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Adult-Onset Celiac Disease Associated with Psoriatic Arthritis

Salem Bouomrani*, Nesrine Regaïeg, Nesrine Belgacem, Souad Yahyaoui, Safa Trabelsi

Department of Internal medicine, Military Hospital of Gabes, Tunisia

***Corresponding Authors:** Dr Salem Bouomrani, Department of Internal medicine, Military Hospital of Gabes, Tunisia*

ABSTRACT

***Introduction:** The association between psoriasis and Celiac disease (CD) is rare and poses a real diagnostic and therapeutic challenge for the clinician, especially in silent (without digestive manifestations) and late-onset forms of CD.We report an original observation of adult-onset CD associated with psoriatic arthritis (PA) and focus on the role of the gluten-free diet in the treatment of this chronic dermatosis.*

***Case report:** A 43-year-old womanwas explored for inflammatory polyarthralgia of large and small joints with progressive worsening for two months, associated with talalgia, gluteal pain, and skin lesions for a week. Somatic exam, biological, immunological, and radiological investigations concluded to the diagnosis of PA. Non amelioration was noted under non-steroidal anti-inflammatory drug and sulphasalazine, then methotrexate and glucosteroid. Control at 3 months showed microcytic and aregenerative anemia with hemoglobin at 7.8g/dl. Further explorations (digestive fibroscopy, duodenal biopsies, and immunological tests) confirmed the diagnosis of CD. Under the gluten-free diet, the evolution was favorable with correction of the parameters of the blood count, clear improvement of the rheumatological signs and complete disappearance of the cutaneous lesions. The patient is currently on sulphasalazine alone without any recurrence.*

***Conclusion**: Our observation is further characterized by the late onset of CD and its mono-symptomatic character.Thus, it is advisable to screen for CD in any patient with psoriasis or PA who does not respond well to treatment, even in the absence of any digestive symptomatology (silent forms of CD). The gluten-free diet can thus significantly improve psoriasis lesions.*

Keywords: *Psoriasis, Psoriasis arthritis, Celiac disease, gluten.*

INTRODUCTION

Psoriasis is a chronic dermatopathy of undetermined cause that is relatively rare in the world; indeed the systematic review of the world literature by Parisi R et al, in 2013 estimated its prevalence between 0.91% and 8.5% in adults, and between 0 and 2.1% in children, and its incidence at 78.9/100,000 to 230/100,000 person-years [1].

Psoriatic arthritis (RP), recognized as a distinct rheumatic disease since the 1960s, complicates on average 8.7 [2] to 30% [3] of cases but often remains under diagnosed.

Celiac disease (CD) is also a rare autoimmune disease with a worldwide prevalence estimated at 1-2% of the general population [4].

The association between psoriasis and CD seems to be far from being a mere coincidence [5,6] and suggests a direct causal link and common promoting mechanisms [7].

However, the association of an CD with PA remains exceptionally reported [5,8] and poses a real diagnostic and therapeutic challenge for the clinician, especially in silent (without digestive manifestations) and late-onset forms of CD.

We report an original observation of adult-onset CD associated with PA, and focus on the role of the gluten-free diet in the treatment of this chronic dermatosis.

CASE REPORT

A 43-year-old woman, with a pathological history of mixed familial hyperlipidemia treated with atorvastatin 20 mg/day and acetyl salicylate acid 100 mg/day, was explored for inflammatory polyarthralgia of large and small joints with progressive worsening for two months, associated with talalgia, gluteal pain, and skin lesions for a week.

The examination noted a synovitis of the two ankles and distal interphalangeal joints without articular deformities, a painful mobility of the joints without limitation of the mobility areas, a pain caused by the separation-approximation of

the two sacroiliac joints as well as multiple erythematous and scaly patches disseminated on the extension faces of large joints, arms, forearms, trunk and back-to-ear (***Figs 1 and 2***) with Auspitz's sign (***Fig 3***) compatible with psoriasis.

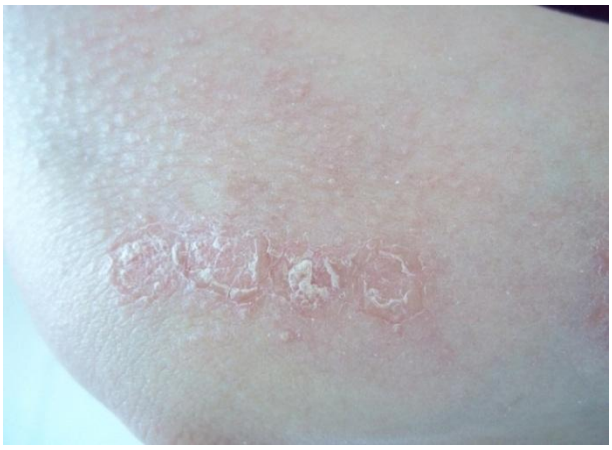

Figure1. *Multiple erythematous and scaly patches in the right elbow.*

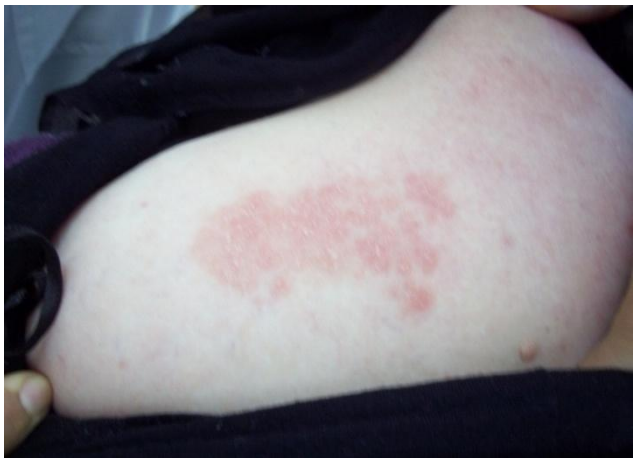

Figure2. *Multiple erythematous and scaly patches of the back.*

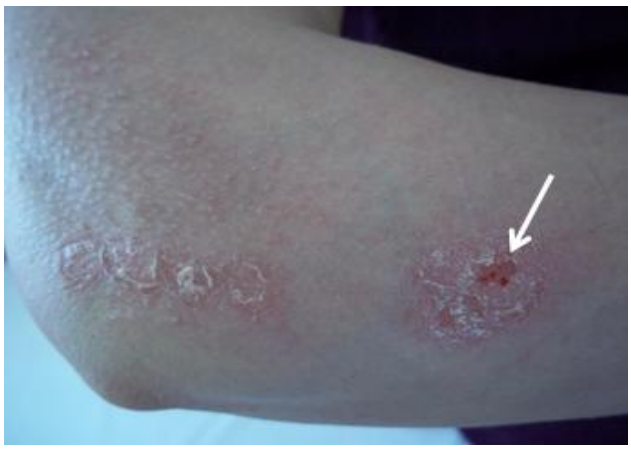

Figure2. *Multiple erythematous and scaly patches in the right elbow and forearm with Auspitz's sign (arrow).*

The biology revealed moderate normocytic anemia at 10.9 g/dl, a marked inflammatory syndrome with erythrocyte sedimentation rate at 90 mmH1, a C-reactive protein at 18 mg/l, and polyclonal hypergammaglobulinemia at 17 g/l at electrophoresis of serum proteins. Other basic bioassays were within normal limits: leukocytes, platelets, blood glucose, creatinine, ionogram, total cholesterol, triglycerides, liver tests, muscle enzymes, alkaline phosphatase, TSH, and fT4.

X-rays of the peripheral joints (hands, wrists, ankles, and knees) as well as those of the thoracolumbar spine were without abnormalities. X-rays and computed tomography of the sacroiliac joints confirmed the diagnosis of

bilateral sacroiliitis, more advanced on the left side. Thus the diagnosis of PA was retained.

The rest of the explorations aimed at the differential diagnosis of other inflammatory rheumatisms of the young woman, as well as those screening the extra-articular systemic manifestations, were without abnormalities: chest X-ray, electrocardiogram, ophthalmological examination with fundus, anti-nuclear autoantibody, soluble anti-nuclear antigen antibodies, latex and waaler-rose reactions, and anti-CCP antibodies. HLA typing was A*66, A*68, B*07, B*14. It was negative for B51 and B27.

The patient was treated with NSAID sandsulphasalazine but without improvement of both skin lesions and joint complaints. Methotrexate 15 mg/week and short-course systemic corticosteroids at a dose of 30 mg/day were tried but the improvement was only partial.

Biological control at 3 months showed a worsening of the anemia which became microcytic and aregenerative: hemoglobin at 7.8g/dl, mean corpuscular volume at 69μ^3 and mean corpuscular hemoglobin at 22pg. Serum iron and ferritinemia were collapsed. There was no evidence of externalized digestive or genital bleeding, or intestinal transit disorder.

Gastroduodenal fibroscopy was performed and histological examination of duodenal biopsies showed diffuse villous atrophy associated with lymphocyte and monocyte infiltration consistent with the diagnosis of CD. Anti-transglutaminase, antigliadin, and anti-endomysialautoantibodies were positive confirming the diagnosis of CD.

Under the gluten-free diet, the evolution was favorable with correction of the parameters of the blood count, clear improvement of the rheumatological signs and complete disappearance of the cutaneous lesions. The patient is currently on sulphasalazine alone without any recurrence.

DISCUSSION

Psoriasis appears to be significantly more common in patients with CD compared to the general population: 12.9% versus only 5.5% in the Igbal T et al, series, [5]. These findings were confirmed by the broad Swedish series of 28,958 patients with histologically confirmed Cd, where the hazard ratio of later developing psoriasis was 1.72 [6].

In the other sens, CD seems to be also more common in subjects with psoriasis compared to the general population [7]; this has been confirmed by large population studies in different countries of the world where the odds ratio of CD in psoriatic patients was evaluated at 2.2-2.73 [9.10], and recent meta-analysis by Ungprasert P et al, found a threefold risk of having CD in the psoriatic patientcompared to the non-psoriatic subject [11].

Also, several studies showed a high risk of having positive serological markers of CD in patients with psoriasis [12-15]; the meta-analysis made by Bhat BK et al, objectified the significant risk of having IgA anti-gliadin autoantibodies in psoriatic patients compared to the general population with an odds ratioat 2.36 (95% CI 1.15-4.83) [7]. The severity of psoriasis is thus correlated with the activity of CD and the rate of its specific autoantibodies [7].

Despite all these findings and studies, the association between CD and psoriasis remains exceptional and unusual: its frequency is estimated at 0.2-4.3% of adult psoriasics [16] and at 1.8% in the pediatric psoriatic population [17].

The association between CD and PA is even rarer [5,8]; in fact, only five cases in the Lindgvist V et al, series of 114 psoriatic arthritis had an associated CD (4.4%) [8], and only one case of PA was found in the 356 CD series of Igbal I et al, (0.28%) [5].

However, this association remains controversial [18], and poses the differential diagnosis with other inflammatory rheumatism observed during CD. It may be articular manifestations specific to CD itself or other possible associations (systemic lupus erythematosus, Sjogren's syndrome, ankylosing spondylitis, other seronegative spondylarthritis, etc.) [5].

It should be keeped in mind, however, that psoriasis with or without rheumatic disease may be the first manifestation of CD [19], and that these associations (CD and psoriasis, CD and PA) can be seen in both sexes, and at any age: adult [5.8], adolescent [20], and even child [21.22].

The exact physiopathology of this association is not yet well known [23]; these two diseases share common inflammatory, immunological, and genetic mechanisms [7]. T cell activation by gliadin may play a major role in the development of cutaneous psoriasis lesions during CD [23]. Similarly, the vitamin D deficiency observed during CD could also play a significant role in it [23].

Indeed, psoriasis is known to be a possible cutaneous manifestation of gluten sensitivity

(even outside of an authentic CD): Non-Celiac Gluten Sensitivity (NCGS) [24-26], evoking the direct involvement of gluten in the genesis of these cutaneous lesions and defining, for some authors, a new clinical entity called: Cutaneous Gluten Sensitivity [24]. Similarly, rheumatological disorders, including PA, may also be associated with this spectrum of NCGS [26,27].

More recently, anti TNF-alpha as well as short telomeres (telomere shortening theory) are evoked as possible pathways for the genesis of psoriasis during CD [28].

This direct involvement of gluten/gliadin, in the development of psoriasis/PA, is comforted by the positive effect of the gluten-free diet on the improvement of cutaneous lesions of psoriasis reported by most authors [7,15]. The rapid improvement of these lesions as well as their complete disappearance under gluten-free diet is also reported [29] to the point of some authors even think that the gluten-free diet could be a therapeutic approach during psoriasis, even outside of any associated symptomatic digestive involvement (CD or gluten-sensitive enteropathy) [30].

Conclusion

The association between psoriasis and celiac disease is very rare and that of CD with psoriatic arthritis is even more exceptional. This association raises the problem of differential diagnosis with the rheumatological manifestations of CD as well as other inflammatory rheumatisms that can be associated with it.

Our observation is further characterized by the late-onset of CD and its mono-symptomatic character.

Thus, it is advisable to screenfor CD in any patient with psoriasis or PA who does not respond well to treatment, even in the absence of any digestive symptomatology (silent forms of CD). The gluten-free diet can thus significantly improve psoriasis lesions.

Abbreviations

Anti-CCP: anti-cyclic citrullinated peptide antibodies, fT4:free tetra-iodothyronine, HLA: Human Leukocyte Antigen , TSH: Thyroid Stimulating Hormone.

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