MEDICINE

432 Team

58

Rheumatoid Arthritis and Osteoarthritis

Done By:
Ahlam Almutairi

Reviewed By:
Wael Al Saleh

جامعة الملك سعود
King Saud University

COLOR GUIDE: • Females' Notes • Males' Notes • Important • Additional

Objectives

By the end of this lecture student should know:

1. Pathology,
2. Clinical features,
3. Laboratory and radiologic changes
4. Line of management of Rheumatoid Arthritis and Osteoarthritis

Rheumatoid Arthritis

Note:

Sometimes it is called rheumatoid disease because it is not confined to joints

Systemic chronic inflammatory disease

Mainly affects synovial joints

- Variable expression
- Prevalence about 3%
- Worldwide distribution
- Female: male ratio 3:1
- Peak age of onset: 25-50 years
- Unknown etiology
  - Genetics
  - Environmental
  - Possible infectious component
- Autoimmune disorder

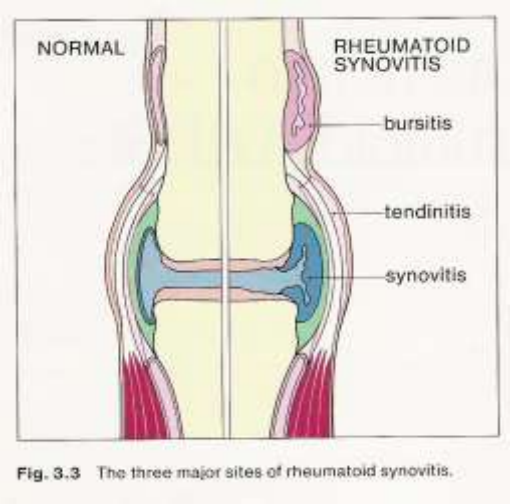
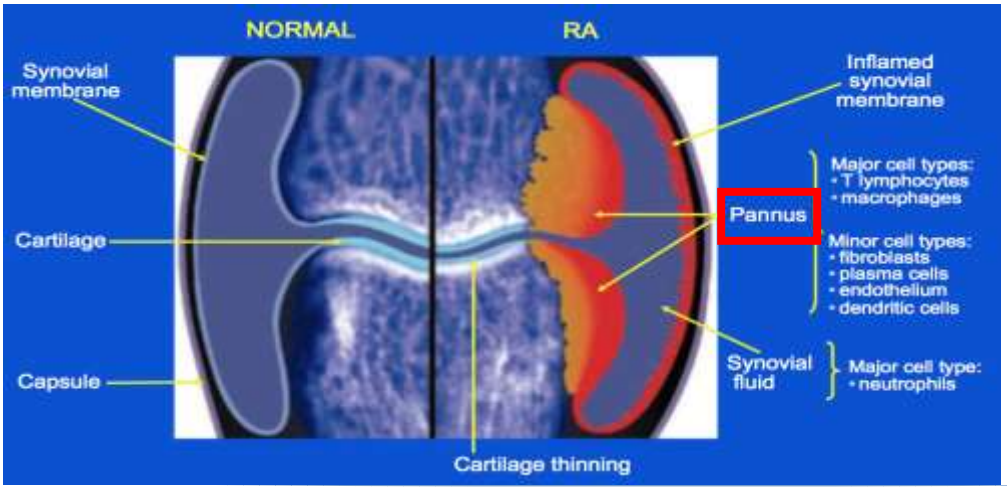


Fig. 3.3 The three major sites of rheumatoid synovitis.

THE PATHOLOGY OF RA

- Synovitis (Joints, Tendon, sheaths& Bursae)
- Nodules
- Vasculitis

RA Is Characterized by Synovitis and Joint Destruction

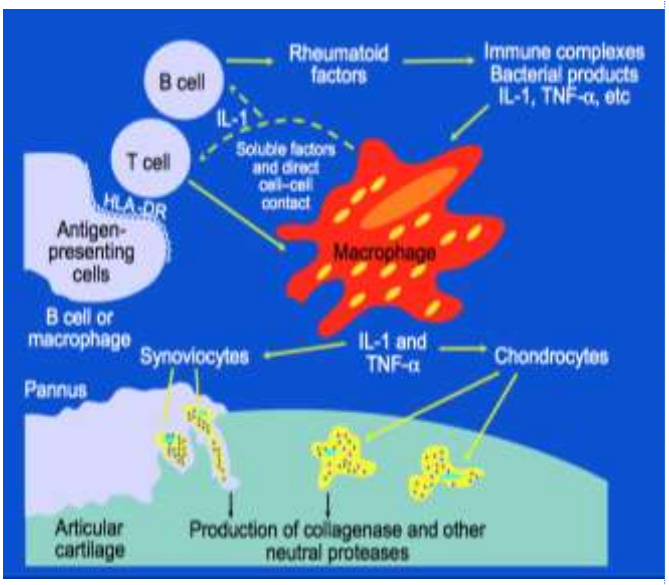


Note:

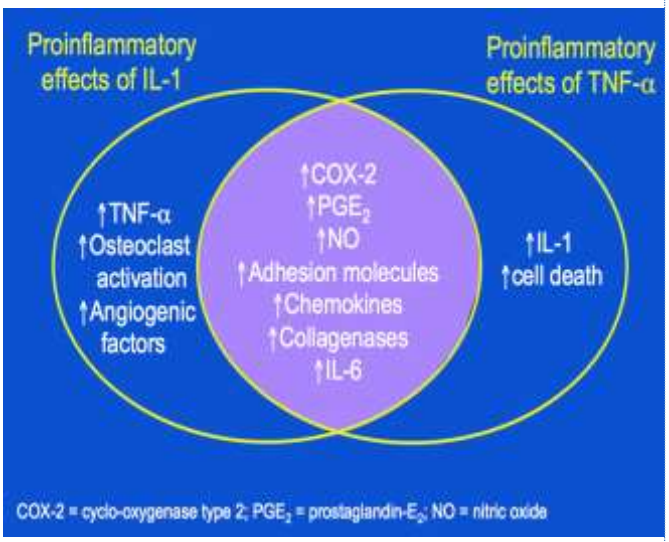
Pannus= part of the thickened synovia that will invade the cartilage and bone (will show in x-ray as erosion)

Numerous Cellular Interactions Drive the RA Process

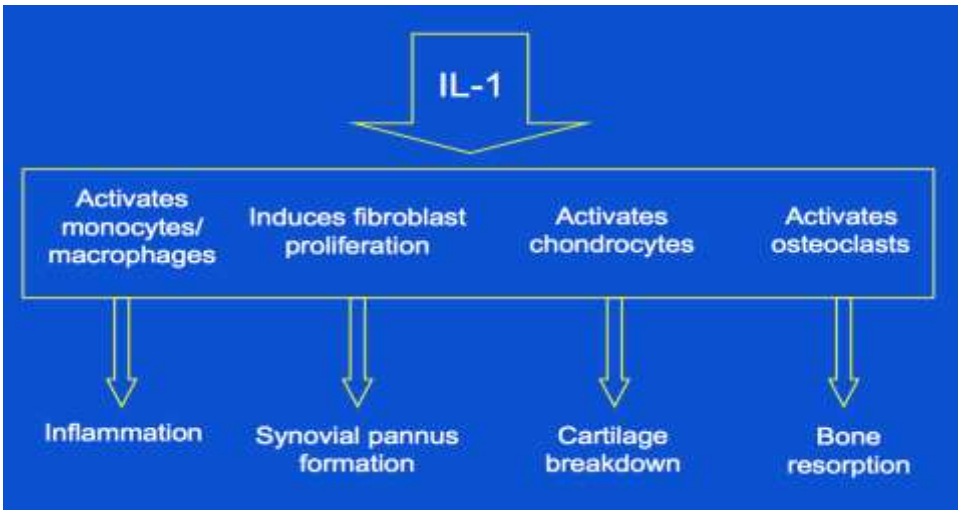
"Trigger > activation of the T&B cells, Rheumatoid factor and autoantibodies >proteolytic enzymes, cytokines, ILs and TNF are produced> inflammation and synovial pannus formation, cartilage breakdown and bone resorption."



IL-1 and TNF-α Have a Number of Overlapping Proinflammatory Effects



IL-1 Plays a Pivotal Role in the Inflammatory and Destructive Processes of RA



Signs and Symptoms

- Joint inflammation
- Tender, warm swollen joints (soft tissue swelling)
- Symmetrical pattern (the classical picture is symmetrical arthritis but may start with one joint)
- Pain and stiffness "morning stiffness"
- Symptoms in other parts of the body
- Nodules "Subcutaneous nodules"
- Anemia (normocytic normochromic)
- Fatigue, occasional fever, malaise

JOINT INVOLVEMENT ON PRESENTATION OF RA

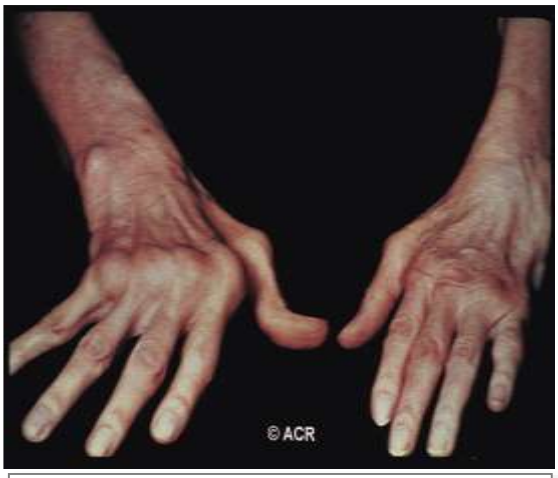
Polyarticular (symmetrical) 75%	**Monoarticular 25%**
Small joints of hands and feet 60%	Knee 50%
Large joints 30%	Shoulder } Wrist } Hip } 50% Ankle } Elbow }
Large and Small joints 10%	

Articular features seen in the Rheumatoid Hand:

WRIST joints: Synovitis Prominent ulnar styloid, Subluxation (Partial dislocation) and collapse of carpus Radial deviation (the angle will be lost with the deviation).	**Proximal interphalangeal joint (PIP):** Synovitis Swan neck (MCP flexed, PIP extended, DIP flexed), or boutonniere deformity (PIP flexed DIP extended)). (RA doesn't affect DIPs)
Metacapophalageal joints (MCP): Synovitis Ulnar deviation, Subluxation.	**THUMBS:** Synovitis, 'Z' deformity (hyperextension of the interphalangeal joint, fixed flexion and subluxation of themetacarpophalangeal joint and gives a "Z" appearance to the thumb)

Swelling of interphalangeal joints

(Spindle shape)



Radial deviation at the wrist, ulnar deviation at MCP and muscle wasting with prominent styloid process + Z deformity

Extra-articular manifestations (it is usually common in patients with long standing seropositive disease)

(Seropositive means the presence of RF in the serum)

General (because it is systemic)
fever, lymphadenopathy, weight loss, fatigue.

• Dermatologic
Palmar erythema, subcutaneous nodules (usual site on bony prominence), vasculitis (causing rashes).

• Ocular

episcleritis/scleritis (frequently with seropositive), scleromalacia perforans(thinning and perforation of sclera), choroid and retinal nodules.

• Cardiac
Pericarditis, myocarditis, coronary vasculitis, nodules on valves.

• Neuromuscular
Entrapment neuropathy (compression like carpal tunnel syndrome), peripheral neuropathy, mononeuritis multiplex,

Cervical cord compression can result from atlantoaxial joint subluxation, which makes procedure like endotracheal intubation contraindicated.

• Hematologic
Felty's syndrome(rheumatoid arthritis+ splenomegaly+ neutropenia), large granular lymphocyte syndrome, lymphomas.

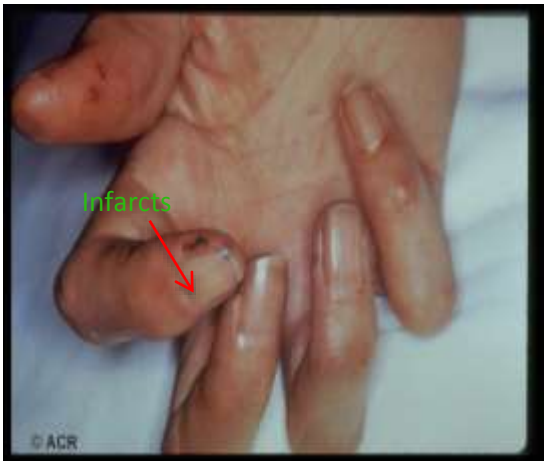
• Pulmonary

pleuritis, nodules, interstitial lung disease (in the form of fibrosis), bronchiolitis obliterans, arteritis, effusions

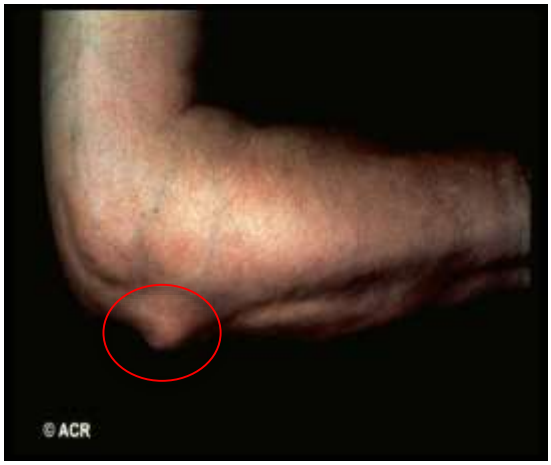
• Others

Sjogren's syndrome (dryness of salivary and lacrimal glands)

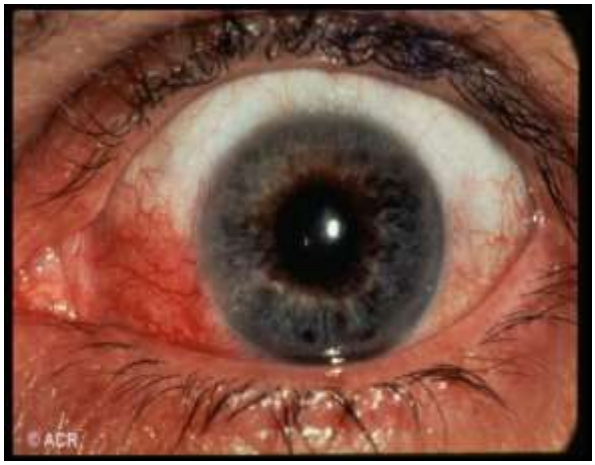
Amyloidosis (deposition of amyloid in the tissue).



Small vessels Vasculitis



Subcutaneous nodule



Episcleritis (blood vessels congestion)

Pigmentation of the choroid due to thinning of the sclera

Episcleritis + scleritis

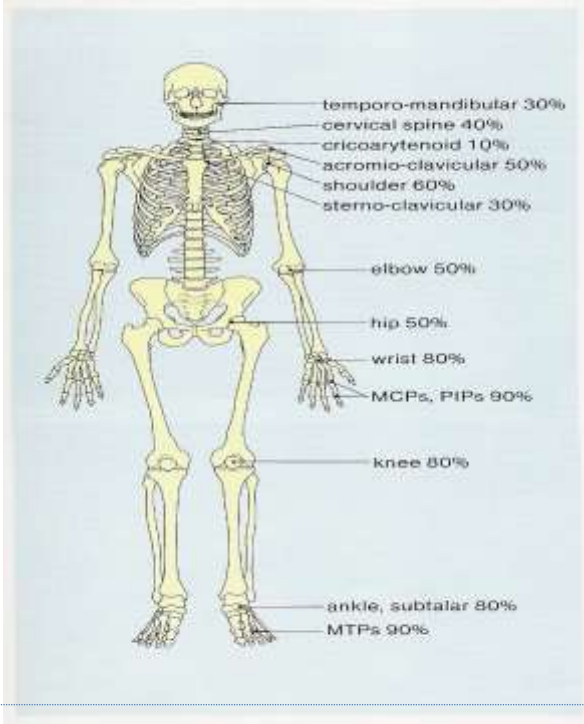


Fig. 3.6 Frequency of involvement of different joint sites in established RA.

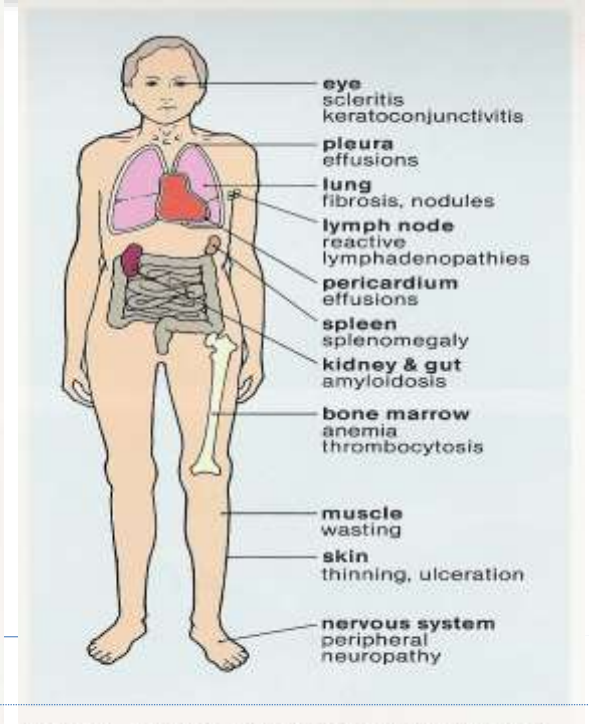


Fig. 3.27 Other organs commonly involved in rheumatoid disease.

Note(s):

Kidneys are not primarily involved & there is no glomerulonephritis like SLE

**Involvement of the kidneys is due to amyloid deposition (any chronic inflammatory process may lead to amyloidosis)*

Investigations:

- Hematology:

  -CBC (anemia of chronic illness, thrombocytosis because of the active inflammation)

  -ESR (high), Raised C- reactive protein.

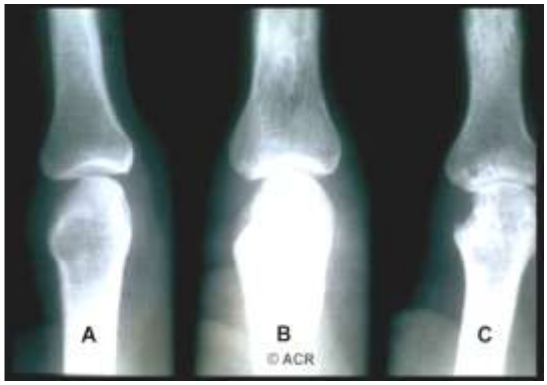
- Biochemistry:

  -LFT (before medication because some medications used in treatment may affect liver like methotrexate)

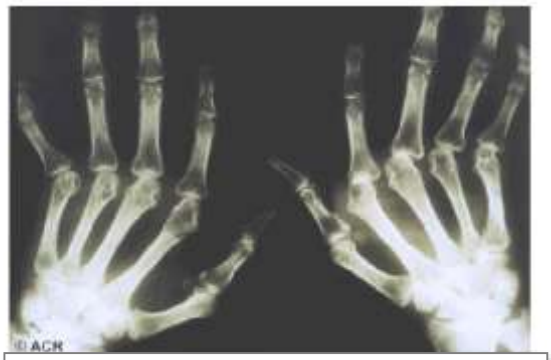
  -Renal profile (as a baseline because NSAIDs may affect kidney function)

- Serology:
  - Rheumatoid factor (RF) (IgM that is done routinely in lab, It is not specific and can be + in SLE and non rheumatologiacal condition like hepatitis, endocarditis) (if it's high it's associated with more severe diseases)
  - Anti- CCP (anti cyclicciterenated peptide. Very specific to RA (rarely + in other condition but not that sensitive)
    A positive anti-CCP antibody is highly specific for RA and can occur before clinical onset of the dis- ease.

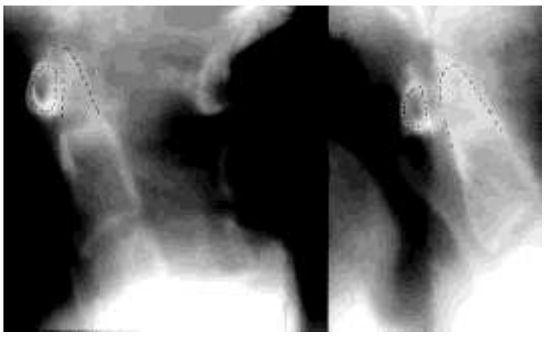
- Radiography: Joints, Spines, Chest



Erosion due to invasion of the Pannus.
A, B &C are Erosive changes in RA
*The more erosion >the more early & aggressive disease



Joint destruction and periarticular osteopenia around the joints >> this differentiates RA from psoriasis



Cervical spine involvement (Atlantoaxial subluxation)

Diagnosis:

ACR (American college of rheumatology) 1987 Classification criteria for rheumatoid arthritis:
Patients must have 4 of 7 criteria:

Morning stiffness lasting at least 1 hour (must be present at least 6weeks)

- Swelling in 3 or more joints (must be present at least 6 weeks)
- Swelling in hand joints (must be present at least 6 weeks
- Symmetric joint swelling (must be present at least 6 weeks)
- Erosions or decalcifications on x-ray of hand Rheumatoid nodule
- Abnormal serum rheumatoid factor

The 2010 ACR / EULAR classification criteria for rheumatoid arthritis: (No need to memorize it)
Target population (Who should be tested?): Patients who:

1) Have at least 1 joint with definite clinical synovitis (swelling)
2) With the synovitis not better explained by another disease

Add A–D; a score of 6/10 is needed to classify patient as having definite RA:

A. Joint involvement:
   - 1 large joint. 0
   - 2-10 large joints 1
   - 1-3 small joints (with or without involvement of large joints) 2
   - 4-10 small joints (with or without involvement of large joints) 3
   - 3-10 joints (at least 1 small joint) 5

B. Serology (at least 1 test result is needed for classification)
   - Negative RF and negative ACPA 0
   - Low-positive RF or low-positive ACPA 2
   - High-positive RF or high-positive ACPA 3

C. Acute-phase reactants (1 test result is needed for classification):
   - Normal CRP and normal ESR 0
   - Abnormal CRP or abnormal ESR 1

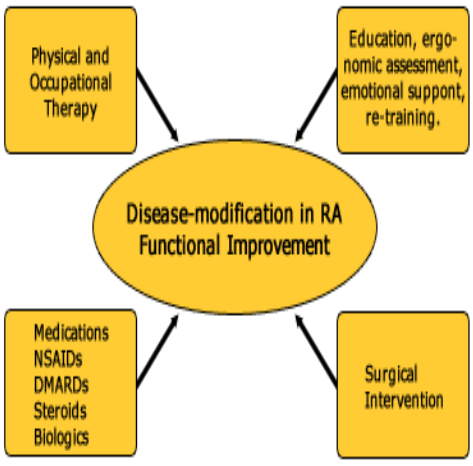
D. Duration of symptoms:
- 6 weeks 0
- >6 weeks 1

Treatment Goals

- ☐ Relieve pain
- ☐ Reduce inflammation
- ☐ Prevent/slow joint damage
- ☐ Improve functioning and quality of life

Treatment Goals

- ☐ Lifestyle modifications
- ☐ Rest
- ☐ Physical and occupational therapy
- ☐ Medications
- ☐ Surgery



Rationale for the Early Treatment of R.A:

- Erosions develop early in the disease course first 1-2 years
- Destruction is irreversible
- Disease activity is strongly associated with joint destruction later in the disease course
- Early treatment can slow down radiographic progress
- Disease activity must be suppressed maximally in its early stages to prevent destruction and preserve function

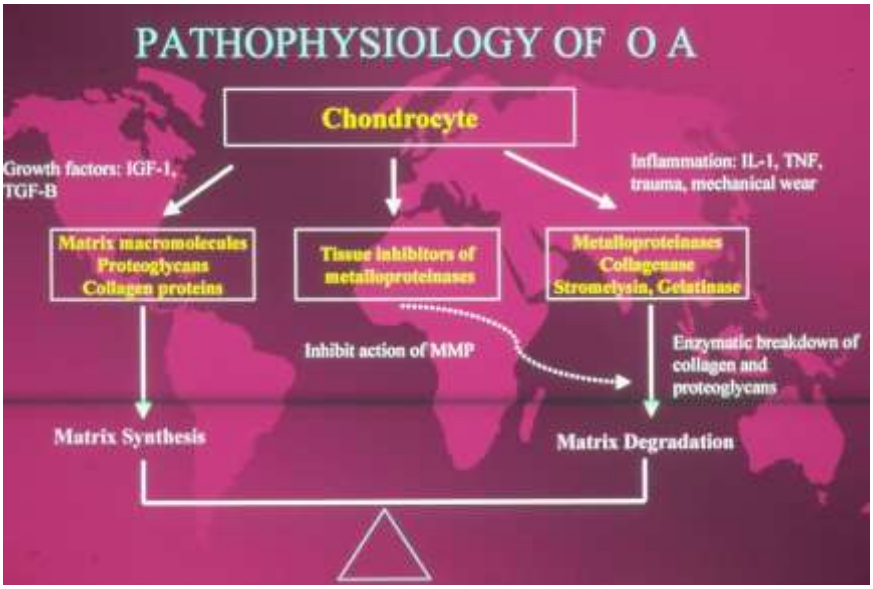
Drug Treatments:

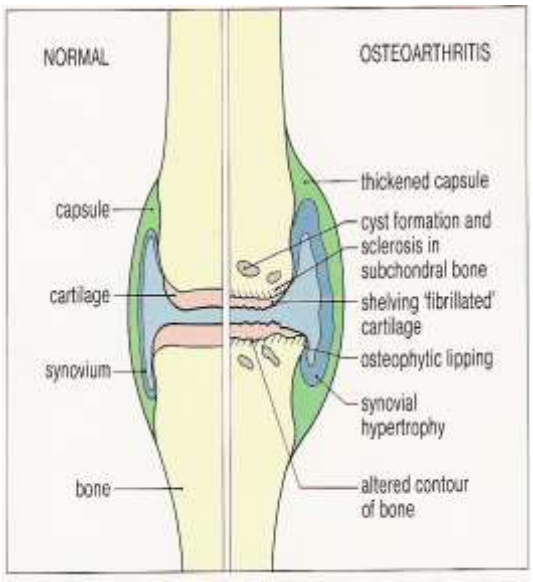
	Nonsteroidal anti-inflammatory drugs (NSAIDs) **(First line treatment)**	**Disease-modifying antirheumatic drugs (DMARDs)** **(Second line)**	**Biologic response modifiers**	**Corticosteroids**
Characteristics	-To relieve pain and inflammation -Use in combination with a DMARD (not alternative) Gastrointestinal side effects	Control symptoms No immediate analgesic effects Can delay progression of the disease (prevent/slow joint and cartilage damage and destruction) Effects generally not seen until a few weeks to months	We have to screen for latent TB before giving these agents because they affect the immunity	Not used for maintenance therapy. It is uses as bridge (when we used 2nd line which is slow in action we give steroids until 2nd line take over
	Traditional NSAIDs • Aspirin • Ibuprofen • Ketoprofen • Naproxen COX-2 Inhibitors (less GI side effects) • Celecoxib • Etoricoxib	• Hydroxychloroquine (Least S/E) (immunomodulator) - Slow agent Mild non-erosive disease Combinations 200 mg bid Eye exams should be done every 6 months Because of its S/E on the eye (retinopathy) • Sulfasalazine (immunomodulator) 1 gm bid - tid CBC, LFTs onset 1 - 2 months Main S/E: bone marrow suppression & decrease liver functions CBC& LFTs should be monitored routinely • Methotrexate (immunosuppressive) Most commonly used drug Fast acting (4-6 weeks) po, SQ - weekly CBC, LFTs (because it can cause hepatocellular injury)	Etanercept Infliximab Adalimumab Tocilizumab	----

		Other DMARDs: • Leflunomide • Gold (not used anymore) • Azathioprine		

2. Osteoarthritis: (it's a degenerative disease of the cartilage)

Pathology:





Etiology: (it is not known but there are biomechanical factors)

MULTIFACTORAL

- Joint instability
- Age
- Hormonal factors
- Trauma
- Altered biochemistry (like hemochromatosis)
- Inflammation
- Genetic predisposition
- ? Others
- Secondary osteoarthritis: (affect the diseased joint)
    - Congenital or developmental diseases
    - Trauma
    - Inflammatory joint disease (RA)
    - Endocrinopathies

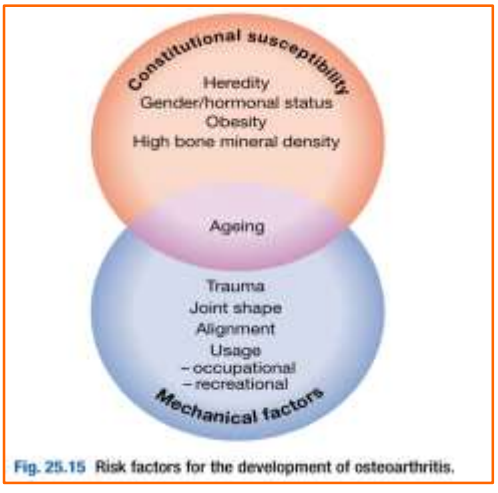


Fig. 25.15 Risk factors for the development of osteoarthritis.

- Metabolic disease
- Neuropathic disorders
- Avascular necrosis
- Paget's disease

Signs and symptoms:

- Pain – worse on use of joint
- Stiffness – mild after immobility
- Loss of movement
- Pain on movement/restricted range
- Tenderness (articular or periarticular)
- Bony swelling > soft tissue swelling
- Soft tissue swelling
- Joint crepitus

To differentiate between OA and RA: In OA there are no systemic manifestations like fever and weight loss.

Radiological features:

- Narrowing of joint space (Because the cartilage is loss)
- Osteophytosis (osteophyte formation as part of repair)
- Altered bone contour
- Bone sclerosis and cysts
- Periarticular calcification
- Soft-tissue swelling

Note(s):

Osteophytes, commonly referred to as bone spurs or parrot beak, are bony projections that form along joint margins. They should not be confused with enthesophytes, which are bony projections that form at the attachment of a tendon or ligament.

Management:

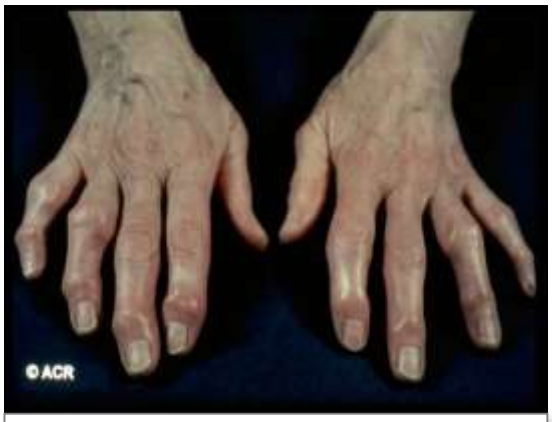
Confirm the diagnosis Initial Therapy:

1. Pysiotherapy
2. Weight loss
3. Local therapy (like local nonsteroidal creams)
4. Paracetamol

<u>Second-line approach:</u>

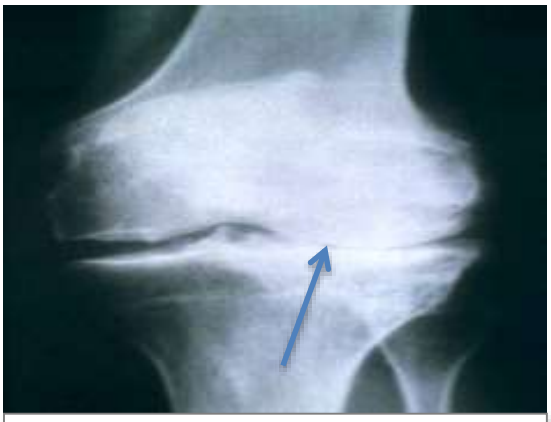
1. NSAIDS
2. Intra-articular therapy:
   - Steroids (we try to avoid in osteoarthritis because it's not a Primary inflammatory disease but the degeneration can lead to inflammation so we can use it)
   - hyalurinate (it's lubrication to help with movement and reduce pain)
3. Opioids (very rare because it may lead to addiction)
4. ? glucosamines(some studies said it helps maintain the matrix of the cartilage but It's not proven)

5. Arthroscopy (we use arthroscopy because sometimes osteophytes break and dislodge (Loose bodies floating in the joints) and we use it to remove the osteophytes)
6. Surgery (Knee replacement)



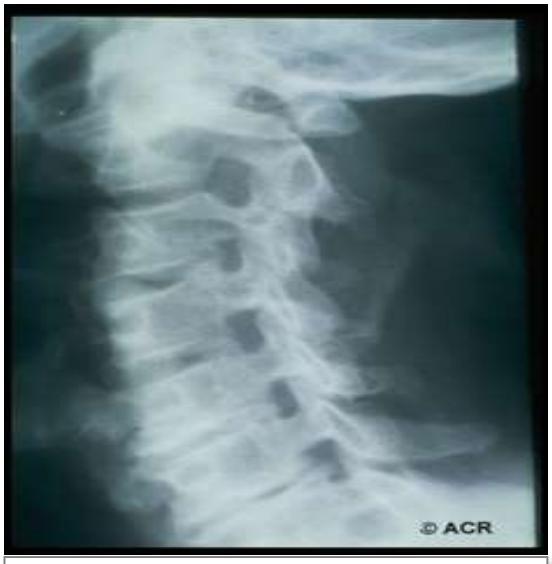
Heberden's nodes which are bony swelling on distal interphalangeal joints, and Bouchard's Nodes in the proximal interphalangeal joint.

B before H so Bouchard's Nodes = PIP, Heberden's nodes =DIP

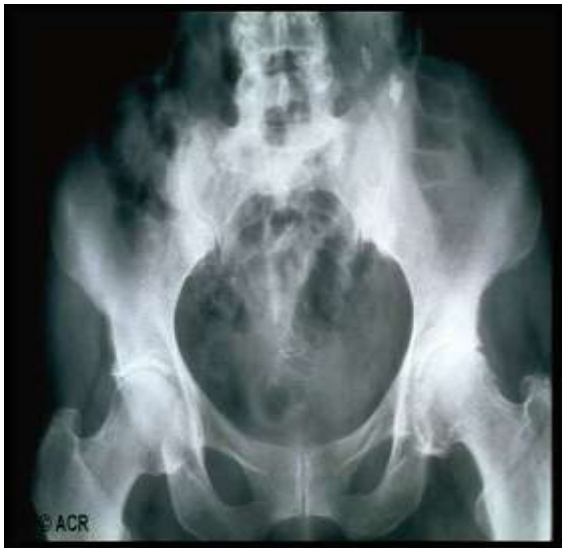


Narrowing of joint space (loss of cartilage)

Unequal joint space



Narrowing of disc space (loss of cartilage) can cause nerve compression and back or upper limb pain



SUMMARY

Let's end up this lecture with an easy way of memorization ☺✋ 📖👍

Rheumatoid arthritis (RA) Features

Mnemonic: **RHEUMATISM**
Rheumatoid factor (RF) +ve in 80%/**R**adial deviation of wrist
HLA-DR1 and DR-4
ESR/**E**xtra-articular features (restrictive lung disease, subcutaneous nodules)
Ulnar deviation of fingers
Morning stiffness/**M**CP+PIP joint swelling
Ankylosis/**A**tlanto–axial joint subluxation/**A**utoimmune/**A**NA +ve in 30%
T-cells (CD4)/**T**NF
Inflammatory synovial tissue (pannus)/IL-1
Swan-neck deformity, Boutonniere deformity, Z-deformity of thumb
Muscle wastage of small muscles of hand

Rheumatoid arthritis (RA) Management: *DMARDs (Disease-Modifying Anti-Rheumatic Drugs)*

Mnemonic: **Most Sufferers Can Get Appropriate Pain Control**
Methotrexate
Sulfasalazine
Ciclosporin
Gold
Azathioprine
Penicillamine
HydroxyChloroquine

Rheumatoid arthritis x-ray findings Mnemonic: **JESS**	Osteoarthritis x-ray findings Mnemonic: **LOSS**
Joint space loss (symmetrical) **E**rosion of joint **S**ynovial thickening **S**ubluxation and joint deformities	**L**oss of joint space **O**steophyte formation **S**ubchondral sclerosis **S**ubchondral cysts

Felty's syndrome

Mnemonic: **SANTA**
Splenomegaly
Anemia
Neutropenia
Thrombocytopenia
Arthritis (RA)

SUMMARY

1- Rheumatoid arthritis: Symmetrical deforming peripheral POLYarthritis/ HLA-DR4 linked disease/ peak onset at 5th-6th decade.

Presentation: symmetrical swollen painful and stiff small joints of hands. Extra articular symptoms are fatigue, weight loss pericarditis, pleurisy.

Signs: early◊ swollen MCP, PIP, Wrist or MTP joints (often symmetrical) Later◊ joint damage and deformity ◊ ulnar deviation of fingers and dorsal wrist subluxation. Boutonnniere and swan neck deformity or Z deformity of the thumbs occur. Atlantoaxial subluxation may threaten the spinal cord.

Extra-articular: nodules-elbows and lungs; lymphadenopathy, vasculitis, fibrosing alveolitis, oblitertive bronchiolitis, pleural and pericardial effusion, Raynaud's carpal tunnel syndrome, peripheral neuropathy, splenomegaly (5% and 1% have felty's syndrome: RA+splenomegaly+ neutropenia) episcleritis, scleritis, scleromalacia, keratoconjunctivitis sicca, osteoporosis, amyloidosis.

Investigations: RhF + in 70% ◊ and high titer indicates a severe disease, erosions and extra-articular disease. Anti-ccp highly specific (~98%) for R. there's often anemia with chronic disease. inflammation causes ^ platlets^ ESR ^ CRP. X-raysoft tissue swelling, bony erosions, juxta-articular osteopenia, decreased joint space, later there maybe bony erosions, subluxation or complete carpal destruction.

Diagnostic criteria: 4 out of 7: morning stiffness (>1 hour lasting > 6 weeks) arthritis >= 3 joints, arthritis of hand joints, symmetrical arthritis, rheumatoid nodules, +ve rheumatoid factor and radiographic changes.

Management: page 10.

2- Osteoarthritis: the commonest joint condition Female:male ratio 3:1 Onset typically >50 yrs. Usually primary (generalized), could be secondary to joint disease or other conditions (hemarthrosis, obesity, occupational)

Signs and symptoms: localized disease (usually knee or hip) pain on movement and crepitus, worse at end of day, background pain at rest; joint jelling- stiffens after rest upto 30mins; joint instability. Generalized disease (primary OA): with heberden's nodes (seen mainly postmenopausal) commonly affected joints are the DIP joints, thumb, CMC joints and knees. There maybe joint tenderness, derangement and bony swelling (heberden's nodes at DIP., bouchard's nodes at PIP) decreased range of movement and mild synovitis

Investigations: plain radiographs show loss of joint space, subchondral sclerosis and cysts and marginal osteophytes. CRP slightly elevated

Management: exercise to improve muscle strength and joint stability. Regular paracetamol for pain◊ consider NSAIDS if paracetamol is ineffective Weight loss if BMI >28 walking Aids, supportive footwear, ohysio, topical NSAIDS and capsaicin (derived from chillies). Joint replacement is the best wat to deal with severe OA

SUMMARY	
OA	**RA**
• Degenerative disease • Affects cartilage • Hypertrophy of bone at the articular margins & degeneration of cartilage. • There is a great increase in risk of developing OA by the age 65 or older. • Often monoarticular joint involvement • No systemic involvement, no erythema or warmth • Any joint can be affected, but weight baring joints are most. commonly involved(hips, knees, cervical & lumbar spine) • Radiological features: -joint space narrowing(due to loss of cartilage) -osteophytes -sclerosis of subchondral bony end plates adjacent to diseased cartilage(most severe at points of maximum pressure) -subchondral cysts occur as a result of increased transmission of intra-articular pressure to the subchondral bone.	• Systemic, chronic, inflammatory disease • Affects synovial joints. • Thickening & hypertrophy of the synovium. • Peak age: 25-50 But it can affect any age. • Mainly (75%) polyarticular joint involvement. • A systemic disease! • Most commonly involved joints are wrists,PIPs, MCPs & thumbs. • Loss of juxtaarticular bone mass (periarticular osteoporosis) near the finger joints. • narowing of the joint space (due to thinning of the articular cartilage) is usually seen late in the disease. • Bony erosions at the margins of the joint.

Approach to Rheumatoid Arthritis

Rheumatoid Arthritis

DIFFERENTIAL DIAGNOSIS OF POLYARTHRITIS

RICE (RHEUMATOLOGIC, INFECTIONS, CRYSTAL, ETC)

RHEUMATOLOGIC (>6 weeks):

- SEROPOSITIVE wPSSRw Polymyositis, Palindromic rheumatism, SLE, Scleroderma, Sjogren's syndrome, Rheumatoid arthritis
- SERONEGATIVE wPEARw Psoriatic arthritis, Enteric arthritis, Ankylosing spondylitis, Reactive arthritis, undifferentiated

- VASCULITIS polymyalgia rheumatica, Wegener's granulomatosis, Behcet's disease, Still's disease

INFECTIONS (<6 weeks):

- BACTERIAL sepsis, endocarditis, Lyme disease, Whipple's disease, mycobacteria
- VIRAL Parvovirus, rubella, HBV, HCV, HIV
- FUNGAL
- POST-INFECTIOUS/REACTIVE enteric infections, genitourinary infections, rheumatic fever, inflammatory bowel disease

CRYSTAL: gout, pseudogout, hydroxyapatite, basic calcium phosphate

ETC:

- MALIGNANCIES leukemia
- SARCOIDOSIS Lofgren's syndrome
- FAMILIAL MEDITERRANEAN FEVER
- MUCOCUTANEOUS DISORDERS dermatomyositis, erythema nodosum, erythema multiforme, pyoderma gangrenosum, pustular psoriasis poly myalgia rheumatic

CLINICAL FEATURES

JOINT SYMPTOMS symmetric polyarthritis with joint pain, swelling, redness, morning stiffness (>1 h), and dysfunction

- **HANDS** MCP, PIP, and wrist joints most commonly involved. Deformities include Boutonniere, swan neck, Z (thumb), ulnar deviation at MCP joint, volar subluxation of proximal phalanx from MCP head, radial deviation of carpus, compression of the carpal bones, subluxation at the wrist
- **FEET** MTP joint involved. Deformities include valgus of the ankle and hindfoot, pes planus, forefoot varus and hallux valgus, cock up toes
- **LEGS** knees (80%), ankles (80%), hips (50%)
- **ARMS** shoulders (60%), elbows (50%), acromio clavicular (50%)
- **ATLANTOAXIAL** subluxation may lead to spinal cord (cervical myelopathy with hand weakness/numbness)
- **TEMPOROMANDIBULAR (30%)**
- **OTHERS** related disorders include Baker cyst, tenosynovitis, carpal tunnel syndrome
- **EXTRA ARTICULAR MANIFESTATIONS** only in rheumatoid factor seropositive patients
- **RHEUMATOID NODULES (20%)**

PULMONARY pleural effusion (exudates, low glucose), pulmonary nodules (Caplan's syndrome), acute interstitial pneumonitis, bronchiolitis obliterans

CARDIAC valvular abnormalities, myocarditis, pericardial effusion, constrictive pericarditis

GI elevated transaminases (especially ALP), nodular hyperplasia (portal hypertension, hypersplenism)

HEMATOLOGIC anemia of chronic disease, Felty syndrome (triad of seropositive rheumatoid arthritis, neutropenia often associated with anemia and thrombocytopenia and splenomegaly.

Patients at risk of life threatening bacterial infections). Large granular lymphocyte leukemia, lymphoma

NEUROLOGIC peripheral sensory neuropathy (not motor), myelopathy from cervical vertebral subluxation

OPHTHALMIC keratoconjunctivitis sicca (Sjogren's syndrome), scleritis, episcleritis

DERMATOLOGIC vasculitis (digital arteritis, cutaneous ulceration, visceral arteritis)

OTHERS amyloidosis

IMPORTANT NOTES FROM EXTERNAL RESOURCES

	Notes
Step-up to medicine	- RA is unlikely if: Joint distribution is not symmetric OR DIP is involved OR Constitutional symptoms (especially morning stiffness) are absent. - Poor prognostic indicators in RA: High RF titers, Subcutaneous nodules, Erosive arthritis &Autoantibodies to RF - Much of the joint damage that ultimately leads to disability occurs early in the course of the disease, so early treatment with DMARDs is critical. -Methotrexate is the main- stay of therapy (best initial DMARD). - Plain radiographs are the initial tests and should be obtained in all patients suspected of having osteoarthritis. - Acetaminophen is the first-line agent in pharmacologic treatment of OA
Davidson's	Osteoarthritis (OA) is by far the most common form of arthritis. It is strongly associated with ageing and is a major cause of pain and disability in older people. Inflammation is not a prominent clinical feature.

TABLE 6-7 Major Arthritides

	Osteoarthritis	Rheumatoid Arthritis	Gouty Arthritis
Onset	Insidious	Insidious	Sudden
Common locations	Weight-bearing joints (knees, hips, lumbar/cervical spine), hands	Hands (PIP, MCP), wrists, ankles, knees	Great toe, ankles, knees, elbows
Presence of inflammation	No	Yes	Yes
Radiographic changes	Narrowed joint space, osteophytes, subchondral sclerosis, subchondral cysts	Narrowed joint space, bony erosions	Punched-out erosions with overhanging rim of cortical bone
Laboratory findings	None	Elevated ESR, RF, anemia	Crystals
Other features	• No systemic findings • Bouchard's nodes and Heberden's nodes in hands	• Systemic findings—extra-articular manifestations common • Ulnar deviation, swan-neck, and boutonnière deformity	• Tophi • Nephrolithiasis

25.53 Investigations and monitoring of rheumatoid arthritis

To establish diagnosis

- Clinical criteria
- Acute phase response (APR)
- Serological tests
- X-rays

To monitor disease activity and drug efficacy

- Pain (visual analogue scale)
- Early morning stiffness (minutes)
- Joint tenderness
- Joint swelling
- DAS 28 score
- APR

To monitor disease damage

- X-rays
- Functional assessment

To monitor drug safety

- Urinalysis
- Biochemistry
- Haematology

Questions

1) A 60-year-old, mildly obese woman presents complaining of bilateral medial right knee pain that occurs with prolonged standing. The pain does not occur with sitting or climbing stairs but seems to be worse with other activity and at the end of the day. The patient denies morning stiffness. Examination of the knees reveals no deformity, but there are small effusions. Some mild pain and crepitus is produced with palpation of the medial aspect of the knees. Which of the following is the most likely diagnosis?

a. Rheumatoid arthritis
b. Gouty arthritis
c. Chondromalacia patellae
d. Osteoarthritis
e. Psoriatic arthritis

2) A 25-year-old man presents with morning back pain and stiffness and tenderness over the sacroiliac joints. The patient denies any previous history of eye or genitourinary problems. On physical examination, there is diminished chest expansion with breathing. Which of the following is the most likely diagnosis?

a. Rheumatoid arthritis
b. Ankylosing spondylitis
c. Sjögren syndrome
d. Systemic lupus erythematosus
e. Reiter syndrome

3) A 40-year-old woman complains of 7 weeks of pain and swelling in both wrists and knees. She has several months of fatigue. After a period of rest, resistance to movement is more striking. On examination, the metacarpopha- langeal joints and wrists are warm and tender. There are no other joint abnor- malities. There is no alopecia, photosensitivity, kidney disease, or rash. Which of the following is correct?

a. The clinical picture suggests early rheumatoid arthritis, and a rheumatoid factor should be obtained.
b. The prodrome of lethargy suggests chronic fatigue syndrome.
c. Lack of systemic symptoms suggests osteoarthritis.
d. X-rays of the hand are likely to show joint space narrowing and erosion.
e. An aggressive search for occult malignancy is indicated.

4) A 48-year-old woman complains of joint pain and morning stiffness for 4 months. Examination reveals swelling of the wrists and MCPs as well as tenderness and joint effusion in both knees. The rheumatoid factor is positive, antibodies to cyclic citrullinated protein are present, and subcutaneous nodules are noted on the extensor surfaces of the forearm. Which of the following statements is correct?

a. Prednisone 60 mg per day should be started.

b. The patient has RA and should be evaluated for disease-modifying antirheumatic therapy.

c. A nonsteroidal antiinflammatory drug should be added to aspirin.

d. The patient's prognosis is highly favorable.

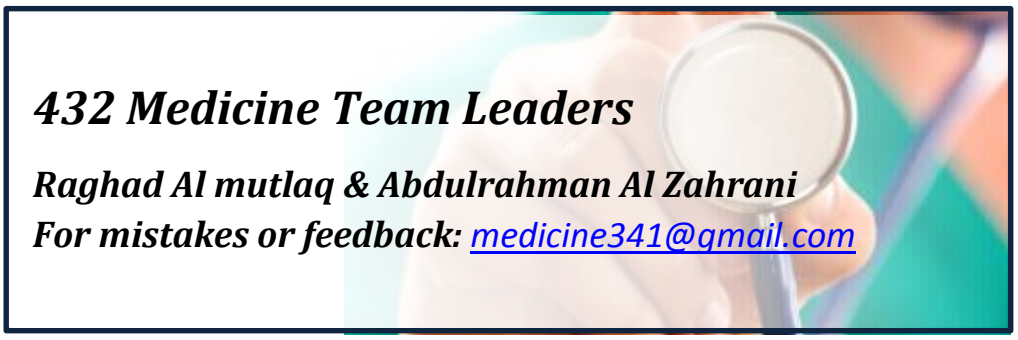
e. The patient should receive a 3-month trial of full-dose nonsteroidal anti-inflammatory agent before determining whether and/or what additional therapy is indicated.

Further Explanations:

Q1) The answer is d. Osteoarthritis most often affects the weight-bearing joints and is associated with obesity or other forms of mechanical stress. It has no systemic manifestations. It is more common in women and onset is usually after the age of 50. Pain often occurs on exertion and is relieved with rest, after which the joint may become stiff. Distal interphalangeal joints may be involved with the production of **Heberden nodes. Bouchard nodes** are often found at the proximal interphalangeal joint. **Crepitus** (the sensation of bone rubbing against bone) is often felt on examination of the involved joint. Rheumatoid arthritis is a systemic disease of women under the age of 40. Joint involvement is usually symmetric, involving the proximal interphalangeal and metacarpophalangeal joints. Ninety-five percent of gouty arthritis occurs in men and often involves the great toe. Chondromalacia patellae or chondromalacia means softening of the cartilage. Patients present with anterior knee pain and tenderness over the undersurface of the patella. Pain is worse when sitting for long periods of time or when climbing stairs. Psoriatic arthritis is an asymmetric oligoarthritis that involves the knees, ankles, shoulders, or digits of the hands and feet and occurs in 50% of patients with psoriasis.

Q2) The answer is b. **Ankylosing spondylitis** (Marie-Strü mpel l arthritis) is a chronic and progressive inflammatory diseasethat most commonly affects the spinal, sacroiliac, and hip joints. All patients have symptomatic sacroiliitis. Other symptoms may include uveitisand aortitis. Men in the third decade of life are most frequently affected and there is a strong association with HLA-B27 (90%) in white patients. Patients with advanced disease present with **a bent-over posture**. A **positive Schober test** indicates diminished anterior flexion of the lumbar spine. Involvementof the costoveretebral joints limits chest expansion and eye involvement may cause an iritis. Patients with Reiter syndrome may present with a history of conjunctivitis, urethritis, arthritis, and enthesopathy (Achilles tendinitis).

Q3) The answer is a. The clinical picture of symmetrical swelling and tenderness of the metacarpophalangeal (MCP) and wrist joints lasting longer than 6 weeks strongly suggest **rheumatoid arthritis**. Rheumatoid factor, an immunoglobulin directed against the Fc portion of IgG, is positive in about two-thirds of cases and may be present early in the disease. The history of lethargy or fatigue is a common prodrome of RA. The inflammatory joint changes on examination are not consistent with chronic fatigue syndrome; furthermore, patients with CFS typically report fatigue existing for many years. The MCP-wrist distribution of joint symptoms makes osteoarthritis very unlikely. The x-ray changes described are charac- teristic of RA, but would occur later in the course of the disease. Although arthritis can occasionally be a manifestation of hematologic malignancies and, rarely, other malignancies, the only indicated screening would be a complete history and physical examination along with a CBC.



432 Medicine Team Leaders

Raghad Al mutlaq & Abdulrahman Al Zahrani

For mistakes or feedback: *medicine341@gmail.com*

Answers:

1st Questions: d

2nd Questions: b

3rd Questions: a

4tha Questions: b