

# Idiopathic Bilateral Vocal Cord Paralysis Improved by Valacyclovir

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## Introduction

- Vocal cord paralysis (VCP) is due to dysfunction of the recurrent laryngeal nerve (RLN), a branch of the vagus nerve, which provides motor control of the interarytenoid and posterior cricoarytenoid muscles. These muscles are integral to adduction and abduction of the vocal cords, respectively.
- Bilateral RLN damage is far less common than unilateral damage but is life threatening due to lack of compensation from a contralateral, uninjured nerve which can lead to airway obstruction and respiratory compromise.
- In this case report we describe a patient who was initially diagnosed with idiopathic vocal cord paralysis and required a tracheostomy. His clinical course was stagnant until the medical team noted that his bloodwork was positive for Herpes Simplex Virus Type 1 (HSV-1) IgG and despite negative vocal cord biopsies, the patient made tremendous clinical improvements in phonation and swallowing within two days of receiving a 10-day course of Valacyclovir.

## Case Description

A 67-year-old male smoker with hypothyroidism presented for routine lab work and was noted to have an audible inspiratory and expiratory stridor. Upon further questioning, it was revealed that the patient also had dysphagia to solid food, dyspnea on exertion, paroxysmal nocturnal dyspnea, and a "scratching" on the inside of his throat for a few weeks. He had been treated for an upper respiratory infection two weeks prior with doxycycline. Emergent neck CT was concerning for supraglottic airway obstruction and the patient underwent an immediate laryngoscopy which revealed thickened vocal cords with less than 2mm of patent airway but no masses or obvious tumors and biopsy demonstrated benign mucosa. The patient underwent emergent tracheostomy. Per ENT evaluation, the patient was determined to have idiopathic vocal cord paralysis and would likely require long term ventilation for up to 9 months.

Based on information from a handful of case reports, the academic team decided to test the patient for HSV-1 & HSV-2, VZV, and Lyme disease and the patient was found to be positive for HSV-1 IgG and VZV. He did not have any active signs or symptoms of infection. The team proceeded to treat the patient with valacyclovir 1g TID x 10 days. Within two days the patient had some improvements in phonation and at the end of the 10-day treatment course, the patient was able to speak for greater than 10 minutes at a time multiple times per day. He was taken off of tube feedings, started on a dysphagia diet, tolerated 48 hours of continuous capping, and was able to discharge home instead of to a nursing home.

**Further studies and clinical trials should be considered to determine the most efficacious pharmacological treatment that will provide the greatest return of vocal cord function. Such advances will also likely permit these patients to return home from either the acute hospital or nursing home months earlier than anticipated.**

Case Report	Medication Regimen and Duration	Time to First Noted Improvement of Symptoms	Time to Full Resolution of Symptoms
Herpes Simplex Virus Type I Reactivation as a Cause of a Unilateral Temporary Paralysis of the Vagus Nerve (Bachor)	<ul style="list-style-type: none"> <li>Acyclovir 400 mg IV every 8 hours x 5 days</li> <li>Simultaneous Prednisone 250 mg tapered over 21 days</li> </ul>	Gradual improvement over an unspecified amount of time with complete resolution by 19 months	19 months
Bilateral Vocal Cord Abductor Paralysis Associated with Primary Herpes Simplex Infection: A Case Report (Dupuch)	<ul style="list-style-type: none"> <li>Acyclovir 10 mg/kg IV every 8 hours x 21 days</li> </ul>	Significant improvement in dyspnea and dysphagia was noted over the first 10 days with complete resolution of respiratory symptoms by day 21 of acyclovir treatment	3 months
Unusual Cause of Stridor in an 80-Year-old Man (Zolkind)	<ul style="list-style-type: none"> <li>Acyclovir (dose and duration not specified) IV</li> <li>Patient switched prior to discharge to valacyclovir 1000 mg every 8 hours x 21 days</li> </ul>	Improvement at ulcer site by day 3 of acyclovir treatment; no mention of dyspnea, dysphagia, etc. until 6 week follow up.	6 weeks
Vagal Mononeuritis Caused by Herpes Simplex Virus: Association with Unilateral Vocal Cord Paralysis (Flowers)	<ul style="list-style-type: none"> <li>Acyclovir 5 mg/kg IV every 8 hours x 3 days</li> <li>Patient switched after initial 3 days to oral acyclovir 200 mg 5 times daily x 14 days</li> </ul>	The patient demonstrated marked improvement in phonation on day 3 of IV acyclovir treatment	8 months
Bilateral Abductor Vocal Cord Paralysis in Association with Herpes Simplex Infection: A Case Report (Pou)	<ul style="list-style-type: none"> <li>Oral acyclovir 200 mg 5 times daily for an unspecified duration</li> </ul>	After 1 month the patient demonstrated a partial resolution of symptoms	6 months

Medications and Dosages Utilized in Previously Published, Similar Case Reports Varied Widely and are Discussed in the Table Above.



## Discussion

Our patient had marked improvement in vocalization, breathing and swallowing a few days after treatment was initiated. This suggests the likelihood of herpetic laryngeal palsy as the responsible etiology for this patient's idiopathic vocal cord paralysis. While it is difficult to investigate vagus nerve palsies in live humans given the difficulty in obtaining a vagus nerve biopsy without concordant permanent nerve damage, a handful of other case reports have also elucidated a relationship between "idiopathic vocal cord paralysis" and herpetic infections. However, no one has determined an optimal dosing of either valacyclovir or acyclovir for these patients.

## References

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