

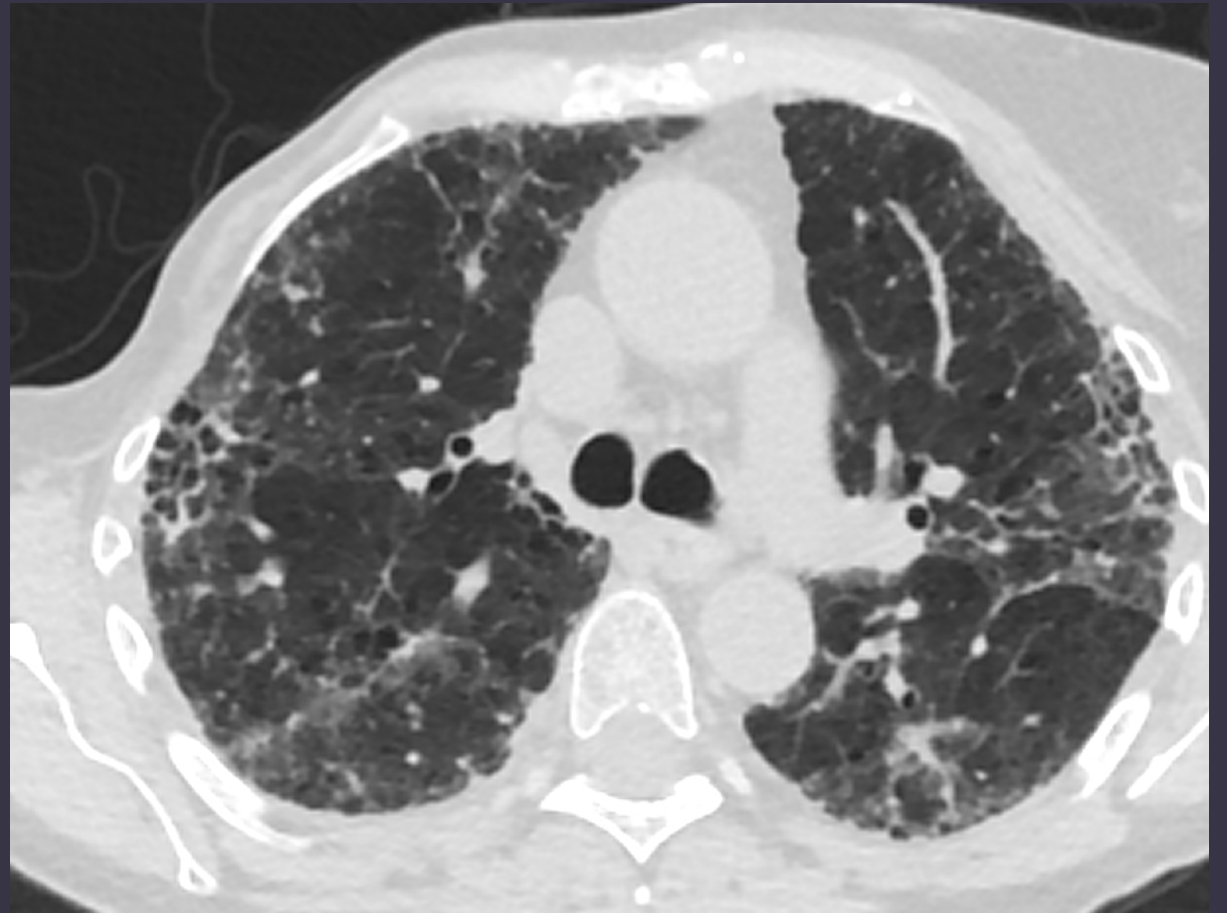


*EARLY ASSESSMENT OF INTERSTITIAL
LUNG DISEASE: OPPORTUNITIES IN
LUNG CANCER SCREENING*

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Lung Fibrosis

- Scarring of the lung parenchyma





HOW MANY PEOPLE
HAVE PULMONARY
FIBROSIS?

951 participants

- 63 (6.6%) had CT evidence of ILD
- 16 (1.7%) had HC.
- Significant predictors of ILD were :
 - male gender ($p=0.003$)
 - age ($p < 0.0001$)
 - pack years of cigarette smoking ($p = 0.0003$)
 - emphysema ($p = 0.004$)

Age and male gender remained significant on multivariate analysis.



WHAT IS EARLY FIBROSIS ?

IPF

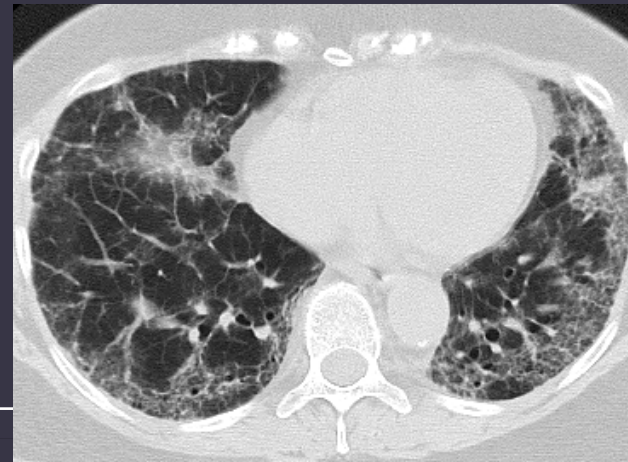
UIP Pattern

- Subpleural fibrosis
- Basilar fibrosis
- Reticulations
- Honeycombing



Possible UIP Pattern

- Subpleural fibrosis
- Basilar fibrosis
- Reticulations
- Hone~~X~~ombing



Possible UIP is *Early* UIP

- **103** patients with UIP pattern
- **68** had PRE-HC on the initial CT, **32** (47%) progressed; median follow-up **51** months.
- **36** patients with PRE-HC had no progression to HC but **16** of them, had accelerations to more extensive PRE-HC with a median follow-up of **23** months.

Types of Fibrosis

Known Causes

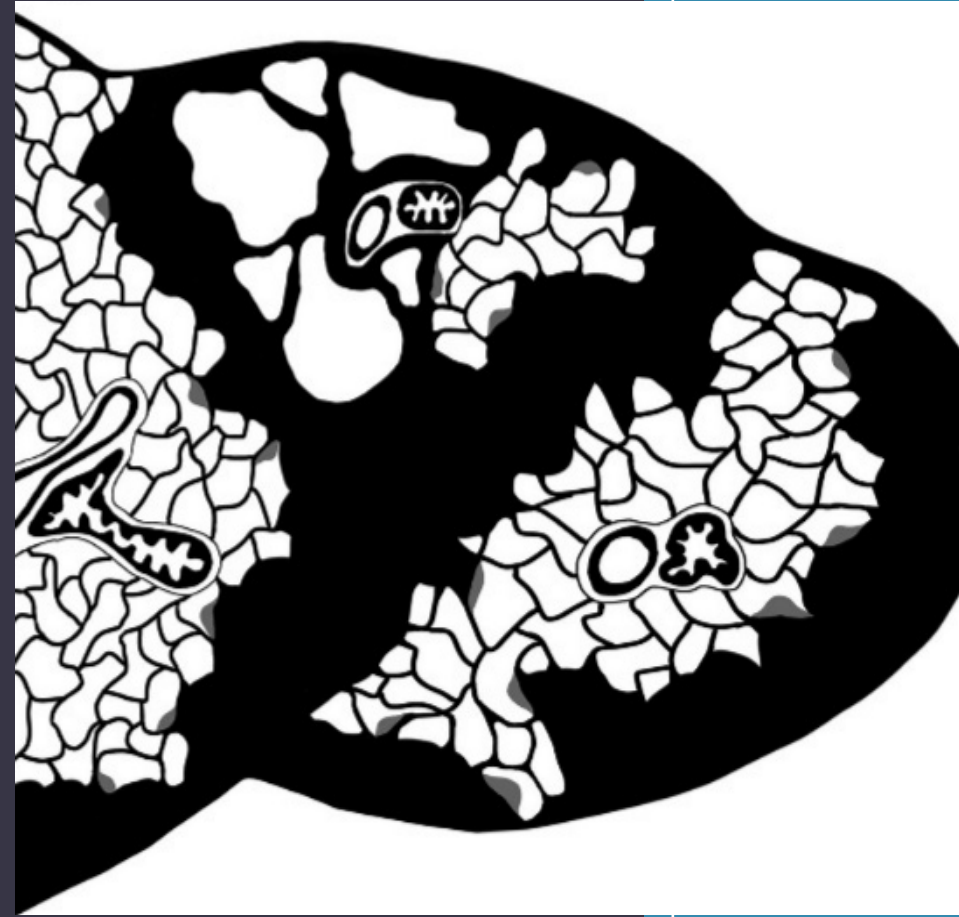
- Hypersensitivity Pneumonitis
- Asbestosis
- Drug induced

Idiopathic

- UIP
- NSIP
- RBILD
- DIP
- COP
- AIP
- LIP
- PPFE

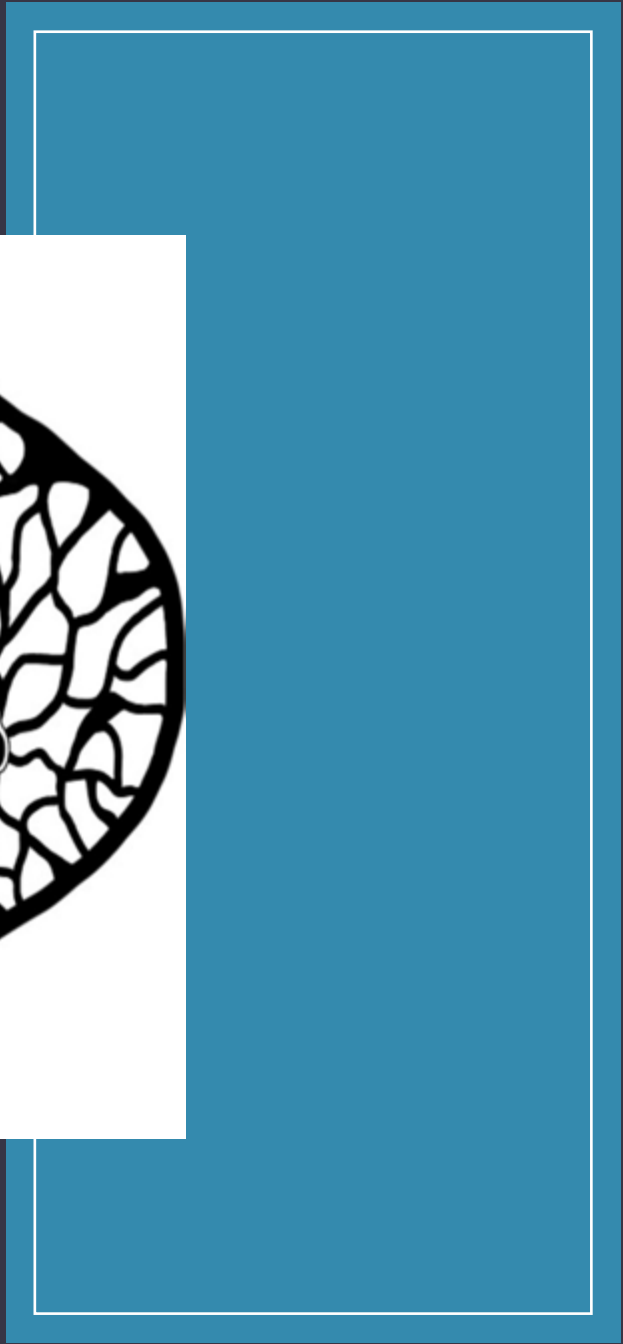
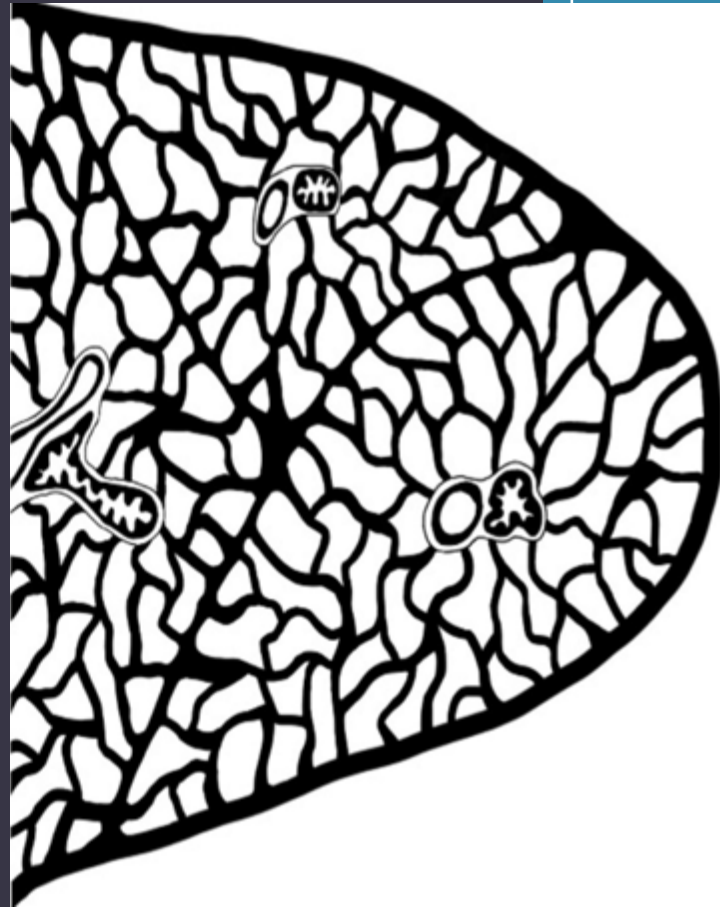
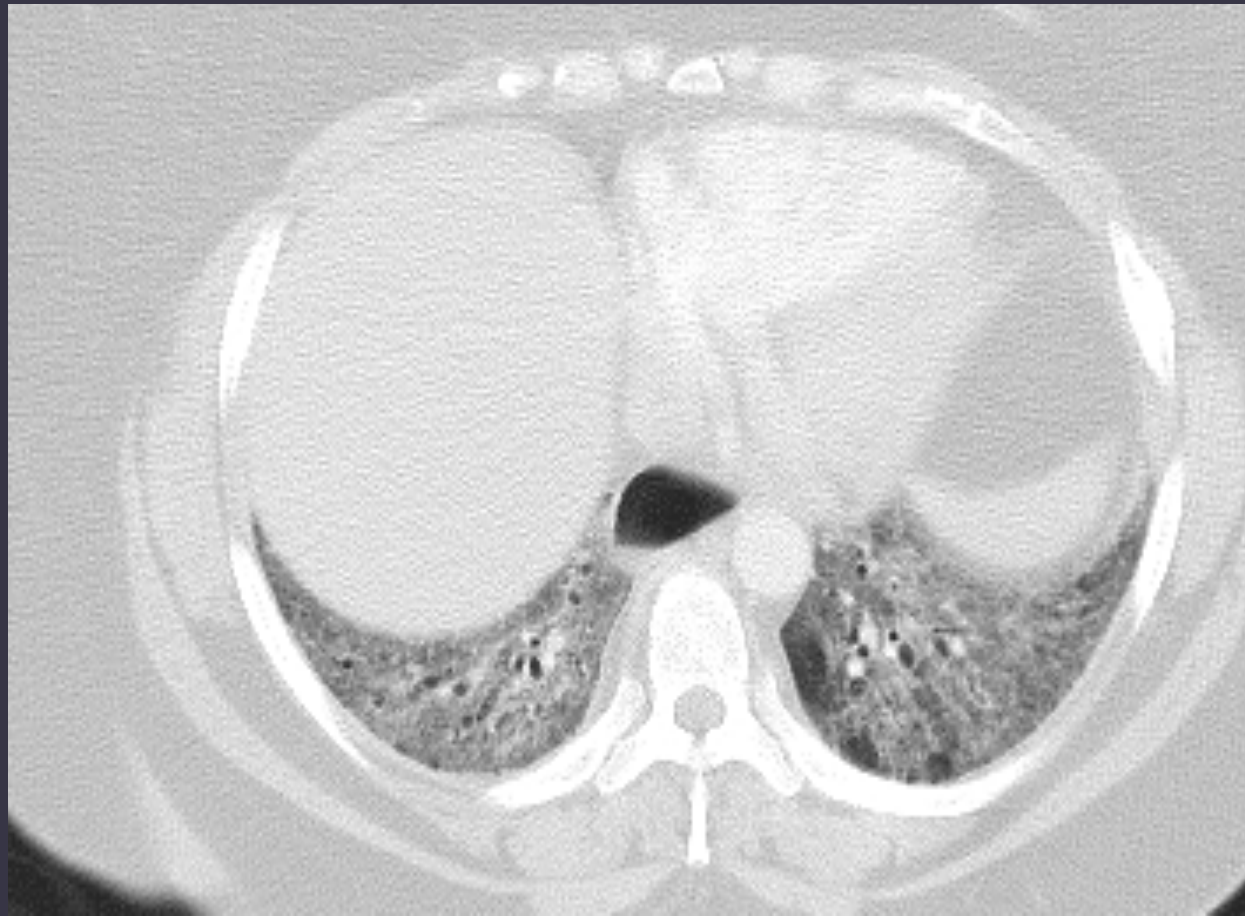


RADIOLOGIC DIFFERENTIATION OF FIBROSIS



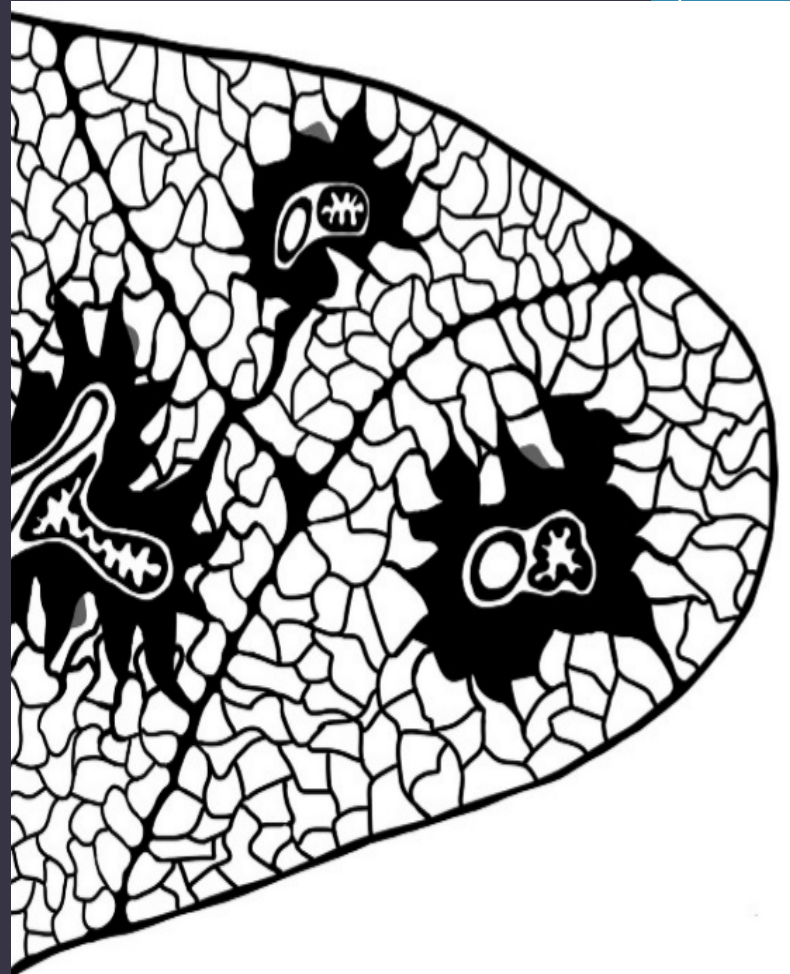
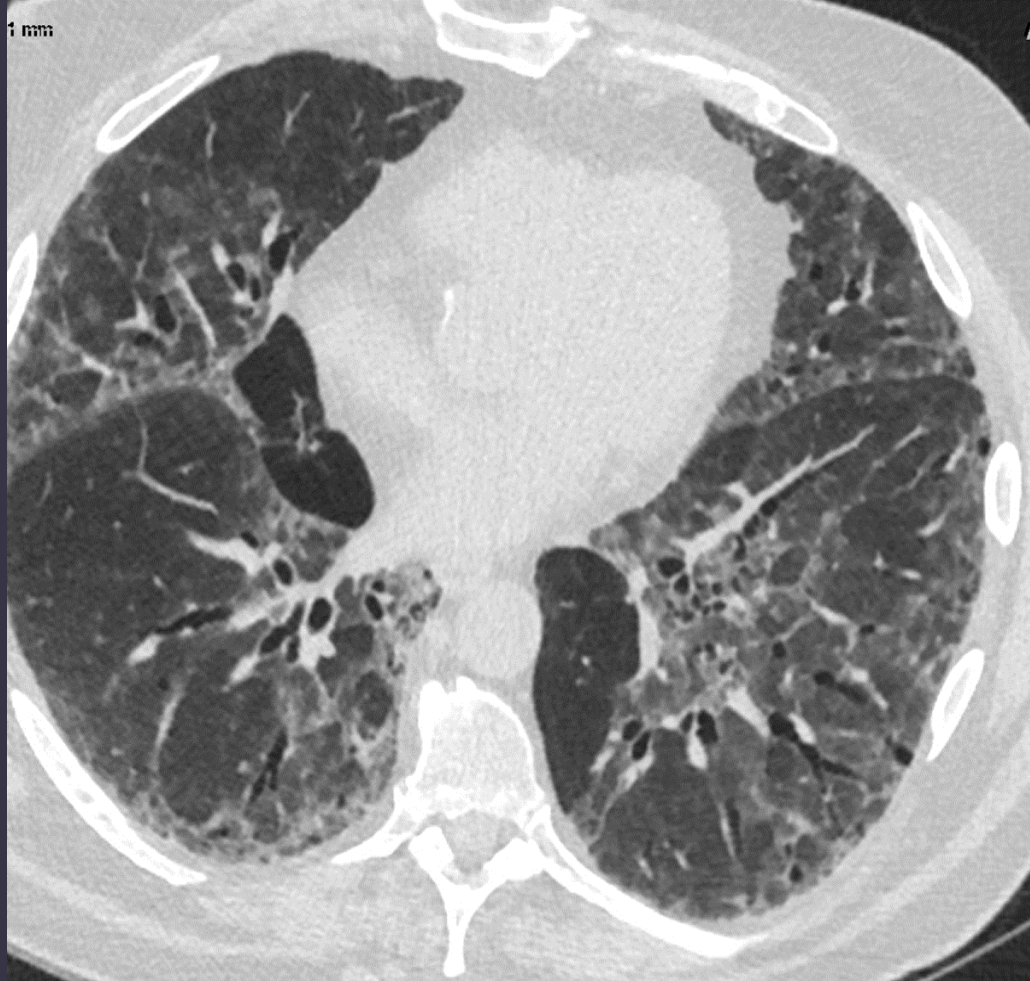
UIP

- **Subpleural**
- Basilar
- Honeycombing



NSIP

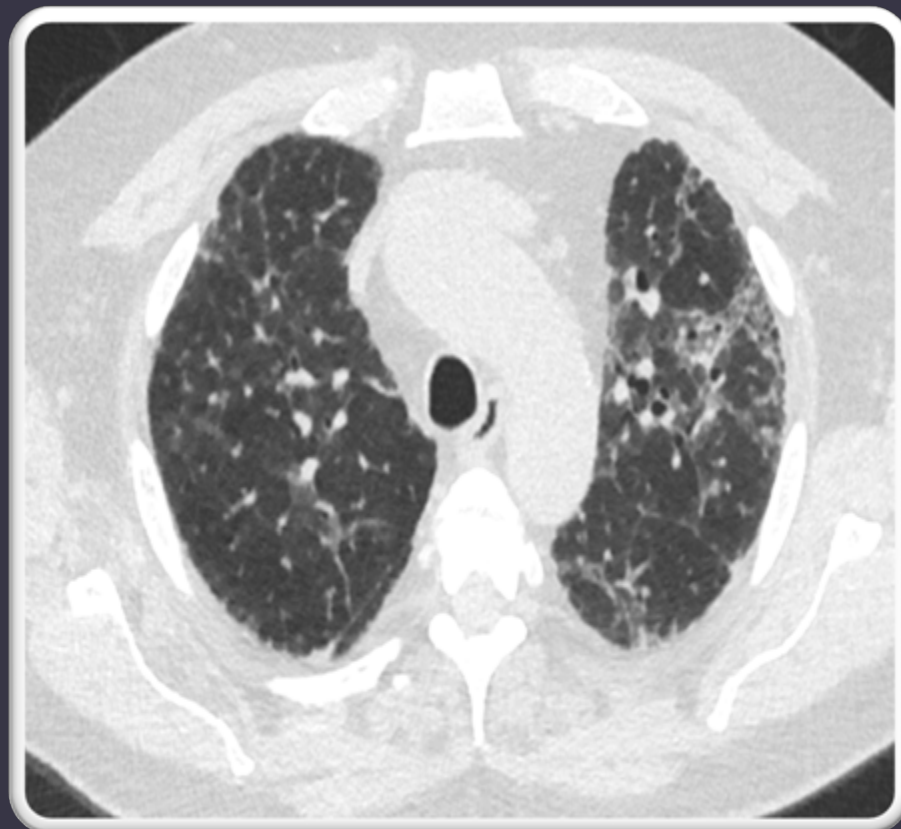
- Lower lobe
- Bronchovascular
- **Homogeneous**
- Dilated esophagus
- Peripheral sparing



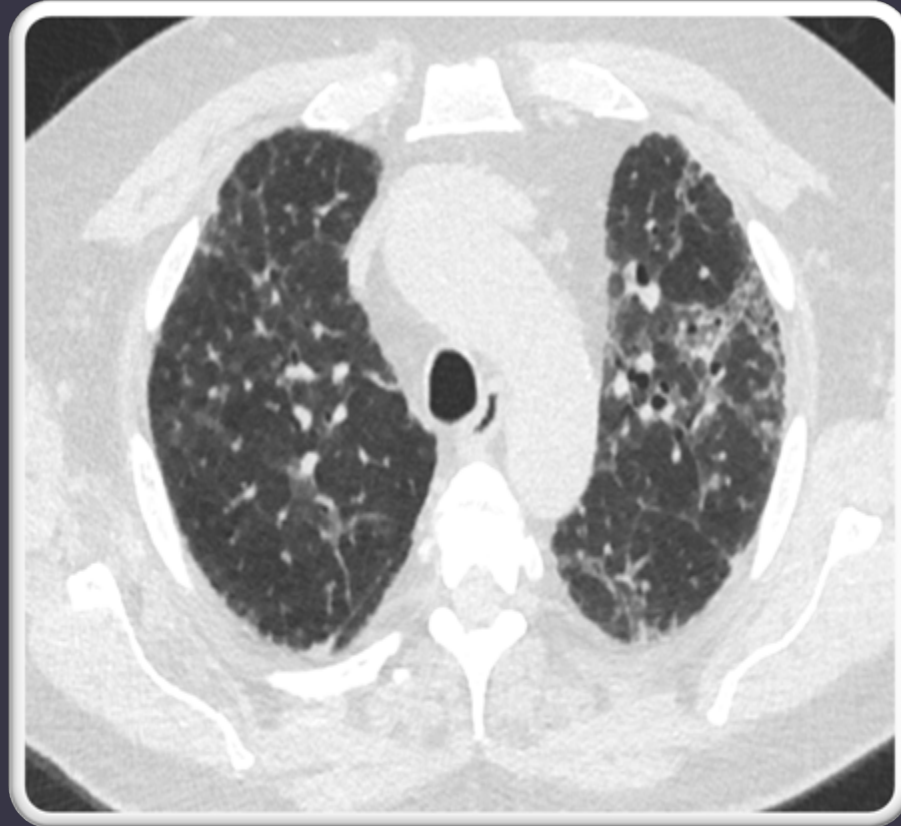
CHP

- Upper lobe
- **Peribronchiolar fibrosis**
- **Air trapping**

1



CHP



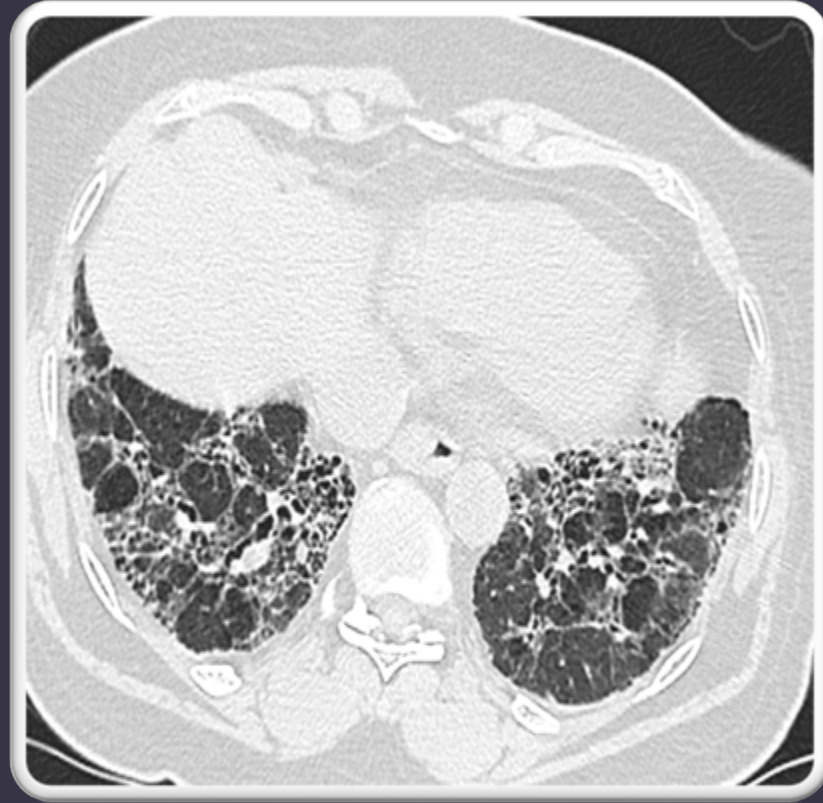
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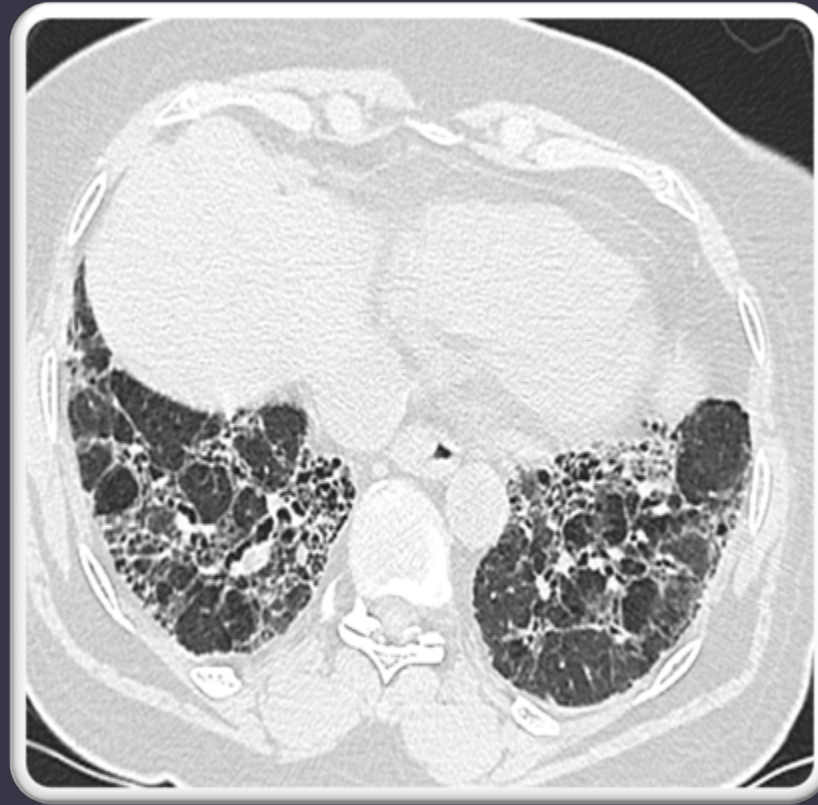
NSIP



3



CHP



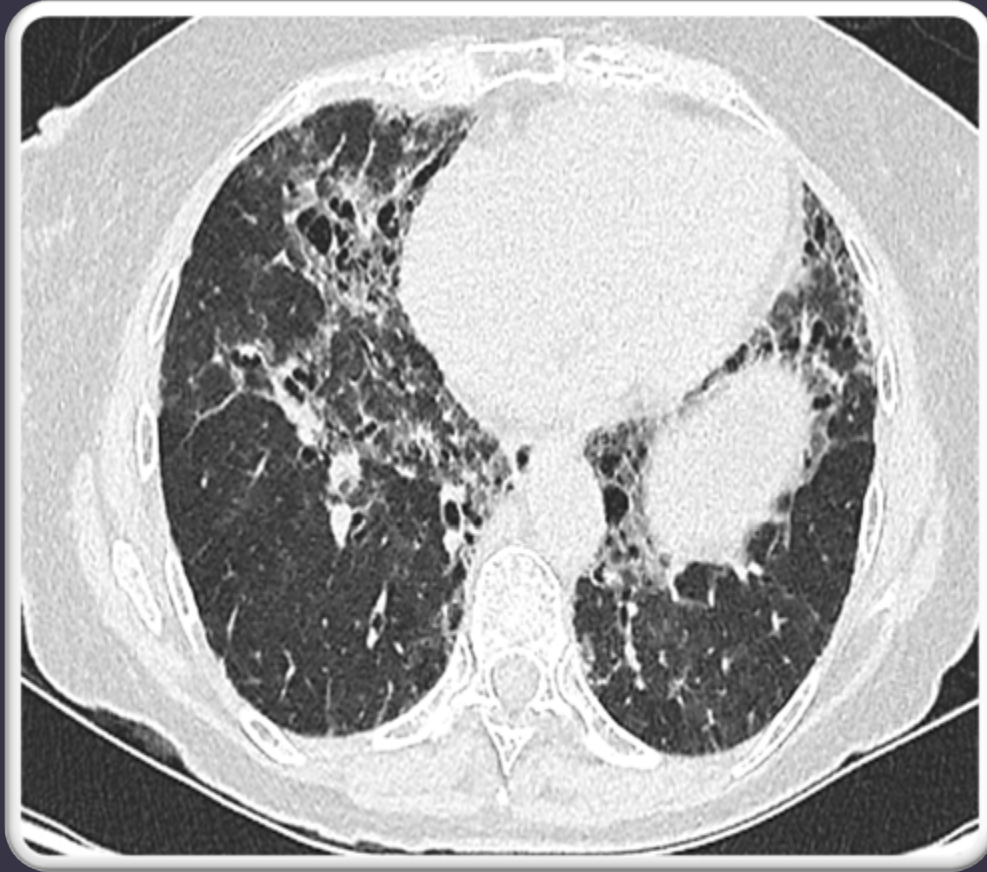
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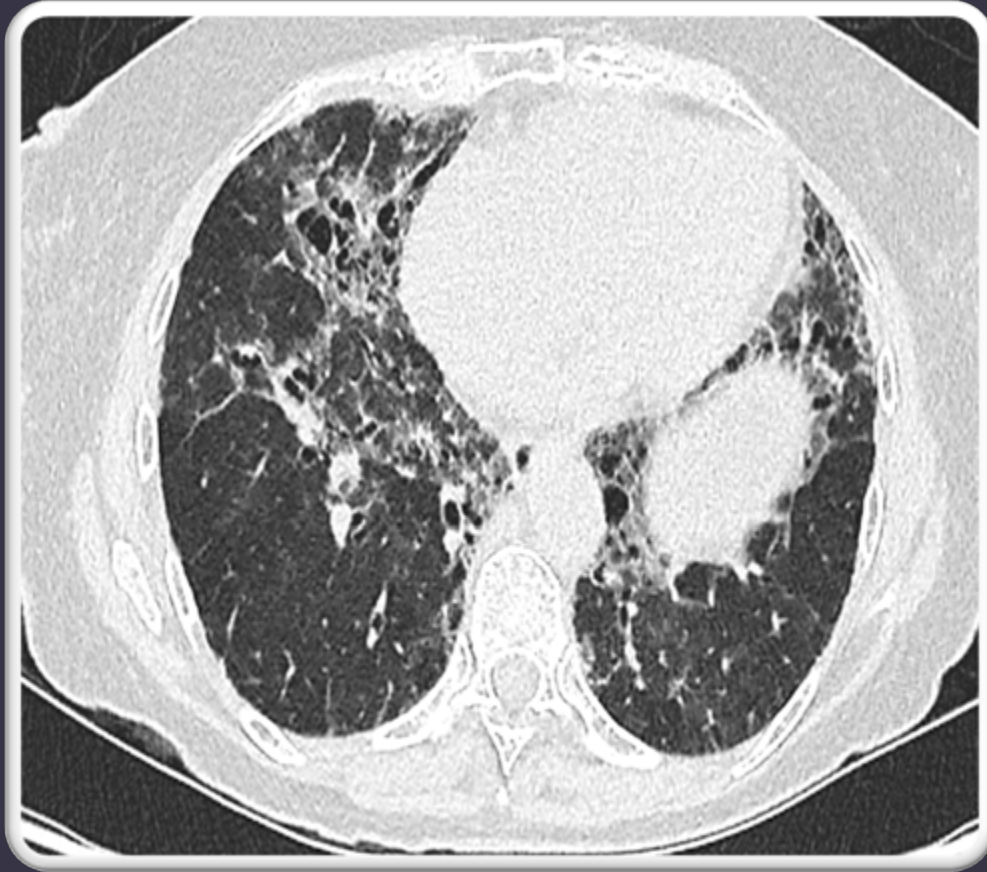
NSIP



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CHP



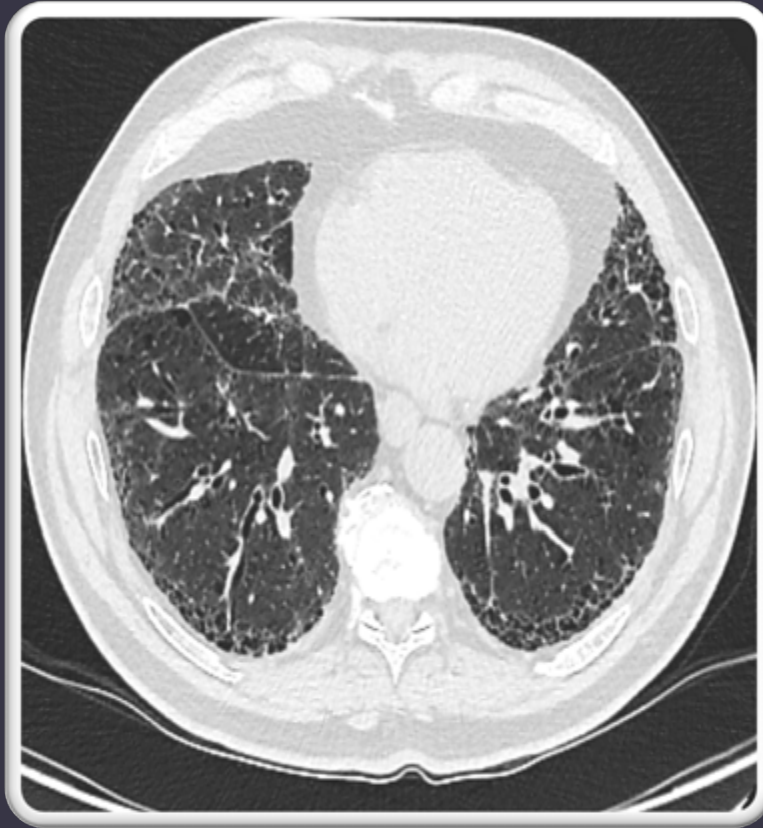
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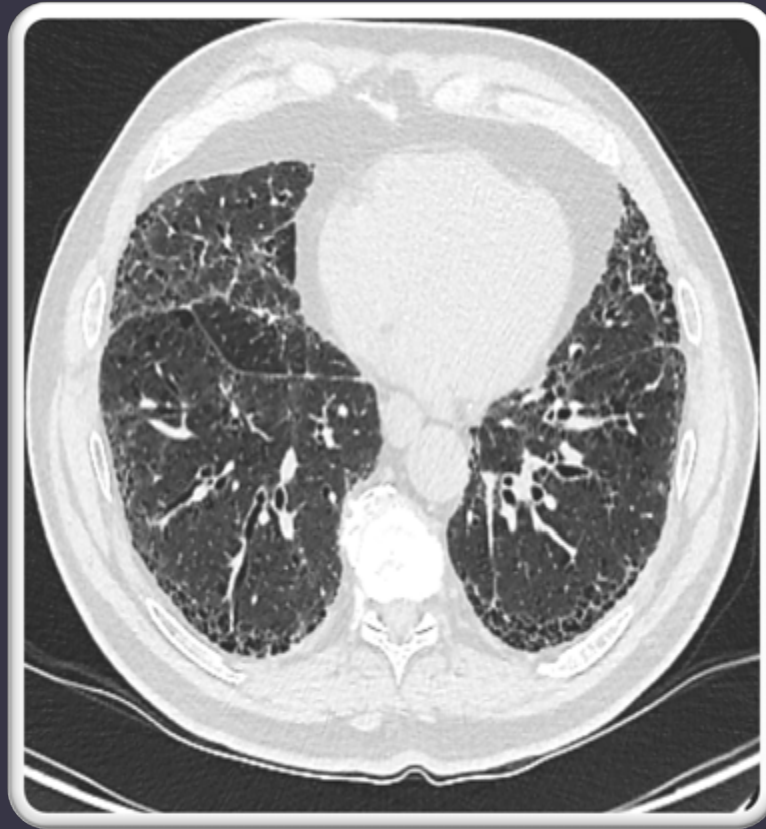
NSIP



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UIP



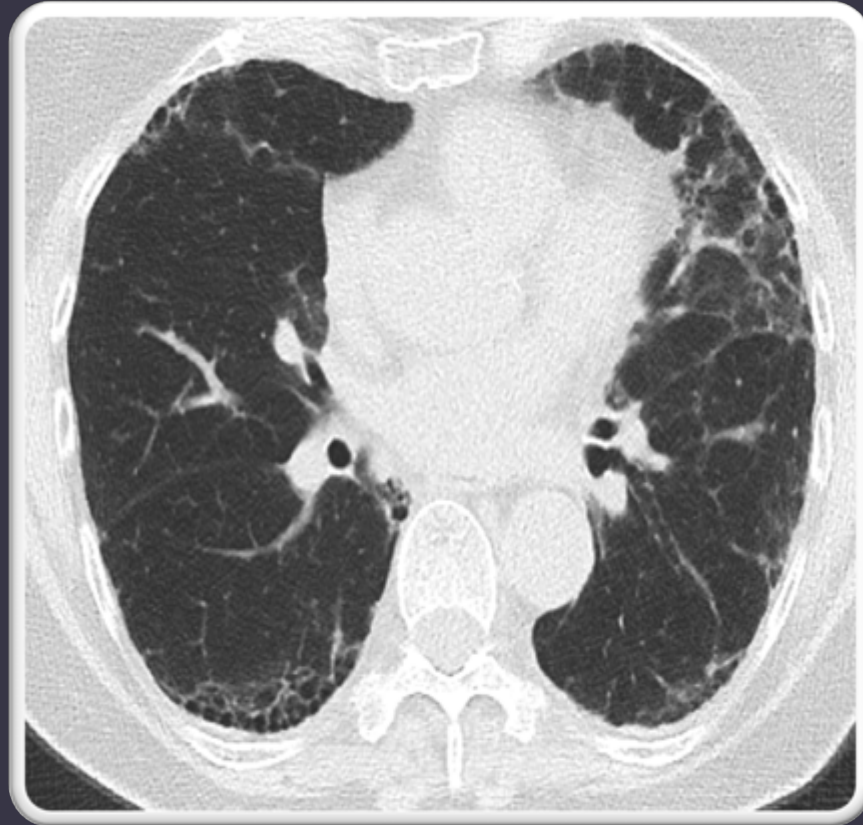
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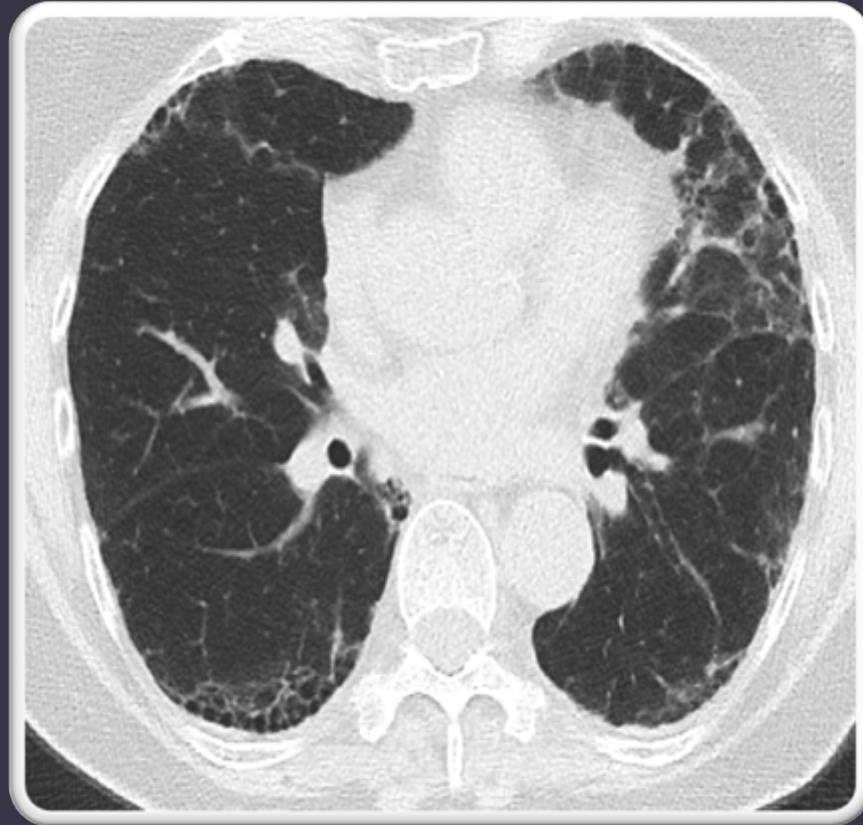
CHP



9



UIP



10



CHP



11



UIP



The Saturday Evening
POST

March 17, 1956 — 15¢

JAN PEERCE, of the
Metropolitan Opera,
Advises Would-Be Singers,
"DON'T BE A SUCKER, JUNIOR!"



www.saturdayeveningpost.com



HOW MANY PEOPLE WITH FIBROSIS
HAVE LUNG CANCER?

Evolving concept

- Smoking is enriched population to study fibrosis
- Fibrosis is an enriched population to study lung cancer



Pulmonary fibrosis increases risk of lung cancer

This study found that IPF patients are much more likely to develop lung cancer than the general population .

- IPF patient cancer prevalence: **4.8%-48%**
- General prevalence in smokers: **1.0%-6.4%**



Li J, Yang M, Li P, Su Z, Gao P, Zhang J. Idiopathic pulmonary fibrosis will increase the risk of lung cancer. *Chin Med J (Engl)*. 2014;127(17):3142-9

How Big of a Problem is Lung Cancer in Patients with Fibrosis?

<i>1 year</i>	<i>5 years</i>	<i>10 years</i>
3.3 %	15.4%	54.7%

Y. Ozawa: incidence of and predictive factors for lung cancer in IPF.
Respirol. Carlt. Vic., 14 (5) (2009), pp. 723-728



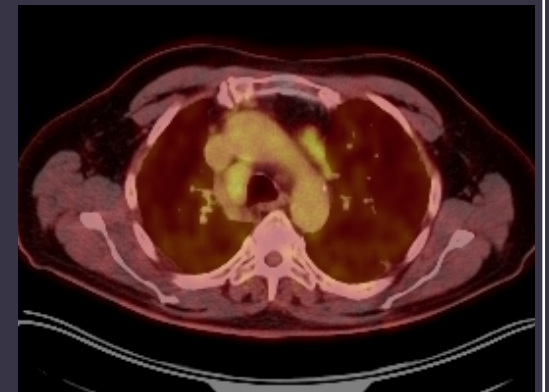
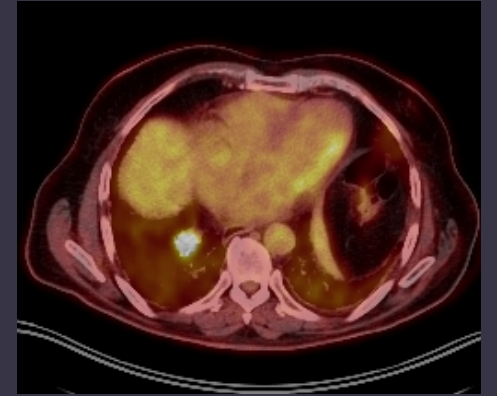
Similarities between fibrosis and cancer

- Genetic alteration (p53 gene, telomere shortening)
- Resistance to apoptosis
- Myofibroblast behavior (forefront of cancer, TGFB mediated)
- EMT is key feature of both

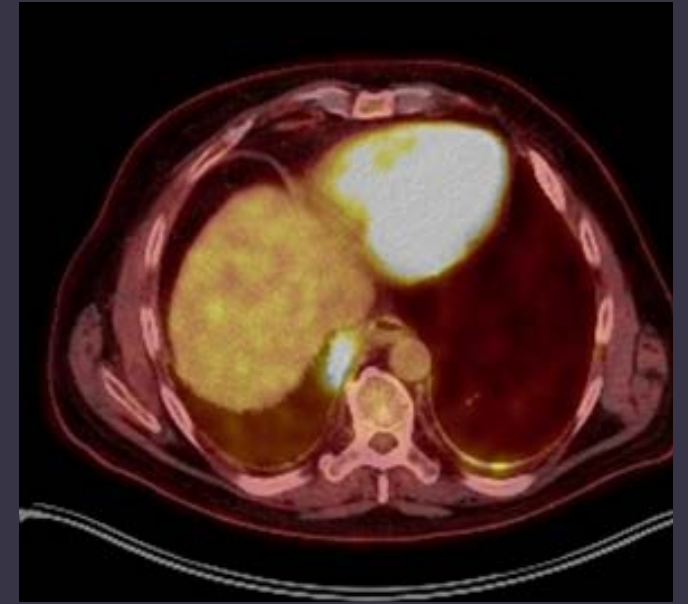
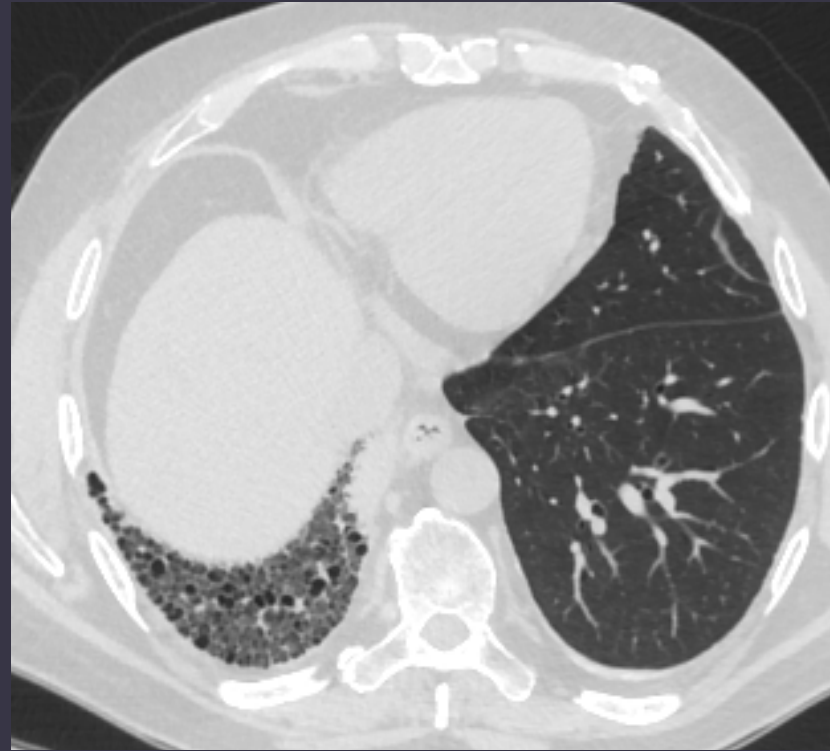
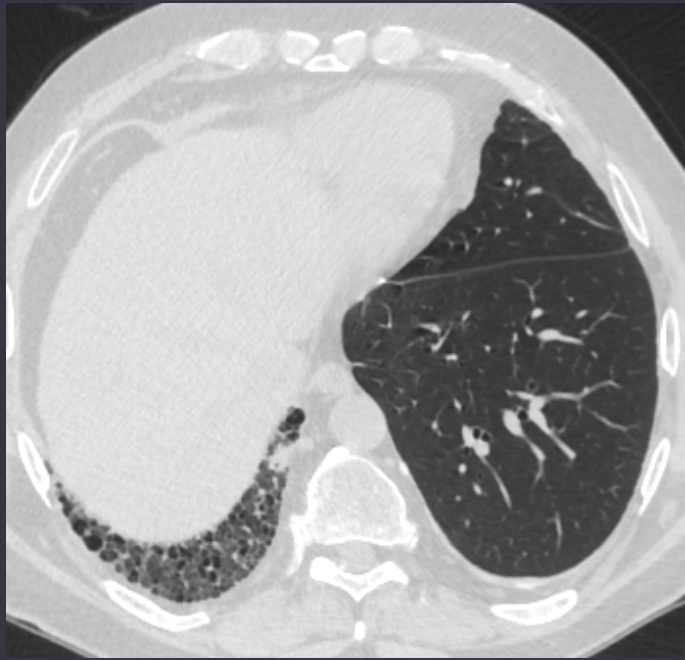
How should we screen fibrosis patients for lung cancer?

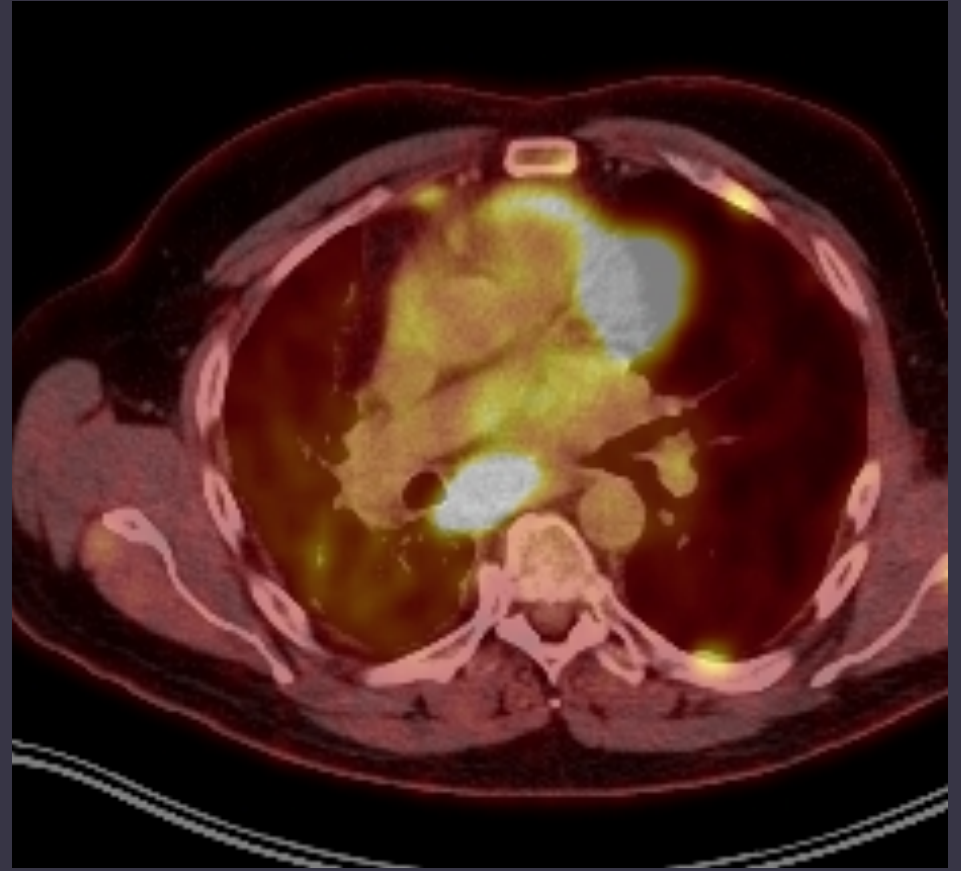
- IELCAP
- NLST
- Fleischner

Patient with UIP (6 months)

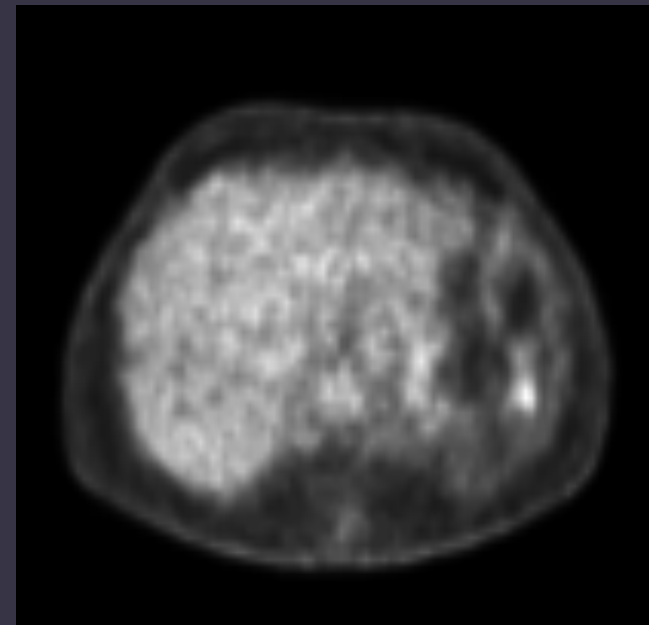
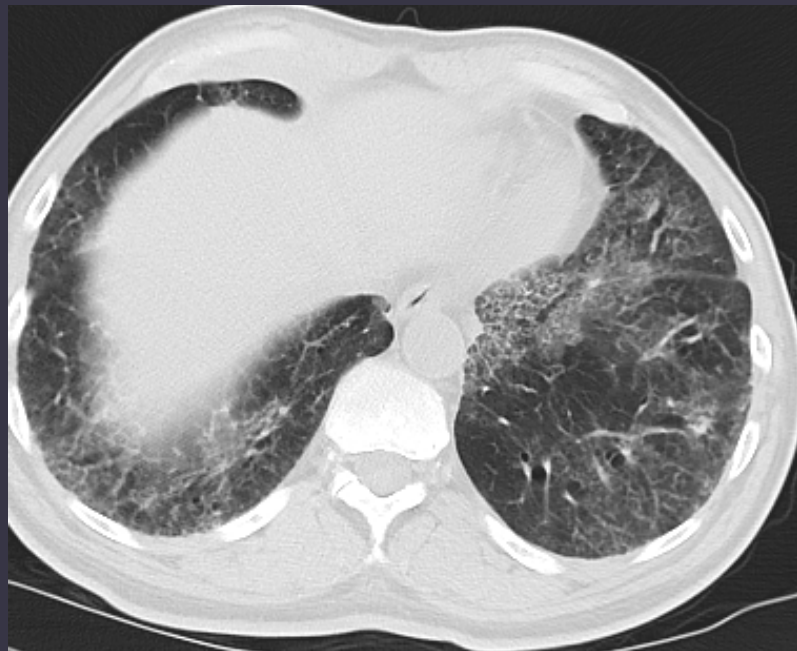


Patient with NSIP(3 months)





NSIP (6 weeks)



Treatment Options

- Model after IELCART (multi-institution)
- Enroll patients with fibrosis and cancer
- 4 treatment options and see what works best
- Document pathology, clinical and radiology

Lung Fibrosis

