Rheumatology Pearls for the Primary Care Provider

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Disclosures

- None

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Objectives

- To recognize common presentations of rheumatological disease
- To improve problem-solving and next steps in the rheumatologic patient
- To improve confidence in initiating treatment in patients with rheumatic disease

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Case #1

- Mr. J is a 46yo male presenting to your office with sudden onset pain, redness, swelling of the right knee.
- Denies injury
- No prior episodes
- Has not been to a doctor in over 10 years
- No known family history of joint problems
- Works as a driver for UPS and is concerned he will lose his job but is finding it difficult to work

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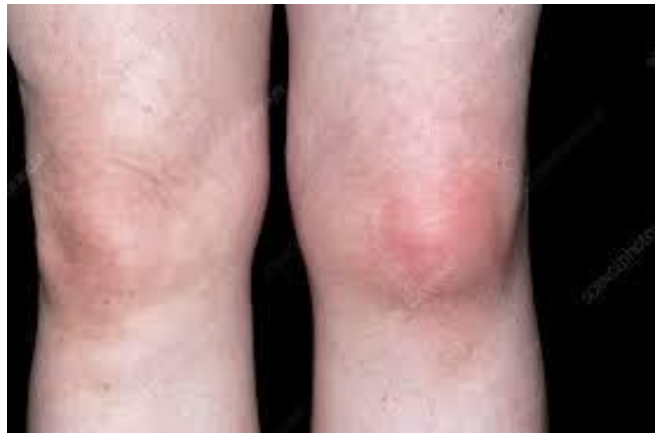
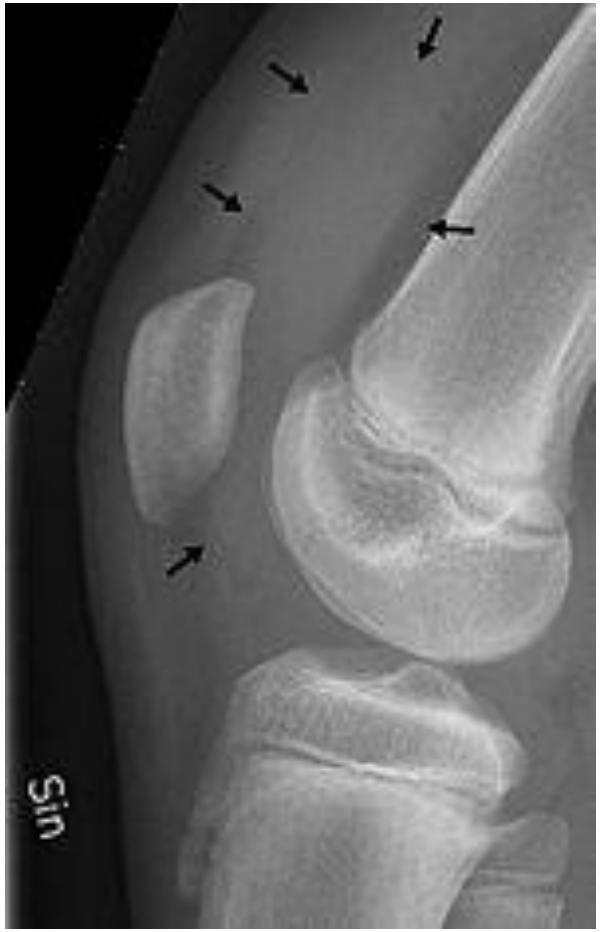
Case 1

- Exam:
- T=98.2
- HR=77
- BP=157/92



- Labs:
  - WBC 12.2 with neutrophilic predominance
  - Cr 1.9
  - ESR 67
  - Serum uric acid=8.7

- Radiograph:



Case 1: Differential Diagnosis

- Septic Arthritis
- Gout
- Pseudogout
- Hemarthroses
- Palindromic Rheumatism/Early RA
- Spondyloarthropathy

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Case 1

- What is your next step?

A. Due to the elevated WBC with left shift, you recommend Mr. J go to the ER to start IV Antibiotics

B. Given his elevated serum uric acid and exam, you start Mr. J on Colchicine

C. You perform an in office arthrocentesis

D. You recommend a thorough workup for rheumatologic causes and send him for blood work: RF, CCP, ANA, HLA B27 and start him on NSAIDs

Case 1

A. Due to the elevated WBC with left shift, you recommend Mr. J go to the ER to start IV Antibiotics
while it is never wrong to be cautious, he is afebrile and stable, so this can be sorted out in office. IV antibiotics can wait for initial fluid analysis and will increase likelihood of accurate diagnosis

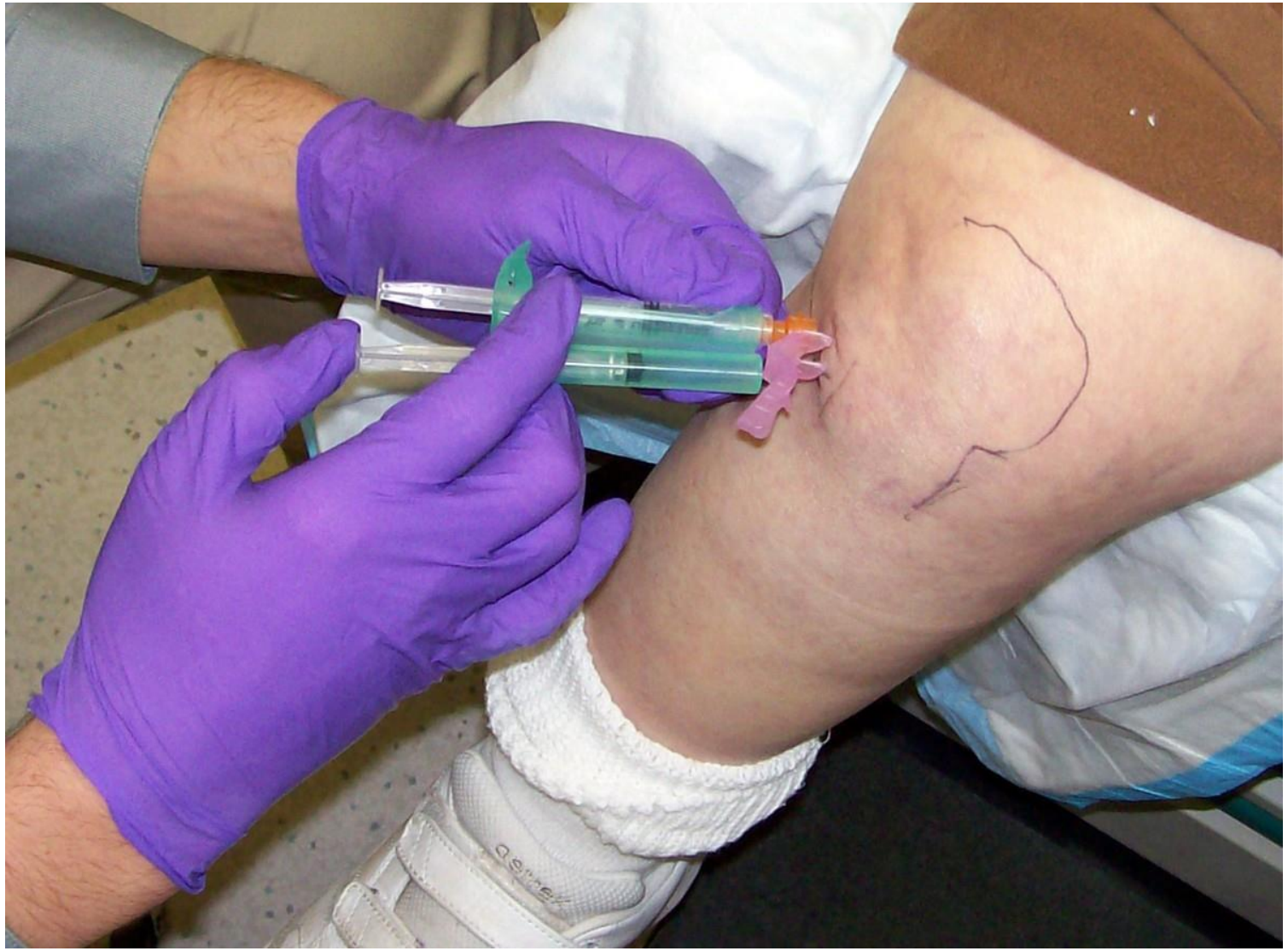
B. Given his elevated serum uric acid and exam, you start Mr. J on Colchicine
serum uric acid is very unreliable in setting of acute gout and has no utility in diagnosis

C. You perform an in office arthrocentesis
Any time there is fluid in a joint of unknown etiology!

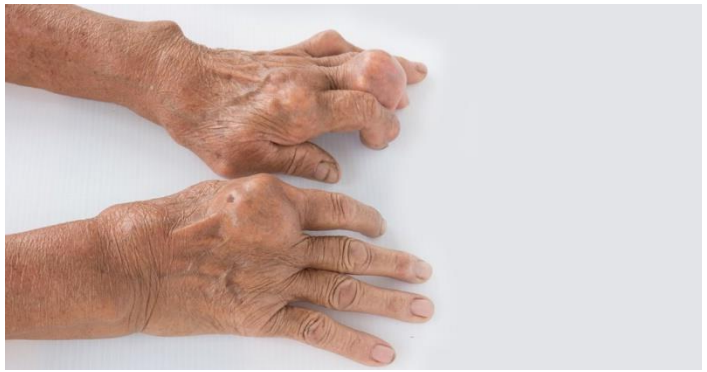
D. You recommend a thorough workup for rheumatologic causes and send him for blood work: RF, CCP, ANA, HLA B27 and start him on NSAIDs
duration of symptoms is only a few days—a systemic workup is not warranted at this time
renal function is low, NSAIDs not ideal

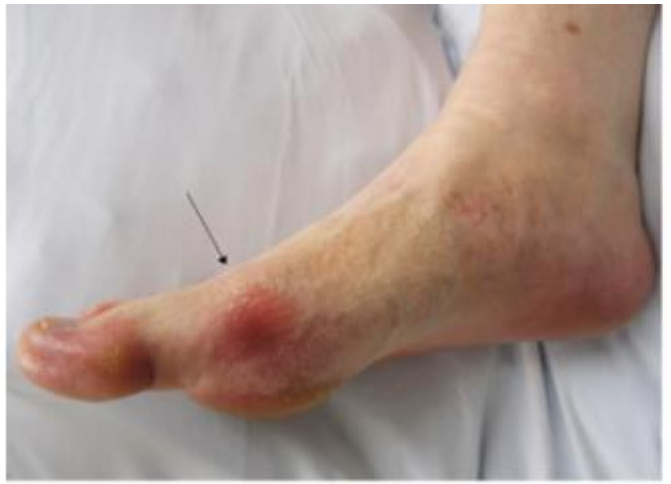
Case 1

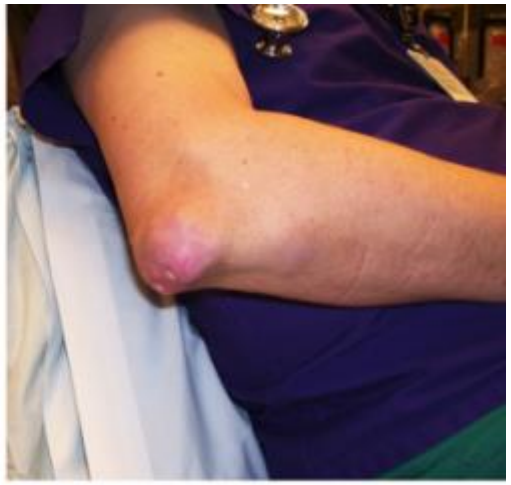
- Arthrocentesis
  - Turbid fluid
  - WBC: 5800
  - PMNs: 87%
  - Moderate uric acid crystals

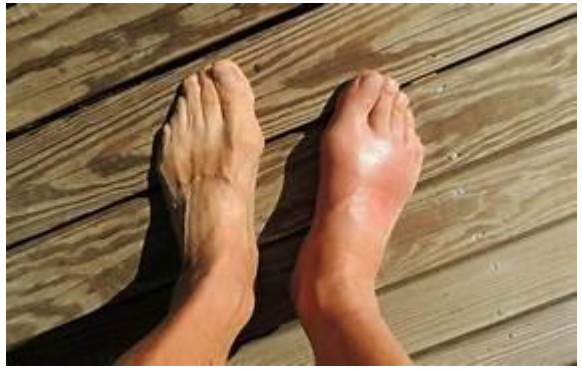


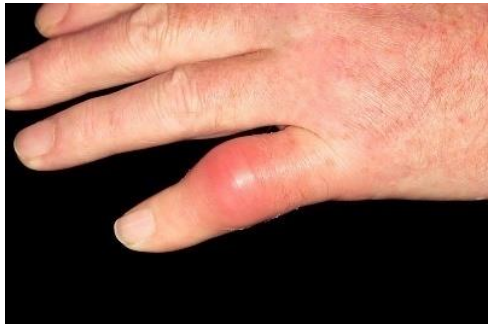
Acute Gout

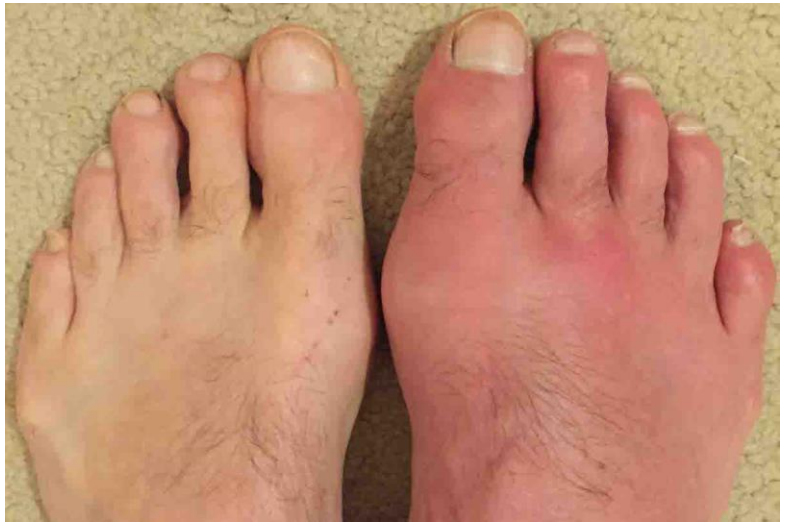












Gout

- Characterized biochemically by extracellular fluid urate saturation, reflected in the body by hyperuricemia with serum or plasma urate concentrations >6.8 mg/dL (approximate limit of urate solubility)
- Persistent hyperuricemia is common however most hyperuricemic individuals never experience a clinical event resulting from urate crystal deposition.
- Clinical Manifestations:
  - Recurrent flares of inflammatory arthritis
  - A chronic arthropathy
  - Accumulation of urate crystals in the form of tophaceous deposits
  - Uric acid nephrolithiasis
  - Chronic nephropathy that, in gouty patients, is most often due to comorbid states

Gout

- 3 Classic Clinical Stages:
  - Gout Flare
  - Intercritical Gout
  - Chronic Gouty Arthritis and Tophaceous Gout

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Gout

- Gout Flare
  - Monoarticular intense inflammatory arthritis
  - Typically lower extremity
  - Polyarticular flares more common in patients with longstanding disease
  - Clinical features:
    - Severe pain, redness, warmth and disability
      - Complete resolution in days to weeks even without treatment
      - Resolution often accompanied by skin desquamation over the affected joint
    - Often onset at night or early morning (midnight to 8AM)
    - 80% present in single joint in lower extremity
    - Inflammatory change extends beyond the confines of the joint: false impression of dactylitis, cellulitis
    - Can cause tenosynovitis, bursitis (olecranon most common)

Gout

- Intercritical Gout
  - Period between flares
  - Early in course of gout, often asymptomatic—so uncommon in other arthridites that this sequence is highly suggestive of gout
  - Interval highly variable: months to many years

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Gout

- Tophaceous
  - Collections of solid urate accompanied by chronic inflammatory and often destructive changes in the surrounding connective tissue
  - Tophi visible and/or palpable (ears, soft tissues, over joints)
  - Not usually painful or tender

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What's New In Crystal Disease?

- For years has been felt to be diet related
- Counseling patients on diet and monitoring serum urate levels and gout flares is no longer considered beneficial with dietary changes alone
- Meta-analysis of population based cohorts performed and published in BMJ 2018 showed that diet was found to be a **very minor contributor** to the population variance of baseline levels of serum urate, and hence the risk for gout when compared with genetic variance in a meta-analysis of population-based cohorts of individuals of European ancestry without a diagnosis of gout, renal disease or use of urate-lowering therapies or diuretics

Crystal Disease

- Bottom Line:
  - Hyperuricemia and gout is non-modifiable by diet alone

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Crystal Disease

- Treat-to-Target
  - Key to clinically effective gout management
  - Randomized trial involving over 500 patients from general medicine clinics in UK comparing outcomes of treat-to-target strategies (regular serum urate monitoring, titration of therapy according to serum urate target) versus that of general practitioners without treat-to target education/approach
    - At 2 years, treat-to-target approach showed
      - Reduced # flares
      - Greater reduction in tophi
      - Improved quality of life

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Crystal Disease

- Bottom Line
  - Gout treatment goal is serum urate <6.0 for gout and <5.0 for chronic tophaceous gout.
  - Treat-to-Target!
  - Do NOT stop allopurinol or feboxustat during an acute attack. Treat through it
    - Start allopurinol 100mg daily (50mg if GFR<30)
    - Check uric acid in 6 weeks, if not at target, increase the allopurinol
    - Consider concurrent post-mobilization propylaxis

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Case 2:

- Mrs. M is a 68 year old female presents to your office with pain in her hands for the past 8 months that is progressive and limiting her ability to play the piano. She plays for 2-3 hours a day and gives private lessons 3 days a week. She denies any other joint pains and says when she gets up from playing, she does not have any limiting pain or stiffness except in her hands.

- She is concerned because she recalls her mother having very “deformed” hands though never had a diagnosis
- She is otherwise generally healthy, though does take amlodipine 5mg daily for essential hypertension

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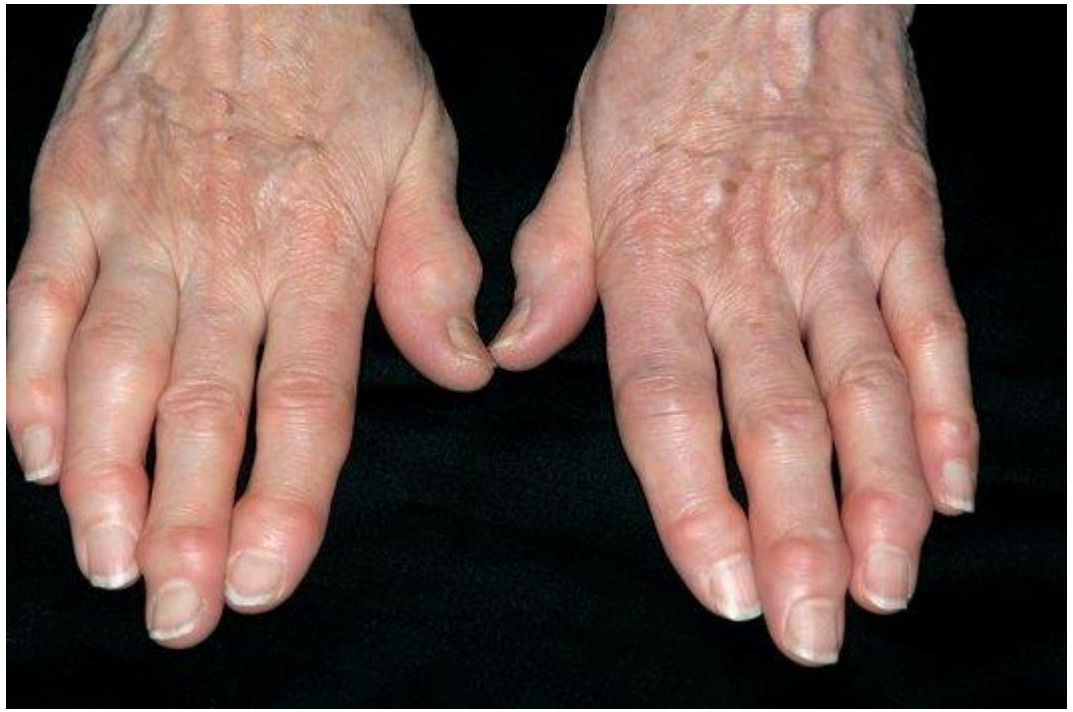
Case 2

- Physical Examination



Case 2:

- What do you do next?

A. You feel synovitis and are concerned about hypertension, without knowing her creatinine, you opt to give her a prescription for diclofenac gel and refer her to Rheumatology for further evaluation

B. You feel synovitis and concern for inflammatory arthritis is high. You order labs: RF, AntiCCP and ANA

C. Your clinical suspicion is for mechanical overuse due to her piano playing and refer her to physical therapy

D. You feel synovitis, so you order bilateral hand/wrist xrays

Case 2: Location is everything!

- What do you do next?

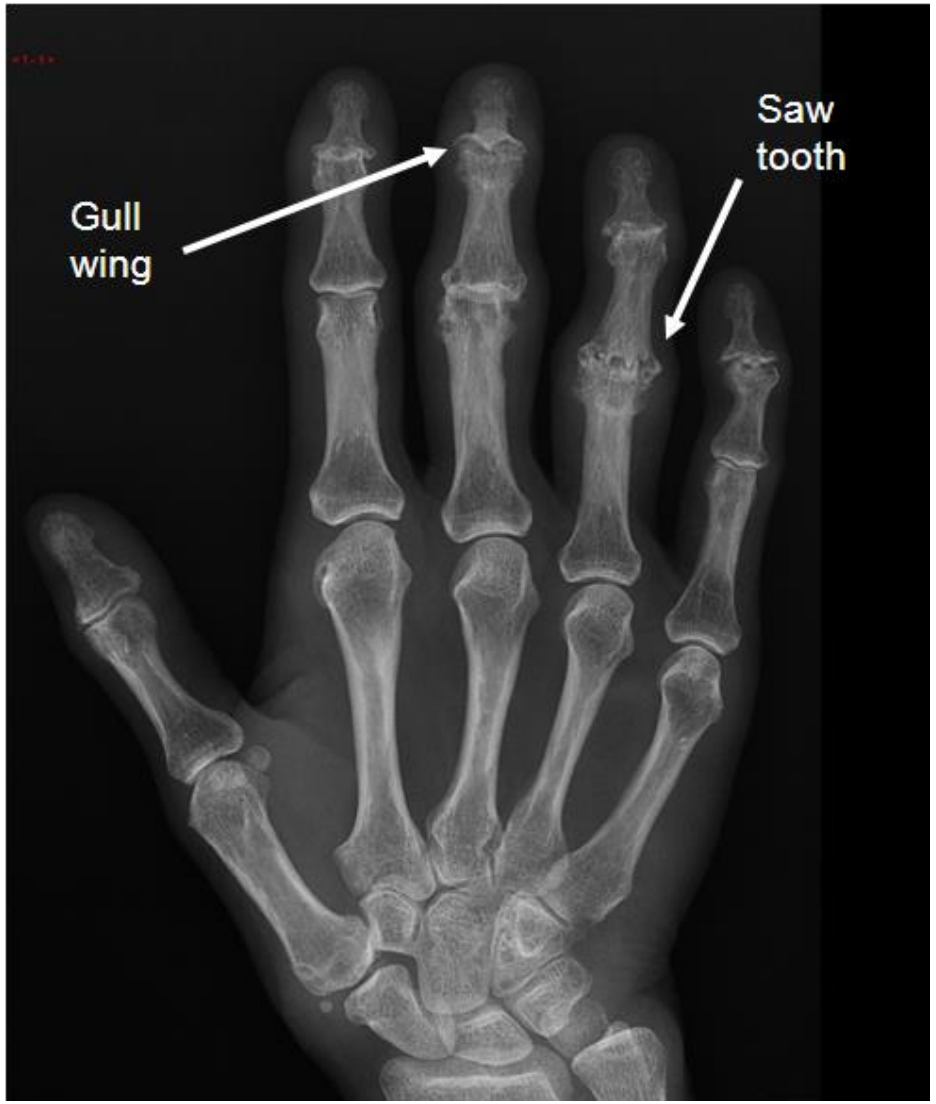
A. You feel synovitis and are concerned about hypertension, without knowing her creatinine, you opt to give her a prescription for diclofenac gel and refer her to Rheumatology for further evaluation

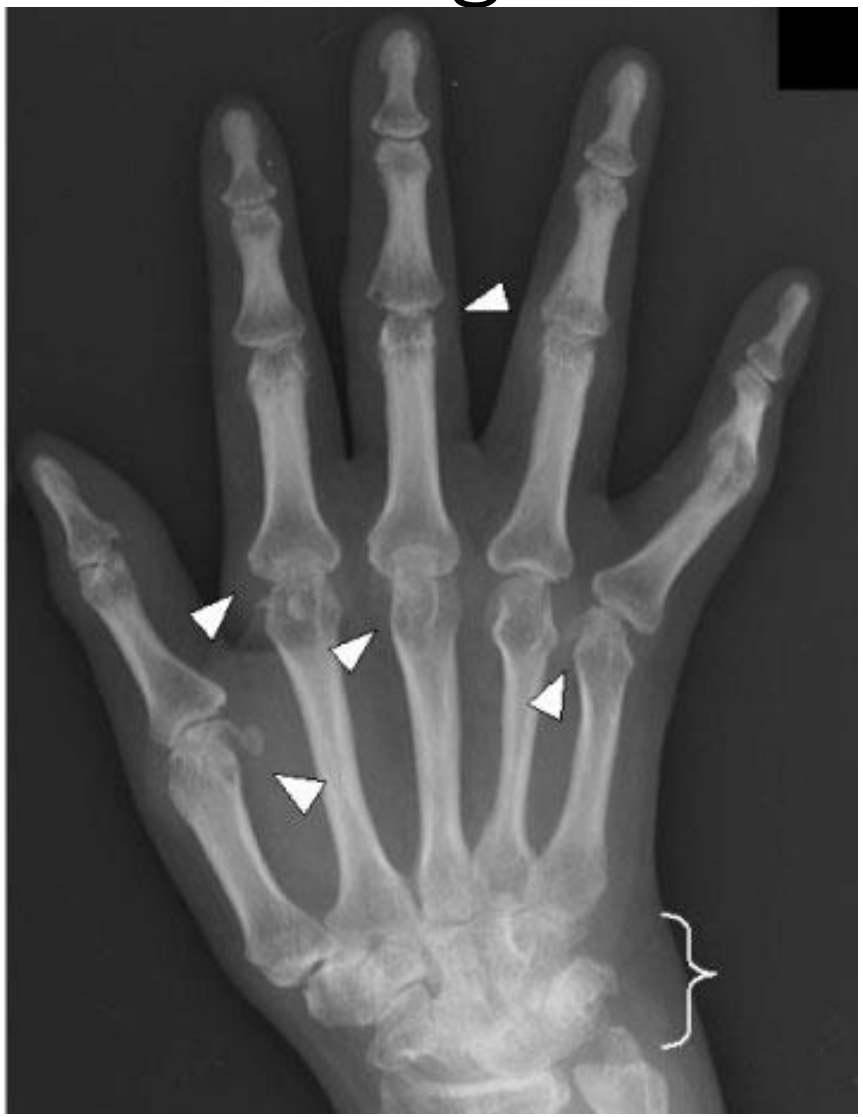
B. You feel synovitis and concern for inflammatory arthritis is high. You order labs: RF, AntiCCP and ANA

C. Your clinical suspicion is for mechanical overuse due to her piano playing and refer her to physical therapy
Not wrong…however given severity of symptoms she warrants pharmacologic management as well…

D. You feel synovitis, so you order bilateral hand/wrist xrays
MCP and wrist sparing should tip you off that this is not RA. Spondyloarthritis can lead to DIP inflammatory arthritis, however her age, lack of axial symptoms and late presentation argue against that.

Case2: Erosive OA—a Clinical Diagnosis





Management of Hand Osteoarthritis

- Most common OA phenotypes
- High clinical burden
- Joint pain, disability, decreased hand strength
- Reduced quality of life

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Management of Hand Osteoarthritis

- General Principles
  - Education
  - Combination of pharmacologic and non-pharmacologic interventions is best
    - Splints and other assistive devices
    - Topical NSAIDs
    - Exercise
    - If response not adequate
      - Oral NSAIDs
      - Acetaminophen
    - Refractory Symptoms
      - Surgery

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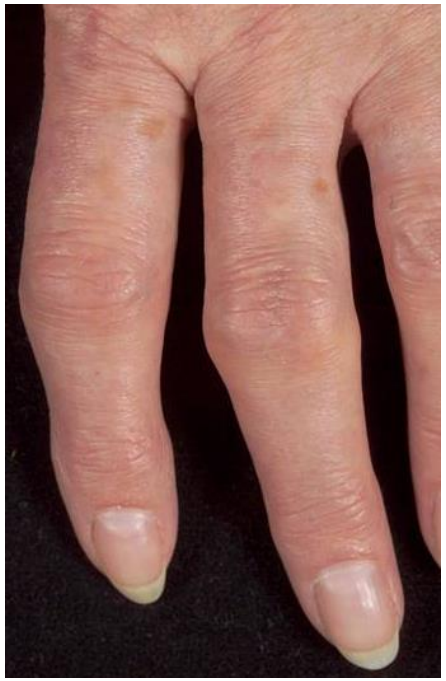
Management of Hand Osteoarthritis

- What About Erosive Osteoarthritis?
  - Uncommon, aggressive subset of hand OA
  - Often familial
  - Subacute or insidious onset of pain, stiffness, soft tissue swelling
  - Pain, tenderness, and inflammation are more marked and prolonged than in routine hand OA
  - NOT associated with generalized OA
  - Targets PIPs and **DIP**s only
    - Spares CMC and MCPs
  - Erosive
  - Can result in spontaneous joint fusion



Updated Guidelines for the Management of Hand Osteoarthritis (February 2019)

- EULAR (European League Against Rheumatism) published updated guidelines for the management of hand osteoarthritis
- New evidence reviewed over the past decade
- Emphasis on role of the patient in the treatment plan
- Importance of the multimodal therapy and multidisciplinary care
- Conventional or biologic anti-rheumatic DMARDs are not effective for hand OA

Kloppenburg M. Kroon FP, Blanco FJ, et al. 2018 update of the EULAR recommendations for the management of hand osteoarthritis. AnnRheum Dis 2019; 78:16.

Updated Guidelines for the Management of Hand Osteoarthritis (February 2019)

- Bottom Line:
  - Even in erosive OA, DMARDs/Biologics used for rheumatic conditions play no role in treatment of OA. Disease modifying agents for OA do not exist at this time.

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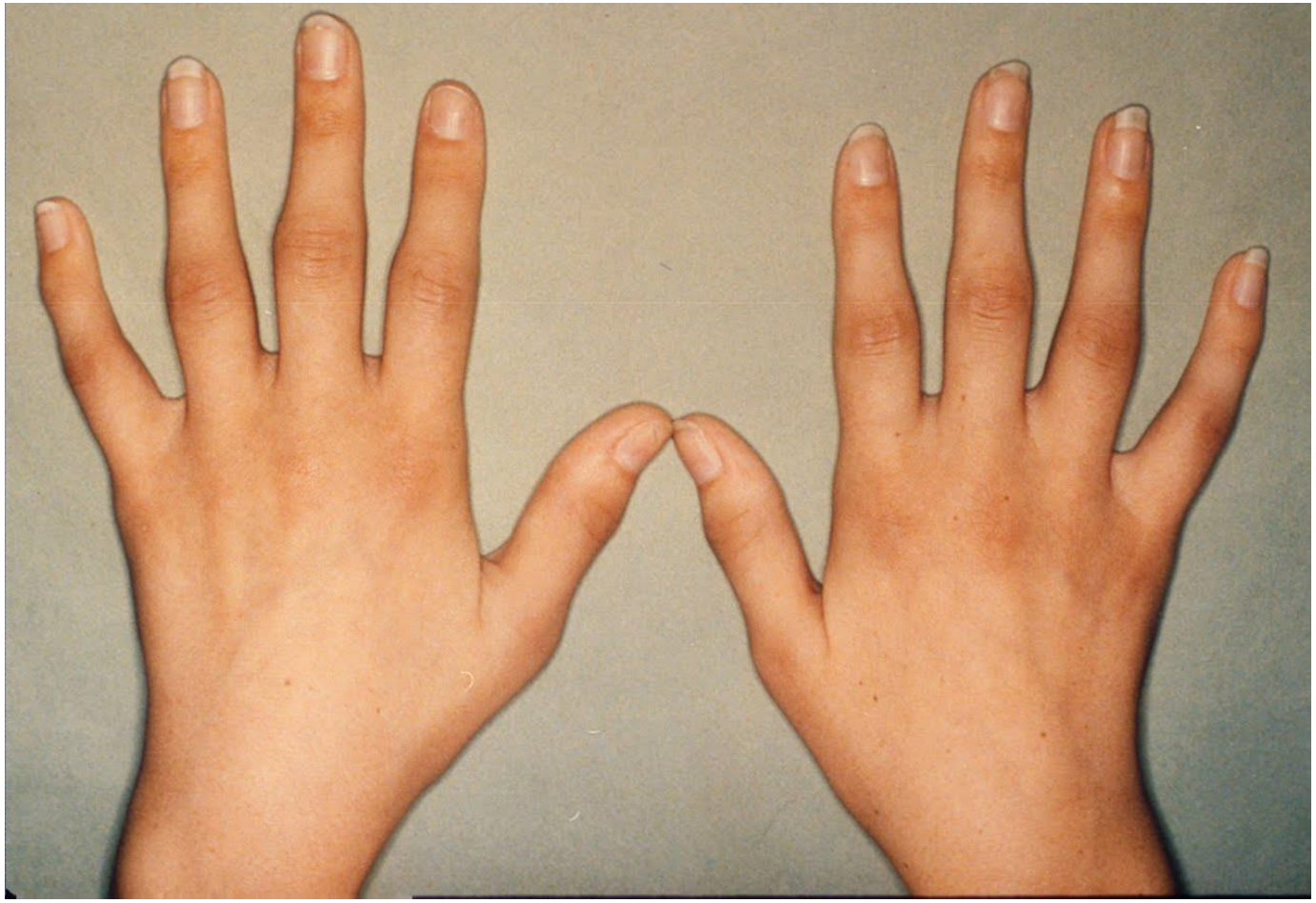
Case 3:

- Ms. S is a 32 year old female who comes to see you because both hands are increasingly painful for the last few months. She is worried because her mom had “arthritis” and she is concerned she will lose her job. She is tearful because she cannot play with her son the way she used to

- She has no significant past medical history
- Works as an elementary school teacher
- She lives with her husband and 2 year old son
- No tobacco or illicit drug use, but admits that when she was a teen she “experimented”

Case 2: Physical Exam



Case 2: Differential Diagnosis

- Rheumatoid Arthritis
- SLE
- Post-viral Arthritis
- Osteoarthritis

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Case 2:

- The key in the history that makes a viral arthritis less likely is:

A. The patient's age

B. Her lack of risk factors for Hepatitis C

C. The duration of her symptoms

D. The bilateral nature of her symptoms

E. The fact that she does not have systemic symptoms of viral infection

Case 2:

- The key in the history that makes a viral arthritis less likely is:

A. The patient's age

B. Her lack of risk factors for Hepatitis C

C. The duration of her symptoms
post infectious arthritis very rarely persists beyond 6 weeks

D. The bilateral nature of her symptoms

E. The fact that she does not have systemic symptoms of viral infection
Viral infection in adults often asymptomatic (including parvo and HCV) Adults can get a robust inflammatory arthritis with parvo without the classic "slapped cheek" rash

Age and Polyarthritis

- Young
  - Reactive Arthritis
  - SLE
  - AS
  - RA
  - PsA
  - Enteropathic
  - Viral
- Middle Age:
  - Gout
  - RA
  - OA
- Elderly
  - PMR
  - CPPD
  - Malignancy

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Rheumatoid Arthritis: Key Features

- **Symptoms >6 weeks' duration**
  - Often lasts the remainder of the patient's life
- Inflammatory synovitis
  - Palpable synovial swelling
  - Morning stiffness >1 hour
  - Fatigue
- Symmetrical, Polyarticular (>3joints)
  - Typically involves wrists, MCPs, and PIPs
  - Spares certain joints:
    - Thoracolumbar Spine
    - DIPs of the fingers and IPs of the toes

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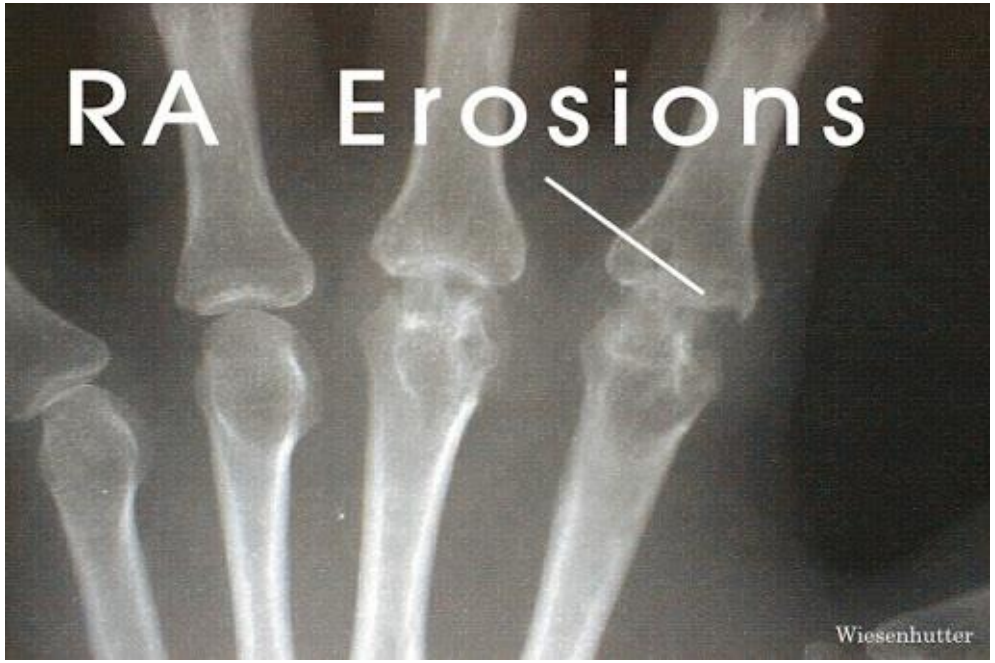
Rheumatoid Arthritis: Key Features (continued)

- May have nodules: subcutaneous or periosteal at pressure points
- Rheumatoid factor
  - 45% positive in the first 6months
  - 85% positive with established disease
  - Not specific for RA
  - High titer early on is bad sign

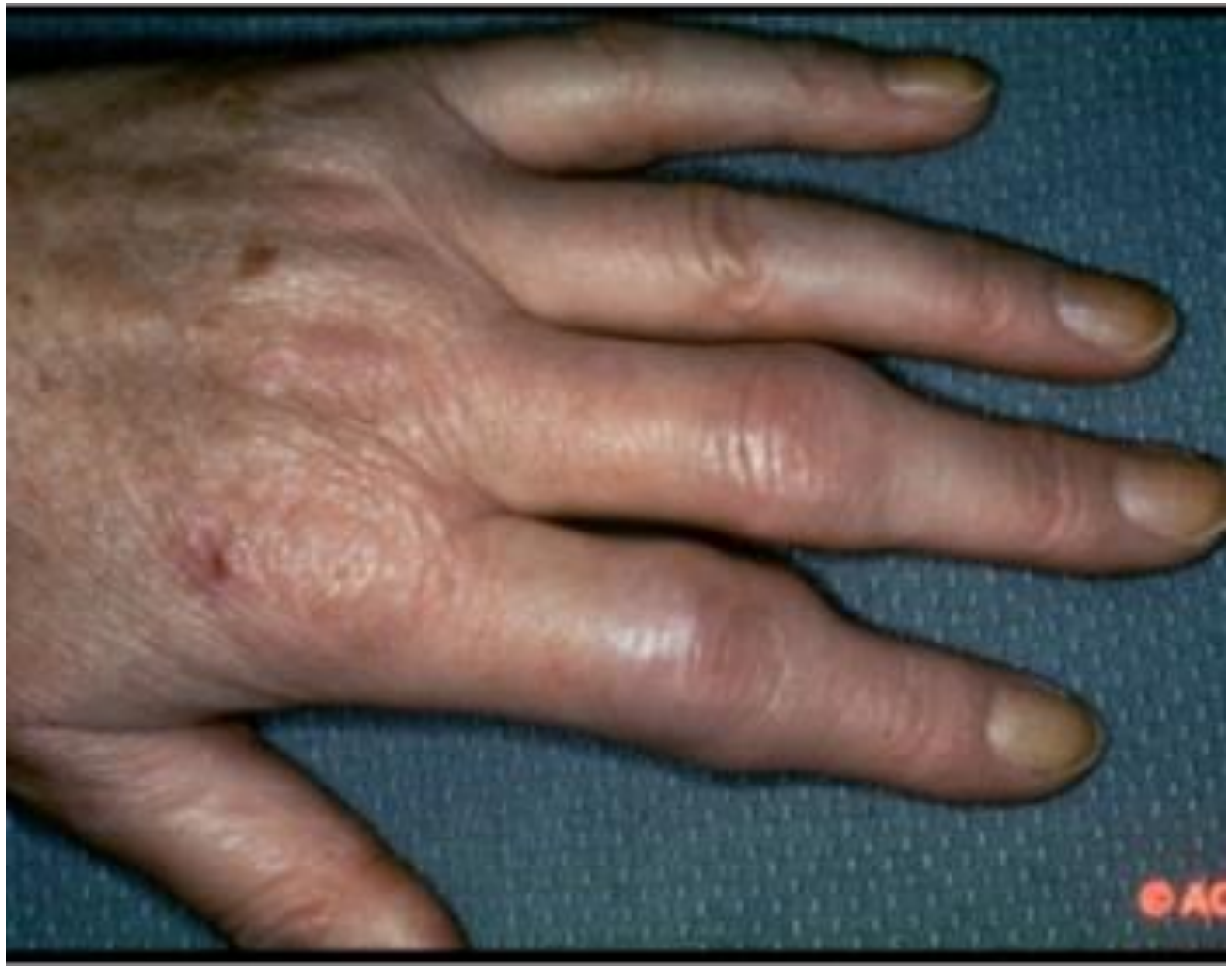
- **Marginal erosions** and joint space narrowing on XRay



Rheumatoid Arthritis: PIP Swelling

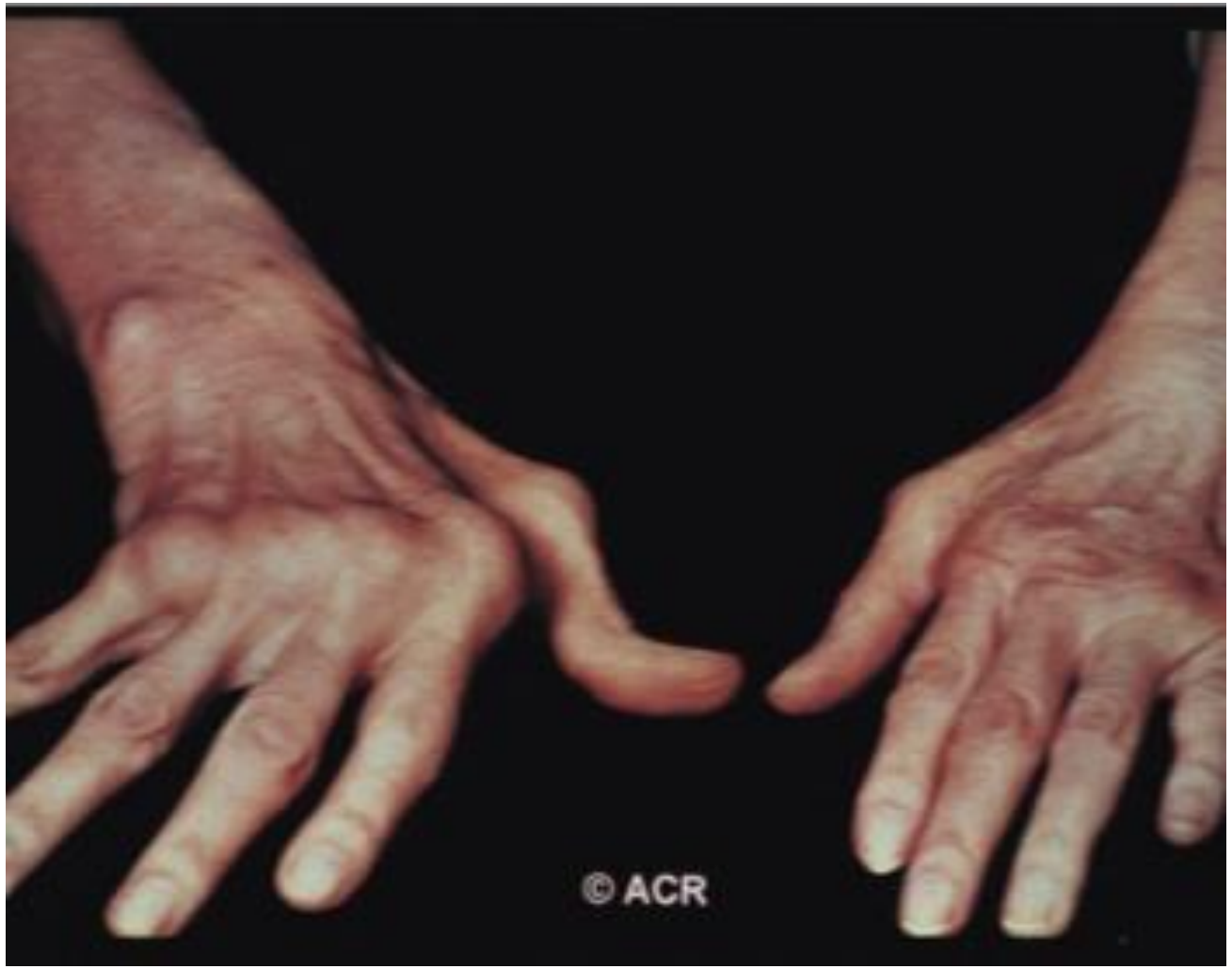
Swelling is confined to the area of the joint capsule

Synovial thickening feels like a firm sponge

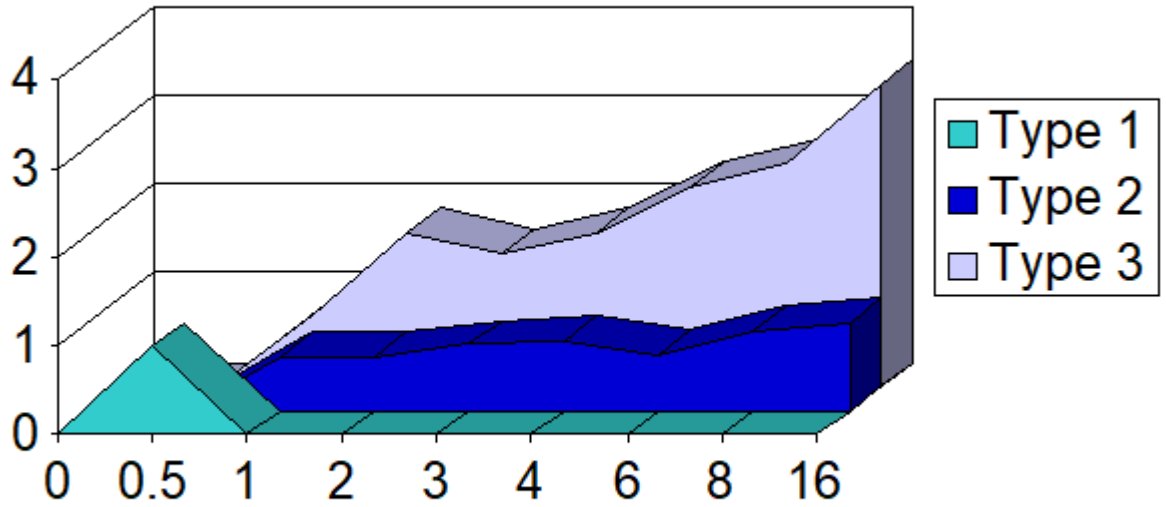


Rheumatoid Arthritis: Ulnar Deviation and MCP Swelling

- An across-the-room diagnosis
- Prominent ulnar deviation
- MCP and PIP swelling in both hands
- Synovitis of the wrist



Clinical Course of RA



Type 1 = Self Limited: 5%-20%
Type 2= Minimally progressive: 5%-20%
Type 3= Progressive: 60%-90%

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Rheumatoid Arthritis: Typical Course

- Damage occurs early in most patients
  - 50% show joint space narrowing or erosions in the first 2 years
  - By 10 years, 50% of young working patients are disabled

- Death comes early
  - Multiple causes: Infection, CAD, CVA, Lung Disease
  - Compared to general population
    - Women lose 10 years, men lose 4 years

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Rheumatoid Arthritis

- Key points
  - The sicker they are, the faster they get that way, the worse their future will be
- **Early intervention can make a difference**
- Essential to establish a treatment plan early in the disease

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Rheumatoid Arthritis: Treatment Principles

- Confirm the diagnosis
- Determine where the patient stands in the spectrum of disease
- When damage begins early, start aggressive treatment early
- Use the safest treatment plan that matches the aggressiveness of the disease
- Monitor treatment for adverse effects
- Monitor disease activity
- Revise Rx as necessary

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RA: Making the Diagnosis: DO NOT RELY ON LABS

Entry Criteria:

1. >6 weeks
2. No other more likely diagnosis
3. Swollen joint (not just pain)

The 2010 rheumatoid arthritis classification criteria

Involvement of swollen and tender joints	Points
1 medium-large joint	0
2-10 medium-large joints	1
1-3 small joints	2
4-10 small joints	3
Greater than 10 joints (at least 1 must be small)	5
Serology	
Neither RF nor ACPA positive	0
One low-positive titer on at least one test	2
One high-positive titer on at least one test	3
Duration of synovitis	
Less than 6 weeks	0
6 weeks or longer	1
Acute-phase reactants	
Neither CRP nor ESR abnormal	0
Abnormal CRP or abnormal ESR	1

Source: Arthritis Rheum. 2010;62:2569-81 IMNG Medical Media

RA: Starting Treatment

- Updated: 2021 by ACR
- What is new?
  - No short term steroids
- Start MTX!
  - Weekly target dose of at least 15mg within 4-6 weeks
  - Baseline: CBC, Chem7, LFT CXR, TB test and Hepatitis Panel
  - Except when?
    - Child bearing, no contraception
    - Renal dysfunction
    - Cirrhosis (Ok in NAFLD as long as no advanced fibrosis and normal LFTs)
    - Active TB
  - Labs in 1month then q3mo CBC, Cr, AST/ALT

Recommendations	Certainty of evidence	Based on the evidence report(s) of the following PICO(s)†	Evidence table(s), in Supp. App. 2
Initiation of treatment in DMARD-naive patients with moderate-to-high disease activity			
Methotrexate monotherapy is **strongly** recommended over:			
Hydroxychloroquine or sulfasalazine	Very low/low‡	PICO 2a.C1/C2	p. 14–5
bDMARD or tsDMARD monotherapy	Very low/moderate	PICO 5a.C1–4/C5§	p. 61–78
Combination of methotrexate plus a non–TNF inhibitor bDMARD or tsDMARD¶	Low/very low	PICO 6a.C2–4/C5§	p. 109, 117–28
Methotrexate monotherapy is **conditionally** recommended over:			
Leflunomide	Low	PICO 2a.C3	p. 18
Dual or triple csDMARD therapy¶	Moderate	PICO 4a.C1–C2	p. 46–9
Combination of methotrexate plus a TNF inhibitor¶	Low	PICO 6a.C1	p. 110
Initiation of a csDMARD without short-term (<3 months) glucocorticoids is **conditionally** recommended over initiation of a csDMARD with short-term glucocorticoids.	Very low	PICO 7a	p. 167
Initiation of a csDMARD without longer-term (≥3 months) glucocorticoids is **strongly** recommended over initiation of a csDMARD with longer-term glucocorticoids.	Moderate	PICO 8a	p. 170
Initiation of treatment in DMARD-naive patients with low disease activity			
Hydroxychloroquine is **conditionally** recommended over other csDMARDs.	Very low	PICO 1a.C1–4	p. 1–6
Sulfasalazine is **conditionally** recommended over methotrexate.	Very low	PICO 1a.C2	p. 2
Methotrexate is **conditionally** recommended over leflunomide.	Very low	PICO 1a.C3	p. 5
Initiation of treatment in csDMARD-treated, but methotrexate-naive, patients with moderate-to-high disease activity#			
Methotrexate monotherapy is **conditionally** recommended over the combination of methotrexate plus a bDMARD or tsDMARD.**	Moderate/very low	PICO 6b.C1–4/C5§	p. 136–56

* PICO = population, intervention, comparator, and outcomes; Supp. App. 2 = Supplementary Appendix 2, available on the *Arthritis Care & Research* website at http://onlinelibrary.wiley.com/doi/10.1002/acr.24596/abstract; bDMARD = biologic DMARD; tsDMARD = targeted synthetic DMARD; TNF = tumor necrosis factor; csDMARD = conventional synthetic DMARD.
† The closest matching PICO questions to each recommendation are provided.
‡ The first certainty of evidence applies to the first listed option; the second certainty of evidence applies to the second listed option.
§ The original PICO included individual DMARDs as comparators. The recommendation considers bDMARDs as a group.
¶ The direction of the beneficial effect is in favor of the nonpreferred option.
# Other recommendations for this patient population are the same as those for DMARD-naive patients.
** The direction of the beneficial effect is in favor of the nonpreferred option. The certainty of evidence is high for the combination of methotrexate plus a TNF inhibitor and moderate for other bDMARDs.

Case 3

- Mrs. K is a 75year old female presenting to your office with 4 week history of persistent muscle pain in both arms and lateral sides of her upper legs
- Associated symptoms: overwhelming fatigue
- PMH:
  - Hypertension
  - Hyperlipidemia
  - Osteopenia
- Medications:
  - Calcium/Vitamin D
  - Simvastatin 20mg daily
  - Lisinopril 10mg daily

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Case 3: Differential Diagnosis

- Fibromyalgia
- Polymyalgia Rheumatica
- Polymyositis
- SLE
- Hypothyroidism

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Case 3: Exam/Labs

- Physical exam:
  - Vitals are normal
  - Bilateral subacromial tenderness to palpation
  - Difficulty rising from chair
  - Motor strength is 5/5 in bilateral upper and lower extremities

- WBC=8.9
- H/H=10.6/34
- Plt=496

- ESR=62
- CRP=1.2

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Case 3

- After evaluating the patient, you:

A. Stop Simvastatin and check a CK

B. Start Prednisone 60mg daily

C. Start Prednisone 15mg daily

D. Check labs: ANA, TSH and iron panel

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Case 3

- After evaluating the patient, you:

A. Stop Simvastatin and check a CK
Myositis is an important differential, however she is not weak

B. Start Prednisone 60mg daily
Dose this high is not indicated for PMR—it would be for inflammatory myositis or GCA

C. Start Prednisone 15mg daily

D. Check labs: ANA, RF, CCP and iron panel
No joint symptoms. Acute anemia is classic in PMR—see if it corrects before hunting…

Polymyalgia Rheumtaica

- Relatively common inflammatory condition of unknown etiology characterized by aching and morning stiffness in the shoulders, hip girdle and neck
- Exclusively a disease of adults over the age of 50—prevalence increases progressively with advancing age. Peak age: 70-80. Women affected more than men.
- GCA occurs in 5-30% of patients with PMR however PMR occurs in 50% of patients who have GCA. PMR can precede, accompany or follow GCA
- Elevation of ESR, CRP and mild normocytic anemia are common

Polymyalgia Rheumatica

- Clinically assess and counsel all patients for GCA symptoms
- Make the diagnosis
  - Clinical symptoms with AM stiffness (usually >45min) for at least 2 weeks
  - Elevated ESR and/or CRP
  - Rapid resolution of symptoms with low dose glucocorticoids (prednisone 15-25mg/day) Lack of immediate response suggests alternative diagnosis

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Polymyalgia Rheumatica Treatment

- Sustain initial dose for 1 month and assess
- Taper should be slow….very slow….and will take 9-12 months
  - Many regimens
  - 5mg decrease per month until 10mg
  - After 10mg, 1 mg decrease per month
  - If recurrence, return to last effective dose and stay there another 2-4 weeks then try again
  - Some patients will need to “rock” their dose (2mg/1mg) when they get below 5mg
  - Some may never get off 1mg!
- Follow ESR/CRP and symptoms
- Monitor for GCA
- Protect bone health and GI health

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Case 4

- Ms. G is a 21 year old UNM student presenting to Student Health Center complaining of fatigue and generalized malaise
- She is concerned because her grades are dropping due to her inability to study or concentrate
- She has no PMH. She has taken OCPs since she was 18.
- She denies joint pains but notes some “sock lines” when she removes her socks at the end of the day
- She notes occasional itchy rash on her arms and upper chest
- She reports intermittent canker sores
- Her mother has hypothyroidism. The remainder of her family members are healthy

Case 4

- Exam
  - Faint maculopaular rash on the forearms with overlying excoriation
  - 1+ bilateral LE pitting edema to the mid calf

- Labs
  - WBC=3.2, with ALC 0.8
  - H/H: 10.2/34
  - Plt: 320
  - Cr: 0.9
  - LFTs normal
  - ANA Positive, titer pending

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Case 4:

- The single most important test to order next is:
  A. dsDNA
  B. Urinalysis
  C. ESR
  D. TSH

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Case 4:

- The single most important test to order next is:
  A. dsDNA

  B. Urinalysis
  The most urgent finding is the LE edema—this raises question of Lupus Nephritis. Early glomerular inflammation is screened with UA: findings of hematuria and proteinuria should prompt an urgent referral to nephrology and rheumatology

  C. ESR

  D. TSH
  Given her family history, TSH is important. The most common cause of a +ANA in a young female is thyroiditis!

Systemic Lupus Erythematosus

- Report from September 2018 published in *Arthritis and Rheumatism* shows that SLE remains a leading cause of death in women <45years of age.
- Mortality rate in SLE has decreased over the past 5 decades, however more must be done
- CDC reports SLE is one of the top 20 causes of death in females age 5-64.
- Higher in African-American and Hispanic females
- Underscores impact and importance of timely diagnosis

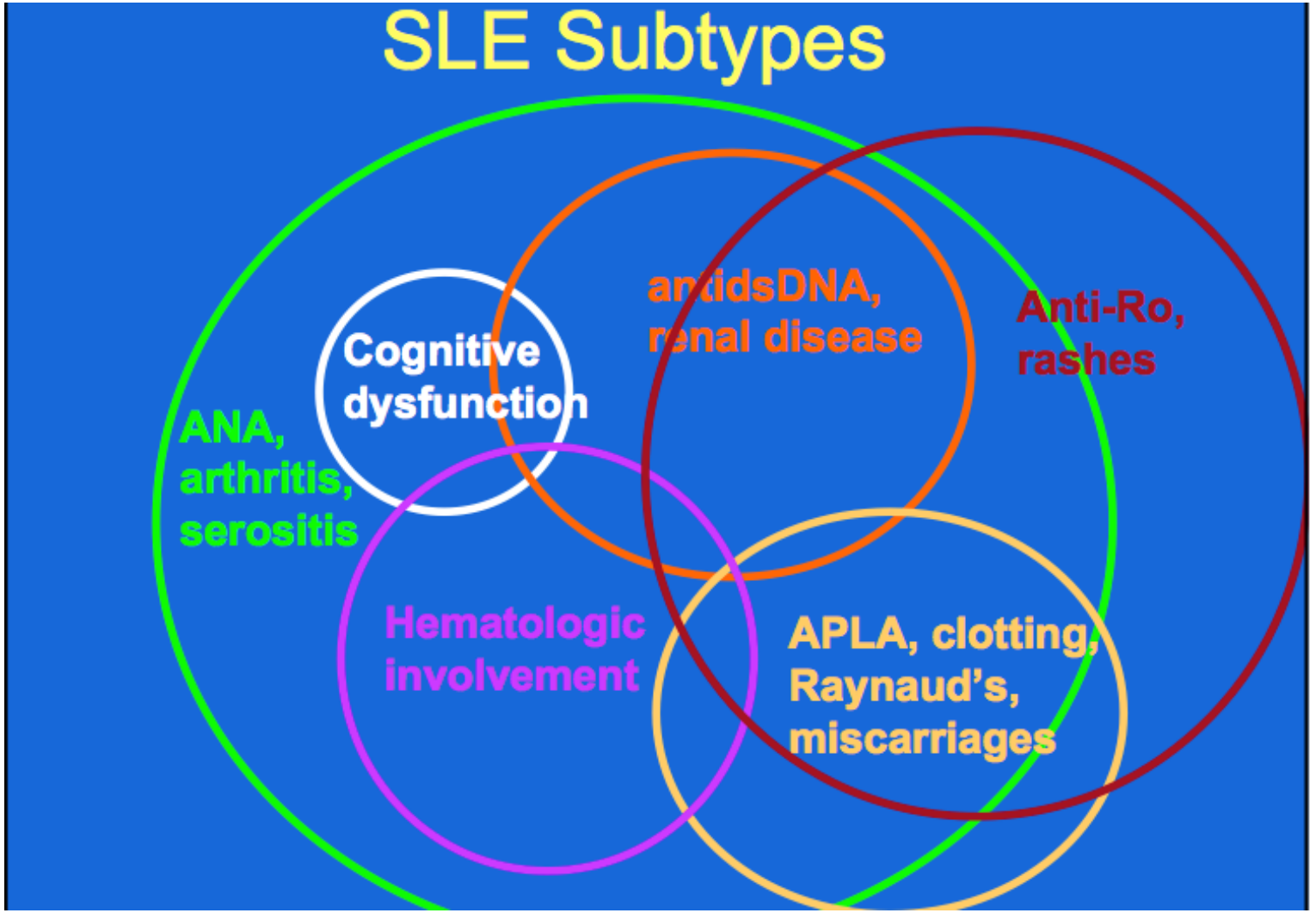
Yen EY, Singh RR. Brief Report: Lupus-An Unrecognized Leading Cause of Death in Young Females: A Population-Based Study Using Nationwide Death Certificates, 2000-2015. Arthritis Rheumatol 2018; 70:1251.

SLE

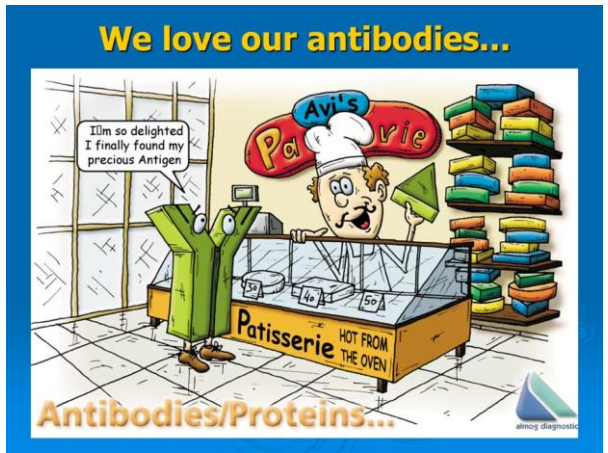
- Chronic autoimmune disease which can affect all organ systems of the body
- Female > Male
- More common in certain ethnic minorities: African Americans, Asians, and Hispanics

AGE OF ONSET	<16 years	16 to 55 years	>55 years
% OF SLE DIAGNOSES	20%	65%	15%
FEMALE/MALE RATIO	8:1	10 to 15:1	3:1

SLE


SLE Subtypes
ANA, arthritis, serositis
Cognitive dysfunction
antidsDNA, renal disease
Anti-Ro, rashes
Hematologic involvement
APLA, clotting, Raynaud's, miscarriages

Classification Criteria for SLE



Entry criterion
Antinuclear antibodies (ANA) at a titer of ≥1:80 on HEp-2 cells or an equivalent positive test (ever)

↓

If absent, do not classify as SLE
If present, apply additive criteria

↓

Additive criteria
Do not count a criterion if there is a more likely explanation than SLE.
Occurrence of a criterion on at least one occasion is sufficient.
SLE classification requires at least one clinical criterion and ≥10 points.
Criteria need not occur simultaneously.
Within each domain, only the highest weighted criterion is counted toward the total score§.

Clinical domains and criteria	Weight
Constitutional	
Fever	2
Hematologic	
Leukopenia	3
Thrombocytopenia	4
Autoimmune hemolysis	4
Neuropsychiatric	
Delirium	2
Psychosis	3
Seizure	5
Mucocutaneous	
Non-scarring alopecia	2
Oral ulcers	2
Subacute cutaneous OR discoid lupus	4
Acute cutaneous lupus	6
Serosal	
Pleural or pericardial effusion	5
Acute pericarditis	6
Musculoskeletal	
Joint involvement	6
Renal	
Proteinuria >0.5g/24h	4
Renal biopsy Class II or V lupus nephritis	8
Renal biopsy Class III or IV lupus nephritis	10

Immunology domains and criteria	Weight
Antiphospholipid antibodies	
Anti-cardiolipin antibodies OR	
Anti-β2GP1 antibodies OR	
Lupus anticoagulant	2
Complement proteins	
Low C3 OR low C4	3
Low C3 AND low C4	4
SLE-specific antibodies	
Anti-dsDNA antibody* OR	
Anti-Smith antibody	6

Total score:

↓

Classify as Systemic Lupus Erythematosus with a score of 10 or more if entry criterion fulfilled.

Figure 2. Classification criteria for systemic lupus erythematosus (SLE). § = additional criteria within the same domain will not be counted; * = in an assay with 90% specificity against relevant disease controls. Anti-β_2GPI = anti–β_2-glycoprotein I; anti-dsDNA = anti–double-stranded DNA.

Frequencies of Positive ANA tests

- SLE 98-100%
- Scleroderma 95%
- Sjogren's syndrome 60%
- Polymyositis/Dermatomyositis 35%
- RA 50%
- MCTD 100%
- Drug Induced LE 80-95%
- Primary Raynauds 40%

- IPF 50%
- Chronic liver disease 50%
- Chronic infections 20%
- Autoimmune Thyroid disease 50%
- General Population 5%

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Clinical Presentation

- Most Common:
  - Constitutional features
  - Fevers
  - Malaise
  - Arthralgias/Myalgias
  - Lymphadenopathy

- 50%: Rash, Serositis

- 50%: More serious internal organ involvement

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Treatment of SLE

- Hydroxychloroquine ***5mg/kg/day—very low ocular risk at this dose. Max 400mg/day. Baseline eye exam within 6 months of starting and then annually

- Prednisone: Short-term for severe internal organ involvement, High SE
- NSAIDs: Serositis
- Immunosuppressive Treatments
  - Methotrexate (arthritis, skin)
  - Azathioprine
  - Mycophenolate Mofetil
  - Cyclophosphamide (Severe lupus)
- Biologics
  - Belimumab
  - Rituximab

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Importance of Hydroxychloroquine

- Reduction in Flares
- Reduction in organ damage
- Reduction in lipids
- Reduction in thrombosis
- Improvement in survival
- Triples mycophenolate response

Canadian Hydroxychloroquine Study Group. N Engl J Med. 1991;324:150-

Fessler BJ, et al. Arthritis Rheum. 2005 May;52(5):1473-80

Petri M. Lupus. 1996;5(Suppl. 1):S16-S22.

Wallace DJ, et al. Am J Med. 1990;89:322-6

Pierangeli SS, Harris EN. Lupus. 1996 Oct;5(5):451-5.

Petri M. Scand J Rheumatol. 1996;25:191-3

Alarcon GS, et al. Arthritis Rheum 2005;52:S726.

Ruiz-Irastorza G, et al. Lupus 2005;14:220

Kasitanon N, et al. Lupus. 2006;15(6):366-70

The Importance of Hydroxychloroquine

- Decreases cardiac/neonatal lupus
- Lowers fasting glucose and improved insulin resistance
- Decreased risk of nephritis
- Improves survival
- Reduces risk of flares
- Decreases clinical activity
- Should not be stopped during pregnancy

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Disease Monitoring

- ds-DNA
- Complement 3
- Complement 4
- ESR/CRP
- Urinalysis
- Urine spot protein/Creatinine ratio

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Anti-Rheumatic Drug Monitoring

- Hydroxychloroquine (aka Plaquenil)
  - Annual Eye Exam for retinopathy toxicity monitoring
  - 1% risk at 5+years
- Sulfasalazine
  - Q3 month: cbc, diff, cr, ast, alt
  - +Folic acid

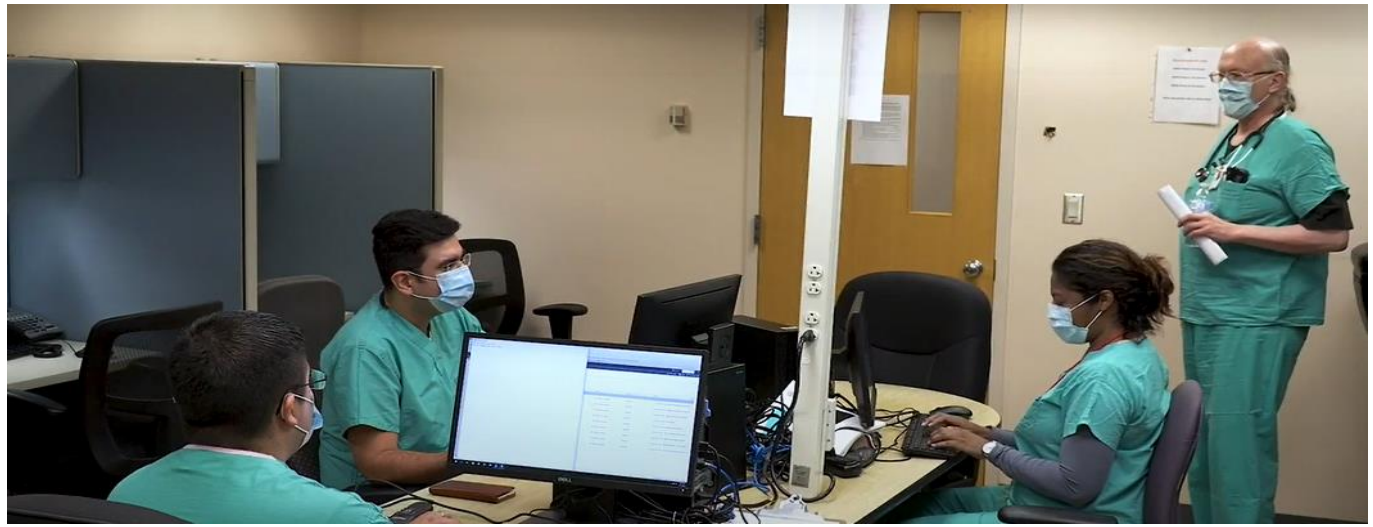
- Methotrexate/Leflunomide (aka Arava)
  - Q3 month: cbc, diff, cr, ast, alt
  - Baseline CXR
  - +Folic acid with MTX
- Mycophenolate Mofetil (aka CellCept)
  - Q3 month: cbc, diff, cr, ast, alt, ck
- Azathioprine (aka Imuran)
  - Q3 month: cbc, diff, cr, ast, alt

Immunosuppressive Therapy

- Hydroxychloroquine and Sulfasalazine are NOT IMMUNOSUPPRESSIVE
- TB Screen
- Vaccines
  - Prevnar 13
  - Pneumovax 23 (booster at 5 years)
  - Annual Influenza vaccine
  - Shingrx
  - COVID-19
  - *CAUTION with live vaccines in biologic therapy-CONTRAINDICATED

    Remember new parents! Rotavirus vaccine in infants sheds in feces

?Questions?



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References

- Folzenlogen DD. Rheumatology updates for the primary care physician. *Mo Med*. 2012;109(1):47-48.
- West, Sterling G, Kolfenbach, Jason. Rheumatology Secrets. 4th edition. 2019.
- "What's New in Rheumatology". www.uptodate.com

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