# 1 An Approach to a Patient with Joint Pain

Tom Walton

## Introduction

Musculoskeletal conditions represent a considerable disease burden, and the majority of patients who present to medical services are managed in the primary care setting [1]. It is important therefore that general practitioners (GPs) are able to correctly diagnose and treat patients with joint pain.

It is well established that patients with inflammatory arthritis benefit from early treatment [2], so timely, effective triage and referral are essential. There is also good evidence that prompt treatment of acute soft tissue pain produces sustained benefit [3].

The aim of the initial assessment in primary care should be to differentiate musculoskeletal from non-musculoskeletal pain and to determine whether the joint pain arises from inflammatory joint disease or from a non-inflammatory cause.

Globally, healthcare systems are struggling to meet demand due to a combination of an ageing population and increasing disease burden [4]. At the same time, there are significant workforce shortages, making it difficult to maintain a high quality service. Therefore, any assessment should aim to provide an accurate, timely diagnosis and an effective management plan.

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Y. Ali (ed.), *Rheumatology for Primary Care Providers*, Casebooks Series, https://doi.org/10.1007/978-3-030-80699-6_1

## Epidemiology

Musculoskeletal pain is common and accounts for 14% of GP consultations in the UK [5] and over 38 million primary care visits annually in the USA [6].

Doctor-diagnosed arthritis is associated with severe joint pain in 15 million patients in the USA [7] and results in a limitation of activity in 24 million patients [8].

In addition to the direct impact on the patient, the annual economic cost of arthritis is also considerable and has been estimated to be at least $303 billion annually in the USA [9].

The role of the family physician is important as they are the most common point of first contact, accounting for 37% of initial consultations for joint pain in the USA [6].

Not only is musculoskeletal pain widespread, but the prevalence of symptomatic arthritis is also increasing [10] due to an increase in risk factors such as obesity and an ageing population [11]. This is reflected in epidemiological studies of specific rheumatological diseases, including gout [12], osteoarthritis (OA) [13] and inflammatory arthritis. If current trends continue, projections suggest that 78.4 million adults in the USA will have some form of arthritis by 2040 [14].

Recent evidence in the medical literature [15] has suggested that epidemiological studies based on doctor-diagnosed arthritis have significantly underestimated the disease burden with a sensitivity of only 52.5% in patients aged 45–64 years. It is likely therefore that the true burden of arthritis is significantly greater than that reported.

## The Assessment of a Patient with Joint Pain

The average duration of consultation in primary care in the UK is only 9 min [16] and 21 min in the USA [17]. It is important therefore to have a structured approach to the assessment that narrows the differential diagnosis, aids appropriate investigation and provides effective treatment.

## General History

The aim of taking a history of joint pain is to localise the source of the pain, identify if it is musculoskeletal in origin and ascertain the likely underlying rheumatological condition.

The most important points to be considered in the approach to the history are illustrated in Fig. 1.1:

Rather than adopt a 'scattergun' approach, the history should be adapted to the patient and the most likely diagnosis. For

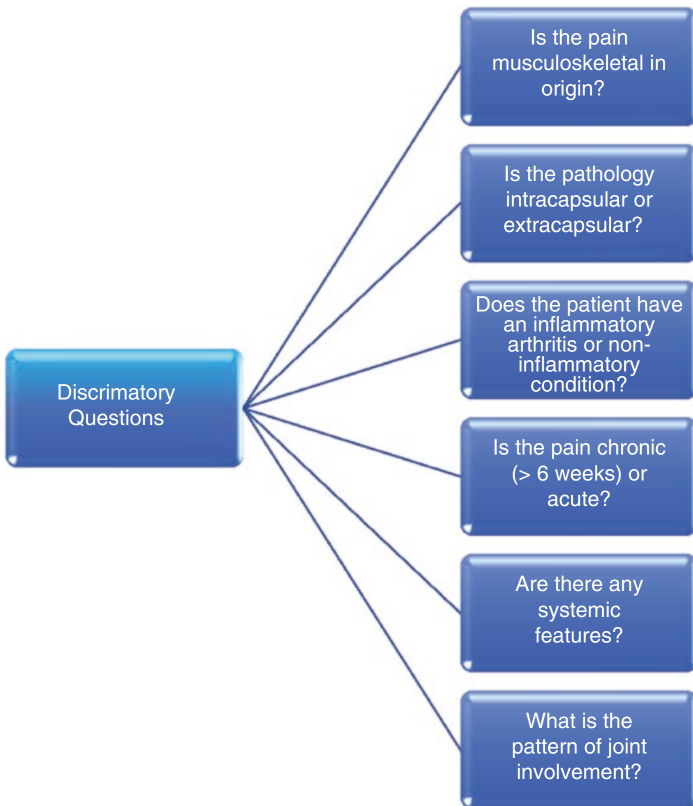


**Fig. 1.1** Key discriminatory questions

example, an elderly male presenting with intermittent inflammatory oligoarthritis is unlikely to have connective tissue disease, so the focus of the history should be altered accordingly.

Firstly, the duration and temporal pattern of the pain must be established as this is a key differentiating feature of specific diseases. The pain of degenerative joint disease will present gradually over several months and be slowly progressive. Inflammatory arthritis usually has a subacute onset over several days or weeks. In contrast, gout has a very distinctive time course, with the pain reaching maximum intensity within 12 hours of onset, often overnight, and is followed by prolonged pain-free periods between attacks that last several weeks or even months.

The location of the pain and any radiation are important, although it must be appreciated that patients struggle to localise pain precisely and it may be useful to use targeted closed questions to determine the origin of the discomfort.

The distribution of joints involved is also pivotal and helps to narrow the differential diagnosis, as shown in Fig. 1.2. For example, rheumatoid arthritis (RA) is usually a symmetrical condition that affects the proximal small joints of the hands, wrists and feet whereas both OA and tendinopathy tend to be asymmetric and, in the case of OA, involves the distal interphalangeal joints of the hands, the carpometacarpal joint of the thumb and weight-bearing joints.

The character of the pain is important. Nociceptive pain is the most common type of pain and is caused by physical damage to the bone, skin or connective tissue, which activates peripheral nociceptors. It is usually well localised and described as throbbing or aching.

Neuropathic pain arises from neuronal damage and is poorly localised. It is chronic, sometimes worse at night and often characterised by descriptions such as ‘burning’ or ‘pins and needles’ together with an altered temperature sensation. Patients can have multiple aetiologies of their pain, which can result in a delay in diagnosis.

Aggravating and alleviating factors are important to identify. Patients with osteoarthritis find that their pain is worse with weight-bearing and activity and alleviated by rest, whereas the

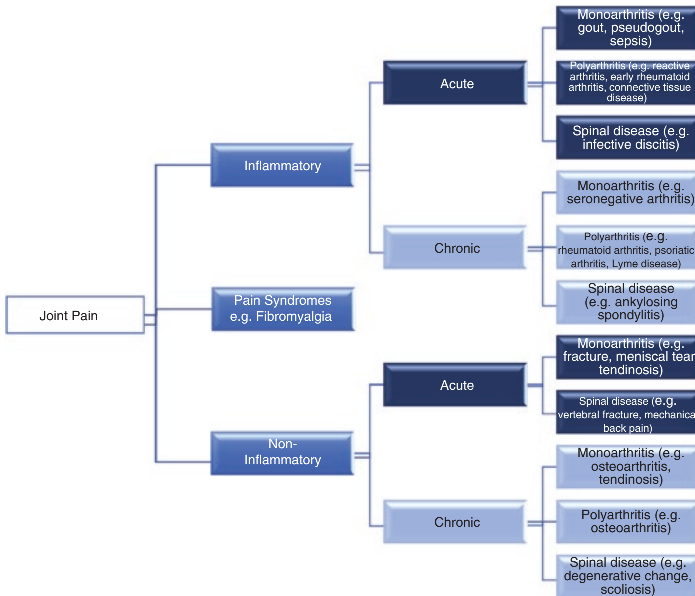


**Fig. 1.2** Categorisation of joint pain by distribution and chronicity

converse is true with inflammatory arthritis. Specific activities will worsen tendinopathies and peripheral nerve entrapment; for example, carpal tunnel syndrome can be exacerbated by driving or holding a mobile phone.

A history of trauma may be overlooked by the patient but should result in a low threshold for arranging imaging to exclude a fracture, particularly in older patients or those at risk of recurrent falls.

Early morning stiffness of the joints is a feature of both degenerative disease and inflammatory disease but is more severe and prolonged with the latter, often lasting for several hours. An underlying inflammatory process is also suggested by a history of post-inactivity 'gelling' with symptoms worsening after a period of immobility.

A systemic enquiry asking about weight loss, fatigue and 'flu-like' symptoms or any history of fever should be taken as these

symptoms imply a systemic cytokine-mediated inflammatory response.

Relevant past medical history and in particular any associated conditions such as recurrent pregnancy loss, thromboembolic events, inflammatory bowel or eye disease are potential red flags for systemic autoimmune disease. Psoriasis may be occult, and direct enquiry about the involvement of the natal cleft, scalp and umbilicus is important.

If a diagnosis of connective tissue disease is suspected, extra-articular symptoms such as malar rash, nasal or mouth ulcers, sicca symptoms and Raynaud's syndrome should be elicited.

As infectious diseases such as Lyme disease, sexually transmitted disease and bacterial gastrointestinal infection can be a precipitant for arthritis, a detailed sexual, travel and tick exposure history is vital. Transient arthritis can also arise after viral infections such as parvovirus and more persistent symptoms after streptococcal infection.

In patients with chronic diffuse pain, a history of childhood sexual trauma or post-traumatic stress disorder should be elicited since this has been shown to be present in up to 45% of patients with fibromyalgia syndrome [18].

In those who present with podagra or intermittent monoarthritis, it is important to ask about potential risk factors for gout such as a high purine or fructose diet, family history, alcohol consumption, diuretic use or even chronic lead exposure.

Occupational risk factors such as repetitive load-bearing tasks increase the risk of tendinopathies and degenerative change over the longer term.

Secondary depression is a common feature in patients with chronic musculoskeletal pain with a prevalence up to 48% higher than controls [19], and this can contribute significantly to an adverse outcome. One study has found that 20% of the disability score was attributable to psychological status in patients with rheumatoid arthritis [20]. The biological basis for this association is suggested by the fact that inflammatory cytokines can reduce neurotransmitter release and affect neuroplasticity [21].

In order to assess the impact of the disease, the patient should also be asked directly about their functional capacity. If this is not

| **A Five Minute History of Joint Pain in Primary Care** | |
|---|---|
| | How long have symptoms been present? |
| | Does the pain come and go? |
| | Is early morning stiffness present? |
| | Is pain better or worse with activity? |
| | Does the patient have swelling of the joints? |
| | Which joints are involved? |
| | Is there a background history of psoriasis, inflammatory bowel disease, uveitis, prolonged back stiffness or gout? |
| | Is there a history of trauma? |
| | If relevant, are there extra-articular symptoms? |

**Fig. 1.3** A 5-min musculoskeletal history

immediately possible due to time constraints, the involvement of a physiotherapist can help assess the patient to ascertain the impact of arthritis [22].

A '5-min history' providing a focussed approach to the history is illustrated in Fig. 1.3.

## Rheumatological Emergencies

Although rheumatology is predominantly an outpatient-based speciality, there are a small number of rheumatological presentations that require urgent treatment. These include joint sepsis, systemic necrotizing vasculitis, giant cell arteritis (GCA), multiorgan failure from systemic lupus erythematosus (SLE) and cauda equina syndrome.

These will be covered in more detail in subsequent chapters, but a detailed initial history and examination are vital in order to identify these conditions at an early stage and organising prompt investigation and treatment.

## Patterns of Rheumatological Conditions

There are over 200 rheumatological conditions, which means that it is important to categorise them in order to arrive at a meaningful differential diagnosis.

Figure 1.4 categorises the seven most common types of rheumatological conditions in adults. They will be discussed in turn, with the exception of osteoporosis, which is covered in a further chapter.

## Referred Visceral Pain

Although it is beyond the scope of this chapter, it is important to be aware of the possibility of referred visceral pain as a cause of musculoskeletal pain. For example, cholecystitis or diaphragmatic pain can be referred to the right shoulder and ischemic cardiac pain to the left shoulder tip.

The main sources of visceral pain are detailed in Fig. 1.5.

Visceral pain may be exacerbated by specific provoking factors; for example, exertion can worsen myocardial ischemia.

**Fig. 1.4** Patterns of rheumatological disease

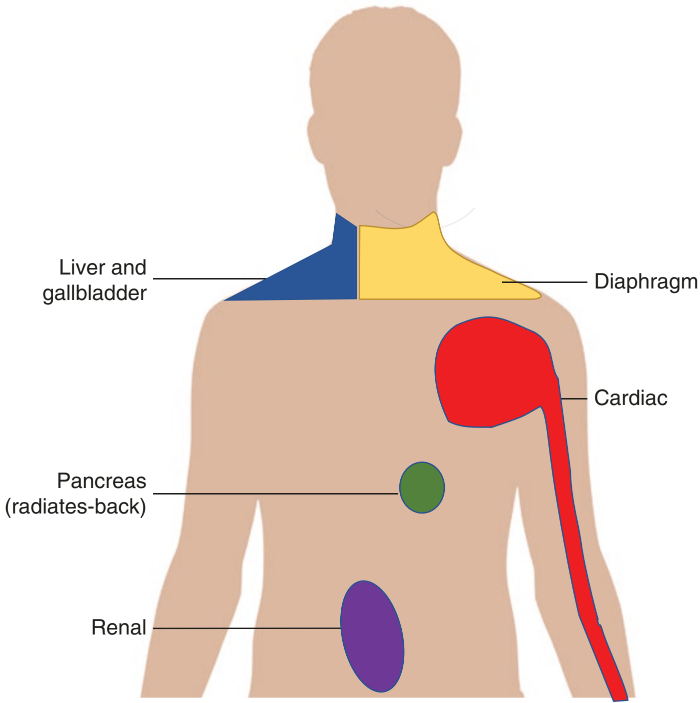


**Fig. 1.5** Visceral pain

Pain referred from internal organs has a different quality from musculoskeletal pain and is not worsened by the movement of the joint itself.

## Spinal Disease

Spinal pain is common, affecting up to 79% [23] of the population at some stage of their lives. As there are a number of structures within the spine that can be a source of pain, including nerves, ligaments, muscles and soft tissues, it is not possible to identify the precise anatomic cause of spinal pain in the majority of cases.

The main aim of the history therefore is to differentiate inflammatory from non-inflammatory pain and to exclude causes that need more urgent investigation and treatment.

Inflammatory spinal disease typically affects males in the 20–40 age group and is less common in females by a factor of 2:1 [24].

Ankylosing spondylitis (AS) will cause significant axial stiffness in the morning, often lasting several hours, and is also associated with nocturnal pain, which is less common in mechanical back pain. The symptoms are commonly alleviated by exercise and NSAIDs and exacerbated by immobility.

Extra-articular features such as a history of iritis, psoriasis and inflammatory bowel disease should raise the index of suspicion for a seronegative spondyloarthropathy (SpA). A family history of AS is frequently seen in patients with the condition.

However, the vast majority of back pain presenting to a GP is mechanical in origin. It is important to clarify if there is any history of paraesthesia or numbness and if the pain is referred to the lower limb as pain radiating the calf is suggestive of lower lumbar radiculopathy.

There are however a number of ‘red flags’ in the history that increase the probability of a more serious underlying cause. These are listed in Fig. 1.6.

A sudden history of back pain in an older patient means that an osteoporotic fracture needs to be excluded, and a previous history of malignancy means that urgent imaging is needed to exclude metastatic disease.

The one condition that must not be missed is cauda equina syndrome, as although it is rare with an incidence of 1/100,000 in the general population [25], this is a neurosurgical emergency where delayed treatment may lead to lifelong incontinence and disability.

All patients with back pain therefore must be asked specifically about a history of altered perineal sensation, incontinence and motor weakness. The examination should include a peripheral neurological examination, which must also exclude perineal sensory loss.

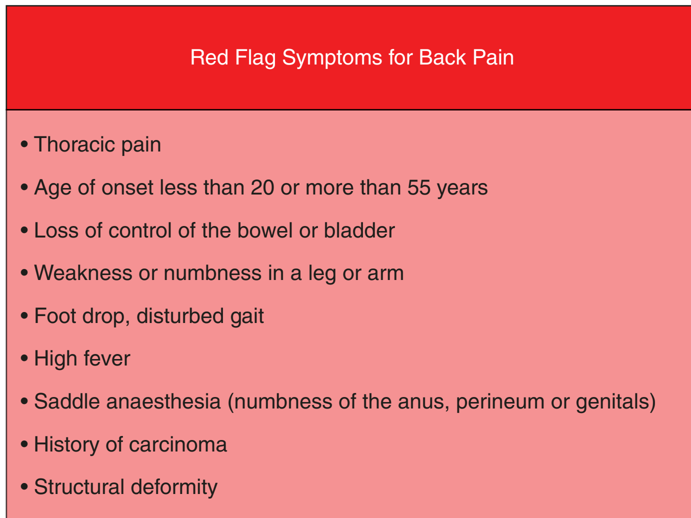


**Fig. 1.6** Red flags for spinal pain

## Periarticular Pain

Periarticular pain arises from structures that surround the joint and are involved in joint motion but are outside the joint capsule. Such pain is often caused by repetitive trauma or overuse but can also develop as a result of inflammatory arthritis and, in particular, seronegative arthritis.

A characteristic of periarticular pain is that in contrast to the globally restricted range of movement arising from synovitis, pain is reproduced by specific movements, for example, ulnar deviation of the wrist in De Quervain's tenosynovitis. The symptoms are worsened by loading the joint and alleviated by rest.

Active movement is more painful than passive movement by the examining clinician as the underlying joint is structurally normal. This is in contrast to patients with inflammatory joint disease where both active and passive movements reproduce the symptoms.

Examples of periarticular pain would include trochanteric bursitis, lateral epicondylitis of the elbow and rotator cuff tendinopathy of the shoulder – these will be outlined in detail in further chapters.

## Inflammatory Arthritis

The pattern of joint involvement is helpful in arriving at a specific diagnosis in patients with inflammatory joint disease.

Patients can be divided into those presenting with monoarthritis (one joint), oligoarthritis (2–4 joints) or polyarthritis (5 or more joints) and may be acute, chronic or relapsing and remitting.

Rheumatoid arthritis (RA) is usually a chronic symmetrical disease typically involving the metacarpophalangeal joints and proximal interphalangeal joints of the hands together with the metatarsophalangeal joints of the feet. In contrast, seronegative arthritis such as psoriatic arthritis will often present with an asymmetrical pattern, sacroiliitis, enthesopathy or oligoarthritis [26].

Inflammatory joint pain is usually of subacute onset over several days or weeks with the exception of crystal arthropathies such as gout or pseudogout that will reach maximum intensity within 12 hours of onset. There is however a subtype of rheumatoid arthritis that is characterised by an explosive onset. This is more common in elderly onset RA (EORA) [27].

An acute monoarthritis is most commonly due to gout, pseudogout or trauma, but in the absence of a suggestive previous history for either of these two conditions, septic arthritis must be excluded. It is important to enquire after systemic symptoms such as sweats and fever, although the clinician must be mindful of the fact that up to 40% of patients with joint infection are apyrexial [28].

The duration of symptoms is also relevant, as synovitis that has been present for less than 6 weeks may be the result of transient viral-associated arthritis, but a longer duration is more likely to be indicative of systemic disease such as rheumatoid arthritis.

## Osteoarthritis

Degenerative joint disease affects middle age and elderly patients. It is usually a widespread condition predominantly involving the load-bearing joints, including the knees, hips and metatarsophalangeal joints of the feet. In the hand, the distal and proximal interphalangeal joints are affected together with the carpometacarpal joint of the thumb. Spinal disease is also common.

The speed of onset is usually gradual, over many months and even years. Pain is worsened by load-bearing and alleviated by rest. Although early morning stiffness is a common complaint, it tends to last for less than 30 min and is less severe than that associated with inflammatory arthritis.

While nocturnal pain is a common feature of inflammatory disease and malignancy, it can also be due to severe degenerative disease and is felt to relate to venous hypertension.

It is important to enquire about a history of injury to a joint as this increases the risk of subsequent degenerative disease [29].

A family history of osteoarthritis is common, particularly in female patients who have premature osteoarthritis of the hand.

## Muscle Syndromes

Muscular as opposed to articular disease has a number of different underlying aetiologies. Myalgic pain and weakness may be seen as a secondary phenomenon in association with severe vitamin D deficiency, hypothyroidism and sarcoidosis.

Polymyalgia rheumatica (PMR), while not a primary muscular disease, will present with symmetrical shoulder and pelvic girdle myalgia.

Primary myopathic conditions are rare but important differentials. This group would include dermatomyositis, polymyositis and inclusion body myositis.

Patients who have muscular disease will present with bilateral symptoms often involving both the upper and lower limbs with associated weakness. In addition to the physical examination, an

elevated creatinine phosphokinase (CPK) or aldolase can also help distinguish these patients from those who have localised degenerative or periarticular syndromes.

The onset of pain is usually subacute over a few days or weeks, and in the case of PMR, there may be a history of antecedent infection [30].

Early morning and post-inactivity stiffness is severe and long-lasting in patients with PMR, although it improves to some extent as the patient starts to mobilise.

It is important to specifically enquire after the symptoms of giant cell arteritis (GCA) in patients with PMR as patients can suffer sudden irreversible visual loss [31] if they do not receive immediate corticosteroid treatment. These symptoms consist of localised temporal headache and tenderness, jaw claudication and visual disturbance.

Jaw claudication is a sensation of pain within the masseter muscles of the jaw that comes on within seconds of starting to chew food and resolves within minutes afterwards. It can be difficult to distinguish from temporomandibular pain, which typically is associated with clicking and clunking within the joint.

Peripheral joint swelling can be a feature of PMR, but this is usually mild and transient involving the wrists and, less commonly, the knees.

A full medication history must be taken as statins in particular can cause muscular pain, typically within 4 weeks of starting treatment. Other medications that may be implicated include hydroxychloroquine, antiretrovirals, quinolones and colchicine with long-term use (Fig. 1.7).

A history of symptoms associated with connective tissue disease may be apparent, and it is also important to ask about the presence of a rash that may be periorbital or involve the metacarpophalangeal joints (MCPJs) in the case of dermatomyositis. A subgroup of myositis called anti-synthetase syndrome may present with 'mechanics hands' (fissuring), interstitial lung disease or oesophageal involvement and will need a multiorgan evaluation.

| Common Medications Causing Musculoskeletal Pain |
|---|
| • Anastrazole |
| • ACE inhibitors |
| • Bisphosphonates |
| • Colchicine |
| • DPP-4 inhibitors |
| • Estrogens |
| • Fluoroquinolone antibiotics |
| • Hydroxychloroquine |
| • Protein Pump inhibitors |
| • Roaccutane |
| • Statins |

**Fig. 1.7** Common medications that may cause muscular pain

## Connective Tissue Disease (CTD)

The label of CTD is an umbrella term that includes conditions such as systemic lupus erythematosus (SLE), Sjogren's syndrome (SS), scleroderma, vasculitis and mixed connective tissue disease.

Joint pain is a frequent symptom but can be absent in patients with connective tissue disease. The most common articular presentation is with non-erosive inflammatory arthritis [32].

If CTD is suspected, then the presence or absence of extra-articular features must be established.

Mouth ulcers are a common complaint, and if recurrent genital ulcers are also present, this raises the possibility of Behcet's syndrome. A photosensitive rash, particularly over the cheeks in a young female patient, is strongly suggestive of SLE. This rash is distinguished from acne rosacea by the fact that it spares the nasolabial folds.

The classic triphasic colour changes of Raynaud's syndrome are prevalent in the general population but are more common in patients with connective tissue disease [33, 34]. Patients should be asked about the dryness of the mouth or eyes, which is found in up to 27% of older patients [35], but this is a significant finding, particularly if present in patients below the age of 50 as it may suggest primary or secondary SS.

A history of thromboembolic disease or recurrent miscarriage raises the possibility of antiphospholipid syndrome, which may be primary or associated with other conditions, in particular SLE.

## Pain Syndromes

Pain syndromes are common in rheumatological practice and include fibromyalgia (FMS), complex regional pain syndrome (CRPS) and chronic widespread musculoskeletal pain.

There is an association with depression and other functional syndromes such as chronic fatigue syndrome and irritable bowel syndrome. Some patients may present with a large number of unrelated symptoms that cause anxiety, and this is often termed 'catastrophisation' [36]. In such circumstances, it is useful to initially let the patient talk openly about their symptoms to ensure they feel listened to and then to focus specifically on areas that are relevant to the clinician.

A sleep history is vital and often overlooked, but sleep deprivation is very common [37] and contributes towards secondary depression and obesity, both of which can worsen the underlying pain. Patients will often complain of unrefreshing sleep resulting in daytime somnolence, which can also be caused by obstructive sleep apnoea (OSA), exacerbated by obesity.

Fatigue is almost universal and often ignored by physicians, but patients find this one of their most debilitating symptoms. Since thyroid disease, anaemia, OSA and depression are common, these should be excluded as potential causes of fatigue before attributing it to the underlying rheumatological disease.

An abnormal sensitivity to light touch (allodynia) is a defining feature of CRPS, and subtle colour and temperature changes may

be seen in the overlying skin of the affected limb or joint. There is frequently a history of trauma or recent surgery as a precipitating factor.

Fibromyalgia will typically cause widespread muscular tenderness with only light pressure. Although patients will complain of joint swelling, synovitis is not a feature of this condition, and if present, it should lead to a reappraisal of the diagnosis.

In many patients, FMS and CTD may coexist, and it is important to differentiate which is most active in order to treat their pain [38].

## Joint Examination

### General Examination

As rheumatological disease has many potential systemic manifestations, it is important to perform a general examination of the patient, including measurement of the blood pressure and urinalysis. The one exception to this is when patients present with a very localised complaint involving only one joint where, as a minimum, the joint immediately distal and proximal to the affected joint should be examined.

As part of the general examination, the skin must be inspected, looking in particular for skin or nail evidence of psoriasis, livedo reticularis, sclerodactyly, rheumatoid nodules, tophi, telangiectasia or palpable purpura, which is a sign of leucocytoclastic vasculitis.

The eyes may be involved in certain autoimmune conditions, which can cause keratoconjunctivitis sicca, uveitis, scleritis and episcleritis. There are a number of different methods of measuring inadequate tear production, including Schirmer's test, which involves the use of a strip of blotting paper. These can be useful if SS is a possibility, although the reproducibility of these tests can be poor [39].

If joint sepsis is suspected, then the temperature must be measured, and immediate aspiration of the affected joint is critical. This will be discussed further in another chapter.

Auscultation of the chest and heart sounds will help to identify patients with pulmonary fibrosis, pulmonary hypertension and significant valvular disease.

## Musculoskeletal Examination

As an initial screen, the GALS (gait, arms, legs and spine) examination is useful.

The gait can be assessed by asking the patient to walk and look for asymmetry and pain on walking.

Then, the upper limbs are inspected, looking for skin changes, muscle wasting and evident joint swelling.

The joints are palpated, looking for evident swelling, temperature change and tenderness. Pain on squeezing the metacarpophalangeal joints is suggestive of rheumatoid arthritis – the metacarpal 'squeeze test' as seen in Fig. 1.8.

Movement of the joints is examined by asking the patients to pronate and supinate the hands with the elbow flexed (Fig. 1.9).

The ability of the patient to perform a pinch grip is assessed and then flexion and extension of the wrist and elbow. The range of movement of the shoulder is assessed by bringing the thumb up under the scapula to assess adduction and internal rotation and by placing the hands on top of the head to assess external rotation and abduction (Fig. 1.10).

The examination of the legs is performed with the patient lying on an examination couch with an initial inspection to look for wasting, fasciculation and asymmetry. The knee joint is palpated for swelling and tenderness and is then flexed and extended with one hand on the knee joint to feel for crepitus (Fig. 1.11).

With the knee flexed, the hip is then internally and externally rotated (Fig. 1.12).

The spine is then inspected for scoliosis and viewed from the side to exclude abnormal kyphosis.

Flexion and extension of the cervical spine are assessed, and then the patients are asked to put their ear on their shoulder. Forward flexion of the lumbar spine is examined by asking the patients to bend forward with their knees held in extension and

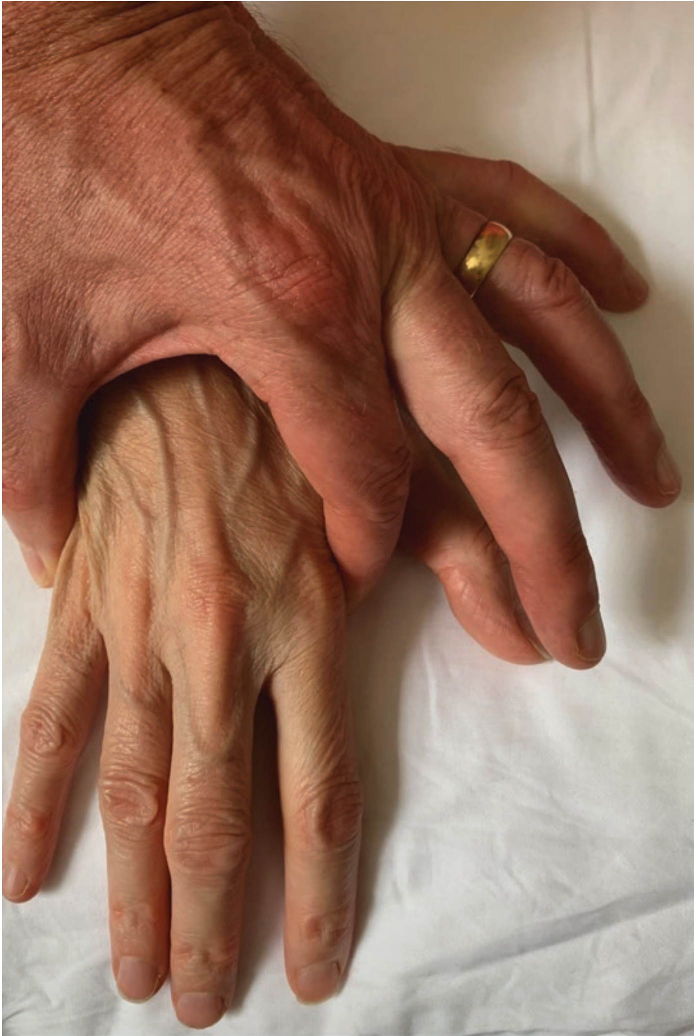

**Fig. 1.8** The metacarpal squeeze test

**Fig. 1.9** Pronation and supination of the forearm

**Fig. 1.10** Assessment of shoulder range of movement

then movement at the thoracic spine by asking the patients to rotate the spine to one side and then the other with the pelvis held in position by the examiner.

If the patients are noticed to be hypermobile, then an assessment of this can be made using the Beighton score (Fig. 1.13), with a score of 6 or above from a potential total of 9 indicating underlying hypermobility.

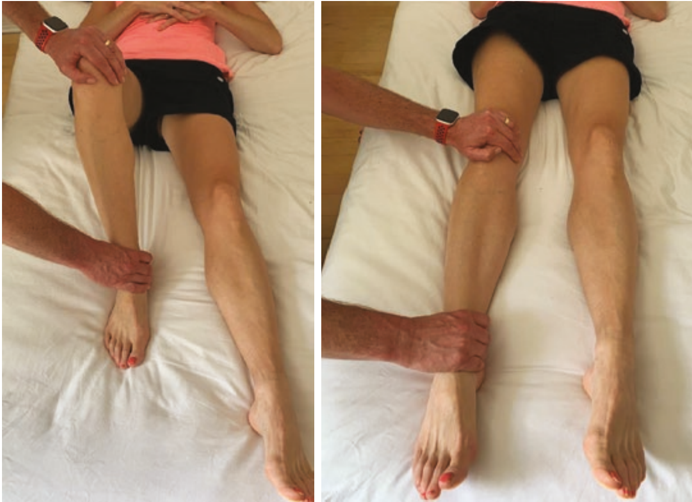

**Fig. 1.11** Flexion and extension of the knee

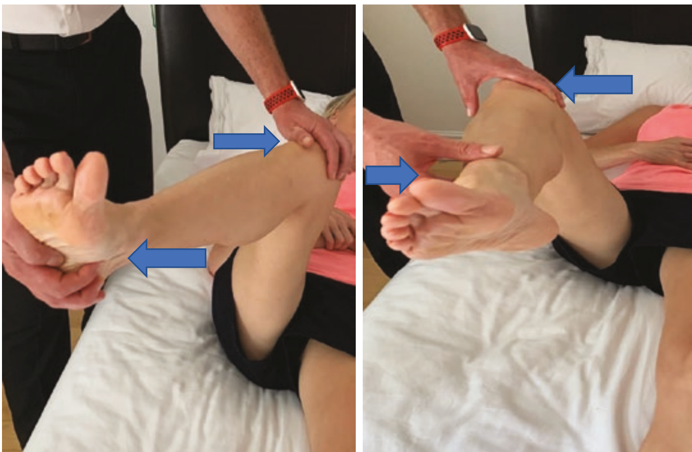

**Fig. 1.12** Internal and external rotation of the hip

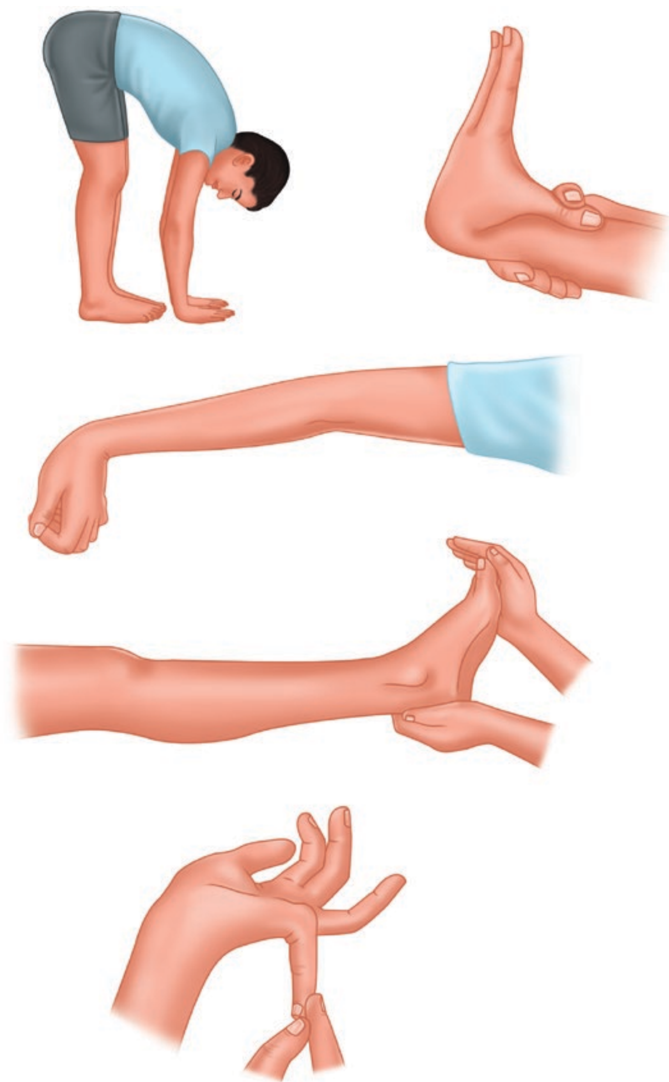

**Fig. 1.13** The Beighton score to assess joint hypermobility

## Individual Joint Examination

The examination of individual joints should then proceed using the principle of ‘look feel move’. It is important to compare the painful joint with the opposite side and with the joint proximal to and distal to it. One of the most important objectives is to establish the presence or absence of synovitis.

The joint should be inspected for visible swelling, scars, localised wasting and alteration in colour.

Gentle palpation of the joint will elicit any tenderness or swelling. Synovitis will produce soft tissue swelling, warmth, effusion, reduced range of movement and localised tenderness.

Any fibrotic change within the tendons, as seen with Dupuytren’s contracture, will also be identified by palpation of the tendon sheath.

Movements should be compared across the full range of movement of the joint, both actively and passively. This will help to differentiate extracapsular conditions such as lateral epicondylitis of the elbow or muscular injury, where the passive range of movement is normal, with intracapsular disease where it is reduced.

Patterns of joint involvement are suggestive of specific diseases, for example, periosteal new bone formation involving the distal and proximal interphalangeal joints, and the first carpometacarpal joint of the thumb is pathognomonic of nodal osteoarthritis. In contrast, asymmetrical synovitis is a feature of seronegative arthritis, whereas rheumatoid arthritis tends to produce symmetrical disease.

Widespread muscular tenderness is very suggestive of fibromyalgia, which is primary in the majority of cases but can be secondary to other rheumatic diseases.

## Summary

Joint pain is a very common symptom in the general population, and with an ageing population and increasing obesity, the prevalence is likely to increase still further.

Distinguishing inflammatory from non-inflammatory disease is vital as prompt treatment of conditions such as rheumatoid arthritis significantly reduces long-term disability.

Despite significant advances in laboratory and radiological investigations, the assessment of patients with joint pain using the history and examination remains the mainstay of clinical practice. The aim is to provide an accurate differential diagnosis and therefore effective treatment.

Most patients with musculoskeletal pain will present to primary care physicians and can be investigated and treated in that setting by a clinician confident in the management of rheumatological conditions.

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