

# Small Cell Lung Cancer

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# History

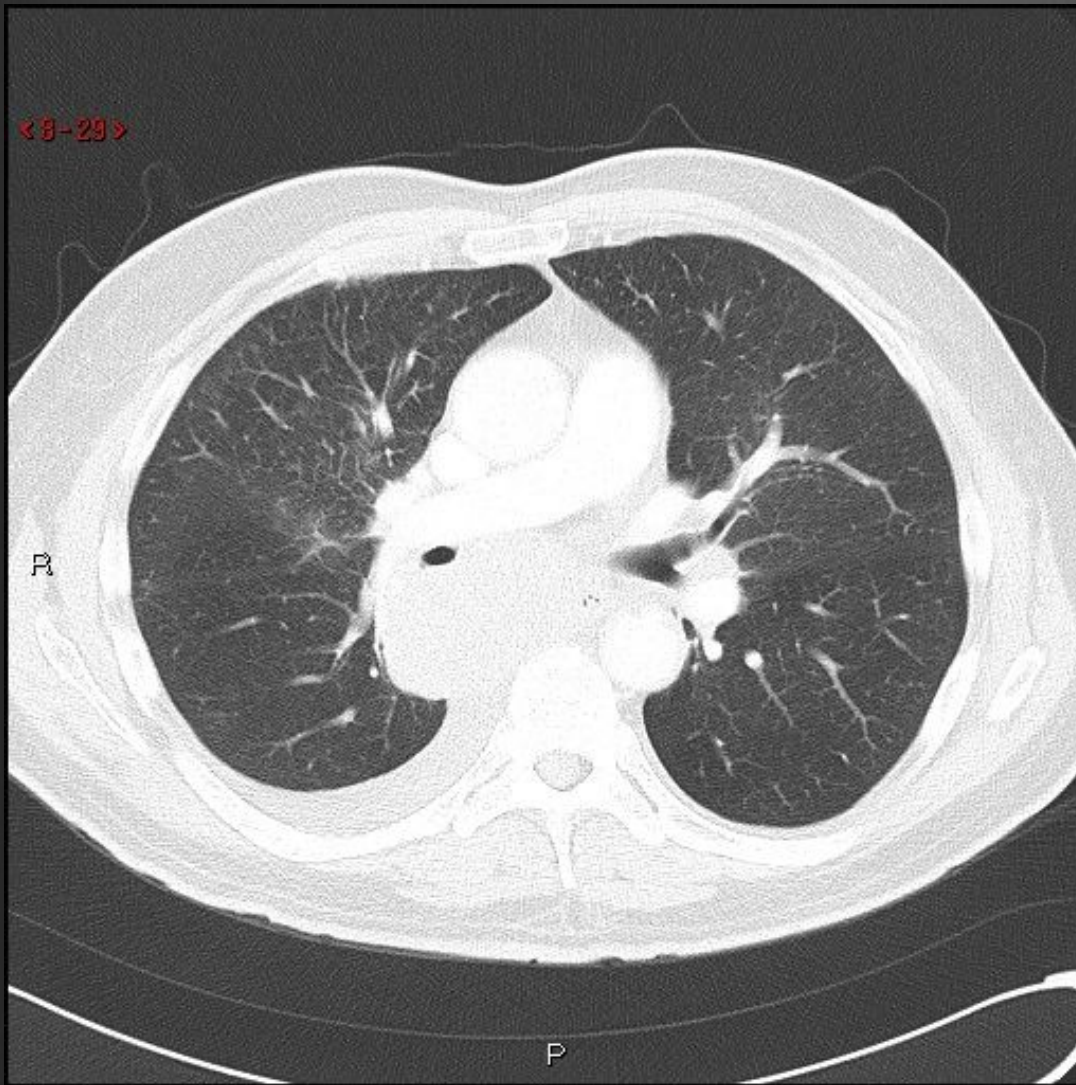
- ⊗ LSH 68 y.o. male referred to UVA for a 6.9cm right posterior mediastinal lung mass concerning for primary lung cancer (Chest CT from OSH)
- ⊗ History of Hepatitis C post treatment with subsequent resolution 2006
- ⊗ History of hepatocellular carcinoma status post radiofrequency ablation in 2013
- ⊗ Smokes 1 pack a day with 50 pack year history
- ⊗ Quit alcohol 15 years ago
- ⊗ CAD, PAD, DM2, HTN
- ⊗ 30lbs weight loss since January, decreased appetite, headaches (recent brain imaging negative)
- ⊗ Concerning for T4N3(?)M(?), needs biopsy of supraclavicular LN and PET

## Chest CT



- ⊗ Small right pleural effusion and atelectasis
- ⊗ Right posterior mediastinal mass
- ⊗ Lack of fat plane with esophagus and right mainstem bronchus/right lower lobe bronchus

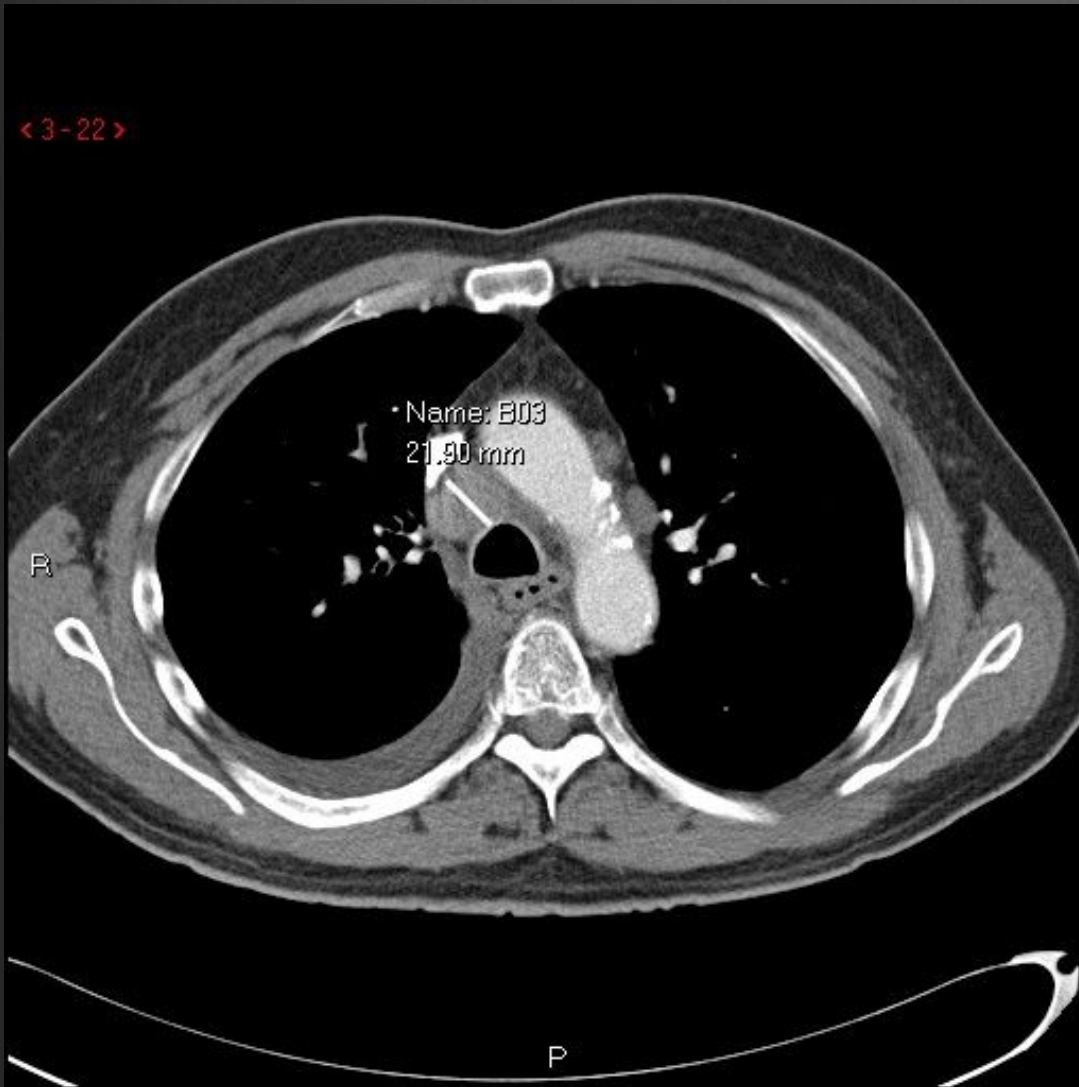
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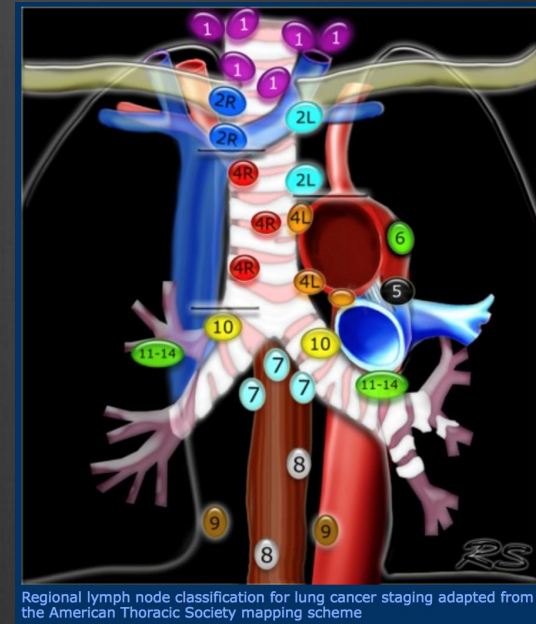
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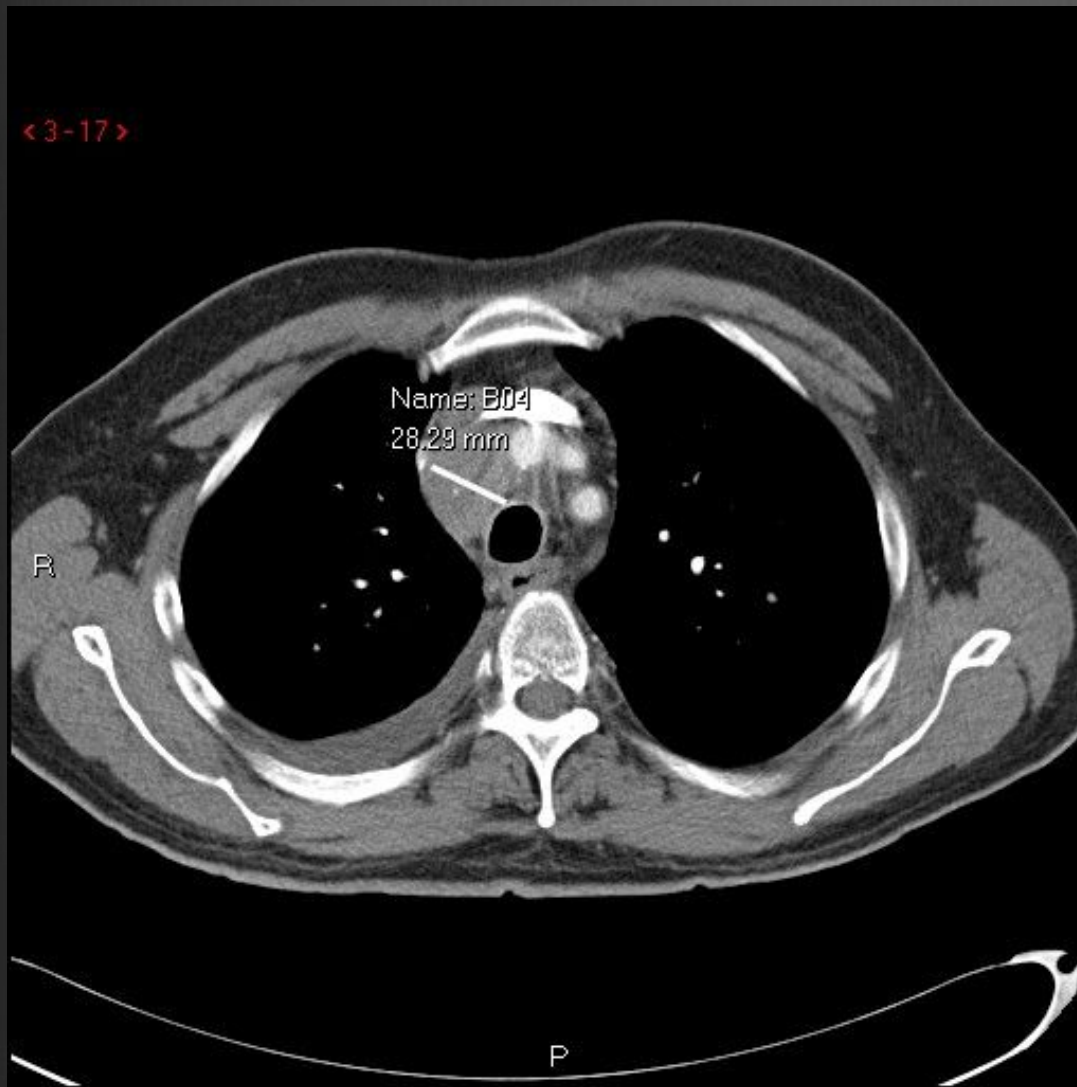
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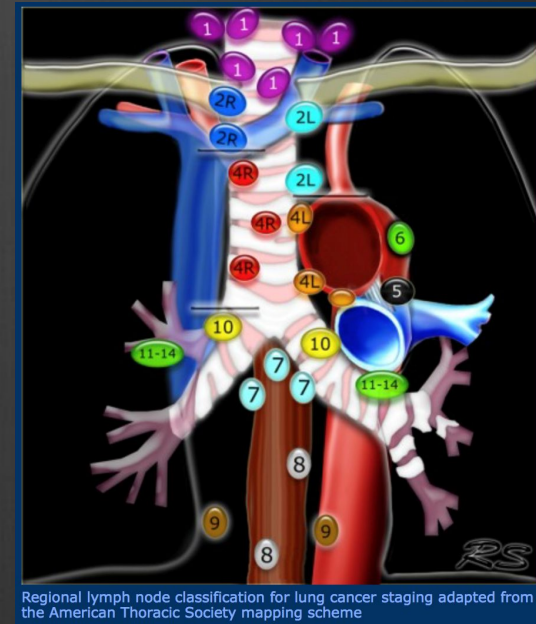
- ⊗ Right paratracheal lymphadenopathy
- ⊗ Including right lower paratracheal node and right superior paratracheal node



# Chest CT



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## Chest CT



- ⊗ Bilateral supraclavicular lymphadenopathy



# Left supraclavicular LN biopsy

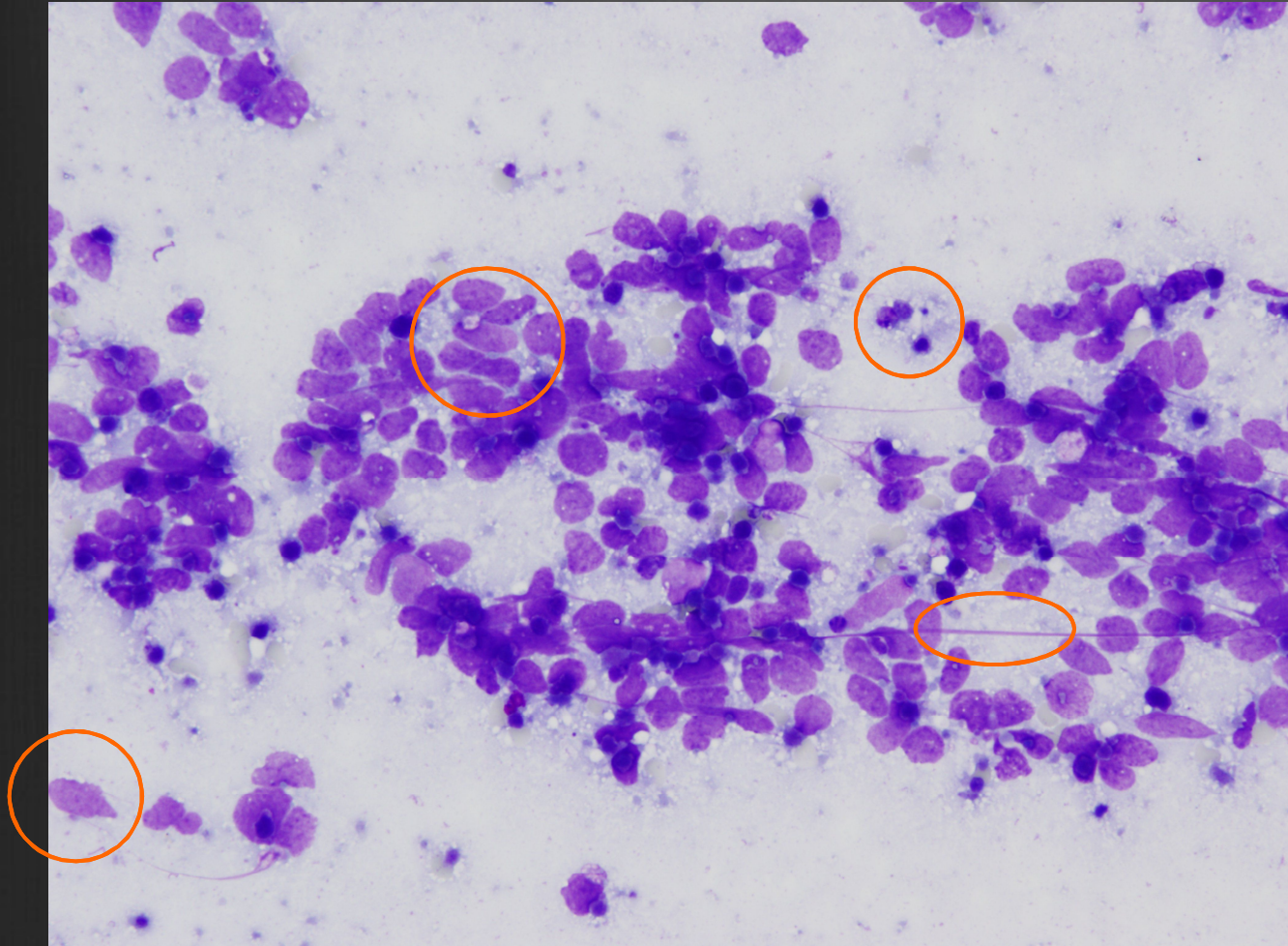


- ⊗ 1% lidocaine
- ⊗ 22-gauge needle FNA and 18-gauge needle core biopsies were obtained





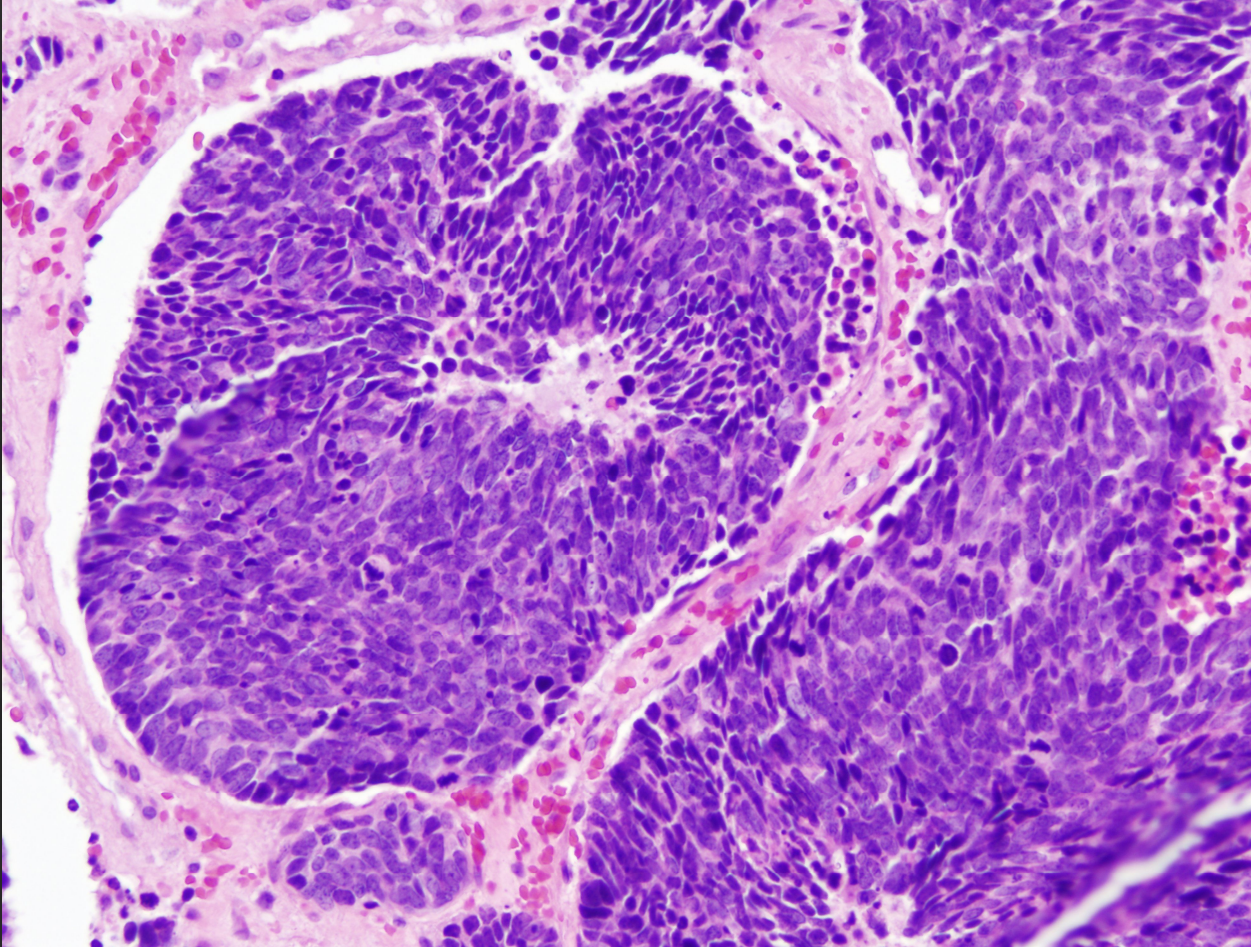
# FNA



- ⊗ Scant cytoplasm
- ⊗ Hyperchromatic nuclei with finely granular chromatin, nucleoli indistinct
- ⊗ Nuclear molding
- ⊗ Apoptotic bodies
- ⊗ Mitotic figures
- ⊗ Oat cells
- ⊗ Streak/crush artifact



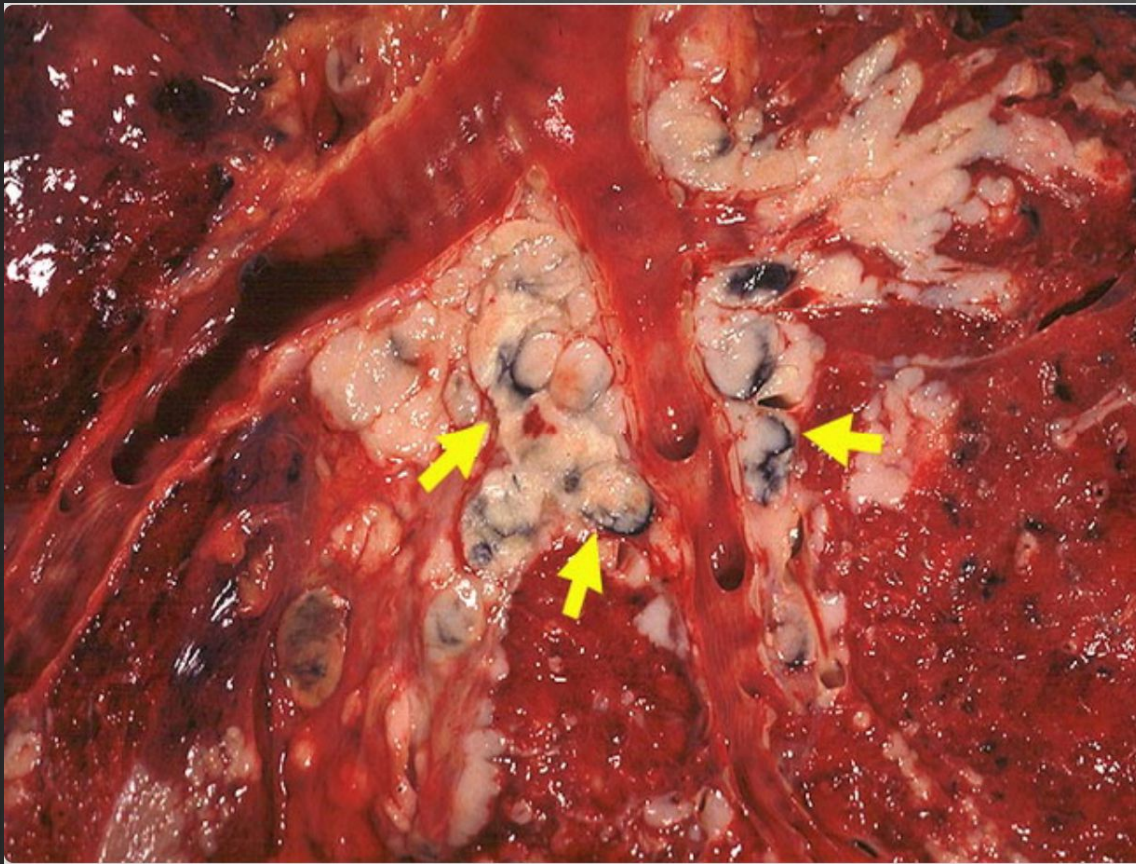
## Core Biopsy



- ⊗ Nests and cords
- ⊗ Mitotic activity
- ⊗ Central necrosis



# Gross Pathology of SCLC



- ⊗ 15% of all lung cancers, mostly in smokers
- ⊗ Pale gray, centrally located masses
- ⊗ Rapid growth, early involvement of the hilar and mediastinal nodes
- ⊗ Neuroendocrine cells
- ⊗ Paraneoplastic syndromes
- ⊗ Not operable
- ⊗ Responsive to chemotherapy and radiotherapy but relapse

# TNM Staging

## T, N, and M descriptors for the eighth edition of TNM classification for lung cancer

T: Primary tumor	
Tx	Primary tumor cannot be assessed or tumor proven by presence of malignant cells in sputum or bronchial washings but not visualized by imaging or bronchoscopy
T0	No evidence of primary tumor
Tis	Carcinoma in situ
T1	Tumor $\leq 3$ cm in greatest dimension surrounded by lung or visceral pleura without bronchoscopic evidence of invasion more proximal than the lobar bronchus (ie, not in the main bronchus)*
<b>T1a(mi)</b>	<b>Minimally invasive adenocarcinoma<sup>¶</sup></b>
<b>T1a</b>	<b>Tumor <math>\leq 1</math> cm in greatest dimension*</b>
<b>T1b</b>	<b>Tumor <math>&gt;1</math> cm but <math>\leq 2</math> cm in greatest dimension*</b>
<b>T1c</b>	<b>Tumor <math>&gt;2</math> cm but <math>\leq 3</math> cm in greatest dimension*</b>
T2	Tumor $>3$ cm but $\leq 5$ cm or tumor with any of the following features: <sup>Δ</sup> <ul style="list-style-type: none"> <li>▪ Involves main bronchus regardless of distance from the carina but without involvement of the carina</li> <li>▪ Invades visceral pleura</li> <li>▪ Associated with atelectasis or obstructive pneumonitis that extends to the hilar region, involving part or all of the lung</li> </ul>
T2a	Tumor $>3$ cm but $\leq 4$ cm in greatest dimension
T2b	Tumor $>4$ cm but $\leq 5$ cm in greatest dimension
T3	Tumor $>5$ cm but $\leq 7$ cm in greatest dimension or associated with separate tumor nodule(s) in the same lobe as the primary tumor or directly invades any of the following structures: chest wall (including the parietal pleura and superior sulcus tumors), phrenic nerve, parietal pericardium
<b>T4</b>	<b>Tumor <math>&gt;7</math> cm in greatest dimension</b> or associated with separate tumor nodule(s) in a different ipsilateral lobe than that of the primary tumor or invades any of the following structures: <b>diaphragm</b> , mediastinum, heart, great vessels, trachea, recurrent laryngeal nerve, esophagus, vertebral body, and carina
N: Regional lymph node involvement	
Nx	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in ipsilateral peribronchial and/or ipsilateral hilar lymph nodes and intrapulmonary nodes, including involvement by direct extension
N2	Metastasis in ipsilateral mediastinal and/or subcarinal lymph node(s)
<b>N3</b>	Metastasis in contralateral mediastinal, contralateral hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s)
M: Distant metastasis	
M0	No distant metastasis
M1	Distant metastasis present
M1a	Separate tumor nodule(s) in a contralateral lobe; tumor with pleural or pericardial nodule(s) or malignant pleural or pericardial effusion <sup>◊</sup>
<b>M1b</b>	<b>Single extrathoracic metastasis<sup>§</sup></b>
<b>M1c</b>	<b>Multiple extrathoracic metastases in one or more organs</b>



# TNM Staging

Stage groupings			
Occult carcinoma	TX	N0	M0
Stage 0	Tis	N0	M0
Stage IA1	T1a(mi)	N0	M0
	T1a	N0	M0
Stage IA2	T1b	N0	M0
Stage IA3	T1c	N0	M0
Stage IB	T2a	N0	M0
Stage IIA	T2b	N0	M0
Stage IIB	T1a to c	N1	M0
	T2a	N1	M0
	T2b	N1	M0
	T3	N0	M0
Stage IIIA	T1a to c	N2	M0
	T2a to b	N2	M0
	T3	N1	M0
	T4	N0	M0
	T4	N1	M0
Stage IIIB	T1a to c	N3	M0
	T2a to b	N3	M0
	T3	N2	M0
	T4	N2	M0
Stage IIIC	T3	N3	M0
	T4	N3	M0
Stage IVA	Any T	Any N	M1a
	Any T	Any N	M1b
Stage IVB	Any T	Any N	M1c

- ⊗ **Limited disease** – Tumor confined to the ipsilateral hemithorax and regional nodes (TNM stages I through IIB). **Extensive disease** – Distant metastases, malignant pericardial, or pleural effusions, and contralateral supraclavicular and contralateral hilar involvement.

## Follow up

- ⊗ PET pending
- ⊗ The median ranges of survival from the time of diagnosis for limited and extensive disease are 15 to 20 months and 8 to 13 months, respectively. Approximately 20 to 40 percent of limited stage and less than 5 percent of extensive stage patients survive two years. The values for five-year survival are 10 to 13, and 1 to 2 percent, respectively.

# Literature

- ⊗ Pathobiology and staging of small cell carcinoma of the lung. BS Glisson, LA Byers. UpToDate
- ⊗ Small cell lung carcinoma: staging, imaging, and treatment considerations. BW Carter, BS Glisson, MT Truong, JJ Erasmus - Radiographics, 2014 - [pubs.rsna.org](http://pubs.rsna.org)
- ⊗ Small cell lung cancer: where do we go from here? Byers LA, Rudin CM. Cancer. 2015;121(5):664. Epub 2014 Oct 21.