Letters

Myasthenic pseudo-internuclear ophthalmoplegia due to penicillamine

Sir: Myasthenia gravis is a well recognised complication of penicillamine treatment. We report a case where the patient presented with a pseudo-internuclear ophthalmoplegia.

A 55-year-old foreman engineer was referred to the Neurology Clinic with a 3 month history of diplopia most marked on lateral gaze to either side. He had suffered from rheumatoid arthritis for 20 years and had been receiving penicillamine 125 mg daily for the last 2 years. On examination the horizontal eye movements were as shown (fig a,b). There was nystagmus of the abducting eye on lateral gaze. Impairment of convergence and a mild bilateral ptosis were also noted. The rest of the neurological examination was unremarkable. On injection of 10 mg edrophonium intravenously the eye movements returned to normal (fig c,d). Rheumatoid factor and anti-acetylcholine receptor antibodies were strongly positive. Repetitive nerve stimulation at Erb's point showed a decremental response of the evoked muscle action potential from the deltoid muscle, reversed by intravenous edrophonium. A diagnosis of penicillamine induced myasthenia gravis was made. The penicillamine was discontinued and the patient started on pyridostigmine 30 mg tds. Three months later there was considerable resolution of his symptoms and signs and the pyridostigmine was stopped. After 6 months examination of the eye movements was completely normal. Repeat repetitive nerve stimulation testing and anti-acetylcholine receptor antibody assay were also normal.

True internuclear ophthalmoplegias are due to lesions in the medial longitudinal bundle, most commonly multiple sclerosis, whereas pseudo-internuclear ophthalmoplegias result from a peripheral conduction defect such as occurs in the Guillain-Barré syndrome or myasthenia.¹ In the case reported here there was slight bilateral ptosis and paresis of convergence. However ptosis when mild and symmetrical may be difficult to detect and convergence may sometimes be impaired in a true internuclear ophthalmoplegia.² Thus an edrophonium test is a valuable extension of the bedside examination to exclude myasthenia gravis even if a central lesion is suspected.

Most patients with penicillamine induced myasthenia gravis have rheumatoid arthritis associated with anti-acetylcholine

Figure Horizontal gaze to right and left (a) and (b) before, (c) and (d) after edrophonium

receptor antibodies and an increased prevalence of HLA BW 35 and DR 1.³ The mechanism by which penicillamine induces myasthenia is incompletely understood. In vitro studies have shown that penicillamine may enhance the production of anti-acetylcholine receptor antibodies,⁴ possibly by modifying the receptor to produce an immunogenic form.⁵ After penicillamine withdrawal, the anti-acetylcholine receptor antibody titre falls and the myasthenia gradually resolves.⁶

The clinical and electrophysiological features of penicillamine induced myasthenia gravis are indistinguishable from the primary disease. Ocular symptoms are common but, as far as we know, this is the first case reported presenting with a pseudo-internuclear ophthalmoplegia.

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Lithium-induced improvement of myotonia

Sir: Myotonia is a phenomenon of delayed muscle fibre relaxation associated with repetitive electrical depolarisations following a single induced muscle contraction. Myotonia is commonly found in the two inherited neuromuscular disorders, myotonic dystrophy (Steinert's disease) and myotonia congenita (Thomsen's disease). We have suggested that the myotonia of myotonic dystrophy results from adrenergic receptor dysfunction¹ and that pharmacologic augmentation of receptor stimulation (such as with tricyclic antidepressant therapy) can reduce myotonia.^{4,5} In evaluations of neurotransmission-modifying drugs in patients with myotonia, we had the opportunity to evaluate the effect of lithium carbonate treatment on myotonia in a man with myotonia congenita. We compared this effect to the changes caused by lithium administration in an animal model of myotonia.

A 37-year-old man with myotonia congenita complained that muscle stiffness interfered with his usual activities. Previous therapy with phenytoin, quinine, and procainamide had produced unpleasant side effects with no significant clinical improvement of the myotonia. He had difficulty making rapid movements in getting out of a car, standing up from a chair, or walking up and down stairs. On examination he had well-developed muscles with no evidence of weakness; myotonia was