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Case report

Dermatomyositis complicating penicillamine treatment

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SUMMARY A case of dermatomyositis developing during the course of treatment with D-penicillamine in a patient with rheumatoid arthritis is described. Complete remission occurred on withdrawal of the drug. Possible alternative diagnoses are discussed.

Penicillamine, which has been used successfully for many years in the long-term treatment of Wilson's disease and cystinuria, is now being used increasingly in the treatment of rheumatoid arthritis. Unfortunately, side effects are frequent and often lead to discontinuance of the drug. They include nausea and vomiting, rashes, loss of taste, thrombocytopenia, and immune-complex nephritis. Less common side effects are drug-induced systemic lupus erythematosus (Day and Golding, 1974) and myasthenia gravis (Bucknall *et al.*, 1975). There have also been three single case reports of polymyositis occurring during penicillamine therapy (Schraeder *et al.*, 1972; Nishikai *et al.*, 1974; Bettendorf and Neuhaus, 1974). We report a further patient who has developed severe dermatomyositis during the course of treatment.

Case report

A 54-year-old woman developed seropositive rheumatoid arthritis in 1968. She had been given two courses of gold injections, each of which had had to be discontinued because of skin irritation. Treatment with D-penicillamine hydrochloride was started in October 1973, at a dose of 300 mg/day, increasing by 300 mg/day every 2 weeks until she was taking 1200 mg daily. The dose was reduced to 600 mg daily when clinical improvement occurred and the erythrocyte sedimentation rate (ESR) had fallen from 62 to 34 mm/h. 10 months after starting on penicillamine she complained of constant, severe back pain and was subsequently admitted to a surgical ward because of abdominal pain. She also developed limb-girdle pain with increasing difficulty in standing and walking. She was febrile with a facial rash and oedema, a liver enlarged four fingers, very tender back and thigh muscles, and proximal muscle weakness.

ESR was 76 mm/h, haemoglobin 11·5 g/dl, Rose-Waaler 1:512, antinuclear factor (ANF) 1:640, DNA binding 10% (normal>30%). Creatine phosphokinase (CPK) was 256 IU/l (normal up to 130), aspartate aminotransferase (SGOT) 80 IU/l (normal 10–50), hydroxybutyrate dehydrogenase (HBD) 251 IU/l (normal 100–250), and alkaline phosphatase (ALP) 93 IU/l (normal 30–85). Serum bilirubin was normal. Electromyography showed fibrillation potentials at rest and a myopathic pattern on volition with many patches of short-duration polyphasic units. Muscle biopsy showed inflammatory cell infiltration, particularly of lymphocytes and plasma cells, in the interstitial tissues and around blood vessels, with degenerative changes in the muscle fibres (see Fig.).

Penicillamine was stopped and she was started on prednisolone 30 mg/day. Over the next few weeks the skin rash, muscle pains, and tenderness disappeared, liver size diminished, CPK fell to 50 IU/l, serum enzymes SGOT, HBD, and ALP became normal, and ESR dropped to 46 mm/h. ANF remained positive but at a lower titre of 1:160. Her progress was interrupted by a very severe chest infection and septicaemia. Sputum and blood cultures grew *Streptococcus pneumoniae*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*. She gradually improved on treatment with parenteral antibiotics, intravenous nutrition, blood transfusion, and increased dosage of prednisolone to 60 mg/day. 6 months later she was back at work feeling very well on prednisolone 5 mg/day.

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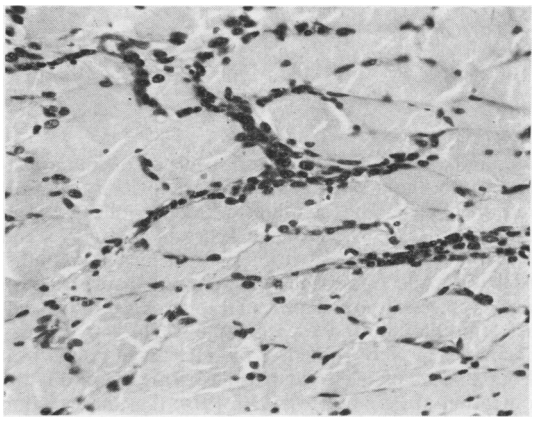

Fig. *Transverse section of biopsy from the left vastus lateralis showing infiltration of lymphocytes and plasma cells in the interstitial tissues between the muscle fibres. H. and E.* × *300.*

Discussion

This patient had the characteristic skin rash of dermatomyositis with heliotrope discoloration around the eye and periorbital oedema. Diagnosis of myositis was confirmed by muscle biopsy, electromyography, and by muscle enzymes. No neoplasm was detected and none has come to light during an 18-month period of follow-up.

Pitkeathly and Coomes (1966) reported on the occurrence of polymyositis in patients with rheumatoid arthritis, but their patients did not have dermatological manifestations. It is possible that our patient had two separate diseases, both rheumatoid arthritis and dermatomyositis. The complete remission of symptoms on withdrawal of penicillamine favours a diagnosis of drug-induced disease.

Drug-induced systemic lupus erythematosus is a well-recognized complication of penicillamine therapy (Walshe, 1968; Day and Golding, 1974; Camus *et al.*, 1974) and the high titre of antinuclear factor would be in keeping with this diagnosis, as would the normal DNA binding (Hughes, 1971). It would be less easy to explain the severe myositis as a feature of drug-induced systemic lupus erythematosus. Myalgia, as opposed to myositis, has been reported in procainamide- and hydrallazine-induced systemic lupus (Dubois, 1975). We found few reports of myositis directly attributable to drug therapy. Goldenberg and Stor (1975) recently described a case in which azathioprine exacerbated the symptoms of dermatomyositis.

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