Aching Joints - Assessment, Investigations and Management in Primary Care

The complex challenge to the physician is to be able to make a safe diagnosis which differentiates between simple arthralgia and other conditions such as degenerative joint disease, inflammatory arthropathies or pain secondary to other diseases.

Epidemiology

- A Russian study found that 12.7% of a sample of 5,490 children complained of arthralgia. The prevalence was higher in boys than in girls and increased with age. 1.7% of the sample also complained of joint swelling.[1]
- A Spanish study found that whilst preschool children were more likely to present with diffuse arthralgias, specific joint pains were more common as children became older. The most common joints involved were knees and ankles.[2]
- A postal survey looking at self-reported doctor-diagnosed arthritis in Australia found that transient or chronic arthralgia was most frequent in people aged 45-64, particularly if they had a higher-than-average BMI.[3]

At-risk groups

- Family history of rheumatoid arthritis (RA).
- Genetic factors are known to influence susceptibility to osteoarthritis (OA), although epigenetic factors (functionally relevant modifications to genetic material other than the nucleotide sequence of DNA, such as methylation) may also play a part.[4]
- Occupational history of prolonged, repetitive use of hands.
- Manual labour.
- Those who are overweight.
- Previous history of trauma in the joint.

Presentation[5]

Red flags

- Systemic features of illness, including fever, weight loss and fatigue.
- Pain at rest or at night.
- Being woken with pain.
- Travel from the Indian subcontinent (pyrazinamide anti-tuberculous therapy,[6] infection with Chikungunya virus.[7]

Symptoms and signs

A thorough history and examination is essential. The history should include a full drug history including over-the-counter and complementary preparations.[8]

Simple arthralgia

- Pain is the main symptom.
- No stiffness.
- No swelling seen around the joint.
- There may be history of viral illness.

NB: arthralgia is a known side-effect of the following: angiotensin-converting enzyme (ACE) inhibitors, proton pump inhibitors, quinolones, gonadorelin analogues and tibolones.

Osteoarthritis

- It tends to be mainly large joints which are affected - the carpometacarpal (CMC) joint of the thumb, the distal interphalangeal joints of the fingers.
- Heberden’s nodes seen (distal interphalangeal nodes).
- Crepitus is audible/palpable.
- There may be association with weight gain, a sedentary lifestyle, repetitive use and a past history of trauma to the joint.

See the separate Osteoarthritis article.
Seronegative arthropathy

- History of psoriasis.
- Bowel disorders (Crohn's disease or ulcerative colitis).
- Bladder symptoms.
- Anterior uveitis.
- Streptococcal sore throat.
- Bowel infection - yersinia, salmonella or shigella.
- Chlamydial urethritis.
- Presents with asymmetrical large joint pain.
- Oligoarticular involvement and possibly sacroiliitis.

See the separate Seronegative Arthropathies article.

Rheumatoid arthritis

Diagnosis should be made clinically with four of the following signs present for six weeks or more:
- Pain and swelling in at least three joint areas.
- Symmetrical disease.
- Early morning stiffness for >30 minutes daily.
- Metacarpophalangeal (MCP), wrist or proximal interphalangeal (PIP) joint swelling.
- Subcutaneous nodules.
- Positive rheumatoid factor.
- Radiological evidence of erosions.

Examination should note:
- Which joints are affected, their symmetry/asymmetry.
- If the MCP joint has swollen, this can be noted by the loss of the groove between the knuckles in a formed fist.
- The active and passive range of movement and the function of the joint.
- Whether the patient is able to write, grip and hold objects. Whether there are nodules present on the elbows and shins. Whether there is nail pitting?

See the separate Rheumatoid Arthritis and Rheumatological History, Examination and Investigations articles.

Differential diagnosis

See also the separate Acute Monoarthritis and Acute Polyarthritis articles.

Inflammatory

- Juvenile idiopathic arthritis.
- Inflammatory bowel disease.
- Sarcoidosis.
- Primary malignancy - haematological (acute lymphoblastic leukaemia).
- Neuroblastoma.
- Fibromyalgia.

Infection

- Septic arthritis.
- Osteomyelitis.
- Tuberculosis.
- Human immunodeficiency virus.

Reactive arthritis

- Post-streptococcal infection.
- Rheumatic fever.
- Post-enteric illness (see above).
- Lyme arthritis.

Systemic disease

- Systemic lupus erythematosus (SLE).
- Kawasaki disease.
- Systemic sclerosis.
- Henoch-Schönlein purpura.

Mechanical
• Trauma.[14]
• Inherited skeletal dysplasias.
• Hypermobility.
• Avascular necrosis.
• Growing pains.

**Metabolic**

• Rickets.
• Thyroid disease.
• Diabetes.

**Tumours**

• Primary of cartilage or bone (benign or malignant).

**Unknown**

• Reflex sympathetic dystrophy.

**Investigations**[5, 10, 11]

See also the separate Rheumatological History, Examination and Investigations article.

Where inflammatory pathology is suspected (RA is the most common):

• FBC - low Hb is common.
• Inflammatory markers - plasma viscosity, ESR and CRP:
  • These can be normal in 60-70% of patients.
  • If there are good clinical signs a normal result should not inhibit referral.

• Rheumatoid factor:
  • Only 33% of patients have a positive result.
  • However, where it is positive, it can be a useful prognostic tool.
  • In juvenile RA, a positive result is associated with increased risk of disease continuing into adult life.

• Autoantibodies: plasma autoantibodies may be required as part of the assessment of the underlying cause.

• Plain X-rays:
  • Hands and feet - 90% are involved in RA.
  • CXR if considering methotrexate (as a baseline for risk of pulmonary side-effects).
  • 50% of people aged over 65 years have radiological evidence of OA including joint space narrowing, osteophytes, cysts, sclerosis and deformity.

• Examination of joint fluid may be needed to make a definitive diagnosis.

**Management**

See also the separate Osteoarthritis and Rheumatoid Arthritis articles.

**General principles**

• For most, reassurance and explanation will be sufficient.
• Lifestyle advice around exercise and weight loss may help.
• For inflammatory pathology, advice to rest the joint affected is helpful. Physiotherapy and occupational therapy (for splinting and assessment for home aids) should be considered.
• Review after one month to monitor improvement or reconsider the diagnosis.
• Patients may need referral for education and long-term support in RA.
• Other non-pharmacological treatments might include thermotherapy, manual therapy, shock-absorbing shoes, transcutaneous electrical nerve stimulation (TENS) and aids to daily living (eg, walking sticks, tap turners).
• Patients should receive positive messages about treatment reducing disease progression and that they are unlikely to be confined to a wheelchair.

**Pharmacological**

**Osteoarthritis**

• First-line drugs are simple analgesics such as paracetamol and non-steroidal anti-inflammatory (NSAID) topical therapy.
• For second-line, the National Institute for Health and Care Excellence (NICE) recommends oral NSAIDs or cyclo-oxygenase 2 (COX-2) inhibitors (other than etoricoxib 60 mg), co-prescribed with a proton pump inhibitor. The lowest effective dose should be prescribed for the shortest period of time. Risks and benefits should be considered, particularly in the elderly.
If the patient is already taking low-dose aspirin, other analgesics should be considered before adding an NSAID/COX-2 inhibitor.

Avoid celecoxib in patients at risk of thrombotic events.

Opioids: these may be useful if paracetamol and NSAIDs are not sufficient for pain control.

Intra-articular corticosteroid injections: should be considered as an adjunct to core treatment for the relief of moderate-to-severe pain.

Capsaicin is a topical treatment which should be considered as an adjunct to core treatment for people with knee and hand OA.

**Rheumatoid arthritis**

NICE has published guidance on the standards of care for people with RA. Early involvement of secondary care is very important for establishing the diagnosis, early use of DMARDs and ensuring full access to all available resources.

See the separate Management of Rheumatoid Arthritis and Disease-modifying Antirheumatic Drugs (DMARDs) articles.

**Surgical**

**Osteoarthritis**

NICE advises joint replacement surgery for patients who do not respond to conservative therapy and experience joint symptoms (pain, stiffness and reduced joint function) that has a substantial impact on their quality of life. Referral should be made before there is substantial pain or limitation of function.

**Rheumatoid arthritis**

Refer people with RA for an early specialist surgical opinion if the following do not respond to optimal non-surgical management:

- Persistent pain (from, for example, joint damage or other soft tissue cause).
- Worsening joint function.
- Progressive deformity.
- Persistent localised synovitis.

Refer people with complications for a specialist surgical opinion before damage or deformity becomes irreversible:

- Imminent or actual tendon rupture.
- Nerve entrapment (for example, carpal tunnel syndrome).
- Any stress fracture.

Refer urgently for:

- Suspected or proven septic arthritis (especially in a prosthetic joint).
- Any symptoms or signs that suggest cervical myelopathy.

Do not let concerns about the long-term durability of prosthetic joints influence decisions to offer joint replacements to younger people with RA.

**Complications**

- Depending on the severity of the disease, work and social life may be affected. Work may be lost if manual.
- Severe difficulties with mobility may lead to social isolation.
- Inability to control pain may be associated with low mood.
- Drug adverse effects may be a problem.

**Further reading & references**

- Rheumatoid arthritis; NICE CKS, August 2013 (UK access only)
- Osteoarthritis; NICE CKS, April 2015 (UK access only)

6. Pasipanodya JG, Gumbo T; Clinical and toxicodynamic evidence that high-dose pyrazinamide is not more hepatotoxic than the low doses currently used. Antimicrob Agents Chemother. 2010 Jul;54(7):2847-54. Epub 2010 May 3.
15. Rheumatoid arthritis in adults: management; NICE Clinical Guideline (February 2009)
16. Osteoarthritis: care and management in adults; NICE Clinical Guideline (February 2014)

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<th>Author: Dr Colin Tidy</th>
<th>Peer Reviewer: Dr John Cox</th>
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<td>Document ID: 1291 (v27)</td>
<td>Last Checked: 11/03/2016</td>
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<td>Next Review: 10/03/2021</td>
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