

LETTERS TO THE EDITOR

Systemic sclerosis and organic solvents: early diagnosis in industry

In 1957 Rein¹ and Walder² described the first cases of systemic sclerosis (SS) after contact with organic solvents. An increasing number of cases have subsequently been reported, the most frequent involving aliphatic hydrocarbons (vinyl chloride, perchloroethylene, trichloroethylene),³ and 20 cases related to aromatic hydrocarbons (benzene, toluene, xylene, white spirits and diesel).⁴ Aromatic amines (cyclohexylamine and, m-phenylenediamine) and formaldehyde derivatives were involved in about 10 cases.⁵⁻⁷

Our 56 year old patient developed SS with skin, lung and pericardial involvement after intense and prolonged exposure to toluene (aromatic hydrocarbon), heptane (aliphatic hydrocarbon), dimethylbutylphenyldiamine, (aromatic amine), and octhyphenol formaldehyde (formaldehyde derivate), cutaneously and by inhalation. Exposure to nonchlorinated hydrocarbon and sulphated substances was also assessed.

For 23 years he had worked in the rubber transformation section of a tyre factory. Over a period of eight years he developed progressive thickening of the skin of the fingers, Raynaud's phenomenon and progressive effort dyspnoea. He was first seen by us in May 1991 because of dyspnoea on minimal exertion.

Clinical findings on admission were sclerodactyly, mild generalised cutaneous sclerosis (more intense on both shoulders and some on the back and abdomen) and facial, upper trunk and palm telangiectasia. A trunk skin biopsy showed a severe sclerosis of the dermal collagen, with few fibroblasts, sclerosis of the sweat glands and subreticular dermis, with poor vascularity and septa thickening of subcutaneous tissue. Fine crackles were present in both lung bases. A chest radiograph showed cardiomegaly. Echocardiography revealed a small pericardial effusion and enlargement of the right cavities with mild tricuspid insufficiency that yielded a pulmonary arterial hypertension of 46 mm Hg. Cardiac catheterisation showed it to be pre-arteriolar. Respiratory function tests showed moderate-severe restriction, (FEV1:1960 cc-59%; VC-IN:2.260 cc-52%) alteration on diffusing capacity (TLCO 57, 5%), and arterial gasometry with hypoxaemia (PO₂ 73 mm Hg) and increase of the alveolar-arterial O₂ gradient (A-aO₂ = 43) compatible with moderate lung fibrosis. A radiograph of the right hand showed small subcutaneous calcification in one digit. A barium swallow only showed reflux. Renal function was normal. Antinuclear antibodies were positive at a 1/400 titre with a nucleolar pattern. Anticentromere and antiScl 70 antibodies were negative.

The patient was treated with nifedipine (30 mg/day) and prednisone (1 mg/kg a day initially with subsequent tapering). A few months later he complained of dyspnoea at rest, and clinical signs of right sided heart

failure. PAP control by echocardiography (Doppler) had raised to 80 mm Hg. He died 12 months after diagnosis from cardio-respiratory failure. Renal function remained normal until his death. Necropsy was refused.

SS is a multisystem disorder characterised by an overproduction of collagen with involvement of the skin, blood vessels and visceral organs.

Over the past 25 years there have been increasing reports of environmentally induced SS.³ Organic solvents penetrate the skin, can be inhaled, and may produce metabolic changes in many organs, due both to a direct toxic effect and a possible immunogenetic susceptibility to SS.^{8,9} In most cases, avoiding exposure does not result in clinical improvement. Nevertheless, early diagnosis should be achieved. Raynaud's phenomenon is the first symptom in up to 70% of patients with SS.³ We suggest that a review of solvent exposure should include an anamnestic research in the annual check up of workers from relevant industries. In patients in whom Raynaud's phenomenon is present a complete physical examination, a nailfold capillaroscopy and a selective autoimmune study (anticentromer and anti-Scl 70 antibodies) should be carried out,¹⁰ and further exposure avoided if positive.

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Isospora belli reactive arthritis in a patient with AIDS

Isospora belli has been recognised as an opportunistic protozoan pathogen in patients with the acquired immunodeficiency syndrome (AIDS).¹ Parasitic infestation of the gastrointestinal tract has been previously reported as a possible case of seronegative arthritis.² The common features were eosino-

philia, asymmetric oligoarthritis affecting large joints of the lower limbs, and full improvement after elimination of the parasite.³ We report a case of reactive arthritis due to infestation by *I belli* in a patient with AIDS.

The patient, a 57 year old white woman, with human immunodeficiency virus (HIV) was infected by heterosexual transmission. In July 1991, she started having chronic diarrhoea. Four months later she developed inflammatory arthritis affecting both hands and wrists, accompanied by morning stiffness.

A year before her admission her husband, who had been diagnosed with AIDS died of *pneumocystis carinii* pneumonia complications. On physical examination, she revealed active synovitis in both wrists and in the second, third and fourth metacarpophalangeal (MCP) joints in both hands. There were no aphthous ulcerations, skin rashes or evidence of conjunctivitis.

Laboratory tests showed an erythrocyte sedimentation rate (ESR) of 38 mm/hour, a haemoglobin of 12.1 g/dl, a white blood cell (WBC) count of 5.6 × 10⁹/l with an eosinophilic count of 0.56 × 10⁹/l and platelets of 226 × 10⁹/l. Blood chemistry profile and urinalysis findings were within normal limits. Results of the test for IgM rheumatoid factor, antinuclear antibody and HLA-B27 were negative. Anti-HIV antibody, performed by ELISA assay, was positive and confirmed by Western blot analysis. She had a CD4:CD8 ratio of 0.13 and an absolute CD4 count of 264 cells/mm³. Radiographs of the chest and hands were within normal limits. Fifteen days before she developed polyarthritis, we isolated from her stool samples an organism identified as *Isospora belli*. The patient was treated with oral trimethoprim (160 mg) and sulphamethoxazole (800 mg), given four times daily for 10 days and then twice daily for three weeks and diclofenac, 50 mg given three times a day. Three days later, her arthritis progressively improved and diarrhoea abated. Despite stopping treatment, her arthritis did not recur. Unfortunately, this patient died in June 1993 due to AIDS.

Reactive arthritis has been reported in association with a number of enteric parasitic pathogens including *Giardia lamblia*⁴ and more recently *Blastocystis hominis*⁵ and *Cryptosporidium*.^{6,7} Chronic enteritic infections with coccidial parasites have been associated with immunodeficient patients. *Cryptosporidium* and *I belli* have been implicated as a cause of chronic diarrhoea in patients with AIDS. Reactive arthritis has been reported in HIV-infected patients mainly in homosexual men.⁸ After parasite enteric infection has been described, seronegative oligo- or polyarthritis asymmetric, additive or migratory with predominant involvement of joints of the lower limbs,⁹ but upper limb joints can be affected.¹⁰

Our patient may have had reactive arthritis after enteric infection with *I belli*. She developed symmetrical polyarthritis without extra-articular features of Reiter's syndrome, involving both wrists and hands, accompanied by morning stiffness resembling rheumatoid arthritis.³ The diagnosis of parasite reactive arthritis is suggested by: eosinophilia, seronegative polyarthritis, the temporal sequence that this arthritis was triggered by *I Belli* infestation, and rheumatic manifestations, which improved after trimethoprim-sulfamethoxazole therapy. However, the mechanisms of reactive