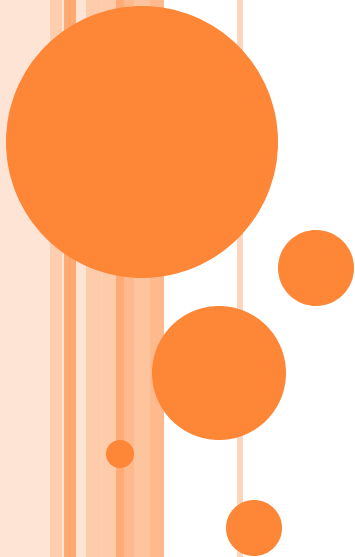


Approach to arthralgia

Dr/Maha El Amami



Introduction

Arthralgia means joint pain.

Causes include various self-limited illness and disabling and life-threatening.



Why is this important?

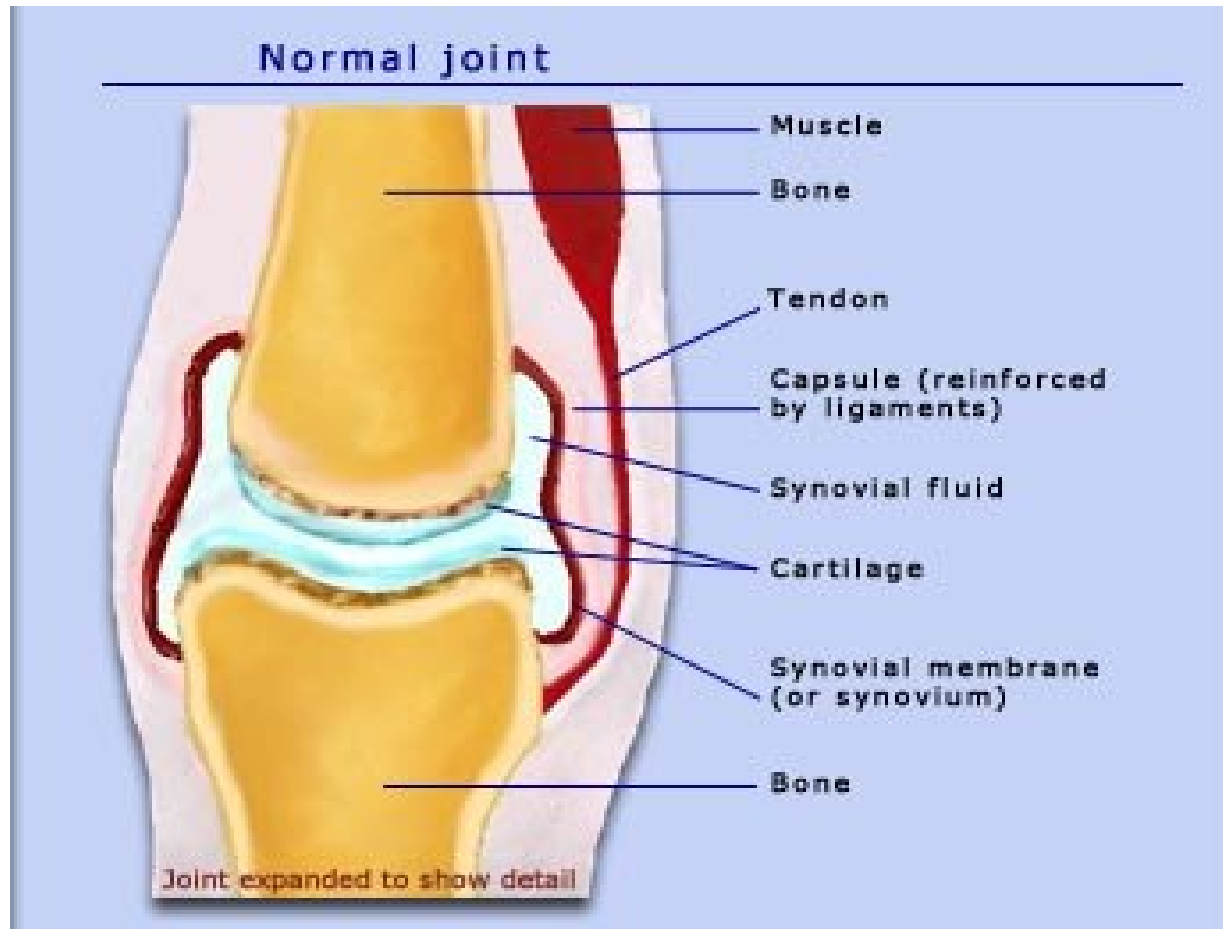
Is a common reason for consultation in general practice.

Not only affect physical and psychological health but also on the wider population economy.

Early diagnosis and treatment have a marked effect on improving disease outcomes.



Normal joint



Joint pain may arise from structures within (intra-articular) or adjacent to the joint (periarticular)

- o Bursitis
- o Tendinitis
- o Extra-articular disorders (fibromyalgia, polymyalgia rheumatica and polymyositis)

May be referred from more distant sites.



If the pain is from the joint, the following categories of joint disease must be differentiated :

Inflammatory arthritis

Noninflammatory arthritis

Arthralgia



ARTHRITIS

inflammatory

- Cardinal signs
- Systemic symptoms
- Stiffness- >1 hr
- - prolon. rest
- Lab evidences
-  ESR
- CRP 
-

Non- inflammatory

- NO signs
- Stiffness-<60 mnt
- - intermittent
- -brief rest
- Trauma,rept.use,
- Degenerative,tumor



Mono-articular Pain acute

Bacterial Infection of the Joint Space

I	Non-gonococcal : S. aureus, BHSC, S. pneumonia, G-ve
II	Gonococcal : preceded by migratory tenosynovitis + Skin lesions

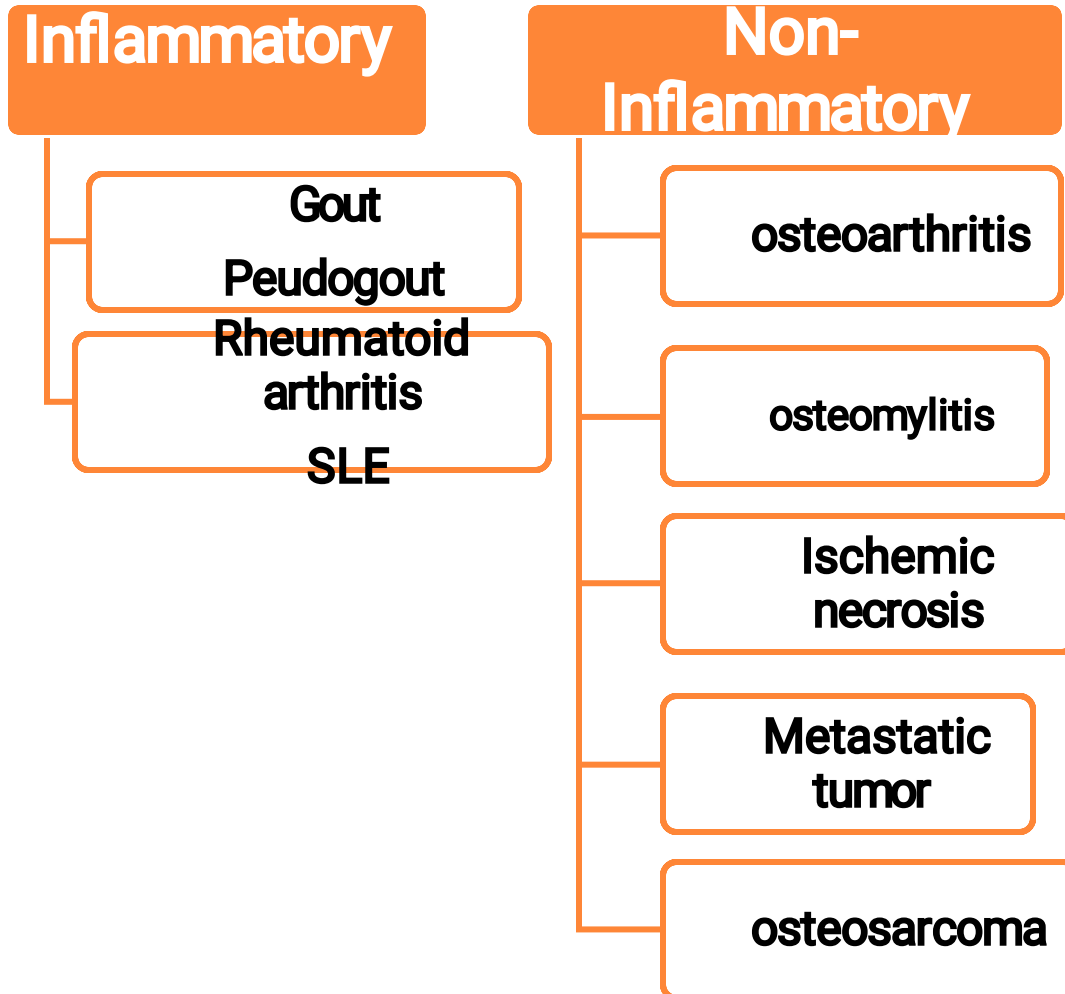
Crystal-induced Arthritis

I	Gout (monosodium urate crystals)
II	Pseudogout (calcium pyrophosphate dihydrate crystals)

Trauma



Mono-articular Pain Chronic



Acute polyarticular

Viral
arthritis

gout
Pseudogout

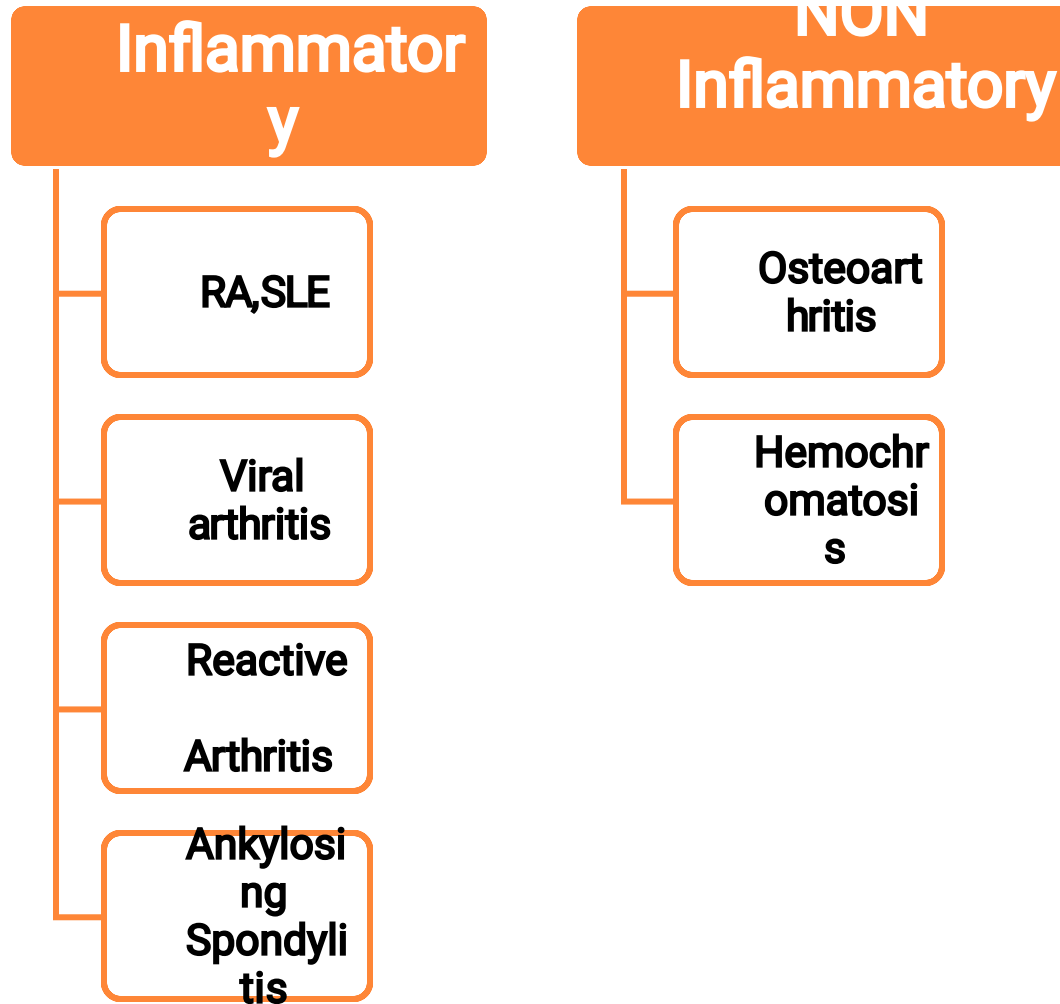
Reactive
arthritis

RA,
SLE

Rheumatic
fever



Chronic polyarticular



Migratory Arthritis

Rheumatic fever

Gonococcemia

Meningococcemia

Viral Arthritis

SLE

Acute Leukemia



Age

**<30 = SLE, Ankylosis spodylitis,
Reactive Arthritis.**

30-50 = RA, Systemic sclerosis, Gout.

>50 = OA, Pseudogout, PMR

**Any Age group = Psoriatic arthritis,
Enteropathic arthritis.**



Sex

>Female:

**SLE, RA, OA, Systemic sclerosis,
Ankylosis spodylitis, PMR.**

Male=Female:

**Psoriatic arthritis, Enteropathic arthritis
Pseudogout.**

>Male:

Gout, Reactive Arthritis.



Analysis of complain

Site , Onset, duration, and temporal pattern of arthritis.

Symmetry of joint involvement.

Number of involved joints.

Distribution of affected joints .

Distinctive types of musculoskeletal involvement.

Extra-articular manifestations.



Site:

Large joints=OA.

DIP= psoriatic arthritis, gout, or osteoarthritis.

MCP, PIP = RA, SLE

1st MTP= Gout, OA

Spine= Ankylosis spodylitis,
Psoriatic arthritis, Reactive arthritis.

Shoulder = PMR



Symmetrical

rheumatoid arthritis , systemic lupus erythematosus , Sjogren syndrome , polymyositis, and scleroderma.

Asymmetrical

OA , ankylosing spondylitis , psoriatic arthritis, reactive arthritis, and Lyme arthritis.



onset

Abrupt

trauma

crystalline synovitis

infection.

insidious

rheumatoid arthritis

osteoarthritis.



Pain character:

Aggravated by motion=
Mechanical

Relieved by motion= Inflammatory.

Duration:

Acute <6 wks= viral arthritis

Chronic >6 wks=systemic
rheumatic diseases



Joint number

Monoarthritis involvement of only 1 joint.

Oligoarthritis 2-4 joints.

Polyarthritis 5 or more joints.



Associated symptoms

joint stiffness

RA morning stiffness lasting 30 to 60 min

OA morning stiffness less than 30 min.

Vascular pain is felt with activity,
relieved by rest .



Extra-articular manifestations

Constitutional symptoms

include fatigue, malaise, and weight loss suggest Multi-system involvement .

Skin lesions

SLE, dermatomyositis, scleroderma, Lyme disease, psoriasis, Henoch-Schönlein purpura, and erythema nodosum.



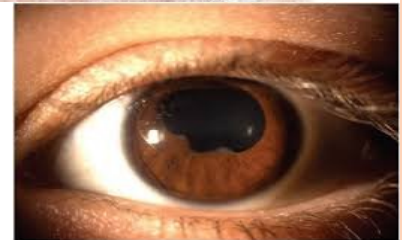
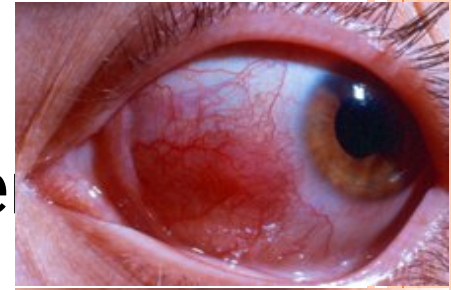
Ocular symptoms

Episcleritis and scleritis : RA ,Wegener's granulomatosis.

Anterior uveitis: ankylosing spondylitis

Iridocyclitis : juvenile idiopathic arthritis.

Conjunctivitis : reactive arthritis.



How are the symptoms affecting the patient's life ?

Ability to perform self-care activities of daily living .

Is the patient able to do instrumental activities of daily living.

Effect on quality of life for both the patient and the family.



Past Medical history:

Trauma, fracture, surgical procedures

Drug history:

Drug induced lupus.

Diuretics.



Physical Examination

General condition, fever , pulse, BP.

Joint

Inspection

Palpation

Assess range of motion



On inspection

Each joint has a characteristic or normal appearance.

Compare one side of the body with the other.

Detect joint abnormalities, including swelling, deformity, overlying erythema, or wasting of the periarticular musculature.



Palpation

assess for signs of inflammation (eg, warmth, synovial hypertrophy, joint effusion, and tenderness)

Inflammation signs extended= septic arthritis, crystal induced arthritis, fracture.

signs of joint damage (eg, bony swelling and crepitus).



Assessment of passive motion

comparing it with the expected range of motion observed in healthy individuals and with the range of motion in the contralateral joint.

Assessment of active range of motion

can be used to determine the presence of pathology in juxta-articular structures (eg, tendons and bursae).

Pain occurring during only a portion of the range of motion may be related to an extra-articular structure. Assess pain with joint motion; observe the patient's face for wincing.



Passive motion (N), active(↓↓)= bursitis,
tendinitis, muscle injury.

Passive motion (↓↓), active(↓↓)= Synovitis



Assess crepitus

By palpating the joint with one hand while moving the joint passively with the other.

In the lower extremities, crepitus of the hip or knee can sometimes be heard as the patient arises from a chair, climbs a step, or pivots on the affected joint.



Assess instability

By applying forces to the relaxed joint in planes of motion normally associated with little or no motion.

Instability of a lower-extremity joint (eg, a knee or ankle) should also be assessed by observing the joint during weight-bearing and walking.

Instability of the joint may be due to laxity of ligaments or to destruction of the articular surface



Extra-articular features

Nails (pitting, ridging, hyperkeratosis)

Dactylitis and tenosynovitis

Subcutaneous nodules (RA, RHD, Gout)

Skin (local infection, psoriasis, RA, SLE)

Eyes (conjunctivitis, uveitis)

Mouth ulcers



Laboratory Studies

Basic: CBC, Urinalysis, U&E, LFT.

Acute phase reactant: ESR, CRP.

Uric acid concentration= Gout

Antibody tests:

ANA= SLE

Anti-dsDNA= SLE

Anti-ds DNA, anti-Sm= SLE

RF= RA

Anti-CCP antibody=RA



Laboratory Studies

Synovial fluid

- volume/viscosity/cellularity

- polarised light microscopy (Gout or pseudogout)

- gram stain/culture (Septic arthritis)



Imaging Studies

X-ray:

RA

Chronic Gout

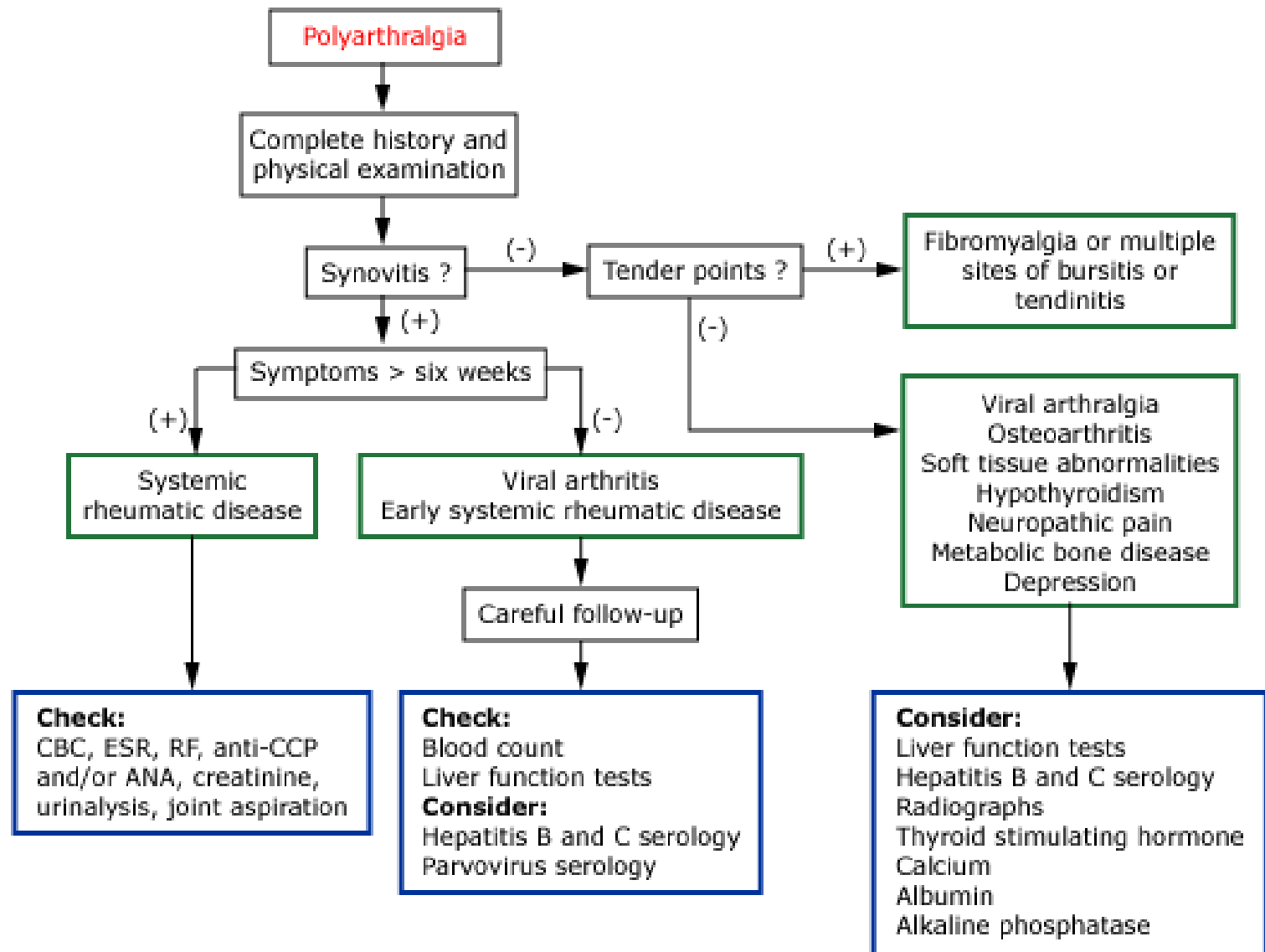
OA

Ankylosing spondylosis.

MRI:

Ankylosing spondylosis.

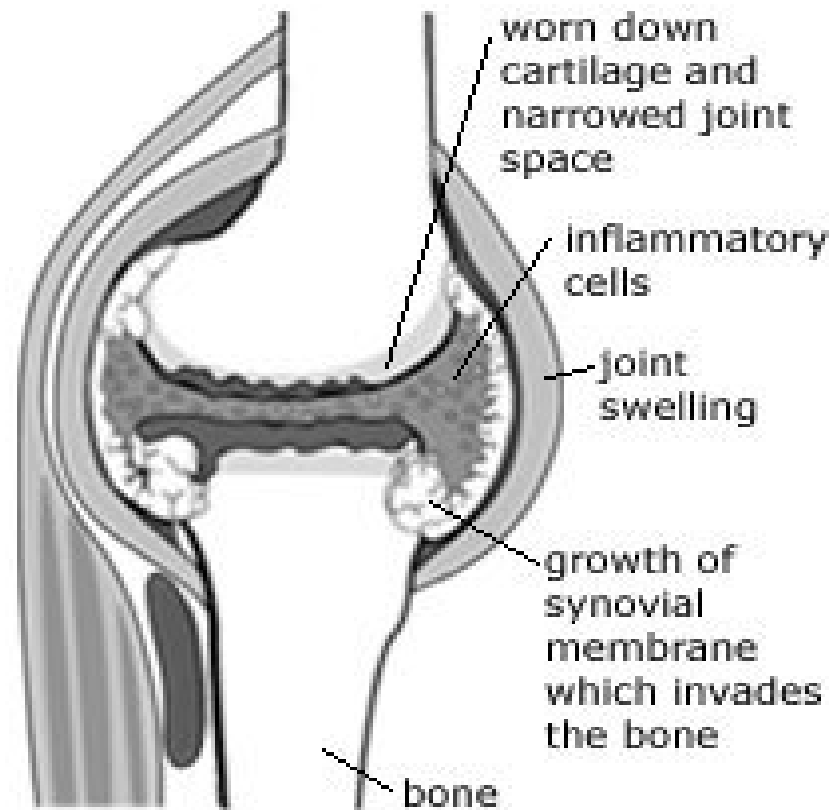


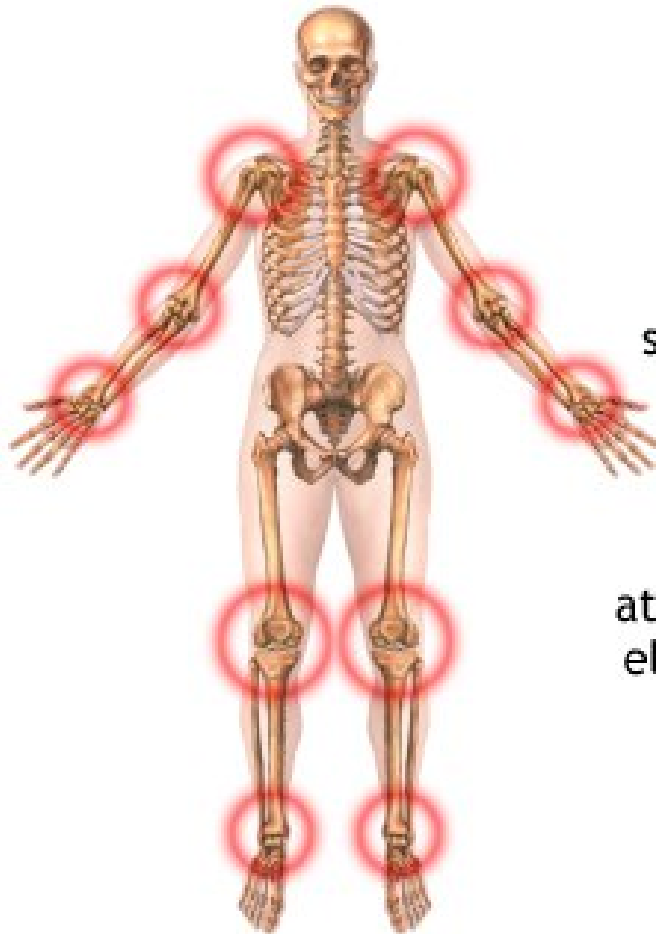


Clinical presentation



Rheumatoid Arthritis





Rheumatoid arthritis usually affects joints symmetrically (on both sides equally), may initially begin in a couple of joints only, and most frequently attacks the wrists, hands, elbows, shoulders, knees and ankles



RA is chronic, relapsing, and potentially disabling disease.

The clinical onset is usually insidious, beginning with vague arthralgias, morning stiffness, and fatigue.

In some patients, the onset is more acute signs of articular inflammation (swelling, pain, and warmth) soon follow.



Affected joints

The small joints of the hands and feet (PIP), (MCP), (MTP) are typically among the first to be involved, but knees, ankles, wrists, or elbows may also be affected early.

Tenosynovitis is common.

Initially, the arthritis may be asymmetric or may even present as a monoarticular process, but the characteristic symmetric distribution supervenes in most instances.



History

Women are more often affected than men(2:1).

Malaise

fever

fatigue

weight loss

myalgias

difficulty performing activities of daily living



Examination

Joint affected

swelling

tenderness

warmth

decreased range of motion

Atrophy of the interosseous muscles

deformities



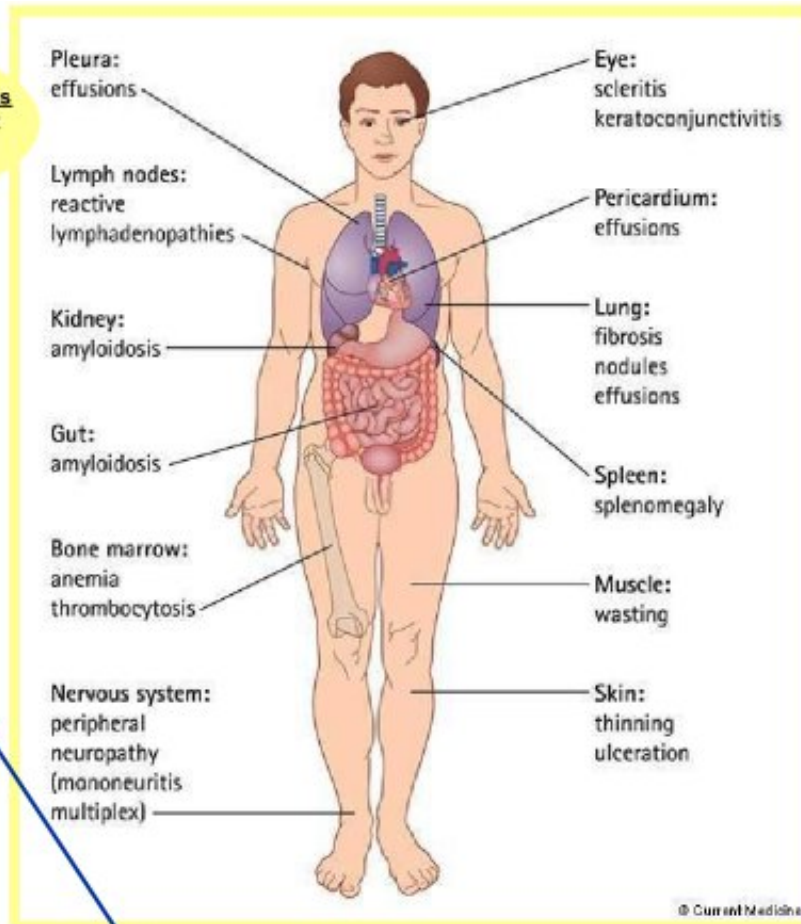
Extra-articular manifestations

Extra-articular Manifestations

RA is a systemic disease that involves other organs

Zoom out
Pharmacotherapy

www.zoomout-ph.com



Diagnosis

90% have a sensitivity and specificity .

Morning stiffness

Arthritis of 3 or more joint areas

Arthritis of hand joints of at least one area swollen in a wrist, MCP, or PIP joint

Symmetric arthritis

Rheumatoid nodules

Serum RF

Radiographic changes typical of RA



Laboratory

Hematologic parameters

Anaemia

Thrombocytosis

↓ Serum iron & IBC

↑ Serum globuline

↑ ALP

↑ Acute phase reactant

Immunological parameters

Synovial fluid analysis



Radiographic manifestations

In early disease are soft-tissue swelling around the joint and periarticular osteopenia.

Relatively uniform narrowing of the joint space occurs as cartilage is destroyed, a finding often noted within the first 2 years of disease.

Periarticular subchondral erosion is noted at the joint margin where pannus has developed .

Finally, joint architecture is lost as the joint space is obliterated and erosion of subchondral bone progresses.





Figure 1



Figure 2

Rheumatoid Arthritis



Tendinous inflammation and joint destruction may ensue, producing characteristic changes (subluxation, swan neck and Boutonniere deformities of the fingers, ulnar deviation of the wrists).



Rheumatoid arthritis (late stage)

Boutonniere
deformity
of thumb

Ulnar deviation of
metacarpophalangeal
joints

Swan-neck deformity
of fingers



Prognosis

The clinical course is generally exacerbations and remissions.

About 40% of patients become disabled after 10 years.

The overall mortality for patients with RA is reported to be 2.5 times that of the general population.

Unfavorable prognosis:

HLA-DRB1 genotype

high serum titer of RF,

extraarticular manifestations

large number of involved joints,

age below 30

female sex

systemic symptoms .



When to refer?



A patient with septic arthritis requires hospital admission for treatment with IV antibiotics, and consultation with specialist.

When a case of acute monoarticular arthritis remains undiagnosed but the white blood cell count is high.

The diagnosis of polyarticular arthritis may remain uncertain for a long period.

If any evidence of bloodstream infection, vasculitis, or involvement of the eyes, lungs, heart, kidneys, or nervous system is found, hospitalization and consultation



Short-term risk to the patient is posed primarily by extraarticular disease and infection.

Persons with severe constitutional symptoms (e.g., disabling fatigue, fever, weight loss).

Rheumatologic consultation is also appropriate if a patient with less serious illness remains without a diagnosis after the initial evaluation has been completed.



SEPTIC ARTHRITIS: RISK FACTORS

- **Prosthetic hip joint.**
- **Prosthetic knee joint.**
- **Skin Infection.**
- **Joint surgery.**
- **Rheumatoid Arthritis.**
- **Elderly patients over age 80 years old.**
- **Diabetes Mellitus.**
- **Intravenous drug use (unusual joints affected).**
- **Large vein catheterization (unusual joints affected).**



CAUSES OF SEPTIC ARTHRITIS

- **Young sexually active adults**
 - **Neisseria gonorrhoeae** (most **common**)
 - More common in women
 - **Staphylococcus aureus**
 - **Streptococcus**
- **Older adults**
 - **Staphylococcus aureus**(50%)
 - **Streptococcus species**
 - **Gram Negative Bacilli**



SIGNS AND SYMPTOMS

- Rapid onset **monoarticular** joint inflammation
- Joints affected in bacterial infection
 - **Septic Knee** (50% of cases), hip (children), ankle,
- shoulder
- Joints affected with intravenous Drug Abuse
 - SI joint, SC joint, pubic symphysis, vertebral spaces



GOUT :SIGN AND SYMPTOMS

- Acute onset of lower extremity joint pain
 - First Metatarsophalangeal joint (great toe)**
 - Affected in 50% of first gout attacks
- Fever and chills
- Joint Inflammation - **Asymmetric** joint involvement
 - May only involve one side with the first attack



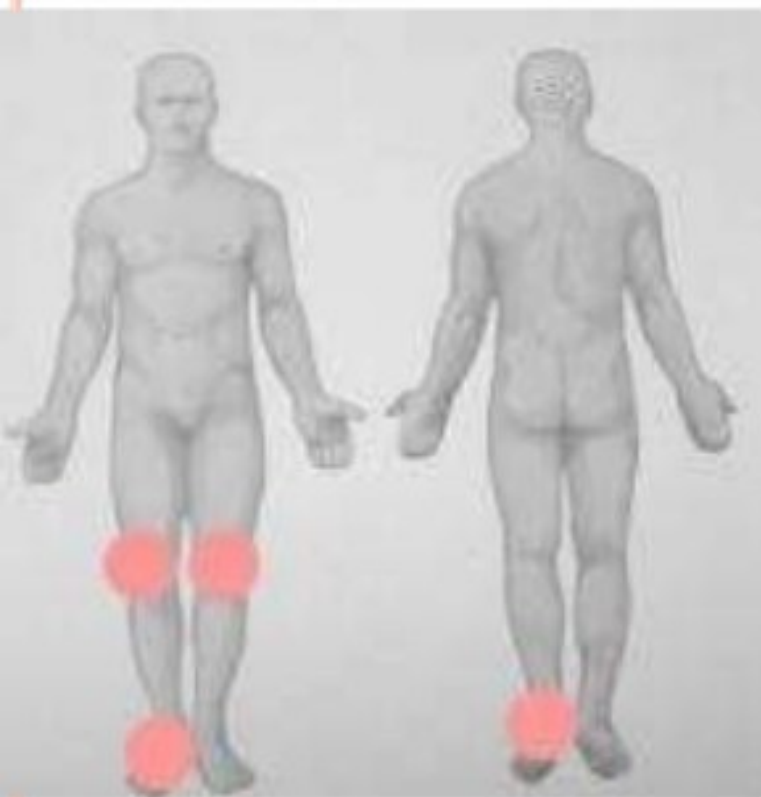
GOUT: URIC ACID CRYSTALS

➤ RISK FACTOR

- Obesity**
- Diabetes Mellitus**
- Hyperlipidemia**
- Hypertension**
- Atherosclerosis**
- Alcohol use**
- Thiazide Diuretics**
- Renal insufficiency**
- Myeloproliferativedisease**



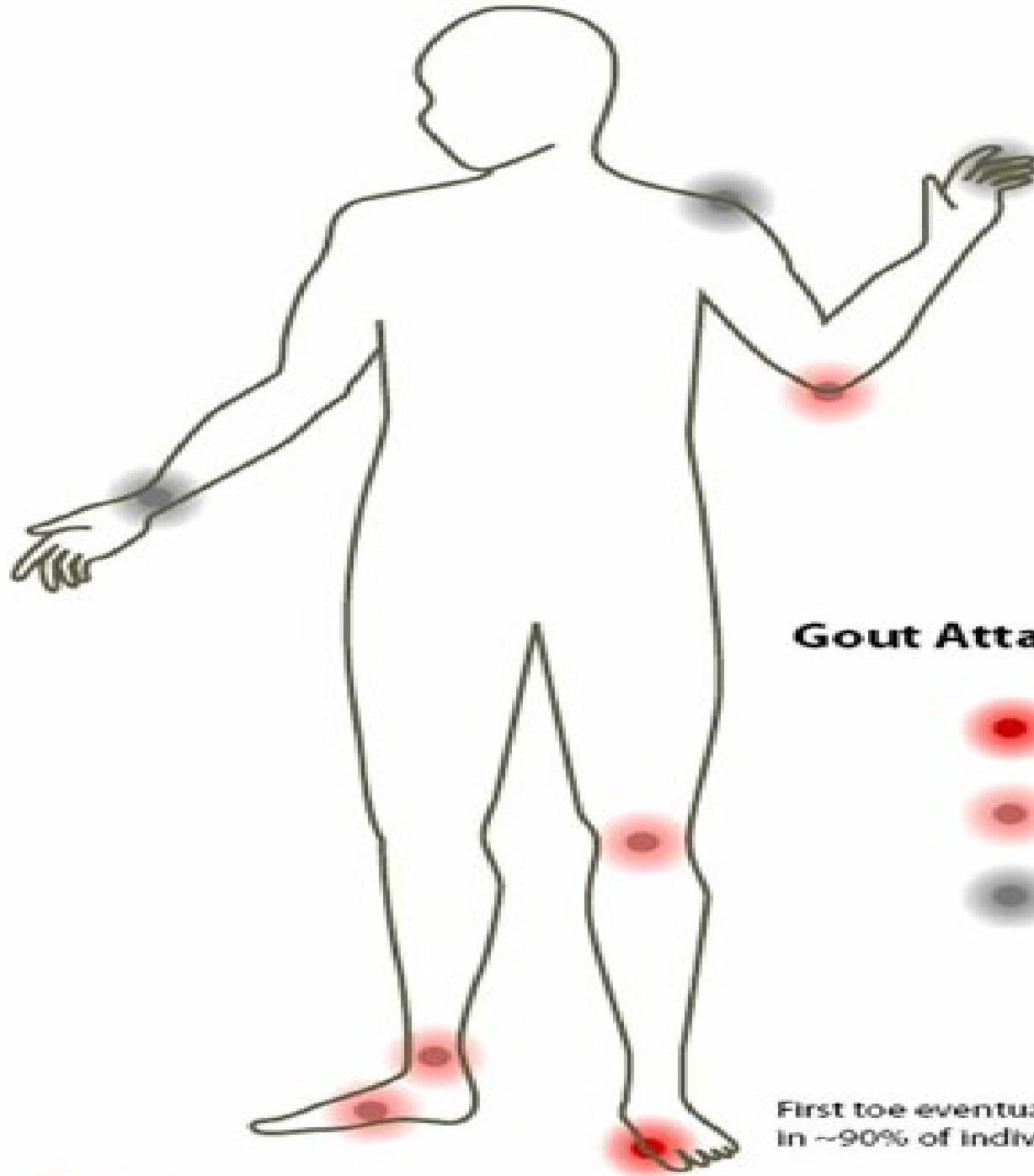
GOUT



Synovial Fluid

- Polarizing Microscopy
- Negatively birefringent Needle shaped Uric Acid crystals
- Gram Stain and Culture
- Rule out Septic Arthritis





Gout Attack Locations



First toe eventually affected
in ~90% of individuals with gout



OSTEOARTHRITIS

- **Most common form of arthritis.**
- **Associated functional.**
- **Impairment increases with age.**
- **Prevalence directly increases with age**

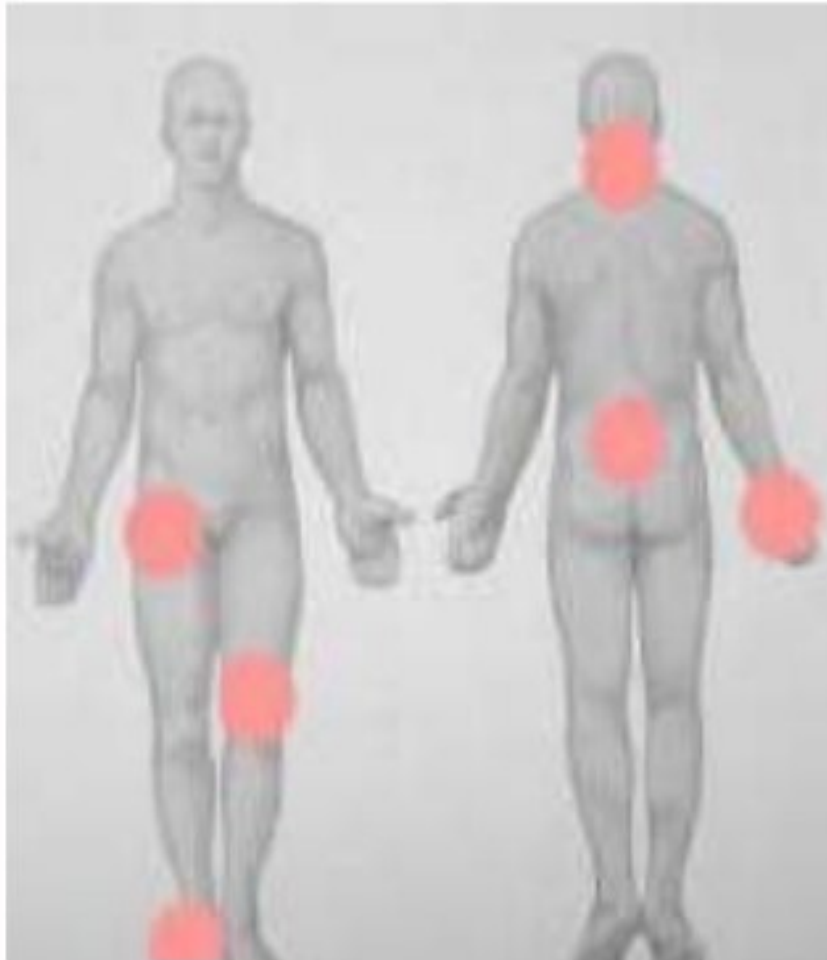


SIGN AND SYMPTOMS

- Pain on motion that worsens with increasing joint usage
-
- Slowly progressive deformity and possibly pain
- No systemic manifestations
- Associated muscle spasm, contractures and atrophy
- ***Symptoms uncommon before age 40***
 - Morning stiffness of short duration (<30 minutes)



DISTRIBUTION OF OSTEOARTHRITIS



- ***Joints spared***

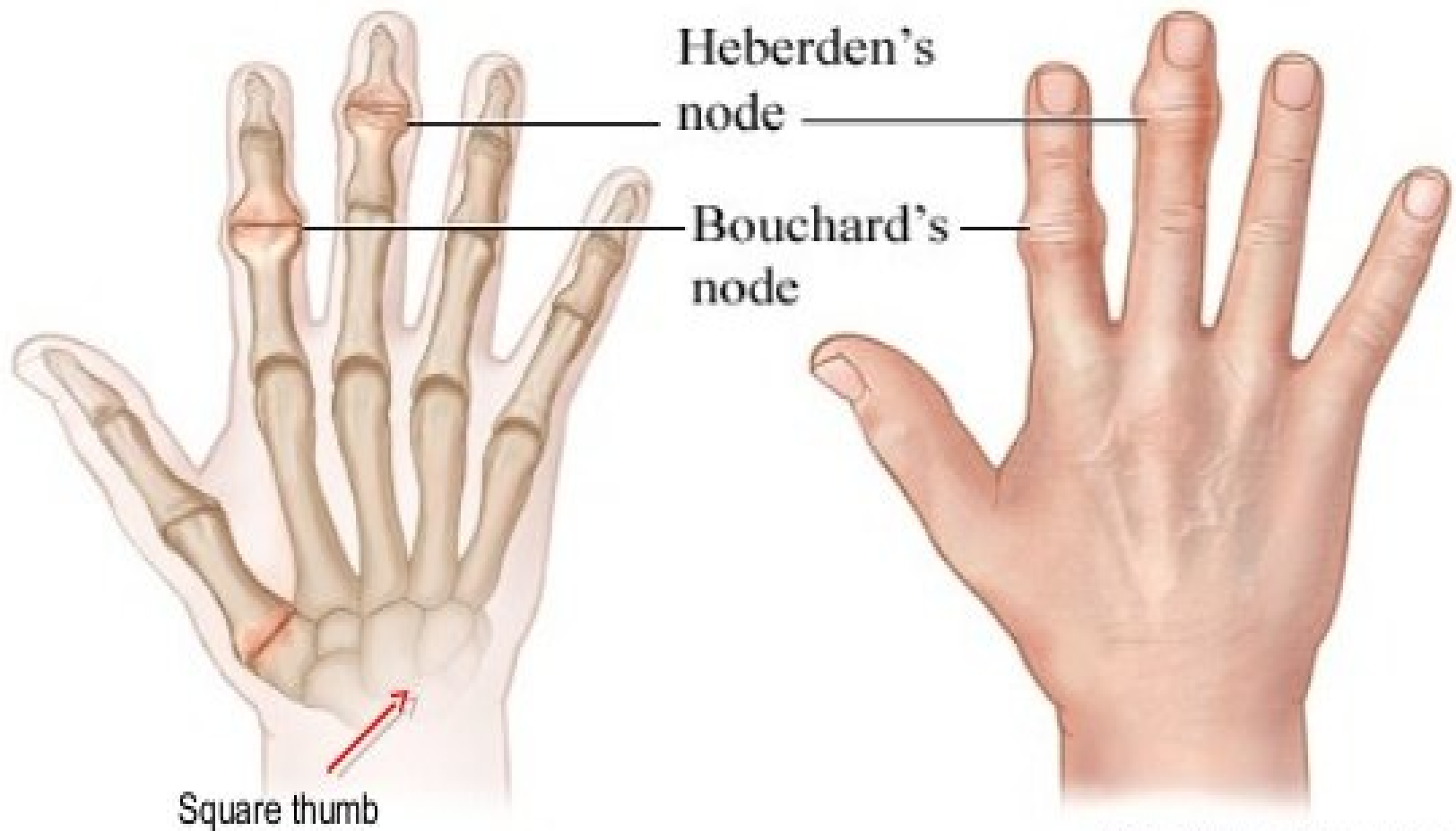
- Wrist
- Metacarpal-phalangeal (except thumb)
- Elbow
- Ankle

- ***Joints commonly involved***

- knee
- hip
- foot
- hand
 - DIP (Heberden's Nodes)
 - PIP (Bouchard's Nodes)
 - First CMC jt(thumb)

- ***Cervical and lumbar spine***

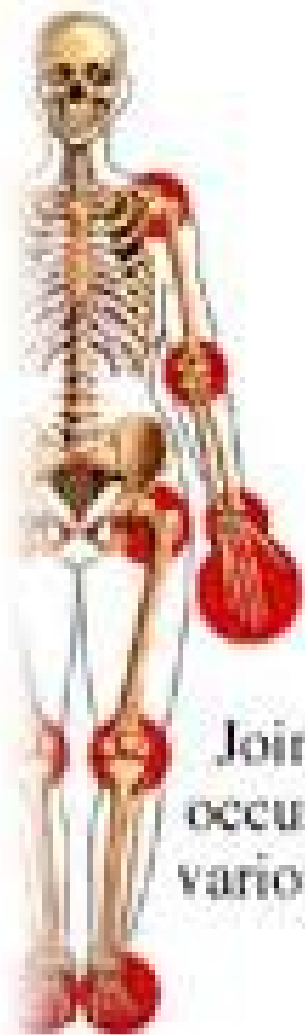
Hand Changes in OA



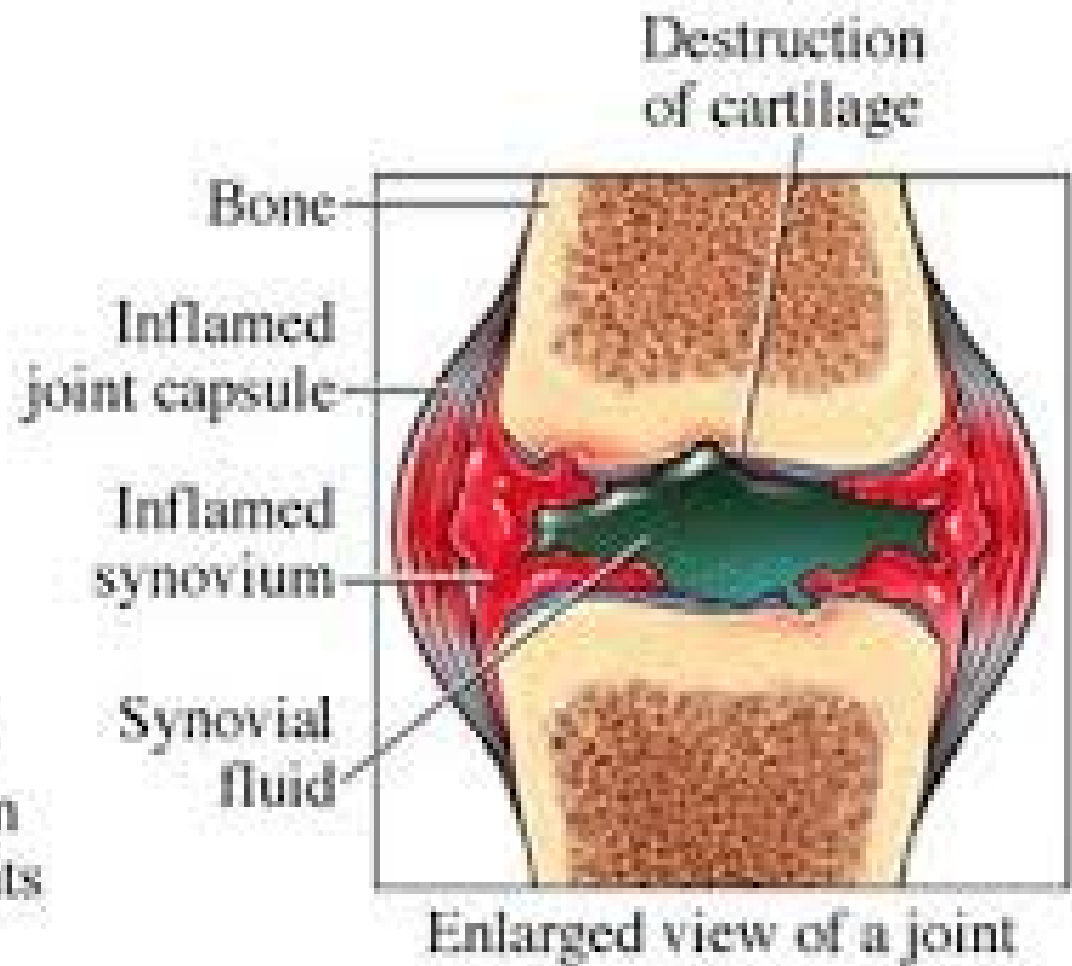
Severe OA of the Hands

- DIP (Heberden's nodes)**
- PIP (Bouchard's nodes)**





Joint pain
occurring in
various joints



OSTEOARTHRITIS



Lack of space represents worn cartilage and bone-on-bone contact.

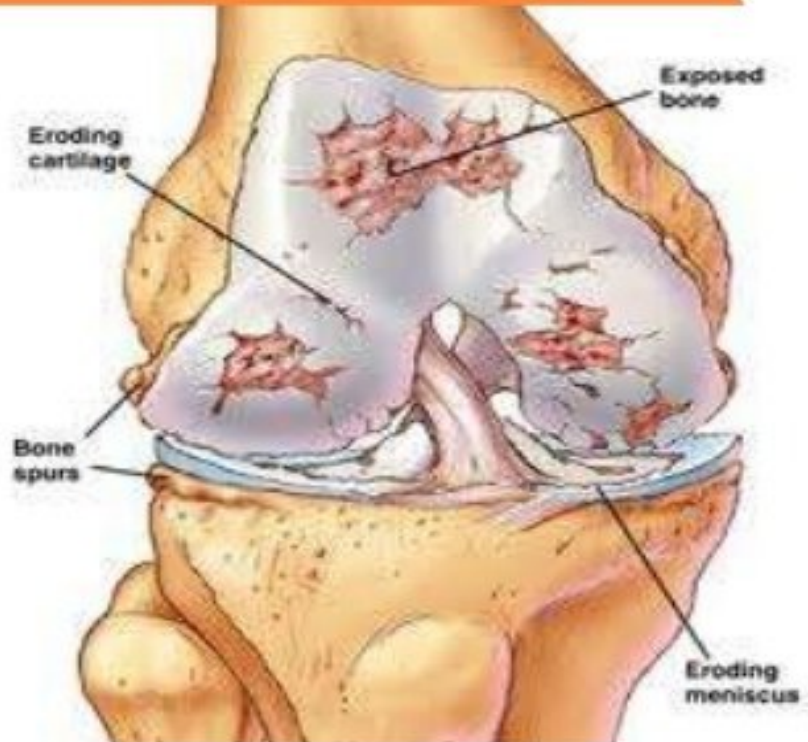


Table V: Differentiating Rheumatoid (RA) from Generalized Osteoarthritis (OA)

Symptom	RA	OA
Age at onset	30-50	> 50
Speed of onset	rapid	slow
Joint pattern	bilateral, symmetric	asymmetric
Movement	often better	often worse
AM stiffness	> 1 hour	uncommon
Hand joints	PIP, MCP	DIP, thumb CMC
Wrist, ankle, elbow	common	uncommon
Systemic symptoms	common	not present
Joint swelling	effusion, red, warm	bony
ESR/CRP	elevated	normal
Serology	positive (RF)	negative

ESR is erythrocyte sedimentation rate
 CRP is C-reactive protein
 PIP is the proximal interphalangeal joint
 MCP is the metacarpophalangeal joint
 DIP is distal interphalangeal joint
 CMC is carpometacarpal joint
 RF is rheumatoid factor

SYSTEMIC ERYTHEMATOSUS LUPUS

- Immune complex deposition disease, involving many organs
- Female:Male 10:1
- ANA and other criterion will make the diagnosis



CRITERION FOR DIAGNOSIS OF SLE

NEED 4 OUT OF 11 TO MAKE THE DIAGNOSIS

- Malar Rash : Rash spares nasolabial folds
- Discoid Rash
- Photosensitivity
- Oral Ulcers: Painless observed by physician
- **Arthritis: Nonerosive 2 or > joints**
- Serositis: Pleuritis, Pericarditis
- Renal Disorder: Proteinuria > 0.5g/day or casts
- Neurologic Disorder: seizures/ psychosis
- Hematologic Disorder: Hemolysis, Leukopenia < 4000, Lymphopenia < 1500, Thrombocytopenia < 100,000
- ANA
- Immunologic disorder: Anti-DNA, Anti-Sm, APS



Butterfly Rash – SLE



SLE- NON EROSION ARTHRITIS



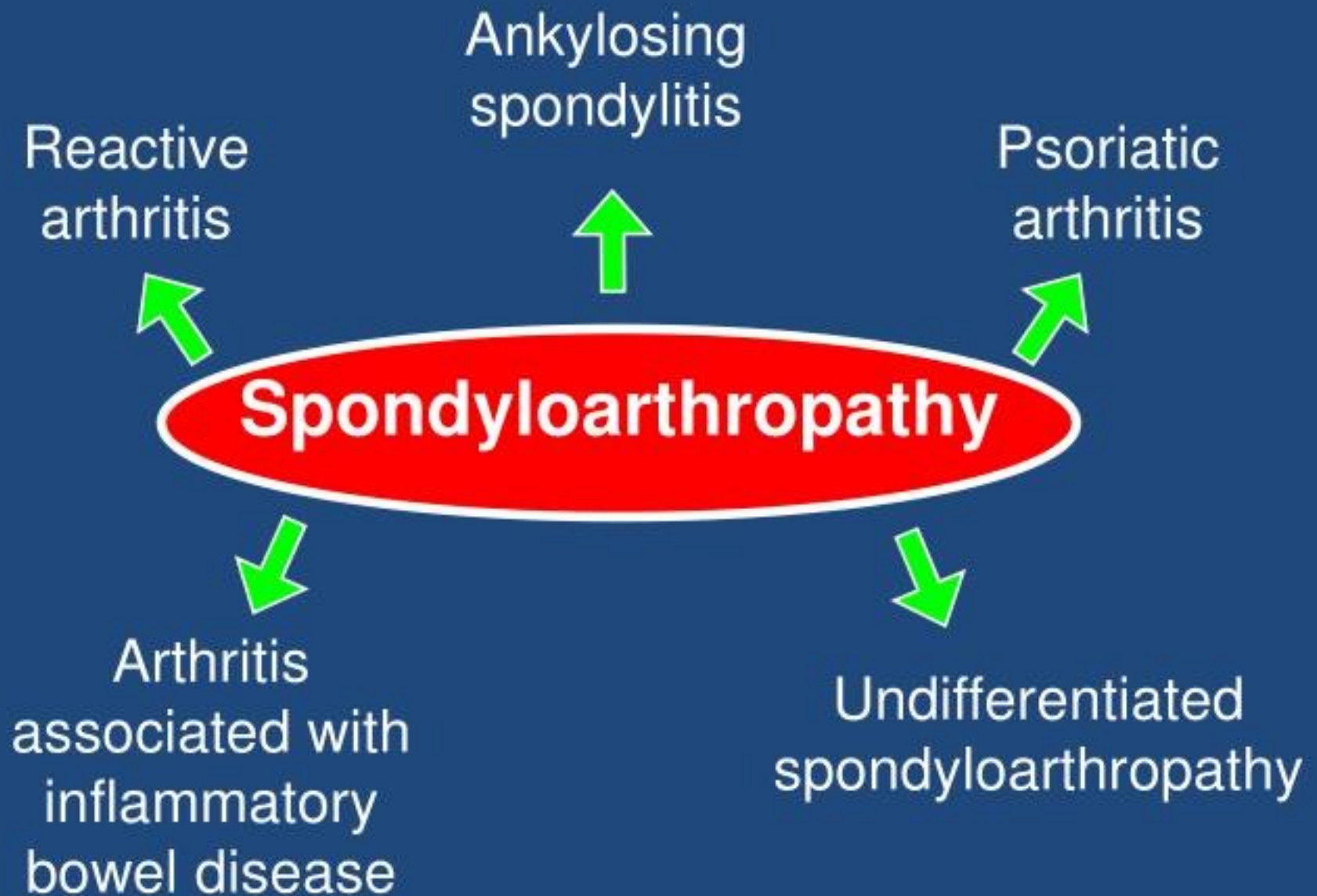
- Intermittent polyarthritis
- Soft tissue & muscle involv.
- Myositis, tendonitis
- Hand, wrist, knee



SERONEGATIVE SPONDOARTHROPATHIES

- Psoriatic arthritis
- Reactive arthritis
- Enteropathic arthritis
- Ankylosing spondylitis



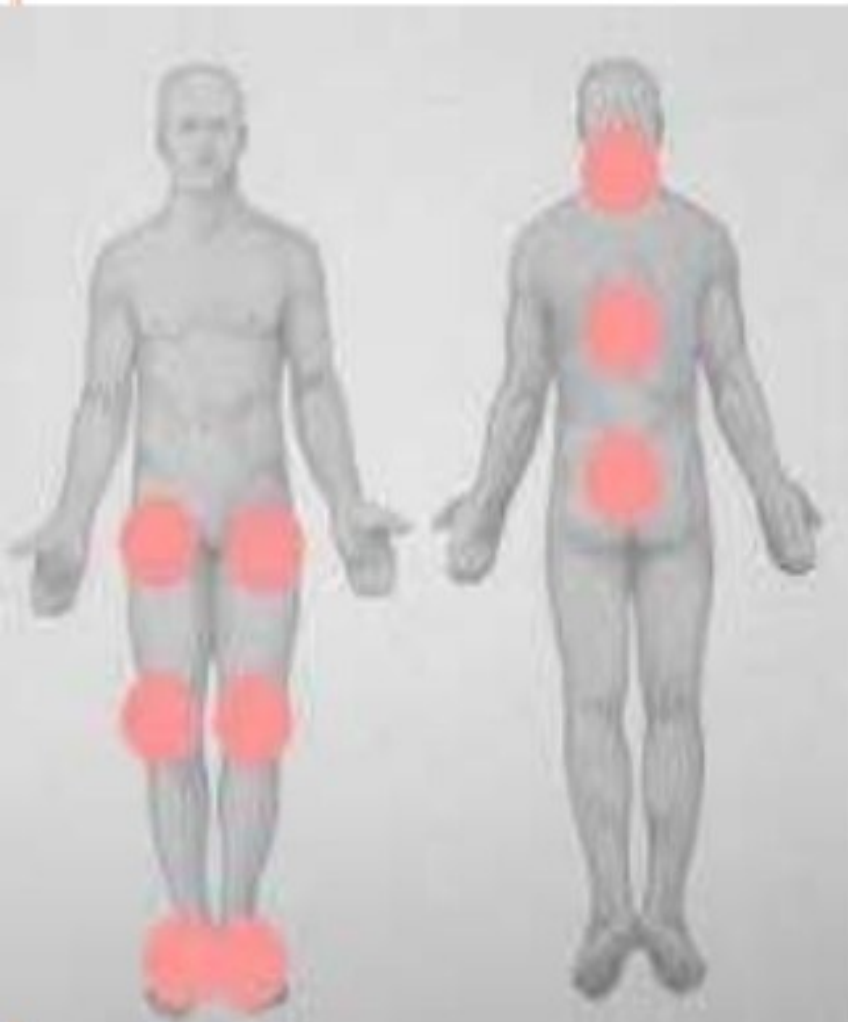


FEATURES OF SPONDOARTHROPATHIES

- Absence of RA Factor, subcut nodules
- Sacroiliitis/spondylitis +
- Asymmetric peripheral joints
- Extra articular- ocular, oral, skin, enthesitis
- Familial aggregation
- HLA-B27 +



DISTRIBUTION OF SPONDOARTHROPATHIES



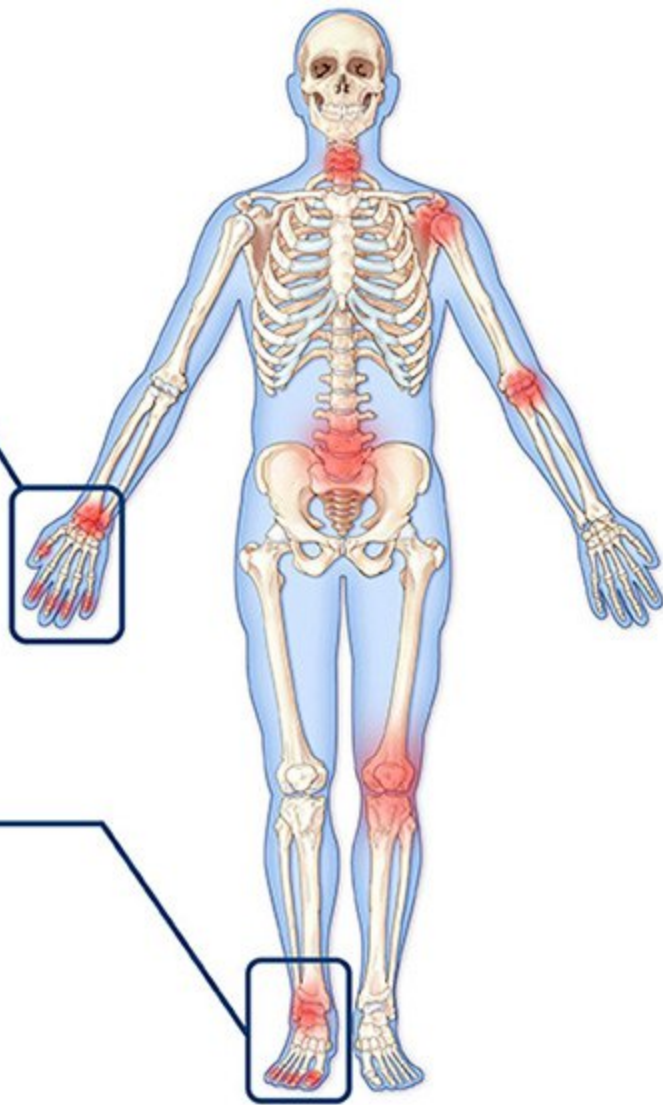
- Asymmetric arthritis
- Axial spine & lower limb joints
- Soft tissues involvement
- Bursitis, achilles tendonitis, epicondylitis, plantar fasciitis

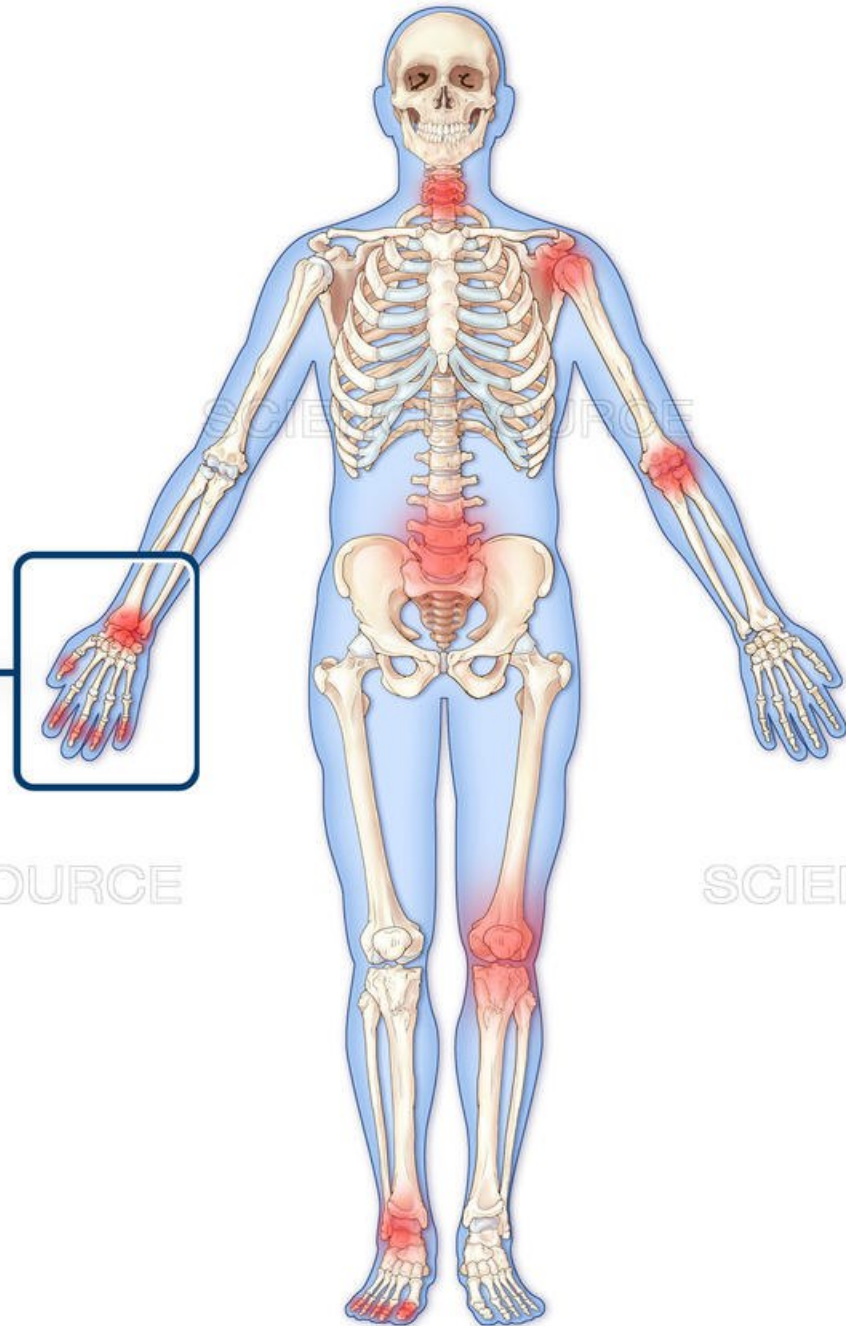
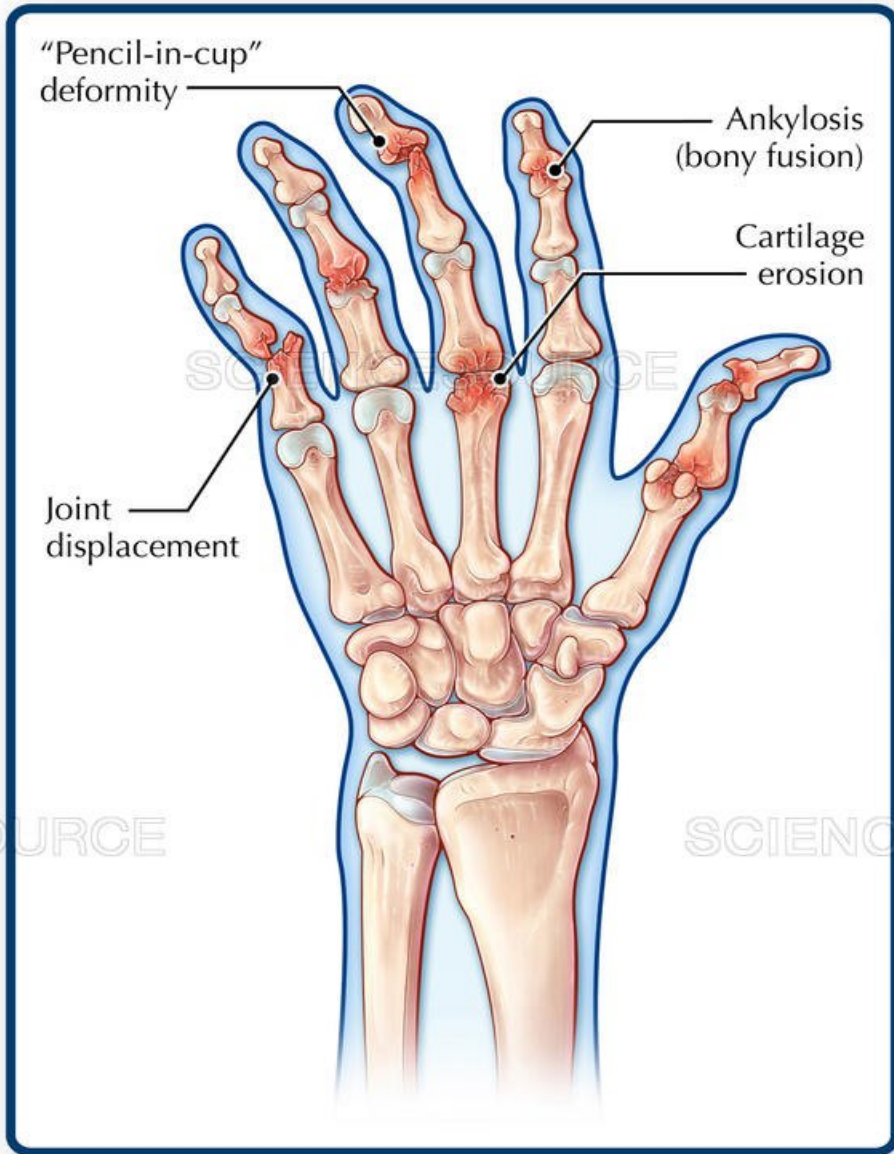


PSORIATIC ARTHRITIS

- Psoriasis precedes in 60-70%
- Wright & Molls 5 patterns of arthropathy
- Nail changes in 90%
- INVOLVEMENT OF DIP joints
- Dactylitis, enthesitis, tenosynovitis
- Arthritis mutilans







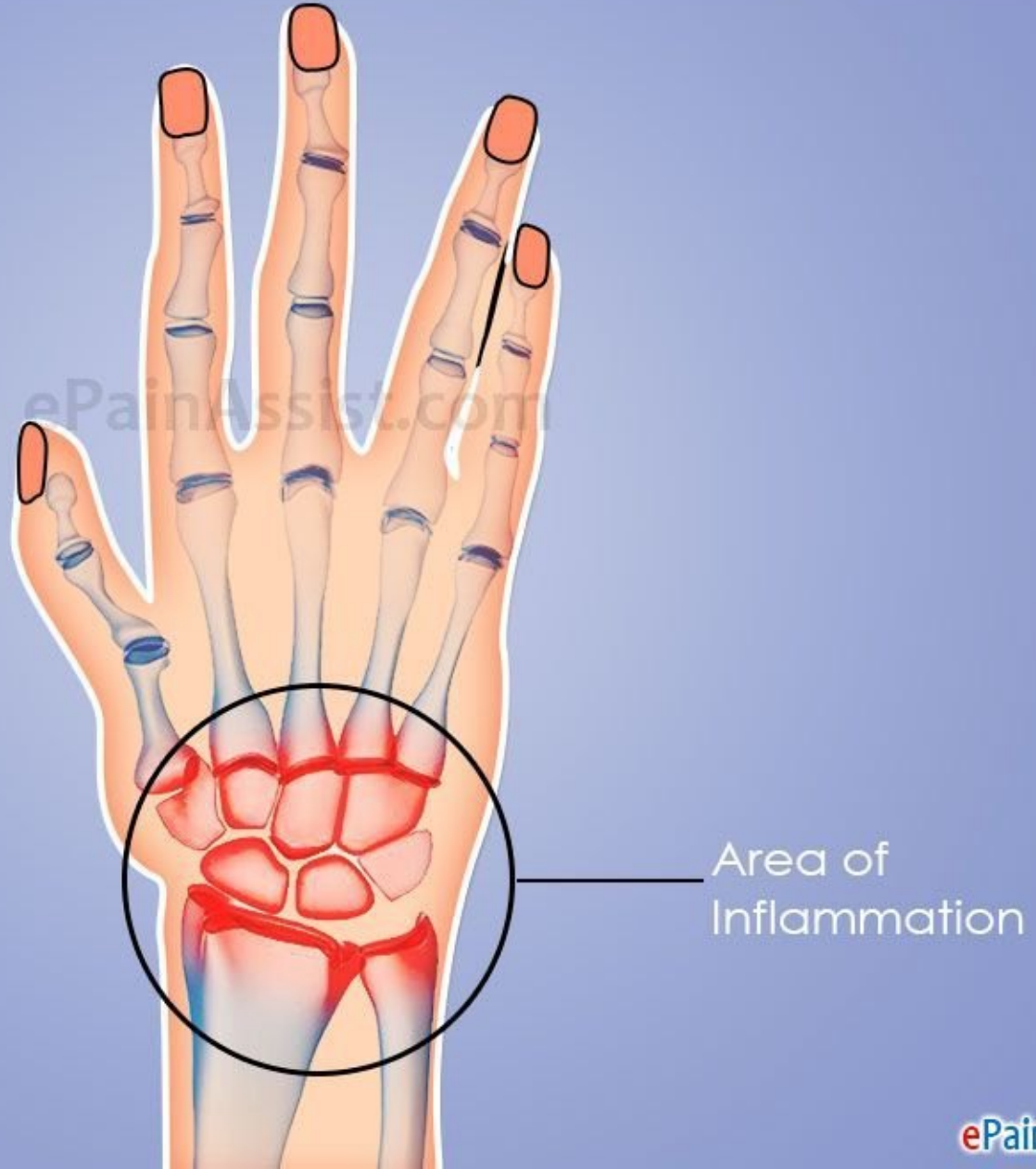
PSORIATIC ARTHRITIS



- 1. Normal joint
- 2. Arthritic joint



Wrist Joint Pain Caused Due To Psoriatic Arthritis



464
KWW7

DPOM:
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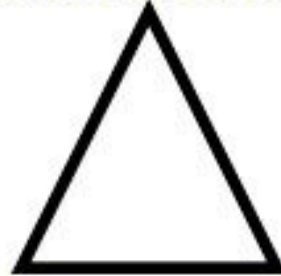
Psoriatic Arthritis



Reiter's syndrome

Triad of :

Asymmetrical arthritis



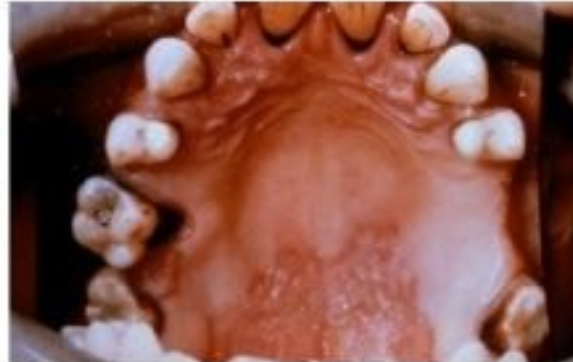
Urethritis/cervicitis
or Diarrhoea

Conjunctivitis



May be associated with :

- Mucocutaneous disease
- (balanitis, ulcers, keratoderma)





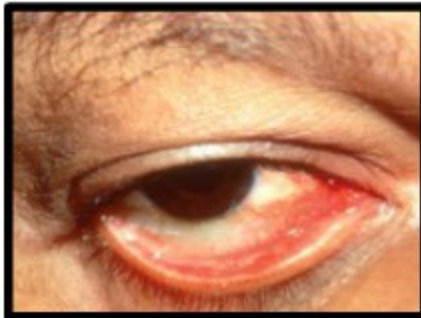
Keroderma blenorrhagicum



Enthesitis



Circinate balanitis



Inflammatory eye disease: uveitis (symptomatic)



Cervicitis



Urethritis

ENTEROPATHIC ARTHRITIS

- Ankylosing spondylitis
- Peripheral arthritis-acute oligo & chronic polyarthritis
- Joint invl same in UC &CD
- Erosion and deformity rare

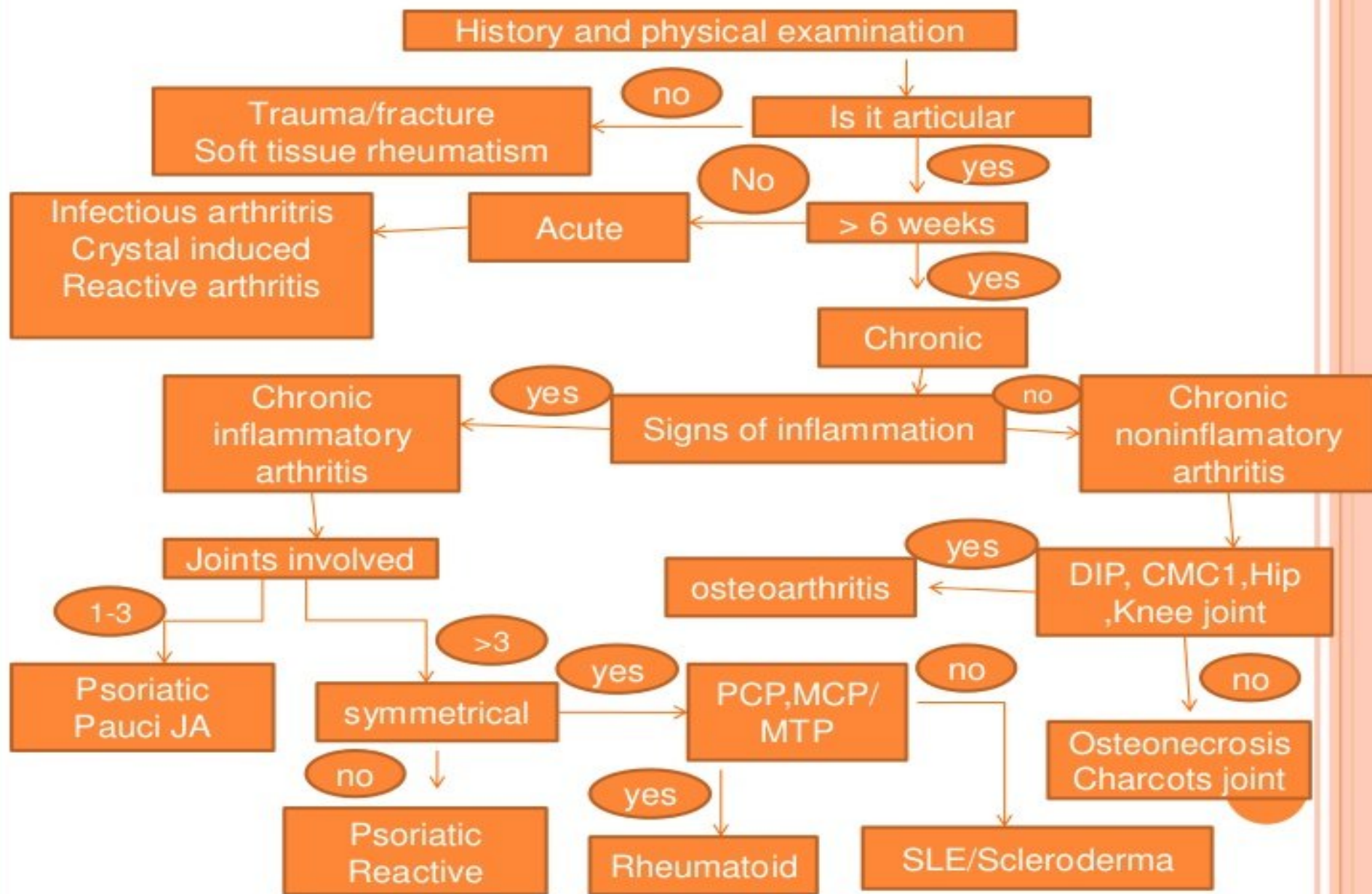


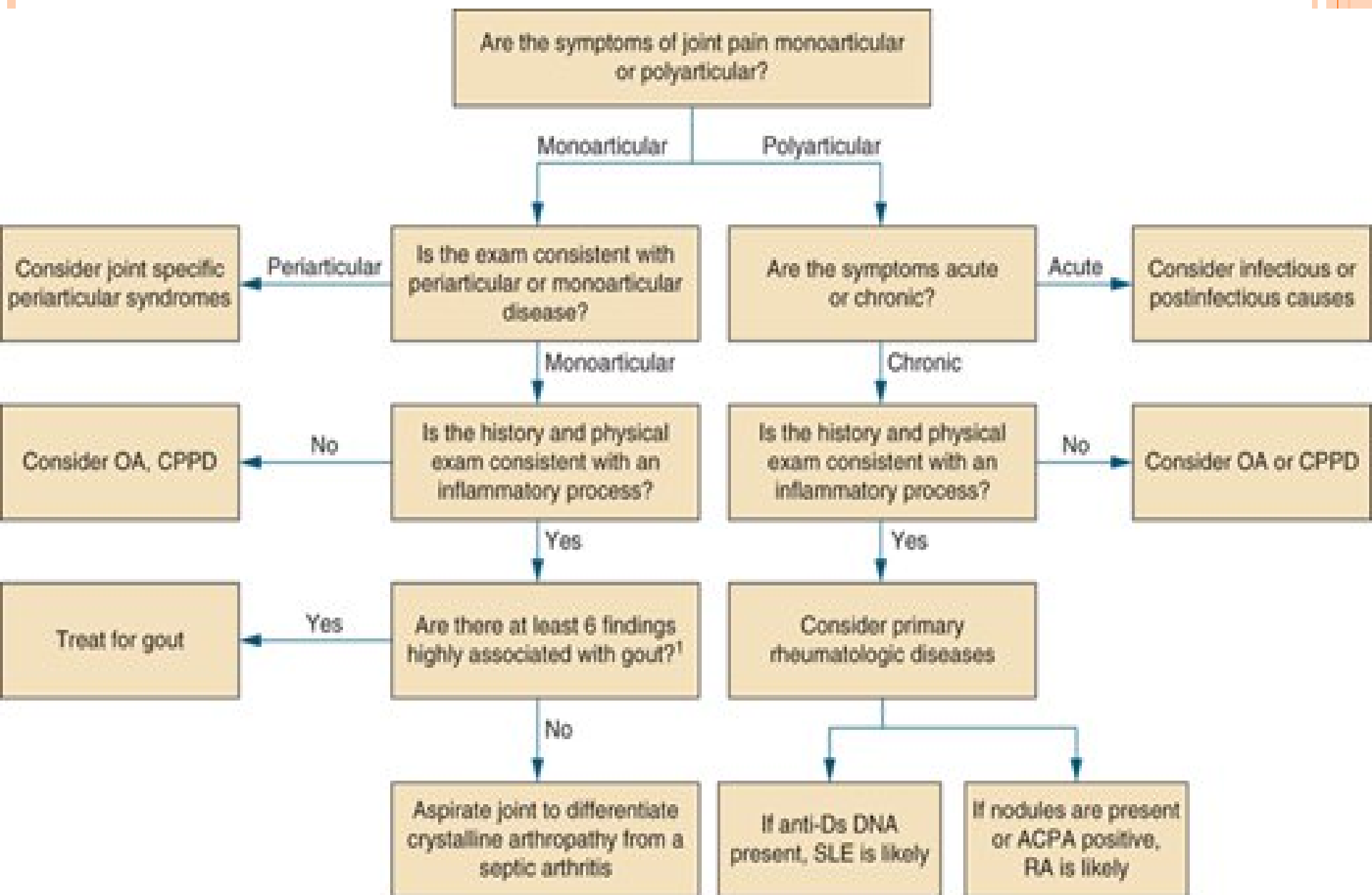
ANKYLOSING SPONDYLITIS



- Sacroiliitis
- Syndesmophytes
- Bamboo spine
- Inflamm. Backache
- Age < 50
- Improves with exercise
not with rest







¹see text

ACPA, anti-citrullinated protein antibody; CPPD, calcium pyrophosphate deposition disease; OA, osteoarthritis; SLE, systemic lupus erythematosus.

Comparison of some major forms of arthritis[17]

	<u>Osteoarthritis</u>	<u>Rheumatoid arthritis</u>	<u>Gouty arthritis</u>
Speed of onset	Months	Weeks-months ^[18]	Hours for an attack ^[19]
Main locations	Weight-bearing joints (such as <u>knees</u> , <u>hips</u> , <u>vertebral column</u>) and hands	Hands (<u>proximal interphalangeal</u> and <u>metacarpophalangeal joint</u>) <u>wrists</u> , <u>ankles</u> and <u>knees</u>	<u>Great toe</u> , <u>ankles</u> , <u>knees</u> and <u>elbows</u>
Inflammation	May occur, though often mild compared to inflammation in rheumatoid arthritis	Yes	Yes
<u>Radiologic</u> changes	•Narrowed joint space •<u>Osteophytes</u> •Local <u>osteosclerosis</u> •<u>Subchondral cysts</u>	•Narrowed joint space •Bone erosions	•"Punched out" bone erosions
Laboratory findings	None	<u>Anemia</u> , elevated <u>ESR</u> and <u>C-reactive protein</u> (CRP), <u>rheumatoid factor</u> , <u>anti-citrullinated protein antibody</u>	<u>Crystal</u> in joints
Other features	•No systemic signs •<u>Bouchard's</u> and <u>Heberden's nodes</u>	•<u>Extra-articular features</u> are common •<u>Ulnar deviation</u>, <u>swan neck-</u> and <u>Boutonniere</u>	• <u>Tophi</u>

thank you



