44. Sarcoidosis

Etiology

- A systemic, granulomatous, inflammatory disorder of unknown cause
- Pathogenesis is unclear; possibly involves an exaggerated immune response to an unknown antigen, resulting in T cell activation; involved organs demonstrate accumulated T cells, multinucleated giant cells, and histiocytes in characteristic noncaseating granulomas
- No specific etiologic agent has been identified
- 90% have lung involvement; 50% have extrathoracic involvement
- 2/3 of cases resolve spontaneously; 1/3 have chronic waxing and waning of symptoms

Differential Dx

- HIV
- Tuberculosis
- Lung neoplasm
- Lymphoma
- Berylliosis
- Brucellosis
- Histoplasmosis or other fungal infections
- Interstitial lung disease
- Pulmonary fibrosis
- Hypersensitivity pneumonitis
- Pneumoconioses
- BOOP
- Wegener's granulomatosis
- Lung vasculitis

Epidemiology

- Females > males
- Affects all ages; greatest incidence is among ages 20–40
- Affects many more blacks than whites (most characteristic patient is an African American woman in her thirties)
- Prevalence: 10–40 cases per 100,000 in the US
- Smoking is *not* a risk factor

Signs/Symptoms

- Pulmonary: Cough, dyspnea, chest discomfort, hemoptysis
- Constitutional: Fever, weight loss, fatigue
- Polyarthritis
- Ocular: Uveitis in 25%
- Neurologic: Cranial nerve palsies, aseptic meningitis, pituitary disease, neuropathy, seizures
- Cardiac: Cardiomyopathy, arrythmias
- Dermatologic: Erythema nodosum
- Lymphadenopathy, splenomegaly (20%)
- Hepatic: ↑ LFTs and cholestasis in 20%
- Hypercalcemia
- Acute syndromes: Löfgren's (erythema nodosum, adenopathy, tenosynovitis) and Heerfordt's (fever, uveitis, parotiditis)

Diagnosis

- A diagnosis of exclusion; based on clinical and X-ray findings plus biopsy showing noncaseating granulomas
- Biopsy: Noncaseating granulomas; may obtain sample from lymph node, transbronchial biopsy, skin lesion, salivary glands, or liver
- CXR: Often shows bilateral hilar lymphadenopathy
- CT: Nonspecific alveolitis; diffuse nodular adenopathy
- PFTs: Normal or restrictive pattern with poor diffusion
- ABG: Increased A-a gradient, hypoxemia
- Serum ACE is elevated in 50–80% of cases (nonspecific)
- Elevated serum and urine calcium
- EKG: Conduction abnormalities
- Gallium scanning is nonspecific
- Slit lamp exam annually for ocular disease
- Monitor disease progression: Follow symptoms and PFTs

Treatment

- Observation is recommended for 6 months if limited to the lungs as the majority of cases will spontaneously remit; difficult to determine which patients require treatment, which is important because of severe side effects of steroids
- Treat if severe or progressive pulmonary disease or if extrapulmonary involvement (cardiac, ocular, CNS, constitutional, hypercalcemia, arthritis, liver, renal)
- Systemic steroids are the mainstay of treatment
- 25–40% relapse—treat relapses with steroids
- Methotrexate in refractory cases or to decrease steroid requirements—other immunosuppressives have limited benefits
- Bronchodilators as needed for symptomatic relief
- Ophthalmic steroids for ocular sarcoid
- NSAIDs for erythema nodosum
- Lung transplant in severe disease; however, may recur

Prognosis/Clinical Course

- Staged based on radiographic pulmonary involvement; stages are not a continuum—patients present at any stage and do not progress through stages
- Stage 0 (8% of patients): Systemic disease but normal CXR and PFTs
- Stage 1 (50%): Bilateral hilar adenopathy; normal lung parenchyma; PFTs are normal or near-normal; 75% remit within 2 years
- Stage 2 (29%): Hilar adenopathy, diffuse interstitial disease, nodules; restrictive PFTs with ↓ diffusing capacity; 50% remit
- Stage 3 (12%): Diffuse interstitial disease without adenopathy; 20% remit
- Stage 4: *Irreversible* lung fibrosis, ↓ lung volume, bronchiectasis, restrictive PFTs with ↓ diffusing capacity