Rheumatoid Arthritis

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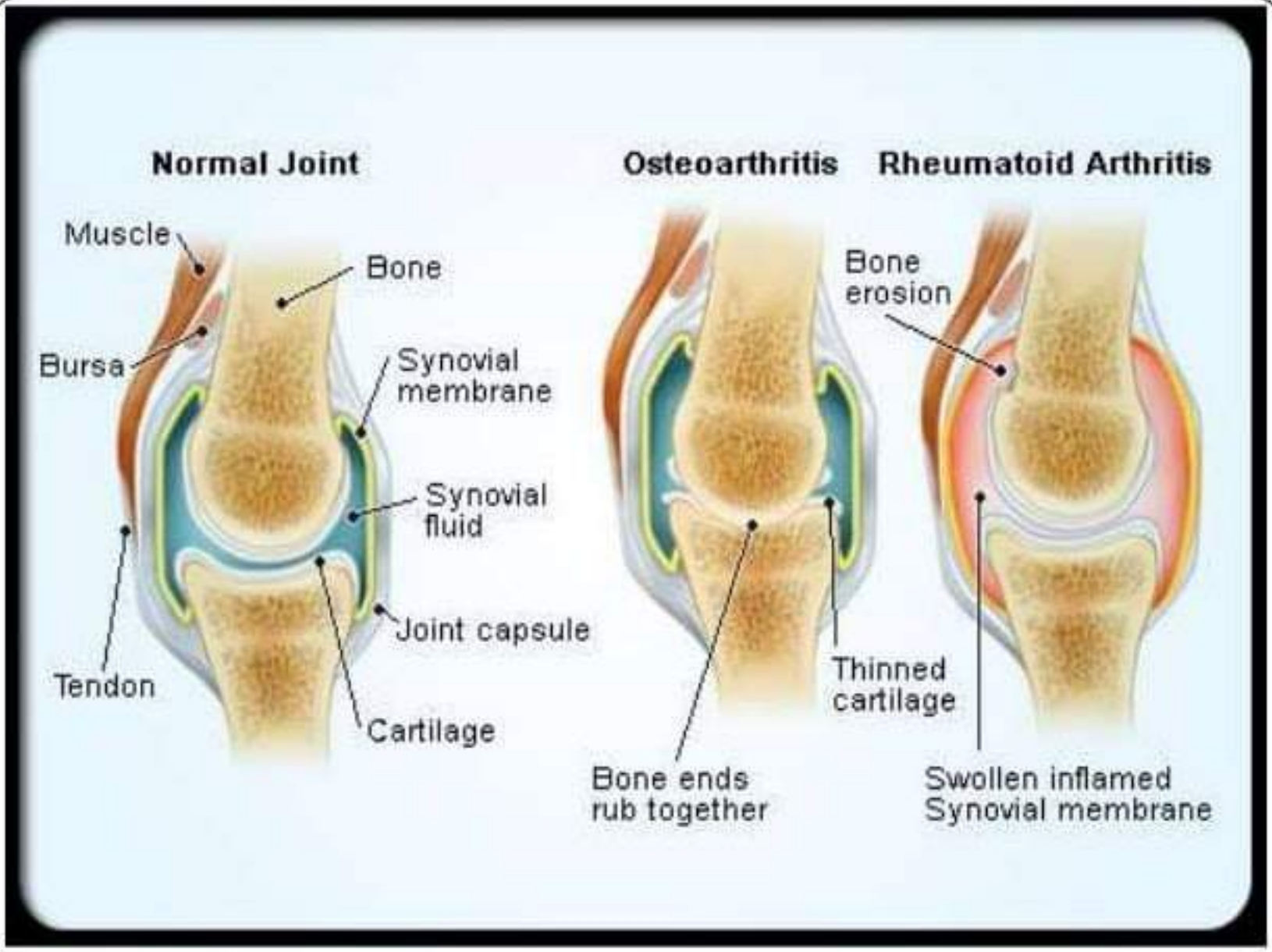
Rheumatoid Arthritis

- Rheumatoid arthritis is an autoimmune disease caused by chronic inflammation of unknown etiology maked by symmetric , peripheral polyarthritis which results in joint damage & physical disability.

- It is a progressive disease of synovial lining of peripheral joints characterized by symmetrical inflammation leading to potentially deforming polyarthritis.

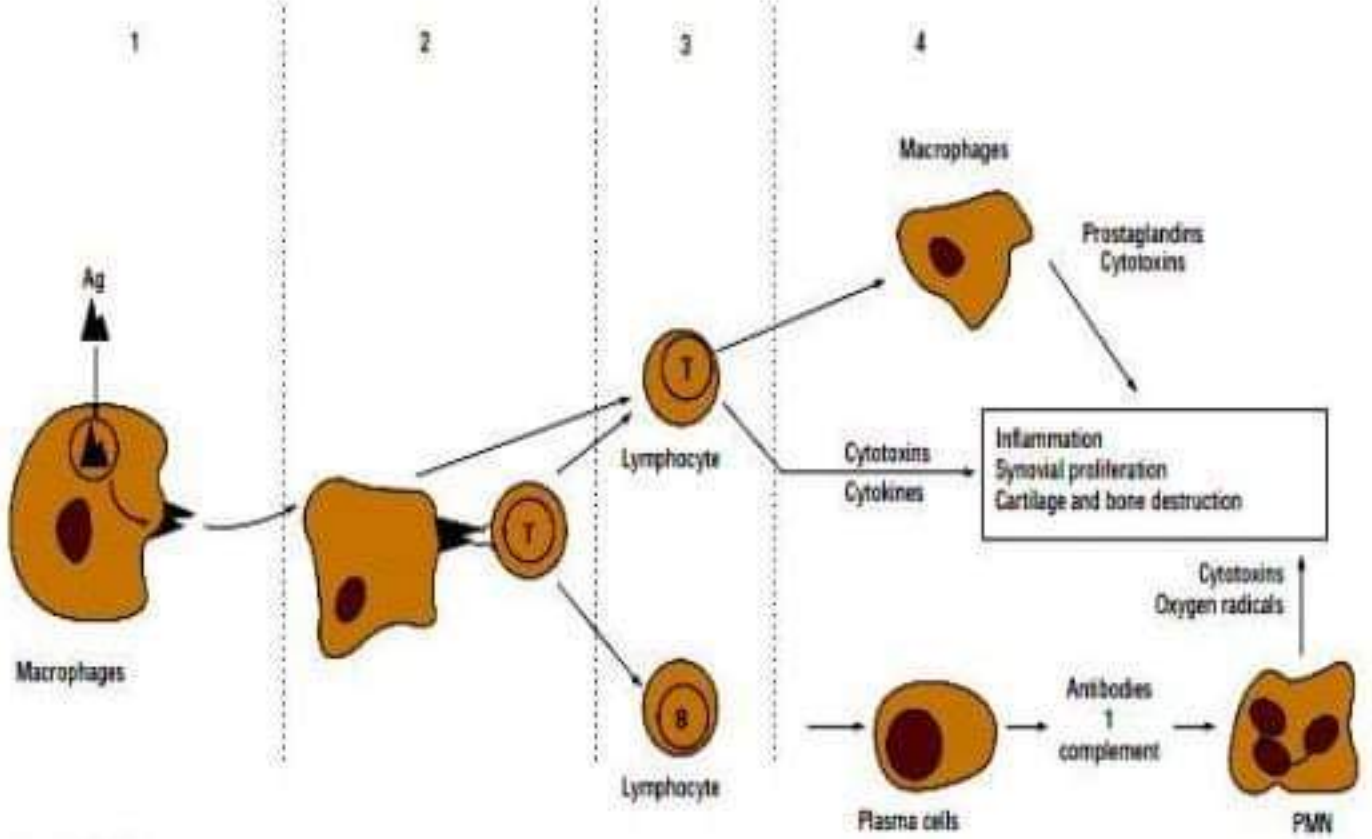
- It is the most common systemic inflammatory disease characterized by symmetrical joint involvement.

- Extraarticular involvement, including rheumatoid nodules, vasculitis, eye inflammation, neurologic dysfunction, cardiopulmonary disease, lymphadenopathy, and spleenomegaly, can be manifestations of the disease.


Normal Joint
Osteoarthritis
Rheumatoid Arthritis
Muscle
Bone
Bursa
Synovial membrane
Synovial fluid
Joint capsule
Tendon
Cartilage
Bone erosion
Thinned cartilage
Bone ends rub together
Swollen inflamed Synovial membrane

Etiology & Pathophysiology

- Environmental influences
- Genetic markers
- Antigen-dependent activation of T-Lymphocytes
- Tumor necrosis factor α (TNF α), IL-1, IL-6, IL-8 & growth factors
- Inflamed synovium



Pathogenesis of the inflammatory response. Phase 1: Antigen-presenting cell phagocytizes antigen. Phase 2: Antigen is presented to a T lymphocyte. The T lymphocyte attaches to antigen at the major histocompatibility complex portion of cell wall causing activation. Phase 3: An activated T cell stimulates T and B lymphocyte production, promoting inflammation. Phase 4: Activated T cells and macrophages release factors that promote tissue destruction, increase blood flow, and result in cellular invasion of synovial tissue and joint fluid. (Ag, antigen; PMN, polymorphonuclear leukocyte.)

Signs & symptoms

- ✓Tender, warm, swollen joints
- ✓Morning stiffness that may last for hours
- ✓Firm bumps of tissue under the skin on your arms (rheumatoid nodules)
- ✓Fatigue, fever and weight loss

Joint Involvement

The joints affected most frequently by rheumatoid arthritis are the small joints of the hands, wrists, and feet.

In addition elbows, shoulders, hips, knees, and ankles may be involved.

Swan neck deformity of the fingers

Cock Up Toe Deformity

Extraarticular Involvement

Rheumatoid Nodules

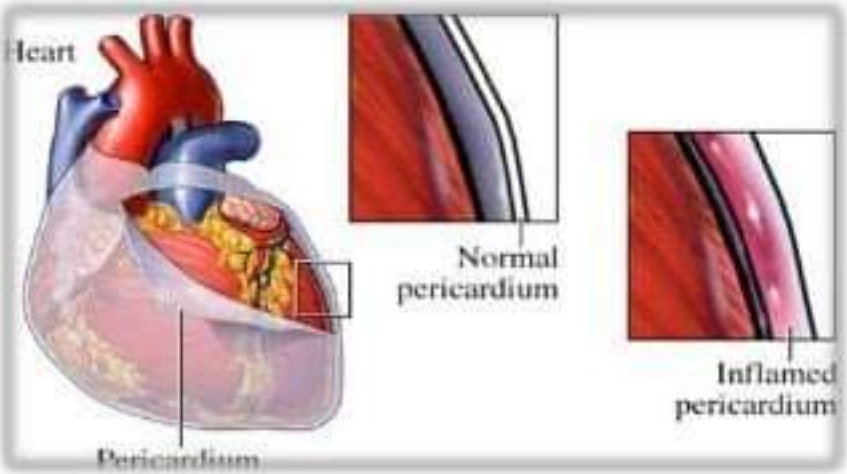
Pulmonary Complications

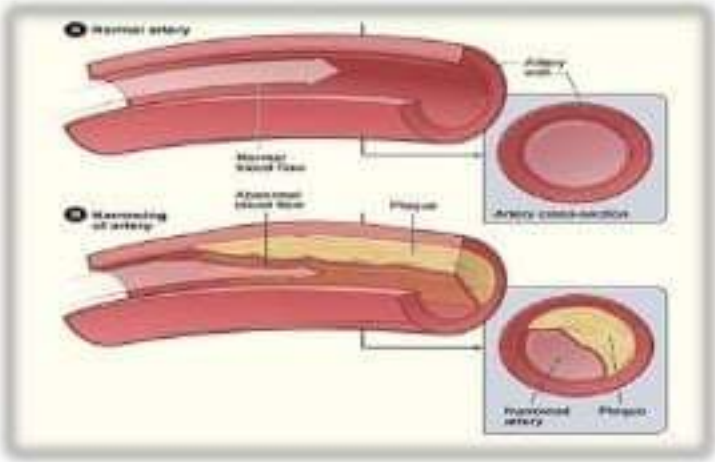
- Pleural effusions
- Fibrosing alveolitis
- Bronchiolitis

Ocular Manifestations

- Episcleritis
- Scleromalacia
- Keratoconjunctivitis Sicca (Sjogren's syndrome)

Cardiac Involvement





- Pericarditis
- Endocarditis
- Conduction defects
- Coronary vasculitis
- Granulomatous aortitis
- Myocarditis

Blood

❖FELTY'S SYNDROME

- Anemia
- Neutropenia
- Thrombocytosis

Neurological

- Cervical cord compression
- Peripheral neuropathy

Diagnosis

Criteria for the Classification of RA

Morning stiffness	Duration >1hr lasting >6wks
Arthritis of atleast 3 areas	Soft tissue swelling or exudation >6wks
Arthritis of hand joint	Wrist, metacarpopharyngeal joints lasting >6wks
Symmetrical arthritis	Atleast 1 area lasting >6wks
Rheumatoid nodules	As observed by physician
Serum rheumatoid factor	As assessed by a method positive in less than 5% of control subjects
Radiographic changes	As seen on anterioposterior films of wrist & hands
Presence of 4 of the above criteria - diagnosis of RA	

- Hematologic tests

- Erythrocyte sedimentation rate
- C-reactive protein

- Antinuclear antibodies
- Rheumatoid Factor
- anticitrulline antibody, anticyclic citrullinated peptide antibody(anti-CCP antibody)

- X-rays
- MRIscanning

Treatment

The goals of therapy of RA are;

(1) Relief of pain

(2) Reduction of inflammation

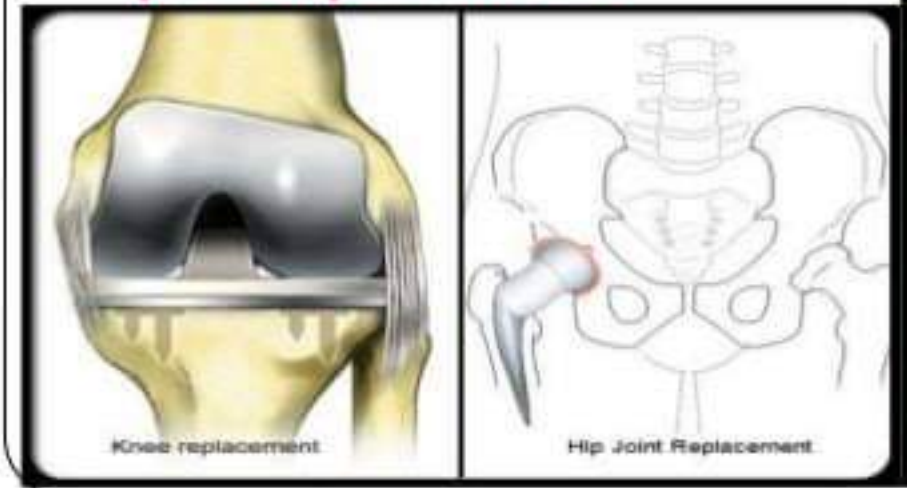
(3) Protection of articular structure

(4)Maintenance of function

(5) Control of systemic involvement.

Nonpharmacologic therapy

- ✓Rest
- ✓Occupational and physical therapy
- ✓Weight reduction
- ✓Surgery
  - Tenosynovectomy
  - tendon repair
  - joint replacement



Pharmacological therapy

Disease-modifying antirheumatic drugs (DMARDs)

✓Commonly used are methotrexate, hydroxychloroquine, sulfasalazine, and leflunomide.

✓The biologic agents that have disease-modifying activity

✓Anti-Cytokine Agents, anti-TNF drugs include etanercept, infliximab, adalimumab

✓IL-1 receptor antagonist anakinra

✓costimulation modulator abatacept, and rituximab, which depletes peripheral B cells.

✓Immunosuppressive Therapy. Less frequently used, azathioprine, D-penicillamine, gold (including auranofin), minocycline, cyclosporine and cyclophosphamide. This is due to either less efficacy, high toxicity, or both.

✓Combination therapy with two or more DMARDs may be effective.

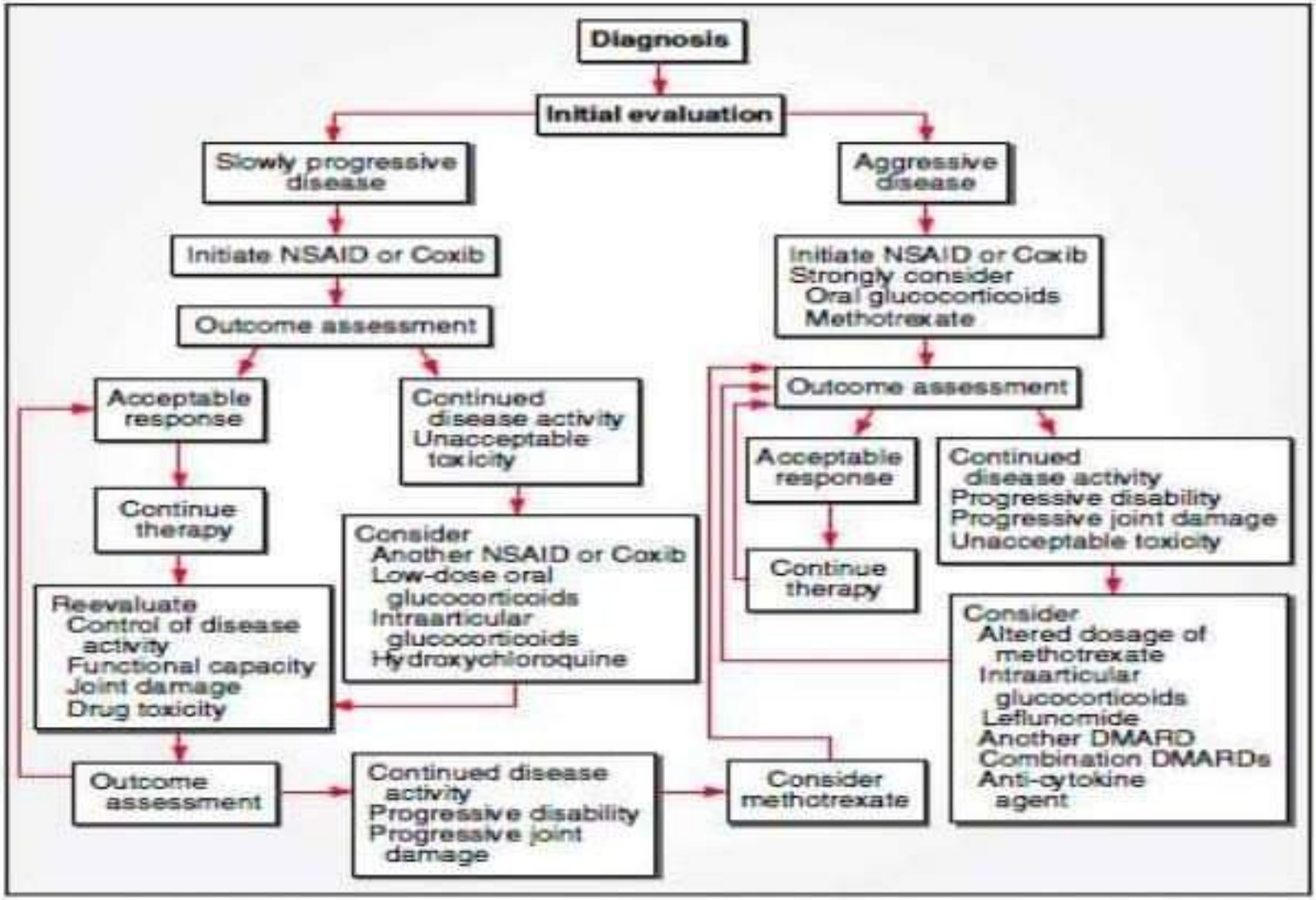
Cyclosporine + methotrexate

methotrexate + sulfasalazine and hydroxychloroquine.

✓Glucocorticoids (low dose), prednisone

- **Non – steroidal anti-inflammatory drugs (NSAIDs)**

  - ✓Aspirin
  - ✓Celecoxib
  - ✓Diclofenac
  - ✓Etodolac
  - ✓Fenoprofen
  - ✓Ibuprofen
  - ✓Indomethacin
  - ✓Meloxicam
  - ✓Nabumetone
  - ✓Naproxen
  - ✓Nonacetylated salicylates
  - ✓Oxaprozin
  - ✓Sulindac
  - ✓Tolmetin



Algorithm for the medical management of rheumatoid arthritis. NSAID, nonsteroidal anti-inflammatory drug; Coxib, COX-2 inhibitors; DMARD, disease-modifying antirheumatic drug.