POLYMYOSITIS ASSOCIATED WITH SYMPTOMLESS NASOPHARYNGEAL CARCINOMA

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ABSTRACT

We describe a 42-year-old Chinese patient with polymyositis and nasopharyngeal carcinoma. The polymyositis was complicated by respiratory failure needing mechanical ventilation despite conventional therapy. Treatment of the carcinoma was associated with recovery of muscle strength. To our knowledge this is the first reported association of polymyositis with nasopharyngeal carcinoma.

Keywords: *polymyositis, nasopharyngeal carcinoma.*

SINGAPORE MED J 1994; Vol 35:323-324

INTRODUCTION

Inflammatory myopathies comprise three major and discrete groups: polymyositis, dermatomyositis, and inclusion-body myositis. The association with malignant conditions have been described, especially for dermatomyositis[1-7]. However, with polymyositis no previous association with nasopharyngeal carcinoma has been described. Dalakas in his recent review[8] had even suggested that nondirected searches for underlying malignancy in these patients without symptoms may not be fruitful. We describe a case of polymyositis associated with symptomless nasopharyngeal carcinoma.

CASE REPORT

A 42-year-old Chinese male was admitted on September 30, 1991 with anorexia, malaise, fever, muscular aches and a 6 kg weight loss of 4 weeks duration. The muscular aches were mainly in the extremities and back. He had a past history of hypertension controlled with lisinopril, and renal calculi treated with extracorporeal shock-wave lithotripsy.

Examination showed tender deltoid and quadriceps muscles with mild proximal muscular weakness (MRC Grade 4/5). There were no skin lesions, and his blood pressure was 140/90 mmHg. Investigations showed a haemoglobin of 13.2 g/dL, total white count of 8.94 x 10^{-9}/L with no eosinophilia, platelet count of 490 x 10^{-9}/L, and an erythrocyte sedimentation rate (ESR) of 4 mm/1st hr. The aspartate transferase (AST) was 891 U/L, ALT 1005 U/L, lactate dehydrogenase (LDH) 6051 U/L, and creatine kinase (CK) > 20,000 U/L (93% CKMM), with an aldolase of 464 U/L. Gamma-GT and bilirubin were normal. The ANA was positive (1:40 speckled) and anti-DNA was negative, with normal serum complements. Both the alpha-fetoprotein and carcinoembryonic antigen were negative. The renal function was normal. Urinalysis was positive for myoglobin. Chest X-ray and electrocardiogram were normal. Subsequent serologies for hepatitis B, cytomegalovirus (CMV), human immunodeficiency virus (HIV) and herpes simplex virus (HSV) were negative.

Needle electromyography showed increased large amplitude, polyphasic units on a background of low amplitude motor unit potentials compatible with an inflammatory myopathic process. An open muscle biopsy of the right quadriceps had scattered fibres showing degeneration and regeneration. A few inflammatory cells were seen around one small vessel. Enzyme histochemistry showed no grouping of any particular fibre type. The features were reported as consistent with polymyositis.

Therefore, based on the clinical findings, an elevated creatinine kinase of muscle origin, electromyographic changes of inflammatory muscle disease, and muscle biopsy evidence of necrosis and inflammation, a definite diagnosis of polymyositis was made.

Oral prednisolone 40mg daily was commenced with symptomatic improvement. However, 2 weeks later, he became progressively weaker, and also developed dysphagia. The repeated CK was 14,538 U/L. He was readmitted and treated with pulse methylprednisolone 1 gm daily for 3 days in view of his disease progression despite conventional dosage of prednisolone, followed with an increased dose of oral prednisolone 60mg daily, and the addition of azathioprine 50mg daily for its steroid sparing effect. The patient continued to deteriorate despite therapy, with increasing muscular weakness (MRC Grade 3/5), and wasting of the girdle muscles, neck, masseters and pterygoids, intravenous immunoglobulins (Veinoglobuline®) was then started and a total of 30 gm was given over 4 days. Concurrently cyclophosphamide 100mg was given daily for 11 days as additional immunosuppression, then reduced to 50mg a day. Despite this therapy, he developed type 2 respiratory failure associated with a right lower lobe collapse requiring mechanical ventilation. Bronchoscopy demonstrated no endobronchial tumour or cause for the collapse which resolved with vigorous suction and physiotherapy. Plasma exchange was then started and he eventually received 4 exchanges of 2 litres each.

Prior to the development of respiratory failure, he had been evaluated by the otorhinolaryngologist who had not noticed any visible tumour but the biopsy of the posterior nasal space showed an undifferentiated nasopharyngeal carcinoma. CT scan confirmed a tumour mass in the right fossa of Rosenmüller with involvement of bilateral posterior cervical nodes. Anti EBV-VCA IgG was positive at a litre of 1 in 160 and IgA was positive at 1 in 10.

Cyclophosphamide was stopped and chemotherapy was commenced with cisplatinum and 5-fluorouracil, while prednisolone was maintained at 45mg daily. A tracheostomy was fashioned, and he was finally weaned off the ventilator after 25 days of mechanical ventilation. After another 30 days on the

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general ward he was transferred to another hospital for radiotherapy. At that time his muscle power had improved to MRC grade 3/5 from a previous low of MRC grade 1/5 while in the intensive care unit. He was taking meals orally and the tracheostomy had closed. The CK was 249 U/L and the prednisolone dose was 30mg daily.

By March 1992, he had completed his radiotherapy and showed full recovery of muscle strength. At the most recent follow-up in January 1993, he was well with normal CK and aldolase, and prednisolone had been discontinued.

DISCUSSION

Polymyositis in this case was not associated with any systemic autoimmune or connective tissue disease. There was also no evidence of viral (CMV, HSV, HIV, and hepatitis B serologies were negative), or bacterial infection. In addition, there was no previous history suggesting the ingestion of myotoxic drugs. We therefore attributed the polymyositis to the nasopharyngeal carcinoma, especially as his muscle weakness resolved with normalisation of the muscle enzymes following specific treatment for the tumour.

The association of underlying cancers with dermatomyositis is well established, while the situation with polymyositis is still debated. However, the recommendation by Dalakas MC[8] is against blind invasive searches for malignancy that are not suggested by history or on physical examination. Instead, he recommends a complete annual physical examination, with pelvic and rectal examinations, urinalysis, complete blood count, blood chemistry and a chest X-ray.

The site of the underlying cancers varies with geographical location and is dependent on whether the patient has dermatomyositis or polymyositis. A recent Swedish study[1] concluded that polymyositis was associated with a moderately high risk of cancer in the general population. However, there was no increase in mortality in contrast to patients with dermatomyositis. The association of malignancy with polymyositis may therefore merely reflect the increased surveillance amongst this group of patients. Lung, breast and prostate were the commonly associated cancers in the polymyositis group, while colon, pancreas, lung, breast and ovarian tumours were associated with dermatomyositis. Out of seventy-one patients with polymyositis and dermatomyositis in Toronto[2], seventeen patients had an underlying cancer with no increased incidence of cancers on subsequent follow-up; while in the fifty-eight cases followed up in Michigan, USA, only one out of thirty-one patients with polymyositis had an associated cancer, while seven out of twenty-seven patients with dermatomyositis had associated cancers[3]. Rose and Walton in their classical paper on polymyositis described eighty-nine cases from Northern England and fourteen of their patients had an underlying tumour[4]. Bohan et al in 1977[5] analysed one hundred and fifty-three patients with polymyositis and dermatomyositis from California. Only thirteen of their patients, five of which had polymyositis, had associated cancers. None of them had nasopharyngeal carcinoma, and the majority had their cancer diagnosed at a substantial period after the diagnosis of polymyositis was made. To minimise the confounding effects of immunosuppressive therapy on the cancer risk, the Swedish group[1] analysed their data in the first five-year period after the diagnosis of polymyositis was made. An increased incidence of cancer was reported. Dermatomyositis is associated with an underlying nasopharyngeal carcinoma in Singapore and Hong Kong, and screening for the tumour is routinely carried out. Six out of ten adults with dermatomyositis in a Singapore series had an underlying cancer, and four out of these six patients had nasopharyngeal carcinoma[6]. From another series of twelve patients from Singapore, three out of twelve patients with dermatomyositis had nasopharyngeal carcinoma[7]. In a report from Hong Kong, twelve out of twenty-three cases of dermatomyositis had cancers, and nine out of the twelve cancers were nasopharyngeal carcinomas[9]. The incidence of polymyositis and dermatomyositis in patients with nasopharyngeal carcinoma is unknown.

We want to emphasise that although the association of polymyositis with underlying malignancy is uncommon compared with dermatomyositis, appropriate screening for silent nasopharyngeal carcinoma in the Southern Chinese population is still important when polymyositis is diagnosed as this group has an increased incidence of nasopharynx cancer. In Singapore, the Chinese male has an incidence of nasopharynx cancer of 14.8 (age-standardised rate per 100,000 per year) compared with an incidence of 1.0 for the Indian male[10]. For the Caucasian population however, screening for nasopharyngeal cancer in polymyositis or dermatomyositis is unwarranted.

Our patient's therapeutic protocol of pulse methylprednisolone, intravenous immunoglobulin, and plasma exchange is experimental. Conventional treatment for severe polymyositis is high dose glucocorticoids, and when the response is inadequate, and/or the disease is progressive, cytotoxic drugs are usually employed. The cytotoxics that have been tried include azathioprine, cyclophosphamide, and methotrexate. If a malignant lesion is discovered, it should be treated. The muscle weakness usually disappears after the neoplasm is eradicated, even though there may be an initial response to glucocorticoids. Intravenous immunoglobulins, and plasma exchange are considered experimental therapy.

Our patient had polymyositis and nasopharyngeal carcinoma. Treatment of the carcinoma was associated with the resolution of his polymyositis. This represents the first reported case of polymyositis with nasopharyngeal carcinoma in an Oriental male.

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