HRCT interpretation is instrumental in diagnosing ILD[1,2]

SUSPECT PULMONARY FIBROSIS

Not actual patients.

Radiologists like you play an important role in identifying and diagnosing ILD[2-4]

- Expert HRCT interpretation is key to a correct diagnosis
- Radiologists play an integral role in multidisciplinary discussion (MDD)
- Radiologists can help by accurately interpreting scans to identify features associated with fibrotic ILD

Recognizing features of fibrosis early on HRCT is critical for timely intervention[5,6]

HRCT, high-resolution computed tomography; ILD, interstitial lung disease.

PROGRESSIVE PULMONARY FIBROSIS CAN CAUSE IRREVERSIBLE LOSS OF LUNG FUNCTION[7,8]

WHILE ALL PATIENTS WITH IPF HAVE A PROGRESSIVE PHENOTYPE, SOME PATIENTS WITH FIBROTIC ILD MAY HAVE A PROGRESSIVE FORM THAT IS ASSOCIATED WITH WORSE OUTCOMES[5,9,10]

ALTHOUGH ILDs MAY VARY IN ETIOLOGY, THEY SHARE THE COMMON THREAT OF PROGRESSIVE PULMONARY FIBROSIS[5,8,9,11*]

Idiopathic ILDs	Hypersensitivity pneumonitis	Autoimmune ILDs	Sarcoidosis	Other ILDs
• IPF • iNSIP • unclassifiable ILD • Other IIPs	Exposure related: • Mold • Bacteria • Animal proteins • Chemicals	• SSc-ILD • RA-ILD • Polymyositis • Dermatomyositis • Mixed CTD-ILD • Systemic lupus erythematosus • Sjögren's syndrome • IPAF[†]		• Occupational ILDs • Drug-related ILDs • Other exposure-related ILDs • Other rare ILDs

*Not an all-inclusive list.
[†]IPAF is not an established clinical diagnosis.

1 in 4 patients may develop pulmonary fibrosis with progression[10]

ILD is a common and often early manifestation of CTD[5,9,12]

WHEN PULMONARY FIBROSIS IS PROGRESSIVE IN PATIENTS WITH ILD, IT CAN BE MISTAKEN FOR OTHER COMMON RESPIRATORY DISEASES[12,13]

PROGRESSIVE PULMONARY FIBROSIS BEHAVES IN A CLINICALLY SIMILAR WAY TO IPF, AND IS CHARACTERIZED BY[5,9,14]:

- Lung function decline
- Early mortality
- Worsening quality of life
- Worsening respiratory symptoms

Patients with pulmonary fibrosis with progression face a poor prognosis.[14] Depending on underlying ILD, median survival may be as low as 1-2 years[15,16]

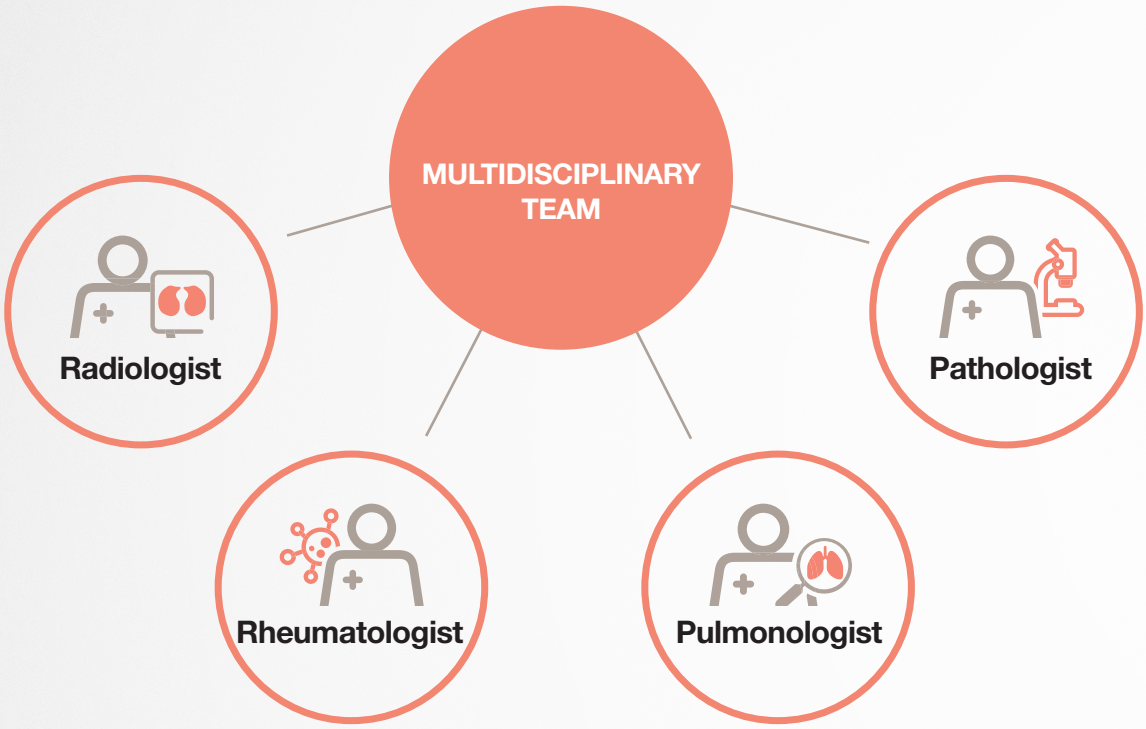
CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease; CTD, connective tissue disease; CTD-ILD, connective tissue disease-associated ILD; IIP, idiopathic interstitial pneumonia; iNSIP, idiopathic nonspecific interstitial pneumonia; IPAF, interstitial pneumonia with autoimmune features; IPF, idiopathic pulmonary fibrosis; RA-ILD, rheumatoid arthritis-associated ILD; SSc-ILD, systemic sclerosis-associated ILD.

Symptoms of pulmonary fibrosis with progression are often mistaken for symptoms of other, more common respiratory diseases, such as COPD, bronchitis, emphysema, asthma, and CHF[12,13]

YOUR ROLE IN MULTIDISCIPLINARY DISCUSSIONS

RADIOLOGISTS PLAY A VITAL ROLE IN THE DIAGNOSTIC PROCESS BY PROMPTLY RECOGNIZING THE FEATURES OF ILD ON HRCT[2,3]

Discussing radiologic findings suggestive of ILD with the HCP who ordered the HRCT scan is essential. MDD enables integration of all available information and **increases the accuracy of fibrotic ILD diagnosis and prognosis prediction.**[2,17]



Collaboration between radiologists, pulmonologists, rheumatologists, and, as needed, pathologists, leads to increased diagnostic confidence[2,17]

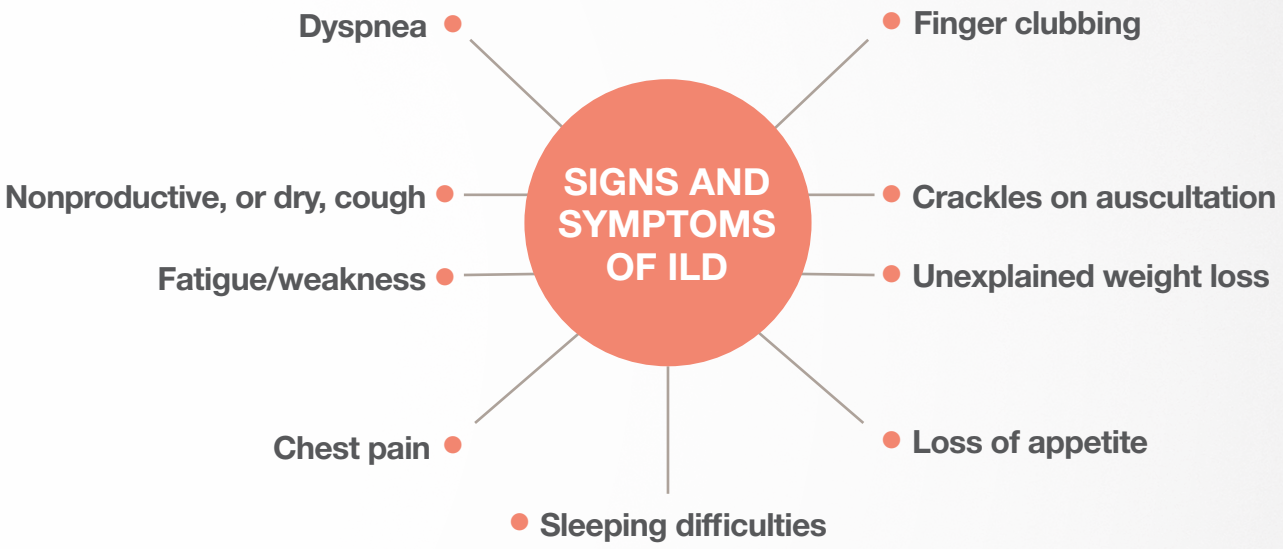
Your expert HRCT interpretation can help patients access appropriate intervention earlier[13]

UNDERSTANDING PATIENT HISTORY IS KEY TO INTERPRETING HRCT SCANS

REVIEW THE HRCT ORDER FOR PATIENT INFORMATION, INCLUDING[18]:

- Age and sex
- Clinical history
  - Familial ILD history
  - Possible exposures
  - Clinical symptoms indicating cause of lung disease

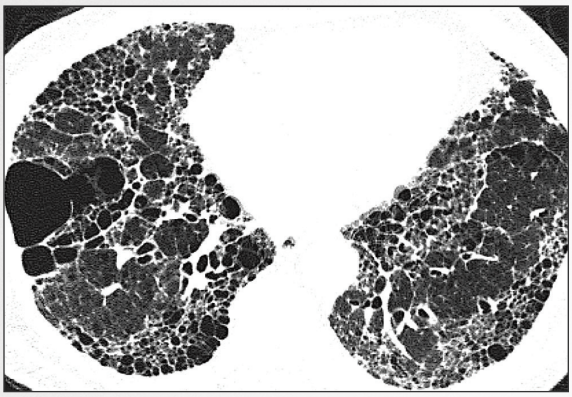
It's also important to check if symptoms associated with ILD have been noted. Common signs and symptoms include[13,19-21]:



Demonstrate a healthy suspicion in uncovering ILD

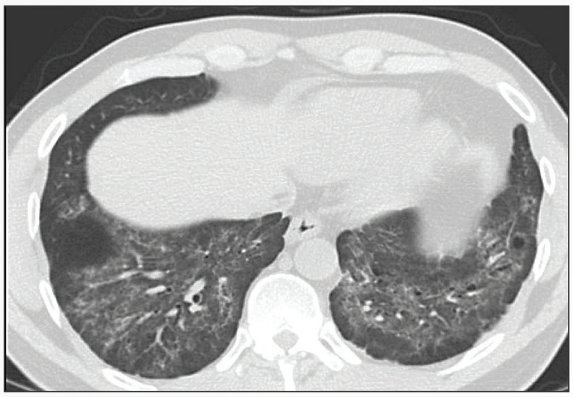
RADIOLOGICAL EVIDENCE IS CRUCIAL IN THE EARLY DETECTION AND CHARACTERIZATION OF FIBROTIC ILD—AND OFTEN HELPS GUIDE THE DIAGNOSTIC APPROACH[1]

THERE ARE TWO COMMON HRCT PATTERNS ASSOCIATED WITH FIBROSING ILDs[14]



UIP: Common features[2,22]

- Heterogeneous, subpleural basal distribution
- Honeycombing
- Reticular pattern with peripheral traction bronchiectasis or bronchiolectasis
- Mild ground glass opacification



Fibrotic NSIP: Common features[23,24]

- Homogeneous, subpleural basal distribution
- Subpleural sparing
- Ground glass opacification
- Traction bronchiectasis or bronchiolectasis
- Reticulation
- Little or no honeycombing

Your early recognition of fibrotic ILD is critical[6]

ALAT, Latin American Thoracic Association; ATS, American Thoracic Society; CT, computed tomography; ERS, European Respiratory Society; GGO, ground glass opacity; JRS, Japanese Respiratory Society; NSIP, nonspecific interstitial pneumonia; UIP, usual interstitial pneumonia.

THE 2018 ATS/ERS/JRS/ALAT IPF CLINICAL PRACTICE GUIDELINE DIVIDES HRCT PATTERNS INTO 4 CATEGORIES

THE USE OF CONSISTENT TERMINOLOGY ACROSS RADIOLOGICAL PATTERNS HELPS FACILITATE A MULTIDISCIPLINARY APPROACH[17]

HRCT Scanning Patterns[2]

UIP

- Subpleural, basal predominance with heterogeneous distribution*
- Honeycombing with or without peripheral traction bronchiectasis or bronchiolectasis†

Probable UIP

- Subpleural, basal predominance; often heterogeneous distribution
- Reticular pattern with peripheral traction bronchiectasis or bronchiolectasis
- May have mild GGO

Indeterminate for UIP

- Subpleural, basal predominance
- Subtle reticulation; may have mild GGO or distortion ("early UIP pattern")
- Features and/or distribution of lung fibrosis that do not suggest any specific etiology ("truly indeterminate")

Alternative Diagnosis

Findings suggestive of another diagnosis, including:

- Cysts, marked mosaic attenuation, predominant GGO, profuse micronodules, centrilobular nodules, nodules, and/or consolidation
- Predominant distribution of peribronchovascular and/or perilymphatic in the upper or mid-lung
- Other features including: pleural plaques, dilated esophagus, distal clavicular erosions, extensive lymph node enlargement, and/or pleural effusions or pleural thickening

*Variants of distribution: occasionally diffuse, may be asymmetrical.
†Superimposed CT features: mild GGO, reticular pattern, and pulmonary ossification.

Early and accurate diagnosis helps patients access appropriate intervention[25]

Not all UIP is IPF, but all IPF is UIP[2,14]

REPORTING INCIDENTAL ILAs OBSERVED ON CHEST CTs CAN INCREASE THE LIKELIHOOD OF PULMONOLOGY REFERRAL

WHEN INTERPRETING CT SCANS ORDERED FOR REASONS UNRELATED TO ILD, SUCH AS LUNG CANCER SCREENINGS, IT'S IMPORTANT TO REPORT INTERSTITIAL LUNG ABNORMALITIES (ILAs)[26-29]

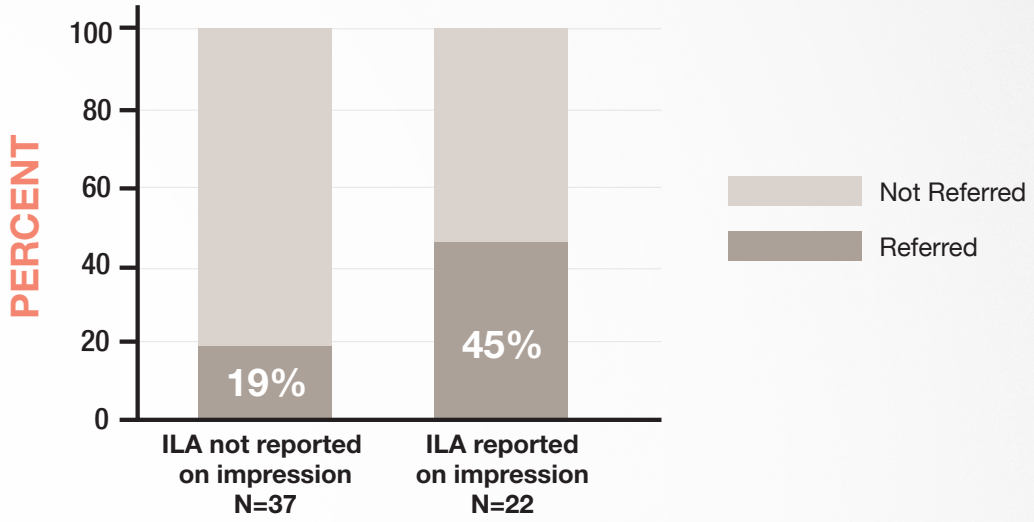
- ILAs were commonly observed on lung cancer screening CT scans
- The development and/or progression of ILA over an approximately 6-year follow-up period is associated with accelerated lung function decline and an increased rate of mortality
- Up to **20%** of patients with lung abnormalities were found to progress over time
- Each year of ILD diagnostic delay was associated with a **1.8%** increase in fibrosis extent on longitudinal chest CT

Although ILAs are commonly observed on screening CT scans, only 64% of cases are reported by a radiologist[26]

BY REPORTING ILAs, YOU CAN HELP PATIENTS RECEIVE EARLIER EVALUATION

PATIENTS WITH ILA MENTIONED IN THE LUNG CANCER SCREENING CT REPORT IMPRESSION WERE SIGNIFICANTLY MORE LIKELY TO RECEIVE REFERRAL[26]

Pulmonary referral based on ILA detection



45% of those with ILA reported received a pulmonology referral

19% of those without ILA reported received a pulmonology referral

If you notice ILA, consider recommending an evaluation by a pulmonologist if not already scheduled

HRCT TECHNIQUE AND DOCUMENTATION OF INTERSTITIAL CHANGES ARE KEY IN DIAGNOSING ILD[2]

PRIOR TO SCANNING, ENSURE THE ATS/ERS-RECOMMENDED HRCT PARAMETERS ARE UTILIZED[2]

Highlights of recommended scanning protocol

- Noncontrast examination
- Volumetric acquisition with a selection of sub-millimetric collimation, shortest rotation time, and highest pitch
- Reconstruction of thin-section CT images (≤1.5 mm):
  - Contiguous or overlapping
  - High–spatial-frequency algorithm
- Number of acquisitions:
  - Supine: inspiratory and expiratory
  - Prone: only inspiratory scans
  - Inspiratory scan should be obtained at full inspiration
- Recommended radiation dose (optional): 1-3 mSv*

When interpreting HRCT scans, consider differential diagnosis for ILDs. Document the description and location of abnormalities and highlight patterns and features that may point towards or exclude a specific diagnosis.
Also consider documenting[2]:

- Dominant pattern
- Location within secondary lobule
- Upper vs lower lung predominance
- Central vs peripheral predominance
- Any additional findings (eg, pleural fluid, lymphadenopathy, etc)

The Lung-RADS "S" Modifier, a standardized template for describing common ILD features, can be used to communicate ILAs to ordering primary care physicians[26,29,30]

mSv, millisievert; RADS, Reporting and Data Systems.
*Dose for the inspiratory volumetric acquisition. Strong recommendation to avoid "ultralow-dose CT" (<1 mSv).

RESOURCES

You have an essential role in recognizing and interpreting radiological features associated with ILDs. The following resources provide more information about ILD and how to detect it on HRCT.

Resources are available to help facilitate an accurate diagnosis

IPFradiologyrounds.com
Diagnostic HRCT techniques and protocols for evaluating interstitial lung diseases

insightsinIPF.com
Education, insights, and resources for diagnosing patients with IPF

insightsinILD.com
More information about how to identify the signs and symptoms of ILDs in your patients

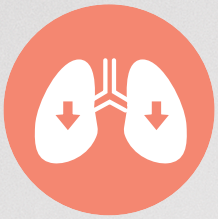
Rad Rounds App
A peer-reviewed interstitial lung disease educational app that features an interactive diagnostic algorithm to assist HRCT reading, a library of HRCT scans in our image gallery, and more

iPhone

Android

Scan the QR code to access these helpful resources

YOUR ROLE IN DIAGNOSING ILD CAN HELP PATIENTS ACCESS CARE



Progressive pulmonary fibrosis can lead to irreversible loss of lung function, and is often mistaken for other respiratory diseases[7,8,12,13]

Effectively communicating CT findings to ordering physicians can help patients receive appropriate treatment sooner[25,31]

Radiologist participation in MDD is vital in the identification of fibrosing ILD[2]

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