Concomitant alopecia areata and hypertrichosis after infliximab therapy: rara avis

Selim Akarsu[1], Fatih Tok[2], Levent Tekin[1]

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ABSTRACT

We present a 37 year-old man with HLA-B27 positive ankylosing spondylitis for the last 3 years. Interestingly, he developed both alopecia areata and hypertrichosis simultaneously following infliximab treatment. Reporting this interesting patient of ours -to our best notice for the first time in the literature- we call attention of clinicians to the contradistinctive effects of anti--TNF-α agents on hair growth cycle.

Keywords: Ankylosing spondylitis; TNF-α; Infliximab; Alopecia; Hypertrichosis

INTRODUCTION

The role of TNF-α in the pathophysiology of autoimmunity, and more specifically of alopecia areata appears complex. On the one hand, TNF-α has been considered an important cytokine involved in the hair loss, the more so because it inhibits hair growth in vitro and TNF-α producing cells can be found in the mononuclear infiltrate surrounding the hair follicle[1]. On the other hand, TNF-α appears to protect from hair loss since the blockade of TNF-α mediated effects by monoclonal antibodies resulted in the worsening of alopecia areata with infliximab[2].

In this report, we present a patient who developed alopecia areata and hypertrichosis simultaneously following infliximab treatment – to our best notice for the first time in the literature. Our report suggests that anti--TNF agents can be causally related to the development of alopecia areata concurrently with hypertrichosis in the same patient.

1. Gulhane Military Medical Academy, Haydarpasa Training Hospital Department of Physical Medicine and Rehabilitation, Istanbul, Turkey
2. Iskenderun Military Hospital, Physical Medicine and Rehabilitation Service, Hatay, Turkey

CASE REPORT

A 37 year-old man with HLA-B27 positive ankylosing spondylitis of 3 years duration, who had been treated with different non-steroidal anti-inflammatory drugs and sulfasalazine but who had only partial improvement, was seen in our center. Due to the persistence of bilateral sacroiliac pain, and loss of lumbar range of motion, biological therapy with infliximab was started at an intravenous dose of 5 mg/Kg and thereafter his symptoms (daytime and night-time sacroiliac pain) started to improve. On the other hand, after the second infusion, he suffered both nonscarring, patchy hair loss, typical of alopecia areata in the abdominal region and the front of both thighs (Figure 1), and hypertrichosis in the forearms and hands (Figure 2) simultaneously. Complete blood count, liver/renal function tests were normal; antinuclear and anti-dsDNA antibodies were negative. On further questioning, he denied personal or family history of hair loss, atopy and hypertrichosis. Accordingly, the patient's findings were attributed to infliximab infusion. Therapy with infliximab was discontinued and the patient evolved favourably, with recovery of abdominal and thigh hair in 2 weeks and no further alopecia, also recovery of hypertricosis in 5 weeks.

DISCUSSION

Although anti-TNF-α agents are expected to treat autoimmune-related processes similar to ankylosing spondylitis, these drugs have been associated with the development of other autoimmune diseases such as alopecia areata[3]. It is an autoimmune inflammatory disea-

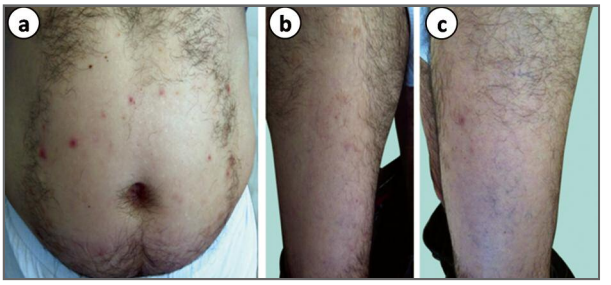

FIGURE 1. Alopesia areata in the different regions of the body. **(A)** Abdominal region; **(B)** Right thigh; **(C)** Left thigh

se, in which T-lymphocytes play a central pathogenetic role. Although the exact pathophysiology of alopecia areata remains unknown, it is postulated that CD4+ and CD8+ T cells reactive to hair bulb autoantigens induce the autoimmune process leading to non-scarring hair loss[4].

Recent fundamental studies have shown that TNF-α promotes both the expansion and suppressive functions of CD4+ regulatory T cells which play an essential role in maintaining immune tolerance and preventing autoimmunity[3]. Therefore, it is possible that anti-TNF-α induced autoimmunity is mediated by the inhibition of the suppressive functions of regulatory T cells[5].

Philpott et al.[6] showed that IL-1α, IL-1β and TNF-α were potent inhibitors of hair follicle growth in vitro. On the other hand, a few cases of patients developing AA after biological therapy have been reported[1,2,7-9]. Our case suffered both nonscarring, patchy hair loss, typical of alopecia areata in the abdominal region and the front of both thighs, and hypertrichosis in the forearm simultaneously after the treatment of infliximab. We believe that in our patient, the eventual scenario might be due to complex mechanisms pertaining to TNF-α effects on hair growth cycle.

CONCLUSION

To summarize, presenting this interesting patient of ours in whom alopecia areata and hypertrichosis ensued concurrently after the treatment of anti-TNF-α therapy, we draw attention of physicians towards this rare eventuality that can occur due to contradistinctive effects of anti-TNF-α agents on hair growth cycle.

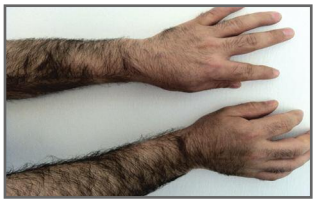

FIGURE 2. Hypertrichosis in forearms and hands

CORRESPONDENCE TO
Fatih Tok
Iskenderun Military Hospital,
Physical Medicine and Rehabilitation Service,
Hatay, Turkey
Tel: 90 505 814 2869
E-mail: drfatihtok@gmail.com

REFERENCES

1. Pelivani N, Hassan AS, Braathen LR, Hunger RE, Yawalkar N: Alopecia areata universalis elicited during treatment with adalimumab. Dermatology 2008;216:320-323.
2. Fabre C, Dereure O: Worsening alopecia areata and de novo occurrence of multiple halo nevi in a patient receiving infliximab. Dermatology 2008;216:185-186.
3. De Bandt M, Sibilia J, Le Loët X et al. Systemic lupus erythematosus induced by anti-tumour necrosis factor alpha therapy: a French national survey. Arthritis Res Ther 2005;7:545-551.
4. Katagiri K, Arakawa S, Hatano Y. In vivo levels of IL-4, IL-10, TGF-β1 and IFN-γ mRNA of the peripheral blood mononuclear cells in patients with alopecia areata in comparison to those in patients with atopic dermatitis. Arch Dermatol Res 2007;298:397-401.
5. Chen X, Bäumel M, Männel DN, Howard OM, Oppenheim JJ. Interaction of TNF with TNF receptor type 2 promotes expansion and function of mouse CD4+CD25+ T regulatory cells. J Immunol 2007;179:154-161.
6. Philpott MP, Sandert DA, Bowen J, Kealey T. Effects of interleukins, colony-stimulating factor and tumor necrosis factor on human hair follicle growth in vitro: a possible role for interleukin-1 and tumor necrosis factor in alopecia areata. Br J Dermatol 1996;135:942-948.
7. Fabre C, Dereure O. Worsening alopecia areata and de novo occurrence of multiple halo nevi in a patient receiving infliximab. Dermatology 2008;216:185-186.
8. Garcia Bartels N, Lee Hh, Worm M, Burmester Gr, Sterry W, Blume-Peytavı U. Development of alopecia areata universalis in a patient receiving adalimumab. Arch Dermatol 2006;142:1654-1655.
9. Tosti A, Pazzaglia M, Starace M, Bellavista S, Vincenzi C, Tonelli G. Alopecia areata during treatment with biologic agents. Arch Dermatol 2006;142:1653.