Case of Hashimoto's Disease With Myasthenia Gravis

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Recent work has suggested that an autoimmune factor may be present in myasthenia gravis. The present report describes a case of Hashimoto's disease in which myasthenia gravis developed.

Case Report

A postwoman of 51 complained of tiredness, increase in weight, and swelling of the face of four years' duration. She felt the cold more than usual and developed a hoarse voice. After treatment with thyroid extract for three weeks there was considerable symptomatic improvement. Examination revealed a moderately obese woman with a coarse dry skin. Her voice was hoarse and the thyroid was diffusely enlarged, firm, and slightly tender.

Investigations.—Hb 91%; E.S.R., 45 mm./hr. (Wintrobe); serum cholesterol 330 mg./100 ml.; B.M.R. (average) +3%; E.C.G., bradycardia and flattened T waves; serum albumin 4.6 g.; serum globulin 3.1 g./100 ml.—there was a diffuse increase in the gamma-globulin—thymol turbidity 6 units. The goitre, raised E.S.R., increased gamma-globulin, and at a later date a positive gel precipitin test for thyroid antibodies suggested Hashimoto's thyroiditis. Chest *x*-ray examination did not show any evidence of mediastinal tumour. Thyroid extract, 2½ gr. (160 mg.) daily, was continued and the patient remained well.

Two years later she began to complain of attacks of dysphagia, drooping eyelids, and weakness of the face and arms. The weakness was worse towards the end of the day and improved with rest. Examination showed generalized loss of muscle power, bilateral ptosis, and weakness of the voice. There was an immediate improvement in speech and ptosis after parenteral neostigmine. No signs of hypothyroidism were observed and the goitre was still present. The E.S.R. was 24 mm./hr. (Wintrobe) and the E.C.G. was normal. The thyroid extract had been stopped after the onset of myasthenic symptoms and she was maintained on oral neostigmine. Within a fortnight she had become cold and her ankles had begun to swell. The B.M.R. was −28% (average of three) and the cholesterol 437 mg./100 ml. The E.C.G. showed typical changes of hypothyroidism. With oral thyroxine and neostigmine, the patient has remained well for two years. Recent examination of the patient's serum revealed the presence of antinuclear factor, and the tanned red-cell test for thyroid antibodies was positive to a titre of 1:2½ million.

Discussion

Thyroid disease has long been associated with myasthenia gravis, and in most reports the association has been with hyperthyroidism (Engel, 1961). The association of myasthenia and myxoedema is rare. Garvey (1930) quoted a case of myasthenia gravis with a B.M.R. compatible with myxoedema. Kowallis *et al.* (1942) reviewed 40 cases of myasthenia and found no instance in which the B.M.R. was abnormally low. Feinberg *et al.* (1957) described three cases of myasthenia in association with myxoedema. In two of these myxoedema developed spontaneously, and in the third it followed partial thyroidectomy. Section of the gland from this case showed some evidence of thyroiditis. Harvey *et al.* (1954), Denney and Rose (1961), and White *et al.* (1961) have pointed to the association of myasthenia gravis and lupus erythematosus. White and Marshall (1962) demonstrated the presence of antinuclear factor in six myasthenic patients, of whom one had and another probably had lupus erythematosus. In addition, in six thymus glands obtained at thymectomy for myasthenia gravis they were able to demonstrate gamma-globulin-containing lymphocytes in greater abundance and showing much less localization than those found in the normal thymus. This thymic activity suggests the presence of an autoimmune process (Burnet and Mackay, 1962).

Strauss *et al.* (1960) and Beutner *et al.* (1962) have demonstrated the presence of a globulin in some patients with myasthenia gravis which is bound at the A band of skeletal muscle and fixes complement. Grob and Namba (1963) have isolated a muscle ribonucleoprotein capable of combining competitively with D-tubocurarine or acetylcholine. They detected a complement-fixing antibody to this in 29 out of 51 patients with myasthenia gravis. These workers have demonstrated the presence of antibody in other muscle disorders such as dermatomyositis and muscular dystrophy, so that the autoantibody may be the result and not the cause of muscle degeneration.

Hashimoto's disease has been associated with other conditions thought to involve autoimmune processes, such as rheumatoid arthritis (Buchanan *et al.*, 1961), cirrhosis (Luxton and Cooke, 1956; McConkey and Callaghan, 1960), and haemolytic anaemia (Wasastjerna, 1959).

Van der Geld *et al.* (1963) found in the sera of patients with myasthenia gravis antibodies against skeletal muscle, thymus, and thyroid tissue, and, in addition, rheumatoid and antinuclear factor were often present. In view of this evidence of multiple antibody production we might expect clinically recognizable thyroiditis to develop in patients with myasthenia gravis, but so far as we are aware this is the first report of the association.

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J. J. Daly, M.A., M.D., M.R.C.P.
Edward Jackson, B.Sc., M.B., M.R.C.P.
Department of Medicine,
The Royal Hospital, University of Sheffield.

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