



Convergence Spasm in Conversion Disorders: Prevalence in Psychogenic and Other Movement Disorders Compared to Controls

Robert Fekete, MD, Baizabal-Carvallo Jose Fidel, MD, Ha Ainhi D. MBBS FRACP, Joseph Jankovic, MD

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

ABSTRACT

OBJECTIVE: To characterize the frequency and severity of convergence spasm in patients with psychogenic and other movement disorders and in healthy controls, and to assess whether an association exists between convergence spasm and psychogenicity.

METHODS: 36 subjects were included in this study, including 12 normal controls (age 52.0±14.7), 13 psychogenic movement disorders patients (age 38.9±17.8), and 11 organic movement disorder cases (age 58.5±18.5). Patients were videotaped during a maneuver to elicit convergence spasm, which involved fixation of gaze to a target in the horizontal plane. The videotape was rated by two blinded raters on a scale of 0=normal, 1=mild convergence spasm, and 2=marked convergence spasm.

RESULTS: Diplopia was reported by 7/13 (54%) psychogenic, 5/11 (45%) organic movement disorder cases, and by 2/12 (17%) of controls. Inter-rater reliability analysis of presence (rating 1 or 2) vs. absence (rating 0) showed good agreement (27/36 or 75%; Kappa 0.491, SE 0.141, p=0.002). Convergence spasm was present in 9/10 (90%) of psychogenic movement disorders cases, 4/8 (50%) of non-psychogenic movement disorders cases (p=0.088), and 4/9 (44%) of controls (p=0.049). Analysis for presence of marked convergence spasm (rating 2) yielded agreement in 32/36 (88.9%) of examinations (Kappa 0.652, SE 0.154, p<0.001) with specificity of 85% (sensitivity of 17%).

CONCLUSIONS: The presence of marked convergence spasm indicates high probability of a co-existent psychogenic movement disorder with relatively high specificity, suggesting that the presence of this sign provides additional support for the diagnosis of psychogenic movement disorder.

INTRODUCTION

Convergence spasm refers to the inappropriate occurrence of the near triad, consisting of ocular convergence, miosis, and accommodation, in variable degree and duration. Although convergence spasm may be present in the setting of midbrain pathology and other organic lesions, the majority of cases are generally thought to be associated with conversion (somatization) disorders^{1,2} and are often found in young patients with psychogenic disorders. Patients presenting with convergence spasm may be subjected to unnecessary invasive workup.

METHODS

The presence of normal conjugate gaze at rest and in all directions of movement was ascertained by asking the patient to follow the examiner's finger. Also, a degree of vergence was determined by asking the patient to focus on the examiner's tip of the finger while the finger was moved closer and closer to the patient's tip of the nose. The subjects were then instructed to watch and count stripes as an optokinetic tape was moved by the examiner in both horizontal and vertical directions.

To elicit convergence spasm, the subject was asked to focus on the examiner's finger, with the tip at about 10 cm away from the face, at either extreme lateral gaze for 5 seconds. The examiner's finger was then slowly brought about 10-20 degrees from the extreme lateral gaze toward the midline and the presence or absence of disconjugate gaze and miosis was noted. The patients were asked if diplopia was present.

The oculomotor examination was videotaped and the video segments were later edited, randomized, and presented to two independent raters (J.F.B.C. and A.H) who were "blinded" to the diagnosis. They then rated the videotaped examination on the three-point scale of 0=normal, 1=mild convergence spasm, and 2=marked convergence spasm. Inter-rater reliability was evaluated by Cohen's Kappa using SPSS software (Cohen 1960). The same method was used for analysis of absent (0) versus present (1 or 2) convergence spasm and absent or mild (0 or 1) versus marked convergence spasm (2).

RESULTS

■ 36 subjects were included in this study, including 12 normal controls (age 52.0±14.7), 13 psychogenic movement disorders patients (age 38.9±17.8), and 11 organic movement disorder cases (age 58.5±18.5). Horizontal diplopia during the maneuver to elicit convergence spasm was reported by 7/13 (54%) psychogenic, 5/11 (45%) non-psychogenic movement disorders patients, and by 2/12 (17%) controls.

■ Convergence spasm was present in 9/13 (69%) of psychogenic movement disorders cases, 4/11 (36%) of non-psychogenic movement disorders cases, and 4/12 (33%) of controls. There was an agreement on convergence spasm scores by the two raters in 24/36 (66.7%) of examinations (Cohen's Kappa of 0.484, SE 0.121, p<0.001).

■ Classification by presence (rating 1 or 2) versus absence (rating 0) showed good agreement (27/36 or 75%; Kappa 0.491, SE 0.141, p=0.002).

■ Analysis for presence of marked convergence spasm (rating 2) yielded agreement in 32/36 (88.9%) of examinations (Kappa 0.652, SE 0.154, p<0.001), with specificity of 87% and sensitivity of 15%.

■ Chi squared test of the psychogenic movement disorders group versus healthy and organic moving disorders groups under the same classification yielded p=0.0499.

■ The Fisher's exact test trended toward significance with p=0.081 for a comparison of the three groups classified as absent (0) versus present (1 or 2).

Figure 1. Subgroup characteristics

	Psychogenic movement disorders	Non-psychogenic movement disorders	Controls
n	13	11	12
Age Standard deviation	38.9±17.8	58.5±18.5	52.0±14.7
% female	85%	73%	58%

Figure 2. Rating Scale



A	0	No Convergence Spasm
B	1	Mild Convergence Spasm
C	2	Marked Convergence Spasm

CONCLUSIONS

- The presence of marked convergence spasm indicates high probability of a co-existent psychogenic movement disorder with a relatively high specificity.
- The presence of this sign provides additional support for the diagnosis of psychogenic movement disorder.

REFERENCES

1. Stone J. Functional symptoms in neurology. Pract Neurol. 2009; 9: 179-89.
2. Thomas M, Jankovic J. Psychogenic movement disorders: diagnosis and management. CNS Drugs. 2004; 18: 437-52.