LETTERS TO THE EDITOR

Treatment of bruxism with botulinum toxin injections

Local injections of botulinum toxin have been used with success for treatment of strabismus¹ and blepharospasm. This approach has been extended to different types of focal and segmental dystonia² (torticollis,³ oromandibular dystonia, laryngeal dystonia, writer's and musician's cramp⁴) and hemifacial spasm.² We now report the successful treatment of bruxism with botulinum toxin injections.

A 32 year old woman was admitted in a coma after a car accident. The right pupil was larger (3 mm) than the left (2 mm); there were roving eye movements with incomplete abduction of the right eye. Spontaneous extensor spasms of the right arm and leg were observed; the left plantar response was extensor.

A CT scan showed an inhomogeneous hyperdensity in the left parietotemporal area, consistent with a brain contusion. The patient was intubated and ventilated but recovered slowly. After four months, some communication with the patient was possible and she obeyed verbal commands. However, at this stage the patient had developed bruxism consisting of jaw clenching and chewing movements. The teeth grinding was very loud and almost continuous, causing damage to the teeth and annoyance to nearby patients.

Six months after the accident, 25 units, or 10 ng toxin-haemagglutinin complex of botulinum A toxin were injected into both the temporal and masseter muscles; no attempt was made to infiltrate the pterygoid muscles. After five days, we observed a marked reduction in the bruxism. There was no excessive weakness in the masticatory muscles so that feeding became possible. The favourable effect of the injections lasted for eight weeks. Two weeks later, a second injection of a total of 100 units (40 ng) of botulinum toxin was given. The results were similar and the effect persisted twelve weeks later.

Bruxism consists of rhythmic teeth grinding during sleep. It occurs in the general population, with a prevalence of five to 21%. However, an association of bruxism with organic brain damage and altered states of consciousness has been documented.⁵ The onset of bruxism is frequently linked to the return of sleep-wake cycles in comatose patients; damage to the teeth and related bony structures is one of the major complications of chronic bruxism. Treatment with a special dental prosthesis may be needed to prevent injury to the teeth or dental loss but could not be fitted in our patient due to lack of cooperation. Bruxism can now be added to the list of indications for botulinum toxin treatment.

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1 Scott AB. Botulinum toxin injection of eye muscles to correct strabismus. *Trans Am Ophthalmol Soc* 1981;79:734-70.

- 2 Brin MF, Fahn S, Moskowitz C, Friedman A, Shale HM, Greene PE, Blitzer A, List T, Lange D, Lovelace RE, McMahon D. Localized injections of botulinum toxin for the treatment of focal dystonia and hemifacial spasm. *Movement Disorders* 1987;2:237-54.
- 3 Gelb DJ, Lowenstein DH, Aminoff MJ. Controlled trial of botulinum toxin injections in the treatment of spasmodic torticollis. *Neurology* 1989;39:80-4.
- 4 Cohen LG, Hallett M, Geller BD, Hochberg F. Treatment of focal dystonias of the hand with botulinum toxin injections. *J Neurol Neurosurg Psychiatry* 1989;52:355-63.
- 5 Pratap-Chand R, Gourie-Devi M. Bruxism, its significance in coma. *Clin Neurol Neurosurg* 1985;87:113-7.

Internal carotid artery dissection and ipsilateral hypoglossal nerve palsy

Dissections of carotid and vertebral arteries are increasingly recognised in recent years as a cause of stroke and account for at least 5% of ischaemic stroke in young adults.^{1,2} High quality angiography has contributed to their improved recognition. The clinical picture of carotid dissection typically associates hemispherical symptoms with ipsilateral neck pain or

headache, and oculosympathetic paresis (Horner's syndrome). Minor forms are possible. We report a very unusual case in which internal carotid artery (ICA) dissection presented only with Horner's syndrome and hypoglossal nerve palsy.

A 48 year old normotensive man received a left cervical blow while fighting with fellow workers. He immediately experienced pain at the site of the blow that radiated to the head on the same side. Six days after he had difficulty in chewing but not with swallowing. There were no other complaints except for the pain.

Examination revealed a left Horner's syndrome. The tongue appeared to divert to the right at rest and to the left when protruded (fig 1a), revealing a left hypoglossal nerve palsy. Phonation and deglutition were unimpaired. The rest of the neurological examination was normal. There were no cervical bruits. The diagnosis of left ICA dissection in the neck was confirmed by the presence of a "string-sign" on left carotid angiography (fig 1b). Dissection was located approximately six cm above the carotid bifurcation, at the point at which the artery penetrates the bone.

CT scan of the brain showed no ischaemic lesion. An electromyogram of the tongue was

Fig 1a The tongue appears to divert to the right at rest and left when protruded.

Fig 1b Left carotid angiography showing a "string-sign" 6 cm above the carotid bifurcation.