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# Case Report of Sleep-Related Laryngospasm in an Adolescent Patient

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***Abstract***

*We present the case of a 13-year-old female Lebanese patient who initially presented to the clinic because of repetitive chocking episodes during sleep; All the investigations turned out to be negative. A diagnosis of sleep-related laryngospasm was considered, and it was self-limited.*

***Keywords:*** *Sleep-Related Laryngospasm, paroxysmal sleep disorders, obstructive sleep apnea, seizures.*

## Introduction

The term "sleep related laryngospasm" refers to episodic, abrupt interruption of sleep accompanied to awakening with the feeling of acute suffocation followed by stridor. It is defined as sustained closure of vocal cords with subsequent complete or partial loss of airway patency. In the literature it is associated to fear, coughing and tachycardia in addition to detrimental effect on the quality of life of the patient and his family. The American Academy of Sleep Medicines International Classification of Sleep Disorders third edition **(**ICSD-3**)** included sleep-related laryngospasm among the sleep-related medical and neurologic disorders in the Appendix A **(**1**)**. In the literature we find multiple cases series publication with different possible stimuli such as gastro-esophageal reflux **(**>90%**) (**2**)**, viral illness, or emotional or postural muscle misuse. Till now there is no clear explanation of the pathology but in 1999 M. Morrison et al suspected a controller neuron in the brainstem control network **(**3**)**. In this article we present a case of sleep related laryngospasm without an obvious cause.

## Case Report

In this study, we present the case of a 13-year-old girl patient who initially presented to the clinic for repetitive chocking episodes during sleep.

The patient is a full-term infant born to non-consanguineous parents. She was delivered at the hospital via spontaneous vaginal delivery with a birth weight of 3250 g and head circumference of 34.5 cm. No complications during pregnancy or delivery. Her developmental history was negative, all the milestones were normal for age. Family history is negative for neurological diseases.

3 months before the presentation to the clinic, she started to have sudden episodes of chocking, happening 2-3 hours after falling asleep; The event occurred once or twice a week, and suddenly she wakeup with heavy breathy and hyperventilation. She doesn't recall the event.

Physically during the attack, she doesn't have any cyanosis, pallor, sweating or any abnormal movements.

In clinic, her physical exam is completely normal; she is a smart, sociable girl, with no focal deficit; DTR ++ in all extremities. Her weight and height are both on the 50th percentile.

She was given proton pump inhibitors as treatment for reflux because suspicion of gastric reflux.

All routine blood tests including, CBCD, liver function tests, electrolytes, glucose, calcium, phosphorus, magnesium, iron, total iron biding capacity, thyroid stimulating hormone, free thyroxine, were all negative.

Two electroencephalograms **(**EEG**)**, first one over 3 hours, and the second one performed overnight, both came out negative.

Cardiology workup including echocardiography and electrocardiogram **(**ECG**)** were also negative.

The diagnosis of sleep-related laryngospasm was made, and fortunately, the episodes stopped alone with no medical treatment.

## Discussion

We reported in this article a case of an adolescent Lebanese patient who suffered from sleep induced laryngospasm without an obvious cause.

Laryngospasm is the involuntary, rapid, and forceful contraction of the laryngeal sphincter in response to a noxious stimulus **(**4**)**. The superior laryngeal nerve mediates the closure of the glottis area. Laryngospasm can be primary – idiopathic- like in cases of sudden infant death syndromes **(**SIDS**)**, or secondary like in case of gastro-intestinal disturbances and finally iatrogenic due to surgical manipulations.

Sleep related laryngospasm can present in different clinical scenario like abrupt arousal from sleep to violent cough attacks, sensation of suffocation, loud stridor and even loss of voice or syncope. The common pattern is that it is sudden, associated to fear of suffocation, and after the short phase of respiratory blockage, the patient breath can be labored for few minutes than return to normal. After the

attack, some patient goes back to sleep while most might stay awake fearing the recurrence of the attack **(**5,6**)**. In the clinic, when asked, they will all point to the larynx area as the location of the blockage **(**5**)**. Those attacks are of short duration so usually they all inaccessible to medical observation. It commonly affects middle aged males with unknown epidemiology due to the presence of only few cases in the literature **(**7**)**.

The pathogenesis of isolated sleep-related laryngospasm is still incompletely elucidated but in 1999 M. Morrison et al suspected a controller neuron in the brainstem control network **(**3**)**.

When the sleep related laryngospasm is due to reflux disease, patient might experience a sensation of bitterness or sour metallic taste in the mouth in addition to heartburn, sub-sternal burning, or chest discomfort **(**7**)**.

The symptoms of the sleep related laryngospasm mimic a wide variety of other sleep disorders like epileptic seizures, panic attack, sleep related reflux, nocturnal asthma, psychogenic nocturnal stridor, catathrenia and obstructive sleep apnea **(**8**)**. For these reasons, usually the work up even with typical history should include a full physical and neurologic exam with exclusion of any possible cardiac and pulmonary disease in addition to video polysomnography and EEG.

Reviewing the literature, all reported cases have usually a good prognosis especially when the underlying causes are being treated. But one case was reported of a patient with a prolonged attack resulting in syncope, which might lead for potential complications **(**9**)**. For the medium-term prognosis for a total of 19 patients in a cohort through 15 years was good but no data is available for long term prognosis **(**7**)**. Patients with sleep-related laryngospasm should avoid precipitating factors such as hypnotic or other central nervous system depressant drugs.

## Conclusion

Sleep related laryngospasm still an entity that need to be understood. It is usually with good prognosis, and we should always exclude associated causes for better outcome. In this case report, this adolescent, showed an improvement by its own and no obvious cause was found.

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