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Concurrence of Myasthenia Gravis and Chorée Fibrillaire de Morvan

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Summary. A case of myasthenia gravis associated with a syndrome resembling "chorée fibrillaire de Morvan" is described. This association has not been previously noted in the literature. It is postulated that this syndrome, when associated with myasthenia gravis, suggests an autoimmune pathogenesis, but prednisolone and plasmapheresis did not alter the symptoms. This case illustrates the fact that a separate entity should be considered when the clinical picture is not compatible with the underlying diagnosis.

Key words: Myasthenia gravis – Myokymia

Introduction

Several diseases have been reported in association with myasthenia gravis (MG), probably related to their autoimmune pathogenesis [5]. The association of MG with neurological diseases is extremely rare [1]. The triad of myokymia, hyperhidrosis with skin lesions and mental symptoms such as delusions, hallucinations and insomnia has been described in the French literature as "chorée fibrillaire de Morvan (CFM)" [7] and is not well known in the English literature. The aetiology and pathophysiology of this syndrome is obscure. We report a patient with MG, who had a syndrome resembling CFM. A review of the literature revealed no previous reports of these relatively uncommon diseases occurring simultaneously.

Case Report

A 30-year-old Japanese man was well until the winter of 1982, when he first noted diplopia, general fatigue, and dysphagia and was admitted to hospital. The family history was negative for neuromuscular disease. His past medical history was unremarkable. The patient complained of a decline in libido for more than a year. On admission, examination showed him to be fully conscious, alert and well oriented. The examination of heart, chest and abdomen was normal. Neurological examination disclosed marked bilateral ptosis with ophthalmoparesis in all directions. The pupils were equal and reactive. Bulbar signs, such as dysphagia, dysarthria and dysphonia were noted. The palate movement was slightly weak, but symmetrical. There was no evidence of weakness, wasting or deviation of the tongue. There was moderate generalized weakness. The weakness was more prominent in a proximal and facial distribution. There was also moderate weakness of flexors and extensors of neck. There was moderate wasting of the proximal muscles. There was no impairment of cutaneous sensation, vibration or position sense. Cerebellar function was intact. Muscle stretch reflexes were symmetrical and brisk and plantar responses were flexor. At this time, there was no evidence of twitching of the muscles or percussion myotonia. His mother reported that he experienced nocturnal insomnia when at home on weekends. A single dose of 2 mg edrophonium chloride administered intravenously (IV) immediately reversed the symptoms. The findings of routine laboratory tests, including thyroid function tests and immunoelectrophoresis, were normal. Cerebrospinal fluid and cranial CT were normal. The EEG showed bifrontal slowing. Chest radiographs disclosed a mass lesion in the left upper mediastinum. A thoracic CT scan showed evidence of a thymoma. The measurement of anti-acetylcholine receptor (Ach R) antibody titre in the blood was 2.86 pmol/ml (normal, < 0.5 pmol/ml). Creatine kinase and striated muscle antibody test results were negative. Nerve conduction studies were normal. Repetitive stimulation was performed on the right median and ulnar nerves. Rate of stimulation was 3 Hz. Responses were recorded at rest, immediately after 30 s of exercise, and subsequently at 1-min intervals up to 4 min. When the left median nerve was stimulated, a significant decremental response of 30% was seen at rest.

Single-fibre electromyography also showed abnormal jitter and block. Clinical and laboratory data suggested the diagnosis of MG IIb class according to Ossermann's classification. Treatment with 240 mg/day pyridostigmine (Mestinon) brought about dramatic improvement. There was improvement in strength in all muscle groups, but most marked in the upper limbs, with moderate improvement in ptosis, in ocular movements, in chewing and in swallowing. In March 1983, the patient underwent thymectomy. History revealed an epithelium-rich thymoma, and there was no evidence of malignancy. In May 1983, he first noted twitches in the muscles of both legs. The twitching slowly progressed and spread to his arms and face. He also noticed cramps in both calves, and profuse sweating. Over the next few weeks, he developed generalized coarse myokymia. He also developed insomnia and delusional episodes at night. Neurological examination showed a slight weakness of facial, neck flexors and extensors, and shoulder muscles. There was moderate ptosis and ophthalmoparesis in all directions. There was no evidence of percussion myotonia. Generalized coarse myokymia and hyperhidrosis were also noted. He complained of itching in both legs.

Electromyography with concentric needle electrodes showed abnormal muscular activity with spontaneous repetitive "2" "multiplet" discharges (Fig. 1). This spontaneous activity was characterized by up to ten repetitions of monomorphous motor unit potentials of normal duration, which initially discharged at rates between 40 and 50 Hz. Motor units were otherwise normal in amplitude, duration and order of recruitment. Routine laboratory tests and thyroid function studies were normal. Nerve conduction studies were normal. Muscle biopsy was performed and considered to be normal. Phenytoin, carbamazepin and tocainide, even in high IV doses, did not affect the myokymia. Myokymia was con-

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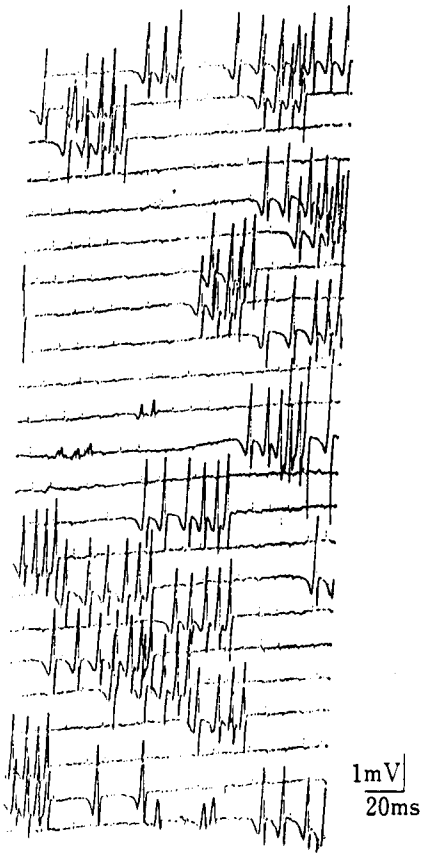

Fig. 1. "Multiplet" discharges in EMG recorded from the right biceps brachii muscle with concentric needle electrodes

sidered to be a side-effect of pyridostigmine, which was then withdrawn, but continuous muscle fibre activity, sweating and itching persisted. The patient was subsequently put on prednisolone therapy for 10 months. The myokymia, hyperhidrosis and itching persisted unchanged. Plasmapheresis in July 1983 failed to improve these symptoms. Myasthenic features also continued to a minor to moderate degree.

Discussion

MG is a relatively uncommon disorder that has occasionally been reported to occur in association with diseases that are presumably of autoimmune aetiology [5]. The disease is due to the presence of a heterogeneous antibody to Ach R detected in 80% of cases. The diagnosis of MG in our patient was made on the basis of the ocular signs, bulbar sign, weakness of extremities, positive edrophonium chloride test, elevation of anti-Ach R titre and the response to anticholinesterase medications. The electrophysiological findings were consistent with a defect in neuromuscular transmission. In 1895 Schultze [9] described a clinical syndrome characterized by muscular hyperactivity in a patient with spontaneous "muscular quivering spasms", depressed tendon jerks and hyperhidrosis. Schultze coined the term "myokymia" to describe this peculiar, easily visible muscular hyperactivity. Since then, numerous reports of similar cases of muscular hyperactivity have been reported under the term "syndrome of continuous muscle fibre activity" [4] or "neuromyotonia" [8]. In our case, myokymia and hyperhidrosis occurred 2 months after thymectomy. Myokymia seen in our case was considered to be type 3 according to Gardner-Medwin and Walton's classification [2]. Although there are many conditions causing myokymia, nerve conduction studies and muscle biopsy were normal in our case. Furthermore, phenytoin and carbamazepine, which usually benefit neuromyotonia, were not effective for our patient. The triad of myokymia, hyperhidrosis with skin lesions and mental symptoms such as insomnia and delusions has been described in the French literature as "chorée fibrillaire de Morvan (CFM)" [7]. Our case is considered to match the syndrome referred to as CFM. The pathogenesis of CFM is obscure. Laterre et al. [6] reported a patient with CFM associated with thymoma. Walsh [10] reported a case of neuromuscular hyperactivity presenting with multiplets and repetitive after-discharges associated with mental disorientation and a mediastinal tumour on radiological examination. Halbach et al. [3] reported two patients with CFM, who had thymoma and raised levels of Ach R antibodies without myasthenic symptoms. The clinical features of our case were characteristic of MG with thymoma. The patient then developed a syndrome resembling CFM. Several diseases have been reported in association with MG and they are usually related to their autoimmune pathogenesis [5]. The aetiology and pathogenesis of CFM is and remains incompletely understood. The association with MG suggested an autoimmune pathogenesis, but prednisolone and plasmapheresis did not alter the symptoms. Nevertheless our case may emphasize the need for further immunological investigations in cases of CFM. The association of these two disorders has not been reported previously.

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References

1. Aita JF, Snyder DH, Reichl W (1974) Myasthenia gravis and multiple sclerosis: an unusual combination of diseases. Neurology 23:72–75
2. Gardner-Medwin D, Walton JN (1969) Myokymia with impaired muscular relaxation. Lancet I:127–130
3. Halbach M, Homberg V, Freund H-J (1987) Neuromuscular autonomic and central cholinergic hyperactivity associated with thymoma and acetylcholine receptor-binding antibody. J Neurol 234:433–436
4. Issacs H, Frere G (1974) Syndrome of continuous muscle fiber activity. S Afr Med J 10:1601–1607
5. Iwasaki Y, Kinoshita M (1989) Ocular myasthenia gravis associated with autoimmune hemolytic anemia and Hashimoto's thyroiditis. Am J Ophthalmol 107:90–91
6. Laterre EC, Bergmans J, Ferriere G (1969) Chorée fibrillaire de Morvan et thymoma (étude clinique et neurophysiologique). Schweiz Arch Neurol Neurochir Psychiatr 111:60
7. Morvan A (1890) De la chorée fibrillaire. Gag Hebd Med Chir 27:173–200
8. Nakanishi T, Sugita H, Shimada Y, Toyokura Y (1975) Neuromyotonia. J Neurol Sci 26:599–604
9. Schultze F (1895) Beiträge zur Muskelpathologie. Dtsch Z Nervenheilkd 6:65–75
10. Walsh JC (1987) Neuromyotonia: an unusual presentation of intrathoracic malignancy. J Neurol Neurosurg Psychiatry 39: 1086–1091