Focus

Assessment of the patient with joint pain

Peter Chapman is a rheumatologist and physician in Christchurch

Key points

- The most useful information in evaluating musculoskeletal pain comes from the history and physical examination
- A red, hot, swollen joint usually implies active infection, gout or pseudogout. Aspiration on initial presentation is usually required to exclude infection
- In peripheral joint pain the key questions are: (i) is the joint pain articular or periarticular, and if articular, (ii) is it inflammatory or mechanical in origin?
- The most important clinical finding in low back pain is the presence or absence of lower limb neurological deficit
- Joint examination is essentially normal in non-specific polyarthralgia/myalgia; a crucial aspect of management is an adequate explanation of sensitisation of pain pathways which occur in the absence of

Surveys of the workload of GPs have shown that around 15 per cent of all consultations are related to disorders of the musculoskeletal system. The majority of conditions are benign and self-limiting, but an important minority may require urgent assessment and treatment.

As with most areas of medicine, a careful history and physical examination is the cornerstone of accurate diagnosis and will help guide appropriate investigations and management. Determining whether a musculoskeletal problem is related to local injury or overuse, whether it is degenerative or inflammatory, and/or is part of a systemic illness are important early questions in the diagnostic sieve.1

Within the scope of this article I have focused on the following areas:

- musculoskeletal emergencies
- monoarticular joint pain
- polyarticular joint pain
- back pain
- non-specific arthralgia/myalgia.

MUSCULOSKELETAL EMERGENCIES

In general terms, these cover the broad areas of infection (septic arthritis, osteomyelitis), mechanical derangement (trauma), neurological or vascular compromise, severe systemic illness and malignancy. In most cases diagnosis is not difficult but may be hindered by atypical presentations in the elderly and immunocompromised or which may be masked in those with multiple comorbidities and/or multiple symptoms.

Important musculoskeletal "red flags" include:

- History of significant trauma
  (a) an x-ray in these settings is usually mandatory
  (b) differential diagnosis: fracture, mechanical

detectable joint or muscle abnormalities

derangement, soft tissue injury

- A joint which is "locked" or so painful that movement is impossible
  (a) fracture, mechanical derangement, soft tissue injury
  (b) patients with osteoporosis, eg, elderly, may sustain a fracture with minimal trauma

- A red, hot, swollen joint
  (a) beware infection
  (b) joint aspiration is usually required (request cell count, crystals, Gram-stain and culture)
  (c) infection (septic arthritis), gout, pseudogout
  (d) inflammatory arthritis, eg, rheumatoid arthritis, may present with a hot, swollen joint but it is usually less acute compared with infection or crystal synovitis
  (e) the immunosuppressed patient, eg, RA on prednisone, may present with less acute symptoms. Consider infection in a patient with polyarticular disease with marked inflammation in a single joint. If in doubt, aspirate and/or refer

- Fever or constitutional symptoms
  (a) will usually accompany active infection
  (b) malignancy is a rare finding in musculoskeletal presentations but should be considered, especially in the elderly and in those with unremitting pain
  (c) accompanying shoulder and pelvic girdle stiffness/pain ± headache/scalp tenderness/ jaw claudication raises the possibility of polymyalgia rheumatica ± temporal arteritis
  (d) polymyalgic syndromes may herald occult malignancy, vasculitis

- Severe, unrelenting pain, nocturnal pain
  (a) infection, malignancy, mechanical derangement

- Significant weakness
  (a) Focal – radiculopathy, entrapment, neuropathy
  (b) Diffuse – myopathy/myositis – consider infection (frequently viral), drugs, autoimmune cause
  (c) creatinine kinase (CK) is a useful screening test in patients with weakness and/or myalgia
  (d) neurological disorders.

MONOARTICULAR JOINT PAIN

Pain in and around a single joint, particularly the knee and shoulder, is a common presentation. The key questions are:[2]

1. Is the pain articular or periarticular?

2. If articular pain, is it inflammatory or mechanical?

Articular v periarticular

Articular disease is usually characterised by joint line tenderness and pain at the end range of movement in any direction. If articular disease is significant, there is usually reduced range of movement.

Periarticular problems are characterised by point tenderness over the involved structure, and pain exacerbated by certain movements involving that structure. In

the acute setting, passive movement is usually full but painful. Periarticular problems are usually confirmed by physical examination. Common syndromes include:

- Rotator cuff syndrome
  (a) painful arc (impingement)
  (b) pain with resisted abduction (supra-spinatus tendonitis (involved in ~90 per cent of cases)
  (c) external rotation (infraspinatus)
  (d) internal rotation (subscapularis)

- Medial and lateral epicondylitis
  (a) point tenderness
  (b) pain on resisted movement

- Olecranon bursitis
  (a) local tenderness and swelling

- De Quervains tenosynovitis
  (a) point tenderness
  (b) pain with thumb flexion and wrist ulnar deviation (Finkelstein's test)
  (c) pain with resisted thumb extension

- Trochanteric bursitis
  (a) point tenderness

- Prepatellar, patella, anserine bursitis
  (a) point tenderness

- Plantar fasciitis
  (a) point tenderness

- Achilles tendonitis
  (a) point tenderness and swelling

Inflammatory v mechanical

- Inflammatory features include:
  (a) warmth, redness
  (b) joint swelling (soft tissue swelling)
  (c) pain and stiffness after prolonged inactivity
  (d) morning stiffness

- Non-inflammatory (mechanical degenerative) features include:
  (a) activity-related pain
  (b) improvement with rest
  (c) "locking", "catching", "giving way"
  (d) crepitus
  (e) absence of soft tissue swelling, warmth, redness.

POLYARTICULAR JOINT PAIN

The key questions are similar to those for monoarticular joint pain:

1. Is the pain articular in origin?

2. If so, is it inflammatory or non-inflammatory?

Common non-inflammatory conditions include generalised osteoarthritis and fibromyalgia/non-specific polyarthralgia. Polyarticular inflammatory joint disease has a wide differential diagnosis. Age, pattern of onset, joint distribution, presence of extra-articular features (rash, bowel symptoms, eye involvement, Raynaud's, etc) are helpful diagnostic clues. Common presentations include:

• rheumatoid arthritis
(a) symmetrical, small joint (hands, feet) involvement very common (25 per cent, however, may present with monoarthritis)
(b) any age but peak incidence 30-50 years
(c) female > male
(d) diagnosis is based on clinical findings; rheumatoid factor is absent in ~20 per cent and may be positive in normal individuals

• psoriatic arthritis
(a) inflammatory arthritis occurring with psoriasis (check scalp, umbilical area)
(b) nail pitting
(c) around 20 per cent of psoriasis patients develop inflammatory arthritis

• reactive arthritis
(a) usually younger patient
(b) preceding illness (especially diarrhoea, genitourinary infection) but may occur following mild viral infection
(c) "sero-negative/B27" pattern, ie, oligoarticular, asymmetrical, lower limb predominant joint involvement
(d) ± conjunctivitis, urethritis, rash (classical Reiter's)

• enteropathic arthropathy
(a) similar "sero-negative/B27" joint pattern (associated with ulcerative colitis and Crohn's disease)
(b) remember to ask patients with inflammatory polyarticular disease regarding bowel symptoms (diarrhoea, abdominal pain, PR bleeding, mucus)
(c) may precede inflammatory bowel disease diagnosis

• gout
(a) acute, episodic joint pain
(b) joint aspiration is diagnostic if urate crystals present

• SLE
(a) uncommon but consider in young patient (especially female) with rash, hair loss, alopecia, mouth ulcers, systemic symptoms, fatigue

• polymyalgia rheumatica
(a) rare < 60 yrs
(b) shoulder and pelvic girdle pain/stiffness
(c) relatively rapid onset
(d) morning stiffness
(e) raised ESR/CRP
(f) dramatic response to prednisone.

Early referral for many of these patients is recommended. In systemic rheumatic disease the early introduction of immunosuppressive/disease modifying therapy is associated with improved patient outcomes.

BACK PAIN

Back pain is the most common musculoskeletal symptom experienced in the community. The intensity of the back pain and its accompanying activity limitation

usually improves within a few days (sometimes longer) but milder aching may persist for several months.

The vast majority of acute back pain is mechanical and/or soft tissue in origin. The level of the pain is readily diagnosed (eg, L4/5) but the precise anatomical and pathophysiological mechanism involved frequently remains elusive.

"Red flags"3 include a history of:

- significant trauma
- systemic symptoms (weight loss, fever)
- severe, unremitting pain, night-time pain
- neurological deficit (lower limbs)

Bilateral signs, urinary retention, saddle anaesthesia and/or a sensory level require urgent referral.

Decreased lumbar spine movements, muscle spasm and tenderness are usually present and are nonspecific clinical signs. The most important clinical finding is the presence (or absence) of lower limb neurological deficit.

Lower limb power, reflexes and sensation should be universally examined in acute low back pain. A normal neurological examination virtually excludes a clinically significant disc herniation/nerve root
entrapment.

Inflammatory low back pain (gradual onset, morning stiffness, sacroiliac tenderness) in a young individual raises the possibility of ankylosing spondylitis and warrants referral.

It is important to give the patient with mechanical low back pain a positive message early on with advice to remain as active as possible. Early return to activity with analgesia (paracetamol, NSAIDs) has a better outcome than traditional bedrest and "let pain be your guide". Workplace injuries may require alternative duties and/or workplace assessment.

NONSPECIFIC ARTHRALGIA/MYALGIA

This is a common and challenging presentation. Clinical features vary widely, ranging from mild peripheral joint arthralgia to severe fibromyalgia with multiple focal areas of hyperalgesia, non-restorative sleep and commonly, chronic fatigue and depression.

A thorough history and examination is important and may play a therapeutic role in reassuring the patient there is no evidence of structural joint or tissue damage. By definition joint examination will be within normal limits. Investigations should be kept to a minimum. An early explanation of mechanisms of chronic joint and muscle pain is recommended. The concept that changes in modulation of pain processes within the central nervous system lead to sensitisation of pain pathways and peripheral pain in "normal" joints/muscles can be understood by most patients.4
Empathetic follow-up and advice on regular exercise and sleep hygiene is also important.

• *References available on request*