RHEUMATOID ARTHRITIS AND THE LUNG


Take home points:
1. There is a broad differential diagnosis for RA and lung disease: think of RA-associated lung disease, drug reactions, infection secondary to immunosuppression, and coexistent medical conditions.
2. The most common lung diseases associated with RA are ILD and pleural disease; however ILD, BO, drug reactions and infections have the biggest impact on patient outcome.
3. MTX can cause a subacute, interstitial lung disease in RA patients. Most commonly presents with dyspnea, cough, and fever.

Broad differential diagnosis categories of RA and lung disease:
- Rheumatoid-associated lung disease
- Drug-related lung disease secondary to drugs used to treat RA
- Infection secondary to immunosuppression
- Coexistent medical conditions

Epidemiology:
- Most common lung diseases associated with RA: interstitial lung diseases (ILD) and pleural effusions.
- Causes of lung disease in RA with the biggest impact on patient outcome: ILD, bronchiolitis obliterans (BO), drug reactions, and infections.

Rheumatoid-associated lung disease:
- **Interstitial lung disease**: pathology usually shows UIP which is the pathologic correlated to IPF.
- **Bronchiolitis obliterans organizing pneumonia (BOOP)**: bilateral parenchymal opacities, often with preserved lung volumes. Typically presents as a relapsing, non-resolving pneumonia that does not respond to antibiotics. Steroids can be curative.
- **Pleural disease**: pleural effusions are common in RA, are exudative, and have a low glucose. Occasionally, the effusions meet criteria for empyema (likely due to ruptured rheumatoid nodule).
- **Bronchiolitis obliterans (BO)**: rare, usually fatal condition. Associated with penicillamine, gold, and sulfasalazine treatment. Presents with rapid-onset dyspnea and dry cough. Fever is uncommon.
- **Bronchiecstasy**: RA patients that get this are more likely to be heterozygous for the CFTR mutation seen in cystic fibrosis.
- **Rheumatoid nodules**: the only pulmonary manifestation specific to RA. Typically benign but can lead to pleural effusion, pneumothorax, hemoptysis, secondary infection, and bronchopulmonary fistula.
- **Caplan’s syndrome**: the syndrome of RA + pneumoconiosis related to mining dust. Look for rapid development of multiple bibasilar peripheral nodules in the RA patient who has a history of exposure to mining dusts. This can progress to progressive massive fibrosis.
- **Pulmonary vasculitis**: can occur but is actually very rare.
- **Other diseases**: RA patients can get apical fibrobullous disease (apical fibrotic cavitary lesions similar to ankylosing spondylitis), thoracic cage immobility causing restrictive lung disease, and rarely, primary pulmonary hypertension. Secondary pulmonary hypertension (due to ILD) is more common. Finally, lung cancer is more common in RA patients than in normal control subjects.

Methotrexate-associated lung disease in RA:
- Presents most commonly with dyspnea (93%), cough (83%), and fever (69%).
- Methotrexate lung injury is most often a subacute process, in which symptoms are commonly present for several weeks before diagnosis.
- Approx. 50% of the cases are diagnosed within 32 weeks from initiation of methotrexate treatment.
- There is a high rate of recurrence of lung injury after re-challenge with methotrexate.
- 17% of RA patients who develop lung disease on methotrexate die from this complication.