Chiropractic Care of a 10-Year-Old Boy With Nonorganic Gait Disorder: A Case Report

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ABSTRACT

Objective: The purpose of this case report is to describe the multidisciplinary management of a boy with nonorganic gait disorder.

Clinical Features: A 10-year-old boy presented to a chiropractic clinic having had a concussion 1 week prior. He presented with lower limb muscle weakness and ataxia while weight bearing. He was referred immediately to the emergency department, from which he was sent to a neurologist at a children's hospital. The neurologist's diagnosis was nonorganic gait disorder.

Intervention/Outcome: Treatment consisted of physiotherapy, occupational therapy, and a psychiatric assessment. Chiropractic care including manipulative therapy was initiated 6 months after diagnosis. After 1 year, the gait disorder was resolved.

Conclusion: The addition of chiropractic care to conventional treatment may have been supportive in the recovery process for this patient. The condition required 1 year to resolve, with questions remaining as to whether the symptom resolution was a result of treatment or natural history. (J Chiropr Med 2017;16:175-179)

Key Indexing Terms: *Postconcussion Syndrome; Chiropractic; Psychomotor Disorders*

INTRODUCTION

Nonorganic gait disorder (NOGD) is a heterogeneous group of movement disturbances that are inconsistent and incongruous with organic gait disorders and may be associated with underlying psychiatric disease.[1] The diagnosis is made after examination fails to reveal any organic source for the presentation of a condition that follows some form of emotional or physical trauma. There are established gait patterns associated with different conditions. Nonorganic gait disorder does not fall into any of the categories and may commonly present as a hybrid combination of several different gait patterns. The condition is usually relieved with psychotherapy, but a certain percentage of cases do not respond to traditionally established treatment.[2]

Nonorganic gait disorder presents as an uncommon and challenging clinical entity. Part of that challenge seems to be simply in applying a label to the disorder. This condition may be also termed psychogenic movement disorder, conversion disorder, functional movement disorder, and conversion motor paralysis disorder. An accurate diagnosis is essential to rule out organic disease as a cause for the gait disorders. The purpose of this paper is to describe a case of a patient with NOGD that developed after mild head trauma.

CASE PRESENTATION

Presenting Concerns

A 10-year-old boy presented to a chiropractic clinic with complaints of leg weakness 5 days after hitting his head while swimming. He was previously seen after his injury in the emergency department for neck pain, tingling of the left index finger, dizziness, bilateral blurred vision, and unsteady gait. He did not report having any signs of confusion, dizziness, fever, or headache. His mother stated that the emergency department personnel diagnosed him with a concussion and sent him home. Over the next several days he developed progressive foot numbness and difficulty with walking. He was eventually unable to walk without assistance and was unable to attend school.

On observation at the chiropractic clinic, he displayed an unusual gait pattern. He appeared not able to support himself without legs buckling beneath him while walking. Because of the abrupt and potentially serious nature of the presentation, further examination was not performed at that time. The patient's mother was instructed to return him

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immediately to the emergency department for a neurologic assessment and follow-up to rule out any organic condition.

Diagnosis and Follow-Up

At the emergency department, the medical physician ordered a head computed tomography examination and head and spine magnetic resonance imaging. Differential diagnosis included an intraspinal mass lesion, intracranial lesion/hematoma, myelitis, and a neurologic organic lesion. The imaging was read as normal and the patient was referred for physiotherapy. Over several weeks he did not respond with treatment and was referred to Vancouver Children's Hospital for further workup by a medical neurologist. While at Vancouver Children's Hospital the patient was also assessed by a physiotherapist, occupational therapist, and psychologist. He was found to have normal strength and coordination in his upper extremities. Strength was normal in his lower extremities while on the bed, but the atypical gait persisted. He was unable to walk with a 4-wheeled walker but could support his body weight if he did not attempt to walk. He was only able to take several steps with assistance but appeared to wobble extensively. He was able to transfer from the bed to chair normally and had no obvious abnormal movements while supine or seated. Besides difficulty with walking, the only other abnormality found was poor coordination in heel to shin testing. The condition was subsequently diagnosed by a neurologist as nonorganic gait disorder.

The patient continued to be seen by a multidisciplinary team of health professionals for 6 months. The physiotherapist used exercise and movement therapy to maintain muscle tone and coordination. Slings with walkers and a treadmill were used to encourage the patient to use his muscles in a functional manner. Throughout that time there was little change in his condition.

Six months after the initial injury, his mother brought him into our clinic for a chiropractic assessment. The history and physical findings did not change from the initial presentation. The family did not see improvements occurring with the existing treatment protocol and subsequently sought alternative treatment with chiropractic care. While he was seated in his wheelchair he could lift his legs and move them normally. Reflexes, sensation, and lower limb strength were all equal and normal. He could transfer himself from his wheelchair to the table displaying good upper and lower body strength, and he was able to position himself without assistance into a prone position. However, he was still unable to walk on his own, displaying a bizarre leg-collapsing gait. Examination of the spine revealed mild tenderness and joint restriction in the thoracolumbar and lumbar regions, providing an indication for the use of chiropractic manipulative therapy (CMT).

The patient was seen 4 times over a 1-week period and received CMT to the tender dysfunctional segments of the lumbar and thoracic spine. The treatment consisted of side posture and supine manipulation to the indicated segments. In this specific case, manual treatment was applied as CMT (specific direction of thrust creating cavitation) directed to the T10-12 and L 4/5 segments. The patient and mother were not given any guarantees of success but were advised of the possibility that the leg weakness may be related to spinal dysfunction.

At the end of that week the patient took his first unassisted steps in 6 months. His mother reported that he was able to walk normally 2 weeks later. He then continued to steadily improve and within a month was able to participate in a limited capacity at soccer practice. He continued to be seen once per month for the next 3 months; however, there was no report of spinal discomfort or indication for further treatment at that time. Within a month after treatment his mother reported that his running was significantly improved but had not fully returned to normal. During follow-up examinations at 6 months and 1 year later he maintained normal functioning. The patient and parent gave consent for the publication of this case study.

Discussion

To the author's knowledge, this is the first case study reporting the chiropractic management of a child with NOGD. Nonorganic gait disorder is an uncommon and diagnostically challenging consequence to physical or psychological trauma. The accepted treatment protocol involves the use of a neurologist, psychologist, physiotherapist, and occupational therapist. A large percentage of these patients respond well to the treatment if they are diagnosed in a timely manner. There remain a certain percentage of patients with the condition who do not respond well or at all. There is also a wide range in recovery time, which may indicate that a certain amount of the resolution is by natural history.

The frequency of NOGD ranges from 2% to 4% in adults and 2% to 3.1% in children, with some authors claiming that frequency to be higher at 2% to 15%.[3] Most episodes of NOGD are sudden in onset and are precipitated by a physical or psychological event.[1] Although NOGD is described reasonably well in the literature with regard to adults, there is a paucity of information of the condition in children.[1-9] Nonorganic gait disorder is very uncommon before 10 years of age. However, some authors state that the mean onset age for NOGD is 11.5 years but that 38% of their patients were under the age of 10 years.[1] The datum indicates that there is a female predominance particularly after the onset of adolescence.[3]

The etiology of NOGD appears to be intricately related to a physical or psychological trauma.[6,8,10] In addition to traumatic etiology one must also consider other precipitating factors such as "childhood experience, life events,