Rheumatoid arthritis and psoriasis: Association or coincidence?

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Abstract

Introduction
Rheumatoid arthritis is a chronic systemic inflammatory disease, which may be associated with other autoimmune diseases. A few cases of rheumatoid arthritis associated with psoriasis have been documented in the literature. Here, we report a new case.

Case Report
A 34-year-old Moroccan woman presented for 10 years a symmetric and deforming polyarthritis of the hands and feet with erythematous scaly plaques in hands, feet, legs and scalp and oil spots in the nails, which developed 2 years later. Biological assessment showed increased inflammatory markers, positive rheumatoid factors and positive anti-citrulline peptide antibodies. Radiographs revealed symmetrical erosions and destructions of proximal interphalangeal, metacarpophalangeal joints and wrists. The skin lesions were diagnosed as psoriasis (by performing skin biopsy). A diagnosis of seropositive erosive and deforming rheumatoid arthritis associated with psoriasis was made. The patient was treated with prednisone 10 mg/day for 6 weeks and methotrexate 15 mg/week until now with a clear improvement of both psoriatic lesions and polyarthritis.

Conclusion
The combination of rheumatoid arthritis and psoriasis is very rare. They share immunological and genetic trigger factors and should be managed by a multidisciplinary team in which care will usually be shared by a rheumatologist and dermatologist.

To the best of our knowledge, only a few cases of RA associated with psoriasis have been reported in the literature. We report a new case of this association.

Case Report
A 34-year-old Moroccan woman presented for the last 10 years a symmetric polyarthritis of the hands and feet, which worsened at night and improved with physical activities, in addition to current morning stiffness for approximately 45 min. Two years later, she developed erythematous plaques, covered with scales over the scalp, hands, feet and legs. Physical examination found typical symmetrical hand deformities seen in RA: Boutonniere finger, swan neck deformity and ulnar drift. Radiographs revealed symmetrical erosions and destructions of proximal interphalangeal, metacarpophalangeal joints and wrists. The rest of systemic examination was unremarkable.

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Figure 1: Deformities and psoriatic lesions in hands.

Figure 2: Psoriatic lesions in legs and feet.
Case report

Laboratory evaluation showed increased inflammatory markers, elevated erythrocyte sedimentation rate: 36 mm/h and increased C-reactive protein levels: 40 mg/L (normal range: <6 mg/L). Immunological parameters revealed a positive rheumatoid factor (RF) at 70 UI/mL (normal range: <20 UI/mL) and positive anti-citrulline peptide antibodies (anti-CCP) at 200 UI/mL (<25 UI/mL). Anti-nuclear antibodies, anti-dsDNA and anti-extractable nuclear antigens were negative. Radiographs revealed symmetrical erosions and destructions of proximal interphalangeal, metacarpophalangeal joints and wrists suggestive of RA (Figure 4).

This radiograph of hands does not show the characteristic radiographic features for psoriatic arthritis (PsA), such as distal interphalangeal joint lesion, ‘pencil in cup’ change, bony ankylosis, juxta-articular new bone formation and the characteristic ‘ray’ pattern (involvement of all joints in a finger or toe). X-ray of sacroiliac joints and dorsal and lumbar spine were unremarkable.

A biopsy of the skin lesion was done. The anatomopathological examination concluded to be psoriasis disease.

A diagnosis of seropositive erosive and deforming RA (fulfilling the criteria of the American College of Rheumatology 1987) associated with psoriasis was made. The patient was treated with prednisone 10 mg/day during 6 weeks, with progressive regression, and methotrexate, as disease-modifying drugs, 15 mg/week taken until now with a clear improvement of both psoriatic lesions and the polyarthritis at 3 months of treatment with methotrexate, regression of inflammatory syndrome and improvement of quality of life.

Discussion

Rheumatoid arthritis is a chronic systemic inflammatory disease affecting 0.2%–1% of the population worldwide. Multiple genetic factors act together with environmental stimuli to cause synovial inflammation, which result in joint damage and other deformities. The association between psoriasis and RA was rarely reported in the literature. Mazzucchelli et al. estimated the prevalence of this combination to be between 0.03 and 0.15 per 10,000 population. Recent data from a German database of rheumatic diseases show that 0.2% of patients suffering from RA and 0.3% of RA seropositive patients have concomitant psoriasis. RA can be accompanied by systemic manifestations including dermatological manifestations, such as rheumatoid nodules, rheumatoid vasculitis, neutrophilic dermatosis and pyoderma gangrenosum. Psoriasis can be one of these dermatological manifestations. Anti-TNFα (tumour necrosis factor α) agents are prescribed to treat patients with RA, and they are also used to treat patients with severe psoriasis or PsA. However, paradoxical cases of proven psoriasis or psoriasiform dermatitis have been reported in patients receiving anti-TNFα agents for other chronic inflammatory rheumatic diseases. The incidence of psoriasis induced by anti-TNFα therapy in patients with RA is estimated to be between 2.3% and 5%. This paradoxical effect of anti-TNF agents must be known by the clinician.

The diagnosis of RA and psoriasis is easy when psoriasis occurs in patients with a known diagnosis of RA. It becomes difficult when inflammatory arthritis develops in a patient who has psoriasis. So, the first diagnosis to discuss is PsA, but we must also consider other chronic inflammatory arthropitits, such as RA. Although rheumatoid factor/anti-CCP positivity can also be seen in PsA, this patient’s diagnosis of RA was certain in terms of typical distribution of structural damage and deformities. The patient did not fulfill the Classification Criteria for PsA with the absence of dactylitis, typical radiological changes and the absence of distal interphalangeal joint, axial and enthesial involvement.

Psoriasis shares both immunological and genetic trigger factors with RA. Many genes appear to play a role in psoriasis and RA, such as the gene PTPN22 (protein tyrosine phosphatase, non-receptor type 22) and psoriasis susceptibility 1 candidate 1 (PSORS1C1 formerly SEEK1). A recent study demonstrated increased expression of PSORS1C1 in RA synovial tissues and in the patients’ blood. The PSORS1C1 may be involved in interleukin 17 (IL-17) and IL-1β production in RA by increasing the gene expression in the synovial tissues. These cytokines play an important role in synovial inflammation and bone destruction in RA. It has been shown that anti-TNF agents can reduce the synthesis and secretion of these cytokines.
suggested that the IL-23/T Helper 17 (TH17) axis may play a fundamental role in the pathogenesis of both RA and psoriasis. IL-23 concentration is elevated in psoriasis lesions and RA synovial tissues. IL-23 influences the differentiation and expansion of TH17 cells, which produces other cytokines, especially interferon gamma, granulocyte–macrophage colony-stimulating factor, TNFα, IL-6, IL-17, IL-21 and IL-22, the last two induce keratinocyte hyperproliferation.13,14 In RA, as in psoriasis, IL-23, IL-17 and IL-21 have been identified as the main target for blockade. In studies, the preliminary results are very interesting. From the foregoing, both psoriasis and RA have common immunological and genetic factors, and so, their association could be possible.

Conclusion
The diagnosis of coexistent RA and psoriasis is rarely reported in the literature. It represents a real challenge for both dermatologist and rheumatologist and has both therapeutic and prognostic implications. Studies are needed to determine the prevalence of this association and to better understand the aetiology and pathogenesis of the two diseases.

Abbreviations list
CCP, cyclic citrullinated peptide antibodies; dsDNA, double-stranded deoxyribonucleic acid; IL, interleukin; Psa, psoriatic arthritis; PSORS1C1, psoriasis susceptibility 1 candidate 1; PTPN22, protein tyrosine phosphatase, non-receptor type 22; RA, rheumatoid arthritis; TH17, T Helper 17; TNF-α, tumour necrosis factor α.

Consent
Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

References