

Somatic Cough Syndrome; Is COVID-19 Guilty: Case Reports and Literature Review

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ABSTRACT

Introduction: Somatic cough syndrome (formerly known as Psychogenic Cough) is an uncommon and sometimes underestimated cause of persistent cough that is generally found after a series of rigorous testing and therapies. There is a peak incidence between 8 and 14 years; both sexes are affected similarly.

Case presentation: The current article describes three cases of somatic cough disorder observed at our institution during the COVID-19 pandemic. The patients were diagnosed after 2-3 months and were successfully managed with suggestive and behavioral therapy.

Conclusions: Lack of knowledge regarding somatic cough syndrome exists among frontline health care personnel. The relevance of reporting such cases emphasizes the need for health care professionals to be aware of the need to avoid unneeded medical management. Whether or not COVID-19 is linked to an increased incidence of somatic cough syndrome is yet to be established. Still, multidisciplinary collaboration, patient participation, and public education are essential, along with a clear case definition or working diagnosis.

Keywords: Somatic cough syndrome, Persistent cough, Suggestive therapy, Behavioral therapy, COVID-19

INTRODUCTION

Prolonged anxiety and social discomfort might result from a persistent chronic cough that lasts longer than one month in children and 2 months in adults. In many pulmonary and extra pulmonary disorders, it may be the sole presenting symptom. Thus, following a methodical approach is necessary for a proper evaluation and diagnosis of chronic cough^{1,2}. Despite this, even after a comprehensive systematic investigation, the cause of cough may not be obvious, and in both children and adults, psychological and neurological disorders should be considered³.

Somatic cough syndrome (formerly known as Psychogenic Cough) is an uncommon and sometimes underestimated cause of persistent cough that is generally found after a series of rigorous testing and therapies. There is a peak incidence between the ages of 8 and 14; both sexes are affected similarly^{4,5}.

The Expert Cough Panel documented that both adults and children need to fulfill the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria for a somatic symptom disorder (Supplementary Table 1) before a diagnosis of somatic cough disorder can be established. This implies ruling out tic disorders and other infrequent causes⁶. Moreover, to be more in line with the DSM-5 diseases categorization, the Panel proposed replacing the term "psychogenic cough" with "somatic cough disorder."

People who have been exposed to SARS-CoV-2 virus may develop a variety of new, recurring, or ongoing health issues. These disorders are known as long COVID or post COVID-19 syndrome. The onset of post-COVID problems might be observed at least one month after infection because most COVID-19 patients recover within a few days to a few weeks after infection. Post-COVID syndrome can affect anyone who contracted the infection. However, some people who later developed post-COVID illnesses did not know when they became infected. The majority of people with post-COVID disorders showed symptoms days

after discovering they had COVID-19⁷⁻¹⁰.

According to the DSM-5, somatic symptom disorders (SSD) are characterized by persistent, clinically significant somatic complaints as well as excessive or disproportionately negative thoughts, attitudes, or behaviors related to one's health.

The connection between SSD and lengthy COVID has gone unnoticed. COVID-19 patients have been reported to be at a higher risk of developing anxiety and depression symptoms¹¹. Patients with COVID-19 have a higher probability of developing SSD than only anxiety and depressive symptoms⁸. A higher incidence of comorbid SSD exists among patients who have a history of COVID-19 or post COVID-19 syndrome as reported by Willis C and Chalder T¹².

Non-pharmacological trials of hypnotherapy, suggestion therapy, or combinations of reassurance, counseling, or referral to a psychologist/psychiatrist have been recommended for children diagnosed with somatic cough disorder⁶. In the current case reports, we describe three cases with somatic cough disorder observed at our institution during the COVID-19 pandemic and managed with non-pharmacological trials.

CASE PRESENTATION

The CARE guidelines were thoroughly followed to present this case reports¹³.

Case 1

A 10-year-old girl was sent to the chest clinic after complaining of a cough for 8 weeks. She and several family members experienced upper airway tract infections, and some tested positive for COVID-19 infection. The cough was persistent, dry, barking, and loud. The cough lasted all day and went away during sleep. Different medical remedies were prescribed, including antihistamines, mucolytics, antitussives,

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and inhaled corticosteroids. The past medical and surgical history was free. The patient had no allergies to food, drugs, or other substances. She is the first child in a steady household with a good salary. The patient seems to be in good health, active and fun, with no evidence of respiratory distress or other chronic conditions. Her vital signs were normal, and her otorhinolaryngology, chest, and other system evaluations were all normal. Her laboratory and imaging results indicated normal values. Her cough was, as recounted by her family during her stay in the clinic (barking, loud, and repetitive every 1-2 minutes). The diagnosis of somatic cough was raised, and the family was reassured and scheduled for a session of suggestive therapy the following day. At the arranged time, the cough ceased after 30 minutes of suggestion therapy. If the cough reoccurred, the family was instructed to repeat the session. The cough did not return throughout the follow-up.

Case 2

A 9-year-old boy presented to the pediatric chest clinic with a 3-month cough history. Previously, the patient had been medically free, with no prior history of a similar condition. The persistent, dry, loud, and harsh cough irritated the patient, his family, and his classmates. Over-the-counter cough syrups, antihistamines, and even steroids and montelukast prescribed by his physician could not relieve the cough. No family history of atopic or chronic respiratory disease was documented. The patient had just had a domestic cat a few weeks preceding exhibiting these symptoms; nonetheless, even when the cat was relocated from the house, the patient demonstrated no improvement. The patient was also offered an asthma treatment trial but did not react well. The family was stable with no social concerns, and the patient showed excellent school performance. On examination, he seemed healthy and not distressed. He regularly coughed in the clinic, and his cough was harsh and loud. His throat examination was normal, and chest auscultation revealed normal vesicular breath sounds with no additional sounds. His family was very concerned about their son's condition and claimed that his cough began after some family members were infected with COVID-19. This patient was diagnosed with somatic cough syndrome and managed with psychosocial support and positive rewards. The child improved noticeably and was seen in excellent condition at the following visit.

Case 3

A 6-year-old girl who was already on inhaled steroids and bronchodilators for her asthma came to our clinic complaining of a cough that had been going on for 2 months after she experienced flu-like symptoms. Her mother characterized the cough as sounding like a seal barking, which was very distressing to them. During the two months, she was thoroughly investigated by a pediatrician, who diagnosed her with upper airway tract infections and asthma exacerbation, and prescribed a 5-day course of systemic steroids and antibiotics. She did not demonstrate a substantial improvement, so cough syrup and antihistamine were given, with no improvement. Her investigations, which included a blood lab, sputum culture, purified protein derivative (PPD) skin test, chest x-ray, and pulmonary function test (PFT), all came back normal except for a positive serological test for COVID-19, although she had no prior contact with a COVID-19 patient. Her pediatric pulmonologist agreed that she had likely acquired a habit cough because her history was very suggestive and negative screening for other medical causes. The family was reassured that the cough would resolve in time with behavioral therapy, which began with education about somatic cough syndrome. The parent was informed that their daughter was physically healthy and had no serious conditions. They were instructed to train her to suppress the cough for

small intervals of 1 to 2 minutes at a time while using a sip of water to help suppress the urge to cough. Furthermore, the parent was instructed to employ positive reinforcement to assist with suppressing the cough for increasingly longer periods. The cough decreased after two days of implementing this behavioral therapy at home.

DISCUSSION

Somatic cough syndrome is mostly discovered after stringent testing, and several improvised therapies have failed to alleviate the patient's persistent cough. Nearly equal numbers of both genders are affected, and it mostly strikes young people with a peak incidence between 8 and 14 years old^{4,5}. Somatic cough syndrome is thought to affect 3-10% of children with persistent cough from unknown causes, but its true incidence is still unclear because of the scarcity and heterogeneity of the available literature on the topic¹⁴.

The current article describes three patients diagnosed with somatic cough syndrome who were seen at our facility during the COVID-19 epidemic.

The DSM no longer uses the word "psychogenic" to describe such disorder since functional imaging studies have begun demonstrating brain correlates for previously only assumed psychogenic conditions. In 2015, the Expert Cough Panel suggested putting the word "psychogenic" in parentheses for 3 years when discussing somatic cough disorder research. This will help the new name catch on, avoid confusion in the medical literature, and make it easier to search bibliographic databases⁶. The terminology "psychogenic cough" is now used in neuropsychiatry and often refers to a somatization disease. Somatization is the process through which a psychological symptom is transformed into a physical ailment^{15,16}. Malingering, which is distinguished from psychogenic disorders and indicates a direct advantage (either financial or emotional) as a result of pretending an illness, should not be confused with somatic cough disorder. Additionally, this should not be mistaken for a conversion disorder, which suggests the presence of a quasi-neurologic symptom that cannot be accounted for by an underlying neurologic disease¹⁷.

Patients diagnosed with this syndrome often report a honking or barking-sounding cough that is very disruptive during the day but goes away at night. In some cases, the diagnosis may be made quickly because of their remarkable lack of distress, or "la belle indifference," towards coughing despite its persistent and intrusive characteristics. Depression and anxiety may coexist in some cases^{6,14,18}.

Although a barking or honking cough and the lack of cough at night have been suggested as criteria suggestive of psychogenic, habit, or tic cough in some articles, primarily that have been conducted on pediatric patients, such characteristics were not often present or sought for in reports of these disorders^{14,19}. For psychogenic or habit cough, these three cough-related manifestations do not seem to be sensitive screening findings since they did not prevent studies from diagnosing psychogenic or habit cough when none of the other criteria were met. The same finding was supported by a systematic review conducted by Haydour et al.⁵ that included 18 uncontrolled studies (with a total population of 223).

Somatic cough disorder should only be diagnosed after a thorough examination that involves ruling out tic disorders, as well as unusual causes, and the patient meets the DSM-5 criteria for a somatic symptom disorder. The diagnostic criteria involve: (a) one or more somatic symptoms interfering with everyday life, (b) overwhelming worry about how serious the symptoms are, (c) ongoing concern about

wellness or manifestations, and (d) undue attention to symptoms or health issues; such symptoms last longer than six months on average.

Pharmacologic therapies were found to be mostly ineffectual. Still, a variety of non-pharmacologic methods (that include hypnosis as well as suggestion therapy) or combinations of reassurance, counseling, relaxation methods, referral to a psychologist/psychotherapy, and other medications (that include tranquilizers, anxiolytics, as well as antidepressants) were shown to be potentially helpful in children⁵. The non-pharmacologic strategies showed a remarkable improvement among the 3 cases; the cough ceased and never reoccurred during the follow-up.

In their systematic review, Haydour et al. documented that the most often utilized therapies were hypnosis (3 trials), suggestion therapy (4 trials), and counseling and reassurance (7 trials). Hypnosis successfully cured cough in 78% of cases and alleviated it among another 5%. In 96% of cases, suggestion therapy was beneficial in treating their cough. The pediatric age group had the most significant majority of gains seen with various types of treatment⁵.

Suggestion therapy approaches are primarily related to the clinician persuading the patients that by suppressing the impulse to cough, they can control the cough. The clinician discusses cough nature to the patients and their families and shows confidence in the patient's capacity to quit coughing. During the procedure, distractions such as a bed sheet wrapped across the patient's chest or nebulized lidocaine dissolved in normal saline are utilized. The distractor's role is to assist patients in controlling their cough, and this should be properly stated to the patients in a manner that matches the cough nature²⁰.

The SSD-12 scale, a self-rating questionnaire made up of 12 items, was recently created by Toussaint et al. Its purpose is to evaluate patients' assessments of their symptom-related thoughts, emotions, and behaviors by asking DSM-5-based questions. The SSD-12 seems to be a simple instrument that may help doctors identify and evaluate SSD²¹.

The biopsychosocial model should therefore be used to guide multidisciplinary therapy for SSD patients¹². This method's major goal is to assist patients in realizing that concurrent treatment is necessary since chronic symptoms result from the combination of physiological, cognitive, behavioral, emotional, and social components.

CONCLUSION

The health care workers in the frontline settings lack awareness about somatic cough syndrome. The significance of reporting such cases highlights the need for health care workers' awareness to prevent unnecessary medical management and investigation. We recommend highlighting such medical conditions and their management in health care settings and formulating clear guidelines to diagnose and manage somatic cough syndrome. It is yet unknown if COVID-19 and the heightened risk of somatic cough syndrome are related. But a solid case definition or working diagnosis is required, along with multidisciplinary input, patient involvement, and public awareness.

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Supplementary Table 1: Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) Criteria for Somatic Symptom Disorder¹

Diagnostic Criteria

- A. One or more somatic symptoms that are distressing or result in significant disruption of daily life.
- B. Excessive thoughts, feelings, or behaviors related to the somatic symptoms or associated health concerns as manifested by at least one of the following:
 - 1. Disproportionate and persistent thoughts about the seriousness of one's symptoms.
 - 2. Persistently high level of anxiety about health or symptoms.
 - 3. Excessive time and energy devoted to these symptoms or health concerns.
- C. Although any one somatic symptom may not be continuously present, the state of being symptomatic is persistent (typically more than 6 mo).

Specify if:

Persistent: A persistent course is characterized by severe symptoms, marked impairment, and long duration (more than 6 mo).

Specify Current Severity:

- 1. Mild: Only one of the symptoms specified in Criterion B is fulfilled.
- 2. Moderate: Two or more of the symptoms specified in Criterion B are fulfilled.
- 3. Severe: Two or more of the symptoms specified in Criterion B are fulfilled, plus there are multiple somatic complaints (or one very severe somatic symptom).