Idiopathic Inflammatory Myopathy

Definition
- autoimmune diseases characterized by proximal muscle weakness ± pain
- muscle becomes damaged by a non-suppurative lymphocytic inflammatory process
- associated with malignancy
  - increased risk of malignancy: age >50, DMM>PM, normal CK, refractory disease
- associated with other connective tissue disease, Raynaud's phenomenon, autoimmune disorders

Classification
- PM/DMM
- adult and juvenile form

Inclusion Body Myositis
- age >50, M>F, slowly progressive, vacuoles in cells on biopsy
- suspect when patient unresponsive to treatment
- distal as well as proximal muscle weakness
- muscle biopsy positive for inclusion bodies

POLYMYOSITIS/DERMATOMYOSITIS

Table 19. Classification Criteria for PM/DMM*

Criteria	Description
1. Symmetric proximal muscle weakness	Typical involvement of shoulder girdle and hip girdle
2. Elevated muscle enzymes	↑ CK, aldolase, LDH, AST, ALT
3. EMG changes	Short polyphasic motor units, high frequency repetitive discharge, insertional irritability
4. Muscle biopsy	Segmental fibre necrosis, basophilic regeneration, perivascular inflammation (DMM), endomysial inflammation (PM) and atrophy
5. Typical rash of dermatomyositis	Required for diagnosis of DMM (see below)

*Definite if 4 present, probable if 3 present *NEJM* 1975;292:403-407

Etiology and Pathophysiology
- PM is CD8 cell-mediated muscle necrosis, found in adults
- DMM is B-cell and CD4 immune complex-mediated, and causes peri-fascicular vascular abnormalities

Signs and Symptoms
- progressive symmetrical proximal muscle weakness (shoulder and hip) developing over weeks to months
  - difficulty lifting head off pillow, arising from chair, climbing stairs
- dermatological
  - DMM has characteristic dermatological features (F>M, children and adults)
    - Gottron's papules
      - pink-violaceous, flat-topped papules overlying the dorsal surface of the interphalangeal joints
    - Gottron's sign
      - erythematous, smooth or scaly patches over the dorsal IPs, MCPs, elbows, knees, or medial malleoli
    - heliotrope rash: violaceous rash over the eyelids; usually with edema
    - shawl sign: poikilodermatous erythematous rash over neck, upper chest, and shoulders
    - mechanic's hands: dark, dry, thick scale on palmar and lateral surface of digits
    - periungual erythema
- cardiac
  - arrhythmias, CHF, conduction defect, ventricular hypertrophy, pericarditis
- gastrointestinal
  - oropharyngeal and lower esophageal dysphagia, reflux
- pulmonary
  - weakness of respiratory muscles, ILD, aspiration pneumonia

Signs of DMM
Gottron's papules and Gottron's sign are pathognomonic of DMM (occur in 70% of patients)

Malignancies Associated with DMM
- Breast
- Lung
- Colon
- Ovarian

Investigations
- blood work: CK, ANA, anti-Jo-1 (DMM), anti-Mi-2, anti-SRP
- imaging: MRI may be used to localize biopsy site
- EMG, muscle biopsy

Treatment
- non-pharmacological treatment
  - physical therapy and occupational therapy
- pharmacological treatment
  - high-dose corticosteroid (1-2 mg/kg/d) and slow taper
  - add immunosuppressive agents (azathioprine, MTX, cyclosporine)
  - IVIg if severe or refractory
  - hydroxychloroquine for DMM rash
- malignancy surveillance
  - detailed history and physical (breast, pelvic, and rectal exam)
  - CXR, abdominal and pelvic U/S, fecal occult blood, Pap test, mammogram ± CT scan (thoracic, abdominal, pelvic)

Sjögren's Syndrome

Definition
- autoimmune condition characterized by dry eyes (keratoconjunctivitis sicca/xerophthalmia) and dry mouth (xerostomia), caused by lymphocytic infiltration of salivary and lacrimal glands
- may evolve into systemic disorder with diminished exocrine gland activity in respiratory tract and skin
- primary and secondary form (associated with RA, SLE, DMM, and HIV)
- prevalence, F>>M, 40-60 yo
- increased risk of non-Hodgkin's lymphoma

Patients with Sjögren's syndrome are at higher risk of non-Hodgkin's lymphoma

Table 20. American College of Rheumatology Classification for Sjögren's*

Criteria	Comments
1. Positive serum anti-SSA/Ro and/or anti-SSB/La or positive RF and ANA titer>1:320	
2. Labial salivary gland biopsy with focal lymphocytic sialadenitis with focus score ≥1 focus /4mm^2	Focus scores are histopathologic grading systems Strongly associated with phenotypic ocular and serological component's of Sjögren's
3. Keratoconjunctivitis sicca with ocular staining score >3	Ocular staining score based on fluorescein dye examination of conjunctiva and cornea to determine clinical changes

*Classification criteria is met in patients with signs/symptoms of Sjögren's, who have at least 2 of the above features
1. Arthritis Care & Research 2012;64(4):475-487; 2. *Arthritis Rheum* 2011;63(7):2021-2030; 3. Am J Ophthalmol 2010;149(3):405-441

Classic Triad (identifies 93% of Sjögren's patients)
- Dry eyes
- Dry mouth (xerostomia) → dysphagia
- Arthritis (small joint, asymmetrical, non-erosive) but may be associated with rheumatoid arthritis, in which case, the arthritis is erosive and symmetric

Signs and Symptoms
- "sicca complex": dry eyes (keratoconjunctivitis sicca/xerophthalmia), dry mouth (xerostomia)
- staphylococcal blepharitis
- dental caries, oral candidiasis, angular cheilitis (inflammation and fissuring at the labial commissures of the mouth)
- systemic complications
  - sinusitis
  - autoimmune thyroid dysfunction
  - arthralgias, arthritis
  - subclinical diffuse ILD, xerotrachea leading to chronic dry cough
  - renal disease, glomerulonephritis
  - palpable purpura, vasculitis
  - peripheral neuropathy
  - lymphoma risk greatly increased

Treatment
- ocular
  - artificial tears or surgical punctal occlusion for dry eyes
- oral
  - good dental hygiene, hydration
  - parasympathomimetic agents that stimulate salivary flow (e.g. pilocarpine)
  - topical nystatin or clotrimazole x 4-6 wk for oral candidiasis
- systemic (e.g. hydroxychloroquine, corticosteroids)

Mixed Connective Tissue Disease

- syndrome with features of 3 different connective tissue diseases (e.g. SLE, scleroderma, PM)
- common symptoms: Raynaud's phenomenon, swollen fingers
- blood work: anti-RNP (see Table 10)
- treatment is generally guided by the severity of symptoms and organ system involvement
- prognosis
- 50-60% will evolve into SLE
- 40% will evolve into scleroderma
- only 10% will remain as MCTD for the rest of their lives
- cardiac involvement (arrhythmia) common, renal or lung involvement rare