

An approach to joint pain and inflammatory arthropathies

It is estimated that 10 million people in the UK have arthritis, a broad term encompassing over 200 related diseases, the commonest of which are osteoarthritis, rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis and gout. Of these, rheumatoid arthritis is the most common inflammatory arthritis, affecting around 0.5–1% of the UK population (Selmi et al, 2014).

Key to the assessment of joint pathology is determining whether it is inflammatory, degenerative or secondary to another cause (Samanta et al, 2003). This is particularly important as untreated inflammatory arthritis causes long-term joint damage and functional disability. Treatment can reduce the inflammation with the aim of reducing the patient's symptoms and improving quality of life (Luqmani et al, 2008). It is now known that aggressive early intervention has improved outcomes, hence the importance of the correct diagnosis early on in the patient pathway (Green et al, 1999; Quinn et al, 2001a).

The clinical skills required in this setting include competent and comprehensive history taking, coupled with a thorough examination. Often this will lead to the diagnosis, which can then be supported or refuted with appropriate laboratory investigations and imaging modalities, although these will not be discussed in detail in this article.

This article empowers the clinician to answer five key questions which will give an overview of the patient's musculoskeletal pathology and therefore guide how best to proceed. These are:

1. Does the problem arise from the joint, tendon or muscle?
2. Is the condition acute or chronic?
3. Is the condition inflammatory or non-inflammatory?
4. What is the pattern of the affected sites?
5. What is the impact on the patient's life? (Arthritis Research UK, 2011).

The spectrum of inflammatory arthropathies is illustrated in *Figure 1*. This serves as a reminder of the common presenting acute and chronic joint pathologies.

History taking

Key musculoskeletal symptoms

- Pain
- Stiffness
- Joint swelling.

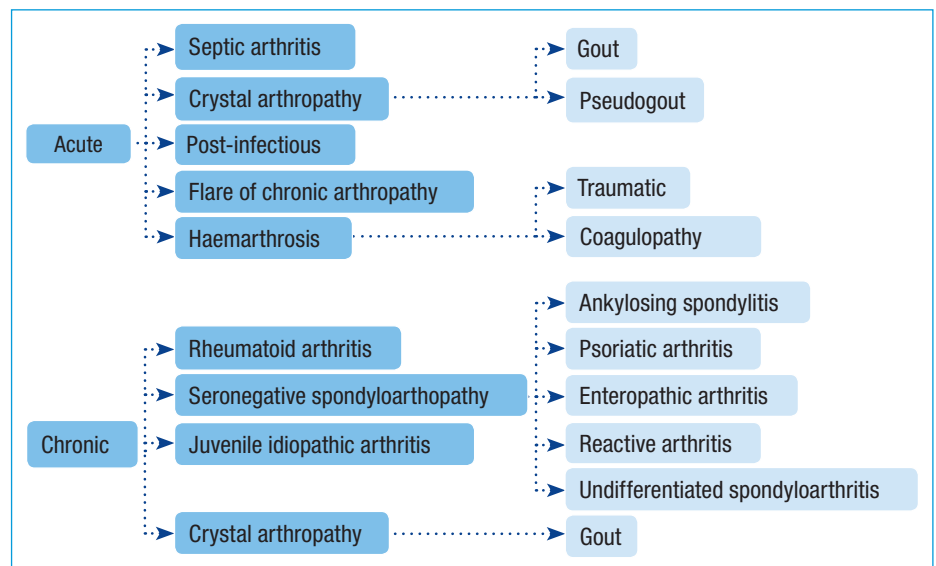
It is important to explore these three symptoms in some depth. In inflammatory conditions, there may be pronounced early morning stiffness that diminishes with activity. This can last several hours. In degenerative conditions (which are

predominantly non-inflammatory), the main symptom may be of pain, which is exacerbated by activity and the stiffness is often localized to individual joints, lasting less than an hour (Luqmani et al, 2008; Arthritis Research UK, 2011; Hakim et al, 2011).

Inflammatory pain is often more variable and can flare in an unpredictable manner. It is important to remember that pain can also be referred, i.e. from the joint above or below, or even more distantly. Pain from nerves is often more of a tingling sensation or there may be numbness in the distribution of the nerve involved. Night pain may be the result of bony involvement (Arthritis Research UK, 2011).

Joint swelling can fluctuate with inflammatory disease and may signify a flare of disease. Long-standing, non-inflammatory disease may also cause swelling, but this will usually be hard and bony such as Heberden's nodes in osteoarthritis (Hakim et al, 2011). Patients may not notice that their joints are swollen and a useful question to ask is if the patient can put on and take off his/her rings. Sometimes the patient may describe his/her hands as 'puffy', worse in the morning and less so in the evening.

Figure 1. Flowchart of the main inflammatory arthropathies.



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Table 1. Key features of the major arthropathies

Arthropathy	Onset	Duration	Joints involved	Early morning stiffness?	Symmetrical pattern?	Specific signs, symptoms or laboratory findings	Risk factors
Rheumatoid arthritis	Gradual	Lifelong, flares. Relapsing and remitting	Usually > three (commonly metacarpophalangeals, proximal interphalangeals and wrists)	Yes	Yes	Nodules, rheumatoid factor, anti-CCP	Family history of rheumatoid arthritis, family or personal history of other autoimmune diseases
Gout	Sudden (can be gradual but usually explosive)	1–2 weeks untreated	First metatarsophalangeal most common (affects 50%) but also variable	Yes	Usually no	Tophi, monosodium urate crystals	High purine/alcohol intake, high body mass index, drugs*
Pseudogout	Sudden (can be gradual)	Flares last days to weeks but variable	Variable (usually just one joint; knee most common in >50% and often the triangular cartilage of the wrist)	Yes	No	Chondrocalcinosis, calcium pyrophosphate dihydrate crystals	Osteoarthritis, hyperparathyroidism, hypothyroidism, trauma, haemochromatosis, acromegaly, female gender
Ankylosing spondylitis	Gradual	Lifelong, flares	Predominantly axial but can be peripheral (often hips and shoulders)	Yes	Usually no	Sacroiliitis, anterior uveitis, enthesitis, vertebral squaring, syndesmophytes	Family history
Psoriatic arthritis	Gradual	Lifelong, flares	Usually > three (predominantly peripheral, but can be axial). Often distal interphalangeals involved	Yes	Yes but variable	Onycholysis, nail pitting/dystrophy, sacroiliitis, enthesitis	Family history
Septic arthritis	Sudden	Often until starting antimicrobials then around 6 weeks	Any but commonly large joints such as knee	No	Usually no	Unable to weight-bear with affected joint(s)	Rheumatoid arthritis, diabetes mellitus, immunosuppression, pregnancy
Post-infectious (reactive)	Sudden	Can be days or persist for 6–8 weeks after infection cleared	Any	No	Variable	Other signs of infection, e.g. rash, lymphadenopathy, pharyngitis. No signs of inflammation of joints	Inter-current illness or viral infection
Osteoarthritis	Gradual	Lifelong, flares	Variable. Often large weight-bearing and carpometacarpals	No	Usually yes but variable	Heberden's nodes (distal interphalangeals), Bouchard's nodes (proximal interphalangeals), crepitus	Trauma or repetitive use, long-standing inflammation, high body mass index, sedentary lifestyle

*Diuretics, salicylates, laxatives, ciclosporin, levodopa, ethambutol, pyrazinamide (Hakim et al, 2011)

Onset

The onset of symptoms is vital to differentiate some of the common conditions, such as crystal arthropathy which tends to occur very suddenly (especially the explosive, sudden onset of gout), compared with osteoarthritis which may build up over many years. One must ascertain whether the symptoms are of sudden or gradual onset. Was there a

precipitating event such as inter-current illness, viral infection or trauma? Are there any alleviating factors? What has the patient tried to control the symptoms thus far and what has worked?

Figure 1 shows a flow chart of the main arthropathies and how the onset of symptoms can be useful to help narrow the differential diagnosis.

Examination

When examining the musculoskeletal system, it is important to use a ‘look, feel, move and special tests’ approach to assess for significant abnormalities of the musculoskeletal system (Hakim et al, 2011). The ‘GALS’ screening examination devised in 1990 is a particularly useful screening tool for this, which can then be followed by a more targeted examination

of abnormalities detected, as well as joints identified as potential pathology from the clinical history (Arthritis Research UK, 2011).

The pattern of joint involvement is also useful in making a diagnosis and the distribution of arthropathy is classified based on the number of joints affected and the location, as follows:

1. Monoarticular: one joint only
2. Oligoarticular: up to and including four joints
3. Polyarticular: more than four joints
4. Axial: predominantly spinal disease.

It is also useful to note whether large or small joints are affected, and whether they are weight-bearing joints. The pattern of joint involvement is often useful also in narrowing down the differential diagnosis; is it a symmetrical or asymmetrical pattern? For example, classical rheumatoid arthritis will be symmetrical, whereas seronegative spondyloarthropathies tend to be asymmetrical.

Assess for any abnormal gait, colour or skin changes, deformity, swelling, asymmetry or wasting. Assessment of the joint itself should include feeling for warmth, tenderness and swelling. In the presence of swelling, it is identified whether this is boggy, i.e. inflammatory, or bony, i.e. more degenerative in origin. If a joint swelling feels boggy, rubbery or if there is fluctuance, particularly in the presence of tenderness and warmth, this is likely to indicate the presence of synovitis, pointing towards an inflammatory arthropathy. Remember to assess the range of movement, as well as

function, for example opening a button or picking up a coin (Arthritis Research UK, 2011).

Unifying the history and examination will support a clinical diagnosis. *Table 1* summarizes the key features of the major arthropathies.

Conclusions

It is important to diagnose inflammatory arthritis as early in the disease course as possible. Early and aggressive treatment with disease-modifying antirheumatic drugs improves outcomes in terms of function, joint damage, quality of life, and reduces costs to the health service and society. In order to provide this, use systematic history taking and examination skills as highlighted in this article.

There are many causes of arthropathy and arthritis. Using this format should allow one to begin the initial diagnostic process and initiate the most appropriate treatment promptly, with further specialist input from the rheumatology team as needed. **BJHM**

Conflict of interest: none.

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KEY POINTS

- Thorough history and examination is key to differentiating the inflammatory arthropathies from non-inflammatory.
- Persistent early morning stiffness with pain or swelling in at least three joints should be further investigated.
- If inflammatory arthropathy is suspected, disease-modifying antirheumatic drugs should be started as soon as possible even if investigations are normal, thus improving outcomes.
- Prompt referral to a rheumatology service should be made when inflammatory arthropathy is suspected, thus improving outcomes.
- A multidisciplinary approach should be taken in managing arthropathies including occupational therapy, physiotherapy and consideration of surgery where appropriate.

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