

PHC

432 Team

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Approach to patient with Arthritis



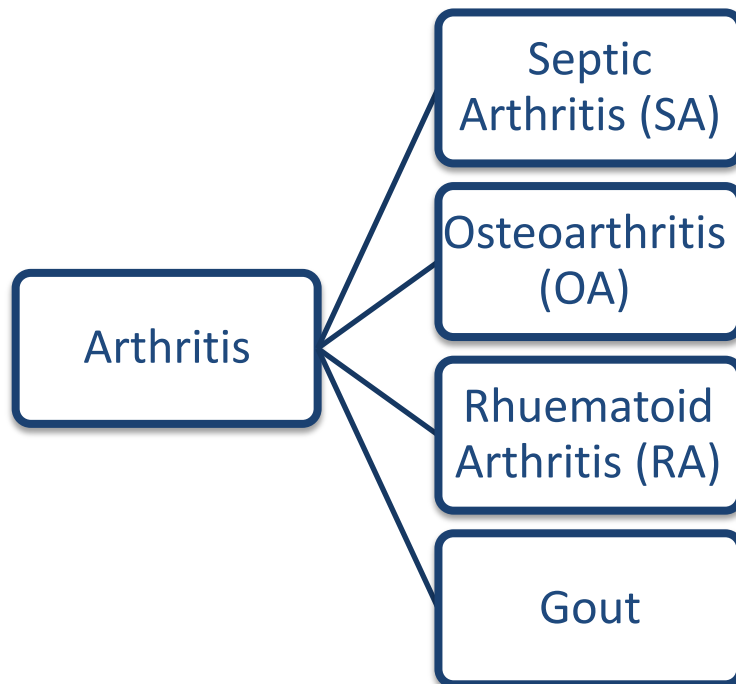
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Objectives

1. Common **causes** of arthritis encountered in general practice.
2. What does it mean by **arthropathy** and **arthritis**.
3. Highlight on **osteoarthritis, Septic arthritis, Gout, Rheumatoid arthritis**
4. Important aspects in **History, Clinical examination, Investigations and Management**
5. **Red Flags** for patient with arthritis
6. When to **refer** to specialty clinic.



Approach to patient with arthritis

Definitions:

1. **Arthropathy:** A disease or abnormality of a joint.
2. **Arthritis:** Inflammation of a joint, usually accompanied by pain, swelling, and stiffness, and resulting from infection, trauma, degenerative changes, metabolic disturbances, or other causes.

Main complaint in arthritis: (inflammatory signs)

1. Pain
2. Stiffness
3. Swelling
4. Limitation of movement
5. Weakness
6. Fatigue

Important aspect in history of arthritis:

1. Duration and onset.
2. Number of joint involved.
3. Distribution of joint involved
4. Temporal pattern of involvement in polyarthritis.
5. The presence and duration of morning stiffness
6. The presence of joint swelling.
7. Extra-articular complaint
8. Associated medical illness
9. Past medical, surgical and drug history
10. Family history

The onset could be:

1. *Sudden* (abrupt), e.g. in trauma, gout, pseudogout and infection
2. *Gradual* (insidious), e.g. in rheumatoid arthritis, osteoarthritis

The duration could be:

1. *Acute* i.e. <6weeks, e.g. in septic arthritis, gout and pseudogout
2. *Chronic* i.e. >6weeks e.g. in RA, ankylosing spondylitis

The arthritis can be:

1. *Monoarthritis* i.e. affecting only one joint
2. *Oligoarthritis* i.e. affecting 2-4 joints
3. *Polyarthritis* i.e. affecting 5 joints or more

Examples of some joints that are frequently affected by different types of arthritis:

1. **DIP:** Usually involved in psoriatic arthritis, gout and osteoarthritis. Always spared in RA
2. **Lumbar spine:** Usually involved in ankylosing spondylitis. And Spared in RA.

In polyarthritis the joints involved can be:

1. **Symmetric arthritis** Involvement of the same joints on each side of the body like in: RA and SLE.
2. **Asymmetric arthritis** Like in psoriatic arthritis, reactive arthritis and Lyme arthritis.

The temporal patterns of involvement of polyarthritis are:

1. **Migratory pattern:** Inflammation for only a few days in each joint (eg, acute rheumatic fever, disseminated gonococcal infection).
2. **Additive pattern:** Inflammation persists in involved joints as new ones become affected (eg. RA, SLE)
3. **Intermittent pattern:** Episodic involvement occurs, with intervening periods free of joint symptoms (eg, gout, pseudogout, Lyme arthritis).

Sometimes arthritis is accompanied by some **extra-articular** manifestation like:

1. **Constitutional** symptoms e.g. fever in septic arthritis
2. **Skin** lesions e.g. in SLE, Lyme disease and psoriatic arthritis
3. **Ocular** symptoms like:
 - a. Episcleritis and scleritis in RA
 - b. Anterior uveitis in ankylosing spondylitis,
 - c. Iridocyclitis in juvenile RA
 - d. Conjunctivitis in reactive arthritis

Diagnosis:

You need first to decide whether the complaint is **acute or chronic**, then whether it is **polyarthritis or monoarthritis**. Then you need to differentiate between **inflammatory arthritis and non-inflammatory**, this table summarizes the important differences between them:

Table .2/Inflammatory VS. Non-inflammatory arthritis:

Feature	Inflammatory	Non-inflammatory
Pain (when?)	Yes (AM)	Yes (PM)
Swelling	Soft tissue	Bony
Erythema	Sometimes	Absent
Warmth	Sometimes	Absent
Aggravating factor	Rest	Movement
Relieving factor	Movement	Rest
Morning stiffness	> 30 minutes	< 30 minutes
Systemic features	Sometimes	Absent
ESR, CRP	High	Normal
Synovial fluid WBC	WBC >2000	WBC < 2000
Examples	Septic, RA, SLE, Gout	Trauma, Hemarthrosis, Osteoarthritis

Acute monoarthritis: Can be caused by:

1. Bacterial infection of the joint space (septic arthritis)
2. Crystal-induced arthritis: Gout and pseudo-gout.
3. Trauma.

Acute polyarthritis: are caused by:

1. Infection like: gonococcal SA , Lyme disease and some viruses
2. Non-infective like: polyarticular gout, rarely RA, SLE, psoriatic and reactive arthritis.

Chronic monoarthritis: are caused by:

- Inflammatory like: infective (lyme disease, fungal, TB), non-infective (gout, RA, SLE).
- Non-inflammatory like: osteoarthritis.

Chronic oligoarthritis too, can be caused by:

- Inflammatory process like: ankylosing spondylitis, enteropathic arthritis & gout.
- Non-inflammatory like in: osteoarthritis.

Chronic polyarthritis is also can be:

- Inflammatory like: RA, SLE and gout
- Non-inflammatory like: primary generalised osteoarthritis and pseudogout

1) Septic arthritis

An acute form of arthritis characterized by bacterial inflammation of a joint caused by the spread of bacteria through the bloodstream from an infection elsewhere in the body or by contamination of a joint during trauma or surgery. The joint is stiff, painful, tender, warm, and swollen. 8-27% of adults presenting with one or a few acutely painful joints.

Risk factors:

1. Prosthetic joint, Joint surgery
2. Skin infection
3. RA
4. DM
5. IV drug users, alcoholism
6. Intra-articular steroid injection

Sources of infection:

1. Hematogenous (72%)
2. Direct inoculation of bacteria (trauma, surgery..)
3. Extension from existing osteomyelitis in adjacent bone.

Microbiology:

1. The most common worldwide is **N.Gonorrhea** , **Staph aureus** is the most common in our community
2. Other G +ve
3. G -ve (usually in trauma, IV drug users, Immunocompromised, neonates and elderly)

Clinical presentation: (acute)

1. Hot, painful, swollen and red joint
2. Restricted movement of the joint
3. Patient usually febrile,(afebrile in elderly and Immunocompromized)
4. Usually **monoarthritis. Knee** (50%) , hip , wrist, ankle and other could be affected.
5. 20% oligoarthritis, polyarthritis usually in RA

Important points in history:

1. acuteness
2. if pain is superimposed on chronic pain
3. History of joint disease or trauma
4. No. of joint affected
5. Extra-articular symptoms
6. History of vascular invasion (catheterization, iv drug..etc)
7. Sexual activity
8. Condition that could affect immune system
9. Previous surgery in this joint

Physical examination:

1. Sign of erythema ,swelling, warmth, tenderness, effusion and limitation of active and passive ranges of motion in the affected joint
2. Note: previous finding might be muted in elderly, immunocompromised and IV drug abusers!
3. Red flag, highly associated with morbidity, or even mortality.
4. Urgent referral to orthopedic!

Investigation:

1. Joint aspiration:

1. Gross examination 2.G-stain 3.Cell count
4. **Culture &Sensitivity** (the gold standard!) .
5. PCR: in: N.Gonorhea.
6. Glucose & protein.

2. Blood test:

1. CBC
2. ESR
3. CRP
4. C&S

3. Imaging studies:

1. X-ray, US, CT, MRI
2. Limited value, used to rule-out osteomyelitis.

4. Gonococcal arthritis: (*N. gonorrhoeae*): Most common cause of acute infection arthritis in young sexually active adults, if suspected, obtain cultures from appropriate mucosal surfaces in addition to the previous required investigation.

Treatment:

1. Immediate **empirical antibiotics:** PRSP + 3rd generation cephalosporin.
2. **Drainage:** Daily aspiration Surgical.
3. **Specific antibiotics** after C&S.

2) Osteoarthritis

Degenerative (non inflammatory) disorder of the articular cartilage associated with hypertrophic bone changes. **The most common kind of Arthritis**. Could be primary (genetics) or secondary (multifactorial).

Risk factors:

1. Age
2. Obesity
3. Gender (females are affected more than males)
4. Genetics or heredity.
5. trauma
6. metabolic (DM)
7. infectious
8. Inflammatory (RA)
9. Hematological (Sickle cell anemia)

History:

1. Chief Complaint: pain
2. Associated with: stiffness, limitation of movement, deformity.
3. Usually chronic
4. Monoarthritis
5. Non symmetrical joint distribution
6. Morning stiffness less than 30 minutes
7. Pain worsened with movement and relieved by rest

Physical Examination:

1. Bony swellings (bochards / heberden noduls)
2. deformity around joint margins (valgus or varus)
3. Joint-line tenderness.
4. Restricted range of movement.
5. Palpable coarse crepitus.
6. No sign of inflammation.

Investigations:

1. X-ray (most important)
 - 1) Decrease joint space
 - 2) Subchondral cyst
 - 3) Osteophytes
 - 4) Deformity varus-vagus

Management:

1. **Non pharmacological:** weight reduction, physiotherapy.
2. **Pharmacological:** Paracetamole if symptoms not relived: NSAID (oral or topical) like Iboprifine.
3. In case of failure of the conservative treatment of osteoarthritis: **Refer** the patient to an orthopedic surgeon.

3) Rheumatoid arthritis (RA):

It is a chronic systemic disease primarily of the joints, usually polyarticular, marked by inflammatory changes in the synovial membranes and articular structures and by atrophy and rarefaction of the bones. In late stages, deformity and ankylosis develop.

The annual incidence of rheumatoid arthritis (RA) has been reported to be around 40 per 100,000.

Etiology:

RA is a form of autoimmunity, the causes of which are still not completely known, but many possible etiologies have been identified:

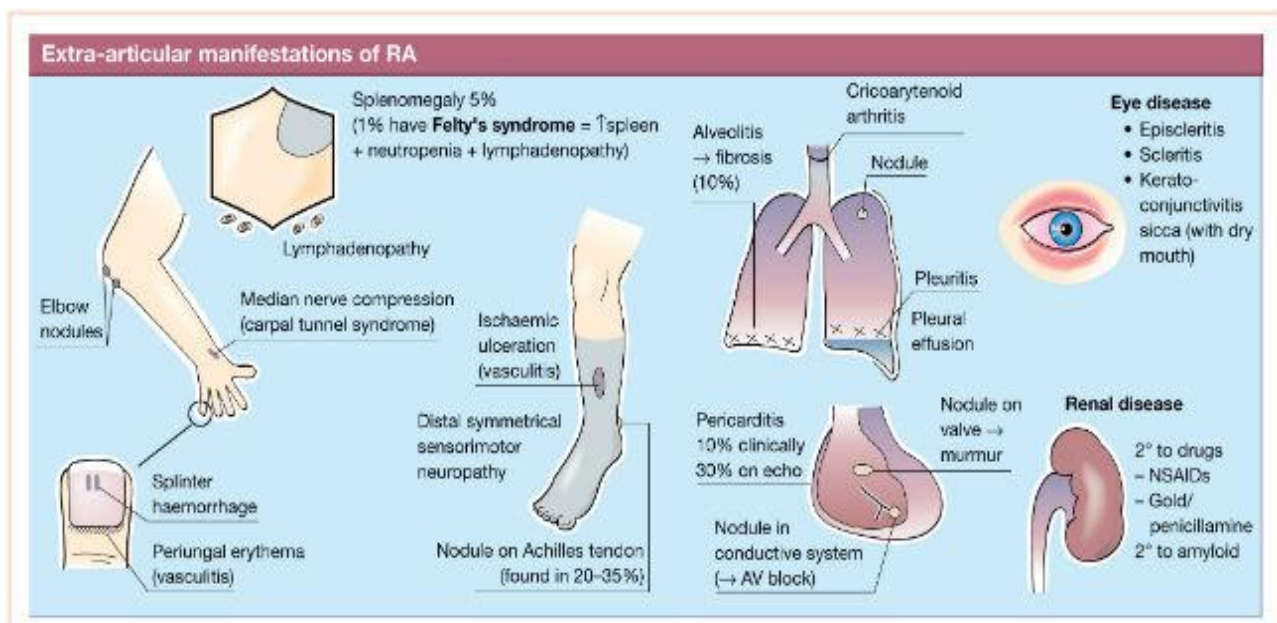
1. **Genetic** (some studies revealed a relationship between RA and HLA-DR4)
2. **Hormonal**
3. **Infectious** (viral "herpesvirus" or bacterial)

ž Risk factors

1. **Age** (Although rheumatoid arthritis may develop at any age, it is more like to begin in people aged between 40 and 60 years).
2. **Gender** (The disease is two to three times more common in premenopausal women than in men but postmenopausal women have equal chances with men).
3. **Smoking.**

Extra-articular manifestations:

1. Ocular: scleritis, conjunctivitis, and episcleritis.
2. Pulmonary: pleural effusion, pulmonary nodules, and interstitial lung disease.
3. Cardiac: myocarditis, ischemic heart disease, pericarditis, and arrhythmia.
4. Skin: rheumatoid nodules, and purpura.
5. Hematological: anemia of chronic disease, neutropenia, and splenomegaly.
6. And many others (physiological, endocrine, renal, skeletal ...).



Approach to patient with rheumatoid arthritis:

History:

1. Duration of the complaint: Acute (< 6 weeks) OR chronic (6 weeks or more)
2. Number of joints involved: Usually a **polyarticular** joint involvement.
3. Distribution of Joints Involved: RA has a **symmetrical** joint involvement.
4. Pattern of involvement: Inflammation persists in involved joints as new ones become affected (**Additive**).
5. Duration of morning stiffness: Usually **morning stiffness** last for more than 30 minutes (it can reach one hour).
6. Aggravating and relieving factors: Pain worse after a period of inactivity and **relieved by movement**.
7. History of **joint swelling**.
8. **Extra-articular** complaints.
9. Family history.

Physical examinations:

1. Stiffness of the affected joint
2. Tenderness
3. Pain on motion
4. Swelling
5. Deformities
6. Limitation of motion
7. Extra-articular manifestations
8. Rheumatoid nodules (occur in approximately 25% of patients with RA)

Investigations:

RA is a clinical diagnosis; no laboratory test is diagnostic, just supportive!

1. Rheumatoid factor (**RF**):

- a. Auto antibodies to the Fc portion of IgG.
- b. Support a diagnosis of Rheumatoid Arthritis but are not by them diagnostic.
- c. Are seen in about 75% to 80% of patients with RA.
- d. Are associated with a poor prognosis in patients with RA.
- e. Are seen in conditions other than RA like hepatitis C, sarcoidosis, pulmonary fibrosis, and many others.

2. Anti-citrullinated protein antibodies (ACPA):

- a. These are auto antibodies directed against an individual's own proteins (CCP) which can be detected by ELISA. These anti bodies are present in the majority of patients with RA.
- b. Accuracy (Anti-CCP Assay). Specificity 79% Sensitivity 96-98%
- c. Diagnosis more accurate when combined with RF+.
- d. Present in 50-60% early RA patients.

	Score
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†	
Classification criteria for RA (score-based algorithm: add score of categories A–D; a score of $\geq 6/10$ is needed for classification of a 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
>10 joints (at least 1 small joint)**	5
B. Serology (at least 1 test result is needed for classification)††	
Negative RF <i>and</i> negative ACPA	0
Low-positive RF <i>or</i> low-positive ACPA	2
High-positive RF <i>or</i> high-positive ACPA	3
C. Acute-phase reactants (at least 1 test result is needed for classification)‡‡	
Normal CRP <i>and</i> normal ESR	0
Abnormal CRP <i>or</i> abnormal ESR	1
D. Duration of symptoms§§	
<6 weeks	0
≥ 6 weeks	1

Management:

As a primary care physician you should:

1. Confirm your diagnosis of RA form (history, Physical exams, and investigations).
2. As soon as the diagnosis of RA is confirmed combined care should be started:
 - a. Patient Education
 - b. Start DMARD(s) within 3 months
 - c. Consider NSAIDs
 - d. Consider Local / Low-dose Steroid
 - e. Physical / Occupational Therapy.
 - f. Referral to rheumatology clinic.
 - g. Follow up.

4) Gout:

1. It is an inflammatory arthritis associated with **hyperuricemia** and intra-articular **sodium urate crystals**.
2. Usually affect men (10:1), rare in premenopausal female.
3. The Prevalence in developed countries about 0.5 %.
4. Most common joint affected is **1st MTP joint**.
5. Recurrence:
 - a. 75% likelihood of a second attack within 2 years.
 - b. Attacks tend to become Polyarticular.

Causes:

Hyperuricemia is the most common cause and it could be because of:

1. **Impaired excretion (90%):** like renal disease, diuretics, NSAID use, and acidosis.
2. **Increase production:** like chemotherapy, chronic hemolysis, and blood cancers.

Risk factors:

1. Alcohol
2. Dehydration
3. Urate stones
4. Diuretics use

Clinical features (History and Physical examinations):

1. Usually present as sudden onset severe pain.
2. Usually affects small joints.
3. swelling.
4. Erythema.
5. tenderness and warmth (signs of inflammation).
6. Middle age male, MTP of big toe

Investigations:

1. **Joint aspiration and synovial fluid analysis:**
 - a. Needle-shape crystals negatively birefringent.
 - b. Most specific diagnostic test.
2. Serum uric acid: Usually high, but can be normal.
3. Plain Radiographs: May show Bone erosions.



Management:

1. Asymptomatic hyperuricemia:

- a. These patients should not be treated medically because 95% of them remain asymptomatic.
- b. Recommend them to **avoid risk factors** like alcohol ...etc.

2. Acute gouty arthritis:

- a. **Bed rest.** Early ambulation may precipitate a recurrence.

b. Medications:

1- NSAID. Treatment of choice, very effective. Eg: diclofenac 100 mg immediately, then 50 mg every 6-8 hours.

2- Colchicine. Only If NSAIDs are not tolerated.

3- Corticosteroid.

- c. **Avoid secondary cause of hyperuricemia:** Medication (thiazide), obesity, alcohol and dietary intake of purine. **(All the risk factors)**

- d. Consider giving **prophylactic medication**. If the patient had two or more attacks of gout in a year: **Increase the dose of NSAID or add another drug (NSAID + Colchicine)**

Summary

1. Arthropathy: A disease or abnormality of a joint.

2. Arthritis: Inflammation of a joint, usually accompanied by pain, swelling, and stiffness, and resulting from **infection, trauma, degenerative changes, metabolic disturbances, or other** causes.

- **The most common causes are:** Septic arthritis, OA, RA and Gout.
- **History of Arthritis:**
 1. Duration and onset.
 2. Number of joint involved.
 3. Distribution of joint involved
 4. Temporal pattern in polyarthritis.
 5. The presence and duration of morning stiffness.
 6. The presence of joint swelling.
 7. Extra-articular complaint.
 8. Associated medical illness.
 9. Past medical, surgical and drug history.
 10. Family history.

When to refer

Category 1 – immediately
contact rheumatologist either
by phone or fax

- acute monoarthritis
- temporal arteritis and other vasculitis — e.g. Wegener's, polyarteritis nodosa

Category 2 – within 4-6 wks
contact rheumatologist if delay
is expected

- early polyarthritis, pain < 3 months
- suspected connective tissue disease — e.g. lupus, scleroderma
- polymyalgia rheumatica without temporal arteritis

Category 3 – < 3 months

- other inflammatory arthropathies — e.g. psoriatic arthritis, ankylosing spondylitis

D/D

Criteria	OA	RA	Gout
1.Symptoms	Pain & swelling on major weight bearing joints, stiffness, crepitations, tenderness, enlargement of joint space.	Inflammation in multiple joints, morning stiffness>30 mins	Polyarticular pain, swelling and inflammation, tenderness
2.Mode Of onset	Gradual	Gradual	Acute
3.Joints involved	Weight bearing joints	Poly articular	Metatarso phalangeal joints
4.Systemic features	NA	Auto immune diseases, rise in temperature, anemia	NA
5.Pathological phenomenon	Degeneration	Auto immune and vasculitis	Hyper uricaemia
6.Investigation	RA- ve, ESR-normal, X-Ray-narrowing of joint space	ESR-raised, X-ray-soft tissue swelling	Serum uric acid raised,

Doctor's Note:

In a case of arthritis, it's important to know:

- 1) Is it inflammatory or non-inflammatory (if it's inflammatory (which type)).
- 2) Number of joints affected (mono,oligo, poly..).
- 3) Is it Acute or chronic.

Questions

- 1) RA is characterized by which of the following patterns of joint involvement?
 - a. Episodic monoarthritis
 - b. Symmetrical polyarthritis
 - c. Migratory oligoarthritis
 - d. Spondylitis

- 2) The most specific test used in diagnosis of gout:
 - a. MRI
 - b. x-ray
 - c. synovial fluid analysis
 - d. serum uric acid

- 3) The most common offending organism in septic arthritis in adults is:
 - a. *S. aureus*
 - b. *Streptococcus pyogenes*
 - c. *S. pneumoniae*
 - d. *H. influenzae*

4) Which one of the following is a characteristic x-ray finding in case of osteoarthritis?

- a. Chondrocalcinosis
- b. Osteopenia
- c. Narrowing of joint space
- d. Sequestra

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Answers:

- 1st Questions: B
- 2nd Questions: C
- 3rd Questions: A
- 4th Questions: C