Approach Patient with Arthritis

**Introduction**

- Causes include various self-limited illness and disabling and life-threatening.
- Musculoskeletal emergencies (infection, sepsis, compartment syndrome...).

A careful history and physical examination are the most important tools.

Laboratory testing and imaging studies provide definitive answers in only a few instances.

Many chronic polyarticular diseases require months or years to diagnose (delayed extra-articular, lab and radiographic findings)

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**History Taking**

**Is it Arthritis or Arthralgia?**

Common causes of arthralgia
- Fibromyalgia
- Bursitis
- Tendinitis
- Hypothyroidism
- Neuropathic pain
- Metabolic bone disease
- Depression

**Number of joints and Acuteness of symptoms**

**Acute monoarthritis: common causes**

A. Inflammatory.
   - Crystal arthritis.
   - Septic
   - Spondyloarthropathy.
   - Palindrome Rheumatism
   - Rheumatoid arthritis (RA).
   - Juvenile chronic arthritis.
   - Sarcoid arthritis

B. Non-inflammatory
   - Trauma
   - Sickle-cell Arthropathy.
   - Osteonecrosis.

**Chronic monoarthritis: common causes**

A. Non-inflammatory
   - Osteoarthritis
   - Mechanical derangement.
   - Osteonecrosis.
   - Neuropathic arthropathy.
   - Reflex Sympathetic Dystrophy (RSD).
   - Adjacent Bone lesion (Tumor, Infection)

B. Inflammatory.
   - Infectious (TB, Fungal, Lyme disease).
   - Crystal arthritis.
   - RA.
   - Juvenile chronic arthritis.
   - Spondyloarthropathy.
   - Hemophilic Arthropathy.
   - Synovial neoplasms.
   - Pigmented villonodular synovitis

**Acute polyarthritis: common causes**

A. Infection-related
   - Bacterial species
   - Neisseria species
   - Lyme disease.
   - Rheumatic fever.
   - AIDS
   - Viral arthritis

B. Non-infectious causes.
   - RA.
   - Juvenile chronic arthritis.
   - Other Connective Tissue diseases.
   - Spondyloarthropathy.
   - Gout and pseudogout.
   - Henoch-Schonlein purpura.
   - Sickle-cell Arthropathy.
   - Hypertrophic osteoarthropathy.
   - Sarcoidosis
   - Leukemia.

**Intermittent arthritis: common causes**

- Mechanical
- Loose Bodies disease
  - Partial tears
  - Ligament laxity
- Crystals
Chronic polyarthritis: common causes

- Osteoarthritis
- Rheumatoid arthritis (RA).
- Juvenile chronic arthritis.
- Other Connective Tissue diseases.
- Spondyloarthropathy.
- Chronic crystal arthritis.
- Hypertrophic osteoarthropathy.
- Hypothyroidism.
- Metabolic and infiltrative bone and joint diseases.

Temporal pattern of joint involvement in polyarthritis

- Migratory pattern: Arthritis in certain joints remit to reappear in other joints e.g Rheumatic fever, Gonococcal arthritis, Viral Arthritis, Acute Leukemia
- Additive pattern: Arthritis persists, with subsequent involvement of other joints e.g RA, SLE.
- Intermittent pattern: Repetitive attack of acute polyarthritis with complete remission between attacks e.g RA, polyarticular gout, spondyloarthritis, Reiter’s syndrome & psoriatic arthritis.

Age

- <30= SLE, Ankylosing spondylitis, 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, PMR.
- Male=Female: Psoriatic arthritis, Pseudogout, Enteropathic arthritis.
- >Male: Gout, Ankylosisspondylitis, Reactive Arthritis.

Distribution of joint involvement

- Symmetrical: RA, psoriatic A. (RA-like), 1ry OA, SS
- Asymmetric: LL>UL: Sero –vearthropathy, gout
- Large joints: OA, Reactive
- PIP or DIP, MCP and PIP: RA, SLE
- DIP: psoriasis, gout, 1ry OA
- 1st MTP= Gout, OA
- Spine= OA, Ankylosispondylitis, Psoriatic arthritis, Reactive arthritis
- Shoulder= PMR

Pain character

- Aggravated by motion= Mechanical
- Relieved by motion= Inflammatory.

Duration

- <6 wks= viral arthritis, systemic rheumatic diseases
- >6 wks= systemic rheumatic diseases

Associated Symptoms

- Morning stiffness: >1hr= RA, PMR, Inflammatory, < 30 min= OA
- Multi-system involvement= Systemic rheumatic diseases.
- Fever= infection, reactive arthritis, RA, SLE, Crystal induced arthritis...

Past Medical history: Trauma, fracture, surgical procedures...

Medication list: Drug induced lupus, diuretics inducing gout.

Physical Examination
Inspect for:
- Skin manifestations: SLE, Psoriasis, Dermatomyositis, sarcoidosis, Behcet, Rheumatic fever, Cryoglobulinemia, HSP, Still’s disease.
- Subcutaneous nodules: RA, RHD, Gout (tophi), 1ry OA
- Parotid enlargement: Sjogren’s
- Mucocutaneous:
  - Oral ulcer: Reiter’s, Behcet, SLE
  - genital ulcer: Reiter’s, Behcet
- Nail changes: Psoriasis
- Eye: RA, AS, Reiter’s, Behcet, Sarcoidosis
- Nose: Wegner’s granulomatosis, relapsing polychondritis.
- Ear: Relapsing polychondritis.

Joints examination
- Soft tissue swelling, warm, effusion...= Inflammation.
- Normal passive motion with limited active motion= bursitis, tendinitis, muscle injury.
- Limited passive and active motion = Synovitis
- Erythematous Joint
  - Gout, chondrocalcinosis
  - Septic arthritis.
  - Rheumatic fever
  - Leukemia
  - RSD
- Deformity
  - RA
  - Psoriasis
  - SS-Sclerodactyly (flexion contof fingers)
  - SLE- Jaccoud Arthropathy.
  - Sickle cell disease
- Associated Tenosynovitis
  - RA,
  - Gout,
  - Reiter’s syndrome,
  - Gonococcal arthritis.
- TB arthritis.
- Fungal arthritis.

Systemic Examination
- Nervous System: SLE, Behcet, vasculitis
- Lung and pleura: RA, SLE, SS, PM,
- Lung: Sarcoidosis, Vasculitis.
- Peri- and myocardium: RA, SLE, SS, PM.
- Heart valve: Rheum fever, RA, SLE, Reiter’s S.
- Kidney: SLE, vasculitis, Polyarticular gout.
- GIT: Reiter’s, IBD, SS.
- Liver: HCV, SS, IBD, sarcoidosis.

Laboratory Studies
- Can be misleading.
- Basic: CBC, Urinalysis, RFT, LFT.
- Acute phase reactant: ESR, CRP.
- Uric acid concentration= Gout
- CK:PM/DM, hypothyroidism
- Ca²⁺, P³⁺: endocrinal, metabolic
- Antibody tests:
  - ANA= SLE
  - Anti-dsDNA= SLE
  - Anti-native DNA, anti-Sm= SLE
  - RF= RA
  - Anti-CCP antibody= RA
- Hepatitis B and C
- Salmonella, brucella Serology: ReA,
- Parvovirus serology
- Rheumatoid Factor
  - Rheumatoid Arthritis
  - Connective tissue diseases
  - Viral infection
  - Leishmaniasis
  - Leprosy
  - Tuberculosis
  - Sarcoidosis
  - Liver diseases
  - Subacute bacterial endocarditis

Imaging Studies
- X-ray:
• OARACHronic Gout
• Ankylosing spondylitis.

- MRI:
  • Ankylosing spondylitis. Internal derangement,
  • Avascular necrosis, Osteomyelitis,
  • Pigmented villonodular synovitis.

- Bone scan:
  • Stress fracture.

- RSD

**Synovial Fluid Analysis**

**Indications**
1. Infection
2. Crystal induced arthritis
3. Hemarthrosis (traumatic, pigmented villonodular synovitis).
4. Differentiating inflammatory from non-inflammatory arthritis (WBCs count)