

Vocal Fold Motion Impairment

(A.K.A Vocal Cord Paralysis)

Basic Description

Human beings have two vocal folds (sometimes called vocal cords) that are separate, but function like one unit. The right and left true vocal folds are controlled by our brains and receive signals to open and close from the brain through nerves (also a right and left one). Specifically, the *Vagus Nerve (10th cranial nerve—CNX)* is the parent of the two main nerves that control the voice/voicebox. The *recurrent laryngeal nerve (RLN)* carries information to one set of muscles to open our larynx (which lets us breathe) and opposing information to another set of muscles to close the voicebox (which lets us talk). The other important nerve is the *Superior Laryngeal Nerve (SLN)*. This nerve has two main functions as well. One is take information from the larynx back to brain and this part of the SLN is responsible for letting you know when you need to cough. The other part of the nerve controls the muscle that lets us raise pitch and talk or sing higher.

If the signals and information carried by these nerves get interrupted, the end result is that the muscles don't make the vocal folds move. We call this impaired vocal fold mobility. The reason we use this term is because the vocal fold is not always paralyzed. Sometimes it still moves, just not well. Also, we tend not to use paralysis unless we know the injury will NOT recover and healing can take up to a year.

Symptoms:

- Weak voice, breathy voice, airy voice, “mousey” voice
- Difficulty projecting voice, difficulty being heard over other people
- Extra effort to speak, getting tired from speaking during a normal day
- Trouble swallowing with things going down the wrong way
- Weak cough, trouble clearing out phlegm
- Voice that splits, feels like two voices
- Voice wears out easily and feels a little better/stronger after resting it

Causes

Injury During Surgery - the nerve is long and surgery in the brain, neck, or chest can result in an injury

- Thyroid surgery
- Carotid Artery Surgery

- Cervical spine surgery/Spinal fusion with approach through the neck
- Neurosurgery
- Chest/Heart Surgery

Trauma to the neck

- Car accident
- Falls
- Gunshot wound
- Stab wound
- Sports injuries

Tumors (Growths)

- Thyroid mass
- Brainstem mass
- Skull Base Mass
- Lung/chest mass
- Enlarged chamber of the heart (rare)

Neurological Conditions

- Multiple Sclerosis
- Parkinson's Disease
- Amyotrophic Lateral Sclerosis (Lou Gehrig's disease)
- Myasthenia
- Stroke
- Bleeding into the brain
- Lyme Disease, certain toxic substances that reduce nerve function

Infections - there are some bacteria and viruses that are known to attack nerves and damage the nerve. Most often, this is a temporary injury, but sometimes, the nerve does not recover.

- *Borrelia burgdorferi* - Lyme Disease*
- *Corynebacterium diphtheriae* - Diphtheria
- Methicillin Resistant *Staph aureus* - MRSA
- Herpetic Viruses (Varicella and Zoster, Herpes Simplex Virus) - cold sores, shingles*
- Epstein Barr Virus (EBV) - mononucleosis*
- Cytomegalovirus (CMV)*

- Human Immunodeficiency Virus (HIV)

***More commonly seen**

Tests/Work-up

- CT scan over the course of the vagus/recurrent laryngeal/superior laryngeal nerve
- Laryngeal EMG
- Cultures for microbes (bacterial and viral cultures)
- Laryngoscopy/videostroboscopy

Treatment Options

- Re-innervation - taking another in the neck and moving to to stimulate the voice muscles
- Injection Laryngoplasty - done through the mouth without a scar, but it goes away between 4 - 12 months depending on what is injected
- Laryngeal Framework Surgery with placement of an implant - small scar on the neck, but more permanent

Every person is different. The best option for you will be the best option for YOU.