RHEUMATOLOGY OVERVIEW

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What is Rheumatology?

- Medical science devoted to the rheumatic diseases and musculoskeletal disorders
- Study of :
  - autoimmune diseases
  - connective tissue disease

Inflammatory vs Non-inflammatory

- Erythema
- Warmth
- Pain
- Swelling
- Prolonged stiffness
- Systemic symptoms
- Laboratory abnormalities

- Mechanical pain (worse with activity)
- Improves with rest
- Stiffness after brief periods of rest (not prolonged)
- Absence of systemic signs

Differential Diagnosis for Different Joint Patterns

- Monoarticular
  - Trauma, hemarthrosis, spondyloarthropathy
  - Septic arthritis, crystal-induced
- Oligoarticular
  - Spondyloarthropathy, crystal-induced, infection related
- Polyarticular
  - RA, SLE, crystal-induced, infectious

Rheum Diseases You Will Encounter

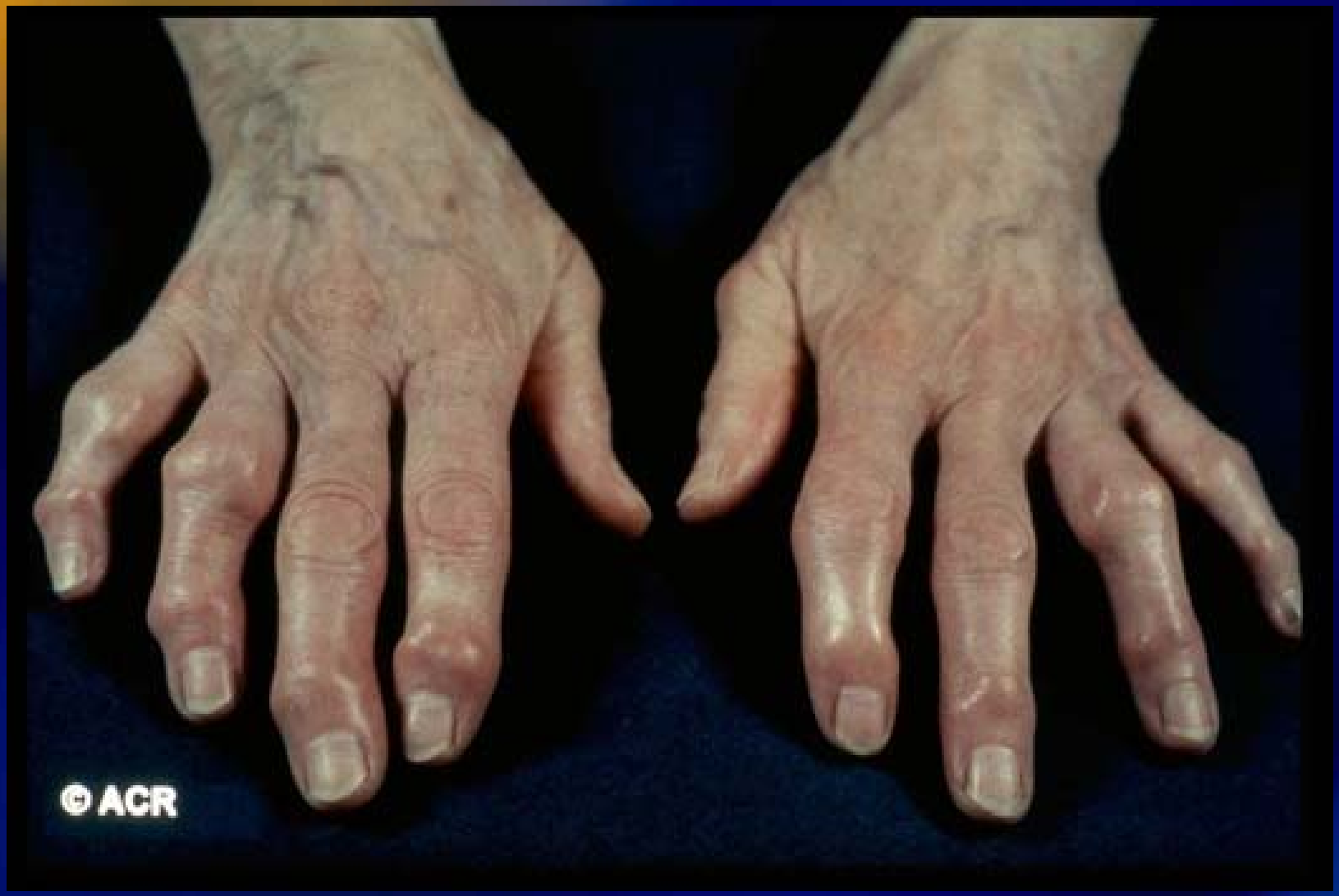
- Osteoarthritis
- Rheumatoid Arthritis
- Seronegative spondyloarthropathy
- Crystal-induced arthritis
- Systemic lupus erythematosus
- Vasculitis
- Other important rheumatologic diseases
  - Scleroderma, Inflammatory Myopathy

OSTEOARTHRITIS

- Most common form of arthritis
- > 50 years of age
- Risk factors: age, obesity, occupation, history of trauma
- Most common sites: hands, feet, knees, hips, AC joints, and facet joints of the cervical and lumbosacral spine
- PAIN (mechanical type), stiffness (< 30 minutes)
- Non-inflammatory, no systemic involvement
- DIP/PIP involvement; spares the wrists (Heberden's/ Bouchard's)

OSTEOARTHRITIS

Bouchard's and Heberden's nodes



OSTEOARTHRITIS

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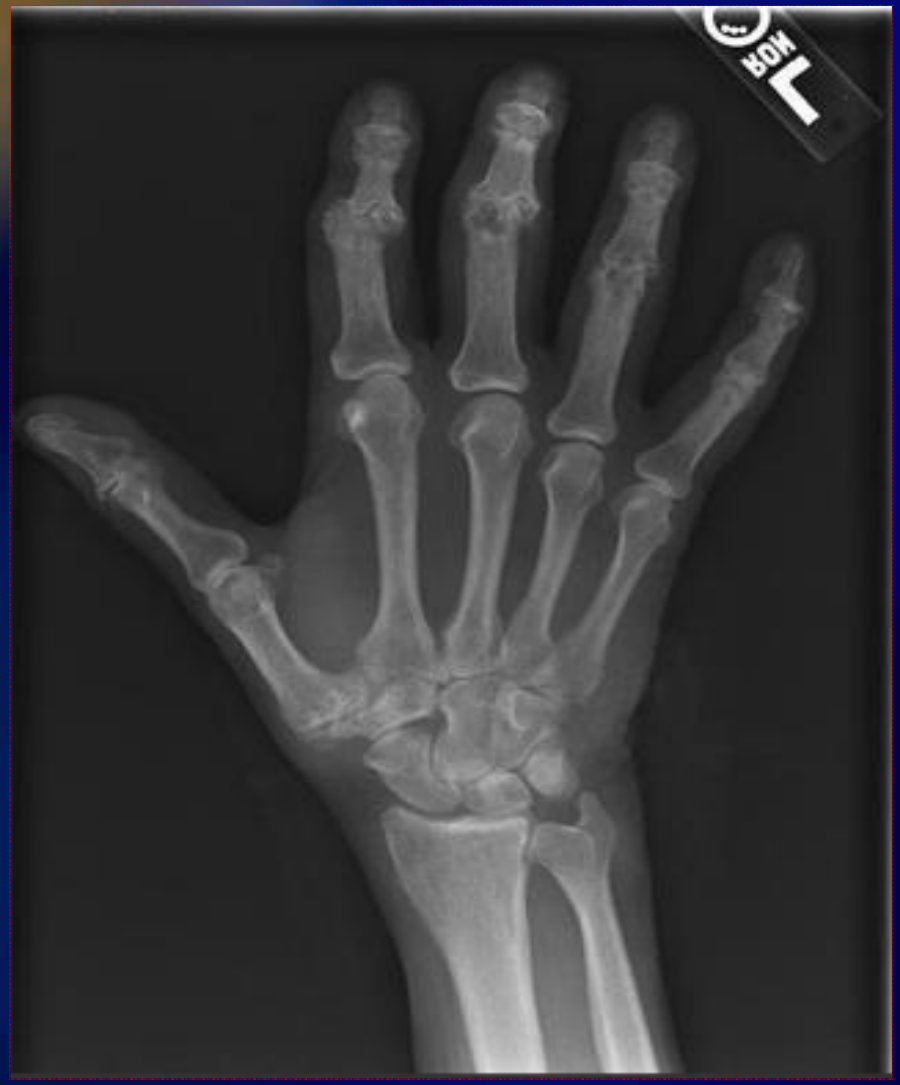


Treatment

- Minimize risk factors
- Physical therapy
- Analgesic medications
  - NSAIDs
  - Tylenol, Tramadol
  - Periodic steroid injection in selected cases
- Joint replacement in advanced cases

RHEUMATOID ARTHRITIS

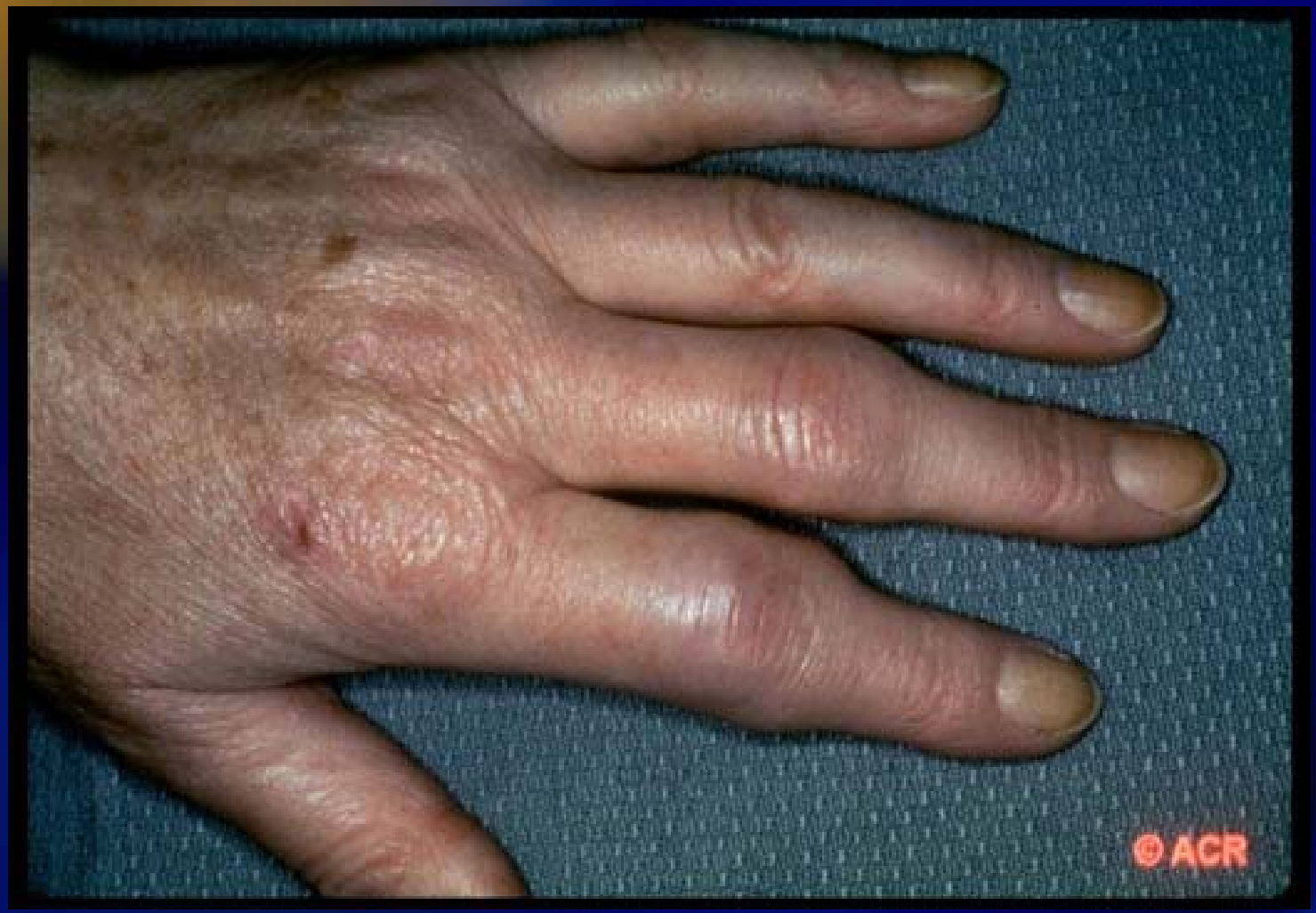
- Chronic (>6 wks), inflammatory
- Female > Male
- AM stiffness lasting at least 1 hr
- Typically involves wrist, MCP, or PIP joints
- Polyarticular and symmetric
- Swan neck/Boutonniere/ulnar deviation
- Extra-articular manifestations
  - Rheumatoid nodules, interstitial lung disease, vasculitis

Diagnostic Criteria: Rheumatoid Arthritis

- Target population
  - At least 1 joint with definite synovitis
  - Synovitis not better explained by another disease

- Score of >/= 6/10 needed
- Joints
  - 1 large (0), 2-10 large (1), 1-3 small (2), 4-10 small (3)
  - >10 joints including at least 1 small (5)
- Serology (at least 1 test result needed)
  - Negative RF and CCP (0), Low positive RF or CCP (2)
  - high positive RF or CCP (3)
- Acute phase reactants (at least 1 test needed)
  - Normal CRP and ESR (0), abnormal CRP or ESR (1)
- Duration of symptoms
  - < 6 wks (0)
  - > 6 wks (1)

RHEUMATOID ARTHRITIS



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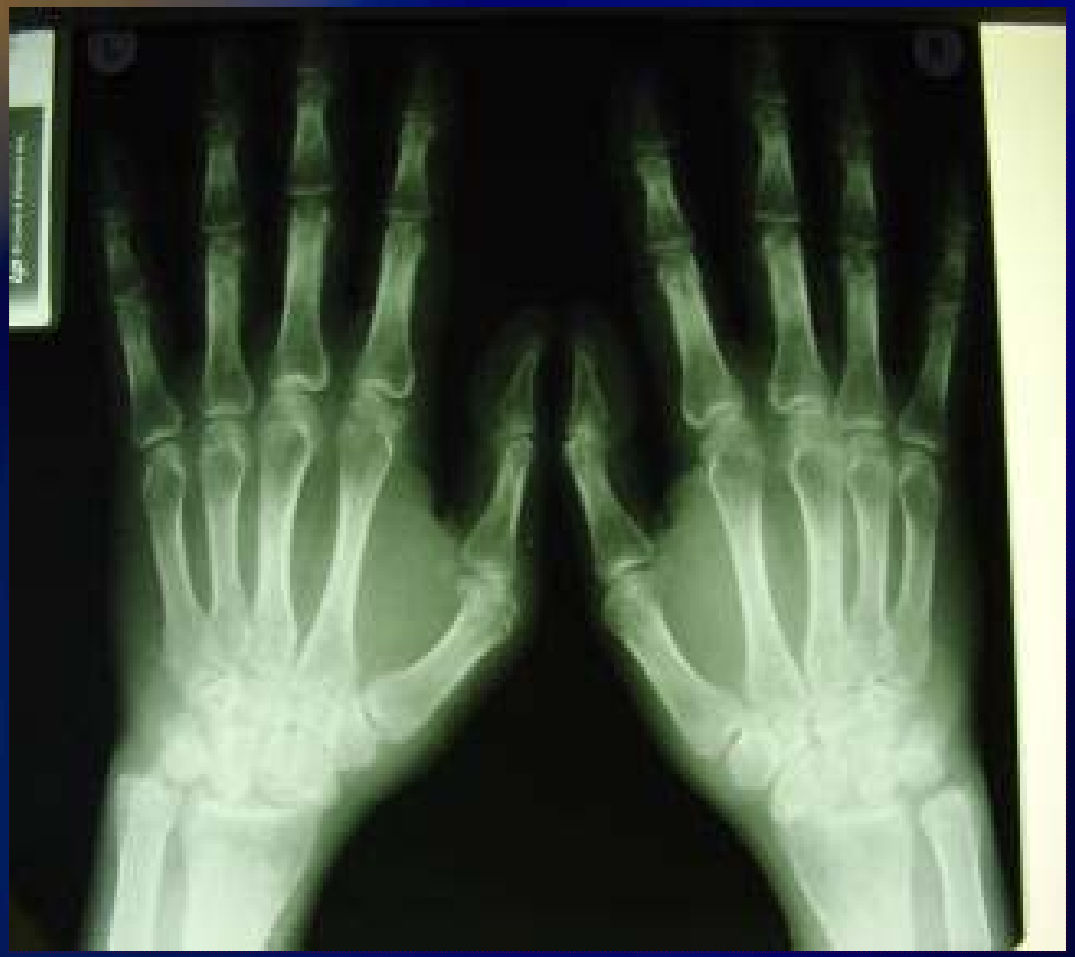

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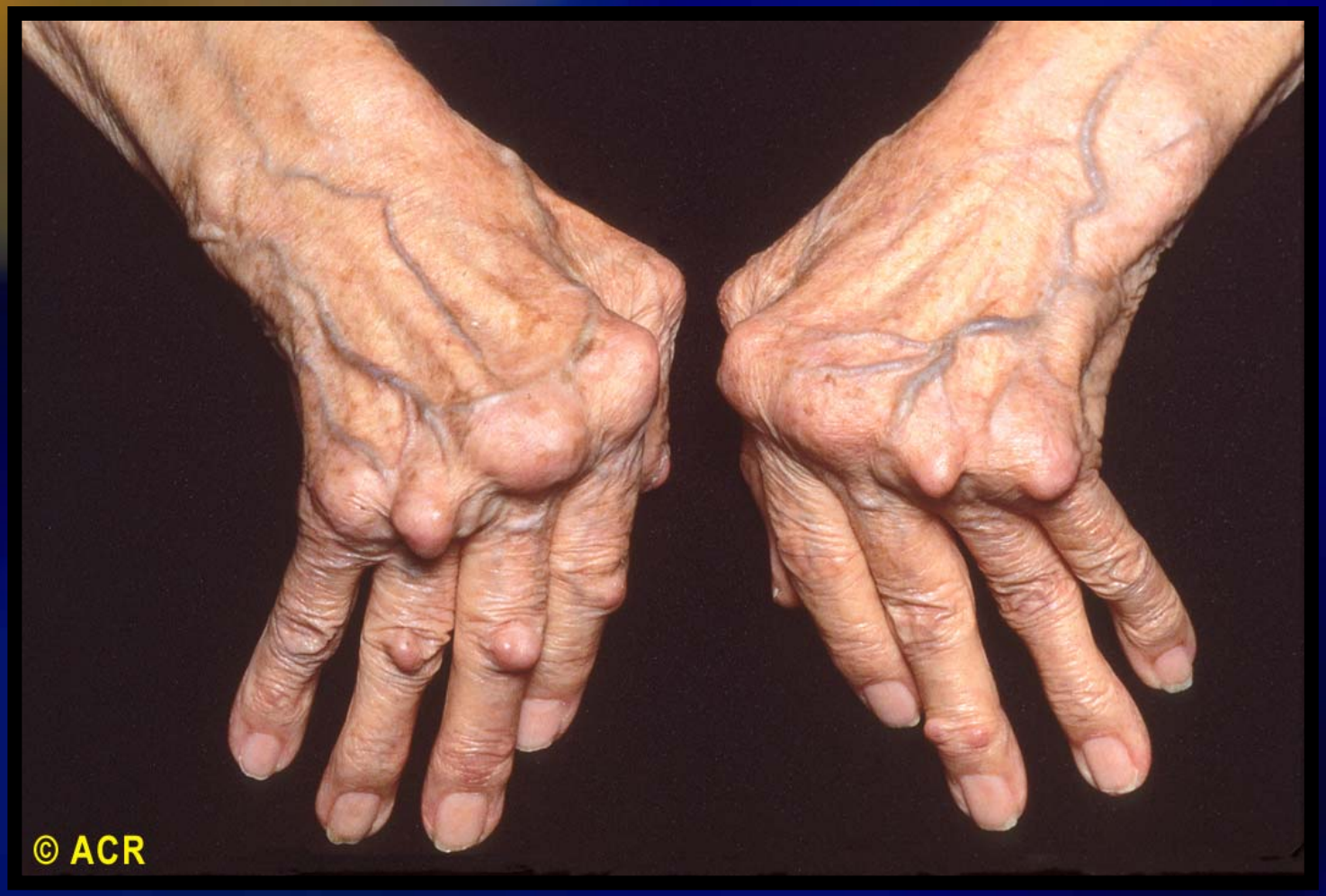

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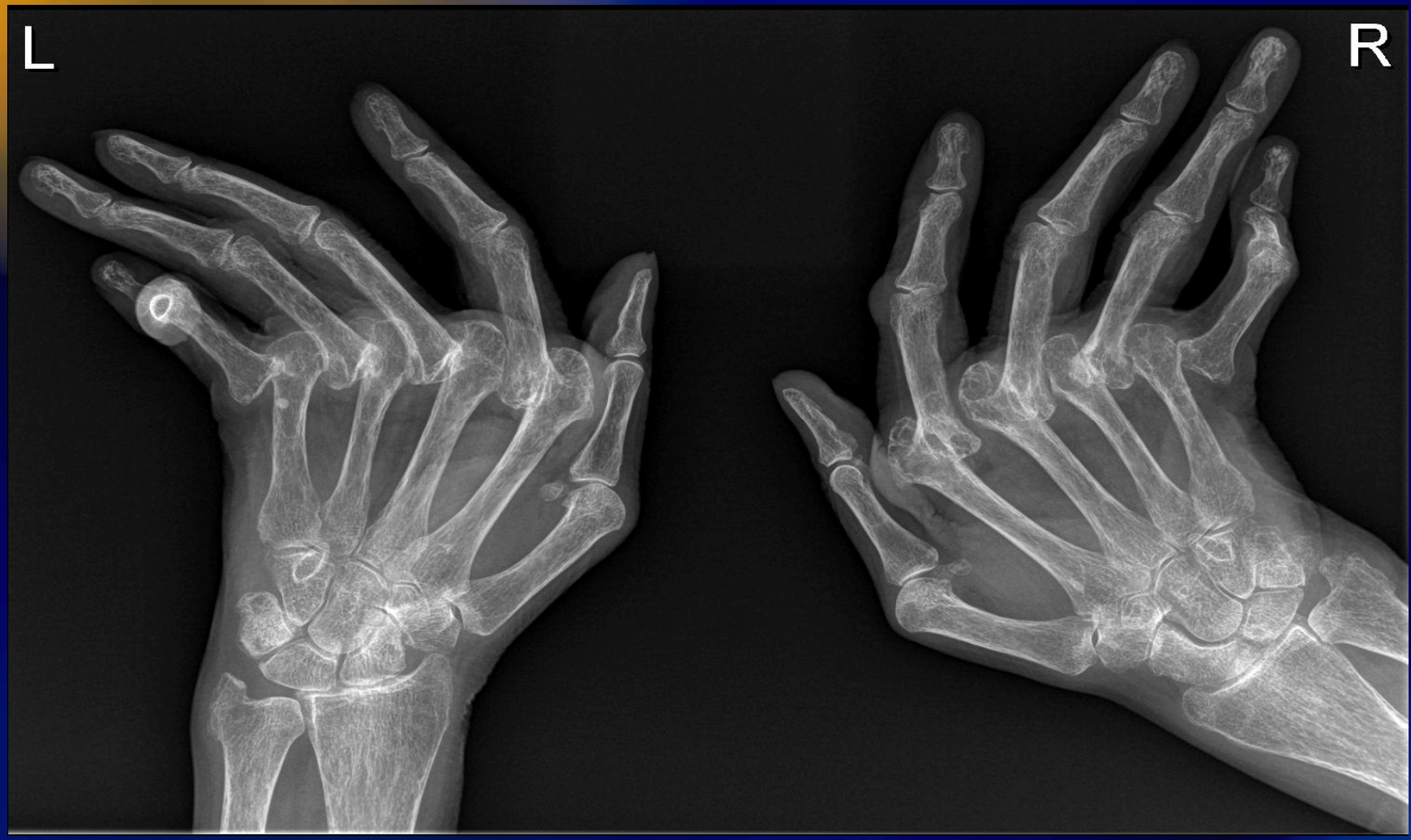


Treatment

- Short term: prednisone
- Mild disease:
  - NSAIDs, hydroxychloroquine, sulfasalazine
- Moderate to severe:
  - Oral weekly methotrexate, leflunomide (alternative to methotrexate)
  - anti-TNF agents
    - Adalimumab, Etanercept, Infliximab (IV), et al
  - CTLA4 agonist (inhibit T cell co-stimulatory process
    - Abatacept
  - anti-CD20 (B cells)
    - Rituximab
  - anti-IL1
    - Anakinra
  - anti-IL6
    - Tocilizumab

Seronegative Spondyloarthropathy

- Seronegative
- Oligoarticular, asymmetric
- Chronic, inflammatory
- Sacroiliac involvement
- Enthesopathy
- Spinal involvement (inflammatory)
- HLA B27

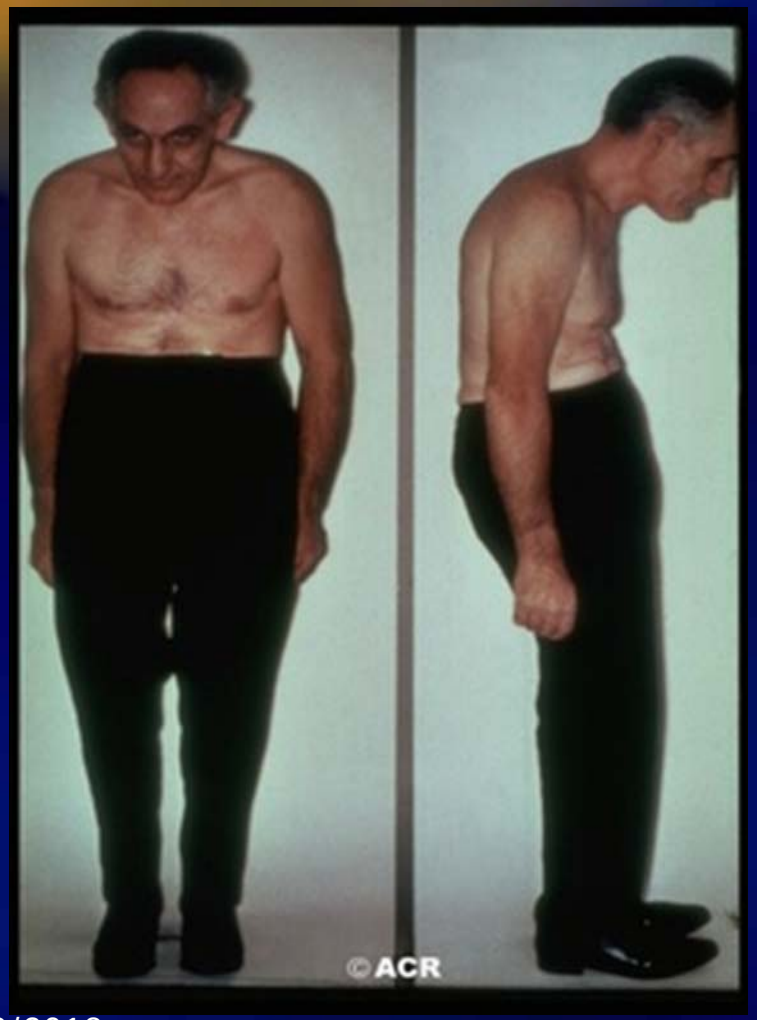
Seronegative Spondyloarthropathies

- Ankylosing spondylitis
- IBD associated arthropathy
- Psoriatic arthritis
- Reactive arthritis
- Undifferentiated spondyloarthropathy

Treatment

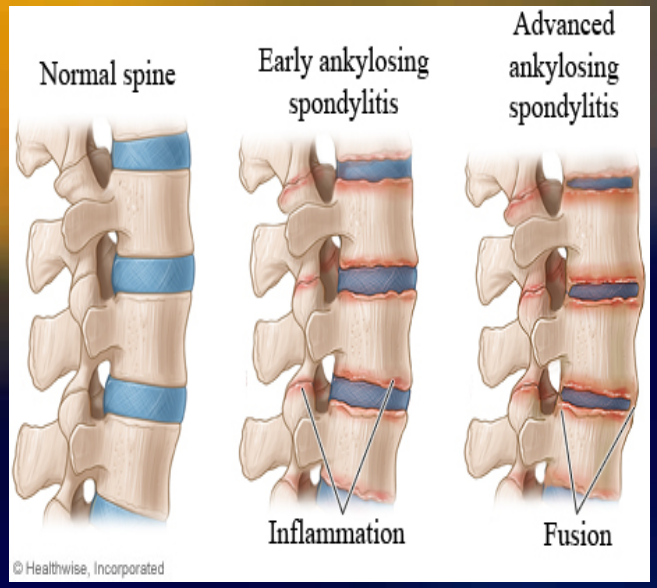
- Similar to treatment for rheumatoid arthritis
- 3 differences
  - Hydroxychloroquine can worsen psoriasis
  - Axial involvement
    - Biologic therapy recommended
  - TNF alpha inhibitors are mainstay for biologics (the other biologics not shown to be as effective)

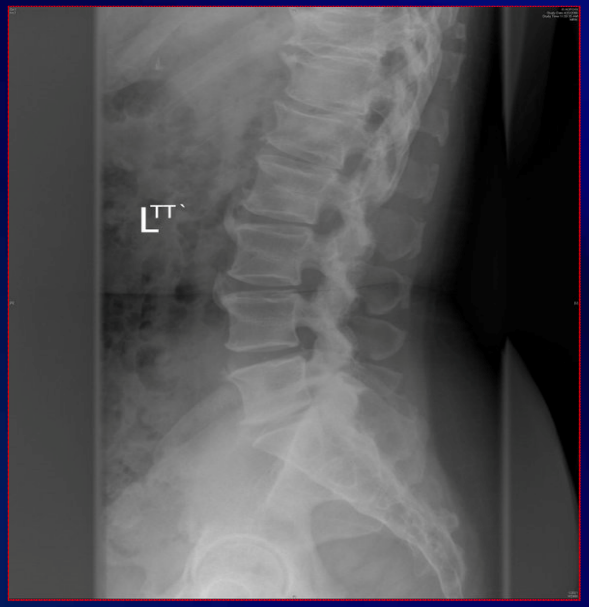
Ankylosing Spondylitis

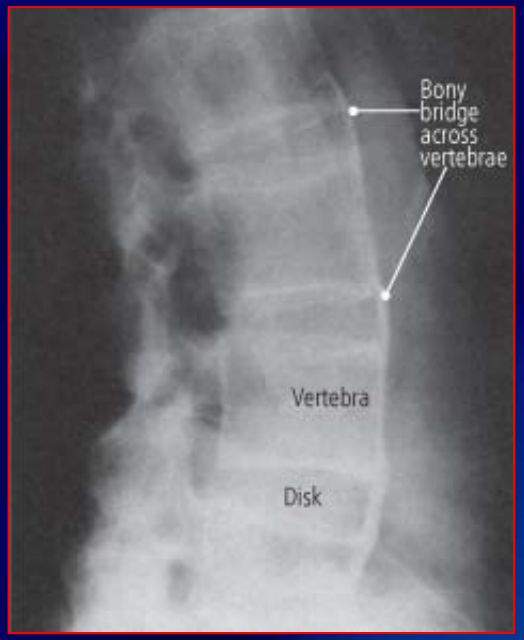


- Chronic inflammatory disorder
- Main symptom is inflammatory back pain
- Affects the axial spine, entheses, peripheral joints and eyes
- Prevalence 0.5%
- Etiology unknown
- Genetic predisposition associated with HLA B27
- Symptoms begin in 20’s
- Commonly seen in caucasian men

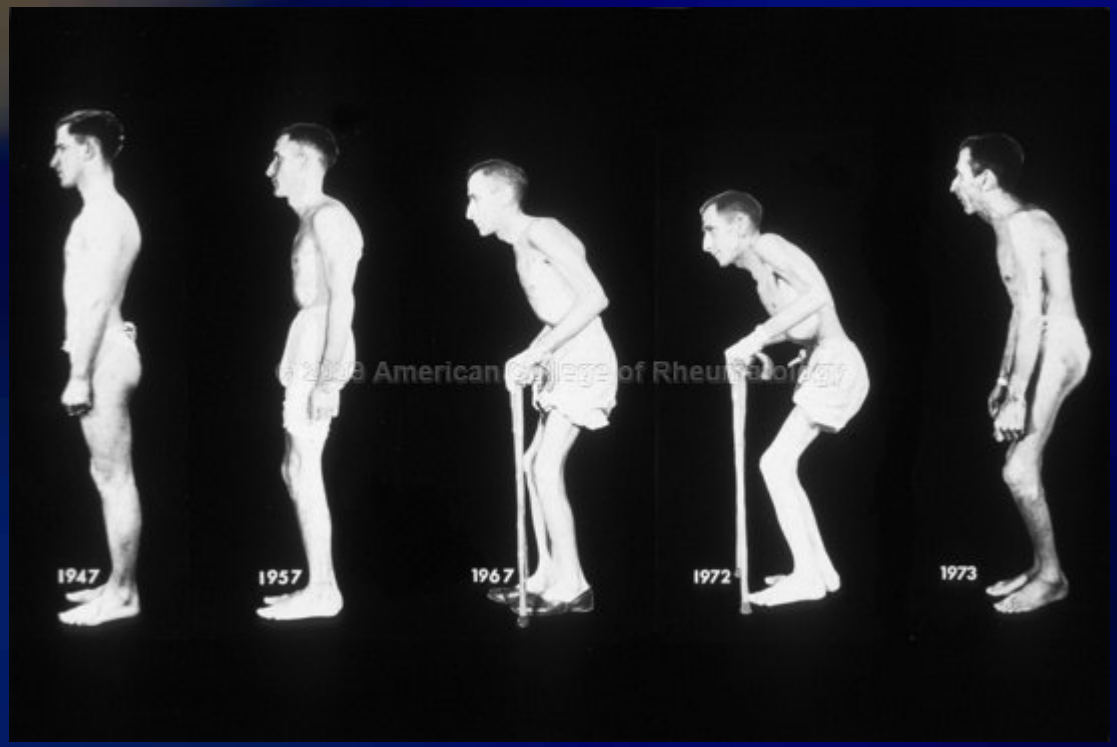
Ankylosing Spondylitis



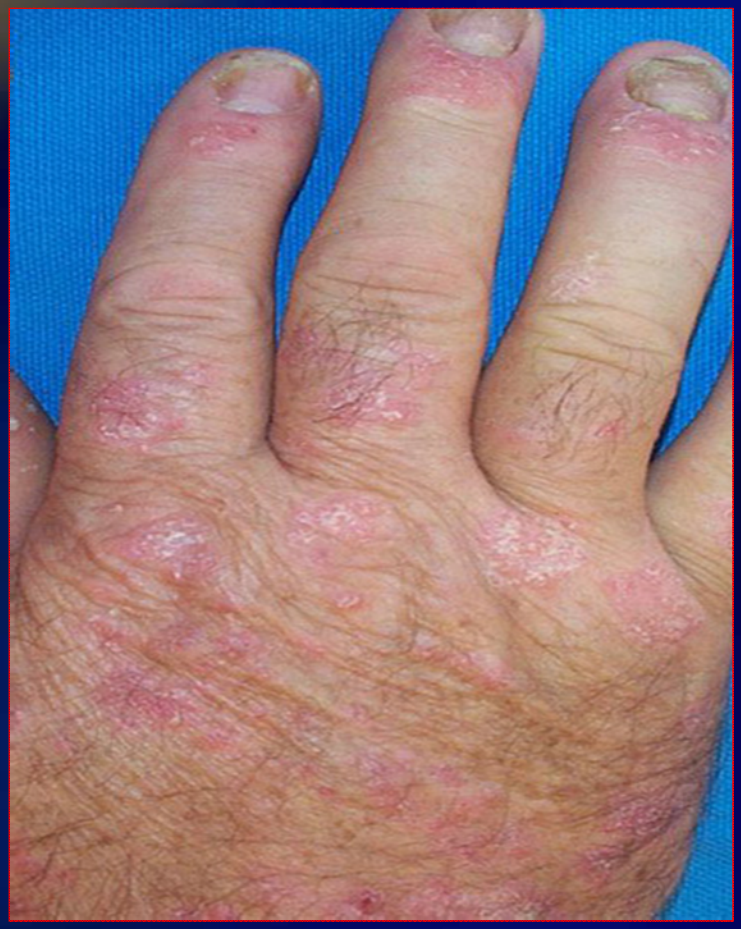




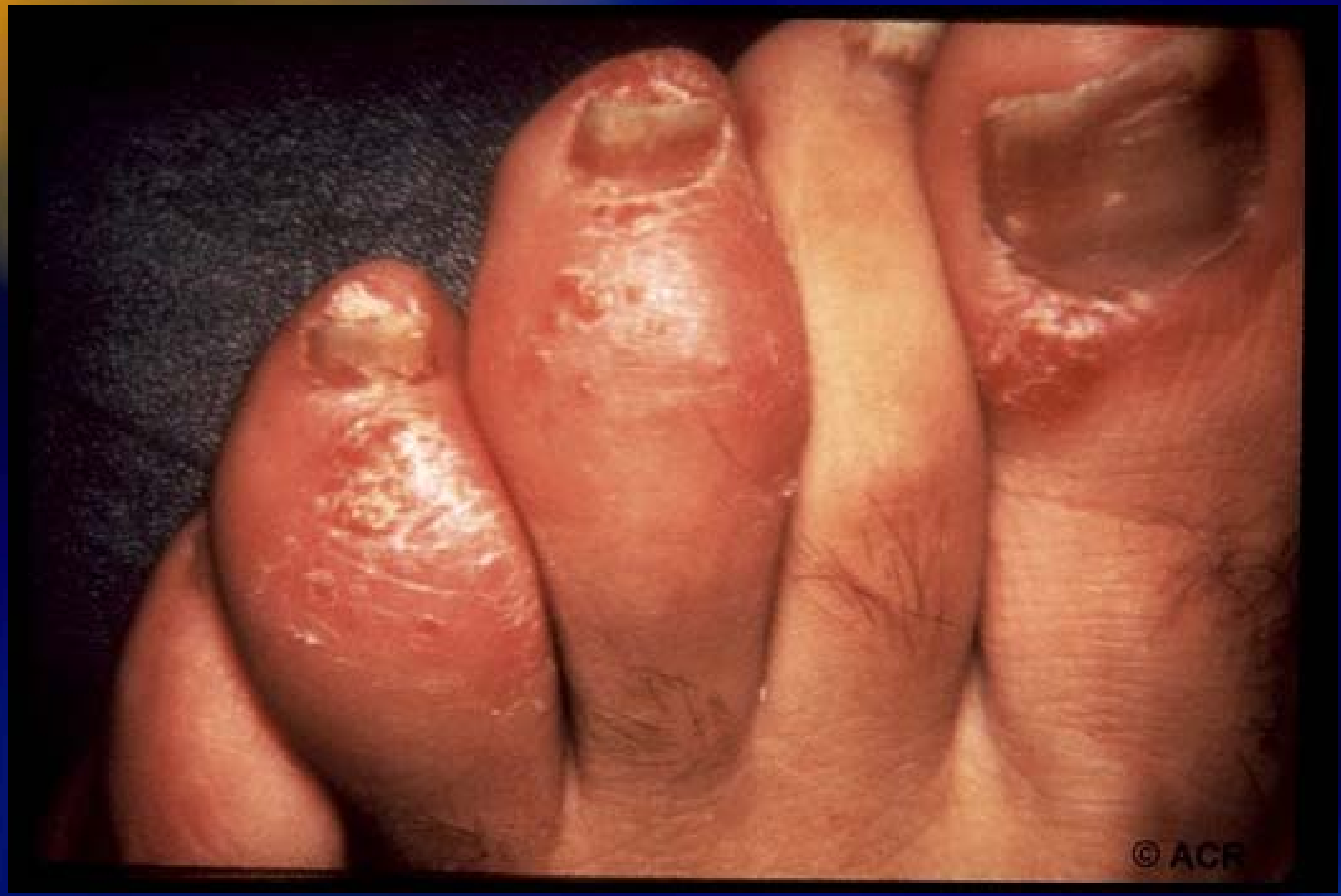
Ankylosing Spondylitis



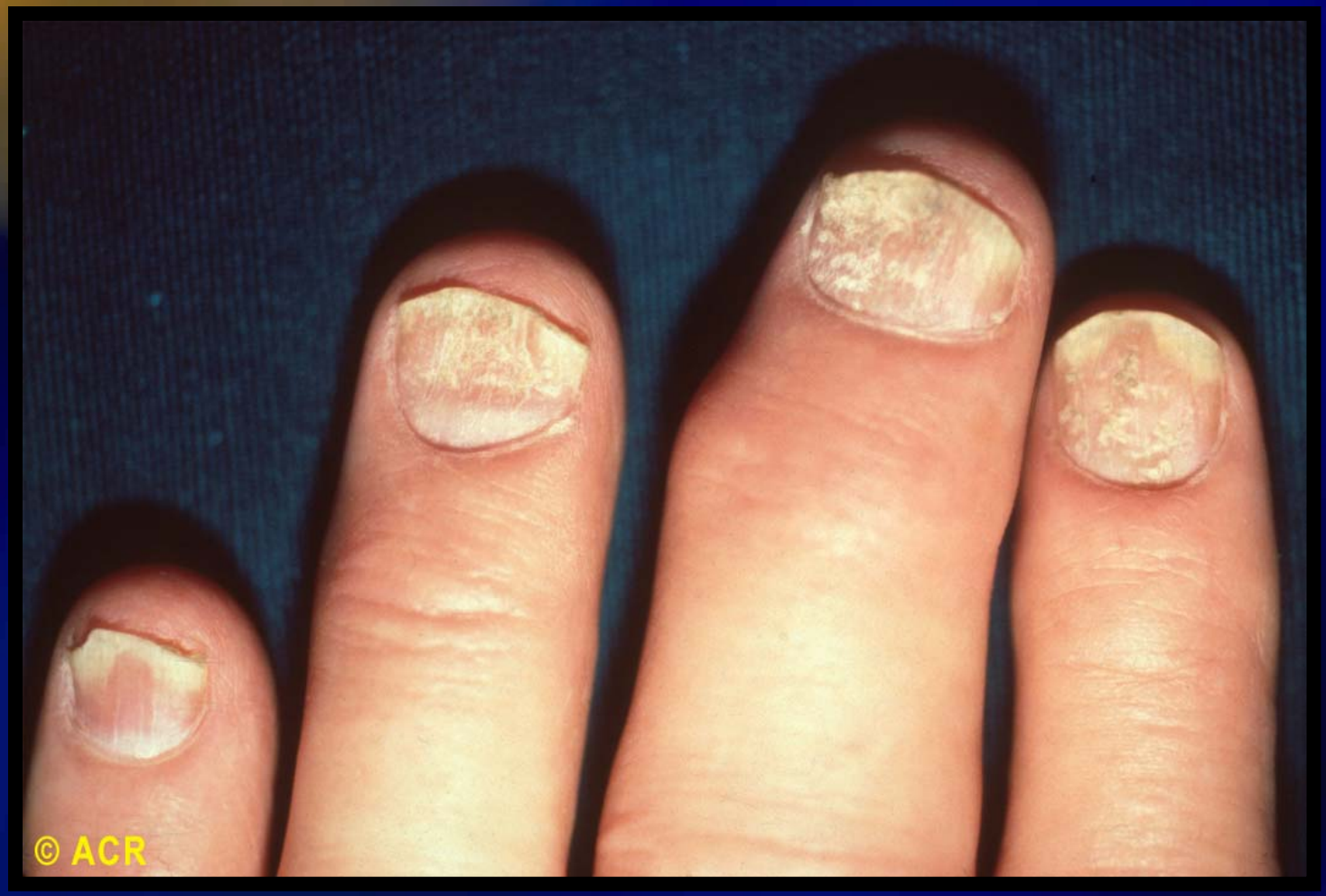
Psoriatic Arthritis



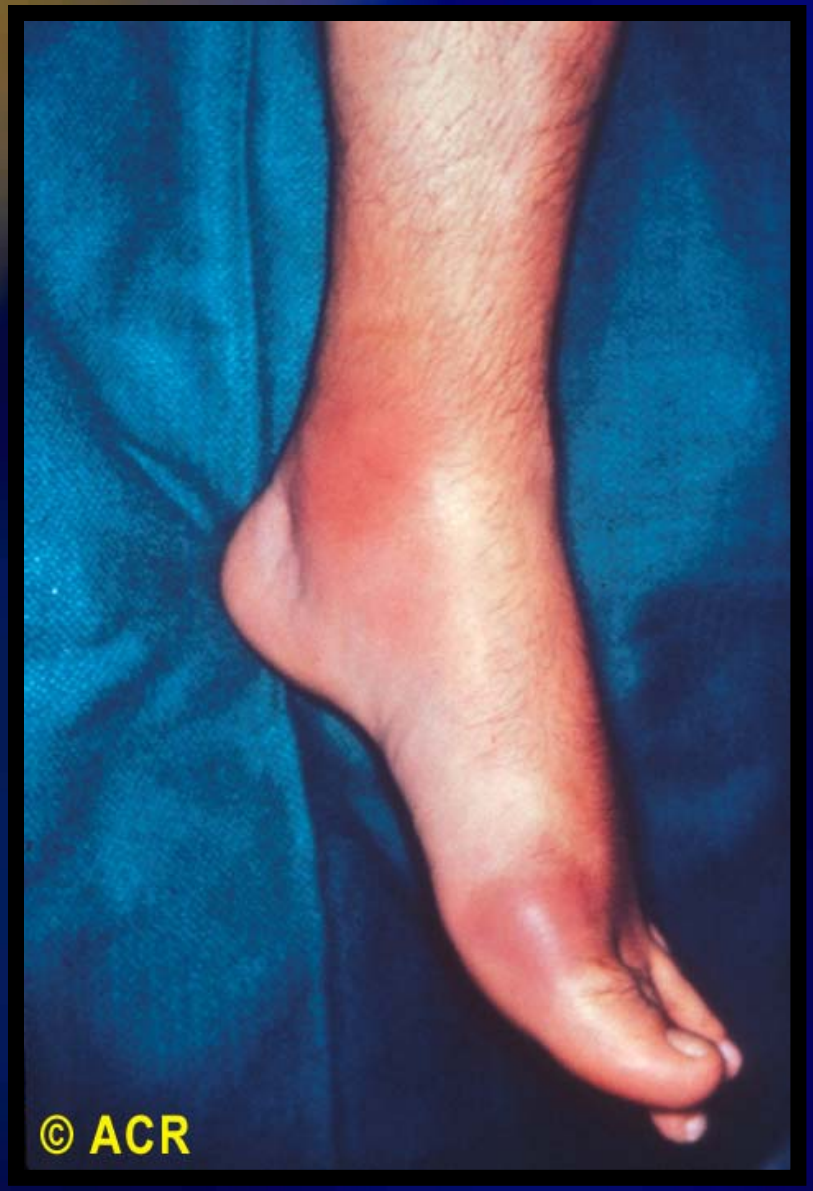
Dactylitis (Sausage Toes)



Onycholysis (Psoriasis)



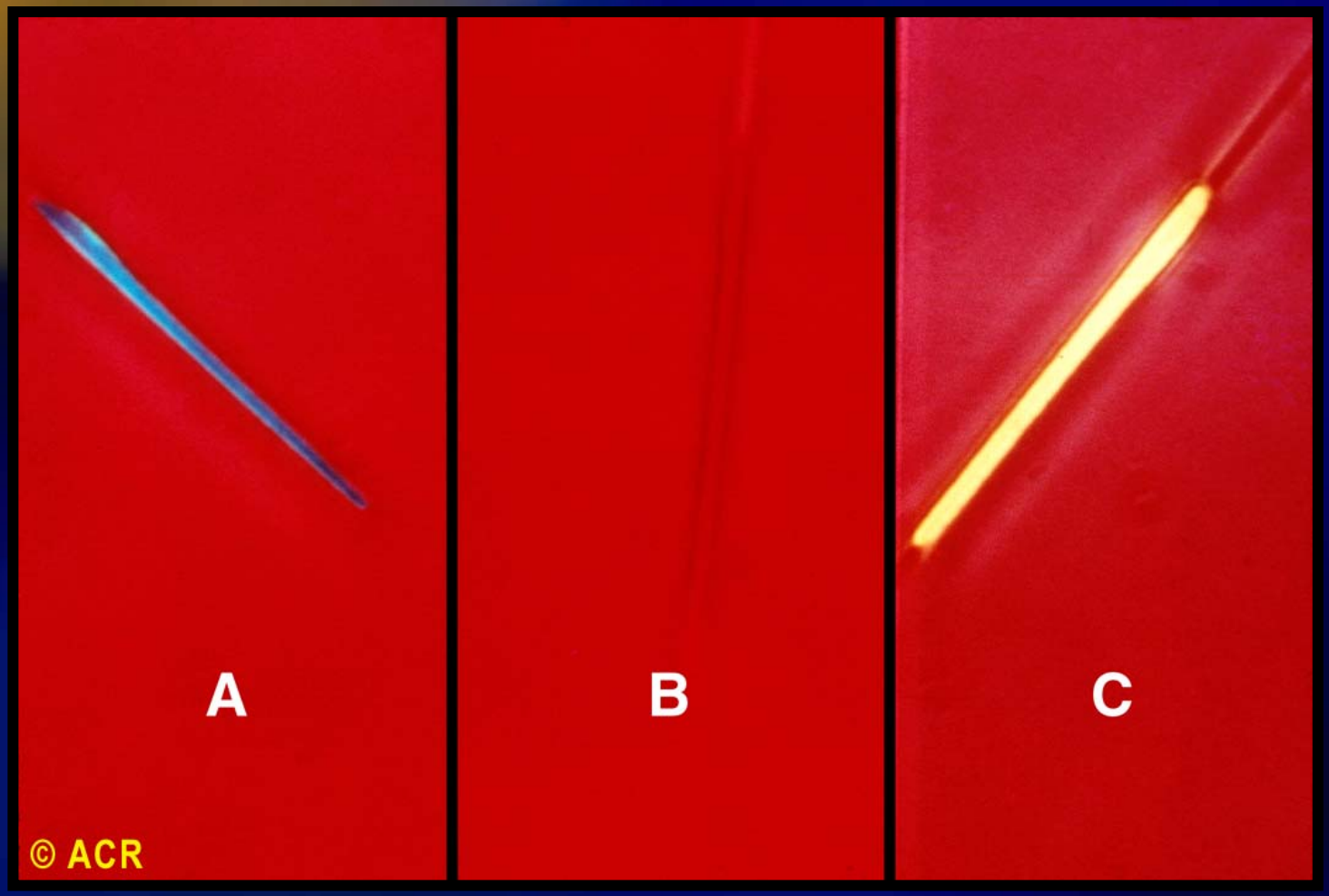
ACUTE GOUT



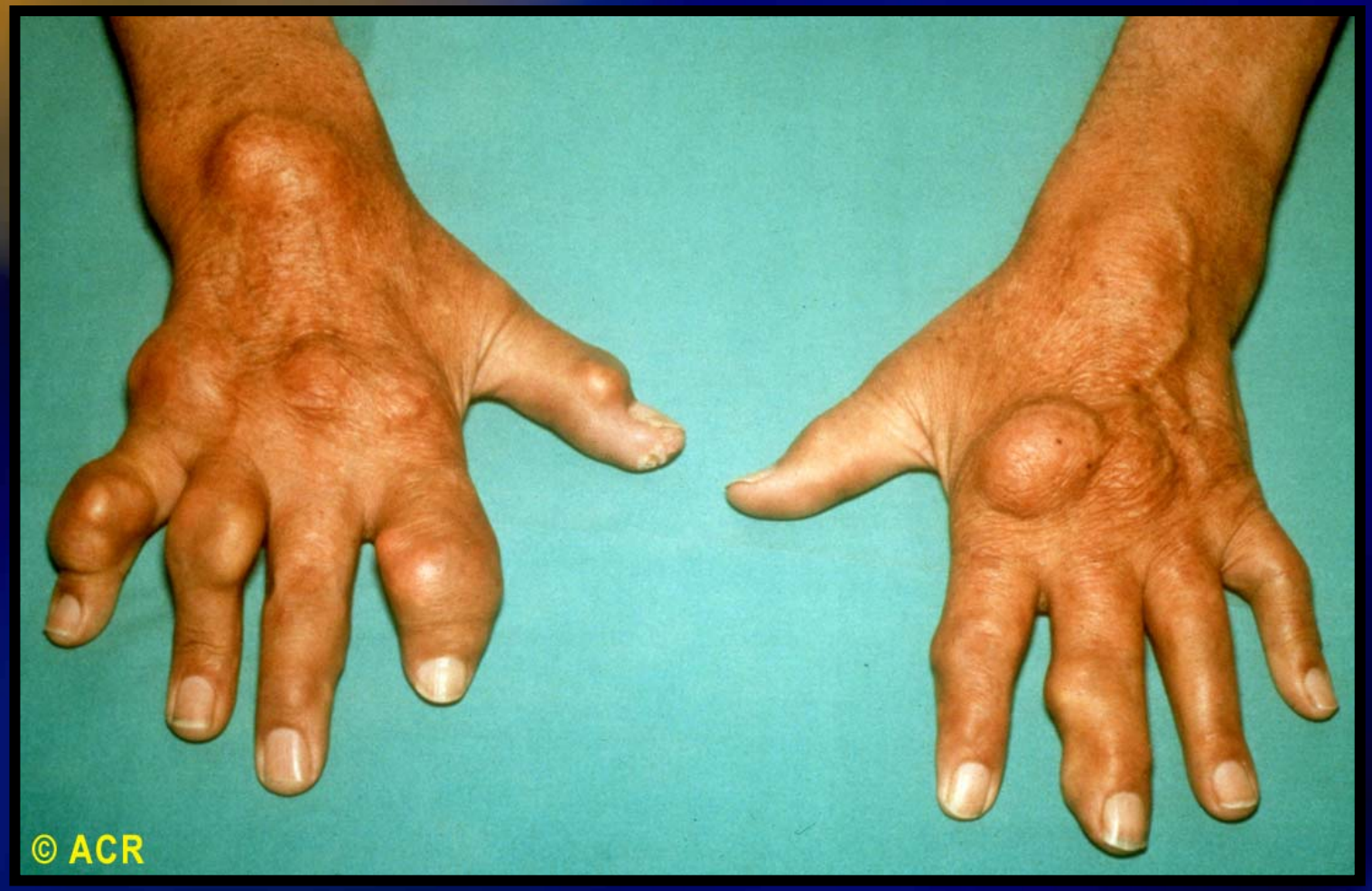
GOUT

- Recurrent, episodic inflammatory arthritis
- Peak of pain: 24 hours; subside in 3-10 days
- 75 % of initial attacks in 1st MTP joint (podagra)
- Usually monoarticular, may be polyarticular
- Hyperuricemia may or may not be present (normal or low in up to 30% patients with acute attack)
- Predisposing factors and associated conditions: surgery, medications (DIURETICS, low dose aspirin, cyclosporine A), alcohol ingestion, hypertension, renal insufficiency, hyperlipidemia

Gout (diagnosis)



Chronic Tophaceous Gout



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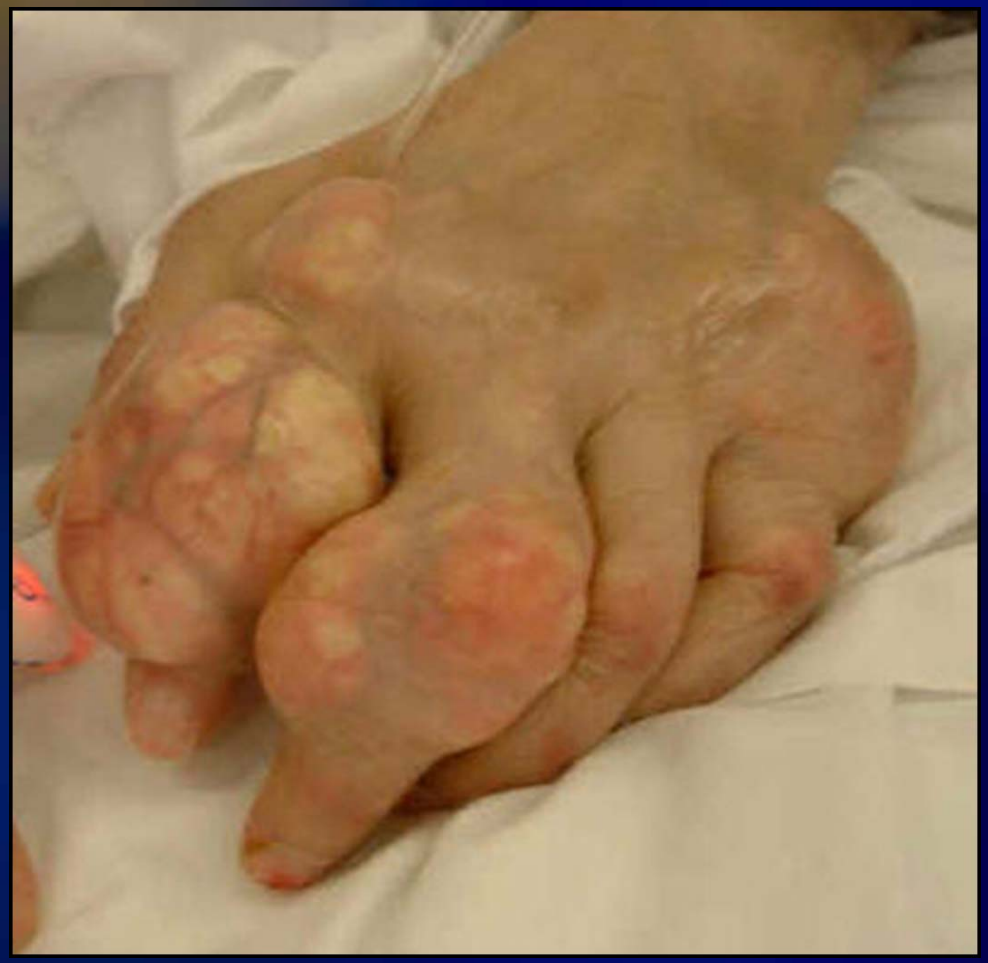

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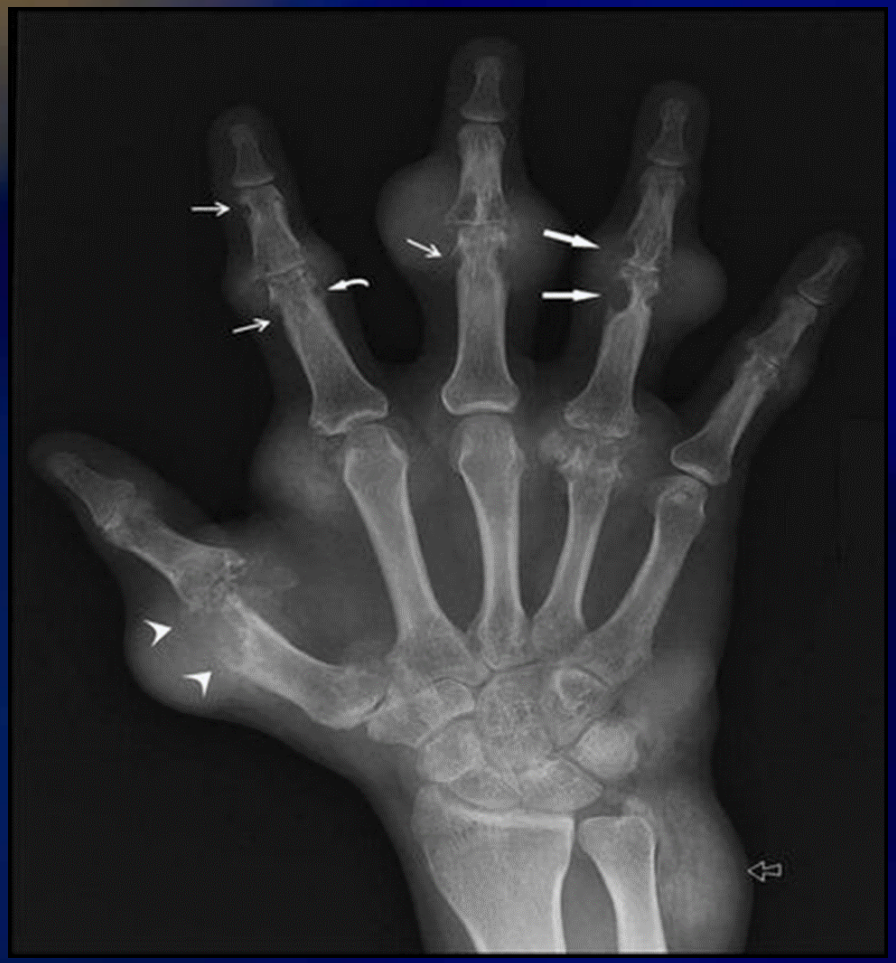

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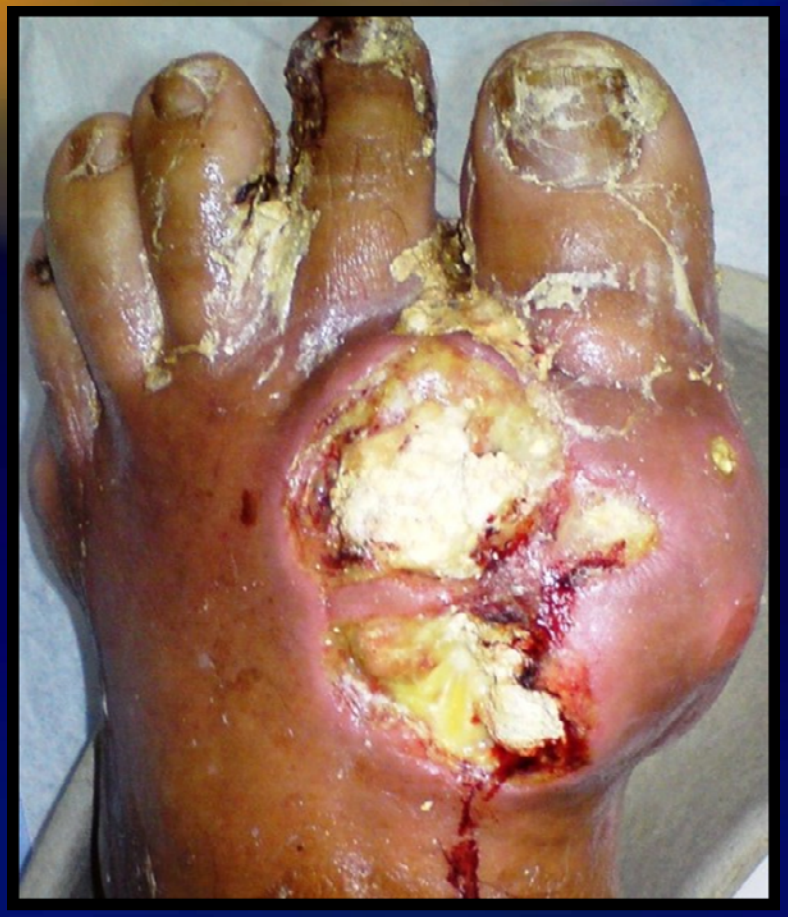
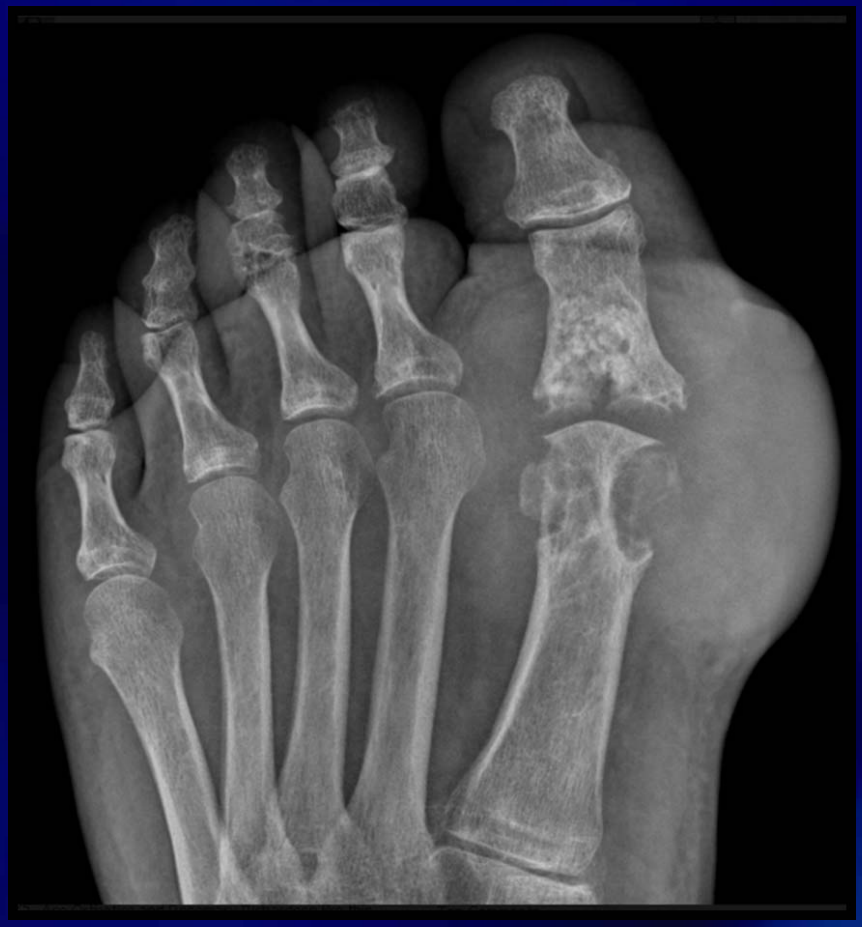




Treatment

- Gout
  - Acute
    - NSAIDs (ibuprofen, indocin, naproxen), Colchicine, Steroids (prednisone), steroid injection if appropriate, anakinra
  - Long term (2 or more attacks/year, tophi, erosions)
    - allopurinol, febuxostat, probenecid
  - Prophylaxis
    - Colchicine, low dose prednisone, or NSAIDs (up to 6 months)
- Pseudogout
  - Acute
    - same as above
  - Long term
    - N/A, methotrexate in refractory cases

Systemic Lupus Erythematosus

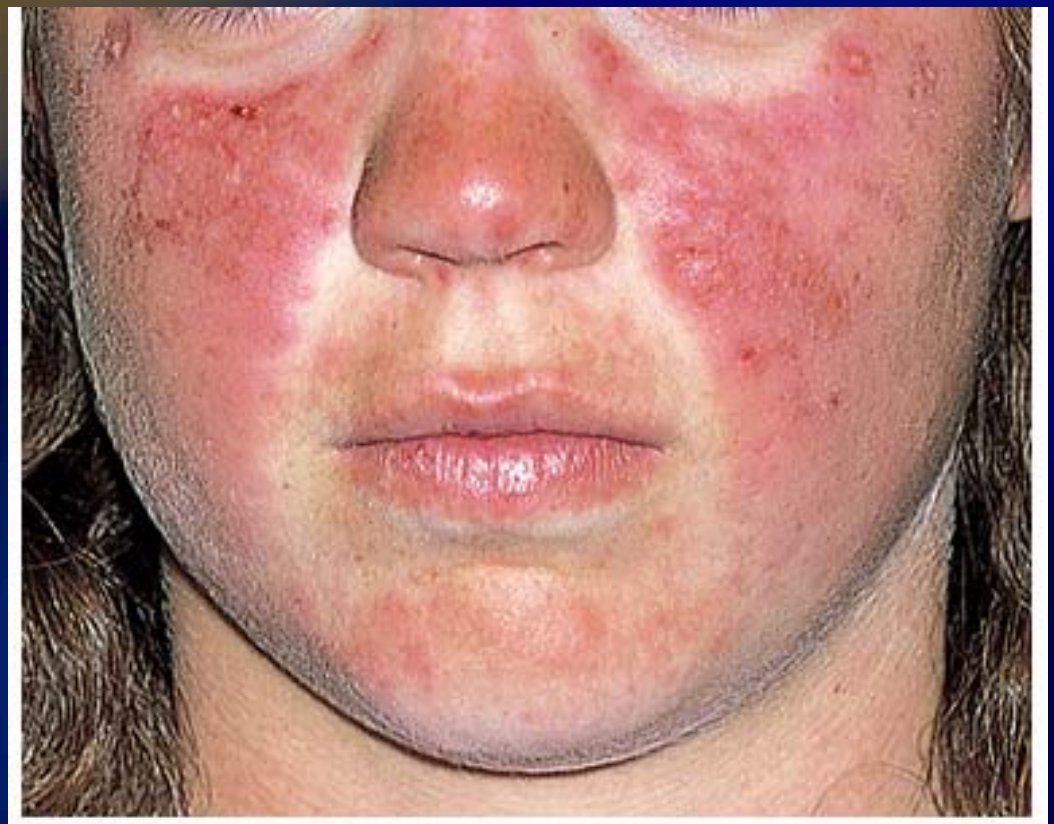
Young women, multisystemic disease

- Malar Rash
- Discoid Rash

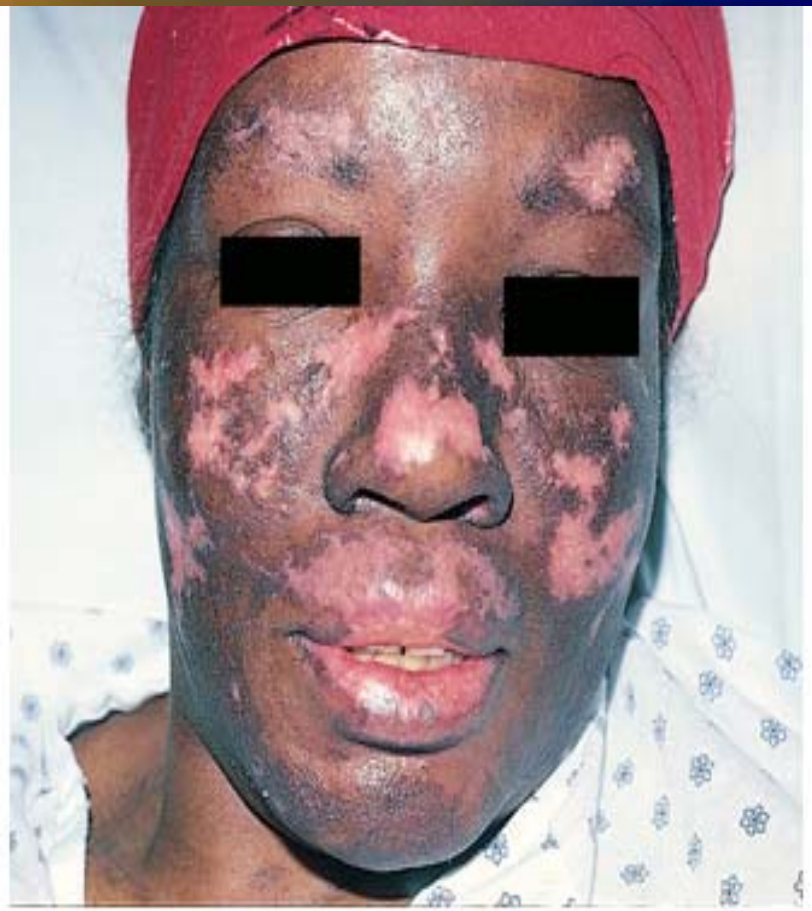
- Serositis
- Oral ulcers
- Arthritis
- Photosensitivity

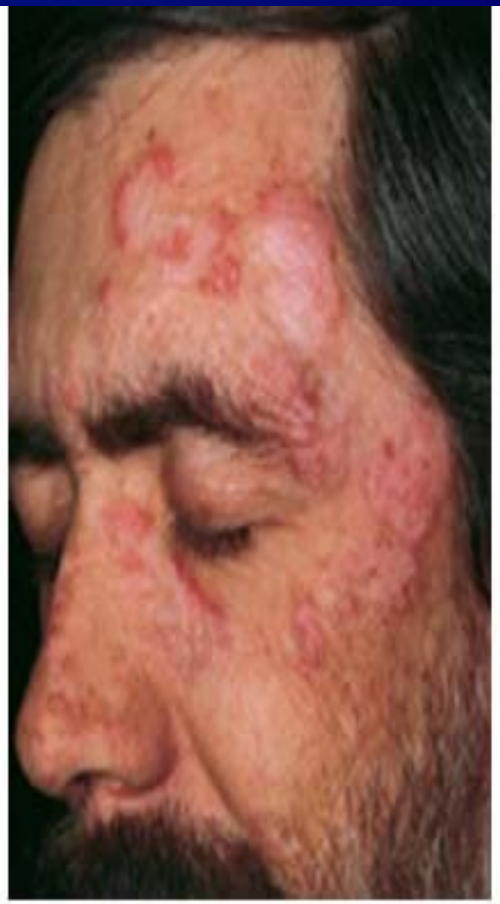
- Blood disorder
- Renal disorder
- ANA*
- Immunologic abnormalities
  - (anti-Smith antibody, anti-double stranded DNA, anti-phospholipid antibodies)
- Neurologic symptoms

SYSTEMIC LUPUS ERYTHEMATOUS (MALAR RASH)



Discoid Lupus





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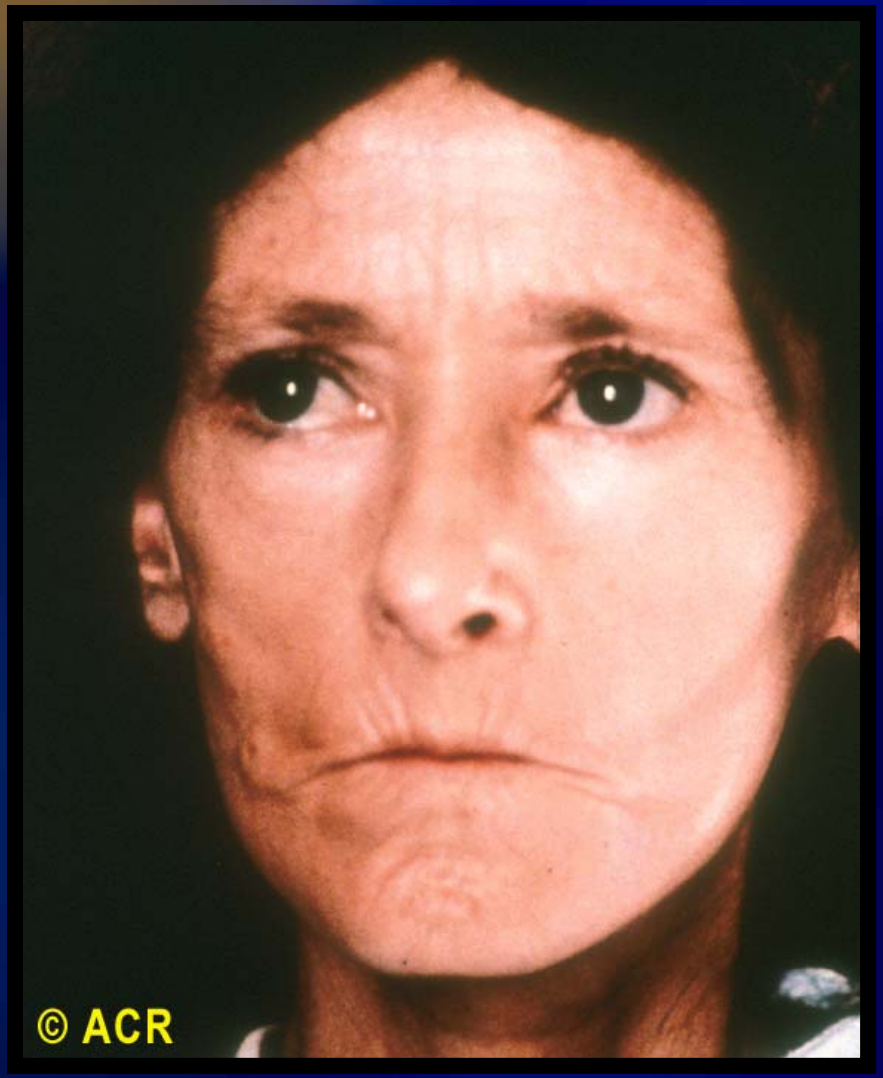
Treatment

- Short term: prednisone
- Mild or cutaneous disease
  - Hydroxychloroquine
- Moderate to severe disease
  - Azathioprine, Mycophenolate mofetil
- Severe disease
  - Mycophenolate mofetil
  - Rituximab
  - Cyclophosphamide

Scleroderma

- Localized vs Systemic
- Systemic : Diffuse or Limited
  - Limited = CREST (Calcinosis, Raynaud's, Esophageal dysmotility, Sclerodactyly, Telangiectasias)
  - Limited
    - Skin involvement distal to MCPs
    - Lung complication: Primary pulmonary hypertension
    - More esophageal involvement, less colon involvement, telangiectasias
    - Anti-Centromere antibodies
  - Diffuse
    - Lung complication: Interstitial lung disease/fibrosis
    - Diffuse Scl GI complications ie) colon involvement more common
    - Scl 70 Antibodies
  - Scleroderma renal crisis can occur in both

SCLERODERMA



SCLERODERMA

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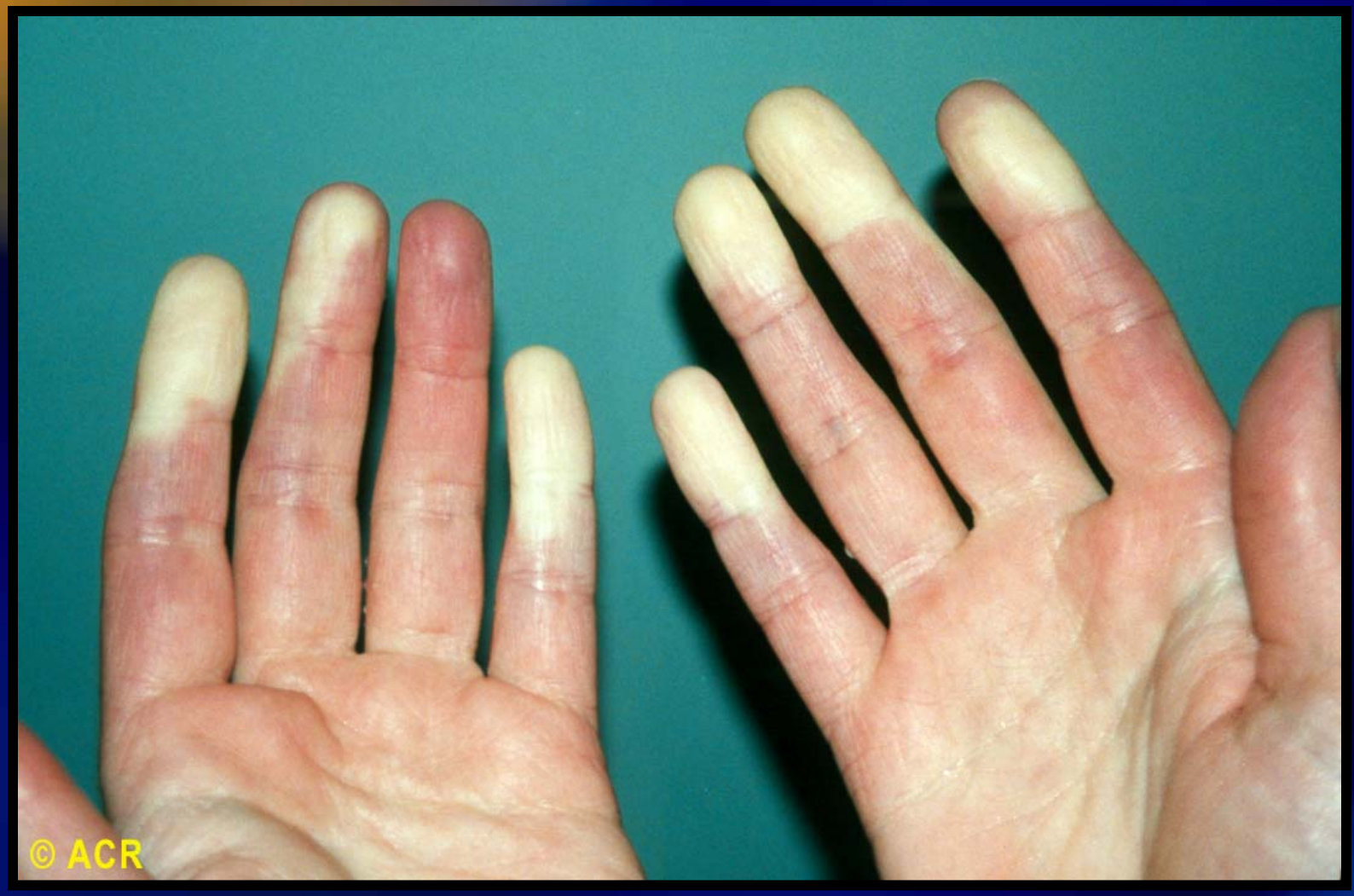
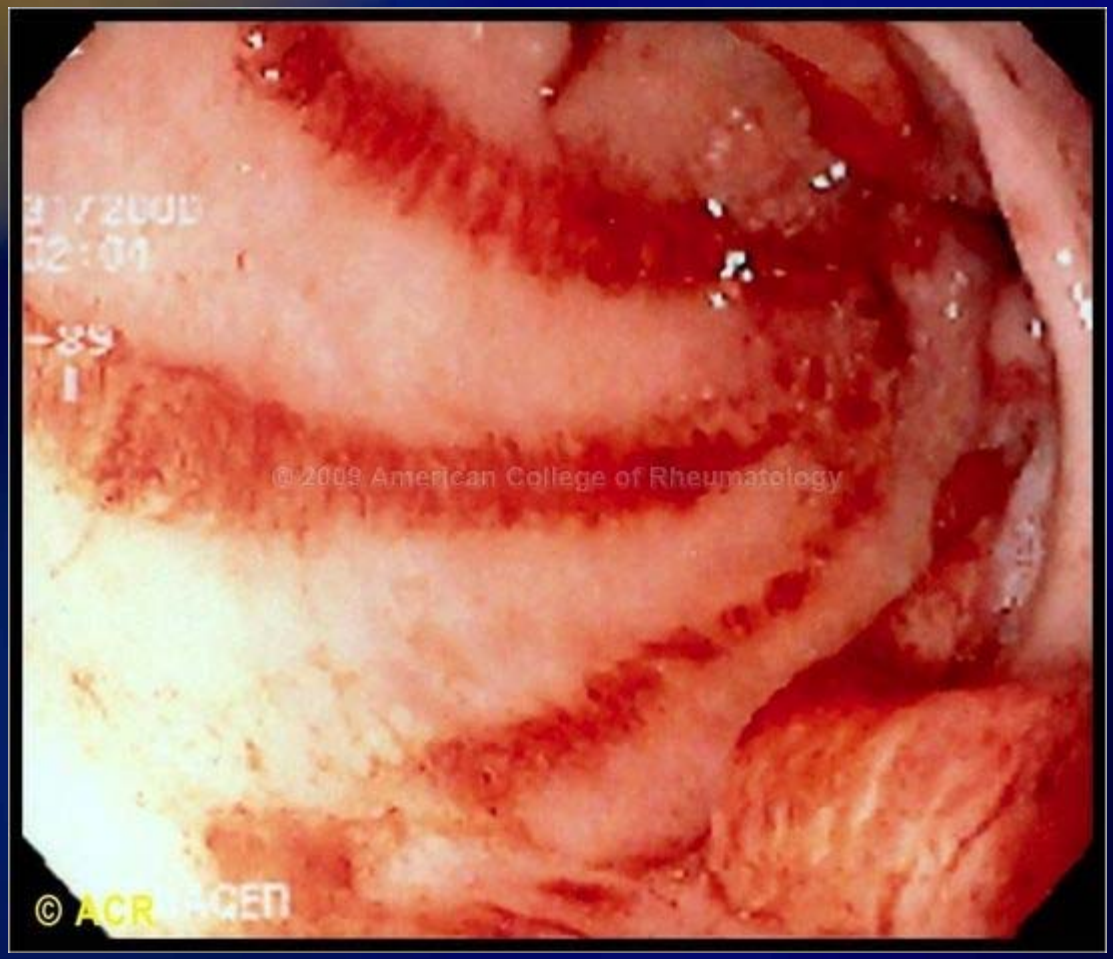
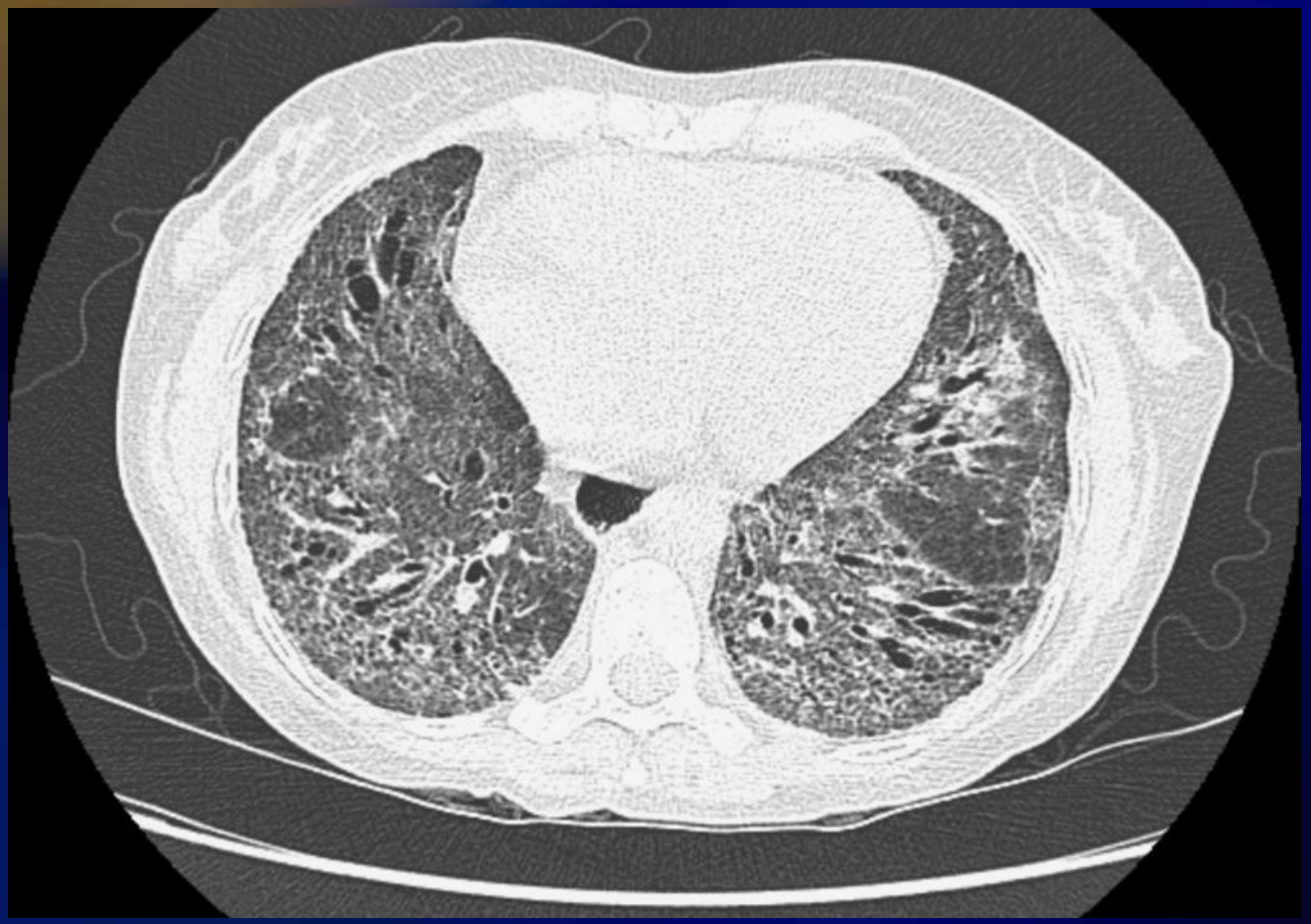
RAYNAUD'S PHENOMENON



SCLERODERMA-GAVE



SCLERODERMA-LUNG

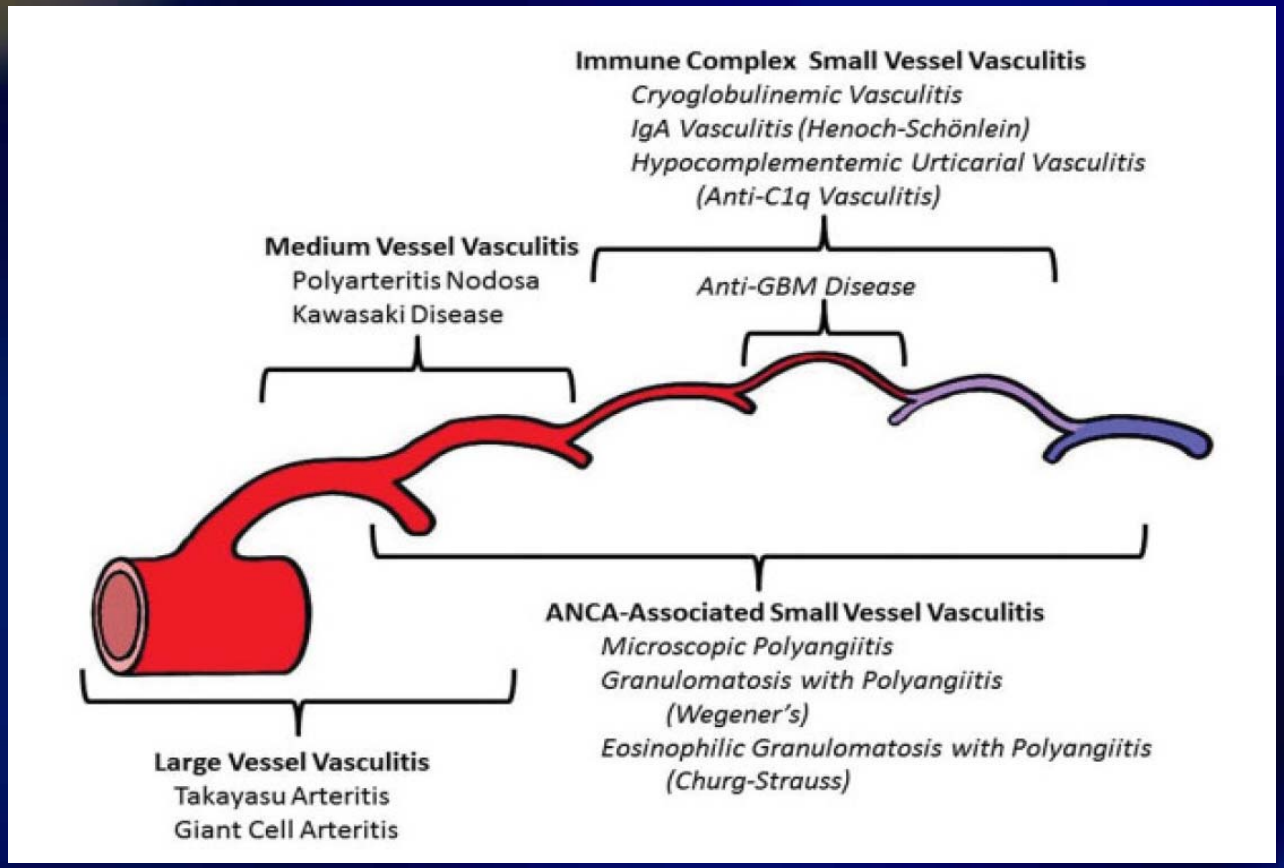


Treatment

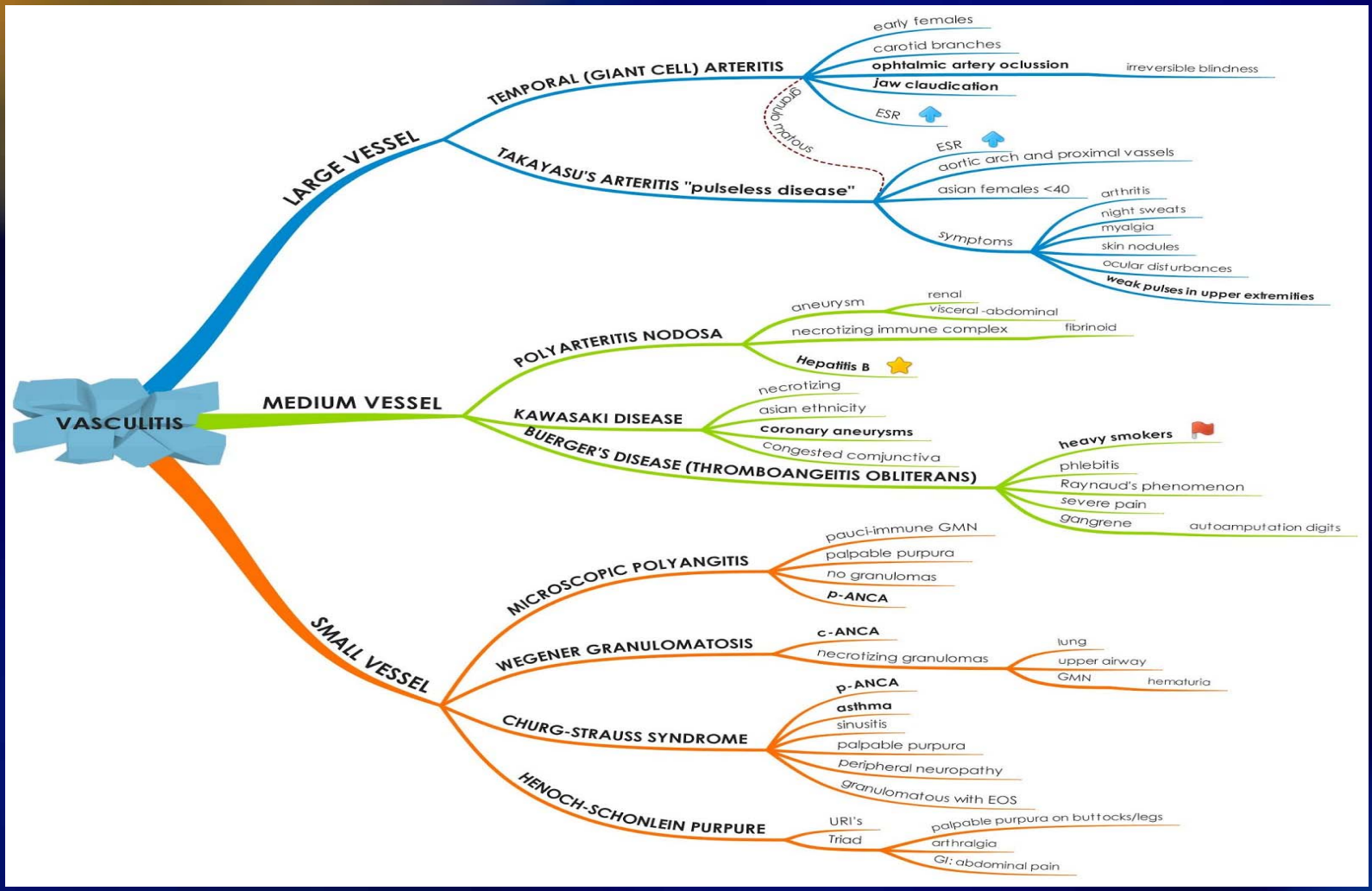
- No single medication for all manifestations of scleroderma
- Treat each manifestation
  - GERD: Proton pump inhibitors
  - Raynaud's: calcium channel blockers (nifedipine), losartan, sildenafil
  - Pulmonary hypertension: sildenafil, calcium channel blocker
  - Interstitial lung disease: mycophenolate mofetil, azathioprine
  - Scleroderma renal crisis: **ACE inhibitor**

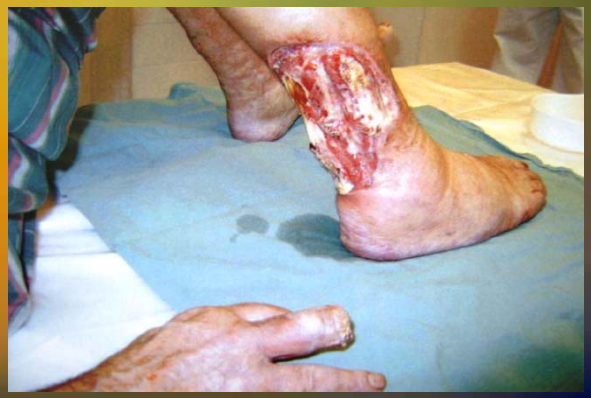
Vasculitis

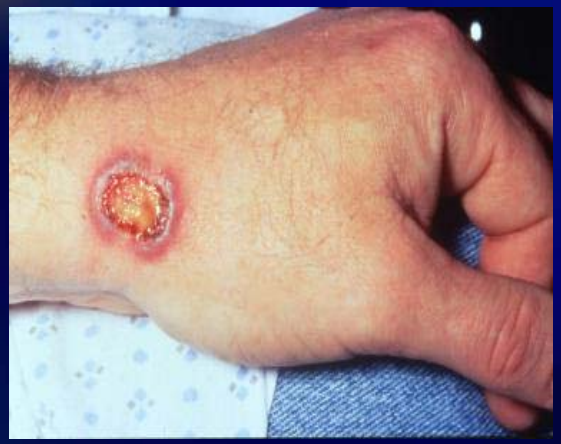
- Inflammation & necrosis of blood vessel
- Perforation & hemorrhage, thrombosis, ischemia

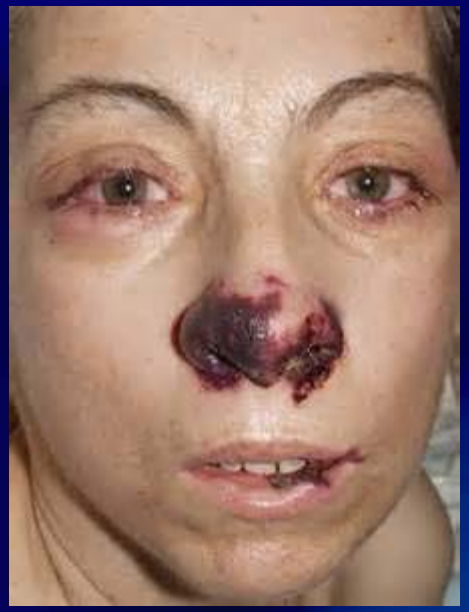


Vasculitis

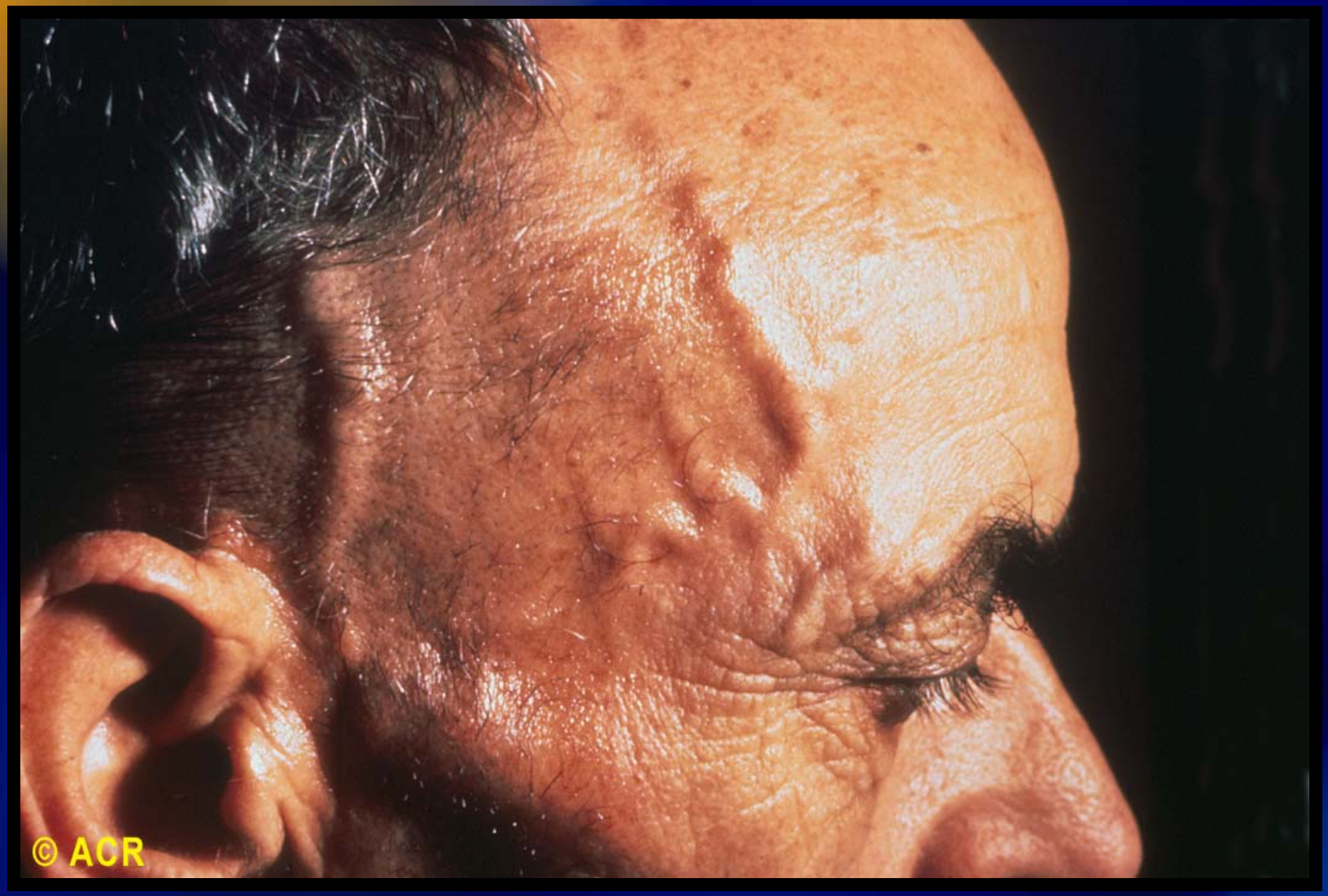








GIANT CELL ARTERITIS



Giant Cell Arteritis

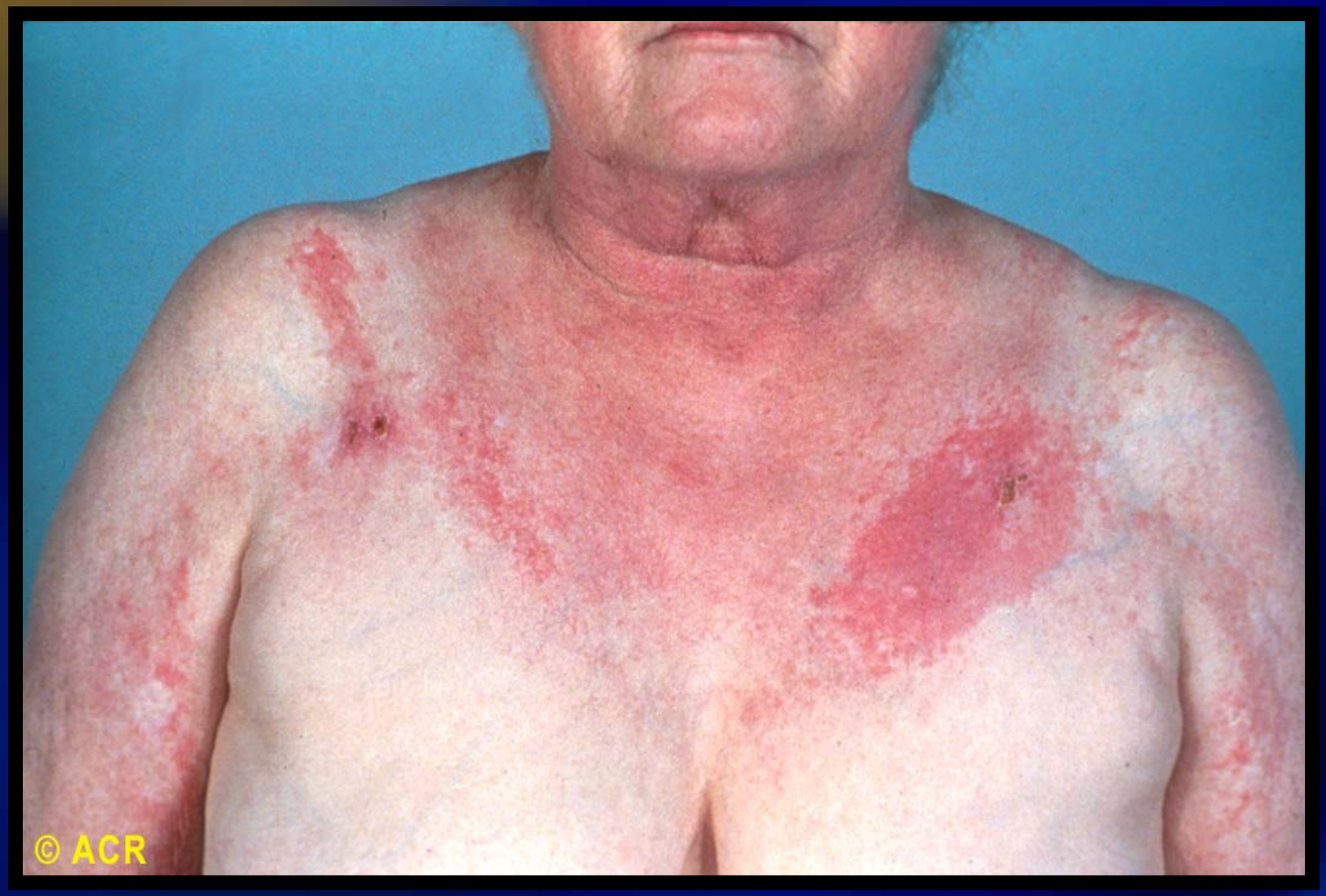
- Patients >50 y/o
- Cranial symptoms—superficial HA, scalp tenderness, jaw claudication, blindness
- Polymyalgia rheumatica—pain and stiffness of proximal joints
- Fever, systemic symptoms
- Decreased temporal artery pulse
- Elevated ESR and CRP
- Diagnosis: Biopsy of temporal artery

Idiopathic Inflammatory Myopathy

- Polymyositis
- Dermatomyositis

- PM and DM
  - Proximal muscle weakness
  - Muscle pain not a typical symptom if chronic
  - Elevated muscle enzymes: CK, Aldolase, LDH
  - Myositis Panel
- Diagnosis: biopsy
- Lung involvement: interstitial lung disease
- Increased risk for malignancy: breast cancer, ovarian cancer, adenocarcinoma

DERMATOMYOSITIS



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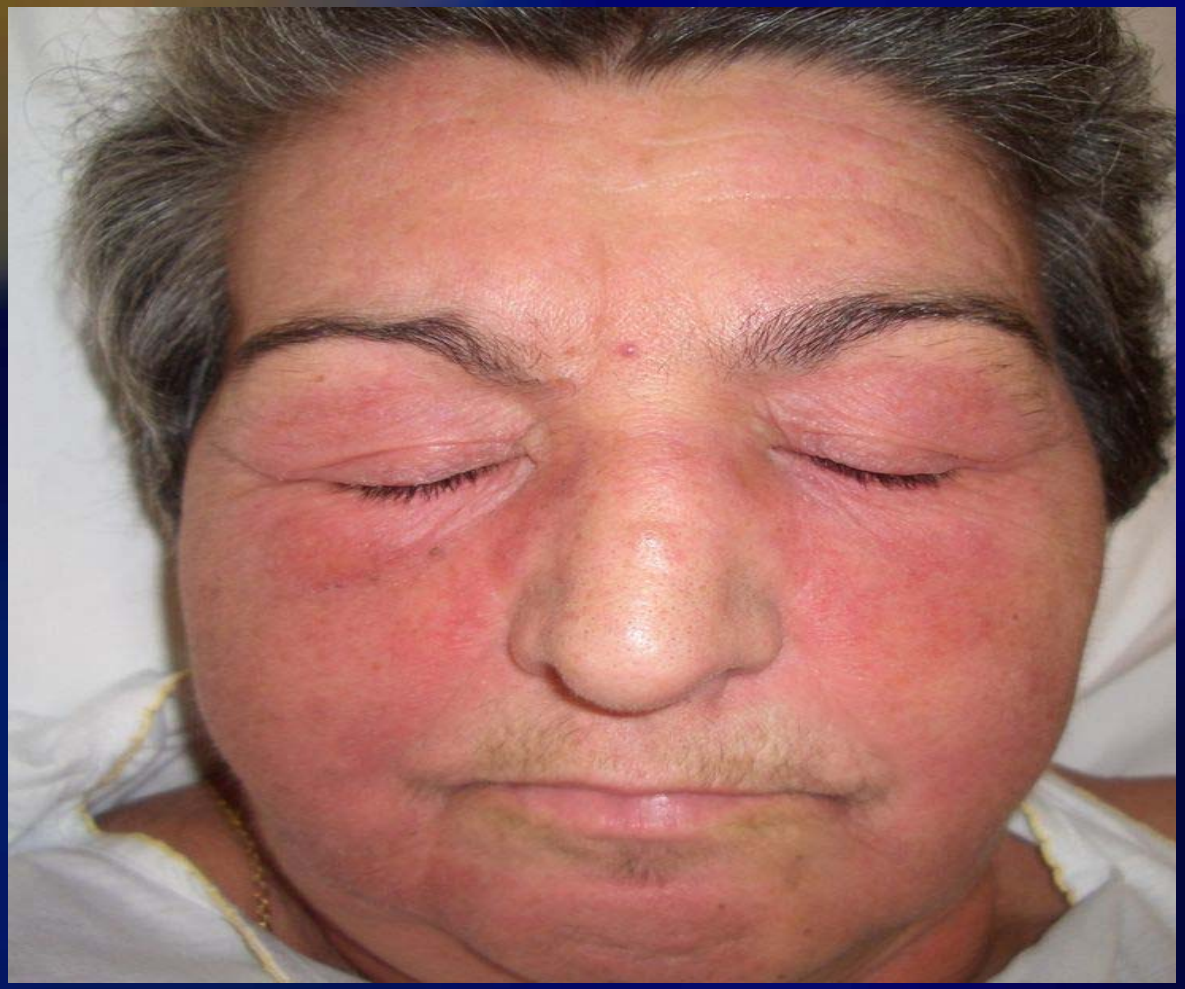

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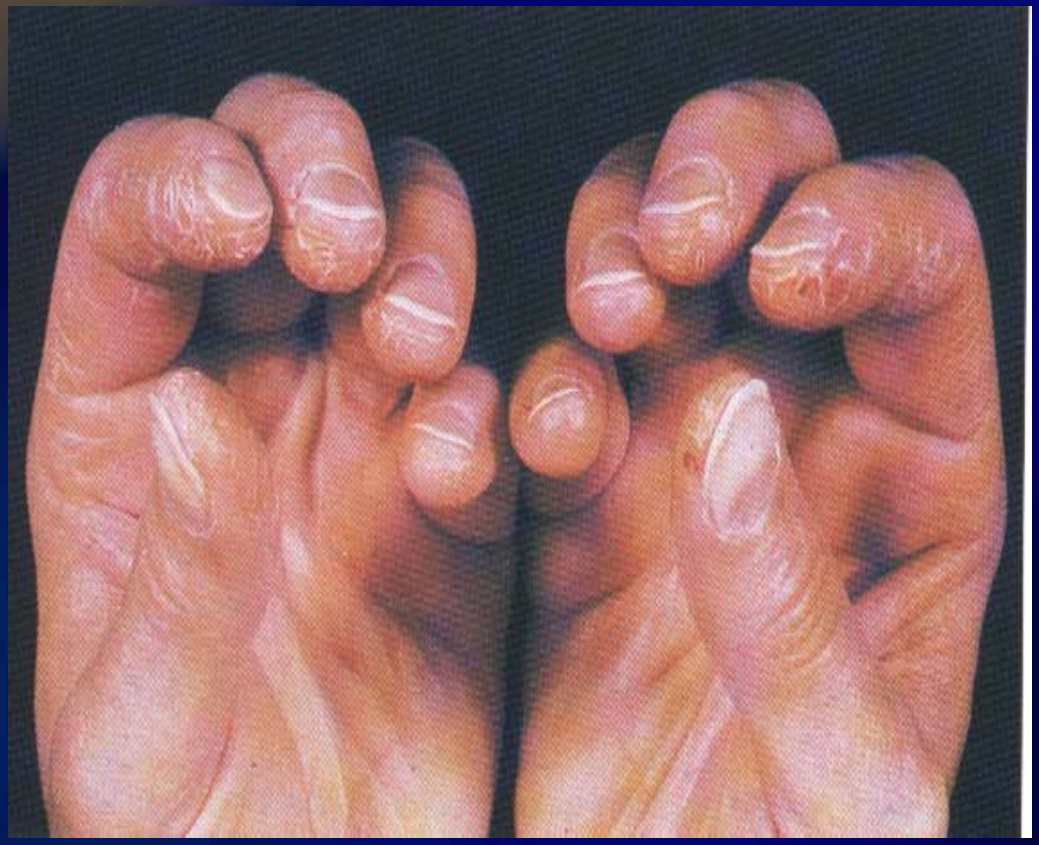

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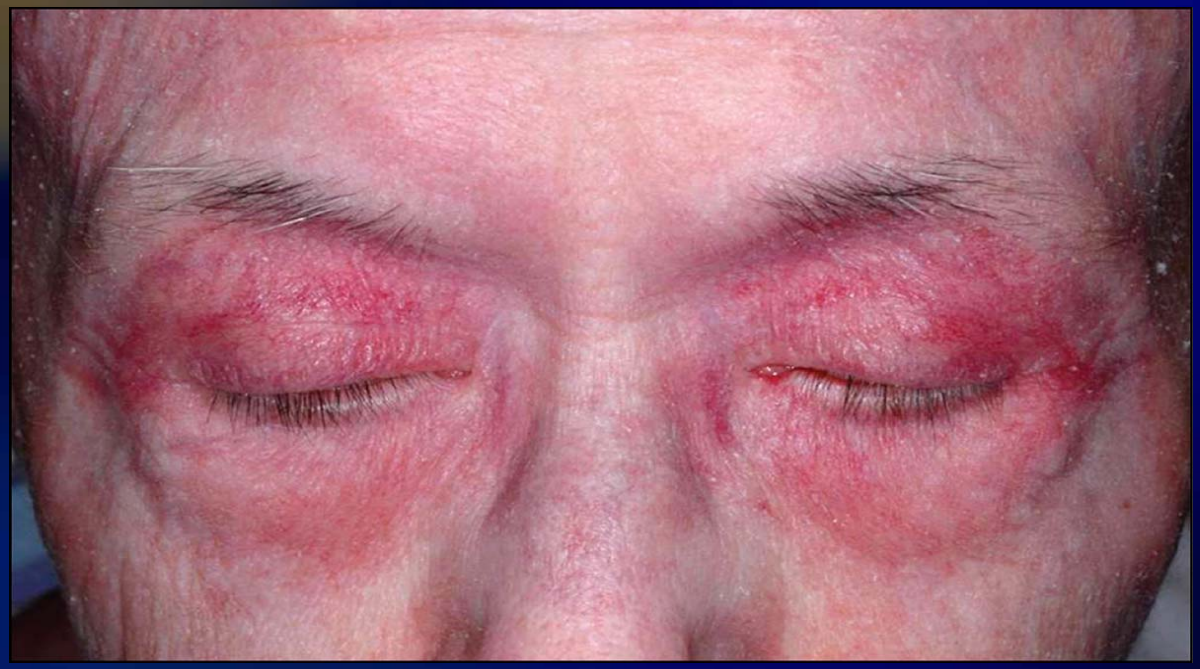
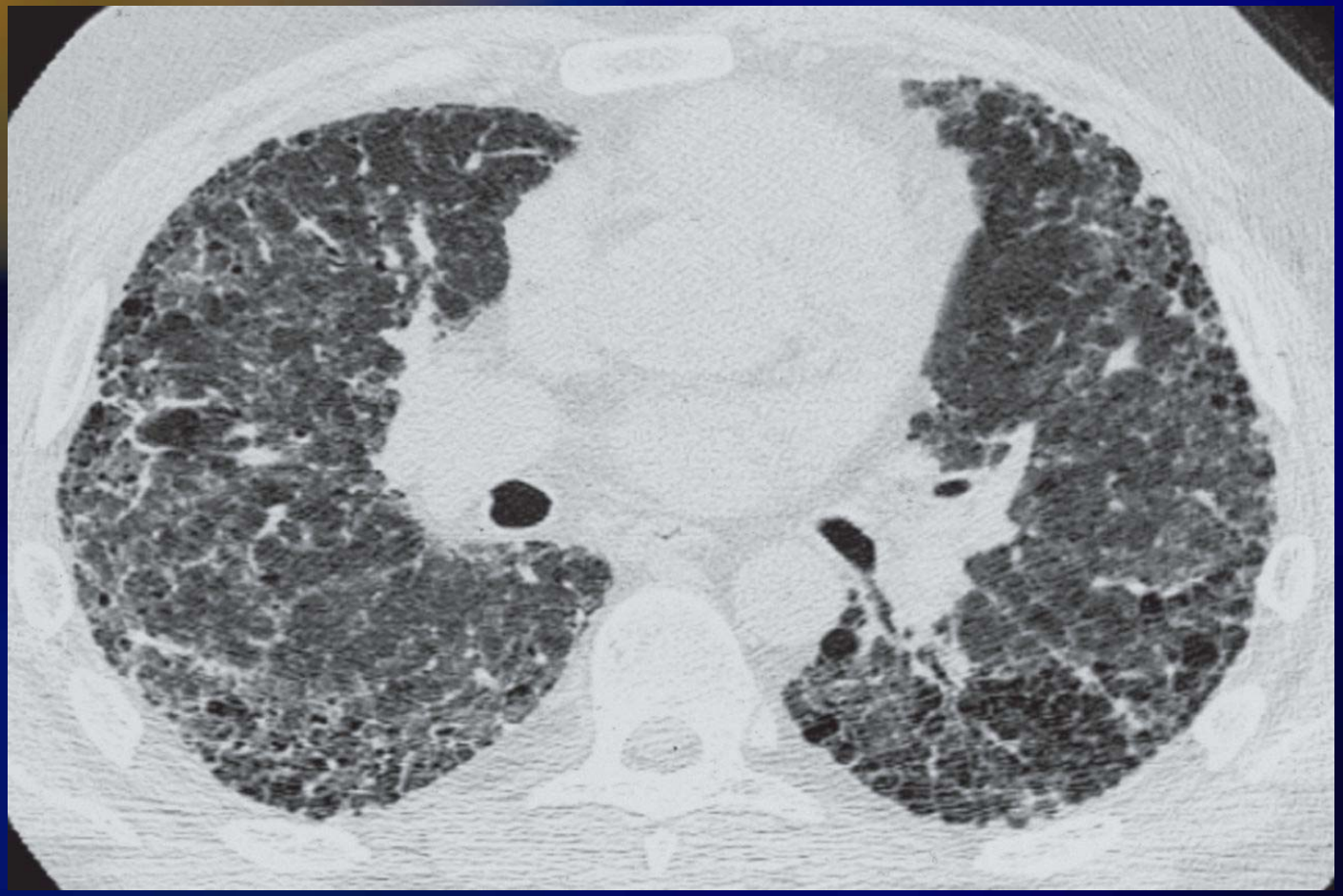


DERMATOMYOSITIS



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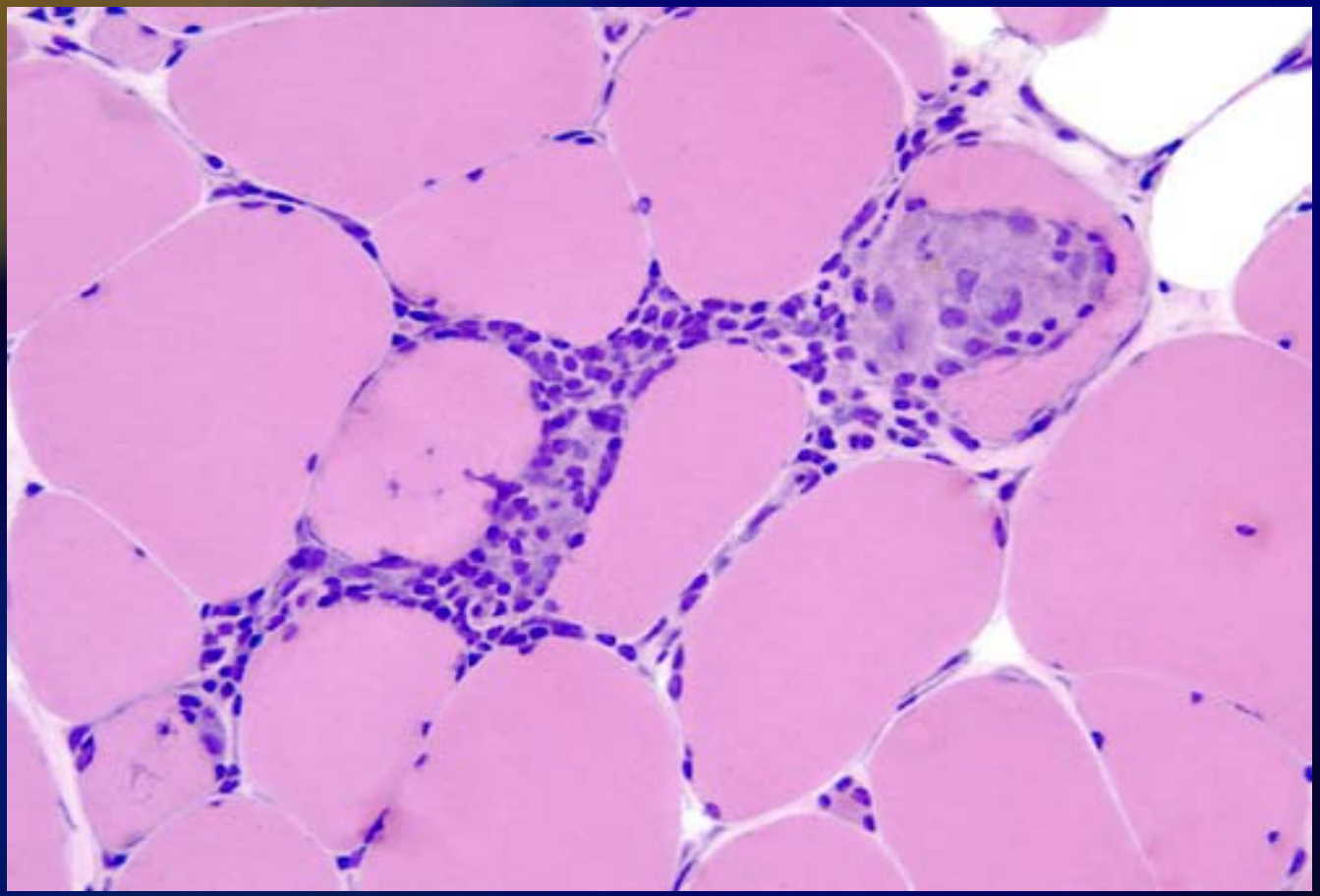
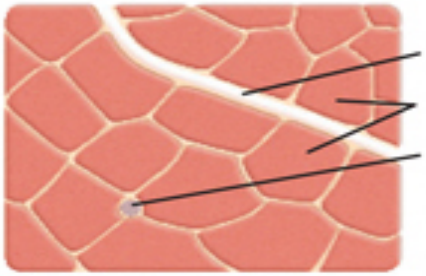


DERMATOMYOSITIS

Normal Muscle



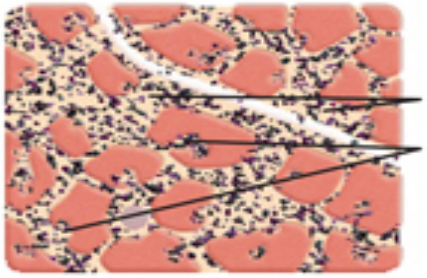
border of muscle bundle (fascicle)

normal muscle fibers

blood vessel

When normal muscle fibers are viewed under a microscope, they look like puzzle pieces that fit together neatly.

Polymyositis



inflammatory cells

invasion of fibers by inflammatory cells

In polymyositis, inflammatory cells of the immune system invade previously healthy muscle cells, which become rounded and varible in size.

Treatment

- Steroids, high dose prednisone followed by taper

- Steroid sparing agents
  - Methotrexate, azathioprine
- Interstitial lung disease
  - Mycophenolate, azathioprine
- Cutaneous manifestations
  - Hydroxychloroquine