

Lung Cancer Screening

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Disclosure

- No relevant financial conflicts of interest

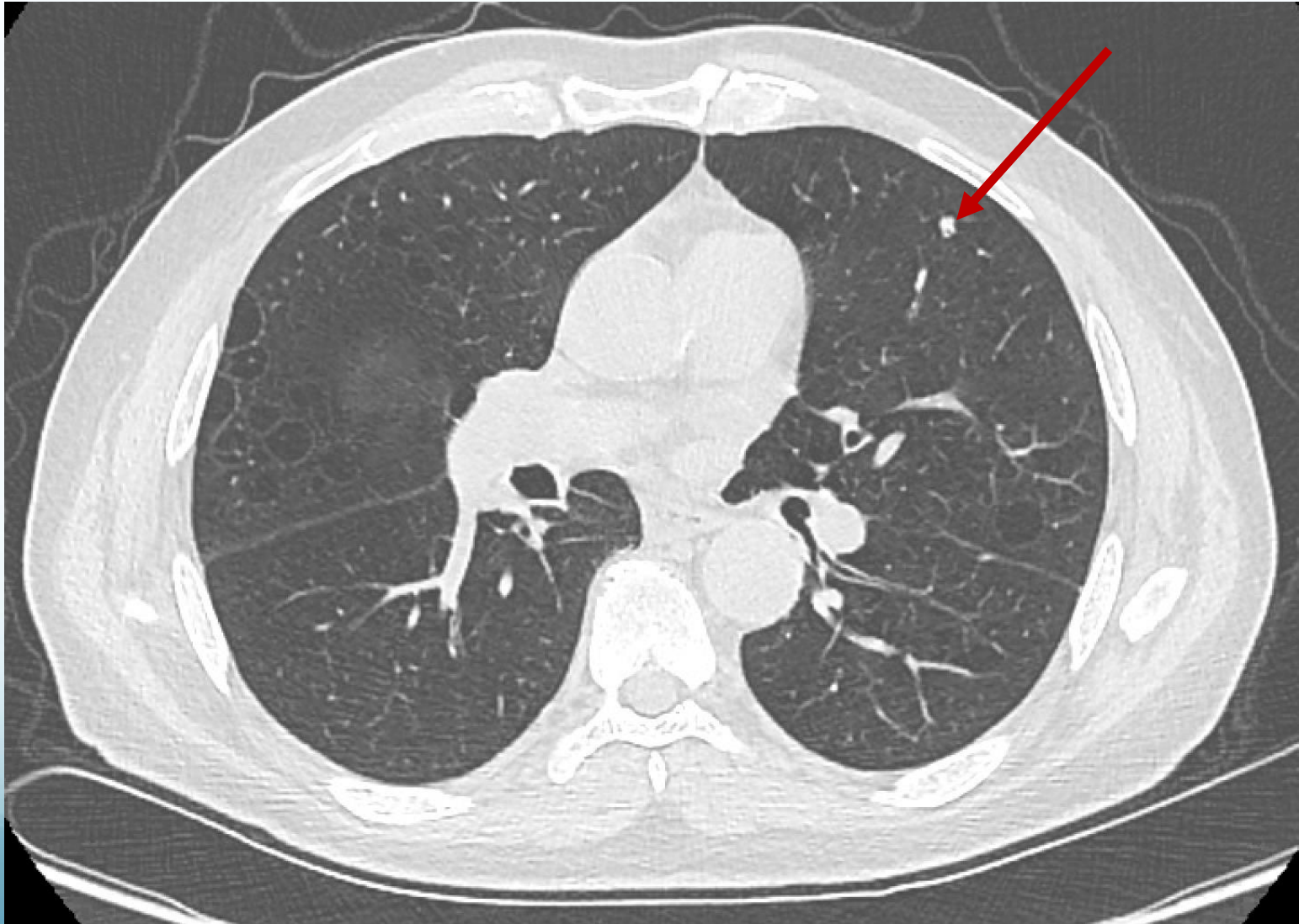
Objectives

- Cases
- Harms
- Benefits
- Recommendations

Case 1

- 69 year old African American male with no significant past medical history presents to clinic for lung cancer screening.
- Social: 2ppd/ 50 years, quit in 2013
- Patient Qualified for Low-dose CT scan of the chest

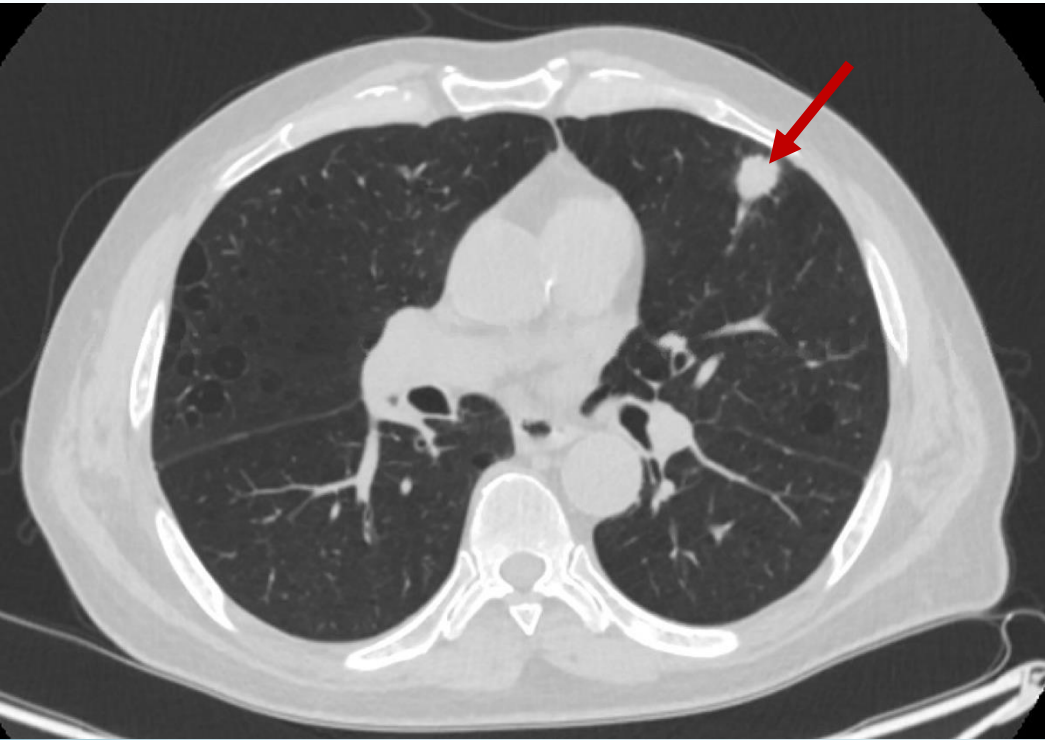
Year 1 Low Dose Lung CT



Clinic Follow up

- Follow up in 1 year with yearly low dose ct scan
- No complaints
- LDCT in Year 2:

Year 2 Low dose CT scan of Chest

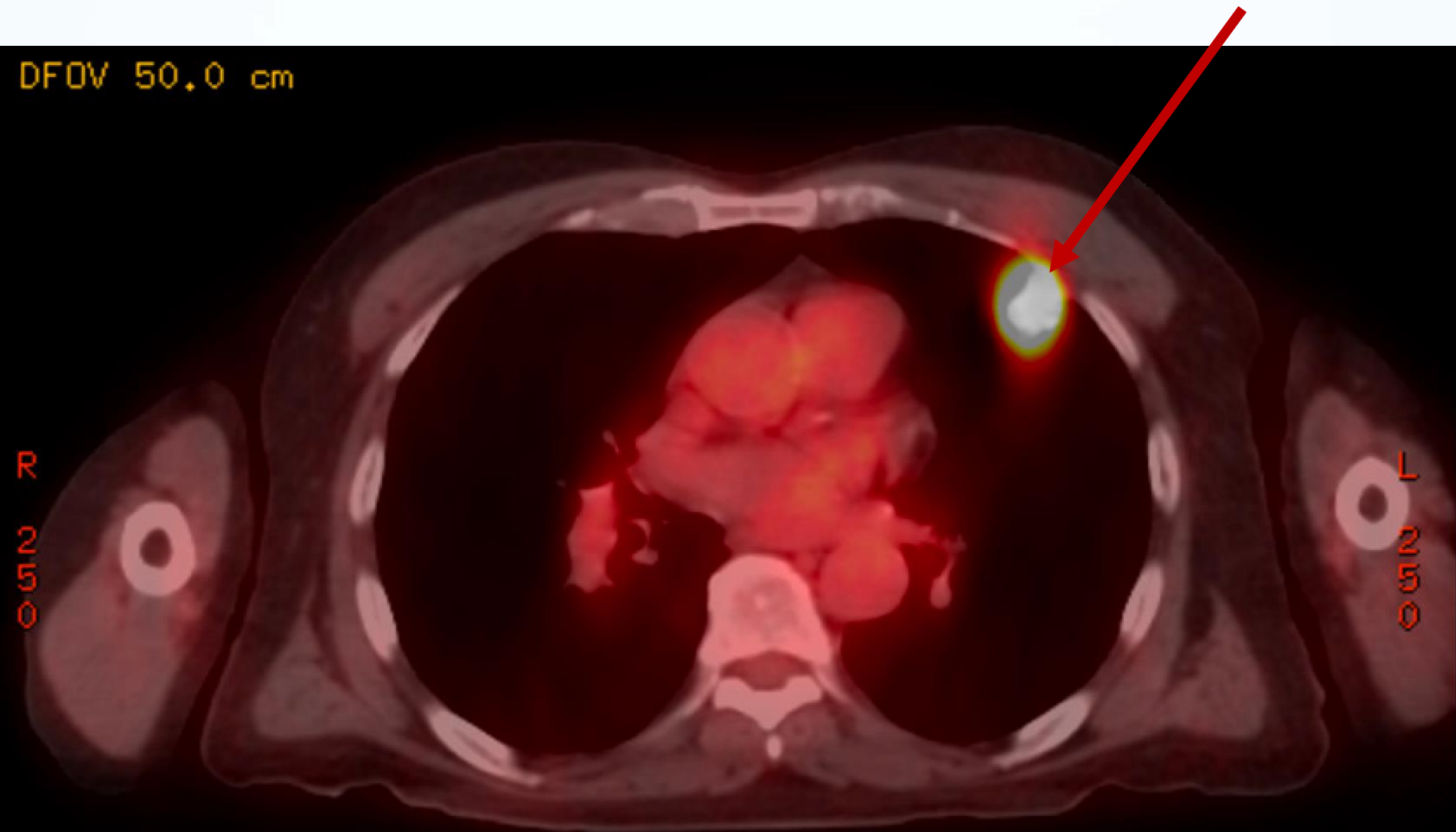


Biopsy

- Bronch/EBUS/Navigation:
 - Staging and pathology
 - Negative station: 7, 4L, 11L
 - Nodule: benign lung tissue
- CT guided IR biopsy of LUL nodule
- Pathology: Small Cell Carcinoma
- PET-CT Scan: nodule positive, no mets

PET-CT

DFOV 50.0 cm



50 % PET

Patient Course

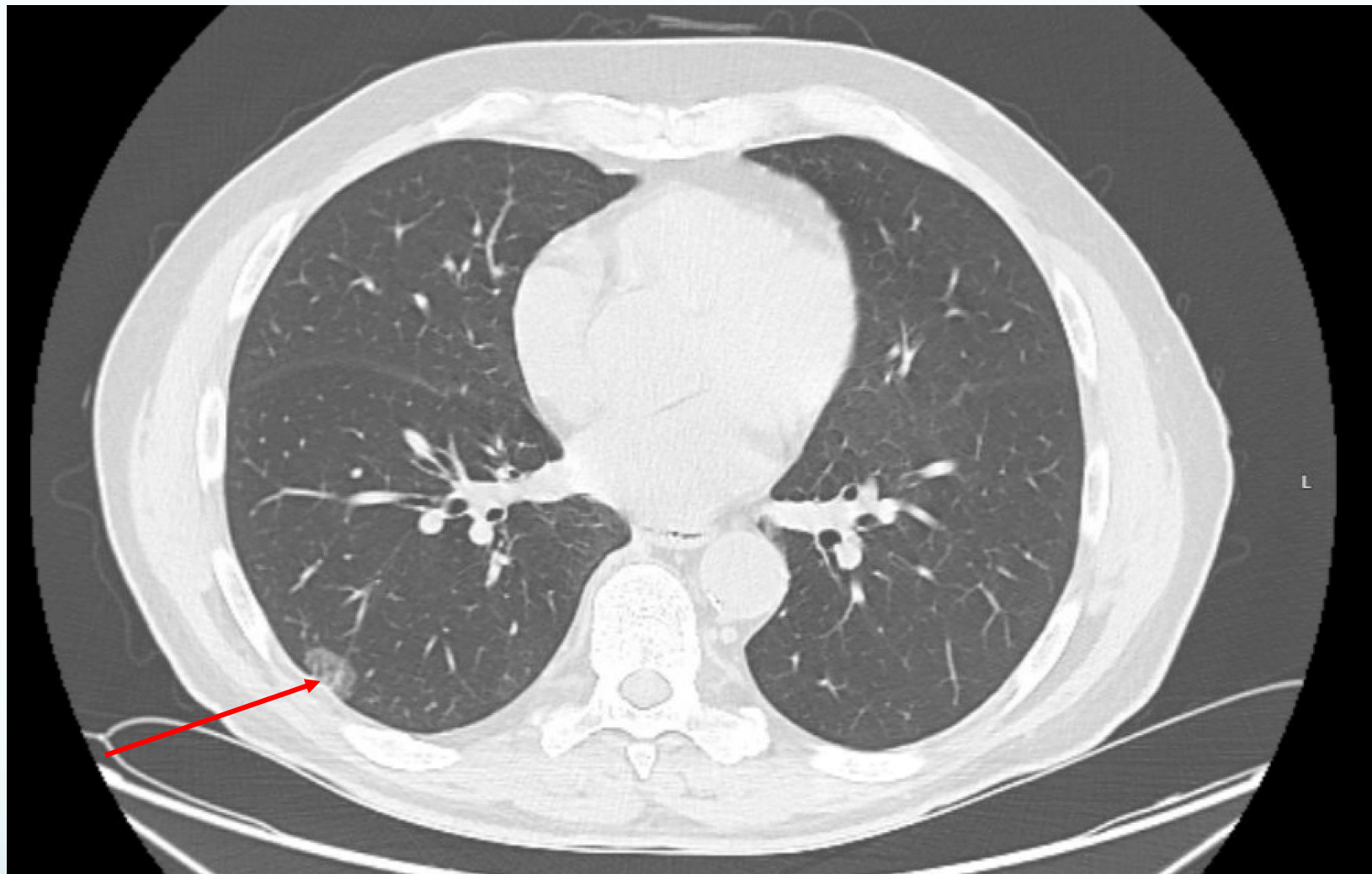
- Patient referred to cardiothoracic surgery
- Left thoracotomy with Left upper lobe lobectomy, and mediastinal lymph node dissection
- Pathology from surgery
 - Left upper lobe lobectomy
 - Small cell carcinoma
 - 8 lymph nodes with anthracotic pigments: negative for metastatic disease
 - Station 5: Negative
 - Station 10L: Negative

Why is this case important?

- LDCT works
- Small cell is highly aggressive and presents late
- Caught early
- Patient able to go to surgery

Case 2

- 69 year old Caucasian male with PMHx of afib presents to clinic for **first** lung cancer screening.
- Social: 2ppd/ 20 years
- Patient Qualifies for Low-dose CT scan of the chest
- Patient says during clinic visit “you’re not going to find anything, it will be negative.”



IMPRESSION:

1. Groundglass nodule in the right middle lobe measuring 1.8 cm.
2. Solid pulmonary nodules bilaterally, measuring up to 5 mm.

Lung-RADS category: 2 - Benign appearance or behavior - Continue annual screening

Biopsy

- Bronch/EBUS/Navigation:
 - Staging and pathology
 - Negative station: 11R, 7, 11L
 - FNA of right lung nodule: atypical cells suspicious for malignancy
- CT guided IR biopsy of RLL nodule:
- Pathology: **ADENOCARCINOMA**
- PET-CT Scan: nodule positive, no mets

Patient Course

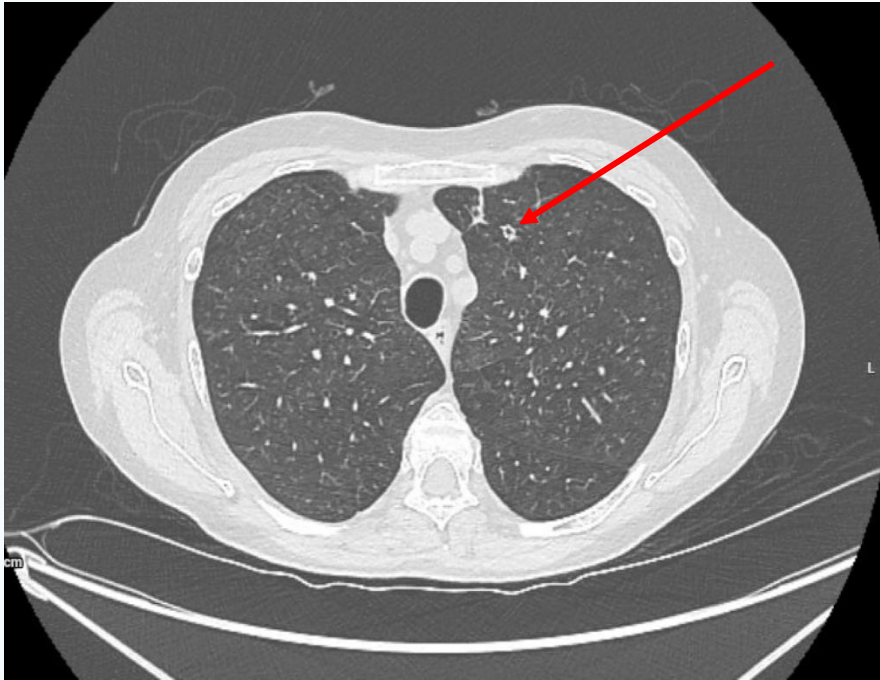
- Patient referred to cardiothoracic surgery
- Right thoracotomy, Right lower lobectomy, Mediastinal lymph node dissection
- A. Right lower lobectomy: **INVASIVE ADENOCARCINOMA**,
 - Ten benign lymph nodes.
 - Right 4R lymph nodes, regional resection:
 - Three benign lymph nodes.
 - Station 8 lymph nodes, regional resection:
 - Two benign lymph nodes.

Why is this case important?

- **Having a multidisciplinary approach**
- **Talk to you Pulmonologist!**
- **The importance of looking at your own images**

Case 3

- 64 year old Caucasian female with PMHx of mood disorder, COPD presents to clinic for 3rd year of lung cancer screening.
- Social: >60 pack year of smoking
- Patient Continues with Low-dose CT scan of the chest



2024 LDCT

1. New 6 mm left upper lobe pulmonary nodule.

Lung RADS category: 3-probably benign.

RECOMMENDATION: 6 month follow-up CT scan recommended.



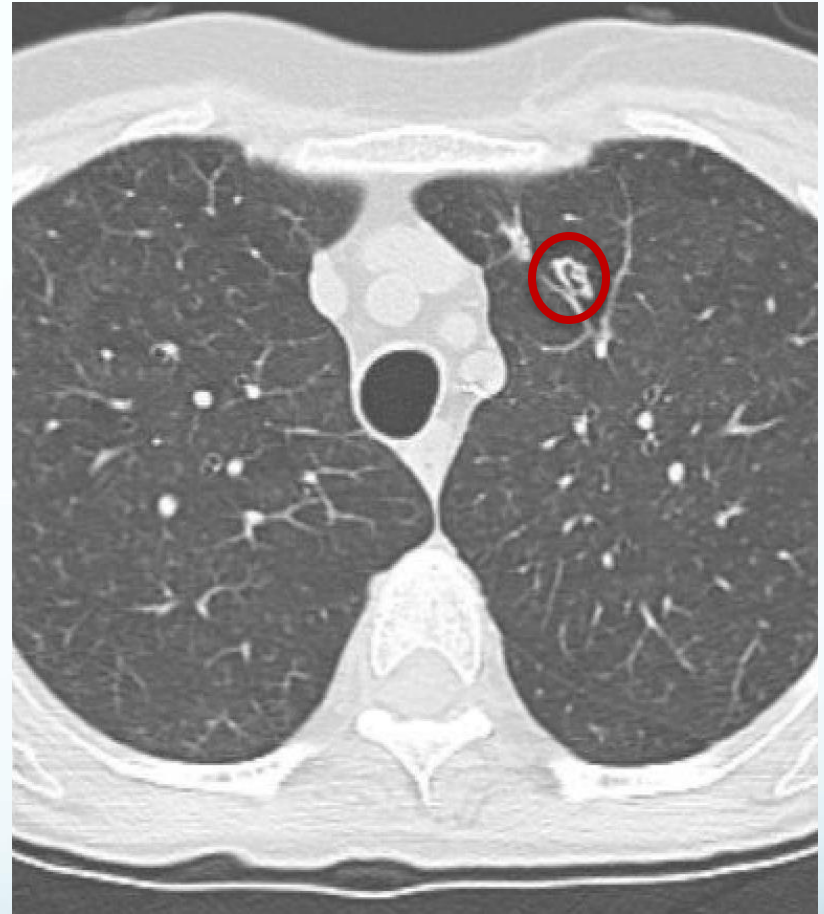
6 month follow up

Biopsy

- Bronch/EBUS:
 - Staging and pathology
 - Negative station: 11R, 7, 11L
- LUL nodule Pathology: **Squamous Cell**
- PET-CT Scan: Left nodule, Clavicle and parotid uptake
- Patient able to go to surgery.

Why is this case important?

- **4B: Very suspicious:**
Atypical pulmonary cyst:
 - Thick-walled cyst with growing wall thickness/nodularity **OR**
 - Growing multilocular cyst (mean diameter)
 - Multilocular cyst with increased loculation or new/increased opacity (nodular, ground glass, or consolidation)
 - **Added new to the Lung-Rads**



Lung Cancer Screening

Benefits

- Mortality reduction
 - Due to earlier disease detection
 - Multidisciplinary approach
- Favorable impact on smoking cessation rate
- Therapy more effective in early-stage disease
 - Increase overall cure rate
 - More limited surgical resection

Harms

- Abnormal findings
 - Needle biopsy or surgery
 - False positives (no dx of lung cancer) which can lead. To positive results led to invasive study
 - 40% incidental findings of emphysema or coronary calcifications
- Radiation exposure
 - LDCT radiation dose 1.4mSv vs 7-8mSv for standard CT Scan
- Patient distress
 - Prolonged follow up of nodules
 - Short term psychologic discomfort, but did not affect distress, worry or health-related quality of life

Who to Screen with low dose CT

2023 Recommendations

- Age: 50-80 years (55-74)
- Smoking Status: Currently or previously smoked (used to be quit within past 15 years)
- Smoking History: >20 pack-year history (used to be 30)
- Annual screening with LDCT (this can change depending on recommendations/level of suspicion)

Recommendations Con't

- Health status exclusions:
 - Health conditions that may increase harm or hinder further evaluation, surgery, or treatment for lung cancer
 - Comorbid conditions that limit life expectancy <5 years;
 - Not willing to accept treatment for screen-detected cancer
- Decision making about screening:
 - Undergo a process of shared decision making with a qualified health professional
 - Information about benefits
 - Limitations
 - Procedures

Recommendations Con't

- A person who currently smokes should be advised to quit and offered counseling and pharmacotherapy to assist in quitting
- **Tumor board:** Pulmonary, Oncology, Radiation Oncology, Pathology, Radiology, Surgeons, Counselors, Nurses, Lung Navigator

How to continue monitoring

Lung Rads

Lung-RADS	Category Descriptor	Findings	Management
0	Incomplete Estimated Population Prevalence: ~1%	Prior chest CT examination being located for comparison (see note 9) Part or all of lungs cannot be evaluated Findings suggestive of an inflammatory or infectious process (see note 10)	Comparison to prior chest CT; Additional lung cancer screening CT imaging needed; 1-3 month LDCT
1	Negative Estimated Population Prevalence: 39%	No lung nodules OR Nodule with benign features: • Complete, central, popcorn, or concentric ring calcifications OR • Fat-containing	12-month screening LDCT
2	Benign - Based on imaging features or indolent behavior Estimated Population Prevalence: 45%	Juxtapleural nodule: • < 10 mm (524 mm ³) mean diameter at baseline or new AND • Solid, smooth margins; and oval, lentiform, or triangular shape	
		Solid nodule: • < 6 mm (< 113 mm ³) at baseline OR • New < 4 mm (< 34 mm ³)	
		Part solid nodule: • < 6 mm total mean diameter (< 113 mm ³) at baseline	
3	Probably Benign - Based on imaging features or behavior Estimated Population Prevalence: 9%	Non solid nodule (GGN): • < 30 mm (< 14,137 mm ³) at baseline, new, or growing OR • ≥ 30 mm (≥ 14,137 mm ³) stable or slowly growing (see note 7)	6-month LDCT
		Airway nodule, subsegmental - at baseline, new, or stable (see note 11)	
		Category 3 lesion that is stable or decreased in size at 6-month follow-up CT OR Category 4B lesion proven to be benign in etiology following appropriate diagnostic workup	
		Solid nodule: • ≥ 6 to < 8 mm (≥ 113 to < 268 mm ³) at baseline OR • New 4 mm to < 6 mm (34 to < 113 mm ³)	
4A	Suspicious Estimated Population Prevalence: 4%	Part solid nodule: • ≥ 6 mm total mean diameter (≥ 113 mm ³) with solid component < 6 mm (< 113 mm ³) at baseline OR • New < 6 mm total mean diameter (< 113 mm ³)	3-month LDCT, PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodule or solid component
		Non solid nodule (GGN): • ≥ 30 mm (≥ 14,137 mm ³) at baseline or new	
		Atypical pulmonary cyst: (see note 12) • Growing cystic component (mean diameter) of a thick walled cyst	
		Category 4A lesion that is stable or decreased in size at 3 month follow up CT (excluding airway nodules)	
4B	Very Suspicious Estimated Population Prevalence: 2%	Solid nodule: • ≥ 8 to < 15 mm (≥ 268 to < 1,767 mm ³) at baseline OR • Growing < 8 mm (< 268 mm ³) OR • New 6 to < 8 mm (113 to < 268 mm ³)	Referral for further clinical evaluation Diagnostic chest CT with or without contrast; PET/CT may be considered if there is a ≥ 8 mm (≥ 268 mm ³) solid nodule or solid component; Tissue sampling; and/or referral for further clinical evaluation Management depends on clinical evaluation, patient preference, and the probability of malignancy (see note 13)
		Part solid nodule: • Solid component ≥ 8 mm (≥ 268 mm ³) at baseline OR • New or growing ≥ 4 mm (≥ 34 mm ³) solid component	
		Atypical pulmonary cyst: (see note 12) • Thick walled cyst with growing wall thickness/nodularity OR • Growing multilocular cyst (mean diameter) OR • Multilocular cyst with increased loculation or new/increased opacity (nodular, ground glass, or consolidation)	
		Stable growing solid or part solid nodule that demonstrates growth over multiple screenings (see note 8)	
4X	Estimated Population Prevalence: < 1%	Category 3 or 4 nodules with additional features or imaging findings that increase suspicion for lung cancer (see note 14)	
S	Significant or Potentially Significant Estimated Population Prevalence: 10%	Modifier: May add to category 0-4 for clinically significant or potentially clinically significant findings unrelated to lung cancer (see note 15)	As appropriate to the specific finding

Summary LDCT

- Age: 50-80 years
- Smoking Status: Currently or previously smoked (used to be quit within past 15 years)
- Smoking History: >20 pack-year history (used to be 30)
- Annual screening with LDCT (this can change depending on recommendations/level of suspicion)
- Multidisciplinary approach
- Not sure? WE CAN HELP!!



Thank You

