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MUTILATING RHEUMATOID ARTHRITIS IN LARSEN CLASSIFICATION (STAGE 5)

D. Hoornenborg, M.P. Somford, K.P. Staal, R. Pöll[1]

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Background: A 63-year-old female with relapsing-remitting arthritis of different joints including hip, knee, ankle, shoulder, elbow and wrist since 1986 presented. Despite medical treatment NSAIDs, and later on sulfasalazine and prednisolone therapy she continued to have active arthritis of several joints and developed mutilating deforming arthritis.
In 2011 she presented at our outward patient clinic with progressive pain to her shoulders, elbows and wrists.
Clinical findings showed swelling, limited function of her shoulders, elbows and hands. Conventional radiographs were made of her shoulders, elbows, wrists and hands.

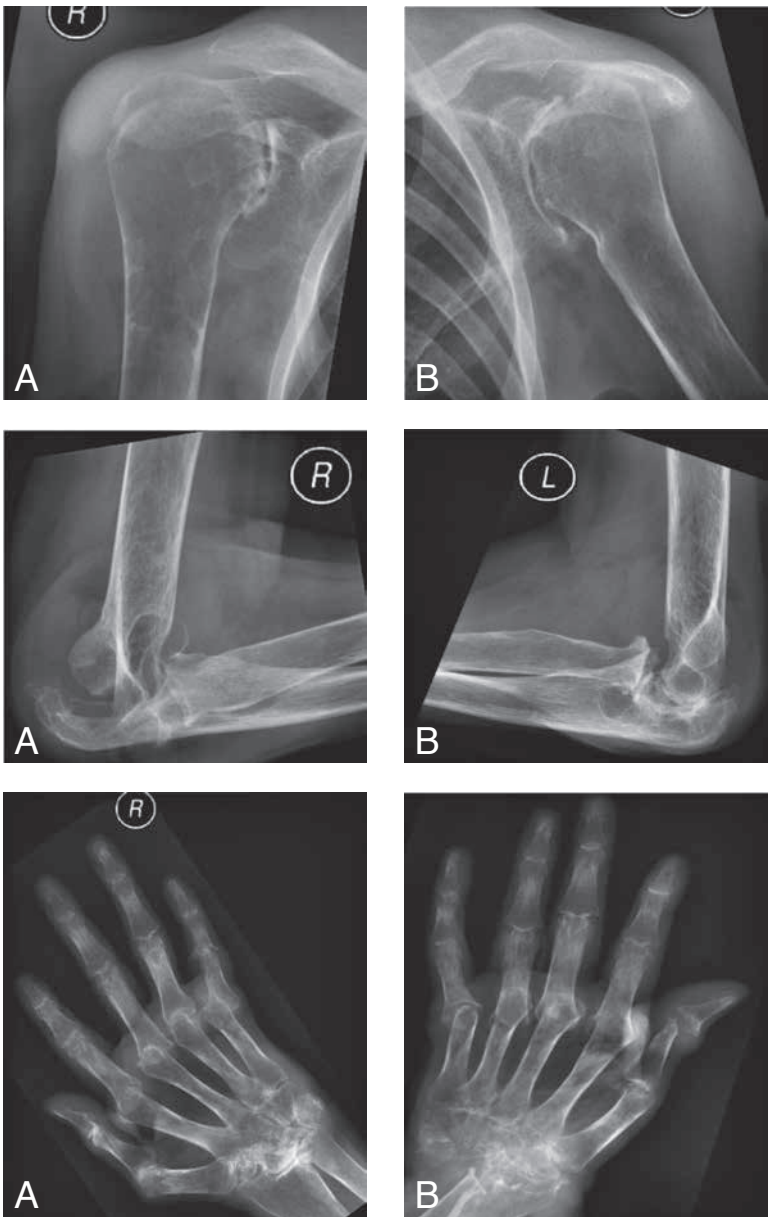

Fig. 1A 1B / 2A 2B / 3A 3B

1. Dpt of Radiology, Slotervaart Hospital, Amsterdam, The Netherlands

Work-up

Radiograph of both shoulders (AP views) (Fig. 1, A: right shoulder, B: left shoulder) shows peri-articular swelling. Severe destruction of the gleno-humeral joint with space narrowing and destruction of the humeral head with contour loss and peri-articular sclerotic changes is noted. Osteoporotic aspect of the proximal humerus is also seen. There is cranialisation of the humeral head with secondary bone loss at the inferior margin of the acromion compatible with rotator cuff rupture/tear, deformation of the glenoid with bone loss up to the base of the coracoid process corresponding to Larsen stage 4.

Radiograph of the elbows (lateral view) (Fig. 2) shows on A (right elbow) mutilating destruction of the elbow joint with well advanced articular erosive changes and joint space deterioration, with humero-olecranal subluxation. The original bony outlines are destroyed (Larsen stage 5). On left elbow (B), severe destructive changes of the elbow joint with well advanced peri-articular cystic and sclerotic changes mostly in the olecranon are demonstrated. Destruction of the articular surface with narrowing of the joint space is seen (Larsen stage 4).

Radiograph both hands (AP view) (Fig. 3, A: right hand, B: left hand) shows mutilating destruction of the wrist with well advanced joint space changes with partial coalition and collapse of carpal bones and carpo-metacarpal joints. There is radio-carpal contour loss with joint space narrowing, peri-articular sclerosis and subluxation and severe joint destruction meta-carpo-phalangeal joints with subluxation and ulnar deviation in all of them. The interphalangeal joints show varying destruction and space narrowing. The bone shows diffuse demineralisation and coarsening of the trabeculae (Larsen stage 5).

Radiological diagnosis

The radiographs show a typical case of mutilating *rheumatoid arthritis* of the joints of the upper limb. Already in 1986 the patient was diagnosed with IgM positive, erosive and destructive Rheumatoid Arthritis Simmens III. No additional radiological examination is needed to confirm the diagnosis.

Discussion

There are different radiological classification systems for rheumatoid arthritis. The most often used system is the Larsen classification. The Larsen method includes both erosions and joint space narrowing as a single score, on a scale of 0 to 5 according to reference radiographs (Table I).

0	Intact bony outlines and normal joint space
1	Erosion less than 1 mm in diameter or joint space narrowing
2	One or several small erosions, diameter more than 1 mm
3	Marked erosions
4	Severe erosions, where there is usually no joint space left, and the original bony outlines are partly preserved
5	Mutilating changes, where the original bony outlines have been destroyed

The Simmens classification is another classification which is often used because it combines the radiological and clinical findings. Therefore this classification is often used by orthopedic surgeons (Table II).

1	Marked tendency toward spontaneous ankylosis of the intercarpal joints, with or without radiocarpal fusion
2	Moderate destruction of the articular surfaces, accompanied by subchondral sclerosis and sometimes osteophytes, as seen in non-inflammatory arthritis. There is little or no tendency to destabilization
3	There is carpal collapse and ulnar translocation of the carpus, sometimes progressing to complete radiocarpal dislocation

Early treatment of RA has led to improving outcomes in function, stops damage to joints, and prevents work disability. First-line and second-line drugs (disease-modifying antirheumatic drugs) are available for conservative treatment. The first-line drugs, such as aspirin and cortisone (corticosteroids), are used to reduce pain and inflammation. The slow-acting second-line drugs, such as gold, methotrexate (Rheumatrex, Trexall), and hydroxychloroquine (Plaquenil), promote disease remission and prevent progressive joint destruction, but they are not anti-inflammatory agents. Third-line drugs, so called biologicals, are cytokine modulators. By targeting molecules involved in the inflammatory response, biologicals help to reduce or suppress inflammation, and reducing joint damage.

Awareness of this disease, and advanced early treatment have decreased Larsen stage 4 and 5 stages in patients with rheumatoid arthritis.

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