**MATTERS ARISING**

**Exposure to chemicals and systemic sclerosis**

Occupational exposure to various chemicals, including vinyl chloride, silica dust, epoxy resin, benzene, trichloroethylene, and other solvents, has been described as a potential provoking factor of systemic sclerosis (SSc) and scleroderma like disorders. However, the precise contribution made by occupational environmental factors to the occurrence of scleroderma remains unknown. 

Exposure to certain agents may differ widely in distinct areas of Europe, as a result of the chemical industry's activity and the distribution of key occupations. The prevalence of occupational exposure to these agents varies, and this variability is likely to influence the rates of systemic sclerosis.

### References


### LETTERS TO THE EDITOR

**Acquired sideroblastic anaemia associated with penicillamine therapy for rheumatoid arthritis**

Penicillamine has been successfully used in the treatment of rheumatoid arthritis since 1964. Most of the serious reactions have been haematological and include agranulocytosis, thrombocytopenia, and aplastic anaemia. The incidence of side effects, such as thrombocytopenia, rash, and proteinuria, has been shown to be unacceptable high with high dose treatment. We report a case of acquired sideroblastic anaemia following treatment with penicillamine for rheumatoid arthritis.

A 50 year old man with a five year history of rheumatoid arthritis and non-insulin dependent diabetes mellitus developed more active joint disease associated with rheumatoid nodules and erosive changes revealed by radiography. His joint disease had been controlled on ibuprofen 600 mg three times daily, but in June 1988 penicillamine 125 mg once daily was added to his regimen. The dose was gradually increased, by 125 mg at monthly intervals, to 500 mg once daily. At no stage was he taking phenacetin or paracetamol. Before he commenced taking the penicillamine, the patient’s full blood count had been normal (MCV 76 fL) and the white cell differential was normal. Two months after he started treatment, his haemoglobin had decreased to 9.9 g/dL and showed hypochromia and microcytosis. Although his haematologist thought that penicillamine was the cause of the problem, he began a course of iron therapy and the haemoglobin temporarily increased to 12 g/dL in November 1988. By January 1989 his haemoglobin decreased to 10.5 g/dL with a characteristic microcytic picture (MCV 70 fL) and by February 1989 it had decreased further, to 7.0 g/dL. At this stage, the film showed a hypochromic picture with some poikilocytosis, basophilic stippling, and target cells. There were some vacuolated red cells and the white cells and platelets were normal. Because of the appearance of the blood film, the possibility of sideroblastic anaemia was raised.

Clinically, there was no evidence of blood loss and an endoscopy was normal. His arthritis was well controlled on therapy, with a C-reactive protein 29 mg/L (normal range (NR) < 20 mg/L) and a C3 degradation product 15 U/ml (NR 5-12 U/ml); vitamins B12 and folate levels were normal, serum iron 33 μmol/L (NR 14-34 μmol/L), and iron binding capacity 34 μmol/L (NR 43-72 μmol/L). Bone marrow aspiration and trephine revealed a hypocellular marrow with markedly reduced erythropoiesis, gross dyserythropoiesis and 24% ringed sideroblasts. The karyotype of the bone marrow cells showed normal chromosome numbers and the appearance of the chromosome and megakaryocytic series were normal. During the period of investigation the haemoglobin decreased to a minimum of 4.9 g/dL. The patient’s penicillamine regimen was reduced to 250 mg daily and he began taking pyridoxine 100 mg twice daily. He required a blood transfusion to control his symptoms, but subsequently maintained his haemoglobin at about 12.5 g/dL, with a normal MCV (81 fL). A repeat bone marrow aspirate at two months was hypercellular, and although there was mild dyserythropoiesis, ringed sideroblasts were not present.

During subsequent follow up, the patient’s joint disease flared. As a result of this problem, it was decided initially to treat him with prednisolone 5 mg once daily and, more recently, with hydroxychloroquine.

Patients with acquired idiopathic sideroblastic anaemias can have abnormalities of all three haemopoietic cell lines. The changes are most marked in the red cell lineage, with at least 15% of nucleated erythroid cells in the marrow being ringed and poikilocytosis. The peripheral blood shows a micromorphic picture with poikilocytosis, basophilic stippling and some hypochromic features, although the overall MCV is often slightly increased. The karyotype may be abnormal and there is a predisposition to develop acute leukaemia. Secondary sideroblastic change occurs in a wide variety of conditions, but the number of