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**VCD could masquerade as asthma**

John is 30 years old, married and has four children. For the last one year, he works part-time in three different jobs and is also a full time student to become a registered nurse. He has had allergy-induced asthma since he was a teen. The asthma has been well controlled for the past several years by regular use of a steroid inhaler and occasional use of an albuterol inhaler. Therefore his family is surprised to find that all of a sudden for the past 6 months he has been experiencing “sudden” attacks of asthma for no obvious reason. Apparently the “asthma attacks” come without warning. During these episodes his throat constricts and he has difficulty breathing, swallowing and talking. He becomes hoarse temporarily. The attacks last for minutes and resolve on their own. The albuterol which has helped before to relieve his asthma symptoms does not seem to be as effective nowadays. There are times when he gets several of these episodes in a day and there are times when weeks go by without these “attacks”.

John is puzzled and wonders if he is exposed to some unknown new environmental trigger at home or work that is causing the problem. He is a nonsmoker and is not exposed to cigarette smoke. He has had a dog at home for several years. He lives in a relatively new home with no evidence of water leaks, cockroaches and molds. He is usually not exposed to any cleaning chemicals or strong scented skin and body care products. He admits to having heartburns more often now than he is used to and he blames it on stress and frequent use of ibuprofen for headaches. He has gained about 20 lbs. in body weight in the last one year, perhaps from eating outside more often and not having enough time to exercise.

Physical examination in the office reveals an overweight patient who appears to be tired and anxious. He does not seem to have any difficulty breathing at rest. Examination of the eyes, ears, nose and throat shows typical findings of nasal and eye allergy. Examination of the heart and lungs is normal. A chest x-ray is also normal. Allergy skin tests in the office for common environmental allergens shows that he is moderately allergic to many of the local plants and vegetations; he is not allergic to dogs, cats, cockroaches, molds or dust mites. A breathing test for asthma shows that his asthma is well controlled. It also shows an abrupt cut off of the inspiratory loop of his respiratory curve (which is abnormal). A NIOX test for asthma shows that he has normal levels of Nitric Oxide gas in his exhaled breath indicating that he has no significant inflammation of airway linings in his lungs. A full blood count shows that he has slight eosinophilia-indicative of underlying allergies and asthma.

I explained to John and his wife that John has classic allergy induced asthma that is well controlled at present as indicated by his normal lung function tests and NIOX measurements. This contrasts with John's history of recent onset of "sudden asthma attacks". This is an atypical presentation of asthma. I further explained that John very well may have an underlying Vocal Cord Dysfunction (VCD) which is supported by his classic history and presence of abnormal inspiratory loop in his breathing test.

Vocal cords are a pair of structures (like sentinels) that are located on either side of glottic opening in the voice box. Air moves in and out of lungs through the glottic opening. Normally, during inhalation the vocal cords open and let the air go into lungs. The vocal cords close when one eats to prevent food from entering the airways. In Vocal Cord Dysfunction (VCD), the vocal cords instead of opening to let the air go through during normal inhalation, they close or go into spasm "paradoxically". This makes it difficult for the patient to breathe in normally. The vocal cord spasm causes a sense of constriction in the throat. Since the vocal cords participate in the production of sound and speech, the vocal cord spasm results in loss of voice and ability to speak during attacks albeit temporarily. The situation is made worse when the patient panics and struggles hard to breathe against the closed laryngeal opening.

Apparently, the vocal cords can be irritated by postnasal drip from allergies and acid reflux from stomach and these factors could exacerbate the problem. The vocal cords are structurally normal otherwise. Therefore the Vocal Cord Dysfunction (VCD) is considered to be a functional disorder as opposed to organic disorders of the vocal cords resulting from vocal cord paralysis (following neck/ thyroid surgery), tumors etc. In fact John's vocal cords were completely normal during a routine examination by an E.N.T. doctor. The paradoxical movement of the vocal cords during attacks can be recorded by video by an E.N.T. doctor.

The Vocal Cord Dysfunction often coexists with asthma and makes the asthma look worse than what it is. If not recognized, it could result in unnecessary use of additional asthma medications, emergency room visits or even hospitalizations for asthma. Patient education and clear understanding of the problem is the key to management. Evaluation by a speech pathologist and speech therapy is recommended for this condition. Psychotherapy to assess and treat underlying stressors may be necessary. Breathing exercises and relaxation techniques go a long way in treating this functional disorder effectively.

In fact, John is doing very well at present with regular implementation of allergy control measures at home, avoidance of irritants at work and home and by regular use of his routine allergy and asthma medications. He is started on allergy desensitization injections for pollens. Following advice, he lost about 20 lbs. of his body weight by proper diet and regular exercise and is well on his way to lose more! He quit one of his jobs (his wife has agreed to help him out by working more until completion of his studies), practices relaxation techniques and breathing exercises at home regularly and spends more time with his family. Please talk to your doctor about VCD, if you or your loved one has problems similar to John's.

***About the author:***

*Natarajan Asokan, M.D., F.A.A.P. is a board certified allergist and immunologist and a board certified pediatrician with over 25 years of experience as a physician and 8 years of experience as a practicing allergist & immunologist. He treats adults and children with various allergy & immunology problems. He can be reached at 1739, Beverly Ave, Suite 118, Kingman, AZ 86409, Tel: 928-681-5800, Fax: 928-681-5801, or [www.trinityallergy.com](http://www.trinityallergy.com)*