

Restlessness in Opioid Withdrawal: A Unique Presentation of Whole-Body Involvement

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Abstract

Introduction: Restless Leg Syndrome (RLS) is a known phenomenon observed in individuals experiencing opioid withdrawal, which can worsen heroin dependence. Typically, RLS affects only the legs, but this case report presents a unique instance of generalized Restless Body Syndrome (RBS) induced by opioid withdrawal.

Case presentation: The report describes a 67-year-old male undergoing opioid detoxification who experienced restlessness throughout his body, resembling RLS sensations. The restlessness affected various areas, including the thorax, abdomen, back of legs, lower back, arms, and legs, excluding the face. The sensations were described as periodic electric waves that intensified at night or during periods of inactivity and improved with physical activity, mainly walking. Similar sensations were also noted during withdrawal from opioids or buprenorphine/naloxone, significantly when the dose was reduced to 1mg/day, and they resolved upon reintroduction of buprenorphine/naloxone.

Results: Neurological examination revealed specific abnormalities, such as recent impaired recall, facial akinesia, decreased blink frequency, cog wheeling in upper extremities, a stooped, shuffling gait, and resting tremor in both upper extremities. Neuropsychiatric tests showed abnormal results in the Go-No-Go Test (4/6) and a minimal level of depression according to the Beck Depression Inventory Type-II (score: 9). The patient also scored as a problem drinker on the Michigan Alcohol Screening Test (score: 35).

Discussion: Exploration of the similarities between RBS and RLS, highlighting that RBS affects additional areas of the body, including the upper extremities, thorax, and back. While RBS may represent a variant of RLS, it could also be a different condition. Another potential explanation is that it may be a form of serotonin syndrome induced by opioid use, including fentanyl, which can lead to generalized myoclonus. Although RLS associated with opioid withdrawal is well-documented, the underlying mechanisms responsible for its manifestation throughout the body, including the neck, remain unclear. One hypothesis suggests a generalized polyneuropathy affecting the upper limbs and lower extremities, particularly in cases of iron deficiency. The report suggests that variants of RBS may occur in individuals undergoing opioid withdrawal, potentially requiring low-dose opioids for treatment. Consequently, evaluating RBS as part of the assessment for opioid withdrawal is necessary.

Keywords: Restless leg syndrome • Opioids • Addiction • Opioid withdrawal

Introduction

Restless leg syndrome (RLS) has been described in those undergoing opioid withdrawal as a factor exacerbating heroin dependence [1]. Traditionally, RLS has been characterized by the uncomfortable sensation and irresistible urge to move the legs. However, recent observations challenge the notion that RLS is limited to the lower extremities. A novel phenomenon known as Restless Body Syndrome (RBS) has emerged, where opioid withdrawal induces restless symptoms extending beyond the legs, affecting the entire body. A generalized Restless Body Syndrome (RBS) induced by opioid withdrawal is reported.

Case Presentation

A 67-year-old right-handed male with a history of major depressive disorder, Parkinson's disease, RLS, and chronic pain for twenty years had been using opioids requiring inpatient detoxification and rehabilitation nine years before his presentation. His opioid use initially began with hydrocodone/acetaminophen, hydromorphone, fentanyl patch, and tramadol and eventually included buprenorphine/naloxone. Thirteen years before his presentation, when detoxifying off opioids, he developed a new onset

of restlessness in his entire body that lasted three full days, persisting all day and night. This prevented him from sleeping, and he would walk around all day and night to help relieve it. This restlessness in his body was like past sensations with RLS, except it involved the thorax, abdomen, back of legs, lower back, arms, and legs but did not involve his face. The sensation of his body felt like an electric wave every few seconds. The feeling becomes worse at night and becomes better with walking. The electric feeling increased with sitting still or doing nothing. Subsequently, whenever he would withdraw from opioids, he had similar sensations. When withdrawing from buprenorphine/naloxone, he felt the same restlessness in his body except sparing his face and legs. This could be precipitated when dropping buprenorphine/naloxone to 1mg per day, and upon reintroduction of buprenorphine/naloxone, it would resolve.

Results

Abnormalities in neurological examination: Recent recall of 2 out of 4 objects in 3 minutes without improvement with reinforcement. Facial akinesia, decreased blink frequency, 2+ cog wheeling in both upper extremities, stooped shuffling gait, resting tremor in both upper extremities. The findings of the neuropsychiatric testing, as listed in Table 1, are summarized below.

Table 1. Neuropsychiatric testing

Neuropsychiatric Test	Result
Animal fluency test	16 (average)
Go-no-go test	4/6 (abnormal)
Other:	
Beck depression inventory type-II score	9 (Minimal depression)
Michigan alcohol screening test	35 (Problem drinker)
Center for neurologic study lability scale	8 (standard)

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Clock drawing test	4/4 (typical)
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Discussion

The semiology of RBS is parallel to that of RLS, with extension to include the upper extremities, thorax, and the back. While this may represent a variant of RLS, it may be another condition altogether. This may exaggerate the generalized cramping in opioid withdrawal [2]. Opioid withdrawal has been described to precipitate RLS and independently induce jerking of both upper extremities [3]. Alternatively, this may not be RLS at all but rather a variant of serotonin syndrome, which has been described to be precipitated by the use of opioids, including fentanyl, and may represent generalized myoclonus [4]. Along parallel lines, this may be due to generalized myoclonus, which has been described to be relieved with the treatment of opioids [5].

While RLS with opioid withdrawal has been well described [6], the pathophysiology of why this extended throughout the body up to the neck remains obscure. It could be due to a generalized polyneuropathy involving the upper limbs and lower extremities. This is particularly feasible given that those with restless leg syndrome often have concurrent polyneuropathy and iron deficiency [7]. However, it would be unusual for polyneuropathy to involve the trunk and abdomen, which are more proximal structures and thus not predisposed to have peripheral nerve involvement. Alternatively, this could represent an abnormality in the posterior columns, which generally function to reduce spinal myoclonus [8]. His coexistent Parkinson's disease may have predisposed him to its RBS. Dopamine reduces myoclonus; since dopamine in the striatum is inhibitory, a dopamine deficiency, as in Parkinson's disease, may serve to disinhibit and allow the production of myoclonus [9]. Alternatively, his dopamine replacement therapy may have made him more susceptible to abnormal movements, including choreiform movements or sensations of such movements, which he perceived as a restless body [10].

Sparing of the face implies the possibility that while the spinothalamic tract was involved, the trigeminal spinothalamic tract was spared. Spinothalamic involvement with mild pain may have been the nidus for his sensation of needing to move, inducing the firing of large nerve fibers, as suggested by Melzack's and Gait Control Theory of Pain, with a secondary reduction in pain [11].

Conclusion

In conclusion, this case emphasizes the potential connection between RBS and RLS, serotonin syndrome, or generalized polyneuropathy. The existence of variants of RBS, particularly in individuals undergoing opioid withdrawal, suggests the need for low-dose opioids as a treatment option. Therefore, it is essential to conduct assessments to determine the presence of RBS during opioid withdrawal to ensure appropriate management and care.

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Conflict of Interest

The authors declare that they have no competing interests.

Consent for Publication

Written informed consent was obtained from the patient to publish this case report.

Author Contribution

NM analyzed and interpreted the patient's results regarding restless body syndrome. SK summarized the existing literature. DB significantly contributed to the manuscript's drafting. AH made substantial contributions to interpreting the neuroanatomical association between chemosensory and psychiatric dysfunction. All authors read and approved the final manuscript.

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