Acute guttate psoriasis and psoriatic arthritis simultaneously in a 33-year-old male with streptococcal infection

Jianfeng Zheng, Yangfeng Ding

ABSTRACT

Psoriasis is a chronic, inflammatory, immune-mediated skin disease. There are several clinical phenotypes at disease onset, such as guttate, plaque, erythrodermic, pustular phenotypes and psoriatic arthritis. In this report, we describe a 33-year-old Chinese male diagnosed with acute guttate psoriasis who had concurrent psoriatic arthritis. The patient had non-pruritic erythematous guttate scaly papules on his trunk and proximal extremities for two weeks and swelling and pain in the fourth metacarpophalangeal joint of the right hand for four weeks on admission. A diagnosis of guttate psoriasis was quickly made according to the typical eruptions and positive Auspitz sign. And then joint ultrasound revealed that there was tenosynovitis in the fourth metacarpophalangeal joint of the right hand, consistent with the performance of psoriatic arthritis. So a diagnosis of psoriatic arthritis was also made according to the ultrasonic results and a history of psoriasis. At last, the patient had a history of the chronic tonsillitis and antistreptolysin O titer was 797.1 IU/ml at admission. Streptococcal infection was considered as the major causative factor for this patient with guttate psoriasis and psoriatic arthritis, although this was a rare report of acute guttate psoriasis and arthritis psoriasis simultaneously appeared in a patient after the chronic tonsillitis attacked.

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CASE REPORT

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Keywords: Guttate psoriasis, Psoriasis, Psoriatic arthritis, Streptococcal infection

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INTRODUCTION

Psoriasis is a chronic, proliferative, and inflammatory skin disease, characterized by increased propagation of epidermis with dermal capillaries dilation. There are various types of psoriasis identified by clinical outcomes. Psoriasis is often first detected between the age of 15 and 25 years, and psoriasis arthritis usually develops between the

age of 30–50 years. Guttate psoriasis is a type of psoriasis in which erythematous guttate scaly papules appear all over the body [1]. Among these patients, 56–100% has recent precedent evidence of streptococcal disease such as the tonsillitis [2]. Psoriasis arthritis is a type of psoriasis in which joints become red, swollen, tender, warm, and stiff under the infiltration of inflammation. Its causative agents include trauma, allergies of medicines, alcohol consumption, skin irritants, and smoking [3]. Here, we present a case of acute guttate psoriasis and arthritis psoriasis simultaneously appeared in a 33-year-old male with a 15-year history of plaque psoriasis after the chronic tonsillitis attacked.

CASE REPORT

A 33-year-old male presented with one-month history of swelling and tender in the fourth metacarpophalangeal joint of the right hand and a two-week history of non-pruritic erythematous guttate scaly papules on his trunk and extremities. He denied any recent travel, drugs or medications, environmental changes. However, the patient stated that there was a sore throat, swollen tonsils, fever, congestion, malaise, and fatigue about one month and a half before admission to our hospital and a 20-year history of the chronic tonsillitis. These symptoms were not actively treated because of his busy job. The fourth metacarpophalangeal joint of the right hand suddenly become red, swollen, tender about one month before admission. But the patient did not go to hospital in time. And then some round, erythematous, hyperkeratotic, flat papules with adherent scale began appearing on his trunk about two weeks before admission and had spread to his extremities on the day that he was admitted. He also reported a personal history of chronic plaque psoriasis over 15 years ago which, when the chronic tonsillitis attacked, would relapse. In the last six months, there were only few patches on his extension side of bilateral calves under conditions of actively treatment of psoriasis and preventing the recurrence of tonsillitis.

On physical examination, the author noted 1–10 mm round, erythematous, hyperkeratotic, flat papules with adherent scale on his trunk and bilateral upper extremities and thighs, Auspitz sign (+). Patches on his extension side of bilateral calves and mildly swollen in the fourth metacarpophalangeal joint of the right hand were checked simultaneously, tenderness (+). His mucous membranes, however, were not involved. In addition, there was moderate swelling on the tonsil (Figure 1).

Laboratory data disclosed the following value: white blood cell count 8690/mm³, hemoglobin 16 g/dl, neutrophil absolute 6930/mm³, lymphocyte absolute value 1040/mm³, monocyte absolute value 590/mm³, eosinophil absolute value 110/mm³, basophil absolute value of 20/mm³. Thyrotropin (TSH) 0.783 mIU/l, thyroglobulin (TG) 7.26 ng/ml, thyroglobulin antibody 10.00 IU/ml, antithyroid peroxidase antibody 5.00

IU/ml, total thyroid hormone (TT4) 79.5 nmol/l, total triiodothyronine (TT3) 1.3 nmol/l, free thyroxine determination (FT4) 16.86 pmol/l, free triiodothyronine (FT3) 4.28 pmol/l. Alanine aminotransferase 28U/l, γ -glutamyltransferase 39 U/l, aspartate aminotransferase 25U/l, urea 3.50 mmol/l, creatinine 89 μ mol/l, uric acid 429 μ mol/L, blood glucose 5.27 mmol/l, triglyceride 2.85 mmol/L, total cholesterol 4.98 mmol/l, high sensitivity CRP 2.20 mg/l, rheumatoid factor 10.0IU/ml, antistreptolysin O 797.1 IU/ml. B cell and T cell and subpopulations: CD3+ cells 79.2%, CD4+ cells 56.3%, CD8+ cells 17.2%, CD4+/CD8+ ratio 3.27; natural killer (NK) cells 1.62%. Ultrasound revealed that there was tenosynovitis in the fourth metacarpophalangeal joint of the right hand, consistent with the performance of psoriatic arthritis (Figure 2).

DISCUSSION

Fehleisen first isolated β -hemolytic streptococci in 1883. Lancefield's classification of β -hemolytic streptococci according to their carbohydrate surface antigens has revealed that group A β -hemolytic streptococci are the most pathogenic to humans [4]. And it was not until 1916 that the association streptococcal tonsillitis and guttate psoriasis was first reported [5]. Much work has involved monitoring titres of antibodies to the streptolysin O exotoxin (ASO titres) as these provide an indication of recent streptococcal infection.

In 1952, Norholm-Pedersen divided a group of 133 unselected patients with psoriasis into three groups depending on their ASO titres and found the highest proportion of patients with guttate psoriasis in the highest ASO group [6]. The close relationship between guttate psoriasis and streptococcal infection has lead some investigators to examine a possible role for

Figure 1: Clinical photographs all over the body. (A, B) Erythematous guttate scaly papules on his trunk, (C) Patches on his extension side of bilateral calves, and (D) Mildly swollen in the fourth metacarpophalangeal joint of the right hand.

Figure 2: Tendinous sheath change on (A) Ultrasonography and (B) Power Doppler ultrasonography on the fourth metacarpophalangeal joint of the right hand.

infectious agents in the pathogenesis of psoriasis arthritis. The presence of streptococcal antigens has not been demonstrated in the joints of psoriasis arthritis patients. Therefore, it is difficult to prove a pathogenic role for such antigens, as secondary infection of psoriatic plaques is common. Some reports have suggested that HIV and hepatitis C virus may play a more significant role in the pathogenesis of psoriasis arthritis [7, 8]. Both of acute guttate psoriasis and psoriatic arthritis are the common phenotypes of psoriasis. But they have obviously different characterizes. Rare reports had revealed that the patients with arthritis were found among the non-guttate patients [9]. In this case, there is no direct evidence to support a role for such antigens in the pathogenesis of psoriasis arthritis. However, there is a distinct tendency for improvement in the symptoms of arthritis after treatment of the tonsillitis.

In an earlier paper, it was described how acute eruption of psoriasis may be produced in phases of immune deficiency and in the presence of bacterial antigen-releasing inflammatory foci, whereas clinical spontaneous remissions are produced in phases of immunologic activity. In this case, the patient had significantly elevated antistreptolysin titer, as well as proliferative responses to streptococcal antigens. But serum immunoglobulin levels (IgM, IgG, IgA) was in normal range. It revealed that our patient was clinically active with eruptions. Furthermore,

there is a rise in CD4+ cells and a reduction in CD8+ and natural killer cells in our report, CD4+/ CD8+ ratio was considerably increased. Systemic defense essentially depends on the activity of CD8+ and natural killer cells. Animal experiments have shown that natural killer cells play a decisive role in the response to microbial infections as part of nonspecific cellular defense [10]. These results are consistent with immune deficiency. So the dermatosis has been regarded as a T cell mediated autoimmune disease.

CONCLUSION

In this case, we present a rare case of acute guttate psoriasis and psoriasis arthritis simultaneously appeared in a patient with a 20-year history of the chronic tonsillitis. The typical eruptions, the ultrasonic results and a history of psoriasis were helpful to make this diagnosis. Clinicians should be aware of a certain relationship between psoriasis arthritis and streptococcal infection and make more examinations to discover the pathogenesis of psoriasis.

Author Contributions

Jianfeng Zheng – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Yangfeng Ding – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission

The corresponding author is the guarantor of submission.

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None

Conflict of Interest

Authors declare no conflict of interest.

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