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## CASE REPORT

*E. P. C. M. S.*

## Not Everything that Wheezes is Asthma!

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### BACKGROUND

Vocal cord dysfunction (VCD) is a relatively uncommon syndrome characterized by a paradoxical vocal cord adduction, clinically manifested by inspiratory stridor, choking, and throat pain with difficulty speaking. Wheezes are also present and are more localized in the larynx and less heard in the lung fields. Sudden onset and resolution of the symptoms is classic often accompanied by anxiety, but rarely with hypoxemia. This helps to differentiate from an acute asthma attack. The etiology is unknown, but a psychological component it is often identified. It is currently believed to be associated with an attention seeking hysterical conversion syndrome however, some triggers have been proposed including post-nasal drip, exercise reflux, gastroesophageal reflux, inhaled irritants, and neurologic causes.<sup>1,3</sup>

### CASE PRESENTATION

The patient is a 36-year old woman with past medical history of asthma. She was in her usual state of health until one week prior to admission when she had sudden onset of a sensation described as "my throat is closing". This was associated with episodes of intermittent dry cough and mild shortness of breath. The symptoms worsened two days prior to admission when "I lost my voice". Her review of systems demonstrated that she suffered from mild headache and anxieties do to marital conflict. She also stated that she has had two previous episodes of similar symptoms which were diagnosed and treated as asthma exacerbations. She comments that she is a non-smoker and does not drink alcohol or use any illicit drugs. She is a housewife and lives with her husband and 2 children.

While examining the patient she was found to be in mild acute respiratory distress due to dysnea and appeared anxious. Her vital signs consisted of a temperature of 97.6 F, a pulse of 74, a blood pressure of 136/70; and a respiratory rate of 20. Her pulse oxymeter showed an oxygen saturation of 88-92% at room air. She was noted to have Acanthosis Nigricans, but no cyanosis on her skin exam. She had inspiratory stridor with generalized wheezing but was not using accessory respiratory muscles; her cardiac exam revealed a normal sinus rhythm, without murmurs or gallops. Psychologically she displayed a depressed mood. The rest of physical examination was unremarkable.

Her laboratory findings which included a complete blood cell count (CBC), comprehensive metabolic panel (CMP), chest radiograph and electrocardiogram were all within normal limits.

The patient was admitted with a diagnosis of reactive airway

disease and treated with oxygen, bronchodilators and intravenous steroids. On the second hospital day, the patient was started on a leukotrine inhibitor and an antibiotic (macrolide) for suspected bronchitis. She reported no improvement of her symptoms and the stridor persisted. The generalized wheezing and dysphonia was intermittent improving especially when the patient was not observed by staff. The oxygen saturation remained normal without supplemental oxygen.

The CT scan of her neck failed to reveal any abnormality. Pulmonary function tests were attempted and remained inconsistent due to poor patient effort. However, the results of the pulmonary function tests showed an FEV1 of 1.68 (59%), a FVC of 2.06 (58%), a FEV1/FVC of 81, a TLC of 3.04 (64%), and a FIV1 of 1.67. Subsequently, a pulmonary consultation was obtained and their recommendation was that a vocal cord dysfunction diagnosis is entertained and a neuropsychiatry consultation be obtained.

The neuropsychiatry team requested that the diagnosis of possible conversion disorder be considered due to domestic violence and dysthymic disorder. At this point, an antidepressant was started.

### DISCUSSION

Asthma is one of the most common chronic diseases affecting approximately 300 million people worldwide. It's characterized by usually reversible airway obstruction that clinically presents with dysnea, cough and wheezing. Large numbers of patients are misdiagnosed with asthma, partly due to its high prevalence and shared clinical symptoms with many other diagnoses. Differential diagnosis include chronic obstructive pulmonary disease, congestive heart failure, cough secondary to use of angiotensin-converting enzyme inhibitors, mechanical obstruction of airway (tumors), pulmonary embolism, pulmonary infiltration with eosinophilia and vocal cord dysfunction among others. Having taken the numerous differential diagnoses into account, it is important to reflect upon them in cases where patients do not respond to the conventional therapy.<sup>1,2</sup>

A small percentage of patients with diagnosis of asthma have been identified as having coexistent VCD, therefore response better to bronchodilators.

Definitive diagnosis for VCD is made with direct laryngoscopy showing the paradoxical vocal cord function which mainly consists of closure of the vocal cords during inspiration. It's impor-

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tant to know that expiratory dysfunction may also be found. Direct laryngoscopy can be quickly performed in an ENT setting. Pulmonary function tests are helpful to determine if there is a reversible bronchoconstrictive process which is confirmatory of asthma. The use of a methacoline challenge to induce bronchoconstriction may also work as a vocal cord irritant and incite vocal cord dysfunction.

Treatment includes a multidisciplinary approach; primarily through speech therapy; breathing, voice and neck relaxation exercises to abort symptoms. Some patients benefit from the addition of psychotherapy. Weaning off of the unnecessary asthma medications is critical. Prompt diagnosed and treatment may help to reduce inadequate utilization of health care resources.<sup>1,4,5</sup>

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