Journal of Neurological Disorders

J Neurol Disord
Volume 10:11, 2022

Case Report Open Access

Spinal Myoclonus due to Cervical Disc Herniation: A Case Report

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Abstract

Background: Spinal myoclonus is a rare movement disorder characterized by myoclonic involvement of a group of muscles supplied by a few contiguous segments of the spinal cord.

Case presentation: We present here a case of 35 year old male with spastic paraparesis for two months associated with involuntary spontaneous abdominal contractions, accompanied by involuntary jerks of his legs. MRI findings pointed C3-C4 of disc herniation. He was treated with infusion dose of diazepam (0.1 mg/kg) and levetiracetam 500 mg twice daily with marked improvement of the jerky movement.

Conclusion: It is rare spinal myoclonus due to cervical disc herniation. We reported a male with C3-C4 of disc herniation as the origin of the myoclonus.

Keywords: Spinal myoclonus • Disc herniation • Motor • Abdomen

Introduction

Spinal myoclonus is a rare movement disorder characterized by myoclonic involvement of a group of muscles supplied by a few contiguous segments of the spinal cord. Structural lesions are usually the cause, but in primary spinal myoclonus the etiology remains unknown [1]. It has been postulated that it occurs as a result of deficient inhibitory glycinergic transmission in the spinal cord and subsequent "release" of synchronous motor neurone oscillations within segments of the cord [2]. We present the case of a 35 year old male with cervical spinal myoclonus in which both clinical and Magnetic Resonance Imaging (MRI) findings pointed to the segment C3-C4 of disc herniation as the origin of the myoclonus. Laboratorial examinations were normal [3-5].

Case Report

A 35 year old male came in our neurology department with weakness of both lower limbs for two months; there is no urine and fecal incontinence, no constipation. There was no significant previous medical history of neurological illness. He had not used any drugs in the past or recently. General physical examination was normal. On neurological examination, he is conscious alert and oriented, cranial nerve examination is normal. Motor power of both lower extremities are 3/5, and upper extremities 4/5 bilaterally; sensation is normal, he had also been troubled by spontaneous involuntary abdominal contractions, accompanied by involuntary jerks of his legs. The contractions were rhythmic, bilateral and with a rate of approximately 100–200/min. No myoclonus was observed in the tongue. There was no vocalization.

Laboratorial examinations were normal. Magnetic resonance imaging (MRI) of the cervical spine revealed posterior central protrusion disc herniation in the C3-4 disc (Figure 1). At this level the spinal cord is pressed. C3-4 Vertebral corpus corners showed osteophytic tapering. MRI of the brain, throcal and lumbar were normal.

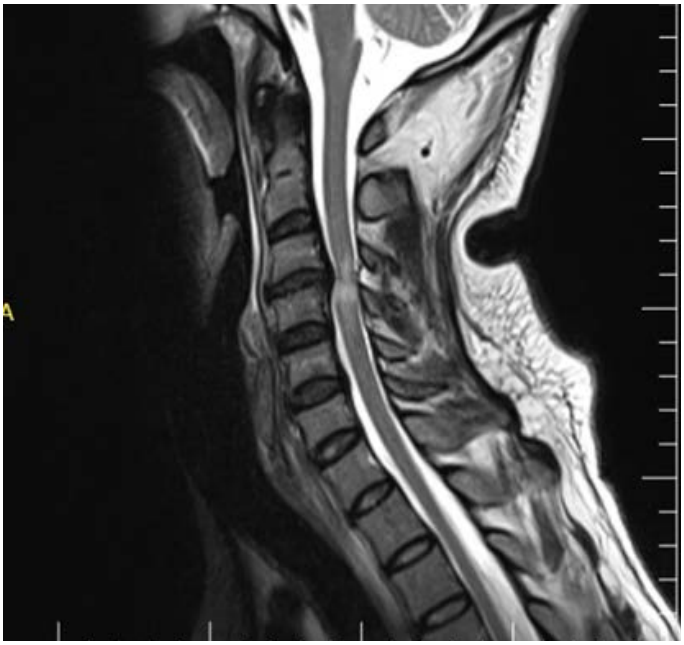

Figure 1. Cervical MRI: Posterior central protrusion disc herniation in the C3-4 discC3-4Vertebral corpus corners showed osteophytic tapering.

He was treated with infusion dose of diazepam (0.1 mg/kg) with minimal improvement. He was then started on levetiracetam 500 mg twice daily with marked improvement of the jerky movement. On examination, the myoclonic jerk frequency in his abdomen and lower extremities had decreased to 10-20/min.

Discussion

Pathophysiologically, myoclonus can be broadly classified as cortical, subcortical, cortical-subcortical, segmental, or peripheral [6]. In the segmental type, lesions placed at different locations along the neuraxis may be the cause. When the presumed cause is in the spinal cord, it is called spinal myoclonus. Glycine is a major inhibitory neurotransmitter in the spinal cord, and it has been postulated that deficient inhibitory glycinergic transmission results in dysfunction of segmental spinal cord

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Received: 01-November-2022, Manuscript No. jnd-22-63134; **Editor assigned:** 03-November-2022, PreQC No. P-63134 (PQ); **Reviewed:** 17-November-2022; QC No. Q-63134; **Revised:** 22-November-2022; Manuscript No. R-63134 (R); **Published:** 29-November-2022, **DOI:** 10.4172/2329-6895.10.11.526

circuitry, and hence a myoclonic focus in the spinal cord. This postulate is based on studies of animal models of myoclonus [2] and an *in vitro* model of spinal myoclonus. In a recently published study, levetiracetam was used successfully to treat three patients with posthypoxic and postencephalitic myoclonus, two of whom had failed to respond to valproic acid and clonazepam [6,7].

Our case was reported a 35 year old male with spastic paraparesis and spinal myoclonus due to posterior central protrusion disc herniation in the C3-4 disc, improved after giving loading dose of diazepam and levetiracetam later, and then decreased the myoclonic jerk frequency in his abdomen and lower extremities. So, it is a rare to develop spinal myoclonus due to cervical disc herniation, and is reported few cases in the literature.

Conclusion

We reported here a case of a 35 year old male with cervical spinal myoclonus in which both clinical and Magnetic Resonance Imaging (MRI) findings pointed to the segment C3-C4 of disc herniation as the origin of the myoclonus, and successfully treated with diazepam and lavetiracetam. So, it is a rare to develop myoclonus due to cervical disc herniation.

Funding

This case report not funded by any organization or institution, it is granted as case report publication from the hospital.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor in Chief of this journal on request.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflict of Interest

The authors declare no conflict of interest.

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How to cite this article: Sidow, Nor Osman and Hassan MS. “Spinal Myoclonus due to Cervical Disc Herniation: A Case Report.” *J Neurol Disord*. 10 (2022):526.