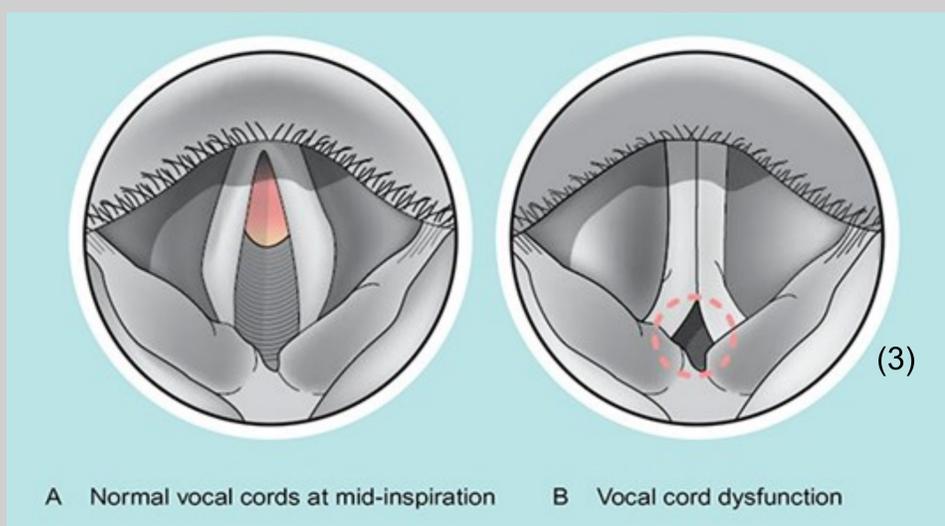


# A Differential Diagnosis for Asthma on the AMU: A Case of Acute Paradoxical Vocal Cord Motion Disorder

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## Introduction

Paradoxical Vocal Cord Motion Disorder (PVCMD) is a rare condition that involves the inappropriate movement of vocal cords to the midline during inspiration and expiration. It is most common in females aged 20-40 and is often misdiagnosed as asthma both acutely and chronically (1), leading to unnecessary medical treatment and interventions (2). The precise pathogenesis is uncertain, with several mechanisms suggested: direct stimulation of sensory nerve endings; hyperventilation; laryngeal hyper-responsiveness. Precipitating factors can be both organic (exercise, irritants, rhinitis, postnasal drip, GORD) and non-organic in nature (anxiety, depression, panic disorder) (2).



## Case

**Presenting Complaint:** A 26 year old female presented to AMU as an alert with a suspected acute asthma exacerbation. Her past medical history included multiple admissions for acute asthma, eight of which had required intubation on ITU in the past year; Ehlers-Danlos and autism.

**On Examination:** She was tachypnoeic (40/min), tachycardic (100bpm) and afebrile, with sats of 98% on 8L. She appeared to be tiring, was unable to talk in full sentences and unable to perform a PEFr test. On auscultation her chest was silent.

**Investigations:** ABG showed hypoxaemia (PaO<sub>2</sub> 30.3kPa), ECG showed sinus tachycardia and her chest x-ray was unremarkable.

**Treatment:** She was initially treated for an acute exacerbation of asthma with back-to-back salbutamol and ipratropium nebulisers, IV hydrocortisone and IV magnesium sulphate to no effect. On reviewing clinical letters in her notes, it became evident that the patient also had a history of PVCMD. This led to involvement of on-call anaesthetists who took over the management and initiated treatment with sedatives and heliox inhalation. Unfortunately, this management was unsuccessful, the patient tired further, so intubation on ICU was necessary.

## Discussion

Although rare, PVCMD is an important, widely unrecognised differential diagnosis for patients admitted to AMU with a suspected acute exacerbation of asthma that is not responding to maximum treatment. Misdiagnosis can have a negative impact on patients' outcome, both short-term and long-term, thus it is important to have an understanding of the presentation, diagnosis and management of PVCMD (1).

Presenting symptoms and signs of acute PVCMD are similar to that of an acute exacerbation of asthma (see table below) (4).

Gold standard for diagnosis is by direct visualisation of the vocal cords via laryngoscopy whilst symptomatic (1).

Acute management in AMU should be aimed at relaxing the vocal cords and removing any precipitants or anxiety that could be perpetuating the condition. This involves reassuring and calming the patient; breathing techniques, such as panting and coughing; heliox inhalation to reduce airway turbulence; nebulised lignocaine to relax the vocal cords; sedation with benzodiazepines to relieve anxiety; and CPAP. Anaesthetics involvement for intubation is a last resort (2).

Symptom	PVCM (%)	Asthma (%)	Symptoms associated with PVCMD
Wheeze	80	100	
Cough	77	87	
Dyspnoea	83	97	
Chocking sensation	6	28	
Chest pain	12	45	
Stridor	18	6	
Better with bronchodilators	10	90	
Reflux	33	47	
Voice changes	29	39	
Difficulty in speaking	6	26	
Sputum	3	80	

(4)

## Learning Points

- PVCMD is an important DD for patients with suspected acute asthma that is not responding to maximum medical therapy.
- It is recommended that all acute medical physicians have an awareness of the disorder and how it can be managed initially on the AMU.

## References:

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