

# An alternative approach to diagnosis and treatment of intractable paroxysmal sneezing in a child

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## ABSTRACT

**Background.** Intractable paroxysmal sneezing is a rare and diagnostically challenging condition in children, often mimicking organic diseases. While it is often addressed as psychogenic in the literature, our case presented findings suggestive of a tic disorder, highlighting the need for a broader diagnostic perspective.

**Case Presentation.** An 11-year-old girl was referred to the child and adolescent psychiatry clinic with a one-year history of persistent and fluctuating sneezing episodes. Despite comprehensive evaluations by pediatric neurology, allergy, and otolaryngology services, no significant pathology was identified. While the symptoms initially appeared psychogenic due to their onset following a school change and exacerbation during periods of heightened stress, a detailed assessment revealed findings suggestive of a tic disorder, including the fluctuating nature of the symptoms, their absence during sleep, and transient suppressibility. Partial symptomatic relief observed with metoclopramide, a dopamine antagonist, led to the initiation of risperidone therapy (0.25–0.5 mg/day), which resulted in significant clinical improvement.

**Conclusions.** This case illustrates the complex interplay between psychogenic stressors and tic-like manifestations in pediatric intractable paroxysmal sneezing. The positive response to risperidone underscores the potential role of dopamine antagonist treatments in managing such cases. A multidisciplinary approach is crucial for accurate diagnosis and effective management, ultimately enhancing patient quality of life.

**Key words:** intractable paroxysmal sneezing, tic disorder, pediatric, psychogenic, dopamine antagonist.

Sneezing is a physiological defense mechanism triggered by irritation of the nasal mucosa from allergies, infections, or local pathologies.<sup>1</sup> However, intractable paroxysmal sneezing (IPS) is rare and predominantly affects female adolescents.<sup>2-4</sup> Unlike typical sneezing, IPS is generally considered to be of psychogenic origin and is characterized by recurrent, treatment-resistant sneezing episodes.<sup>2,5</sup>

Individuals with IPS do not sneeze during sleep and sneeze with their eyes open. Psychogenic sneezing is further characterized by the absence

of a full inspiratory phase, minimal nasal secretions, and generally normal findings on physical examination. Additionally, while a significant psychiatric history is frequently observed in these patients, it is not invariably present.<sup>2</sup>

Tic disorders, among the most common movement disorders in childhood, manifest as semi-involuntary, sudden, rapid, and repetitive movements, facial expressions, gestures, or vocalizations.<sup>6</sup> In severe cases of tic disorders, pharmacological treatment

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with antipsychotic agents has been reported to be particularly effective.<sup>7,8</sup> Interestingly, otolaryngologic symptoms, including coughing and sneezing, have also been described as potential manifestations of tic disorders in prior reports.<sup>9</sup> Similarly, in a case marked by intense coughing, transient tic disorder was considered in the differential diagnosis, and complete remission was achieved with haloperidol treatment.<sup>10</sup> Furthermore, recent research has proposed shared genetic and etiological factors underlying the coexistence of allergic diseases and tic disorders, indicating a common neurobiological substrate.<sup>11</sup> Despite these observations, the conceptualization of IPS within a tic disorder framework remains scarce.

Reframing IPS as a tic-related manifestation may refine diagnostic algorithms, and expand therapeutic horizons to include targeted neuroleptic strategies. To the best of our knowledge, this is among the rare cases in which IPS has been re-evaluated as a possible tic disorder, with favorable response to dopamine antagonist treatment.

We present the case of an 11-year-old girl with IPS, initially suspected to be psychogenic but displaying tic-like features. Her symptoms improved significantly with low-dose risperidone. This case underscores the importance of integrating neuropsychiatric perspectives into the evaluation of refractory sneezing and advocates for a multidisciplinary approach to optimize patient outcomes.

### Case Presentation

An 11-year-old girl was referred to the Child and Adolescent Psychiatry Clinic at Ankara Bilkent City Hospital with a one-year history of IPS, characterized by a fluctuating course. Prior evaluations by pediatric neurology, allergy, and otolaryngology specialists—both at other centers and at our institution—had failed to reveal any significant pathology, prompting her referral to psychiatry.

Her symptoms commenced on the first day at her new school, after experiencing peer bullying at her previous institution. On that initial day, she developed consecutive sneezing bouts that persisted throughout school hours but were notably absent during sleep. During academic terms, her sneezing peaked each morning before classes; intensified during exams and subsided substantially during summer vacations, occasionally decreasing to fewer than twenty sneezes per day. At home, she could experience intervals of up to three hours without sneezing. These observations suggested a strong contextual component, wherein school-related stressors appeared to exacerbate her symptoms.

The patient reported that while she could temporarily suppress the sneezing, it would soon recur with greater intensity. She described a premonitory sensation accompanied by nasal itching prior to sneezing, and noted that her symptoms worsened in dusty environments and after consuming spicy foods. The frequency of her sneezing exceeded three times per minute, amounting to over 100 episodes daily.

Aside from sneezing, she had no upper respiratory symptoms. Nonetheless, the severity and unpredictability of her sneezing significantly disrupted daily functioning—she missed multiple school days, frequently exited formal examinations prematurely due to acute sneezing attacks, and made recurrent visits to the emergency department. Academically, her performance had been age-appropriate prior to symptom onset, but she later reported considerable anxiety and guilt stemming from absenteeism and diminished exam participation. She rated her distress at being unable to control or suppress the sneezing as 7 out of 10 on a visual analog scale. She actively tried to suppress her symptoms and appeared embarrassed and anxious during episodes.

A psychiatric interview and mental status examination revealed an anxious affect, with the patient expressing profound distress regarding

her inability to adapt to school demands. The sneezing episodes disrupted her speech and were preceded by a brief inspiratory phase, minimal nasal secretions, and a faint grunt. Video recordings confirmed that her eyes remained open during sneezing, with limited facial expression changes. Lip-tremor vocal tics were observed in conjunction with some sneezes; no additional motor or vocal tics were detected.

Comorbidity was evaluated through a comprehensive psychiatric interview and standardized self-report tools. The patient completed the Screen for Child Anxiety Related Emotional Disorders (SCARED), scoring 4; the Children's Depression Inventory (CDI), scoring 6; and the Children's Somatization Inventory-24 (CSI-24), scoring 12—all within the non-clinical range. Additionally, the Child Behavior Checklist, completed by the caregiver, did not indicate any clinically significant elevations across syndrome scales or broadband indices. No prominent psychopathology was identified, including internalizing, externalizing, or somatoform symptoms.

Her past medical history was notable only for seasonal pollen allergy, which had not required pharmacological treatment. There was no personal or family history of atopic conditions, tic disorders, or neurological illnesses. Initial allergy evaluations included trials of antibiotics, montelukast, cetirizine, and intranasal corticosteroids, with only minimal, transient improvement. No clinically significant sensitivities were detected on external allergy testing. Serum IgE was measured at 191 IU/mL, and immunoglobulin levels were as follows: IgA: 0.66 g/L, IgG: 6,400 mg/L, and IgM within normal limits. Neurological examination was also unremarkable, with no focal findings or signs of central nervous system involvement. Cranial magnetic resonance imaging performed at another center had shown no abnormalities.

A detailed review of her history revealed that metoclopramide, administered during an emergency visit, had provided notable

symptomatic relief. Given the dopamine antagonist properties of metoclopramide, treatment with risperidone was initiated at 0.25 mg/day, subsequently titrated up to 0.5 mg/day. Within two weeks, sneezing ceased entirely at home and decreased to fewer than 15–20 mild episodes per day while at school. By the one-month follow-up, symptoms had nearly remitted both at home and in the school setting, prompting maintenance of risperidone at 0.5 mg/day. Over the ensuing four months of monotherapy—without adjunctive psychotropic medications or psychotherapy—the patient attended school consistently, completed examinations without interruption, and reported marked improvements in mood, concentration, and anticipatory anxiety related to sneezing at school. She resumed normal peer interactions without shame or avoidance behaviors. No significant adverse effects emerged, and she remains under regular follow-up in our clinic. The family provided a written consent form for this publication.

## Discussion

This case highlights the intricate relationship between psychogenic stressors and tic-like manifestations in pediatric IPS, emphasizing both the diagnostic challenges and therapeutic opportunities inherent in this rare condition. Most reported IPS cases occur in adolescent girls and are frequently linked to psychosocial triggers.<sup>2</sup> In several documented cases, symptom remission was achieved through the removal of psychological stressors and the use of supportive psychotherapy, further supporting the functional nature of these sneezing episodes.<sup>3,12</sup> Accordingly, our initial diagnostic considerations centered on a psychogenic origin, as the onset and course of her symptoms—triggered by peer bullying at her previous school and exacerbated during school hours and examinations—supported this explanation.

However, the fluctuating and suppressible nature of her symptoms, their absence during

sleep, accompanying lip-tremor vocal tics, and the presence of premonitory sensory awareness pointed toward a tic disorder variant. It is plausible that psychogenic stressors acted as triggers, exacerbating these tic-like manifestations.<sup>13,14</sup> Notably, these persistent sneezing episodes did not serve as a means of secondary gain; rather, they emerged as a significant stressor that markedly impaired her daily functioning.

The overlapping pathophysiology and clinical features of psychogenic sneezing and tic disorders further complicate the diagnostic process. A previous case report demonstrated a significant reduction in psychogenic sneezing with haloperidol—a potent dopamine D2 receptor antagonist—supporting the hypothesis that dopamine dysregulation plays a role in symptom manifestation.<sup>11</sup> Similarly, the partial symptomatic relief provided by metoclopramide, another dopamine antagonist, influenced our decision to initiate risperidone therapy. Following risperidone initiation, a substantial reduction in sneezing episodes was observed, bolstering the notion that this condition may represent a variant of tic disorder.

The diagnostic process for functional respiratory disorders is often protracted and challenging due to their clinical resemblance to organic diseases. As highlighted in a previous review, key differentiating features include the absence of nocturnal symptoms, sudden onset, variable duration, rapid regression, and a lack of response to standard pharmacotherapy<sup>11</sup> with diagnostic workups typically yielding normal findings. In our patient, these criteria were notably present, underscoring the importance of early and accurate diagnosis to prevent unnecessary and potentially harmful treatments.

In conclusion, this case illustrates that persistent sneezing in pediatric patients may arise from a confluence of psychogenic factors and tic disorder phenomena. The marked improvement in symptoms with risperidone suggests that dopamine antagonist medications

could be an effective treatment modality for similar cases. These findings underscore the importance of a multidisciplinary approach—including child and adolescent psychiatry—in managing IPS to enhance patients' quality of life and overall prognosis. Additional studies are essential to unravel the underlying mechanisms of IPS and to devise more effective therapeutic interventions.

### Ethical approval

A written consent form was obtained from the family for this publication.

### Author contribution

The authors confirm contribution to the paper as follows: Study conception and design: CK, GIE; data collection: CK. analysis and interpretation of results: GIE; draft manuscript preparation: CK, GIE. All authors reviewed the results and approved the final version of the manuscript.

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### Conflict of interest

The authors declare that there is no conflict of interest.

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