Hypopituitarism associated with myalgia

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Summary

A patient with panhypopituitarism who presented with muscle pain and stiffness is described. These symptoms responded rapidly to treatment with thyroxine and cortisone acetate. The association between muscle disease and hypopituitarism is briefly reviewed.

KEY WORDS: pituitary tumour, muscle biopsy.

Introduction

Although polymyositis, polymyalgia rheumatica and connective tissue diseases are the commonest causes of painful myopathy, endocrine disorders including osteomalacia (Schott and Wills, 1976) and hypothyroidism (Golding, 1970; Norris and Panner, 1966; Pearce and Aziz, 1969; Salick, Colachis and Pearson, 1968; Scarpalezos, *et al.*, 1973; Cabili *et al.*, 1982) can also cause muscle pain. This report describes a patient with panhypo-pituitarism who presented with myalgia.

Case report

A 57-year-old male was referred in June 1982 with a 3-month history of lassitude and progressive severe myalgia, particularly affecting pelvic and pectoral girdle muscles. Myalgia was associated with marked muscle stiffness but no cramps or weakness. Symptoms were continuous, not exacerbated by cold, but worsened with exercise. There had been no response to aspirin (1 g three times a day). Anorexia and weight loss (of 8 kg in 3 months) were also documented. There was no history of joint pain. Sexual function was normal. The remainder of the history was unremarkable.

On examination the patient weighed 67 kg and was 175 cm in height. There were no pallor, periorbital oedema, skin or mucous membrane abnormalities.

Blood pressure was 130/90 mmHg, without postural change and pulse was regular at 80/min.

Proximal muscles were slightly tender, but not wasted or weak. The patient could stand from a sitting position with the arms folded. There was no muscle hypertrophy and muscle consistency was normal. No myodemia or myotonia was noted. There was no clinically apparent delay in ankle jerk relaxation. The thyroid was not enlarged. Testicular size and pubic hair distribution were normal. Central and peripheral visual fields with red and white test objects were full (Bjerrum chart). Optic fundi were normal.

Investigations

Haemoglobin, blood picture, serum electrolytes, urea, creatinine and liver function profile were normal. The erythrocyte sedimentation rate was 24 mm/hr. Serum creatine kinase was 130 u/l (normal range 60-270) and aldolase 2.5 u/l (normal range 1-8). Screens for rheumatoid and antinuclear factor were negative. Serum complement levels (C3, C4, Clq) and immunoglobulins were normal.

Electromyography showed no evidence of myopathy, pseudomyotonia or denervation of the spinati, deltoid and biceps. Motor and sensory nerve conduction studies were normal in the right forearm.

Under local anaesthesia a muscle biopsy (left deltoid) was performed. A full complement of fibres was seen with no fatty replacement. There was no fibre necrosis and no inflammatory cell infiltration. ATPase reactions (pH 9.4 and 4.3) revealed a mild type 1 fibre type predominance. Phosphorylase reaction was normal.

Effective thyroxine ratio was 0.83 (normal range 0.94-1.18) and serum thyroid stimulating hormone 0.2 mu/l (normal range up to 2.5). Serum level of luteinizing hormone was <1 iu/l (normal range 3-15), follicle stimulating hormone 6 iu/l (normal

range 5–20), prolactin $<11 \mu\text{g/l}$ (normal range 0–12), normalized androgen ratio (Gilliland, Smeaton and Rowland, 1978) 1.02 (normal range 0.88–1.36), basal growth hormone 2 $\mu\text{u/l}$ (normal range 0–12) and serum cortisol at 0900 hr 80 nmol/l . The maximum plasma cortisol level in response to 0.25 mg of tetracosactrin intramuscularly (samples were taken 30 and 60 min after injection) was diminished at 445 nmol/l (normal range >500). Because of the patient's age, the responses of plasma cortisol and growth hormone to insulin-induced hypoglycaemia were not assessed.

The pituitary fossa was enlarged with a double contour and erosion of the dorsum sella. Computed tomographic (CT) head scan showed that the fossa was occupied by an enhancing mass confined to the sella (Fig. 1). Bilateral carotid angiography was normal.

FIG. 1. CT head scan with contrast showing an enhancing mass in the pituitary fossa.

The patient was treated with cortisone acetate (12.5 mg twice a day) and thyroxine (25 μg each day). Approximately 3 days later, he experienced marked reduction in myalgia. Three weeks later, the thyroxine replacement had been increased to 100 $\mu\text{g/day}$, the myalgia had resolved totally and the patient was well and active.

Discussion

This patient who presented with myalgia had clear evidence of hypopituitarism, with corticotrophin and thyrotrophin deficiencies due to a pituitary adenoma. The prompt remission of myalgia with thyroxine and cortisol replacement suggests a direct relationship of

muscle symptoms to hypopituitarism. It is unclear whether this improvement was related to the thyroxine, cortisone acetate or both, as both medications were given concurrently.

An association between muscle pain and hypopituitarism has been documented on one previous occasion (Yunus, Masi and Allen, 1981). This report describes a patient with idiopathic panhypopituitarism in whom muscle symptoms responded to cortisone acetate alone, leading to the suggestion that myalgia was related to adrenal insufficiency rather than hypothyroidism. Musculoskeletal aches occur during reduction in corticosteroid doses, regardless of whether adrenal suppression has occurred (Dixon and Christy, 1980), but myopathy appears to be extremely rare in non-iatrogenic hypoadrenalism. In one report, however, Addison's disease presented with generalized muscle aching and stiffness (Calabrese and White, 1979).

In contrast, the association between hypothyroidism and muscle disease is well documented. Muscle symptoms are usually associated with other evidence of thyroid hypofunction (Golding, 1970). Subjective weakness, delay in the relaxation phase of the deep tendon reflexes and myalgia are common findings (Norris and Panner, 1966; Salick *et al.*, 1968) and may respond rapidly to low doses of thyroxine (Pearce and Aziz, 1960; Scarpalezos *et al.*, 1973). Muscle cramps are reported in approximately 10% of patients (Margolis and Margolis, 1981) and may be an early symptom after ^{131}I therapy (Salick *et al.*, 1968). Increased muscle mass and firmness (Hoffman's syndrome) is rarely seen with severe longstanding hypothyroidism (Scarpalezos *et al.*, 1973). These changes may be associated with elevation of serum creatine kinase but this is not invariable (Goldman, Matz and Mortimer, 1977). The muscle biopsy findings in this case were non-specific, but compatible with those found in hypothyroidism (Norris and Panner, 1966).

This report illustrates that hypopituitarism may rarely present with muscle pain before other manifestations become evident. Both hypoadrenalism and hypothyroidism may be responsible for myalgia in this condition.

Acknowledgment

We would like to thank the Royal Adelaide Hospital for permission to publish this case.

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(Accepted 21 April 1983)