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Case Report

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Maternal and infant restless legs syndrome and periodic limb movement disorder with neurodivergence and failure to thrive resolved with early gabapentin treatment

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Abstract

Background

Sleep-related movement disorders are under-recognized in pediatrics, and sleep disruption is common in neurodivergent families. Restless legs syndrome (RLS) and periodic limb movement disorder (PLMD) may be misattributed to “colic,” “growing pains,” or nonspecific sleep disorders, delaying treatment.

Case

We report a mother–infant dyad with longstanding maternal sleep disruption, migraines, and an infant with colic-like irritability and failure to thrive (FTT). During the mother’s initial evaluation, her description of severe ongoing concerns regarding her 9-month-old infant prompted a dedicated pediatric visit. Maternal history and validated screenings (DIVA-5, RAADS-R, CAT-Q), combined with an infant sleep video review, supported diagnoses of RLS/PLMD, ADHD, and autism traits in the mother, alongside RLS/PLMD and early sensory markers of autism in the infant. Following the initiation and titration of gabapentin, both mother and infant demonstrated

marked clinical improvement—including infant feeding tolerance, sleep consolidation, reduced sensory distress, and catch-up growth (0.04th to 1.1th percentile).

Conclusion

This case underscores the clinical value of integrating targeted sleep histories, family neurodevelopmental histories, and home video reviews into the evaluation of FTT and persistent infant distress, particularly within neurodivergent families.

Introduction

Restless legs syndrome (RLS) and periodic limb movement disorder (PLMD) are important causes of sleep fragmentation in pediatric and adult patients and are associated with neurobehavioral symptoms and comorbidities, including attention-deficit/hyperactivity disorder (ADHD) and autism. Pediatric diagnostic criteria have been refined by the International Restless Legs Syndrome Study Group (IRLSSG) to improve recognition, especially because children may not reliably describe subjective sensory symptoms (1).

Infants presenting with excessive crying, sleep disturbance, feeding difficulties, and failure to thrive commonly undergo extensive medical evaluations with unrevealing results, often ultimately labeled with “colic” or a primary feeding disorder. In such cases, potentially treatable sleep-related movement phenotypes are rarely considered. Observational evidence supports a clinically relevant link: in one family study, 38% of children had a history of excessive crying/fussing during the first four months of life, and among those infants, 76% had at least one parent with RLS (2).

We present a mother–infant dyad in which the recognition and treatment of suspected RLS/PLMD were temporally associated with marked improvement in maternal symptoms (sleep disruption, migraines, rash) and infant outcomes (sleep, irritability, feeding tolerance, and growth trajectory).

Case Presentation

Maternal History and Index Visit

An adult mother presented for evaluation of a severe pruritic leg rash occurring during a period of high stress, alongside lifelong poor sleep and frequent migraines (reported as 2–3 episodes per week). She described a childhood history suggestive of “growing pains,” being described as a “colicky” infant herself, and persistent sleep disruption throughout life. Family history was notable for neurodevelopmental conditions within the household, including autism and ADHD in a first-degree relative.

During this initial maternal encounter, she also described significant ongoing concerns regarding her then 9-month-old infant—who had been evaluated by multiple other physicians and specialists since birth without clear resolution—specifically regarding persistent feeding difficulty, severe irritability, fragmented sleep, and poor growth. This history prompted a dedicated appointment for the infant for a focused evaluation.

Focused maternal history raised strong suspicion for RLS/PLMD. Subsequent neurodevelopmental evaluation supported ADHD and autistic traits, including elevated scores on the Ritvo Autism Asperger Diagnostic Scale-Revised (RAADS-R: 180), the Camouflaging Autistic Traits Questionnaire (CAT-Q: 146), and Diagnostic Interview for ADHD in Adults (DIVA-5) symptom endorsement consistent with combined-type ADHD across childhood and adulthood (9/9 inattentive and 9/9 hyperactive/impulsive domains). Maternal treatment targeting RLS/PLMD and ADHD was initiated with titrated gabapentin and subsequent extended-release methylphenidate. Over follow-up, she reported significant improvement in sleep architecture, resolution of severe migraines, and parallel improvement of her pruritic rash.

Infant History and Evaluation

The mother raised concerns regarding her infant's feeding difficulty and poor growth, which were first recognized around the 2-month well-child visit. Arching with feeds had previously prompted a trial of acid suppression for presumed gastroesophageal reflux disease (GERD) and a referral to feeding and speech therapy. Despite these interventions, growth decelerated, resulting in an admission at approximately 3.5 months of age for failure to thrive and moderate malnutrition.

Inpatient and outpatient evaluations were unrevealing. Clinical assessment did not support cardiopulmonary or metabolic etiologies. A swallow study at approximately 4 months was normal. Subsequent laboratory evaluation for failure to thrive (CBC with differential, comprehensive metabolic panel, TSH with reflex free T4, ESR, CRP, urinalysis with reflex culture, magnesium, phosphate, lipase, and venous blood gas) was entirely within reference limits. Formula changes, caloric fortification, and subsequent stool occult blood testing were unrevealing.

Throughout this period, the mother noted that her infant exhibited frequent, excessive leg movements during sleep, which had been previously dismissed by providers as clinically normal. At a gastroenterology evaluation around 8.5 months, the mother again noted this excessive movement, sharing that she herself was undergoing evaluation for RLS/PLMD, ADHD, and autism.

At approximately 9 months, the infant was evaluated. Because infants cannot describe sensory symptoms, caregiver-recorded home video of the infant sleeping was requested. Video review demonstrated frequent, persistent leg movements throughout sleep with intermittent moaning, consistent with a sleep-related movement disorder phenotype.

Intervention and Outcomes

Gabapentin was initiated in the infant and titrated based on clinical sleep symptoms, increasing from 50 mg to 75 mg nightly over 1–2 weeks, and subsequently titrated to 100 mg nightly by age 2 years per longitudinal documentation. Pediatric reviews describe gabapentin as a commonly utilized off-label option for pediatric RLS/PLMD that can enhance overall sleep quality, despite limited randomized controlled trial data in children (3,4). This therapeutic choice also aligns with updated adult guidelines, which now prefer gabapentinoids over traditional dopamine agonists to avoid the severe complication of drug-induced symptom augmentation

(5). While iron deficiency must always be evaluated and managed concurrently, lab values were bypassed here to optimize clinical comfort.

Following initiation, caregivers reported marked improvements, including sleep consolidation, decreased daytime irritability, and significantly enhanced feeding tolerance. Prior to initiation, the infant tolerated approximately 5 ounces of formula four times daily plus 1–2 jars of baby food. After starting gabapentin, intake increased to 6 ounces every 3–4 hours (approximately five bottles per 24-hour period) alongside a progressive advancement in solid foods.

Caregivers also described a notable reduction in sensory distress; previous aversion and distress associated with bath time, vacuum cleaners, and television noise resolved significantly. Weight increased during early follow-up and the growth trajectory improved over time, rising from approximately the 0.04th percentile at the initial visit to the 1.1st percentile by age 2 years.

At approximately 12 months, mild motor and language delays were noted. Given the strong family history and persistent sensory features, the child was referred for a formal autism evaluation and early intervention services (Birth-to-Three). Subsequent assessments strongly supported autism, which was later validated by a pediatric autism specialist.

Discussion

1. Under-Recognition of Pediatric RLS/PLMD

RLS/PLMD can be profoundly under-recognized in pediatric practice and may be mislabeled as nonspecific sleep disturbance, “growing pains” (6), or infantile colic. Pediatric RLS recognition is limited by developmental constraints: infants cannot describe the hallmark sensory "urge to move," and clinicians may fail to apply pediatric-specific criteria. The IRLSSG revised criteria emphasize developmentally appropriate diagnosis and the weight of caregiver observations (1). Pediatric prevalence estimates suggest RLS is clinically meaningful rather than rare, with epidemiological studies reporting a prevalence in children and adolescents roughly in the 1–6% range, depending on the population and diagnostic methods used (7,8,9).

2. Family History as a Diagnostic Signal

Family history—specifically parental neurodivergence and lifelong sleep disruption—may serve as the key clinical "signal" prompting a targeted sleep assessment. Sleep disturbance is highly prevalent in ADHD and autism and is frequently misclassified as generic insomnia without evaluating treatable movement-related etiologies (4,10). In this case, the infant’s symptoms were not connected to sleep-related movement concerns until an integrated family history was obtained during the maternal evaluation, which directly prompted the dedicated infant assessment (11).

3. Home Sleep Video as a High-Yield Diagnostic Adjunct

Home sleep video serves as a high-yield diagnostic adjunct in infants. In this case, caregiver video captured repetitive sleep movements that had been minimized in prior encounters. Home video review is particularly valuable in pre-verbal populations where subjective symptom reporting is impossible and in-clinic observation is limited. Furthermore, the widespread

availability of smartphone cameras makes parental sleep recording a low-cost, highly accessible tool.

Research supports the use of video monitoring for the recognition of these phenotypes. It has been established as a critical tool for identifying the wide-distribution, large-muscle movements characteristic of early-childhood sleep disorders, including Restless Sleep Disorder (RSD) (12,13). Utilizing parental recordings provides a practical, high-yield window into the child's natural sleep environment, optimizing diagnostic accuracy before escalating to formal in-lab polysomnography.

4. Co-occurrence of Infant Distress and Parental RLS

Observational evidence supports a relationship between infant excessive crying/fussing and parental RLS. In one family study, among infants with a history of excessive crying during the first four months of life, 76% had at least one parent with RLS (2). While this does not confirm infant RLS, it strengthens the rationale for systematically asking about parental RLS and lifelong sleep disruption when evaluating persistent infant distress and poor growth. Furthermore, when evaluating FTT in this cohort, clinicians should consider underlying neurodevelopmental components; recognizing these conditions from a longitudinal, family-wide perspective is essential for managing unique pediatric presentations.

5. Therapeutic Response to Gabapentin and Rationale

The temporal relationship linking the introduction of gabapentin to substantial improvements in the infant's sleep patterns, behavioral irritability, feeding tolerance, and objective weight gain is clinically noteworthy. Nonetheless, this favorable response must be interpreted cautiously given the lack of large-scale controlled trials for pediatric RLS and PLMD (3).

Documenting serum iron and ferritin levels—though typically standard—was deliberately bypassed to spare the infant further painful venipunctures, given an extensive history of blood draws, normal concurrent failure-to-thrive lab parameters (including a normal CBC, hemoglobin, and MCV), and a strong maternal history of RLS. Crucially, opting for gabapentinoid therapy mirrors the major paradigm shift in adult sleep guidelines, which now prefer alpha-2-delta ligands over traditional dopamine agonists due to the latter’s high propensity for symptom augmentation (5).

Conclusion

In infants presenting with persistent irritability, sleep fragmentation, feeding difficulty, and failure to thrive—particularly within families characterized by autism, ADHD, and lifelong sleep complaints—clinicians should maintain a high index of suspicion for RLS/PLMD. Utilizing targeted pediatric diagnostic criteria, thorough multi-generational family histories, and home sleep video reviews can facilitate early recognition and meaningful therapeutic intervention.

Declarations

Ethics Approval and Consent to Participate

This study involves clinical data from human subjects and was conducted in accordance with institutional and national ethical guidelines. The Institutional Review Board (IRB) at the Medical College of Wisconsin reviewed this clinical case report protocol and determined it to be exempt from formal full committee review. Informed written consent for the patients' participation in this clinical evaluation and for subsequent publication was explicitly obtained from the adult patient and the legal guardian of the infant participant.

Accordance Statement

This case report study was conducted in strict accordance with the relevant guidelines, ethical regulations, and principles for medical research involving human subjects as outlined in the Declaration of Helsinki.

Consent for Publication

Written informed consent was obtained from the patient’s legal guardian for the publication of this case report and any accompanying clinical images or details. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Availability of Data and Materials

All clinical information relevant to the case is included within the published article.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

ML was the attending physician responsible for the clinical evaluation, diagnosis, and management of the patients, and provided the primary clinical data. SAP performed the literature review and drafted the initial manuscript. Both authors read and approved the final manuscript.

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