

## Should Lyme disease be added to the causes of vocal cord paralysis?

Friday, November 04, 2016

<http://danielcameronmd.com/lyme-disease-added-causes-vocal-cord-paralysis/>

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The most common causes of the disorder, according to White and colleagues, include non-laryngeal malignancies, iatrogenic injuries, and idiopathic causes. Post-operative dysfunction after retraction, dissection along the recurrent laryngeal nerve and thoracic malignancy have also been identified as contributing triggers. [1]

White reports on infectious, neurologic and inflammatory causes, as well. "Infectious causes include Lyme disease, West Nile virus, varicella, herpes, Epstein-Barr, syphilis, and others."

"Neurologic causes include myasthenia gravis, severe degenerative spine disease, multiple sclerosis, amyotrophic lateral sclerosis, and Parkinson disease, as well as other disorders."

"Inflammatory causes include, among other entities, sarcoidosis, systemic lupus erythematosus, amyloidosis, and polyarteritis nodosa."

"Additionally, diabetes, thyroid disease, malnutrition, and vinca alkaloids have been found to cause vocal fold (cord) paralysis or paresis."

White and colleagues point out the importance of testing patients with vocal cord paralysis for Lyme disease, particularly in endemic regions.

[Records for 231 patients with vocal cord paralysis or paresis were reviewed](#) to determine whether testing resulted in a clinically important diagnosis. [1] The authors found the prevalence of syphilis, myasthenia gravis, and Lyme disease were higher in these subjects than the national prevalence. Other medically important conditions identified included diabetes and thyroid dysfunction.

Lyme disease as the cause of vocal cord paralysis was found in the Pennsylvania patients. "A positive Lyme titer with confirmatory Western blot was found in five patients (2.2%). When compared with the 2013 incidence of Lyme disease in Pennsylvania (0.039%), these results were statistically significant ( $P < 0.0001$ )." [1] The authors did not address whether there could be cases of Lyme disease not confirmed with positive serologies.

There have been past reports of Lyme disease as the cause of vocal cord paralysis. "One case was reported in 1988, in which a singer was diagnosed with Lyme disease and appropriately treated with doxycycline for 3 weeks resulting in improvement in voice quality, return to normal speaking and singing, and normal findings via laryngoscopic examination," states White and colleagues. In 2010, Martzloff reported two cases of vocal fold paresis secondary to neuroborreliosis. "Both cases resulted in

favorable outcomes after antibiotic treatment." [3]

The authors point out the importance of testing vocal cord paralysis patients for Lyme disease, particularly in those living in endemic regions. "Because vocal fold paresis secondary to Lyme disease can be treated easily with antibiotics, testing patients with idiopathic vocal fold paresis should be routine, especially in endemic areas or in patients who have traveled to areas in which Lyme disease is endemic." [1]

White and colleagues did not design their case series to test casualty. "Although their causal relationship to vocal fold paralysis or paresis has not been investigated or established by this study, the medical importance of having established these diagnoses and instituted treatment is self-evident, and their possible causal association awaits further study."

Nevertheless, the authors recommended implementing a comprehensive evaluation to identify serious and treatable causal or associated disorders underlying vocal fold paralysis and paresis.

"It is important for clinicians, especially tertiary and quaternary providers, to be familiar with the numerous diseases that may present in association with vocal fold paralysis or paresis," states White and colleagues "and to consider comprehensive diagnostic evaluation to identify serious and treatable causal or associated disorders."

#### References:

1. White, M., et al., *Laboratory Evaluation of Vocal Fold Paralysis and Paresis*. J Voice, 2016.
2. Schroeter, V., G.G. Belz, and H. Blenk, *Paralysis of recurrent laryngeal nerve in Lyme disease*. Lancet, 1988. **2**(8622): p. 1245.
3. Martzloff, L., et al., [*Recurrent nerve palsy due to Lyme disease: report of two cases*]. Rev Med Interne, 2010. **31**(3): p. 229-31.

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