

SEGMENTATION PULMONAIRE et GITES GANGLIONNAIRES DU MEDIASTIN

A. OLIVER ACC

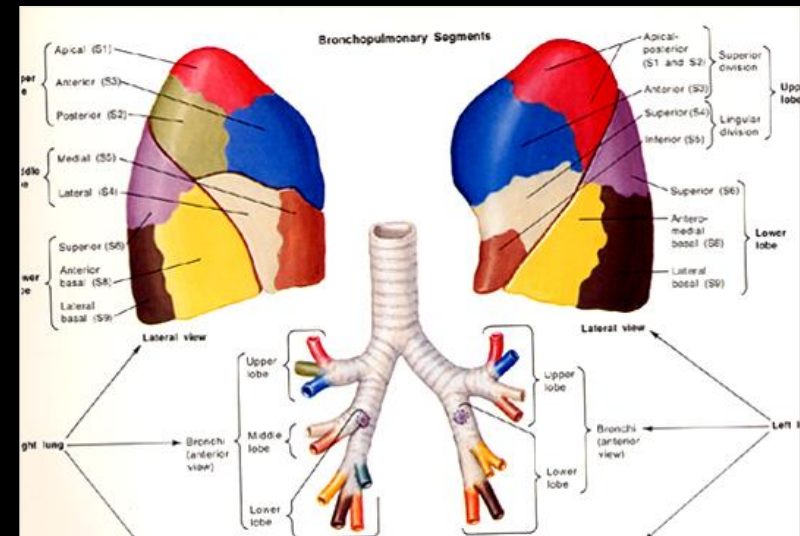
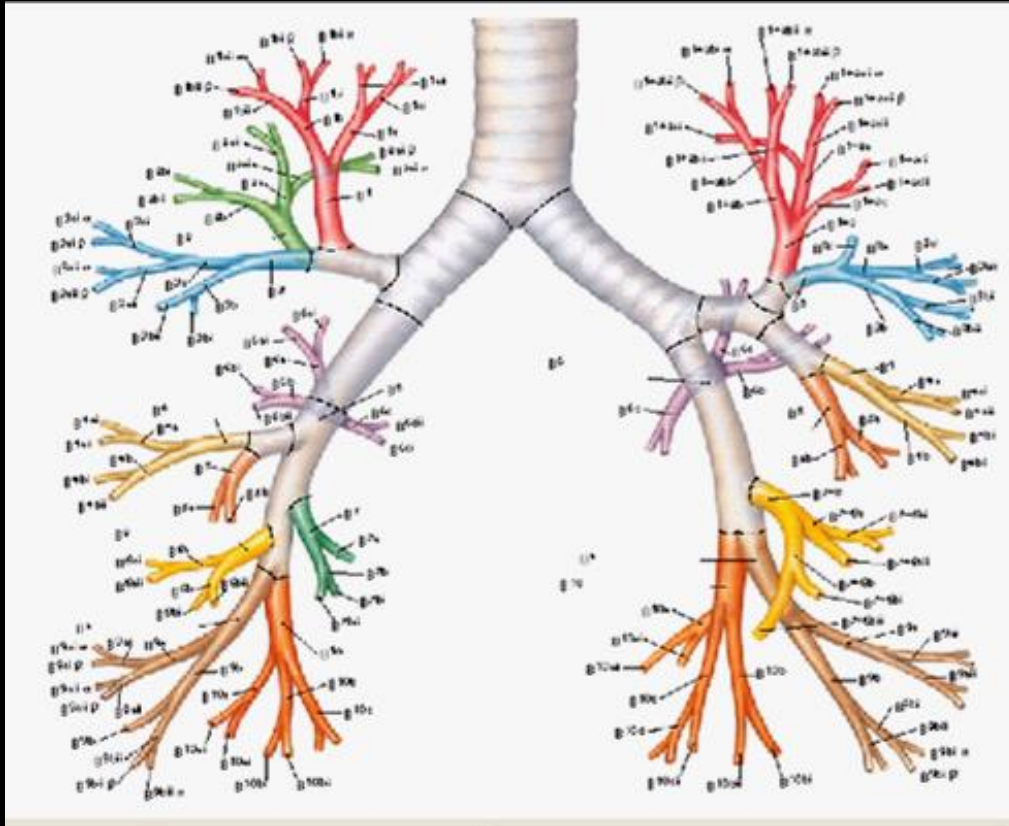


Plan

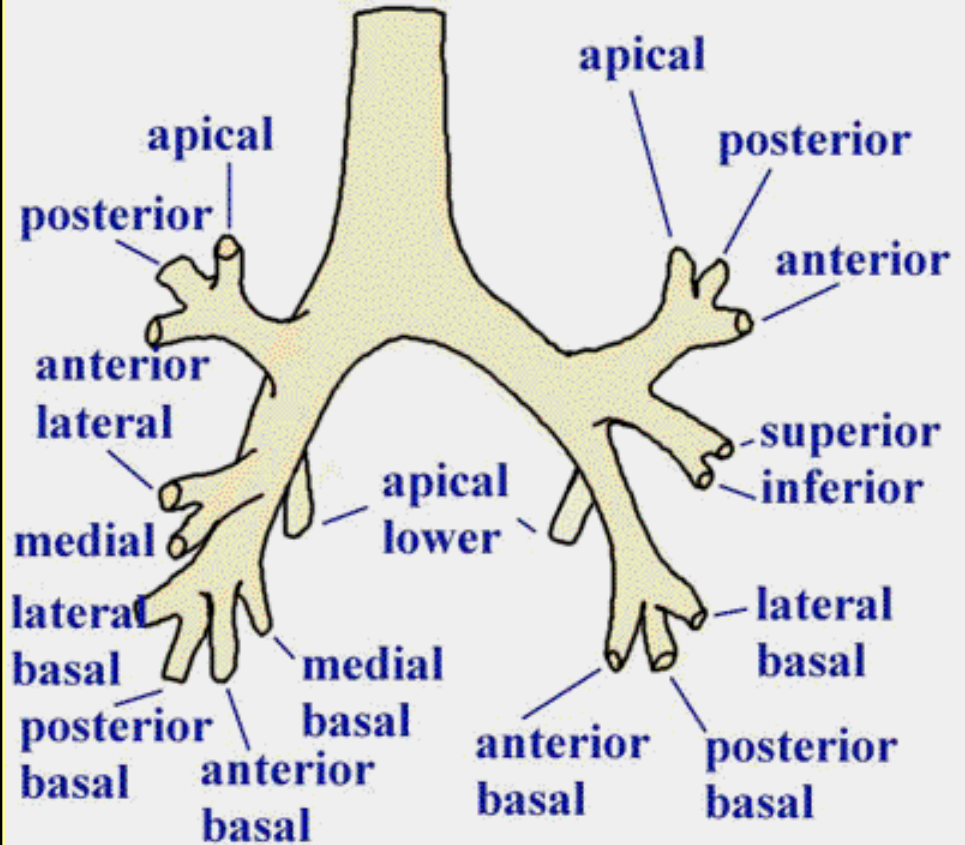
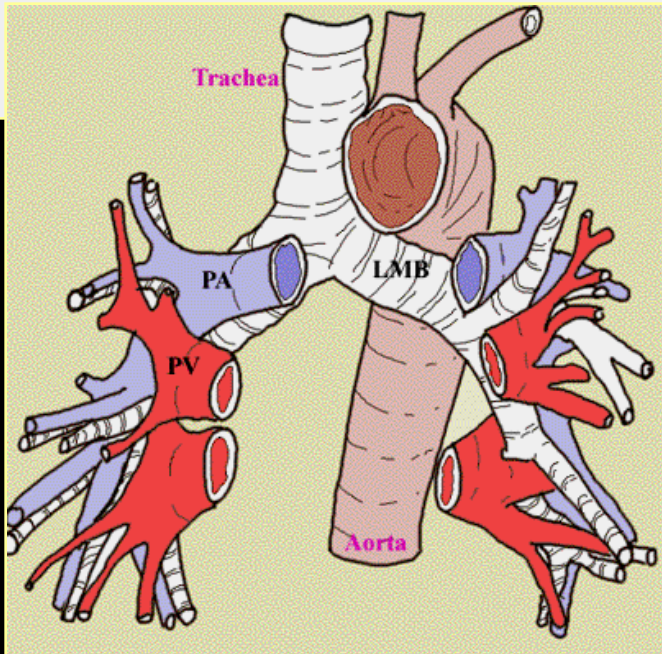
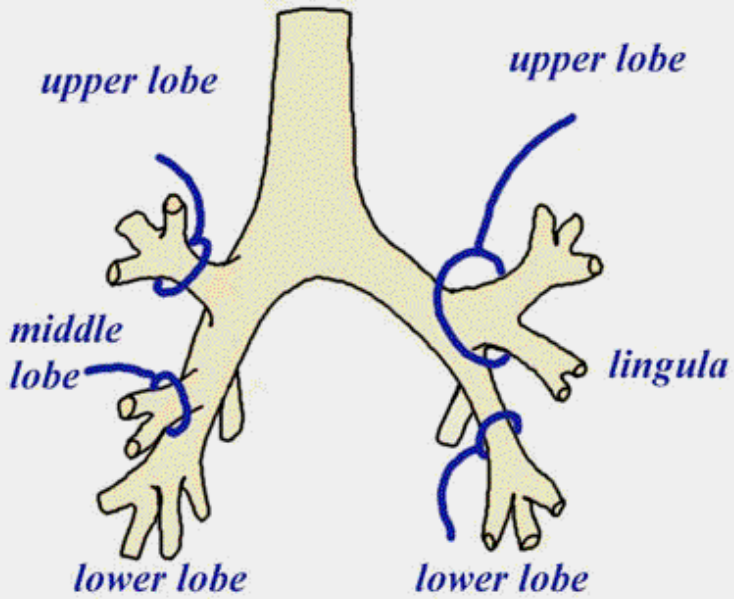
1/ SEGMENTATION PULMONAIRE

2/ ANATOMIE DES GITES GANGLIONNAIRES DU MEDIASTIN

Radioanatomie pulmonaire et des bronches



Systeme bronchique



Radioanatomie pulmonaire et des bronches

Poumon droit

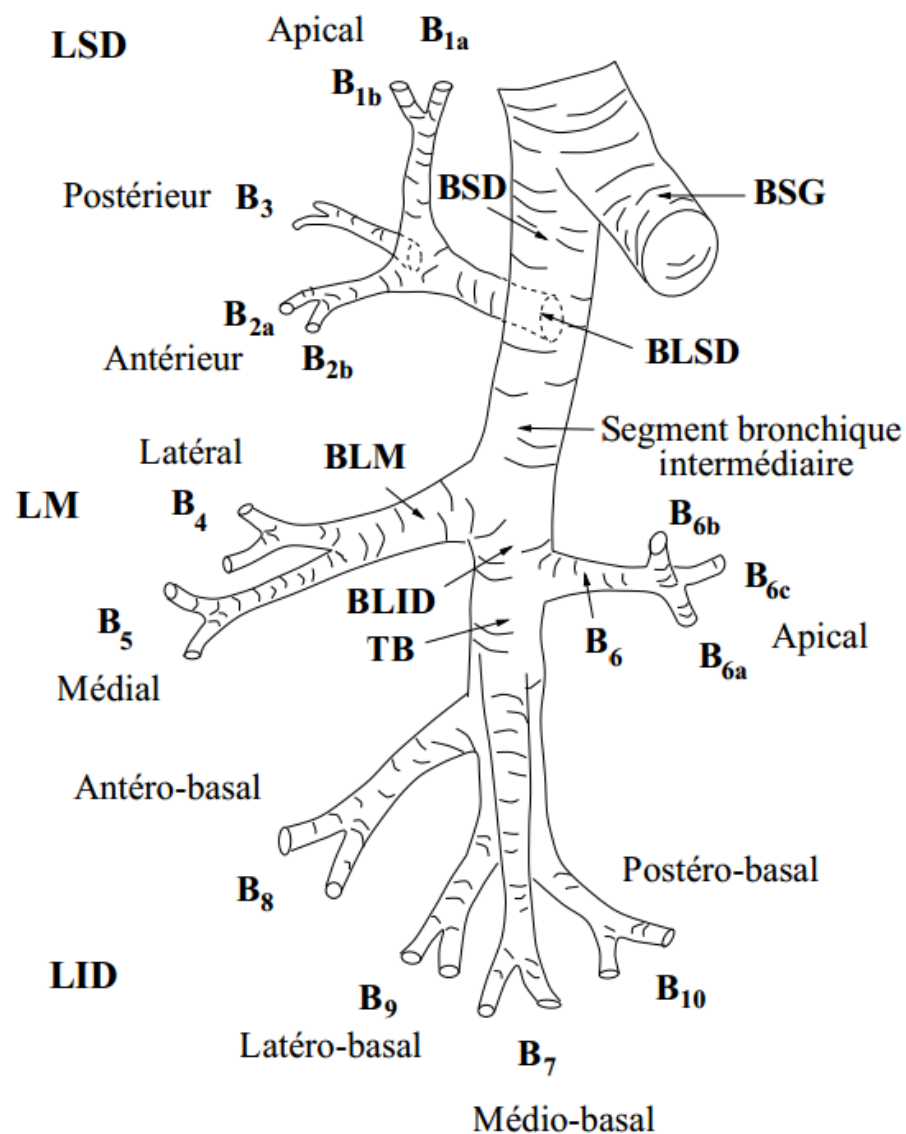
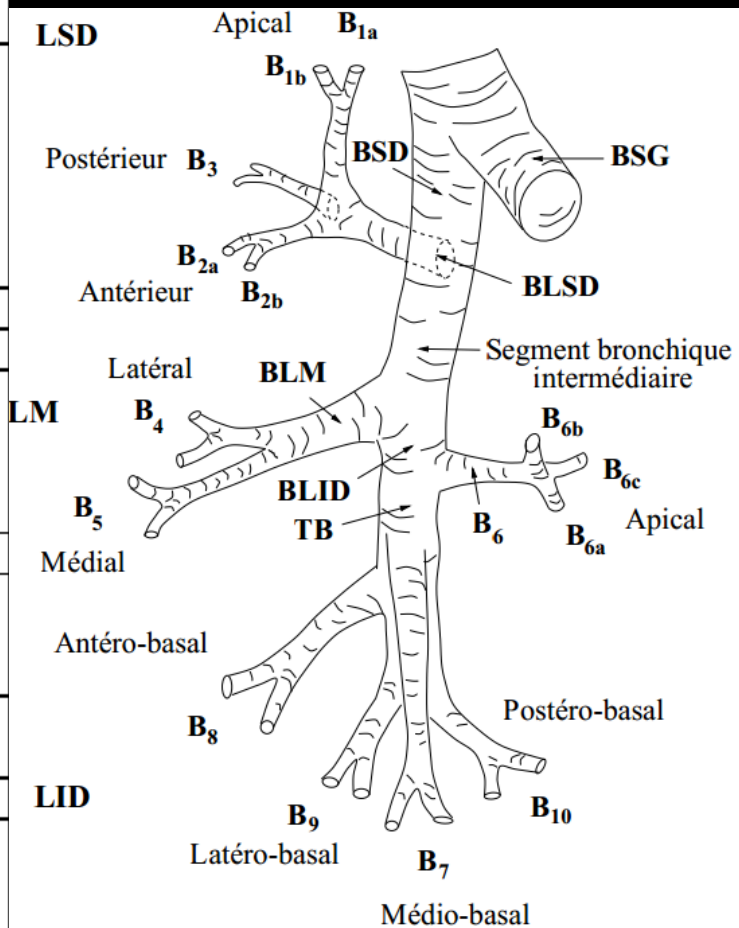


Figure 2.2 : Représentation schématique de la division droite de l'arbre bronchique (BSD) en projection oblique, dont les bronches lobaires sont notées BLSD, BLM, BLID et les bronches segmentaires B₁-B₁₀. LSD - lobe supérieur droit, LM - lobe moyen, LID - lobe inférieur droit. A partir de [Naidich99].

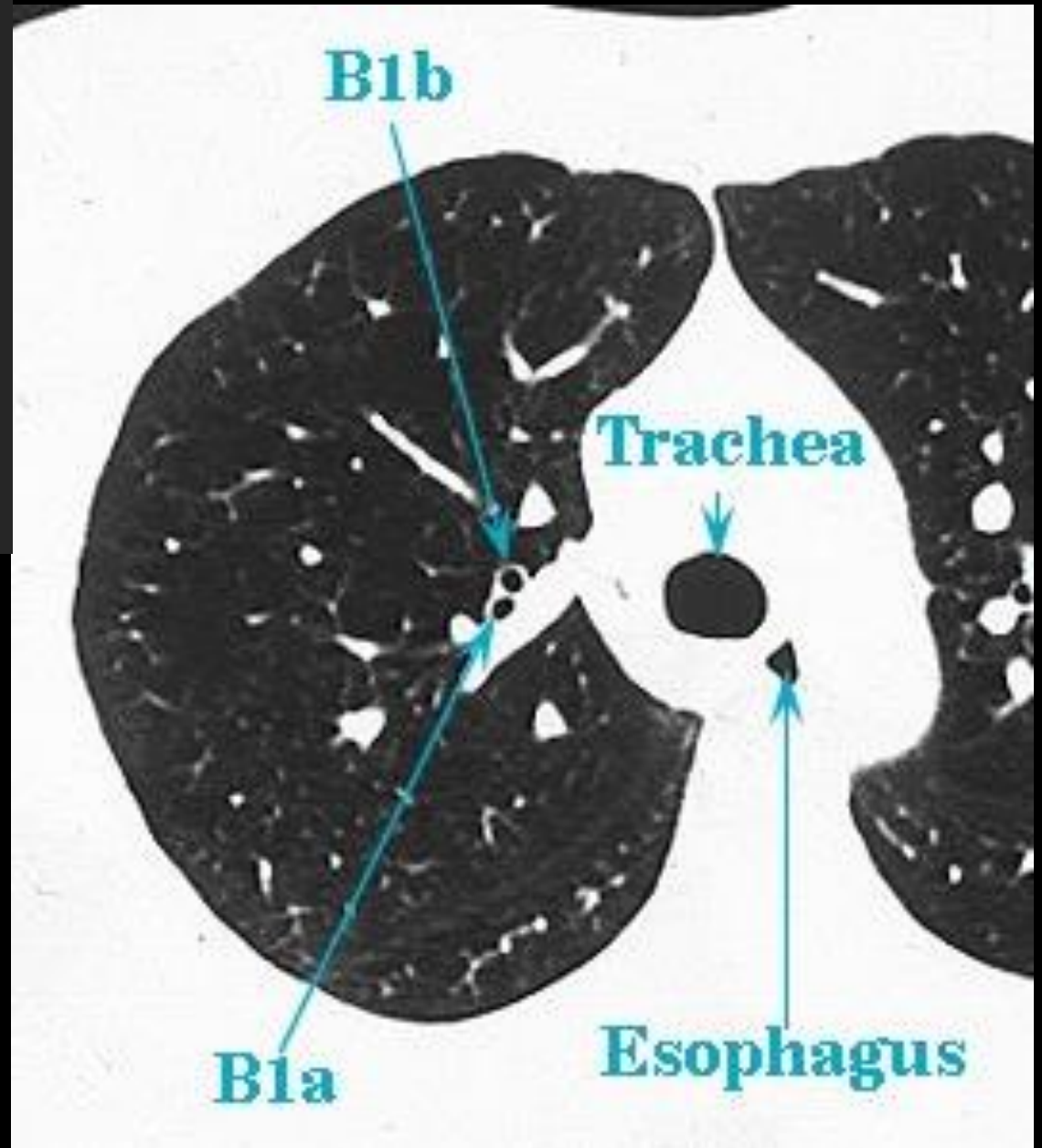
Segments bronchiques	Sous-segments	Versions usuelles / commentaires
<i>Lobe supérieur droit (BLSD)</i>		
B ₁ , apical	a, apical et/ou postérieur b, antérieur	Très répandu dans l'apex (35%)
B ₂ , antérieur	a, latéral b, antérieur	
B ₃ , postérieur	a, apical et postérieur b, postérieur et externe	
Axillaire		Sous-segment formé par B _{2a} et B _{3b} (ou les deux)
<i>Lobe moyen (BLM)</i>		
B ₄ , latéral	a, latéral b, médial	B ₄ et B ₅ de dimensions équivalentes (44%), B ₅ > B ₄ (27%).
B ₅ , médial	a, supérieur b, inférieur	Trifurcation (B _{4a} , B _{4b} , B _{5a+b}) (13%)
<i>Lobe inférieur droit (BLID)</i>		
B ₆ , apical	a, médial b, supérieur c, latéral	Bifurcation (B _{6c} , B _{6a+b}) (60%)
B*, sous-supérieur		Variable, apparaît postérieurement entre B ₆ et B ₇ (30%)
Tronc des basales (TB)		Segment situé entre B ₆ et B ₇
B ₇ , médio-basal	a, antérieur b, médial ou postérieur	B _{7a+b} , situé dans la partie antérieure et se dirigeant vers la veine pulmonaire
B ₈ , antéro-basal	a, latéral b, basal	inférieure droite (60%); Bifurcation (B ₈ , B ₉₋₁₀) (60%);
B ₉ , latéro-basal	a, latéral b, basal	Trifurcation (B ₈ , B ₉ , B ₁₀) (15%)
B ₁₀ , postéro-basal	a, postérieur b, latéral c, basal	



Par exemple:

Positionnement des bronches apicales sous segmentaires du segment B1 droit:

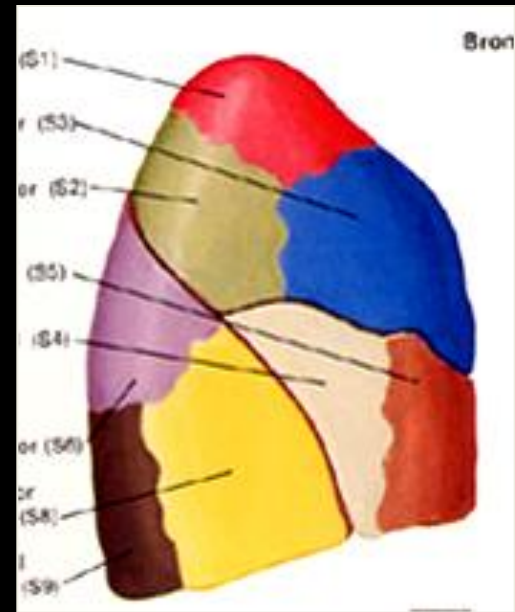
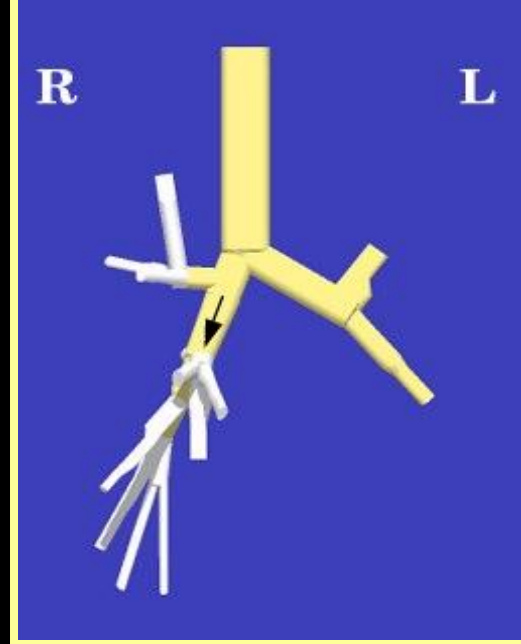
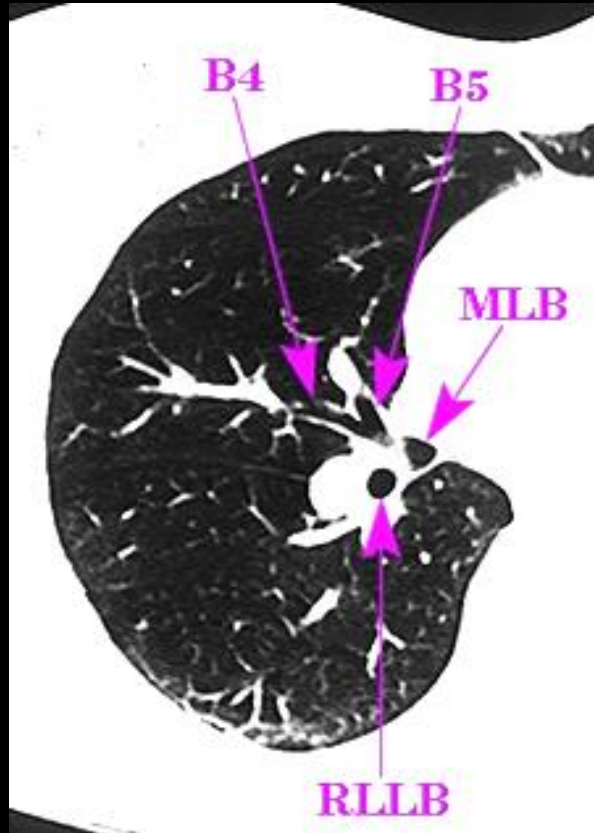
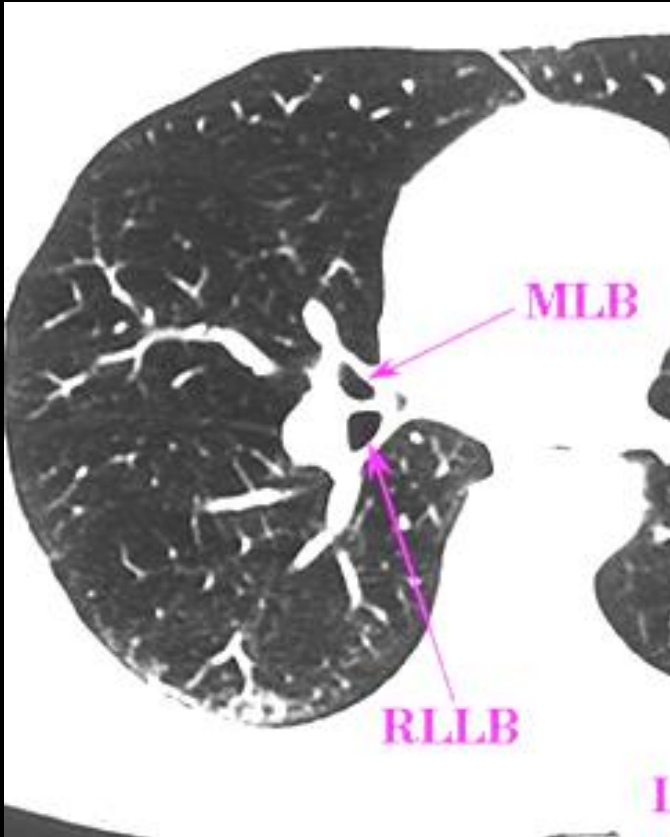
- B1a: sous segmentaire apicale
- B1b: sous segmentaire antérieure

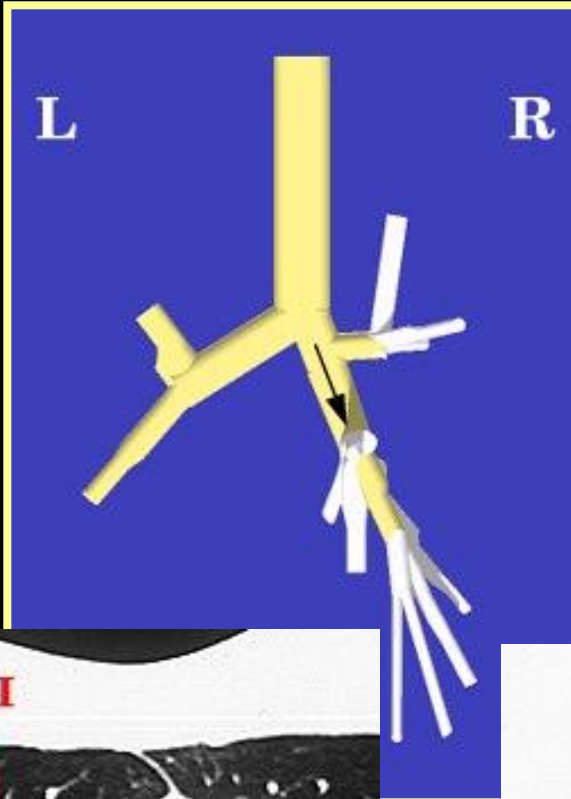
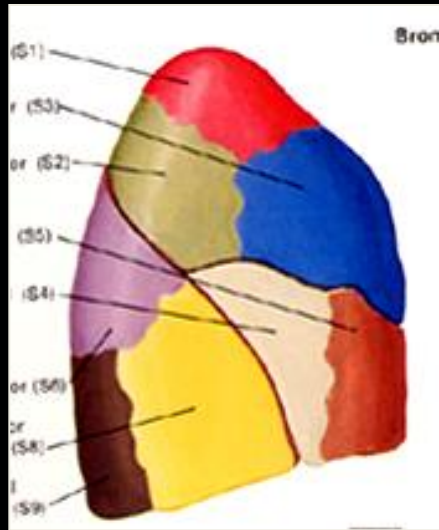


Bronche lobaire moyenne

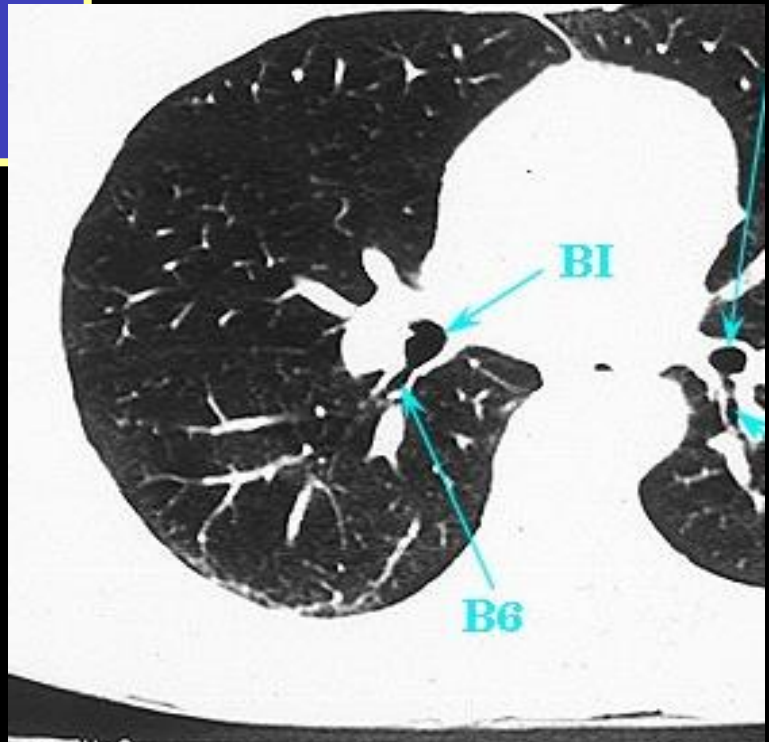
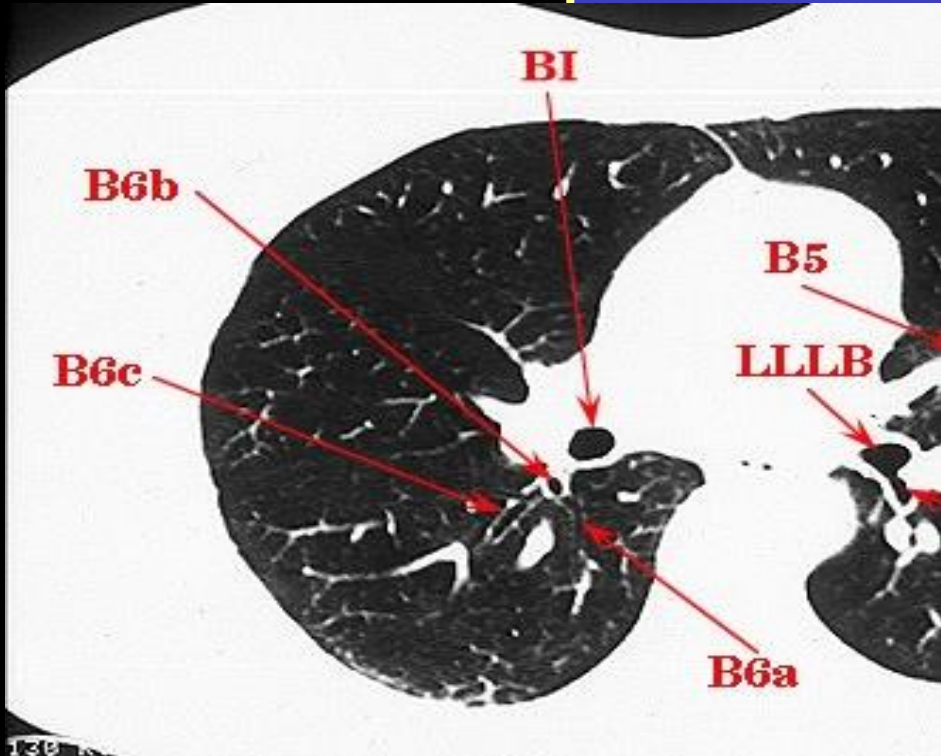
B4 latéral

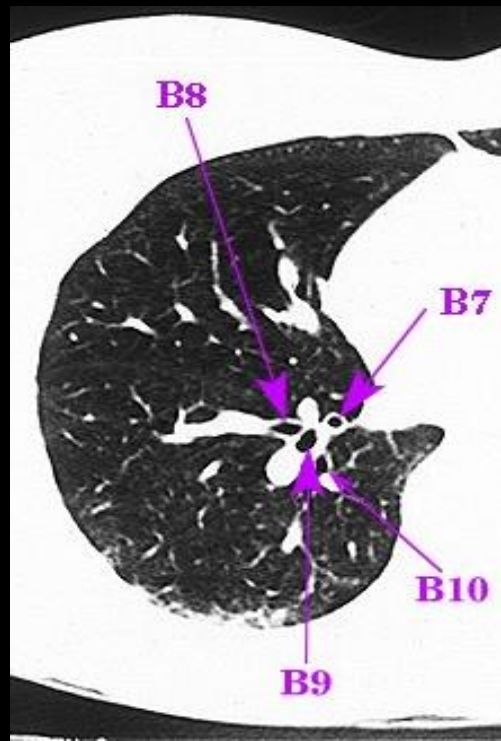
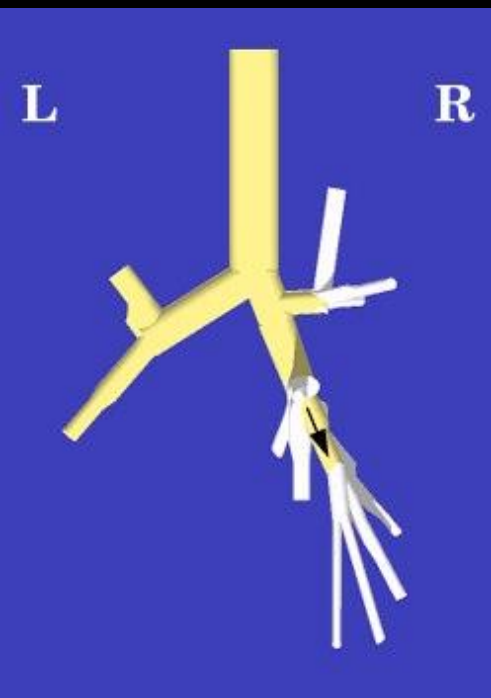
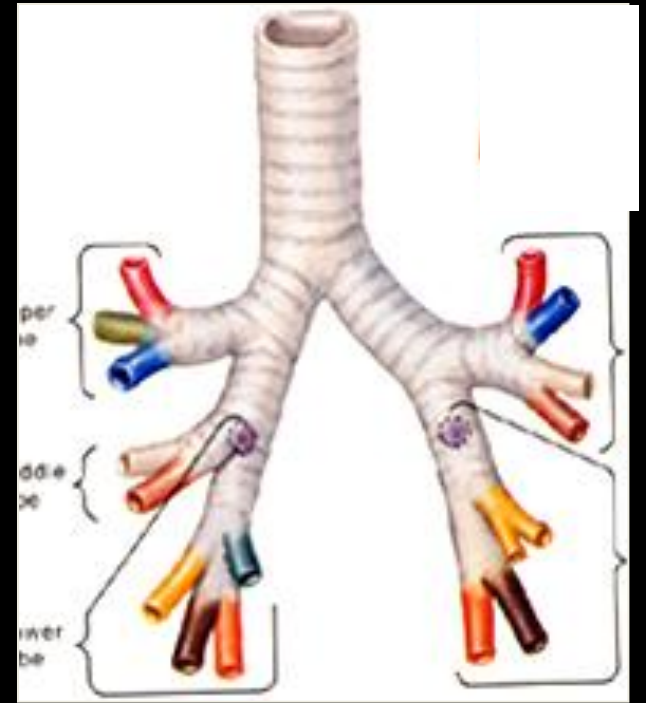
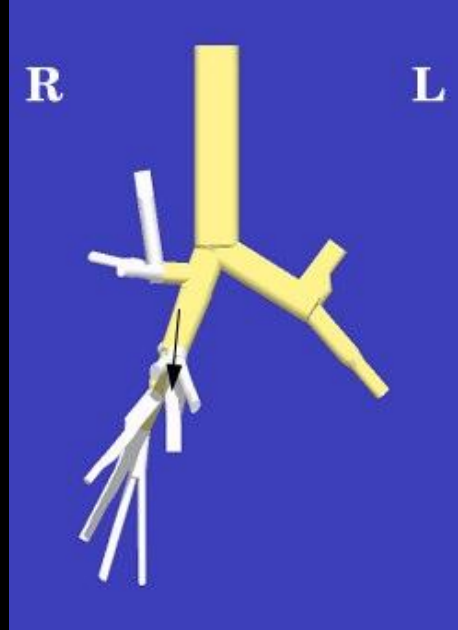
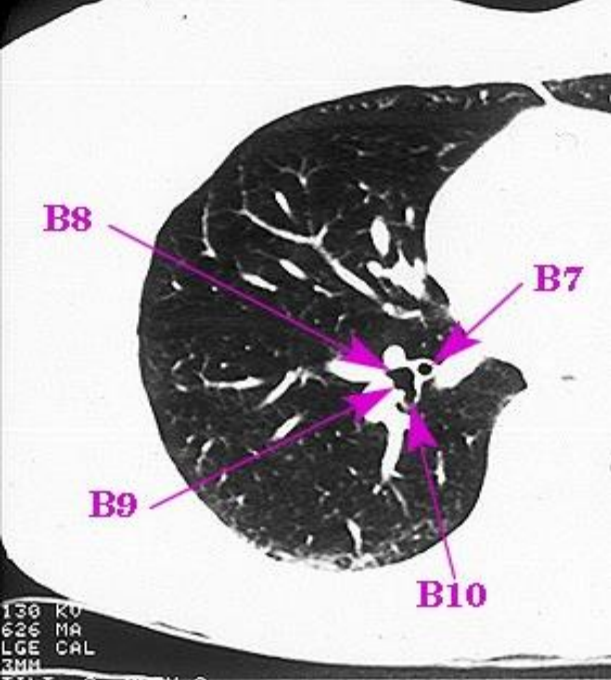
B5 médial



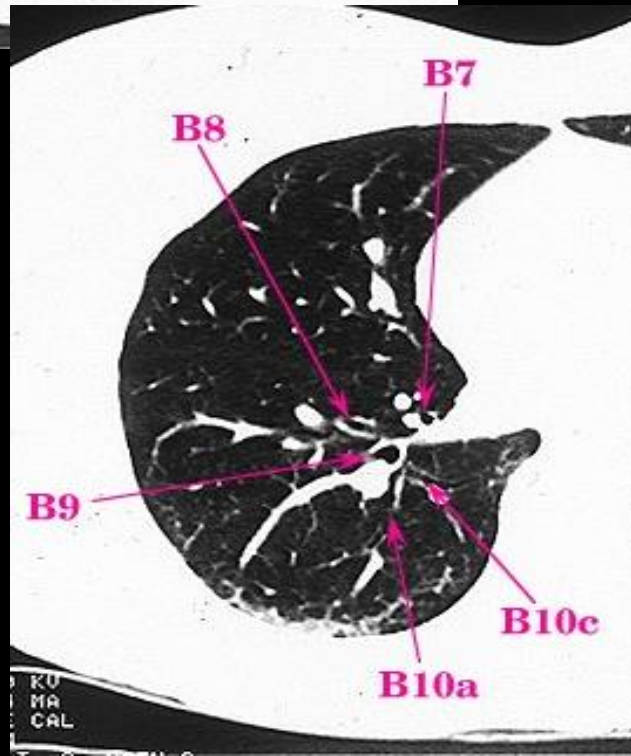
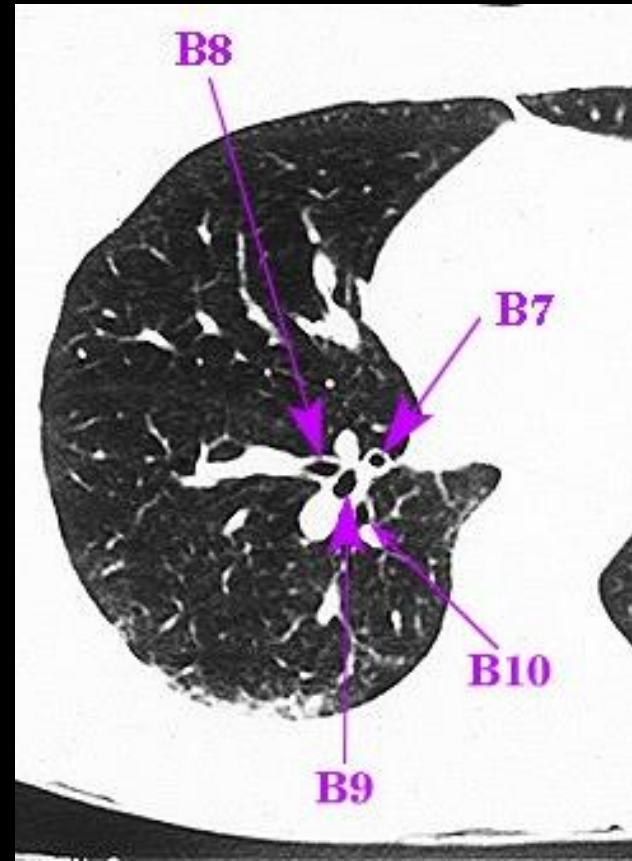
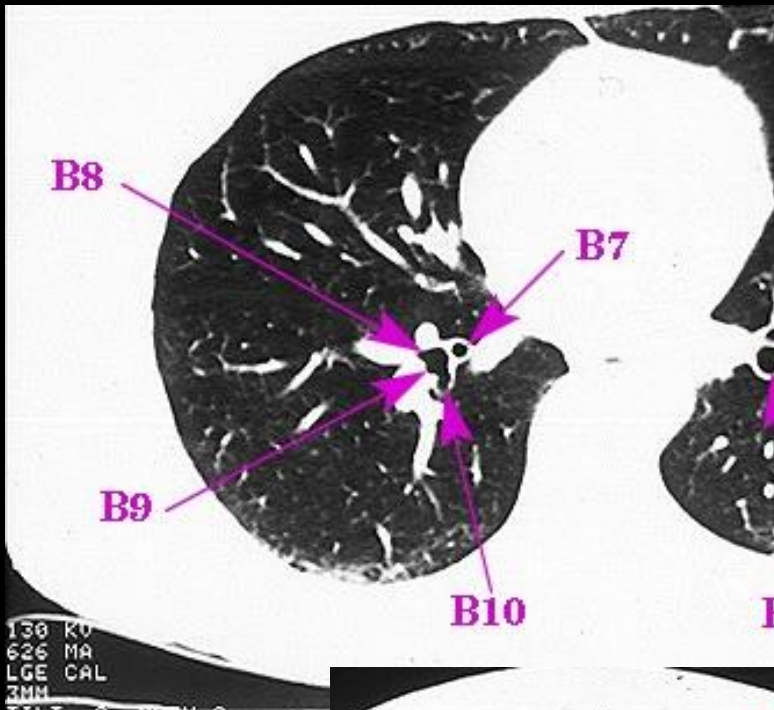


Bronche lobaire inférieure droite
B6 supérieur





B7 médiale basale
 B8/B9/B10 tronc commun
 antérobasal
 Latérobasal
 postérobasal



B7 médiale

B8 antérobasal

B9 latérobasal

B10 postérobasal

Radioanatomie pulmonaire et des bronches

Poumon gauche

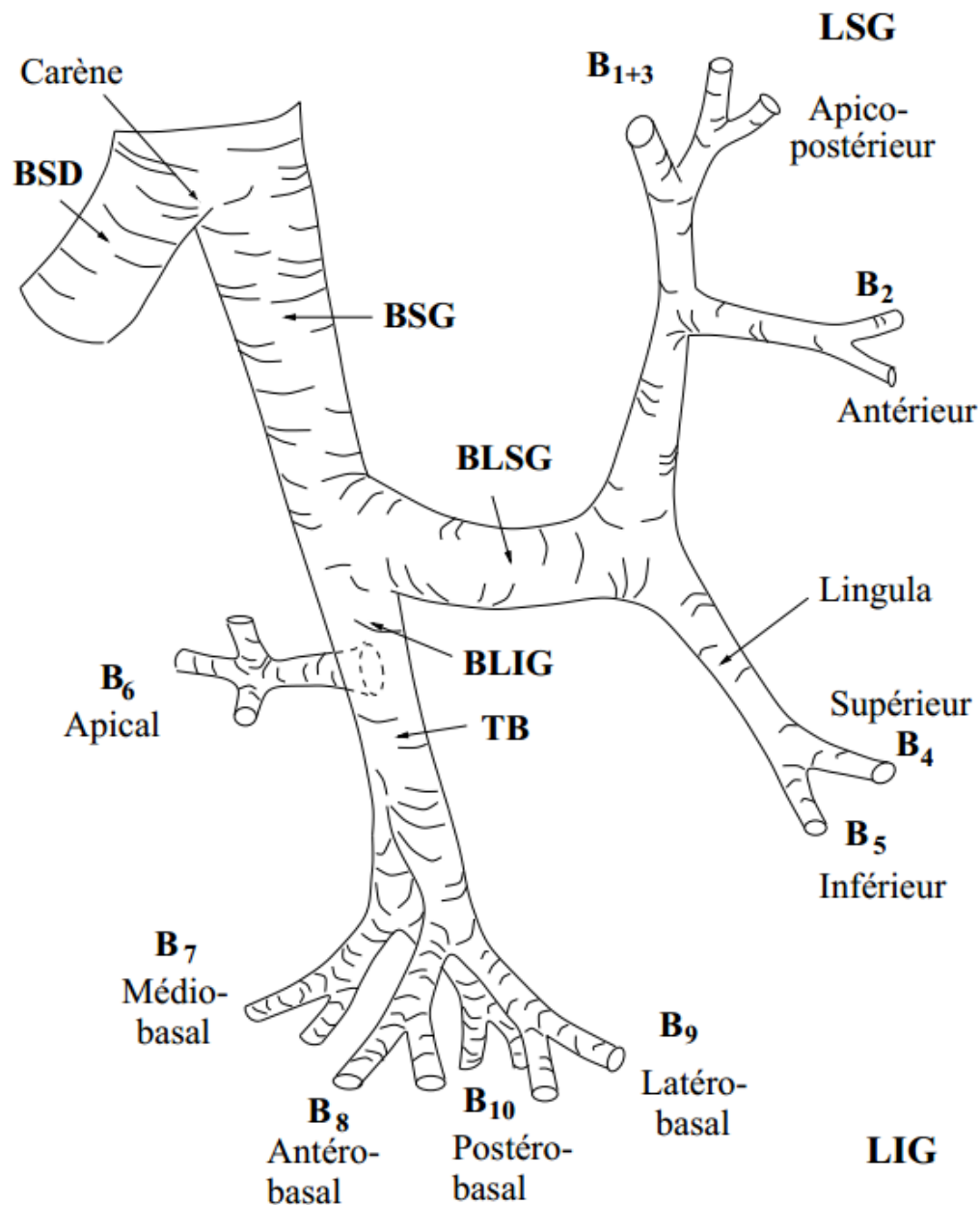


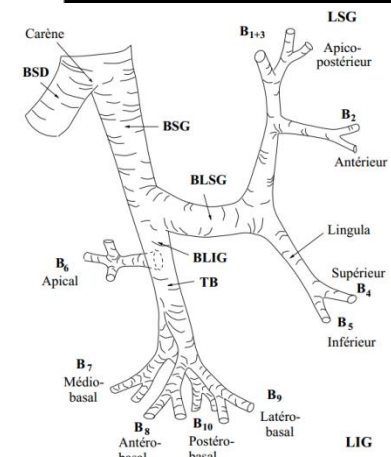
Figure 2.6 : Représentation schématique de la division gauche de l'arbre bronchique (BSG) en projection oblique. Les bronches lobaires sont notées BLSG, BLIG et les bronches segmentaires B₁-B₁₀. LSG désigne le lobe supérieur gauche et LIG le lobe inférieur gauche. A partir de [Naidich99].

Lobe supérieur gauche (BLSG)

B ₁₊₃ , apico-postérieur	a, apical b, postérieur c, latéral	
B ₂ , antérieur	a, latéral b, antérieur c, postérieur	B ₂ peut apparaître n'importe où entre B ₁₊₃ et B ₄₊₅ ; B ₂ faiblement défini (25%)
B ₄ , linguale supérieur	a, antéro-externe b, antéro-interne	B _{4a} bien développé (40%)
B ₅ , linguale inférieur	a, supérieur b, inférieur	

Lobe inférieur gauche (BLIG)

B ₆ , apical	a, médial b, supérieur c, latéral	B _{6a} , B _{6b+c} bifurcation (45%)
B*, sous-apical		Variable, d'orientation similaire à B ₆
Tronc des basales		Segment s'étendant entre B ₆ et B ₇ (9 mm de large et 13 mm de long)
B ₇ , médio-basal	a, médial b, latéral	B ₇₊₈ , B ₉₋₁₀ bifurcation (45%); B ₇₊₈ , B ₉ , B ₁₀ trifurcation (15%); Origine séparée de B ₇ (< 5%)
B ₈ , antéro-basal	a, latéral b, basal	
B ₉ , latéro-basal	a, latéral b, basal	
B ₁₀ , postéro-basal	a, latéral b, basal	



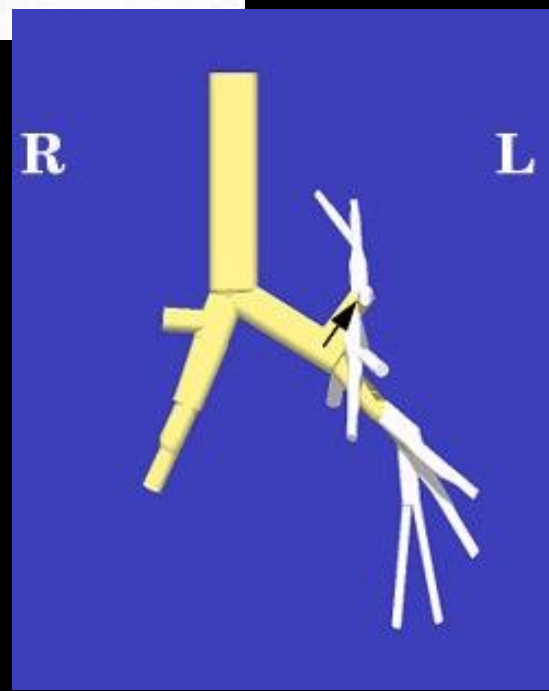
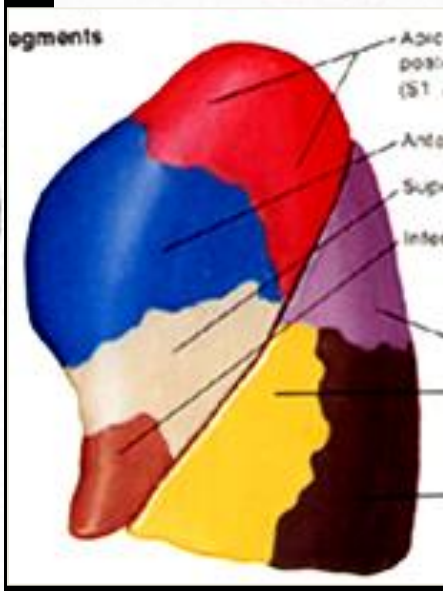
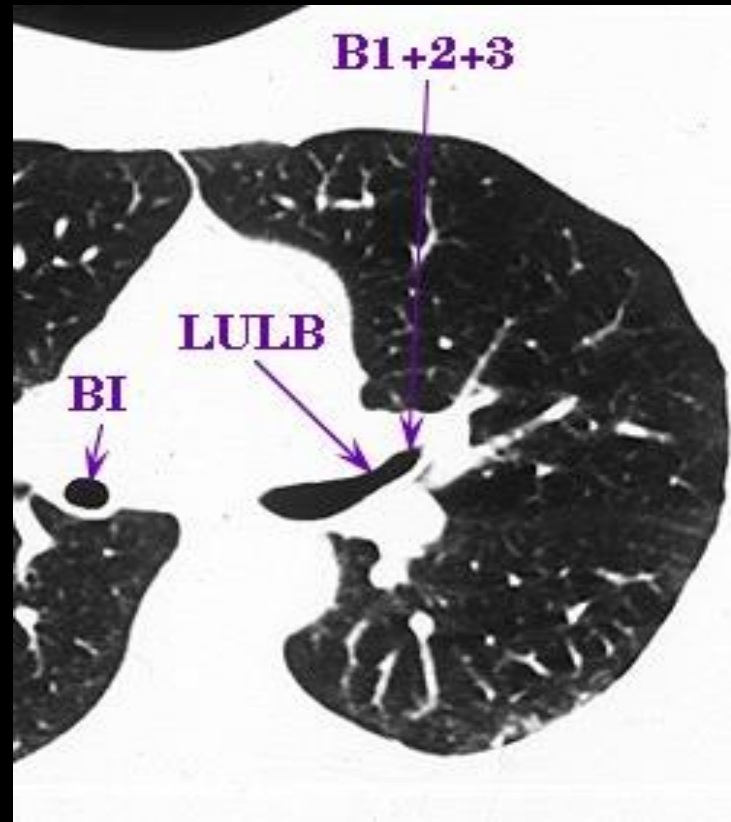
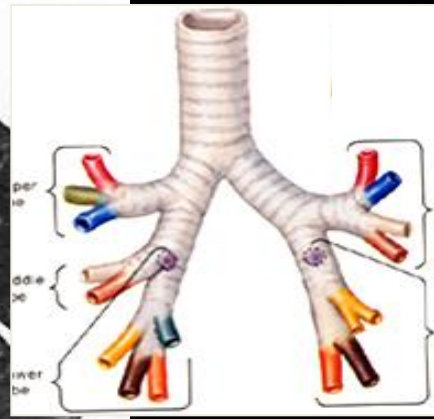
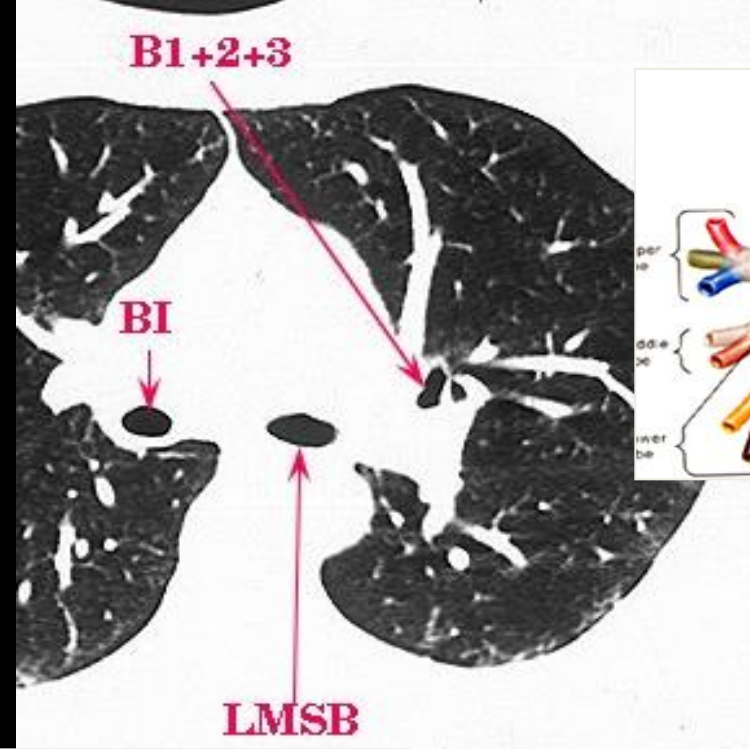
POUMON GAUCHE

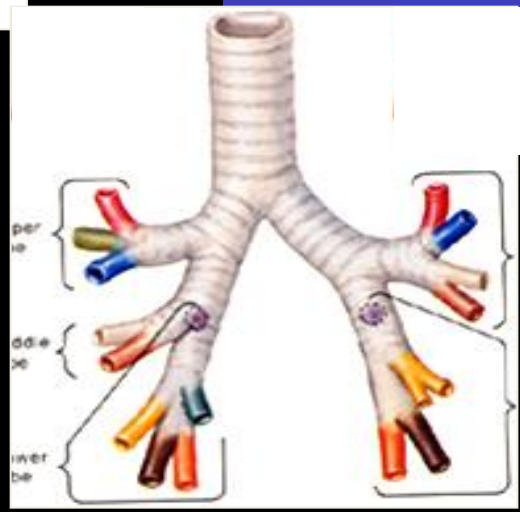
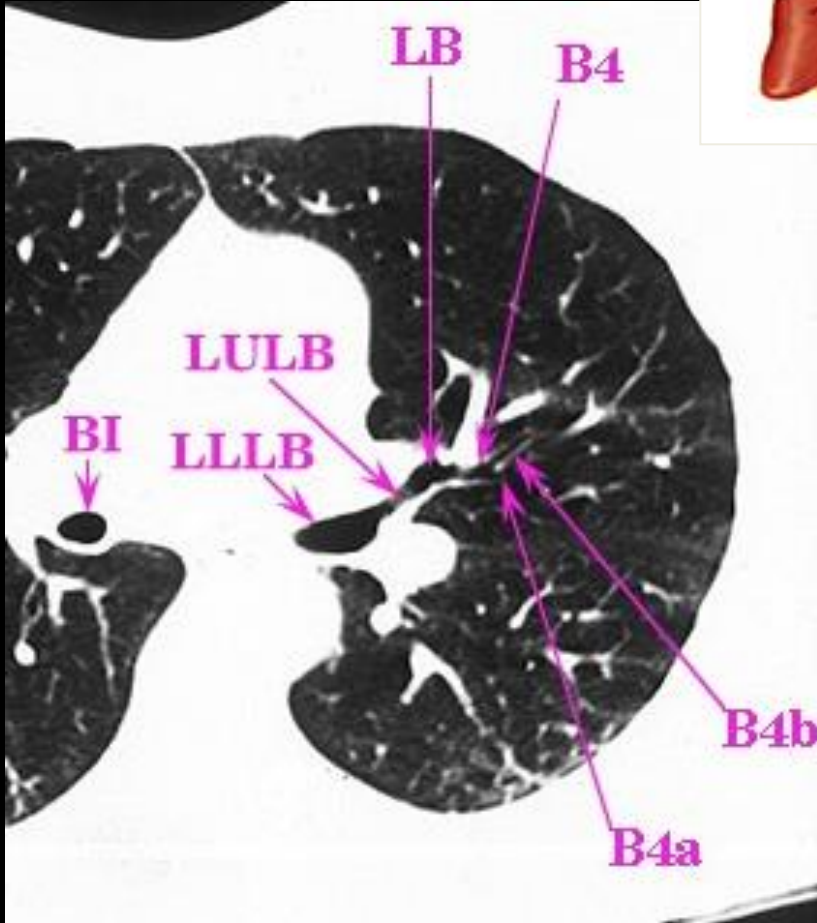
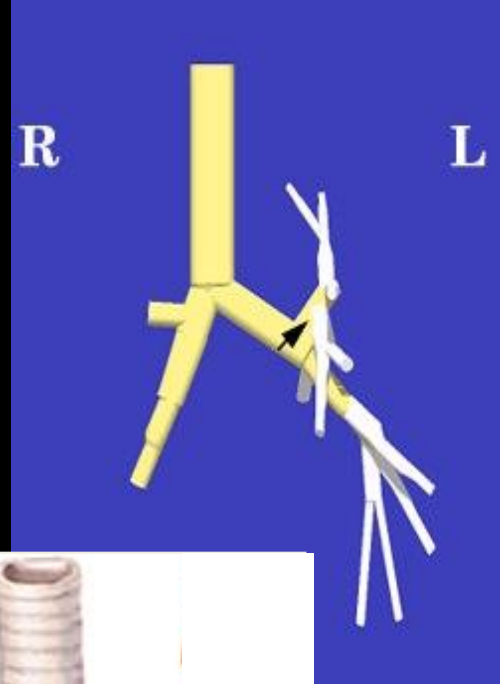
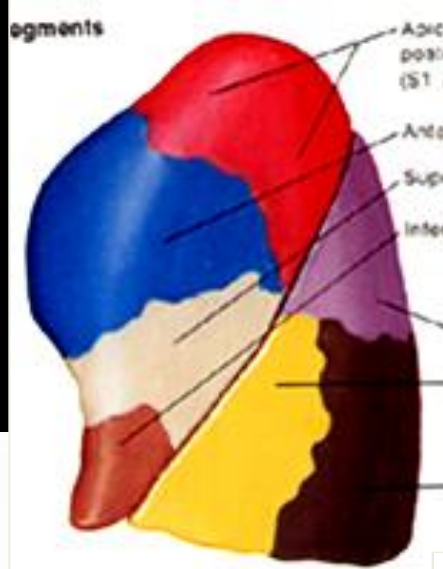
Bronche Lobaire Supérieure

B1+3 apical postérieur

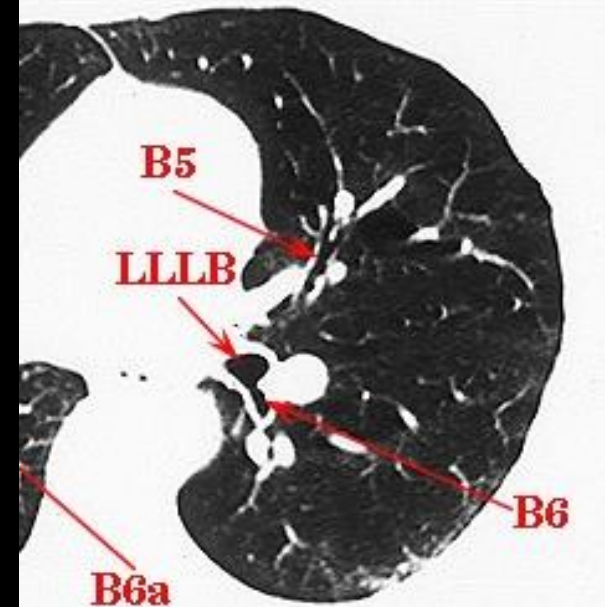
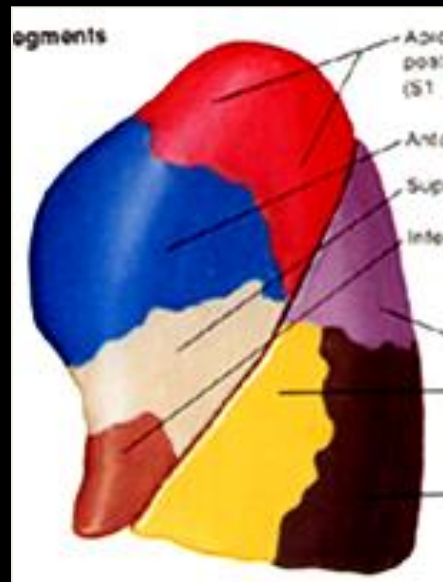
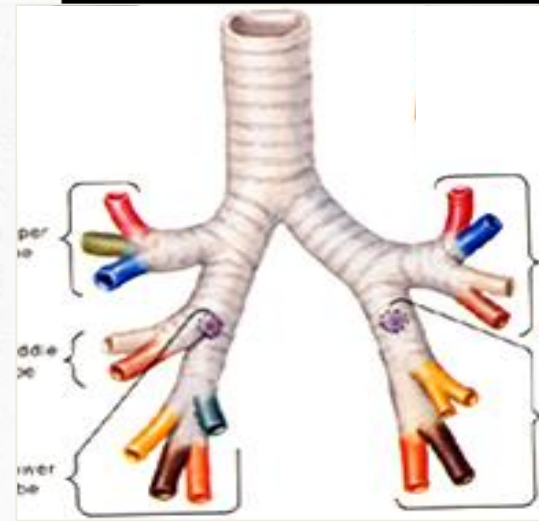
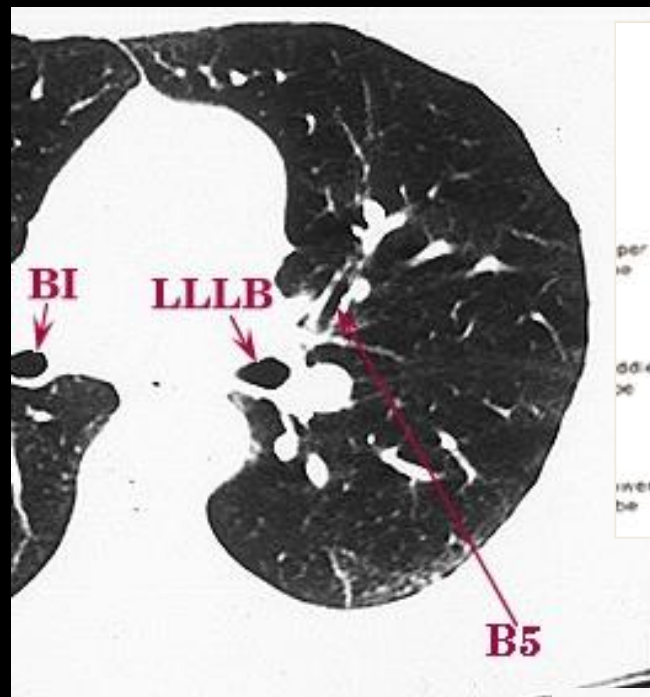
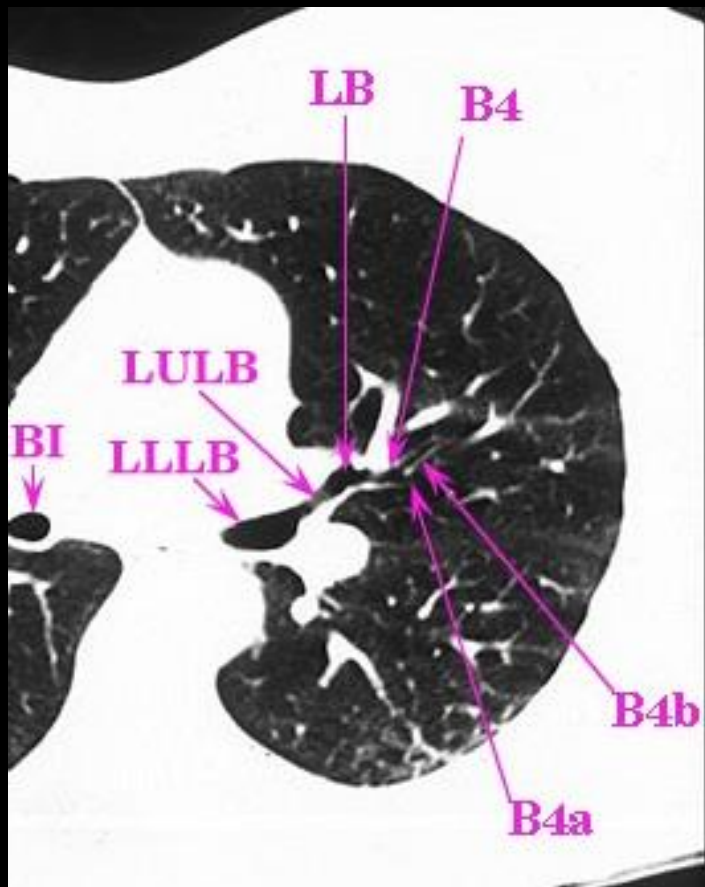
B2 antérieur

= culmen





Bronche lobaire supérieure:
 Bronche linguale (tronc commun)
 B4 linguale supérieur



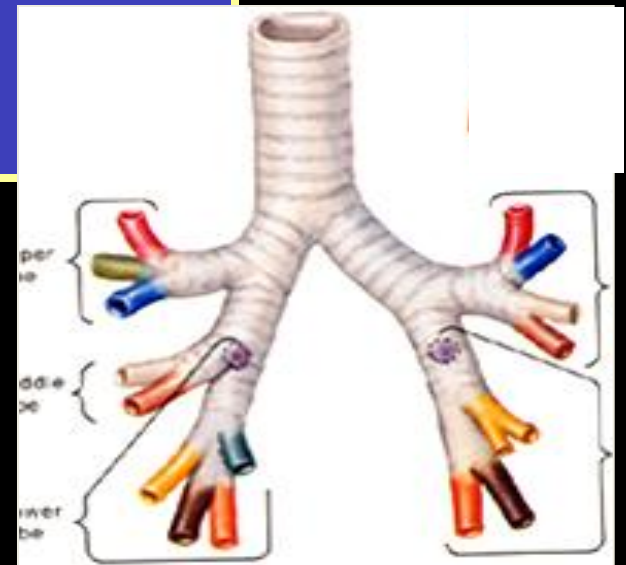
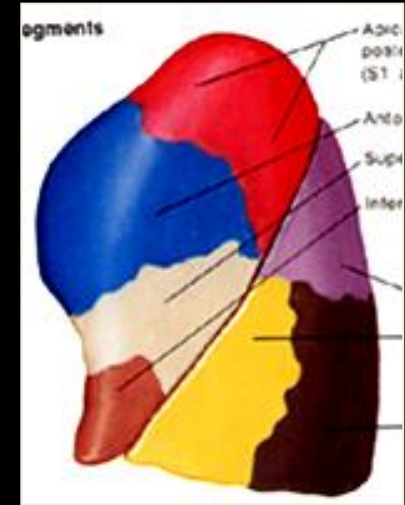
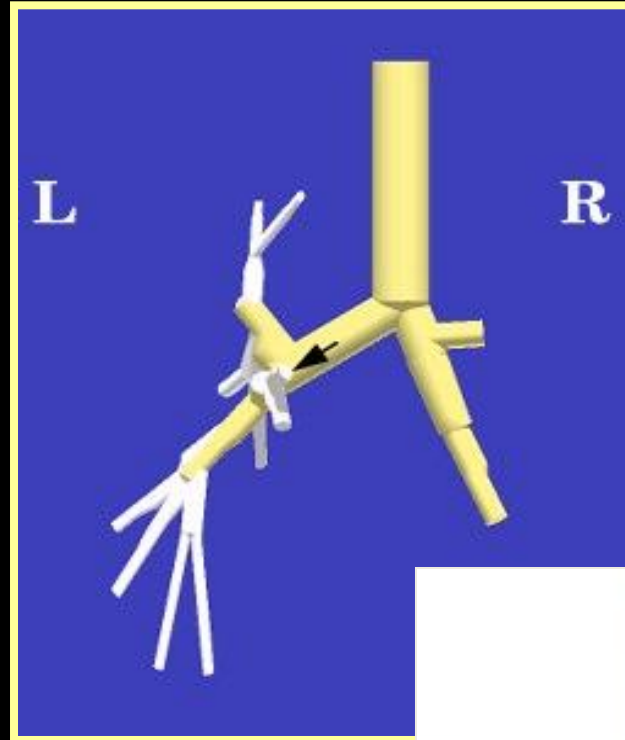
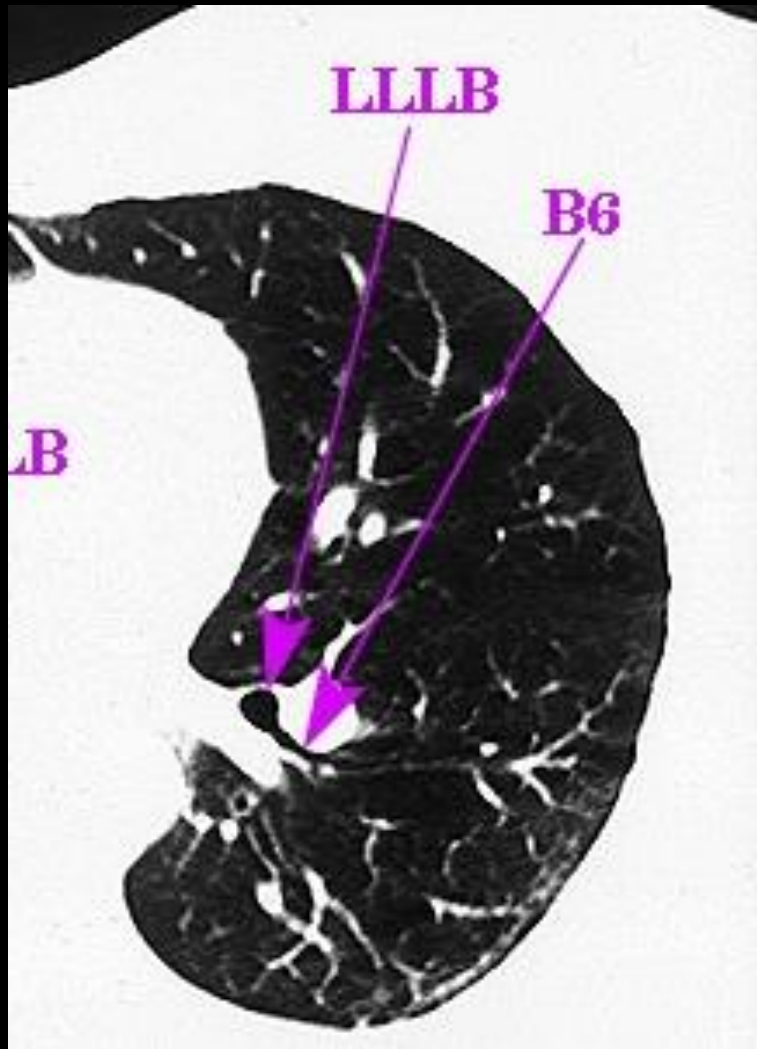
Bronches segmentaires
lingulaires

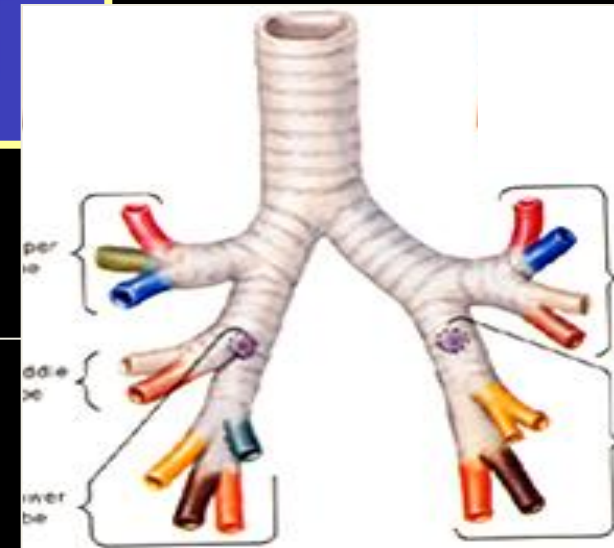
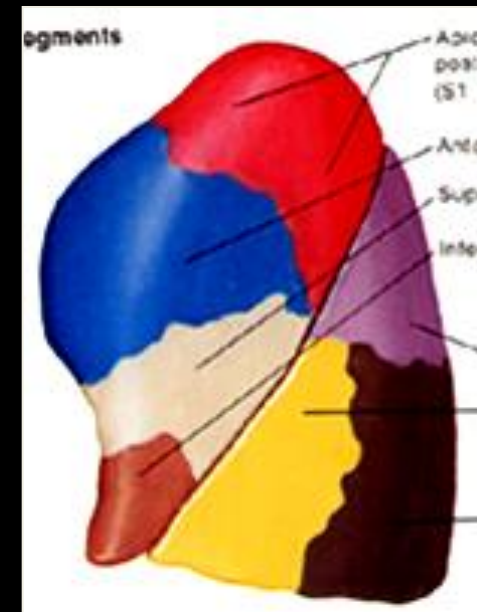
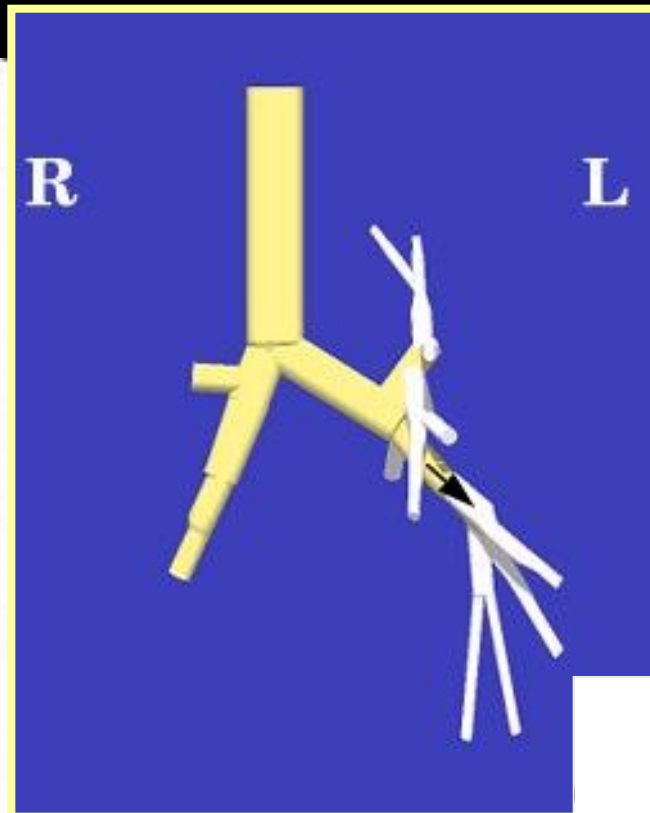
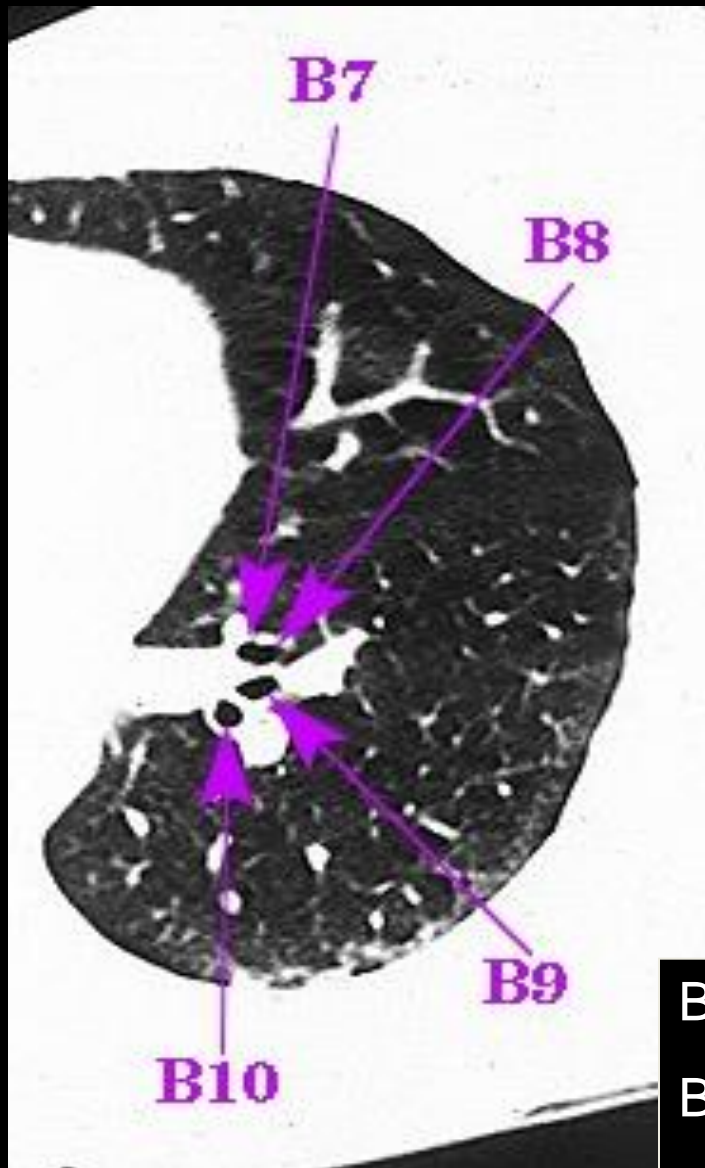
B4 supérieure

B5 inférieure

Bronche lobaire inférieure G

B6 segmentaire supérieure

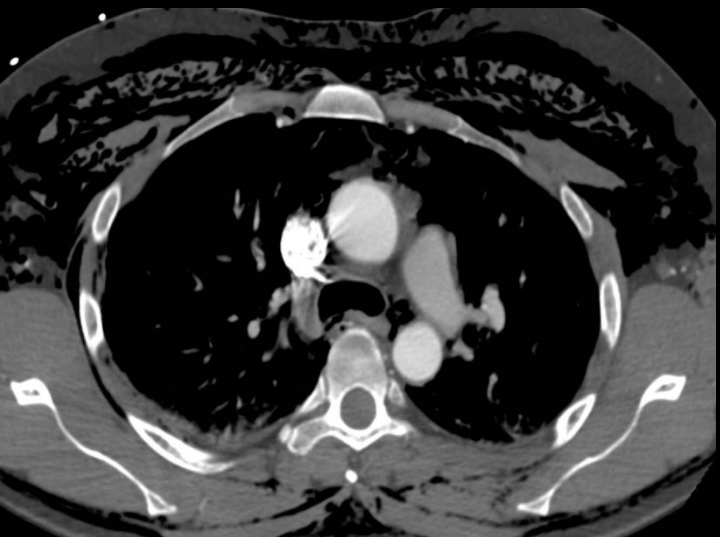




B6 supérieur
 B7-8 antéro médial
 B9 latéral
 B10 postéro basal

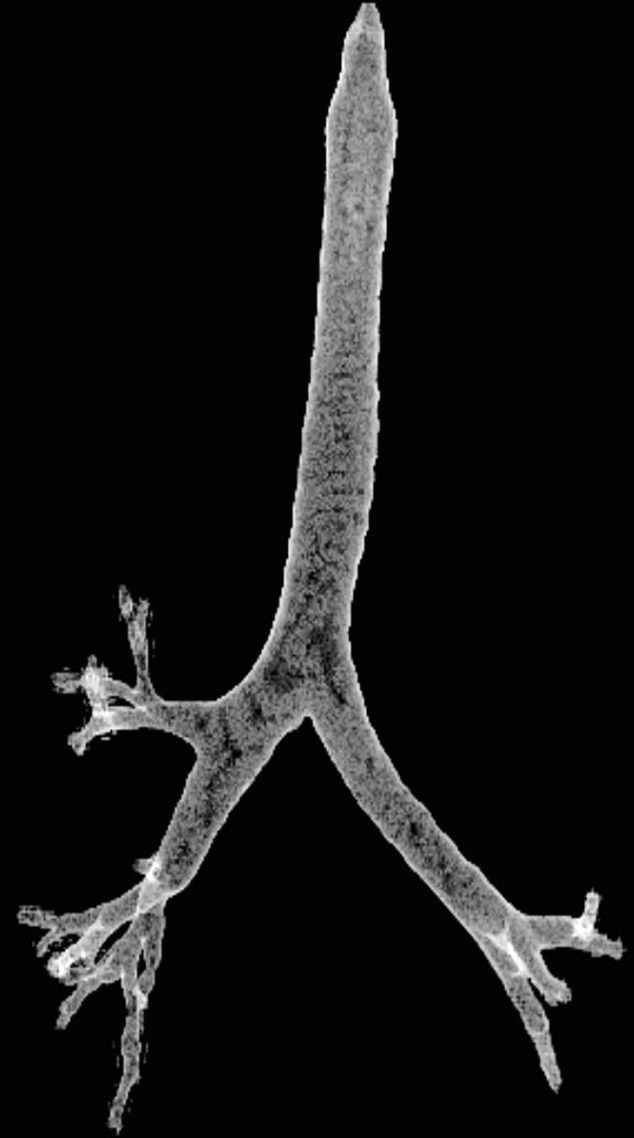
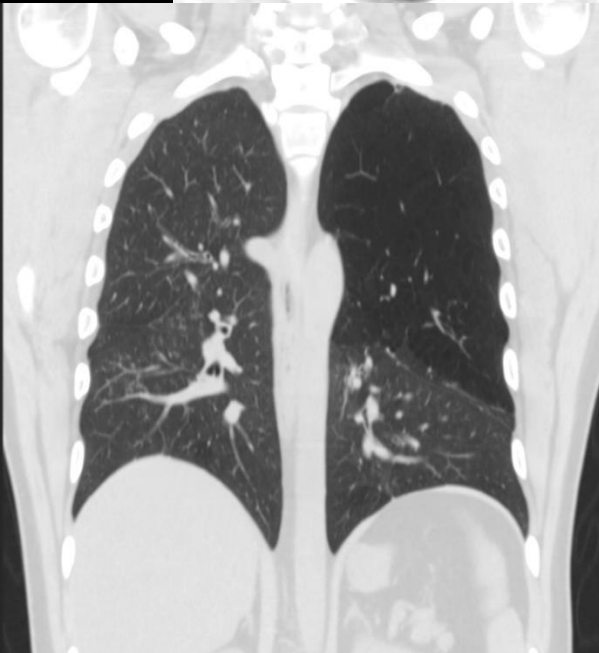
Comment communiquer ?

Exemple 1:Traumatisme

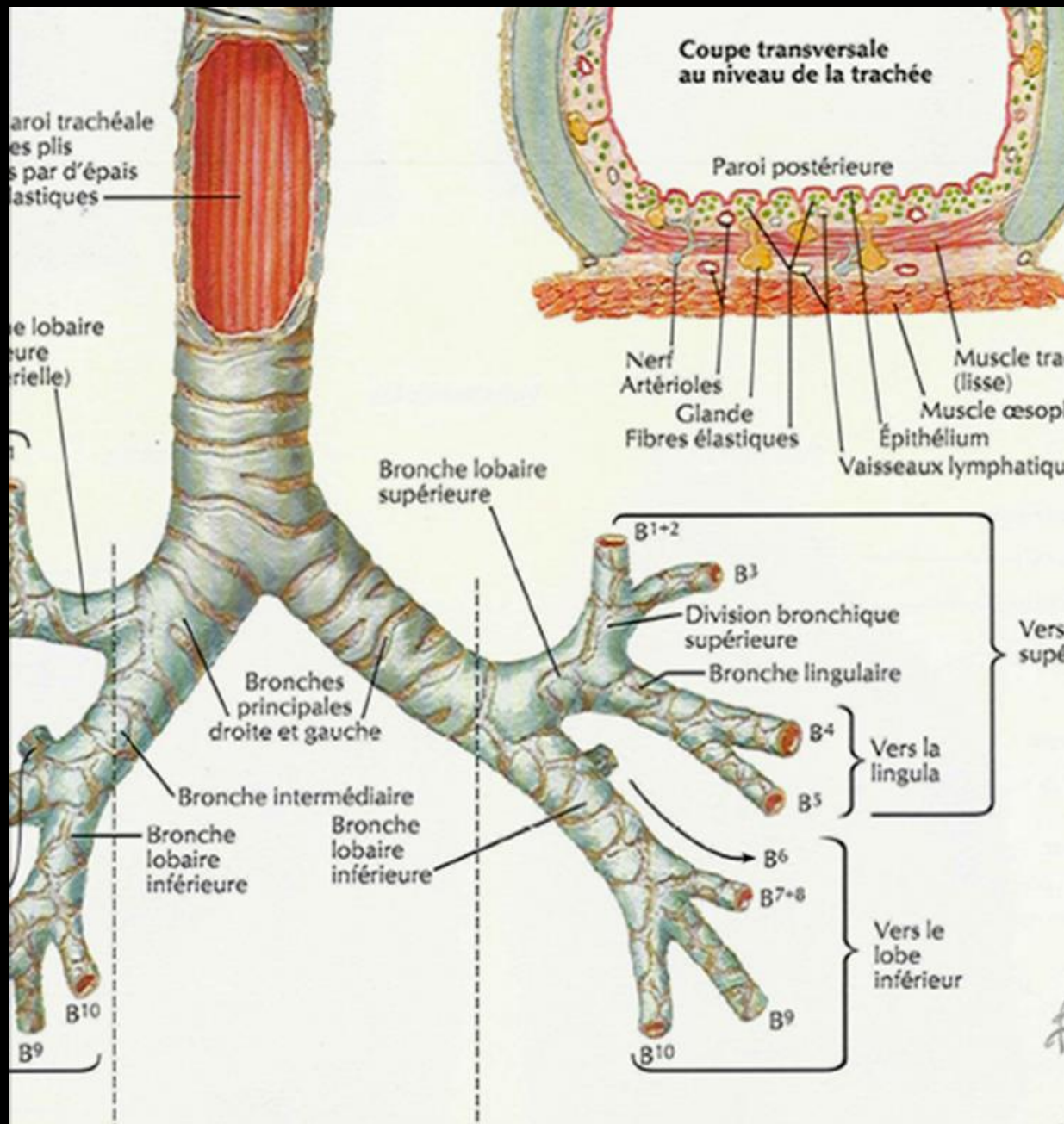


Rupture trachéale traumatique

Exemple 2:
Anomalie radiographique



Agénésie bronchique culminale

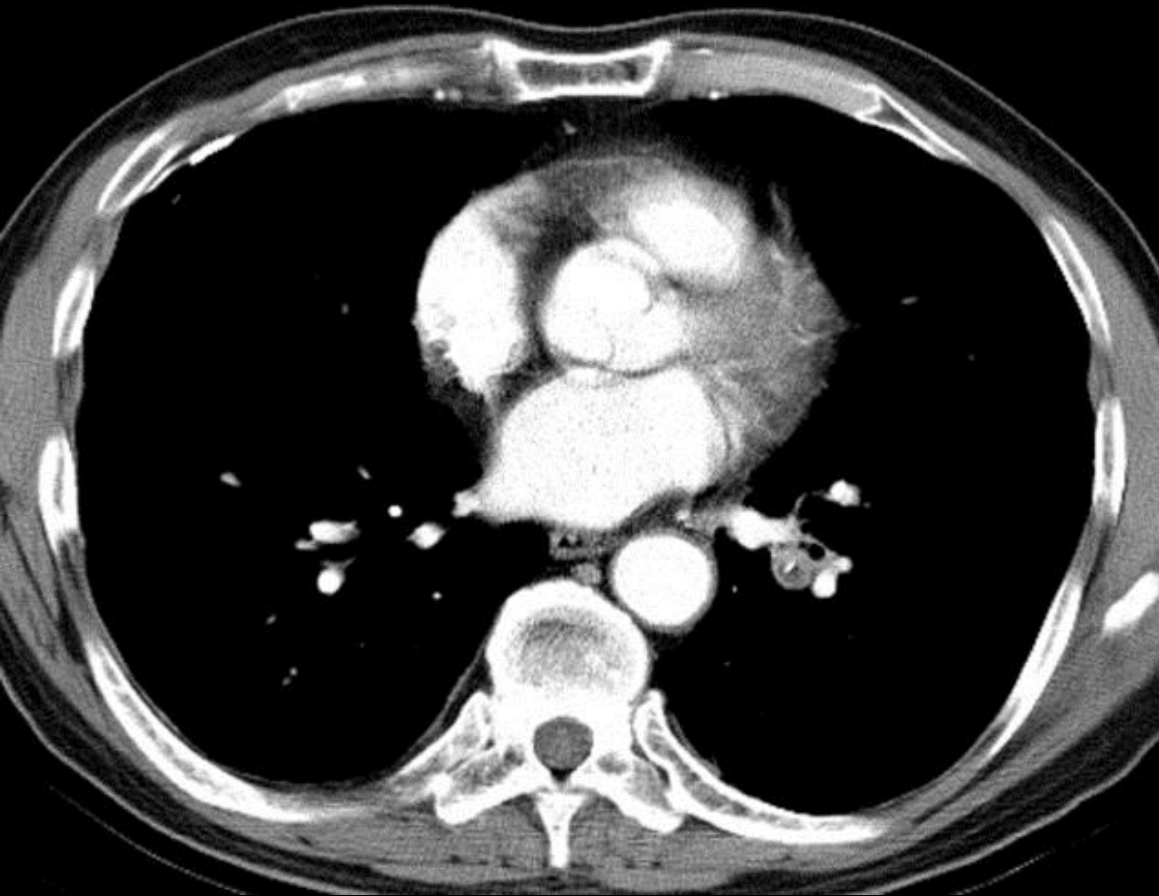


Exemple 3:
ATCD de
tuberculose
dans l'enfance



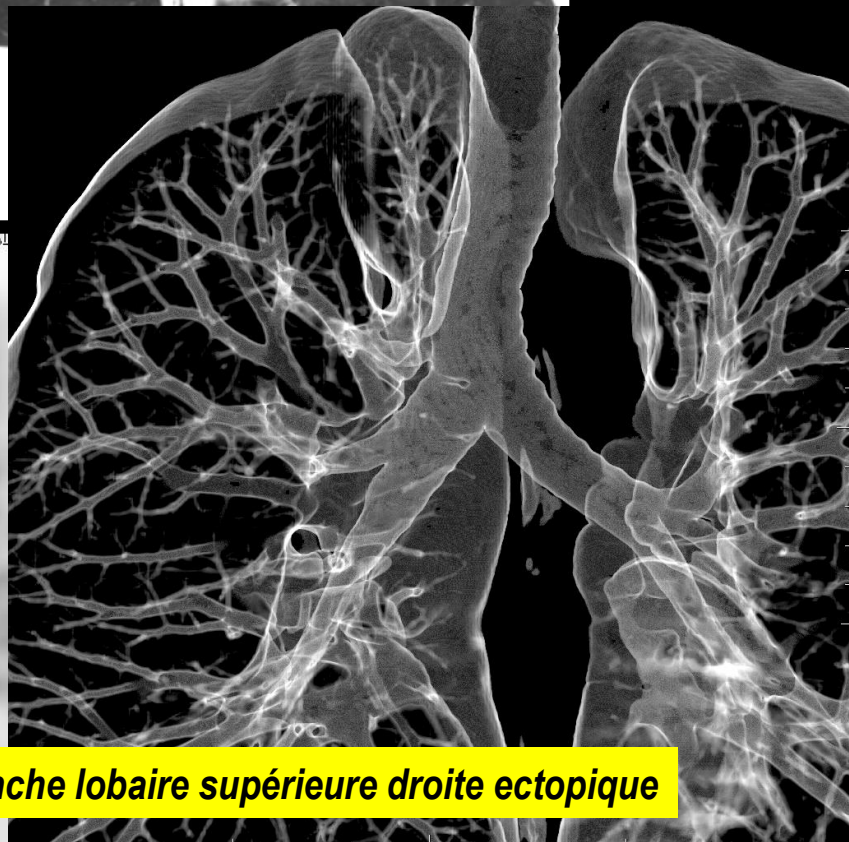
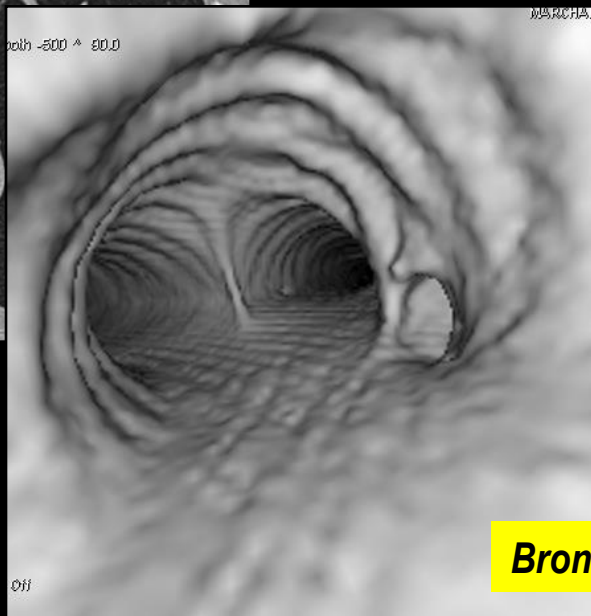
Bronchectasies kystiques et variqueuses séquellaires

Exemple 4:
ATCD de tuberculose dans l'enfance



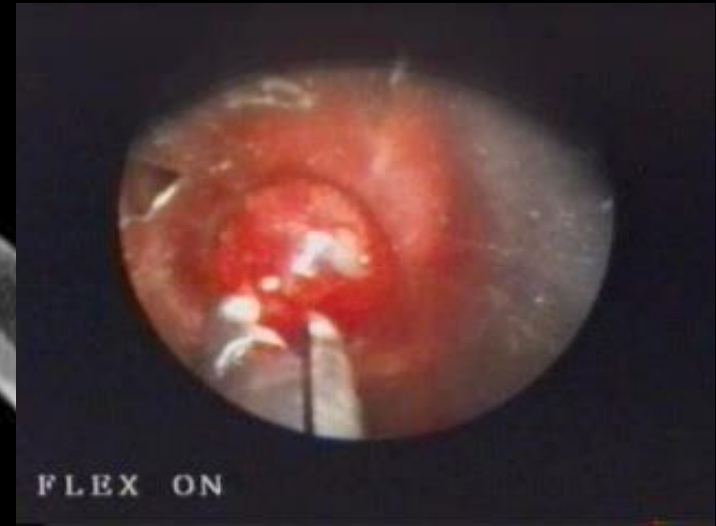
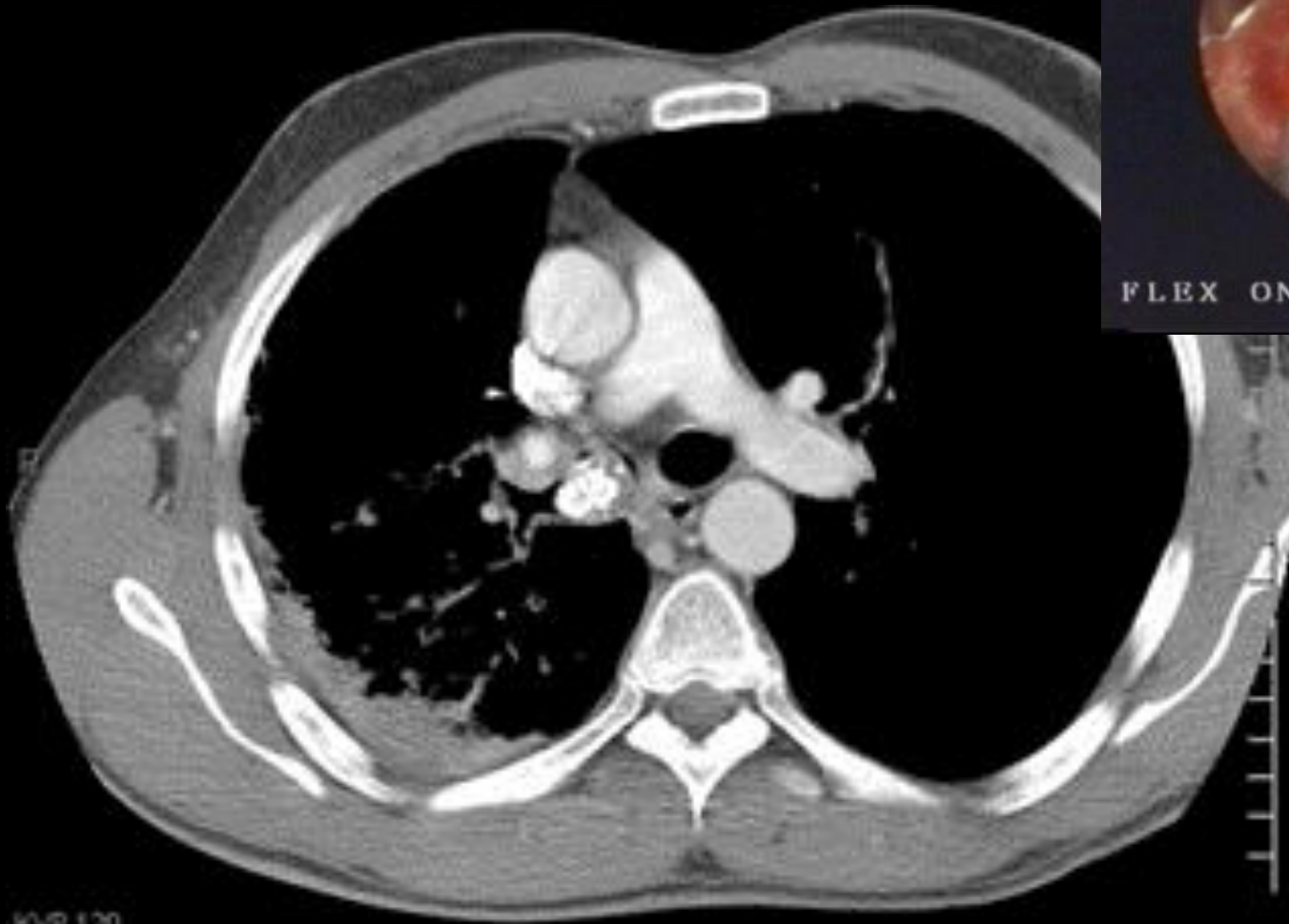
Broncholithiase

Exemple 5:
Bilan d'extension carcinome colique



Bronche lobaire supérieure droite ectopique

Exemple 6:
Dyspnée



Hamartochondrome endobronchique

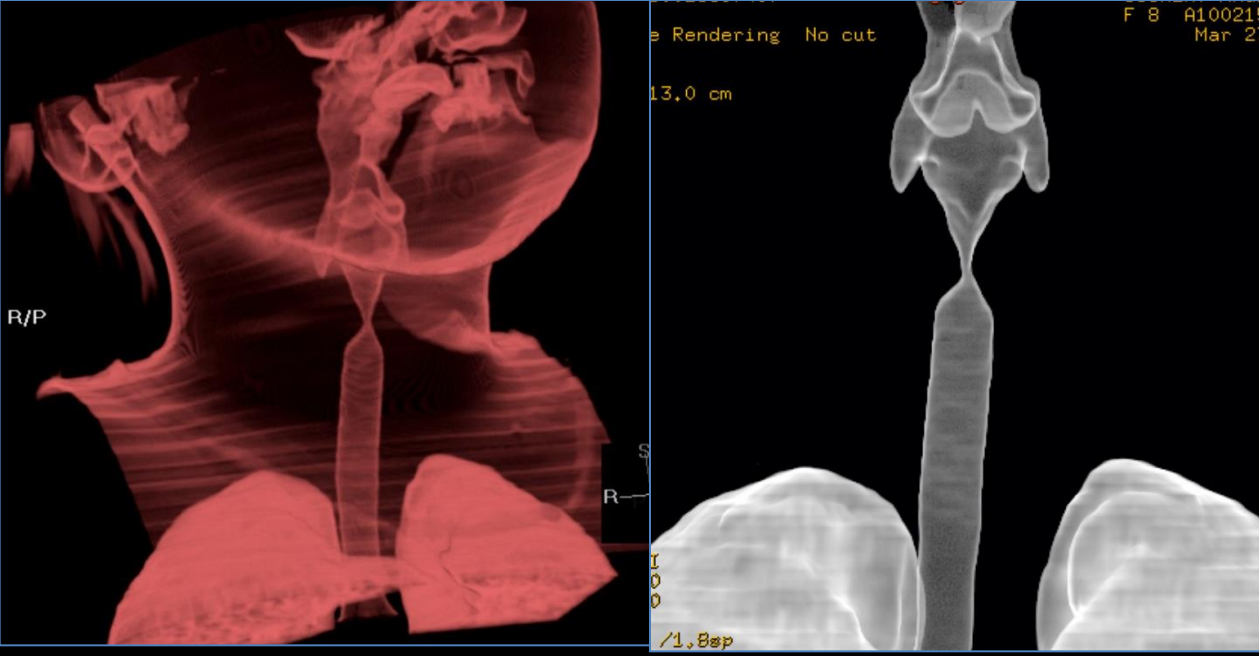
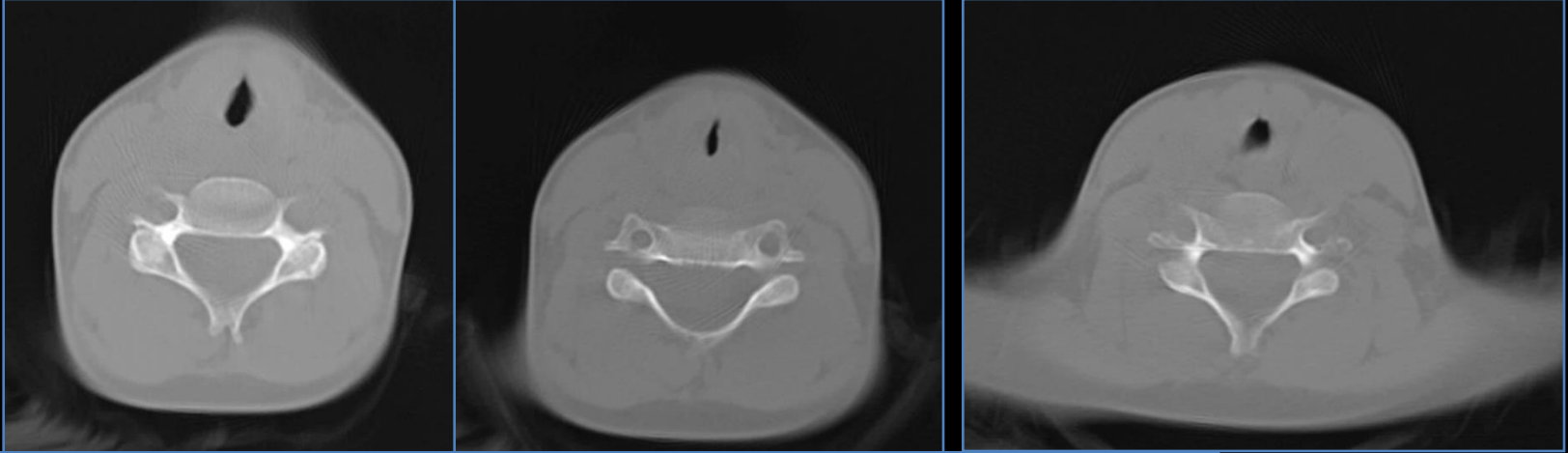
Exemple 7:
Papillomatose néonatale



Papillome trachéal et lésions de papillomatose pulmonaire

Exemple 8:

Enfant 8 ans. Stridor au décours d'un épisode prolongé en réanimation (ingestion soude caustique).



Sténose post-intubation

Exemple 8 bis:

Homme 26 ans. Stridor au décours d'un épisode prolongé en réanimation

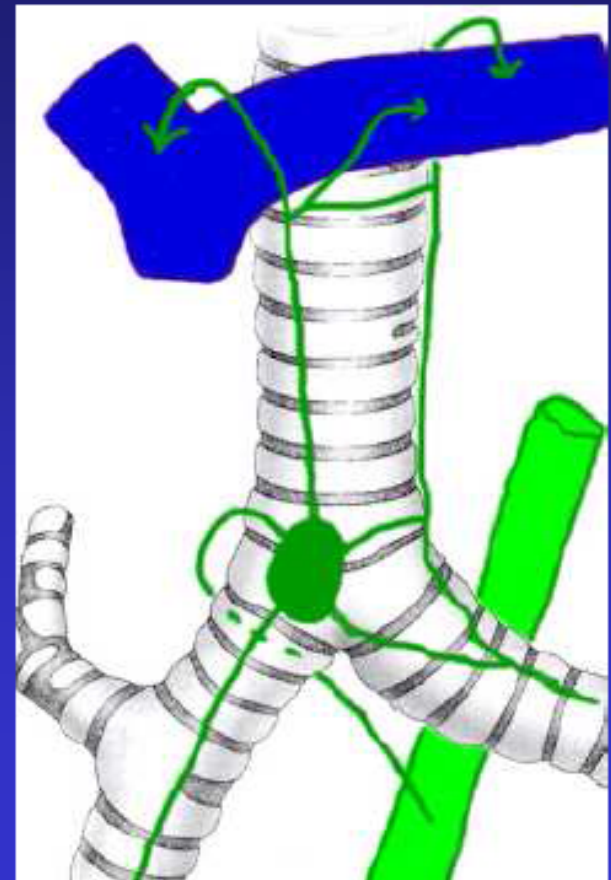


Sténose post-intubation

Radioanatomie des gites ganglionnaires du médiastin

En résumé: chaque chaîne ganglionnaire :

- peut se limiter à de simples vaisseaux lymphatiques
- rejoint obligatoirement la circulation sanguine soit par voie veineuse, soit par l'intermédiaire du « canal thoracique »
- est anastomosée avec les chaînes voisines du médiastin.



Les loges ganglionnaires du médiastin

RUSCH 2009

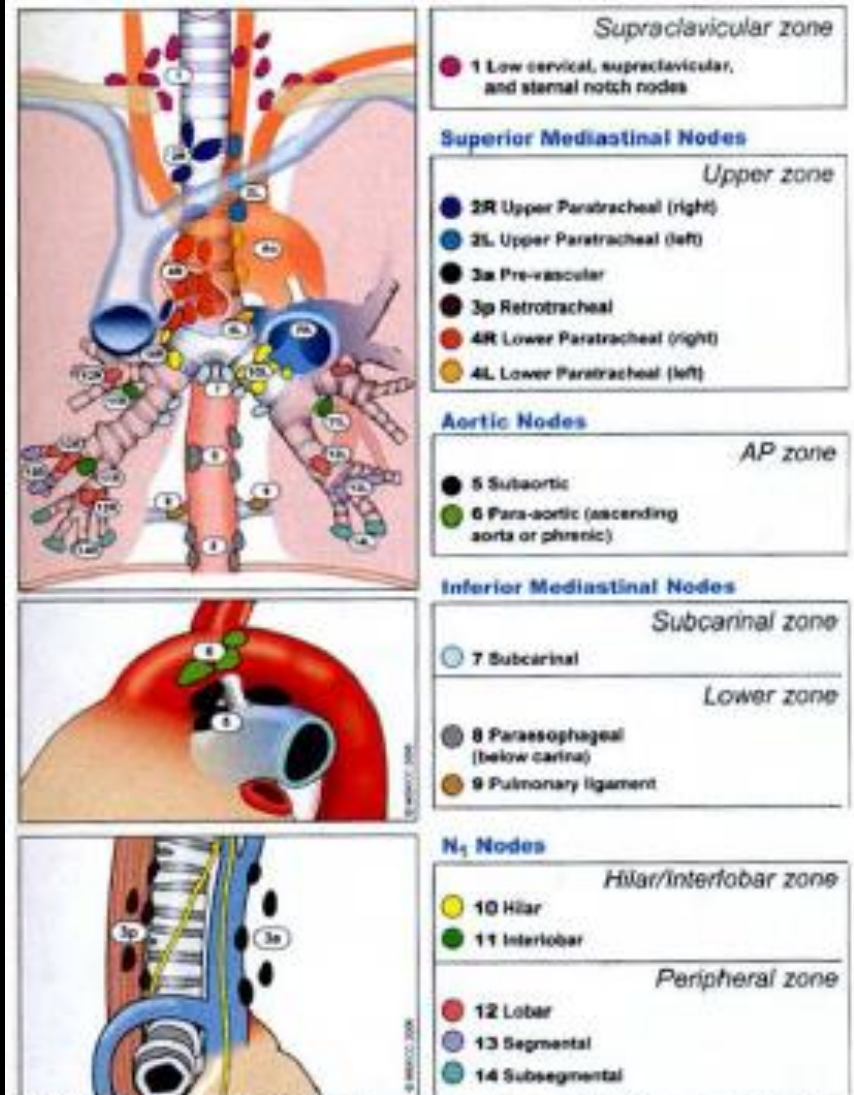
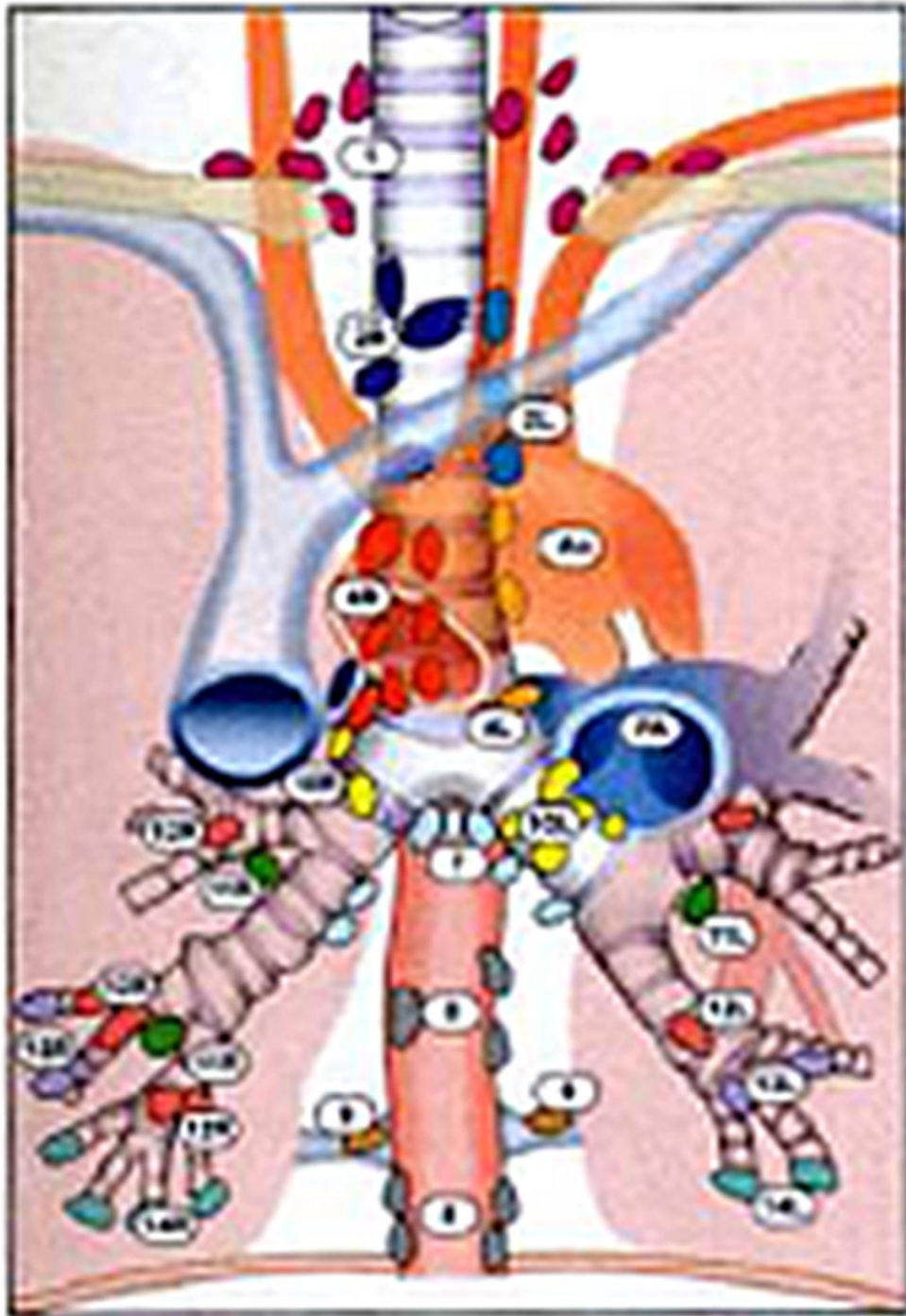


FIGURE 25.3. The IASLC lymph node map shown with the proposed amalgamation of lymph node levels into zones. (© Memorial Sloan-Kettering Cancer Center, 2009.)

Rusch 2009



Supraclavicular zone

- 1 Low cervical, supraclavicular, and sternal notch nodes

Superior Mediastinal Nodes

Upper zone

- 2R Upper Paratracheal (right)
- 2L Upper Paratracheal (left)
- 3a Pre-vascular
- 3p Retrotracheal
- 4R Lower Paratracheal (right)
- 4L Lower Paratracheal (left)

Aortic Nodes

AP zone

- 5 Subaortic
- 6 Para-aortic (ascending aorta or phrenic)

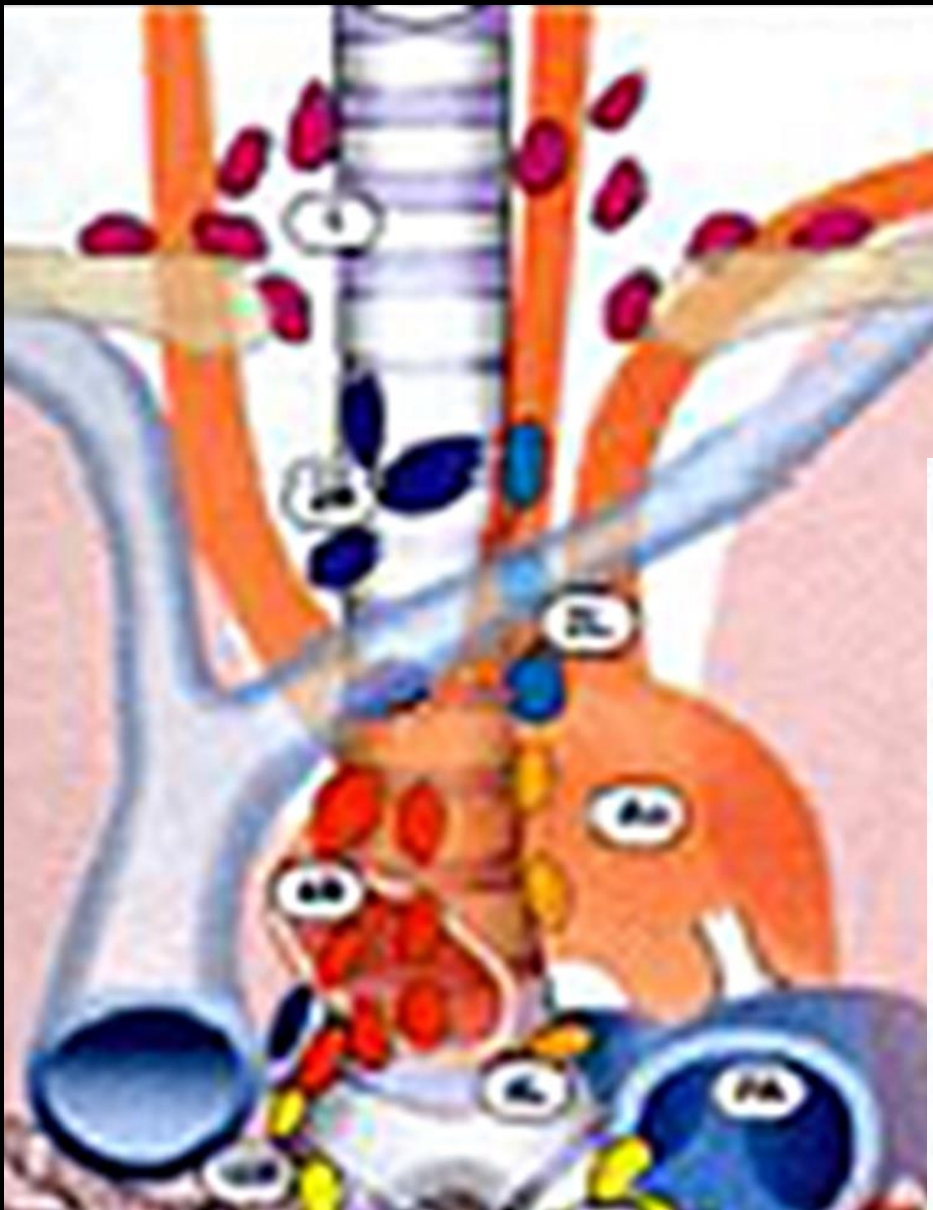
Inferior Mediastinal Nodes

Subcarinal zone

- 7 Subcarinal

Lower zone

- 8 Paraesophageal (below carina)
- 9 Pulmonary ligament



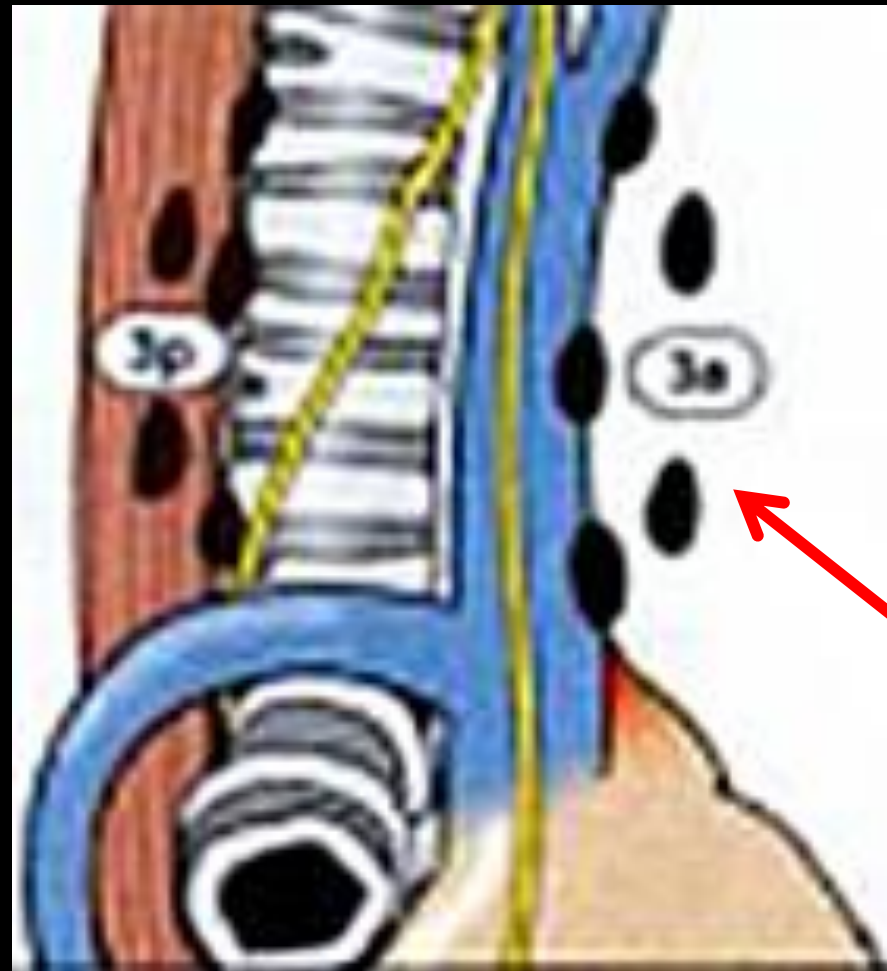
Supraclavicular zone

- 1 Low cervical, supraclavicular, and sternal notch nodes

Superior Mediastinal Nodes

Upper zone

- 2R Upper Paratracheal (right)
- 2L Upper Paratracheal (left)
- 3a Pre-vascular
- 3p Retrotracheal
- 4R Lower Paratracheal (right)
- 4L Lower Paratracheal (left)



- Upper zone*
- 2R Upper Paratracheal (right)
 - 2L Upper Paratracheal (left)
 - 3a Pre-vascular
 - 3p Retrotracheal
 - 4R Lower Paratracheal (right)
 - 4L Lower Paratracheal (left)



Aortic Nodes

- 5 Subaortic
- 6 Para-aortic (ascending aorta or phrenic)

AP zone



Inferior Mediastinal Nodes

Subcarinal zone

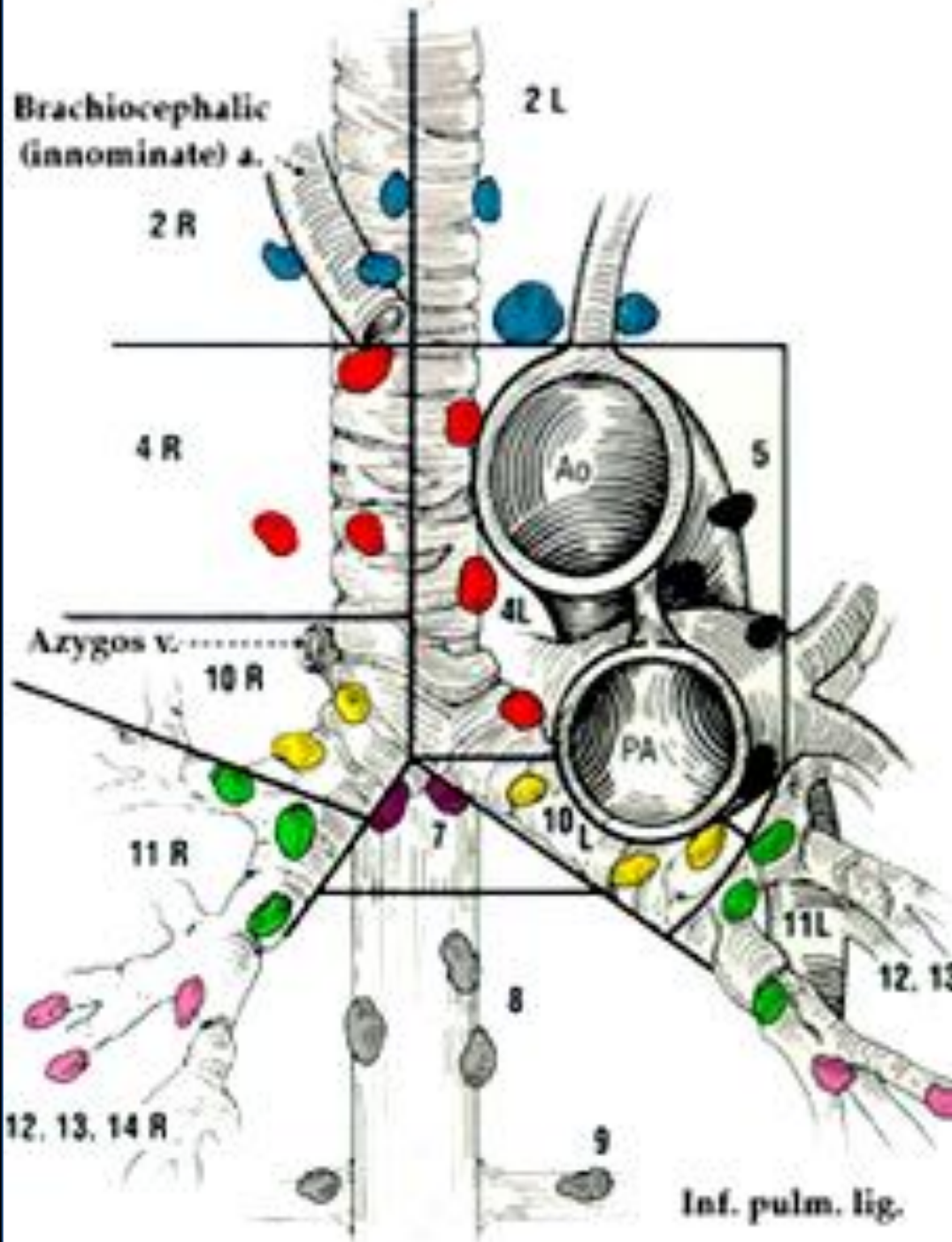
● 7 Subcarinal

Lower zone

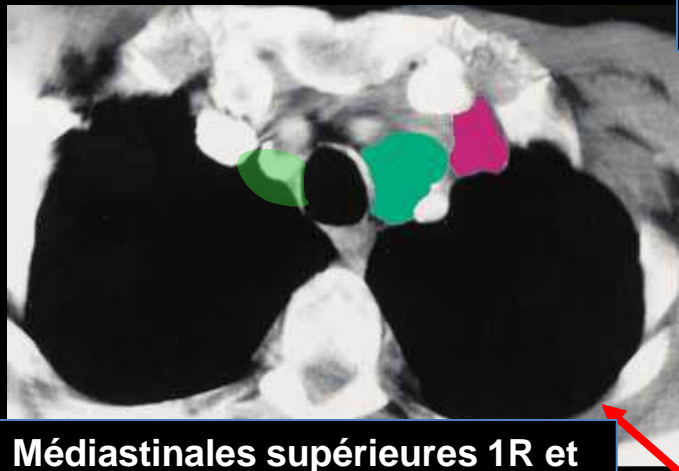
● 8 Paroesophageal
(below carina)

● 9 Pulmonary ligament

Brachiocephalic
(innominate) a.

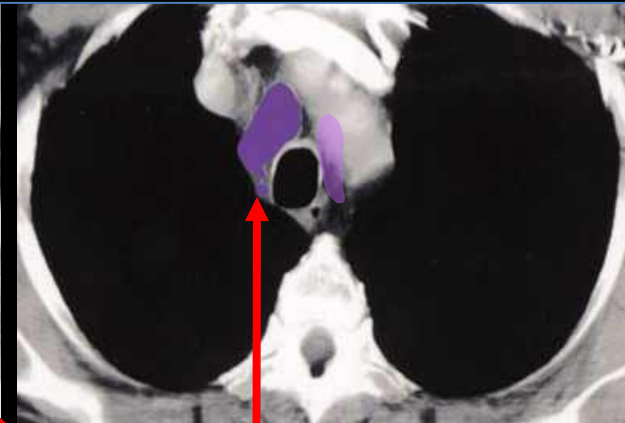


Inf. pulm. lig.

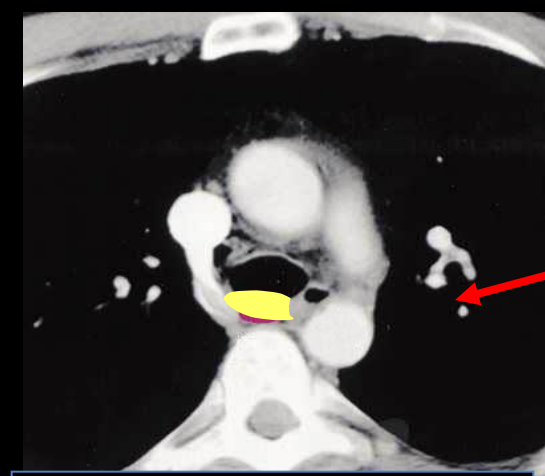
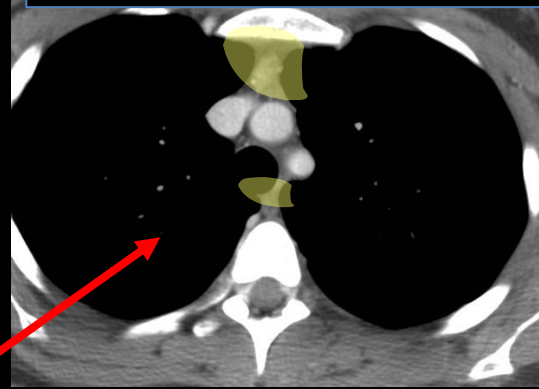


Médiastinales supérieures 1R et 1L

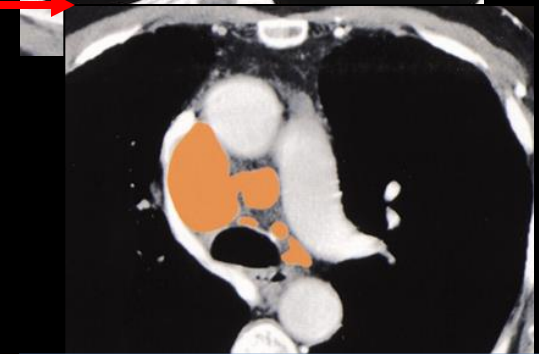
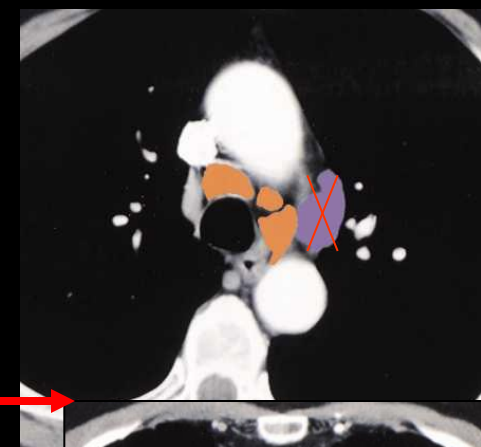
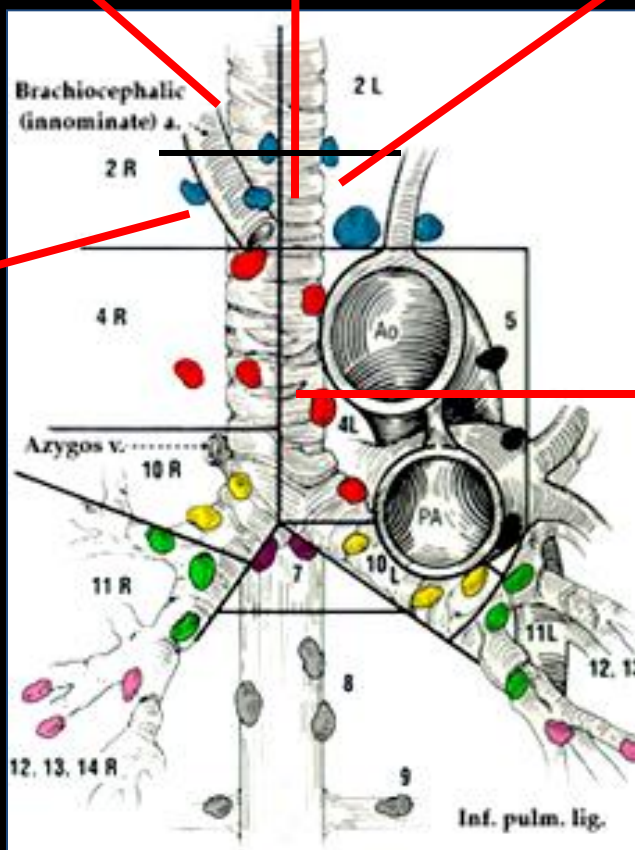
Paratrachéales supérieures 2R et 2L



Prévasculaire 3A
rétrotrachéale 3R



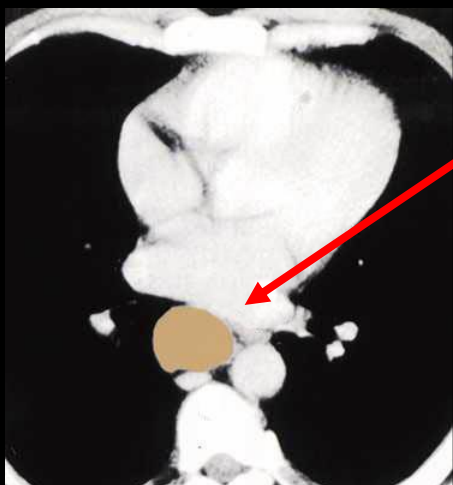
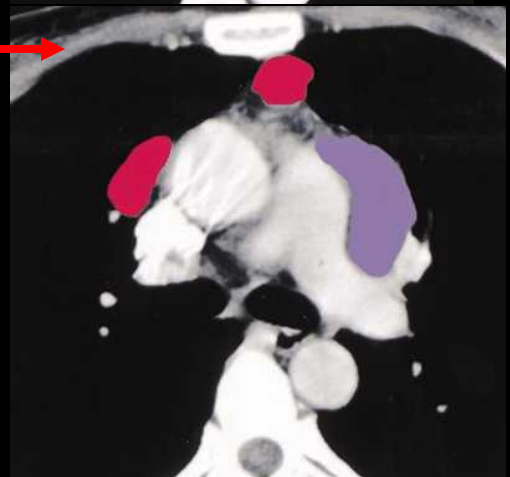
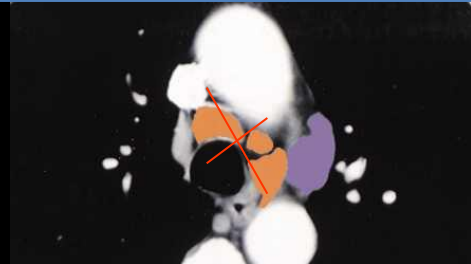
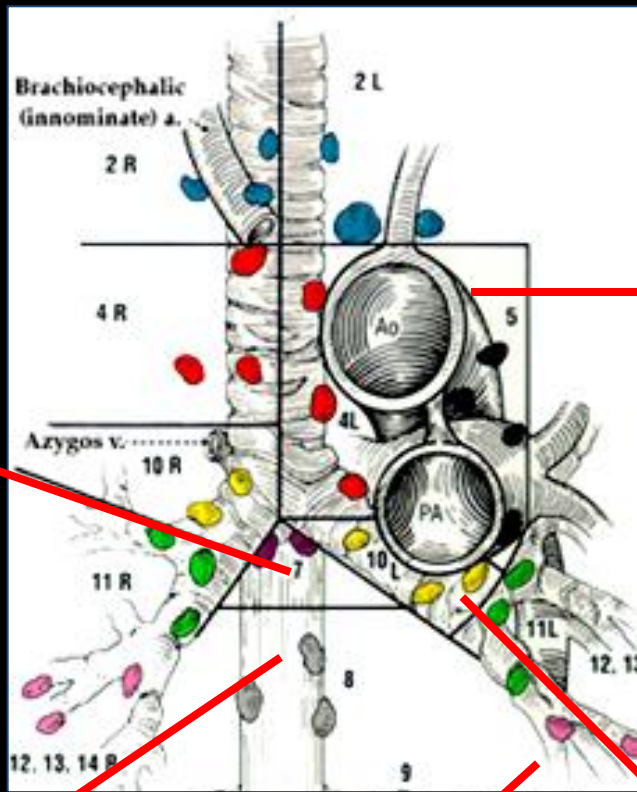
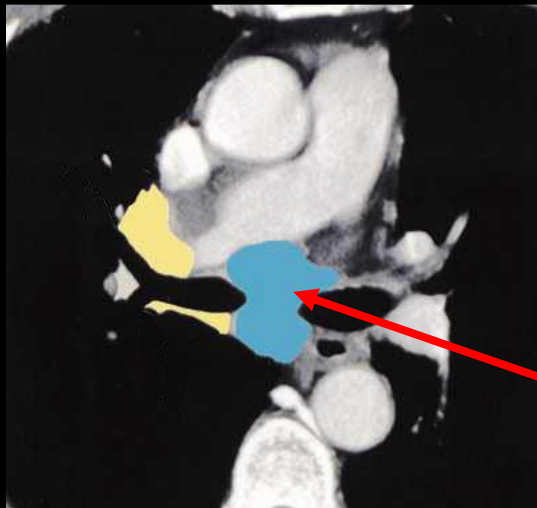
rétrotrachéale 3R



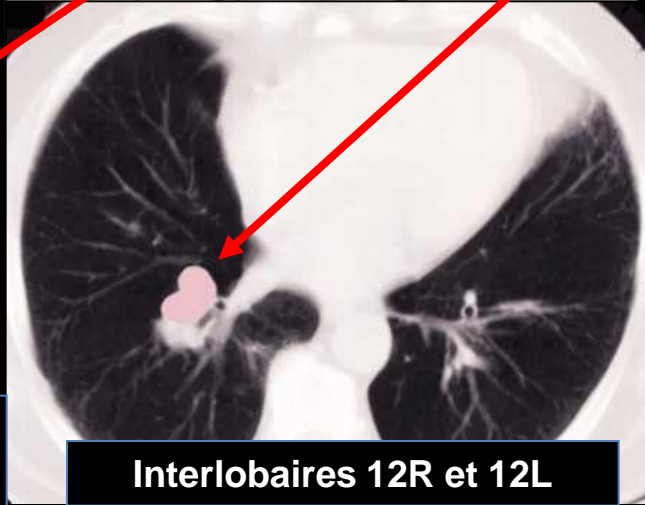
Paratrachéales inférieures droite et gauche 4R et 4 L

Fenêtre aorto pulmonaire 5

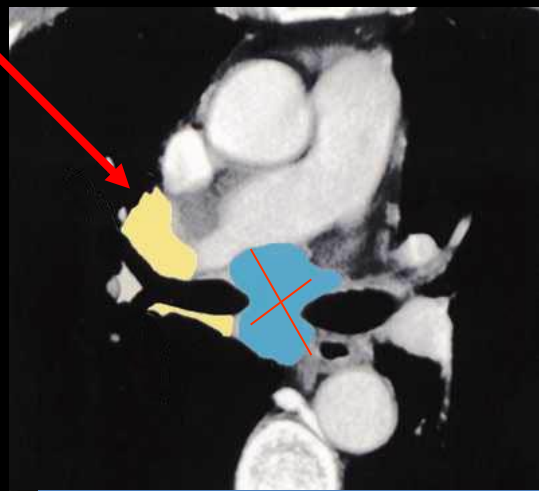
Sous carinaires 7



Para oesophagienne 8
Œsophage sous carinaire



Interlobaires 12R et 12L









Hilaires 10R et 10L

Regional Nodal Stations For Lung Cancer Staging

N, NODES

SUPERIOR MEDIASTINAL NODES

LOCATION

- | | | |
|---|-------------------------------------|--|
|  2R | Right upper paratracheal nodes | Between intersection of caudal margin of innominate a. with trachea and the apex of the lung (supra-innominate nodes). |
|  2L | Upper left paratracheal nodes | Between top of aortic arch and apex of the lung (supra-aortic nodes). |
|  4R | Right lower paratracheal nodes | Between intersection of caudal margin of innominate a. with trachea and cephalic border of azygos v. |
|  4L | Left lower paratracheal nodes | Between top of aortic arch and carina (medial to ligamentum arteriosum) |
|  10R | Right tracheo-bronchial angle nodes | From cephalic border of azygos v. to origin of RUL bronchus. |
|  10L | Left tracheo-bronchial angle nodes | Between carina and LUL (medial to ligamentum arteriosum). |

