

# Eczema: A Diagnostic Consideration for Persistent Nocturnal Arousals

Lourdes DelRosso, M.D.; Romy Hoque, M.D.

Department of Neurology, Sleep Medicine Program, Louisiana State University School of Medicine, Shreveport, LA

SLEEP MEDICINE PEARLS

A 5-year-old girl with past medical history of eczema requiring the use of diphenhydramine and cetirizine for nocturnal relief from pruritus presented for evaluation of excessive daytime sleepiness (EDS), loud witnessed snoring, and witnessed apneas. A diagnostic polysomnogram (PSG) showed electrophysiologic evidence of obstructive sleep apnea (OSA), with a total sleep time apnea hypopnea index (TST AHI) of 3.5, and an arousal index 11.4. The PSG was interpreted as meeting criteria for periodic limb movements of sleep (PLMS), with a PLM index of 8.3 and a PLM arousal index of 2.5. The patient was referred for a tonsillectomy and

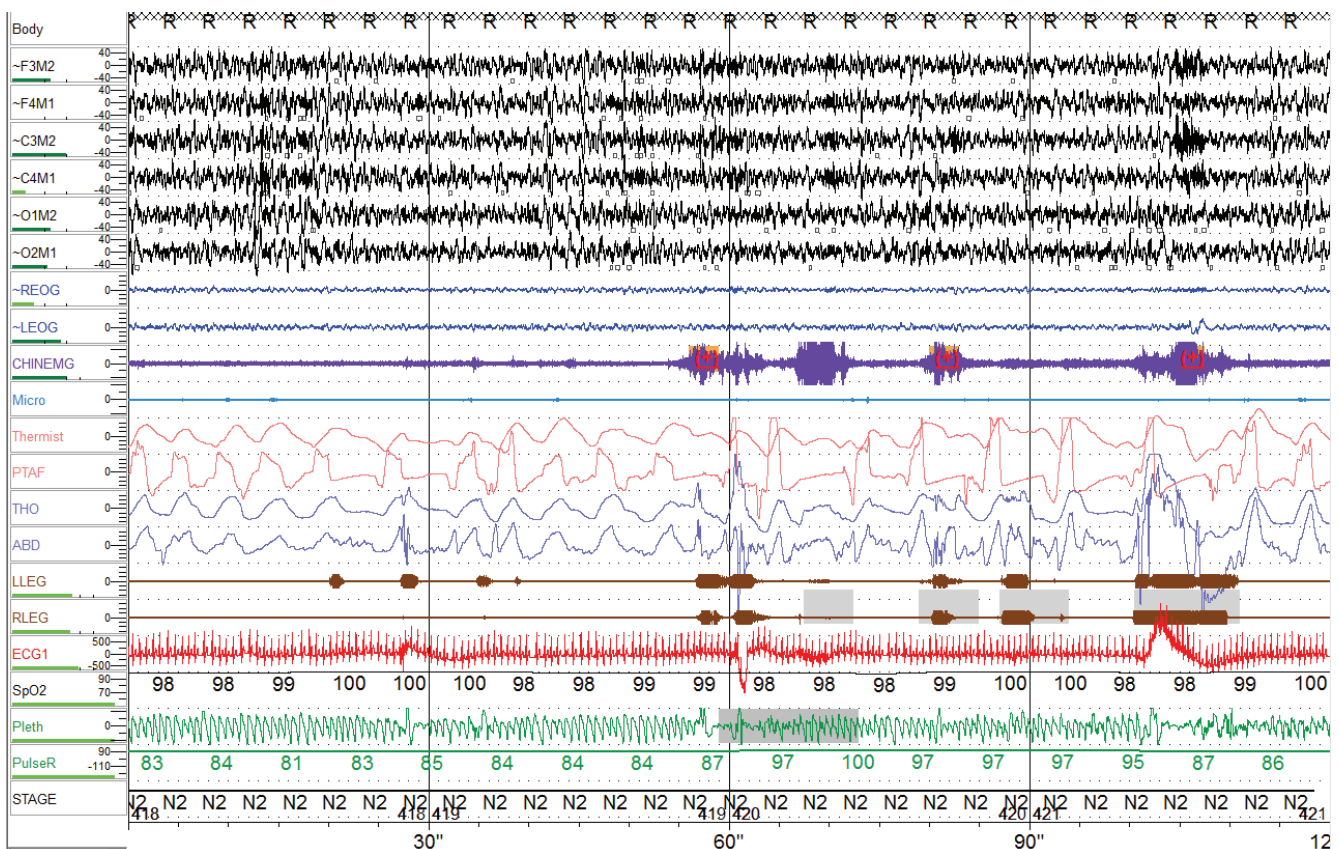
adenoidectomy for treatment of her sleep disordered breathing.

Four months after her oral airway surgery, a repeat diagnostic PSG revealed a TST AHI of 0.3 with a PLM index of 24, a PLM arousal index of 7.9, and an overall arousal index of 11.8.

Figure 1 demonstrates a typical arousal noted in the repeat PSG. Note the movements seen in the legs. They meet criteria for PLMS but they lack clear periodicity.

**QUESTION:** Given this patient's past medical history what is a diagnostic possibility for the arousal noted in the epochs displayed?

Figure 1—Two-minute polysomnogram (PSG) window showing leg movements that meet criteria for PLMS but are due to leg scratching associated with eczema



**ANSWER: Atopic dermatitis with nocturnal pruritic exacerbation**

Atopic dermatitis is a condition of the skin characterized by pruritus, dryness, and erythema. It typically begins at an early age, with 85% of patients affected within the first 5 years.<sup>1</sup> Younger patients tend to have more frequent nocturnal sleep disruption due to eczema.<sup>2</sup>

The patient's nocturnal movements met electrophysiologic criteria for PLMS, but careful review of the video monitoring revealed that the movements and arousals were purposeful scratching associated with her atopic dermatitis. The stability of the arousal index despite a dramatic improvement in the TST AHI after oral airway surgery also showed that many of the arousals noted on both PSGs were not secondary to sleep disordered breathing.

Restless movements of the arms and legs preceded scratching movements of her arms, legs, and abdomen. The arousals associated with these scratching episodes were of insufficient duration to be scored as wake. The significance of these arousals is unknown, since the arousal index in children does not appear to be a sensitive marker of sleep disruption.<sup>3</sup>

**CLINICAL PEARLS**

1. Patients with eczema exhibit disturbed sleep with decrease sleep efficiency and increased nocturnal arousals
2. The pattern of scratching and moving may be mistaken for PLMS on the PSG.
3. Compare the arousal index before and after intervention for sleep disordered breathing. If the arousal index has not

improved despite a reduction in the TST AHI, other sleep-disturbing diagnoses need to be explored.

4. Inspection of PSG video is mandatory for proper interpretation of sleep related movements.

**CITATION**

DelRosso L; Hoque R. Eczema: a diagnostic consideration for persistent nocturnal arousals. *J Clin Sleep Med* 2012;8(4):459-460.

**REFERENCES**

1. Monti JM, Vignale R, Monti D. Sleep and nighttime pruritus in children with atopic dermatitis. *Sleep* 1989;12:309-14.
2. Camfferman D, Kennedy JD, Gold M, Martin AJ, Lushington K. Eczema and sleep and its relationship to daytime functioning in children. *Sleep Med Rev* 2010;14:359-69.
3. Lopes MC, Marcus CL. The significance of ASDA arousals in children. *Sleep Med* 2007;9:3-8.

**SUBMISSION & CORRESPONDENCE INFORMATION**

**Submitted for publication August, 2011**

**Submitted in final revised form November, 2011**

**Accepted for publication November, 2011**

Address correspondence to: Lourdes DelRosso, M.D., Louisiana State University Health Sciences Center, 1501 Kings Highway, Shreveport, LA 71103; Tel: (318) 675-5365; Fax: (318) 675-4440; E-mail: lordydel@yahoo.com

**DISCLOSURE STATEMENT**

This was not an industry supported study. The authors have indicated no financial conflicts of interest.