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Paradoxical Vocal Fold Motion

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The presentation of vocal cord dysfunction is dependent on the individual. Common symptoms include: cough, hoarseness, throat and neck tightness, anxiety, choking, dysphagia, sighing, noisy breathing (stridor), frequent clearing of throat, and dysphonia (MacConnell and Danilenko, 2014). Significance of PVFM and adduction can often be misdiagnosed. In PVFM, adduction and vocal cord dysfunction is often caused by asthma in the chest (MacConnell and Danilenko, 2014). It is important to note that VCD is on upper-airway disease mostly upon inspiration, while asthma is more associated with difficulty upon expiration (Deckert and Deckert, 2010). The sound of vocal cord dysfunction will present as an inspiratory monosynaptic wheeze, whereas in asthma will cause a polyphonic wheeze (Merrit, 2015).

Underlying Pathophysiology

The underlying pathophysiology of vocal cord dysfunction is not well defined as causes are multifold. There are many associated causative factors to VCD, but there is no clear unifying pathophysiology (Deckert & Deckert, 2010). Infected from the research, it seems that all of the causative factors are related to some sort of stress including physical, chemical, and psychological components. These associated factors include: exercise, psychological conditions, irritants, rhinitis, gastroesophageal reflux disease, structural intubation, and medications (Deckert & Deckert, 2010). A common causative factor is exercise, often misdiagnosed as exercise induced asthma, exercise can precipitate VCD (Deckert & Deckert, 2010). Success or failure of bronchodilators can help diagnose exercise induced asthma from VCD (Deckert & Deckert, 2015). Psychological conditions like posttraumatic stress disorder, anxiety, depression, and panic attacks can mimic VCD as well (Deckert & Deckert, 2010). Anxiety being of high prevalence in teenagers with vocal cord dysfunction (Deckert & Deckert, 2010). Environmental and chemical irritants are known to cause symptoms of VCD as well. Studies have shown an associated onset of symptoms with time of exposure to irritants like ammonia, motor buildings dust, smoke, soot, polluting homes, and cleaning chemicals (Deckert & Deckert, 2010). There is a high prevalence of rhinosinusitis and patients with vocal cord dysfunction (Deckert & Deckert, 2010). Postnasal drip associated with rhinosinusitis is linked to airway hyperreactivity and another possible contributor to VCD (Deckert & Deckert, 2010). Endotracheal intubation has directly contributed with the pathogenesis of vocal cord dysfunction. In one study an endotracheal tube caused neural injury to the recurrent laryngeal nerve and resulted in dysphonia and VCD (Kappler, Callaghan, and Hogikyan, 2014). Gastroesophageal reflux disease has been associated with high prevalence in vocal cord dysfunction (Deckert & Deckert, 2010). Neurologic drugs such as phenothiazines (Compazine, Phenergan) may cause transient VCD as well (Deckert & Deckert, 2010).

Flow volume loops

Among patients with PVFM, 92% had undergone endotracheal intubation (MacConnell, 2008). Of these patients, 43% reported difficulty breathing while intubated and 64% experienced symptoms of airway obstruction. Endotracheal intubation has been directly associated with the pathogenesis of vocal cord dysfunction (Hogikyan, 2010). Postnasal drip associated with rhinosinusitis is linked to airway hyperreactivity and another possible contributor to VCD. Endotracheal intubation has directly contributed with the pathogenesis of vocal cord dysfunction. In one study an endotracheal tube caused neural injury to the recurrent laryngeal nerve and resulted in dysphonia and VCD (Kappler, Callaghan, and Hogikyan, 2014). Gastroesophageal reflux disease has been associated with high prevalence in vocal cord dysfunction (Deckert & Deckert, 2010). Neurologic drugs such as phenothiazines (Compazine, Phenergan) may cause transient VCD as well (Deckert & Deckert, 2010).

Conclusions

Researching paradoxical vocal fold motion has led me to better understand the pathophysiology, comorbidities, and implications of the diagnosis. This understanding will help me communicate with other's about VCD and teach about it. Knowing that something can cause such a disruption, we use many healthcare resources, and can be well controlled with proper guidance gives me confidence to continue my research and communicate with others what we have found. It will be interesting to learn more findings of research such as the effects of smoking on VCD.