

6. Burke RE, Fahn S, Marsden CD, Bressman SB, Moskowitz C, Friedman J. Validity and reliability of a rating scale for the primary torsion dystonia. *Neurology* 1985;35:73-77.
7. Nygaard TG, Marsden CD, Duvoisin RC. Dopa responsive dystonia. In: Fahn S, Marsden CD, Calne D, eds. *Advances in neurology*, vol 50. New York: Raven Press, 1987:377-384.
8. Tolosa ES. Modification of tardive dyskinesia and spasmodic torticollis by apomorphine. Possible role of dopamine autoreceptors. *Arch Neurol* 1978;35:459-462.
9. Weiner WJ, Nausieda PA, Glantz RH. Meige's syndrome (blepharospasm-oro-mandibular dystonia) after long-term neuroleptic therapy. *Neurology* 1981;31:155-156.
10. Klawans HL, Tanner CL, Goetz CG. Epidemiology and pathophysiology of tardive dyskinesias. In: Jankovic J, Tolosa E, eds. *Advances in neurology*, vol 49: *Facial dyskinesias*. New York: Raven Press, 1988:185-197.
11. Micheli F, Fernandez Pardal MM, Gatto E, Paradiso G. Continuous dopaminergic stimulation in cranial dystonia. *Clin Neuropharmacol* 1988;11:241-249.

Unilateral Blepharospasm Stemming from a Thalamomesencephalic Lesion

To the Editor:

Initially, blepharospasm (BSP), both idiopathic and symptomatic, may have a unilateral predominance, although it soon becomes bilateral (1). Isolated unilateral BSP is distinctly unusual. We now report a patient with unilateral BSP associated with an ipsilateral upper brain stem lesion.

A 59-year-old hypertensive woman had a left thalamomesencephalic infarction after a subarachnoid hemorrhage. She recovered, except for left internuclear ophthalmoplegia, mild right hemiparesis, and right hemihypoalgesia. Angiography was normal. Dystonic spasms of the left eye first appeared 3 months after the stroke. On examination, they looked like sustained forceful contractions of the left orbicularis oculi and left frontalis muscles without associated spasms on the right. The spasms

ranged from seconds to minutes. They worsened with reading, blinking, and looking upward and gently diminished when talking. She was not aware of any "trick" that might partly suppress the severity of the contraction. There were no parkinsonian signs in the right extremities.

At that time, MRI brain scan showed two left thalamomesencephalic hypointensity signals on proton density-weighted images (TR 2,000, TE 40) mainly affecting thalamic anterior and red nuclei (Fig. 1). BSP persisted unchanged over the next 12 months. When the patient was reexamined 2 years later, BSP had spontaneously improved, but left "apraxia" of eyelid opening was evident after voluntary eye closure in such a way that she could not open the left eye for 10-20 s despite marked frontalis contracture.

Small, isolated lesions of the thalamomesencephalic region are known to be associated with both BSP (2) and hemidystonia (3,4). In contrast, secondary unilateral blepharospasm seems exceptional. We are aware only of the patient reported by Leenders et al. (5), in whom a rostral brain stem thalamic lesion was associated with ipsilateral BSP but also with contralateral hemidystonia and parkinsonism. It could be argued that our patient's symptoms more resemble a case of hemifacial spasm. Against this possibility, however, one must take into account the lack of clonias or spasms of the lower facial muscles, the results of the electrophysiologic testing, and the presence of involuntary eyelid levator inhibition, a supranuclear disorder of lid opening that frequently accompanies BSP (6) but, to our knowledge, is not seen in hemifacial spasm.

We have no definitive explanation to offer for the unilateral presentation of BSP in this case, and no explanation was given in Leender's case (5). The mesodiencephalic region, however, is likely to be the main anatomical basis of symptomatic BSP, either bilateral or unilateral. Further reports would contribute to determining the circumstances in which the facial nuclear complex that subserves the orbicularis oculi and the levator subnucleus, deprived of corticobulbar or basal ganglia input, causes ipsilateral BSP and levator inhibition.

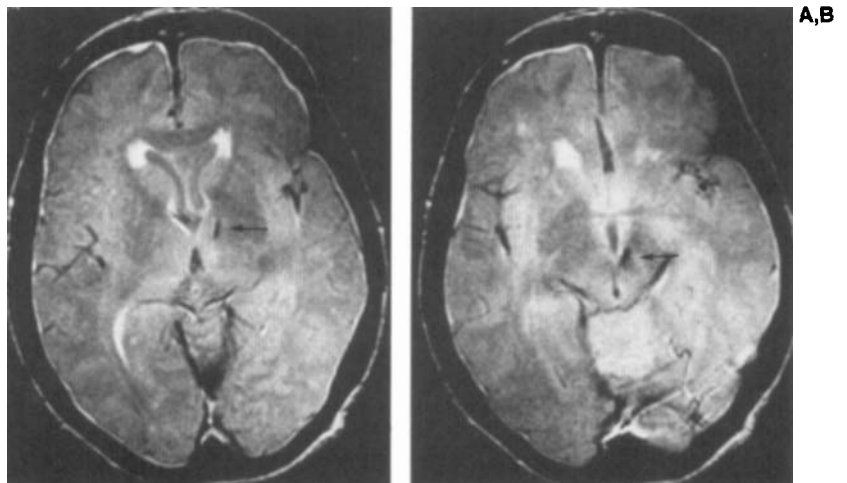


FIG. 1. Magnetic resonance images of the thalamomesencephalic region showing two areas of low signal intensity (arrows) mainly corresponding to left anterior thalamic nuclei (A) and left red nuclei (B). Bilateral, symmetrical, large periventricular (subependymal), high signal intensity areas are also seen (General Electric 1.5 Tesla; TR 2,000, TE 40).

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References

1. Tolosa E, Kulisevsky J, Fahn S. Meige syndrome: primary and secondary forms. *Adv Neurol* 1988;50:509-515.
2. Jankovic J and Patel SC. Blepharospasm associated with brainstem lesions. *Neurology* 1983;33:1237-1240.
3. Marsden CD, Obeso JA, Zarranz JJ, Lang AE. The anatomical basis of symptomatic hemidystonia. *Brain* 1985;108:463-483.
4. Pettigrew LC, Jankovic J. Hemidystonia: a report of 22 patients and a review of the literature. *J Neurol Neurosurg Psychiatry* 1985;48:650-657.
5. Leenders KL, Frackowiak RSJ, Quinn N, Brooks D, Sumner D, Marsden CD. Ipsilateral blepharospasm and contralateral hemidystonia and parkinsonism in a patient with a unilateral rostral brainstem-thalamic lesion: structural and functional abnormalities studied with CT, MRI, and PET scanning. *Mov Disord* 1986;1:51-58.
6. Tolosa E, Kulisevsky J, Martí MJ. Apraxia of lid opening in essential blepharospasm. *Neurology* 1987;37(suppl 1):273.

Acetazolamide Therapy of Menstrual-related Fluctuations in Parkinson's Disease

To the Editor:

In 1986, Quinn and Marsden (1) reported menstrual-related fluctuations in 11 of 12 premenopausal women with Parkinson's disease (PD). The cause of this deterioration of their condition was unclear, and no treatment recommendations were given. Perimenstrual worsening of other neurologic disorders has been described in the literature, with particular emphasis on epilepsy and migraine. Both disorders have been treated at some time with diuretics, most notably the carbonic anhydrase inhibitor acetazolamide (2,3). Based on these empirical uses of the drug, one PD patient was given acetazolamide in an attempt to improve menstrual-related worsening of her disorder.

Case Report

The patient, a 38-year-old woman, had onset of PD at the age of 30. It began with right-hand tremor, stiffness, and difficulty buttoning buttons. When she was 31, examination found tremor in her right hand, bilateral cogwheel rigidity, masked face, and a normal gait. Workup for secondary parkinsonism was negative. Carbidopa/levodopa (C/L) was started in October 1984. Treatment was switched to bromocriptine shortly thereafter but then restarted a year later because of worsening of symptoms. The bromocriptine was eventually stopped.

She was seen for the first time at the Albany Medical College Movement Disorder Clinic in 1988 at the age of 35. She was taking 25/100 C/L every 3 h for five doses and

25 mg doxepin qhs. She had recent onset of wearing-off and peak-dose dyskinesia. C/L was cut to 4 tablets per day because of the dyskinesia, and soon thereafter amantadine was added. Improvement of both complications was observed, but within a year the C/L dose had to be increased. It was administered every 3 h for a total of 5 tablets per day. Her Unified Parkinson's Disease examination scale scores ranged from 0 to 6 on various visits that year.

In July 1989 the patient began experiencing a worsening of parkinsonism 3 days before her menstrual period. It lasted until 2-3 days after her menstrual period began, or for a total of 5-6 days. She noted a worsening of parkinsonism overall, with increasing bradykinesia, rigidity, and a shuffling gait, which had not been previously experienced. Wearing-off phenomena became more prevalent as the medication wore off more quickly and "off" periods became prolonged. She was examined on one occasion around the time of her menstrual period, and her Unified Parkinson's Disease examination score while "on" was 13. During the previous visit, which was not during a menstrual period, it was 4.

Acetazolamide, 500 mg per day, was started in late 1989. She would take the medication 3 days before her menstrual period and continue it for 5 days. No other medication changes were made. This treatment improved her menstrual-related fluctuations dramatically. The worsening that she suffered perimenstrually did not occur on many occasions and was much less severe when it did. The wearing-off phenomenon, which was generally controlled on C/L every 3 h, continued to be controlled around her menstrual period. By the end of the first year of treatment she began to notice a mild recurrence of the problem and increased the number of days on acetazolamide to 12 (10 days before her menstrual period and 2 days during). This schedule again improved her condition. After 2 years the menstrual-related fluctuations continued to be well controlled on this dosage regimen.

Discussion

The symptoms of the patient reported here were very similar to those of cases described by Quinn and Marsden (1). She had worsening of the parkinsonian symptoms 3 days before the onset of menstruation, lasting 5-6 days and including a general worsening of PD symptoms and of the wearing-off effect, with a prolongation of "off" periods. The deterioration was significant, even greater than the 50% previously described (1). The cause of these changes is unclear. Some speculation suggests a direct relationship to the drop in estrogen levels during this time in the menstrual cycle. However, a worsening of PD was considered to be paradoxical. It also could be related to central neurotransmitter changes that occur simultaneously (1).

This patient reported a good response for ~2 years when treated with acetazolamide, 500 mg per day. The drug was not withdrawn to ensure a cause and effect relationship. However, perimenstrual changes worsened over time. The number of days requiring treatment increased from 5 to 12 after a year, and this alteration led to further improvement—suggesting that the acetazolamide