

EndoBronchial UltraSound

EBUS



Presented By:

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Chest Institute & Research Center
Thursday, September 11th, 2014

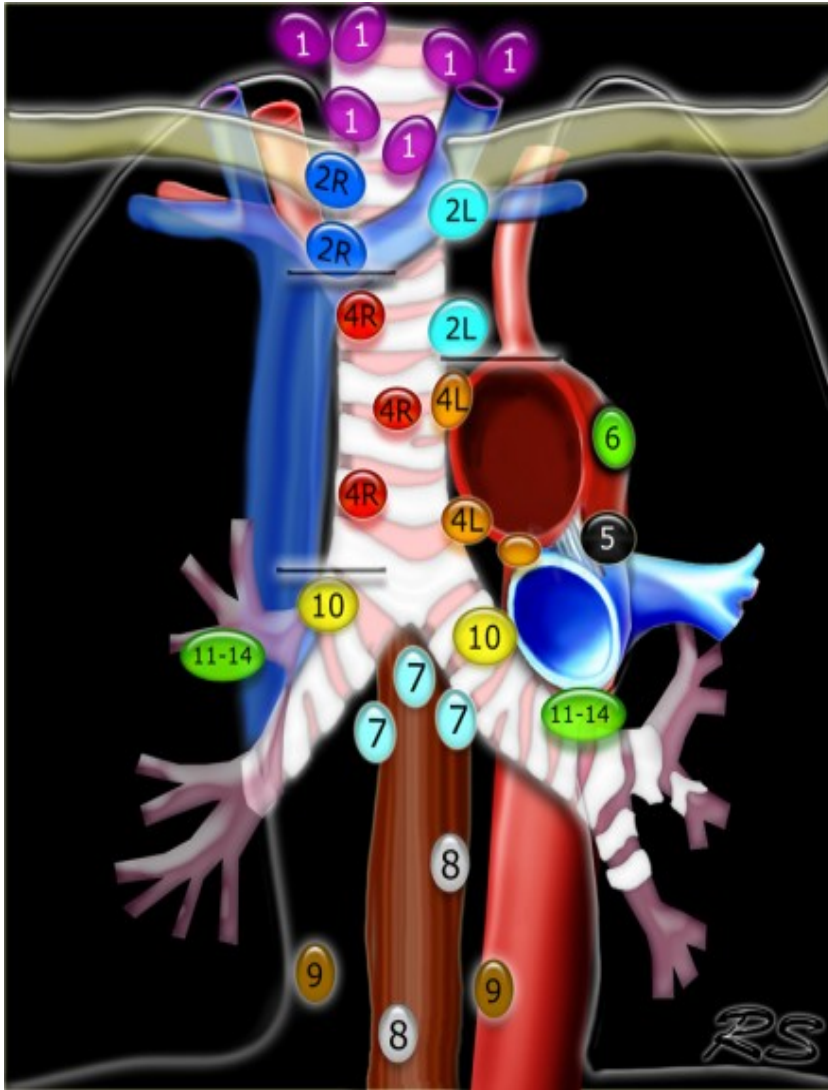


Disclosures

- Speaker's Bureau
 - AstraZeneca
 - Forest Laboratories
- Research Grants
 - AstraZeneca
 - GSK
 - Boehringer Ingelheim
 - Forest
 - Teva
 - Merck
 - Mylan
- Sponsored Training
 - Olympus (IBV Valve System)
 - Merit EndoTek (AERO® Fully Covered Tracheobronchial Stent)
 - Boston Scientific (Bronchial Thermoplasty)
 - Super Dimension (Electromagnetic Navigational Bronchoscopy)



IASLC lymph node map 2009



■ Supraclavicular nodes

1. *Low cervical, supraclavicular and sternal notch nodes*

From the lower margin of the cricoid to the clavicles and the upper border of the manubrium.

The midline of the trachea serves as border between 1R and 1L.

■ Superior Mediastinal Nodes 2-4

2R. *Upper Paratracheal*

2R nodes extend to the left lateral border of the trachea.

From upper border of manubrium to the intersection of caudal margin of innominate (left brachiocephalic) vein with the trachea.

2L. *Upper Paratracheal*

From the upper border of manubrium to the superior border of aortic arch.

2L nodes are located to the left of the left lateral border of the trachea.

4R. *Lower Paratracheal*

From the intersection of the caudal margin of innominate (left brachiocephalic) vein with the trachea to the lower border of the azygos vein.

4R nodes extend from the right to the left lateral border of the trachea.

4L. *Lower Paratracheal*

From the upper margin of the aortic arch to the upper rim of the left main pulmonary artery.

■ Aortic Nodes 5-6

■ Inferior Mediastinal Nodes 7-9

7. *Subcarinal*

■ Hilar, Lobar and (sub)segmental Nodes 10-14

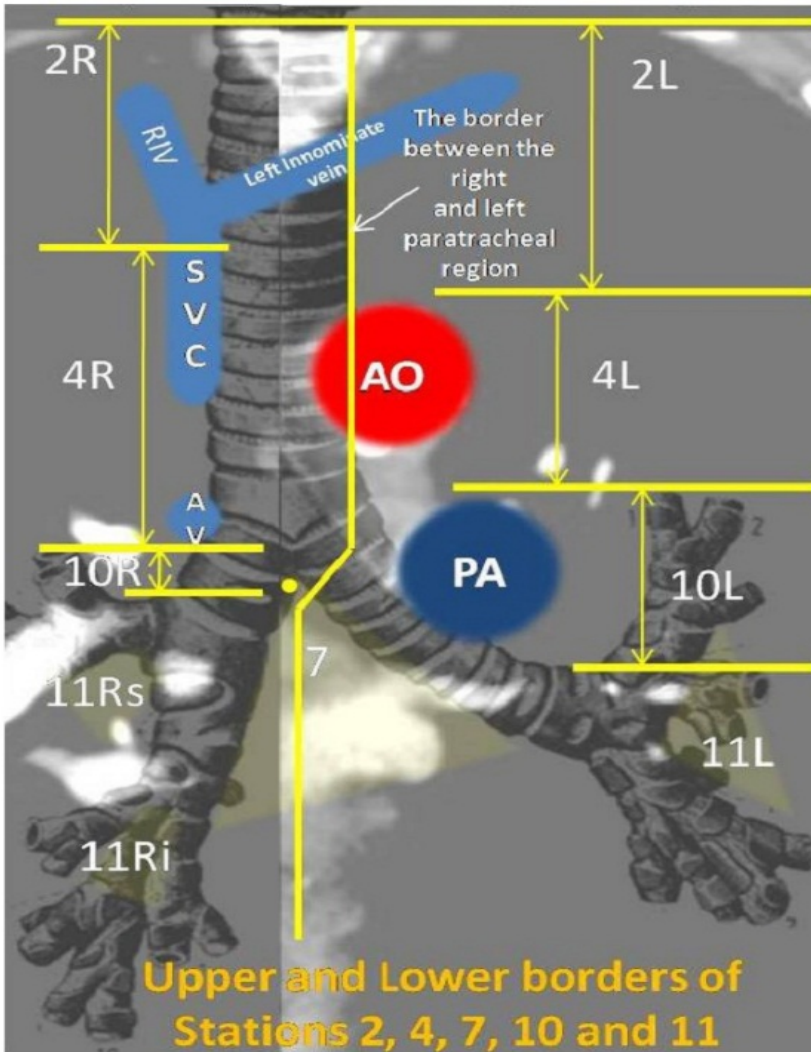
These are all N1-nodes.

10. *Hilar nodes*

These include nodes adjacent to the main stem bronchus and hilar vessels. On the right they extend from the lower rim of the azygos vein to the interlobar region.

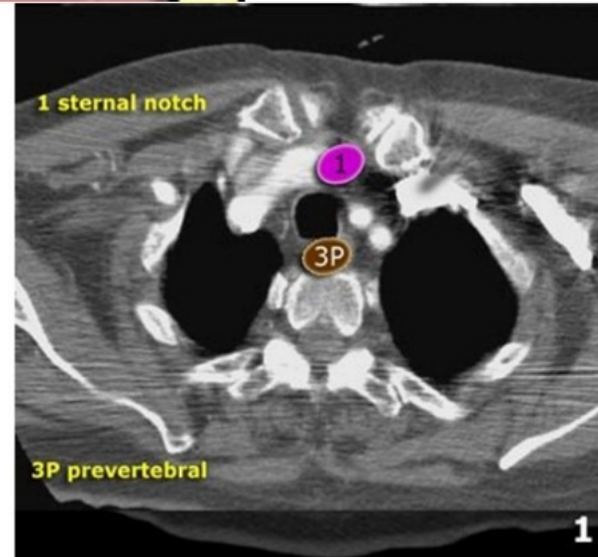
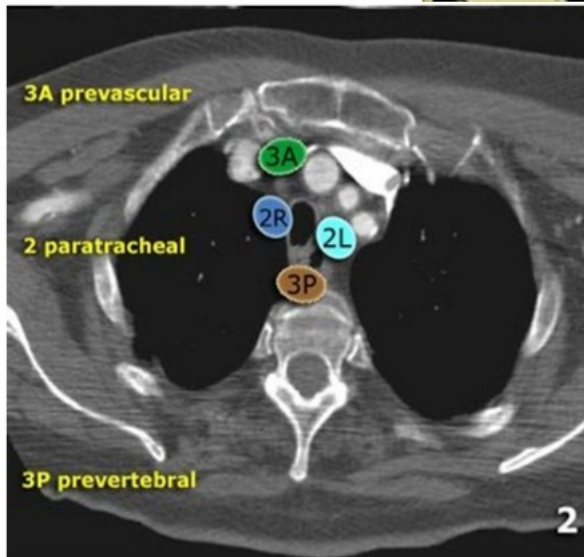
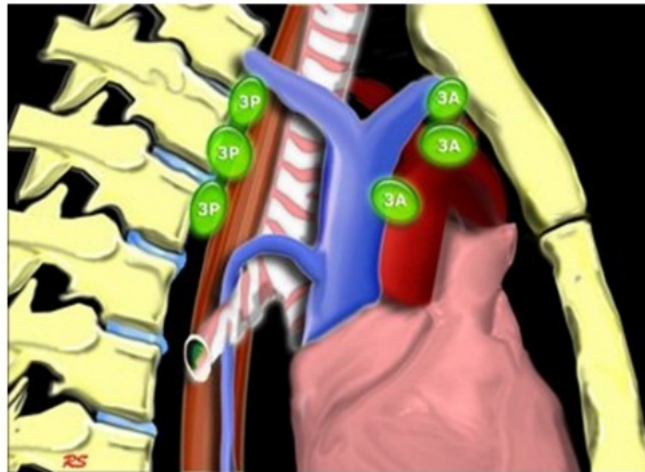
On the left from the upper rim of the pulmonary artery to the interlobar region.

MEDIASTINAL LYMPH NODE STATIONS

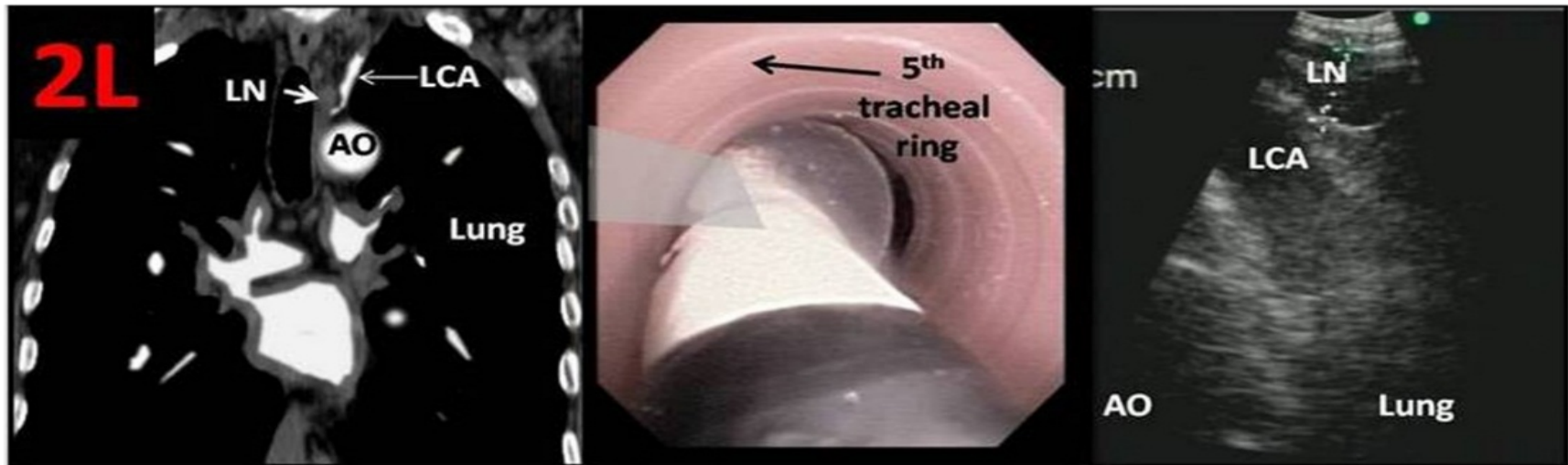
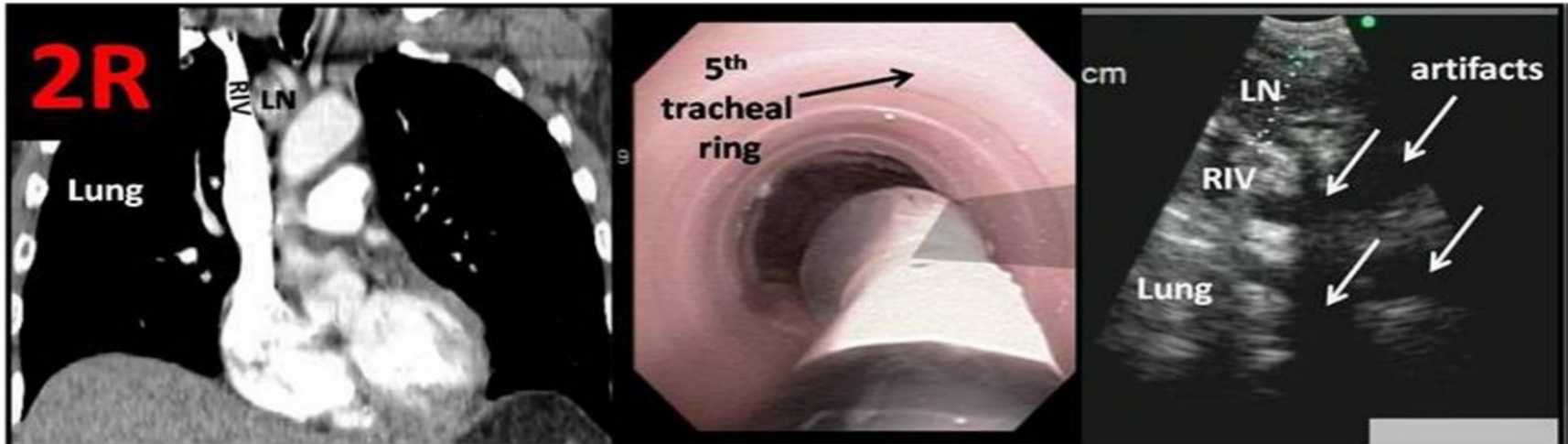


AV	Azygous vein
AO	Aorta
LN	Lymph node
PA	Pulmonary artery
SVC	Superior vena cava
RC1	Primary right carina
RIV	Right innominate vein
RUL	Right upper lobe
RLL	Right lower lobe
LCA	Left carotid artery
LC2	Secondary left carina
LUL	Left upper lobe

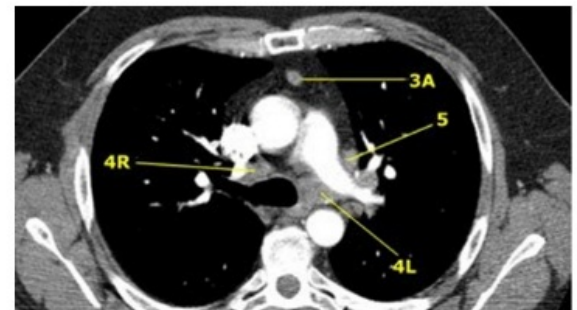
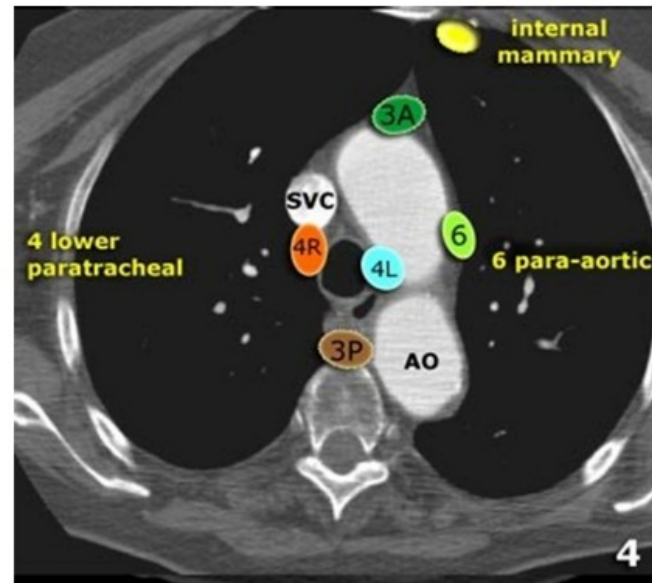
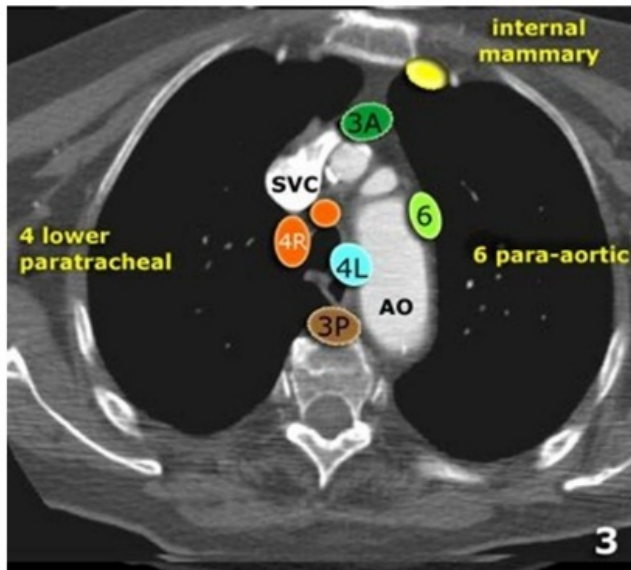
LYMPH NODE: STATION 2



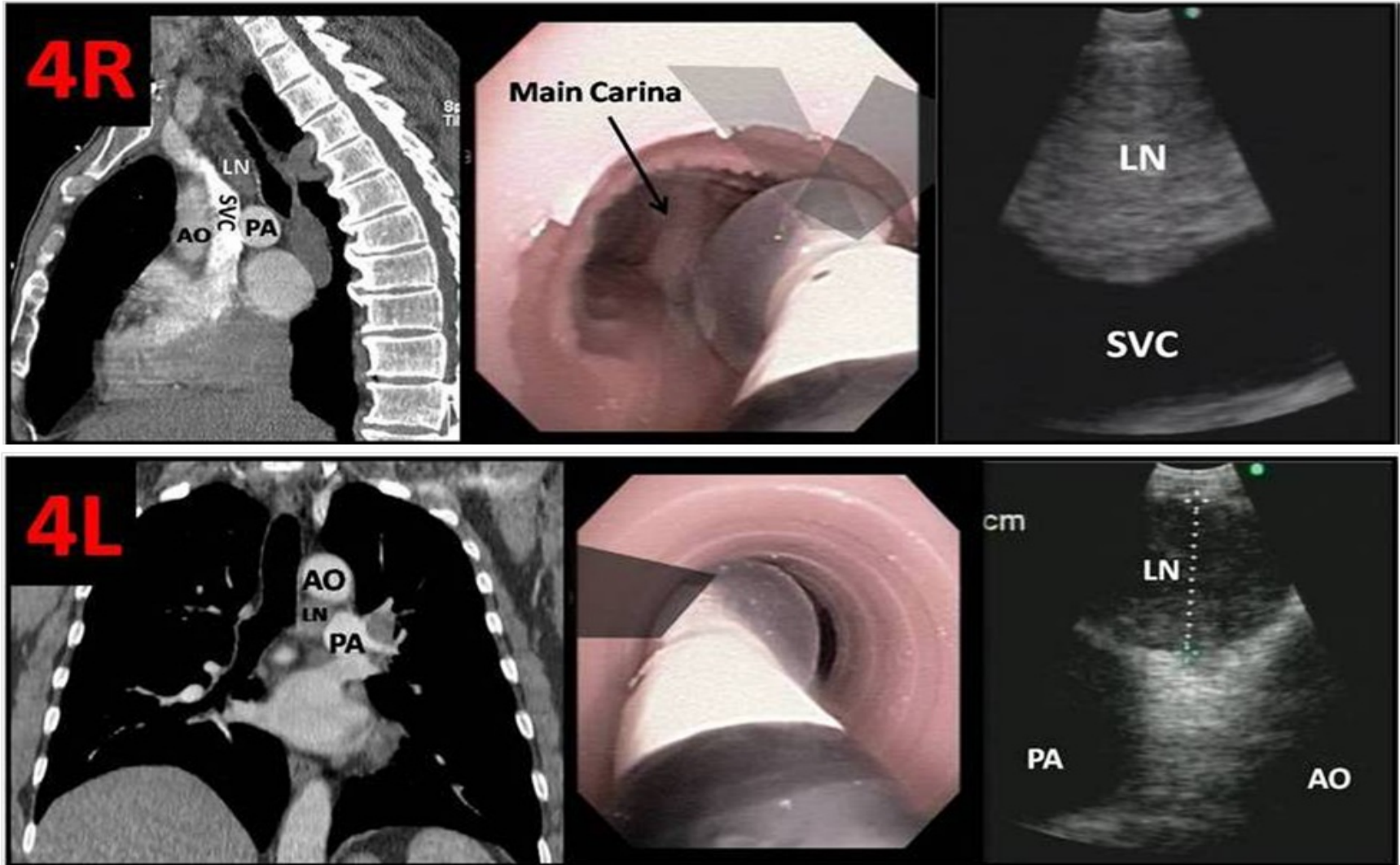
LYMPH NODE: STATION 2



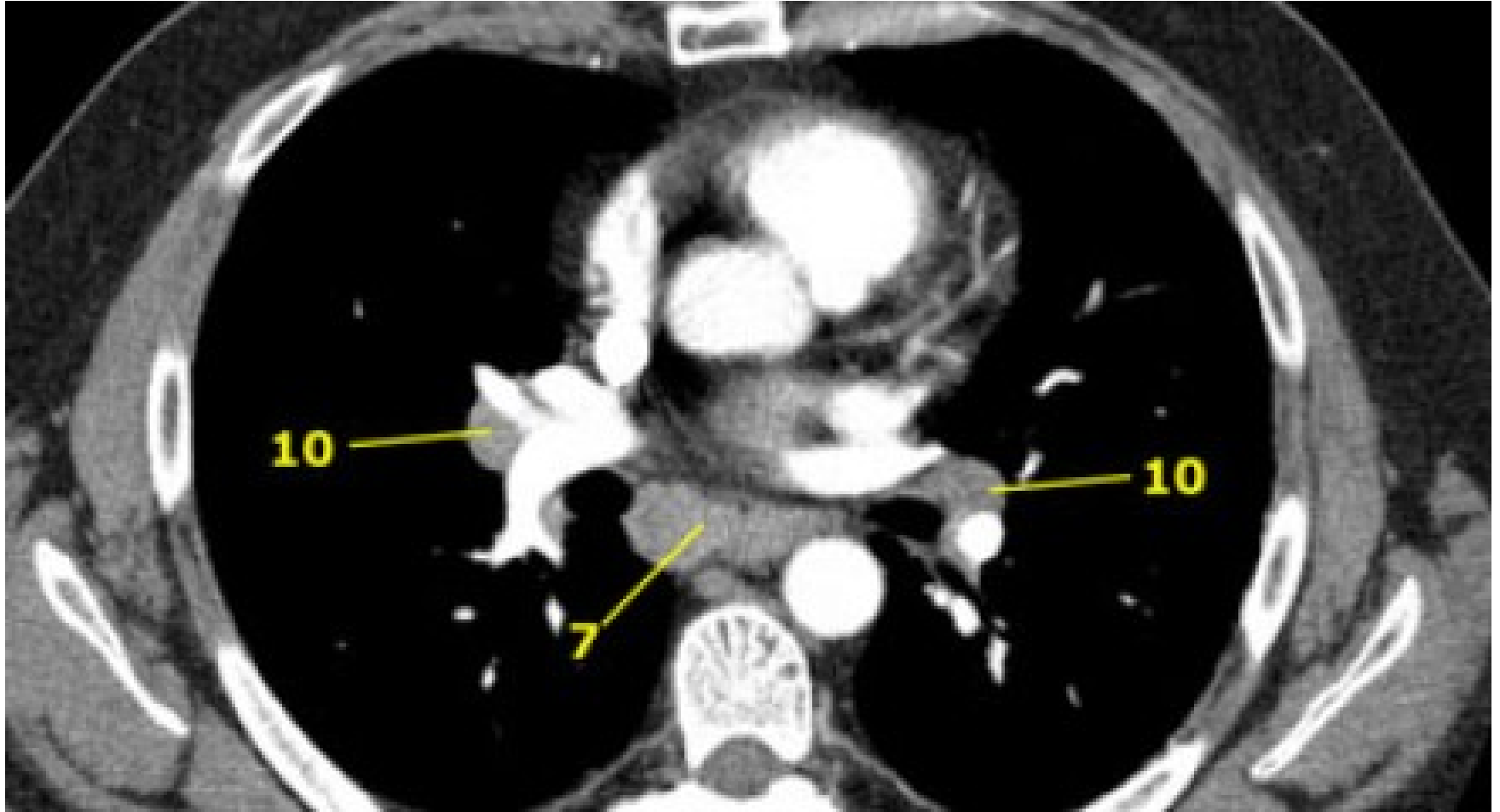
LYMPH NODE: STATION 4



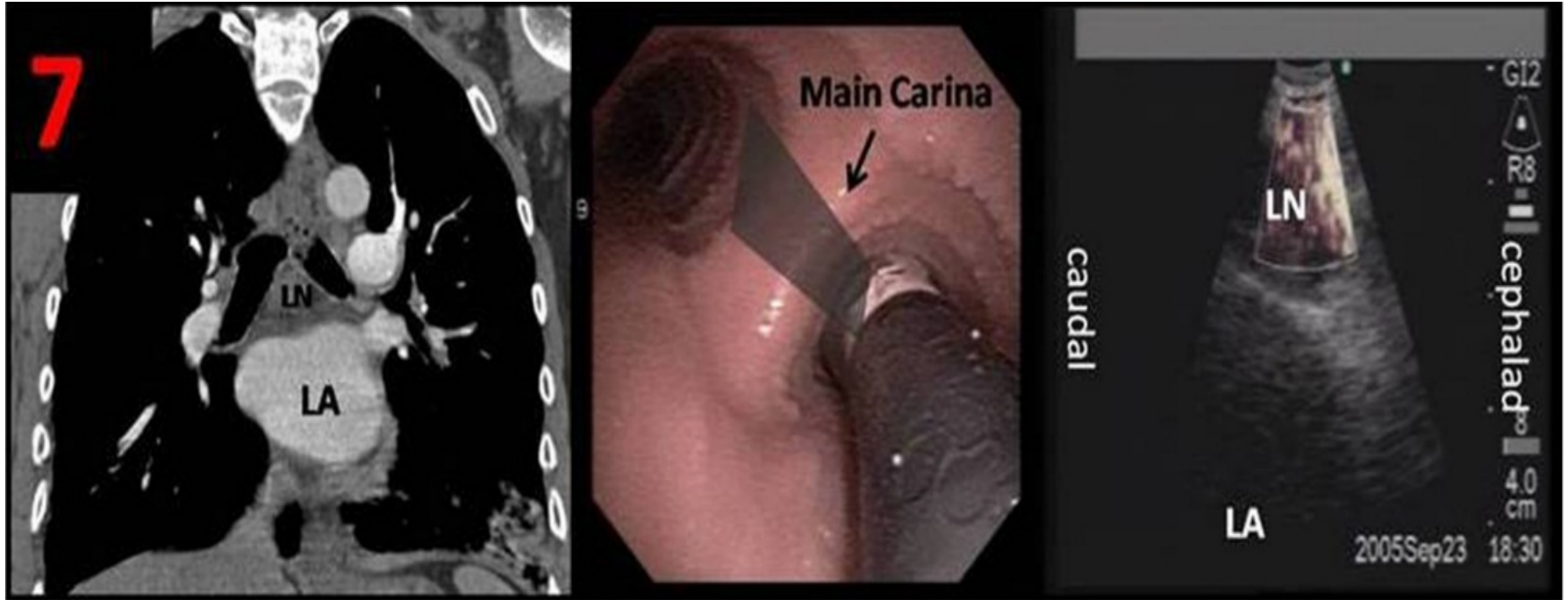
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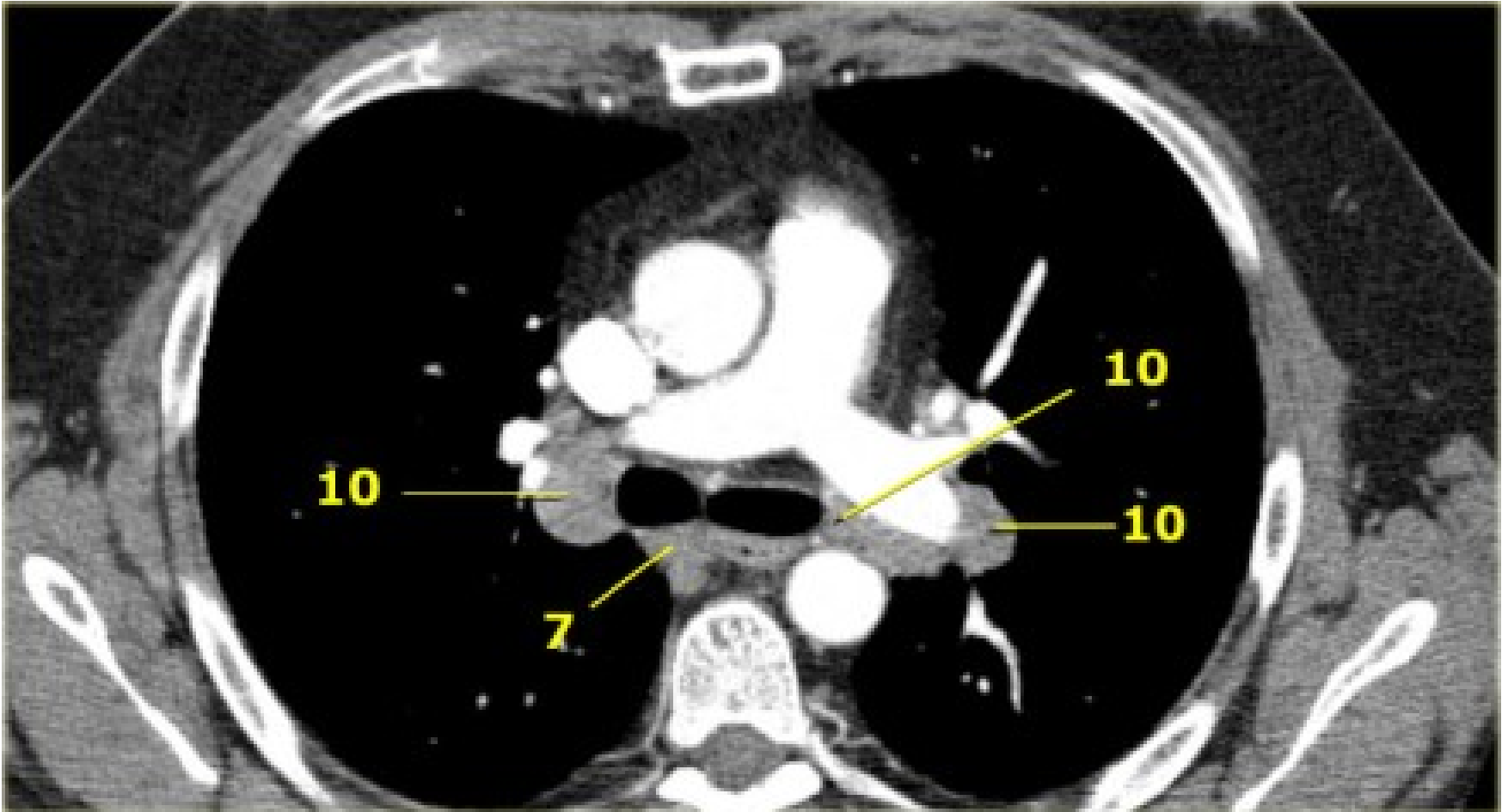
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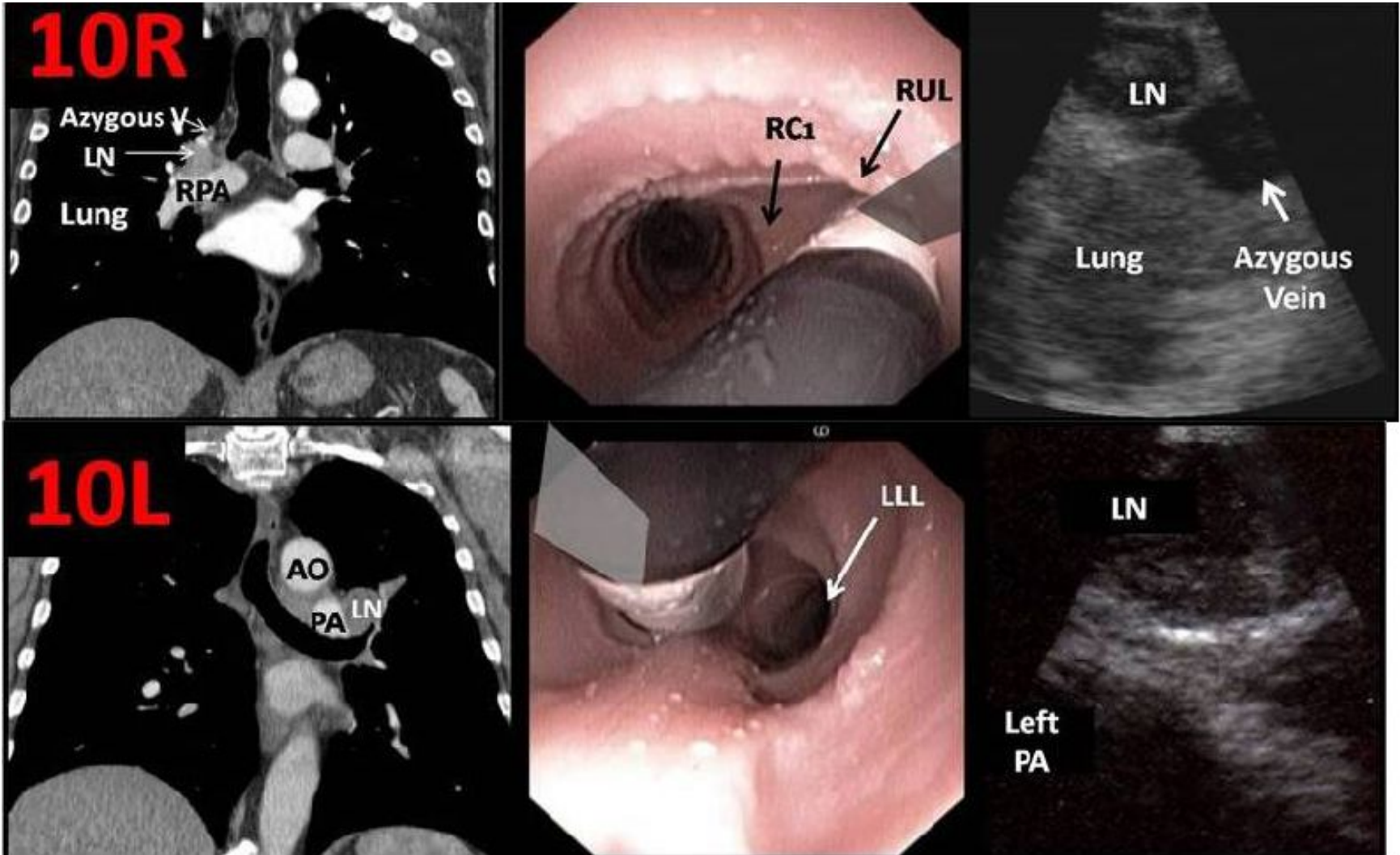
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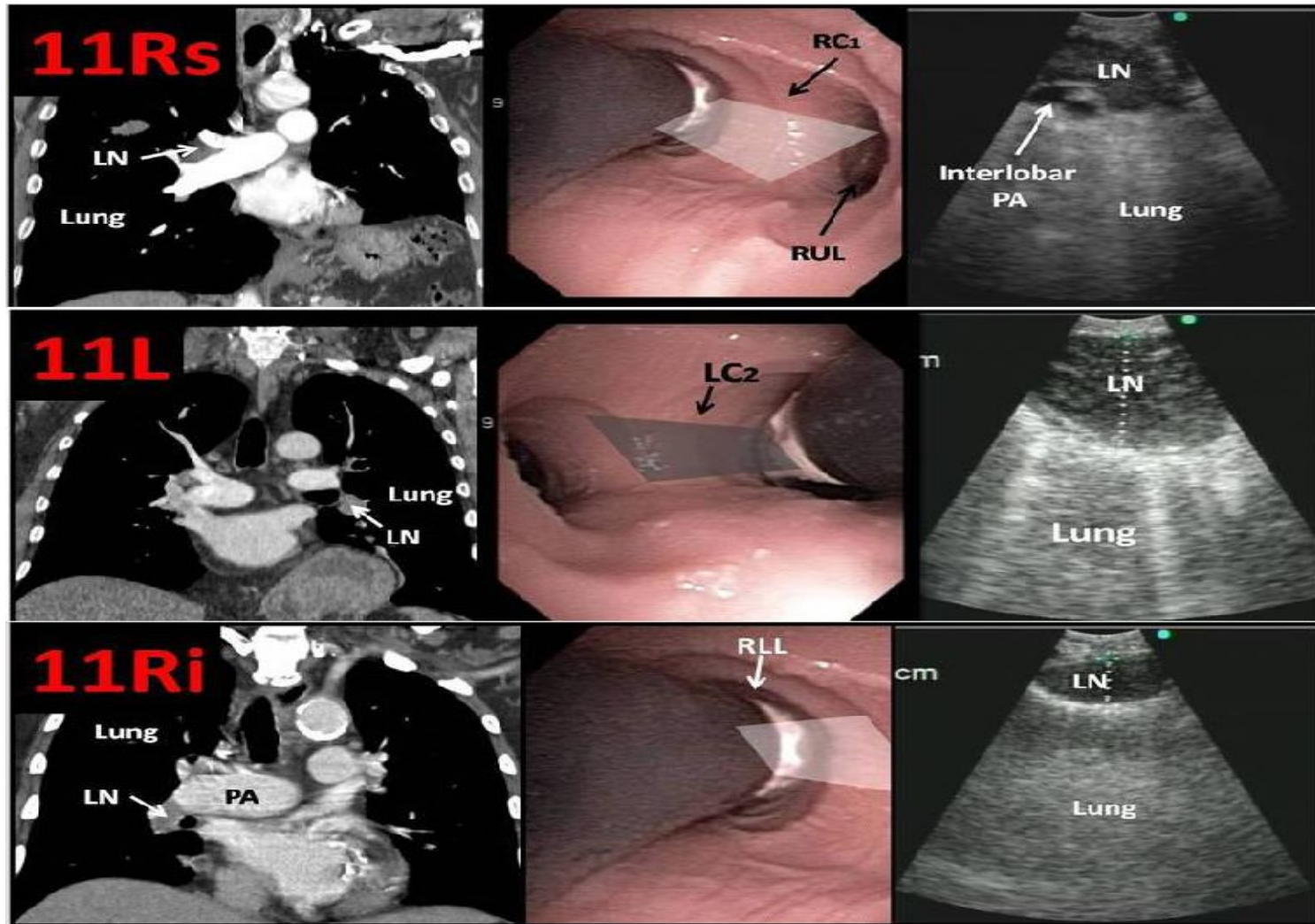
LYMPH NODE: STATION 10

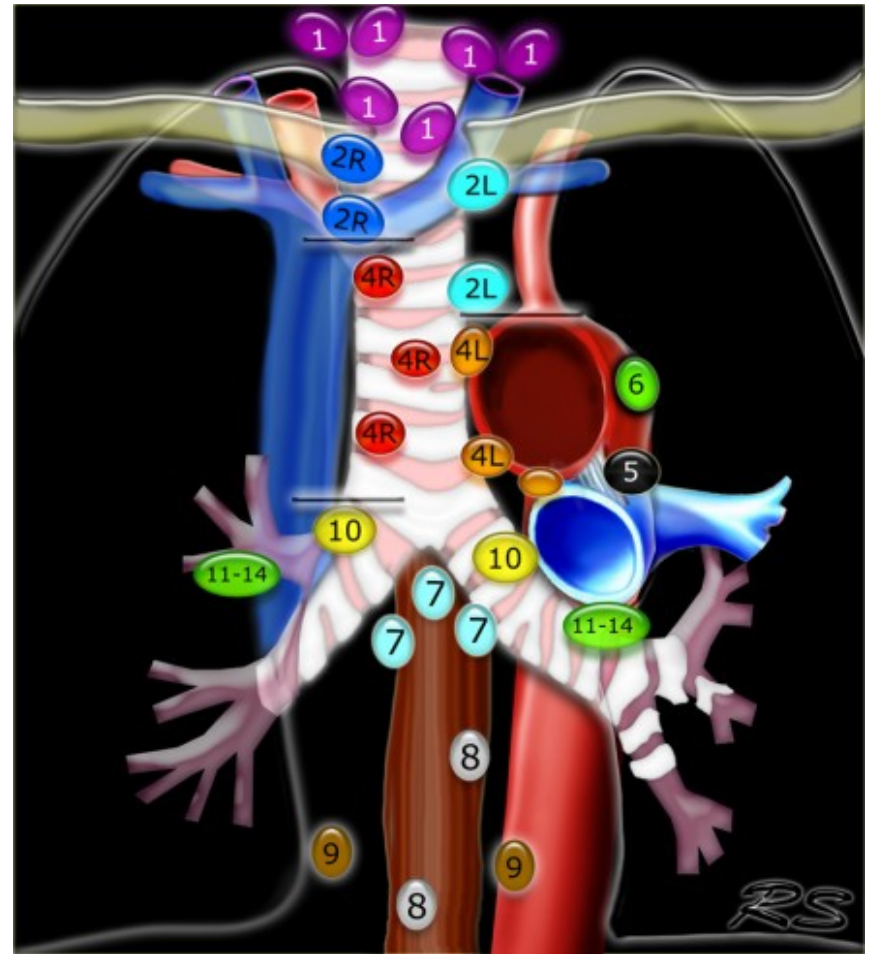
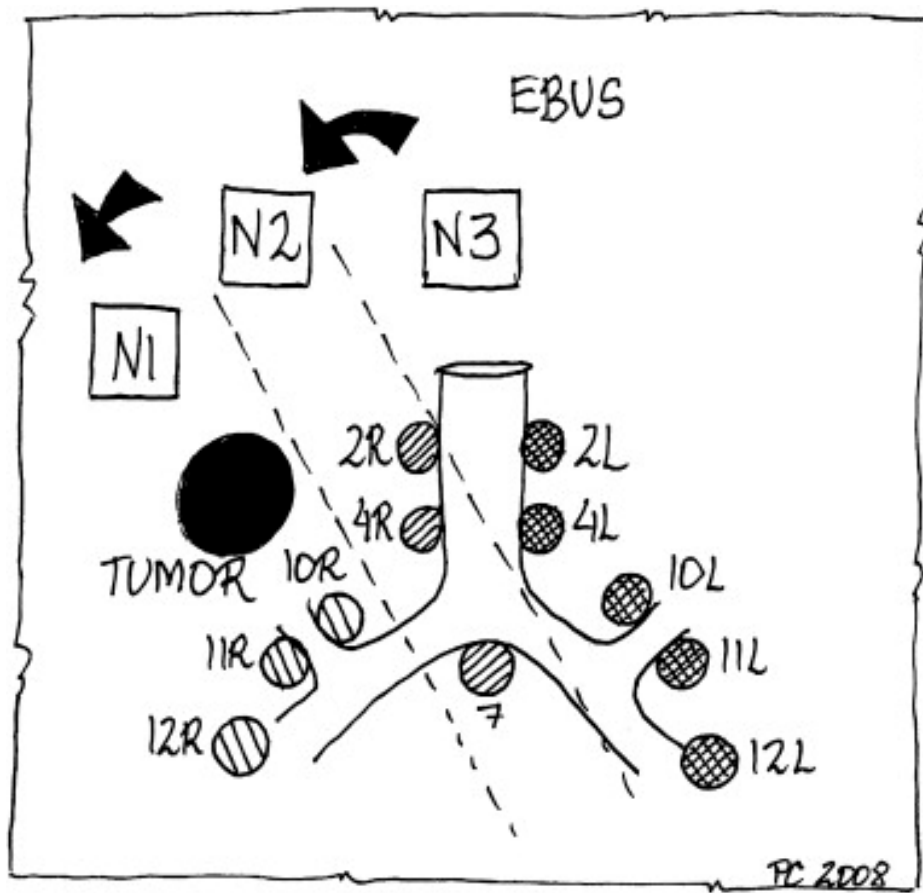


LYMPH NODE: STATION 10



LYMPH NODE: STATION 11





Lung Cancer Staging

Non-Small Cell

Small Cell

Stage I

Stage II

Stage III

Stage IV

Limited

Extensive





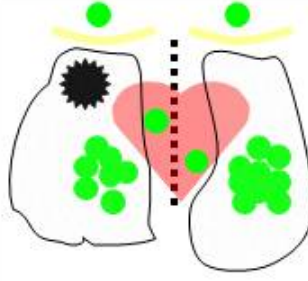
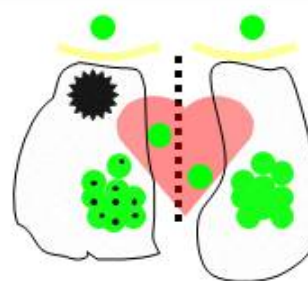
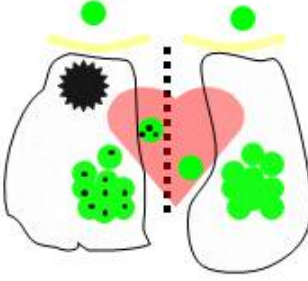
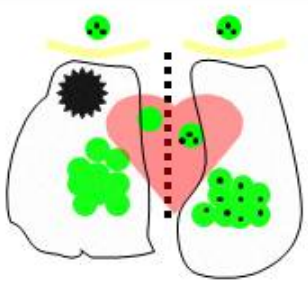

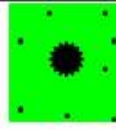
TNM STAGING OF LUNG CANCER

Supraclavicular	Scalene(ipsi-/contralateral)		Mediastinal		Subcarinal	Hilar		Peribronchial (ipsilateral)	LYMPH NODE (N)
	(contralateral)	(ipsilateral)	(contralateral)	(ipsilateral)		(contralateral)	(ipsilateral)		
+	/	+	/	+	/	+			N3
-	-	-	-	+ &/ +	-	-			N2
-	-	-	-	-	-	-	+ &/ +		N1
-	-	-	-	-	-	-	-	-	N0

Stage 0 (Tis, N0, M0)				
METASTASES (M) M0 : Abscent M1 : Present Separate metastatic tumor nodule(s) in the ipsilateral nonprimary-tumor lobe(s) of the lung also are classified M1				
Tis : Carcinoma in situ				
Staging is not relevant for Occult Carcinoma (Tx, N0, M0)				
* Including direct extension to intrapulmonary nodes				
** Including superior sulcus tumor				
(& : and) (/ : or) (&/ : and/or)				

T1	T2	T3	T4	PRIMARY TUMOR (T)
a&b&c	any of a,b,c,d	(a&c)/b/d	(a&c)/d	Criteria
≤ 3 cm	> 3 cm	any	any	a. Size
No invasion proximal to the lobar bronchus	Main bronchus (≥ 2 cm distal to the carina)	Main bronchus (< 2 cm distal to the carina)	-	b. Endo-bronchial location
surrounded by lung or visceral pleura	Visceral pleura	Chest wall **/ diaphragm/ mediastinal pleura/ parietal pericardium	Mediastinum/ trachea/heart/ great vessels/ esophagus/ vertebral body/ carina	c. Local Invasion
-	Atelectasis/ obstructive pneumonitis that extends to the hilar region but doesn't involve the entire lung	Atelectasis/ obstructive pneumonitis of the entire lung	Malignant pleural/peri-cardial effusion or satellite tumor nodule(s) within the ipsilateral primary-tumor lobe of the lung	d. Other

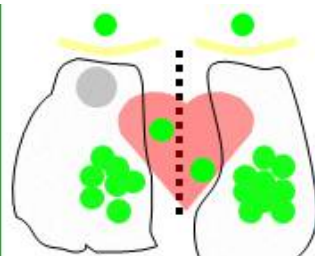
Stage IV M1 (any T, any N)					
Stage III B					
Stage III A			MO 		
Stage II A	Stage II B				
Stage I A	Stage I B	Stage II B			

<p>Tumor size</p>	<p>T1 < 3 cm </p>	<p>T2 3-7 cm  (T2a 3-5 cm; T2b 5-7 cm) Atelectasis (part of lung) Invasion: Visceral pleura, main bronchus ≥ 2 cm from carina</p>	<p>T3 > 7 cm  Atelectasis (whole lung) Invasion: Phrenic nerve, diaphragm, chest wall mediastinal pleura, main bronchus < 2 cm from carina, parietal pericard</p>	<p>T4  Invasion mediastinal organs/ vertebral bodies/ carina /tumor nodules in different ipsilateral lobe</p>
<p>Lymph node</p>	<p> N0 No lymph nodes involvement</p>	<p> N1 Ipsilateral bronchopulmonary/ hilar</p>	<p> N2 Ipsilateral mediastinal/ subcarinal</p>	<p> N3 Contralateral hilar/ contralateral mediastinal/ supraclavicular</p>
<p>Metastasis</p>	<p>M0  No metastasis</p>	<p>M1  Bilateral lesions Distant metastasis malignant pleural effusion</p>	<p>© TheBestOncologist.com 2010</p>	

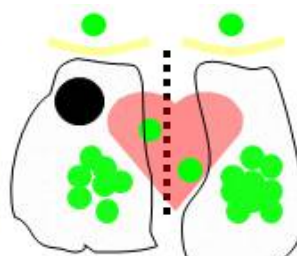
Lung Cancer Staging (non small cell)

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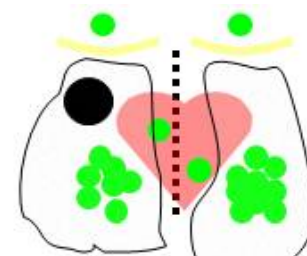
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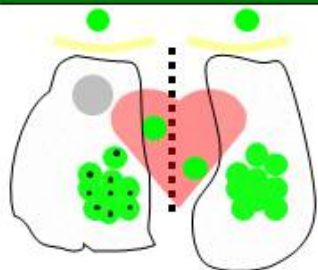
IA: T1, N0, M0



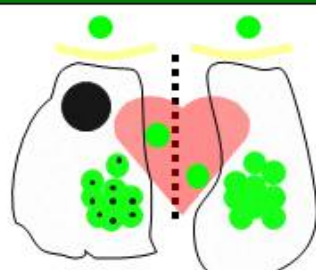
IB: T2a, N0, M0



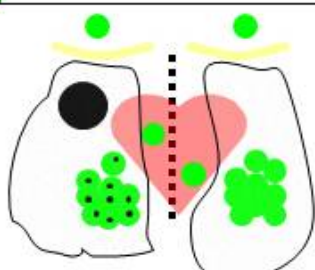
IIA: T2b, N0, M0



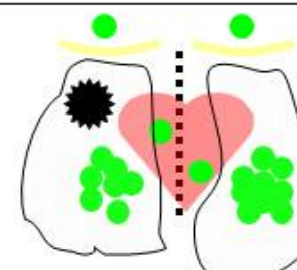
IIA: T1, N1, M0



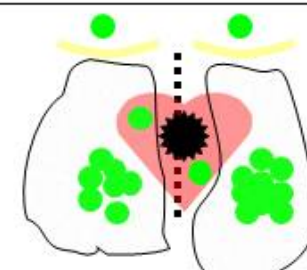
IIA: T2a, N1, M0



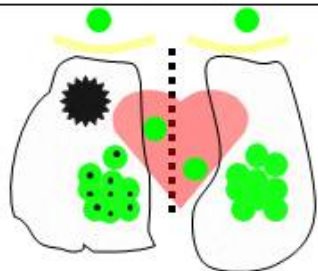
IIB: T2b, N1, M0



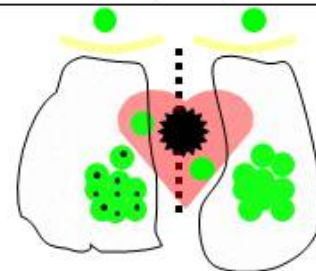
IIB: T3, N0, M0



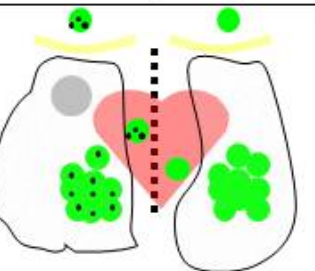
IIIA: T4, N0, M0



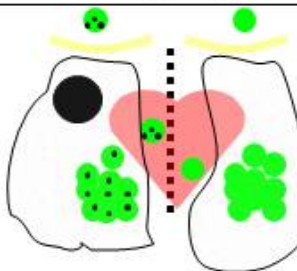
IIIA: T3, N1, M0



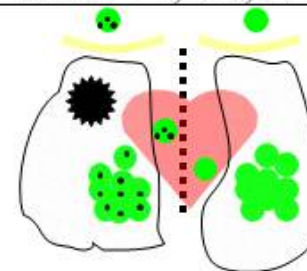
IIIA: T4, N1, M0



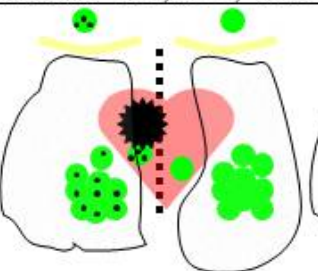
IIIA: T1, N2, M0



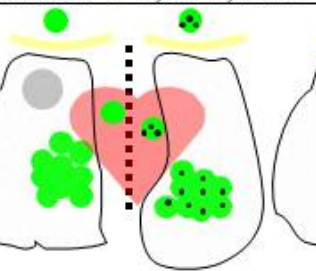
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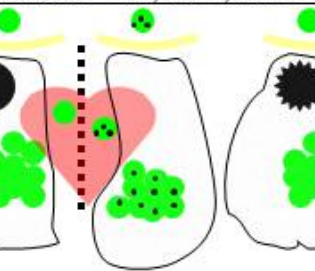
IIIA: T3, N2, M0



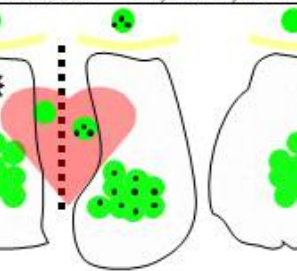
IIIB: T4, N2, M0



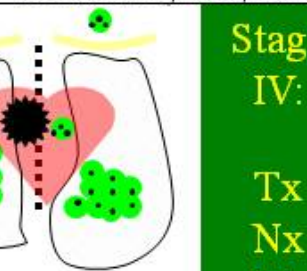
IIIB: T1, N3, M0



IIIB: T2, N3, M0



IIIB: T3, N3, M0



IIIB: T4, N3, M0

Stage
IV:

Tx

Nx

M1

Video

For additional information

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