



# Rheumatology Review


NCAPA Winter CME Conference

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# Disclosures



Potential Conflicts of Interest: Professional Development Review Panel

Sponsorship: None

No Relevant Financial Relationships with Commercial Interests

# Learning Objectives

**At the conclusion of this lecture, participants should be able to:**

Define the most commonly seen rheumatologic conditions and describe the following for each:

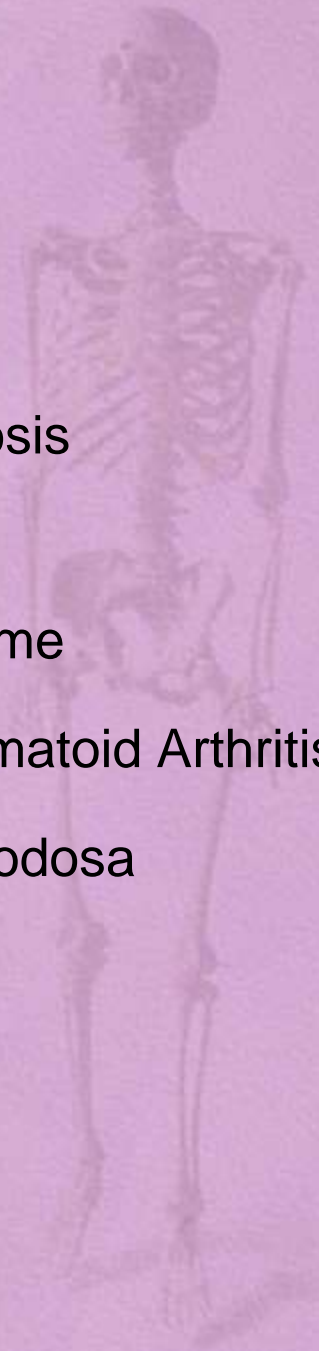
- Symptoms
- Evaluation
- Diagnostics
- Current pharmacologic and non-pharmacologic treatment options



# Rheumatology Blueprint

- Fibromyalgia
- Gout/Pseudogout
- Polymyalgia Rheumatica
- Reactive Arthritis
- Rheumatoid Arthritis
- Systemic Lupus Erythematosus
- Systemic Sclerosis (Scleroderma)
- Sjögren Syndrome
- \*Juvenile Rheumatoid Arthritis
- \* Polyarteritis Nodosa
- \* Polymyositis

\* Not Covered in this review



# Rheumatology's 10 Golden Rules

1. Good H&P & knowledge of MSK anatomy is a must!
1. Don't order labs unless you know why
2. Inflammatory monoarticular arthritis MUST have joint aspiration to r/o septic and/or crystalline arthropathy
3. Synovial biopsy for chronic inflammatory monoarticular arthritis of > 8 wks duration if eval does not define etiology

# Rheumatology's 10 Golden Rules

5. Gout usually does NOT occur in premenopausal women or affect joints close to spine
6. Most shoulder pain – periarticular (bursitis/tendonitis) most low back pain is nonsurgical
7. OA affecting joints not typically affected by OA, need to be evaluated for 2ndary cause of OA (metabolic dx, etc)

# Rheumatology's 10 Golden Rules

8. FM does not occur for first time in pt after age 55 & unlikely correct dx in pt with MSK pain with abn lab values
9. All pts with (+) RF do not have RA and all pts with (+) ANA do not have SLE
10. In pt w. known rheumatologic dx with fever or multisystem complaints  
– Must r/o infection!



A 45-year-old woman presents with a 3-month history of “diffuse pain”. Over the past week she has experienced pain in the following areas: Bilateral shoulder girdle, neck, upper back, and bilateral hips giving her a WPI (Wide Pain Index) score of 6 on the 2010 ACR Fibromyalgia Diagnostic Criteria. Which of the following 3 symptoms are assessed when calculating the SS score (Symptom Severity) Score?

- a. Fatigue
- b. Waking unrefreshed
- c. Cognitive Symptoms
- d. All of the above





# **Fibromyalgia**



# Fibromyalgia:

## General Characteristics

- Chronic (> 3 months) non-inflammatory/ non-autoimmune diffuse pain syndrome
- Associated with characteristic tender points
- Absence of objective findings other than tender points
- Average age of onset: 30 – 55
  - If after 55 – 60 yr, must consider other diseases (infection, neoplasia)



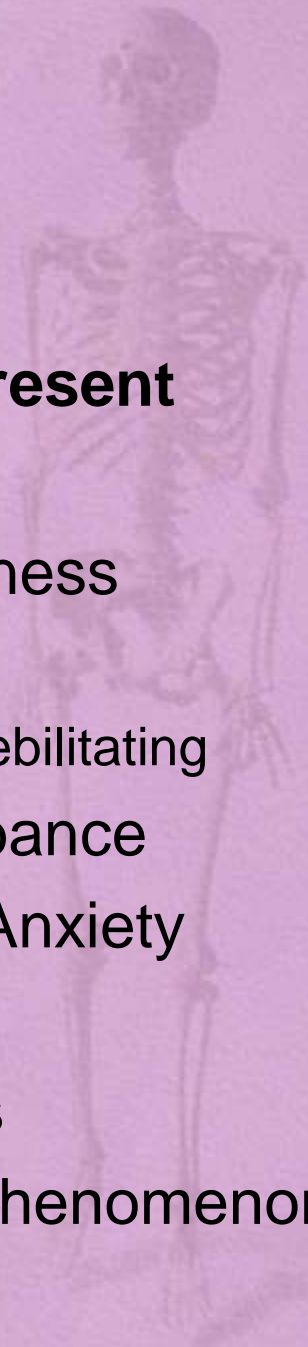
# Fibromyalgia: Clinical Features

## Always present

- History
  - Chronic, diffuse pain
- Physical Examination
  - Characteristic tender points otherwise unremarkable

## Often present

- Morning stiffness
- Fatigue
  - Severe & debilitating
- Sleep disturbance
- Depression/Anxiety
- Headache
- Paresthesias
- Raynaud's Phenomenon



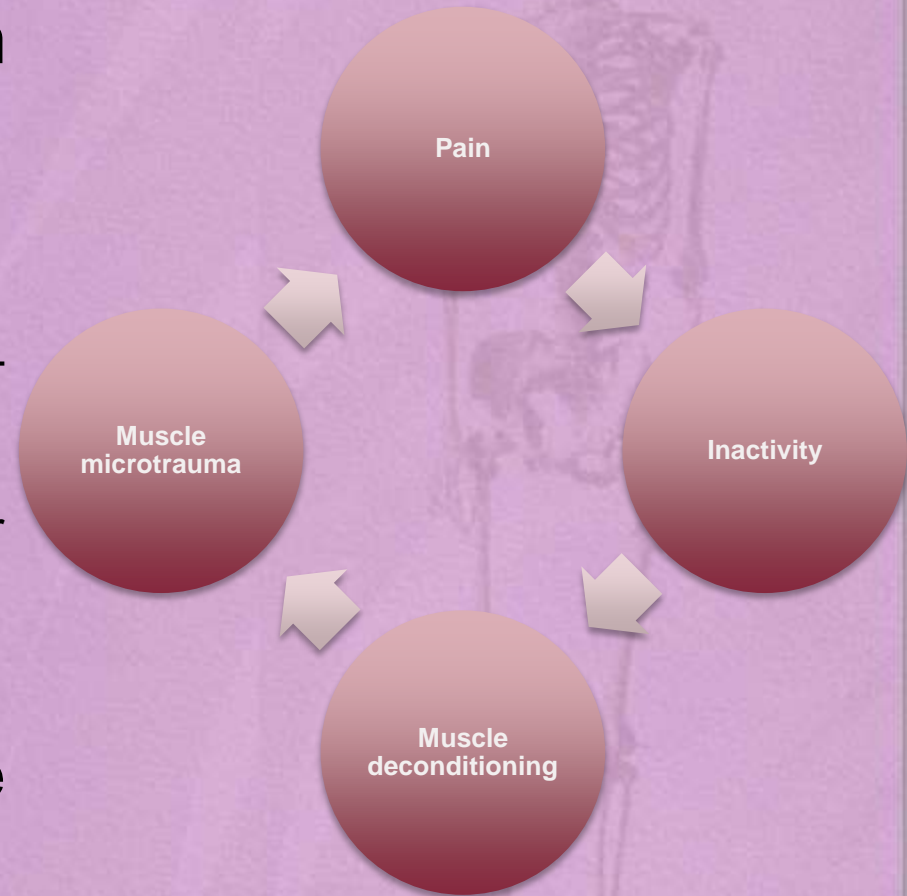
# Fibromyalgia: 6 step Treatment Approach

## 1. Patient Education

- FM is real
- Serious underlying disorder is NOT responsible for symptoms
- Patient has substantial control over affecting outcomes

## 2. Non impact aerobic exercise

- Increases endogenous endorphins
- Improves muscle conditioning preventing muscle micro-trauma



# Fibromyalgia:

## 6 step Treatment Approach

### 3. Analgesia

- Acetaminophen or low-dose NSAID
- SSRI's/SNRI's: shown to relieve symptoms of FM

### 4. Physical Therapy

- Massage/local heat/EMG biofeedback/acupuncture

### 5. Correction of Sleep Disturbance

- TCA: Amitriptyline/ Pamelor
- Muscle Relaxers: Flexeril, Tizanadine

### 6. Treatment of Associated Disorders





A 58-year-old male with a history of hypertension being treated with a thiazide diuretic has sudden onset late one evening of severe pain in his left great toe. The pain is accompanied by edema and redness, but there is no skin ulceration. There is no history of trauma. A joint aspiration reveals numerous neutrophils. Over the next several weeks, he has two more similar episodes. Which of the following laboratory test findings is most characteristic for his underlying disease process?

- a. elevated rheumatoid factor titer
- b. hypercalcemia
- c. hyperuricemia
- d. positive antinuclear antibody (ANA)



# **Gout/Pseudogout**

# Gout:

## General Characteristics

Tissue deposition of monosodium urate crystals caused by hyperuricemia resulting in one or more of following:

- gouty arthritis
- tophi
- gouty nephropathy
- uric acid nephrolithiasis



## Epidemiology

- Most common cause of inflammatory arthritis in men over 40 y/o
- Rare in females less than 50 y/o



# Gout:

## Clinical Features

### Early Episodes

- 85% monoarticular
- Abrupt onset
- Often occurs during the night and early morning
- Extremely painful joint, warm, red and swollen
- Periarticular erythema and swelling

### Subsequent Attacks

- Can occur more frequently
- Become polyarticular
- Persist longer



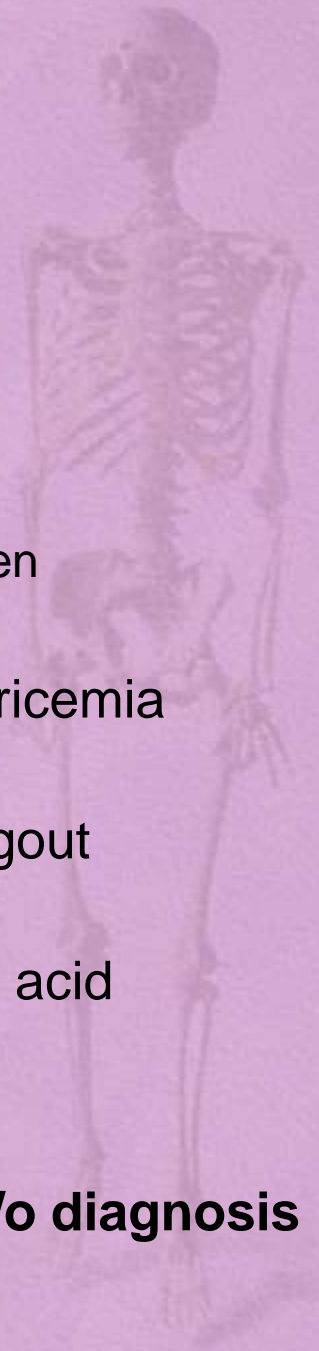
# Gout:

## Laboratory Findings

### Serum Uric Acid

- Hyperuricemia:  $> 7$  mg/dl men and  $> 6$  mg/dl women
- All patients with gout have had previous hyperuricemia
- 15% of all patients with hyperuricemia develop gout
- Gout occurs with high, low, normal levels of uric acid

**Serum uric acid levels do NOT confirm or r/o diagnosis**



What are classic, radiographic findings in gout?

- a. Pencil-in-cup deformity
- b. “Rat bite” deformity
- c. Periarticular Osteopenia
- d. Joint space narrowing



# Gout:

## Diagnostics/X-Ray



Soft tissue swelling: seen in early acute attacks

Chronic gout: tophi (seen in tissue) and bony erosions



Joint space is typically preserved until late in the disease

Juxta-articular osteopenia is absent.

# Gout:

## Treatment Acute Gouty Arthritis

- Initiate within 24 hours of onset
- Continue ULA without interruption!!
- First Line Options:
  - NSAID: high dose x 4-10 days
    - Indomethacin: 50 mg initially, then 25 mg tid or qid
  - Colchicine:
    - Loading dose 1.2 mg (two 0.6 mg tablets)
    - 0.6 mg one hour later
    - Then 0.6 mg twice daily until gout attack resolves
  - Systemic and intra-articular corticosteroids
    - Recommended if involvement of 1 – 2 joints



# Gout:

## Urate Lowering Agents (ULA)

### Indications for Urate Lowering Agents

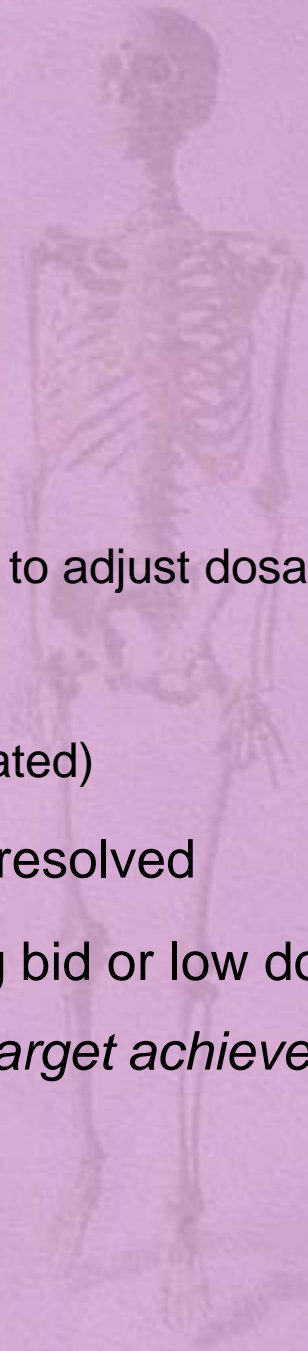
- Tophus or Tophi by clinical exam or x-ray
- > 2 attacks of gout /year
- Past urolithiasis
- Asymptomatic hyperuricemia with serum UA > 12 mg/dl or 24 hr-urinary excretion > 1100 mg
  - Prevention of urate nephrolithiasis



# Gout:

## Urate Lowering Agents (ULA)

- Serum uric acid target < 6 mg/dl
- First line:
  - Allopurinol or Febuxostat (check uric acid in 4 weeks to adjust dosage)
- Alternative
  - Probenecid (if first line tx contraindicated or not tolerated)
- Delay treatment until 1-2 weeks after inflammation resolved
- MUST simultaneously start colchicine 0.5 to 0.6 mg bid or low dose NSAID to prevent “flare”: *Continue until uric acid target achieved (~ 6 – 12 mos)*



# Pseudogout: General Characteristics

- Acute attacks of CPPD crystal-induced synovitis
- Clinically resemble urate gout.



## Pathogenesis

Caused by the release of a calcium salt “Calcium pyrophosphate dehydrate” that is released as crystal into the joint space

PMNs engulf the crystals and release cytokines and other mediator which cause intense inflammation of the joint



# Pseudogout

## Clinical Manifestation

### Symptoms

- Rapid onset
- Pain & Swelling
- May present with fever and malaise (raising suspicion for infection)

### Physical Exam

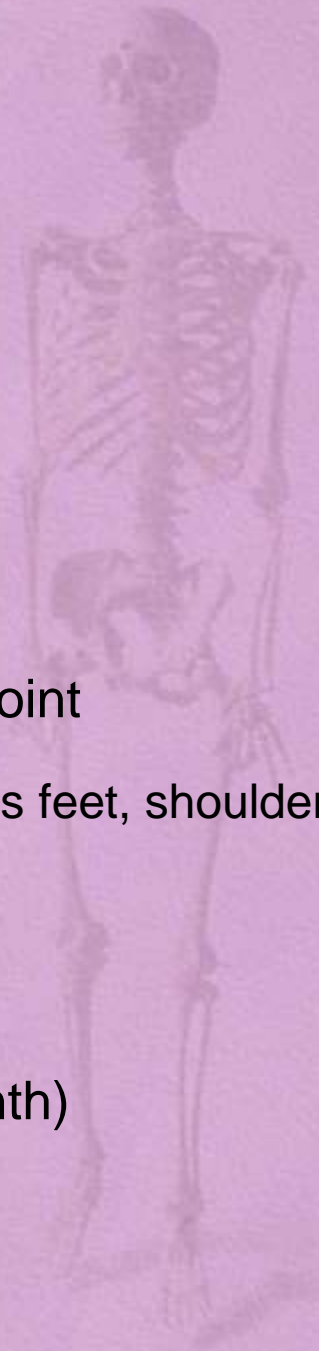
- Increased warmth
- Swelling Tenderness & Limited motion
- Erythema (may simulate cellulitis)

## Diagnostic Evaluation

- Joint Aspiration
- Synovial Fluid analysis:
  - CPPD crystals
  - R/O infection
- Imaging (X-rays) —May reveal chondrocalcinosis

# Pseudogout vs Gout

- Less painful
- Takes longer to reach peak intensity
- Usually only single joint affected
- Larger joints affected more commonly than smaller joint
  - Knee affected over 50% of time. Can also affect ankles feet, shoulders, elbows wrists or hands
- Attack can last for days or even weeks
- If left untreated is self limited (resolving within a month)
- Patient usually asymptomatic between attacks



# Pseudogout: Treatment Options

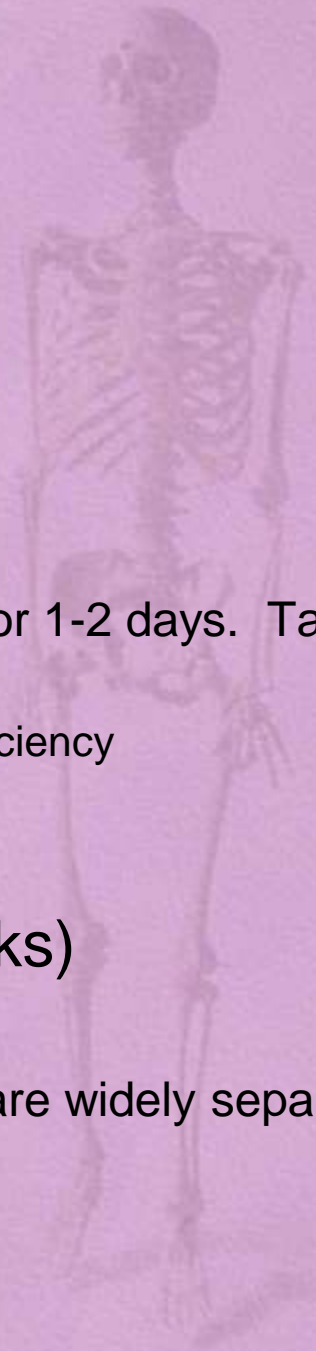
- No treatment can completely remove or prevent the formation of CPPD crystals.
- Joint Aspiration and/or injection
  - Relieves pressure and pain
    - Thorough aspiration to remove CPPD crystals thought to “halt the attack”
  - Glucocorticoids to decrease inflammation
    - Best method to provide prompt, complete relief of attack with minimal risk of systemic adverse effects.



# Pseudogout: Treatment Options

## Medications

- Acute attacks
  - NSAIDS
    - Indomethacin 50 mg three to four times/day for 1-2 days. Taper dose as symptoms subside.
      - Careful use in elderly and chronic renal insufficiency
- Prevention (for those with frequent attacks)
  - Colchicine 0.6 mg twice daily
    - Most patients only have a few attacks which are widely separated in time.





A 65-year-old woman complains of a 3-week history of pain and sense of weakness in her neck, shoulders, and hip. She has a low-grade fever. Otherwise, she feels well and has no other symptoms. Her eyelids and hands appear normal; she has no rashes. Her neck, shoulder, and hips have full range of motion, and she has normal strength. Her sedimentation rate is markedly elevated, but her creatine phosphokinase (CPK) is normal. The following best matches her clinical syndrome or disease:

- a. Takayasu's arteritis
- b. Polymyalgia rheumatica (PMR)
- c. Wegener's granulomatosis (WG)
- d. Henoch-Shönlein purpura (HSP)
- e. Behçet's syndrome



# **Polymyalgia Rheumatica**



# PMR:

## General Characteristics

- Inflammatory syndrome of older individuals characterized by pain & stiffness in shoulder and/or hip girdles.
- Mean age of onset ~ 70 yr Rare < 50 yr
- Women affected 2x greater than men



# PMR:

## Clinical Features

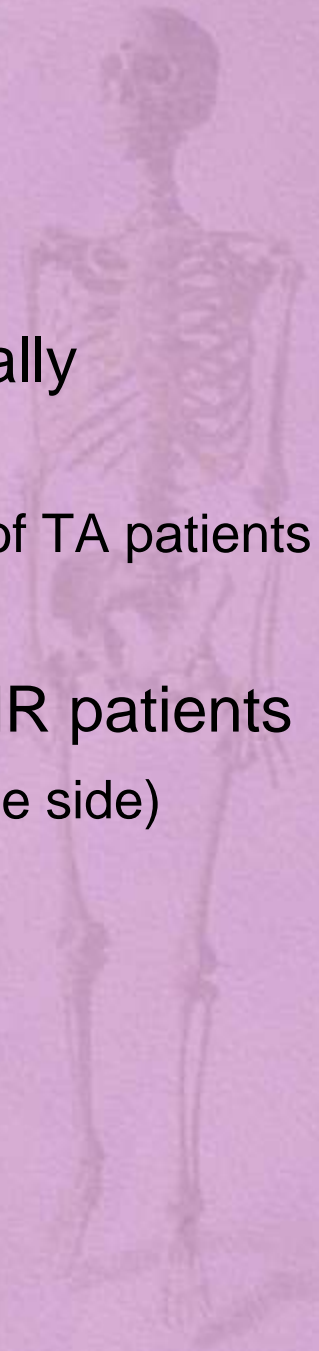
- Stiffness
- Symmetric (can begin unilaterally)
- Stiffness & “gelling” phenomena dramatic
- Shoulder often first area affected
- Pain at night common
- May appear “chronically ill”
- Neck and shoulder tenderness and Active ROM limited
- Strength normal





# PMR and Temporal Arteritis

- Frequently occur synchronously or sequentially
  - PMR noted in 40 – 50% of patients with TA
  - May be the initial symptom complex in 20 – 40% of TA patients
- Should include following evaluation in all PMR patients
  - Headache (especially new onset & localized to one side)
  - Scalp tenderness
  - Pain in the temples, especially when chewing
  - Tenderness in the temple area
  - Blurred or double vision/ vision loss
  - Pain in the jaw and tongue



65-year-old patient with scalp tenderness and jaw claudication develops ischemic optic neuropathy. What is the best test to confirm the suspected diagnosis?

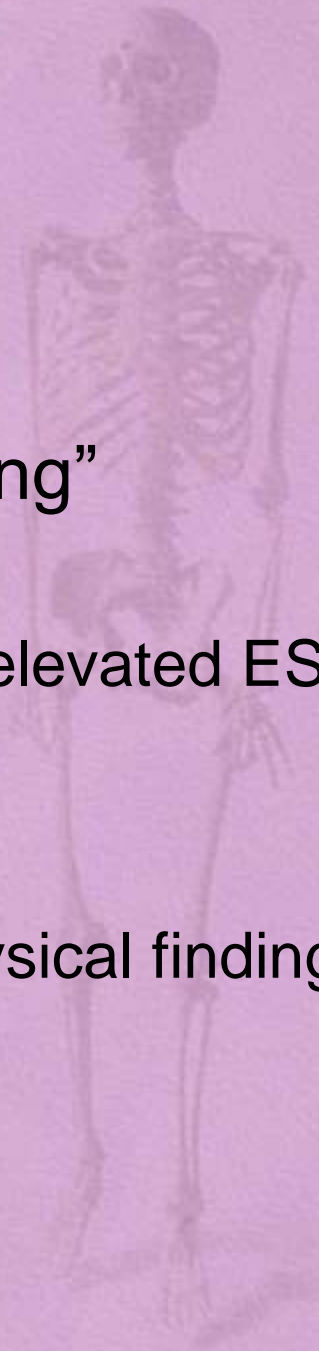
- a. MRI of the brain with contrast
- b. temporal artery biopsy
- c. tonometry
- d. erythrocyte sedimentation rate
- e. CBC



# PMR:

## Laboratory Findings

- Elevated ESR “characteristic lab finding”
  - Often > 100 mm/hr
  - May occasionally occur with nl or mildly elevated ESR
- Temporal artery biopsy
  - Performed only when symptoms and physical findings indicative of TA



# PMR:

## Treatment

- Prednisone 15 – 20 mg/day
  - Most patients respond dramatically in 1 – 2 days
  - Single dose daily most effective
  - Reduce dose every 2 – 4 weeks (per patient symptoms and ESR)
  - Dosage decreased by 2.5 mg increments until dose of 10 mg/day
  - Further taper by 1 mg increments (monitor patient and ESR)
    - Too rapid taper may result in relapse
  - If no further evidence of disease prednisone tapered by 1 mg every 1 – 2 months till discontinued





# **Reactive Arthritis**



# Reactive Arthritis: General Characteristics

- Sterile inflammatory synovitis following infection by an organism that infects mucosal surfaces
  - Most common organisms: Salmonella, Shigella, Yersinia, Chlamydia, Campylobacter, Clostridium
- Develops 2-6 weeks after a GI or GU infection
- Inflammation of joints, entheses, axial skeleton, skin, mucous membranes, gastrointestinal tract, and eyes may occur.
- Ages 20 – 40
- Enterogenic form: M=F
- Urogenital form: M>F



# Reiter's Syndrome

## Form of "Reactive Arthritis" ReA

- Most common type of inflammatory arthritis affecting young adult male
- Previously defined as "clinical triad"
  - urethritis, conjunctivitis, arthritis following infectious dysentery
  - Changed because 2/3 of patients do not have all 3 features

- Most common cutaneous lesions of Reiter's Syndrome:

- Circinate balanitis



- Keratoderma blennorrhagicum



Both lesions predominantly associated with urogenital reactive arthritis and resolve spontaneously