CASE REPORT

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Propriospinal Myoclonus in a Patient with Thoracic Disc Protrusion While Awaking from General Anesthesia: A Case Report

Torasik Disk Protrüzyonu Olan Bir Hastada Genel Anesteziden Uyanırken Görülen Propriospinal Miyoklonus: Olgu Sunumu

Melek KANDEMİR YILMAZ

Bodrum American Hospital, Clinic of Neurology, Muğla, Turkey

ABSTRACT

Propriospinal myoclonus (PSM) is a rare clinical phenomenon that is mostly idiopathic but may be secondary to a spinal lesion. A patient who experienced PSM while awaking from general anesthesia, and who had thoracic disc protrusion, was presented. A 32-year-old male patient was taken to the dental procedure under general anesthesia. Arrhythmic flexion of the axial muscles was observed one to two times per second during and after the awaking phase. And neck flexion accompanied these movements about every ten seconds. The abnormal movements were decreased in amplitude and frequency and resolved spontaneously in about an hour. His examination and blood tests were normal, including infections. Thoracal magnetic resonance imaging with contrast agent showed left paramedian disc protrusion at the T7-T8 level. It should be kept in mind that these types of abnormal movements can be seen after anesthesia. When this is the case, structural lesions such as thoracic disc herniation should be eliminated.

Keywords: Propriospinal myoclonus, thoracic disc protrusion, general anesthesia, case report

ÖZ

Propriyospinal miyoklonus (PSM), çoğunlukla idiyopatik olan ancak spinal bir lezyona sekonder de görülebilen nadir bir klinik fenomendir. Bu çalışmada genel anesteziden uyanırken PSM gözlenen ve nörogörüntülemede torakal disk protrüzyonu saptanan bir olgu sunuldu. Otuz iki yaşında erkek hasta genel anestezi altında diş tedavisine alınmıştı. Uyanma fazı sırasında ve sonrasında aksiyal kasların saniyede bir ila iki kez aritmik fleksiyonu gözlendi. Yaklaşık her on saniyede bir bu hareketlere boyun fleksiyonu eşlik etti. Anormal hareketler yaklaşık bir saat içinde amplitüd ve frekans olarak azalarak kendiliğinden düzeldi. Muayenesi ve enfeksiyon tetkikleri dahil kan testleri normaldi. Kontrast madde kullanılarak yapılan torakal manyetik rezonans görüntülemede T7-T8 seviyesinde sol paramedian disk protrüzyonu izlendi. Anestezi sonrası bu tür anormal hareketlerin görülebileceği akılda tutulmalıdır. Bu tür durumlarda torasik disk hernisi gibi yapısal lezyonlar ekarte edilmelidir.

Anahtar Kelimeler: Propriyospinal miyoklonus, torakal disk protrüzyonu, genel anestezi, olgu sunumu

INTRODUCTION

Propriospinal myoclonus (PSM) is a rare clinical phenomenon that was first described by Brown et al.[1] in 1991. It is a type of spinal myoclonus with brief, repetitive, and mainly arrhythmic flexor axial jerks that usually spread to knees, hips, and neck as a result of slow propagation up and down the spinal cord. Cranial muscles are usually not involved. PSM is idiopathic in almost 80% of patients but it may be functional or secondary to a spinal lesion[2-4]. The myoclonic generator is most commonly at the thoracic level. The jerks in symptomatic PSM usually last between 100 and 300 ms. The jerks are seen in the supine position and wake-sleep transition, which is thought to reduce

Address for Correspondence: Melek KANDEMİR YILMAZ MD, Bodrum American Hospital, Clinic of Neurology, Muğla, Turkey
Phone: +90 505 232 54 78 **E-mail:** melekkandemir@gmail.com **ORCID ID:** orcid.org/0000-0001-7751-2002
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sleep-related spinal inhibition and resulted from the activation of generators[4].

Although acute onset PSM may be associated with a spinal lesion, there is a wide spectrum of secondary causes including ischemic myelopathy, cervical tumors, dural arteriovenous fistula, neuromyelitis optica, syringomyelia, cervical/lumbar disc pathologies with or without myelopathy, infections such as herpes zoster, neuroborreliosis, inflammation, drugs such as interferon, ciprofloxacin, intrathecal bupivacaine, and multiple drugs for cesarean section[2,4].

In the present study, a case who experienced PSM while awaking from general anesthesia and had thoracic disc protrusion was presented.

CASE REPORT

A 32-year-old male patient was taken to the dental procedure under general anesthesia. Midazolam 2 mg was administered as premedication. Remifentanil 50 mcg, diprivan 200 mg, and rocuronium bromide 40 mg were administered for induction in the supine position. Remifentanil 0.1-0.2 mcg/kg/h and sevoflurane 1% mL/min were administered during the procedure. The procedure lasted about two hours. His vital parameters were stable during the anesthesia and the awaking phase. Arrhythmic flexion of the axial muscles was observed one to two times per second during and after the awaking phase. And neck flexion accompanied these movements about every ten seconds. The abnormal movements were decreased in amplitude and frequency and resolved spontaneously in about an hour. Other drugs administered to the patient were dexketoprofen, cefamezine 1 g, ranitidine, atropine 0.5 mg, and neostigmine 1.5 mg. His vital parameters were as follows; blood pressure: 146/87 mmHg, pulse: 90/min, SpO_2: 99%, temperature: 36.3 °C while the abnormal movements were observed. There was no history of any disease or drug abuse. There was no history of autoimmune diseases in his family. The blood tests were normal, including infections. Thoracal magnetic resonance imaging (MRI) with contrast agent showed left paramedian disc protrusion at the T7-T8 level and diffuse bulging at the T11-T12 level (Figure 1). There was a wide-based disc protrusion at the L5-S1 level. No space-occupying, demyelinating lesion, or fistula was seen.

DISCUSSION

Although it is predominantly seen in middle-aged males, symptomatic PSM is seen mostly in females[2-4]. PSM is frequently stimulus sensitive and may originate from the propriospinal pathways, while the role of this pathway has not yet been confirmed in humans[2,3]. Electrophysiological studies have shown that bursts start at the midthoracic segments and simultaneously propagate to the other segments of the spinal cord and jerks are variable from one to the other. Brown et al.[1] suggested a polysynaptic transmission in the ventrolateral funiculus related to slowly conducting pathways.

No lesion is detected in most of the MRIs but Roze et al.[5] found microstructural defects in some patients using diffusion tensor imaging in the spinal cord, which was proposed as the cause of local hyperexcitability and generator of the myoclonus. Ayache et al.'s[6] results pointed to the possible reticular formation involvement, which is known to produce excitation of propriospinal neurons that activate the thoracic spinal generator. It is still not clear whether the abnormalities seen on MRI are associated directly with the symptoms or reflect a process related to the primary dysfunction[5,6].

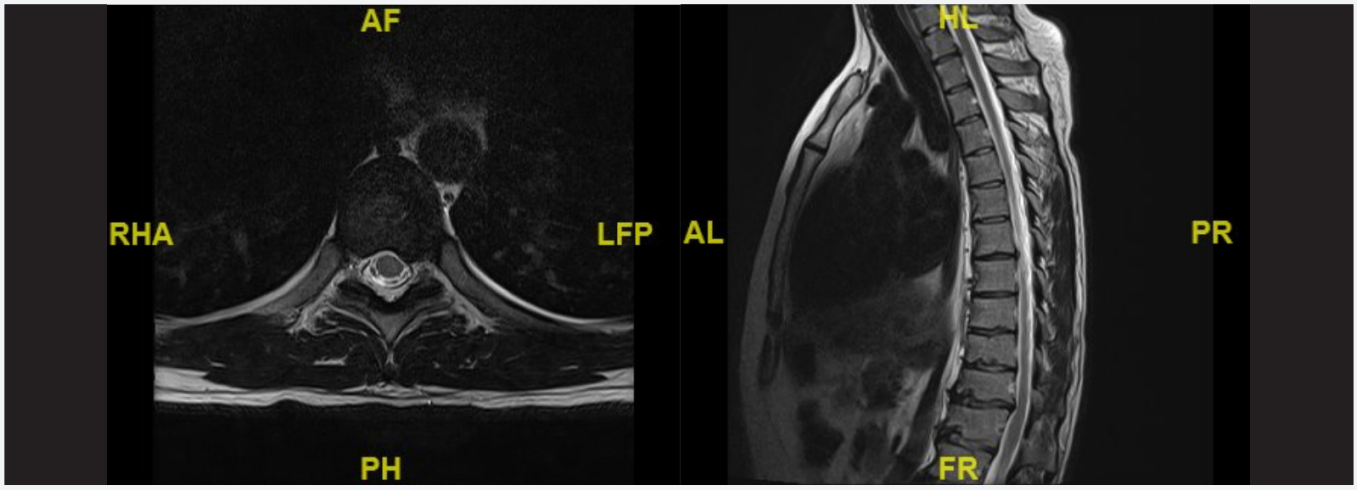

Figure 1. Left paramedian disc protrusion at the T7-T8 level on T2 axial image, disc protrusion at the T7-T8 level, and diffuse bulging at the T11-T12 level on T2 sagittal image

Spontaneous remission is a clue for the functional PSM. In this case, jerks occurred when the patient was awaking from the general anesthesia and gradually decreased and solved spontaneously without medication in half an hour. So, we could not have a chance to perform an electrophysiological study. We saw paramedian disc protrusion which caused mild compression on medulla spinalis at T7-T8 level on MRI as a cause of the PSM. Although we did not detect a structural medulla spinalis lesion on standard MRI, probably there was a functional impairment that was provoked by the anesthetic agents, as Roze et al.[5] proposed.

CONCLUSION

In conclusion, it should be kept in mind that these kinds of abnormal movements can be seen after anesthesia. When this is the case, structural lesions such as thoracic disc herniation should be eliminated.

Ethics

Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally peer-reviewed.

Informed Consent: Informed consent was taken from patient.

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