



Diagnosis & Treatment of Paradoxical Vocal Fold Motion in Infants

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Introduction

Paradoxical vocal fold motion (PVFM), also known as vocal cord dysfunction (VCD), is the untimely adduction of vocal cords during inspiration. To date, little is known regarding the pathophysiology of PVFM.

We report seven infants evaluated and diagnosed with PVFM at a tertiary medical center. The goal of our study is to investigate the patterns of presentation and clinical course of infants with paradoxical vocal fold motion (PVFM). Although this disorder has been previously reported in the literature, few studies have described this entity within the pediatric subpopulation, specifically in infants.

Methods

Patients less than 2 years of age with a diagnosis of congenital paradoxical vocal fold motion were identified using ICD-9 and ICD-10 codes. All patients presented to the Pediatric Otolaryngology clinic at Penn State Health within the last 10 years and were evaluated by the senior author. History, physical exam findings, and clinical course of treatment were reviewed and documented.

Results

Table 1. Descriptive data for infants diagnosed with paradoxical vocal fold motion.

Patient ID No.	Age at Diagnosis	Weight Percentile at Diagnosis	Feeding Issues (Y/N)	Past Medical History	Voice Quality (Initial)	In-office FFL Findings	Rx for Reflux Meds (Y/N)	Time to resolution
1	1 week	67.4	Y	Reflux	Inspiratory stridor, hoarse cry	PVFM, Short aryepiglottic folds, mild esophageal retroflexion, mild VF edema	Y	1.5 months
2	10 months	44.4	Y	Reflux, Pierre Robin, Speech Delay	Inspiratory stridor	PVFM, short aryepiglottic folds, omega epiglottis, mild post-cricoid edema	Y	10 months
3	2 months	22.6	N	Reflux, Neonatal rhinitis, choanal stenosis	Inspiratory stridor, stertor at rest	PVFM, mild post-glottic edema, bilateral choanal stenosis	Y	6 months
4	15 months	75.0	N	Reflux, Asthma	Inspiratory stridor	PVFM, post-glottic edema and erythema	Y	N/A*
5	1 month	7.0	N	Reflux, Laryngomalacia, Meconium Aspiration	Inspiratory stridor	PVFM, post-glottic edema, posterior laryngeal collapse	Y	N/A*
6	19 months	37.0	N	Developmental delay, Asthma	Quiet inspiratory sound without stridor	PVFM, posterior laryngeal collapse	Y	6 months
7	2 months	53.88	N	Bilateral polydactyly	Inspiratory stridor	PVFM, post-glottic edema and erythema	Y	LTF
Mean (±SD)	7.03 months (0.64)	43.90 (0.24)						5.88 months (3.47)

FFL=flexible fiberoptic laryngoscopy
 PVFM=paradoxical vocal fold motion
 LTF=lost to follow-up
 *N/A indicates that PVFM is not resolved and patient is still under treatment

Discussion

Three categories of PVFM have been described: psychogenic, exertional, and irritant-associated. Our study reflects a high rate of irritant-associated vocal fold dysfunction, and, therefore, GERD should be a primary consideration to target while treating PVFM in infants. As for the other etiologies, it is less likely that infants would suffer from exertional or psychiatric due to their activity levels and cognitive abilities at this young age. Although vocal cord dysfunction may be distressing, pediatric patients and parents, should be reassured that the disorder is treatable. Awareness of the common presentation, parental observations, and physical exam findings is critical to properly diagnose and treat these patients. The clinician must therefore be cognizant of early signs and symptoms that may indicate a child is in fact suffering from vocal cord dysfunction.

References

- Morris MJ, Christopher KL. Diagnostic criteria for the classification of vocal cord dysfunction. *Chest*. 2010;138(5): 1213-23.
- Maturo S, Hill C, Bunting G, et al. Pediatric paradoxical vocal-fold motion: presentation and natural history. *Pediatrics*. 2011;128(6):e1443-49.
- Maschka DA, Bauman NM, McCray PB, et al. A classification scheme for paradoxical vocal cord motion. *Laryngoscope*. 1997;107(11 pt 1): 1429-35.
- Forrest L.A., Husein T., and Husein O.: Paradoxical vocal cord motion: classification and treatment. *Laryngoscope* 2012; 122: pp. 844-853
- Benninger C, Parsons J, Mastrorade G. Vocal cord dysfunction and asthma. *Curr Opin in Pulm Med*. 2011;17: 45-49.