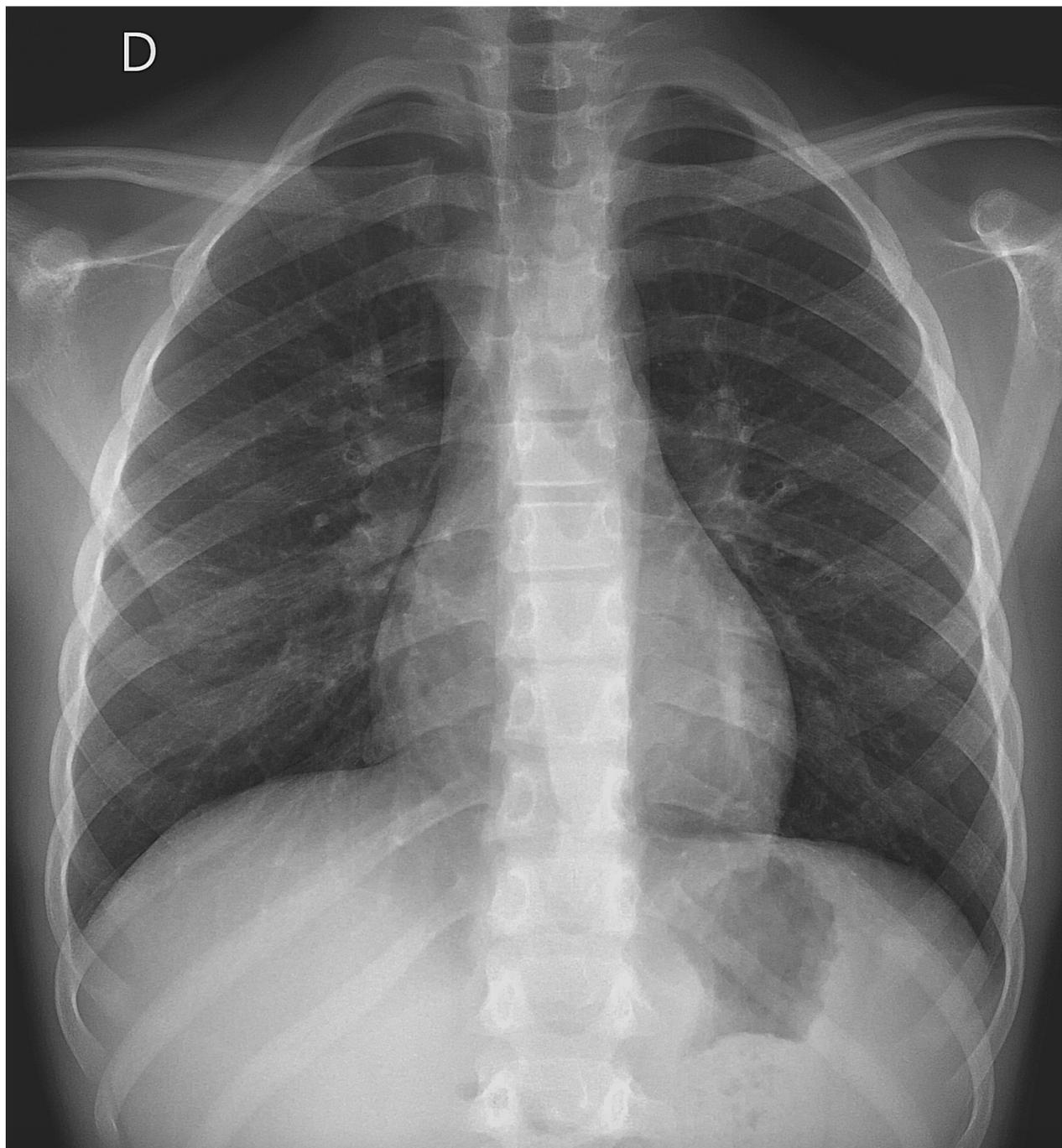
Anteroposterior no leito





E no perfil?







Questionário 1



Questão 1

Qual é a distância foco-detector recomendada para uma radiografia de tórax padrão?

1,8 metros

1,5 metros

1,2 metros

2,0 metros

1,0 metro



Questão 2

Qual projeção radiográfica aumenta artificialmente a área cardíaca na imagem?

Perfil

Anteroposterior

Lateral

Oblíqua

Posteroanterior



Questão 3

A inspição correta é importante para a obtenção de uma radiografia de tórax diagnóstica.

Verdadeiro

Falso



Questão 3

Assinale as alternativas **corretas** (uma ou mais):

A divergência dos feixes de raio X é maior na projeção anteroposterior (AP) do que na projeção posteroanterior (PA).

Na aquisição de uma radiografia de tórax em perfil é preferível que o paciente fique com o lado esquerdo mais próximo ao detector.

A técnica radiológica padrão para uma radiografia de tórax inclui uma projeção posteroanterior e perfil.

O posicionamento do paciente para uma radiografia de tórax deve ser em ortostase com escápulas e braços fora do filme.

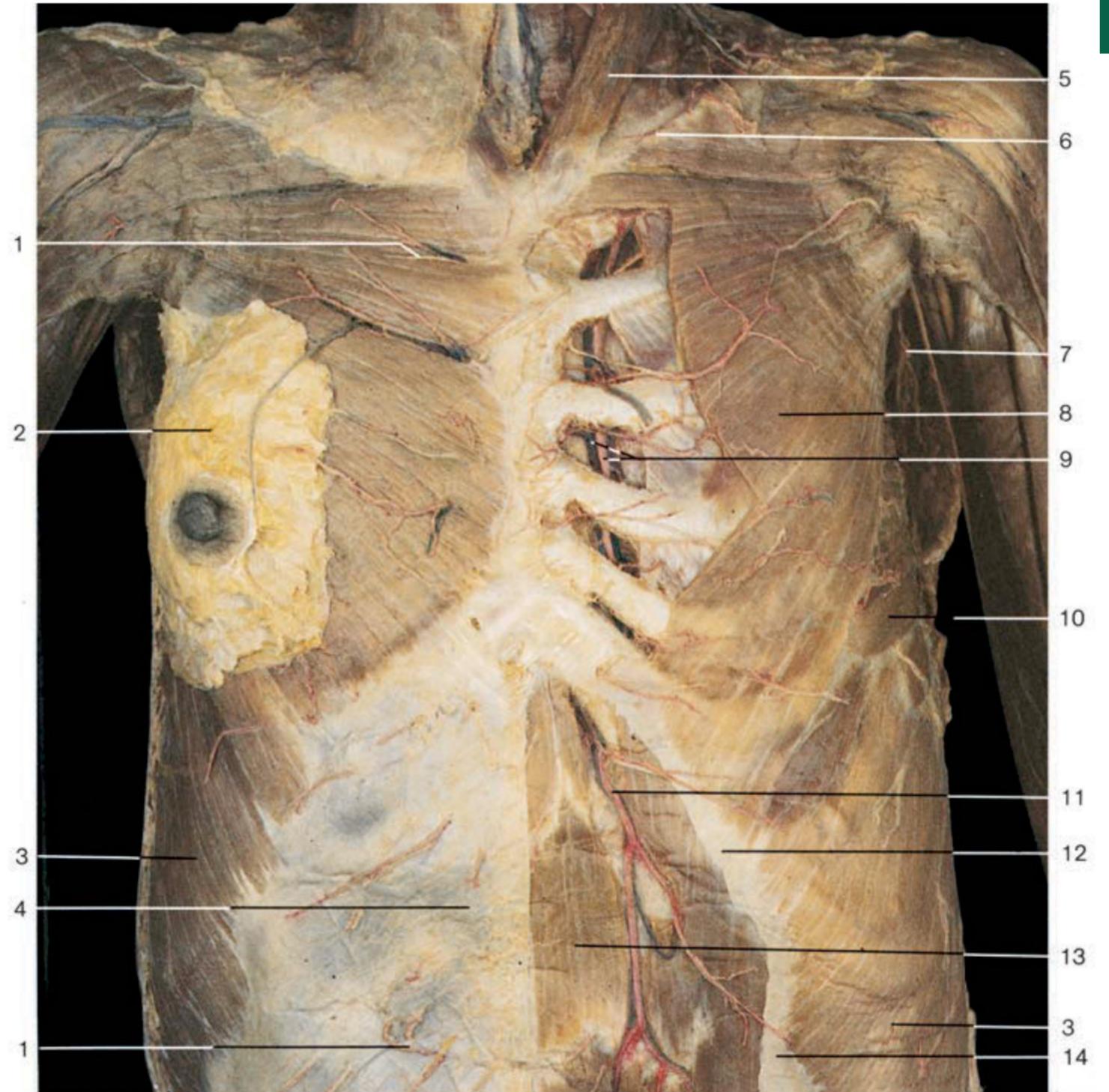
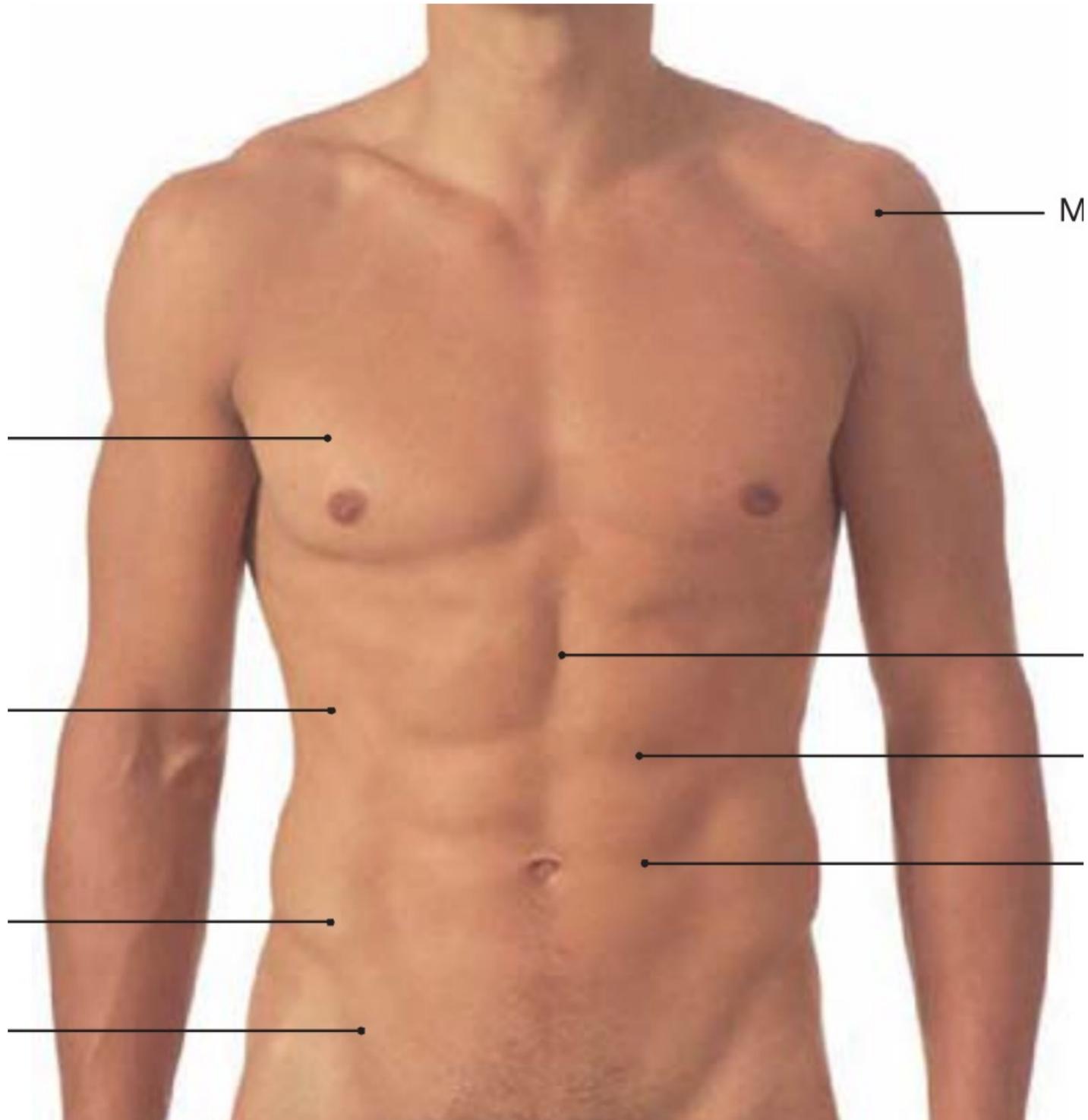
O posicionamento em ortostase é recomendado para a realização da radiografia de tórax para que as escápulas e os braços fiquem dentro do campo da imagem.



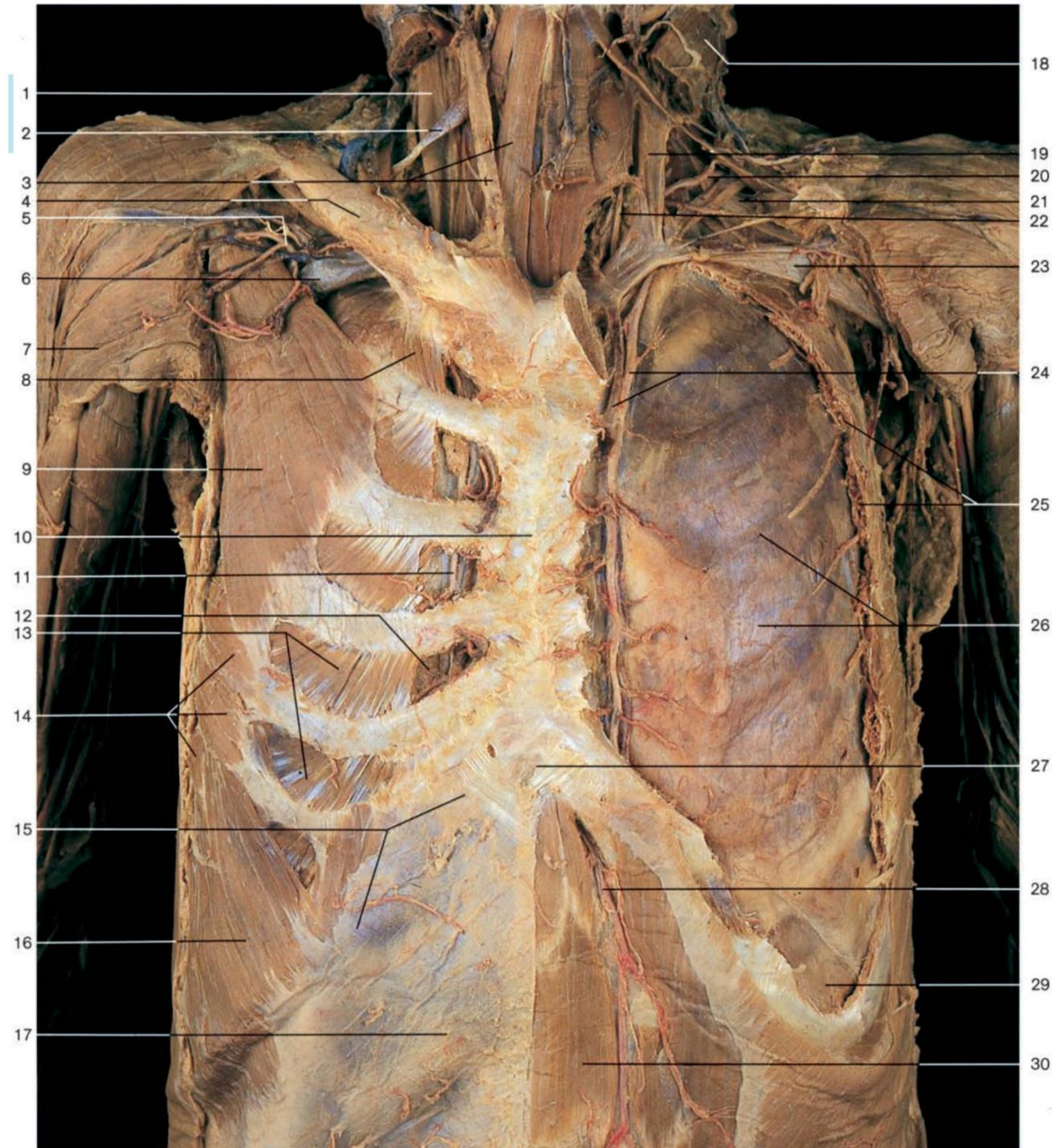
Anatomia

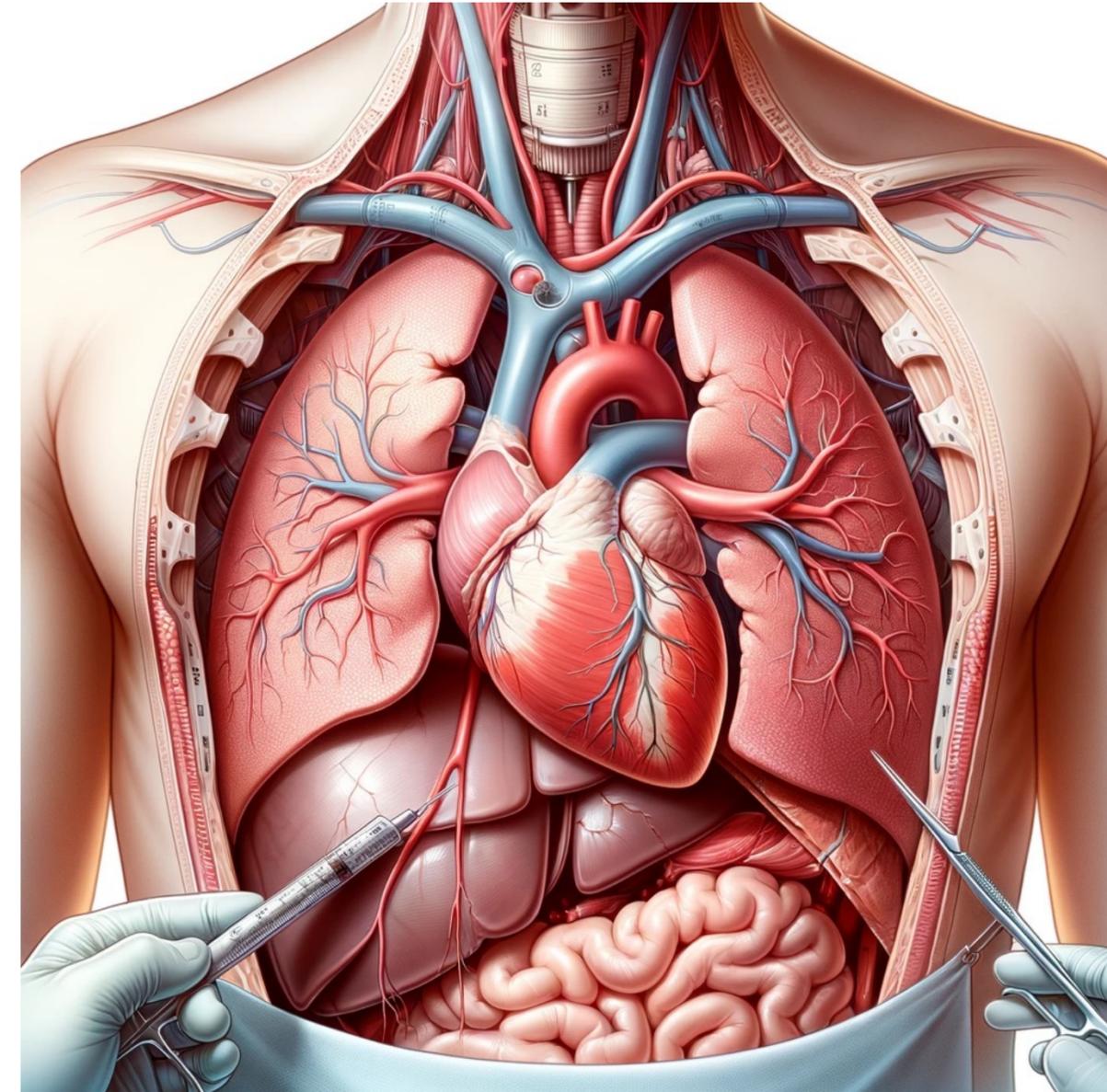
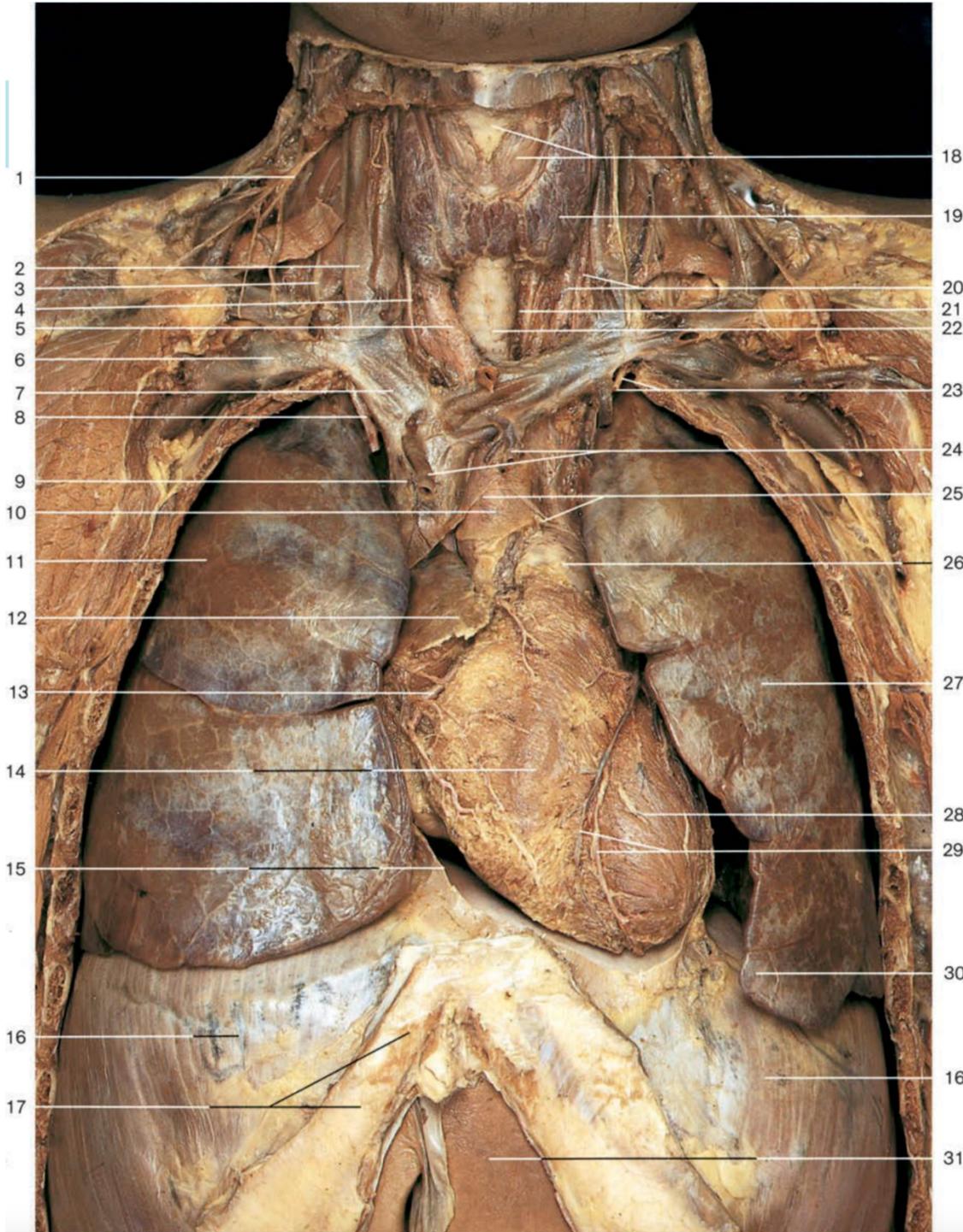


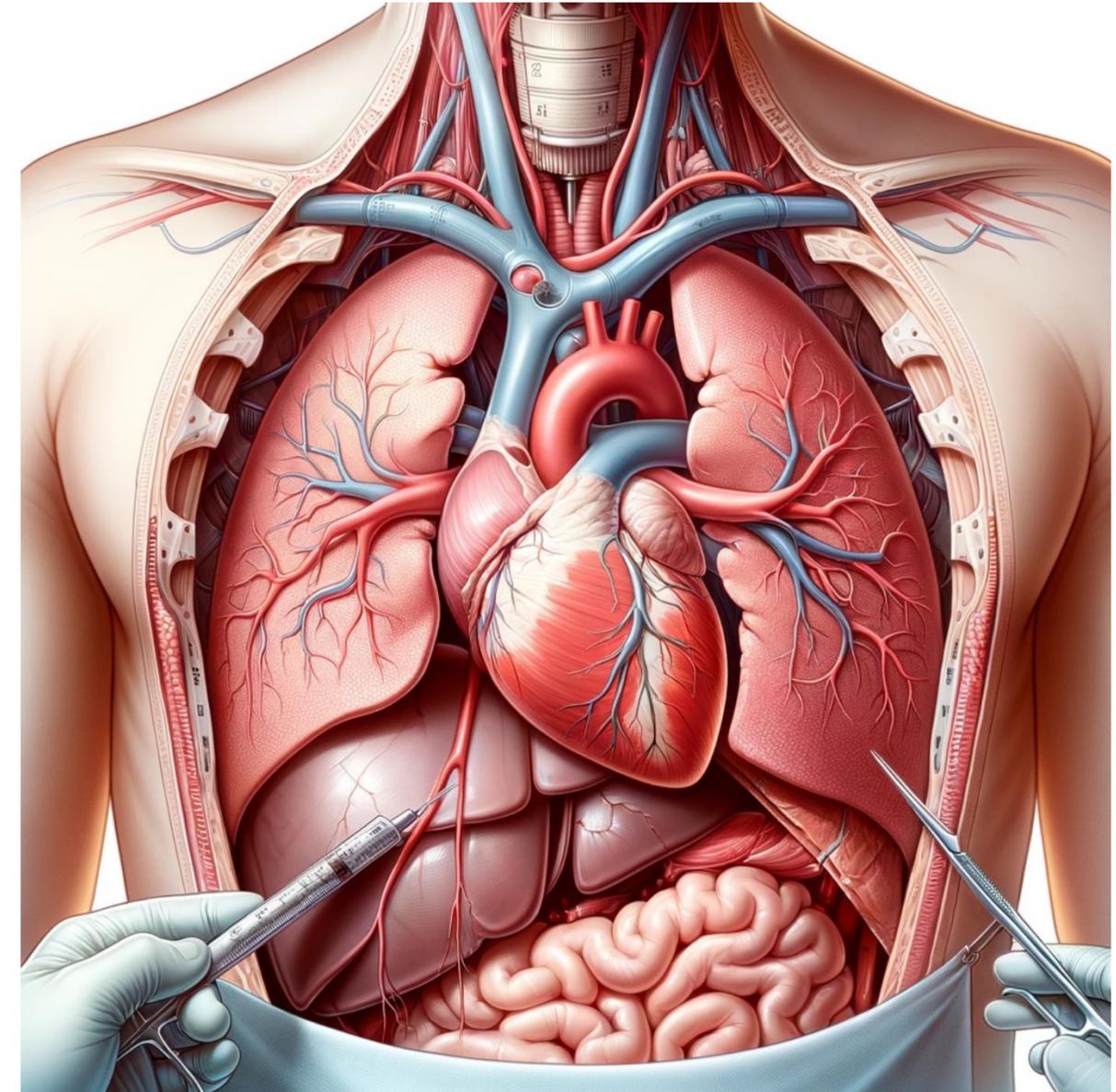
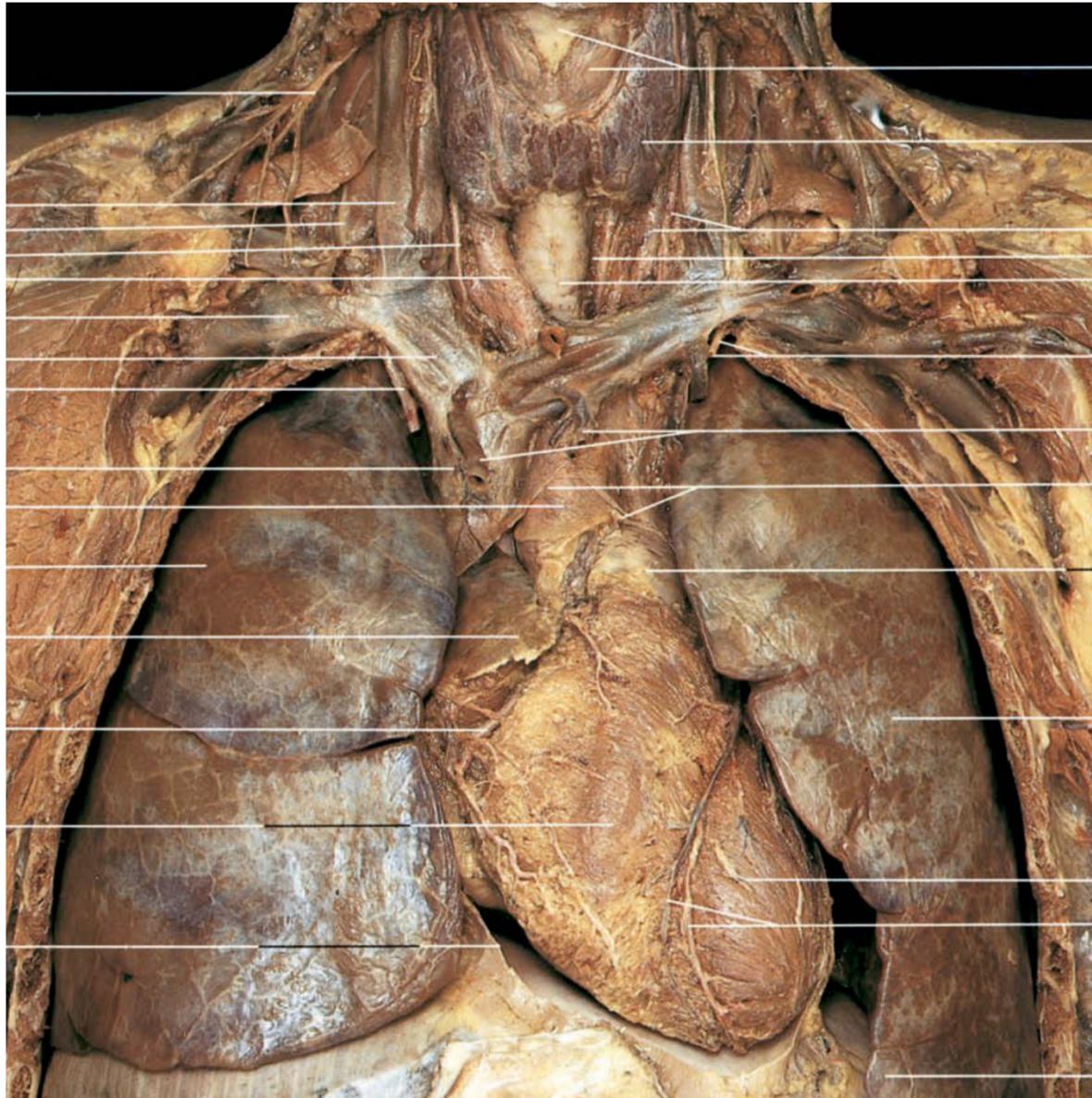
Parede torácica

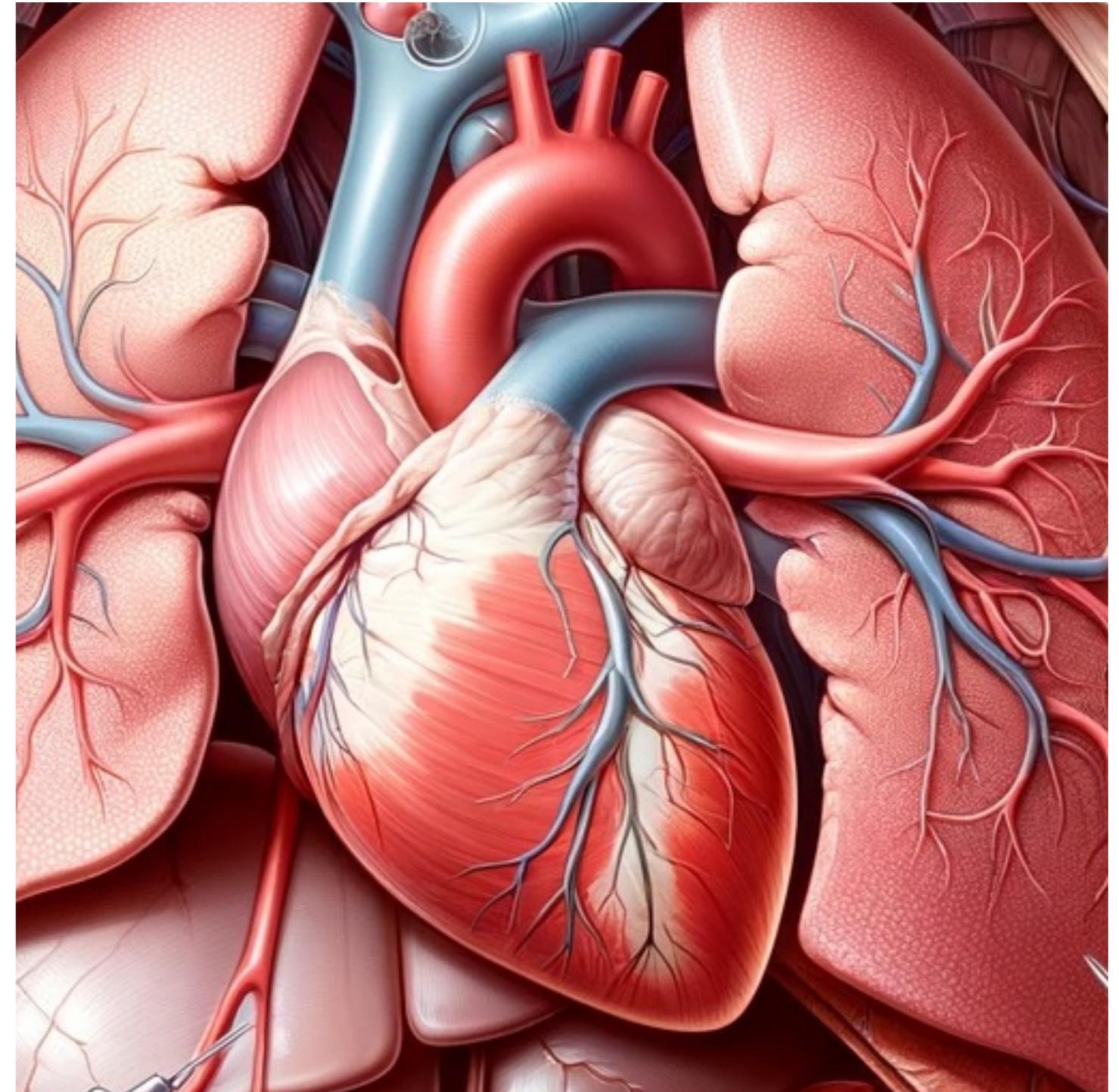
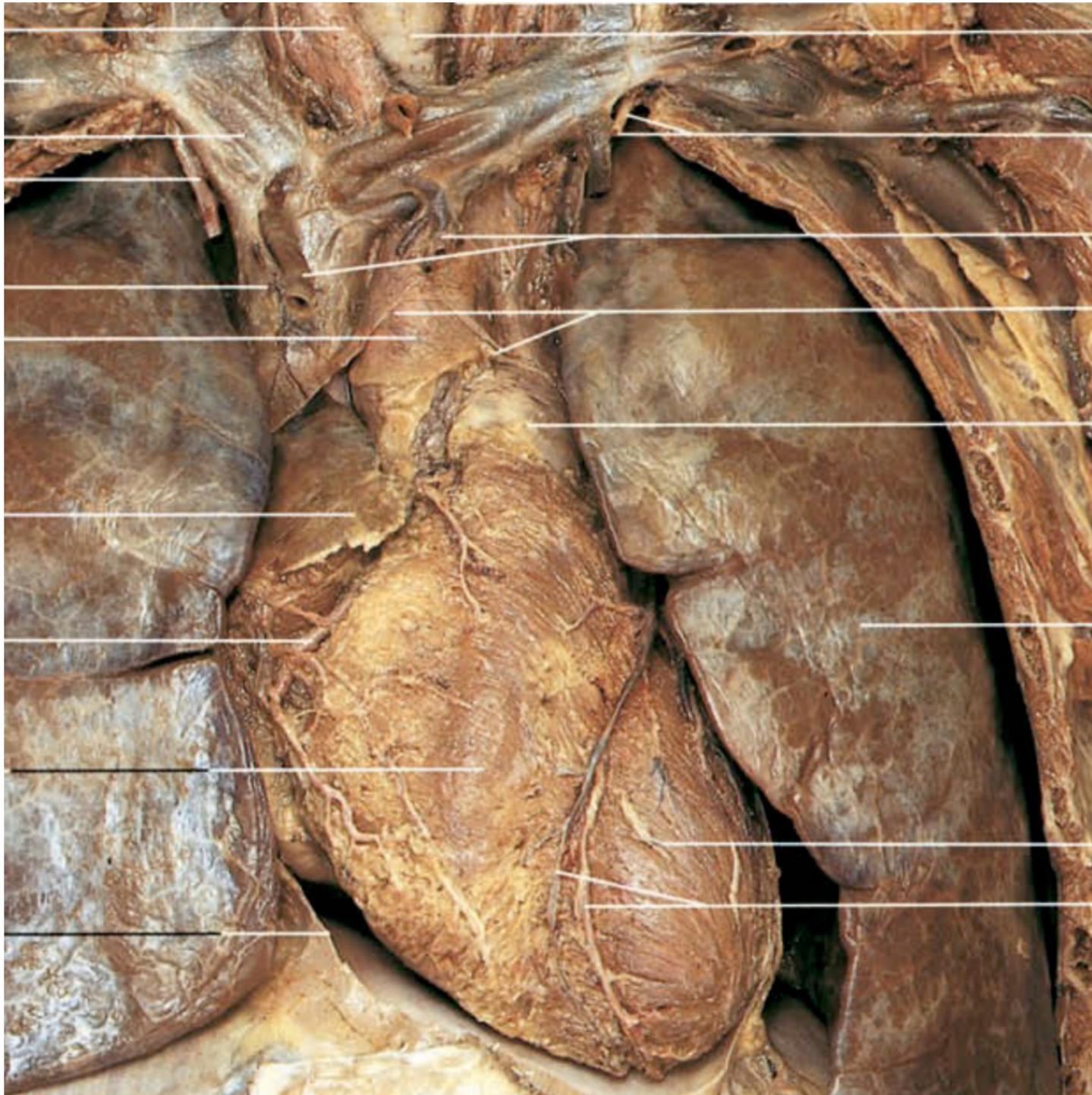


Coração

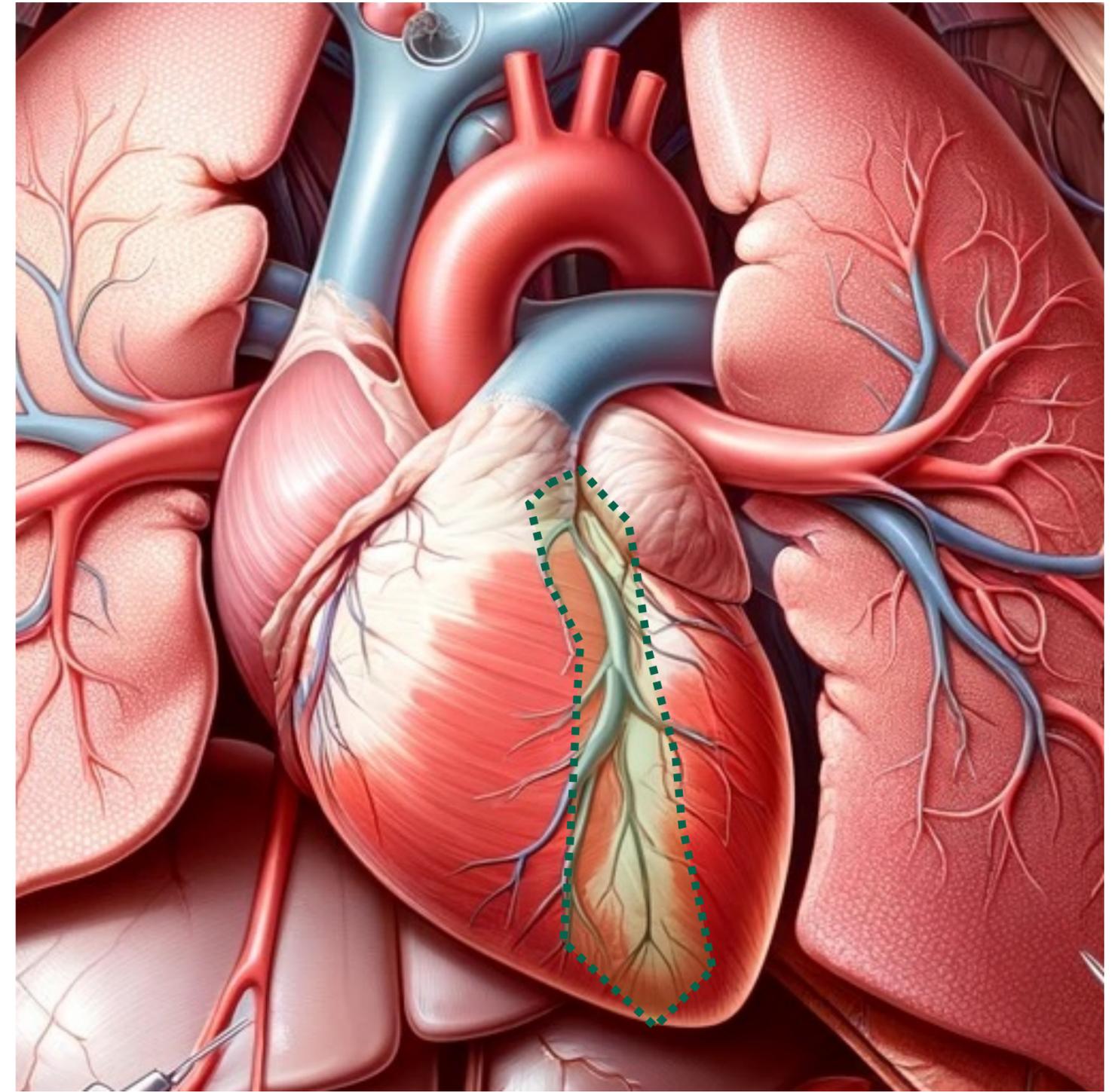
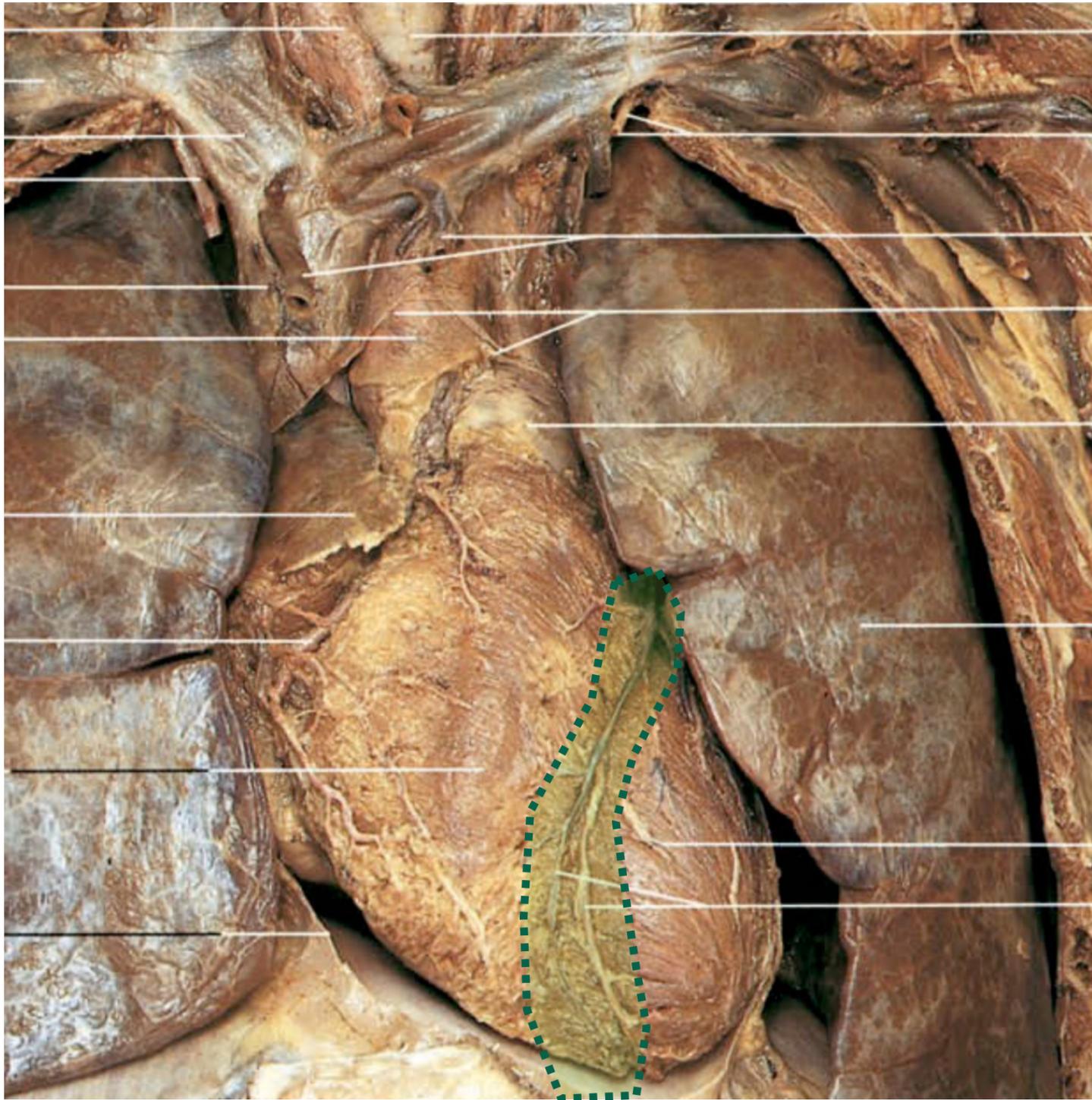




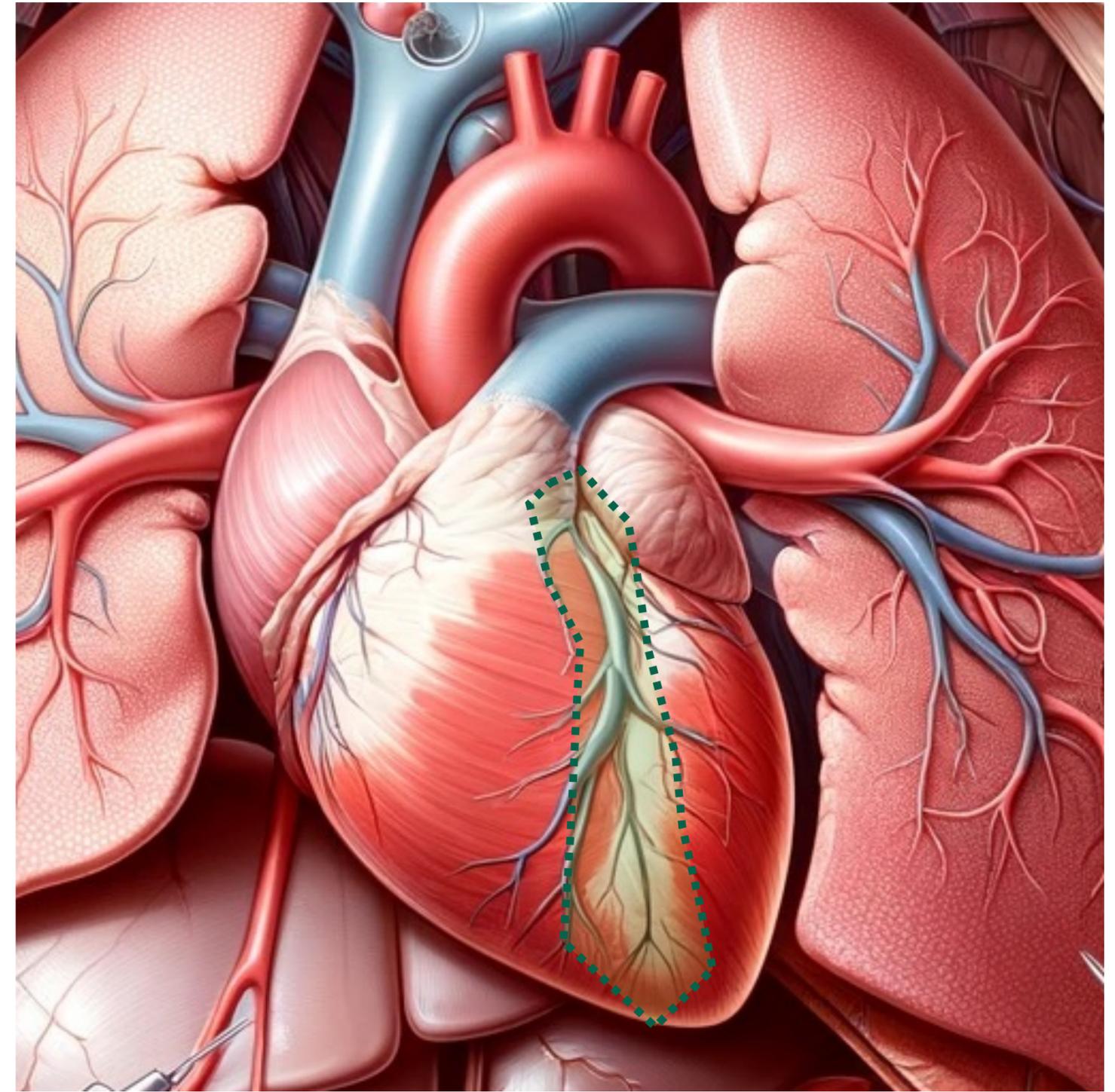
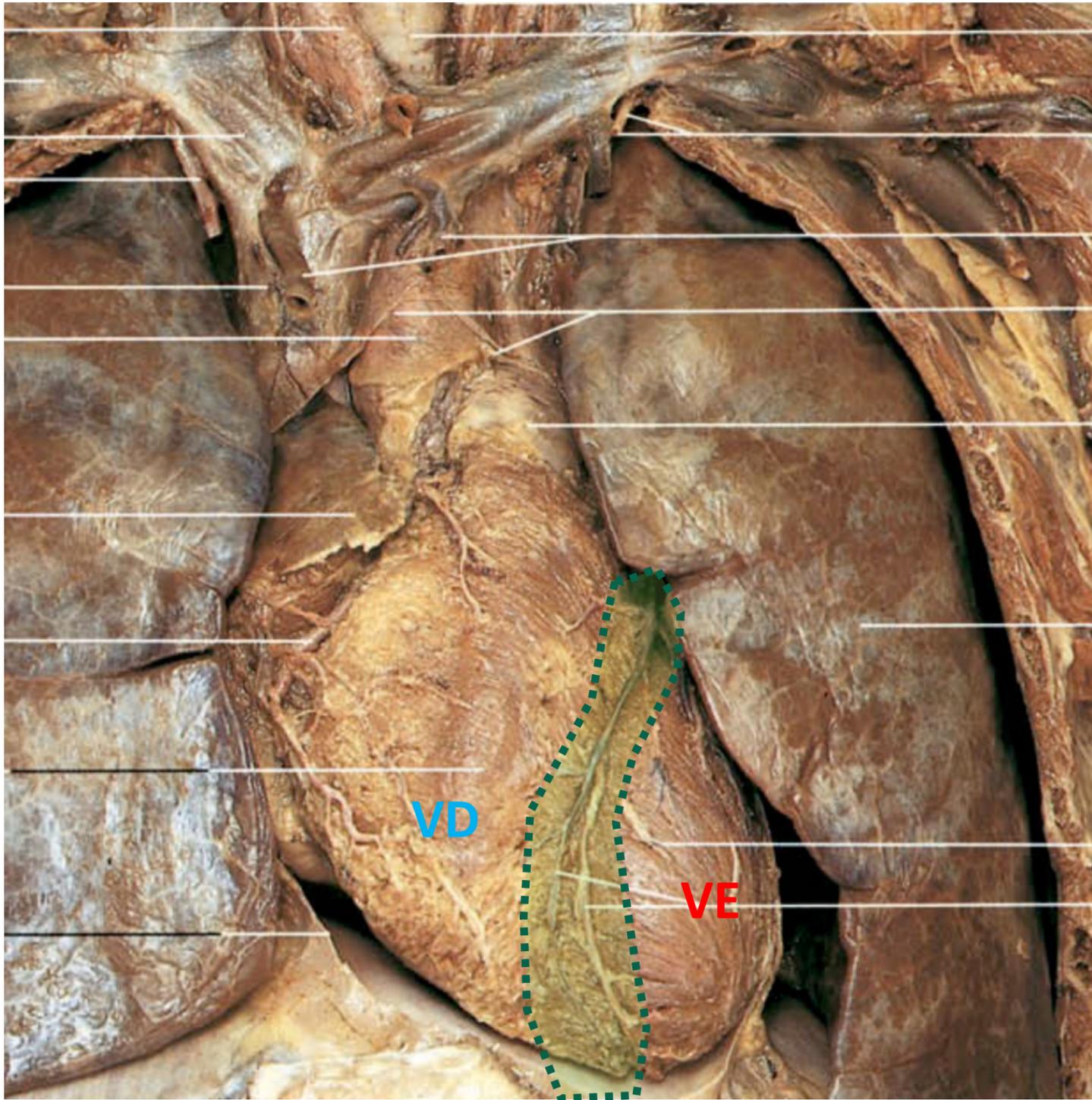




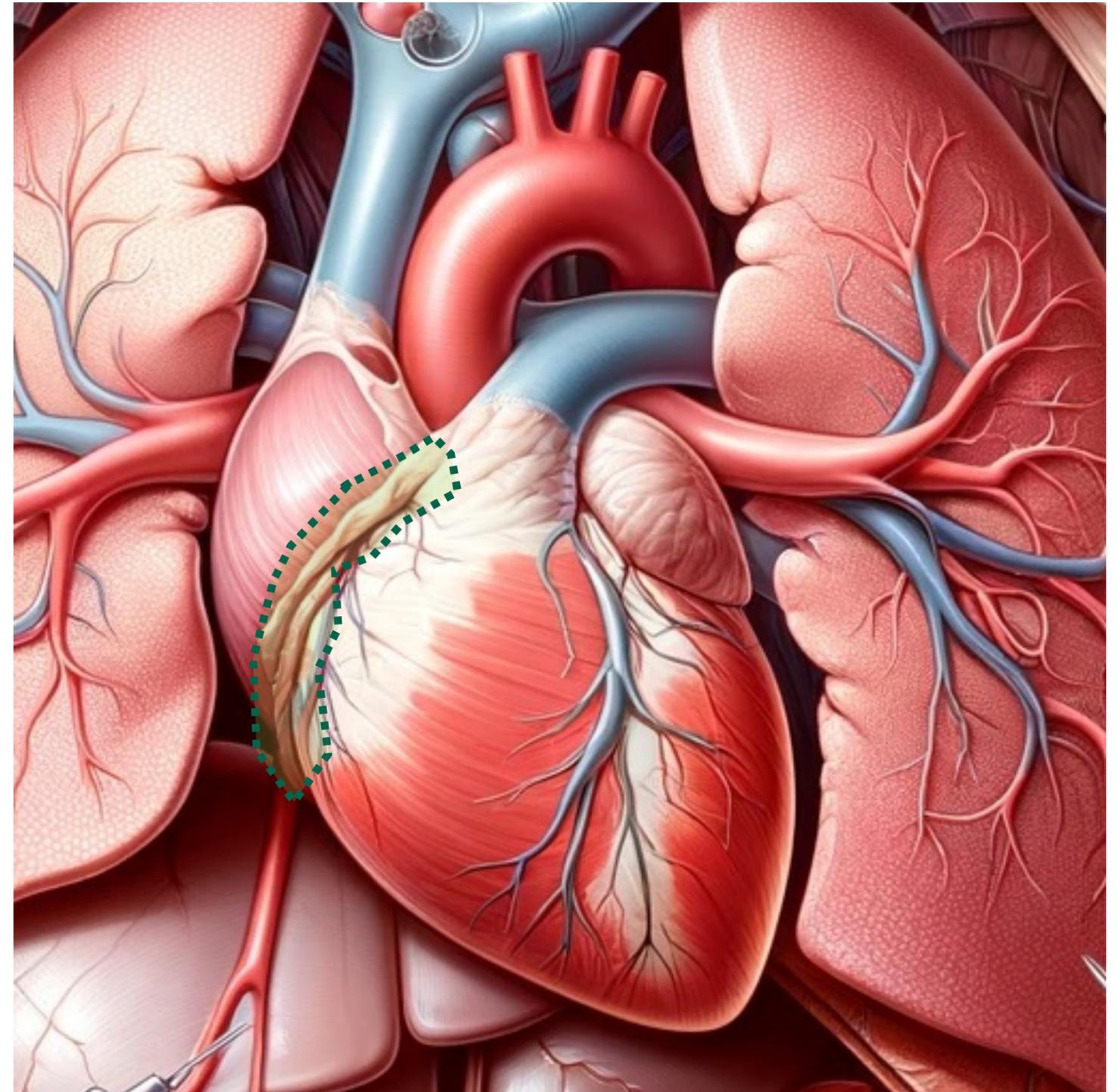
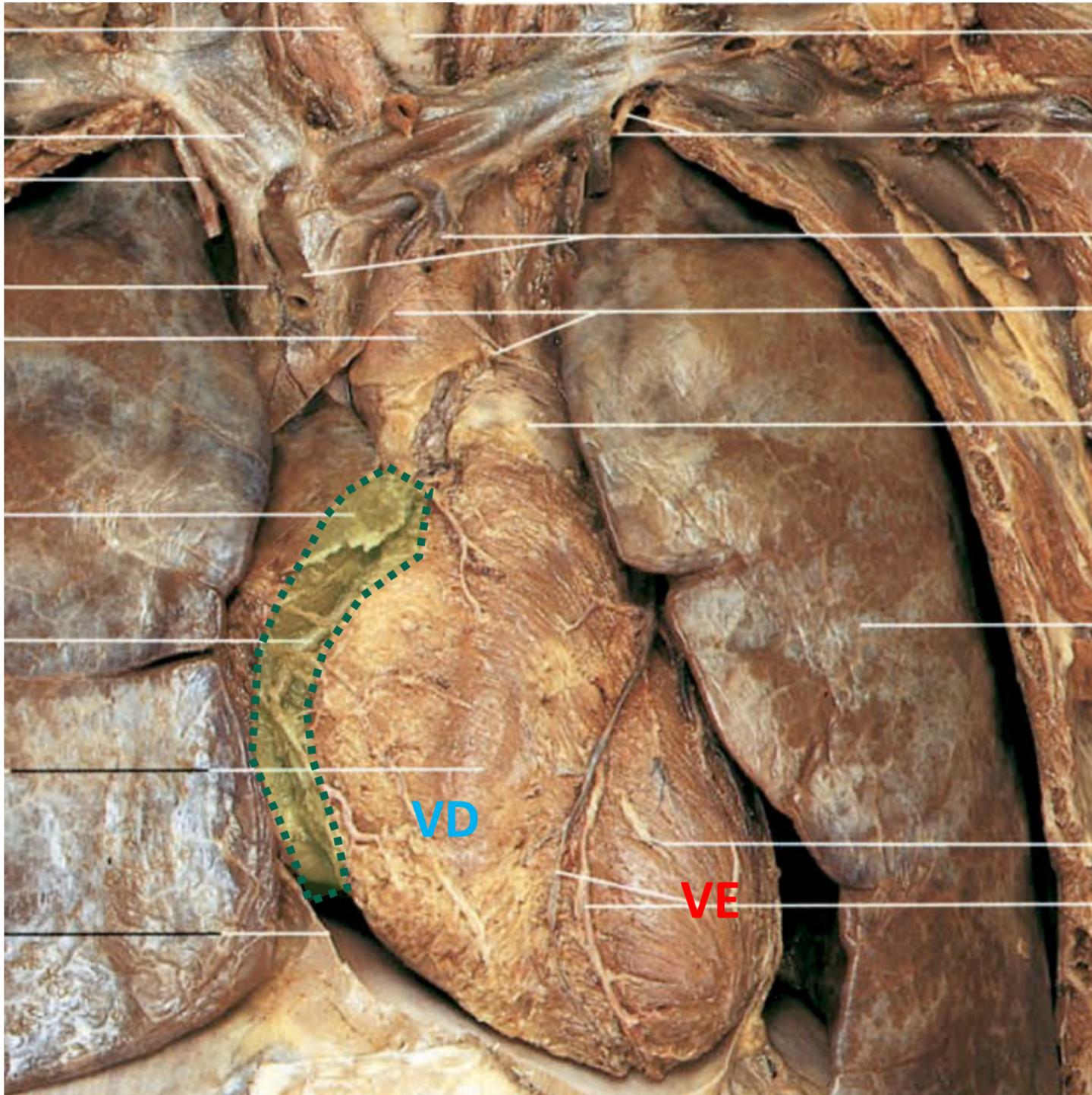
Sulco interventricular anterior Coronária descendente anterior



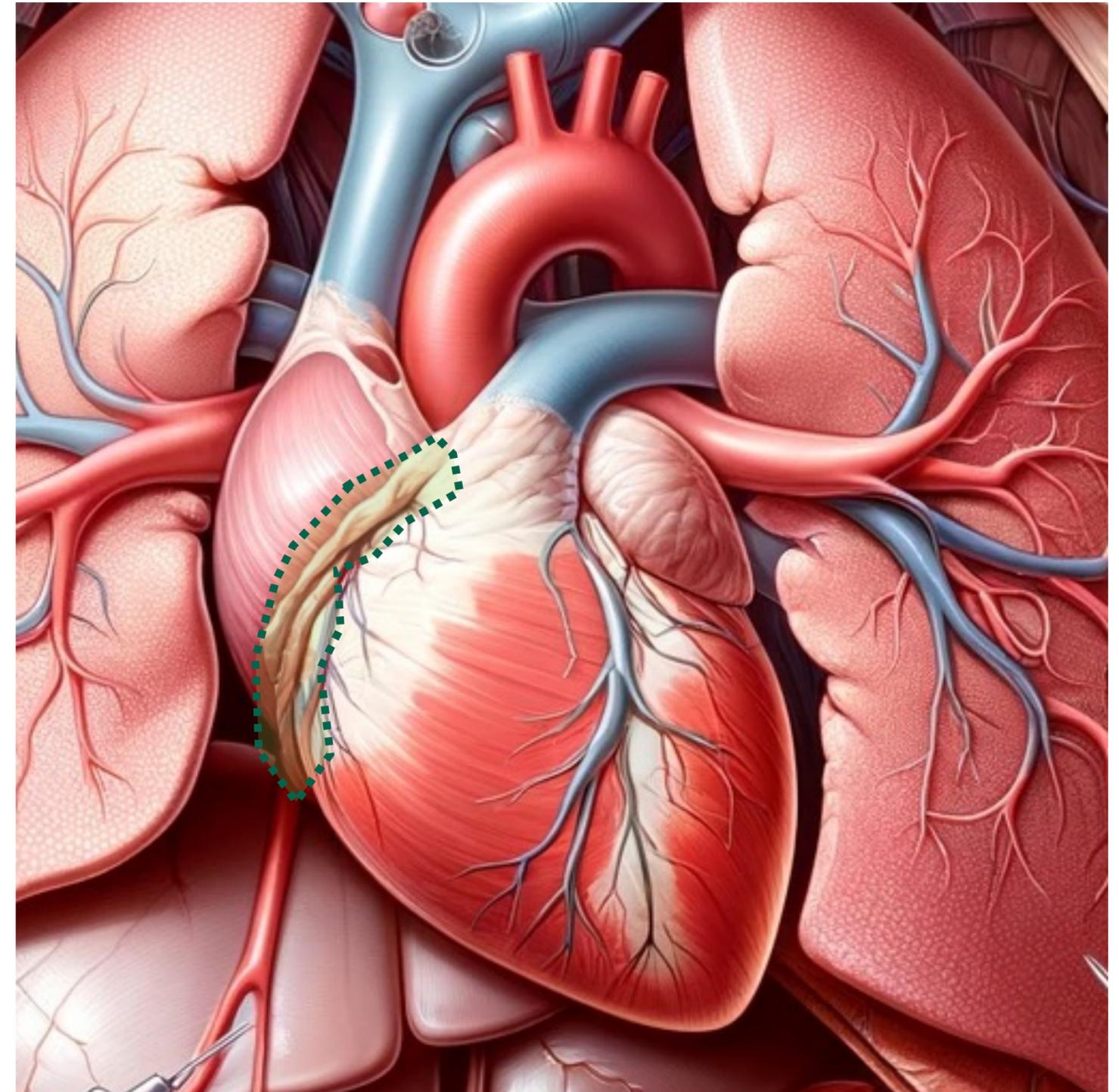
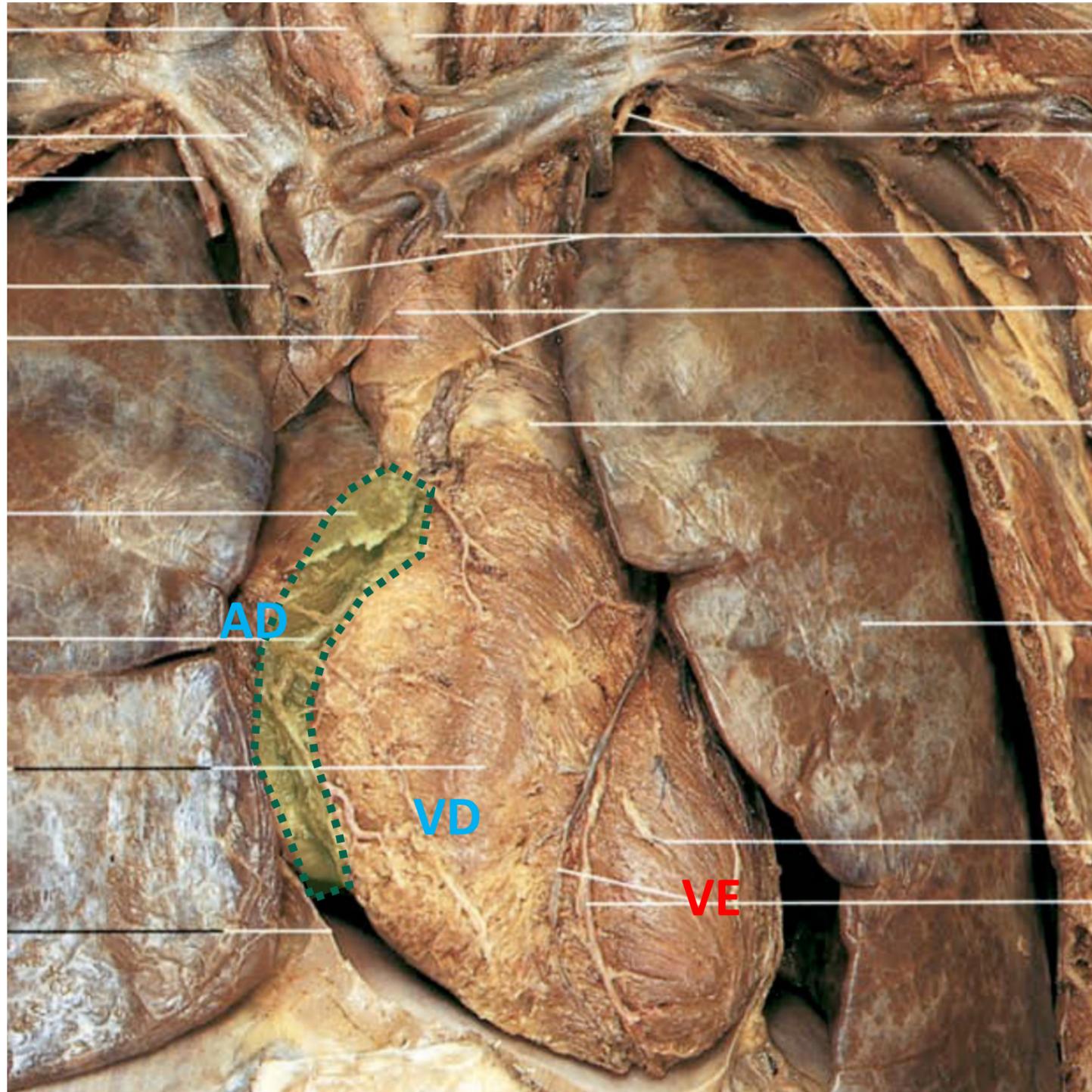
Sulco interventricular anterior Coronária descendente anterior



Sulco atrioventricular direito Coronária direita

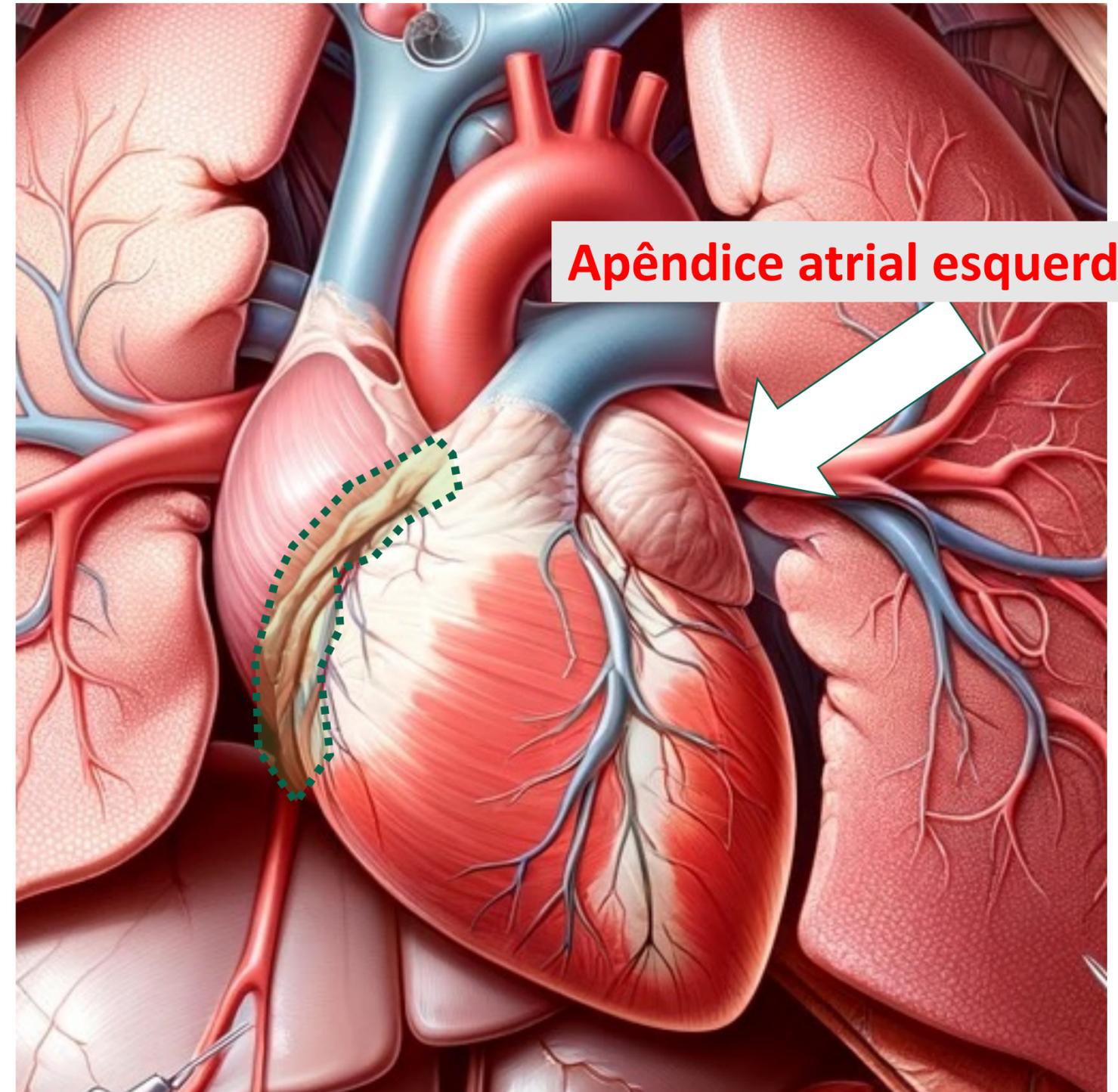
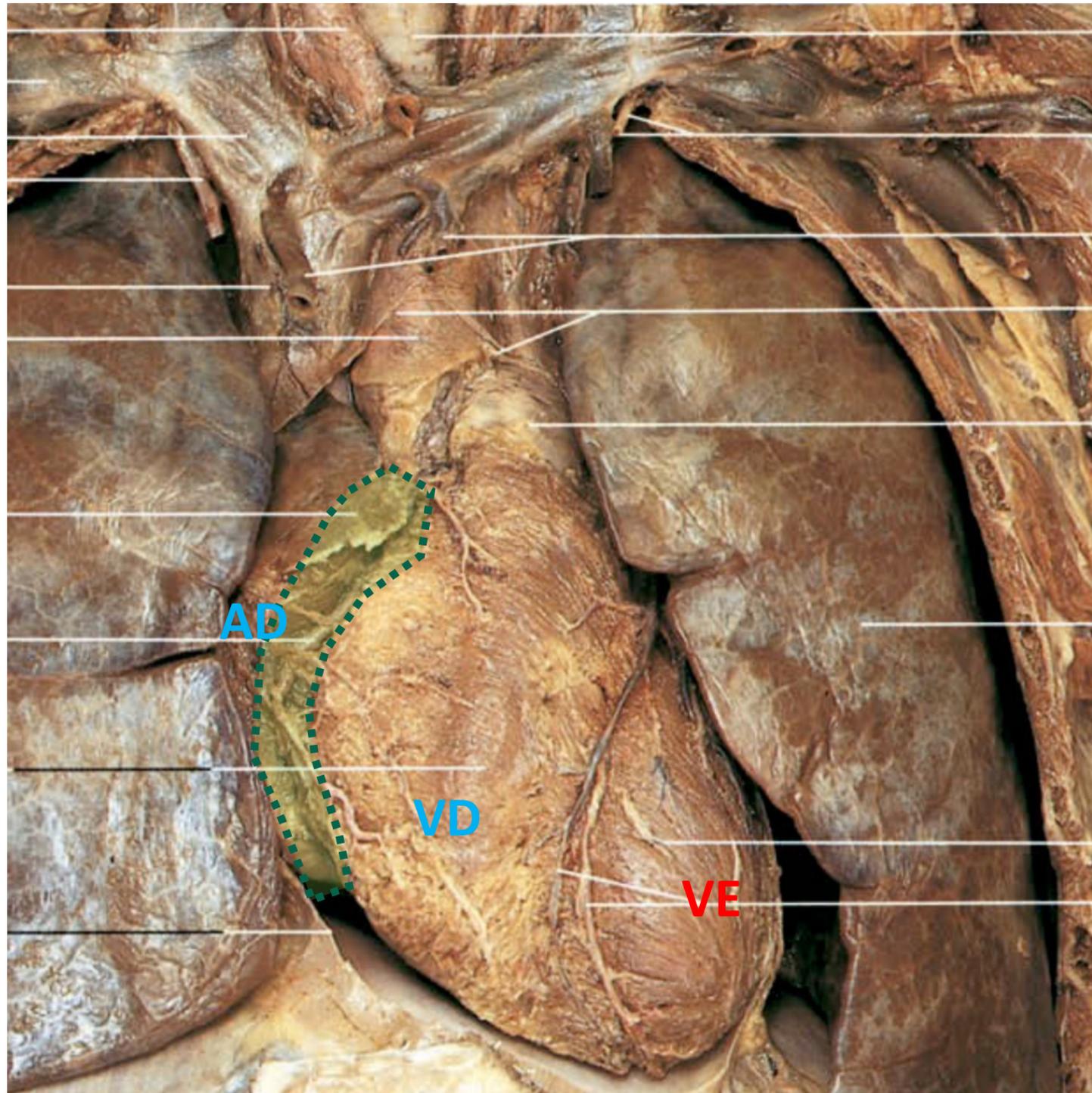


Sulco atrioventricular direito Coronária direita

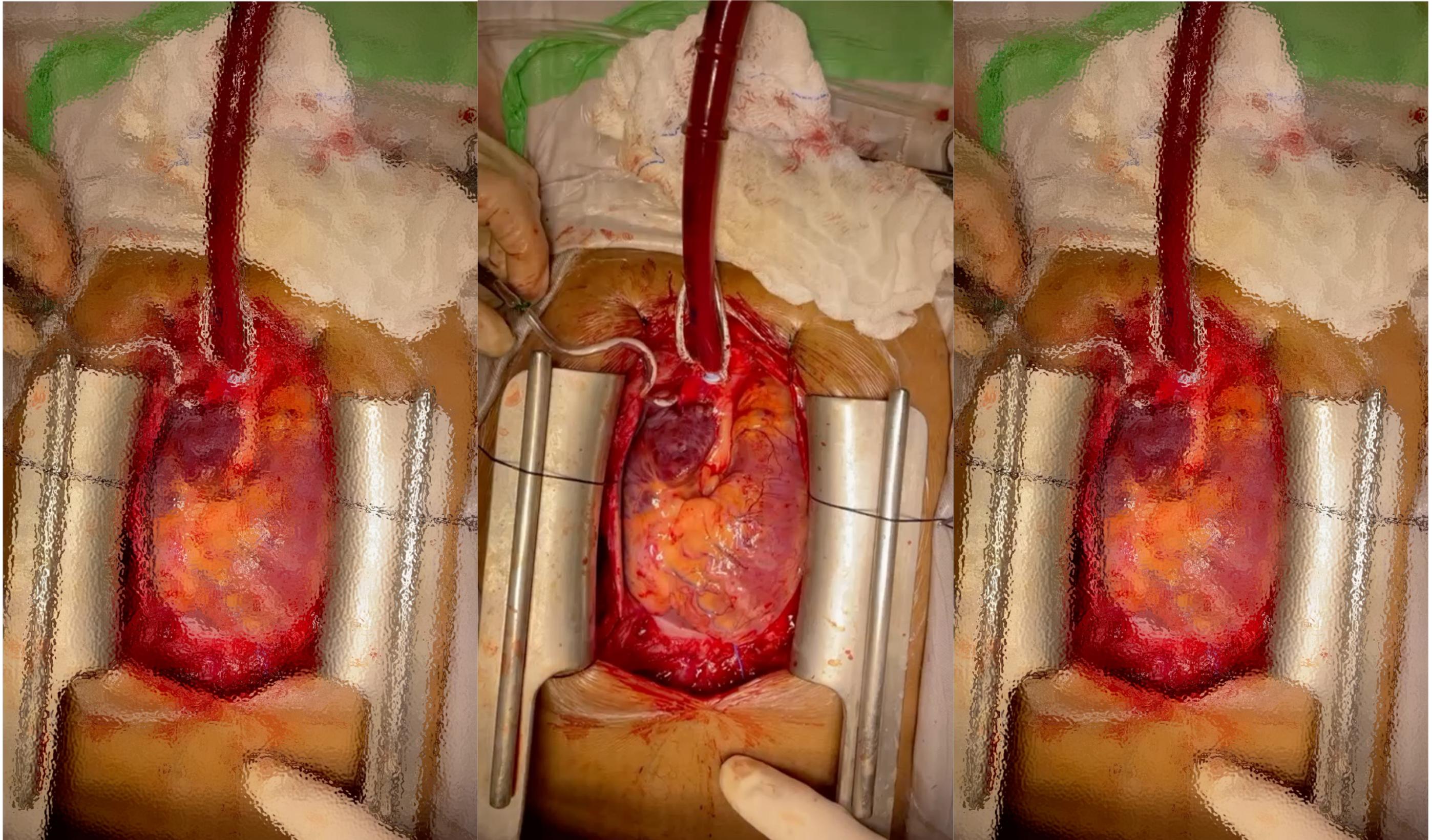




Átrio esquerdo?



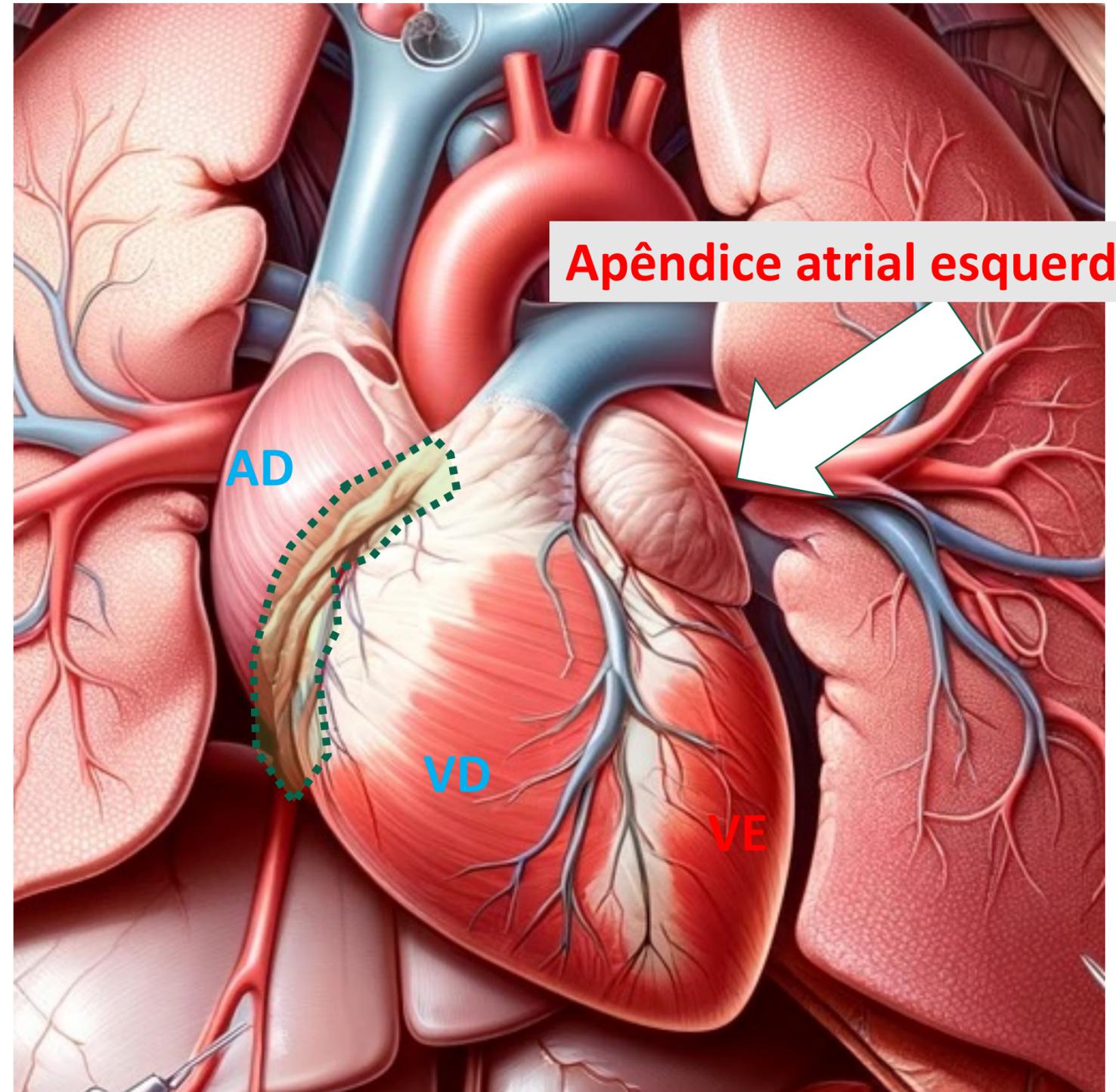
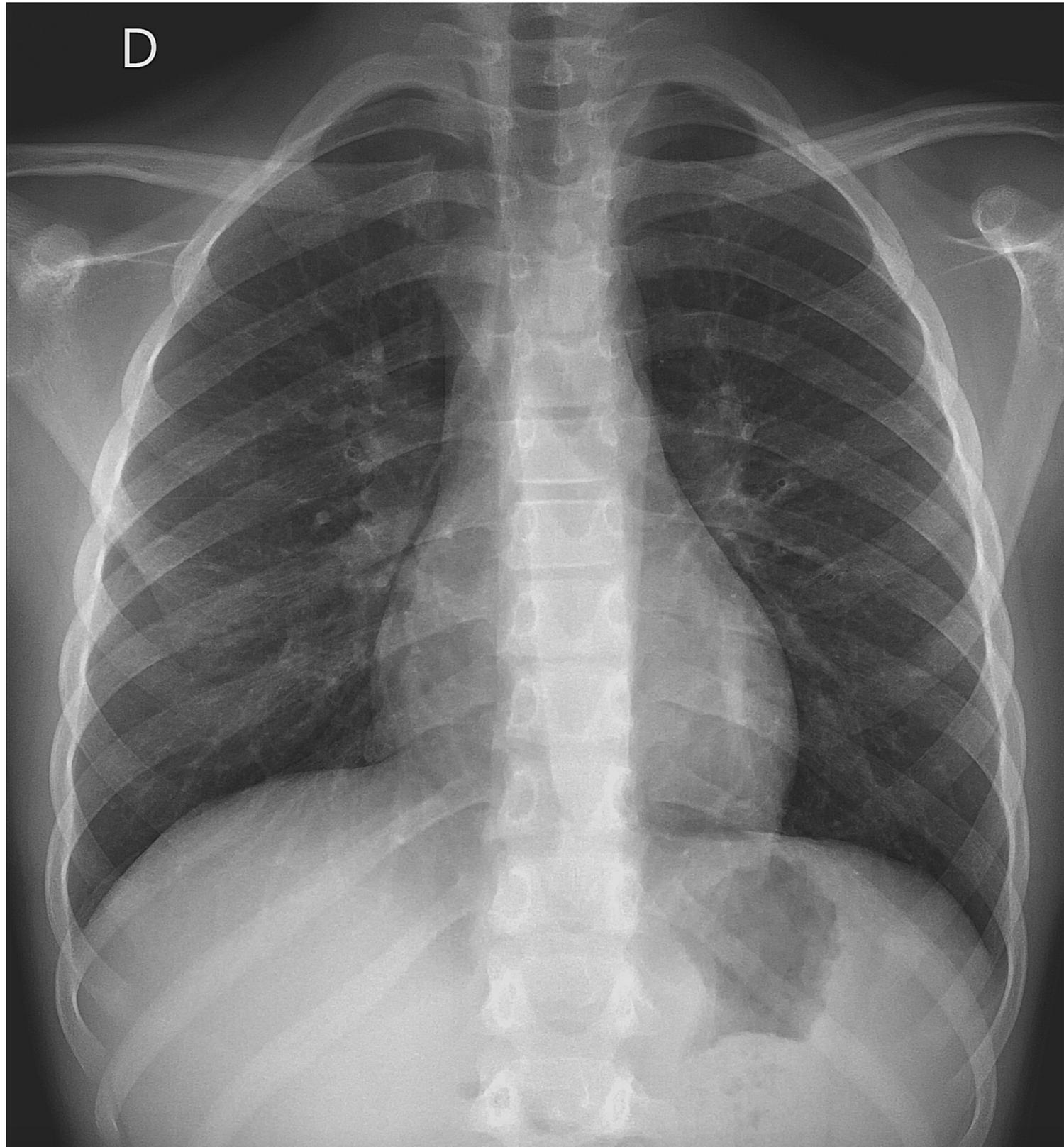
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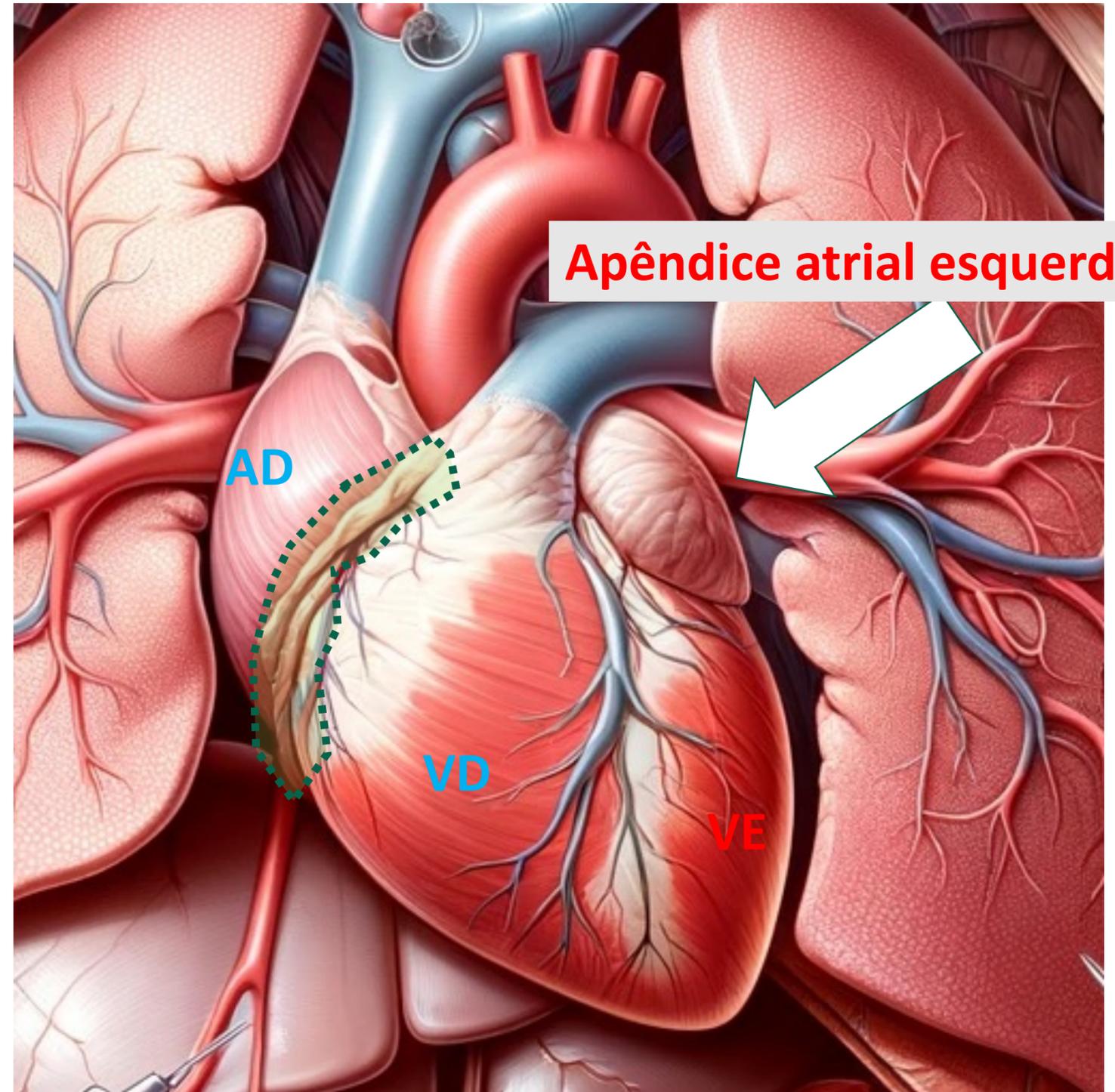
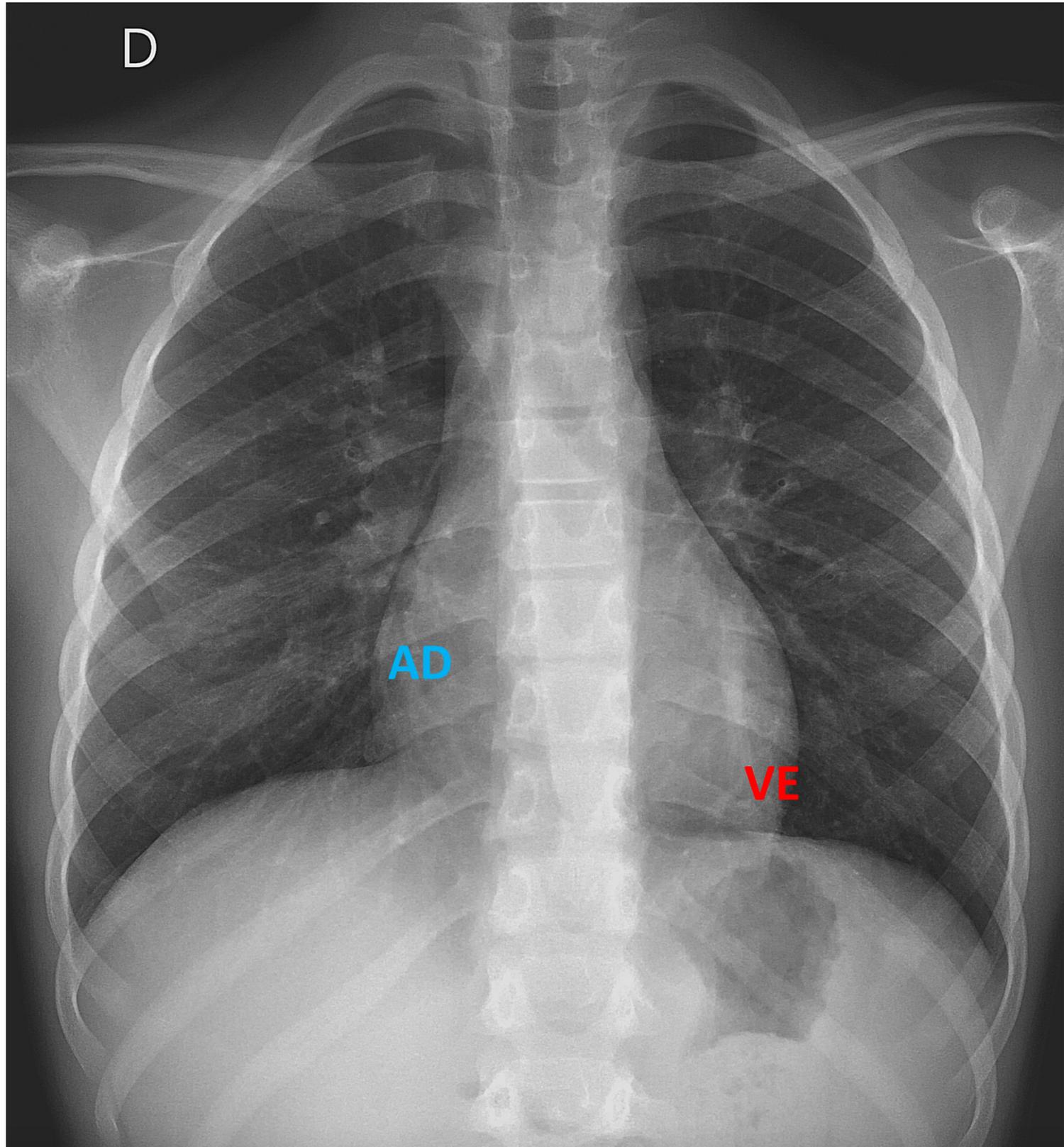


Anatomia radiológica

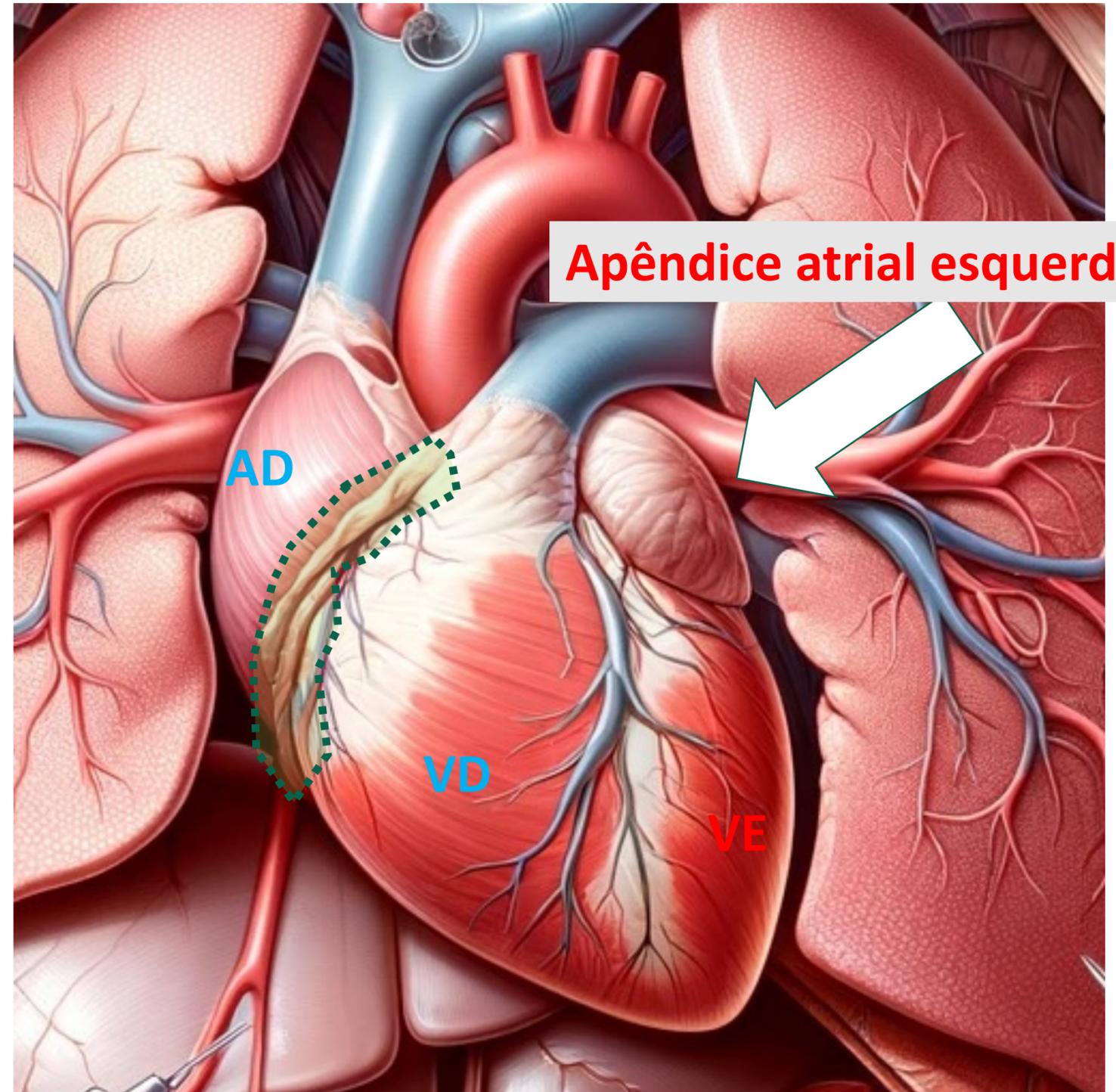
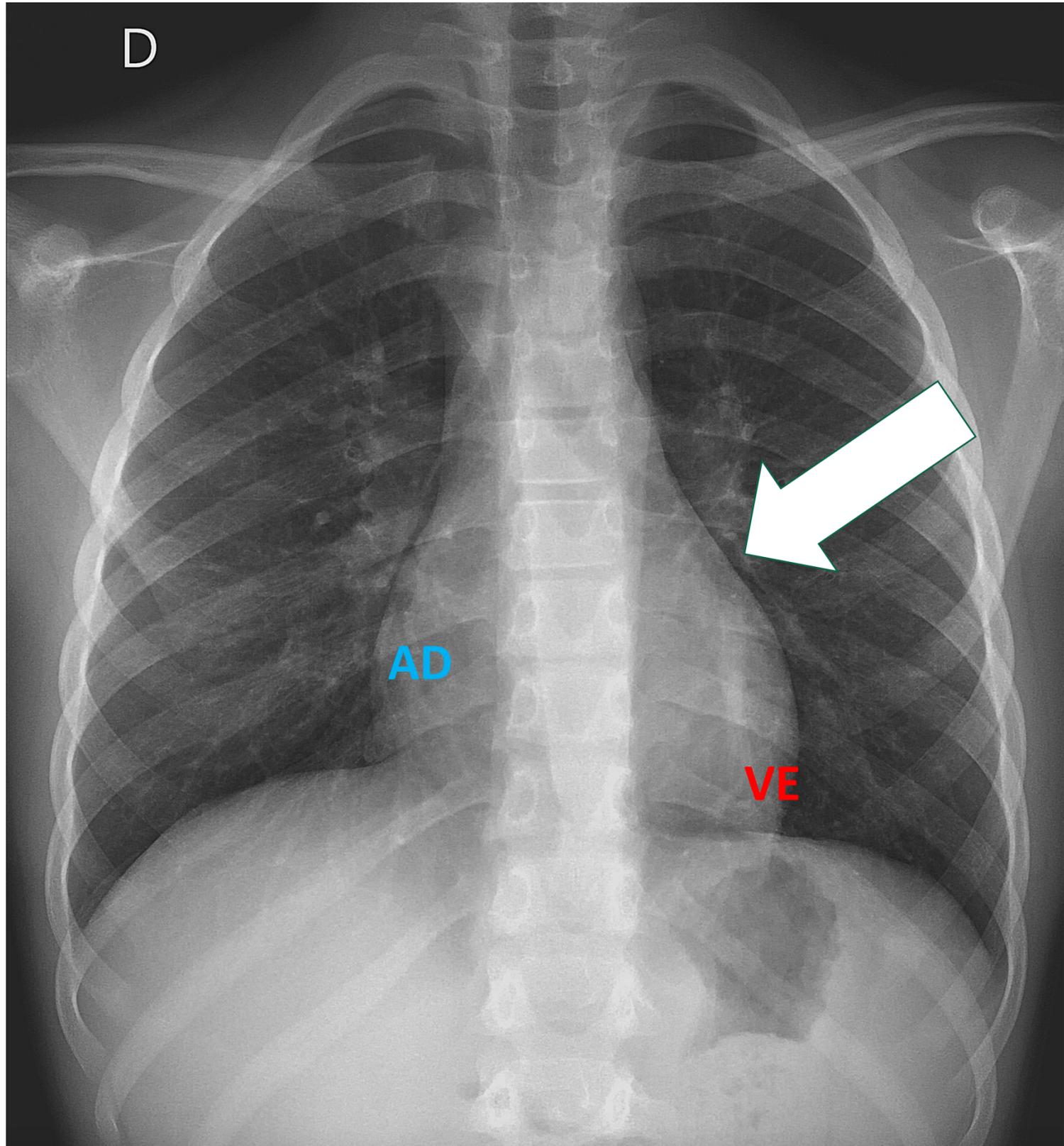
Coração



Coração



Coração

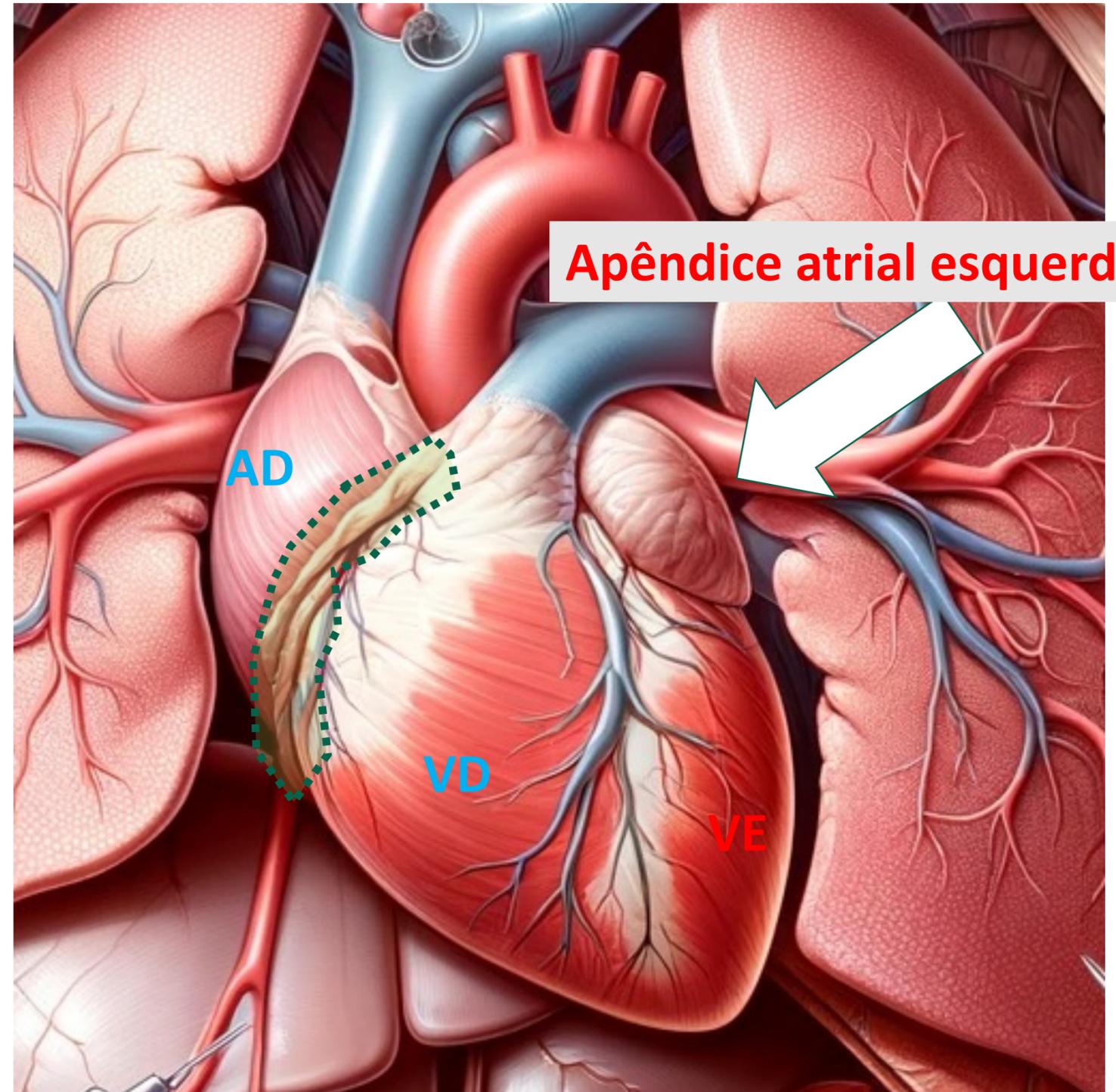
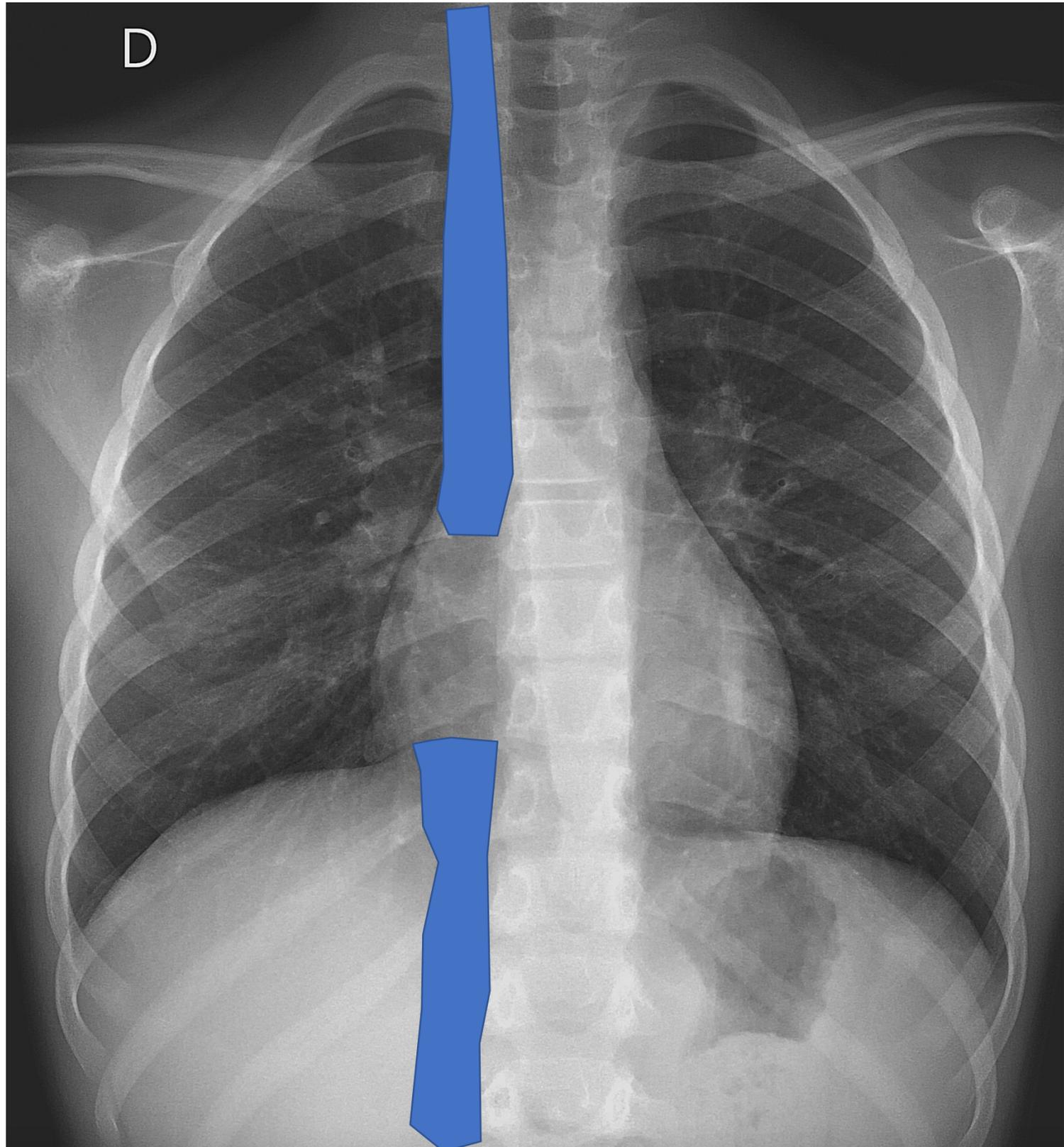




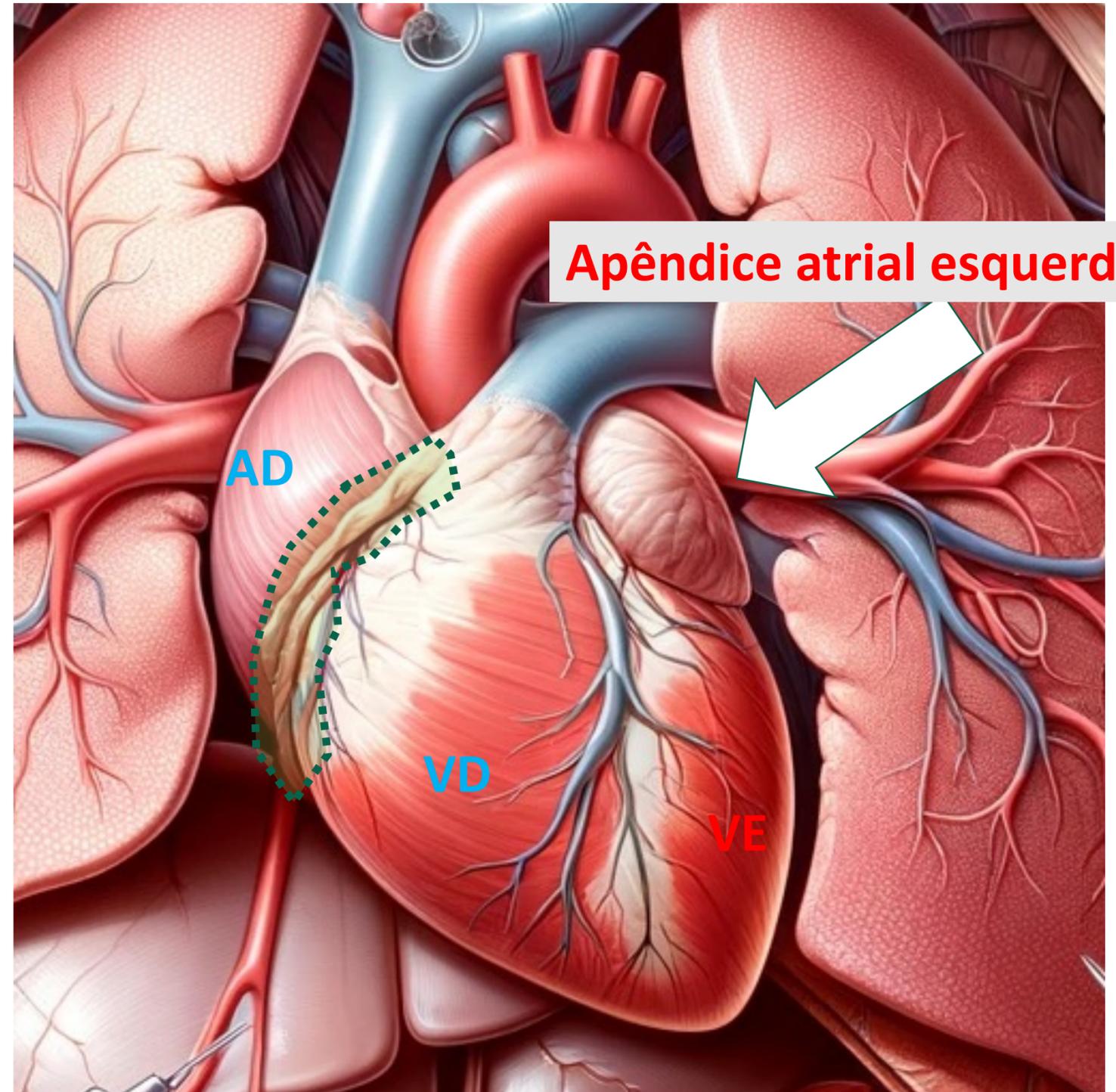
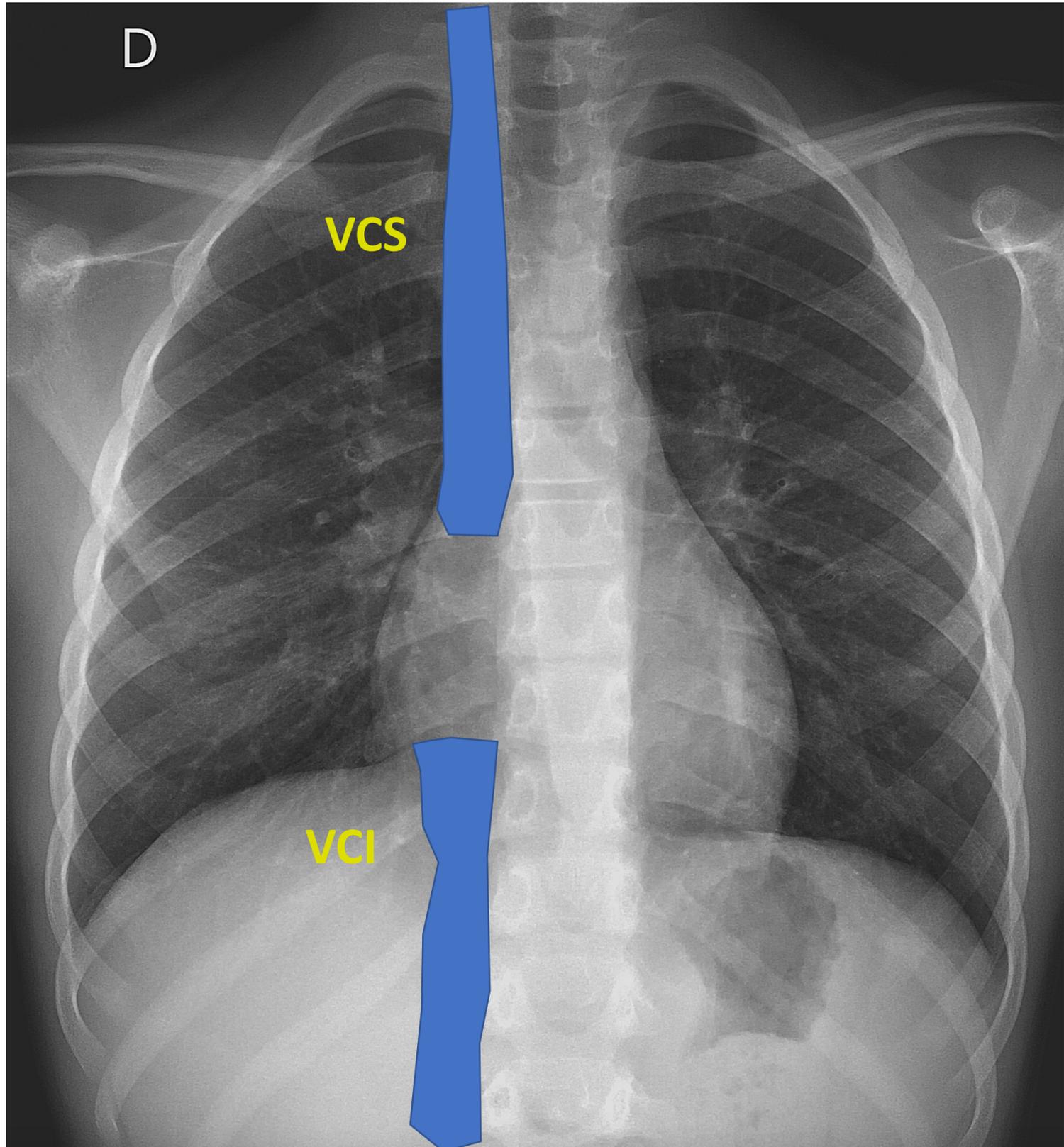
Siga o fluxo...



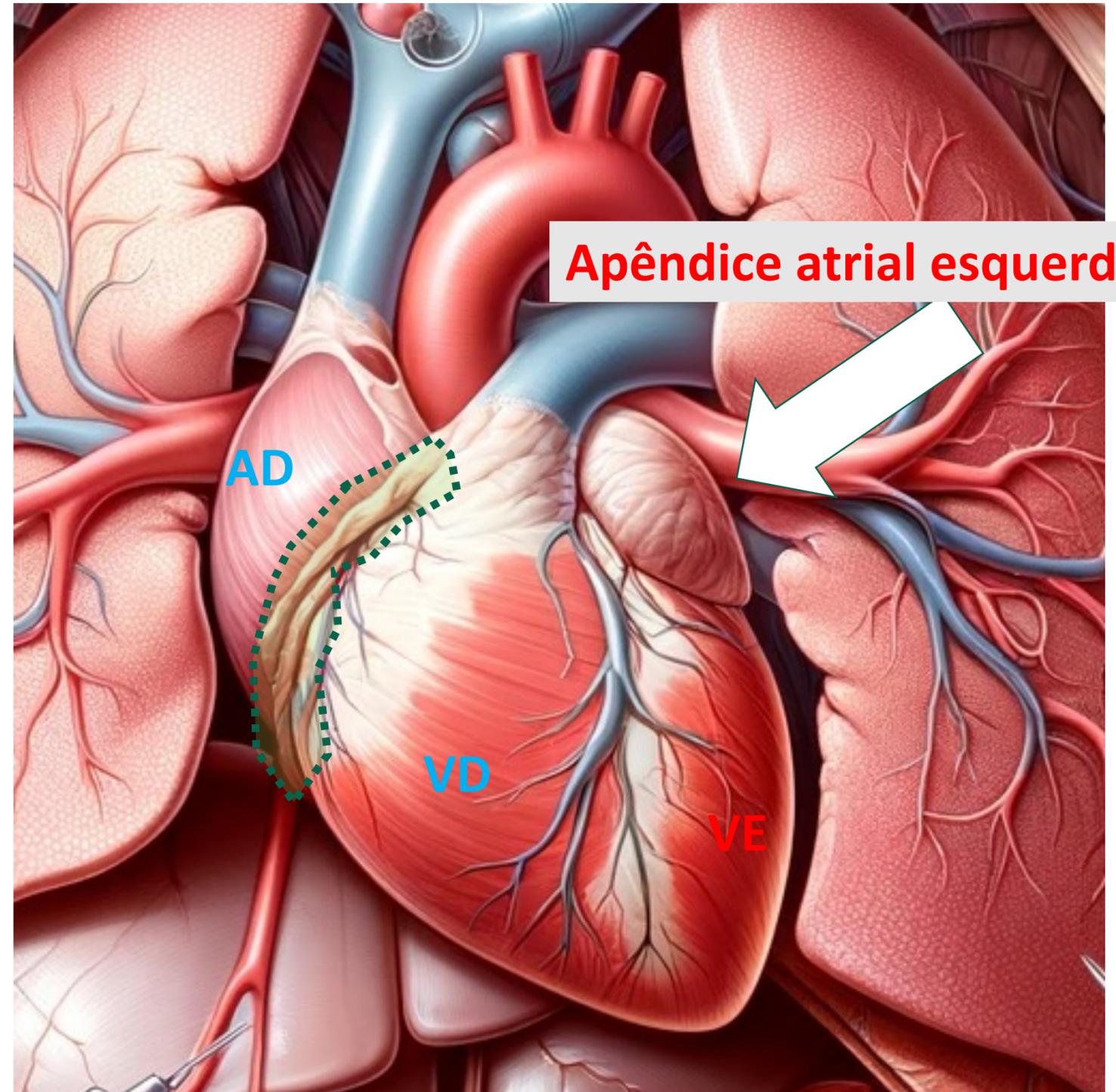
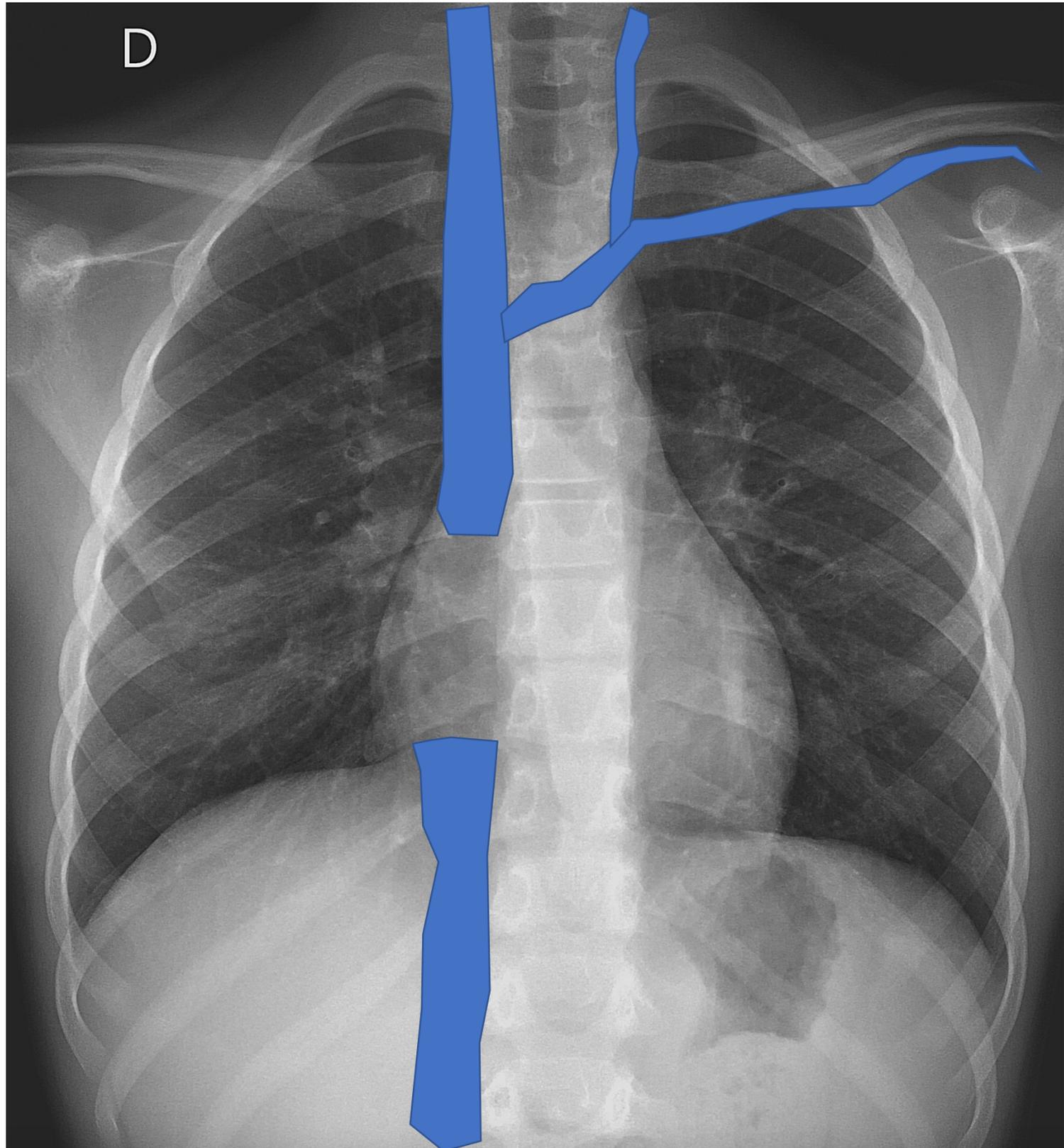
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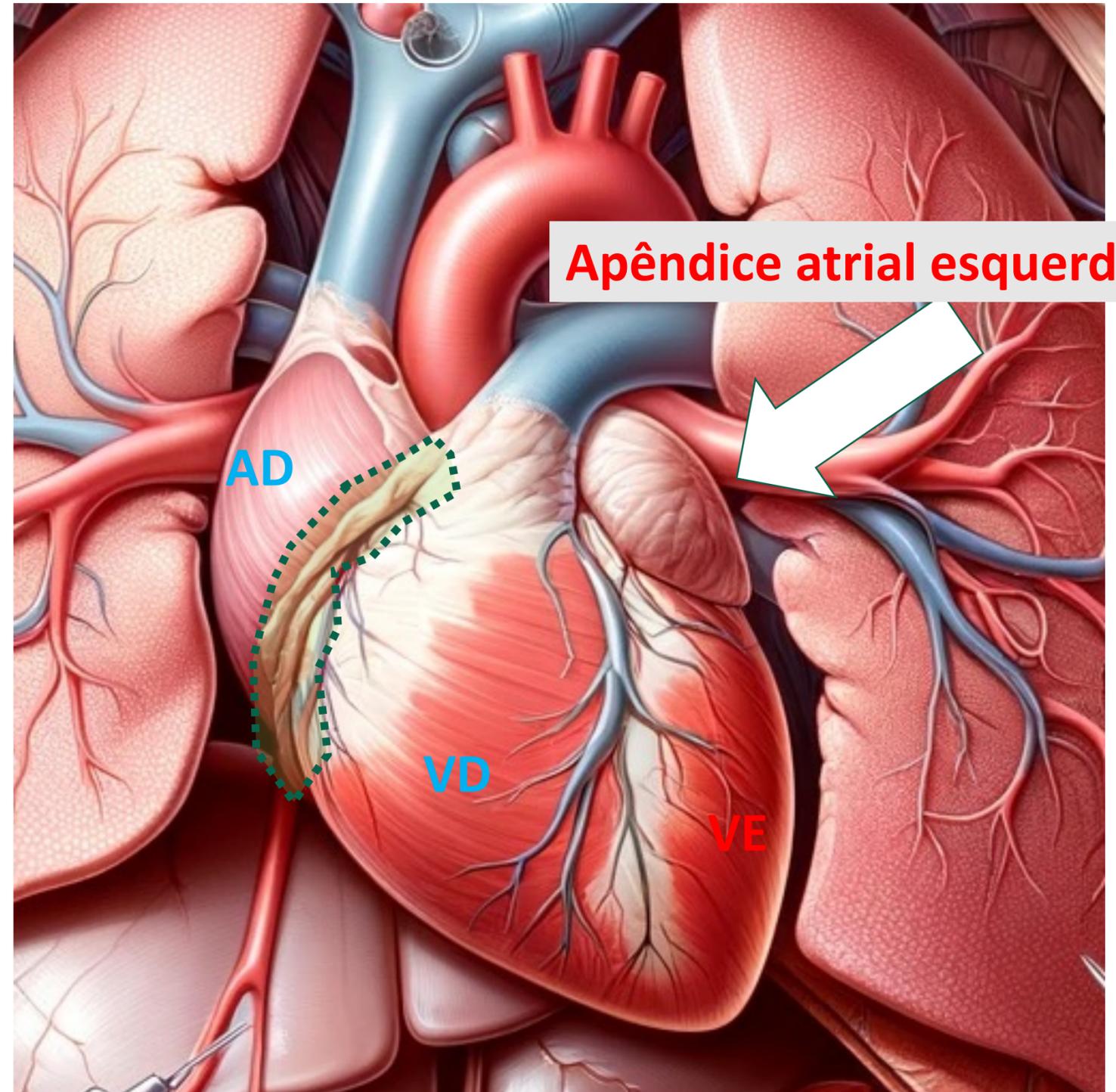
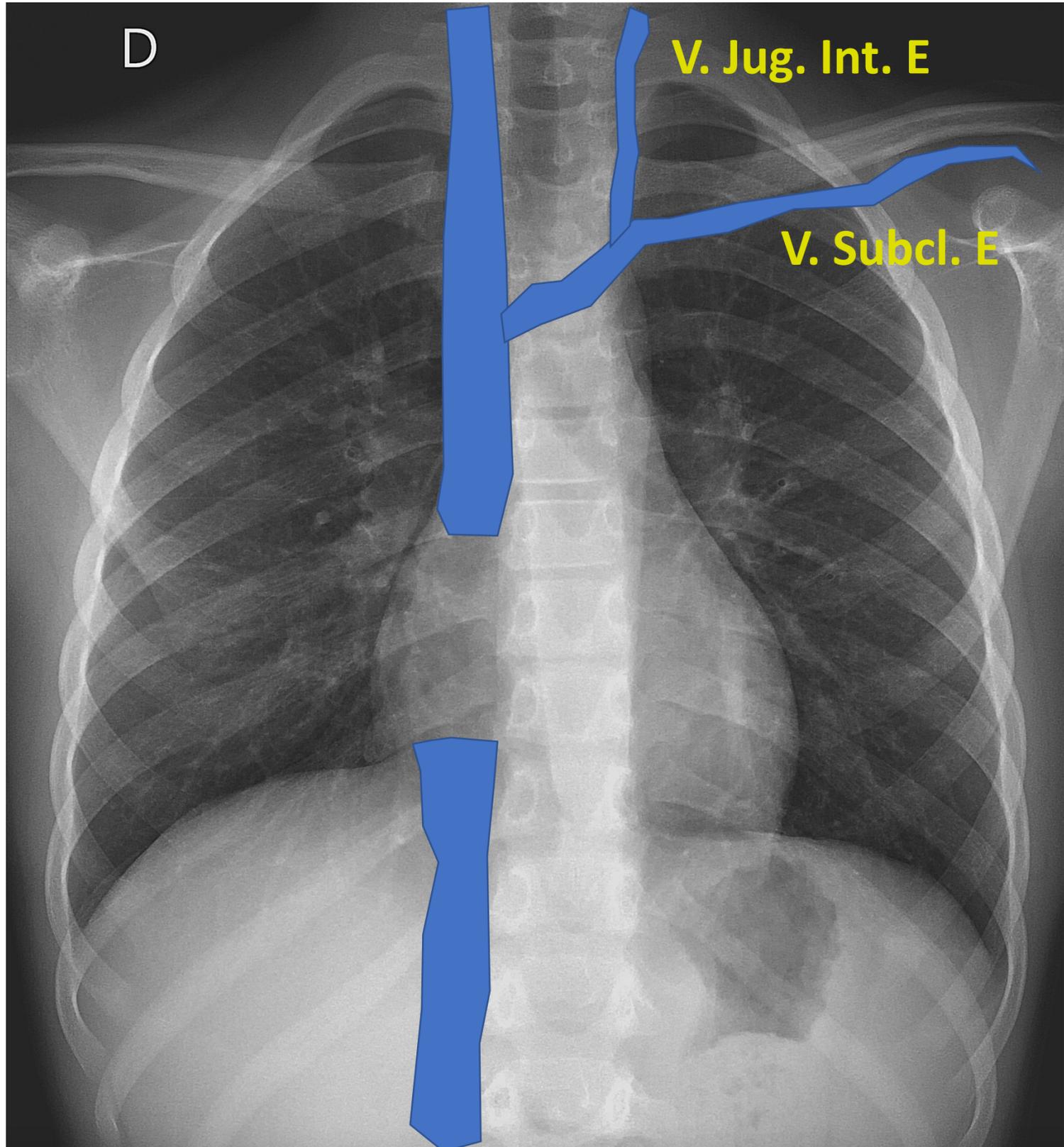
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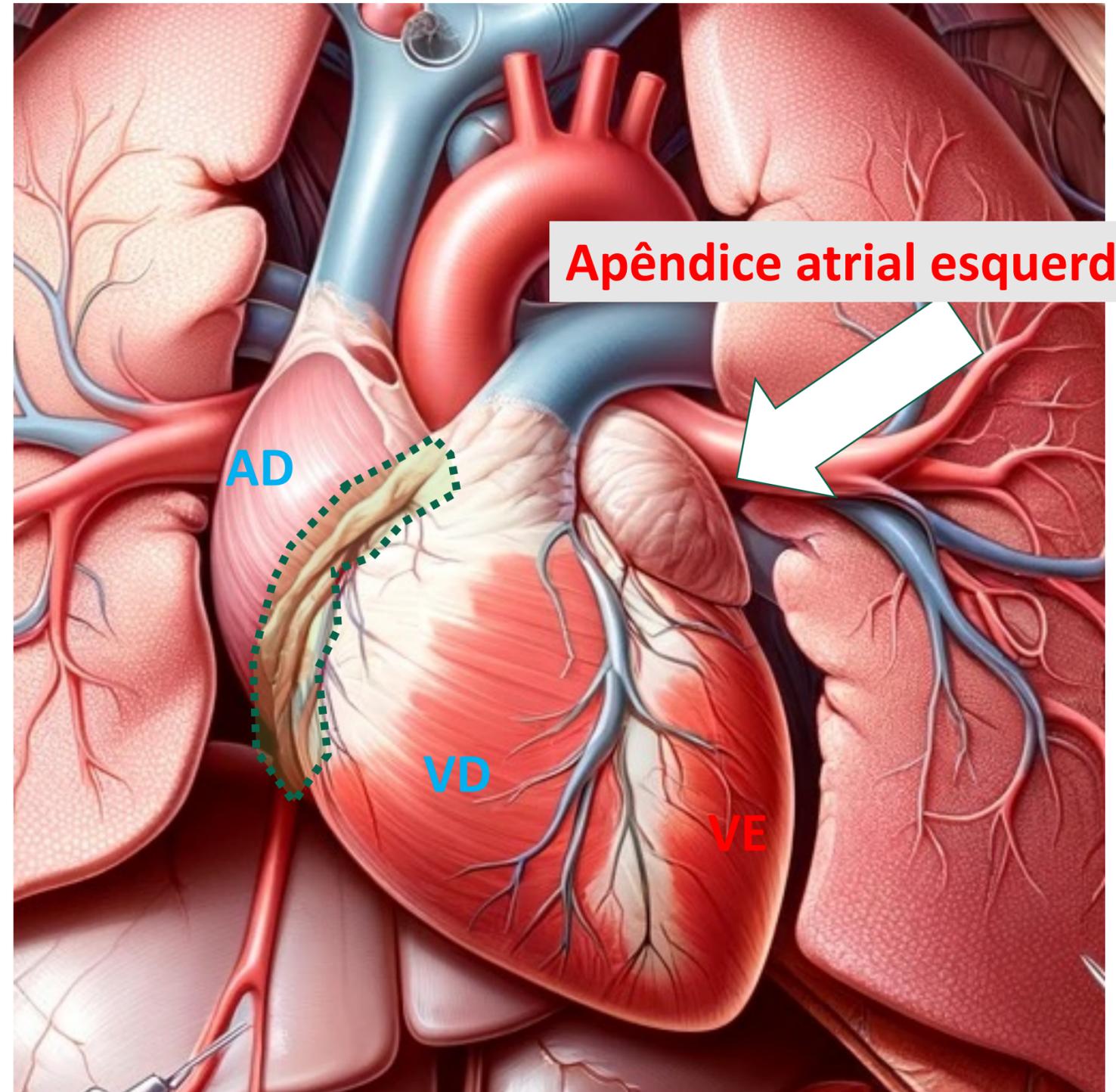
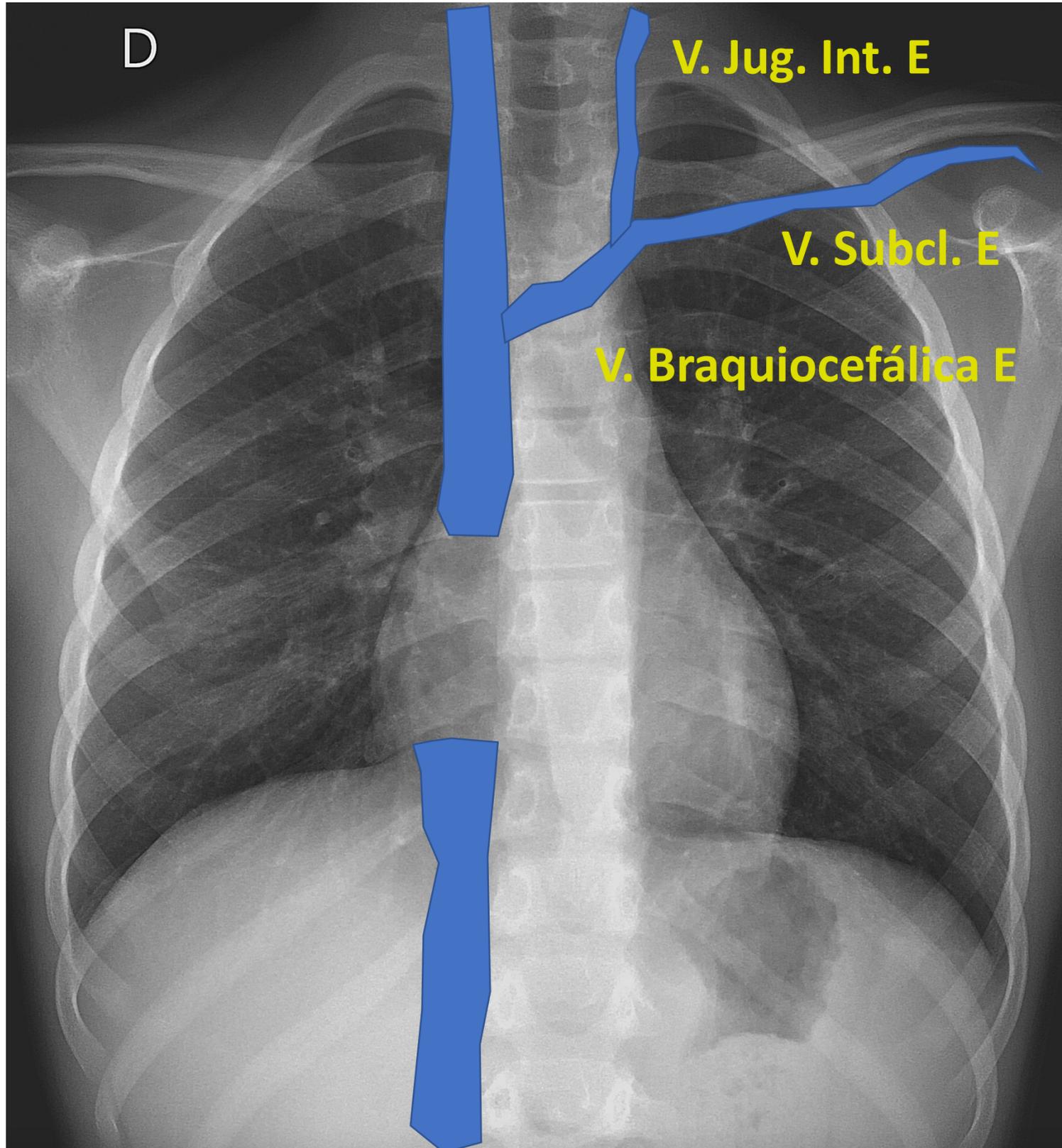
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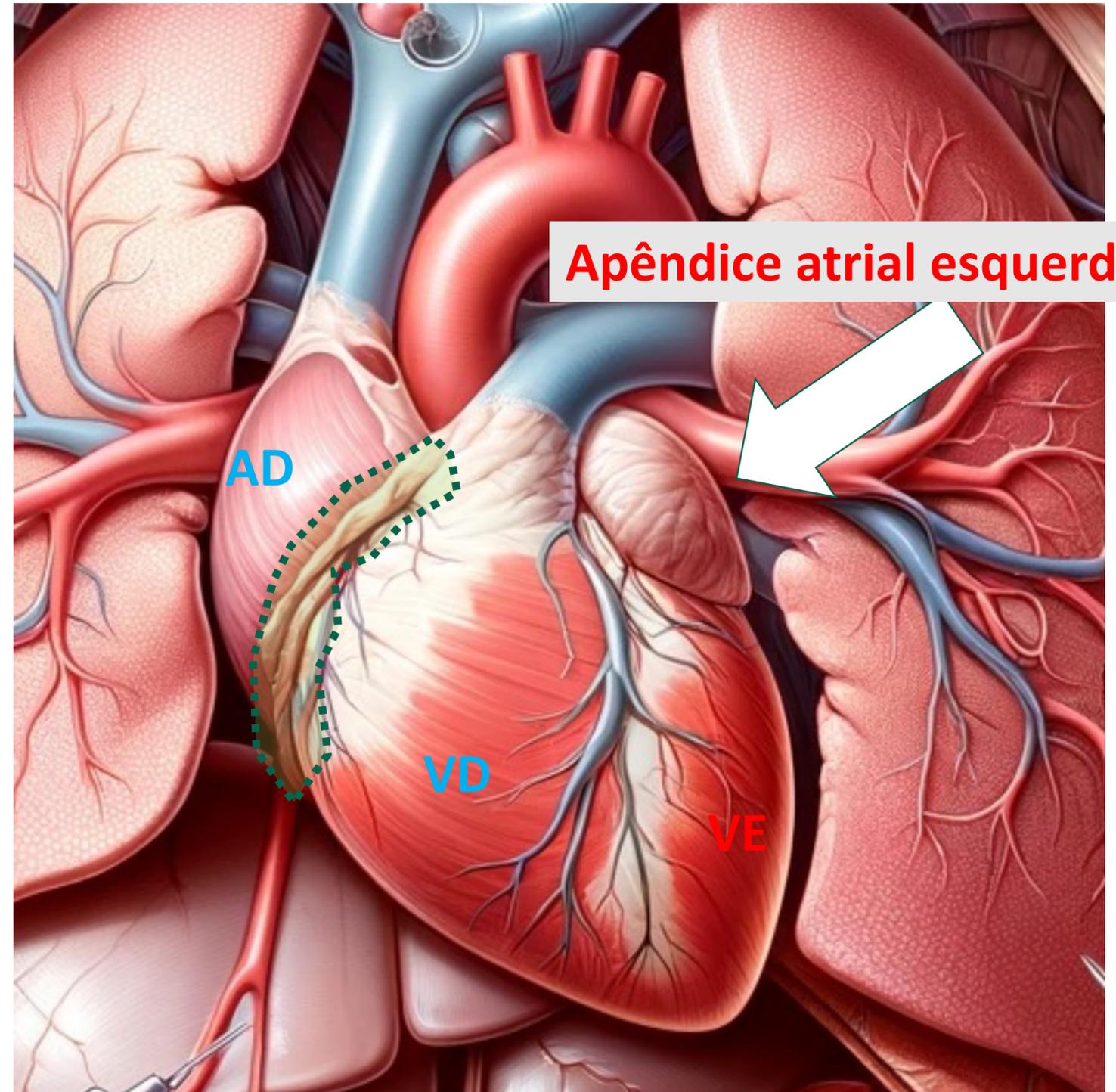
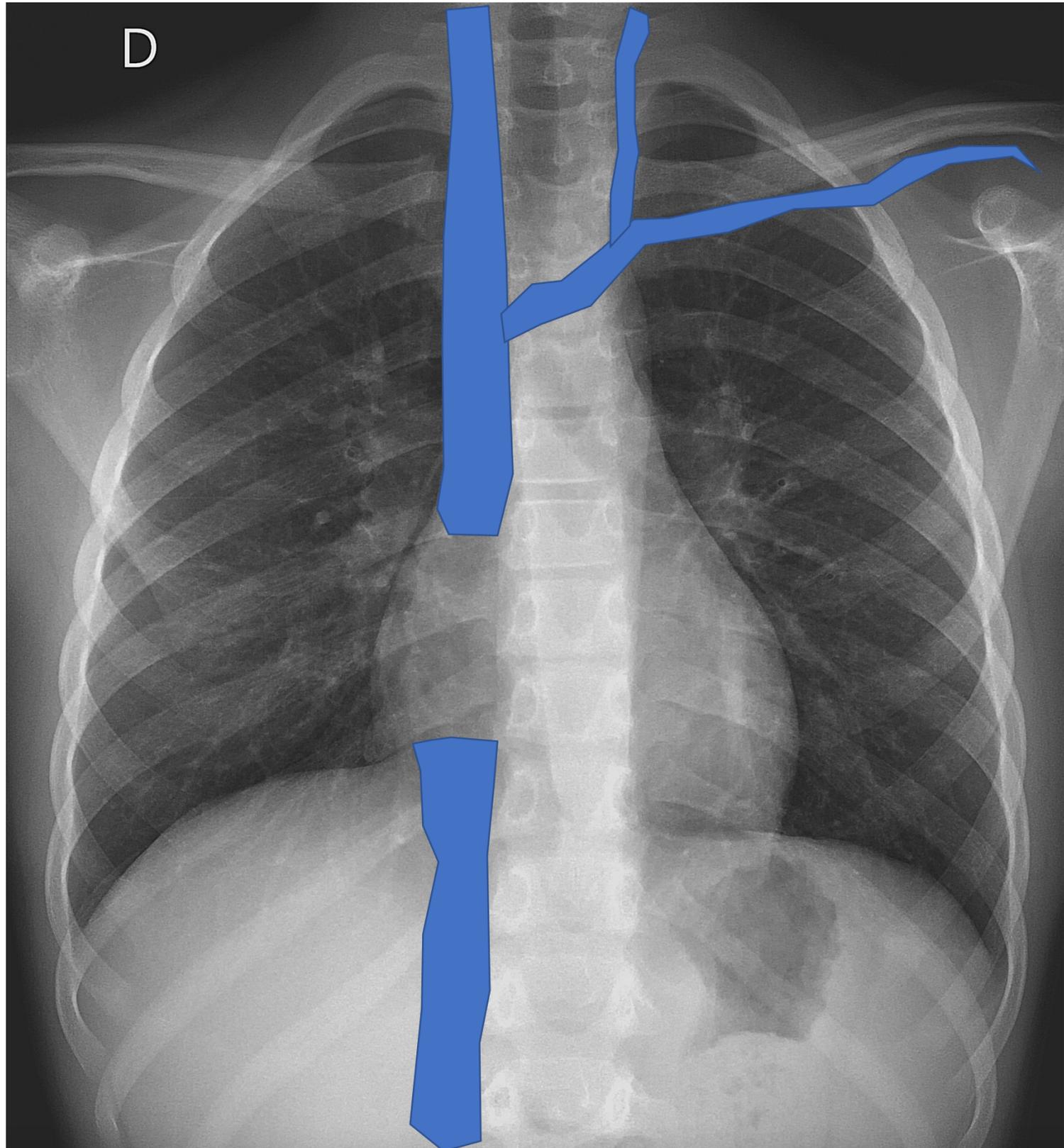
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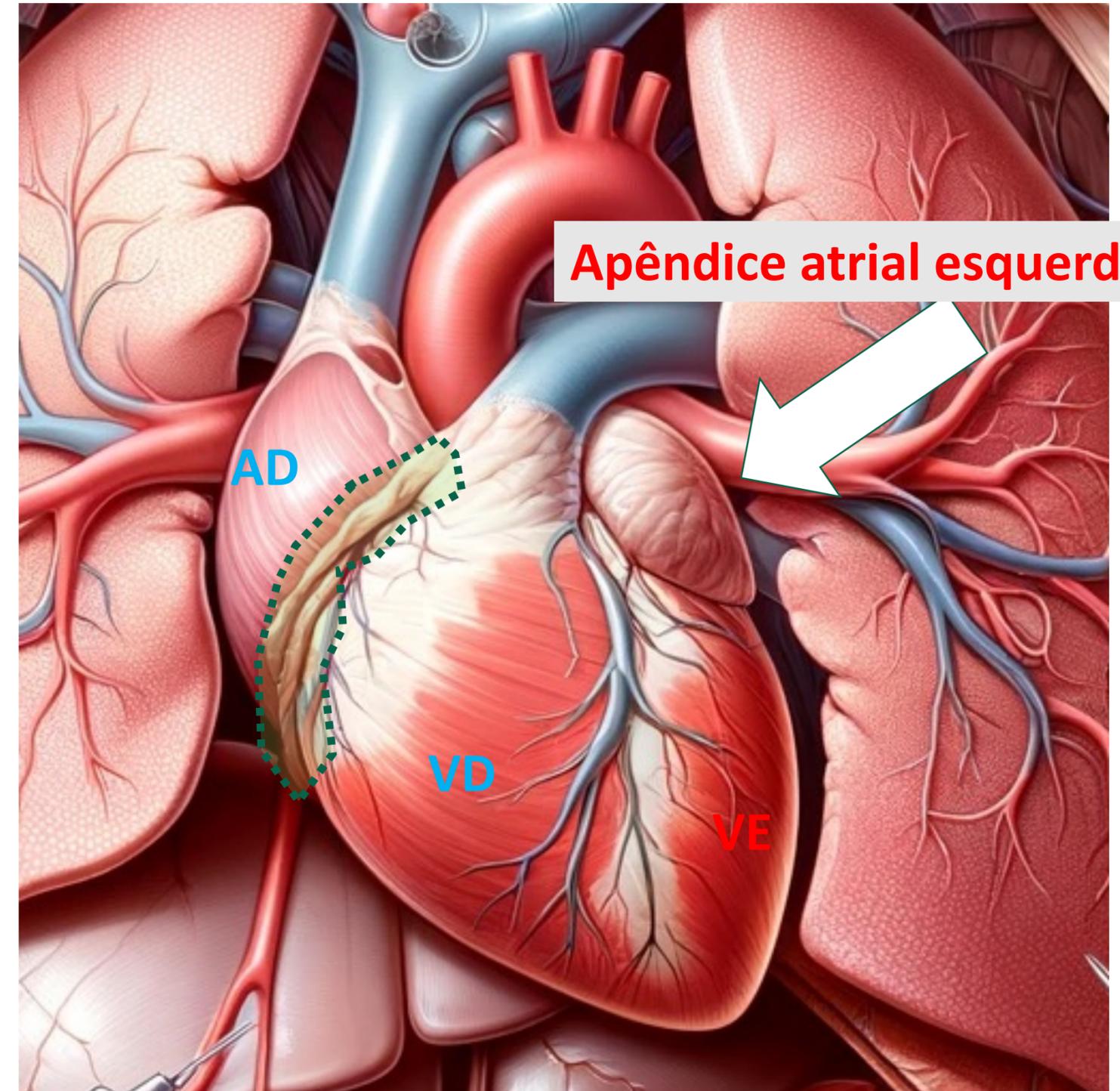
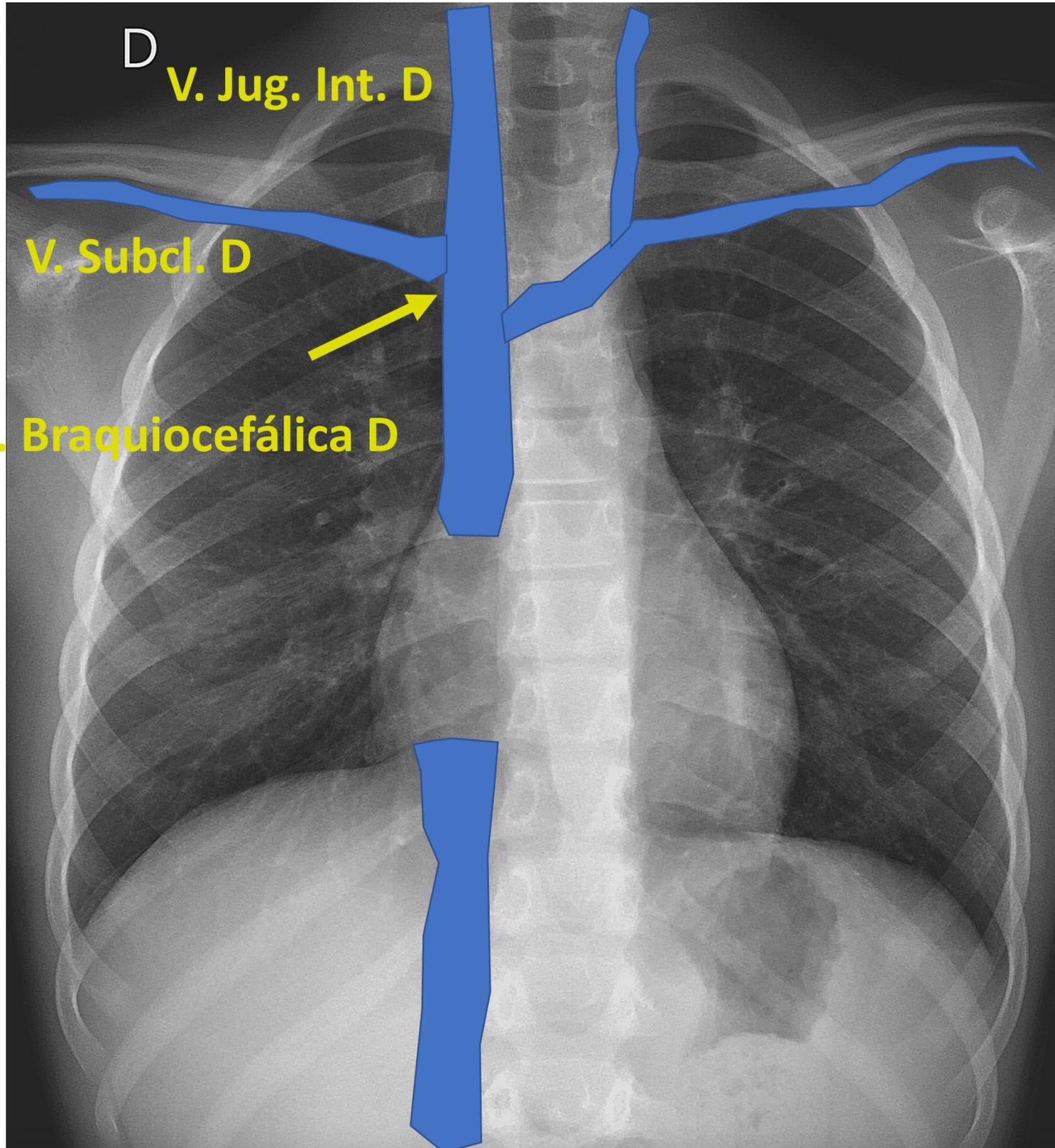
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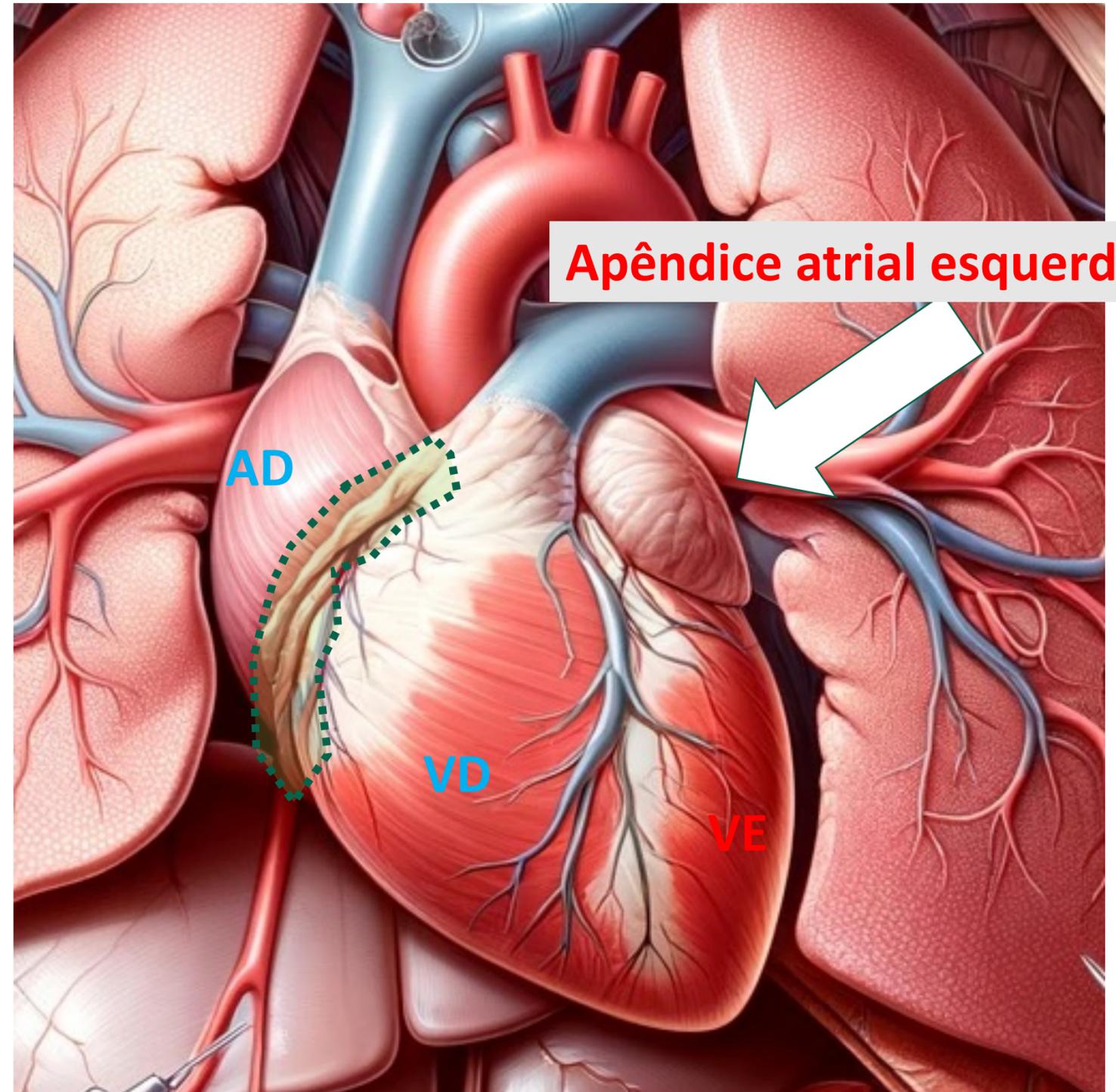
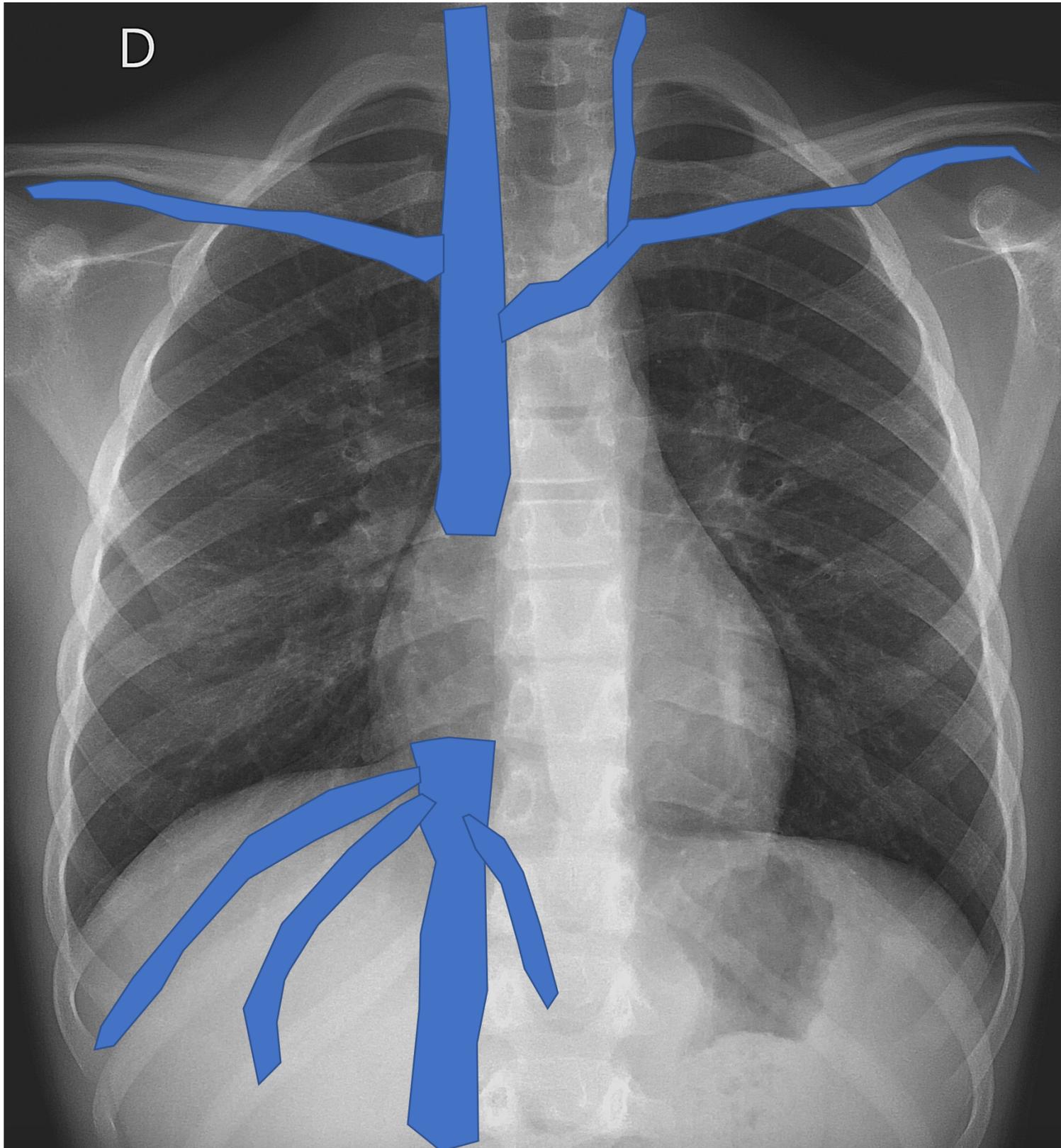
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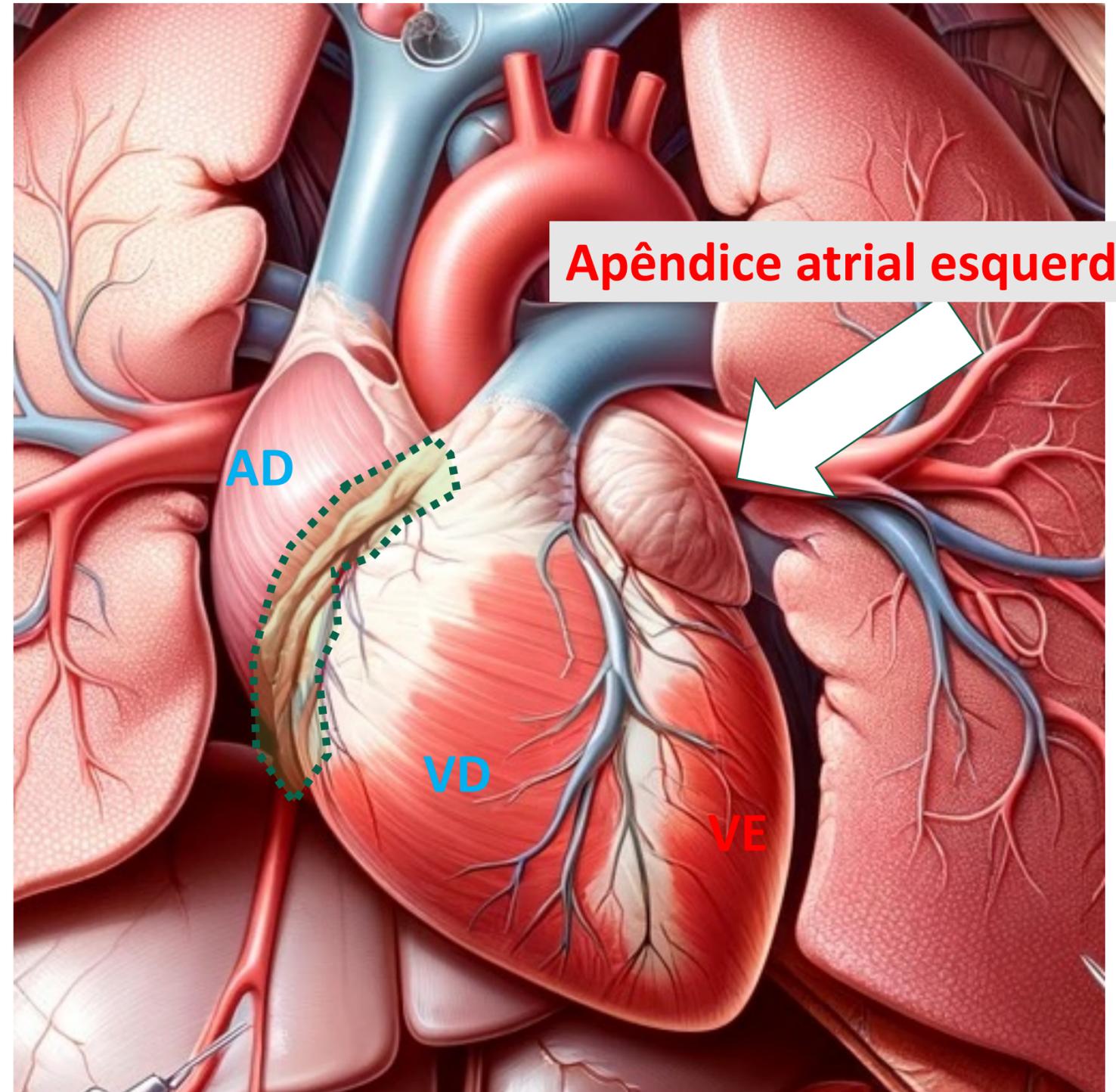
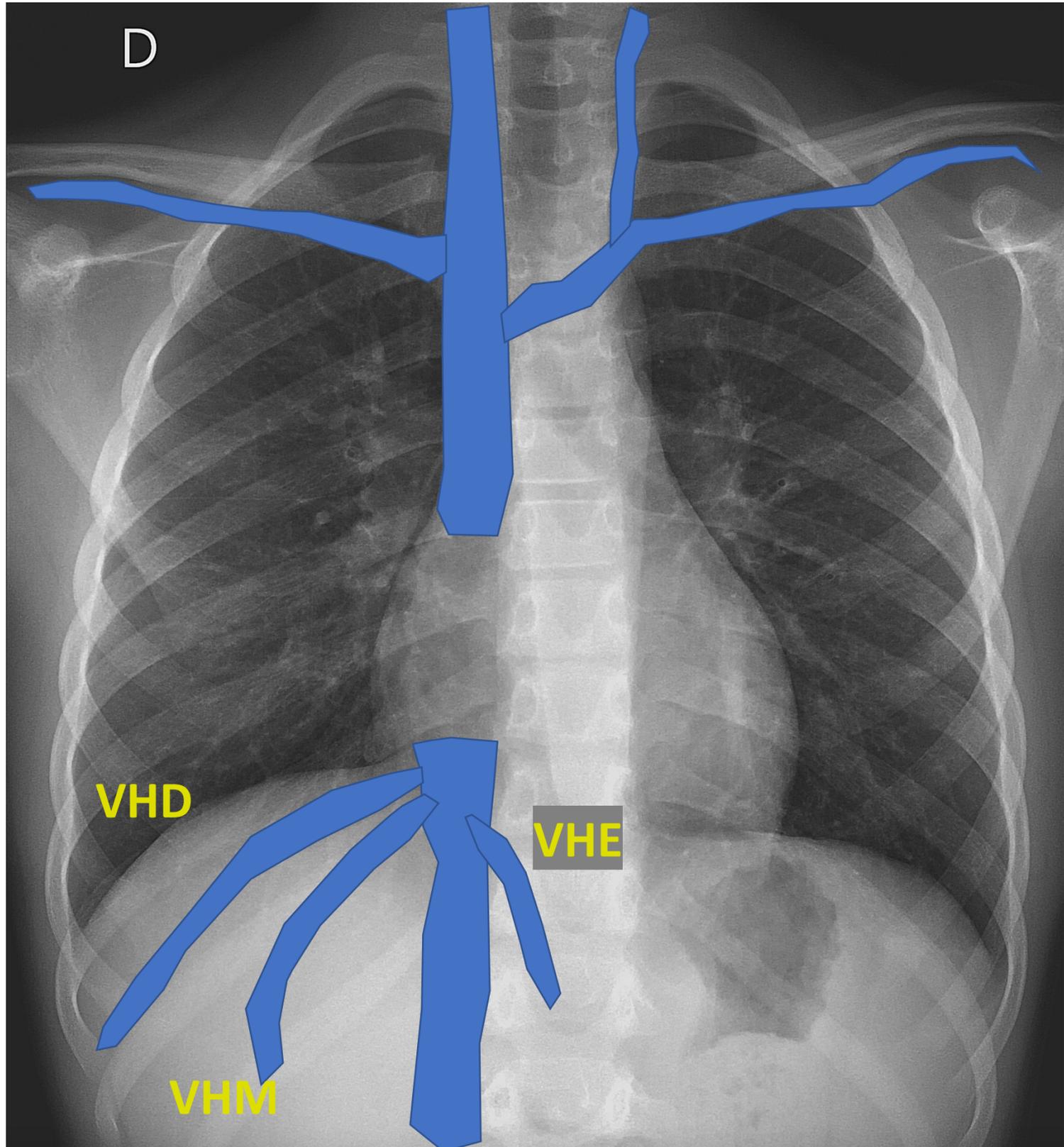
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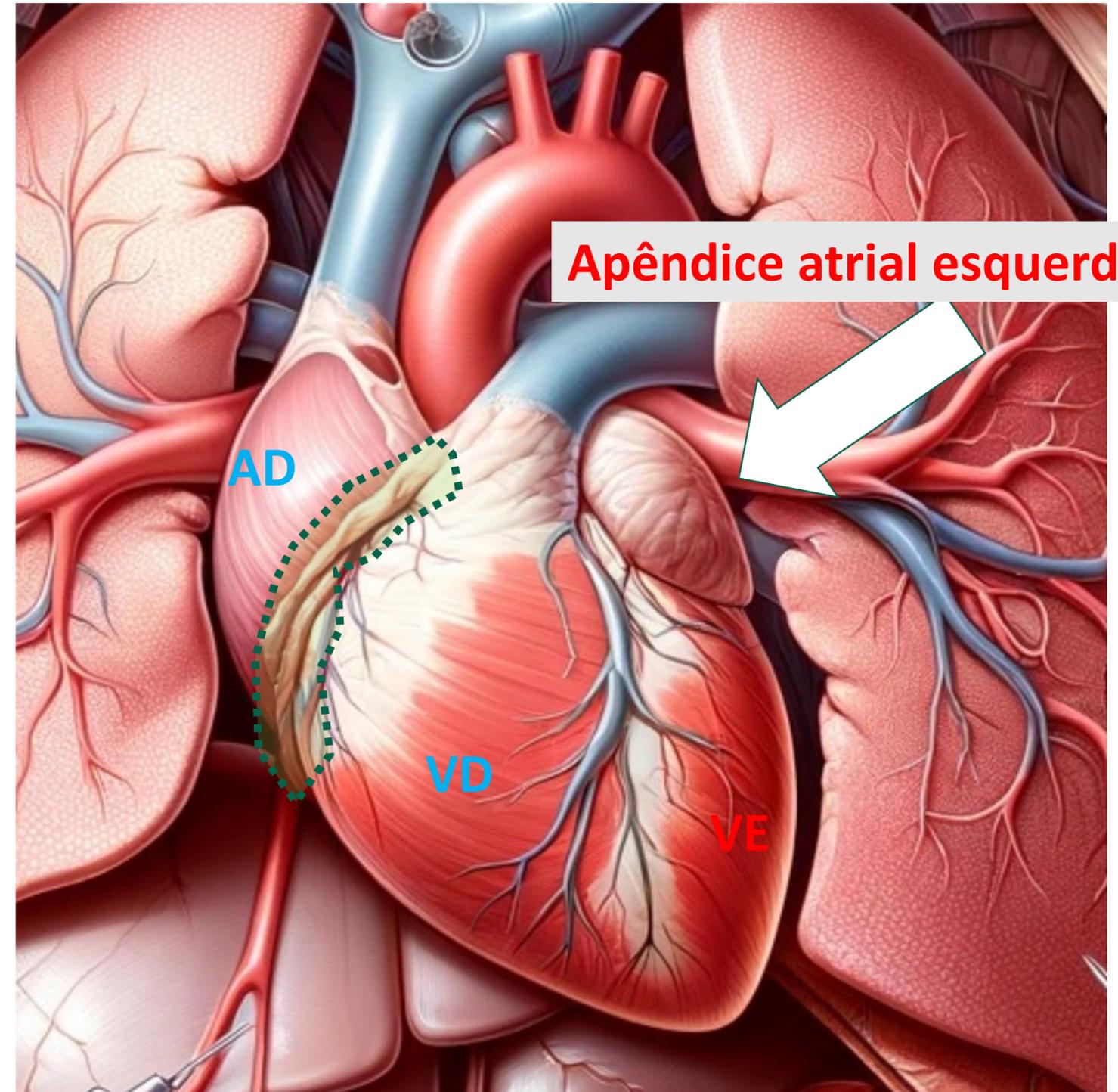
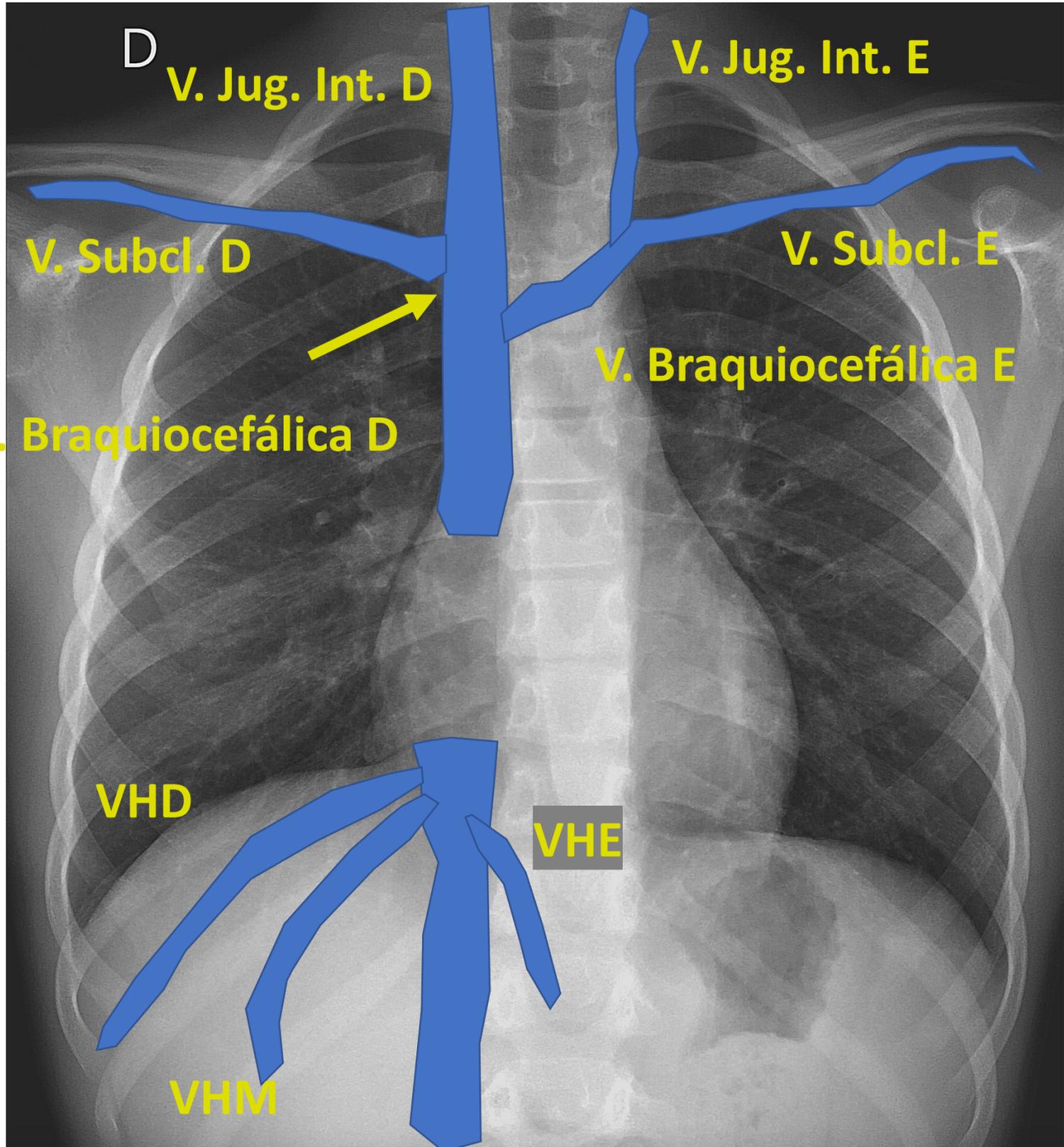
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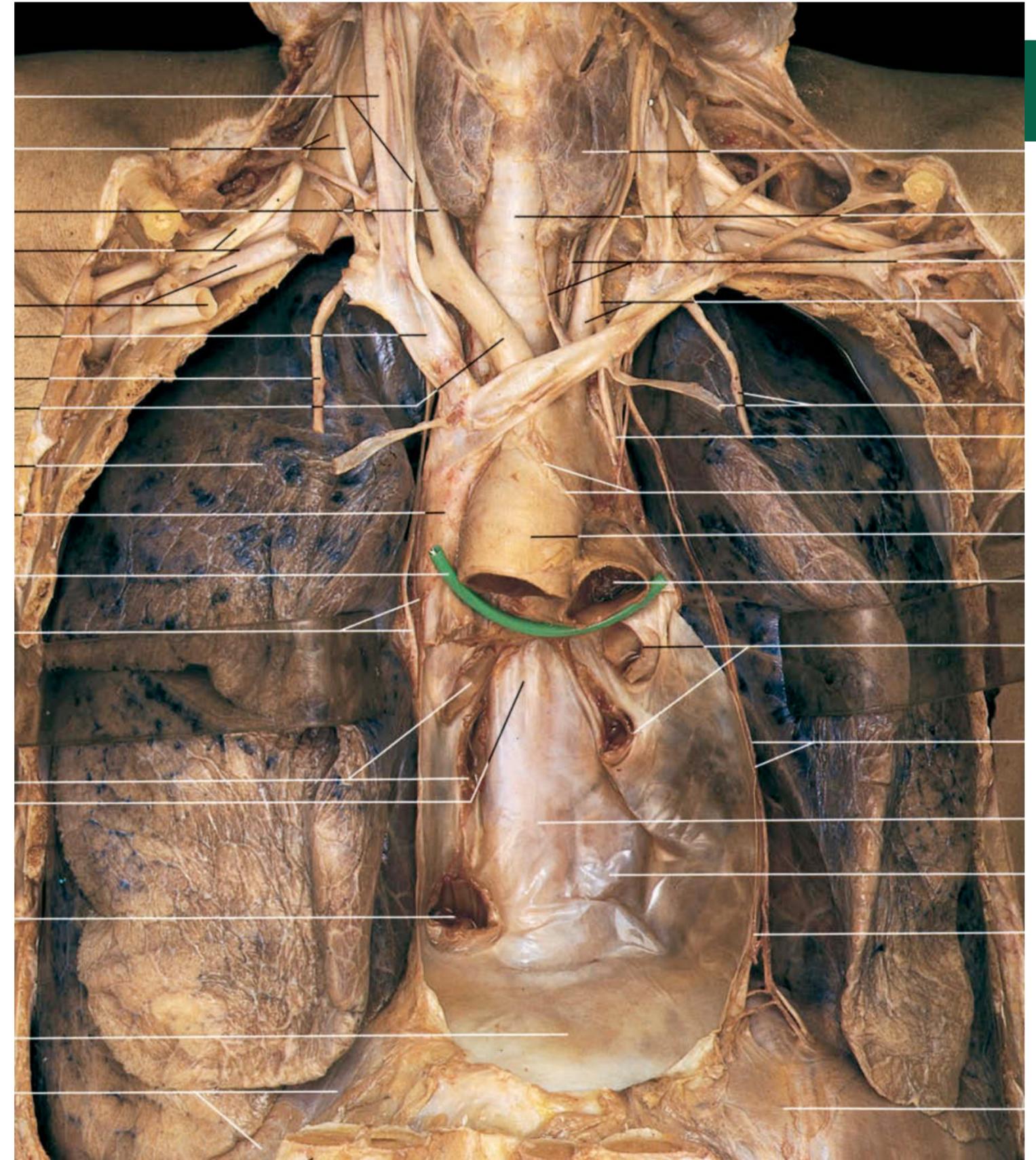
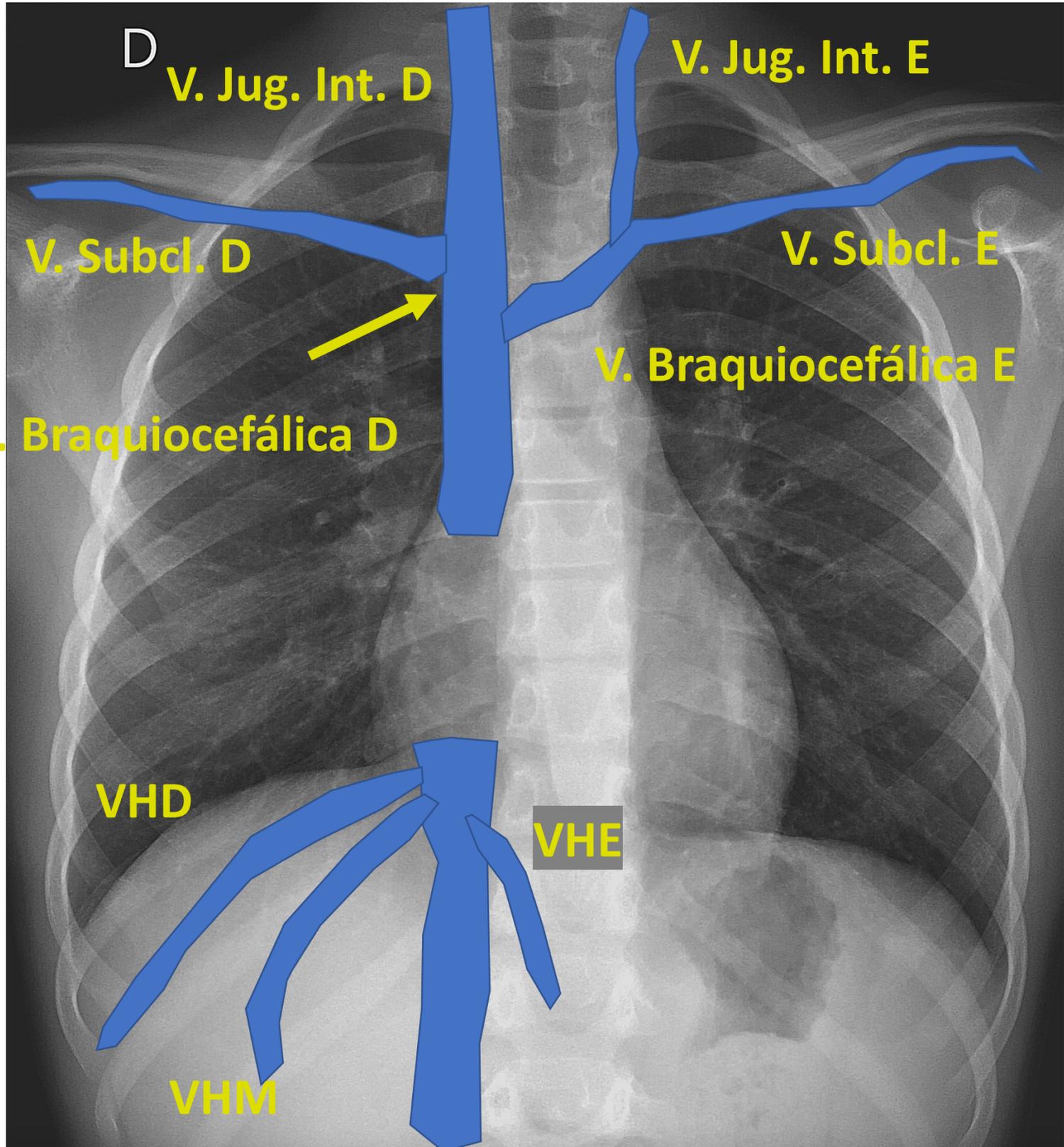
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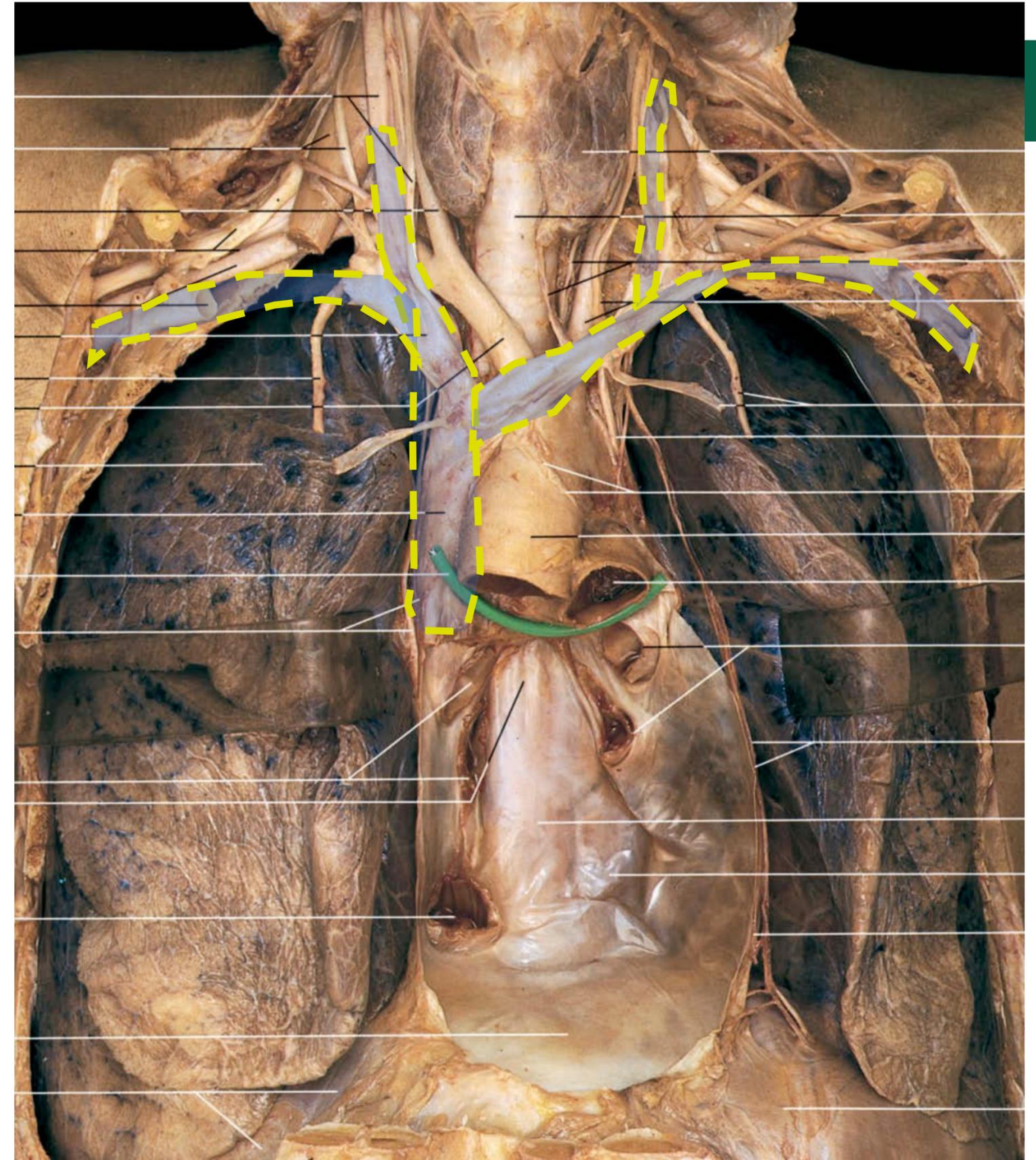
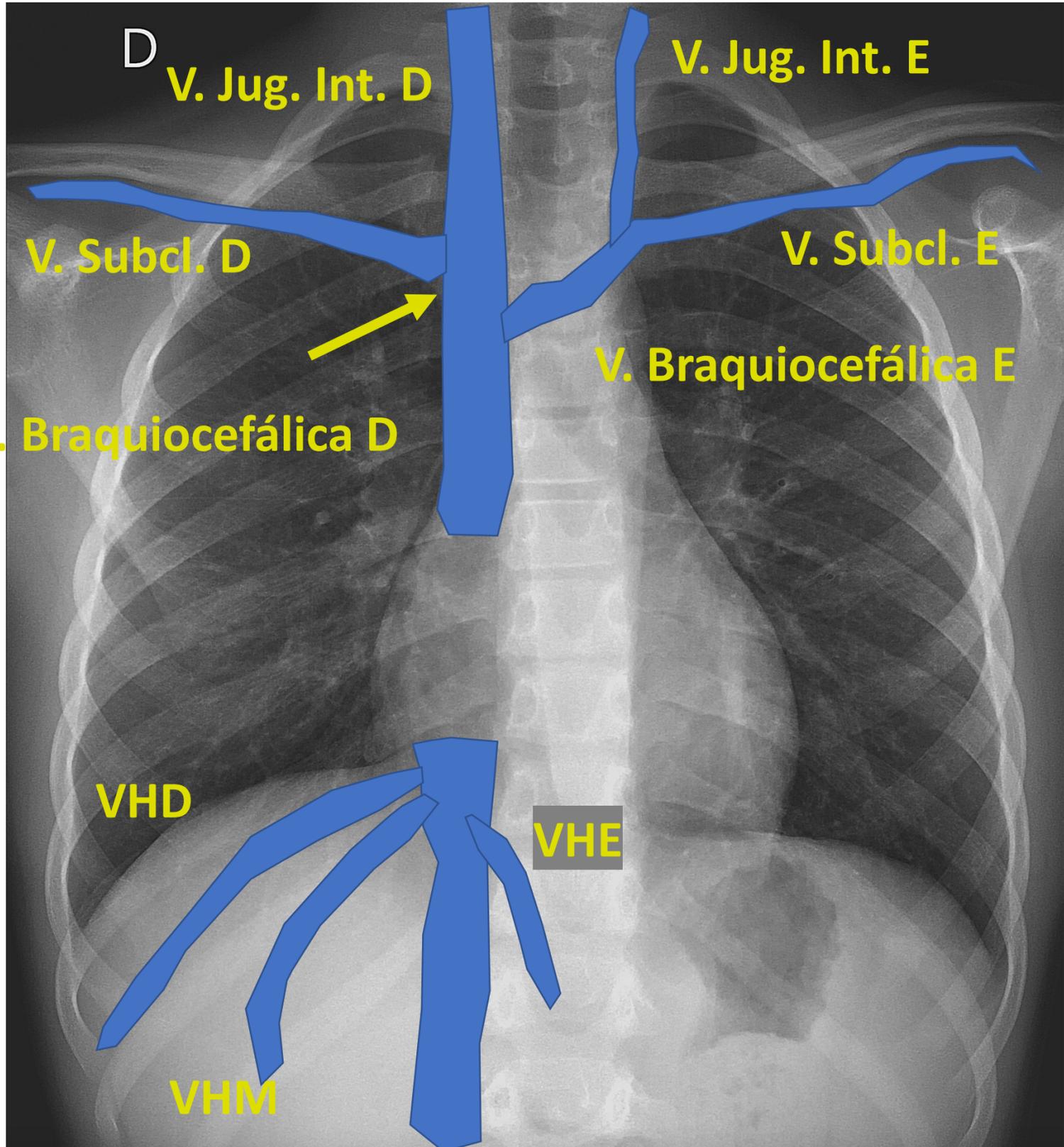
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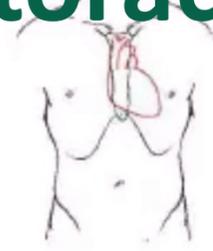


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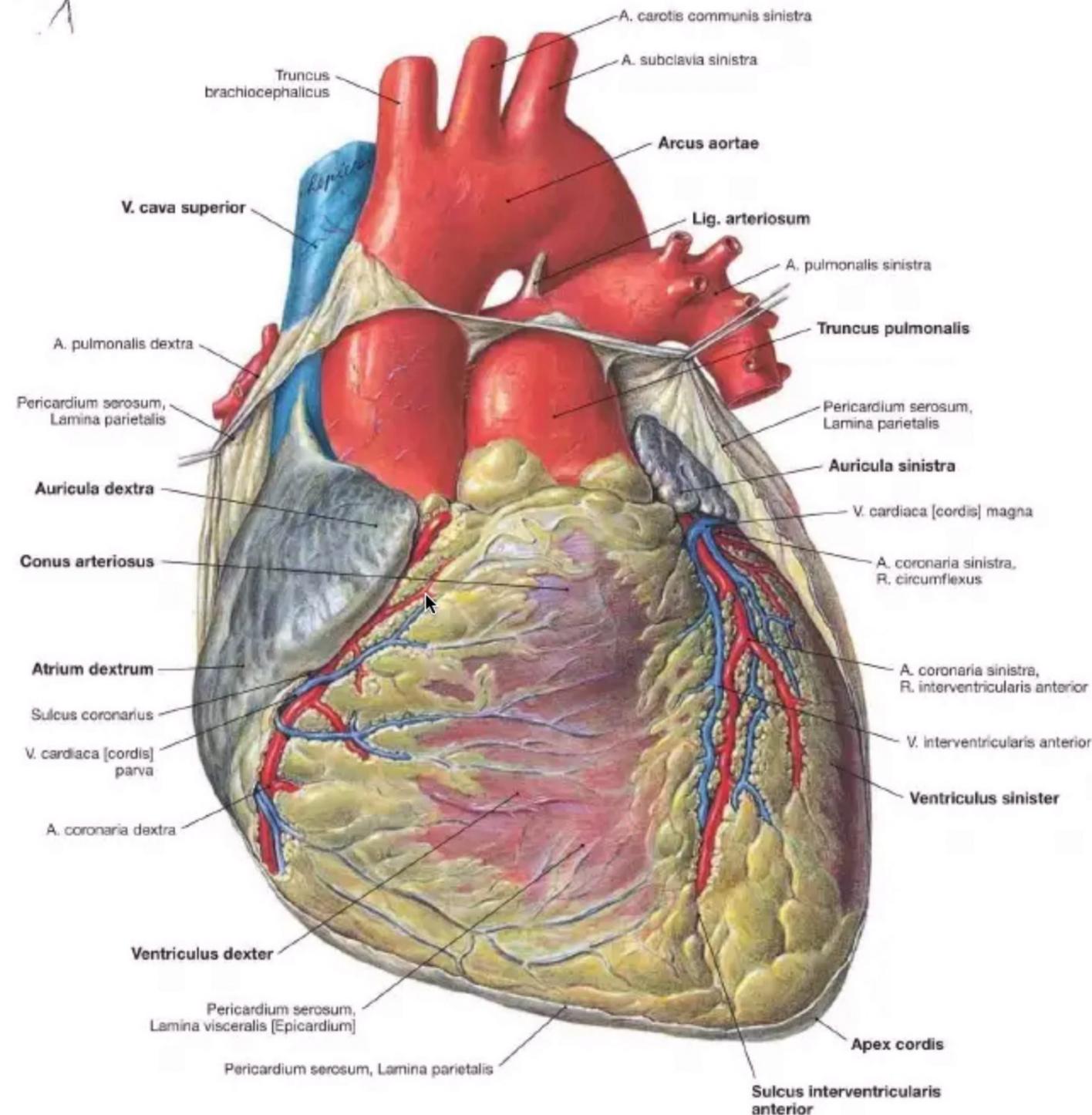


Órgãos torácicos



Vista anterior

Coração

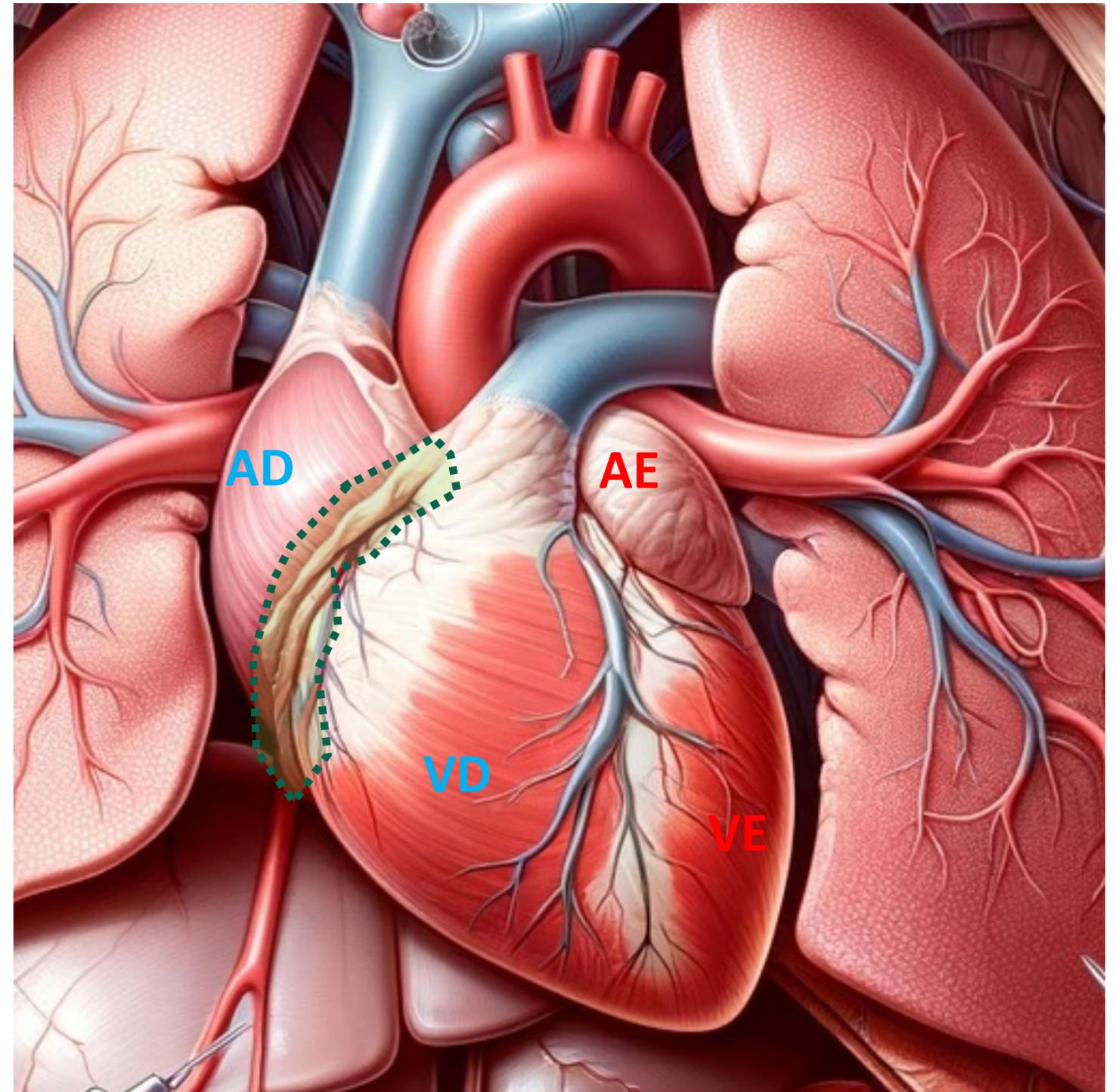
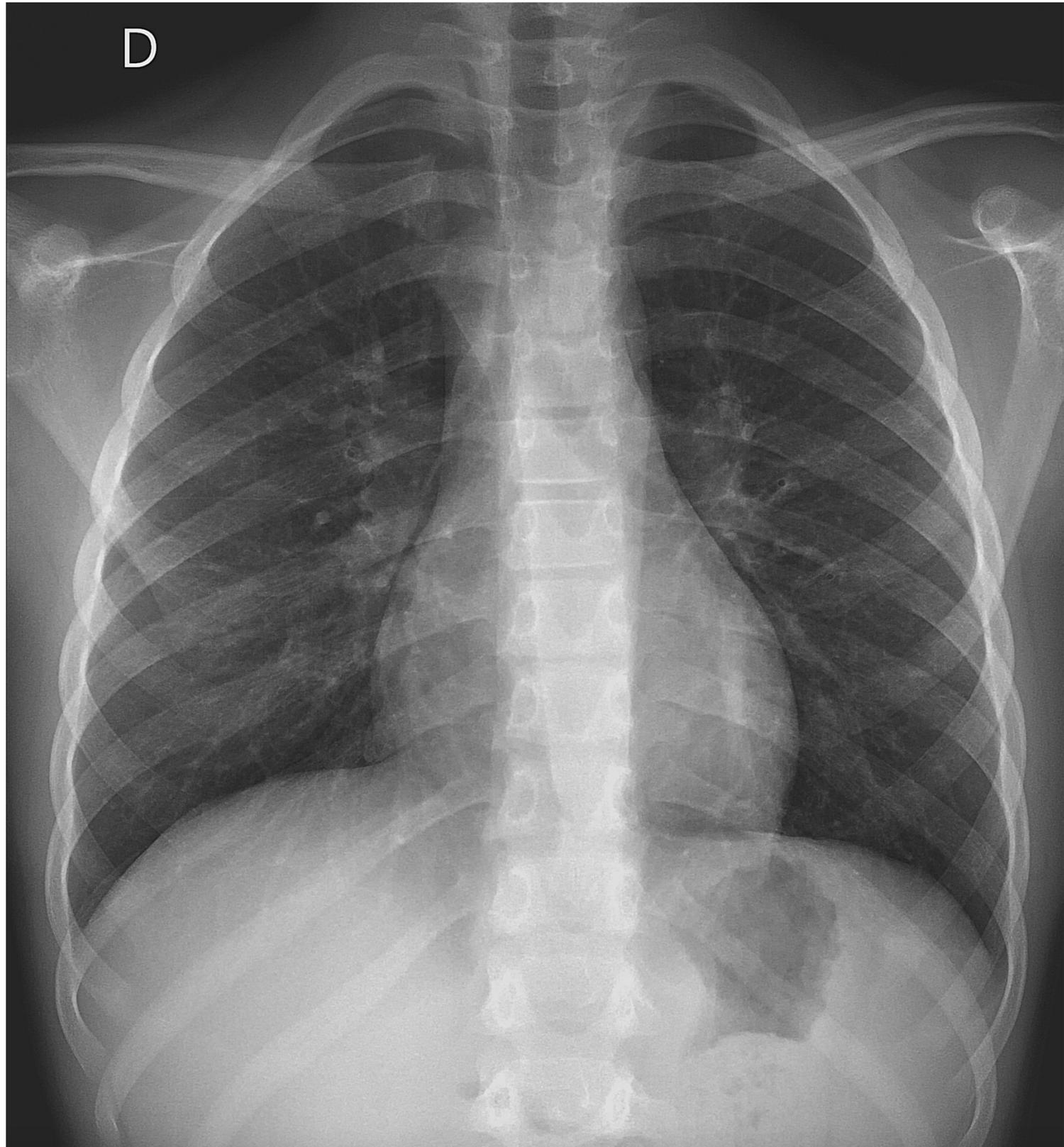


Quatro câmaras:
Ventrículo direito
Átrio direito

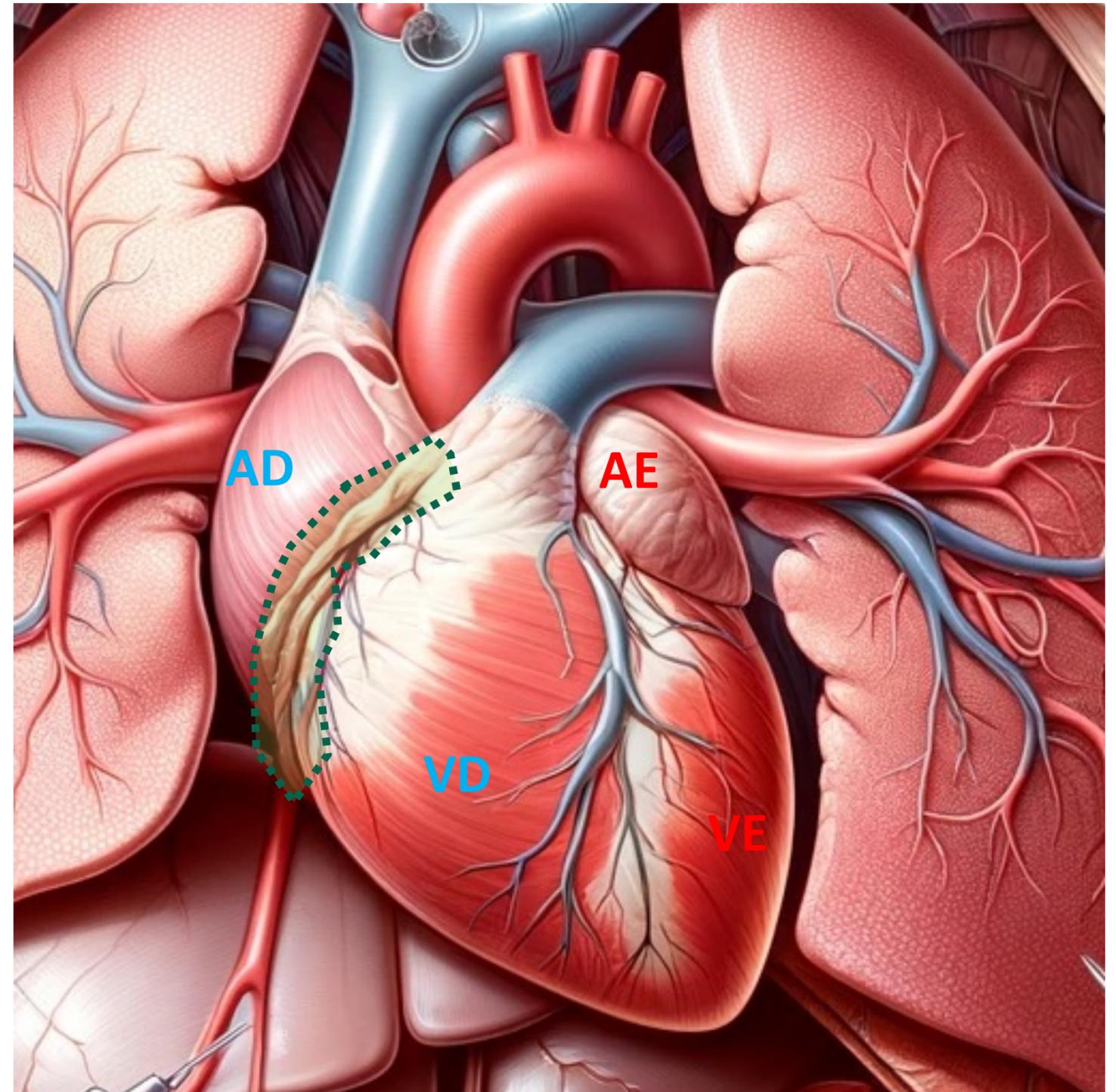
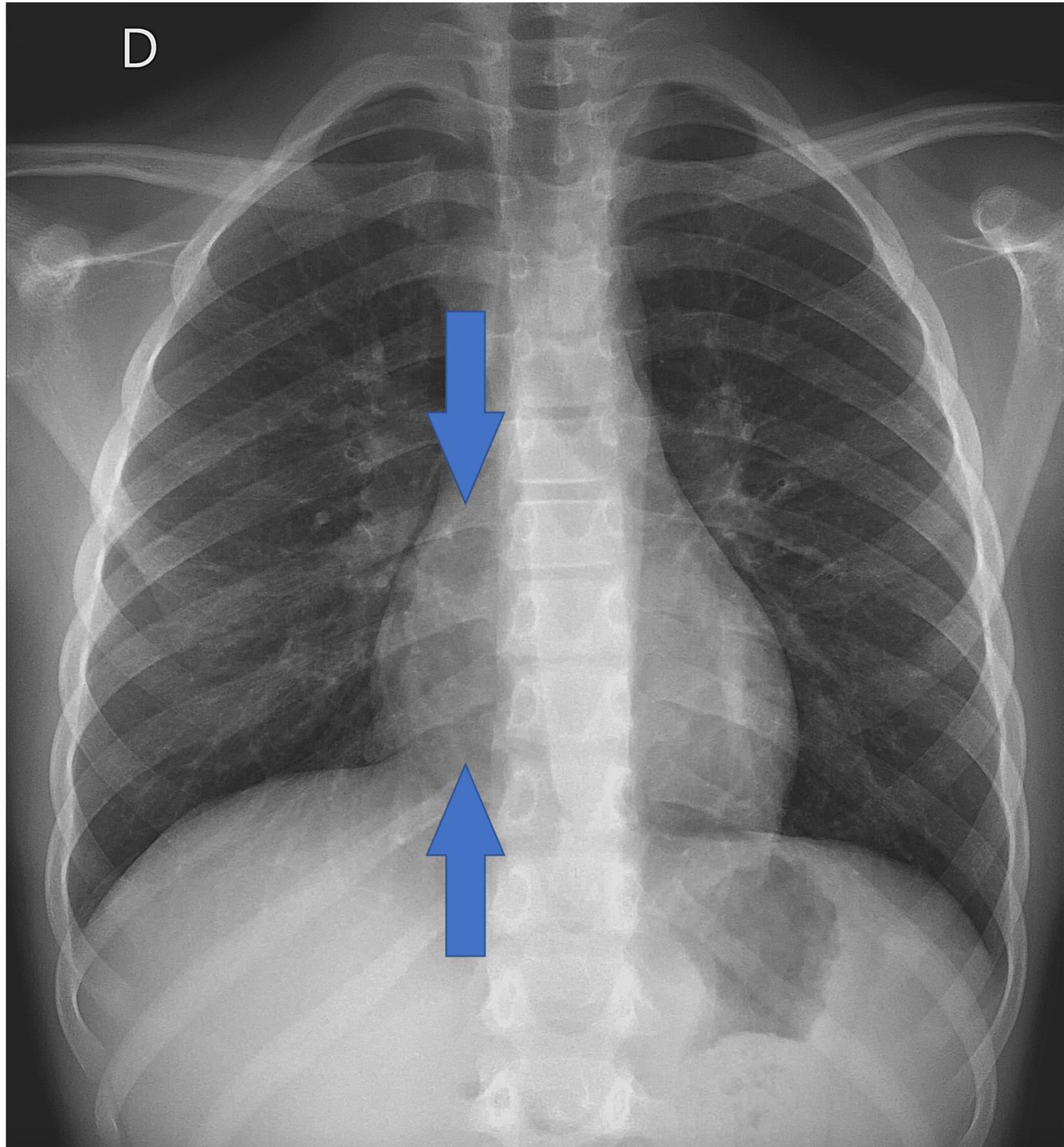
Ventrículo esquerdo
Átrio esquerdo

Direito: anterior
Esquerdo: posterior
(rotação embriológica da ponta para a esquerda)

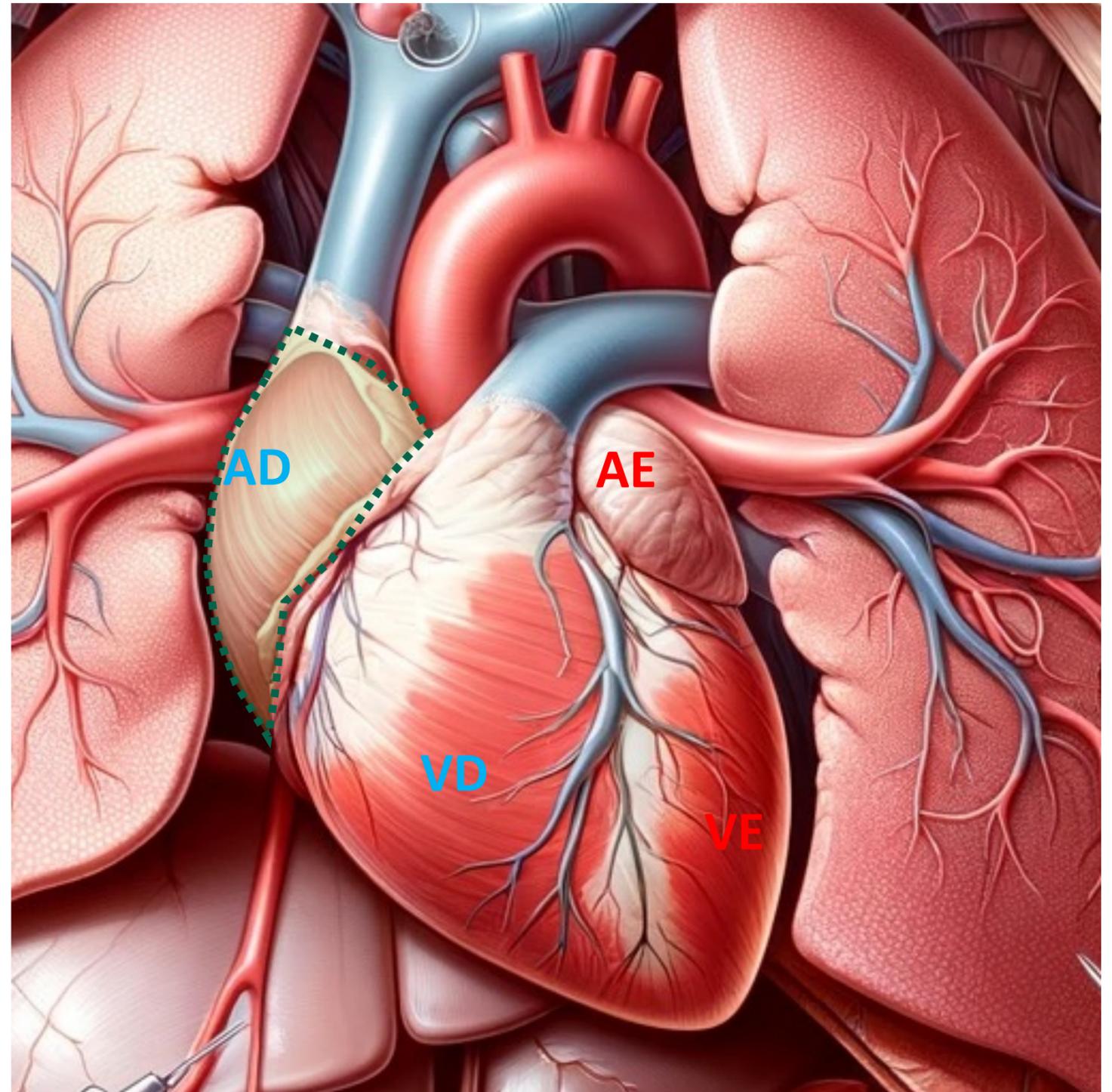
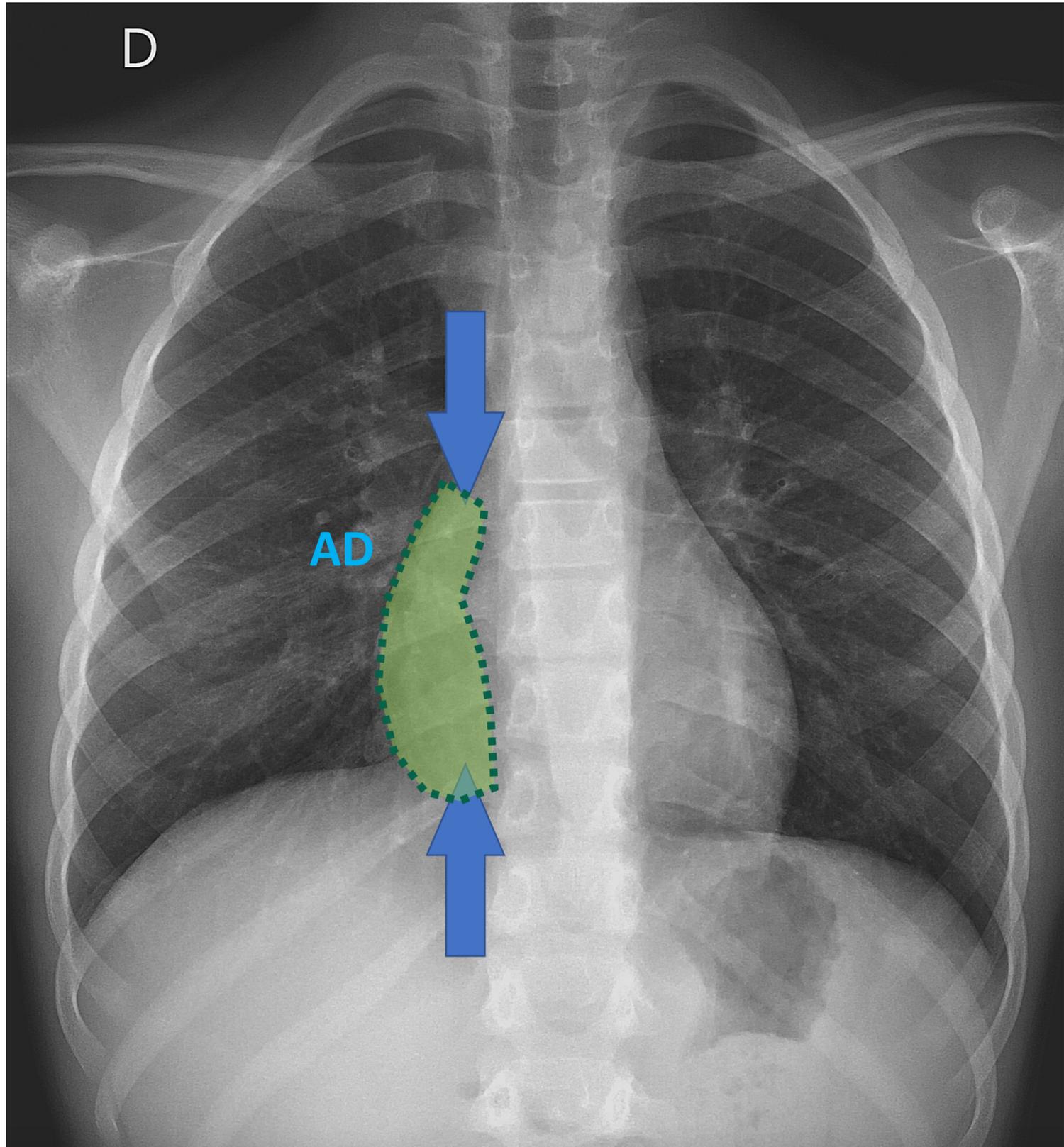
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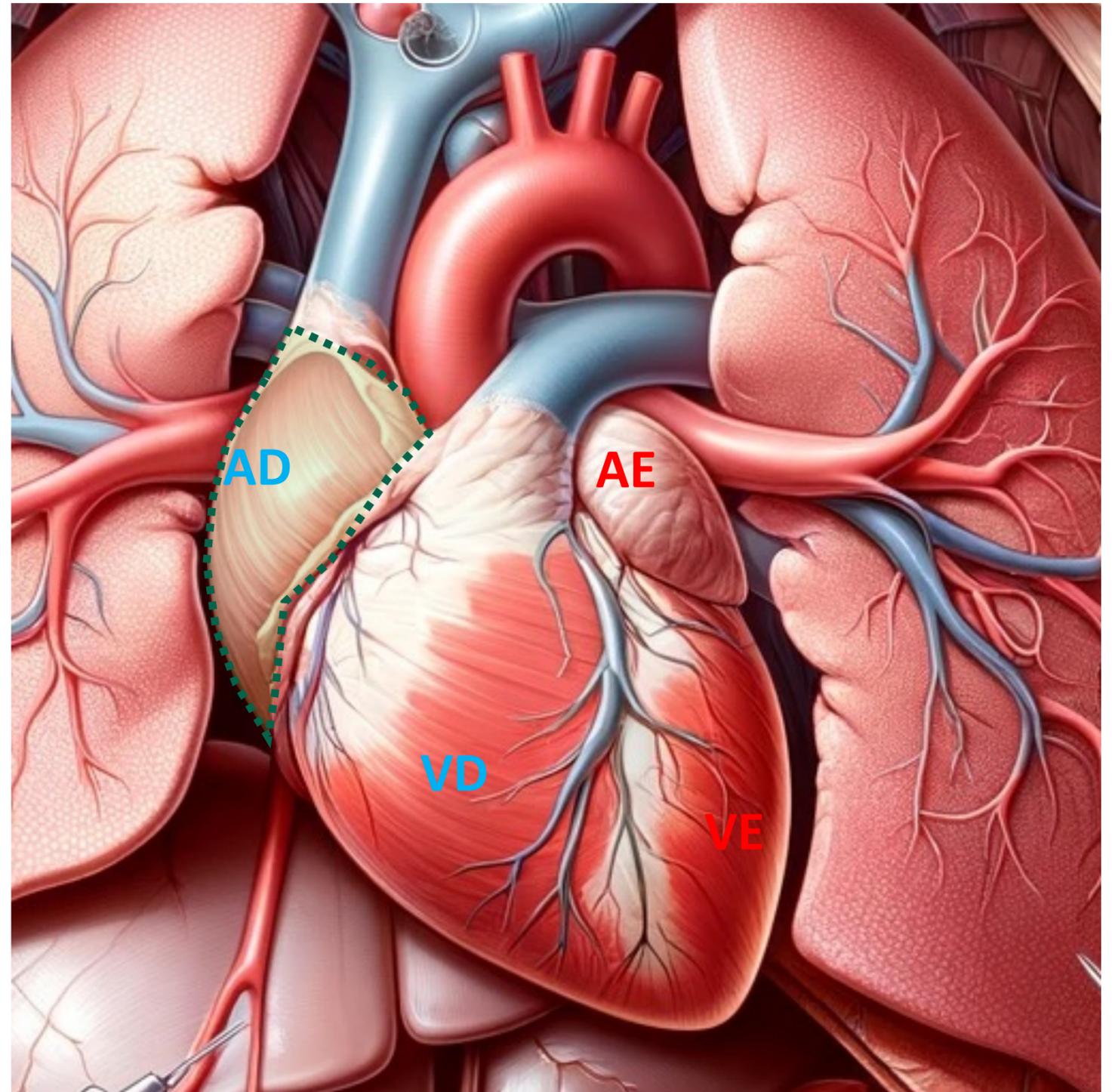
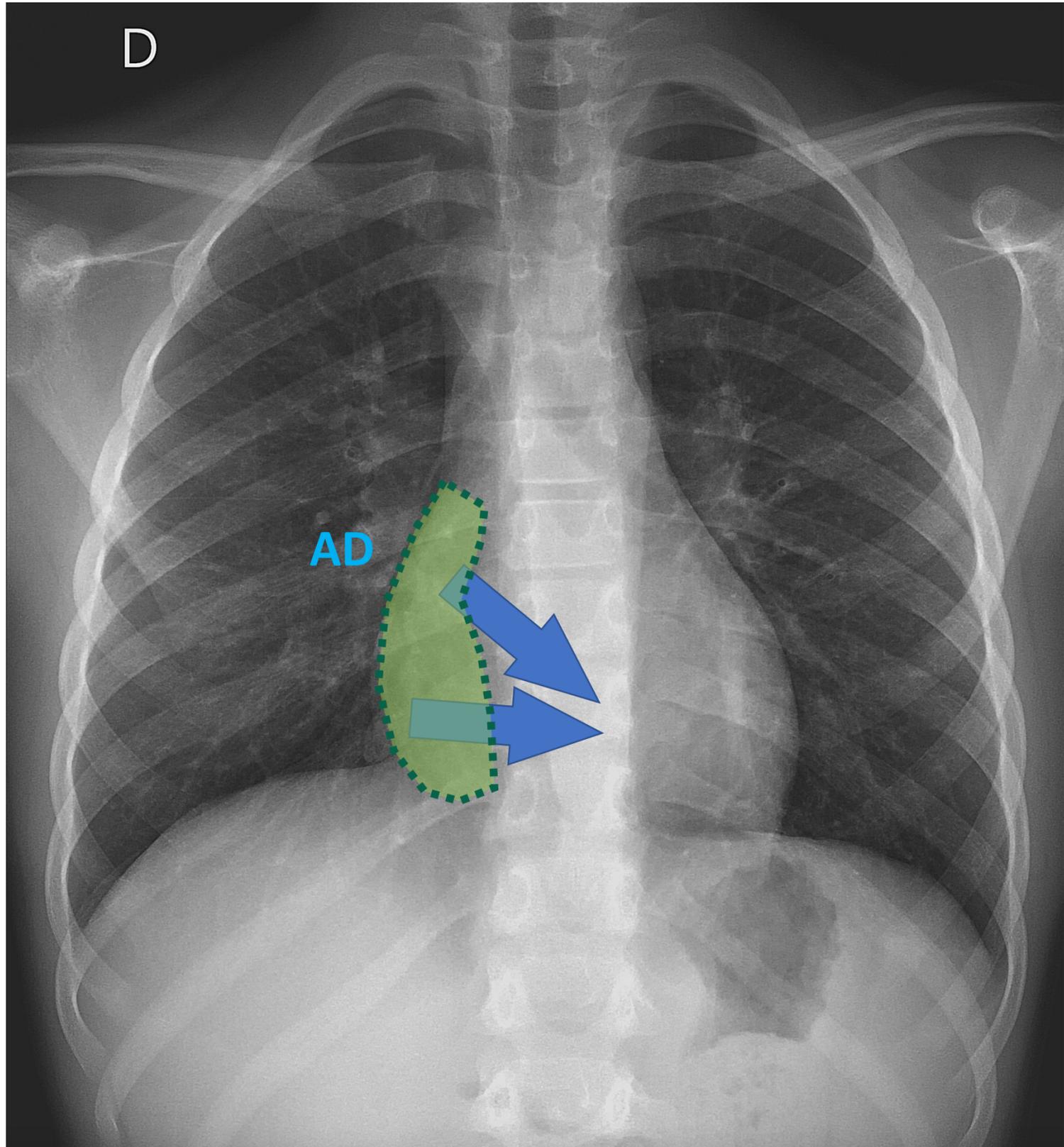
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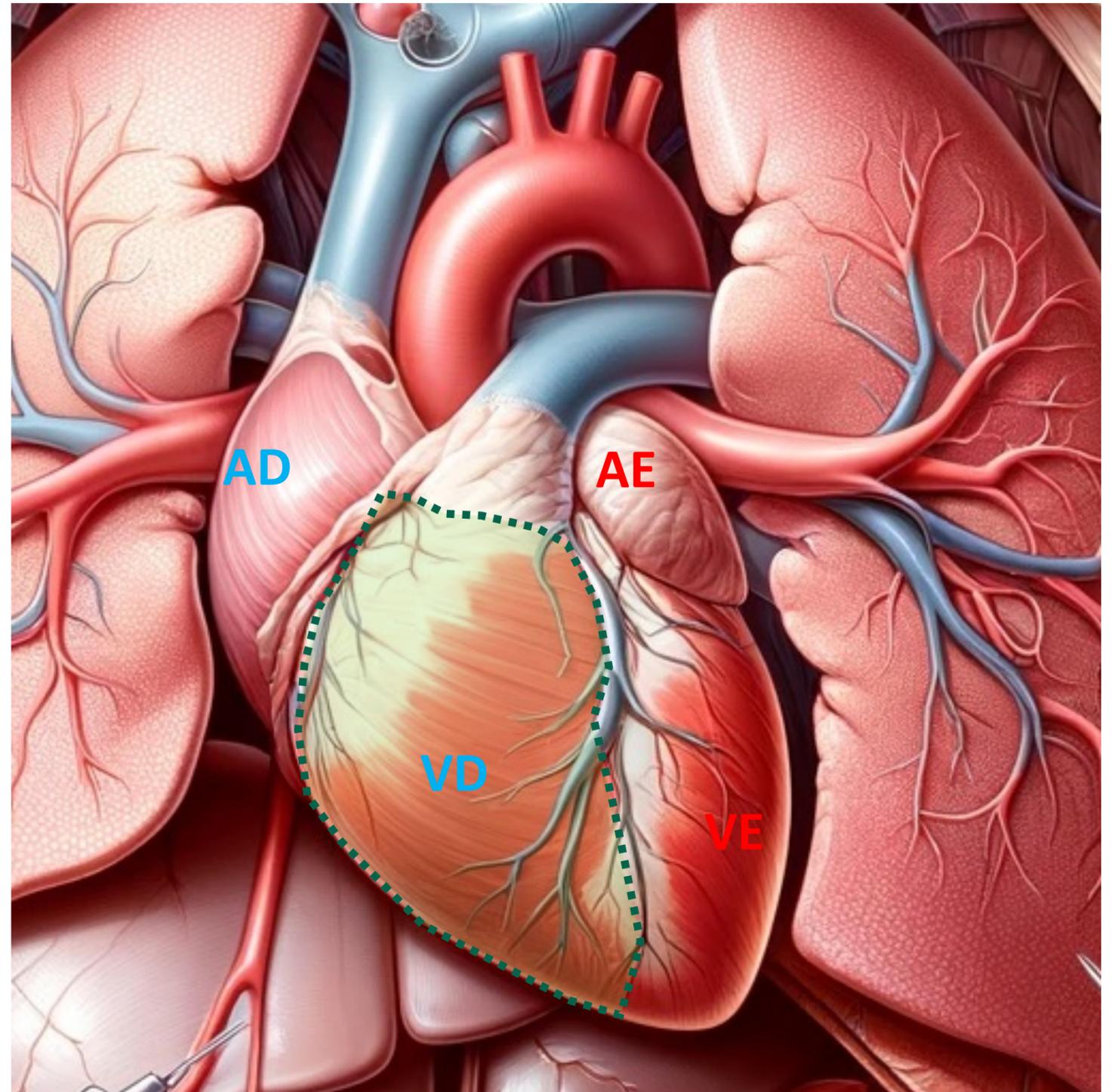
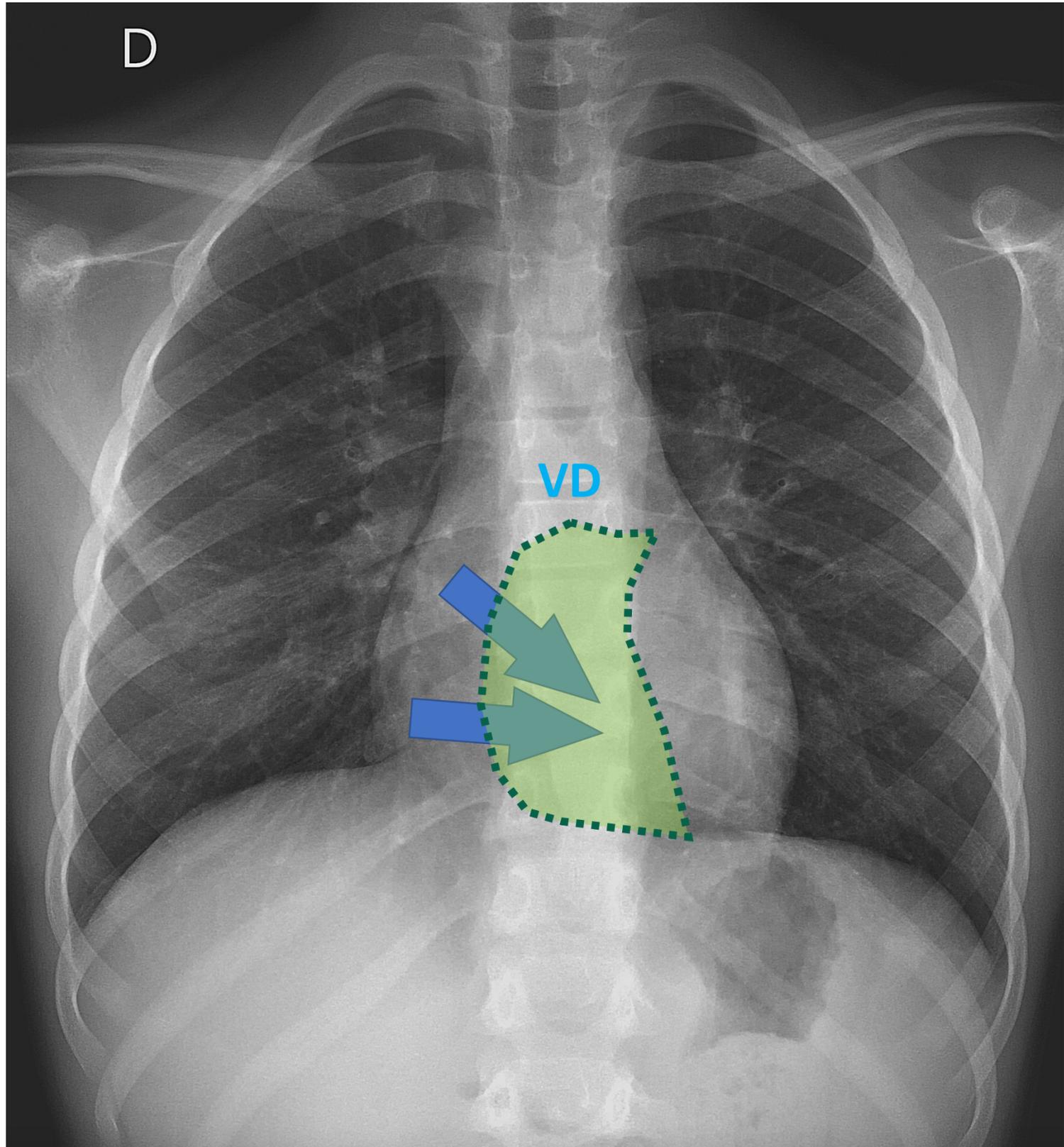
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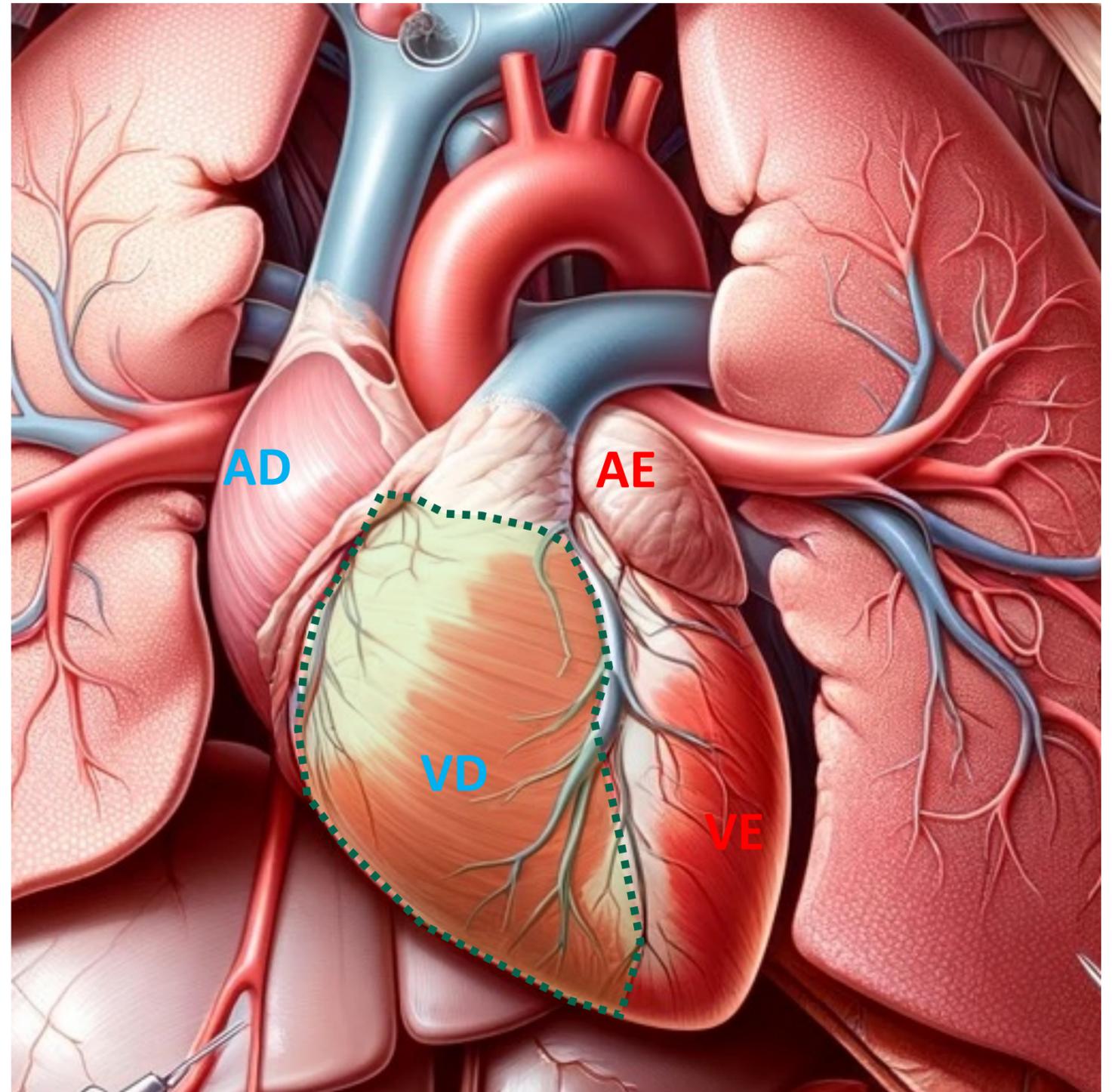
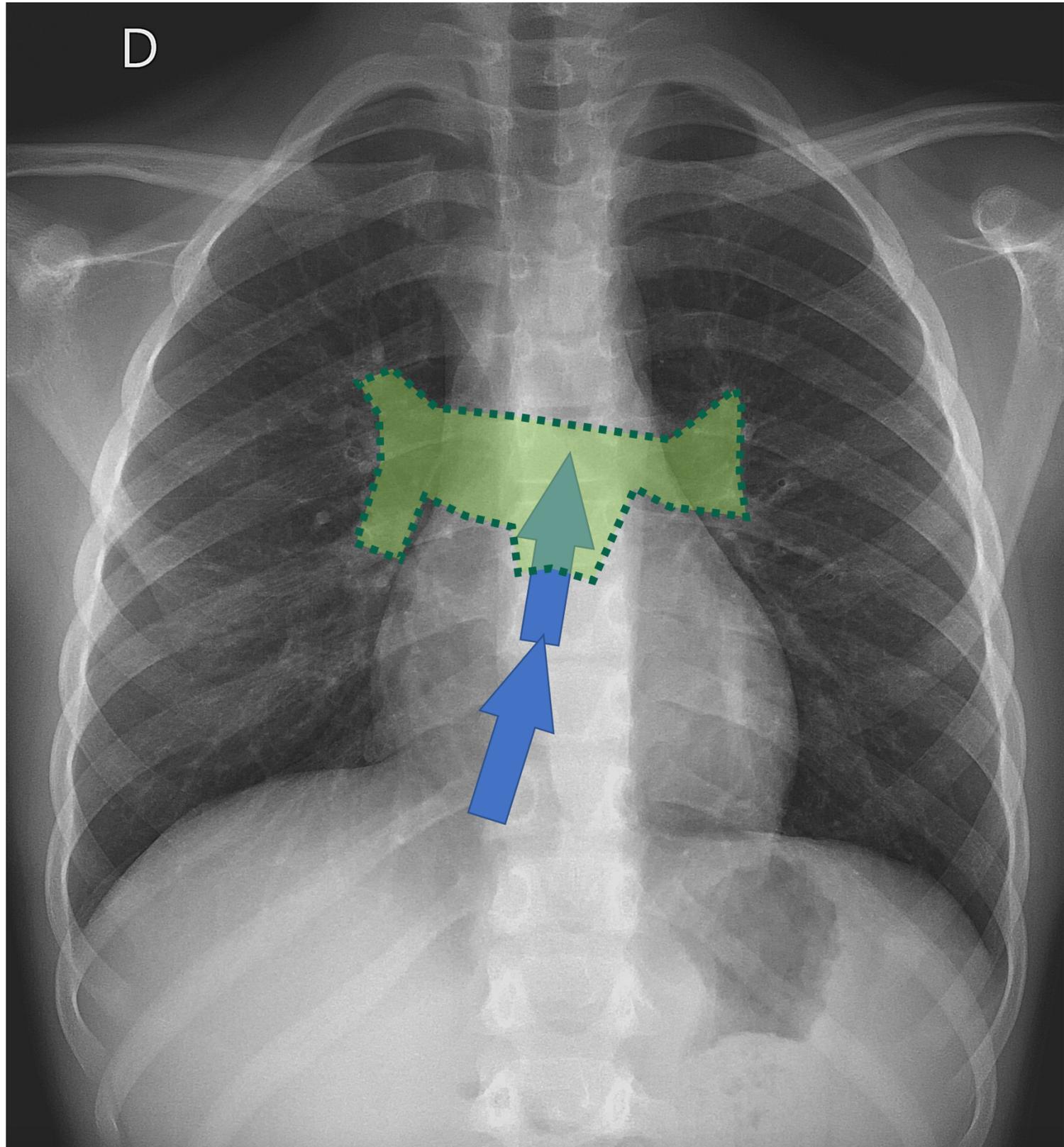
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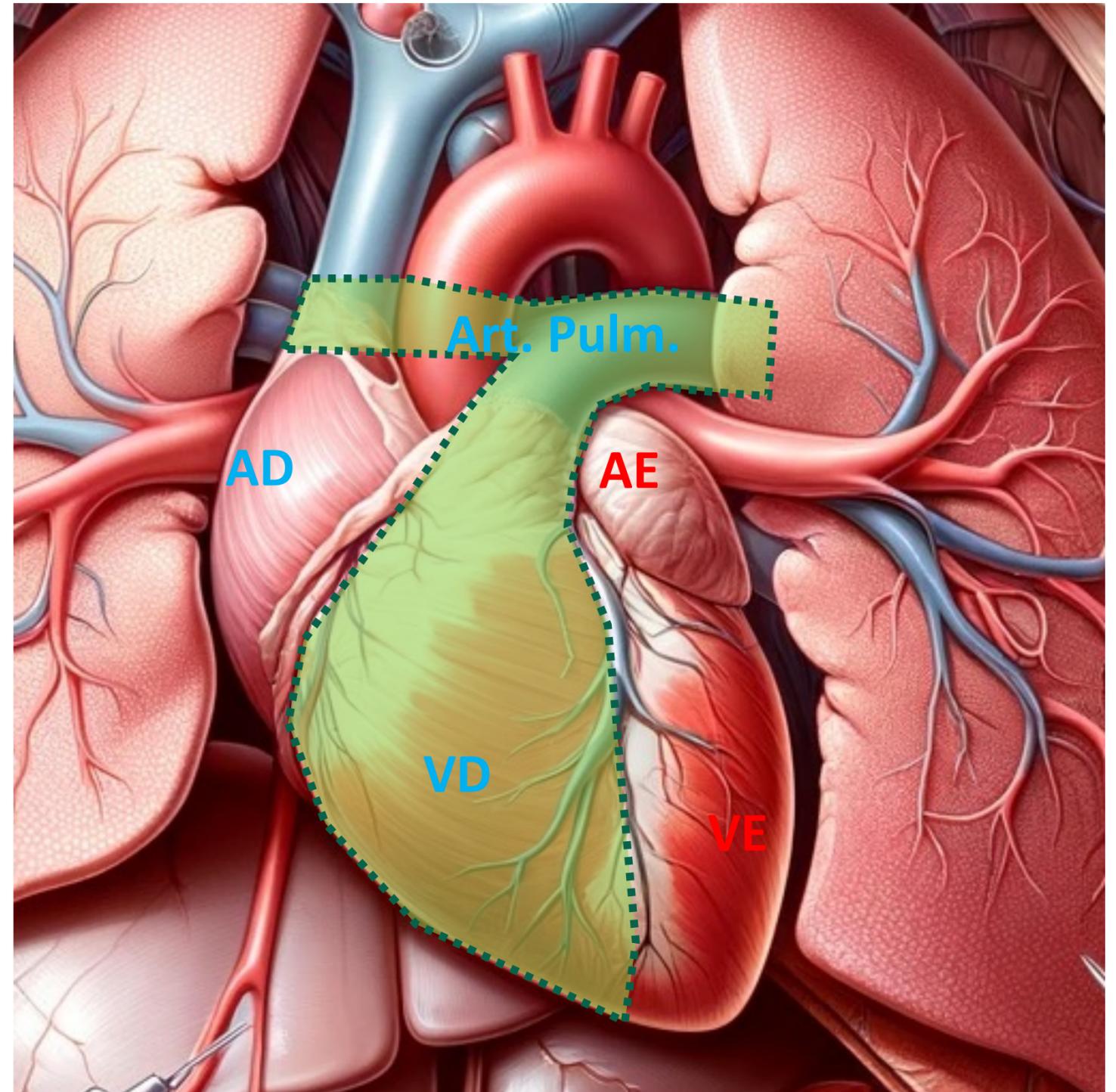
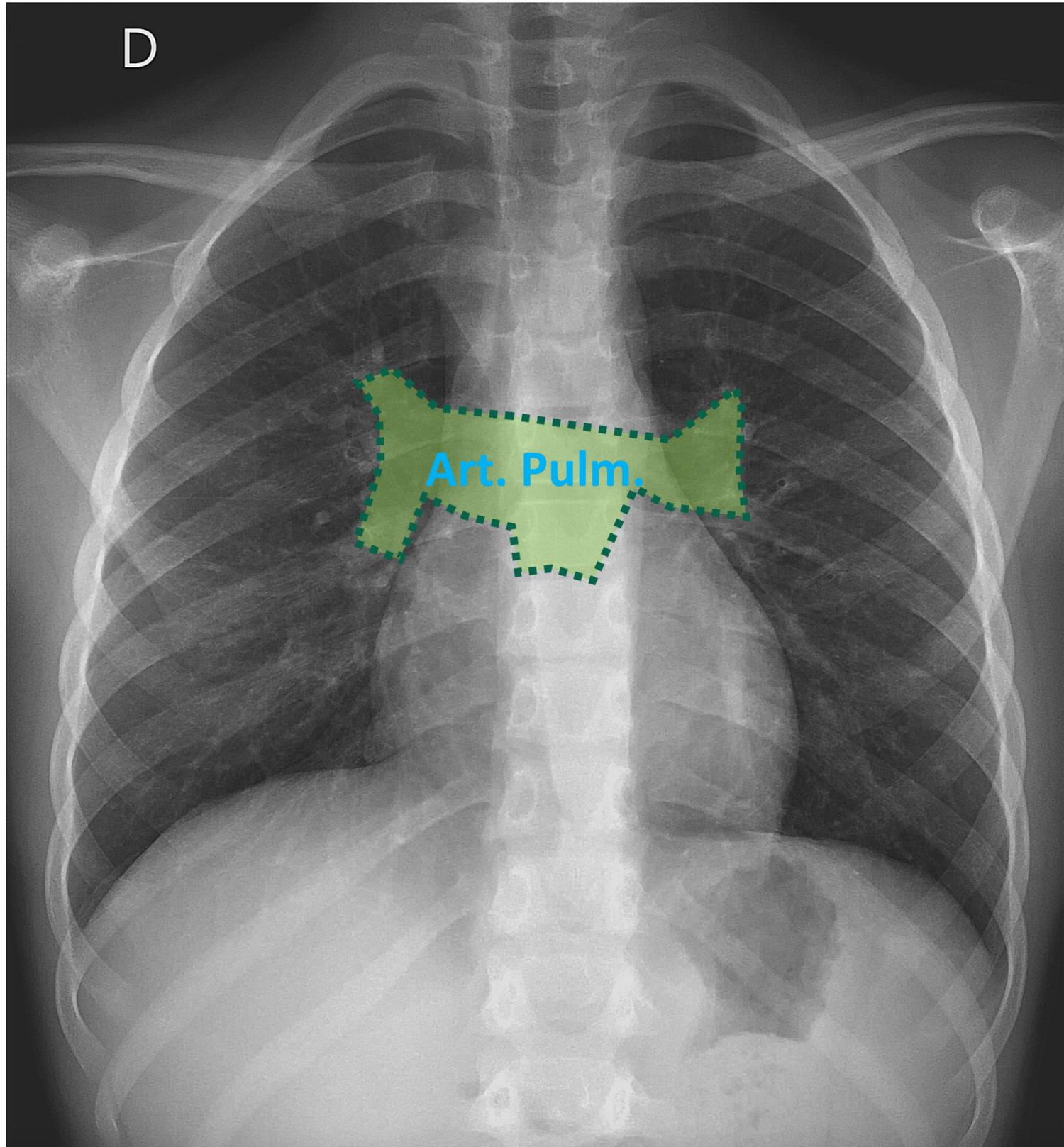
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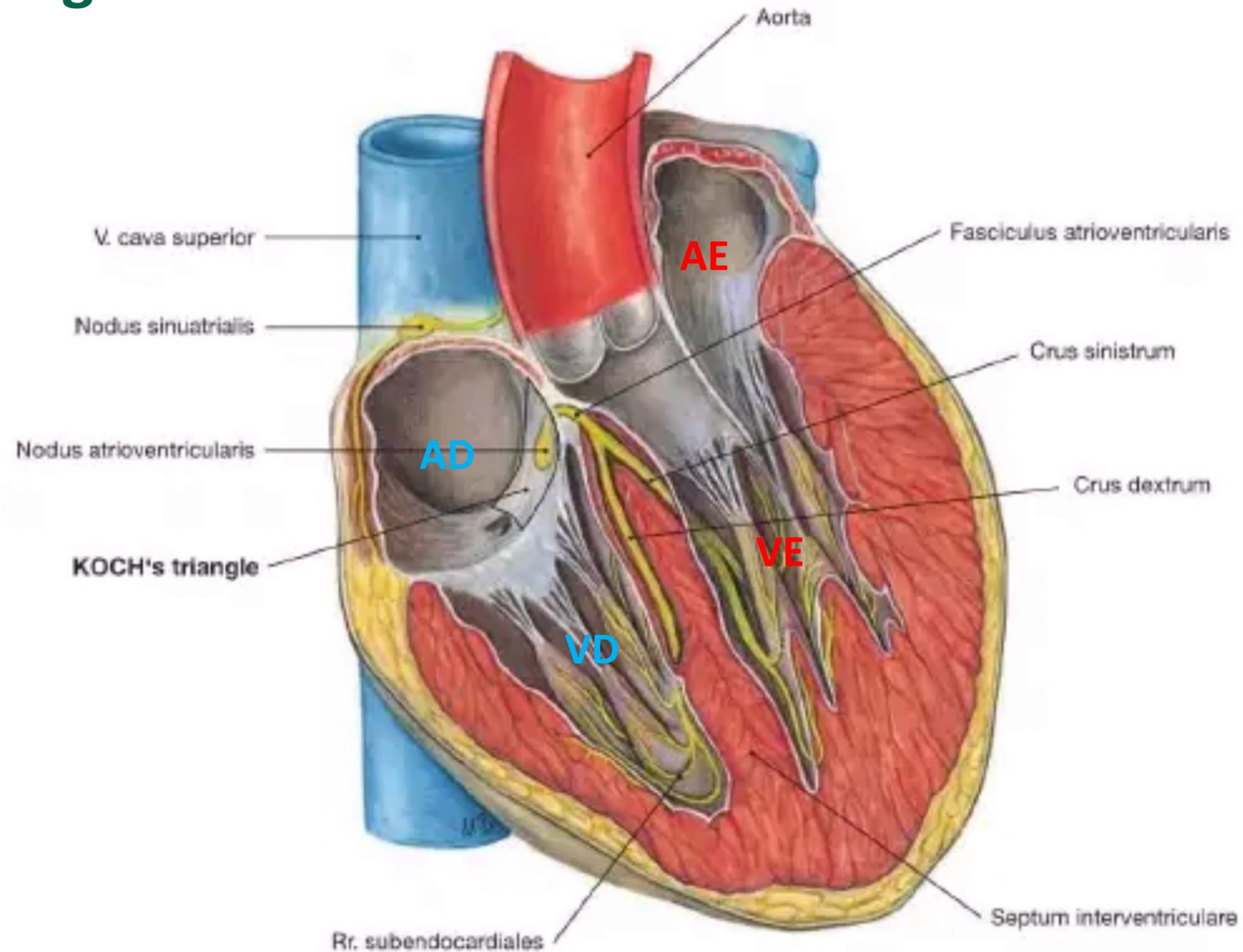


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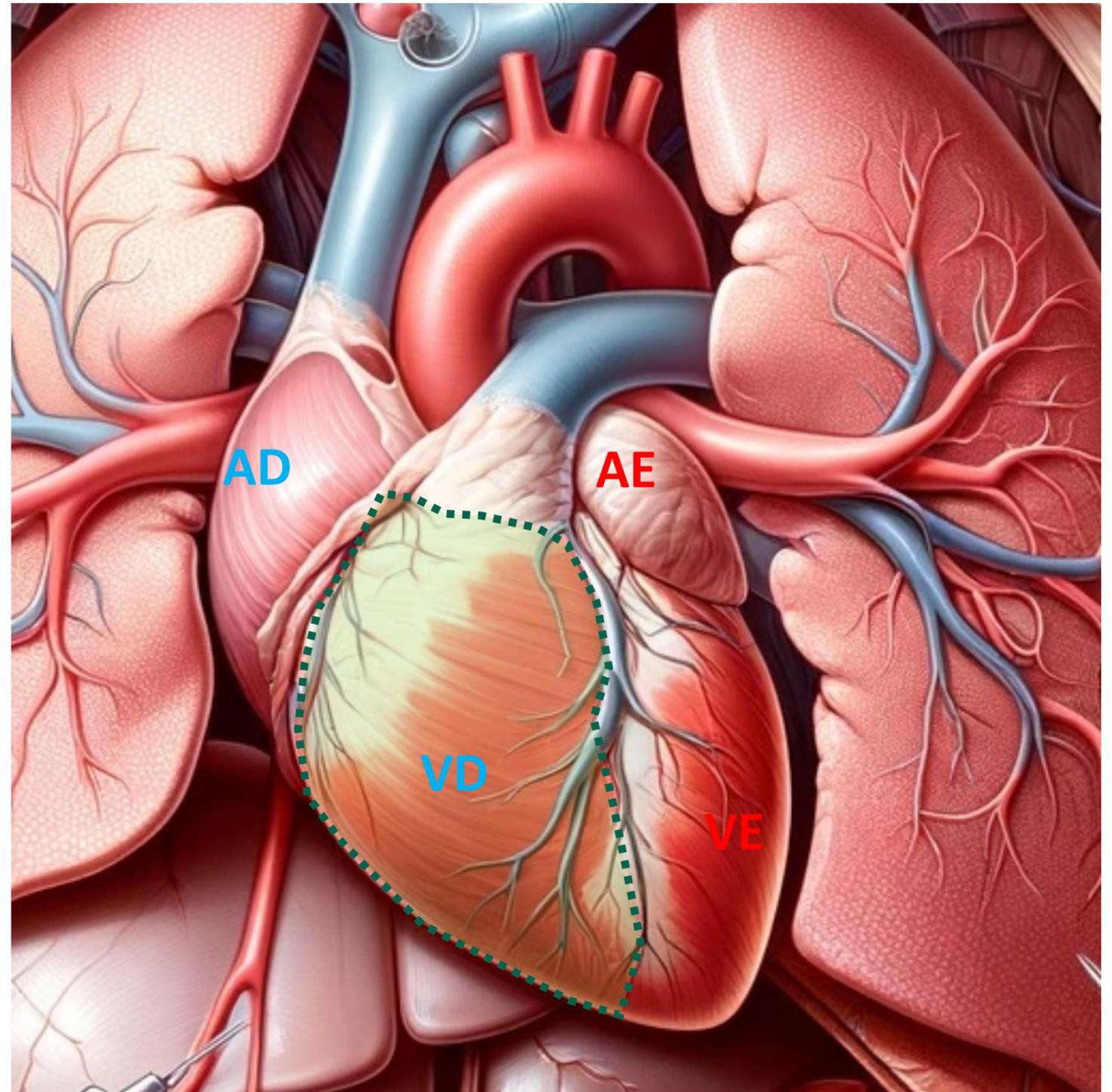
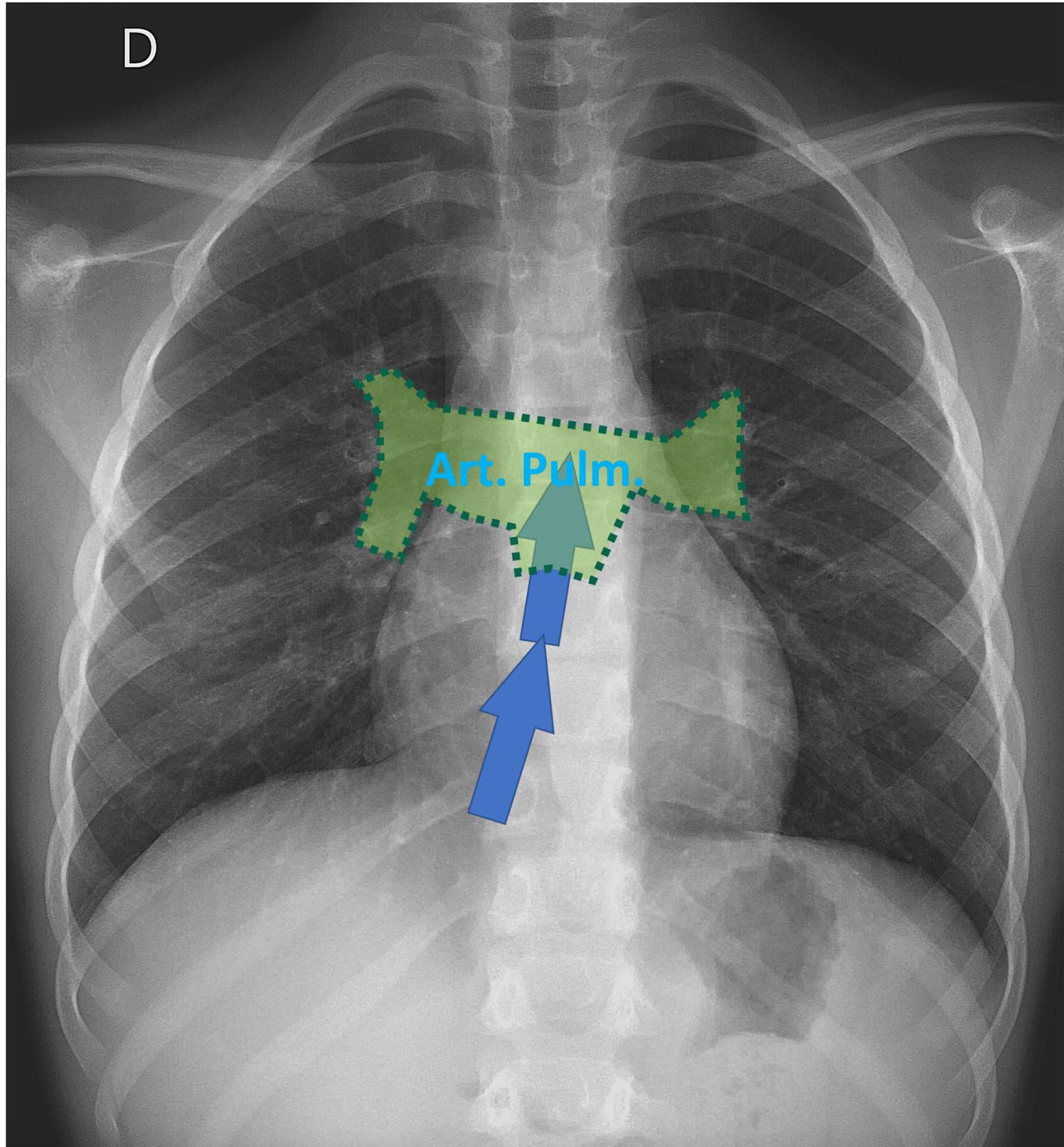
Órgãos torácicos



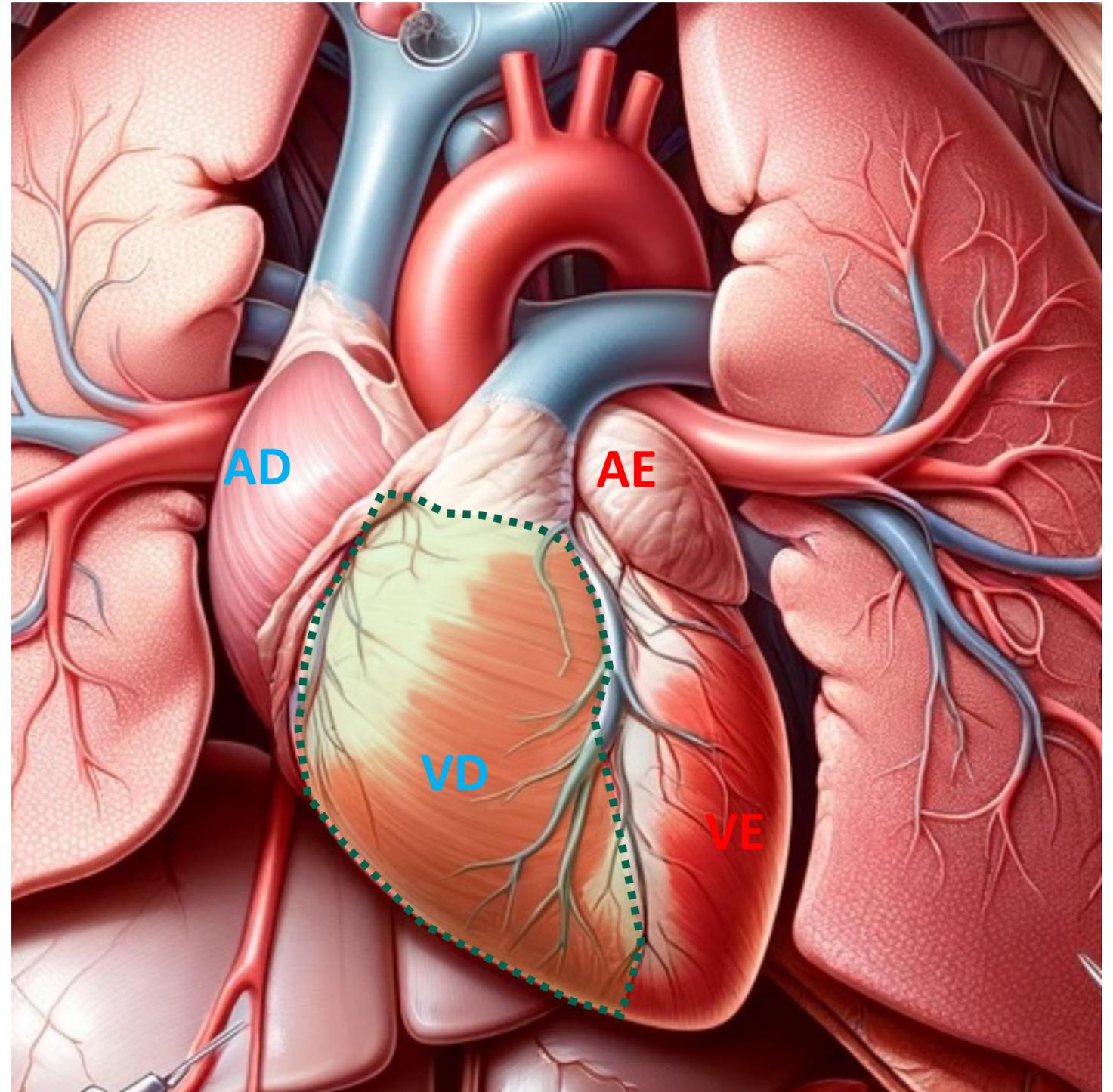
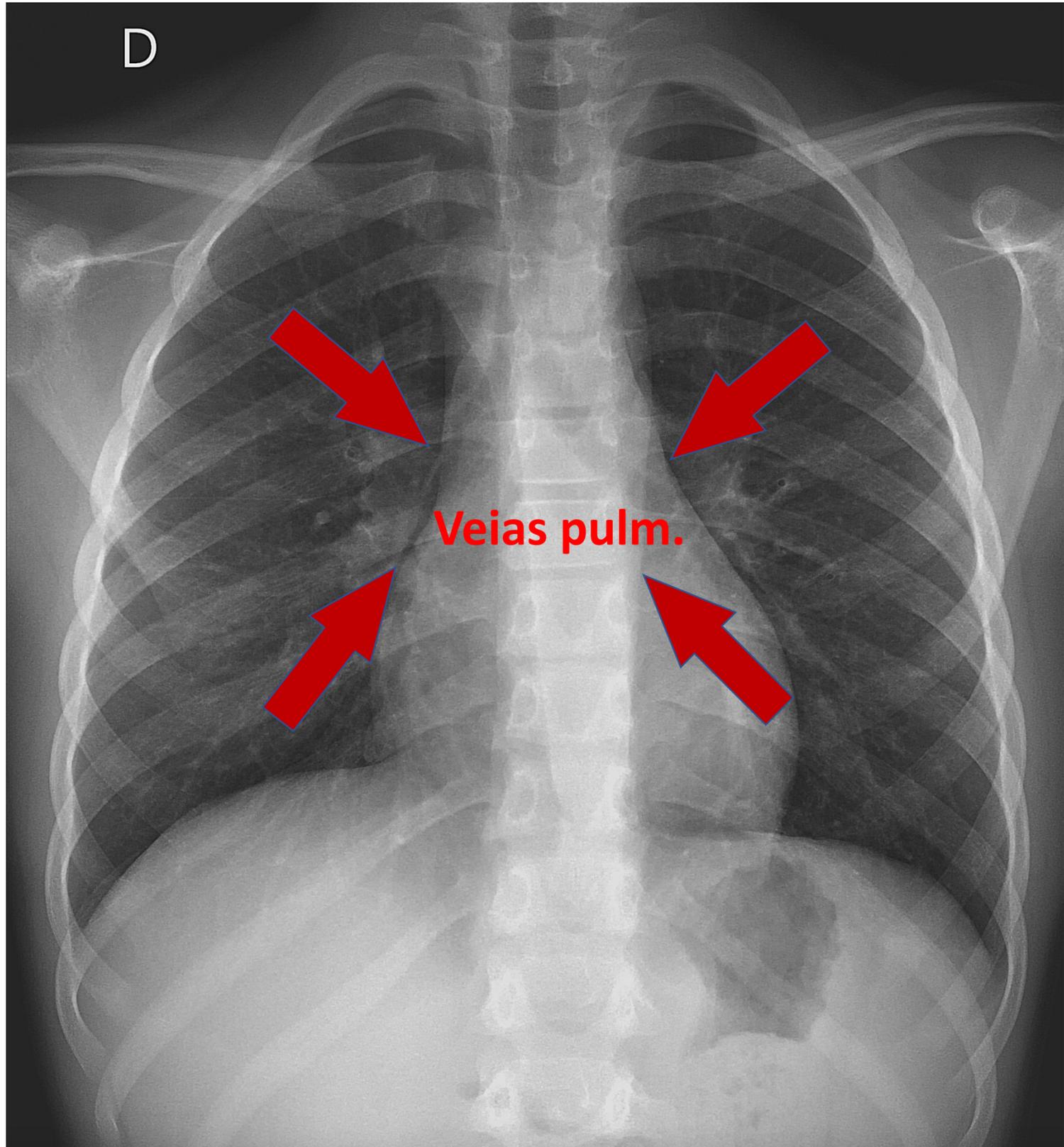
Duas valvas AV:
Mitral
Tricúspide

Duas valvas ventrículo-arteriais:
Pulmonar (fora do plano da imagem)
Aórtica

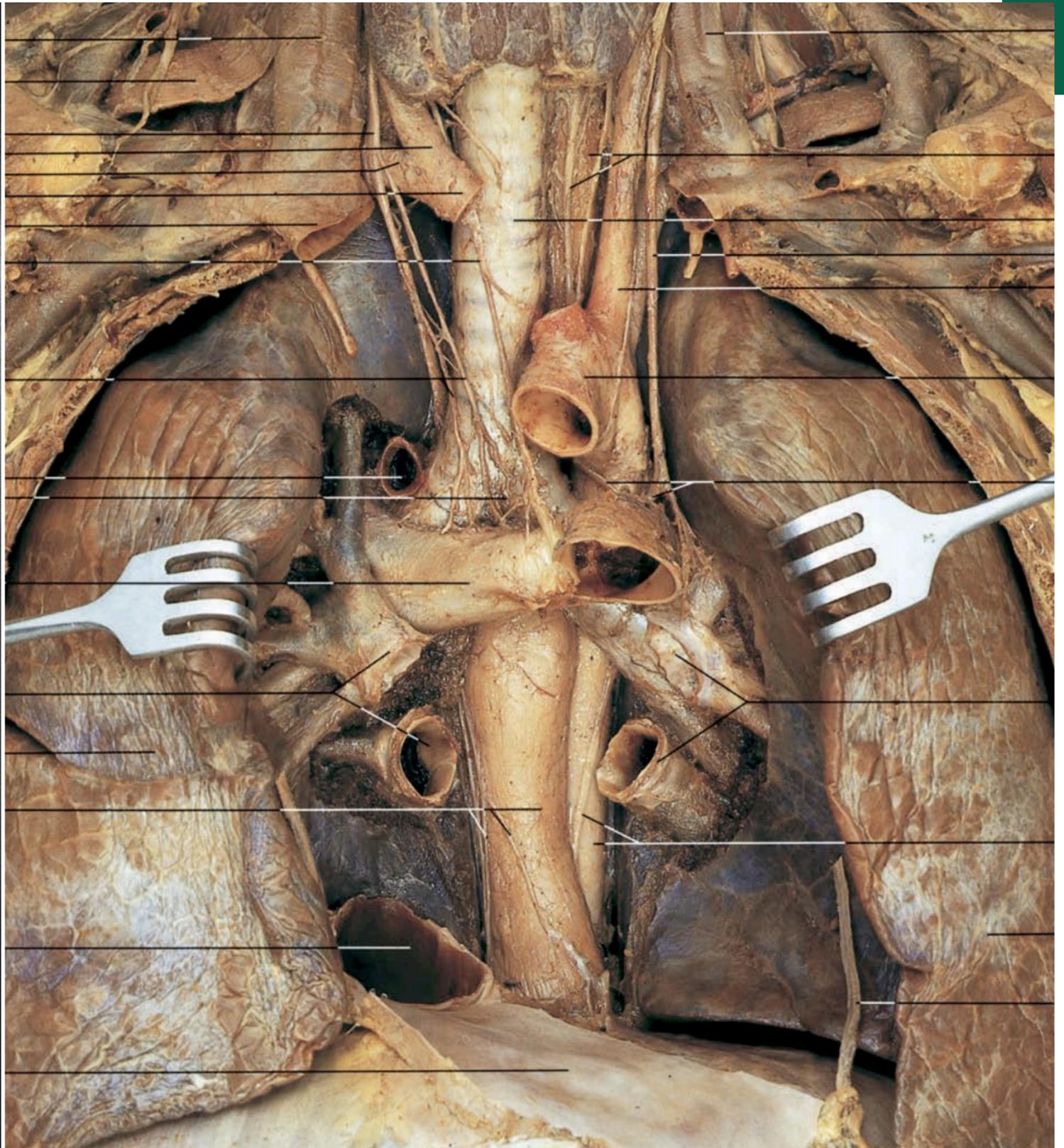
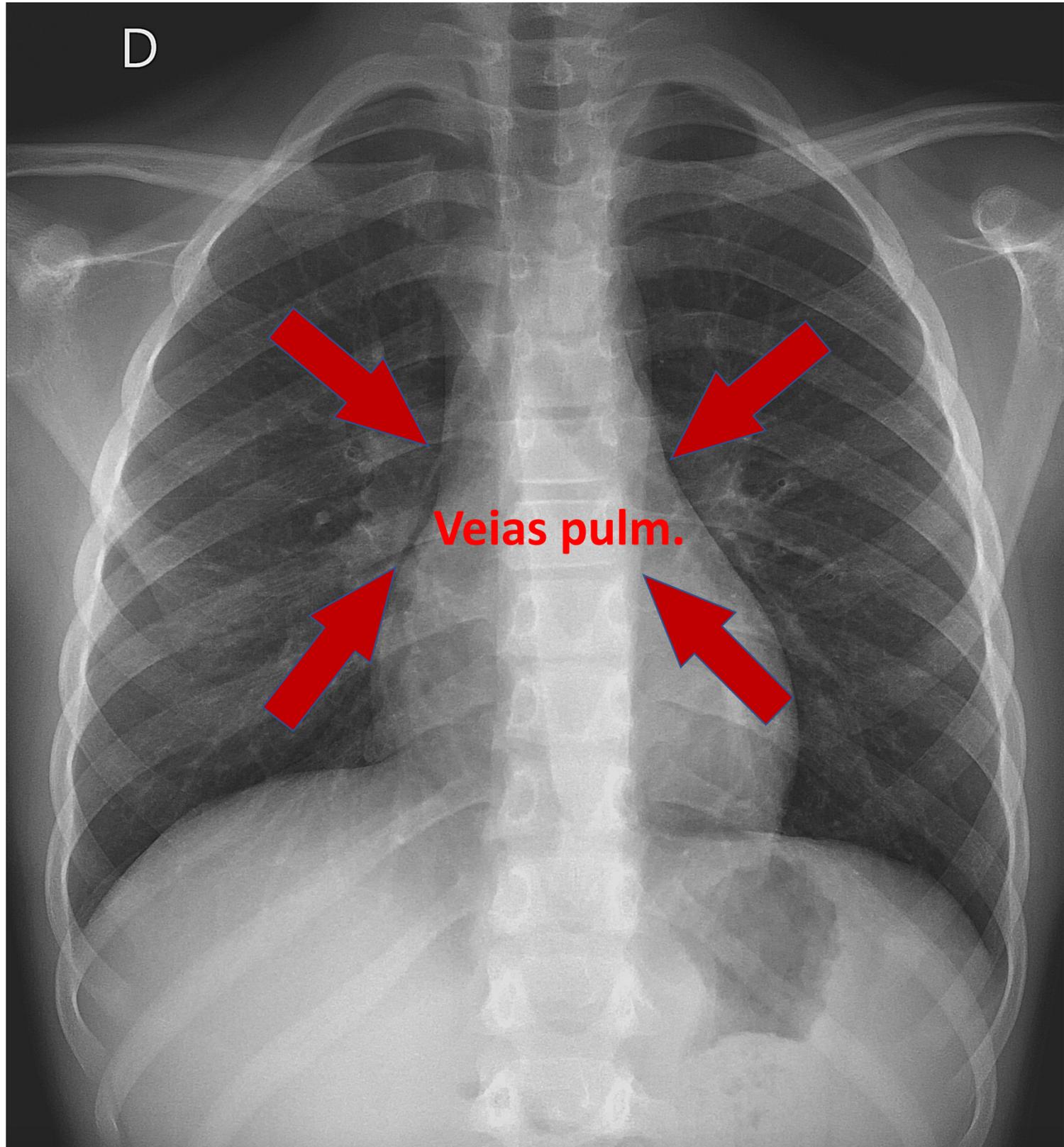
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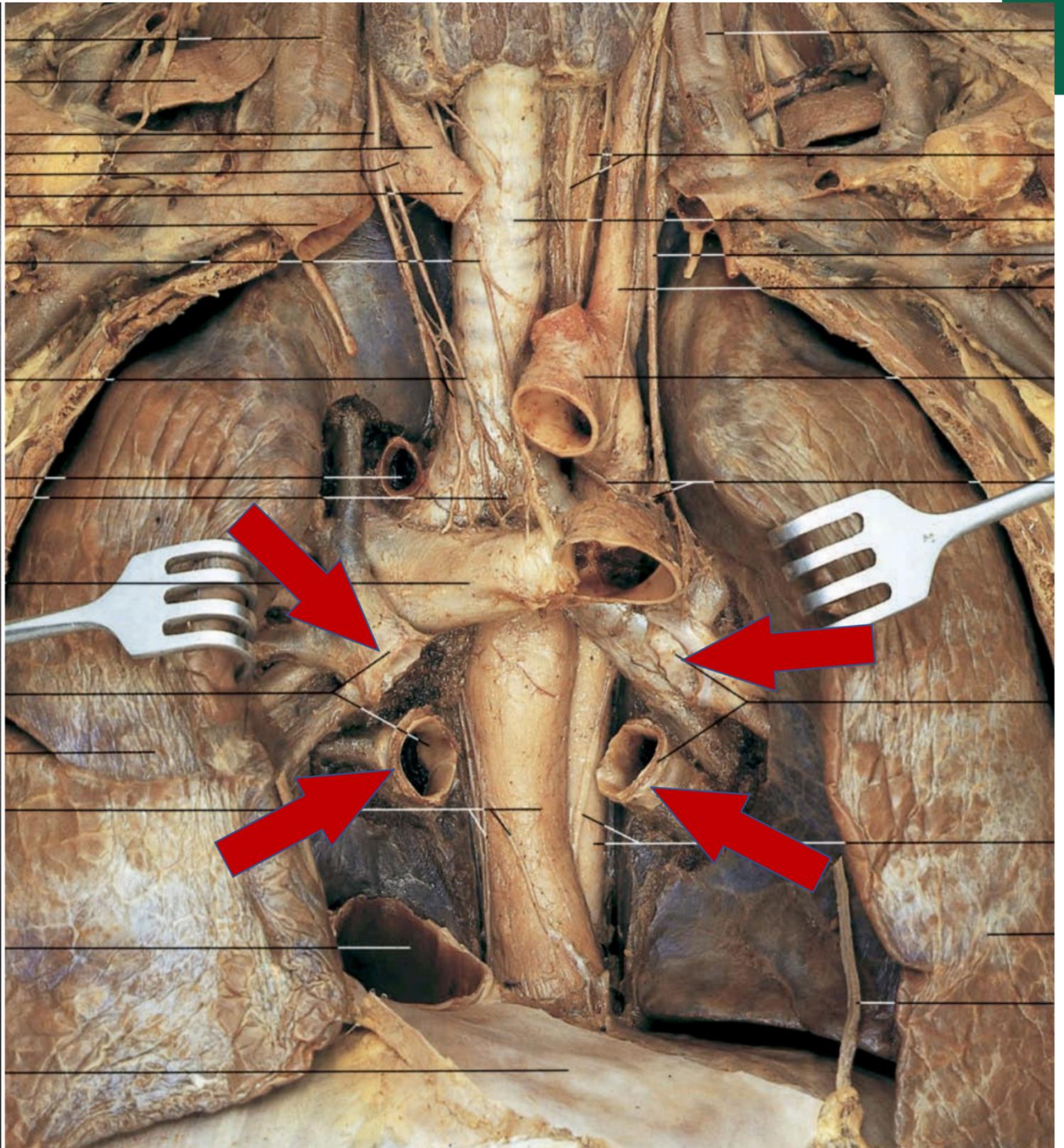
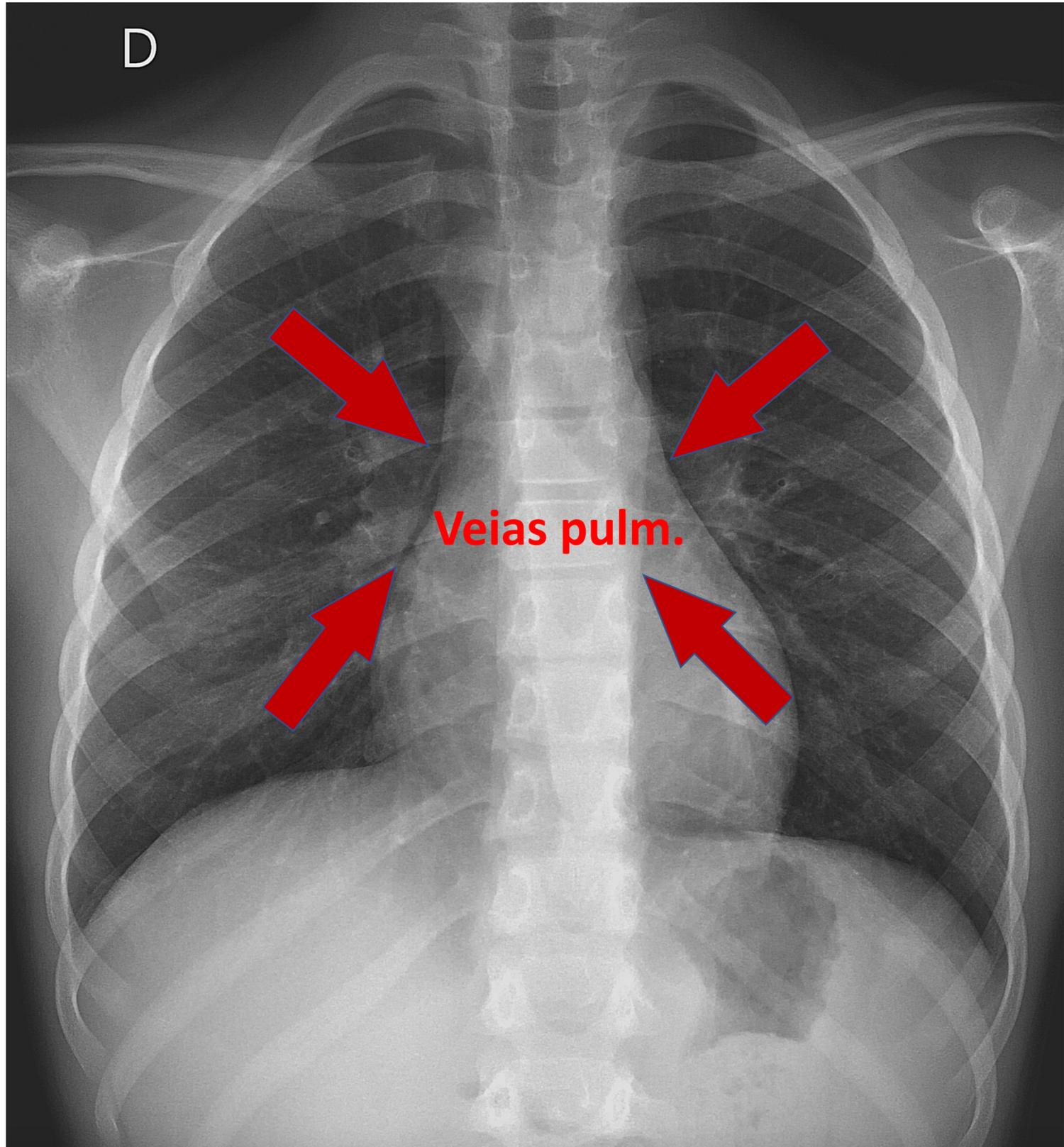
Coração



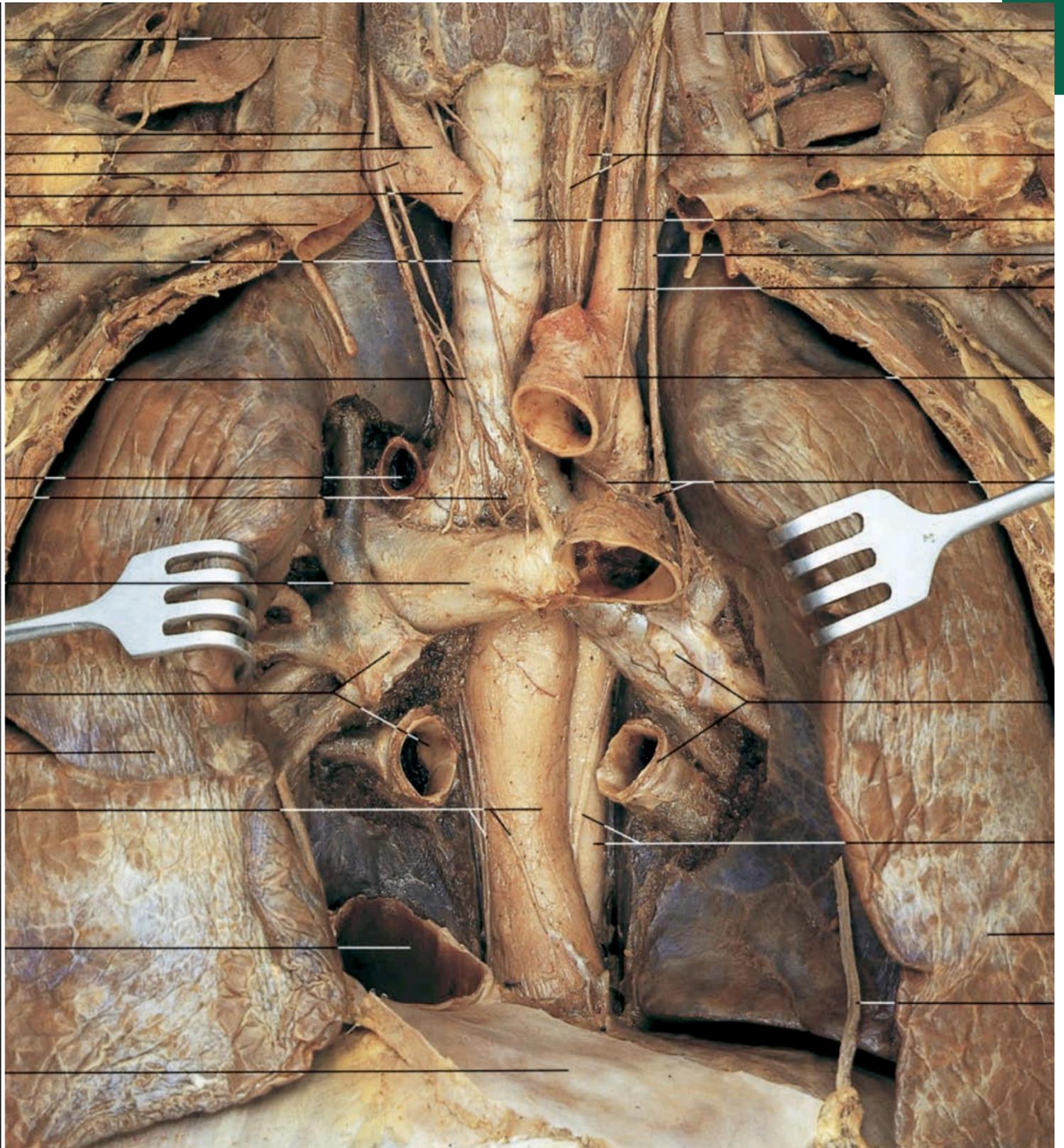
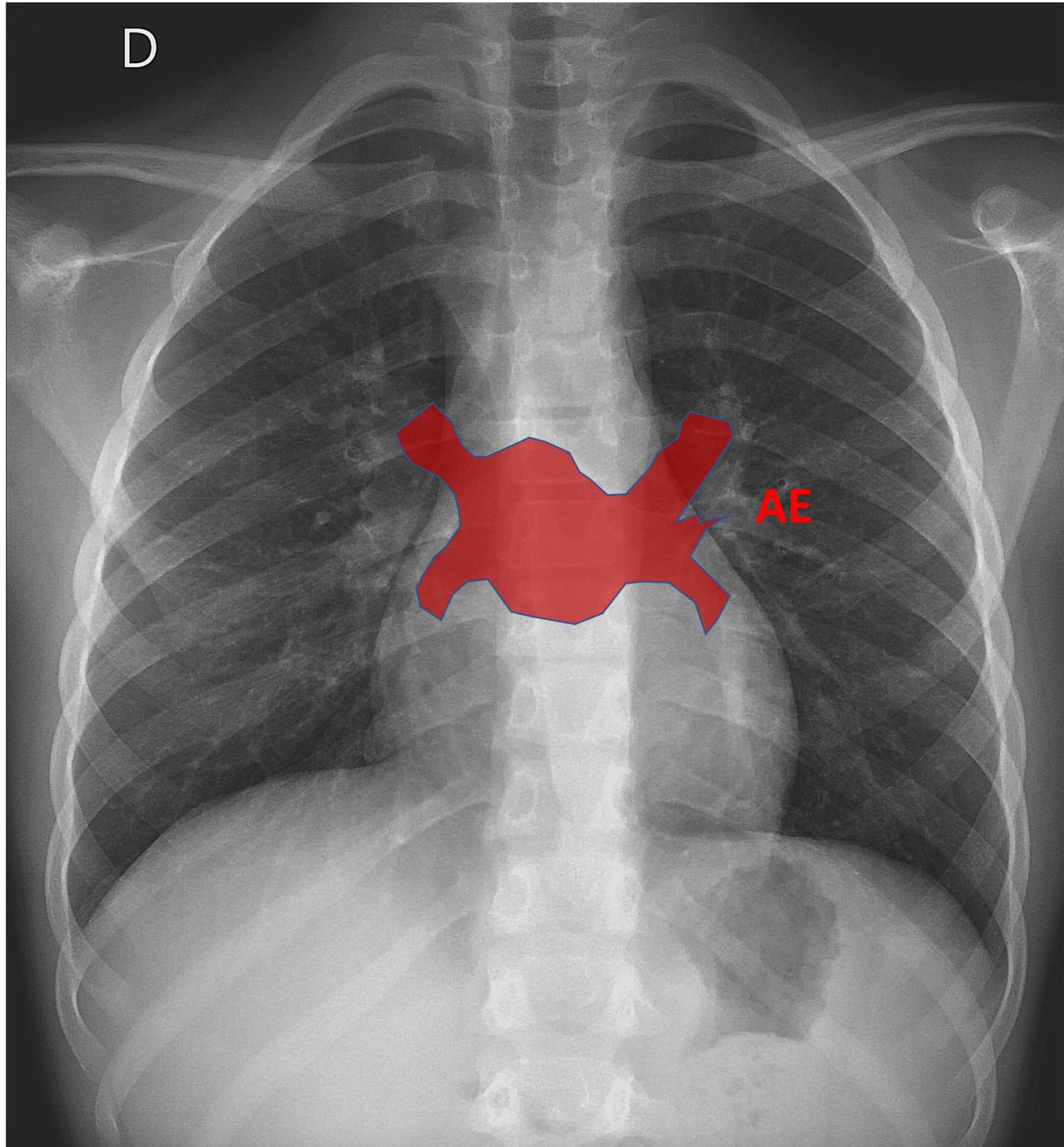
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Coração



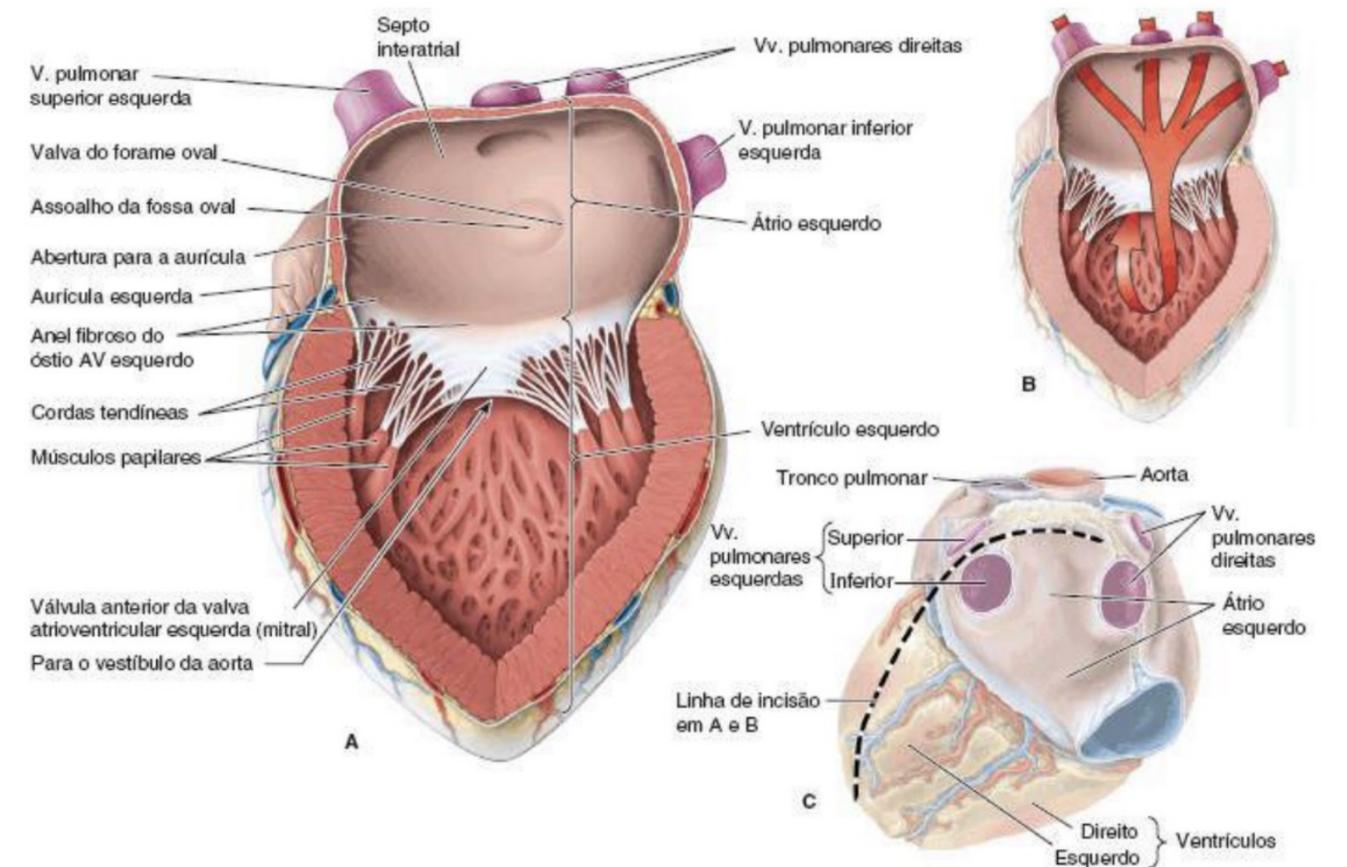
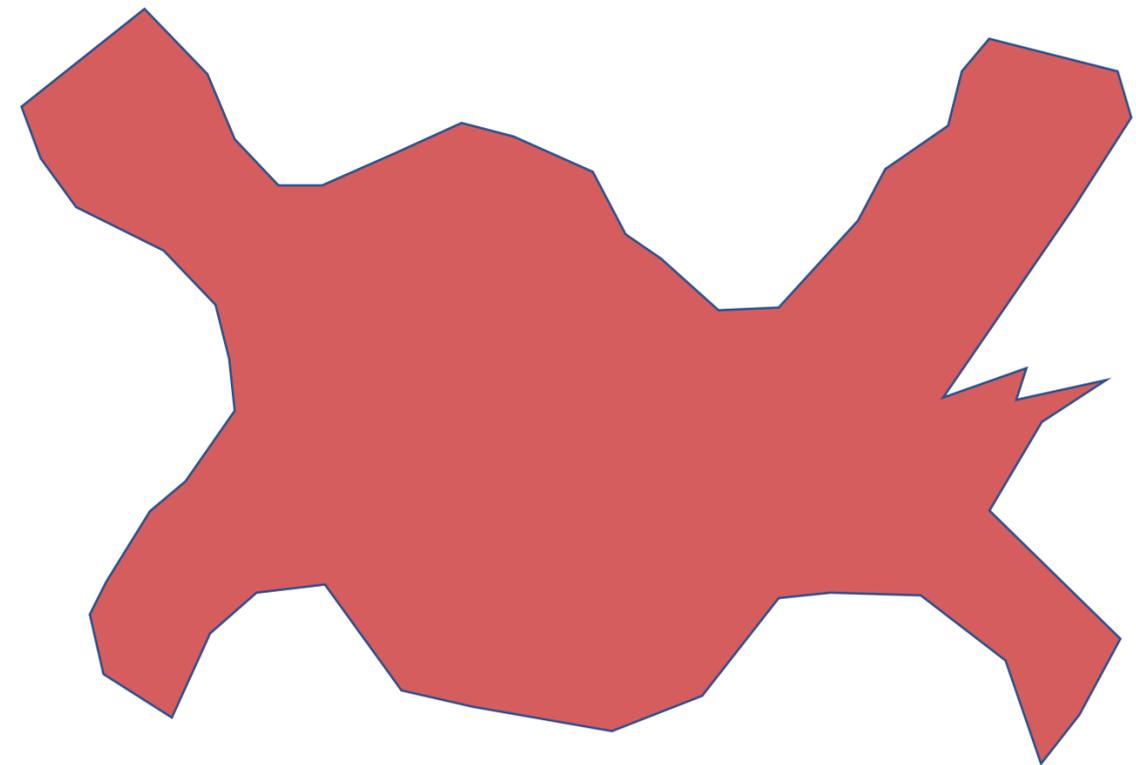
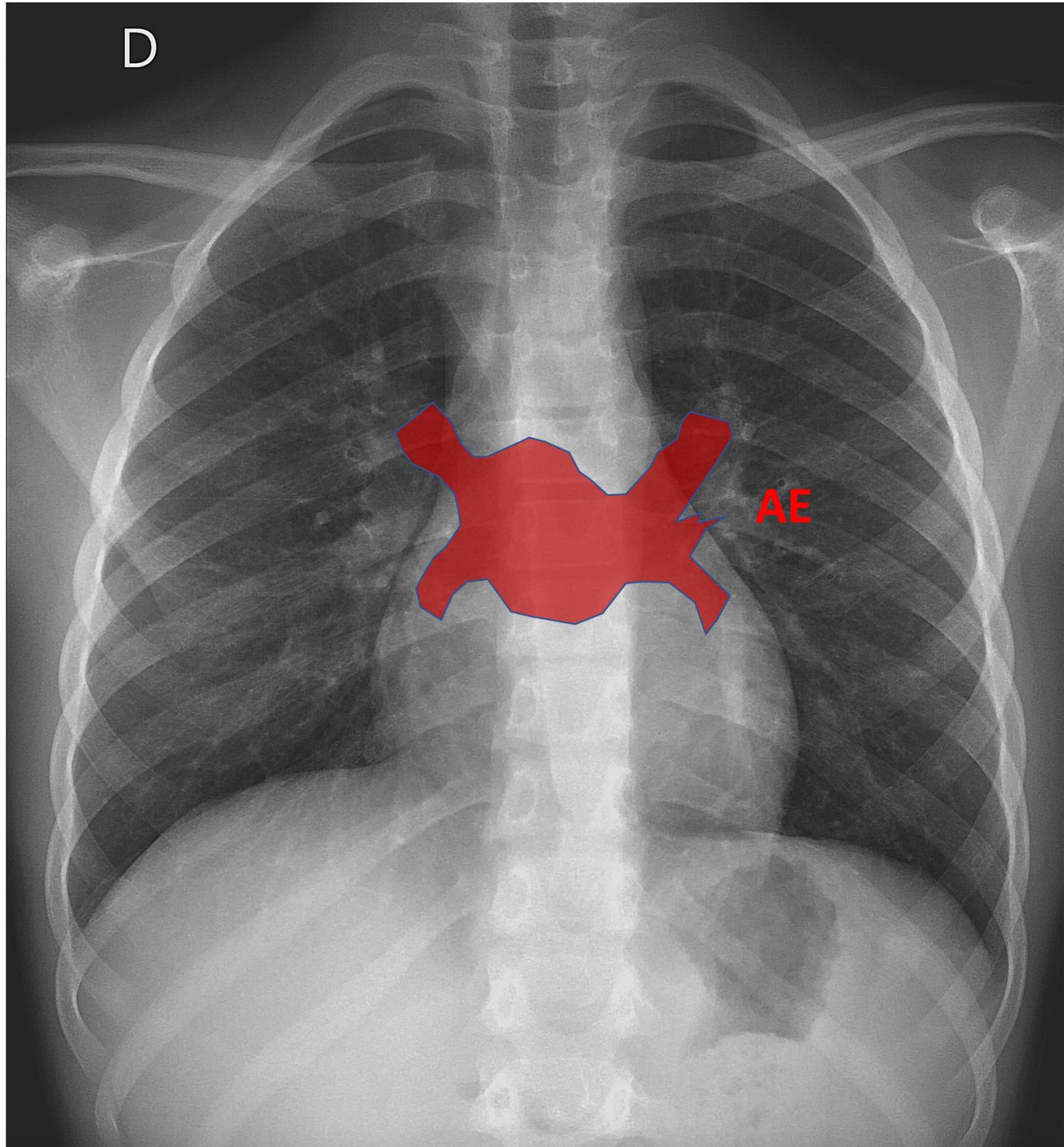
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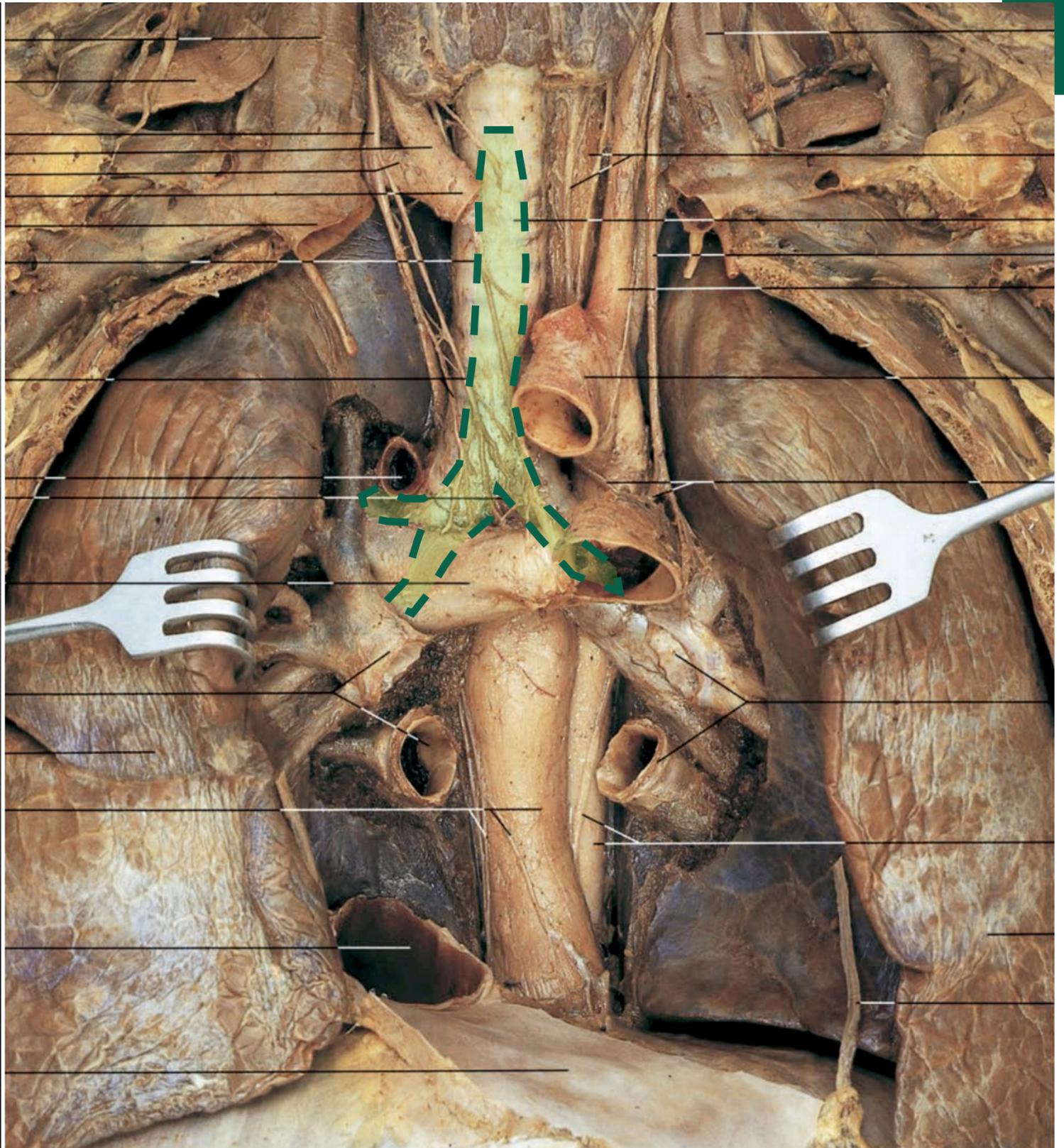
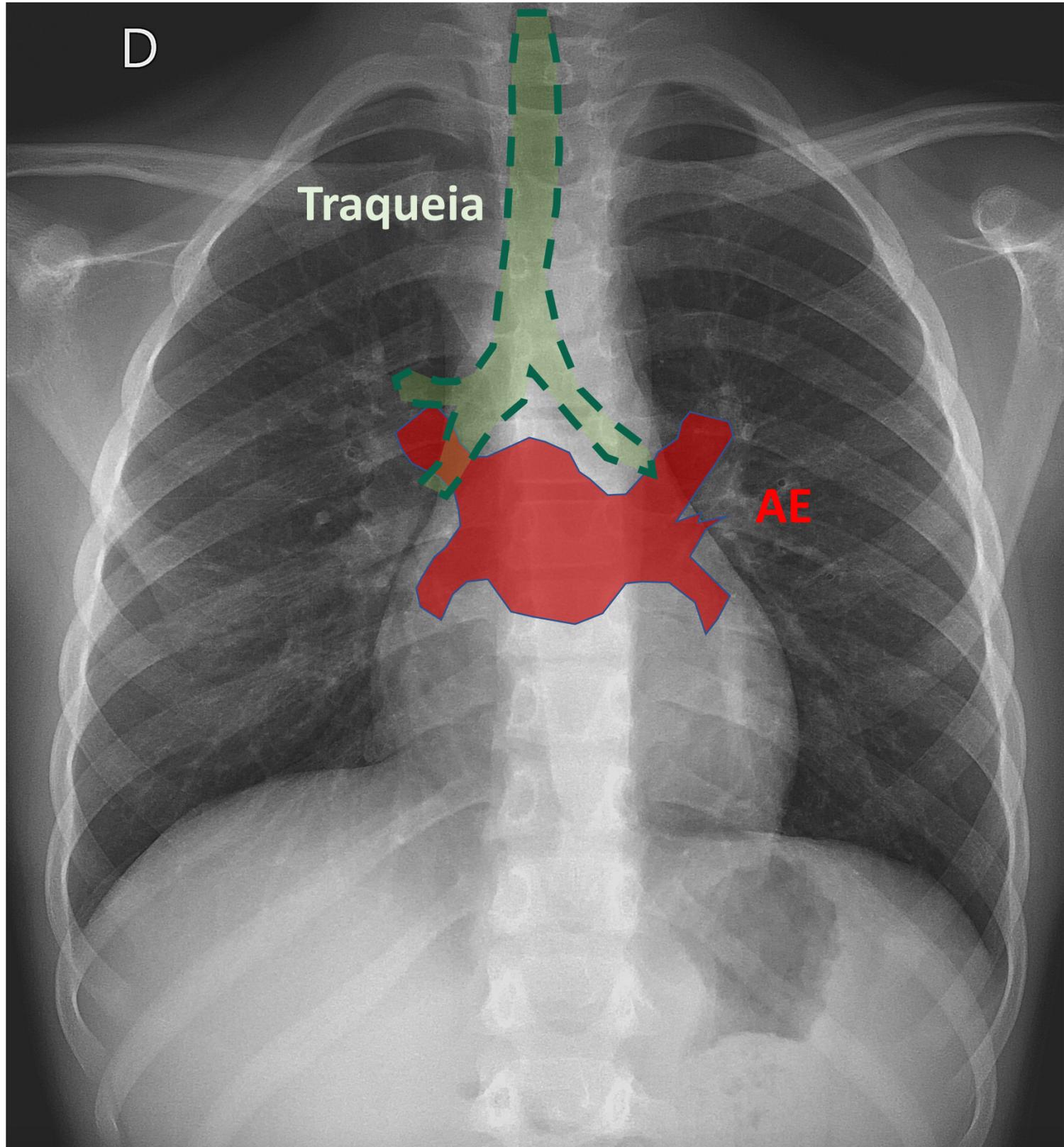


Anatomia do átrio esquerdo

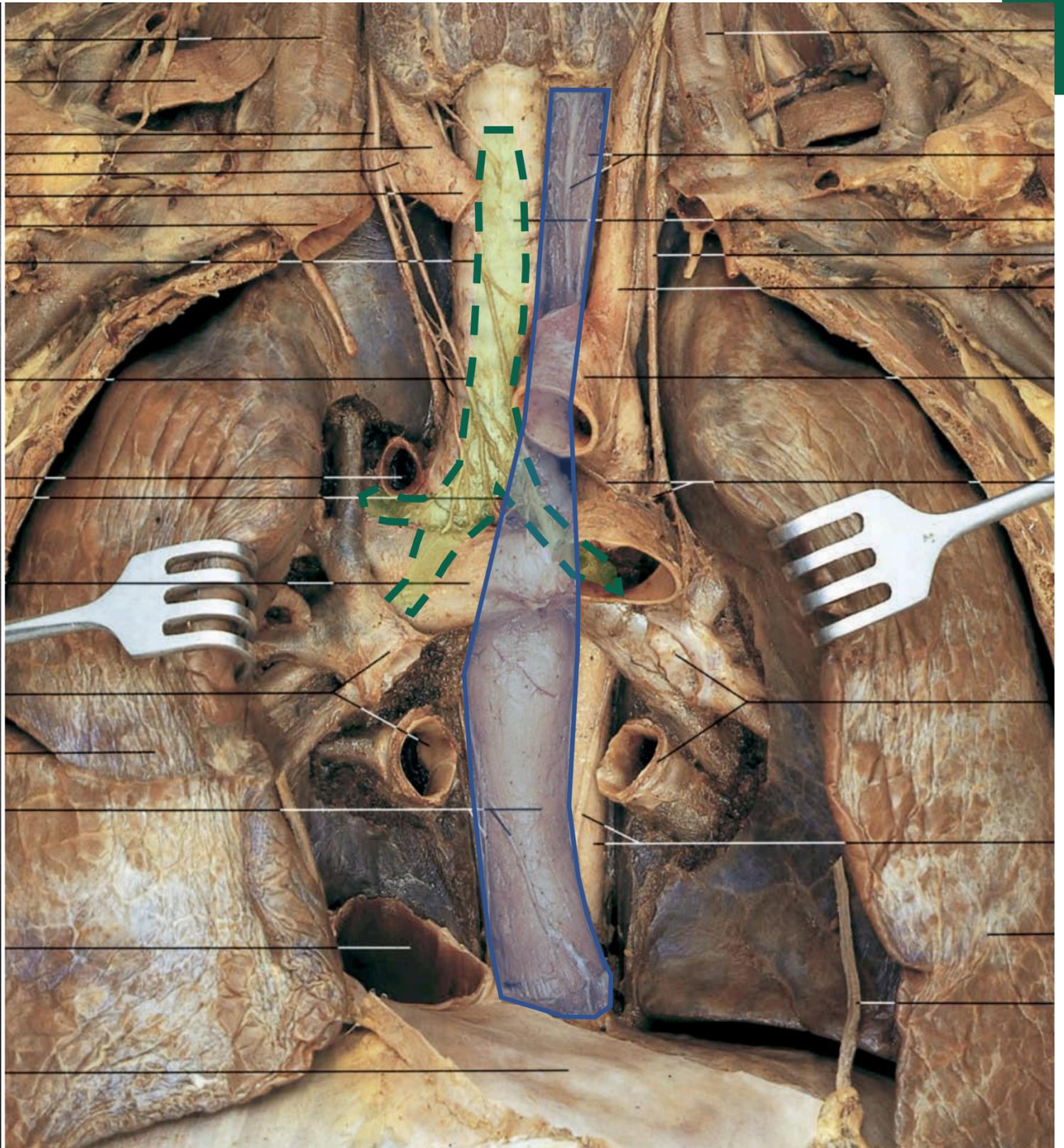
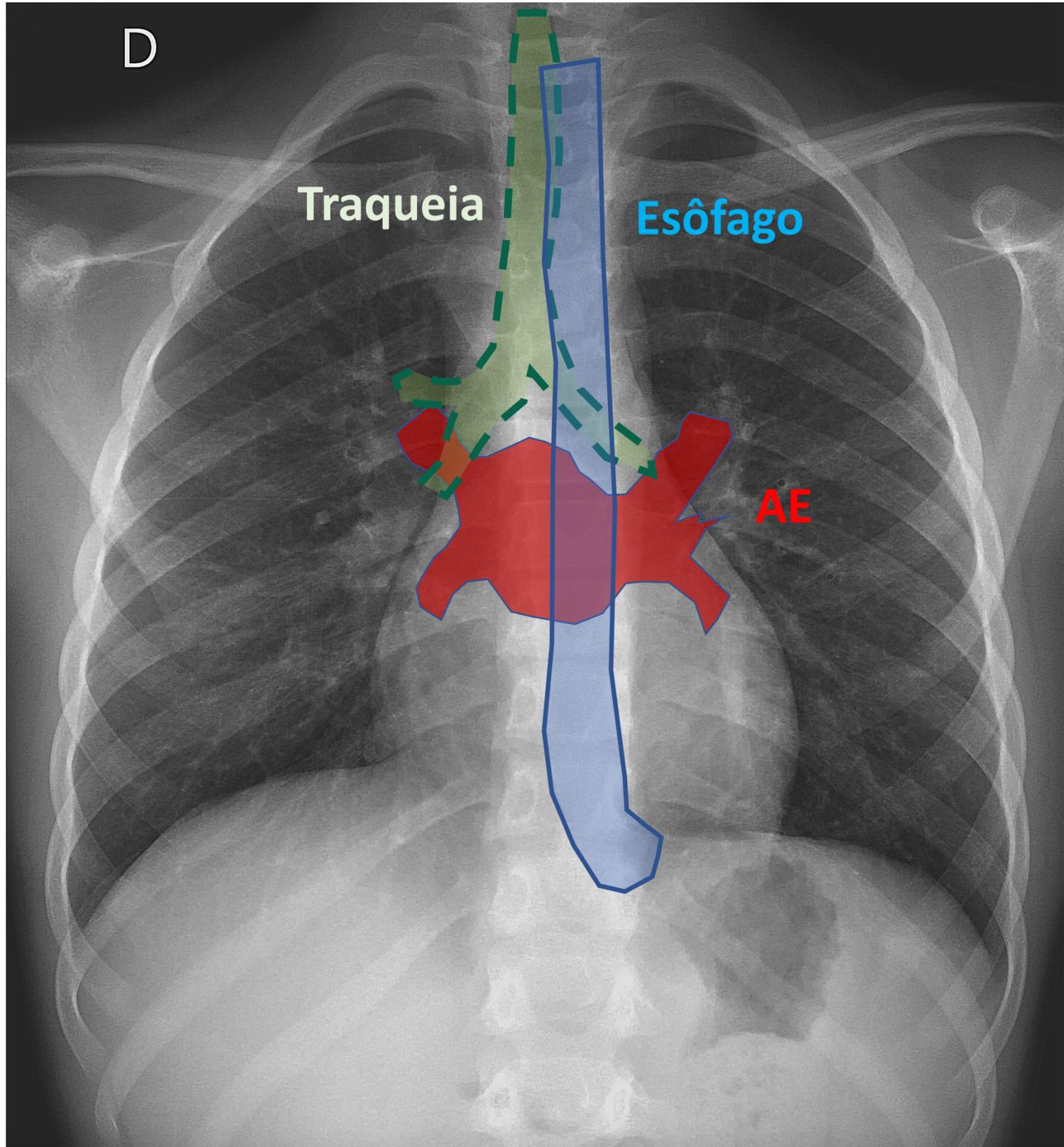
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Coração



Coração

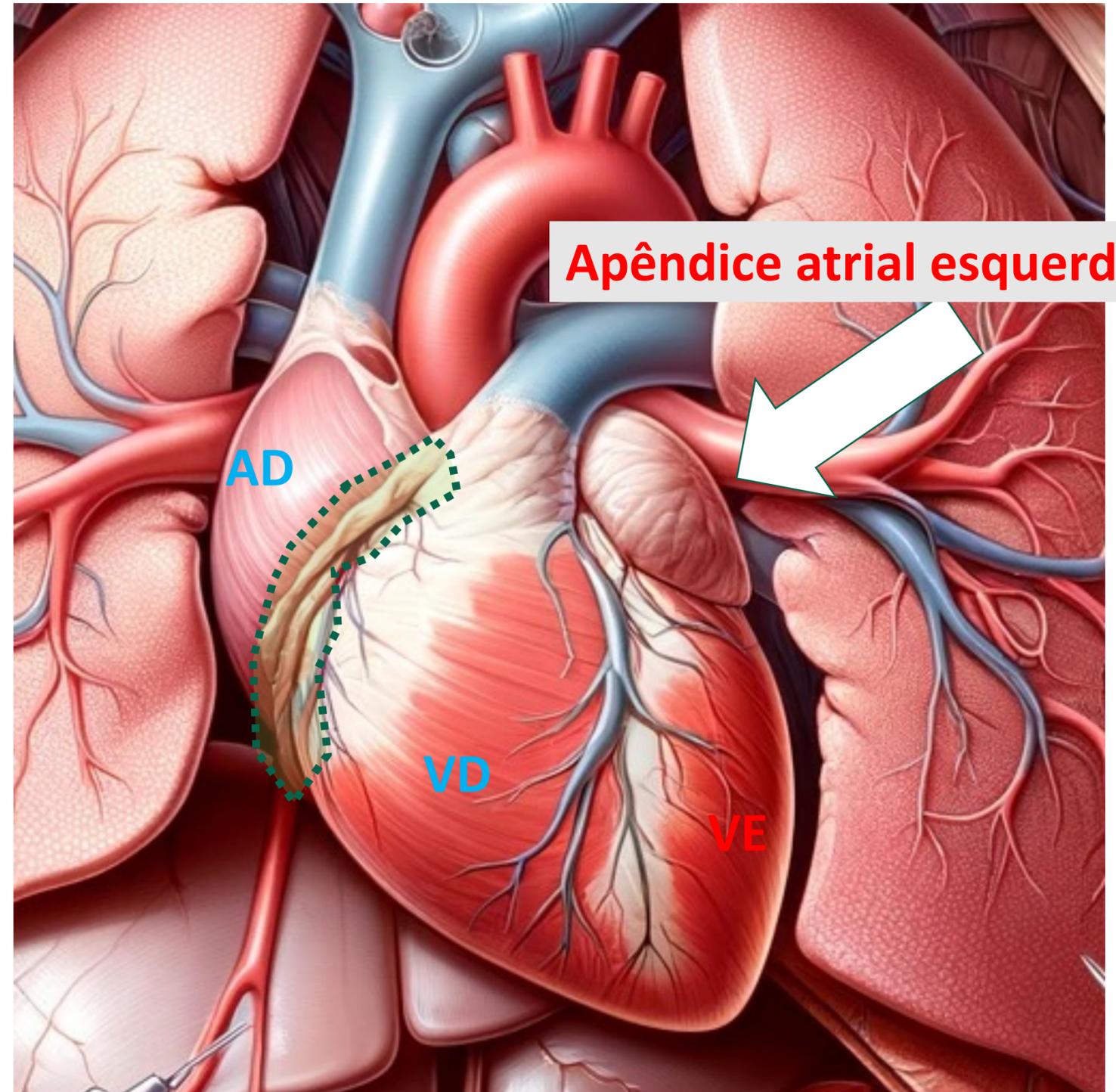
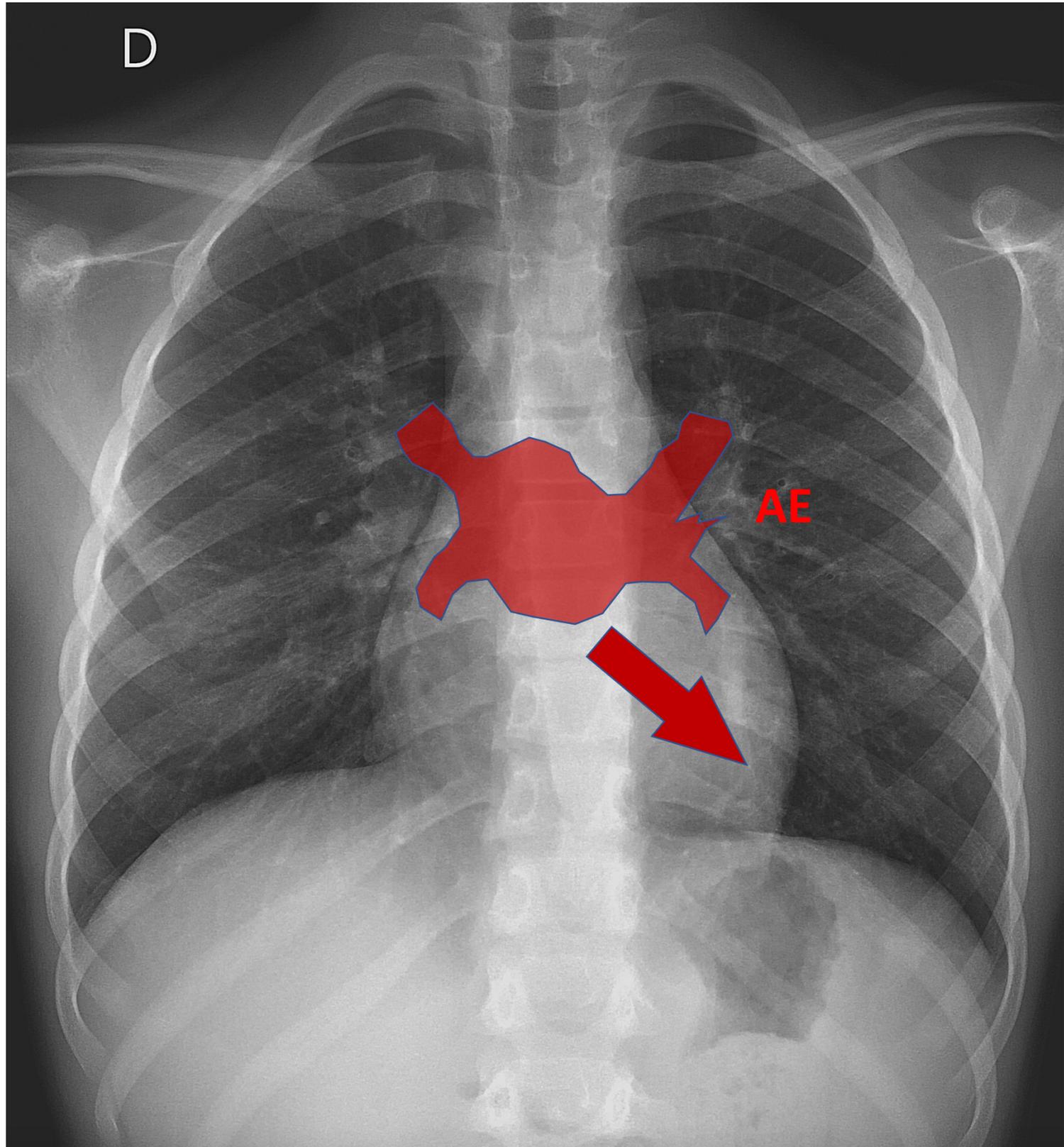




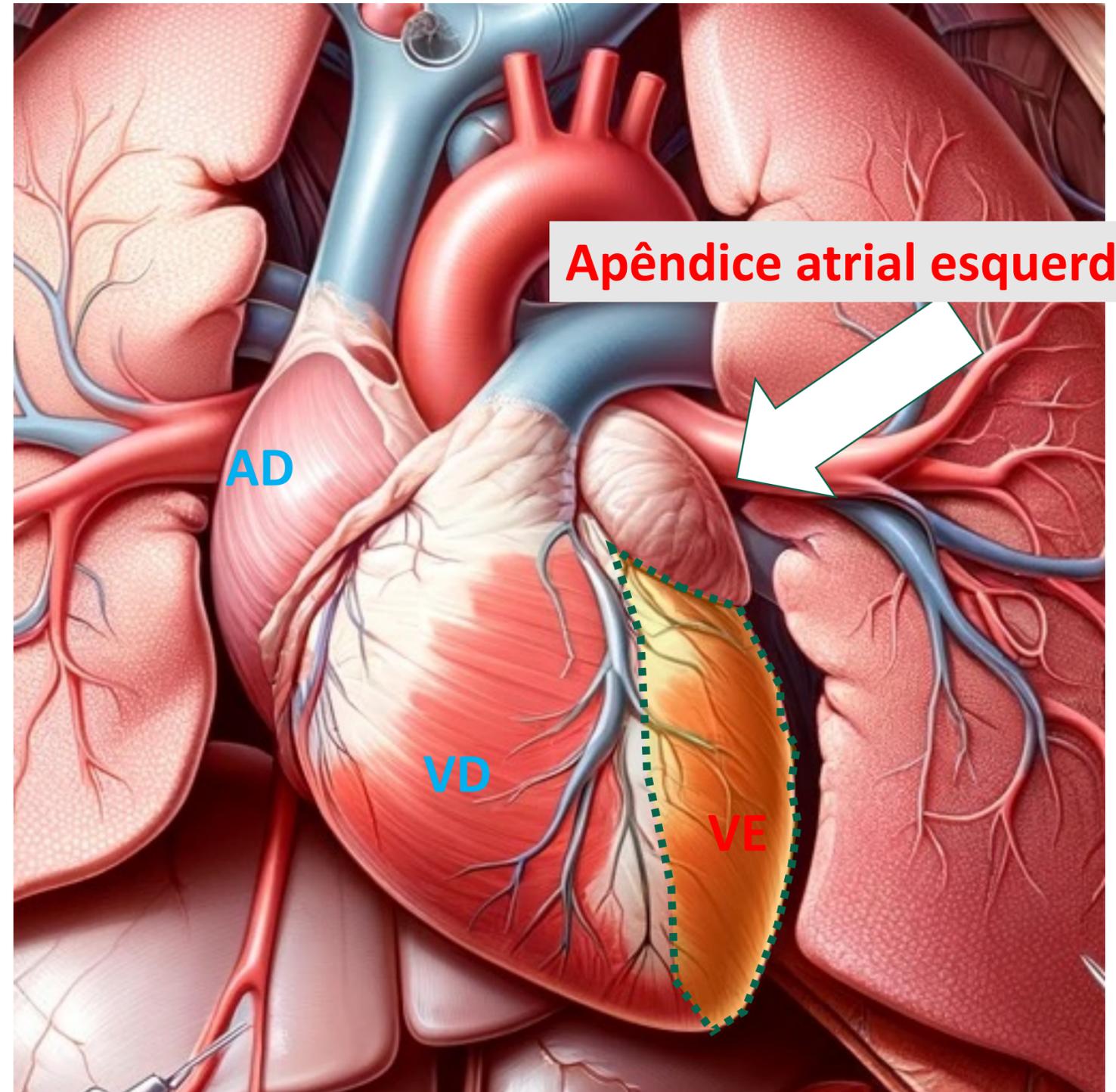
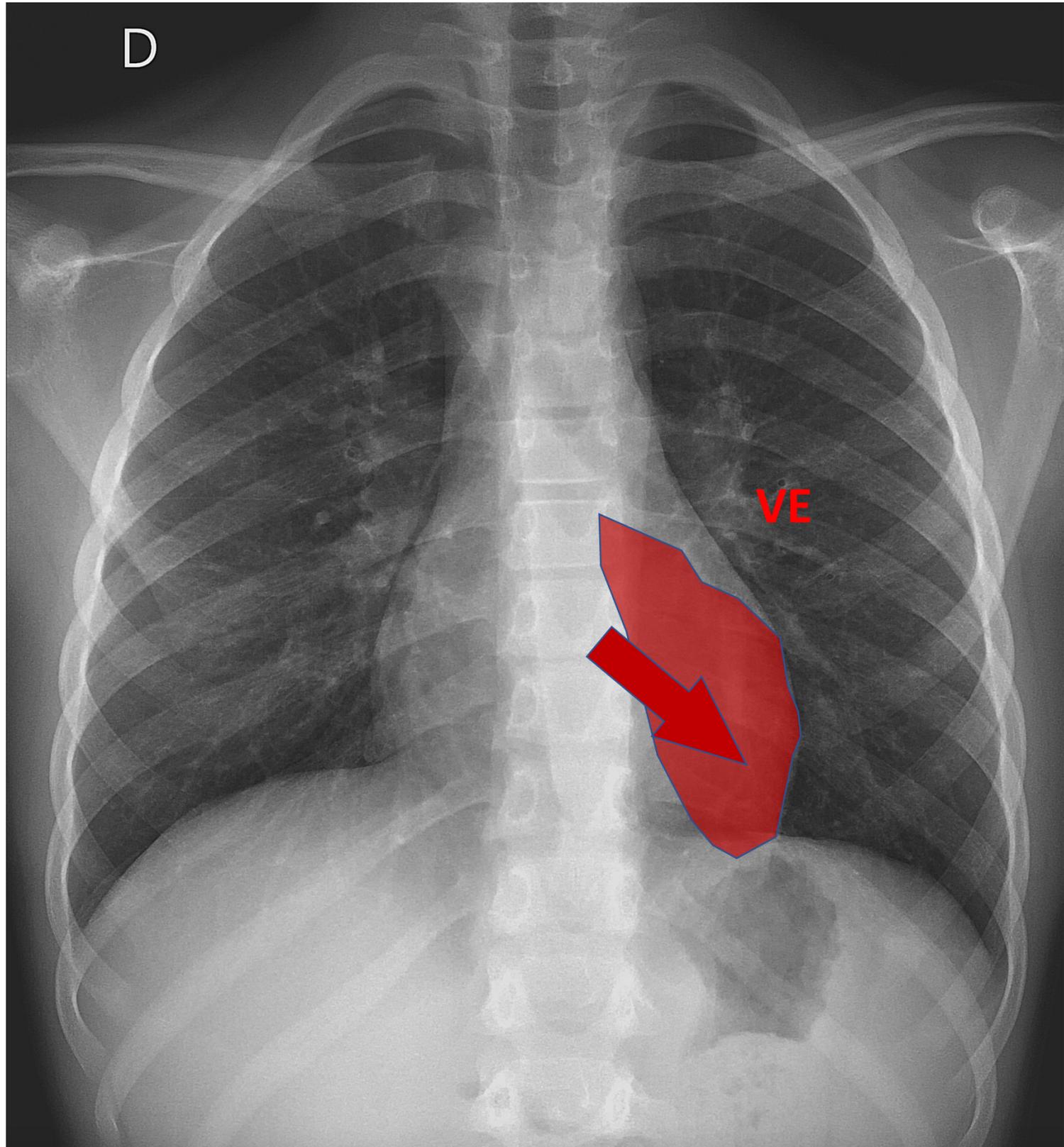
Siga o fluxo...



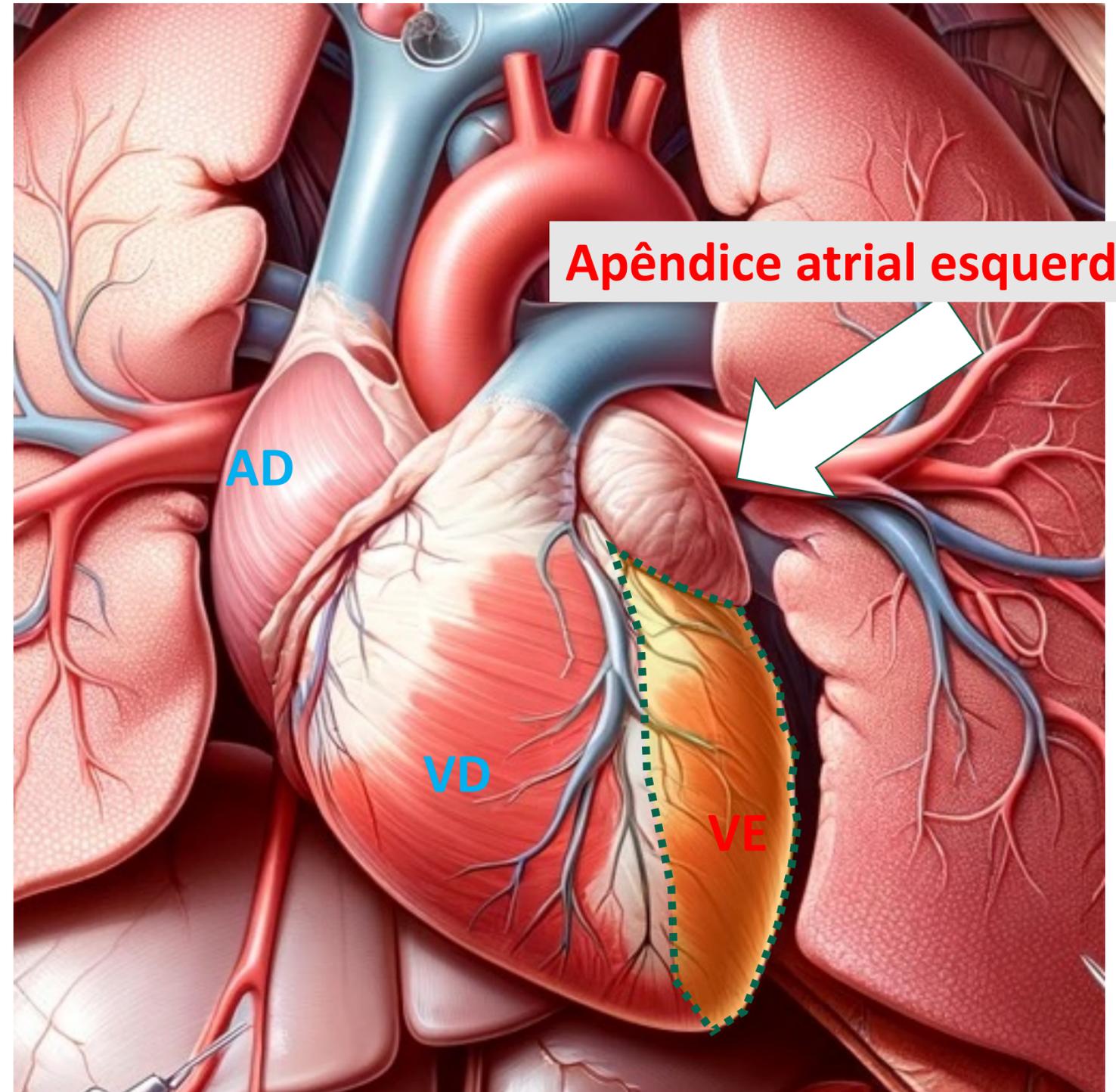
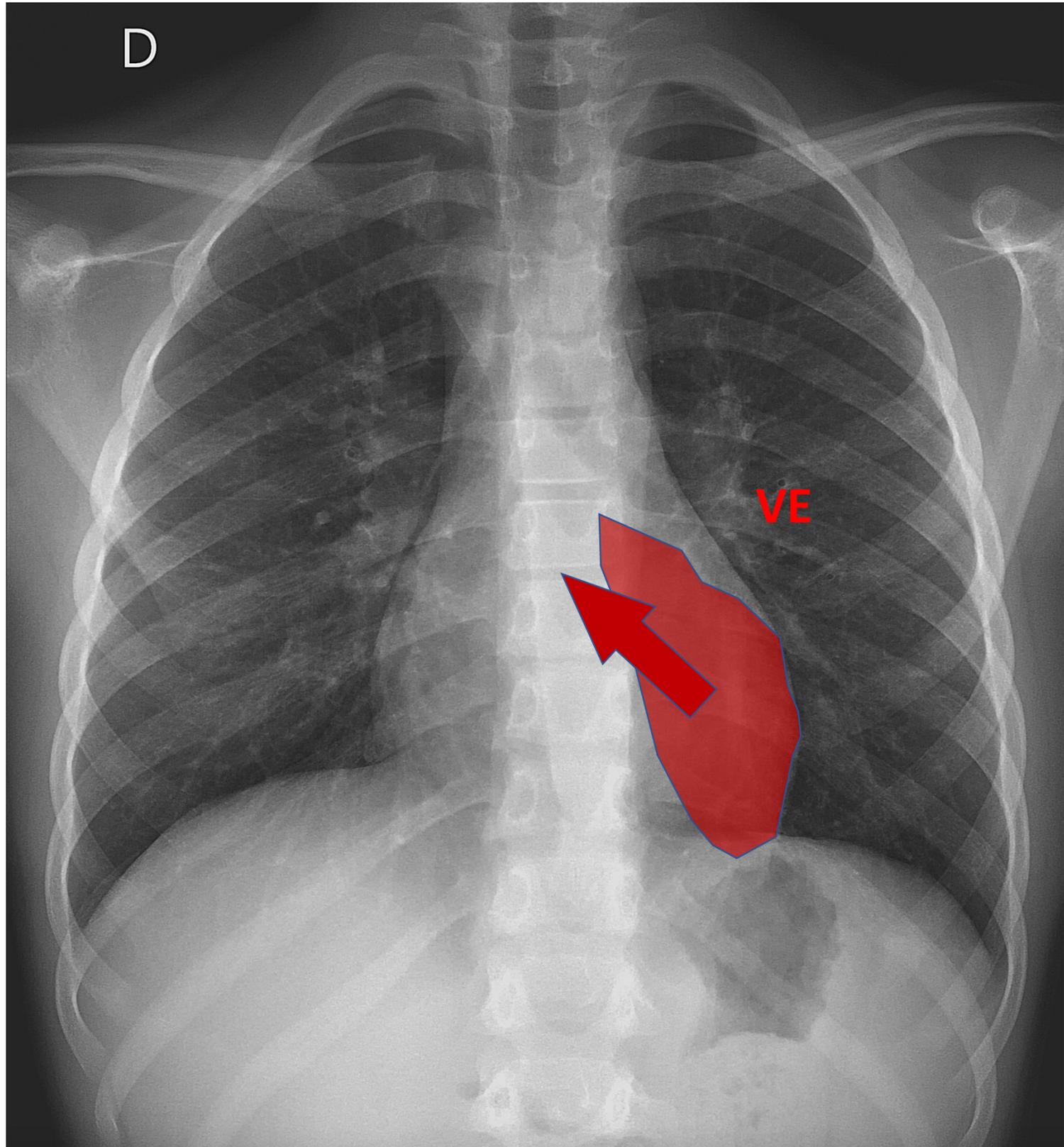
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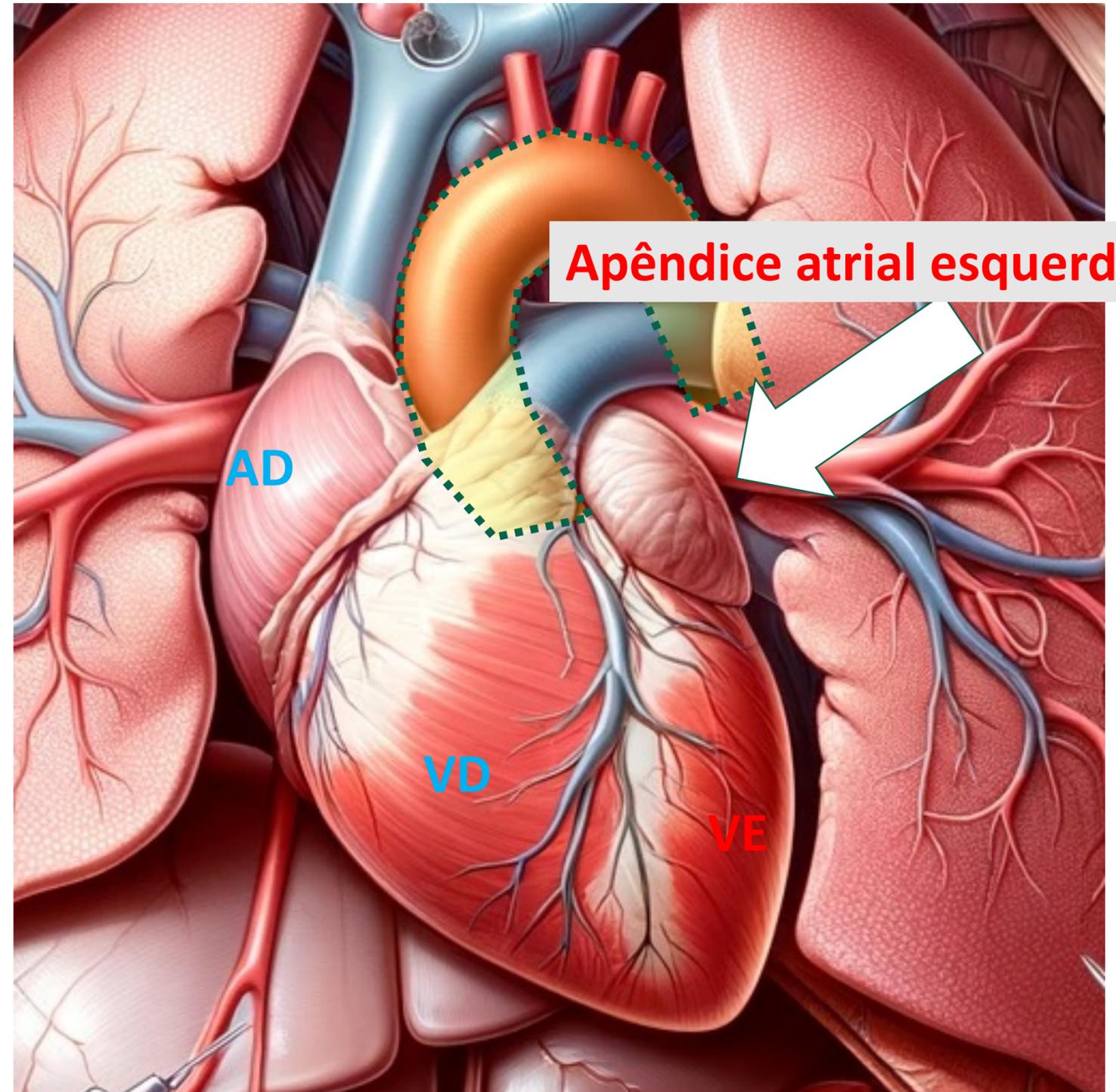
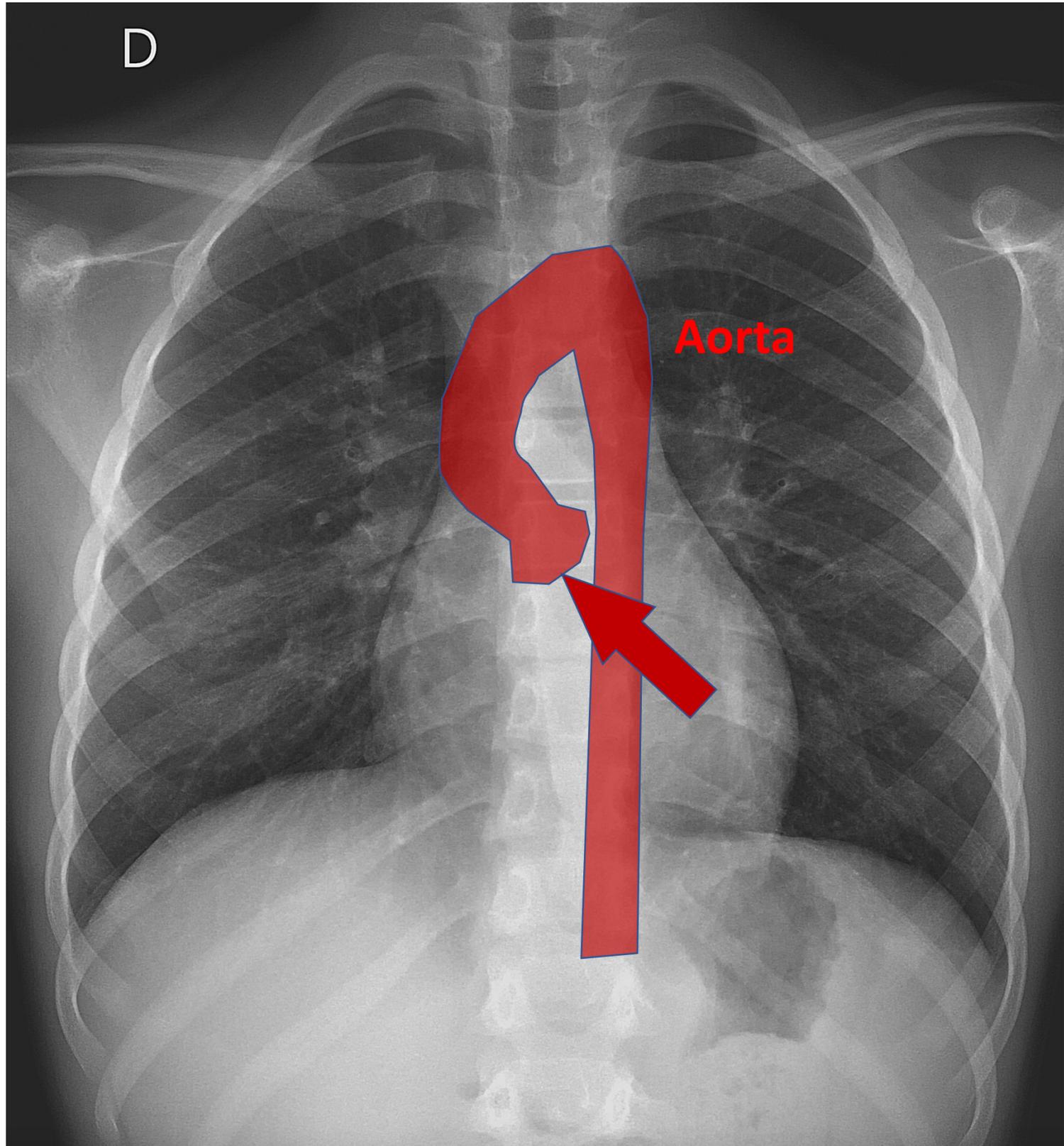
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Coração

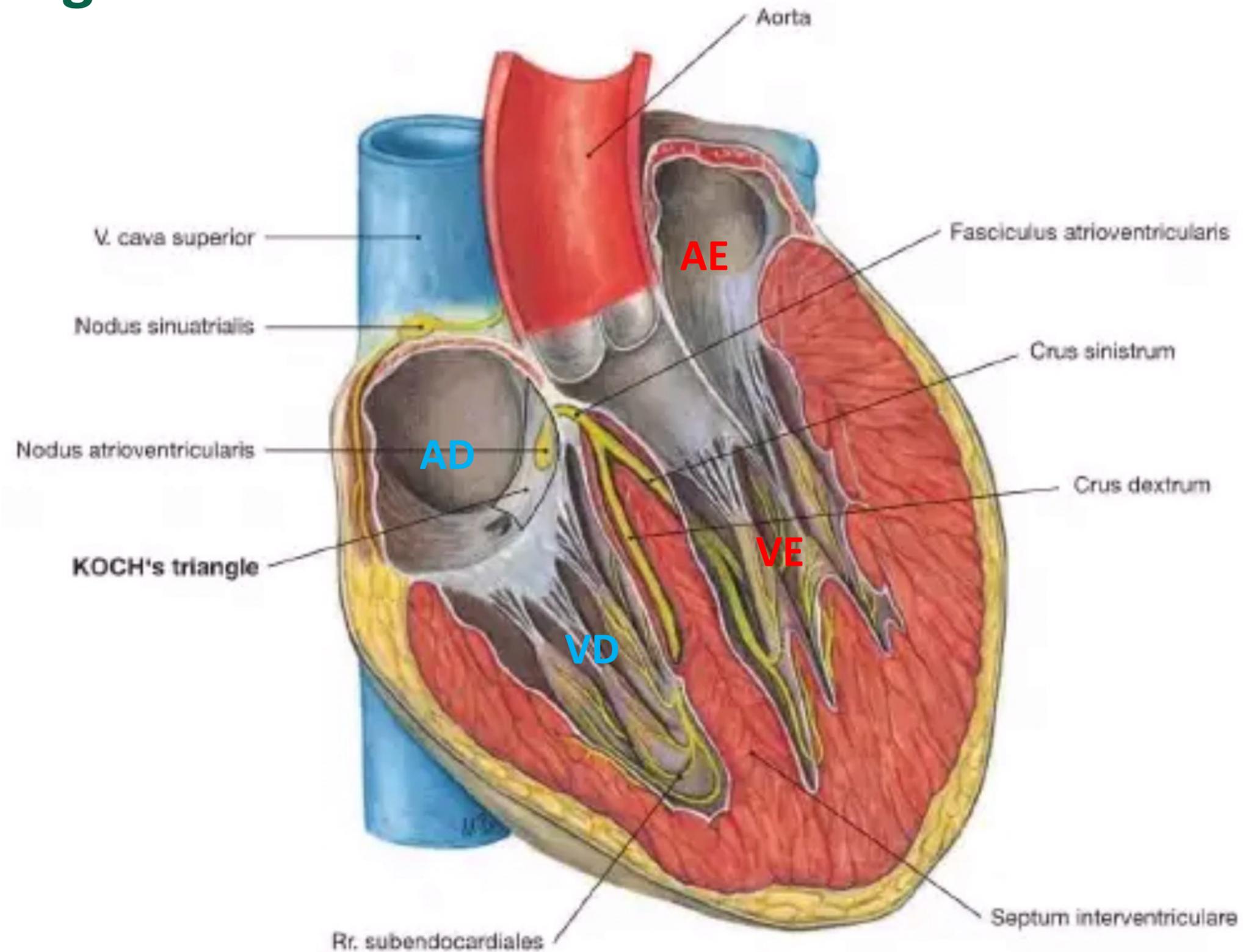


Coração





Órgãos torácicos



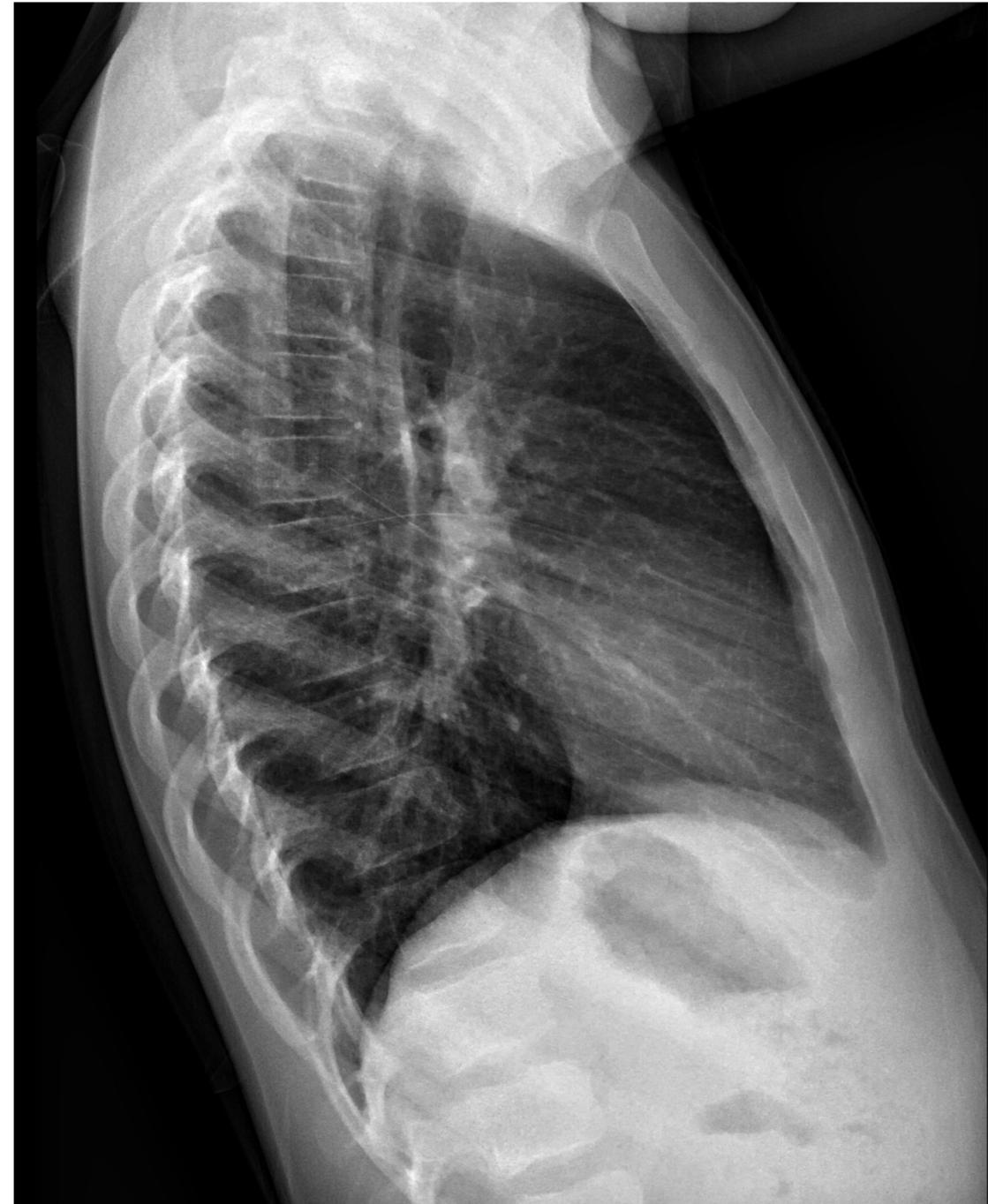
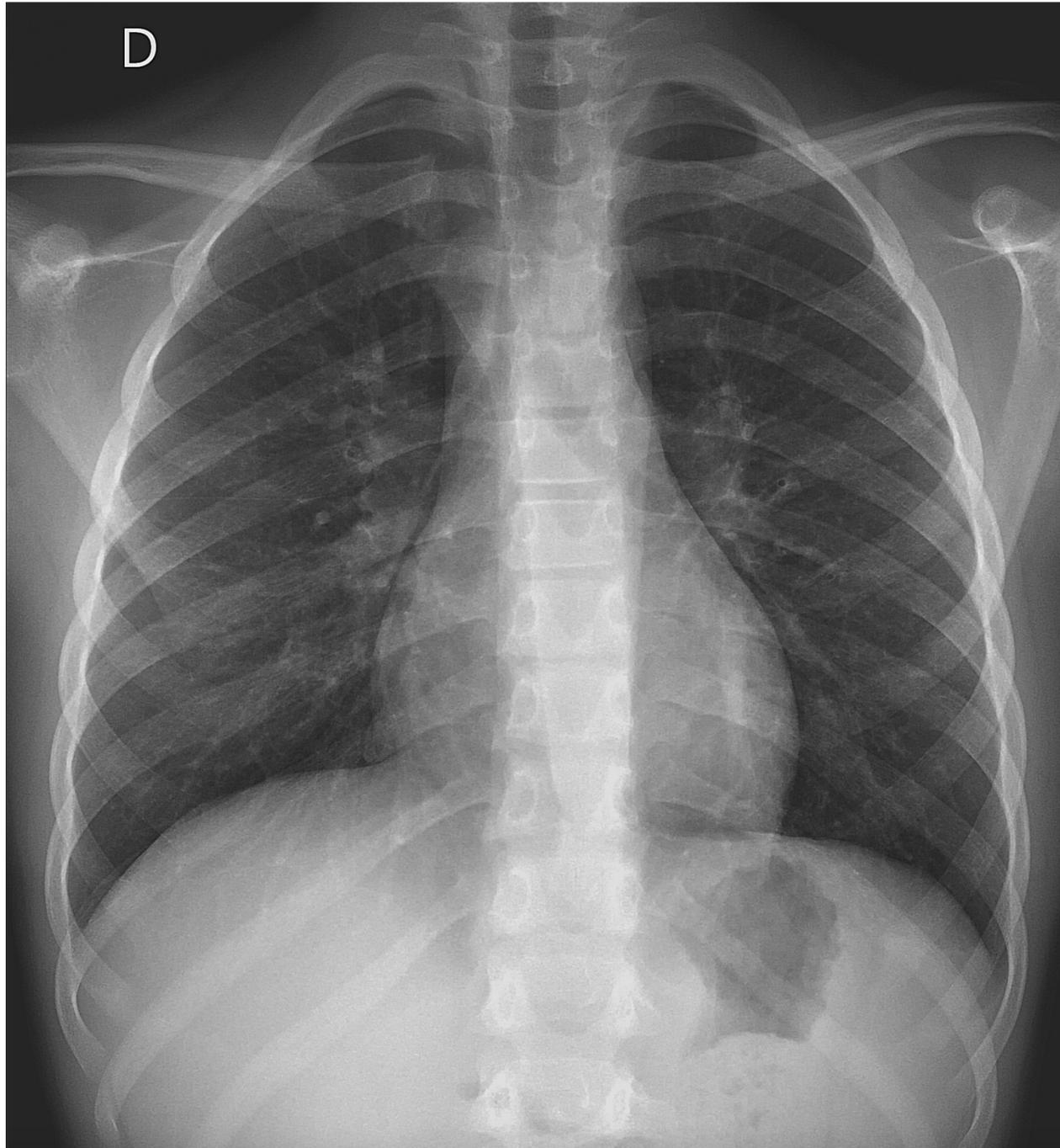
Duas valvas AV:
Mitral
Tricúspide

Duas valvas ventrículo-arteriais:
Pulmonar (fora do plano da imagem)
Aórtica



Perfil

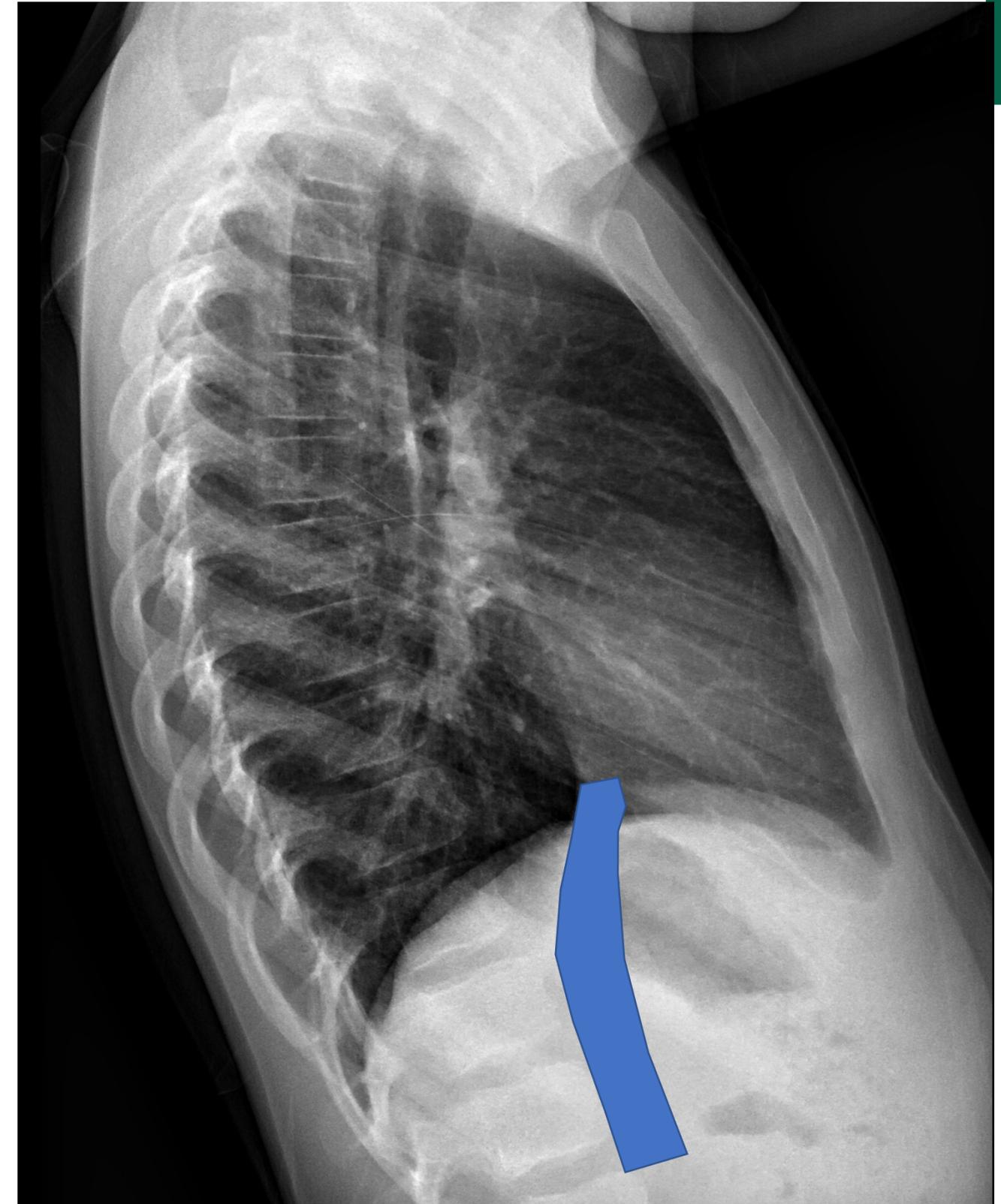
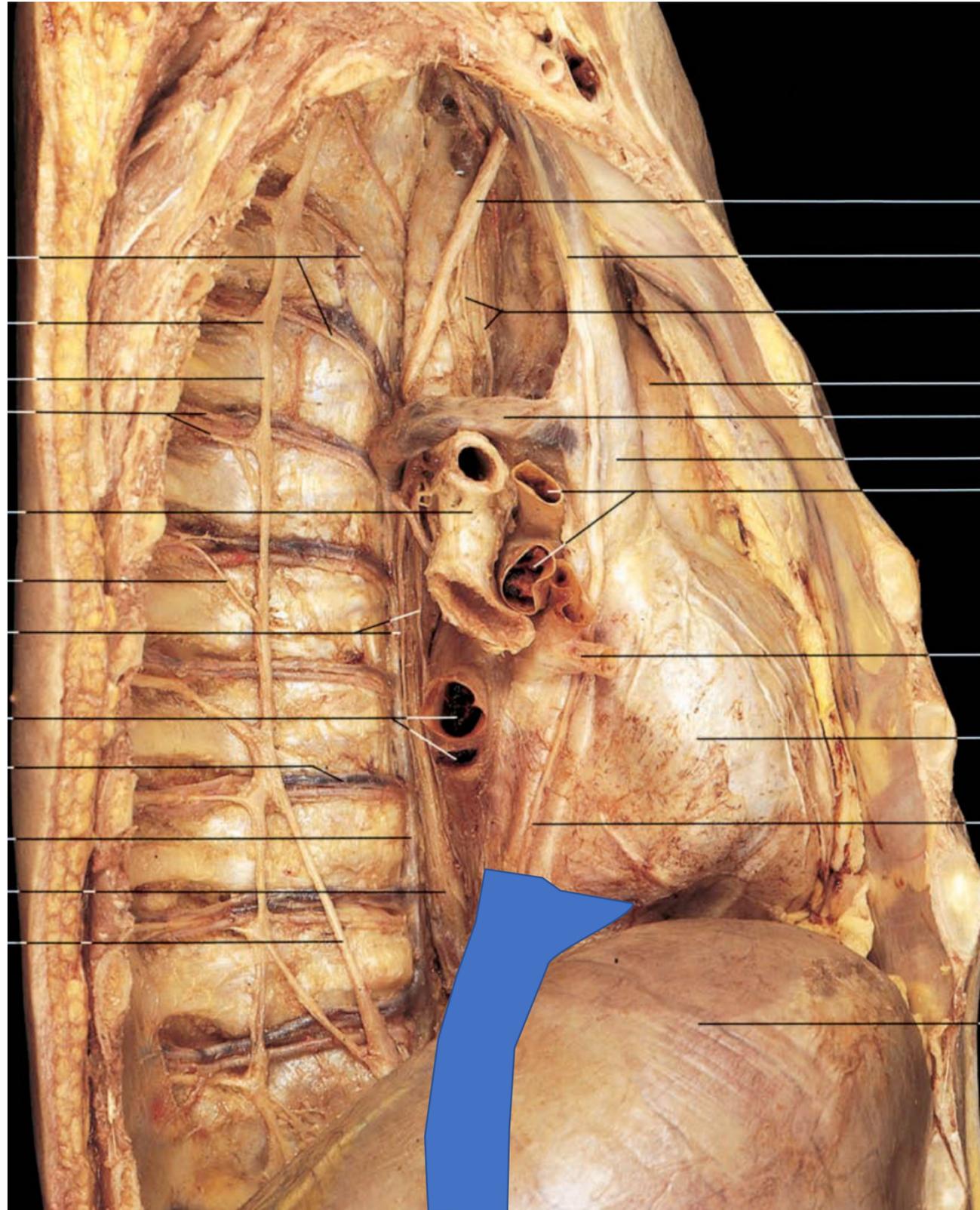
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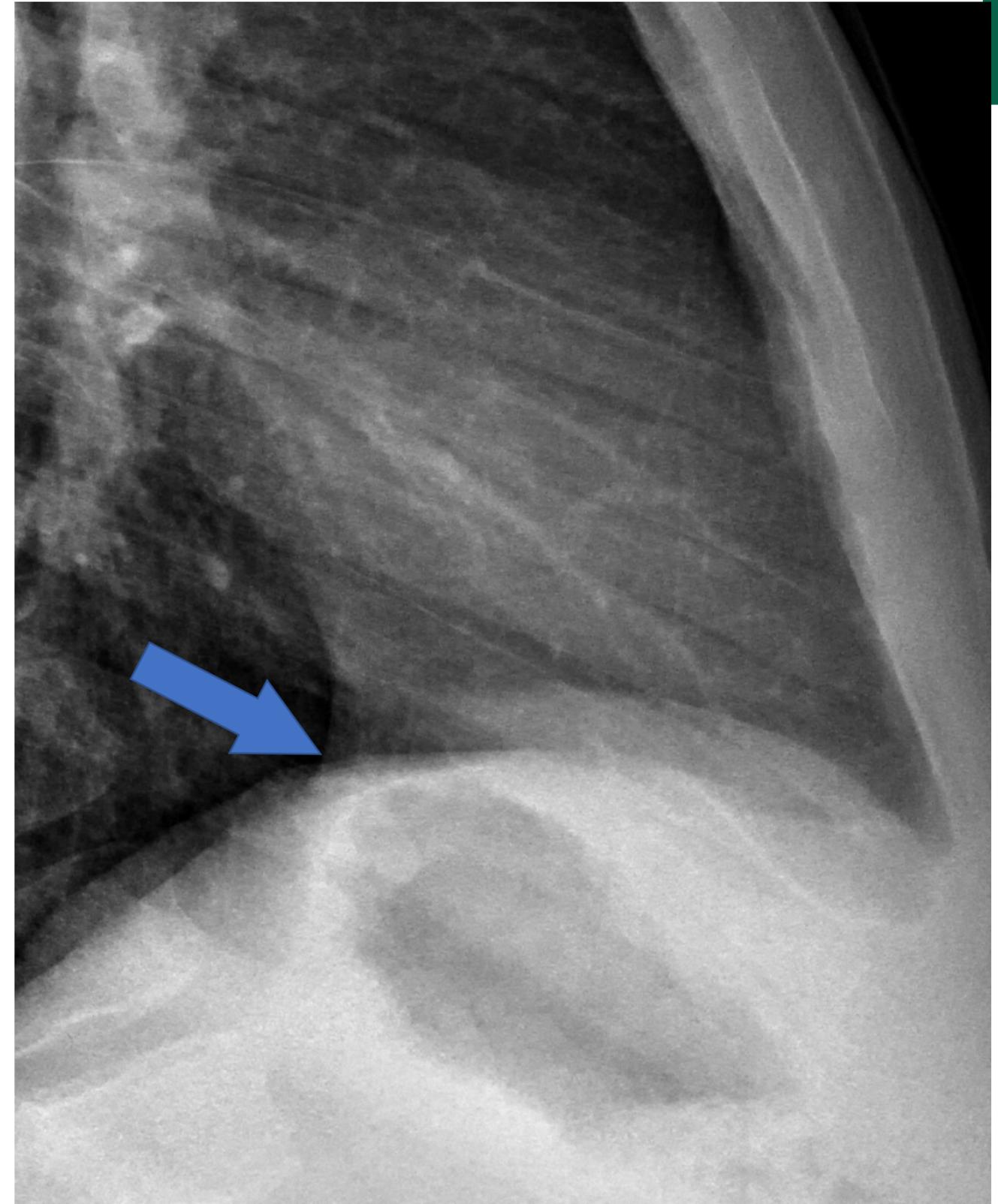
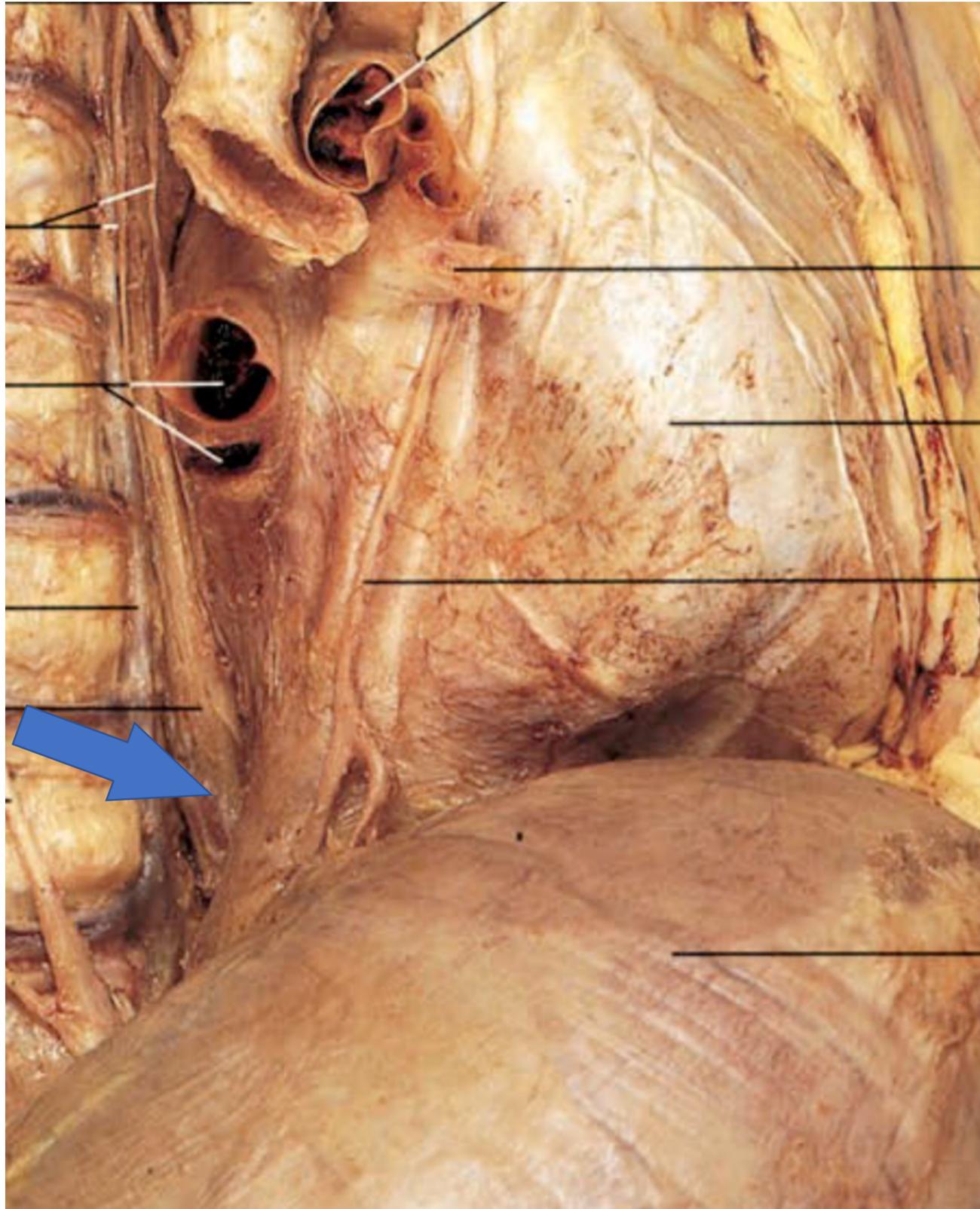
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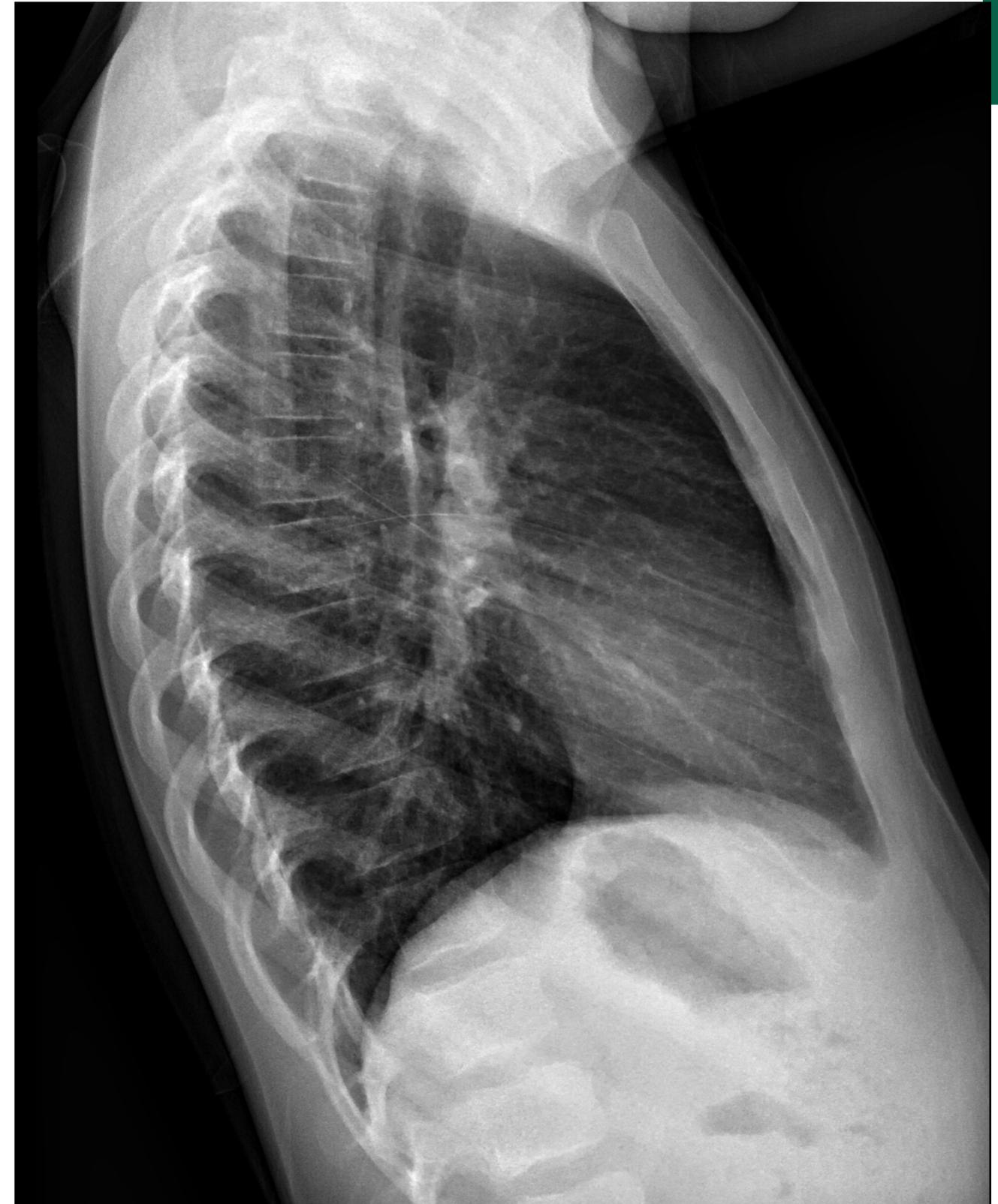
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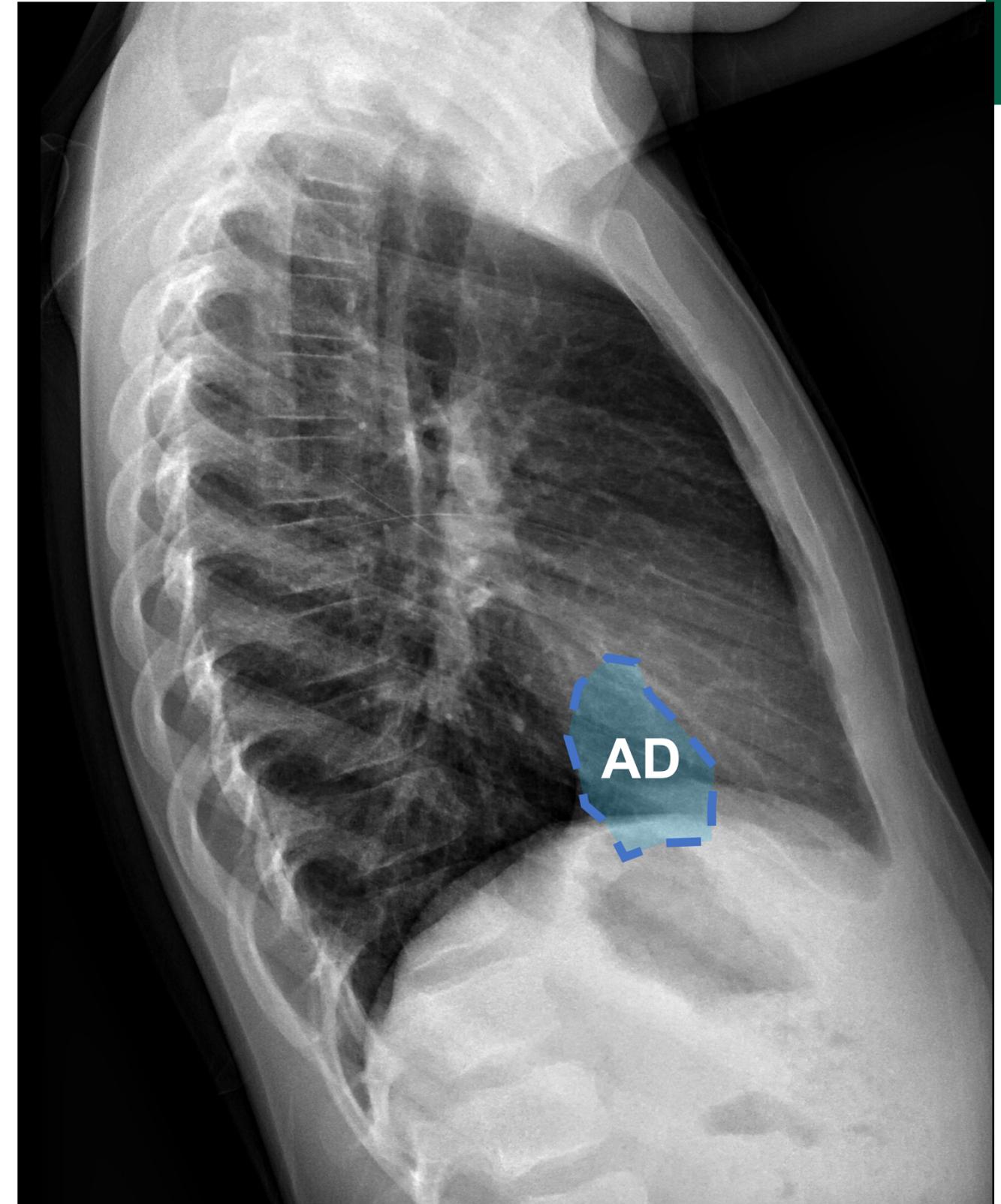
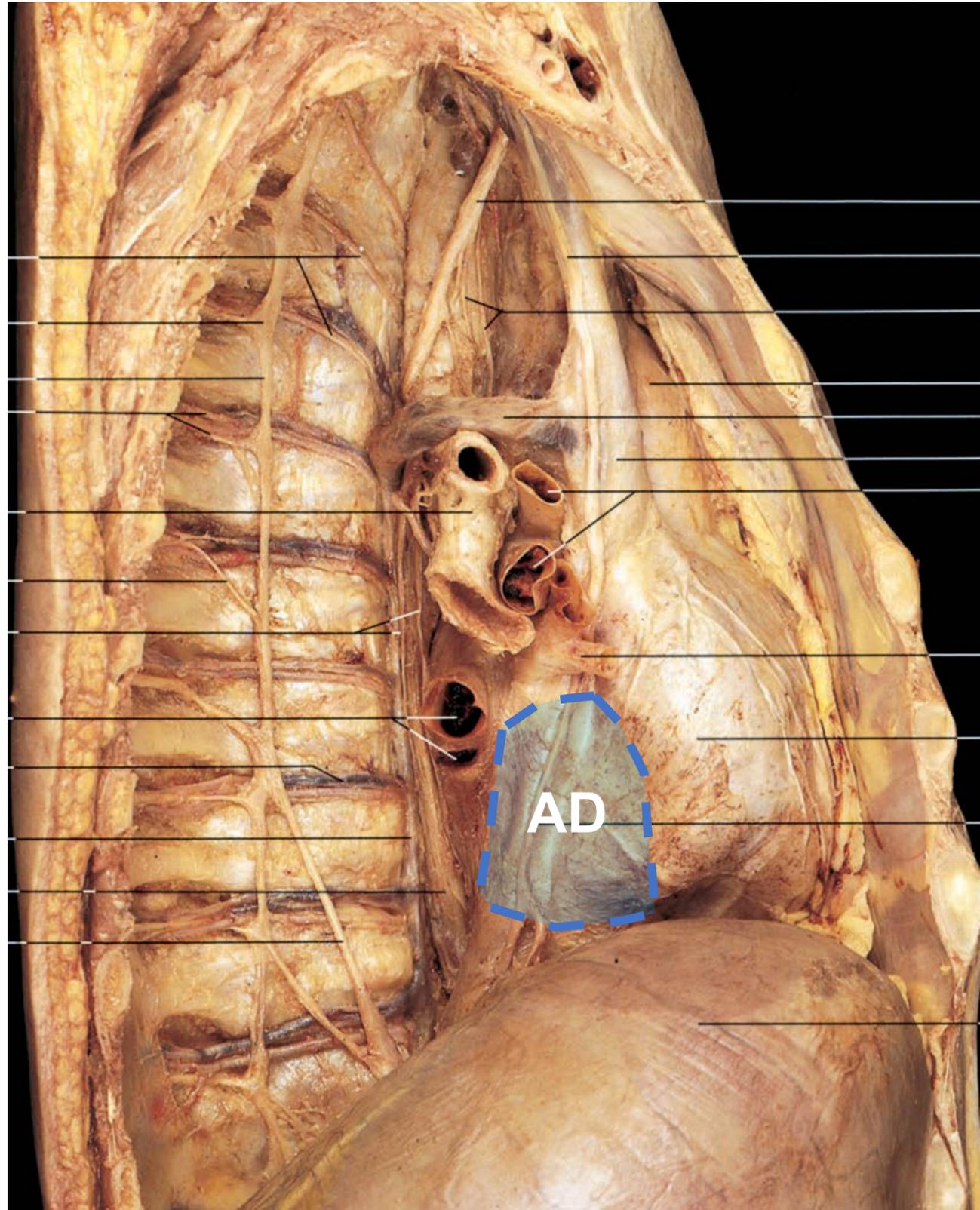
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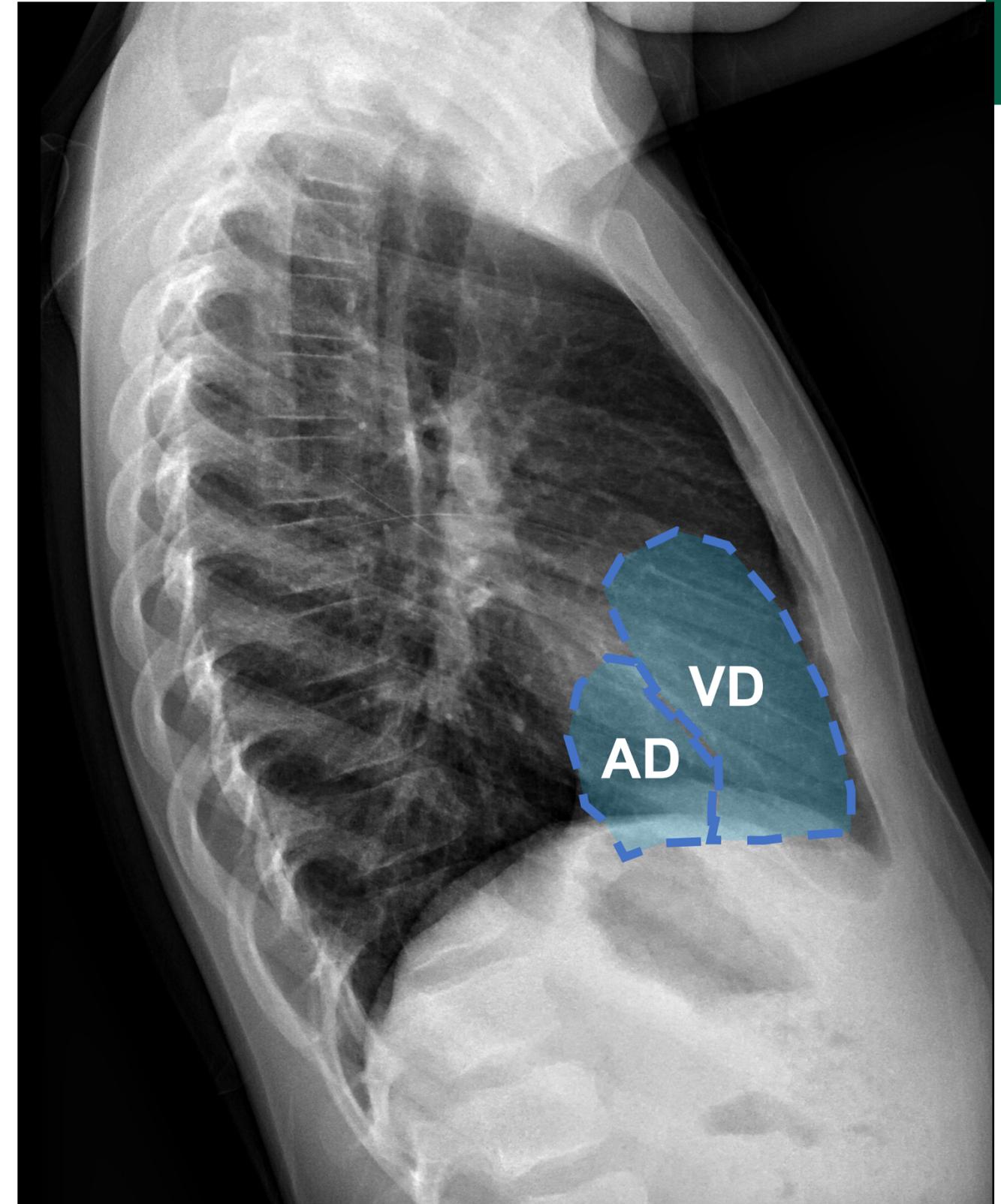
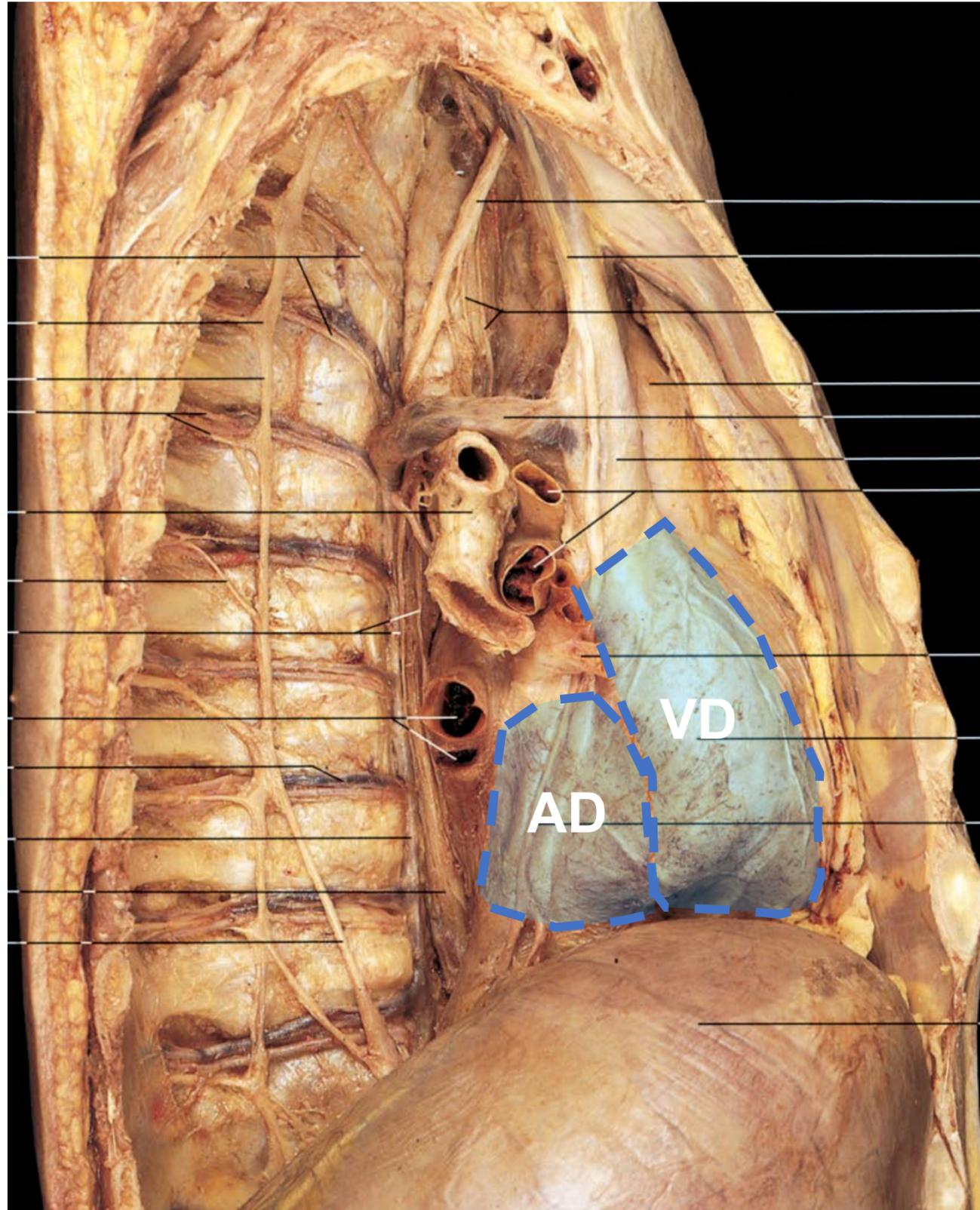
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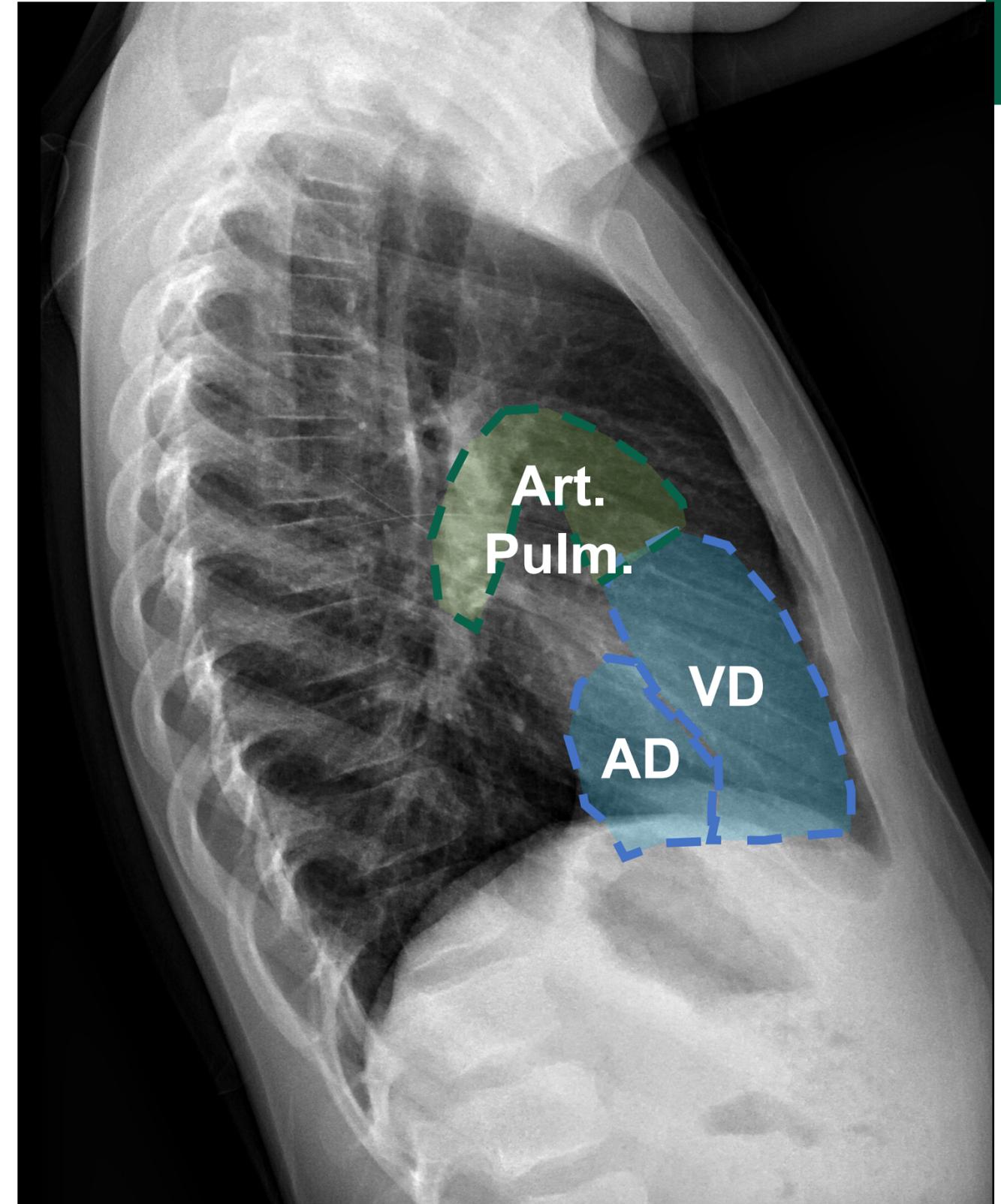
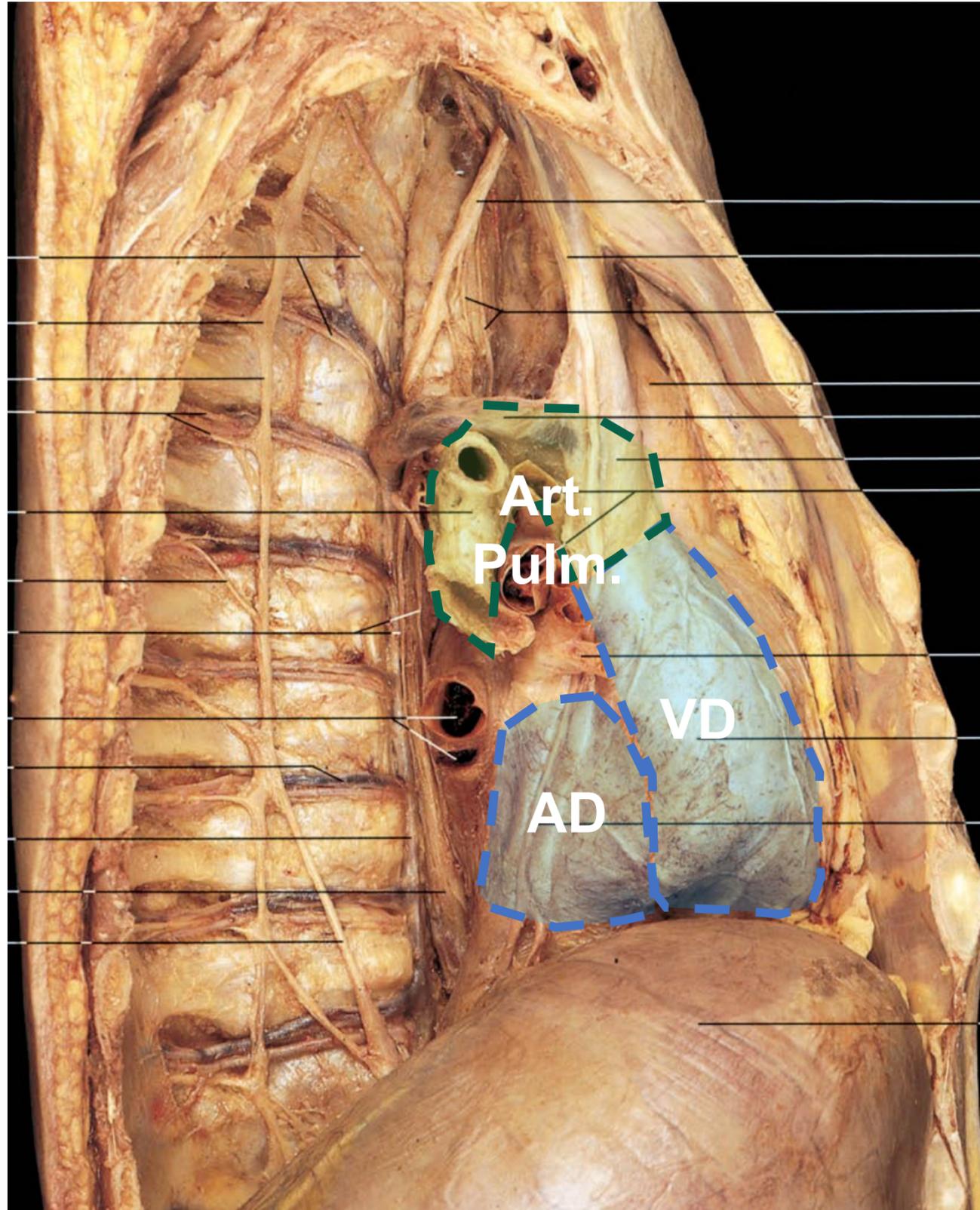
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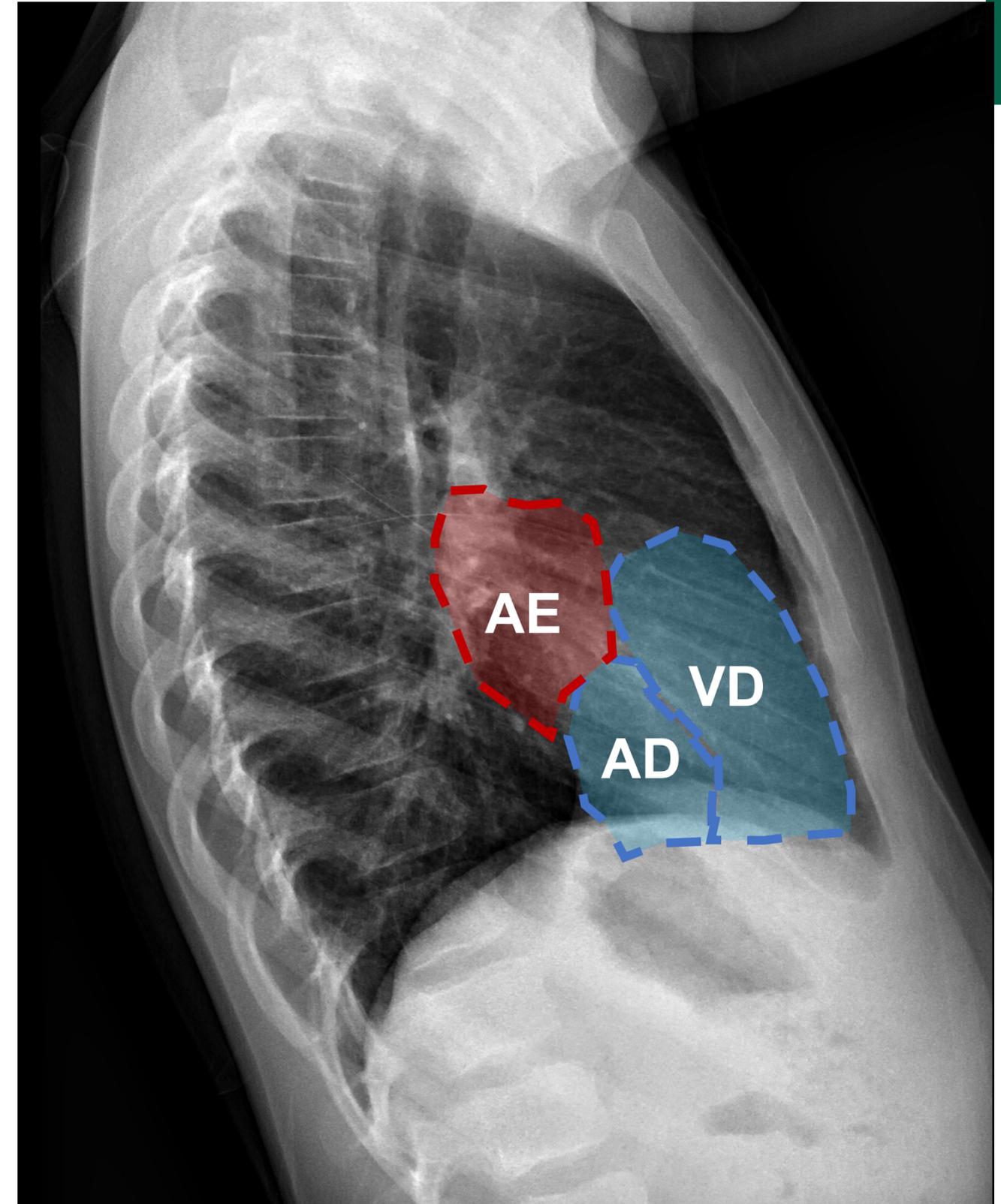
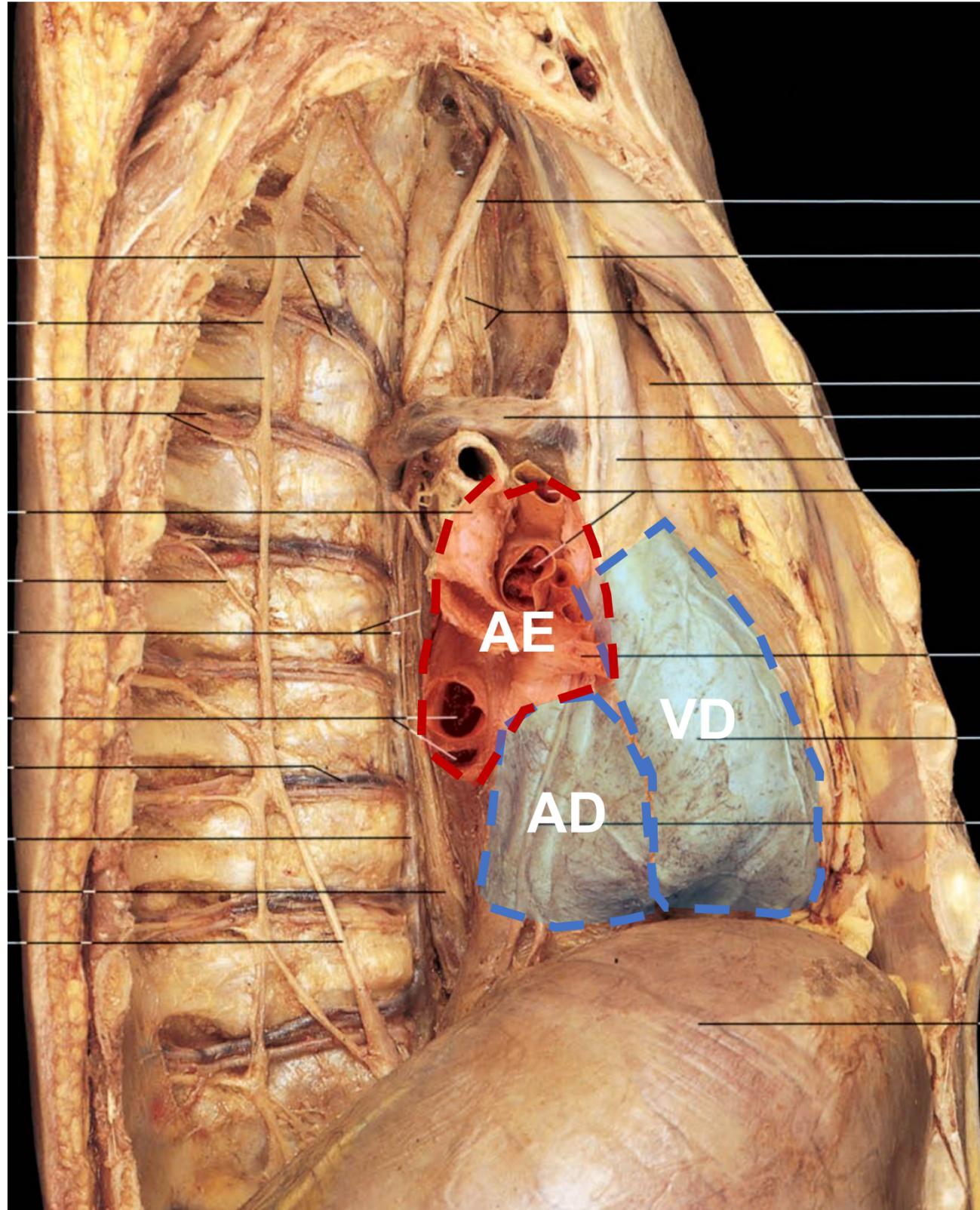
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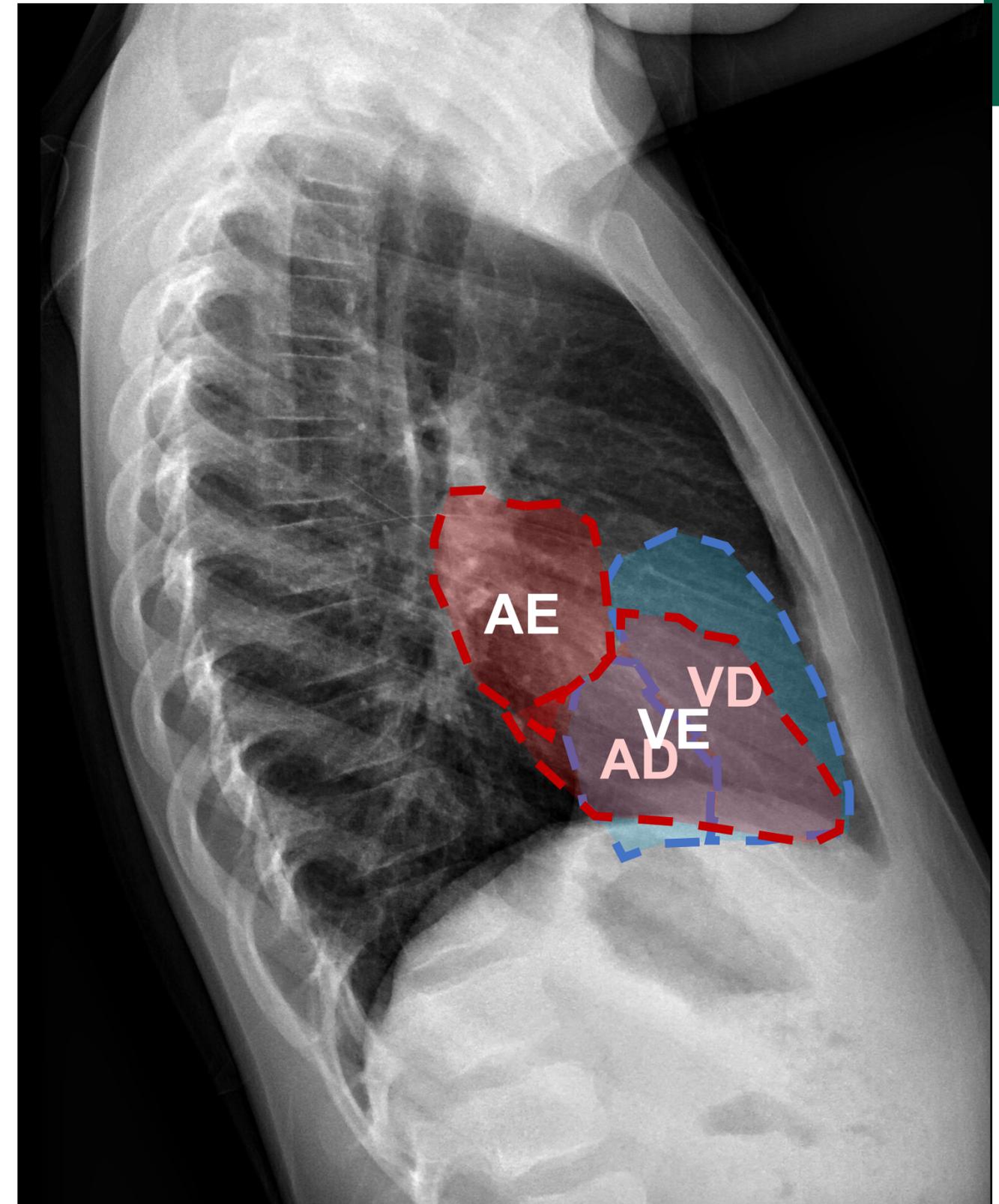
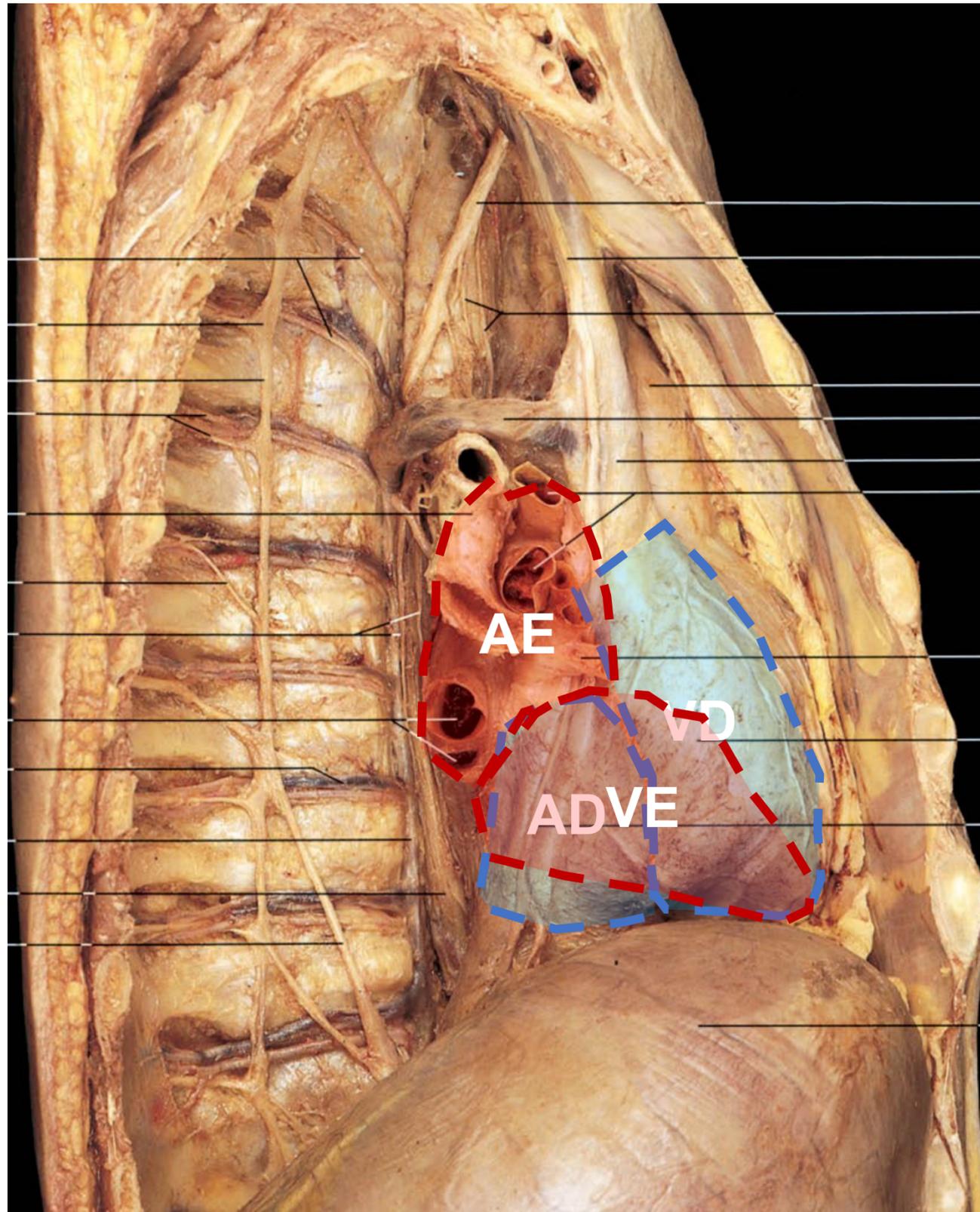
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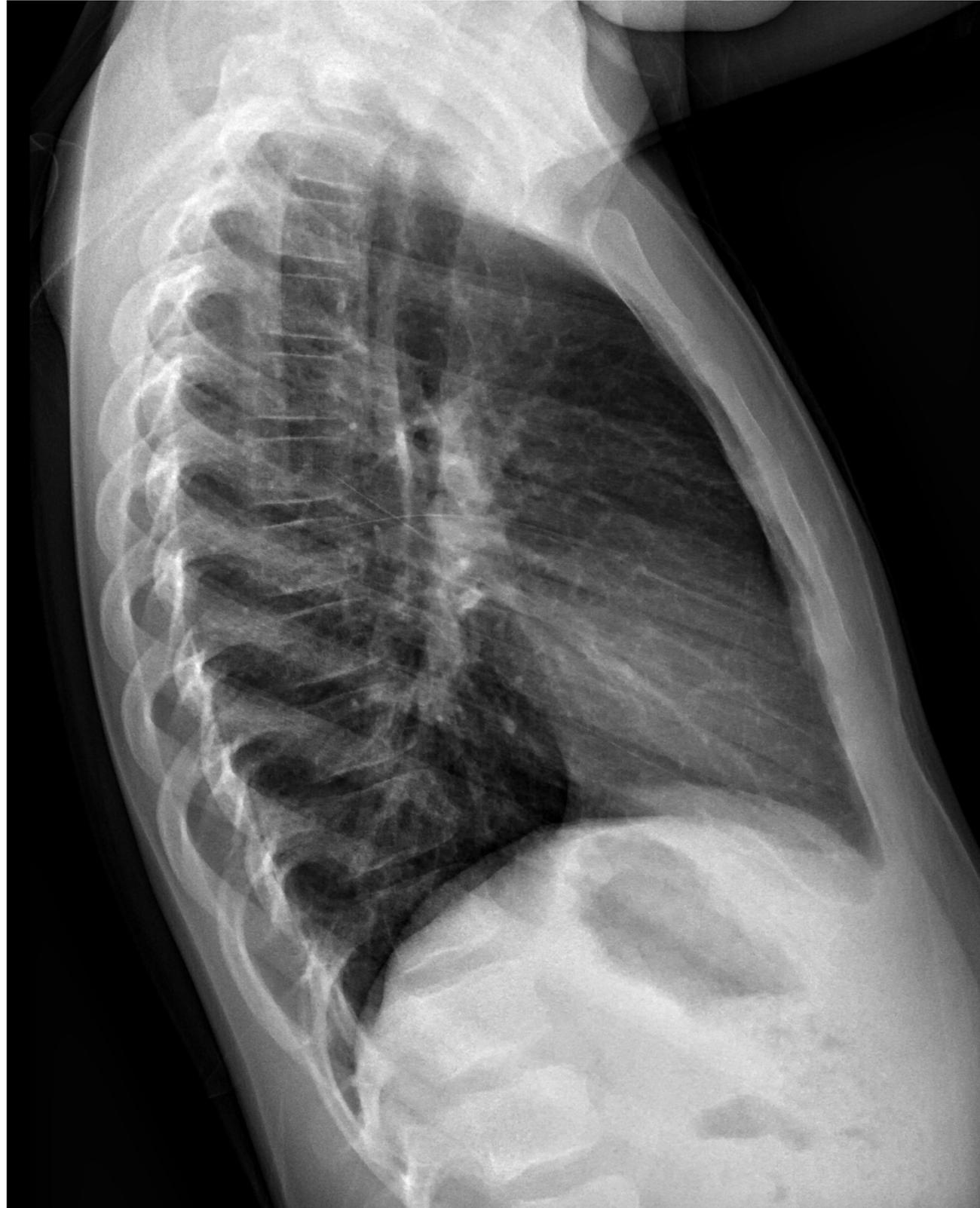
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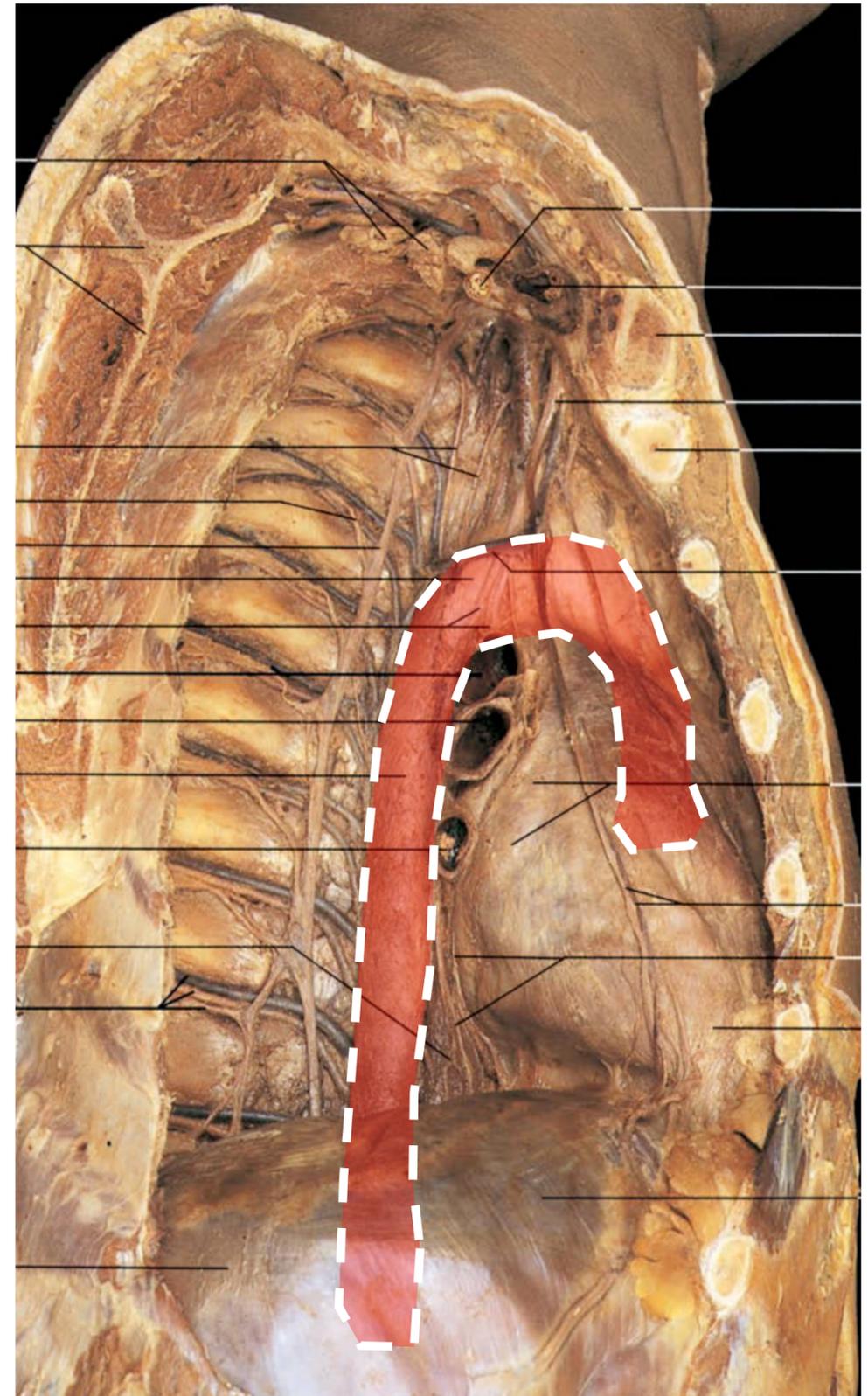
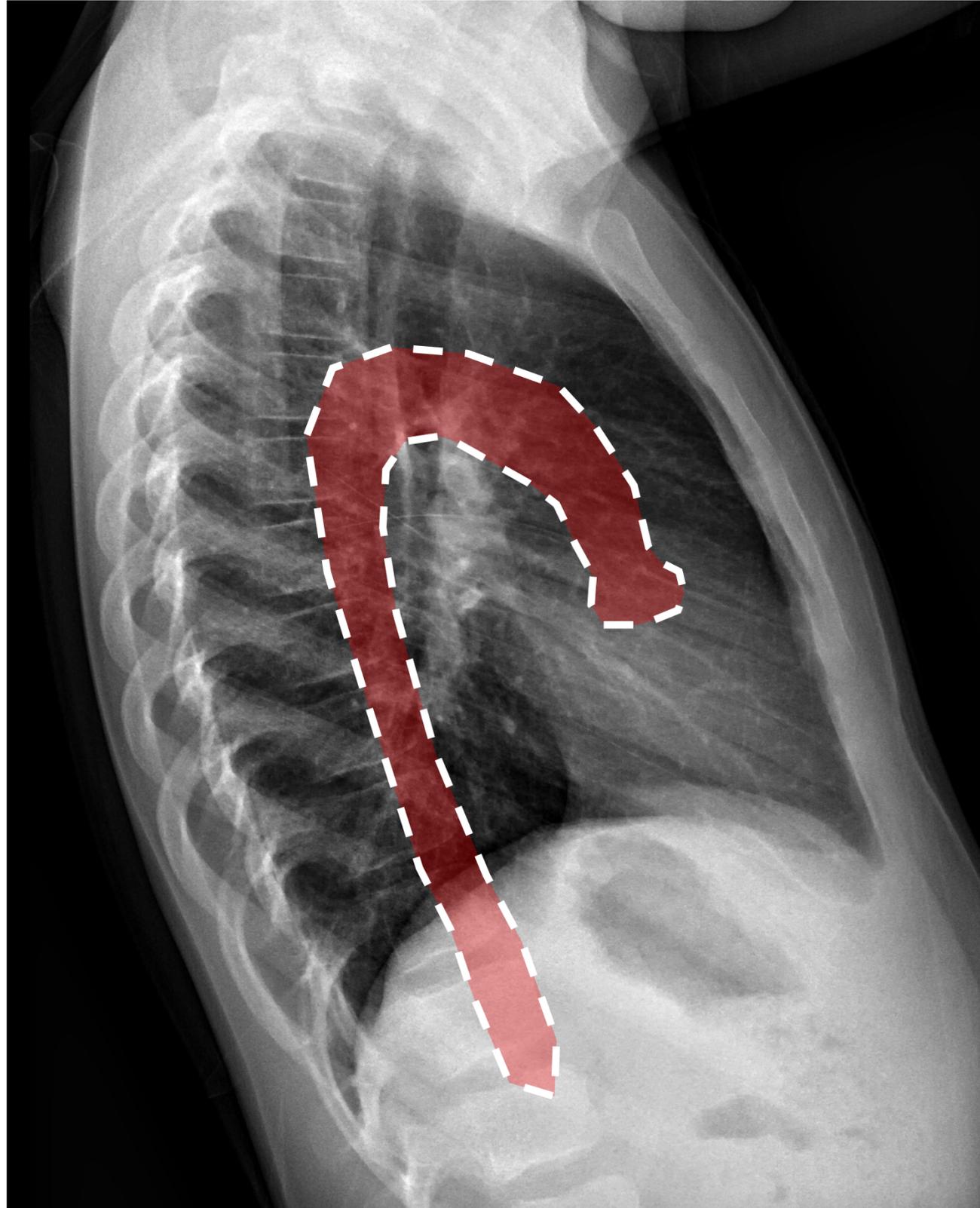
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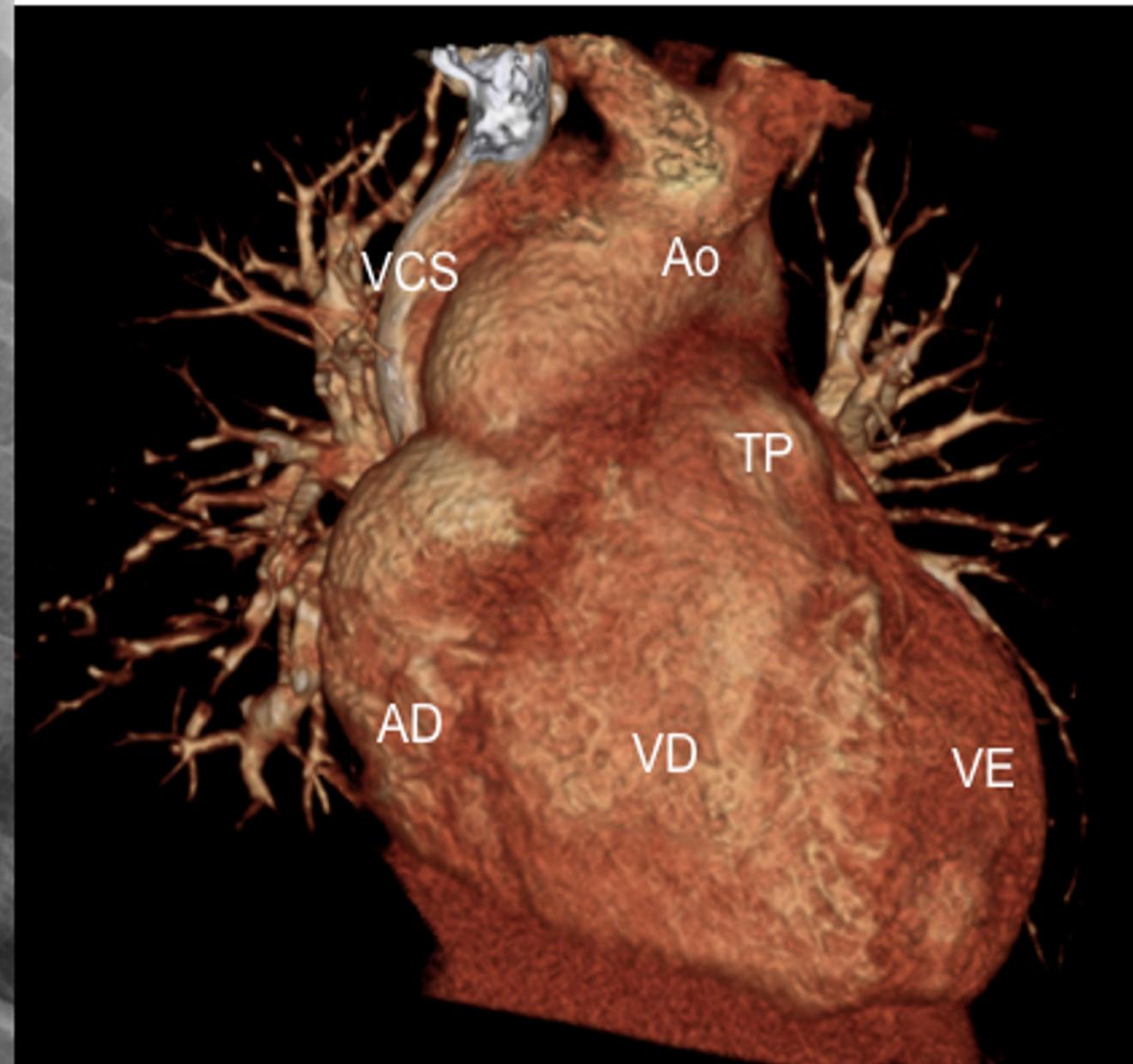
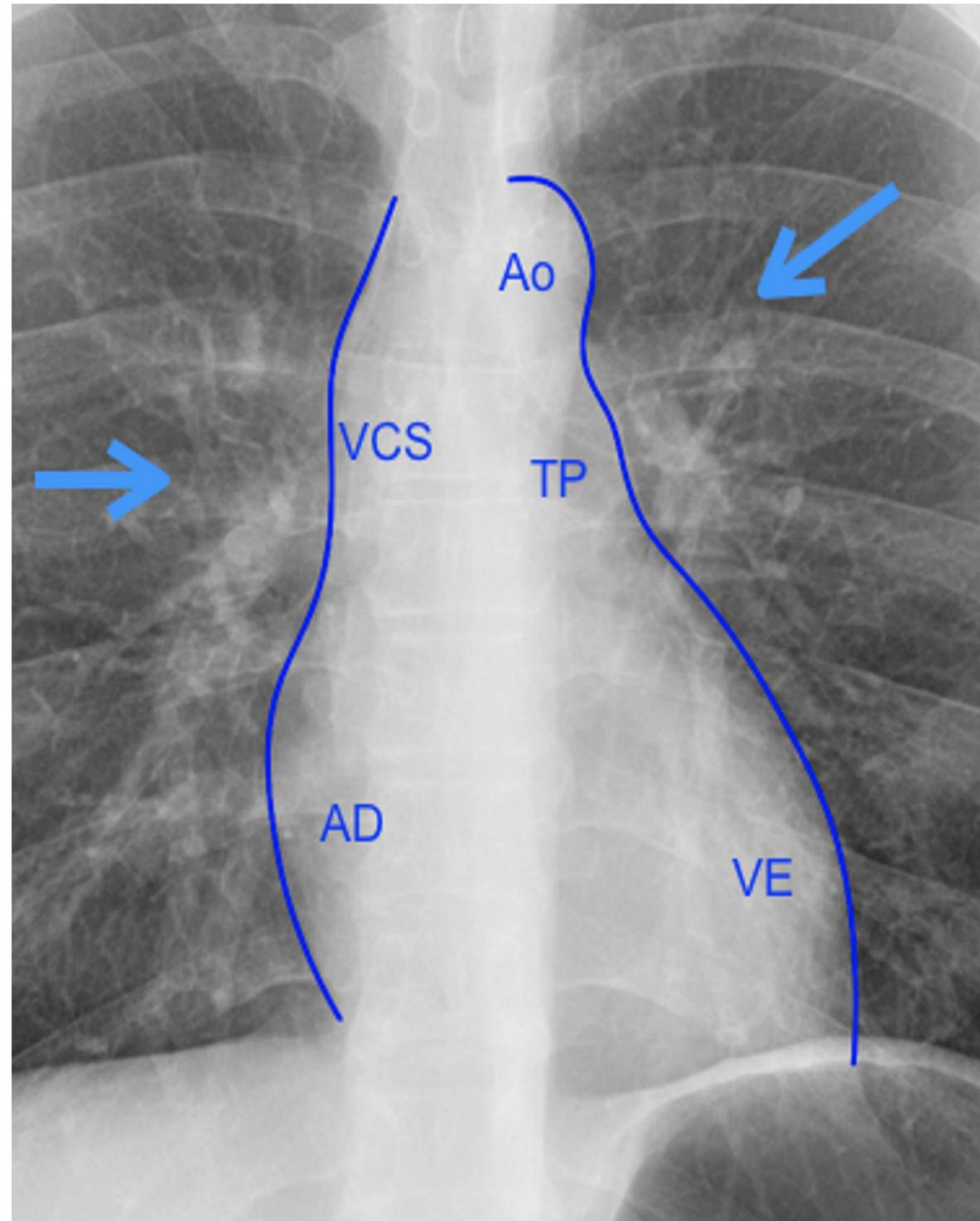
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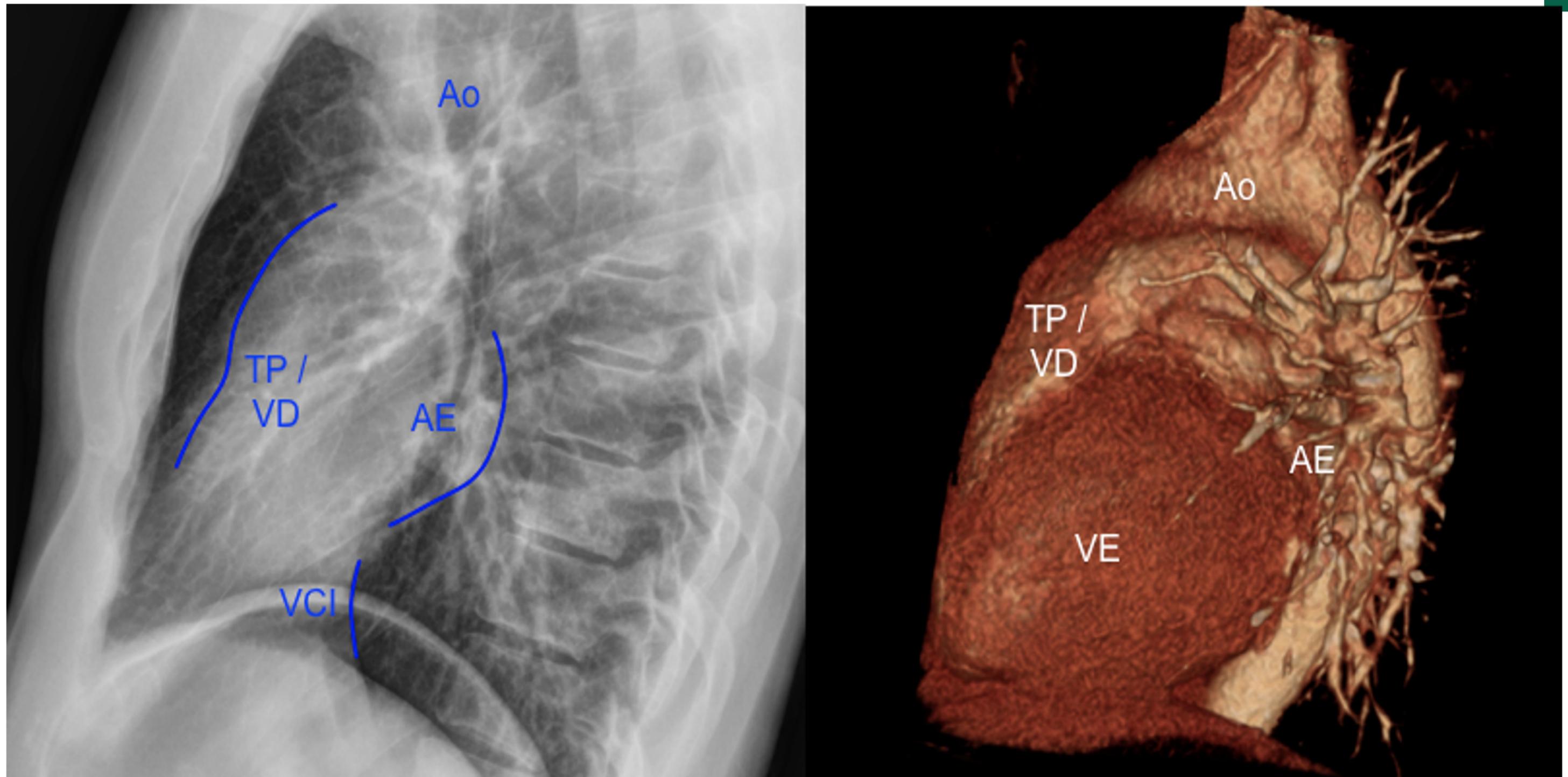
Coração



Correlação com tomografia computadorizada



Correlação com tomografia computadorizada





Questionário 2



Questão 2

A projeção lateral é usada para avaliar qual das seguintes estruturas?

Artérias pulmonares

Ventrículo direito

Ventrículo esquerdo

Aorta

Todas as anteriores



Questão 2

Qual estrutura não é diretamente avaliada em uma radiografia de tórax padrão?

Esôfago

Átrio esquerdo

Veias pulmonares

Auriculeta esquerda

Ventriculo direito



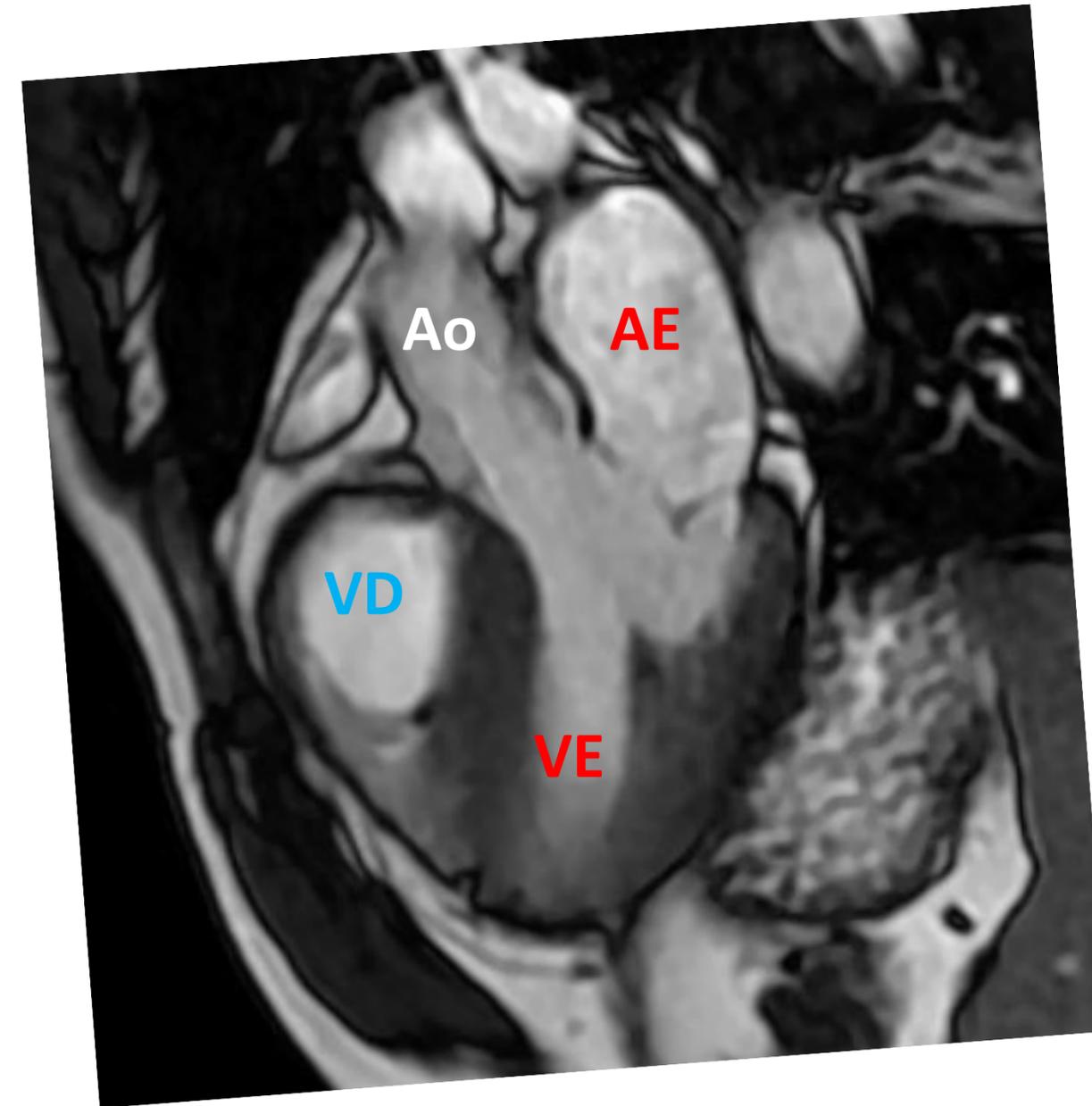
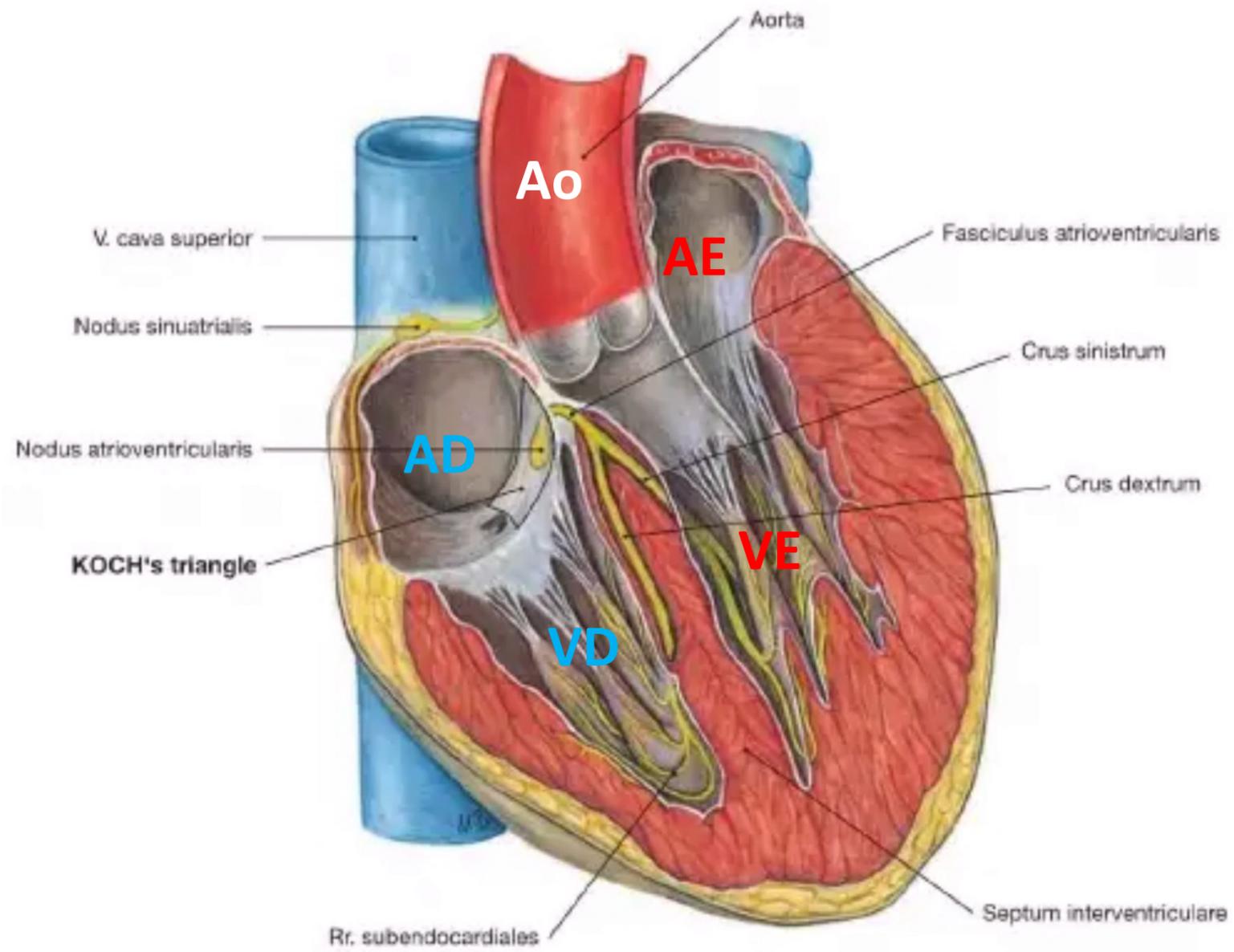
Questão 3

Associe a estrutura cardiovascular com a alternativa correta

O átrio direito	<input checked="" type="checkbox"/> Escolher... é formado por 4 câmaras
O mediastino médio	<input type="checkbox"/> é também chamado visceral, pois contém a traqueia, o esôfago e o coração
O pulmão	<input type="checkbox"/> recebe sangue não oxigenado através da artéria pulmonar
O coração	<input type="checkbox"/> é formado pelo átrio direito
Contorno cardíaco direito	<input type="checkbox"/> recebe sangue não oxigenado pelas veias cavas e pelo seio coronariano



Introdução a radiologia das doenças cardíacas





Índice cardiotorácico (ICT)



Índice cardiotorácico

THE CARDIOTHORACIC RATIO: AN INDEX OF CARDIAC ENLARGEMENT.

By C. SAUL DANZER, M.D.,

BROOKLYN, N. Y.

ATTENDING PHYSICIAN, SEA VIEW HOSPITAL, NEW YORK; ATTENDING PHYSICIAN, COLLEGE CLINIC, UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE; ASSISTANT ATTENDING PHYSICIAN, RIVERSIDE HOSPITAL, NEW YORK.

THE question of heart size, especially in its relationship to hypertrophy and dilatation, is important to the civilian as well as to the military physician. Its knowledge is necessary in the diagnosis and interpretation of certain systolic murmurs as well as in the prognosis of cardiac, nephritic and vasosclerotic conditions.

For example, a systolic murmur at the apex, with the definite knowledge of cardiac enlargement, will certainly differentiate an

VOL. 157, NO. 4.—APRIL, 1919. 18

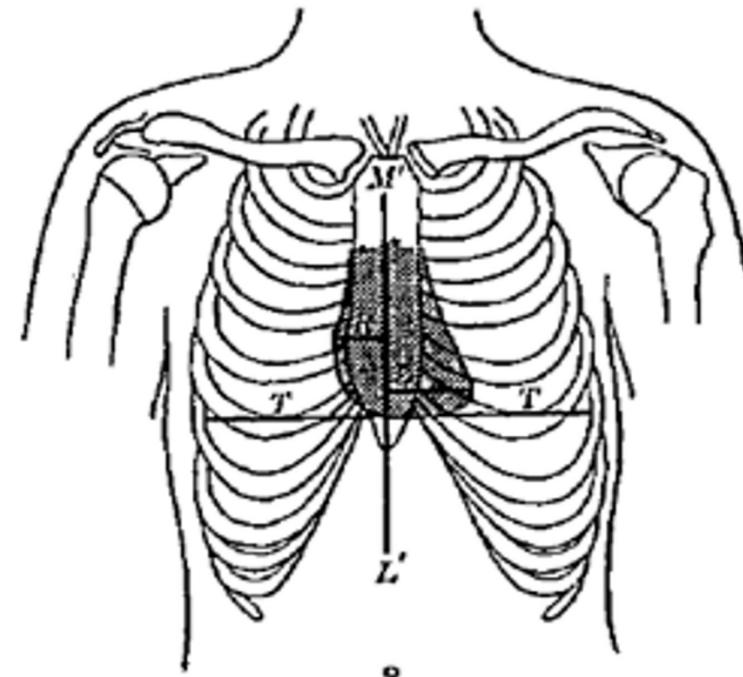


FIG. 10.— $M L'$, midline; R , from $M L'$ to right border (fourth space); L , from $M L'$ to left border (fifth space); $R + L$, $T. H.$ (transverse diameter of heart); $T. T.$ (transverse diameter of thorax); $C. T.$ (cardiothoracic ratio) = $\frac{T. H.}{T. T.}$

Índice cardiotorácico

conditions.

the apex, with the definite

l. certainly differentiates an

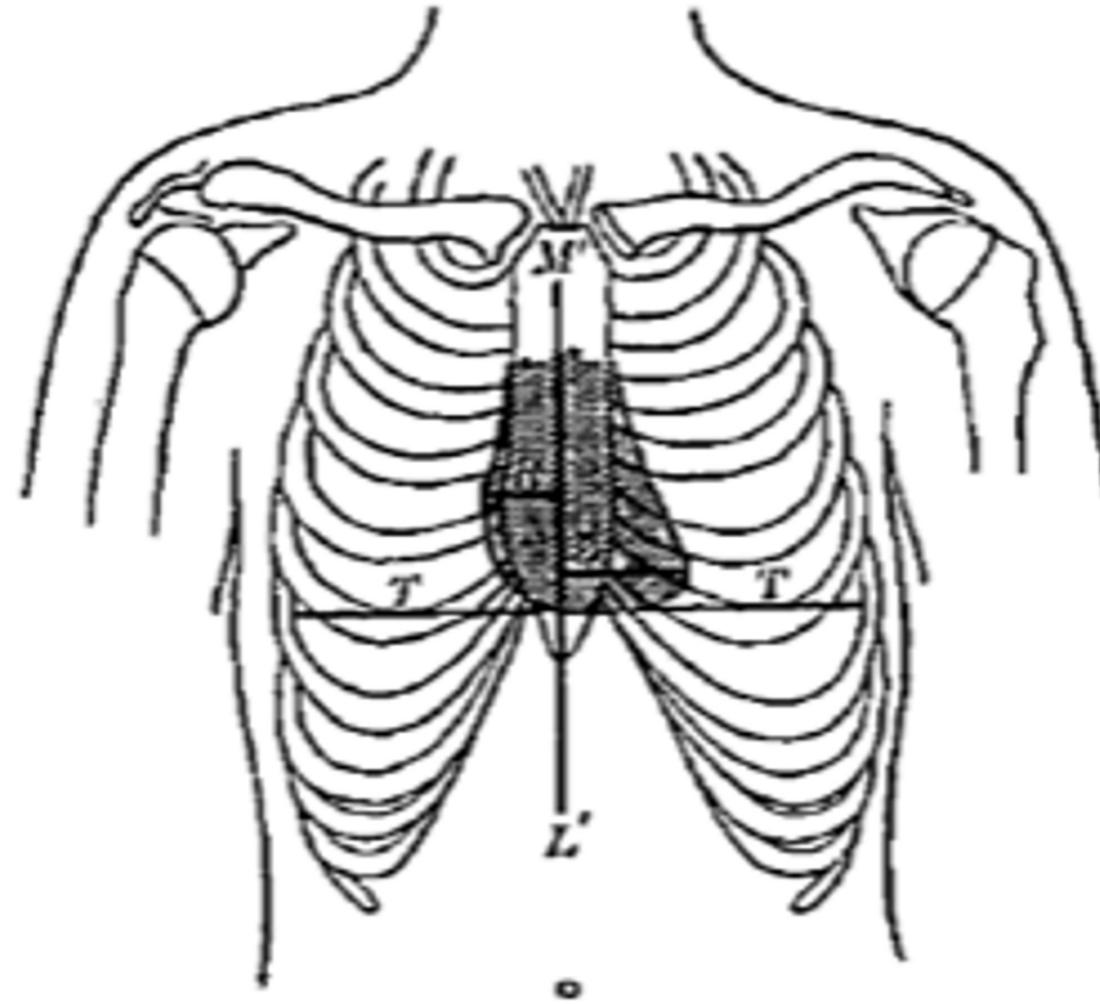
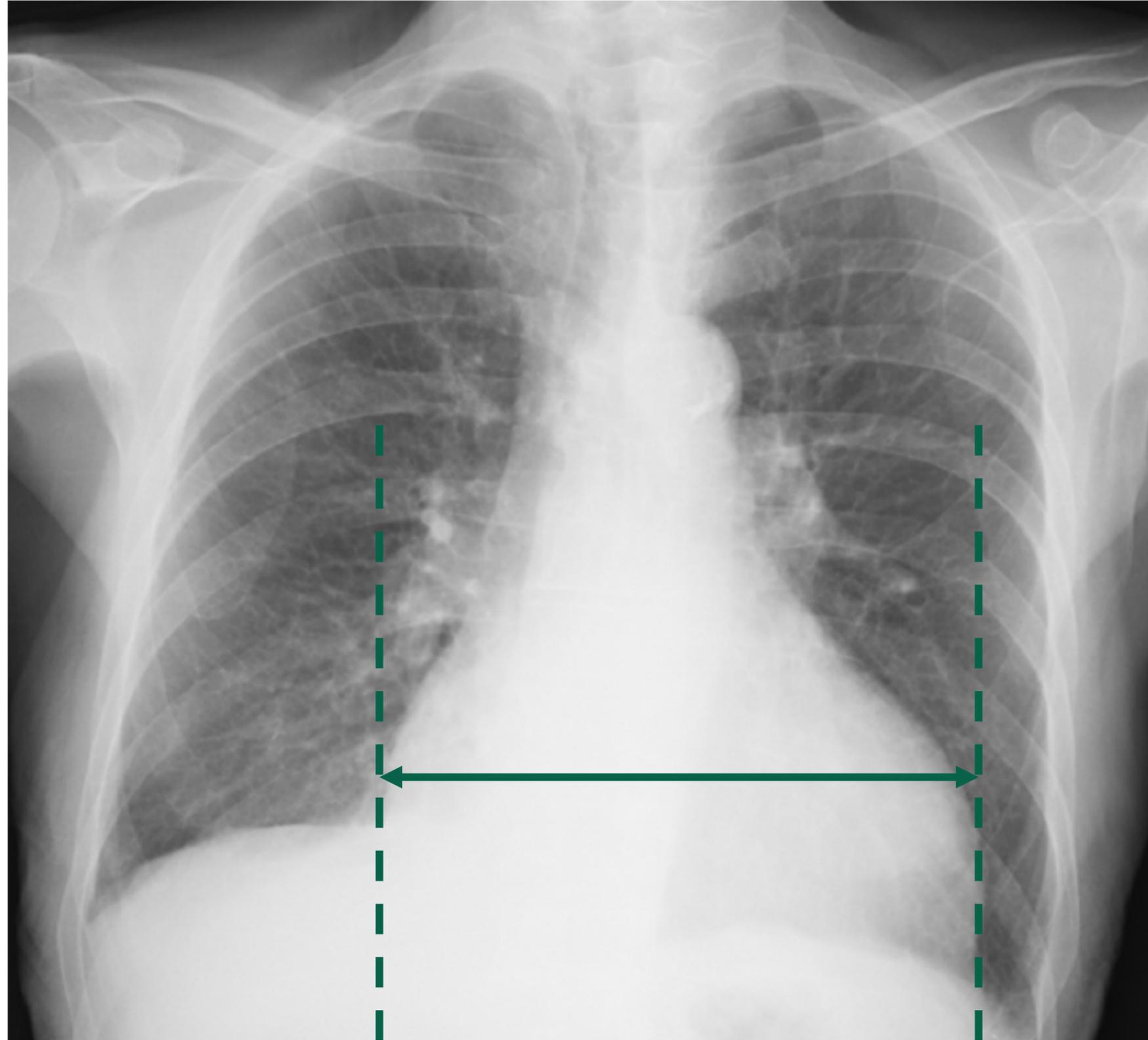


FIG. 10.—*M L'*, midline; *R*, from *M L'* to right border (fourth space); *L*, from *M L'* to left border (fifth space); *R + L*, *T. H.* (transverse diameter of heart); *T. T.* (transverse diameter of thorax); *C. T.* (cardiothoracic ratio) = $\frac{T.H.}{T.T.}$

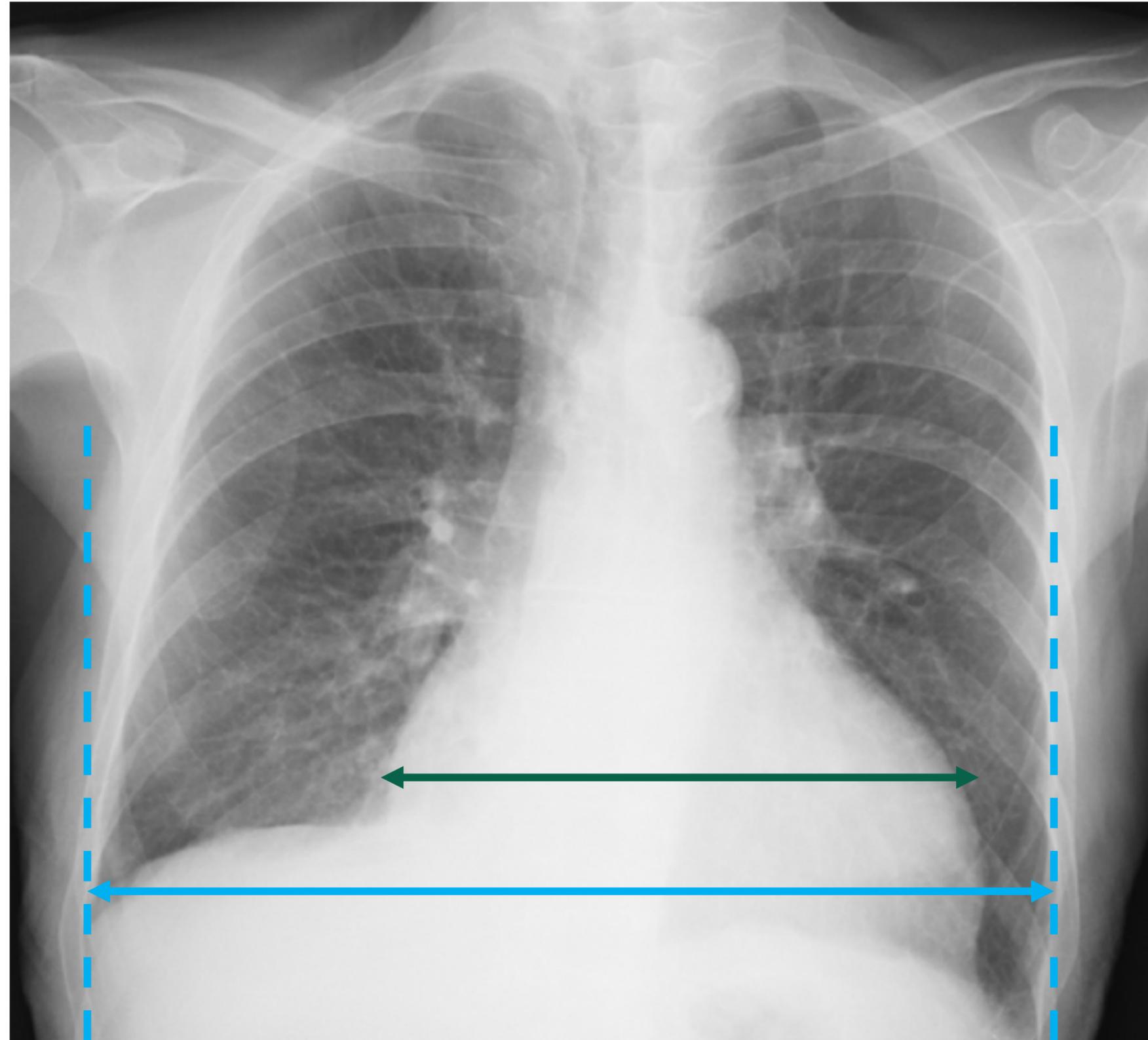
Índice cardiotorácico



Índice cardiotorácico

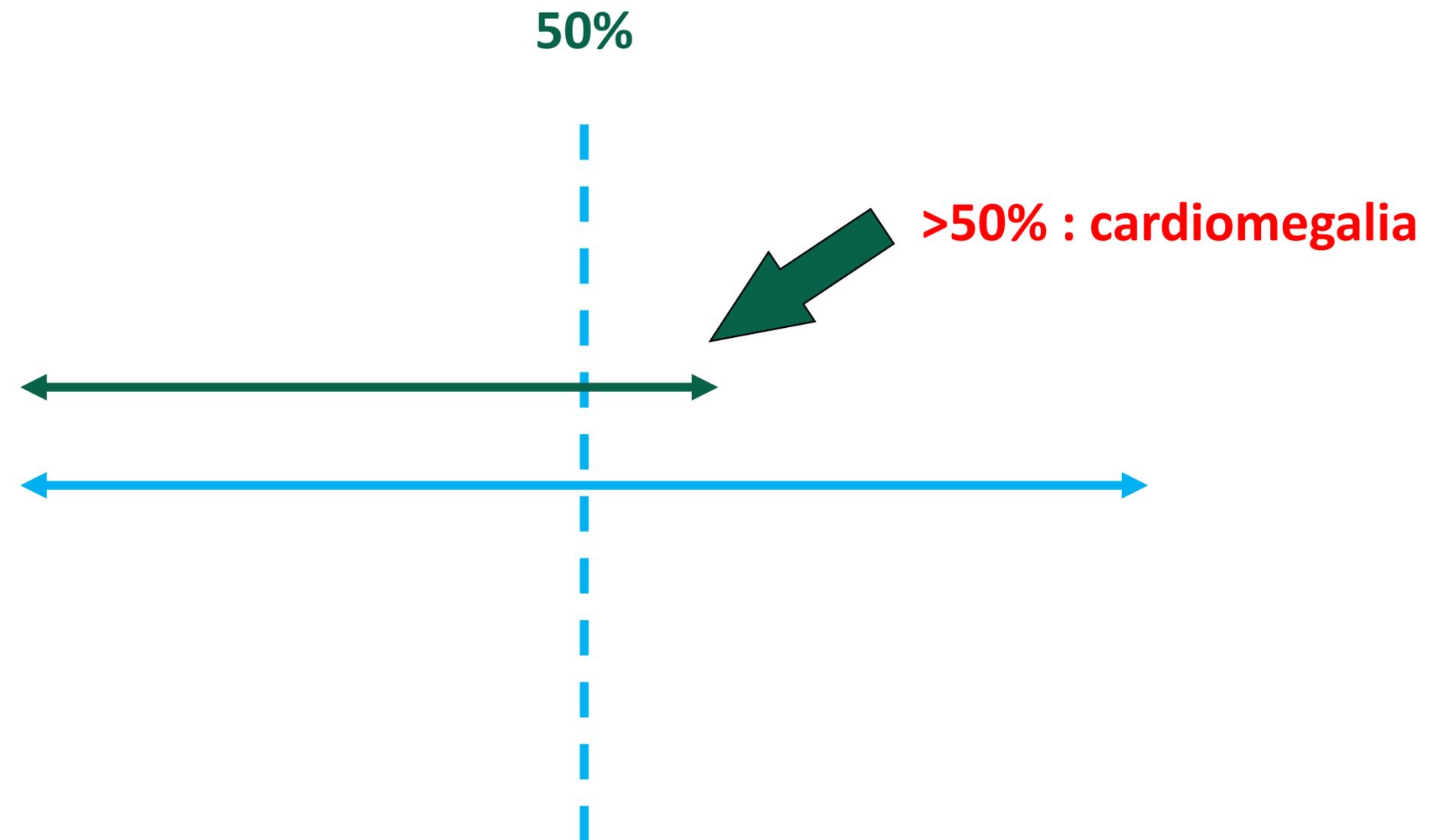


Índice cardiotorácico

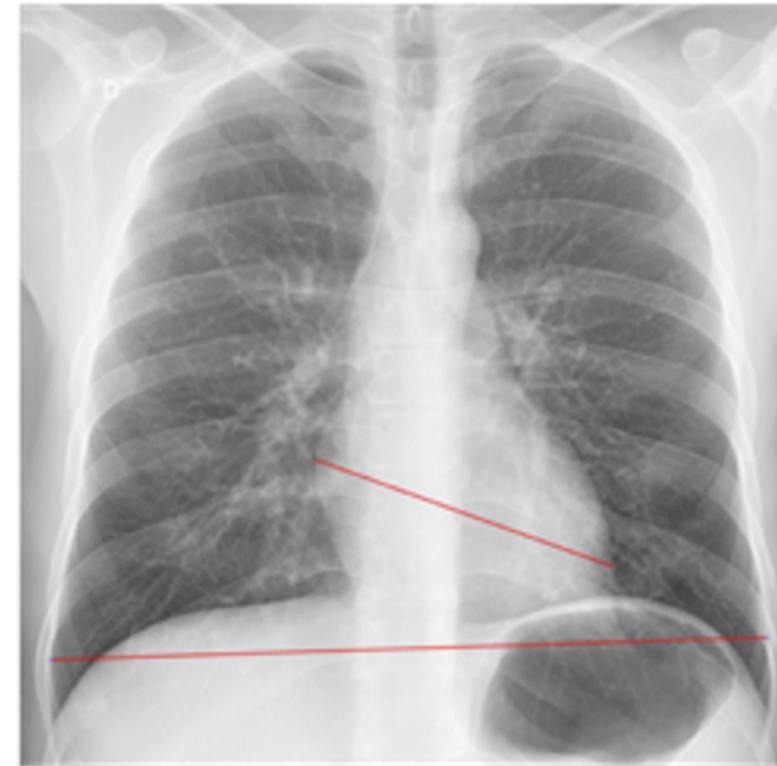
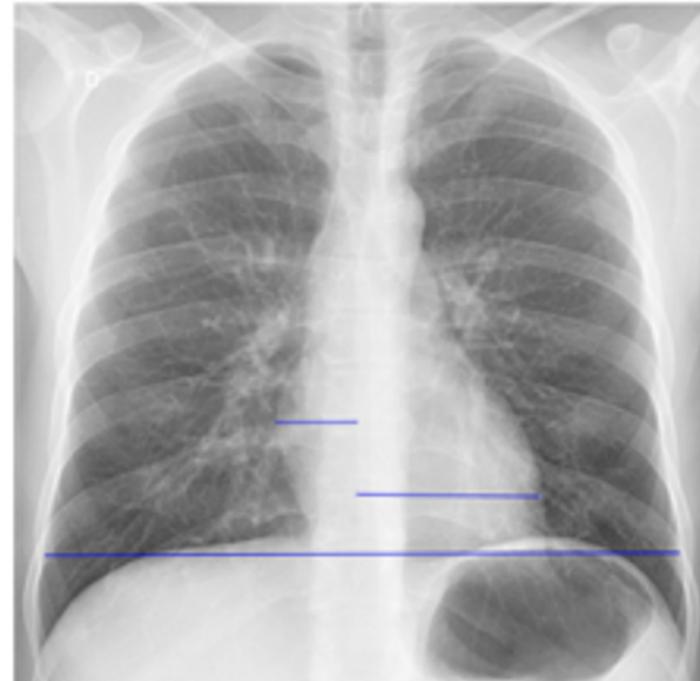
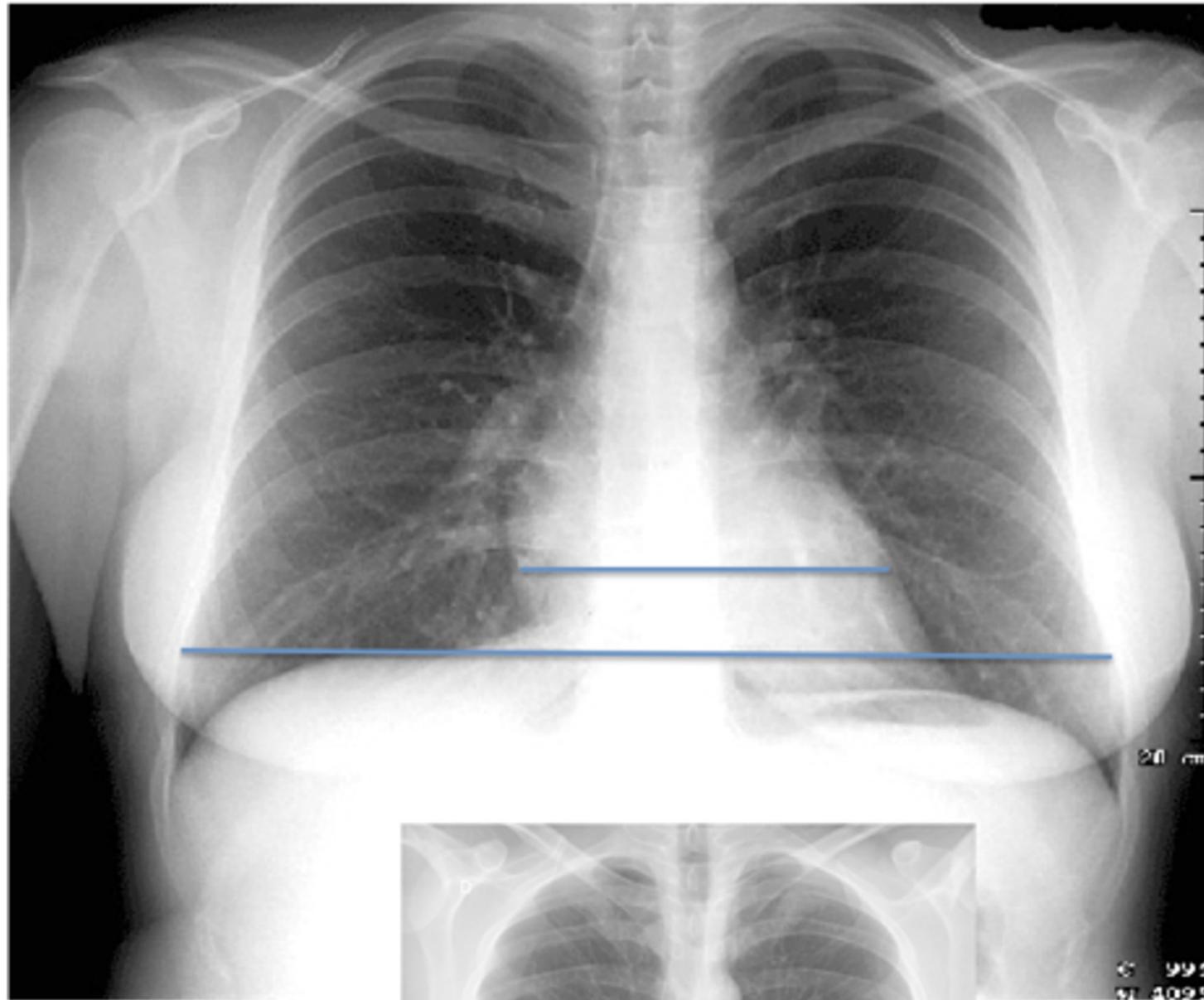




Índice cardiotorácico



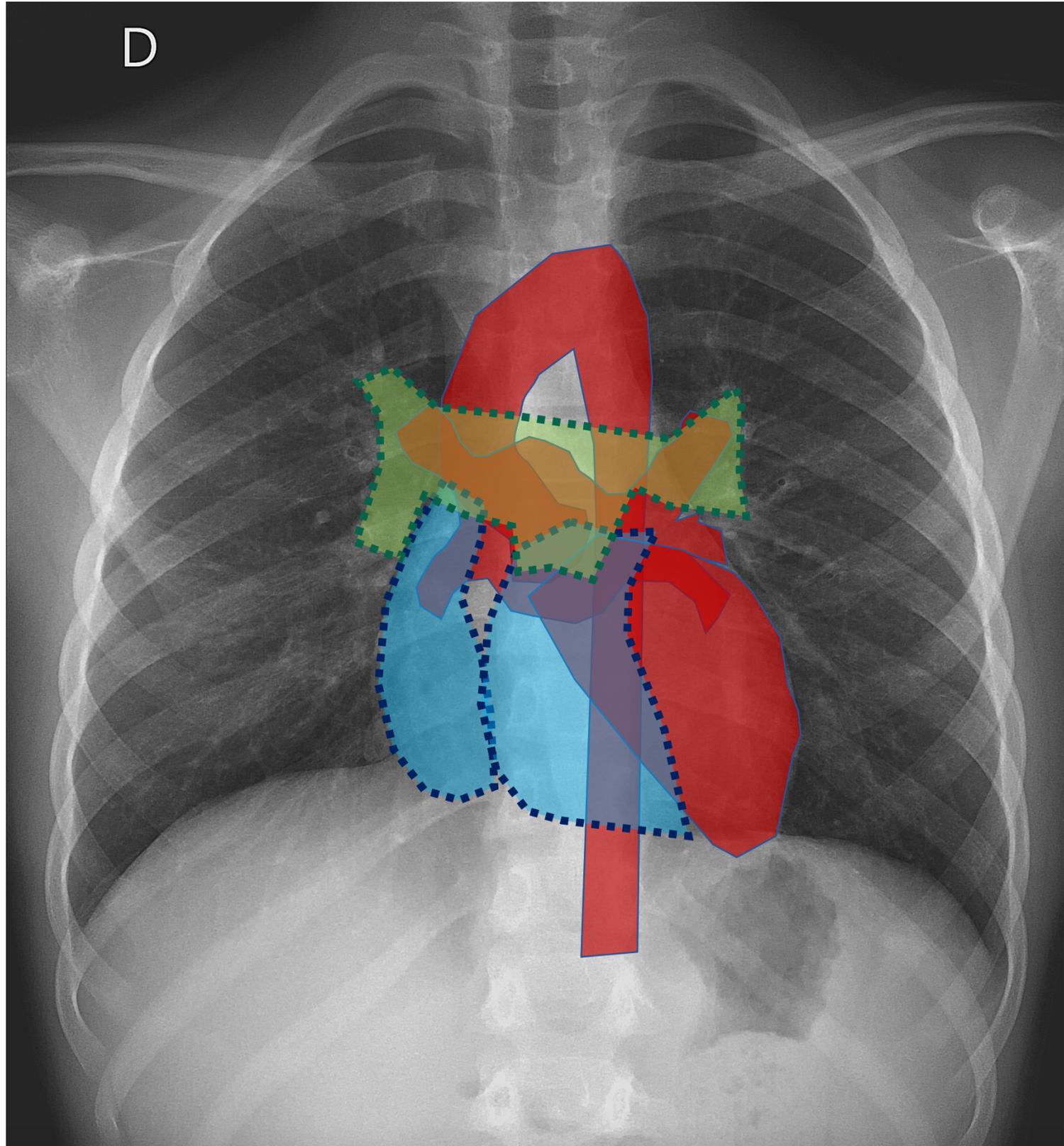
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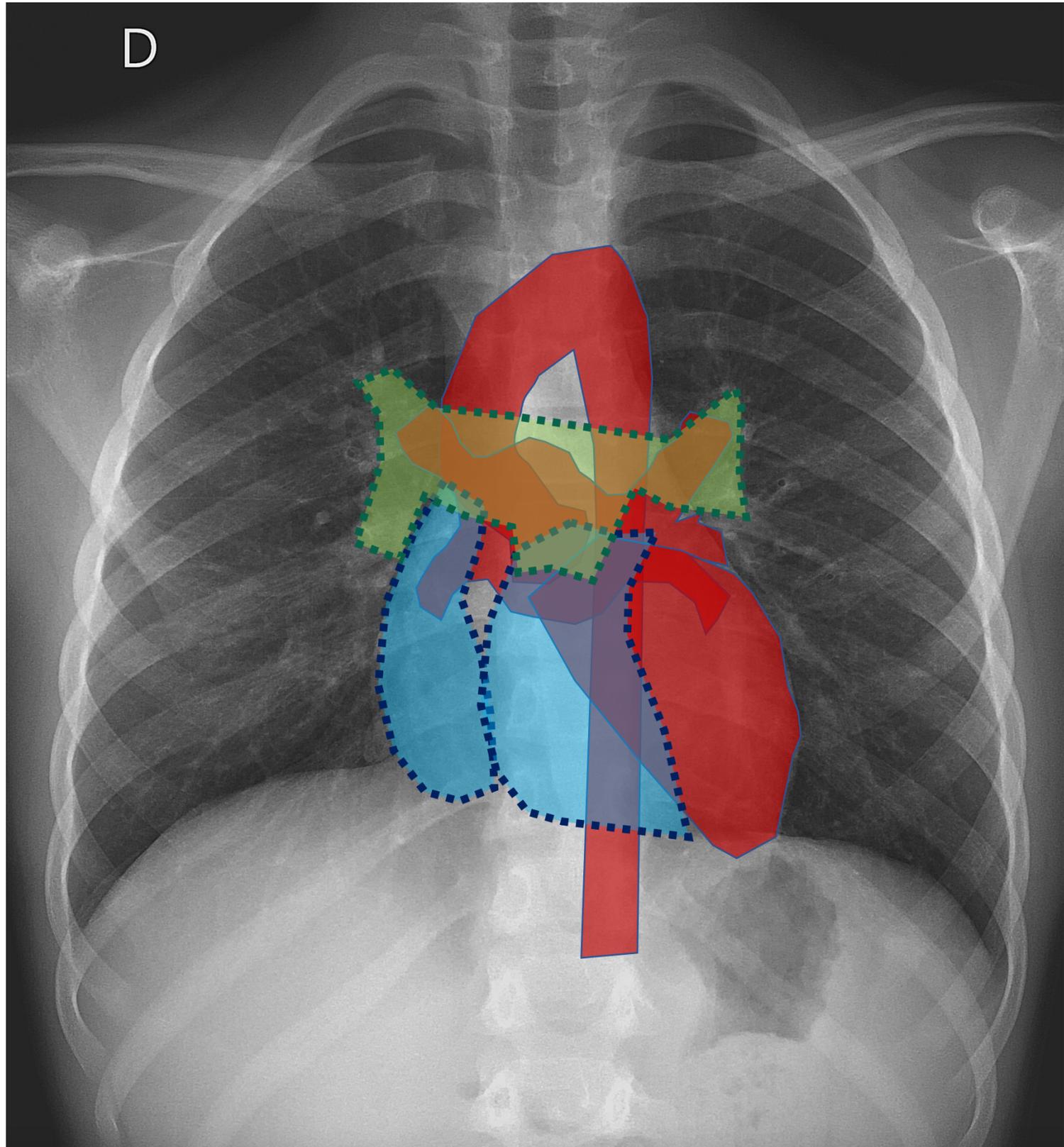


Aumento de câmaras cardíacas

Coração



Coração



Aumento de cada uma das estruturas

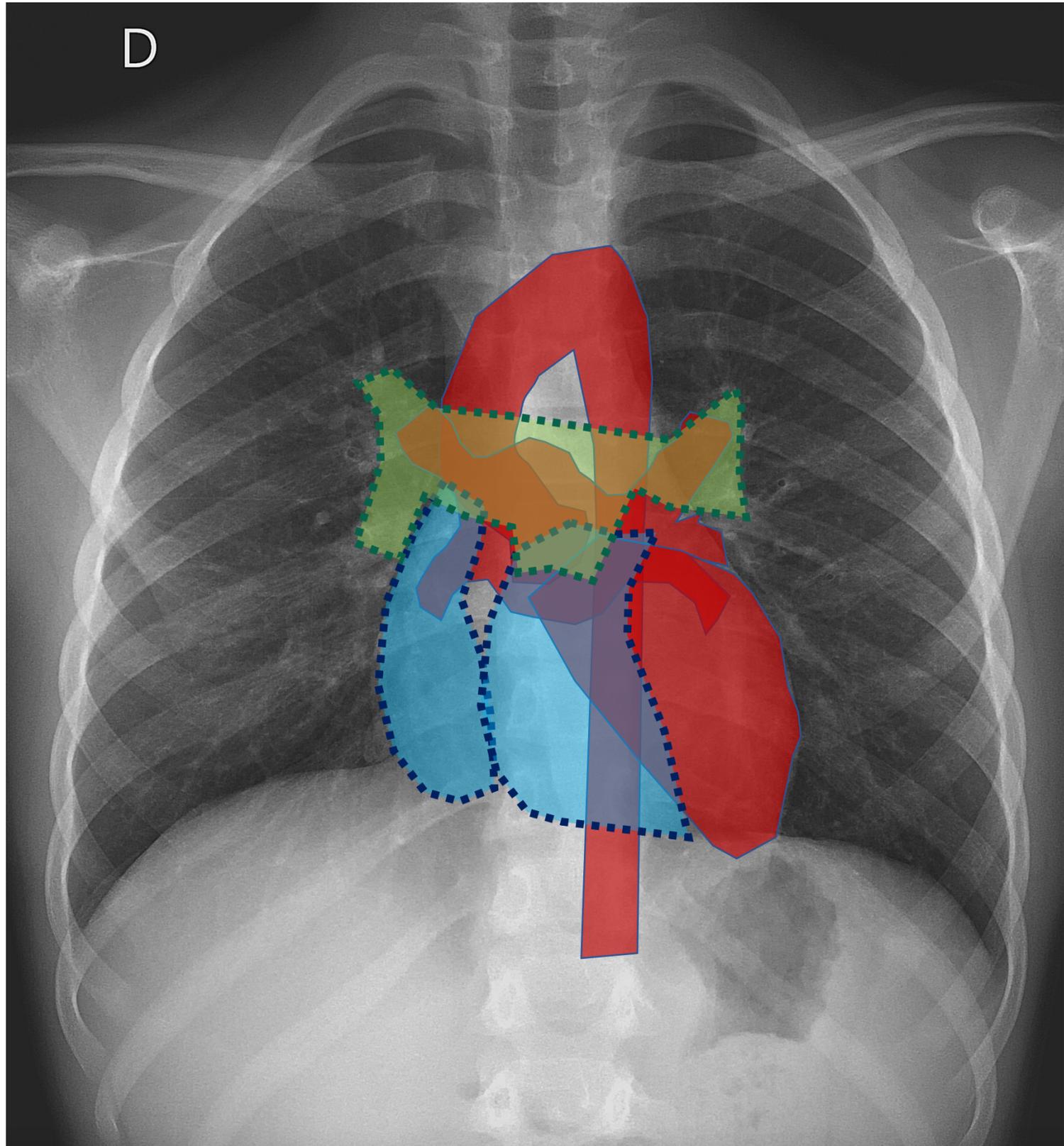
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

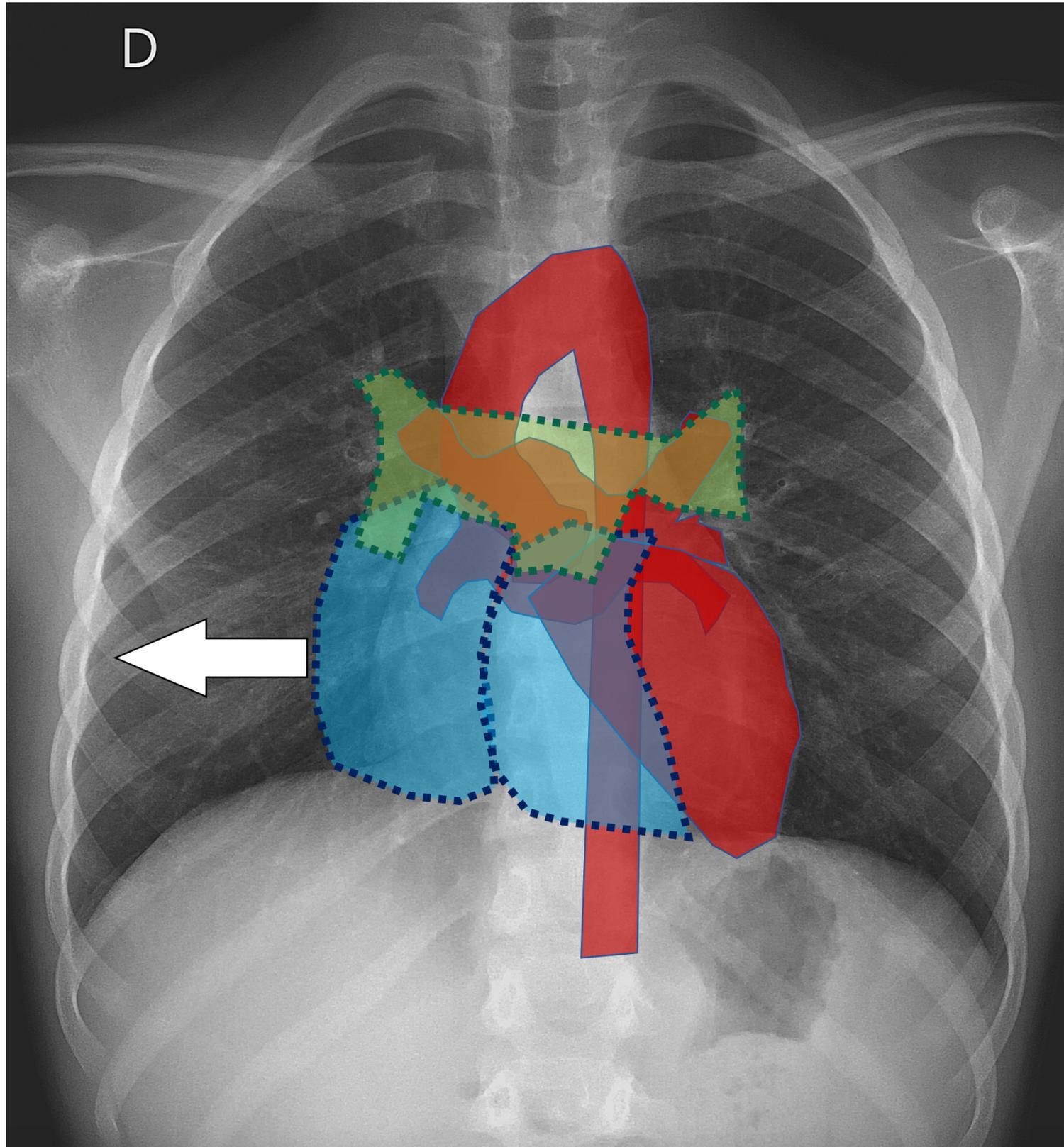
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

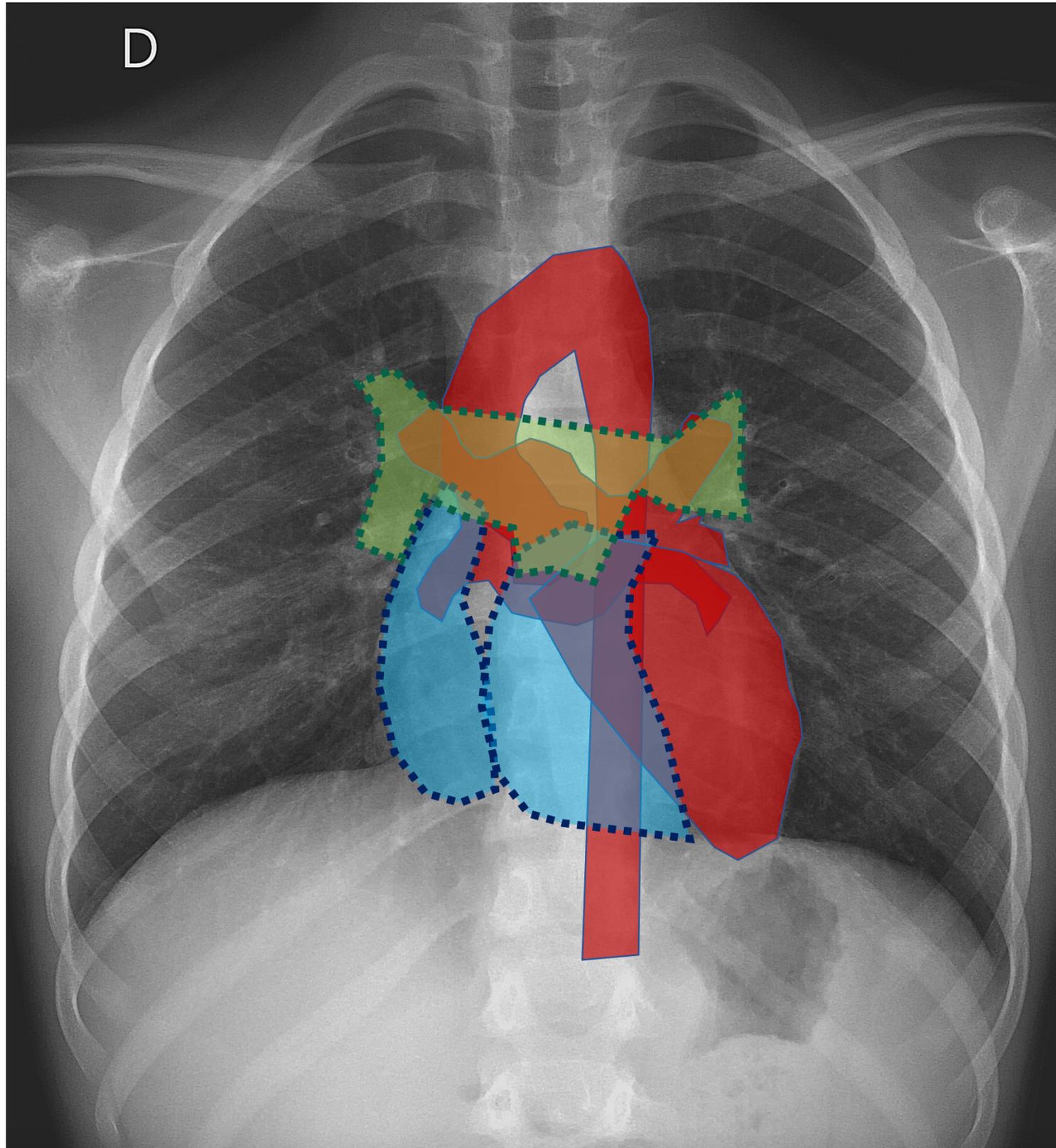
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

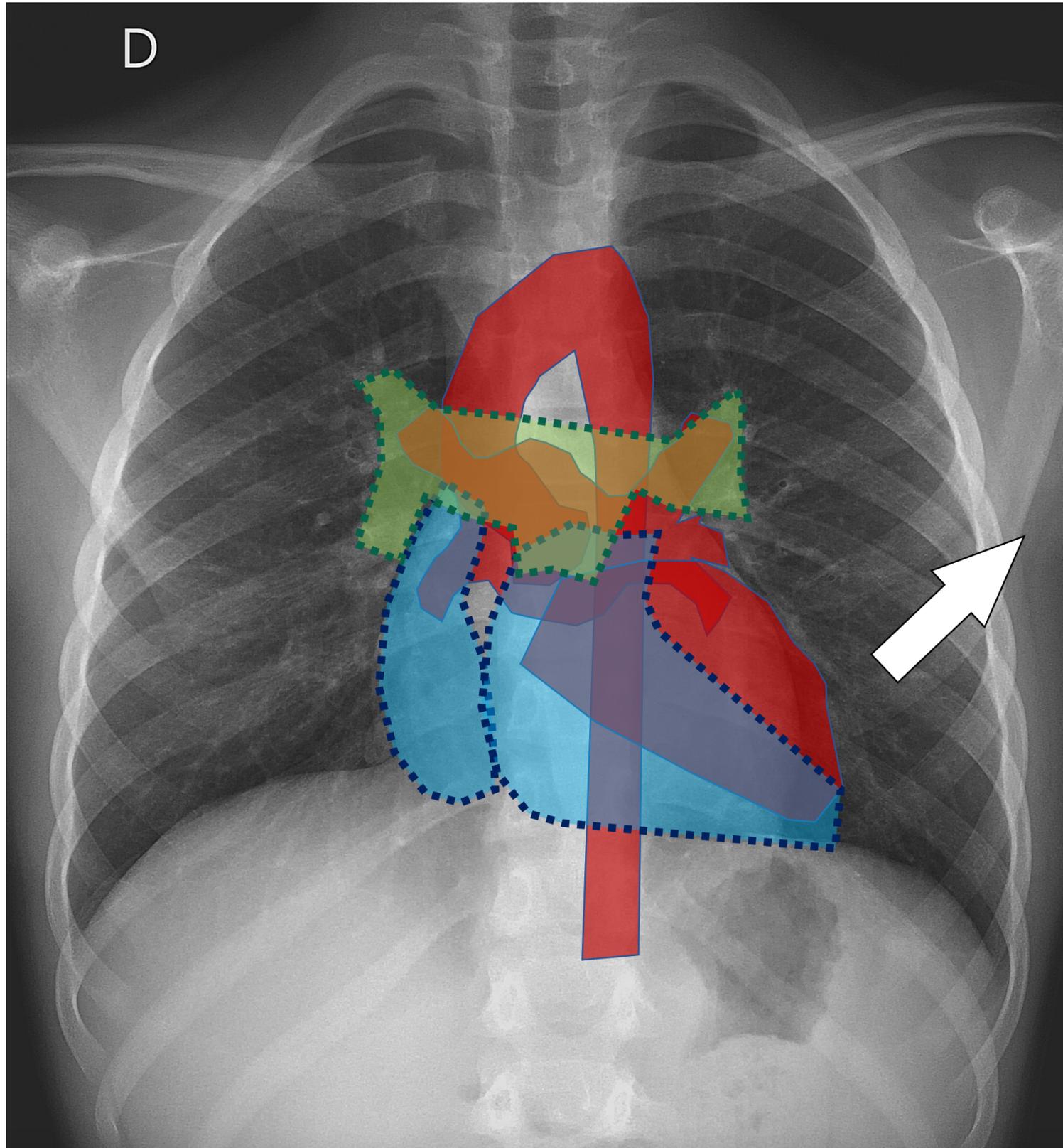
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



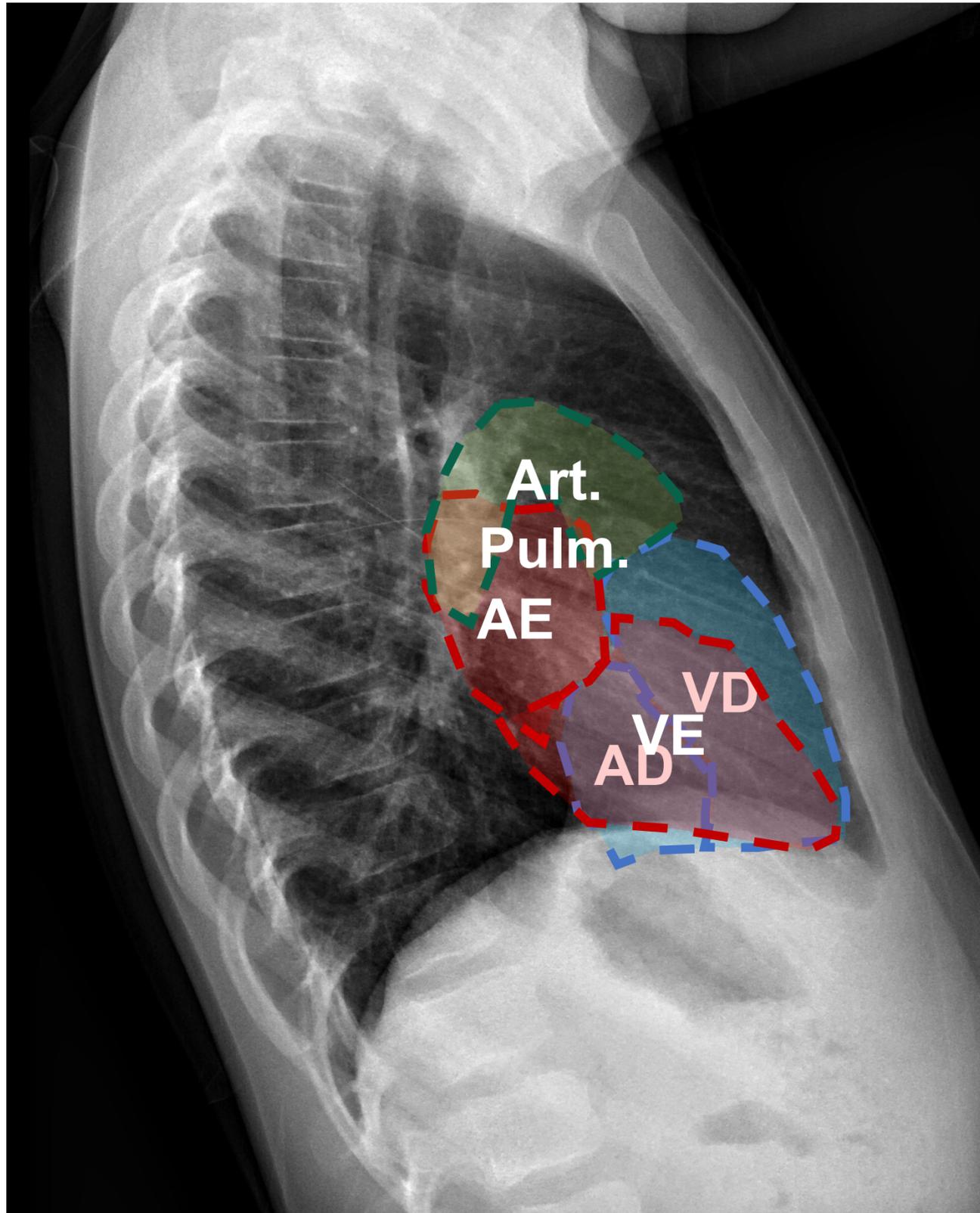
Aumento de cada uma das estruturas

Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo



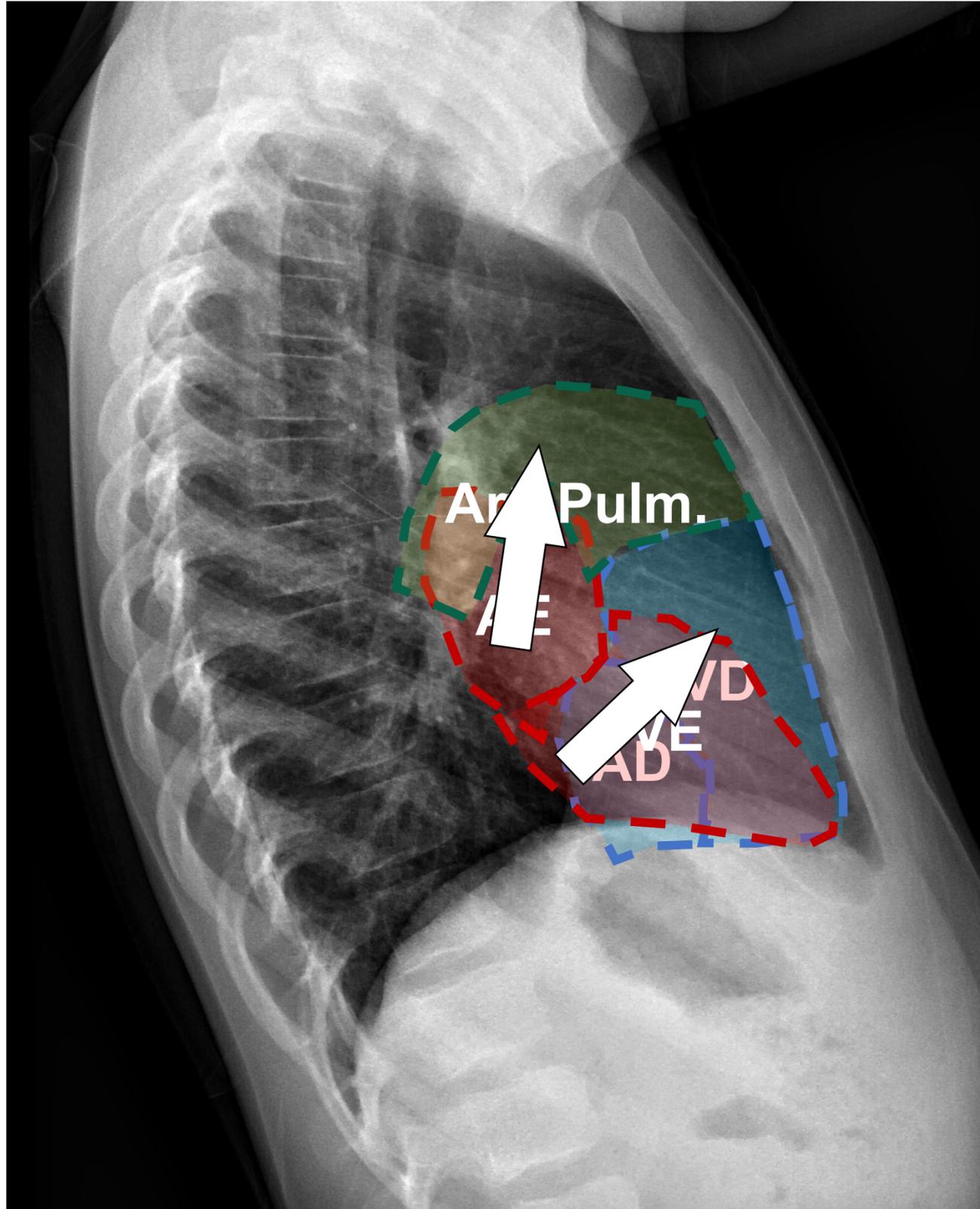
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Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo



Aumento de cada uma das estruturas

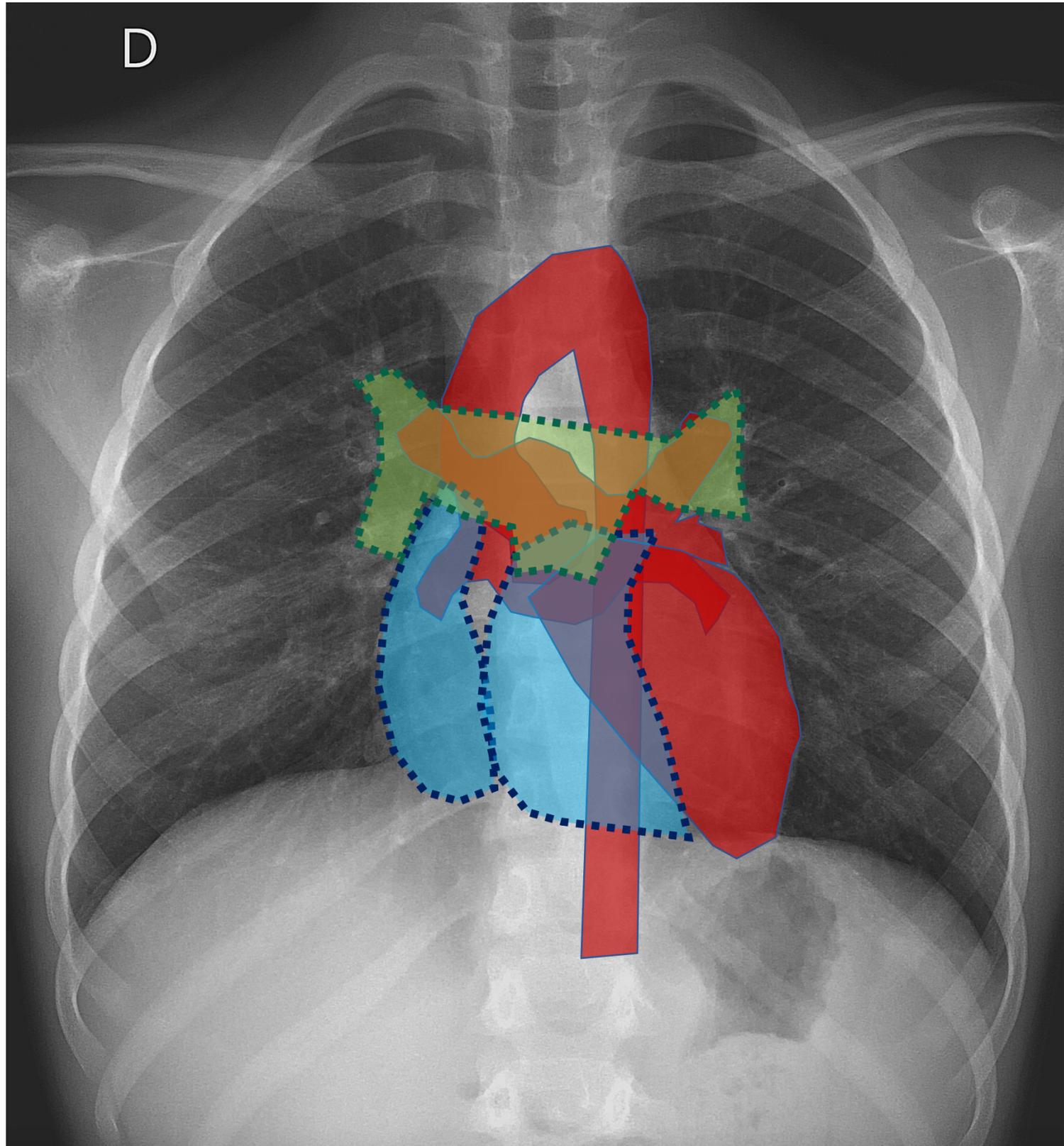
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

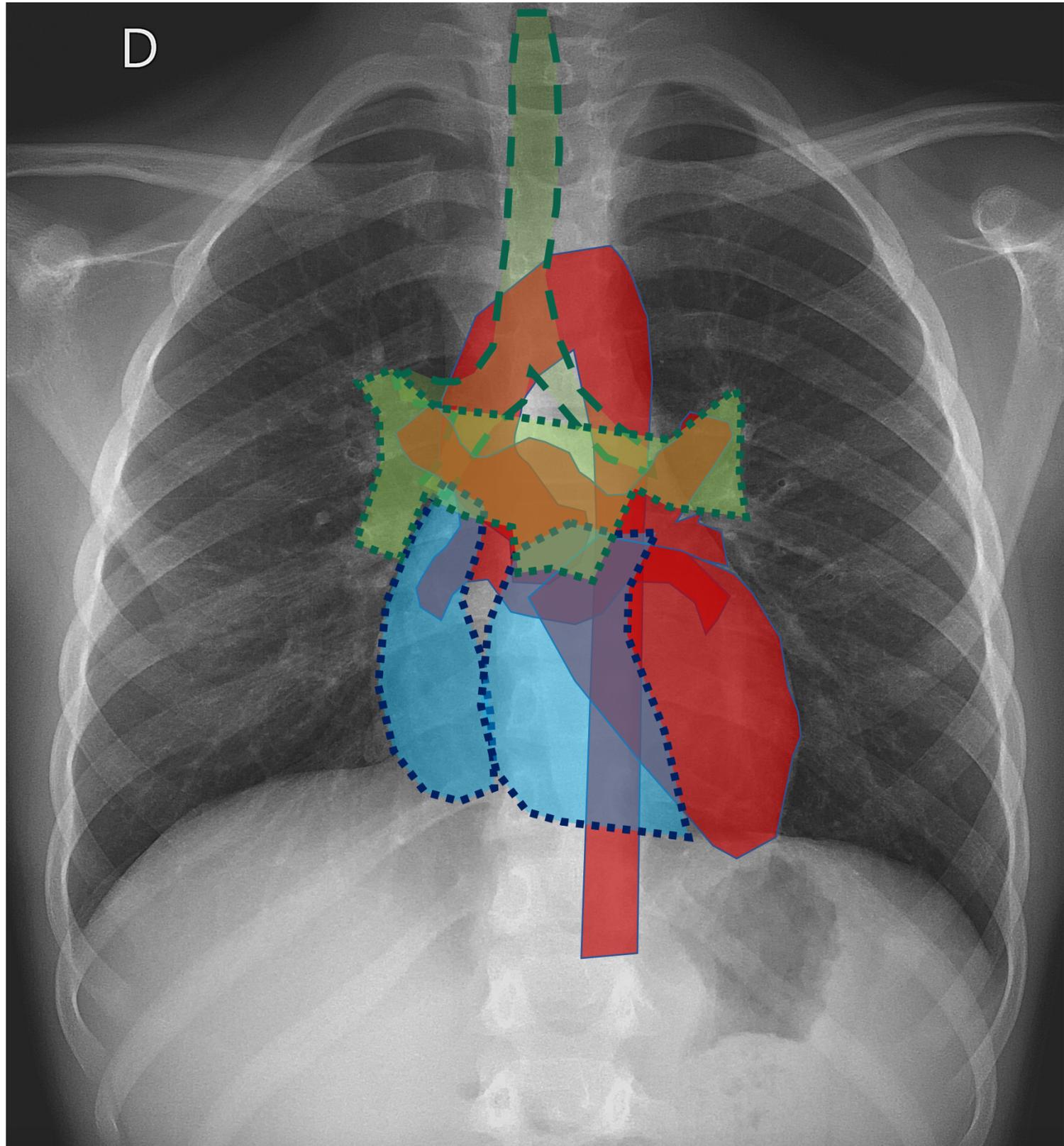
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

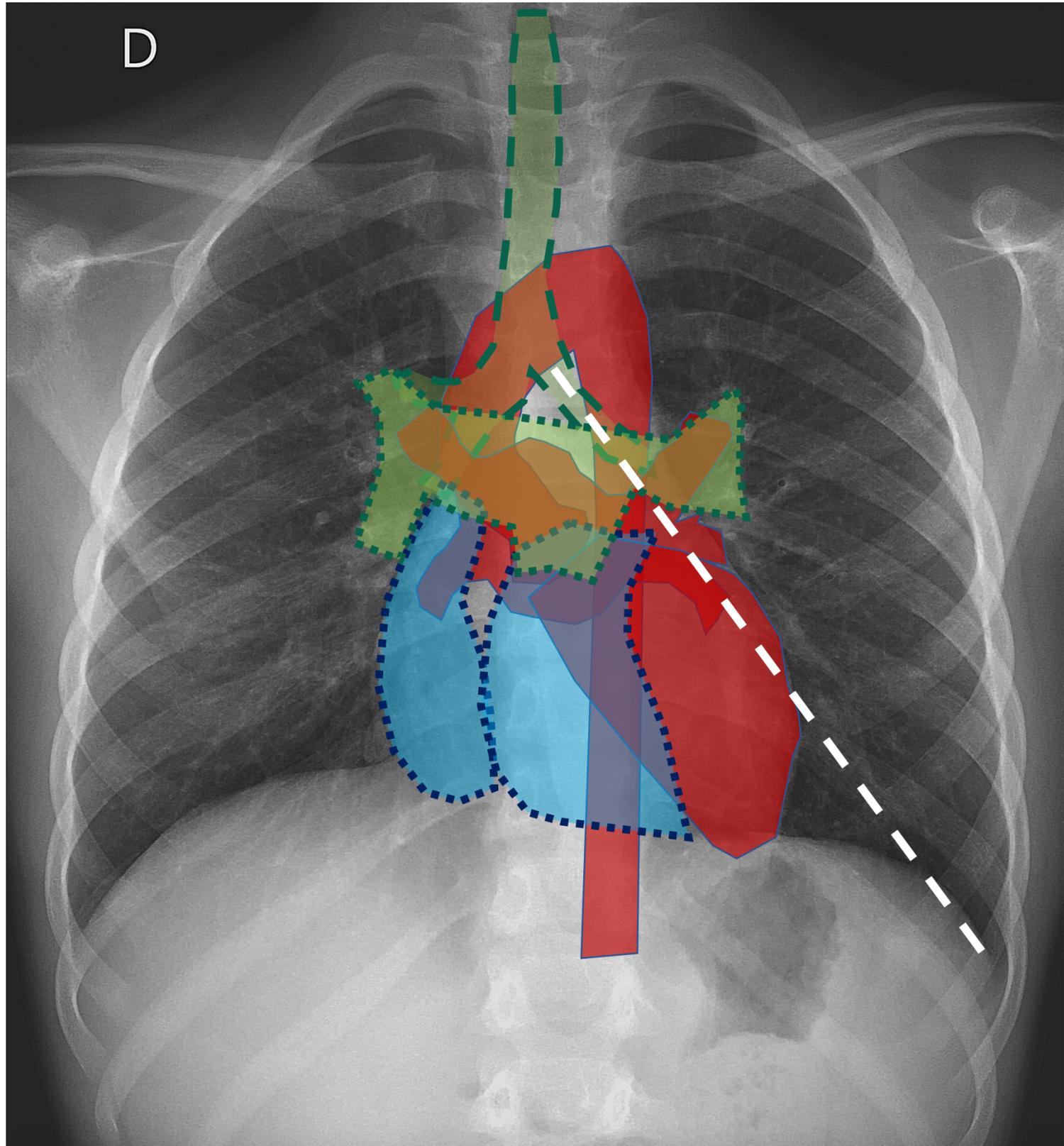
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

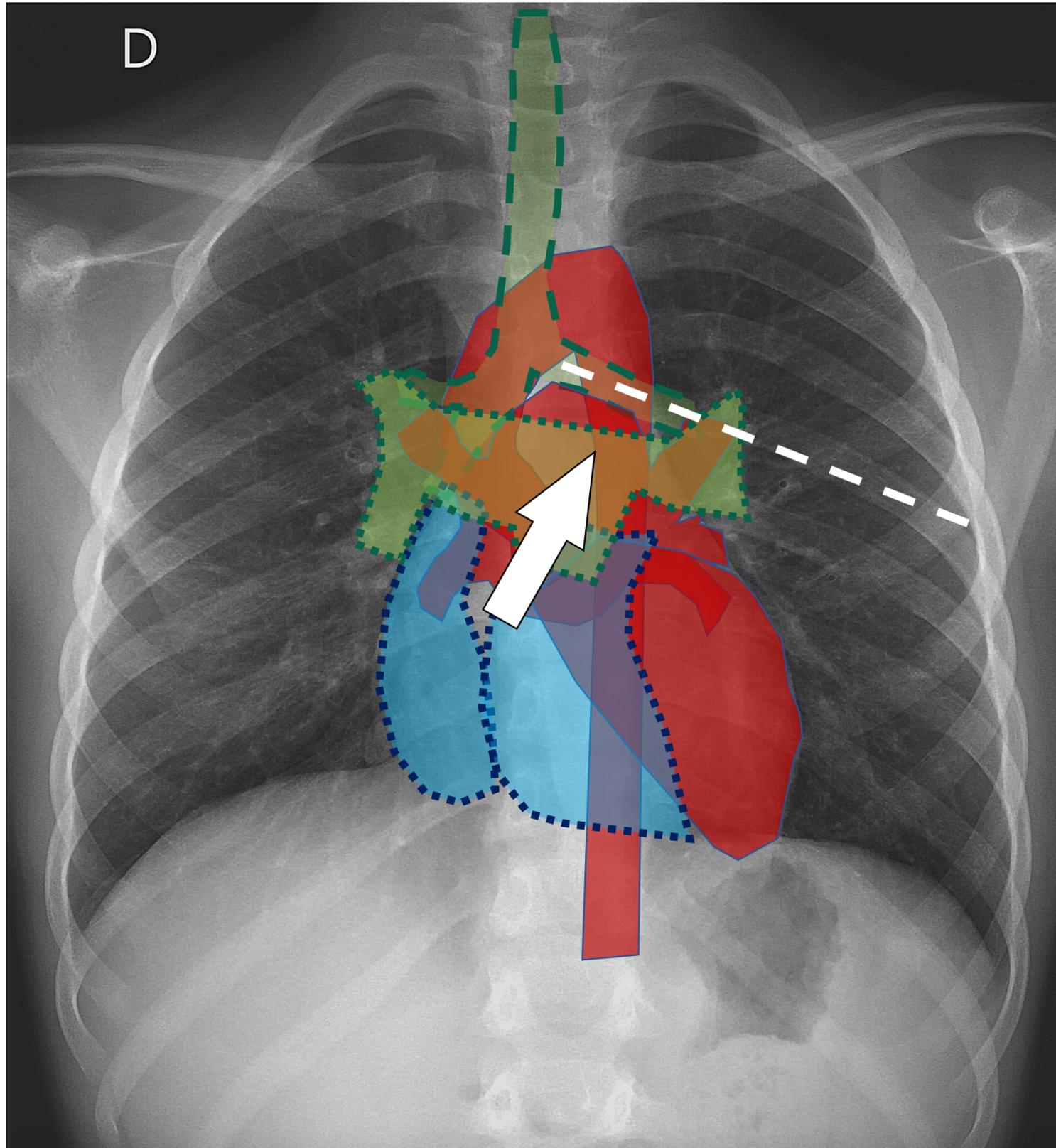
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Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

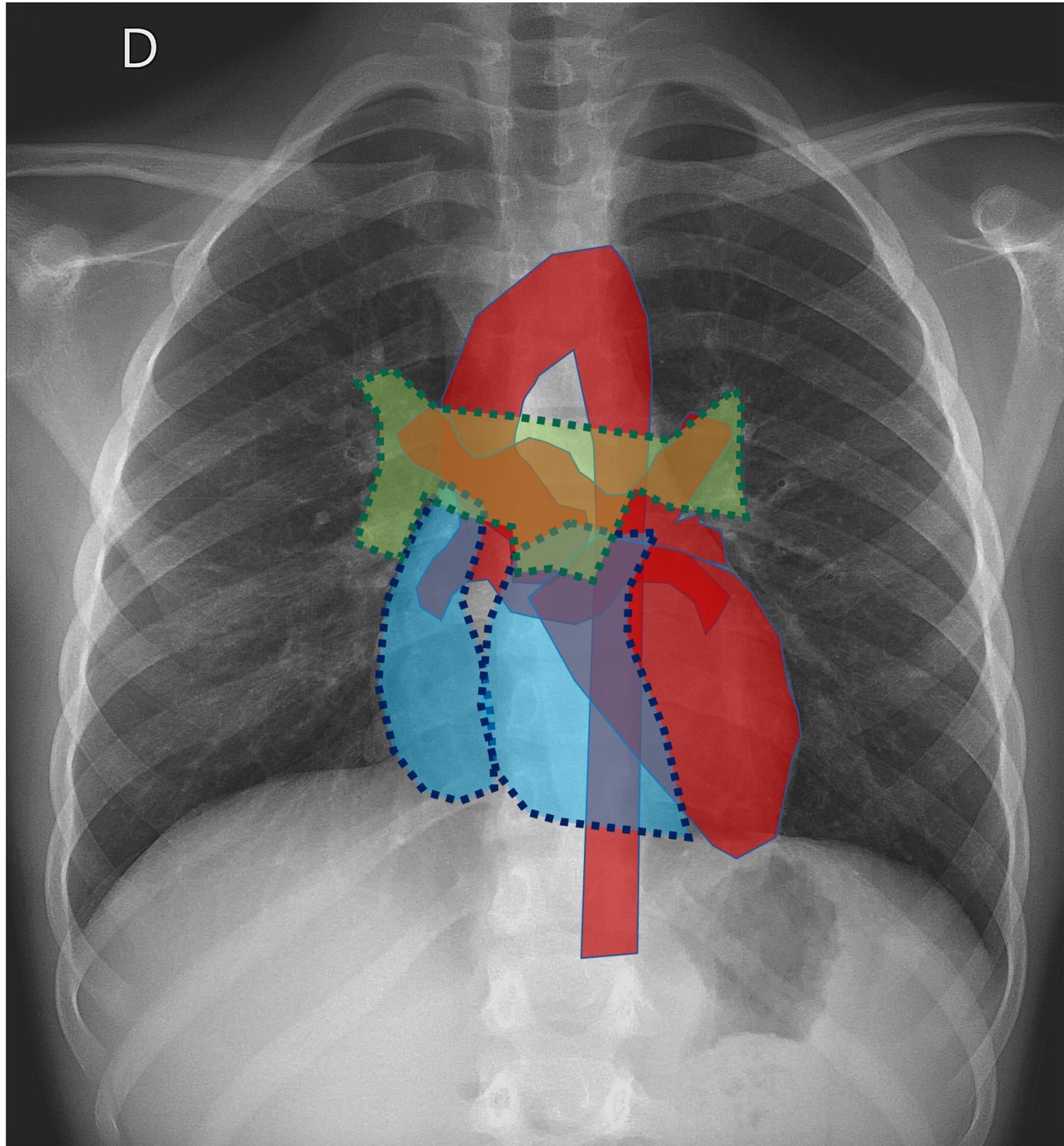
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

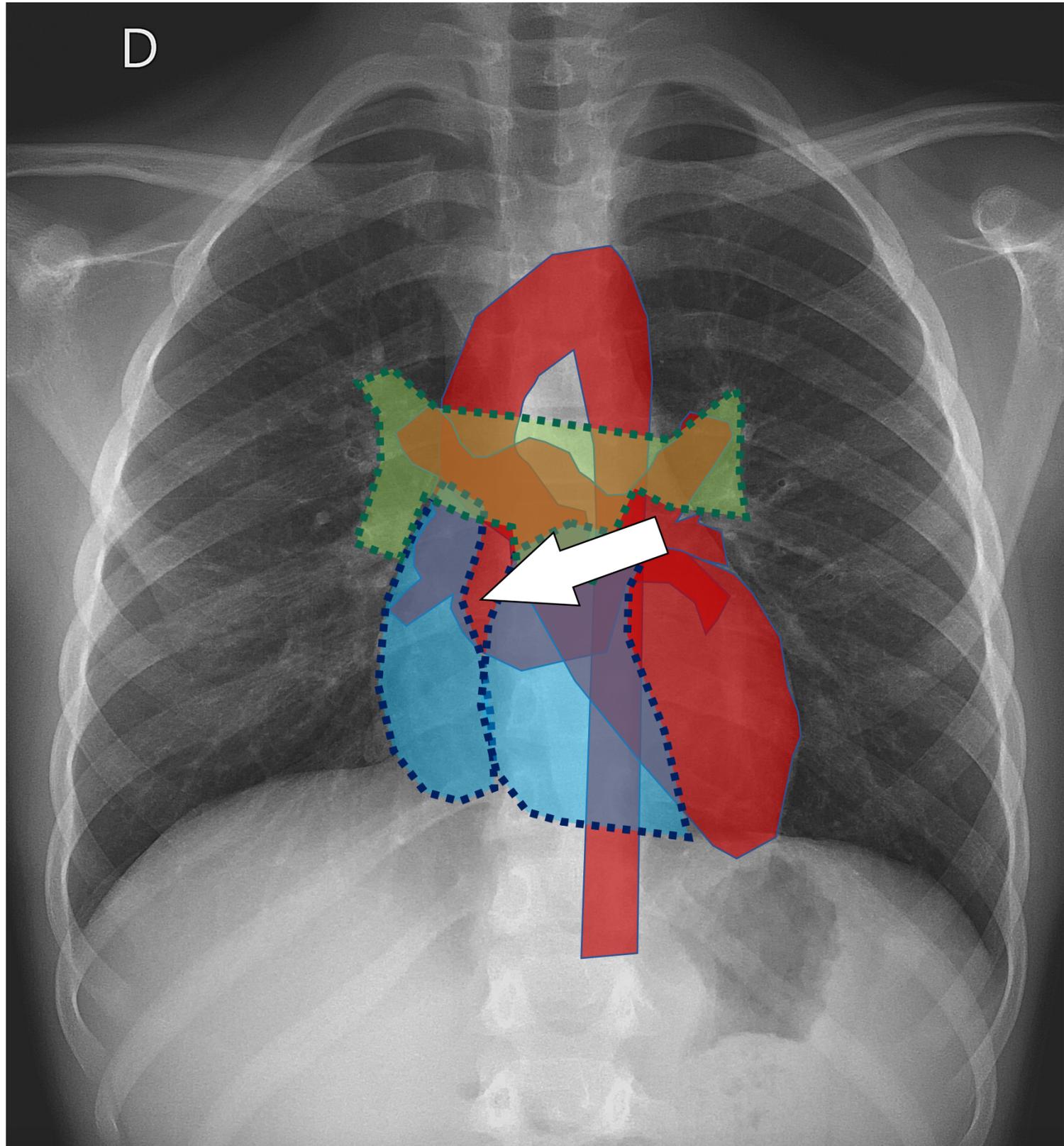
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Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

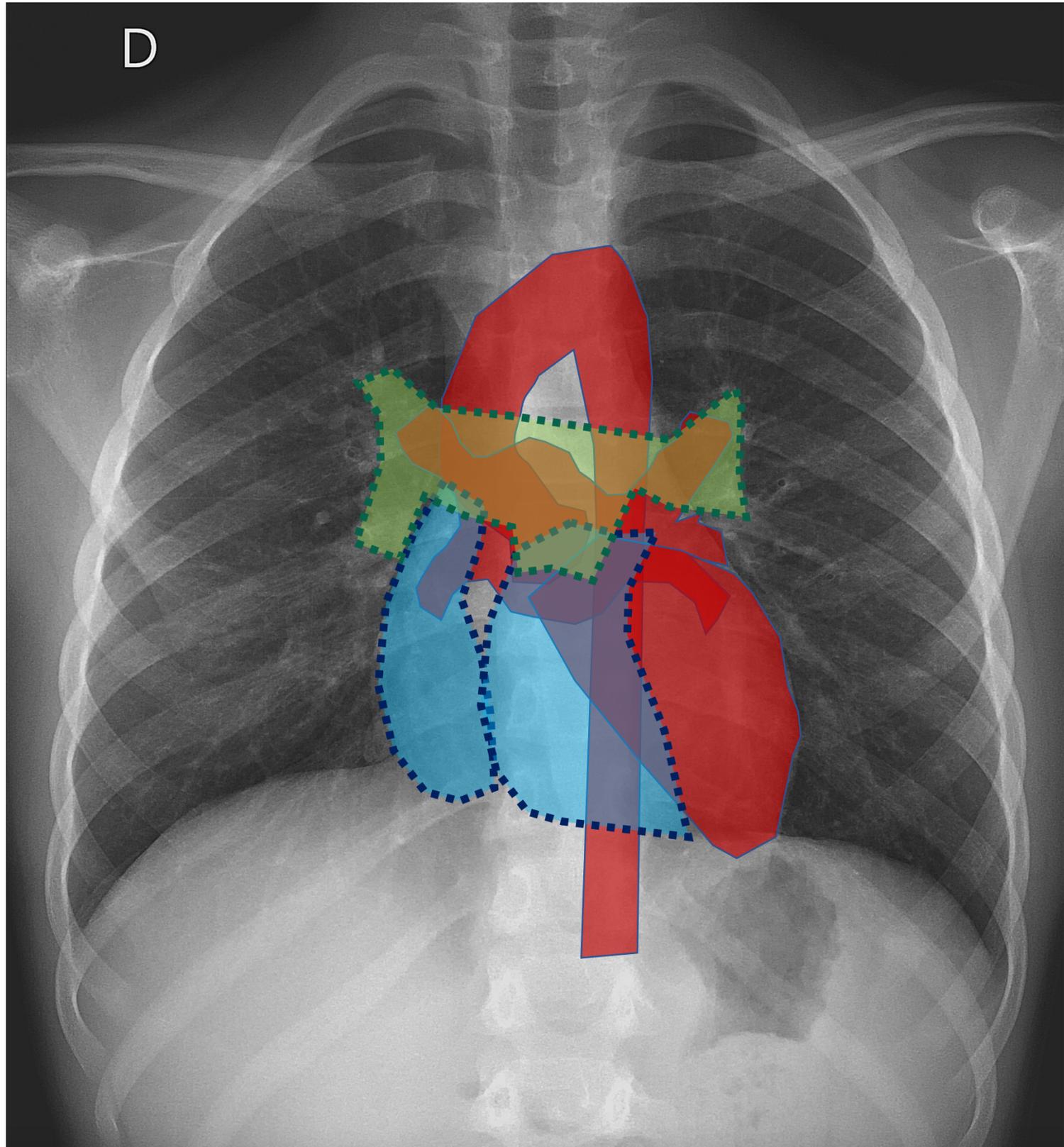
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

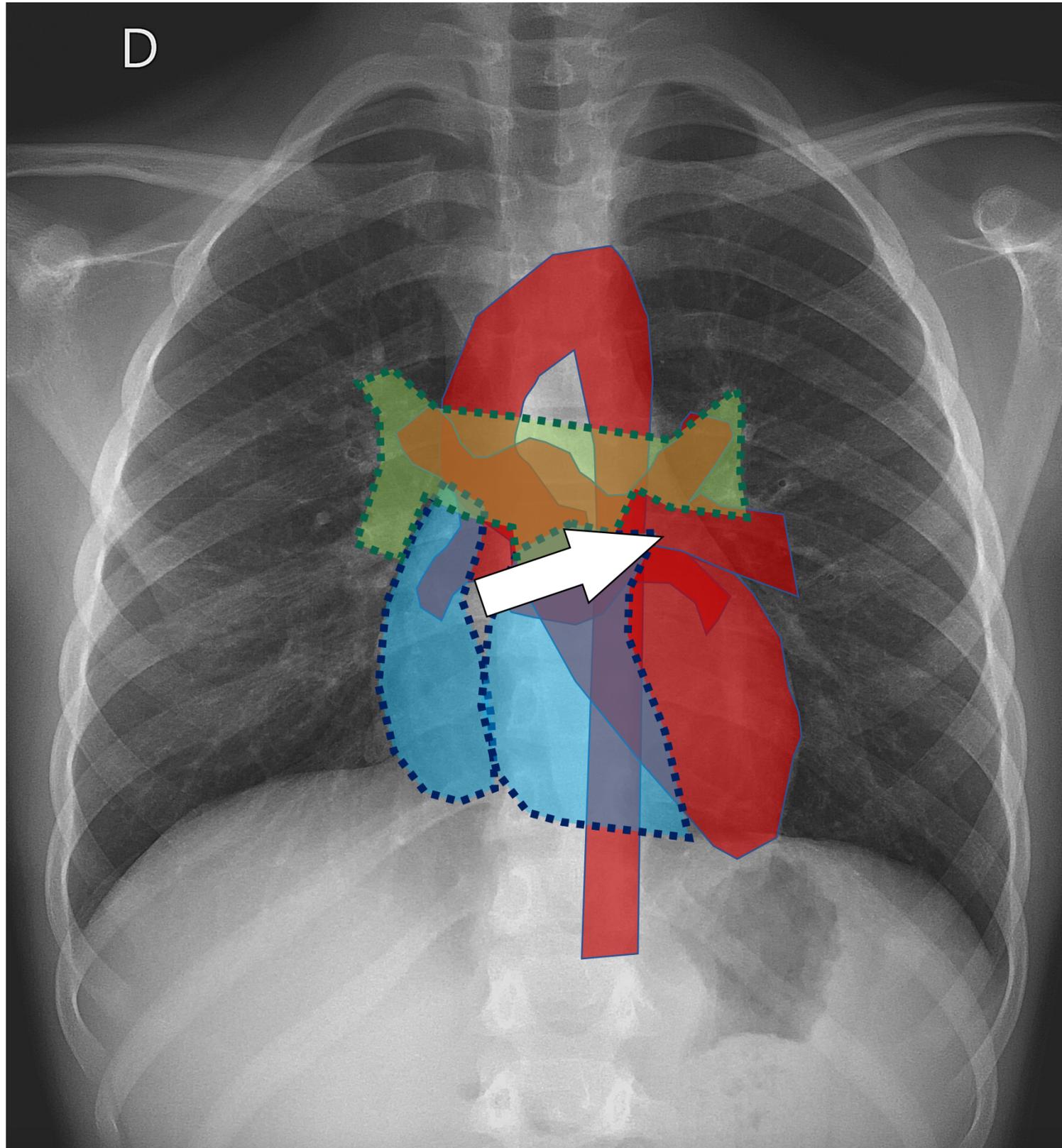
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Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

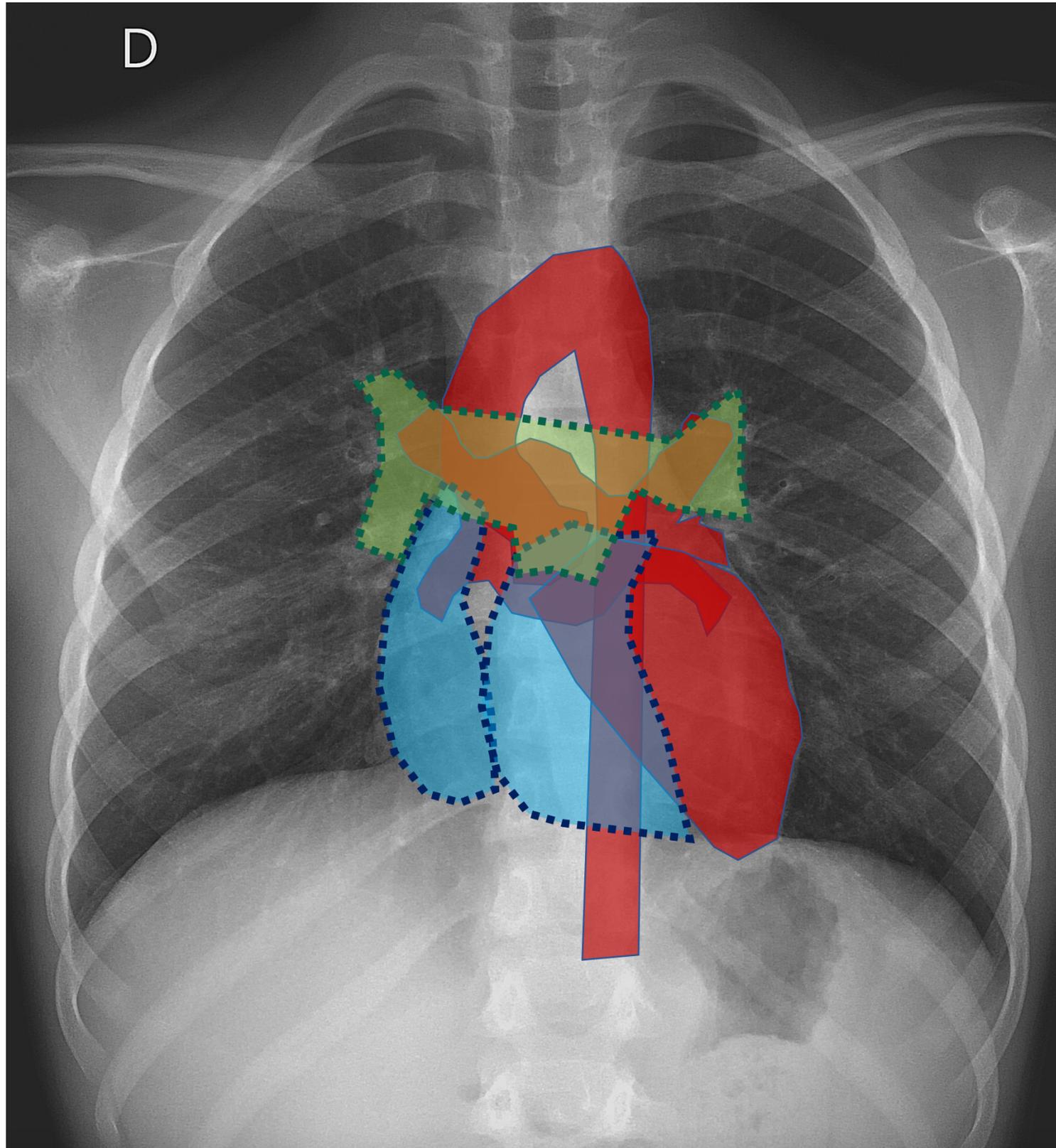
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

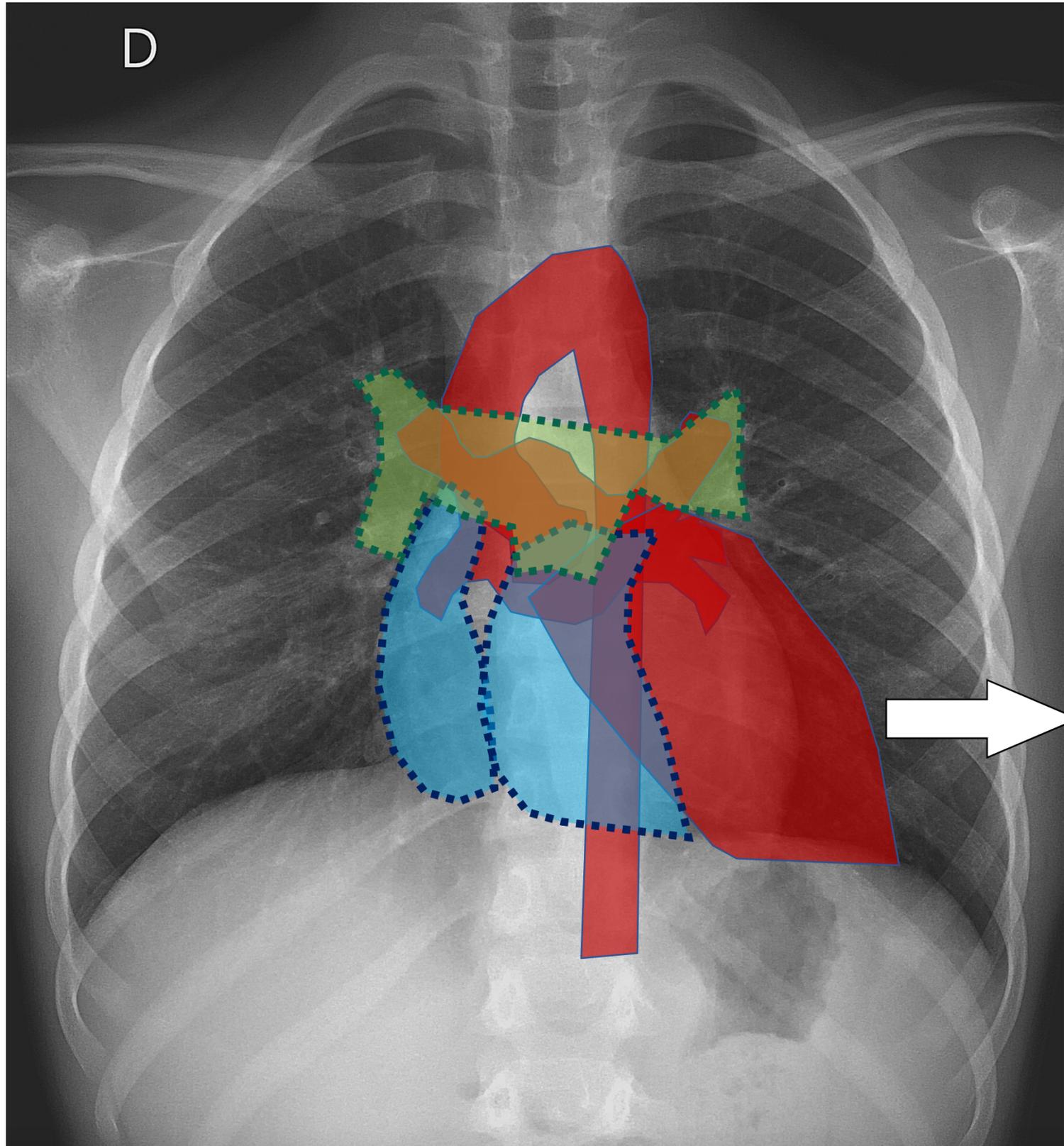
Átrio direito

Ventrículo direito

Átrio esquerdo

Ventrículo esquerdo

Coração



Aumento de cada uma das estruturas

Átrio direito

Ventrículo direito

Átrio esquerdo

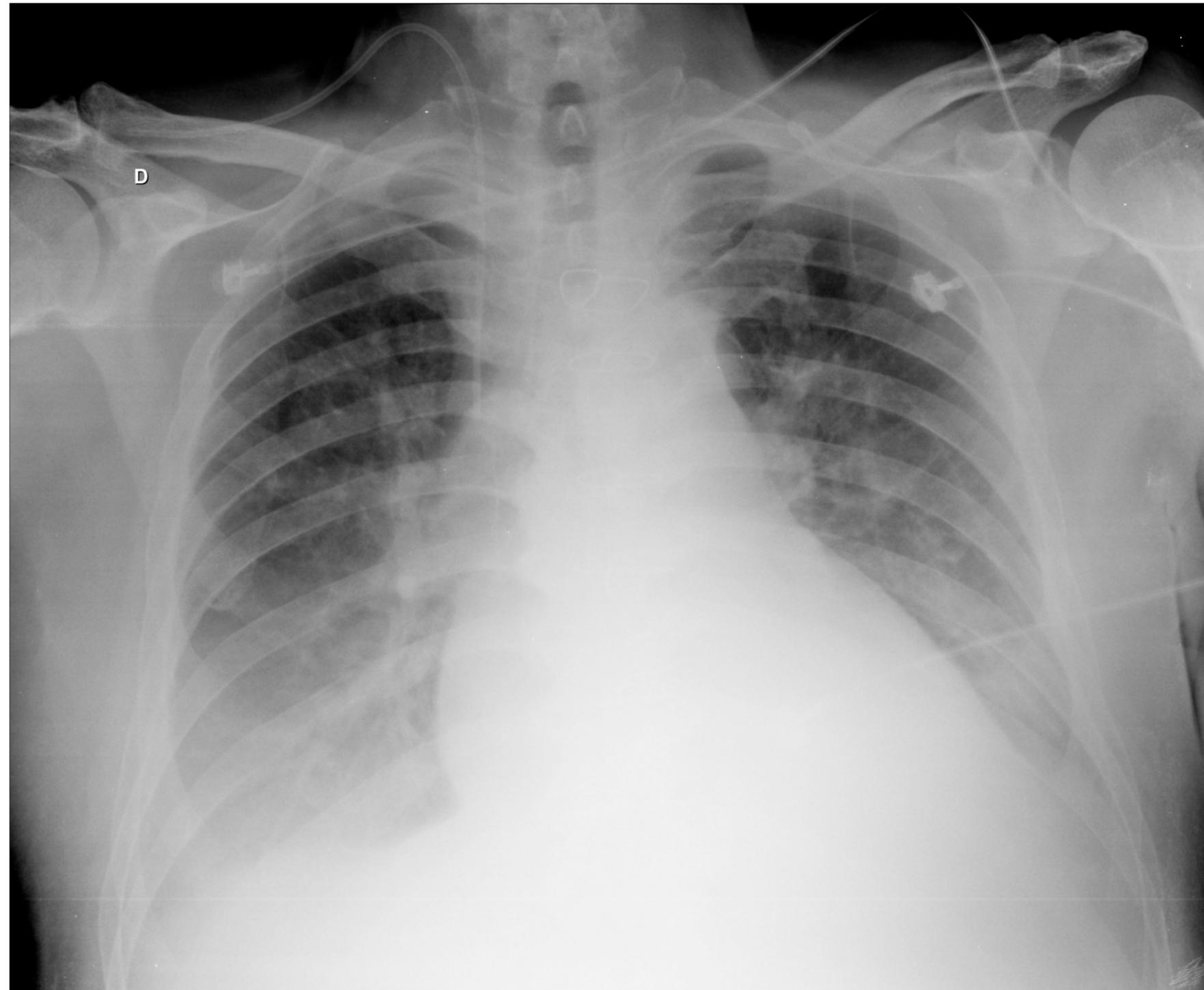
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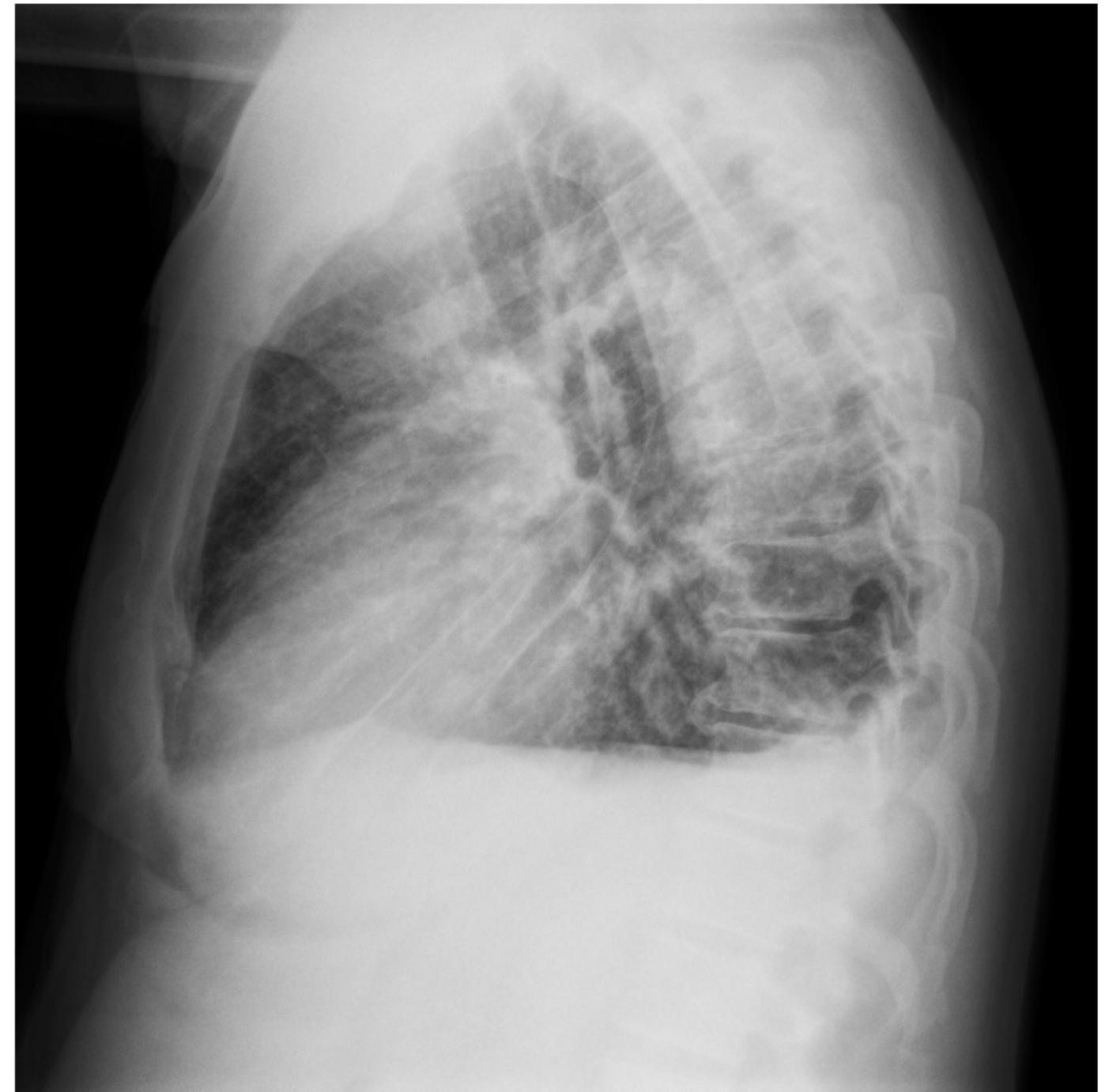
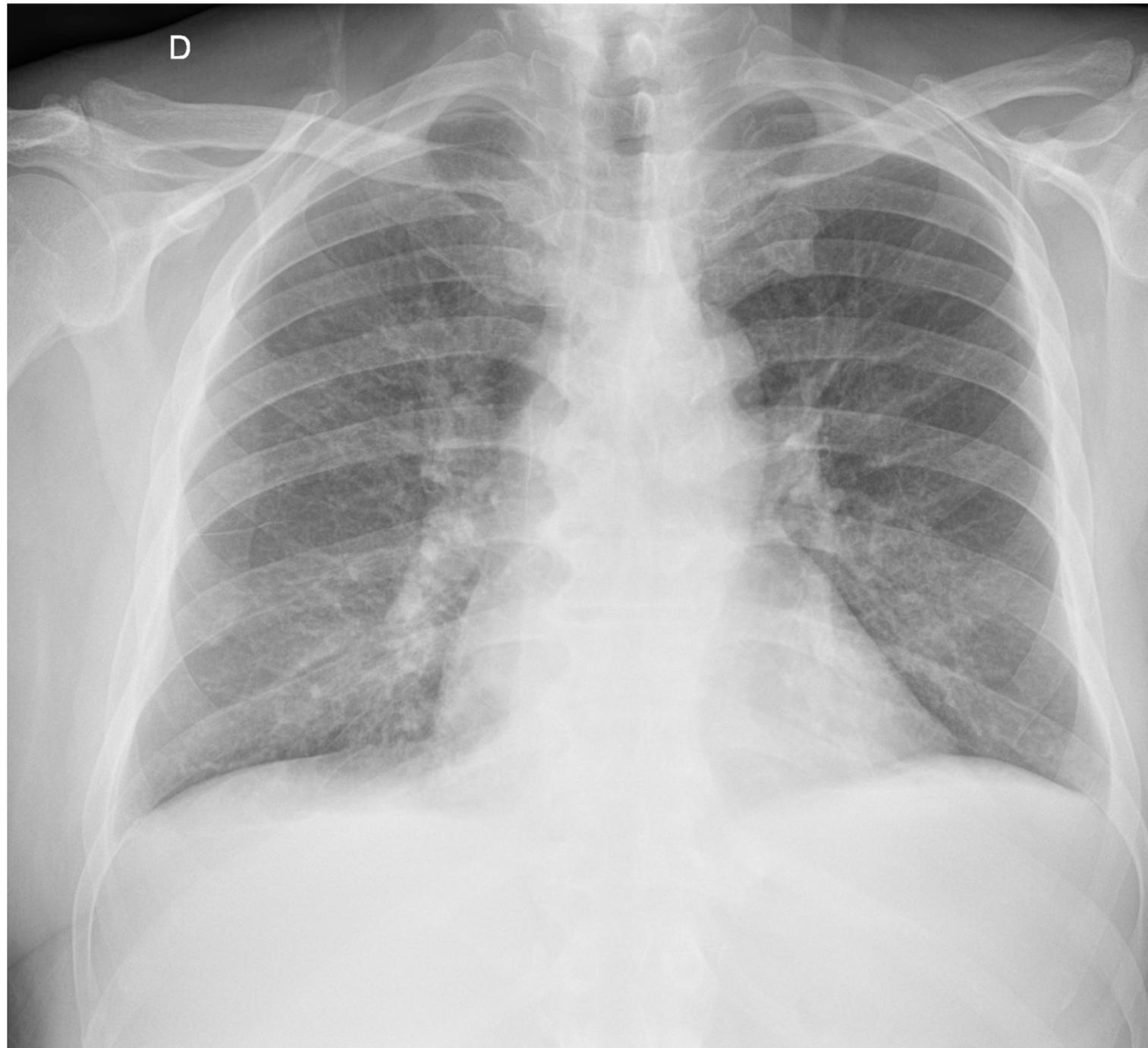
Casos



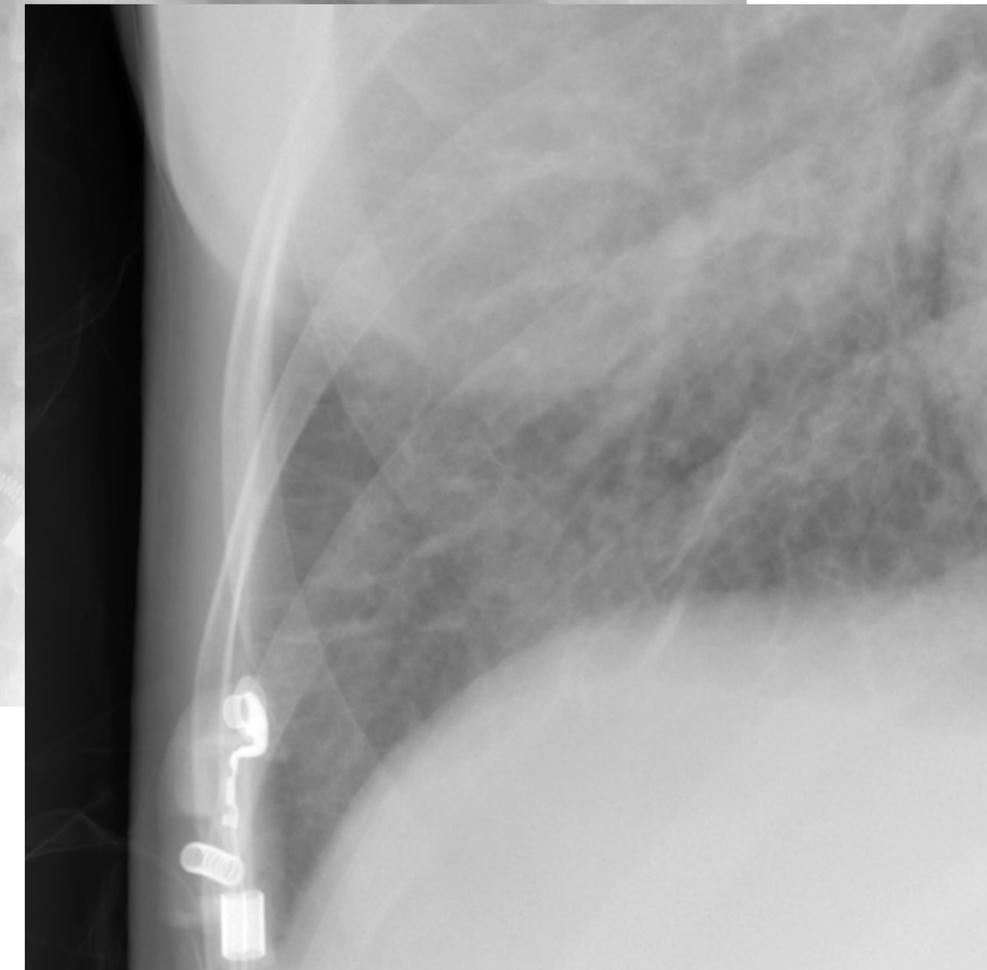
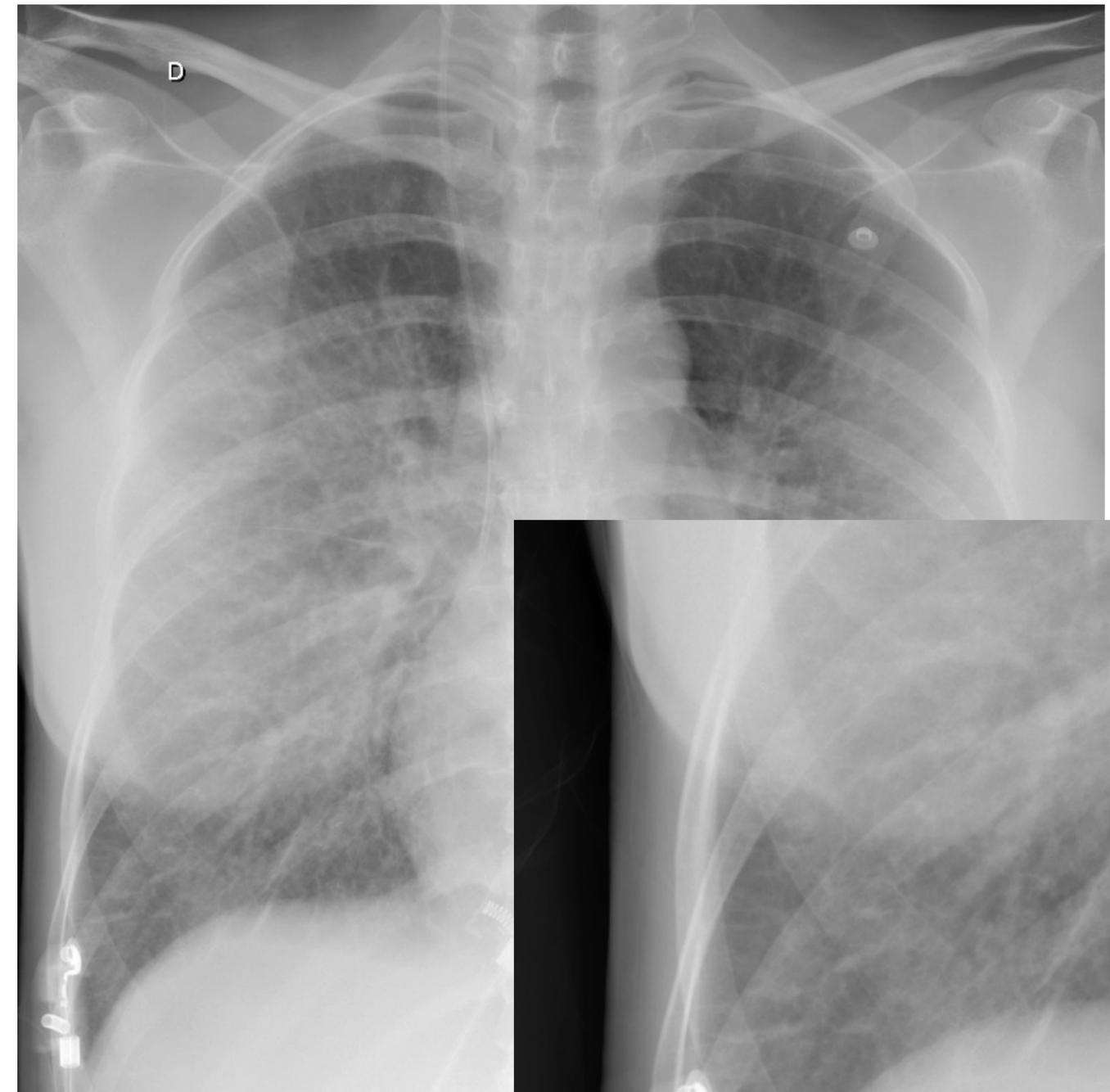
Edema pulmonar (insuficiência cardíaca descompensada)



Edema pulmonar inicial

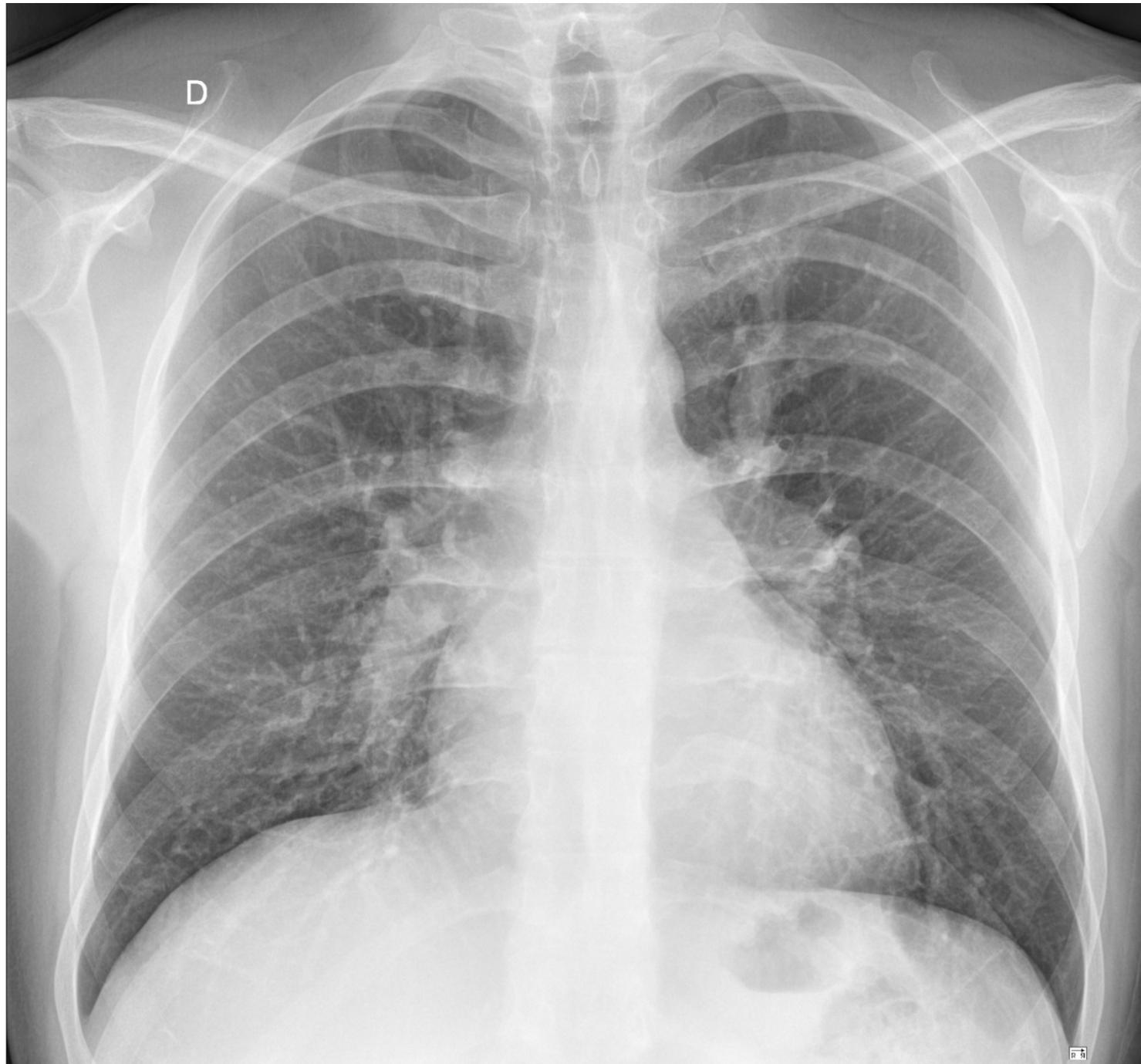


Edema pulmonar inicial



**Fem, 35a, esclerose sistêmica
(próteses mamárias)
Dispneia e tosse após TMO**

Hipertensão pulmonar

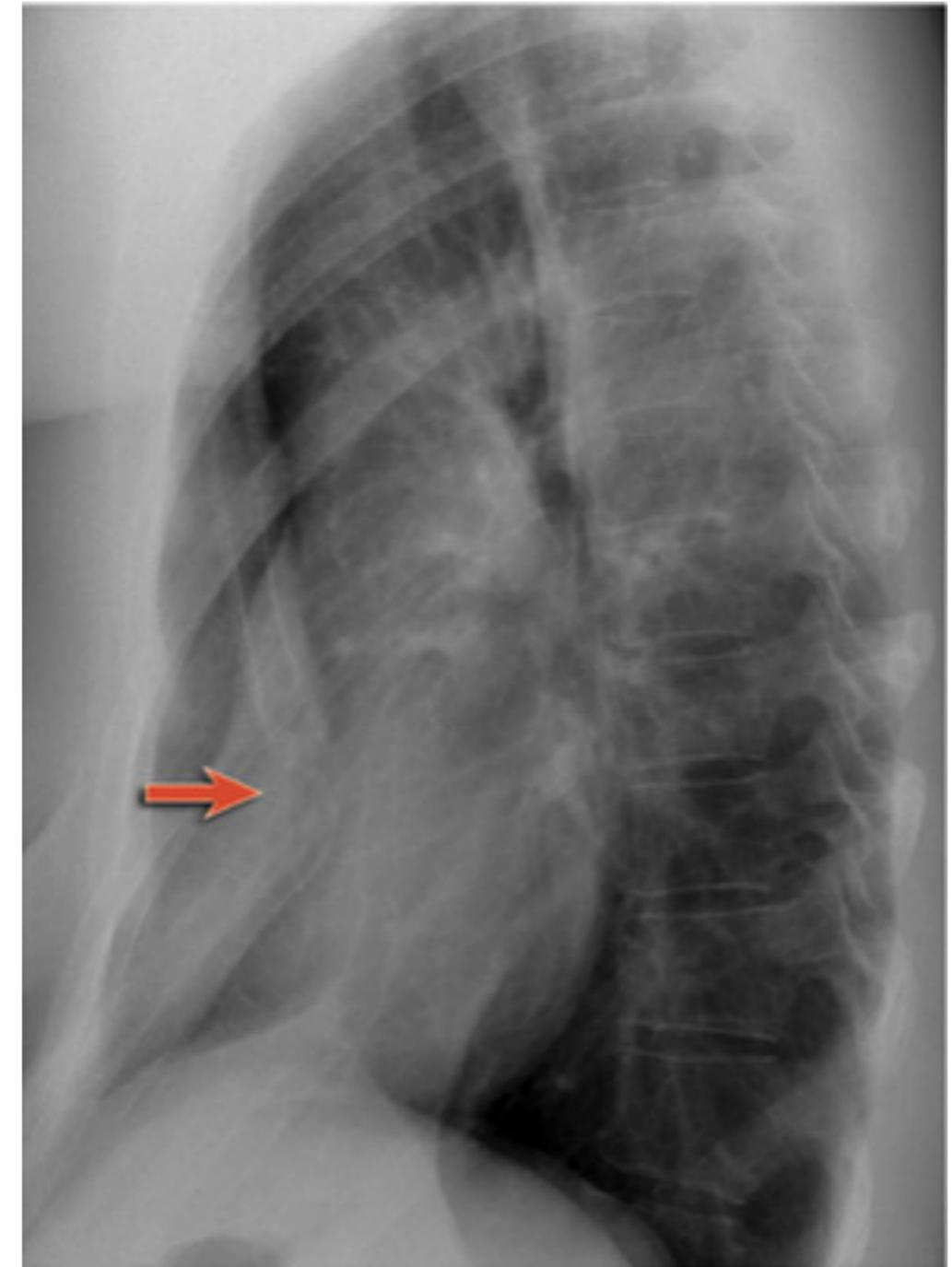
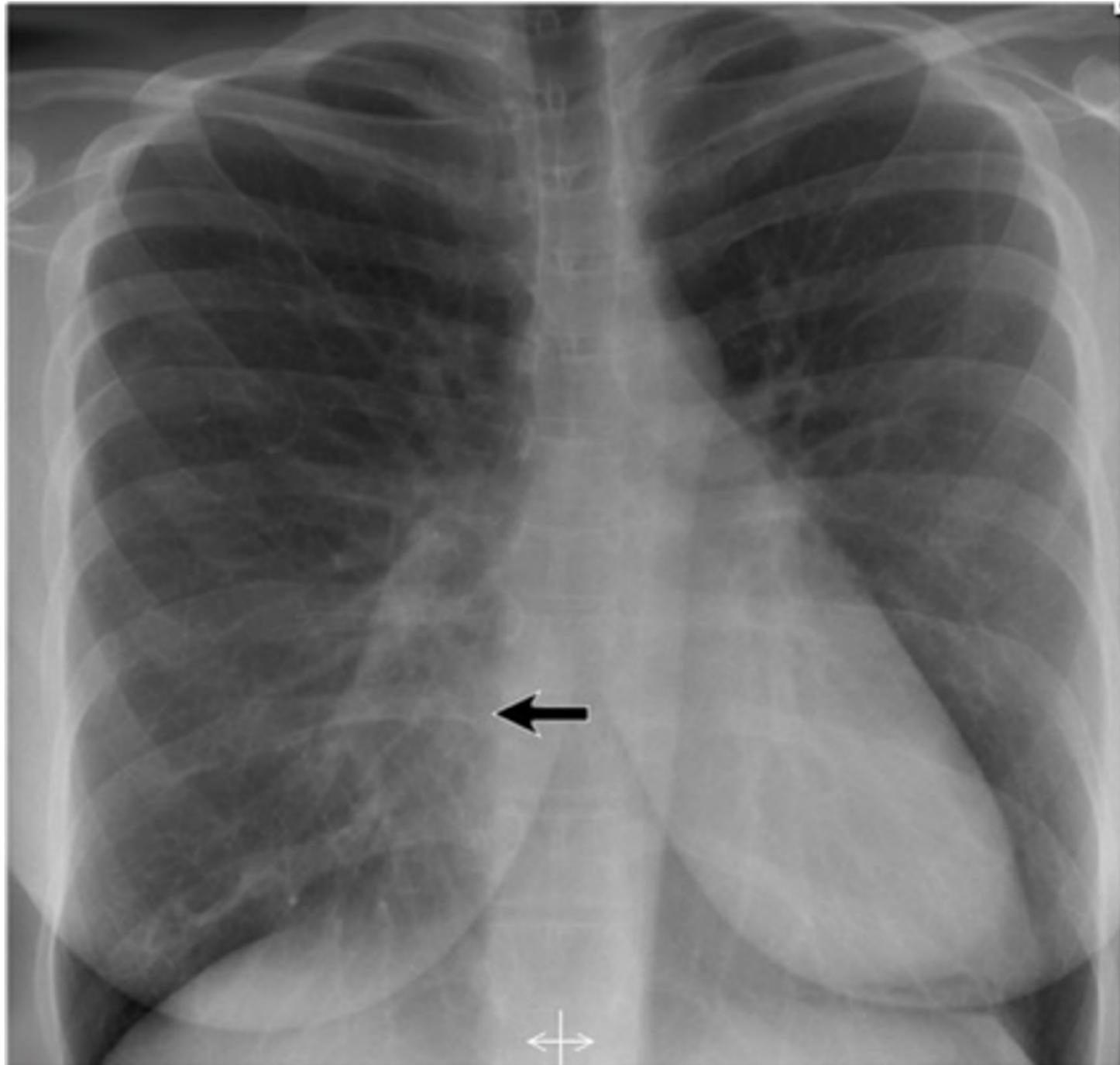


Derrame pericárdico

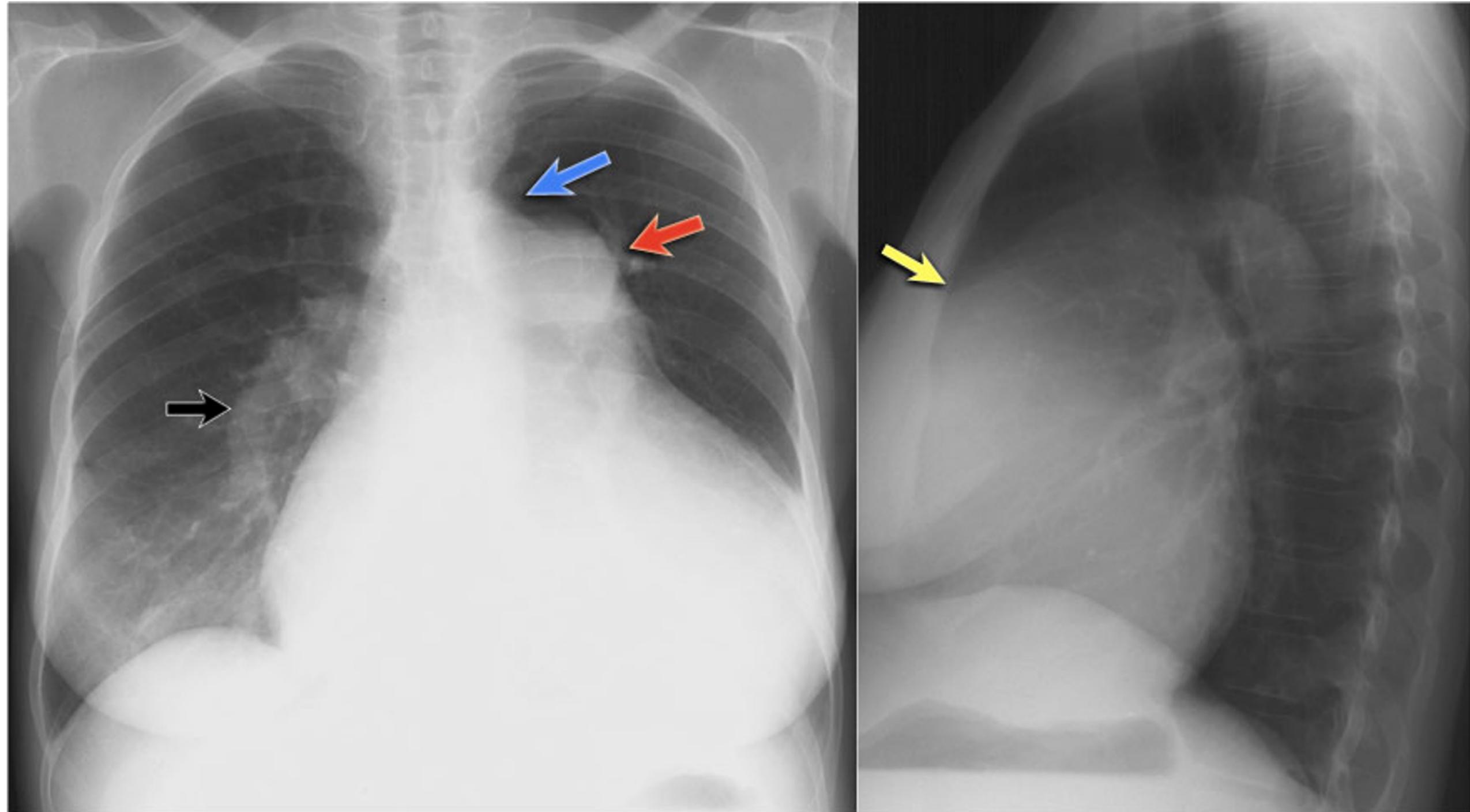




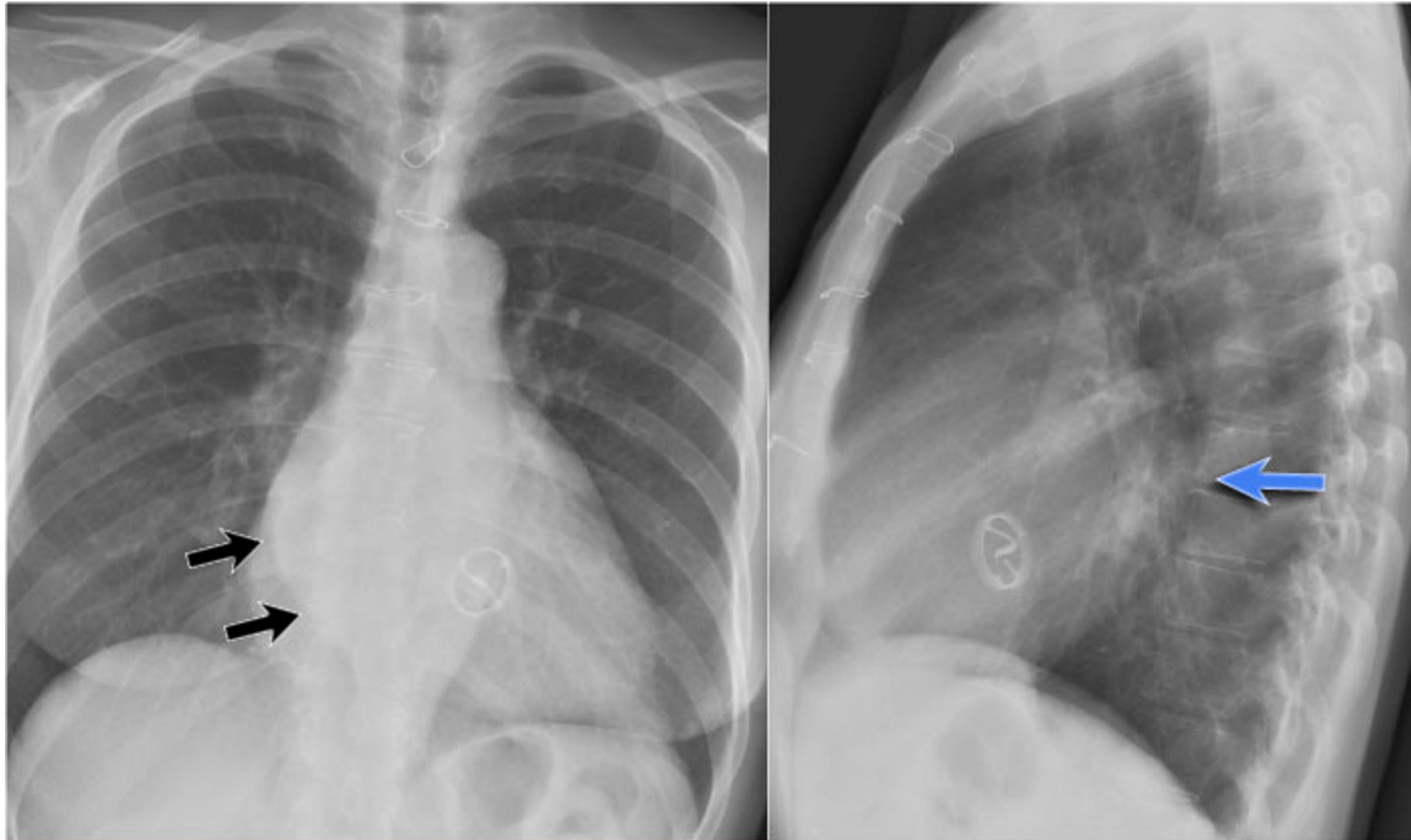
Pectus excavatum



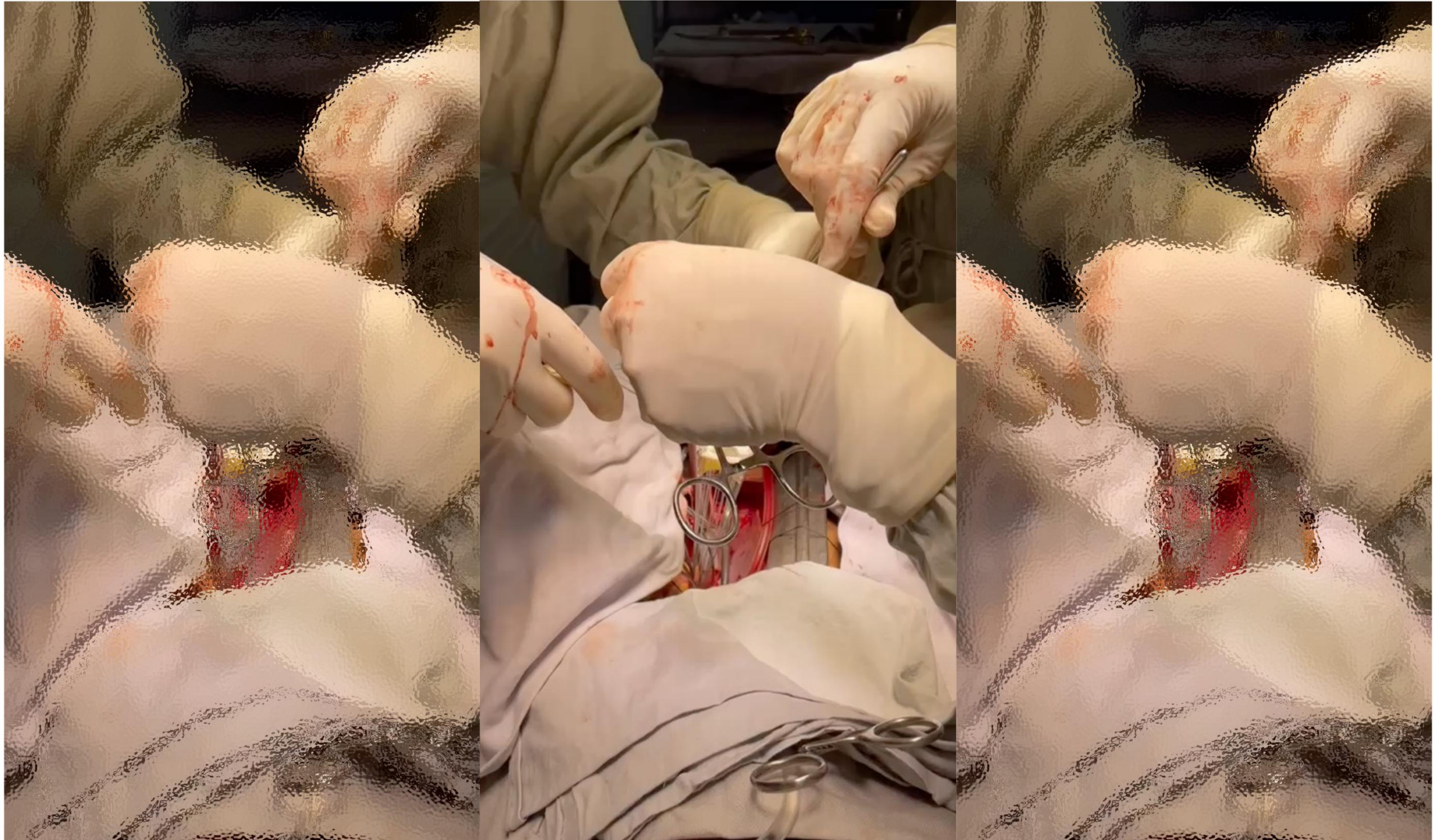
Hipertensão pulmonar grave



Aumento do átrio esquerdo



Valvas cardíacas

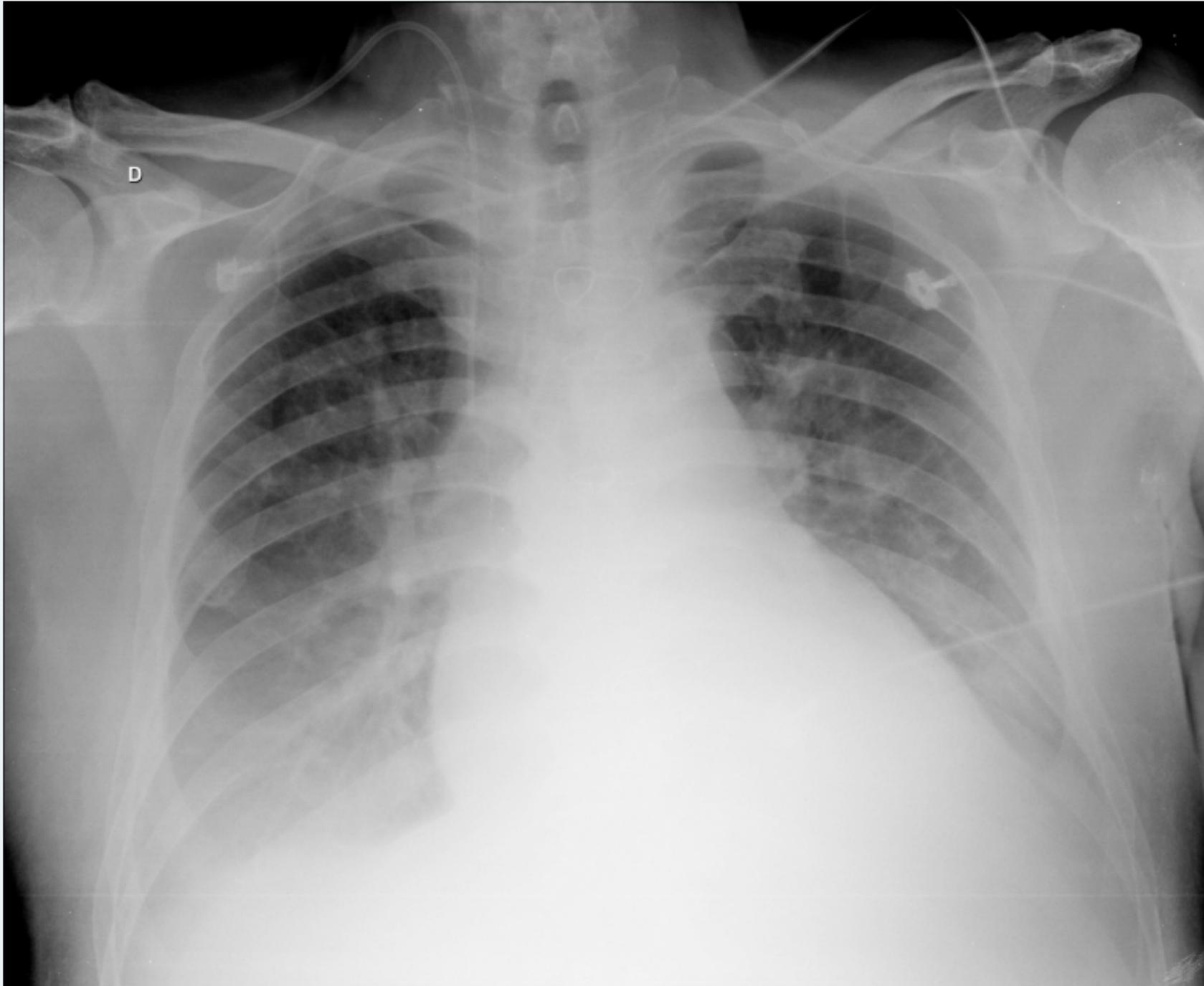




Questionário 3

Questão 1

Com base na radiografia abaixo, qual a principal suspeita para o paciente?



Derrame pericárdico

Tuberculose

Edema pulmonar por insuficiência cardíaca. Num quadro de início súbito, pode ser um caso de infarto do miocárdio.

Pneumonia bilateral

Tumor pleural bilateral



Questão 2

São sinais radiológicos de aumento do átrio esquerdo, **EXCETO**:

Horizontalização do brônquio fonte esquerdo

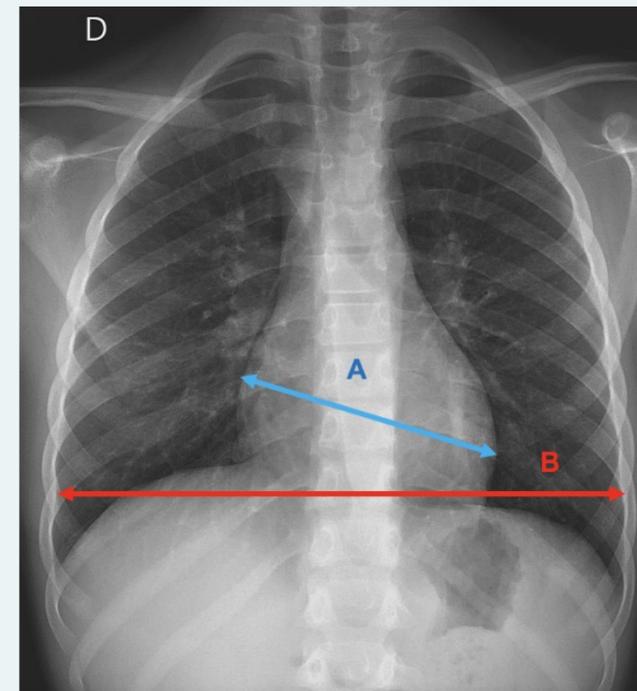
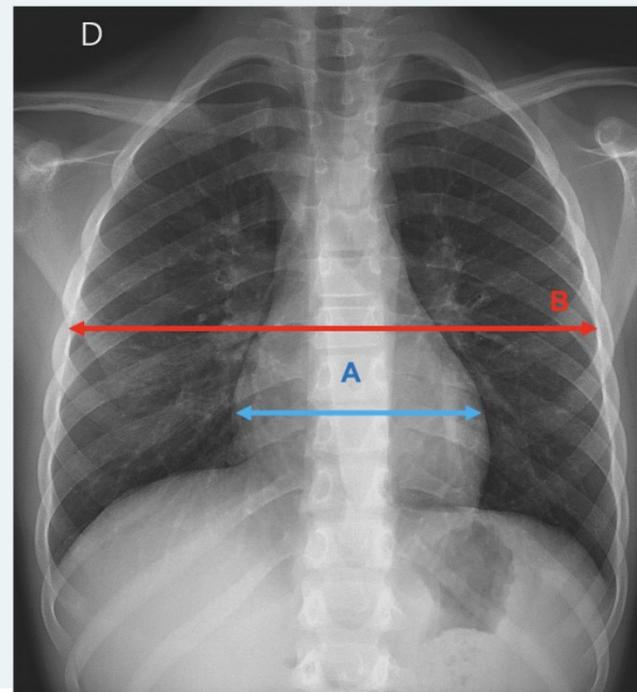
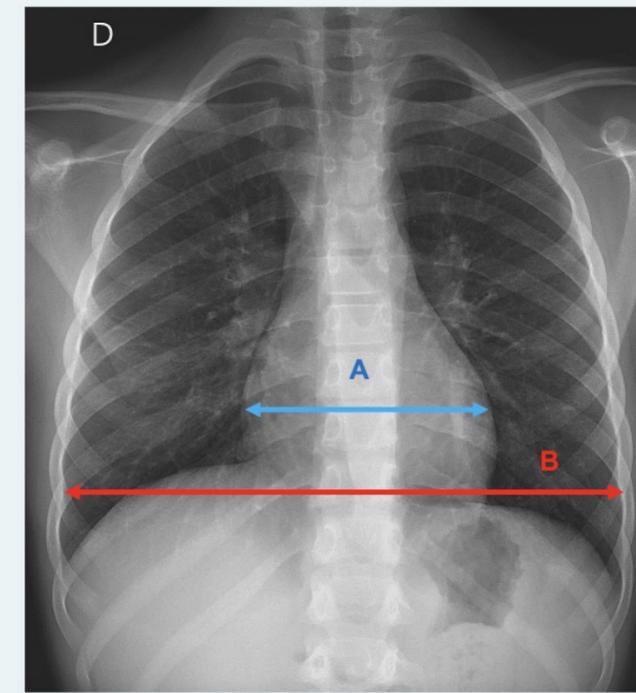
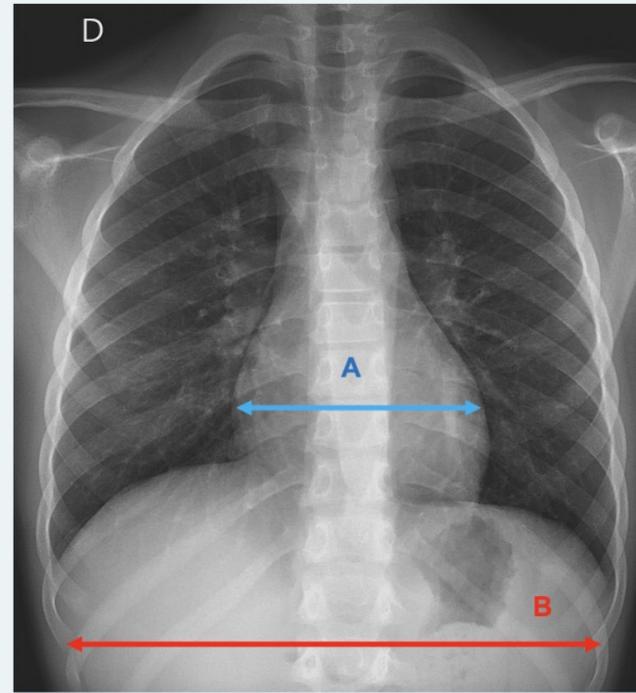
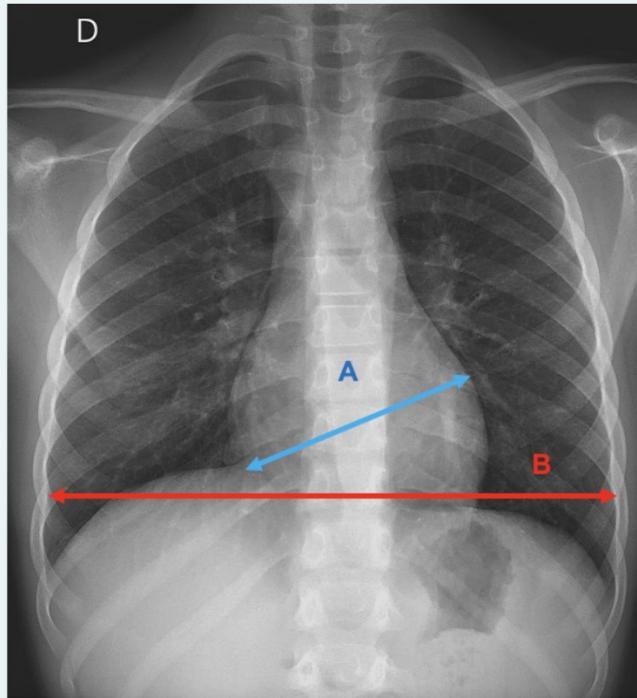
Aumento da área cardíaca à direita

Proeminência do arco do apêndice atrial esquerdo

Aumento do contorno posterior do coração

Duplo contorno cardíaco à direita

Questão 3





Referências para estudo



Medicina (Ribeirão Preto)

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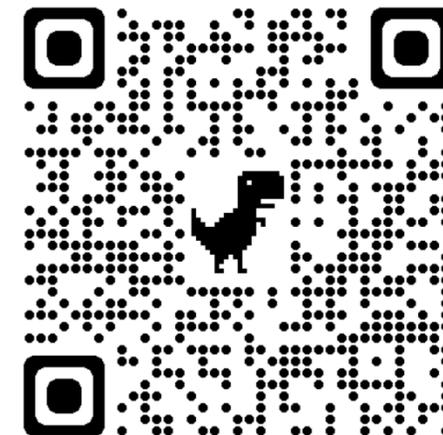
[Início](#) / [Arquivos](#) / v. 52 n. supl1. (2019): Suplemento Temático: A radiografia simples do tórax

v. 52 n. supl1. (2019): Suplemento Temático: A radiografia simples do tórax

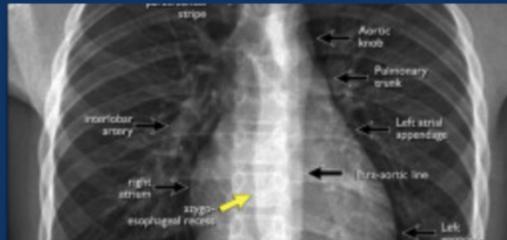
Neste Suplemento Temático os autores focaram na avaliação do RX de tórax, incluindo a parte técnica, a anatomia radiográfica, a importantíssima semiologia e terminologia radiológica, os sinais radiográficos e a identificação dos principais aparatos médicos no RX. Os textos estão organizados em forma de estudo dirigido, com exercícios ao final e as respostas disponíveis em texto complementar.

Publicado: 2019-10-15

<https://www.revistas.usp.br/rmrp/issue/view/11183>



Chest: Chest X-Ray Index



Chest X-Ray - Basic Interpretation

Robin Smithuis and Otto van Delden

Radiology Department of the Alrijne Hospital, Leiderdorp and the Academic Medical Centre, Amsterdam, the Netherlands

The chest x-ray is the most frequently requested radiologic examination. In fact every radiologist should be an expert in chest film reading. The interpretation of a chest film requires...



Chest X-Ray - Heart Failure

Simone Cremers, Jennifer Bradshaw and Freek Herfkens

Radiology department of the Albert Schweitzer Hospital in Dordrecht and the Medical Centre Alkmaar, the Netherlands, the Netherlands

In this article we will discuss the radiographic signs of congestive heart failure on the chest X-ray.



Chest X-Ray - Lung disease

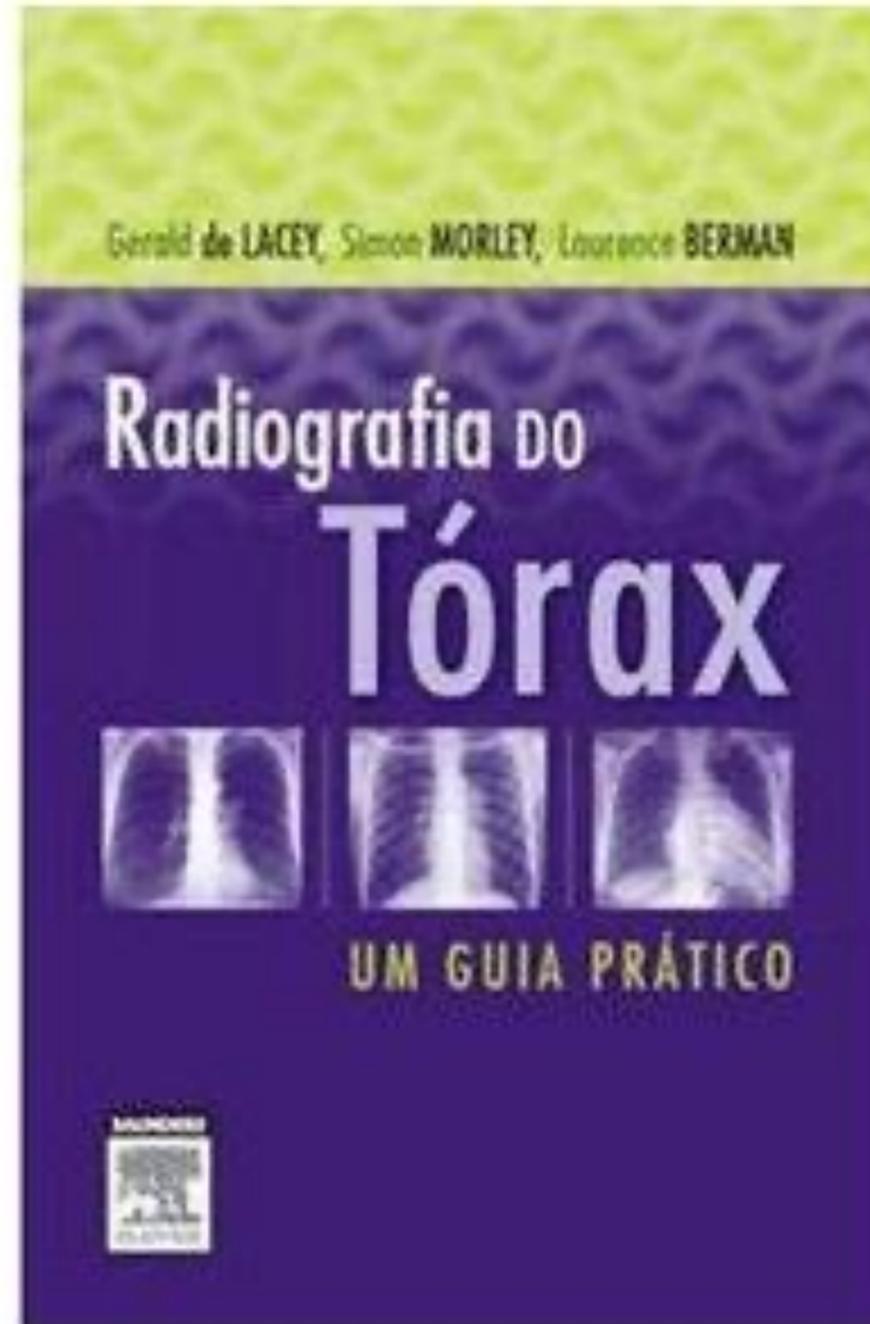
Robin Smithuis

Radiology Department of the Rijnland Hospital, Leiderdorp, the Netherlands

On a chest x-ray lung abnormalities will either present as areas of increased density or as areas of decreased density. Lung abnormalities with an increased density - also called opacities...

<https://radiologyassistant.nl/chest/chest-x-ray>







dwada@hcrp.usp.br