Lung Cancer

- 3rd most common cancer
- Leading cause of cancer-related mortality in USA
- Majority of patients present with symptoms of locally advanced or metastatic disease
- Primary risk factors include patient age and smoking history
- Additional risk factors
  - Emphysema, lung fibrosis
  - Occupational exposure to asbestos or coal smoke
  - High levels of radon exposure
  - Family history of lung cancer or personal history of cancer
  - Extensive secondhand smoke exposure
  - Previous thoracic radiation therapy
- Early stage non-small cell lung cancer (NSCLC) has better prognosis and is potentially curable
- Prevention with smoking cessation is best strategy for reducing lung cancer risk

SCREENING

- 55-77 years of age
- ≥ 30 pack/year smoking history
- Current smoker or quit within past 15 years
- LDCT
  - Average radiation dose of 1.5 mSv (8 mSv with standard chest CT)
  - Multidetector helical technique (≥ 16 detectors) in single breath hold
  - Protocol should be reviewed & updated annually
- Small Cell Carcinoma
  - Generally locally advanced or metastatic at time of presentation
  - Screening does not generally impact mortality for small cell carcinoma

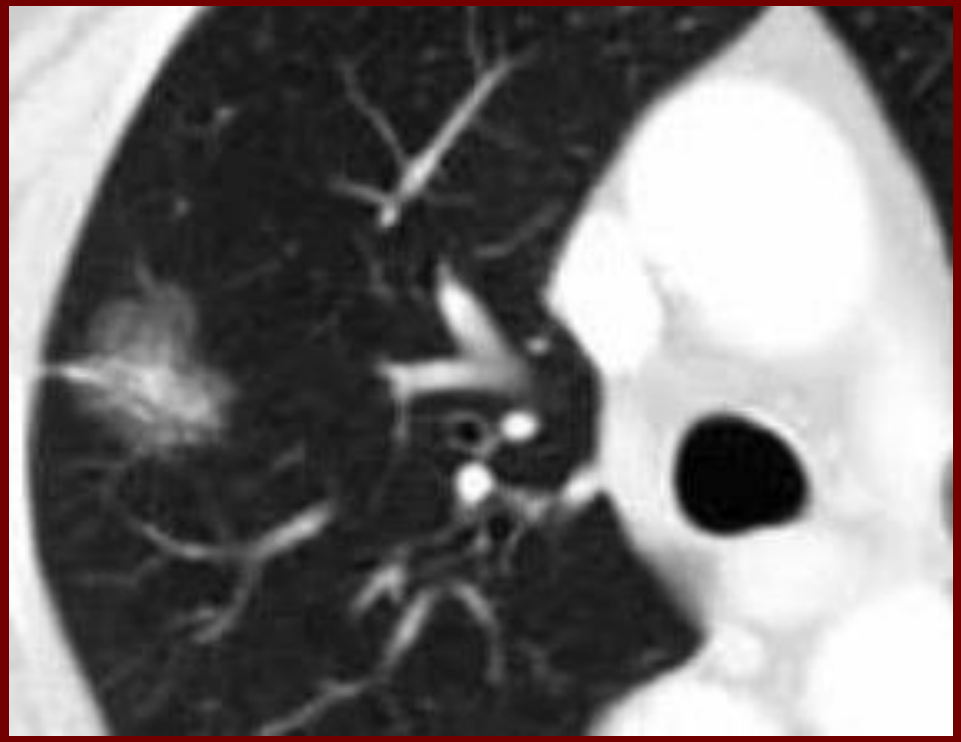
Non-Small Cell (80%)

- Adenocarcinoma (35%)
  - most common cell type overall
  - most common in women
  - most common cell type in non-smokers but still most patients are smokers
  - Peripheral
- Squamous cell carcinoma (30%)
  - strongly associated with smoking
  - most common carcinoma to cavitate
  - Tend to be central
  - poor prognosis
- Large-cell carcinoma (15%)
  - peripherally located
  - very large, usually more than 4 cm

Small Cell Carcinoma

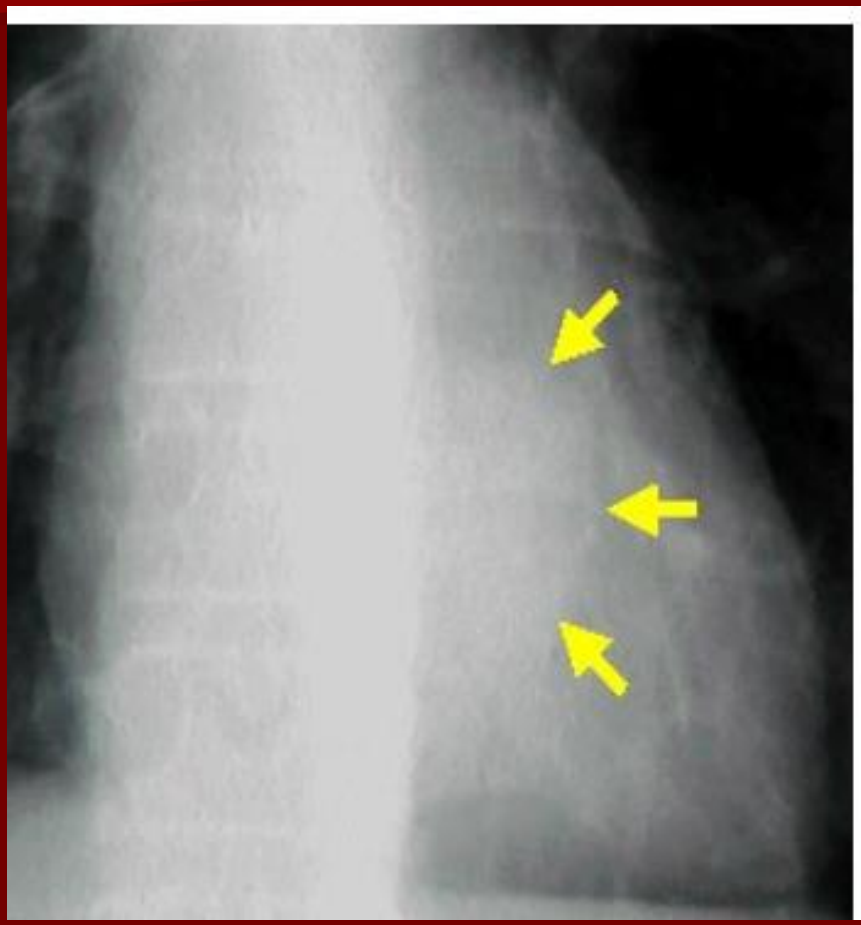
- Almost always in smokers
- Metastasizes early
- most common primary lung malignancy to cause paraneoplastic syndromes and SVC obstruction
- Tend to be central
- Worst prognosis

Brochegenic carcinoma

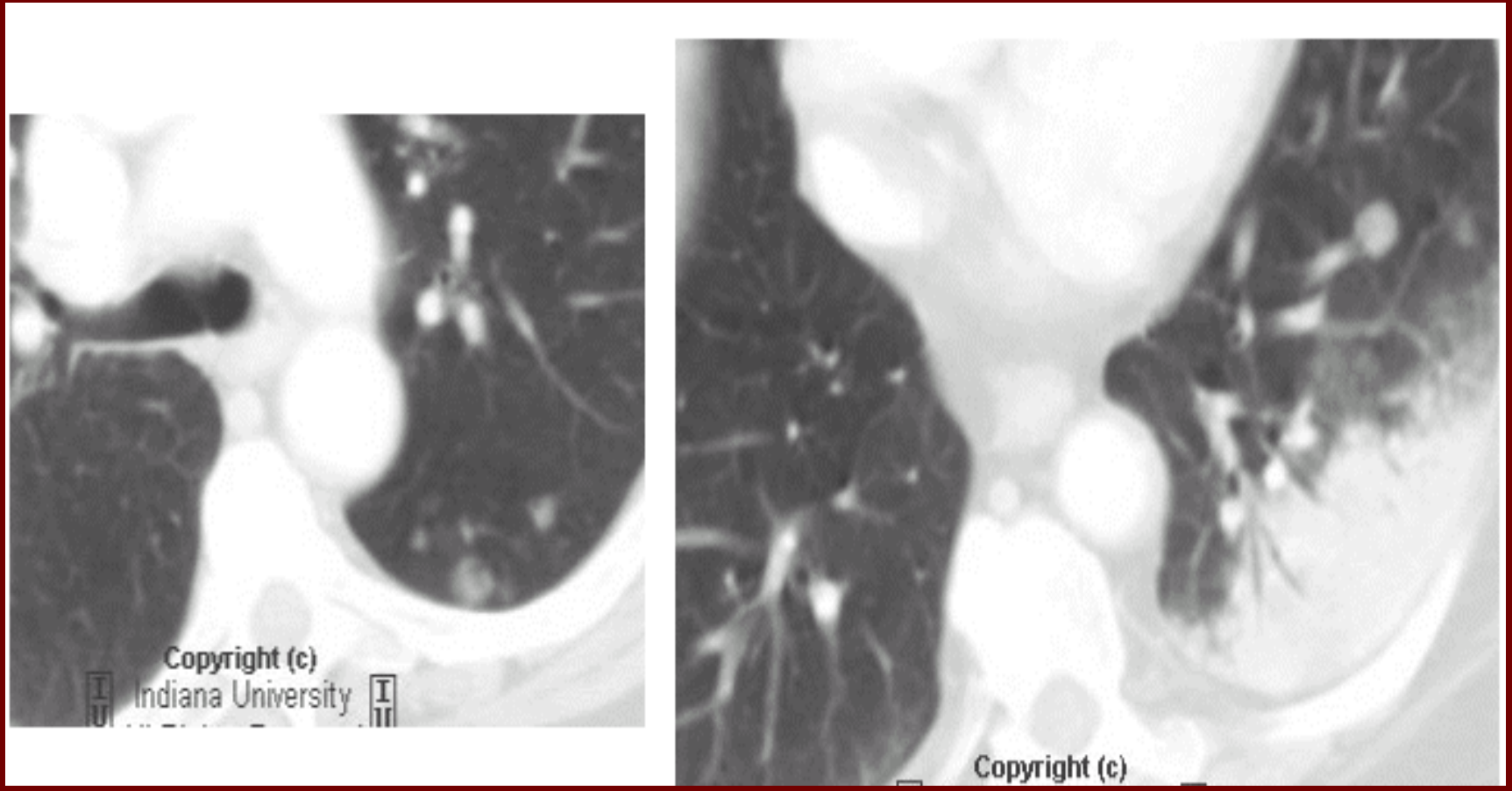


- ***Types***
  - **adenocarcinoma** (35%) (tend peripheral lesions), **includes BAC**
  - **squamous cell carcinoma** (30%) ((tend central)
  - **small cell carcinoma** (tend central)
  - **undifferentiated large cell**: agressive, metastases early; only 20% resectable at dx (tend peripheral lesions)

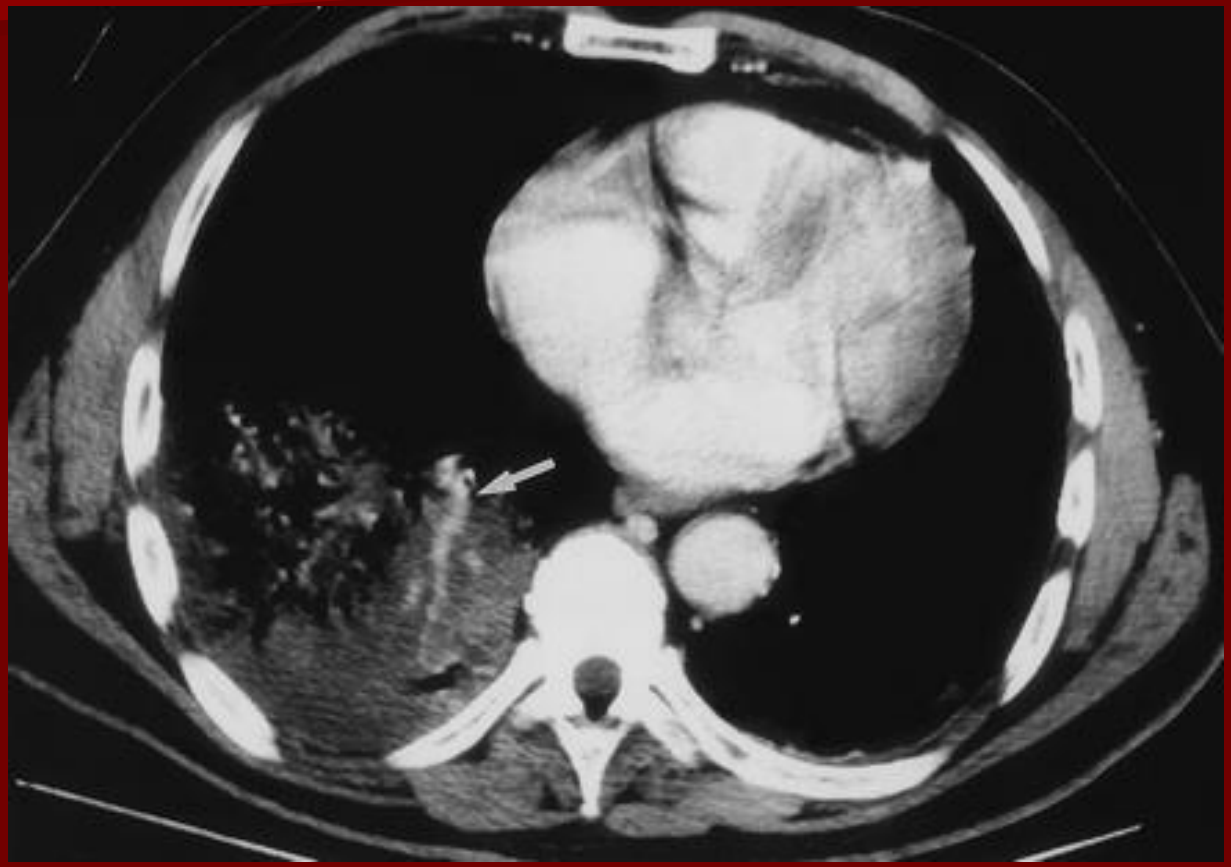
Brochegenic carcinoma



Bronchoalveolar cell carcinoma



BAC "CT angiogram sign"



May suggest BAC, but no longer specific

Can have bronchorhea

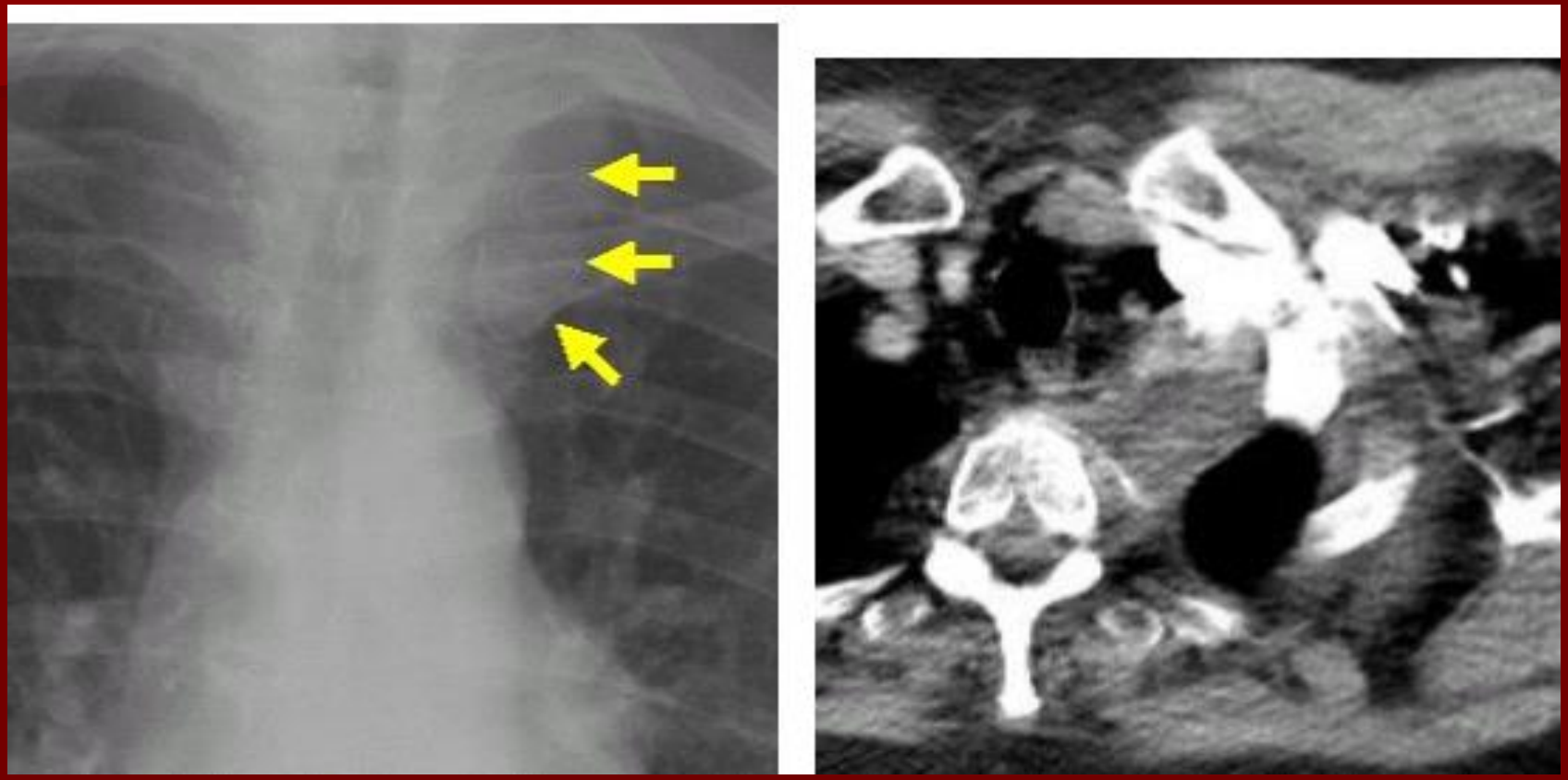
Bronchoalveolar cell carcinoma

(Click/Drag to Move. Double-Click to Close)

Bronchioloalveolar cell carcinoma

- Bronchioloalveolar cell carcinoma (BAC) is subgroup of adenocarcinoma
  - spreading along the framework of normal lung parenchyma
  - source: type II pneumocytes walls of alveoli
  - malignant cells which grow along existing alveolar walls
  - least assoc with smoking of all lung Ca
  - but increased with interstitial lung disease
  - peripheral, non-bronchogenic origin
  - three radiologic patterns: a solitary nodule (43%); consolidation (30%), or diffuse disease (27%).
  - bubble like lucencies or pseudocavitation - intact bronchi / spared acini
- DDx chronic airspace consolidation:
  - BAC
  - lymphoma
  - lipoid pneumonia
  - round atelectasis
  - chronic fungal infection

Pancoast tumor



Most commonly is squamous cell type
If trachea deviated toward apical density, think TB/infection

Lung CA Staging

- T1
  - <= 3 cm
- T2
  - > 3 cm
  - > 2 cm from carina
- T3
  - Any size
  - If in bronchus but < 2 cm of carina
  - Atelectasis of Entire lung
  - Invades Chest wall, Parietal Pleura, Mediastinal Pleura, Diaphragm, Pericardium
  - Chest wall Pain is best predictor of T3!
- T4 (nonresectable)!
  - Any size
  - Invades Major mediastinal structures
    - eg anything you can't resect
    - Heart, Great Vessels, Trachea, Gus, Vertebra, Brachial Plexus
  - Malignant Effusion
  - Satellite Nodule in SAME LOBE

- N1
  - Ipsilateral HILAR
- N2
  - Ipsilateral MEDIASTINAL or
  - Subcarinal
- N3 (nonresectable)!
  - CONTRALATERAL Hilar or Mediastinal
- M1
  - Positive mets
  - Satellite nodule in different lobe

Lung CA Staging

- Stage 1
  - T1-2 N0M0
- Stage 2
  - IIA T1N1M0
  - IIB T2N1M0, T3N0M0
- Stage 3
  - A
    - Sometimes resectable
    - T3,N1,M0
    - Any T,N2,M0
  - B (Key)
    - Unresectable
    - (Any T)N3M0, T4(any N)M0
- Stage 4
  - Mets

- Unresectabl
  - T4
  - N3
  - M1