



Progressive Dyspnea and a Persistent Wheeze

A Subtle Presentation of Pulmonary Embolism in a 64 Year Old Woman.

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ABSTRACT

Wheezing is a whistling sound which is made during the inspiratory or expiratory phase. By definition, wheezes are continuous sounds longer than 250 msec in duration and are higher pitched and of more musical quality than rhonchi. These are commonly found in patients with asthma and although the mechanisms are not entirely clear, consensus on it originating from obstruction is evident. Most patients, and even a few physicians, believe that wheezing is synonymous with asthma. However, there are multiple conditions that produce this specific breath sound. We report a case of a patient who was misdiagnosed with asthma.

Key words: *Wheezing, obstruction, asthma, misdiagnosed*

Progresif Nefes Darlığı Ve Bir Persistan Hırıltılı Solunum

Altmış Dört Yaşında Bir Bayanda Pulmoner Embolinin Karmaşık Bir Başvuru Bulgusu

Hırıltılı solunum inspiratuvar veya ekspiratuvar faz sırasında ortaya çıkan bir ıslık sesidir. Tanım olarak hırıltılı solunum süresi 250 msaniyeden uzun olan sürekli seslerdir ve ronkustan daha müzikal kalitededir. Bunlar sıklıkla astım hastalarında duyulur ve mekanizması net olmamakla birlikte kaynağının obstrüksiyon olduğuna dair konsensus açıktır. Birçok hasta ve aynı zamanda bazı hekimler hırıltılı solunumun astımla anlamdaş olduğuna inanırlar. Ancak bu spesifik solunum sesini ortaya çıkaran birçok durum vardır. Bu makalede astım olarak yanlış tanı konulan bir vakayı sunuyoruz.

Anahtar kelimeler: *Hırıltılı solunum, obstrüksiyon, astım, yanlış tanı*

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INTRODUCTION

In evaluating patients with dyspnea and wheezing, it is important to be aware that, wheezes are produced secondary to an obstruction, but not all that wheezes is asthma. Different conditions, which involve a variety of anatomic airway locations, can produce obstruction and expiratory or inspiratory wheezing. A diagnosis other than asthma, should be considered when the initial evaluation suggests their presence or when wheezing does not respond to conventional asthma medications (1). We present a case of a 64 year old woman with progressive dyspnea and wheezing, who was initially diagnosed with bronchial asthma .

CASE

A 64 year-old Puerto Rican woman with medical history of obesity, hypertension, hypothyroidism, rheumatoid arthritis, fibromyalgia, gastrointestinal reflux disease (GERD) and diverticulosis was evaluated due to progressive dyspnea, which had limited her daily activities of living for approximately six months. She was initially diagnosed with bronchial asthma but responded poorly to conventional asthma treatment, which included bronchodilators and inhaled corticosteroids. Patient referred no cough, chest pain, orthopnea, paroxysmal nocturnal dyspnea or leg swelling. Physical exam did not demonstrate any visible jugular venous distention and cardiac exam had regular rhythm and no audible murmurs. The lungs however, presented with bilateral diffuse late expiratory wheezes. The rest of examination was unremarkable. In view of no clinical improvement, she was admitted for additional studies and further management.

On admission a complete cardiopulmonary work up was done, including 2-Dimension echocardiogram (2Decho), exercise stress test, chest imaging studies, and pulmonary function test (PFT). Cardiology stress test and 2Decho were within normal limits, including left ventricular ejection fraction and pulmonary pressures. Pulmonary function test was within her predicted values, with expected diffusing capacity of lung/alveolar volume (DLVA) levels as well. Arterial blood gases reflected mild primary respiratory alkalosis with an elevated A-a gradient (approximately 3.5 times her predicted value). Chest posterior anterior roentogram was without evidence of cardiomegaly, or parenchymal

abnormality. Chest CT angiogram showed evidence of nonocclusive thrombus at the right lower lobe pulmonary artery, and smaller at right middle lobe, right upper lobe and lingular pulmonary arteries (Figure 1). In lieu of these findings, a hypercoagulable workup was done, which was significant for elevated homocysteine levels.

The patient was started on anticoagulation with low molecular weight heparin and later with 5 mg oral warfarin daily, with a target INR of 2-3 IU. After the therapeutic INR was reached, there was significant clinical improvement and the patient was discharged home without complications.

DISCUSSION

Contrary to popular belief, asthma is not the most common cause of wheezing. One study reports upper airway cough syndrome (formerly post nasal drip syndrome) as the most common cause of wheezing in patient referred to a pulmonary clinic. (2) Wheezing may be low or high-pitched whistling sound which is made during inhalation or expiration. A careful history may elicit signs and symptoms which distinguish the various conditions that can produce this tone. Wheezes may be classified as polyphonic or monophonic. A polyphonic wheeze, consisting of multiple musical notes, is typically produced by dynamic compression of the large, more central airways. Monophonic wheezes, consisting of single musical notes, typically reflect disease in small airways such as asthma. However, they can also be produced by disorders involving the extrathoracic large airways (3).

Diagnosing the cause of wheezing should be approached by distinguishing the possible site of the obstruction (large vs. small intrathoracic airways, or to the extrathoracic airway). Chest imaging and pulmonary function test are helpful in identifying other etiologies; however, history and physical exam are crucial for narrowing the different causes of wheezing. Some non asthma causes of are upper airway cough syndrome, supraglottitis, tracheobronchomegaly, tracheal stenosis, and bronchiolitis but pulmonary embolism (PE) should be excluded in patients such as ours. The diagnosis of pulmonary embolism is confounded by a clinical presentation that may be subtle, atypical, or obscured by another coexisting disease. Although the exact incidence of pulmonary embolism is uncertain, it is estimated that 600,000 episodes occur each year in the United States.

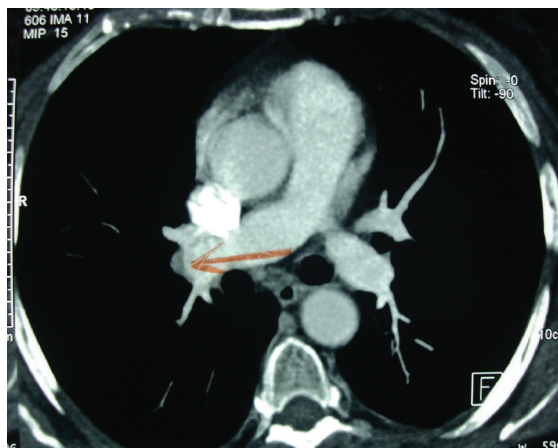


Figure 1. Non-occlusive thrombus at the right lower lobe pulmonary artery and smaller thrombus at right middle lobe, right upper lobe and lingular pulmonary arteries.

The clinical presentation and routinely available laboratory data such as electrocardiography, chest radiography and analysis of arterial blood gases, cannot be relied on to confirm or rule out pulmonary embolism (4). It rarely presents with wheezing to auscultation on physical examination. In considering a possible diagnosis of acute pulmonary embolism (PE), it is helpful to consider the patient in terms of the mode of presentation. The syndrome of isolated dyspnea, in the absence of circulatory collapse or pleuritic chest pain or hemoptysis, occurs in about 22% in cases of PE (5). For example, in Stein, et.al, acute PE and isolated dyspnea, presented with wheezing in 2 out of 31 patients (6%) (5). Dyspnea and wheezing were the initial presenting symptoms found in our patient, reason why knowledge of the common differential diagnosis according to the site of obstruction is important in evaluating the cause of wheezing (Table 1).

Table 1. Correlation of wheezes according to the site of obstruction

Extrathoracic upper airway obstruction

Upper airway cough syndrome
Paroxysmal vocal cord motion
Hypertrophied tonsils
Supraglottitis
Laryngeal edema
Postextubation granuloma
Malignancy

Intrathoracic upper airway obstruction

Tracheal stenosis
Foreign body aspiration
Benign airway tumors
Malignancies
Intrathoracic goiter
Tracheobronchomegaly

Lower airway obstruction

Asthma
COPD
Pulmonary edema
Aspiration
Pulmonary embolism
Bronchiolitis
Cystic fibrosis
Bronchiectasis

Our case illustrates that not all that wheezes is asthma and the importance of further work up in cases where wheezing and dyspnea persist. Although uncommon, wheezing may be the only clinical feature in cases with pulmonary embolism. Being aware of common causes of wheezing via anatomical site, good history taking, and beginning the physical exam with the upper airway, should gear the clinician to reach a more precise diagnosis.

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