

Palmoplantar Pustulosis Induced By Adalimumab: A Case Report

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Abstract

TNF- α antagonists are used to treat a wide spectrum of moderate to severe inflammatory conditions such as ankylosing spondylitis (AS). During these treatments, cutaneous adverse effects may occur like psoriatic skin lesions. In this case report, we presented an unusual case of a 44 year old women with AS receiving adalimumab who developed an exacerbation of palmoplantar pustulosis. In conclusion, it should be kept in mind that psoriatic skin lesion may develop in patients receiving TNF- α antagonists and these findings may regress when the drug is withdrawn.

Key words: Adalimumab, palmoplantar pustulosis

Introduction

Ankylosing spondylitis (AS) is a chronic, systemic, inflammatory disease that characteristically involves axial skeleton, entheses region and peripheral joints. Tumor necrosis factor- α (TNF- α) is a proinflammatory cytokine important in pathogenesis of AS (1). It is released mainly by monocytes and tissue macrophages. TNF- α is involved in monocyte differentiation, chemokine expression, and T-cell regulation. Unsuitable release of TNF- α causes inflammation and tissue destruction. Hence, TNF- α is a destination for

treatment of inflammatory conditions (2). TNF- α antagonists are also used to treat a wide spectrum of moderate to severe inflammatory conditions such as AS. During these treatments, cutaneous adverse effects may occur like psoriatic skin lesions (3). In this study, we report an unusual case of a patient with AS receiving adalimumab, one of the TNF- α antagonists, who developed an exacerbation of palmoplantar pustulosis.

Case Report

A 44-years old woman presented to our clinic with low back and neck pain. In her history, it was learned that she had these

complaints for 15 years with accompanying morning stiffness lasting over one hour. The patient cited that an increasing limitation in the movements of waist and neck had been developed. She also expressed that she occasionally used indomethacin with a diagnosis of ankylosing spondylitis during this period without any benefit. There was no abnormality in her personal history or family history. No abnormal finding was detected in the physical examination regarding systems other than locomotor system. On the examination of locomotor system, lumbar motions were found to be limited and painful in all directions. The following findings were observed in neck examination: cervical flexion of 20°; cervical extension of 5°; left rotation of 5°; and right rotation of 15°.

All motions were painful. Lumbar Modified Schober test was measured as 2 cm, whereas chest expansion and occiput-wall distance were measured as 1 cm and 10 cm, respectively.

The complete blood count and biochemical parameters were within normal range. The erythrocyte sedimentation rate was detected as 42 mm/h, while CRP as 27.4 mg/l. In radiological evaluations, there was bilateral grade 3 sacroiliitis. By these findings, the patient was matching modified New York criteria for AS (4). Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) score was calculated as 6.0. Three non-steroid anti-

inflammatory agents (one being indomethacin) were prescribed to the patient with a previous history of irregular drug therapy for 3 months; however, 40 mg adalimumab (bimonthly) was initiated as NSAID therapy was failed. When the patient was re-evaluated on the week 6 after initiation of adalimumab therapy, it was observed that there was an improvement in low back and neck pain and the duration of morning stiffness became shorter than a half hour. BASDAI score was calculated as 3.1. However, pustular psoriatic skin eruptions developed at hands and feet after seventh dose of adalimumab therapy (Figure 1,2). Thus, the patient without any previous history of skin lesion was consulted with dermatology department and diagnosed as palmoplantar pustulosis induced by adalimumab therapy. Therefore, adalimumab therapy was withdrawn and topical keratolytic and steroid therapy were initiated in the patient. When she was re-evaluated after 6 weeks, it was observed that she had no complaint of low back and neck pain, while skin lesions were regressed; in addition, complete blood count, ESR and CRP values were found to be within normal range. As the patient declined to use a different TNF- α antagonist, therapy was maintained by using indomethacin (50 mg/day).



Figure 1. Palmar pustulosis



Figure 2. Plantar pustulosis

Discussion

TNF- α antagonists are increasingly used in the treatment of inflammatory diseases such as ankylosing spondylitis, rheumatoid arthritis, psoriatic arthritis, severe psoriasis and inflammatory bowel diseases. This class of drugs includes etanercept, infliximab and adalimumab. Of these, the adalimumab is a human monoclonal antibody against TNF- α . Although TNF- α antagonists are being used in psoriatic arthritis and severe psoriasis, they can cause psoriatic skin lesion as well as auto-

immune disease, malignancy and demyelinating syndromes (3,5). However, the underlying mechanism is unknown in psoriasis development. TNF- α antagonists may cause an infection that can trigger skin disorder. Another proposed mechanism is that the inhibition of TNF- α can lead cytokine imbalance by causing abundant release of cutaneous interferon- α which can cause psoriasis. These agents can cause psoriasis development as well as exacerbating psoriasis that already exists. However, it has been failed to establish a

risk factor for the development of psoriasis. According to current literature, the disease exacerbation is more commonly observed in patients using etanercept while novel disease development in those using infliximab and adalimumab (6,7). As there was no previous skin lesion in the previous history of our patient, the lesion was attributed to adalimumab use.

The development or exacerbation of psoriasis due to TNF- α antagonists may occur within few days; although it may delay up to 48 months. However, it generally occurs within first few months (7). In previous studies, it was seen that psoriasis was more prevalent among women and at fifth decade. In agreement to literature, our case was a 45-years old woman in whom psoriasis occurred 3.5 months after initiation of adalimumab therapy. In a study, psoriatic skin lesions were most commonly seen with infliximab use (53%), followed by etanercept (31%) and adalimumab (22%) (8). In another study, it was found that psoriatic lesions were associated to infliximab in 53%, etanercept in 29% and adalimumab 18% of the cases (9). Psoriatic skin lesions with diverse morphological types such as plaque, pustular or guttate can be observed in association with use of these agents. In a study, it was reported that there was pustular lesions in 56%, whereas plaque lesion in 50% and guttate lesions in 12% of the cases. In the same study, it was also reported that multiple lesions could be observed in 15% of the patients (10). In our patient, there were pustular lesions at palmar and plantar regions.

Therapeutic approaches vary in the treatment of psoriatic skin lesion. In a study, the complete response rate was found to be higher in patients who discontinued TNF- α antagonist therapy compared to those maintained therapy (5).

The lesions generally persist without any change when TNF- α antagonists are maintained. However, it has been observed that lesions regress in some patients despite therapy. In majority of the cases, conservative approaches are used for psoriasis by discontinuing or switching TNF- α antagonists (11). In our case, we discontinued TNF- α antagonist and observed improvement in lesions within a short period.

In conclusion, the underlying mechanisms and risk factors for psoriatic skin lesions related to TNF- α antagonists aren't fully elucidated. However, these lesions may be rarely seen. Thus, it should be kept in mind that psoriatic skin lesion may develop in patients receiving TNF- α antagonists and these findings may regress when the drug is withdrawn.

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