Arm Restlessness as the Initial Symptom in Restless Legs Syndrome

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Background: Upper extremity symptoms can develop in restless legs syndrome, but are rarely the initial symptom.

Objectives: To report a case of restless legs syndrome with restless arms as the initial symptom, and to review the literature.

Design: Case report and literature review.

Patient: A 78-year-old man had arm restlessness and sleep disturbance. A polysomnogram demonstrated clinical periodic leg movements 1 year after the onset of his symptoms.

Results: Two years later, he developed lower extremity symptoms that fit the criteria for restless legs syndrome. To our knowledge, this is the first case of restless legs syndrome with arm restlessness as the initial symptom in an otherwise neurologically normal person.

Conclusion: Restless legs syndrome may initially exhibit upper extremity symptoms.

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Restless Legs Syndrome (RLS) is characterized by a disagreeable sensation in the lower extremities that is relieved by movement. Diagnostic criteria include (1) desire to move limbs, usually associated with paresthesias/dysesthesias; (2) motor restlessness; (3) symptoms are worse or exclusively present at rest (ie, lying, sitting) with at least partial and temporary relief by activity; and (4) symptoms are worse in the evening/night. Restless legs syndrome is most often familial but may occur secondary to medications or to conditions such as uremia, iron deficiency, or pregnancy. Periodic limb movements are also present in as many as 80% to 100% of RLS patients. Symptoms most commonly occur at night after going to bed. They often disrupt sleep, producing sleep-onset and sleep-maintenance insomnia. If patients are symptomatic in the day, they describe worsening symptoms as the day progresses. Excessive daytime somnolence has also been reported in a substantial number of patients. Involvement of the upper extremities can occur, but typically late in the course. A 23-year-old man, during his rehabilitation from traumatic spastic paraparesis, described restlessness occurring only in the upper extremities. He had paresthesias but not restlessness in his lower extremities. We report a case of RLS with arm restlessness as the initial symptom in a patient with no other neurologic abnormalities.

CASE REPORT

A 78-year-old man had a 1-year history of uncomfortable sensations in his upper extremities. He reported “twitching and wiggling” sensations in his arms that were worse at rest, and felt the need to move his arms. The symptoms were bilaterally symmetric. Walking decreased the symptoms. Initially, his symptoms were present only in the very early morning, awakening him during sleep. Because of excessive daytime somnolence, he took a nap in the afternoon and fell asleep in the early evening while reading or watching television. His sleep was not refreshing. He had a history of coronary artery disease, coronary bypass surgery, benign prostatic hypertrophy, hiatal hernia, and pulmonary tuberculosis remotely in the past. His medications included furosemide, potassium chloride, digoxin, lovastatin, aspirin, amiodarone, terazosin, a multivitamin, and vitamin E. He did not smoke or
use excessive caffeine. Substantial alcohol use had ceased years before the onset of arm restlessness. There was no family history of movement disorders or sleep disorders. A general physical and neurologic examination revealed only a mildly impaired vibratory sense in the distal lower extremities and slightly (1+) decreased Achilles tendon reflexes. Results of laboratory tests, including serum chemistry, complete blood cell count, thyroid tests, iron studies, and vitamin B₁₂ levels, were normal. A nocturnal polysomnogram demonstrated periodic leg movements (thin arrow) in channel 7 (R.LEG) and arousals (block arrow) in channel 4 (O2-M1). LOC-M1 indicates left occlugram; ROC-M1, right occlugram; C4-M1, right central electroencephalogram (EEG); C3-M1, left central EEG; CZ-OZ, midline central-occipital EEG; CHIN, chin electromyogram (EMG); R.LEG, right leg EMG; L.LEG, left leg EMG; FLOW, nasal/oral air flow; THOR, thoracic respiratory effort; ABD, abdominal respiratory effort; HRATE, heart rate; SAO₂, arterial oxygen saturation; and ECG, electrocardiogram.

The arm restlessness became more pronounced in the evening as his illness progressed. Symptoms partially responded to tramadol although it soon lost its effectiveness. Amitriptyline and acetaminophen with codeine had no effect on his symptoms. One year after the initial examination, the restlessness had progressed to involve his legs. He described a discomfort in his lower extremities, similar to the upper extremity symptoms, that compelled him to move them. He reported that his symptoms occurred in the evening and disrupted his sleep. Ambulation reduced the symptoms. He was given clonazepam, which partially reduced his symptoms and improved his sleep but became less effective over time. Gabapentin gave partial relief. He was then prescribed ropinirole, which brought about major improvement in symptom relief and quality of sleep. His neurologic examination results have remained stable, with no evidence of neuropathy.
Our patient’s signs and symptoms and the previous report suggest that the diagnosis of RLS should be considered in the differential diagnosis of patients with arm restlessness. The previously described case occurred in a man who had spastic paraparesis and lower extremity paresthesias due to a back injury. Our patient had subclinical polysomnographic evidence of periodic limb movements on examination for arm restlessness, 1 year before he developed typical RLS. He had no other neurologic abnormalities. Arm restlessness occurs in up to 48.7% of patients with RLS, although most patients have lower extremity symptoms. Upper extremity involvement in RLS usually occurs later in the course of the disease. It is rarely reported as an initial symptom.

A few points require further discussion. First, periodic limb movements occur with greater prevalence in older individuals. Periodic limb movements are not diagnostic of RLS, but in their absence, the diagnosis is less certain. Although amiodarone may be associated with neurologic symptoms, restless legs are uncommon, and restless arms have not been reported, to our knowledge. Our patient had been taking amiodarone at a stable dose without symptoms for many years.

The pathogenesis of RLS is not known. Compared with those with isolated leg restlessness, subjects with arm restlessness had more severe leg restlessness and worse sleep efficiency. This is most likely due to the often progressive nature of RLS and that the cases with arm involvement probably had longer-standing disease. No other differences between the groups with and without arm restlessness were found. Periodic arm movements have also been demonstrated in patients with RLS. Electrophysiologic evidence that suggests abnormal spinal hyperexcitability along the entire spinal cord, especially in the lumbosacral and cervical segments, may be the basis for periodic limb movements in subjects with idiopathic RLS. The triggering mechanism is hypothesized to occur in an ill-defined supraspinal level. Most evidence, however, points to central mechanisms involving dopaminergic systems. Deficiency or impaired processing of iron has also been demonstrated to be an important factor. Iron deficiency may be associated with a decrease in the synthesis of dopamine or D2 receptors, or impaired dopamine transport. None of the current theories, however, can explain why RLS symptoms begin in the lower limbs. To our knowledge, this is the first published case of RLS with arm restlessness as the initial symptom in a neurologically normal person. The clinical presentation of this patient and the frequent involvement of the upper extremities suggest that RLS should be considered whenever patients have upper extremity symptoms meeting the diagnostic criteria for RLS.

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