Misdiagnosis of spasm of the near reflex

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Spasm of the near reflex is characterized by intermittent attacks of convergence, accommodation, and miosis. It typically affects young adults and is frequently psychogenic. The author describes the case of a 17-year-old female with spasm of the near reflex manifesting with headache, diplopia, reduced vision, esotropia, and limitation of abduction. The condition had been misdiagnosed as myasthenia gravis following a positive Tensilon test. This case re-emphasizes the importance of considering spasm of the near reflex in the differential diagnosis of any patient with esotropia associated with headache and reduced vision.

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Key words
accommodation, ocular – convergence, ocular – diagnosis, differential – hysteria – myasthenia gravis – reflex, pupillary

SPASM OF THE NEAR REFLEX is characterized by intermittent attacks of convergence, accommodation and miosis.[1] Typically, patients present with diplopia, blurred vision, and headache as well as ocular motility deficits, particularly bilateral limitation of abduction.[2] It is most commonly seen in the young-adult age-group and is frequently psychogenic. If one of the three signs (convergence, accommodation, and miosis), especially accommodation or miosis, is missed by an unsuspecting clinician, the patient may be subjected to an unnecessary, invasive, and expensive neurological work-up. This report is of a patient with spasm of the near reflex that was misdiagnosed as myasthenia gravis.

Case History

A 17-year-old female was admitted to the neurology ward at King Khaled University Hospital with a history of four months' duration of sudden onset of severe, mainly frontal, headache accompanied by intermittent attacks of reduced vision in both eyes, diplopia, and esotropia. She had undergone ophthalmic evaluation and extensive neurological work-up prior to referral, including lumbar puncture (LP), computerized tomography (CT) of the brain, and magnetic resonance imaging (MRI). The results of the neurological work-up were unremarkable.

A complete neurological work-up, including visual field, thyroid function and electromyogram, was performed at King Khaled University Hospital; all results were normal. Best corrected visual acuity (VA) was found to be counting fingers at 3 feet in both eyes; there was esotropia in both eyes and ocular motility tests showed severe bilateral limitation of abduction (Figure 1). The Tensilon test, however, was positive and acetylcholine receptor antibodies and striated muscle antibodies were negative. The patient was diagnosed to have ocular myasthenia gravis.

The patient was referred for ophthalmic evaluation. Her visual acuity, with her glasses on (OD –9.50 sphere, OS –8.25 sphere, prescribed elsewhere), was counting fingers at 3 feet in both

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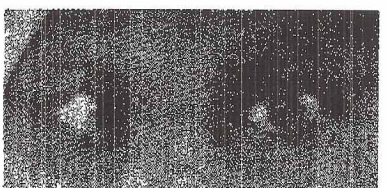

Figure 1a. Pre-treatment left gaze.

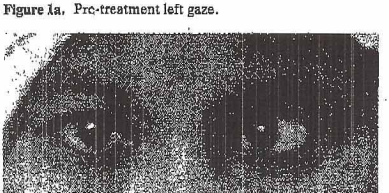

Figure 1b. Pre-treatment primary position.

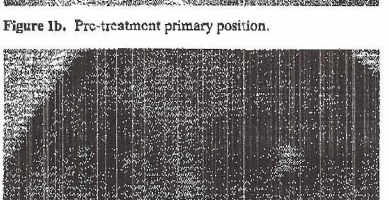

Figure 1c. Pre-treatment right gaze.

eyes. Ocular motility testing showed severe bilateral limitation of abduction but the pupils were noticed to be miosed with a diameter of 1.5 to 2 mm. Slit lamp examination was unremarkable.

Cyclopentolate 1% eye drops were instilled in both eyes in preparation for a fundus examination. Thirty minutes later, the patient noticed that her headache and diplopia had disappeared and her vision had improved. Subsequent examination showed both eyes to have VA of 20/20 without correction, full extraocular movement, and a normal fundus (Figure 2). Accordingly, a diagnosis of spasm of the near reflex was made. The patient was prescribed cyclopentolate 1% eye drops three times per day in both eyes and discharged from the hospital next day. The patient attended her last follow-up appointment one year later; she showed signs of recurrence upon any attempt to stop medication.

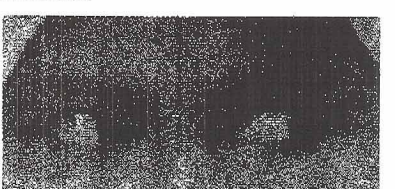

Figure 2a. Post-treatment left gaze.

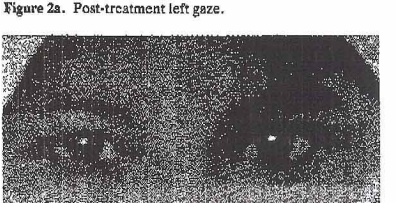

Figure 2b. Post-treatment primary position.

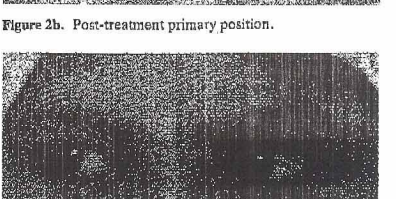

Figure 2c. Post-treatment right gaze.

Discussion

The near reflex consists of a triad of signs: miosis, accommodation, and convergence.[1] These three phenomena always occur together, whichever one is the primary disorder.[2] Spasm of the near reflex is most commonly a nonorganic neurological disturbance, usually occurring in young adults who also have some emotional

problems.[1] Treatment of this condition includes cycloplegia and reading glasses.[3,4] Glasses with the inner third of each lens opaqued have been tried with good results.[5] Others reported success in some cases with narcosuggestion.[6] Probably any modality of therapy that breaks the spasm of accommodation will have a beneficial effect.[7]

A number of reports describe spasm of the near reflex associated with organic neurological dysfunction such as labyrinthine dysfunction, toxic encephalopathy secondary to diphenylhydantoin overdose, head trauma, cerebellar tumor, and cerebrovascular accident.[8,9,10]

In the present case, the intermittent nature of the ocular muscle imbalance together with the absence of organic lesions and the false-positive Tensilon test suggested the diagnosis of myasthenia gravis. False-positive Tensilon tests have been reported in other conditions such as botulism, ocular myositis, Lambert-Eaton syndrome, orbital apex syndrome, pontine glioma, and polymyositis.[2,11,12,13]

The pathognomonic clue in this case that permitted spasm of the near reflex to be distinguished from myasthenia gravis was miotic pupils. The diagnosis was established on the basis of dramatic improvement after cycloplegia. To my knowledge, there have been only two cases reported in the literature of spasm of the near reflex being misdiagnosed as myasthenia gravis.[2]

This case re-emphasizes the importance of considering spasm of the near reflex in the differential diagnosis of any patient with esotropia associated with headache and reduced vision.

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