Rheumatoid Arthritis

- Objectives:

By the end of this lecture student should be able to:

- Recognize which patient is likely to have RA
- Know the different modes of presentation of RA
- Develop a plan of investigation and management of RA

Rheumatoid Arthritis

Systemic chronic inflammatory disease

Mainly affects synovial joints

- Variable modes of presentation
- Prevalence about 3%
- Worldwide distribution
- Female:male ratio 3:1
- Peak age of onset: 25-50 years

Rheumatoid Arthritis

- Unknown etiology
  - Genetics
  - Environmental
  - Possible infectious component
- Autoimmune disorder

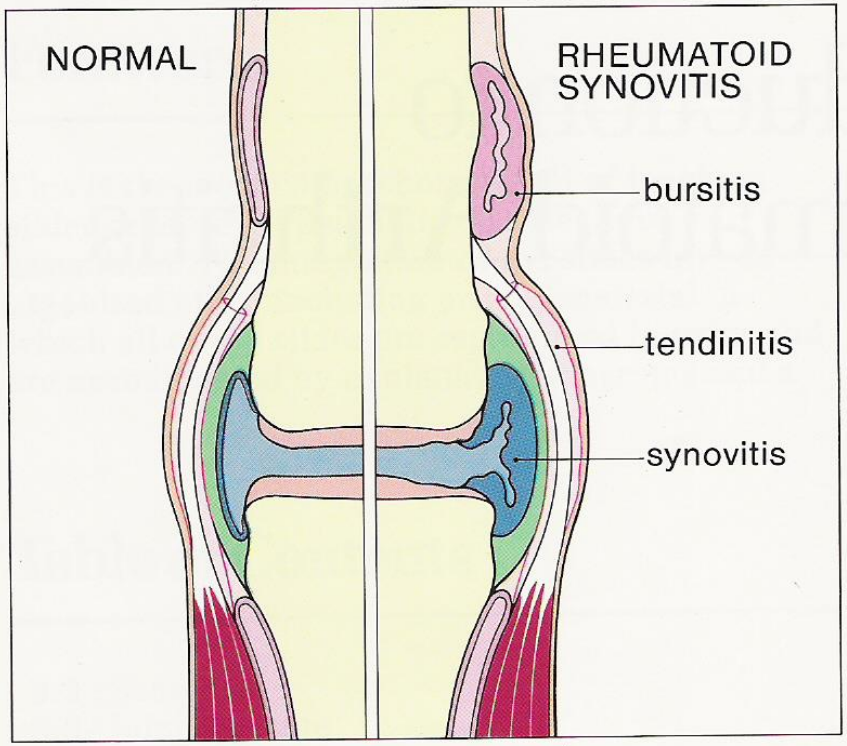
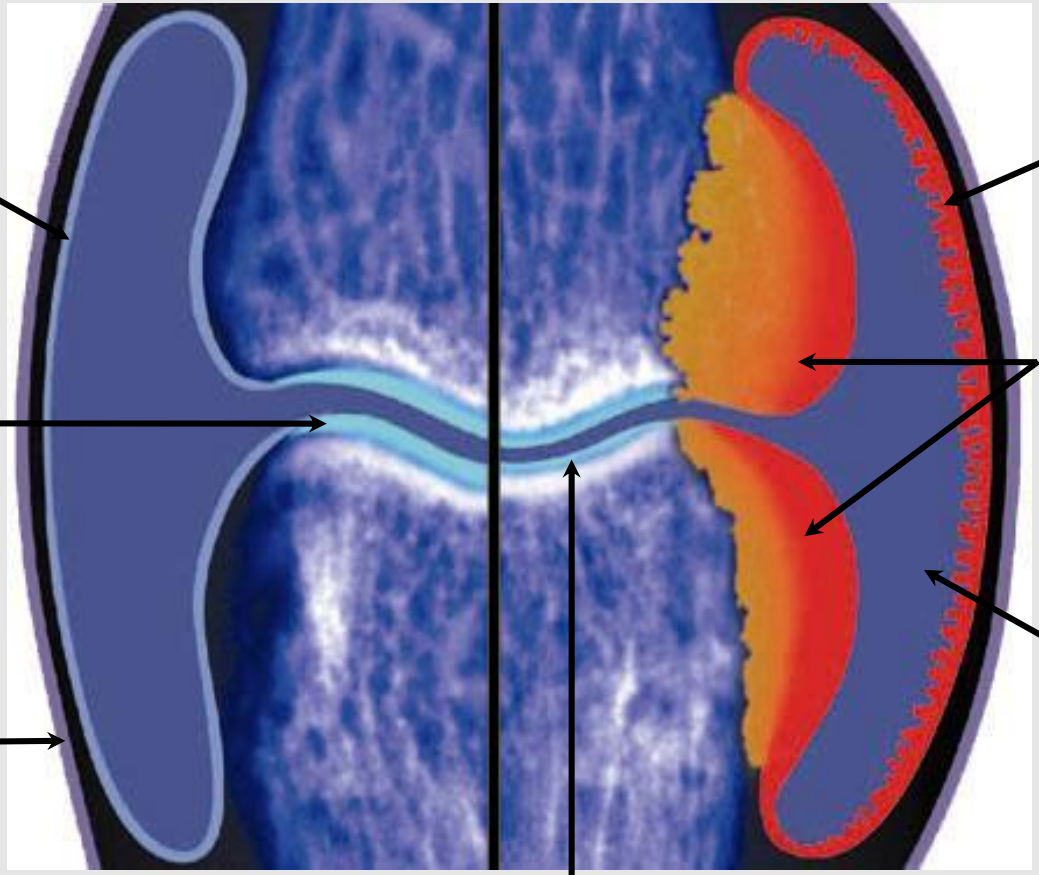


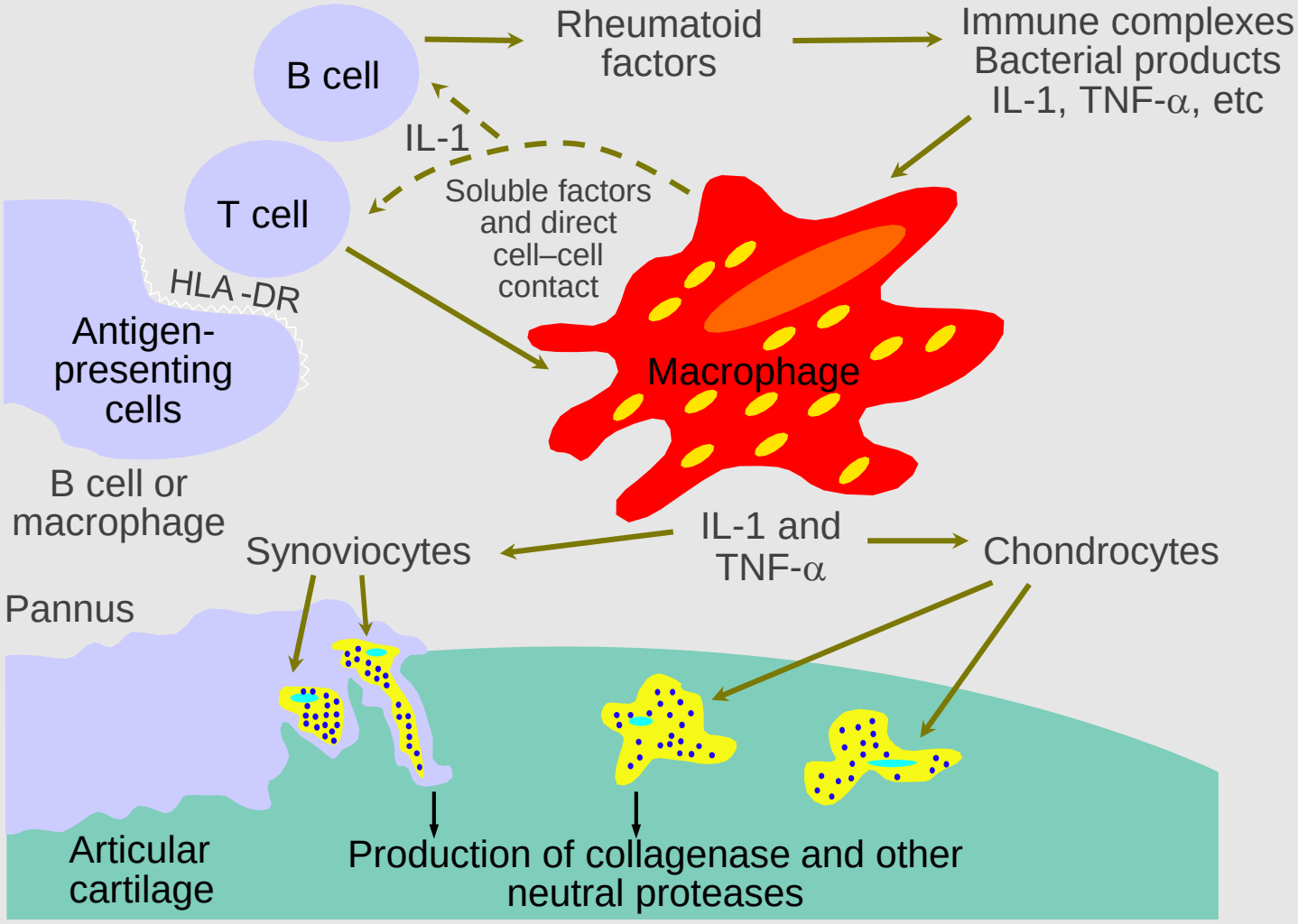
Fig. 3.3 The three major sites of rheumatoid synovitis.

RA Is Characterised by Synovitis and Joint Destruction



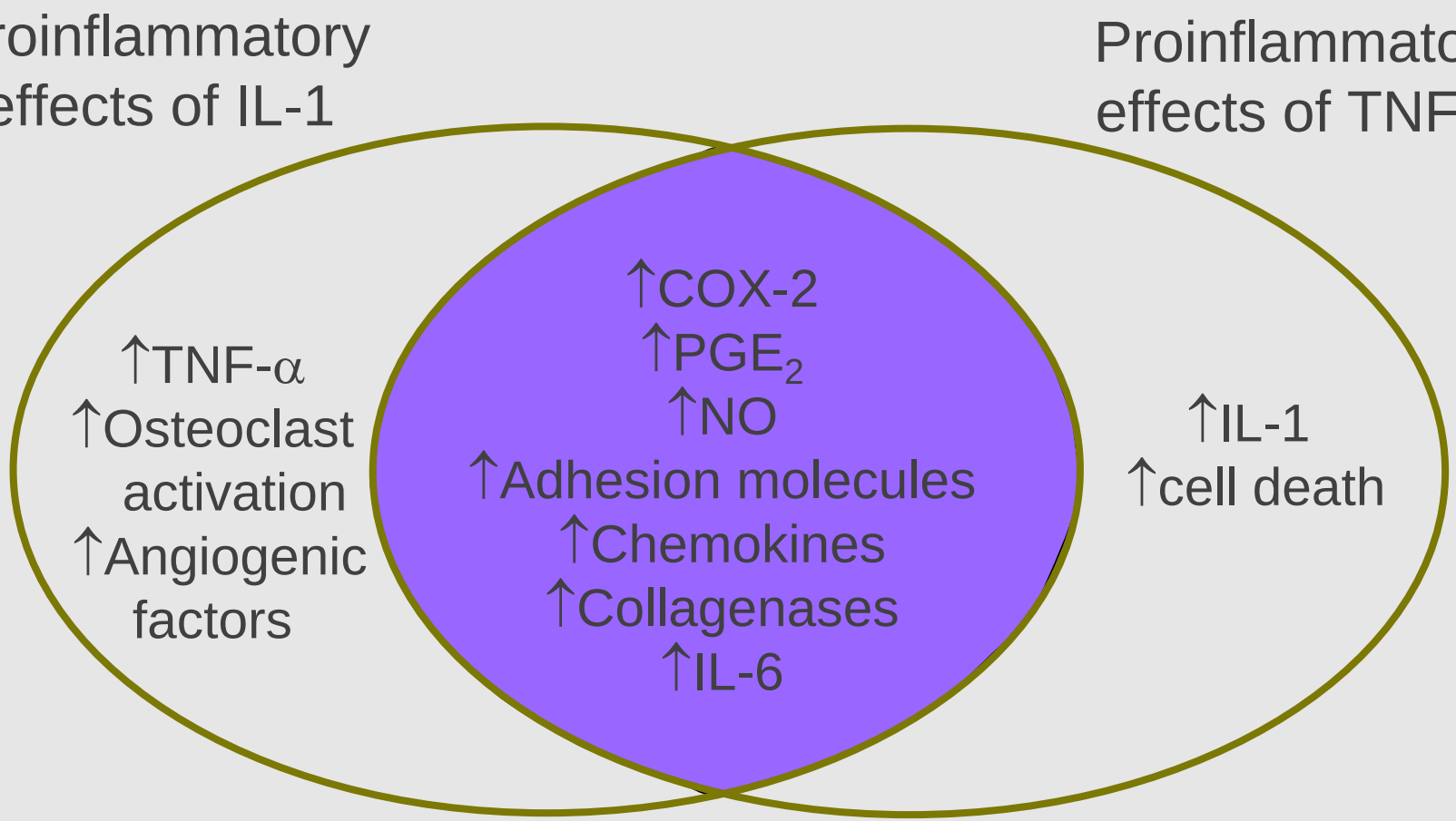
Adapted from Feldmann M, et al. *Annu Rev Immunol*. 1996;14:397-440.

Numerous Cellular Interactions Drive the RA Process



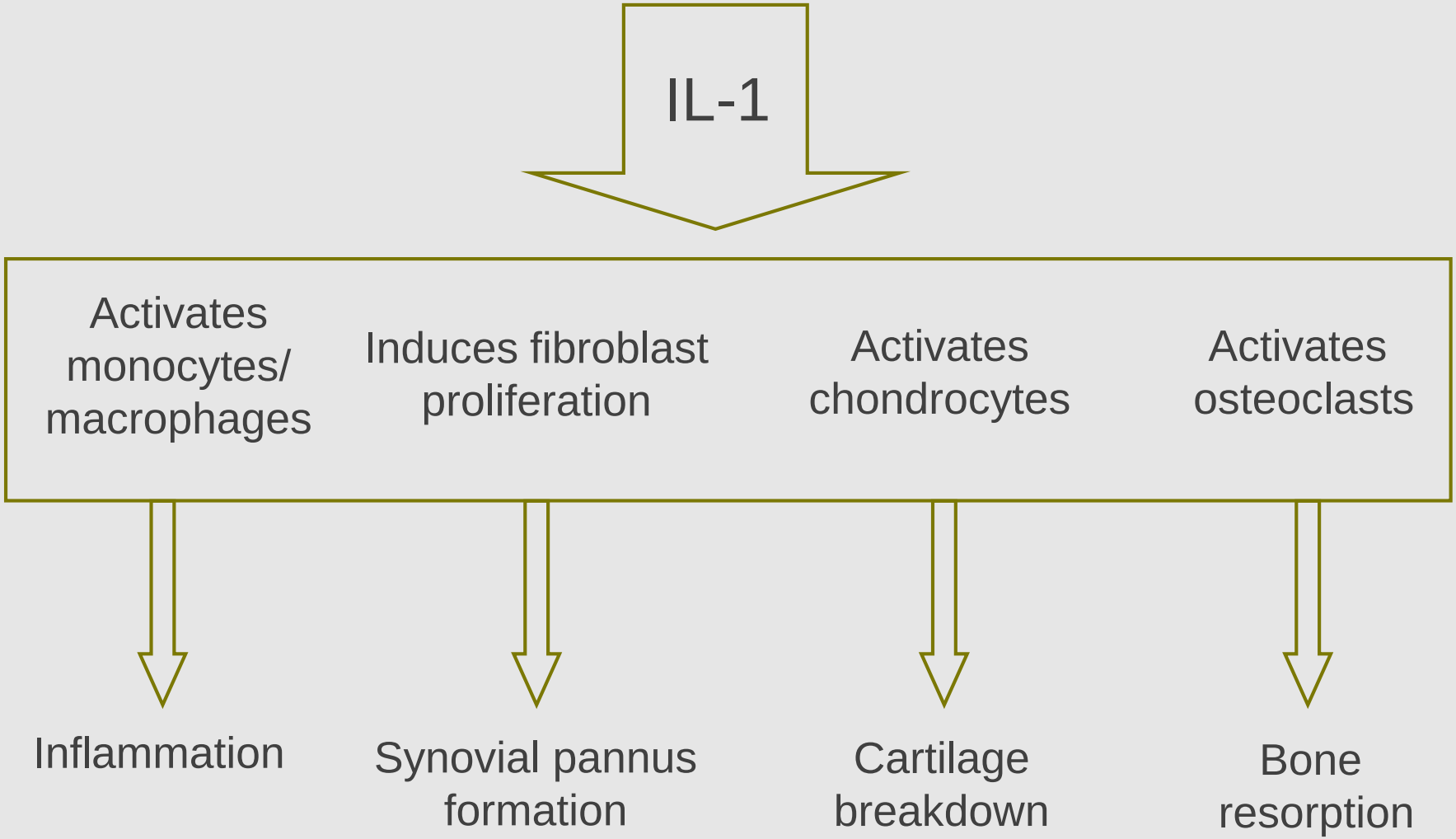
Arend W. *Semin Arthritis Rheum.* 2001;30(suppl 2):1-6.

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



COX-2 = cyclo-oxygenase type 2; PGE_2 = prostaglandin-E_2; NO = nitric oxide

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



Signs and Symptoms

- Joint inflammation
  - Tender, warm swollen joints
  - Symmetrical pattern
- Pain and stiffness
- Symptoms in other parts of the body
  - Nodules
  - Anemia
- Fatigue, occasional fever, malaise

JOINT INVOLVEMENT ON PRESENTATION OF RA

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

Articular features seen in the Rheumatoid Hand

WRIST:

- Synovitis
- Prominent ulnar styloid
- Subluxation and collapse of carpus
- Radial deviation

MCPs:

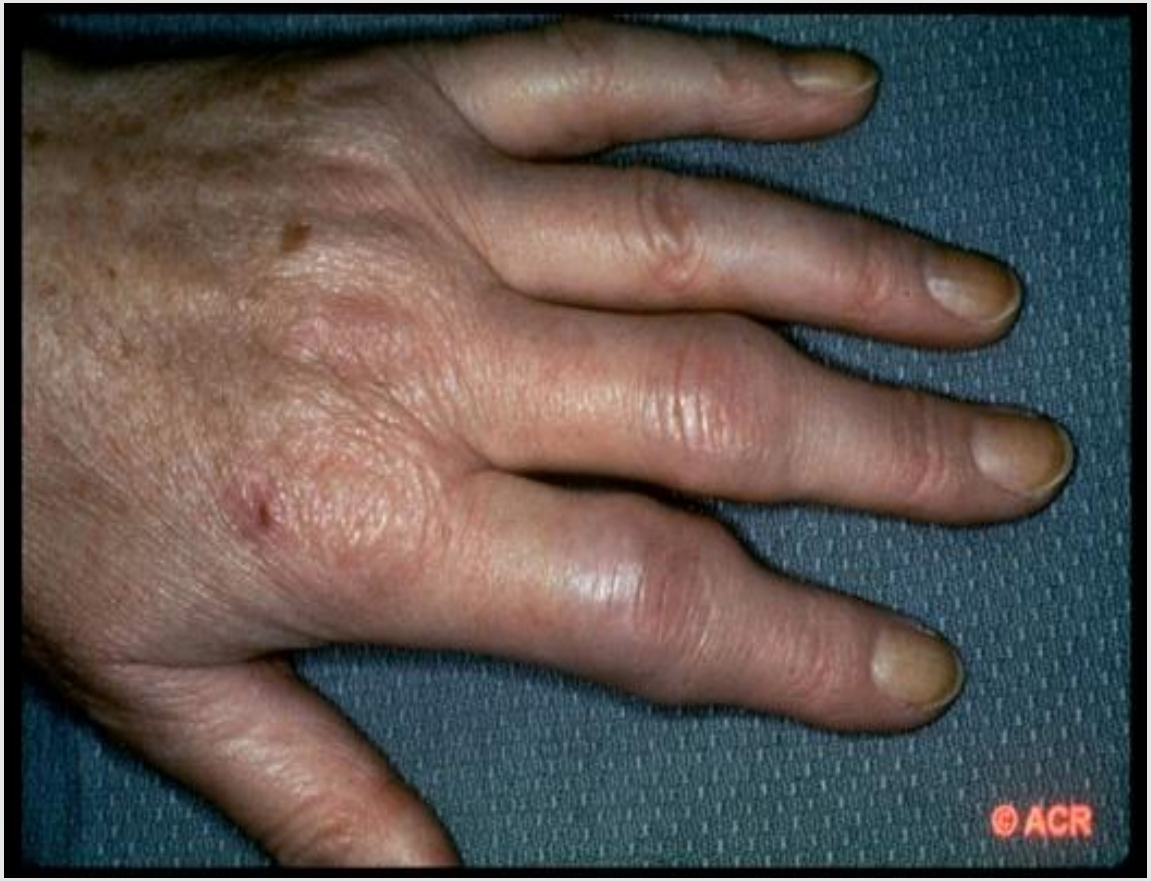
- Synovitis
- Ulnar deviation
- Subluxation

PIPs:

- Synovitis
- Fixed flexion or extension deformities
- (Swan neck or boutonniere deformity)

THUMBS:

- Synovitis
- ‘Z’ deformity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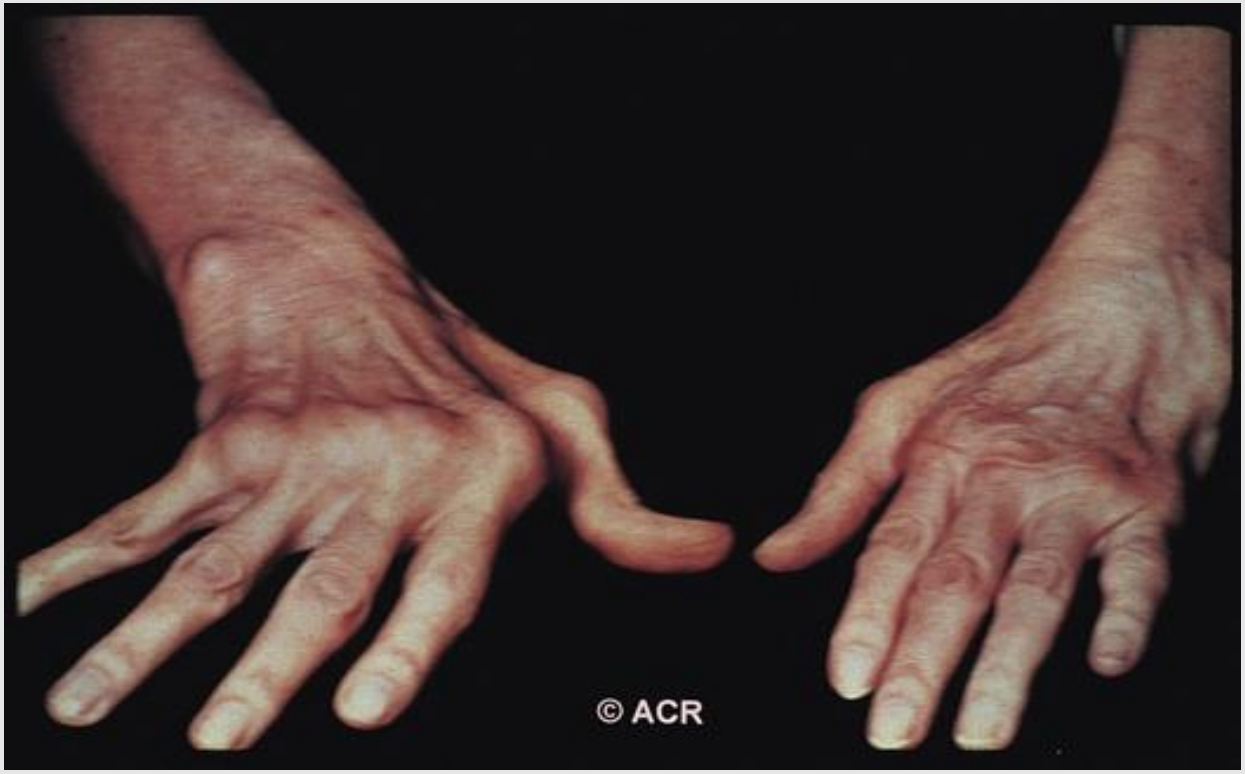
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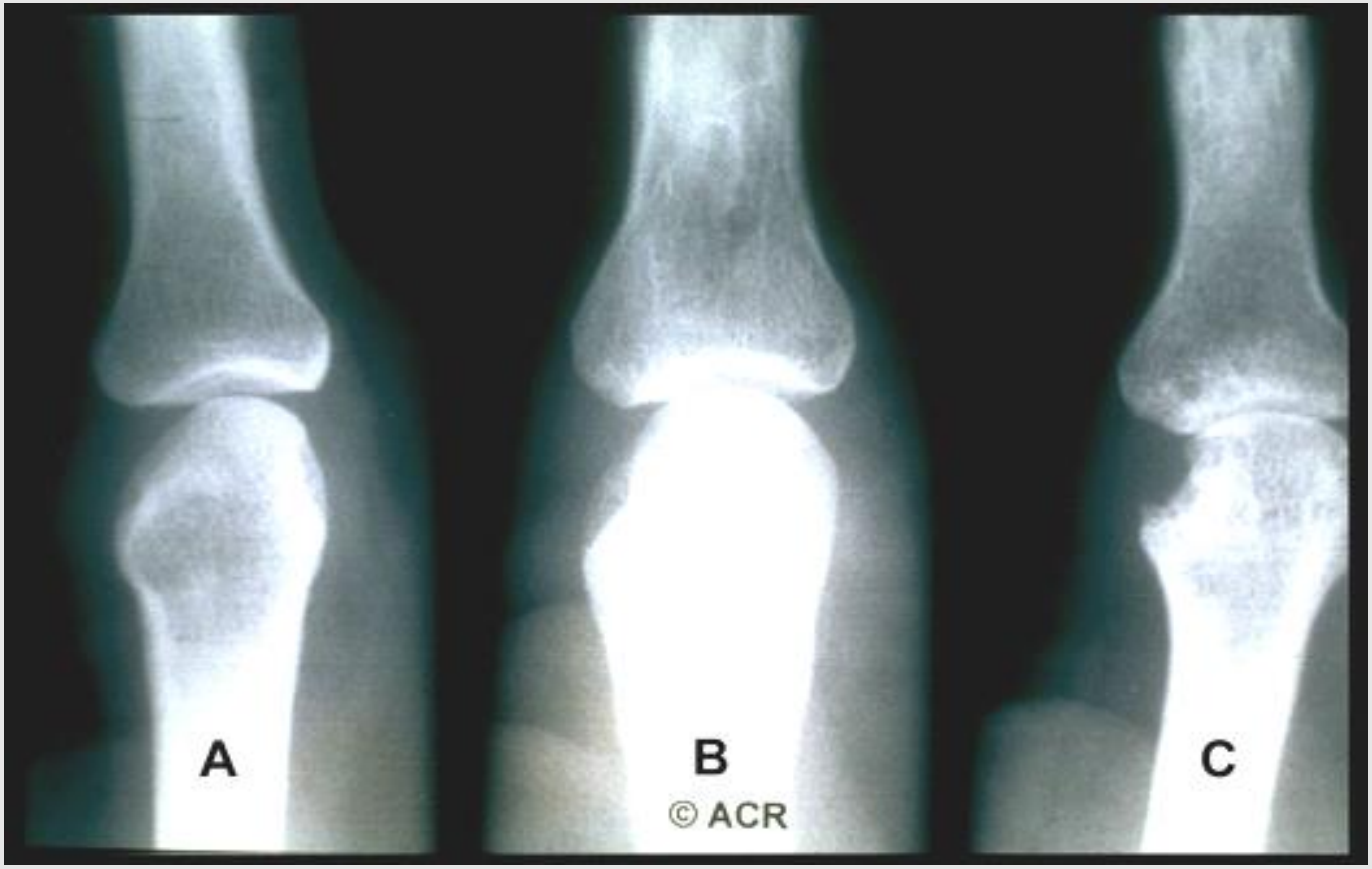
A
B
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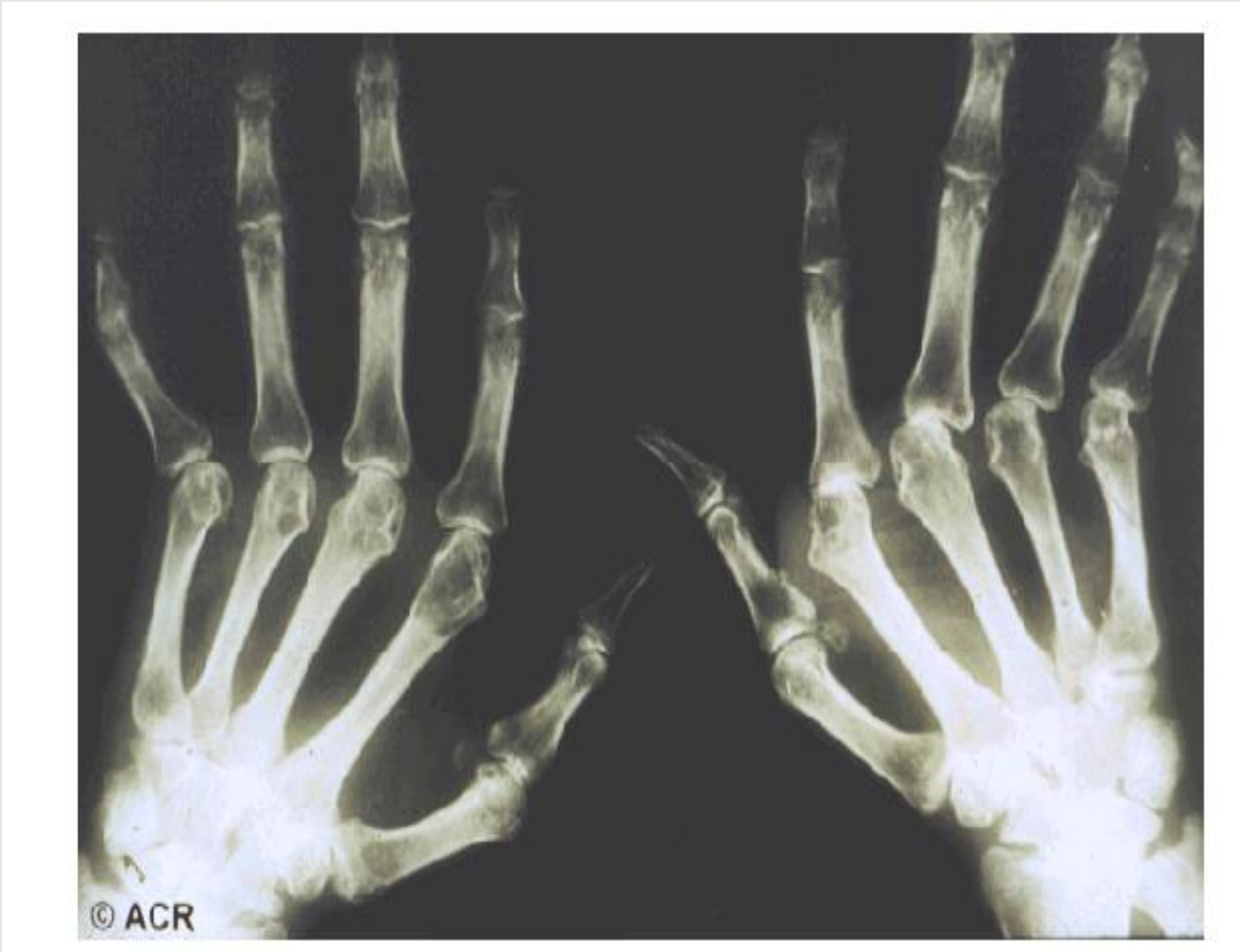
C

Joint Destruction



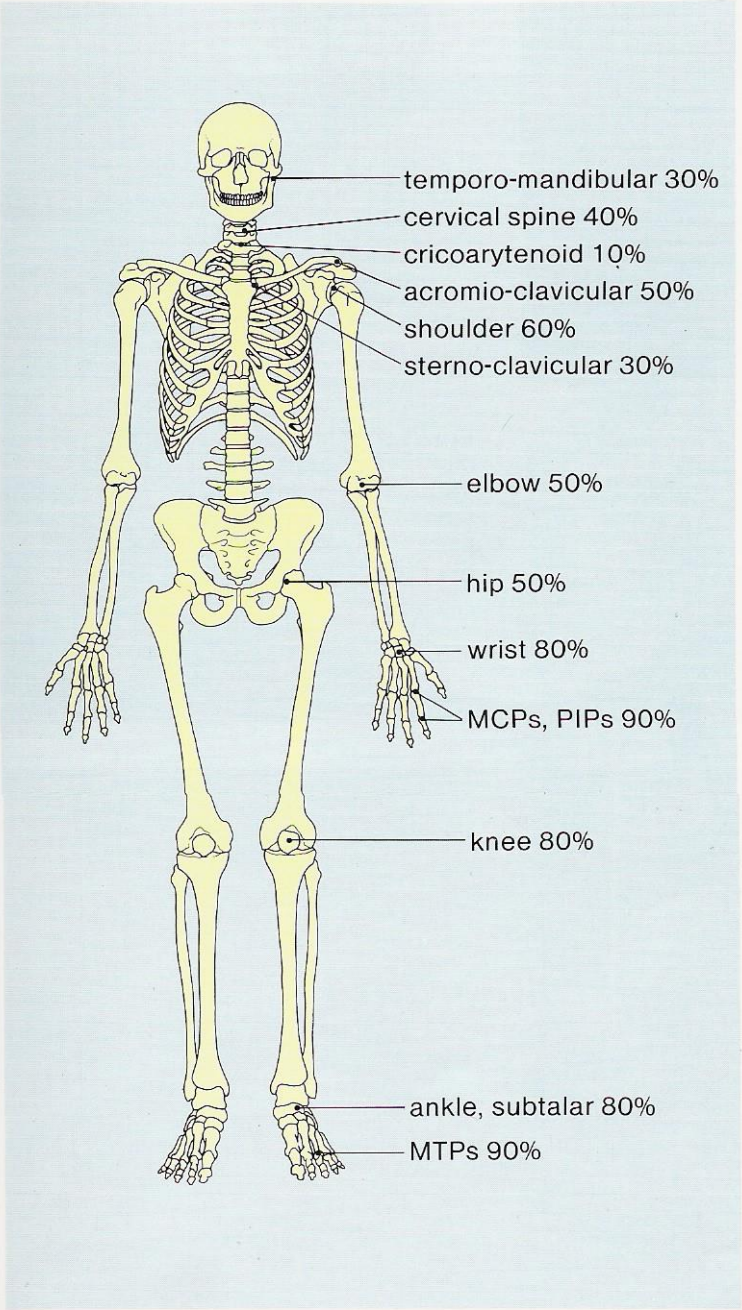


Fig. 3.6 Frequency of involvement of different joint sites in established RA.

Extra-articular manifestations

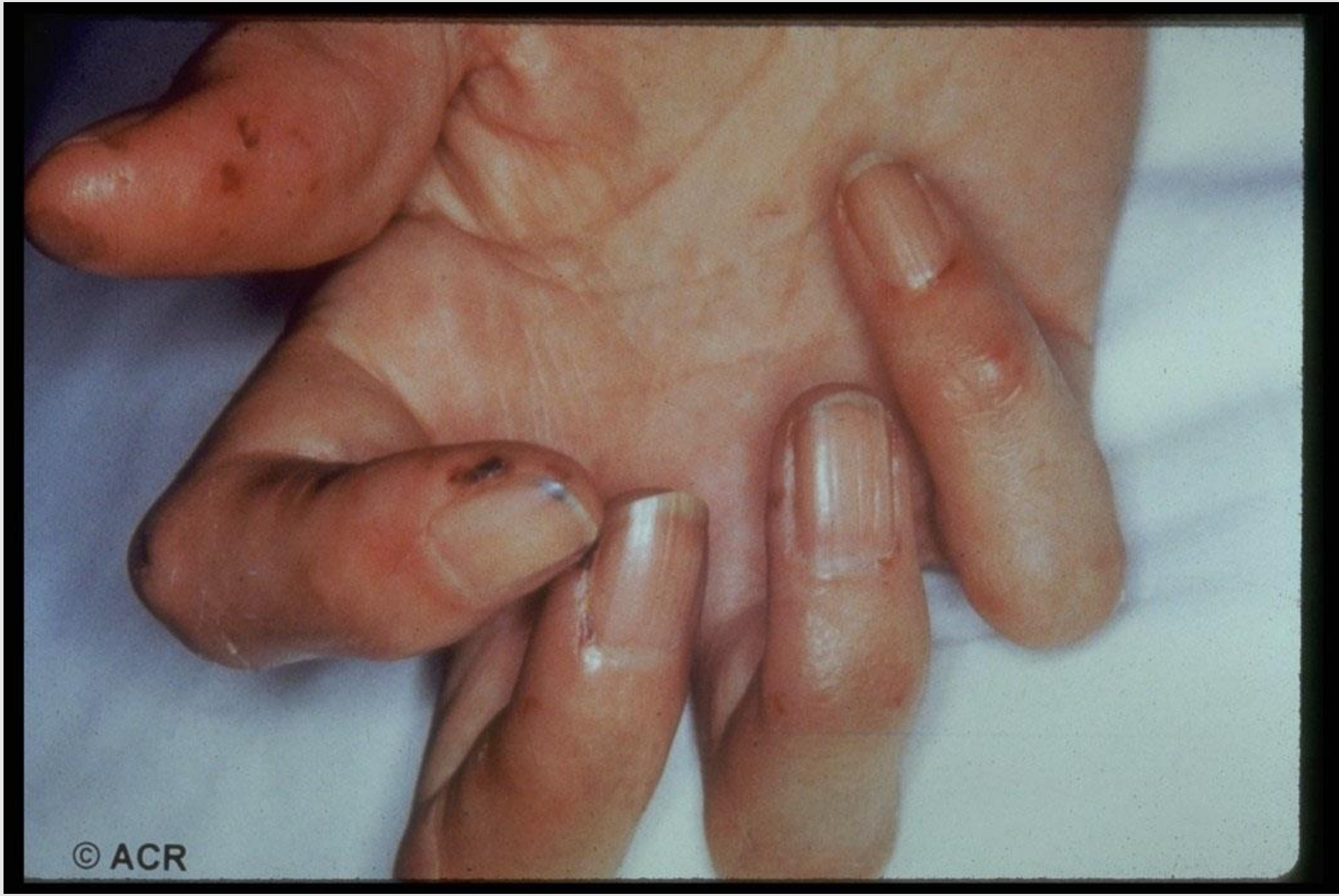
- General
  - fever, lymphadenopathy, weight loss, fatigue
- Dermatologic
  - palmar erythema, nodules, vasculitis
- Ocular
  - episcleritis/scleritis, scleromalacia perforans, choroid and retinal nodules

Extra-articular manifestations

- Cardiac
  - pericarditis, myocarditis, coronary vasculitis, nodules on valves
- Neuromuscular
  - entrapment neuropathy, peripheral neuropathy, mononeuritis multiplex
- Hematologic
  - Felty's syndrome, large granular lymphocyte syndrome, lymphomas

Extra-articular manifestations

- Pulmonary
  - pleuritis, nodules, interstitial lung disease, bronchiolitis obliterans, arteritis, effusions
- Others
  - Sjogren’s syndrome, amyloidosis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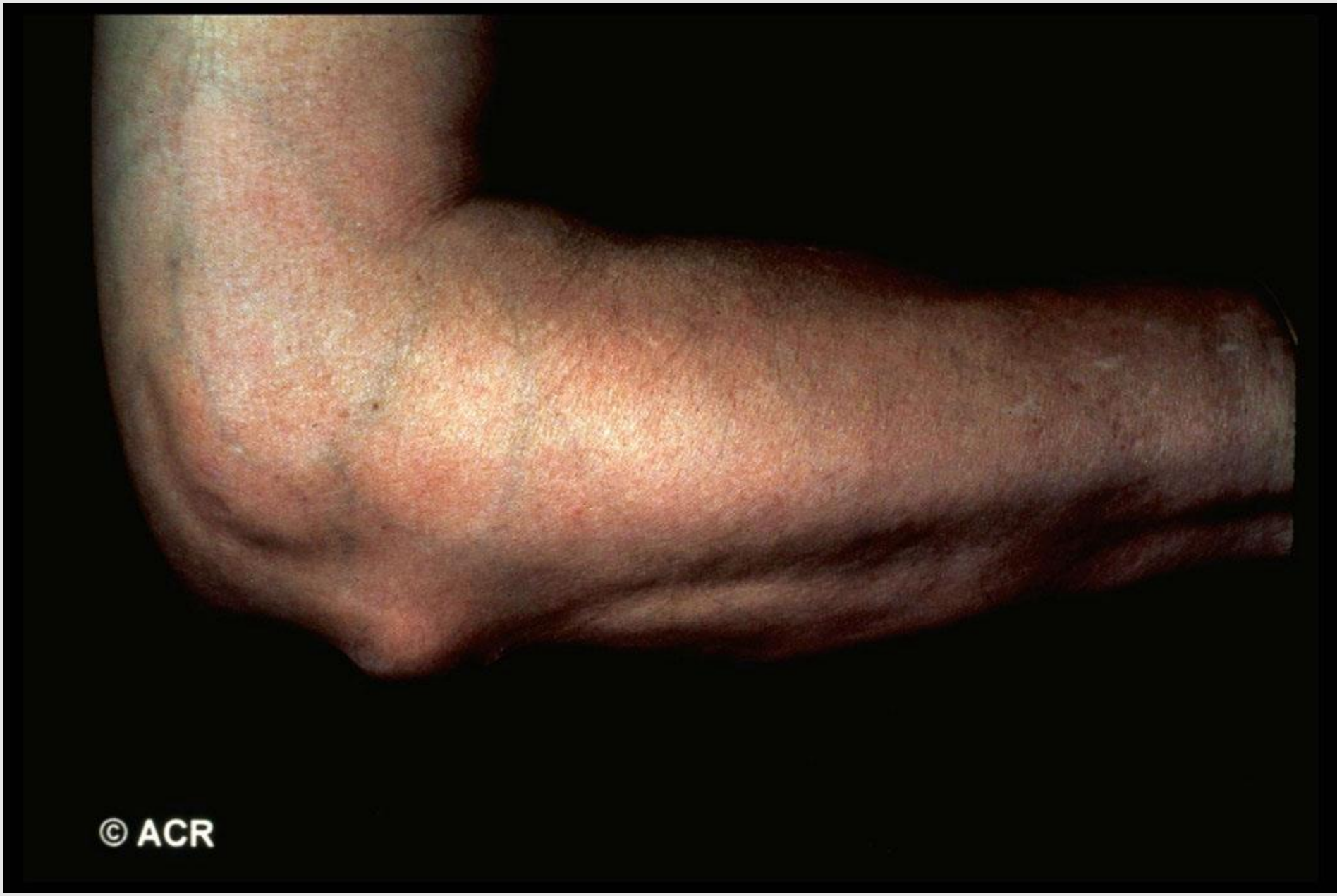
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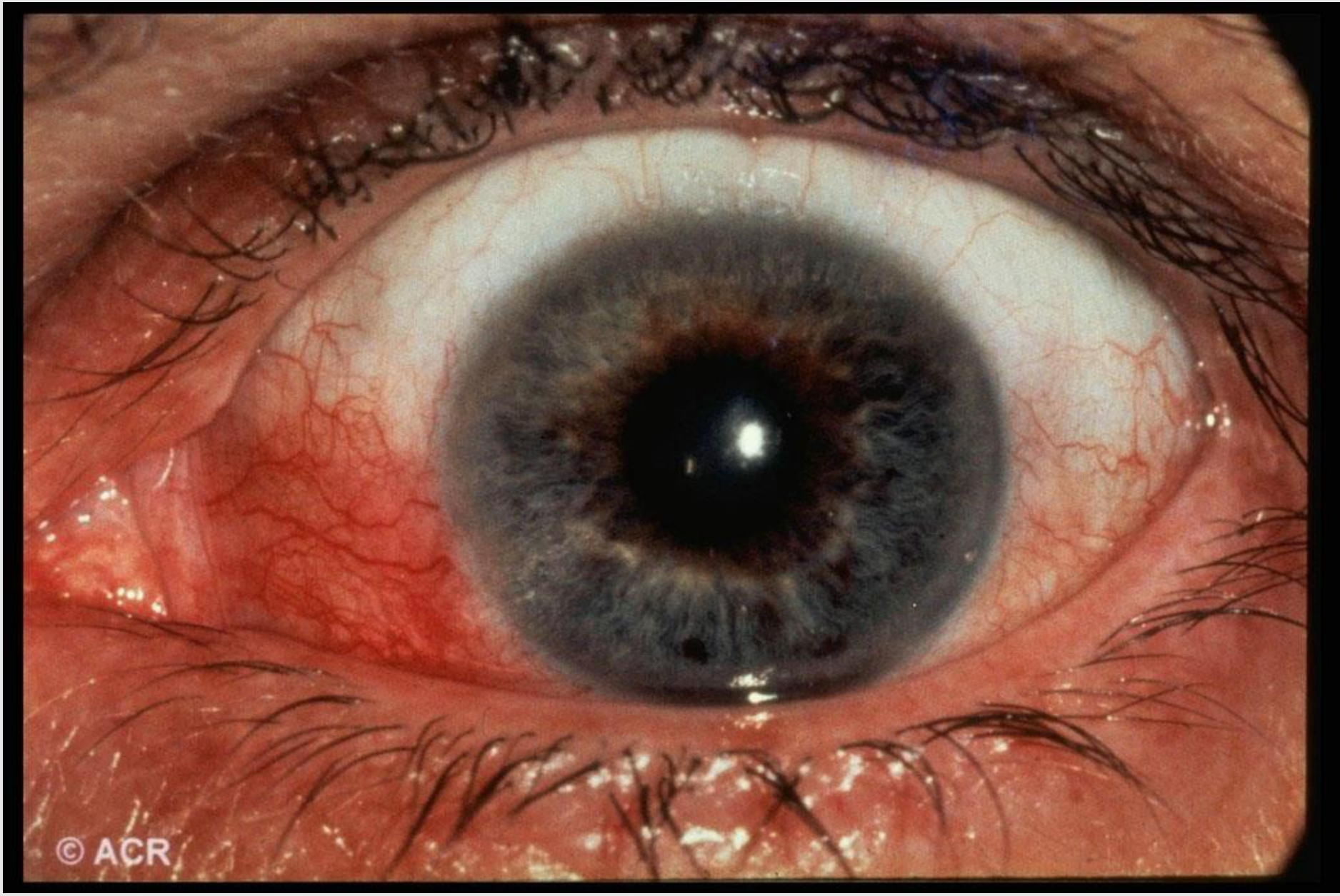
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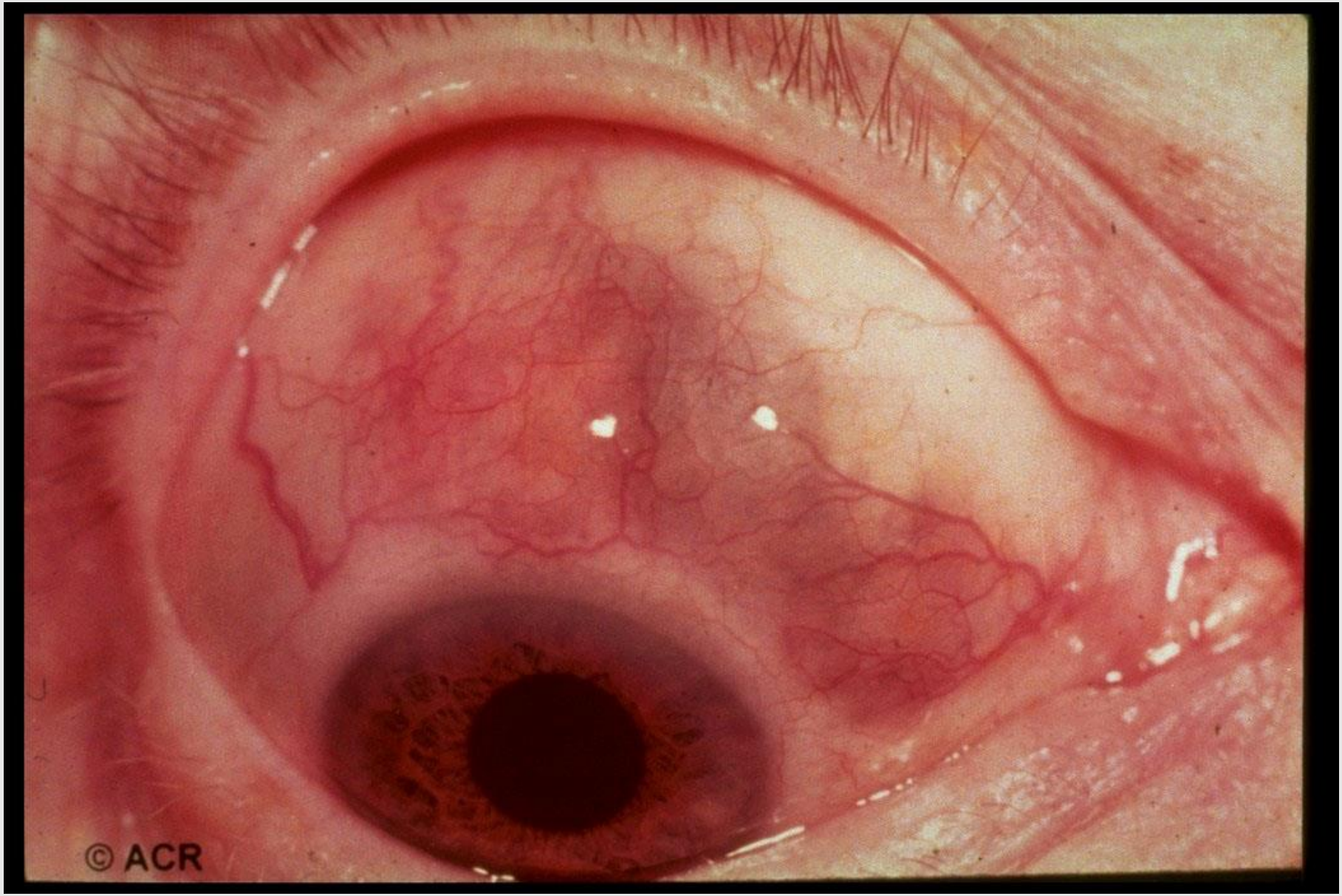
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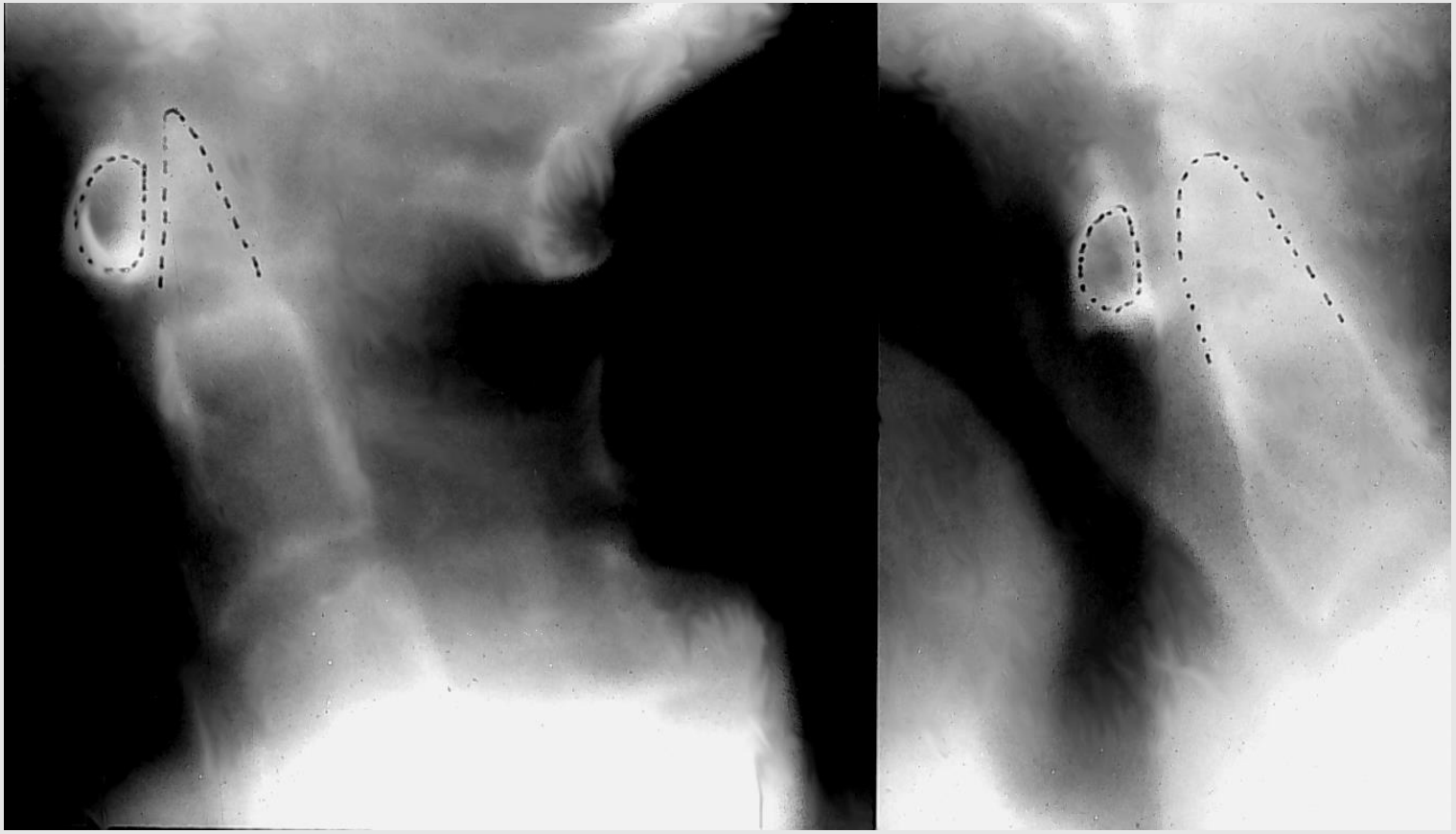


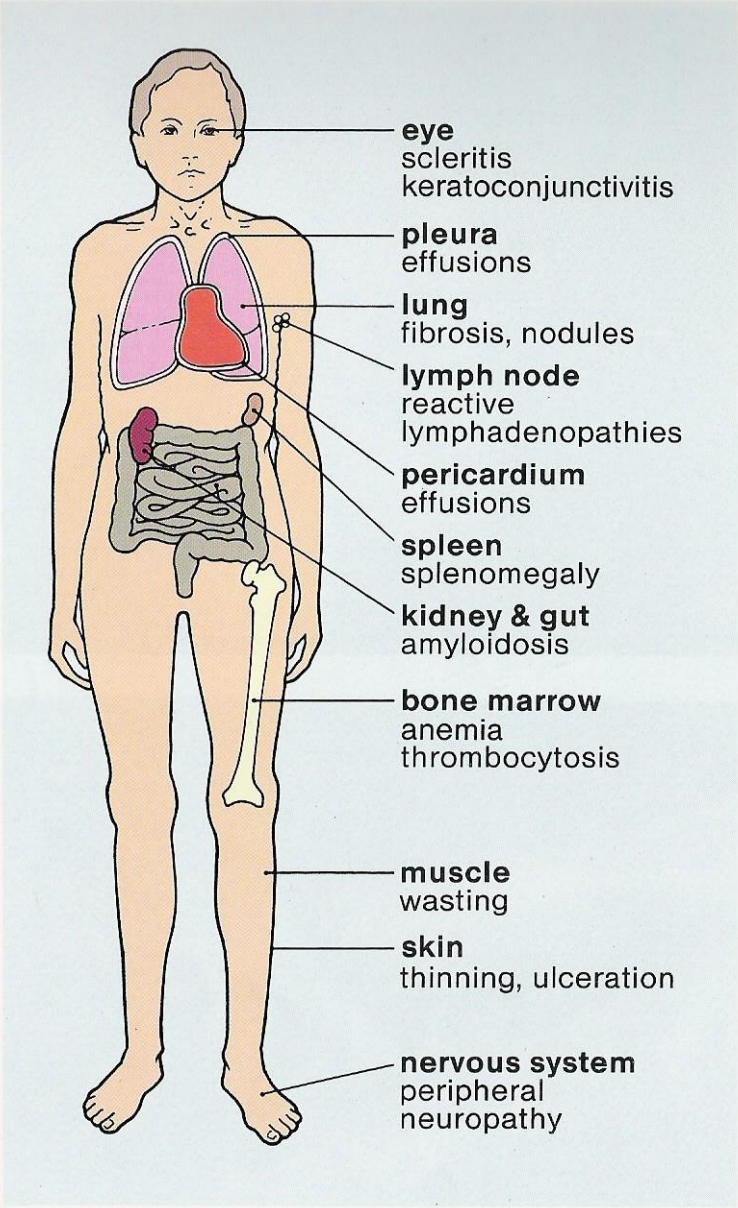


Fig. 3.27 Other organs commonly involved in rheumatoid disease.

Investigations:

- Hematology : CBC , ESR
- Biochemistry : LFT , Renal profile
- Serology : RF , Anti-CCP
- Radiography : Joints , Spines ,Chest

ACR 1987 Classification Criteria for Rheumatoid Arthritis

Patients Must Have Four of Seven Criteria:

- Morning Stiffness Lasting at Least 1 Hour*
- Swelling in 3 or More Joints*
- Swelling in Hand Joints*
- Symmetric Joint Swelling*
- Erosions or Decalcification on X-ray of Hand
- Rheumatoid Nodules
- Abnormal Serum Rheumatoid Factor

* Must Be Present at Least 6 Weeks.

The 2010 ACR / EULAR classification criteria for rheumatoid arthritis

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

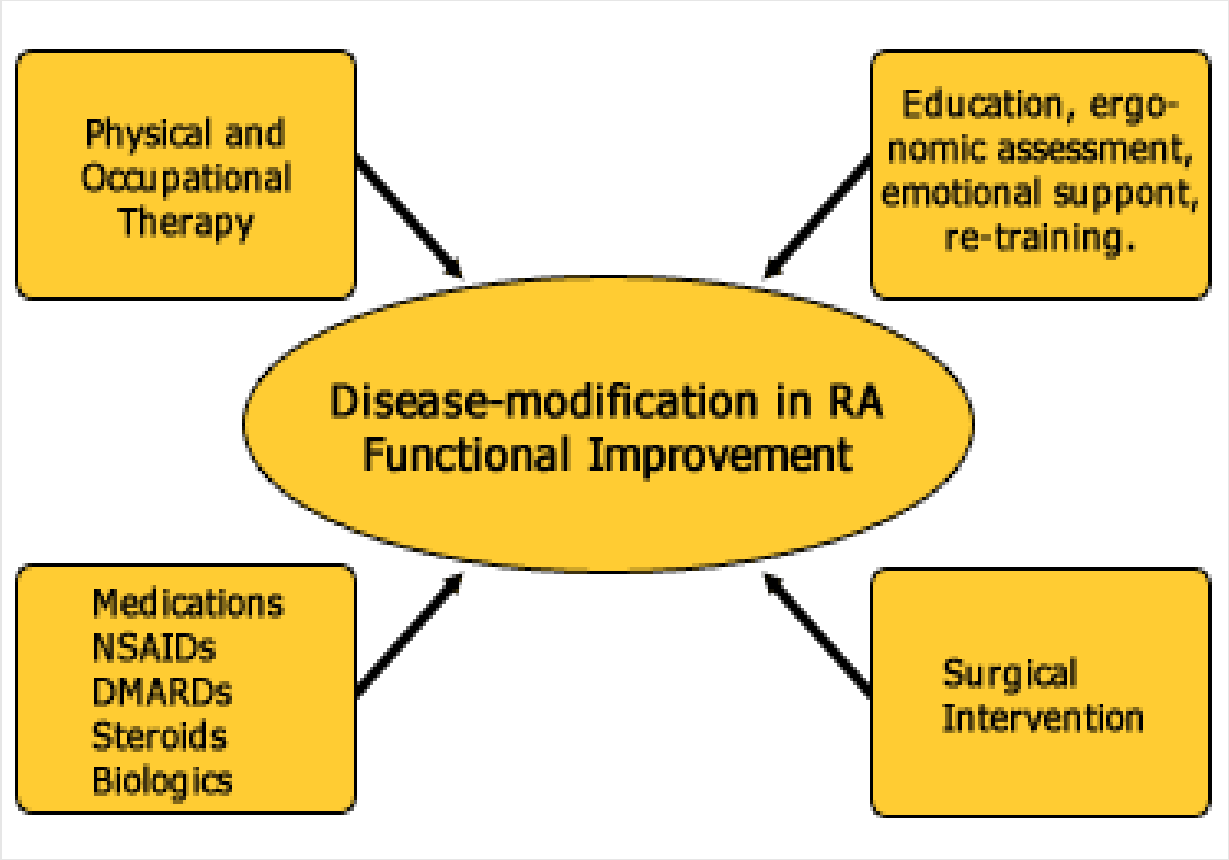
A. Joint involvement	
1 large joint.	**0**
2-10 large joints	**1**
1-3 small joints (with or without involvement of large joints)	**2**
4-10 small joints (with or without involvement of large joints)	**3**
3-10 joints (at least 1 small joint)	**5**
B. Serology (at least 1 test result is needed for classification)	
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 Approaches

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


Physical and Occupational Therapy
Education, ergo-nomic assessment, emotional suppont, re-training.
Disease-modification in RA
Functional Improvement
Medications
NSAIDs
DMARDs
Steroids
Biologics
Surgical Intervention

Rationale for the Early Treatment of R.A.

- Erosions develop early in the disease course
- 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)
- Disease-modifying antirheumatic drugs (DMARDs)
- Biologic response modifiers
- Corticosteroids

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Traditional NSAIDs

- Aspirin
- Ibuprofen
- Ketoprofen
- Naproxen

COX-2 Inhibitors

- Celecoxib
- Etericoxib

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

- To relieve pain and inflammation
- Use in combination with a DMARD
- Gastrointestinal side effects

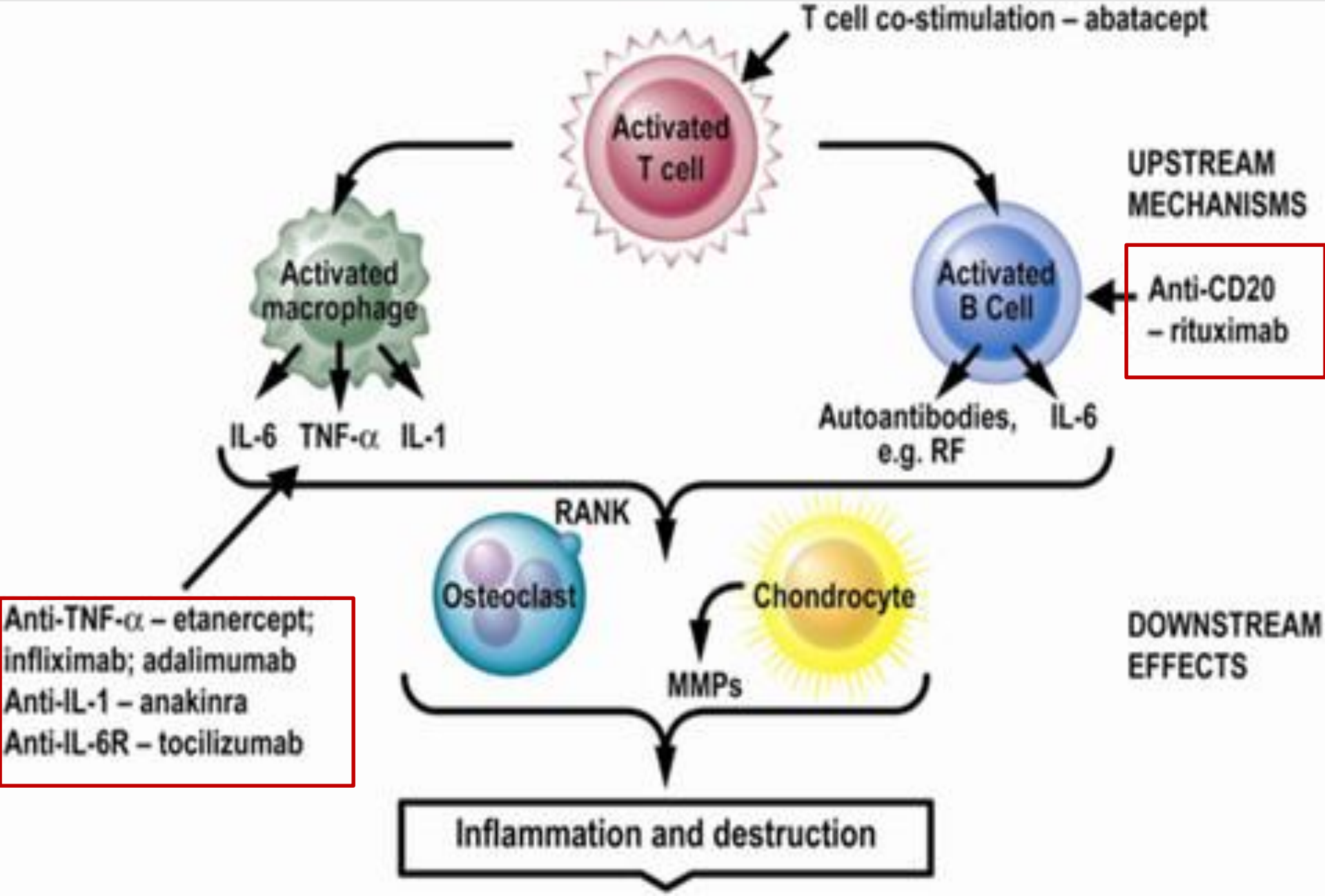
Disease-Modifying Antirheumatic Drugs (DMARDs)

- Hydroxychloroquine (eye exam)
- Sulfasalazine (CBC, LFTs)
- Methotrexate (CBC, LFTs)
- Leflunomide (CBC, LFTs)
- Azathioprine (CBC, LFTs)

Disease-Modifying Antirheumatic Drugs (DMARDs)

- 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

Biologic Response Modifiers



Biologic Response Modifiers

- **TNF Inhib:**
  etanercept,infliximab,Adalimumab
- **IL6 receptor inhib:**
  tocilizumab
- **T Cell costimulation modulator:**
  abatacept
- **Anti- CD20: Rituximab**

Physiotherapy

- Effective in maintaining the range of motion
- Strengthening of muscles
- Prevent contractures
- Prevent deformities
- Maintain activities of daily living

Occupational Therapy

- Education of patients in the use of daily living activities
- Prevention of joint contractures and deformities

THANK YOU