On the current presentation, plain radiographs of the affected ankle were unremarkable (Fig. 1a and b). Aspiration of the right ankle joint and a skin biopsy of the erythematous area did not show AFB, and mycobacterial cultures were negative. However, magnetic resonance imaging (MRI) showed appearances in keeping with a bone abscess (Fig. 1c and d). A calcaneal biopsy confirmed AFB within the aspirated material and he was recommenced on ciprofloxacin and clarithromycin. Mycobacterial cultures on this occasion indicated that the causative organism was *M. kansasii*, based on the microscopic appearance of a long bacillus with a typical beading appearance and photochromogenic properties with colonies of the organism turning bright yellow on exposure to light. Sequencing of the organism’s 16S rRNA and 65 kDa heat shock protein gene regions showed complete homology with sequence AF480601 for the *M. kansasii* gene. Following this episode the ciprofloxacin/clarithromycin regimen was continued indefinitely. Two months later he was able to discontinue narcotic analgesics and was walking without aids.

This case of twice-recurrent and multifocal infection with an atypical organism is very unusual. *M. kansasii* is a rare cause of musculoskeletal infection, with only 11 previous documented cases, and recent case reports have reviewed this limited literature [1, 2]. In our patient the definitive identification of the organism was obtained at sequence level. Multifocal *M. kansasii* infection has previously been reported in patients with acquired immunodeficiency syndrome [3]. It is likely that the clinical septic episodes at different sites and on widely separated occasions in this patient represent foci that were established during systemic dissemination prior to the initial presentation, and which were not eliminated despite the first two courses of antimycobacterial therapy (6 and 12 months respectively), which had been deemed successful because of clinical resolution of the lesions. Because of this patient’s advanced (transfusion-dependent) myelodysplastic syndrome and the high doses of systemic corticosteroids needed to control his polyarthralgia and arthritis, he was significantly immunosuppressed. Guidelines for the treatment of atypical mycobacterial infection in immunosuppressed subjects emphasize extended therapy [4, 5]. Although a large prospective study of pulmonary *M. kansasii* demonstrated almost complete success using a 9-month regimen of rifampicin and ethambutol [6], the evidence base for treating extrapulmonary disease is limited. In the context of HIV/AIDS, multidrug therapy of disseminated atypical mycobacterial infection is usually lifelong.

This case illustrates the difficulties in diagnosing and treating atypical mycobacterial infection associated with immunosuppression and adds to the very limited experience with musculoskeletal *M. kansasii* infection. An extended course of antimycobacterial therapy had been perceived as greatly reducing the chances of further musculoskeletal sepsis. With hindsight, his antimycobacterial regimen should have been continued indefinitely from the time of his initial presentation.

The authors have declared no conflicts of interest.

Letters to the Editor

Successful treatment of severe Raynaud’s phenomenon with bosentan in four patients with systemic sclerosis

Sir, Systemic sclerosis (SSc) is an autoimmune disease that mainly affects the skin and internal organs, such as the gastrointestinal tract, lungs, kidneys and heart [1]. One of the key clinical features is Raynaud’s phenomenon (RP), including important pain and digital ulceration that often results in functional disability. Therapeutic management of severe RP is usually a clinical challenge, with intravenous infusions of prostaglandin analogues usually being effective, but necessarily invasive.

Bosentan is an oral antagonist of endothelin [2], a potent endogenous vasoconstrictor implicated in the aetiopathogenesis of RP [3]. Recent studies have shown a role for bosentan in the treatment of pulmonary arterial hypertension associated with SSc [4], with encouraging preliminary results in preventing the development of skin ulcers [5, 6]. We report four patients with SSc and severe RP who responded successfully to bosentan.

The first case was a 41-yr-old woman diagnosed with SSc and a history of severe RP, pulmonary alveolitis and pulmonary hypertension. Since 1999, the patient had been hospitalized repeatedly during the cold season due to multiple digital ulcers and necrotic lesions in both hands, which were treated with intravenous prostaglandins and low-molecular weight heparin, yielding a small improvement. Bosentan was started at 62.5 mg twice daily (increased after 4 weeks to 125 mg twice daily), leading to a rapid improvement in the ischaemic lesions and healing of the digital ulcers. After 1 yr of follow-up, the patient had not presented new episodes of severe RP and had not required further hospitalization.

The second case was a 56-yr-old woman diagnosed with limited SSC and a history of RP treated with calcium-channel blockers. In 2000, the patient presented with dyspnoea and chest pain. The electrocardiogram showed atrial fibrillation, and an echocardiogram revealed pericardial effusion and moderate pulmonary

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hypertension [pulmonary artery pressure (PAP) = 46 mmHg] with tricuspid insufficiency. Treatment with low-molecular weight heparin and digoxin was initiated with clinical improvement. In January 2004, the patient was hospitalized due to severe RP, with scars on the fingertips, ulcers and cutaneous necrosis of the interdigital region of the toes. Treatment with bosentan at 62.5 mg twice daily was started, with improvement of necrotic lesions and healing of the distal ulcers. After 4 months of follow-up, no new ischaemic lesions were noted, and bosentan therapy was well tolerated.

The third case was a 22-yr-old woman diagnosed with limited SSc due to sclerodactyly, digital pitting scars, calcinosis of the elbows and RP, which responded partially to topical application of nitroglycerin gel and nifedipine. In December 2003, the patient was hospitalized with severe RP. Treatment with bosentan (62.5 mg twice daily) was started (increasing the dosage to 125 mg twice daily at the fourth week). After a follow-up of 5 months, there has been complete healing of her fingertips with no new episodes of RP.

The fourth case was a 54-yr-old woman diagnosed with limited SSc. In January 2002, the patient was hospitalized due to severe RP, with digital pitting scars of both hands, sclerodactyly and puffy, sausage-like swelling of the fingers. An echocardiogram showed mild pulmonary hypertension (PAP = 30 mmHg). Nifedipine treatment was initiated but was suspended due to hypotension. Infusions of intravenous prostaglandins were started, but were suspended after the second infusion due to local side-effects related to central catheterization. Low-molecular weight heparin and topical nitroglycerin ointment were used, with partial improvement of RP. In January 2004, the patient was hospitalized due to severe RP, with multiple fingertip ulcers and distal ischaemic features (Fig. 1a). Bosentan was started at 62.5 mg/12 h, with improvement of lesions. The dose of bosentan was increased to 125 mg/12 h and at 4 months of follow-up an out-patient appointment showed healing of the ulcers (Fig. 1b).

RP is a frequent, disabling vascular complication of SSc, in which calcium-channel blockers are the main therapeutic option for uncomplicated cases [7]. A common severe manifestation of RP is the development of ischaemic digital ulcers [8], which are estimated to occur in 15–25% of patients [9]. The prostaglandin analogues have potent vasodilator and antiplatelet effects, although intravenous administration is a drawback.

The encouraging results of a preliminary study [5] prompted us to use bosentan in SSc patients with severe RP, in whom the use of intravenous prostaglandin analogues was not considered as a first-line option (due to previous adverse effects or lack of response, or difficulties in the use of invasive techniques or hospitalization of the patient). Although our study is merely observational and involved a small number of patients, the benefit/risk ratio of the use of bosentan compared with intravenous prostaglandins is clearly beneficial. Continuous infusion of prostaglandin analogues is expensive and requires hospitalization and at least 10 days of intravenous administration through a permanent central catheter. In addition, administration of intravenous prostaglandins is associated with dose-related side-effects and with both local and systemic complications related to the drug delivery system [10, 11]. The numerous advantages of bosentan (oral administration, rapid clinical response, absence of severe side-effects and savings in hospitalization costs) point to a promising role for this drug in the treatment of complicated RP in SSc patients on an out-patient basis.

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Infliximab treatment efficacy in lymphoedema associated with ankylosing spondylitis

Sir. Lymphoedema is an extra-articular manifestation rarely found in rheumatoid arthritis (RA) and juvenile idiopathic arthritis, and is quite rare in psoriatic arthritis (PsA) [1–4]. Literature research shows few published cases of lymphoedema: 30 cases in patients with RA and only eight cases in PsA [5–7]. The aetiology is unknown. Several hypotheses have been advanced on its pathogenesis in patients with RA, such as lymphangiitis, lymphatic obstruction, capillary permeability increase, abnormal fibrinolysis and other disorders related to lymphatic function and structure [4]. The diagnosis ‘under suspicion’ is clinical, as one or more limbs have been observed to undergo painless swelling. Scintigraphy demonstrates existing lymphatic disorders [8]. Treatment for lymphoedema is inefficient and is usually limited to symptomatic treatment. In most cases of RA or PsA, introduction of disease-modifying drugs does not improve the oedema [3, 5, 9–11]. With regard to anti-TNF-α therapy, infliximab, recently approved for treatment of ankylosing spondylitis (AS), has been found to be efficient on peripheral articular manifestations and on the axial skeleton. However, there is little information available on its efficacy for extra-articular manifestations. We describe the first case of a patient diagnosed with AS complicated with right upper limb lymphoedema who, after receiving treatment with infliximab, showed complete disappearance of the lymphoedema.

The patient was a 58-year-old male with a background of gastric ulcer, venous thrombosis in the central nervous system and secondary osteoporosis. From the age of 15 he had presented a clinical picture compatible with AS, but this was not diagnosed until the age of 51. Initially, the patient was treated with non-steroid anti-inflammatory drugs (NSAIDs) and corticosteroids. In 1998, he developed a painless oedema in right upper limb. Lymphatic scintigraphy showed findings compatible with lymphoedema. In May 1999, treatment with sulphasalazine was begun and articular clinical results improved, but lymphoedema persisted and acute-phase reactants increased. In September 2000, methotrexate was added at a dose of 10 mg/week without improvement. In March 2001, previous therapies were discontinued and treatment with infliximab was begun at the dose of 5 mg/kg, repeating the dose at 2, 4 and 8 weeks. At 2 weeks, the patient experienced clinical improvement and acute-phase reactants had stabilized. At 12 weeks, the lymphoedema had disappeared completely. Treatment with infliximab was continued for 1 yr, after which it was discontinued when the patient was found to be asymptomatic. In September 2003, treatment was reinitiated due to asymptomatic worsening of the axial skeleton.

Our patient is the first reported case presenting lymphoedema associated with AS in whom the lymphoedema disappeared completely after 3 months of treatment with infliximab. The way in which infliximab acts on lymphoedema is not known, but the drug is believed to act on the inflammatory response of the lymphatic vessels. Therefore, anti-TNF therapy can be considered for the treatment of extra-articular manifestations in AS, such as lymphoedema. Further experience is necessary to confirm the beneficial effect of infliximab and to learn how it acts on other extra-articular manifestations.

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Juvenile onset spondylodiscitis: magnetic resonance imaging changes with infliximab

Sir. Spondylodiscitis is an uncommon presentation of ankylosing spondylitis (AS). TNF-α blockade has previously been shown to