The Other Babinski Sign in Hemifacial Spasm

William Stamey, MD, Joseph Jankovic, MD

Parkinson's Disease Center and Movement Disorders Clinic,
Department of Neurology, Baylor College of Medicine, Houston, Texas

ABSTRACT

Objective: To assess the frequency of the other Babinski sign among patients with hemifacial spasm (HFS), and determine its use in differentiating HFS and blepharospasm (BSP).
Background: The other Babinski sign, described by Joseph Babinksi in 1905, is manifested by simultaneous eye closure and eyebrow elevation. The utility of the sign in differentiating HFS and BSP has not been systematically studied. We sought to characterize the frequency, sensitivity or specificity of this finding.
D**esign/Methods:** Patients included were diagnosed with HFS (n=75; 45 women) or BSP (n=73; 50 women), and videotaped. HFS was clinically diagnosed with the presence of unilateral involuntary facial muscle contractions affecting one or more muscle groups innervated by the ipsilateral facial nerve. Patients with BSP had bilateral contraction of periorbital muscles without other associated facial or oromandibular dystonia. A patient was considered positive for the presence of the other Babinski sign if the videotape showed unilateral contraction of the frontalis muscle, causing eyebrow elevation, with concurrent contraction of the ipsilateral orbicularis oculi muscle, causing eyelid closure. Patients with unilateral frontalis contraction but not concurrent eye closure were excluded, as such contraction may have been compensatory (voluntary) as in patients with BSP, rather than involuntary as typically observed in patients with HFS.
Results: The other Babinski sign was present in none of the BSP patients but was evident in 19 (25.3%) of the HFS patients (10 women). The sensitivity of the other Babinski sign as a test of the presence of HFS was 25.3%; whereas specificity for the presence of the sign, compared with BSP, was 100%.
Conclusions/Relevance: The other Babinski sign, found in 25% of our cases of HFS, but not in any of the cases of BSP, is an under-recognized physical sign which can be used to distinguish HFS from BSP.

INTRODUCTION

- Rarely attributed to Babinski is a phenomenon observed in patients with hemifacial spasm (HFS), which he first described in 1905.
- This "other Babinski sign"[1] is manifested as follows: "when orbicularis oculi contracts and the eye closes, the internal part of the frontalis contracts at the same time, the eyebrow rises during eye occlusion," "this set of occurrences is impossible to reproduce by will ..."[2]
- In this study we examined the utility of the "other Babinski sign" in differentiating HFS from blepharospasm (BSP).

METHODS

All patients who presented to the Baylor College of Medicine Movement Disorders Clinic between July, 1989 and July, 2006 and were diagnosed with HFS or BSP by a movement disorders expert were included in this study.

RESULTS

Mean age at the time of initial evaluation for 75 patients with HFS (45 women) was 58.4 ± 12.2 years; and for the 73 patients with BSP (50 women) was 58.2 ± 12.5 years.

Patients with hemifacail spasm demonstrating the "other Babinski sign" manifested by elevation of the eyebrow caused by contraction of the frontalis muscle ipsilateral to the facial spasm.

DISCUSSION

- HFS is a peripherally-induced movement disorder characterized by irregular, clonic, or tonic contraction of the muscles of the face innervated by the ipsilateral seventh cranial nerve.[3]
- In HFS, twitching commonly begins in the orbicularis oculi, but usually spreads to involve muscles of the upper and lower face, including the platysma muscle and may rarely become bilateral.
- HFS is typically idiopathic or sporadic, usually attributed to compression of the facial nerve at the root entry zone by an aberrant artery.
- BSP, a form of focal dystonia of central origin, is a forceful, involuntary, spasmodic contraction of the orbicularis oculi which may occur in isolation or in combination with other dystonic contractions, including other facial muscles.
- The combination of BSP and dystonia of other facial or jaw muscles is referred to as craniocervical dystonia (formerly known as Meige's syndrome).[5]

CONCLUSIONS

The "other Babinski sign" is an under-recognized and useful physical sign which may be present in HFS, and is therefore helpful in distinguishing this disorder from BSP, wherein the sign is not reported. "The other Babinski sign" is not seen in BSP, presumably due to the fact that the motor neuron pools for orbicularis oculi and frontalis muscles have different patterns of suprasegmental innervation. In the case of HFS, however, the co-contraction of these muscles presumably reflects a peripheral co-activation. This "other Babinski sign" should be differentiated from the compensatory frontalis muscle contraction that may occur in patients with ptosis, such as seen in myasthenia gravis.6

REFERENCES

1. Devoize J L. "The other" Babinski's sign: paradoxical raising of the eyebrow in hemifacial spasm. J Neurol Neurosurg Psychiatry 2001;70:516.
2. Babinski J. Hémispasme facial périphérique. Nouvelle iconographie de la Salpétrière. 1905;18:418-423.
3. Wang A, Jankovic J. Hemifacial spasm: clinical findings and treatment. Muscle Nerve. 1998;21:1740-1747.
4. Jankovic J. Dystonic disorders. In: Jankovic J, Tolosa E, editors. Parkinson's disease and movement disorders, 5th edition, Philadelphia, PA: Lippincott Williams and Wilkins 2007:321-347.
5. Jankovic J, Ford J. Blepharospasm and orofacial-cervical dystonia: clinical and pharmacological findings in 100 patients. Ann Neurol. 1983;4:402-411.
6. Toyka KV. Ptosis in myasthenia gravis: Extended fatigue and recovery bedside test. Neurol. 2006;67;1524.