Clinical features of rheumatoid arthritis

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Abstract

The key to successful management of rheumatoid arthritis (RA) is the early diagnosis of inflammatory arthritis and early specialist referral to access appropriate pharmacological and multidisciplinary team therapies, reducing the risk of permanent joint damage and systemic complications. RA characteristically presents as a symmetrical polyarthritis, predominantly affecting the small joints, with swelling, stiffness and pain on joint compression. This article covers the diagnosis and assessment of RA, and risk factors that predict disease severity and extra-articular complications.

Keywords Assessment; diagnosis; early; inflammation markers; inflammatory; rheumatoid arthritis; stiffness; swelling; undifferentiated inflammatory arthritis

Prevalence and incidence

Rheumatoid arthritis (RA) is the most prevalent chronic inflammatory arthritis, estimated to affect 0.5–1% of the population. Women are affected two to four times more commonly than men (estimated female incidence 24–60/100,000 versus male 15–26/100,000 in the European and North American populations).[1] Incidence increases with age, with peak incidence at 60–70 years. Inflammatory arthritis can occur at any age. Before the age of 16 years this is considered juvenile idiopathic arthritis (see Chronic arthritis in children and young people on pages 243–250 of this issue).

Early presentation and diagnosis of RA

Key features of inflammatory arthritis are the presence of three **S**s; early morning **s**tiffness (EMS), usually lasting longer than 30 minutes, joint **s**welling (≥3 joints) and compression tenderness on '**s**queeze test' across the metacarpophalangeal (MCP) or metatarsophalangeal (MTP) joints.[2] If these features are present, early specialist referral should be made. Up to a third of patients presenting with undifferentiated inflammatory arthritis (UIA) may progress to RA.[3]

Early detection of RA to allow early commencement of disease-modifying anti-rheumatic drugs (DMARDs), within 12 weeks of symptom onset, results in better disease outcome, less disability, less joint damage and fewer complications.[2,4]

The 2010 ACR-EULAR classification criteria for RA (Table 1) recognize the range of presentations of 'early' RA and identify risk factors for progressive disease so that DMARD therapy can be started early.[5] The criteria need to be reviewed over time to obtain a cumulative score for RA. It should be noted however, that in starting DMARD therapy early for UIA, disease phenotype may be modified so that patients do not go on to fulfill RA classification criteria (2010 ACR-EULAR or ACR 1987).[5,6] Ultimately, the diagnosis remains a clinical one based on the detection of synovial inflammation.

Patterns of joint involvement

RA characteristically presents as a gradual onset of additive joint pain, stiffness and swelling affecting multiple joints (polyarticular), usually in a symmetrical pattern (although early presentation can sometimes be asymmetrical). There is associated loss of function, and although disease activity may fluctuate, it will, if untreated, usually lead to joint destruction with erosive cartilage and bone damage, and potential tendon rupture. In up to 30% of cases, RA can be of sudden onset, often more common in the older age group and often with more prominent systemic and myalgic symptoms. Diffuse oedema of hands and lower limbs can be seen and associated with less risk of joint destruction.[7] An intermittent (palindromic) onset with acute episodes self-limiting after days or weeks, may proceed in up to two-thirds to a more persistent and destructive joint disease.[8]

Typically in RA, small joints of the hands and feet are most commonly involved (MCPs, proximal interphalangeal [PIP] joints, and MTPs), followed by wrists and ankles, elbows, shoulders and knees, but almost any joint can be affected. Axial joint involvement is less common, although cervical spine involvement can occur in 30–50% of cases this rarely occurs in isolation.[9] Mouth opening, chewing, speech and breathing can be affected when there is involvement of the temporomandibular and crico-arytenoid joints. Distal interphalangeal (DIP) joint involvement is not a feature of

The 2010 ACR-EULAR classification criteria for RA[5]

(Available from http://www.rheumatology.org/practice/clinical/classification/ra/ra-2010.asp)

At least one joint with clinical synovitis (swelling), not explained by other disease; and a cumulative score ≥6 from each of the following categories:

Number and type of joints involved (swollen or tender on examination)	
2–10 large joints[a]	1
1–3 small joints[b] (± large joints)	2
4–10 small joints[b] (± large joints)	3
>10 joints (≥1 small joint[b] + any others)	5
Serology for RF, ACPA	
Low +ve RF and/or ACPA titre[c]	2
High +ve RF and/or ACPA titre[d]	3
Inflammatory markers	
Elevated ESR[e] and/or CRP[e]	1
Symptom duration (patient reported pain, swelling, stiffness)	
≥6 weeks	1

ACPA, anti-citrullinated peptide antibodies; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; MCP, metacarpophalangeal; PIP, proximal interphalangeal; RF, rheumatoid factor.

[a] Large joints = Elbows, shoulders, hips, knees, ankles.
[b] Small joints = MCPs, PIPs, wrists.
[c] Above upper limit of normal (ULN) but ≤3× ULN for local laboratory assay.
[d] >3× ULN.
[e] Above reference range for local laboratory.

Table 1

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RA and its occurrence should raise other differential diagnoses (osteoarthritis, psoriatic arthritis).

Constitutional symptoms can occur, with general fatigue almost ubiquitous. Loss of appetite, weight loss and low-grade fever can predominate in some patients, and raises the possibility of infective and malignant causes (Figure 1).

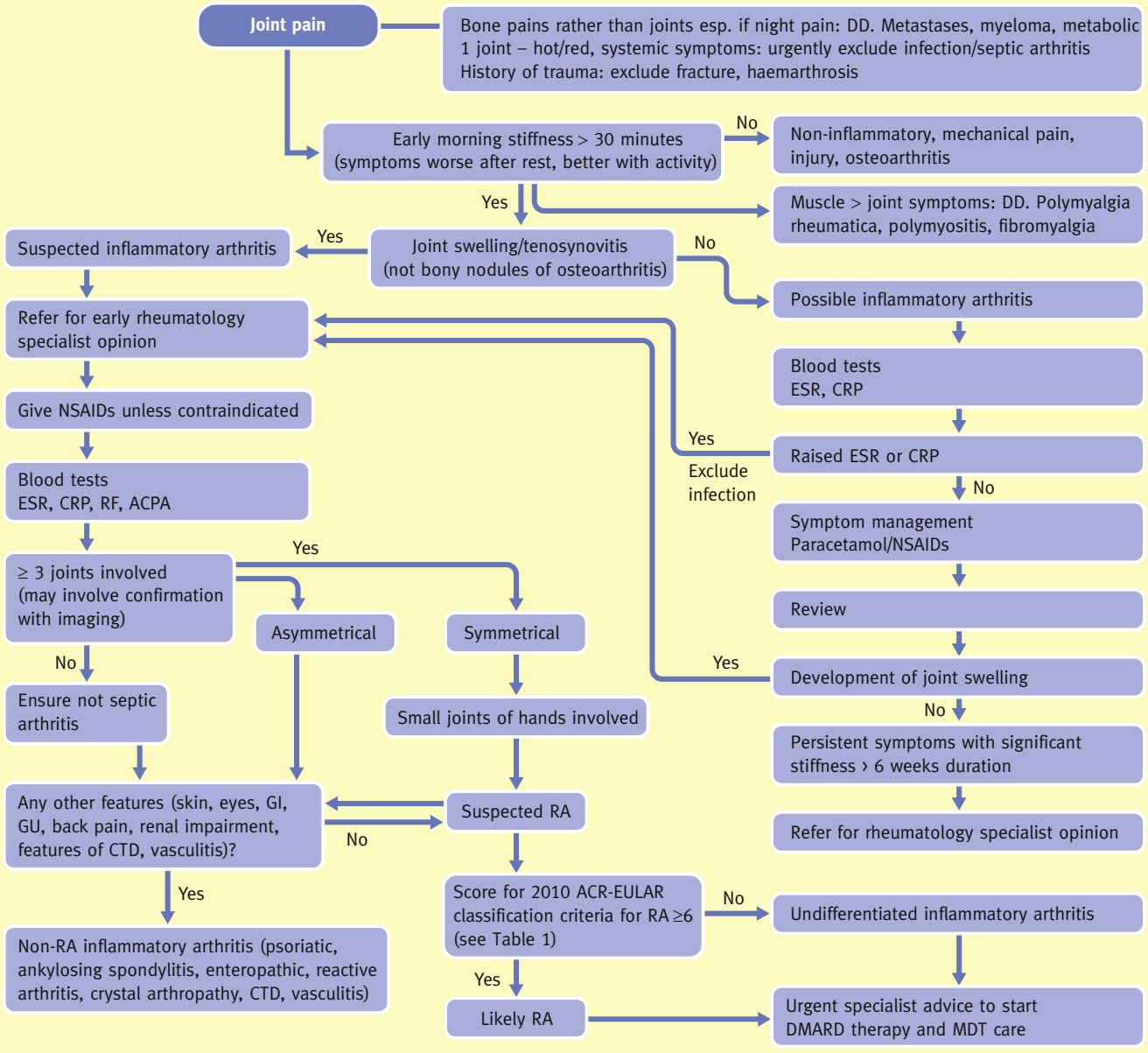
Examination

Each joint and tendon (particularly flexor finger tendons where tenosynovitis is most common) should be carefully palpated for soft-tissue thickening, boggy swelling and tenderness. This may be subtle and difficult to detect; for example, loss of the normal groove between the MCPs may be the only sign of significant inflammation. In some cases there may be minimal associated joint effusion and hence little swelling (so called 'dry synovitis'), which can be difficult to detect. Detection of synovial inflammation can be enhanced by the additional use of imaging modalities, such as ultrasound scan with Doppler (USS) and magnetic resonance imaging (MRI).

Laboratory investigations

Elevation of erythrocyte sedimentation rate (ESR) and serum C-reactive protein (CRP) correlates with disease activity in RA.[10]

Algorithm for diagnosis of early rheumatoid arthritis



ACPA, anti-citrullinated protein antibodies; CRP, C-reactive protein; CTD, connective tissue disease; DD, differential diagnosis; DMARD, disease-modifying antirheumatic drugs; ESR, erythrocyte sedimentation rate; GI, gastrointestinal; GU, genitorurinary; MDT, multidisciplinary team; NSAIDs, non-steroidal anti-inflammatory drugs; RA, rheumatoid arthritis; RF, rheumatoid factor.

Figure 1