

## An Approach to Arthritis

*Your eyes see what your mind knows !*

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Around 25% of patients attending a general outpatient clinic have musculoskeletal symptoms. Arthritis is a common clinical problem and appropriate diagnosis can be reached only by a systematic approach. Steps in the diagnosis of arthritis are outlined below with an emphasis on common clinical conditions. History and general as well as systemic clinical examinations are equally important for diagnosis. This clinical diagnosis is then supported by relevant laboratory investigations.

### Step 1 - Arthritis versus Arthralgia

Arthritis implicates synovitis. Synovitis is associated with joint pain at rest and on motion as also with tenderness. Joint swelling is due to synovial hypertrophy, fluid in joint space or swelling of periarticular tissues. Synovitis is noted initially as loss of joint margin on palpation, followed by boggy, rubbery or doughy feel with progression of disease. Joint may be warm and erythematous. Movement at joint is restricted or lost leading to stiffness. In non-inflammatory arthritis (e.g. osteoarthritis), the swelling is firm or bony and associated with tenderness on joint line. Joints may be deformed and muscles wasted due to prolonged restriction of movement. Arthralgia does not exhibit any of these features and is many a times polyarticular. Vague aches and pain in and around joint in the absence of synovitis hardly ever indicate organic disease. There may be a history of intercurrent illness or viral infection.

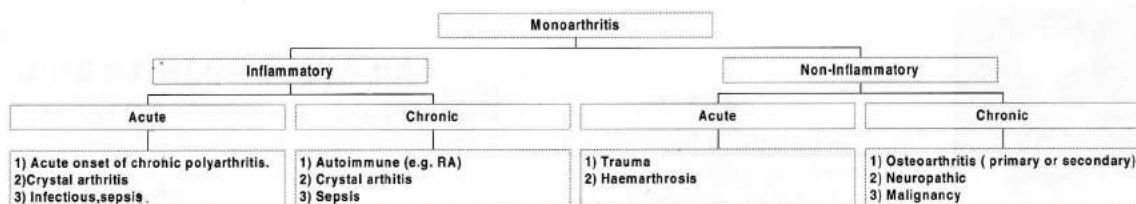
### Step 2 - Juvenile versus Adult arthritis

Juvenile rheumatoid arthritis (age less than 16 years) is a distinct clinical syndrome with different subtypes discussed separately in this issue. Acute rheumatic fever, too, is most frequent in 4-15 year old age group. There are at least 110 diseases associated with musculoskeletal syndromes in childhood. Trauma, sports injuries, "growing pains", septic arthritis, certain tumours, metabolic syndromes like rickets and congenital causes are common. Psychosomatic causes are also frequent. Nonorganic joint pains are usually located in between joints and occur primarily on school days especially at nights. Pain is bilateral, illogical and often dramatically stated. Normal daily activities are not impaired.

### Step 3 - Arthritis versus Soft Tissue Rheumatism

Soft tissue (nonarticular) rheumatism refers to pathology of extrarticular and extraosseous periarticular structures viz. bursae, tendons and their synovial sheaths, entheses (i.e. insertion of ligament, tendon or articular capsule into bone), muscles and fasciae. Regional myofascial pain syndromes are also included in this category. A history of chronic lowgrade repetitive trauma (occupational or sports) or acute overexertion (e.g. the weekend warrior) is often present. Pain of soft tissue rheumatism is usually along anatomical structures. The differentiation from arthritis (usually monoarthritis) is given in following table.

	Soft Tissue Rheumatism	Arthritis
Pain	Superficial, sharply localised	Deep, diffuse, circumferential
Tenderness	Localised	Circumferential, along joint line
Active movement	Pain +	Pain +
Passive Movement	No Pain	Pain +
Synovitis / effusion	No	Yes
Crepitus / instability / deformity	No	Often



Common conditions of soft-tissue rheumatism are listed below -

- 1) Hand and wrist - Trigger finger, ganglion, carpal tunnel syndrome, etc.
- 2) Elbow - Medial epicondylitis (golfer's elbow), lateral epicondylitis (tennis elbow)
- 3) Shoulder - Pericapsulitis (frozen shoulder), tendonitis, bursitis, etc.
- 4) Ankle and foot - Plantar fasciitis, flat foot (pes planus), Achilles tendonitis, etc.
- 5) Knee - Bursitis, (Baker cyst), iliotibial band friction, tibia tubercle apophysitis (Osgood-Schlatter), bursitis (prepatellar, anserine), chondromalacia patellae, etc.
- 6) Hip - Trochanteric bursitis, fascia lata syndrome, hernia, psoas abscess.

#### Step 4 - Inflammatory versus Non-inflammatory Arthritis

This is the most important differentiation, which makes difference between satisfactory and unsatisfactory medical management of disease. Inflammatory arthritis can be infective, autoimmune, crystal induced, reactive or idiopathic. Inflammatory joint disease is characterised by the following features :

- 1) Constitutional symptoms (anorexia, weight loss, fatigue, mild fever, night sweats).
- 2) Morning stiffness more than 30 min duration.
- 3) Relief of pain by movement of joints.
- 4) Spontaneous 'flares' - relapses and remissions.
- 5) Local signs of inflammation - swelling, warmth, etc.

#### 6) Investigations -

- a) High ESR (Westergreen is more specific above levels of 50 mm).
- b) High CRP titres (quantitative only).
- c) Anaemia of chronic disease (normocytic normochromic), leucocytosis (sometimes but not always) and thrombocytosis.
- d) Elevated alkaline phosphatase (moderate), reversal of A:G ratio.
- e) Inflammatory synovial fluid.

Most, but not all, inflammatory conditions will exhibit above characteristics. Rheumatoid arthritis, spondyloarthropathies and other autoimmune rheumatological diseases have inflammatory arthritis.

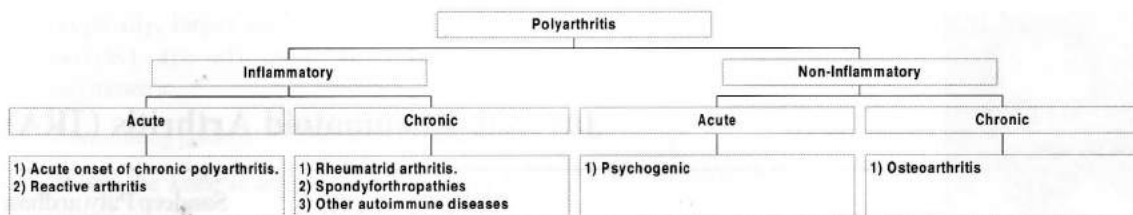
Joint pain worsens after activity in noninflammatory arthritis. Typical examples of noninflammatory arthritis are osteoarthritis (usually), haemophilia (Charcot joint, diabetes mellitus, peripheral neuropathies) and metabolic/endocrine arthropathies (hypothyroidism, osteomalacia).

#### Step 5 - Monoarticular versus Polyarticular Arthritis

Involvement of a single joint is common in gout (1st metatarsophalangeal joint), osteoarthritis (usually knee and spine as well as secondary osteoarthritis), non-gonococcal septic arthritis.

(in children, elderly and immunocompromised), tuberculosis of joint and malignancy. Almost 25 % of rheumatoid arthritis start as monoarticular disease. Chronic monoarthritis usually requires synovial biopsy. Biopsy is particularly important in cases of tuberculosis, amyloidosis, malignancies and pigmented villonodular synovitis.

Polyarticular (more than 5 joints) involvement is typical of rheumatoid arthritis, viral arthritis,



gonococcal septic arthritis, autoimmune rheumatic diseases, polyarticular gout, generalised osteoarthritis and drug arthritis (serum sickness).

Oligo- or pauciarticular (involvement of 2-4 joints) arthritis is common in spondyloarthropathies discussed separately in this issue. The joints can be mainly peripheral or mainly axial. Involvement of axial joints is common in ankylosing spondylitis. Predominant lower limb involvement is common in reactive, psoriatic, enteropathic and sarcoid arthritis. Predominant upper extremity arthritis is seen in haemochromatosis.

Polyarthritis can be symmetrical or asymmetric. Symmetrical (i.e. similar involvement on right and left sides of body) polyarthritis is a hallmark of rheumatoid arthritis though monoarthritis can also occur. Similar involvement can be seen in most of the autoimmune rheumatic diseases, endocrine and metabolic arthropathies, polyarticular septic arthritis, polyarticular gout, viral arthritis (chikungunya and AIDS) as well as primary generalized (Kellgren's) and erosive or inflammatory (Crain's) osteoarthritis. Spondyloarthropathies have asymmetric joint involvement.

### Step 6 - Acute versus Chronic Arthritis

Acute arthritis means arthritis of less than 6 week duration. Gout, pseudogout, haemarthrosis (bleeding disorders), septic arthritis, viral arthritis, rheumatic fever, rheumatoid arthritis and acute presentation of spondyloarthropathies are examples of acute arthritis. Synovial fluid examination is a must in suspected cases of gout and septic arthritis.

Arthritis of more than 6 week duration is classified as chronic arthritis. Rheumatoid arthritis, juvenile rheumatoid arthritis, spondyloarthropathies and osteoarthritis are the common conditions which are included in this category.

The pattern of joint involvement is also important. Arthritis with a fluctuating course and intermittent 'flares' is typical of inflammatory polyarthritis particularly rheumatoid arthritis. Migratory or fleeting pattern is characteristic of acute rheumatic fever whereas additive pattern is seen in spondyloarthropathies.

### Step 7- Systemic Examination

Elaborate history of disease and a detailed systemic examination are extremely important in diagnosis of arthritis. Some of these points are mentioned below :-

- 1) Skin and mucosa - psoriasis, systemic lupus erythematosus (SLE), vasculitis, scleroderma, dermatomyositis, panniculitis, Sjogren's syndrome.
- 2) Hair loss - SLE
- 3) Nodules - Rheumatoid arthritis, gouty tophi, erythema nodosum in sarcoidosis.
- 4) Nails - psoriasis, vasculitis (splinter haemorrhages), clubbing (paraneoplastic syndromes).
- 5) Eyes - panniculitis, Sjogren's syndrome, reactive arthritis, juvenile rheumatoid arthritis.
- 6) Gastrointestinal - enteropathic arthritis
- 7) Renal - SLE, vasculitis, gout, amyloid, urogenital symptoms (reactive arthritis)
- 8) Pulmonary - SLE, RA, vasculitis, scleroderma.
- 9) Nervous system - vasculitis, RA, SLE, leprosy arthritis, carpal tunnel syndrome, etc.
- 10) Cardiac - Rheumatic fever, ankylosing Spondylitis, SLE, RA.
- 11) Lymphnodes, hepatosplenomegaly - RA, SLE, Still's disease, septic arthritis, Poncet's disease (arthritis reactive to tuberculosis elsewhere)

