Evaluation of Connective Tissue Disease-Interstitial Lung Disease

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CME DISCLOSURES

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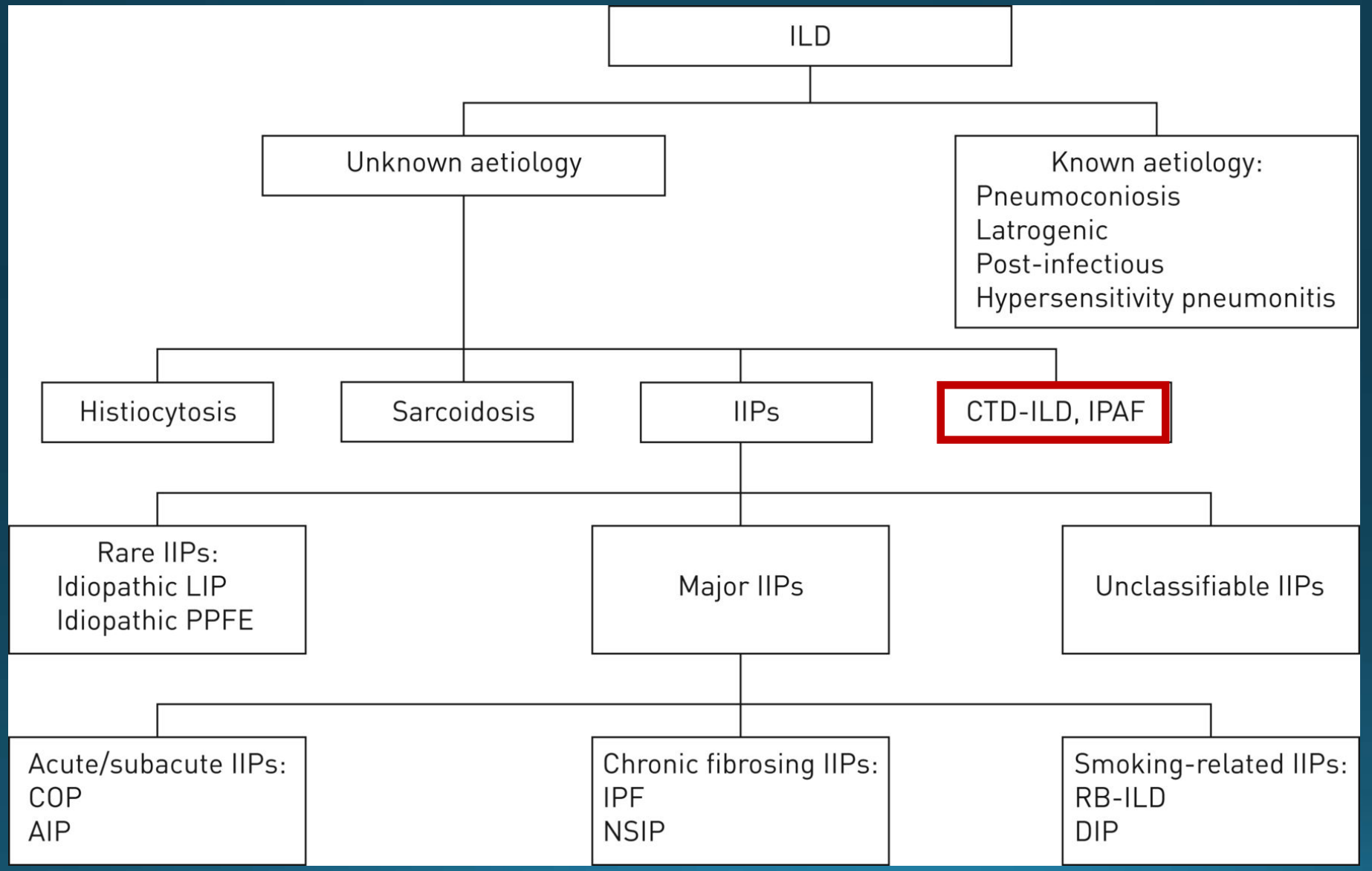
LEARNING OBJECTIVES

- Understand which connective tissue diseases (CTD) are associated with interstitial lung disease (ILD)
- Identify clinical features of a CTD in a patient with ILD
- Understand how to interpret serological studies associated with CTD-ILD

ILD OVERVIEW



CTD-ILD

- Rheumatoid arthritis (RA)
- Systemic sclerosis (SSc)
- Polymyositis
- Dermatomyositis

- Systemic lupus erythematosus (SLE)
- Mixed connective tissue disease (MCTD)

RA-ILD

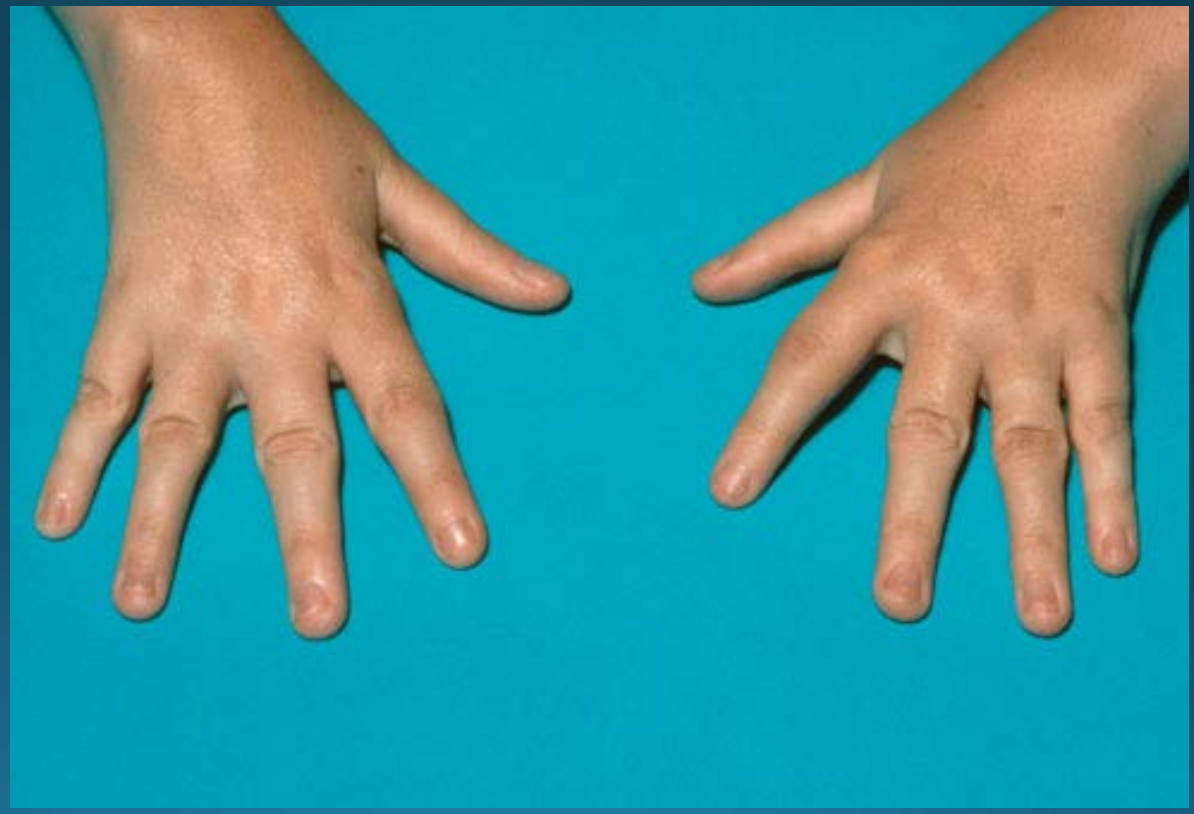
RA-ILD

- Prevalence of ILD in patients with RA varies
  - 10-58% of patients
- Risk factors
  - Male gender
  - Older age
  - Cigarette smoking
  - Higher levels of rheumatoid factor
  - Presence of anti-CCP antibody

Mori et al. Respir Med 2012.
Saag et al. Arthritis Rheum 1996.
Giles et al. Ann Rheum Dis 2014.

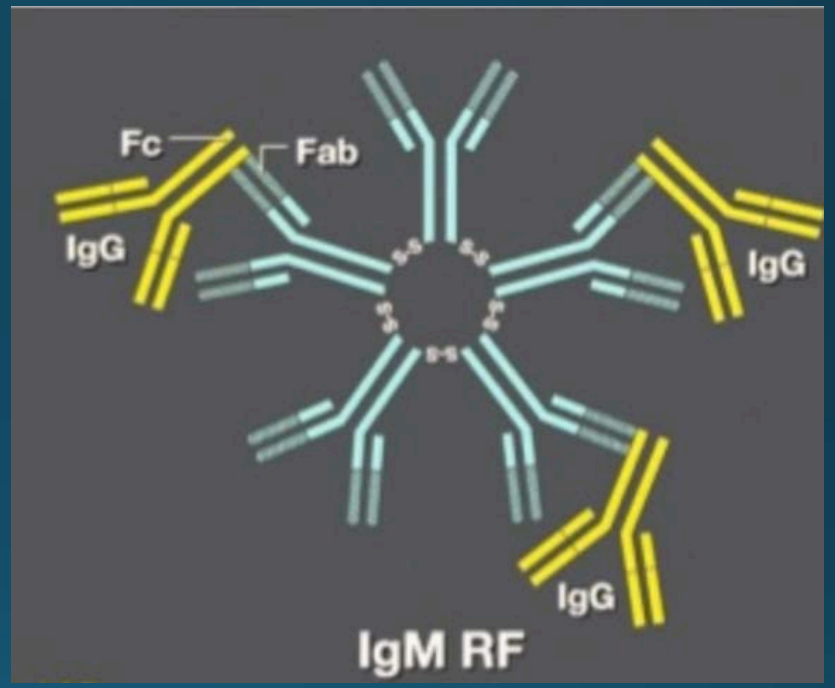
RA-ILD

- Clinical features:
  - Symmetric joint pain
  - Small joints
  - Morning stiffness >30 min



RA-ILD

- Serologies:
  - Rheumatoid factor (RF)
  - Anti-CCP antibody
  - Anti-nuclear antibody



RA-ILD

- Prevalence of histological subtypes:

Subtype	%	Pattern
Usual interstitial pneumonia (UIP)	66%	Fibrosis and honeycombing
Non-specific interstitial pneumonia (NSIP)	24%	Variable levels of alveolitis
Cryptogenic organising pneumonia (COP)	4%	Multifocal peripheral consolidation
Overlap syndromes (OS)	6%	Mixed

SSc-ILD

SSc-ILD

- **The majority of patients with SSc have ILD**
  - 55% of patients (HRCT)
  - 96% of patients with abnormal PFTs
- **ILD is now the leading cause of death in SSc**

Launay et al. J Rheumatol 2006.
DeSantis et al. Respir Res 2005.
Tyndall et al. Ann Rheum Dis 2010.

SSc-ILD

- Clinical features:
  - Raynaud's phenomenon
  - Sclerodactyly
  - Cutaneous sclerosis proximal to the MCPs
  - GERD

SSc-ILD

- Clinical features:
  - Sclerodactyly
  - Cutaneous sclerosis proximal to the MCPs
  - Telangiectasias

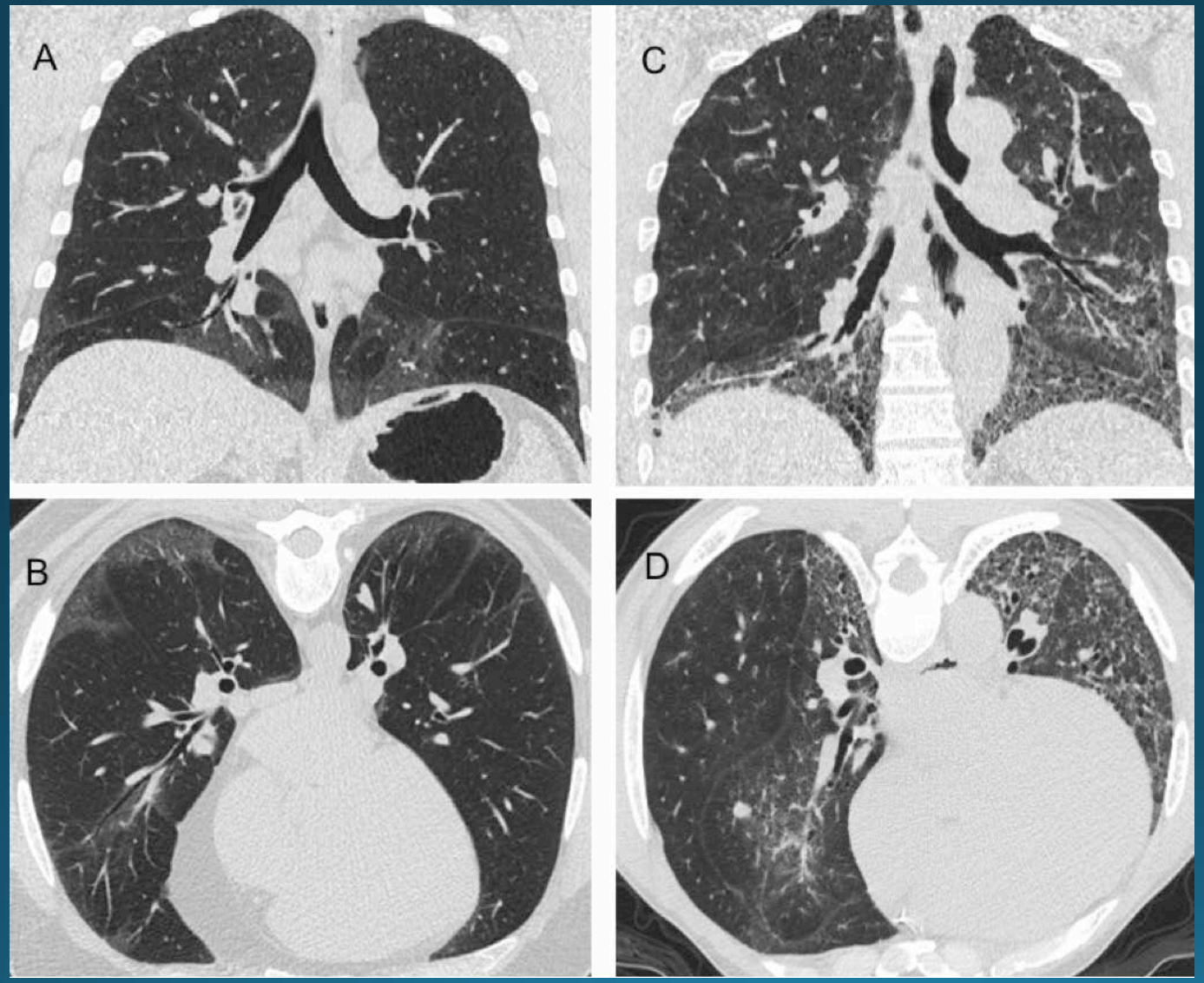
SSc-ILD

- Serologies:
  - Scl-70 antibody
  - Anti-RNA Polymerase III
  - PM/Scl Antibody

  - *Less risk with Anti-centromere antibody*

SSc-ILD: NSIP most common

Mild ILD



Severe ILD

Dermatomyositis/ Polymyositis-ILD

Dermatomyositis/Polymyositis

- **Prevalence of ILD varies**
  - 20-80%

- **Risk factors**
  - **Amyopathic dermatomyositis**
  - **Presence of Jo-1 antibody (anti-synthetase)**
  - ***Less common in malignancy associated myositis***

Conors et al. CHEST 2010.
Fathi et al. Arthritis Rheum 2008.

Dermatomyositis/Polymyositis

- Clinical features:
  - Proximal muscle weakness
  - Dysphagia
  - Polyarthritis
  - Raynaud's phenomenon
  - GERD

Der ngs

Dermatomyositis: Skin findings

- Jo-1 Antibody association
- Amyopathic dermatomyositis

Myositis-ILD

- Labs/Serologies:
  - CK, Aldolase
  - anti-Jo-1 antibody [anti-histidyl-transfer [t] RNA synthetase]
  - anti-PL-7 [anti-threonyl-tRNA synthetase]
  - anti-PL-12 [anti-alanyl-tRNA synthetase
  - *ANA can be negative since aminoacyl-tRNA synthetase enzymes are in the cell cytoplasm*

Myositis-ILD

- Histological subtypes:
  - NSIP most common
  - Less common:
    - UIP
    - Organizing pneumonia
    - Diffuse alveolar damage

CTD-ILD SUMMARY OF

CLINICAL FEATURES

CTD-ILD REVIEW OF SYSTEMS

Clinical Features	Disease Associations
Weight loss	*ALL*
Joint pain or swelling	*ALL*
Raynaud's phenomenon	*ALL (if digital ulcers- SSc)*
GERD or dysphagia	SSc, Dermato/Polymyositis
Recurrent, unexplained fever	SLE, RA
Rash	SLE, SSc, Dermatomyositis
Dry eyes or dry mouth	Sjogren's, SLE, SSc, RA
Skin tightening, loss of wrinkles	SSc

CTD-ILD REVIEW OF SYSTEMS

Clinical Features	Disease Associations
Photosensitivity	SLE
Hair loss	SLE
Mouth ulcers	SLE, Sjogren's
Decreased mouth opening	SSc
Morning stiffness	*ALL,* but especially RA
Muscle weakness	Dermatomyositis, Polymyositis, SSc

CTD-ILD PHYSICAL EXAMINATION

Signs	Disease Associations
Non-androgenic alopecia	SLE
Heliotrope rash	Dermatomyositis
Malar rash	SLE
Mouth/nasal ulcers	SLE
Telangiectasias- often on face/chest	SSc
Shawl sign	Dermatomyositis
Hypo/hyperpigmentation of skin	SSc

CTD-ILD PHYSICAL EXAMINATION

Signs	Disease Associations
Synovitis	*ALL,* especially RA (MCPs), SLE (PIPs)
Sclerodactyly	SSc
Gottron's papules, Mechanics hands	Dermatomyositis
Digital ulcers or pitting scars	SSc
Proximal muscle weakness	Dermatomyositis, Polymyositis, SSc
Livedo reticularis	SLE

CTD-ILD LABS/SEROLOGIES

Laboratory Abnormalities	Disease Associations
ANA (≥1:160)	*ALL,* especially SLE, SSc, Dermatomyositis, Polymyositis, Sjogren's, MCTD
Rheumatoid factor (RF)	RA, MCTD
Anti-Ro (SSA)	Sjogren's, SLE, MCTD
Anti-La (SSB)	Sjogren's, SLE, MCTD
Anti-Jo-1	Dermatomyositis
Anti-topoisomerase	SSc, MCTD

CTD-ILD LABS/SEROLOGIES

Laboratory Abnormalities	Disease Associations
Anti-Sm	SLE, MCTD
Anti-RNP	SLE, MCTD (high RNP)
Anti-dsDNA	SLE, MCTD
Anti-CCP	RA, MCTD
Aldolase elevation	Dermatomyositis, Polymyositis, SSc, MCTD
CPK elevation	Dermatomyositis, Polymyositis, SSc, MCTD

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  - Systemic sclerosis (SSc)
  - Polymyositis
  - Dermatomyositis
  - Sjogren's syndrome
  - Systemic lupus erythematosus (SLE)
  - Mixed connective tissue disease (MCTD)

LEARNING OBJECTIVES

- Identify clinical features of a CTD in a patient with ILD
  - Rheumatic disease review of systems: *Systemic signs of inflammation*
  - Extra-pulmonary examination signs: *Focus on Skin, Joint, Muscles*

LEARNING OBJECTIVES

- Understand how to interpret serological studies associated with CTD-ILD
  - ANA non-specific, but higher the titer, the more likely a CTD is present
  - In other clinical scenarios, serologies should be used to confirm a clinical diagnosis; however, ILD, there may be a role for using serologies to *screen* for CTD-ILD or IPAF

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CTD - ILD

Rheumatology Research Foundation

Advancing Treatment | Finding Cures