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LETTER TO THE EDITOR

Sigh Syndrome in Pediatric Asthma

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Respiratory function involves ventilatory mechanisms tightly controlled by relationships between the lung and central nervous system. Although not completely understood, the sigh plays a role in the regulation of respiratory variability and homeostasis while monitoring brain function alterations and controlling arousals [1]. In the healthy state, sighs are vital for respiratory stability through flexibility and adaptability with speech, exercise, and sleep, whereas under distress, sighs facilitate flight-or-fight responses [1]. In disease states, hyposighing/hypoarousal are associated with sudden infant disease syndrome, while hypersighing/hyperarousal are associated with panic disorders [1].

Sigh syndrome was described in a cohort of patients without organic disease ranging in age from 7 to 53 years [2]. Diagnostic criteria for this poorly understood disorder include recurrent sighing, shallow respirations, no obvious trigger, duration of days–weeks, no interference with speech, absence during sleep, provocation of stress from patient, no correlation with physical activity or rest, belief that deep breaths are obstructed, and self-limited [2]. With no previous data in asthma, a case of sigh syndrome is presented in association with airway obstruction in a child with resolution after heightened treatment.

A 5-year-old male with asthma presented with worsening cough and wheezing and new onset of sigh syndrome. The patient met all criteria for sigh syndrome as published by Sody et al. [2], other than the asthma exacerbation being the trigger. Since being diagnosed with asthma 3 years earlier, his symptoms were controlled with a daily inhaled corticosteroid (ICS) and intermittent albuterol. For this acute presentation of asthma exacerbation, his ICS dose was doubled and albuterol was given more frequently with little improvement in symptomatology. Due to refractory symptoms, he was treated with prednisolone 1 mg/kg orally twice daily for 5 days with resolution of cough and wheezing, but intermittent sighs persisted. At this time, he underwent spirometry that found improvement with bronchodilator therapy (Fig. 1), in the setting of heightened aerosol therapies and corticosteroid burst. Subsequently, combined ICS with long-acting beta agonist was started, and the sigh syndrome regressed over the next 6 weeks, with breathing pattern and spirometry returning to normal (FVC 1.69 l, 115% predicted, and FEV_1 1.43 l, 113% predicted).

This case illustrates the contribution of sighing to the healthy balance of normal breathing and the effect of disruption of that equilibrium due to lung pathology. Although not well understood, sighing is important to control mechanisms that maintain physiological and emotional health. Based on these experiences, clinicians should be aware of sigh syndrome as a component of asthma exacerbation in children and consider spirometry in this setting to evaluate for airway obstruction to facilitate optimal therapy.

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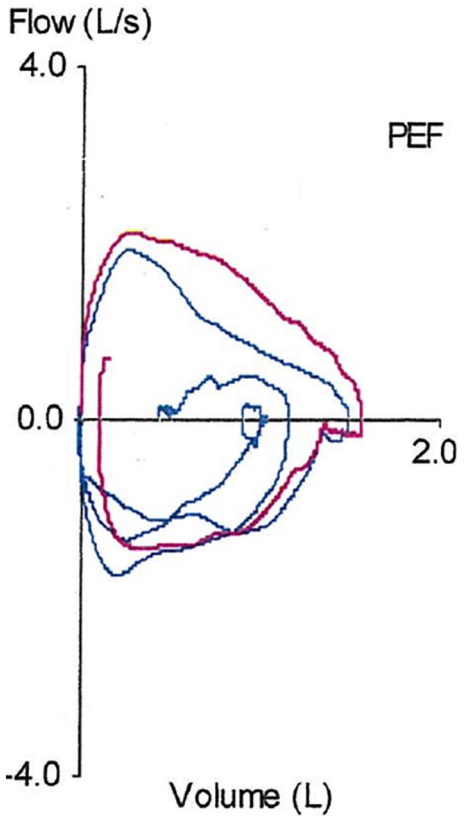

Fig. 1 Pre- (blue line) and post-bronchodilator (red line) flow volume curve of his spirometric measurements that found these changes: 4% improvement in forced vital capacity (FVC) 1.51 l (103% predicted) to 1.57 l (107% predicted), 24% improvement in forced expiratory volume in the first second (FEV_1) 1.18 l (93% predicted) to 1.46 l (116% predicted), and 57% improvement in mid forced expiratory flow of the vital capacity ($FEF_{25–75\%}$) 1.04 l/s (65% predicted) to 1.64 l/s (103% predicted)

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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