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Rheumatoid Arthritis

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- A 35 y old women has presented with symmetric polyarthrititis (wrists, MCPs, PIPs, elbows and MTPs).
- She also has fatigue, low grade fever and weight loss.
- These joints are swollen, tender and warm.



Rheumatoid Arthritis

- A chronic inflammatory disease
- A systemic disease
- Characteristic feature:
 - Persistent inflammatory synovitis
 - Peripheral joints
 - Symmetric
 - Cartilage damage and bone erosions → Destruction



Epidemiology and Genetics



Epidemiology

- Most common form of chronic inflammatory arthritis
- Prevalence: ~1% (range 0.3–2.1%)
- Annual incidence: 25 to 50/100,000
- Women: 2_3 times more often than men



Epidemiology

- ↑ Incidence between 25 and 55 y



Genetics

- First-degree relative → 2-10 times > NL population
- Concordant in monozygotic twins → 15-20%

Environmental factors

- Smoking
- Obesity
- Silica exposure
- Mineral oil
- Organic solvent



Environmental factors

- Smoking:

More common environmental factor

Relative Risk: 1.5-3.5

↑ Severe RA with antibodies to CCP

↑ Extraarticular

In particular women (2.5 times)



ONSET



Onset

- In 2/3 of patients begins with:
 - Fatigue, anorexia, generalized weakness

- This prodrome may persist for weeks or months



ARTICULAR SIGNS & SYMPTOMS



Articular

- Most common manifestation:
 - Insidious onset of inflammatory pain
- An almost invariable feature:
 - Morning stiffness of >1-h



Onset

- Specific symptoms appear gradually
 - Earliest joints: small joints of hands and feet
 - Especially: wrists, MCP and PIP joints
 - Symmetric
- 1/3 of patients → Initially one or a few joints



Articular

■ Synovial inflammation causes:

- Swelling
- Tenderness
- Limitation of motion
- Warmth
- Palpable synovium



Articular

- Symmetric
- Certain specific joints:
 - Wrist joints
 - MCP, PIP
 - Elbow
 - Knee
 - Forefoot, ankles, and subtalar
 - Hip & shoulder



Articular

DIP: rare (OA)

- Rarely affect → lumbar and thoracic spine



Articular

- Synovial joints of C1-C2:
 - Atlantoaxial subluxation
 - Pain in the occiput
 - Rarely: compression of the cord



Articular

- Characteristic joint changes:

- Hand:

- "Z" deformity → Radial deviation at wrist
Ulnar deviation digits



Articular

- Characteristic joint changes:

- Hand:

- Swan-neck deformity → PIP hyperextension
DIP Flexion



Articular

- Characteristic joint changes:

- Hand:

- Boutonnière deformity → PIP flexion
DIP extension



Articular

- Characteristic joint changes:

- Hand:

- Thumb → Hyperextension of the first IP
Flexion of the first MCP



Articular

■ Characteristic joint changes:

● Foot:

- Hallux valgus
- Eversion at hindfoot
- Plantar subluxation of the metatarsal heads
- Widening of the forefoot
- Lateral deviation and dorsal subluxation of the toes



EXTRAARTICULAR MANIFESTATION

Extraarticular Manifestation

- RA is a systemic disease
- 40% of patients



Extraarticular Manifestation

- More commonly in:
 - History of smoking
 - Uncontrolled articular disease
 - RF or antiCCP positive



Rheumatoid nodule

- In 30–40%
- On areas subjected to mechanical pressure
- Elsewhere
- Firm, nontender, adherent



Rheumatoid nodule

■ Common locations:

- Olecranon bursa, proximal ulna, Achilles tendon, occiput



Pleuropulmonary

■ Pleuritis:

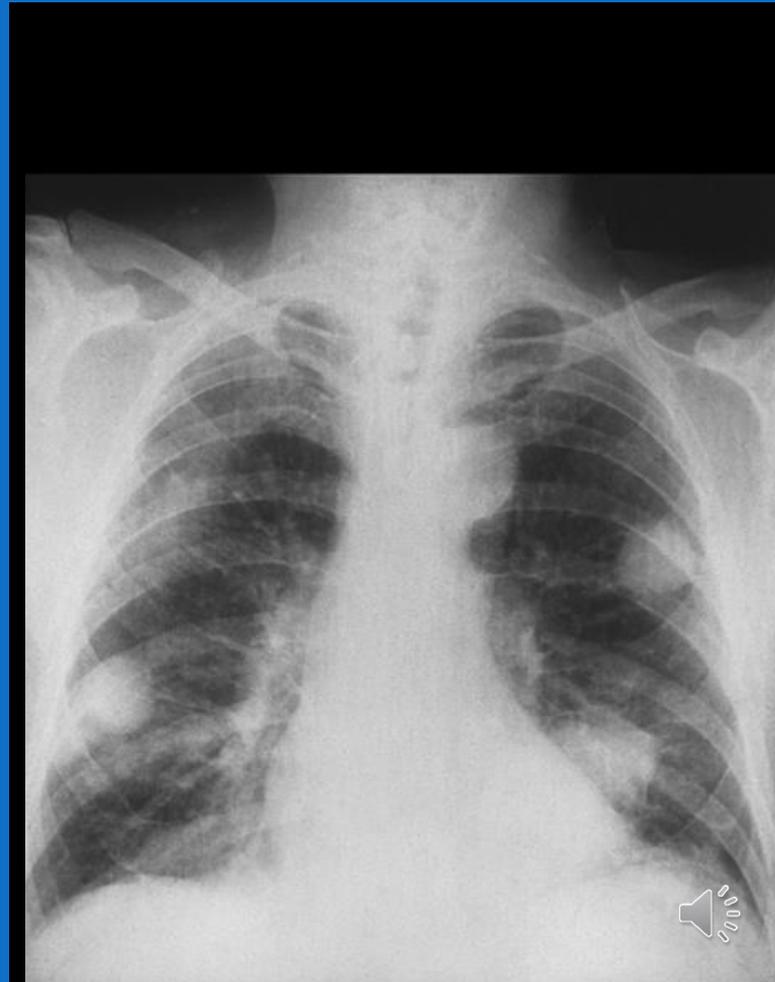
- Most common pulmonary manifestation
- Autopsy  Common
- Symptomatic  Infrequent



Pleuropulmonary

- **ILD:**
 - Dry cough
 - Progressive shortness of breath

- **Pulmonary nodules**



Cardiovascular

■ Pericarditis:

- Asymptomatic
- 50% by echo

■ IHD

- Most common cause of death
-  Inflammatory markers



Eye

- <1%
- Long-standing disease and nodules
- Episcleritis, scleritis
- Sjögren's syndrome (10%)



Felty's syndrome

- Consists of:
 - Splenomegaly
 - Neutropenia
 - Nodular RA
- Leukopenia is selective neutropenia (PMN <1500 cells/L)
- Late stage of severe RA

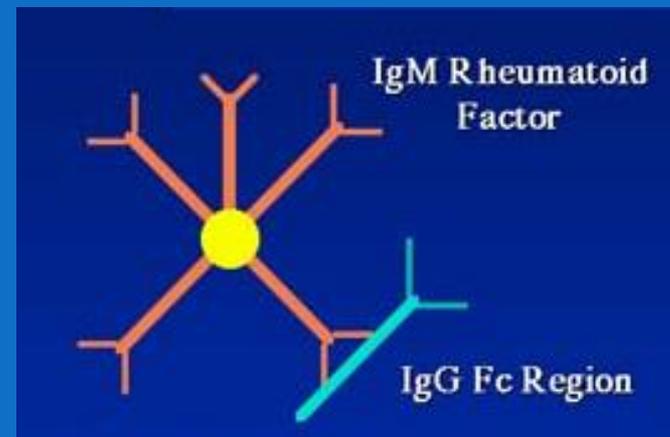


LABORATORY



Laboratory

- **RF** autoantibodies reactive with Fc portion of IgG
- 75_80% of patients
- No specific
- 5% of healthy
- Rheumatic & infectiuse



Laboratory

- Predictive value: low
- $<1/3$ of patients with a positive test for RF have RA
- Not useful as screening
- Prognostic
- Doesn't need to be repeatedly tested



Laboratory

■ Anti-CCP:

- Sensitivity: 75_80%%
- Specificity: 95%
- Prognostic
- 1.5% of population

Laboratory

- Normochromic, normocytic anemia
- Anemia and thrombocytosis  disease activity
-  ESR & CRP
- Synovial fluid:  WBC



Radiography

- Early: soft tissue swelling



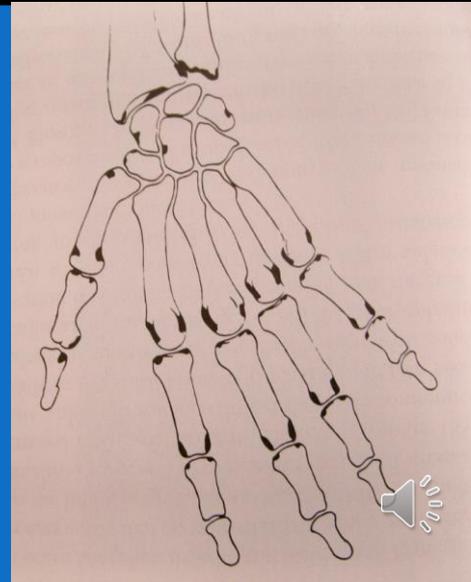
Radiography

- Early: soft tissue swelling
- Juxtaarticular osteopenia



Radiography

- Early: soft tissue swelling
- Juxtaarticular osteopenia
- Loss of articular cartilage
- Bone erosions



Radiography



Clinical course

- Persistent but fluctuating disease activity
- Early aggressive treatment



Clinical course

- Poor prognostic factors:
 - High disease activity
 - Many joints involved
 - Increased inflammatory markers
 - High titers of RF and/or anti CCP
 - Tobacco use
 - Erosions on radiographs



Diagnosis



Diagnosis

- No pathognomonic finding in:

- Clinic
- Paraclinic

- Almost exclusively on:

- History
- Physical examination



Diagnosis

- Typical picture:
 - Bilateral symmetric polyarthrititis
 - Small and large joints
 - Upper and lower extremities
 - Sparing of the axial skeleton except cervical spine
- Constitutional features
- Morning stiffness
- Nodules
- ↑ RF & AntiCCP
- Radiography

Treatment



Treatment

■ Goals:

- ➡ Reduce pain
- ➡ Prevent deformity
- ➡ Normal joint function
- ➡ Normal social function



Treatment

- NSAIDs

- Glucocorticoid

- DMARDs

- Biologic



NSAIDs

- Short course
- Side effects:
 - Gastritis and peptic ulcer
 - Impairment of renal function
- Avoid chronic use



Glucocorticoid

- Rapid control
- Low dose  Retard radiographic progression
- Side effects:
 - Osteoporosis
 - Avascular necrosis of bone
 - Obesity
 - Hypertension
 - Glucose intolerance



DMARDs

■ Delayed onset of action → 6-12 w

■ Methotrexate:

- First choice
- Once weekly
- Side effects:
 - Oral ulcers
 - Nausea
 - Hepatotoxicity
 - Cytopenia
 - Avoid pregnancy



DMARDs

■ Leflunomide:

- Efficacy: similar to MTX
- Monotherapy or combination
- Avoid pregnancy



DMARDs

■ Sulfasalazine:

- Side effect:

- Nausea
- Hypersensitivity
- Bone marrow suppression

DMARDs

■ Hydroxychloroquine:

- Early mild disease
- With other DMARD
- Ophthalmologic monitoring



BIOLOGICS



Anti-TNF

■ Infliximab:

- Chimeric (mouse & human) monoclonal Ab

■ Adalimumab & Golimumab:

- Humanized

■ Certolizumab:

- Pegylated

■ Etanercept: Fusion protein comprising TNF receptor



Anti-TNF

- Monotherapy except Infliximab
- Avoided in:
 - Active infection
 - Hypersensitivity
- Screening for TB

Rituximab

- Monoclonal Ab against CD20



Tocilizumab

- Monoclonal Ab against IL-6 receptor
- Can be used as monotherapy



Janus kinase (JAK) inhibitors

- Tofacitinib and baricitinib
- Shouldn't be used with biologic DMARDs due to increased risk of infections

THANKS FOR YOUR ATTENTION

