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Case Letter

Psychogenic Cough, Substance Abuse and Intellectual Disability- A Diagnostic Dilemma?

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Psychogenic cough and substance abuse, along with borderline intelligence, are three entirely different entities that may coexist in the index case and thereby may pose diagnostic and management challenges. This communication presents such a case with the aim of exploring the correlations among them, if any.

A patient presented to the respiratory medicine outpatient department with a 7-days history of shortness of breath and a persistent, forceful, non-productive cough. The cough occurred at frequent intervals throughout the day, significantly disrupting speech, work-related tasks, and daily activities, along with reduced and disturbed sleep. Patient reported that the cough subsided while conversing. The patient had received treatment for bronchial asthma earlier.

Respiratory findings were within normal limits, and chest radiography showed no abnormalities (Figure 1). The patient underwent the following investigations- Complete blood count with normal RBC, TLC and eosinophil count, thereby ruling out non-Asthmatic eosinophilic bronchitis. There was no H/O fever, thereby ruling out post-viral cough or any other infective etiology for cough. There was no reported exposure to environmental or occupational irritants. Electrocardiogram and CVS examination (Normal Palpation and Auscultation, Normal JVP, No Carotid bruit) was normal, thereby there were no signs of heart failure. STOP-BANG Questionnaire and Epsworth sleepiness scale were applied and a score of zero was found on administration, thereby, obstructive sleep apnea was ruled out. Medication-induced cough was ruled out as there were no records of drugs such as ACEIs, topiramate, fentanyl, phenytoin and other drugs being administered.[2] During a detailed history, concerns regarding possible substance abuse emerged. Given the absence of respiratory pathology and the nature of the presenting symptoms, a psychiatric evaluation was requested for further diagnostic clarification. On further detailed evaluation at the psychiatry outpatient department, multiple somatic complaints, predominantly cough, were found with abrupt onset and continuous course. Also, as per the attendant, the patient faced difficulty in doing basic calculations at the shop where he had been working; he was able to carry out his daily self-care activities without any assistance. Antenatal and perinatal history were uneventful; motor and speech developmental milestones were delayed. On urine drug screening, morphine was found positive with no characteristics withdrawal features. On MSE, affect was inappropriate. Cognitive testing revealed concrete abstract ability, arousable and sustained attention and borderline intelligence. On further evaluation, there was no significant genetic component or family history of any respiratory pathology.

The patient was started on oral baclofen 10 mg as a muscle relaxant and oral clonazepam 0.5 mg in view of its muscle-relaxing properties, apart from controlling insomnia.[4,5] The patient was also started on the second-generation antipsychotic aripiprazole 2 mg in view of the behavioral issues associated with borderline intelligence status. Non-pharmacological techniques include psycho-education of the patient himself and family members regarding the nature of illness, regarding substance abuse, relaxation techniques were taught to the patient and the patient was advised to practice them whenever he experienced complaints of cough. There was a gradual response seen subsequently.

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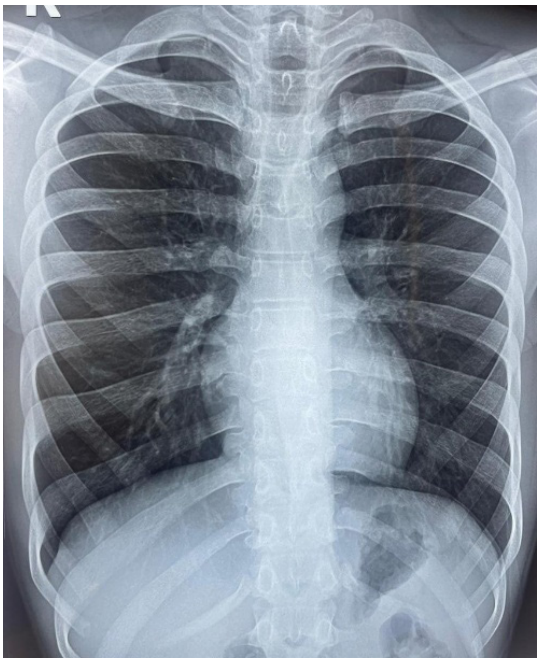

Figure 1: Chest x-ray PA view, showing no abnormalities

This case presents a complex clinical scenario involving the convergence of three distinct but potentially interconnected conditions in a 17-year-old male: Psychogenic cough, Substance abuse (morphine) and borderline intellectual functioning. The diagnostic and management challenges encountered highlight the importance of comprehensive interdisciplinary evaluation in adolescents presenting with unexplained somatic symptoms.

The persistent non-productive cough without organic etiology, coupled with the lack of response to conventional medical management, strongly suggests a psychogenic origin[1]. Psychogenic cough, also known as habit cough or tic cough, is characterized by a dry, repetitive cough that typically occurs during waking hours and dissolves during sleep. The absence of respiratory pathology on pulmonary examination and the referral to the psychiatry department with subsequent findings support this diagnosis. In the context of substance use, the rural background and employment at a young age might be responsible, in view of increased exposure opportunities, especially due to the geographical location where substances are easily accessible. Substance use disorder is widely prevalent due to the above reasons, apart from limited access to appropriate guidance and supervision.

The cognitive assessment in this patient revealed concrete and abstract thinking abilities, delayed developmental milestones, and functional difficulties with basic calculations that confirmed borderline intellectual functioning (IQ range 70–84). This condition significantly impacts the patient's ability to process complex information, understand abstract concepts, and make informed decisions, including substance abuse. Borderline intellectual functioning may increase vulnerability to substance experimentation due to impaired judgment, difficulty understanding consequences, and increased susceptibility to peer influence. Also, the combination of cognitive limitations and potential substance-related stress may manifest as somatic symptoms, particularly the psychogenic cough, representing a conversion of psychological distress into physical symptoms as occurred in this case.

Drug-induced cough is another neglected cause for unexplained cough and requires a detailed history.[2] Drugs such as angiotensin-converting enzyme inhibitors, sitagliptin, calcium channel blockers, fentanyl, latanoprost, topiramate, phenytoin, methotrexate, mycophenolate mofetil, omeprazole, etc., are known to cause drug-induced cough and were ruled out in this case. Morphine is known to be a potent cough suppressant[3], despite the patient not been administered morphine via prescribed medications and the cough was still persisting, further points towards the cough being of psychogenic in nature.

This case demonstrates the complex interplay between psychogenic somatic symptoms, substance abuse and cognitive limitations in an adolescent patient. While these conditions are distinct diagnostic entities, their co-existence creates unique challenges requiring comprehensive, multidisciplinary assessment and individualized treatment planning. The case underscores the importance of considering cognitive functioning and substance use screening in adolescents presenting with unexplained somatic symptoms, particularly those from rural or socioeconomically disadvantaged backgrounds. Early identification and appropriate intervention for borderline intellectual functioning may serve as a protective factor against substance experimentation and reduce the likelihood of developing maladaptive coping mechanisms, such as somatization.

This case highlights the need for standardized screening protocols for adolescents presenting with unexplained somatic symptoms, particularly those from vulnerable backgrounds. Although obsessive-compulsive disorder couldn't be ruled out due to a history of substance intake, this case contributes to the limited literature on the intersection of these conditions in adolescence and emphasizes the need for integrated care models that address cognitive, psychological, and substance-related factors simultaneously. Future research should focus on developing targeted interventions for this vulnerable population and establishing evidence-based screening protocols for early identification and intervention in such conditions.

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