

Paradoxical Vocal Fold Movement Disorder

Laura Matrka, MD^{a,b,*}

KEYWORDS

- Vocal cord dysfunction • Paradoxical vocal fold movement disorder
- Paradoxical vocal cord movement disorder • Paradoxical vocal fold dysfunction
- Paradoxical vocal cord dysfunction • Paradoxical vocal fold motion dysfunction
- Paradoxical vocal cord motion dysfunction • Respiratory retraining therapy

KEY POINTS

- Paradoxical vocal fold movement disorder is more common than previously recognized and should be considered when dyspnea is present without pulmonary disease or out of proportion to the degree of coexistent pulmonary disease.
- Laryngeal control therapy (also called respiratory retraining therapy) with a speech language pathologist is the cornerstone of treatment of paradoxical vocal fold movement disorder.
- Flexible laryngoscopy must be performed to diagnose paradoxical vocal fold movement disorder. Laryngeal control therapy techniques should be trialed during this initial scope.
- Bilateral vocal fold paralysis, subglottic stenosis and tracheal stenosis must be ruled out, particularly when stridor is present.
- Comorbidities, such as laryngopharyngeal reflux, sinus or allergy problems, laryngeal sicca, and obstructive sleep apnea, should be identified and treated.
- Attention to controlling anxiety and stress levels is important. However, the role for counseling or psychiatric care in treating paradoxical vocal fold movement disorder may be decreasing as the contribution of medical comorbidities becomes more widely recognized.

INTRODUCTION

The first hint of paradoxical vocal fold movement disorder (PVFMD) in the medical literature came in 1842, in which a patient with “hysterical croup” was described.¹ The paradoxical movement itself was first visualized via laryngoscopy in 1869 by Mackenzie,² who

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^a Department of Otolaryngology – Head and Neck Surgery, The Ohio State University Wexner Medical Center, Eye and Ear Institute, Suite 4000, 915 Olentangy River Road, Columbus, OH 43212, USA; ^b JamesCare Voice and Swallowing Disorders Clinic, Stoneridge Medical Center, 4019 West Dublin-Granville Road, Dublin, OH 43017, USA

* Department of Otolaryngology – Head and Neck Surgery, The Ohio State University Wexner Medical Center, Eye and Ear Institute, Suite 4000, 915 Olentangy River Road, Columbus, OH 43212.

E-mail address: Laura.matrka@osumc.edu

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Abbreviations	
COPD	Chronic obstructive pulmonary disease
ILS	Irritable larynx syndrome
LCT	Laryngeal control therapy
LPR	Laryngopharyngeal reflux disease
OSA	Obstructive sleep apnea
PFT	Pulmonary function testing
PVFMD	Paradoxical vocal fold movement disorder
SLP	Speech language pathologist

visualized glottic closure in direct correlation with the patient's stridor. In current-day practice, patients with much lesser degrees of stridor and vocal fold narrowing are often evaluated, thanks in great part to the increasing recognition of this disorder by the greater medical community. However, there are clearly still gaps in recognition and understanding of PVFMD.

NATURE OF THE PROBLEM

PVFMD is a disorder in which someone with otherwise normal vocal fold motion suffers from intermittent constriction of the vocal folds during respiration, causing dyspnea and the sensation of throat tightness. The presentation often mimics asthma, although it can occur alongside asthma or other pulmonary disease. The cause of PVFMD was thought to be only psychologic for many years, with stress and anxiety as the primary triggers; the current clinical picture is evolving and may be influenced more by medical comorbidities than previously recognized.³ Husein and colleagues⁴ established in 2008 that 70% of their patients with PVFMD had a psychological profile matching, at least in part, that of a conversion disorder. However, 50% of their patients had comorbid conditions such as gastroesophageal reflux disease or asthma, and they were more likely to have these medical conditions than they were to have a psychiatric history.

Stress and anxiety are still recognized as significant triggers for many patients, but anything that irritates the vocal folds can make paradoxical movement more likely.^{3,5-7} There is a well-established link to laryngopharyngeal reflux (LPR), although evidence on whether its treatment leads to resolution of PVFMD is contradictory.⁸⁻¹⁴ Laryngeal edema (associated with reflux complaints in 90%) was found in 72% of patients diagnosed with PVFMD in a recent prospective study.³ This reflux and edema can trigger mild PVFMD in some and full-blown laryngospasm in others.¹⁰

Other factors that lead to laryngeal mucosal irritation, such as tobacco abuse, allergic laryngitis, viral illness, and untreated sleep apnea, may trigger episodes of PVFMD and make it more difficult to treat.^{5,6} Rhinosinusitis and the resulting postnasal drip can directly cause irritation of the vocal folds; however, inflammation may also result indirectly from the release of inflammatory mediators, as described in the "One Airway" theory.¹⁵ Other respiratory tract irritants such as inhaled chemicals, smoke, or gases have long been recognized as prominent triggers in PVFMD as well.^{12,16-18} Understanding of the irritable larynx syndrome (ILS), as described by Morrison and colleagues⁷ in 1999, is crucial to a full understanding of PVFMD. PVFMD may, in fact, represent a subset of ILS in many cases.^{3,5,6}

At the more severe end of this spectrum of vocal fold irritability is laryngeal sensory neuropathy, in which a generalized laryngeal hyperresponsiveness develops after an initial inflammatory insult (such as a viral illness, trauma, or surgery in the neck). Even after controlling for factors such as reflux or allergic inflammation, the patient

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