Clinical features of rheumatoid arthritis

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Abstract

Rheumatoid arthritis (RA) is a multiorgan chronic inflammatory condition that affects 0.84% of the UK population. The cardinal clinical feature is a symmetrical polyarthritis that predominantly affects the small joints. RA can affect other components of the musculoskeletal system (bursitis, tendinopathy, muscle atrophy, osteoporosis) and almost every organ in the body. Extra-articular manifestations of RA can be cutaneous, haematological, neurological, pulmonary, cardiac, renal and ocular. A better understanding of the varied clinical aspects of RA is vital to instigating appropriate management. This review provides a detailed description of the clinical manifestations of RA, both musculoskeletal and extra-articular.

Keywords Atherosclerosis; chronic disease; inflammation; interstitial lung disease; MRCP; rheumatoid arthritis; synovitis; tenosynovitis

Key points

- Rheumatoid arthritis (RA) is a chronic multisystem inflammatory condition
- Arthritis in RA is typically symmetrical and polyarticular, but in some cases is asymmetrical, oligo- or mono-articular
- RA can affect other structures in the musculoskeletal system, including tendons, bursae, muscles and bones
- Extra-articular manifestations of RA can be cutaneous, vascular, neurological, haematological, pulmonary, cardiac, renal, gastrointestinal or ocular

Introduction

Rheumatoid arthritis (RA) is a multisystemic chronic inflammatory disease, classically defined as a symmetrical deforming polyarthritis.

Prevalence in the UK is estimated at 0.84% of adults aged >16 years.[1] Onset can be at any age, with a peak incidence of 40–60 years. Women are three times more likely to develop RA, noticeably in the postpartum period. Family history, cigarette smoking and obesity are other recognized risk factors. Poorly treated RA can lead to bony erosions, deformity and loss of function. This article explores the articular and extra-articular features of RA (summarized in Figure 1).

How do patients with rheumatoid arthritis present?

Individuals present with pain, swelling and stiffness in a symmetrical pattern, predominantly affecting the smaller joints of the hands and feet. In some cases, the disease can develop from an asymmetrical oligo- or polyarthritis onset, and rarely from a monoarthritis. Palindromic RA is well recognized, with variable episodes of polyarthritis lasting a few hours to days with complete resolution of symptoms in the interim.

The diagnosis is largely clinical, supported by blood tests (anti-cyclic citrullinated peptide, rheumatoid factor, inflammatory markers), radiographs (erosions, periarticular osteopenia, swelling) and ultrasonography. Clinical assessment should include a focus on a thorough systemic enquiry to exclude other diagnoses (e.g. polymyalgia rheumatica, infection, vasculitis, autoimmune rheumatic disease, paraneoplastic disease) and in particular seronegative spondyloarthropathy (psoriasis, inflammatory back pain, enteropathic features, dactylitis, uveitis).

Early referral and diagnosis are essential as there is a 'window of opportunity' when early intervention may alter longer-term outcomes.

Musculoskeletal features

Joints:

Upper limbs – clinical examination starts at the hands, inspecting for swelling and deformity, palpating for tender and swollen joints and assessing range of movement. The proximal interphalangeal joints (PIPJs), metacarpophalangeal joints (MCPJs), wrists, elbows and shoulders are individually examined. Classically, the distal interphalangeal joints (DIPJs) are spared in RA; consider osteoarthritis, psoriatic arthritis and gout as differential diagnoses if the DIPJs are involved. Tenderness volar to the ulnar styloid can suggest involvement of extensor carpi ulnaris – a common feature in early RA.

Deformity is not expected in the early stage unless the diagnosis has been delayed. When deformities are present, it is important to determine whether these are reversible (i.e. Jaccoud's-type arthropathy, consider autoimmune rheumatic diseases such as systemic lupus erythematosus) or irreversible.

Classic RA deformities involving the digits are the boutonnière (irreversible flexion at the PIPJs and hyperextension at the DIPJs), swan neck (irreversible hyperextension at the PIPJs and flexion at the DIPJs) and Z-thumb (flexion at the MCPJs and hyperextension at the interphalangeal joints to 90°) deformities. These changes result from damage to the tendons and joint capsule.

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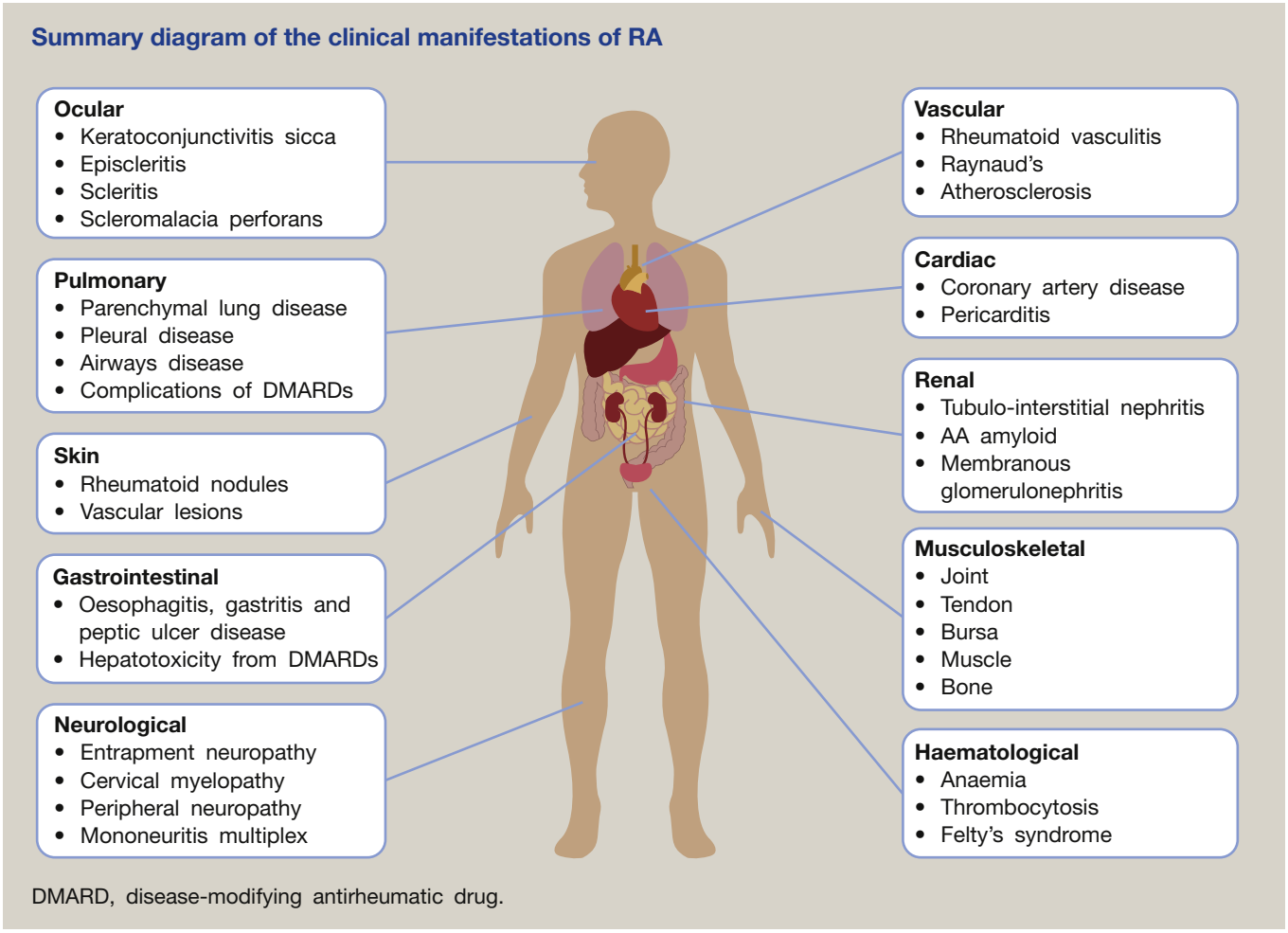

Figure 1

Flexor tenosynovitis can result in pain and 'triggering' of the fingers. Tenderness, thickening and nodule formation are palpable along the tendon.

Established RA changes at the MCPJs cause volar subluxation and ulnar deviation. These are a consequence of damage to the volar plate, tendons and supporting ligaments caused by synovial inflammation.

Ulnar deviation at the MCPJs is associated with radial deviation at the wrist. Dorsal subluxation of the ulna results in a 'piano key' movement allowing the ulna to be depressed. This bony movement can cause damage to extensor tendons and rupture.

Synovitis at the wrist and deformity can result in entrapment neuropathies – carpal tunnel syndrome and, less commonly, ulnar neuropathy.

Tenderness, synovitis, effusion and flexion deformity may be seen at the elbow.

Swelling at the shoulder is difficult to elicit. RA commonly involves the shoulder joint, causing rotator cuff tendinopathy, tendon rupture, synovitis and bursitis. Patients can report pain, stiffness and limited range of movement.

Lower limbs – the feet should be inspected for swelling and deformity, and in particular for loss of the longitudinal arch. The MTPJs are at risk of deformity because of synovitis and high load-bearing. Hallux valgus can develop, with subluxation of the other phalanges and claw toe formation resulting from flexor tendon involvement. This alters biomechanics such that the second and third MTPJs predominantly bear the load, with resultant pain, underlying callosities and deformity.

The posterior tibialis tendon and the subtalar and talonavicular joints are frequently involved in RA, causing pain, erosions and subtalar dislocation with loss of the arch of the foot.

Active synovitis at the knee results in pain and effusion. Secondary degenerative changes are common. Posterior knee pain can result from an enlarged Baker's cyst.

The hip is less commonly involved in RA; synovitis is difficult to elicit because of the deep-seated location.

Cervical spine – involvement of the cervical spine is less common with modern therapies, and is usually seen in individuals with advanced disease. Patients report neck and occipital pain; neurological features can be present as a result of compression of the nerve roots or spinal cord.

The atlas (C1) has a strong transverse ligament that maintains the odontoid process (also known as the dens or peg) of the axis (C2) against the posterior surface of the atlas (Figure 2). There is a synovial articulation between the transverse ligament and the

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