- 3 **Svenungsson E**, Andersson M, Brundin L, van Vollenhoven R, Khademi M, Tarkowski A, *et al*. Increased levels of proinflammatory cytokines and nitric oxide metabolites in neuropsychiatric lupus erythematosus. *Ann Rheum Dis* 2001;**60**:372–9.
- 4 **Okamoto H**, Katsumata Y, Nishimura K, Kamatani N. Interferon-inducible protein 10/CXCL10 is increased in the cerebrospinal fluid of patients with central nervous system lupus. *Arthritis Rheum* 2004;**50**:3731–2.

- 5 **Ikuni N**, Okamoto H, Yoshio T, Sato E, Kamitsuji S, Iwamoto T, *et al*. Elevated monocyte chemoattractant protein 1 (MCP-1)/CCL2 in cerebrospinal fluid of patients with neuropsychiatric lupus (NPSLE). *Ann Rheum Dis* 2006;**65**:253–6.
- 6 **Fratelli P**, Sironi M, Bianchi G, D'Ambrosio D, Albanesi C, Stoppacciaro A, *et al*. Fractalkine (CX3CL1) as an amplification circuit of polarized Th1 responses. *J Clin Invest* 2001;**107**:1173–81.

Psoriasis after treatment of juvenile idiopathic arthritis with etanercept

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Ann Rheum Dis 2006;**65**:1259. doi: 10.1136/ard.2005.049916

We highlight the case of an adolescent who developed psoriasis after starting anti-tumour necrosis factor (anti-TNF) treatment for extending oligo-articular juvenile idiopathic arthritis. The patient, a 13-year-old girl, first presented at 18 months of age with arthritis of both knees and the left ankle. Her initial treatment consisted of non-steroidal anti-inflammatory drugs alone, but the pain, swelling and stiffness continued. Intra-articular and oral steroids led to improvement, but not a complete resolution of her symptoms. Uveitis was detected at an early stage and managed with topical steroid drops.

At the age of 7 years, she underwent surgery for a medulloblastoma. Radiotherapy and chemotherapy were completed in July 2000 and ongoing follow-up showed no signs of tumour recurrence. Her arthritis improved considerably with chemotherapy, but relapsed once treatment ended. The arthritis extended to include the small joints of the hand, wrists, elbows and right ankle, leading to reduced mobility and difficulty at school, with stiffness and fatigue.

The patient developed striking cushingoid features on oral steroids, and, in view of the ongoing difficulty with disease control, was started on methotrexate in 2001 (at the age of 9 years). The methotrexate dose was gradually increased and then given subcutaneously to optimise the effect. Etanercept was introduced in 2003 (at the age of 11 years), owing to continuing difficulty with controlling arthritis. This proved effective, with subsequent clinical findings limited to mild synovitis in the right wrist and left ankle. Steroids were discontinued and the methotrexate was gradually reduced, being given orally once again.

Early in 2005, the patient developed a new rash. Red, excoriated skin was evident behind the ears, around the umbilicus, and in the axillae and groin. An opportunist infection related to immunosuppression was considered, but there was no improvement with systemic or topical antibiotics. The skin changes became increasingly psoriatic, a diagnosis confirmed on review by a consultant dermatologist. No history of psoriasis was noted in the patient or her family.

Psoriasis induced by anti-TNF treatment has previously been reported in adults, with a variety of underlying diagnoses.^{1–6} In a prospective study of 289 adults with rheumatoid arthritis starting anti-TNF treatment, 3 (1%) developed psoriasis or psoriasiform eruptions.⁶ This is perhaps surprising, as an improvement in skin disease is often seen with anti-TNF treatment in psoriatic arthritis or severe psoriasis vulgaris.⁷

One possible explanation would be that the patient had psoriatic arthritis from the outset, with arthritis preceding

the onset of skin signs. However, given the temporal relationship, we believe it more likely that the appearance of psoriasis is related to the introduction of etanercept. Alternatively, a tendency to psoriasis may have been unmasked by anti-TNF treatment, or the drug itself could have induced psoriasis. In predisposed people, inhibition of TNF alters immunity, promoting an inflammatory autoimmune response in the skin.¹

Further investigation is warranted to elucidate the mechanisms whereby anti-TNF treatment can have seemingly contradictory effects on psoriasis in different people. Clinicians should remain aware of the possibility of psoriasis arising de novo in patients treated with anti-TNF agents at any age.

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Competing interests: None declared.

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Accepted 18 February 2006

REFERENCES

- 1 **Sfikakis P**, Iliopoulos A, Elezoglou A, Kittas C, Stratigos A. Psoriasis induced by anti-tumour necrosis factor therapy, a paradoxical adverse reaction. *Arthritis Rheum* 2005;**52**:2513–8.
- 2 **Dereure O**, Guillot B, Jorgensen C, Cohen J, Combes B, Guillou J. Psoriatic lesions induced by anti-tumour necrosis factor- α treatment: two cases. *Br J Dermatol* 2004;**150**:506–7.
- 3 **Verea M**, Del-Pozo J, Yebra-Pimentel M, Porta A, Fonseca E. Psoriasiform eruption induced by infliximab. *Ann Pharmacother* 2004;**38**:54–7.
- 4 **Thurber M**, Feasel A, Stroehlein J, Hymes S. Pustular psoriasis induced by infliximab. *J Drugs Dermatol* 2004;**3**:439–40.
- 5 **Kary S**, Worm M, Audring H, Huscher D, Renelt M, Soerensen H, *et al*. New onset or exacerbation of psoriatic skin lesions in patients with definite rheumatoid arthritis receiving TNF- α antagonists. *Ann Rheum Dis* 2006;**65**:405–7.
- 6 **Flendrie M**, Vissers W, Creemers M, de Jong E, van de Kerkhof P, van Riel P. Dermatological conditions during TNF- α -blocking therapy in patients with rheumatoid arthritis: a prospective study. *Arthritis Res Ther* 2005;**7**:R666–76.
- 7 **Mease P**. TNF α therapy in psoriatic arthritis and psoriasis. *Ann Rheum Dis* 2004;**63**:755–8.

Abbreviation: TNF, tumour necrosis factor.