

A Child with Anaphylaxis Presented as Spasmodic Croup-A Case Series

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Abstract

Acute stridor is a sign of acute life-threatening airway compromise. Congenital malformations, life-threatening obstructions, acute infections, or anaphylaxis can cause stridor. Acute causes of stridor encompass conditions such as croup, bacterial tracheitis, epiglottitis, retropharyngeal abscess, foreign body aspiration, peritonsillar abscess, airway burns, and anaphylaxis. Here, we present 2 cases who presented with acute onset of persistent brassy cough and stridor later diagnosed with anaphylaxis presenting as spasmodic croup.

Keywords: Spasmodic croup; Anaphylaxis; Atypical croup

Introduction

Acute stridor is a sign of acute life-threatening airway compromise. It can be caused by congenital malformations, life-threatening obstructions, acute infections, or anaphylaxis. Acute causes of stridor include croup, bacterial tracheitis, epiglottitis, retropharyngeal abscess, foreign body aspiration, peritonsillar abscess, airway burns, and anaphylaxis. Croup is the primary cause of stridor in infants and children, often attributed to the parainfluenza virus. It is characterized by a distinctive barking cough, hoarseness, and stridor due to inflammation and narrowing of the larynx and trachea. The disease is typically self-limited, resolving within one week. Here we present 2 cases of atypical croup later diagnosed as anaphylaxis [1].

Anaphylaxis is a severe, life-threatening systemic hypersensitivity reaction characterized by rapid onset and the potential for fatal airway, breathing, and circulatory compromise. It is most commonly triggered by foods, medications, insect stings, or latex exposure in children [2]. The classic presentation includes cutaneous manifestations such as urticaria and angioedema, respiratory symptoms like wheeze and stridor, gastrointestinal complaints, and cardiovascular instability. However, not all cases follow the typical pattern. Atypical presentations can delay recognition and treatment, increasing the risk of morbidity and mortality. One such unusual presentation is the occurrence of symptoms resembling spasmodic croup [3].

Spasmodic croup, a variant of croup typically seen in young children, is characterized by sudden onset of barking cough, inspiratory stridor, and hoarseness, often occurring at night and without significant fever. It is generally considered viral or allergic in origin and tends to resolve with supportive care and standard therapies such as corticosteroids and nebulized epinephrine. Because of its relatively benign and self-limiting course, clinicians may not initially suspect a more serious underlying etiology when a child presents with stridor and a barking cough [4].

The overlap in clinical features between anaphylaxis and spasmodic croup particularly upper airway obstruction due to laryngeal edema can create diagnostic challenges. In some cases, anaphylaxis may primarily manifest with acute laryngeal edema, mimicking croup without prominent skin or cardiovascular findings [5]. Failure to promptly recognize anaphylaxis in such scenarios may delay the administration of intramuscular epinephrine, the first-line and potentially life-saving treatment.

This case series highlights children who presented with clinical features suggestive of spasmodic croup but were ultimately diagnosed with anaphylaxis. By examining their presentation, diagnostic course, management, and outcomes, this report aims to raise awareness of this rare but critical presentation. Early recognition of atypical anaphylaxis is essential to ensure timely intervention and improve patient safety in pediatric emergency settings [6].

Case Presentation

Case 1

A 7-year-old child presented to the ER with a sudden onset of shortness of breath and noisy breathing around 3 A.M. after going to bed. On arrival at the ED, the patient was triaged red and shifted to the paediatric resuscitation bay.

Examination:

- **Airway:** Patent but stridor present with brassy cough.
- **Breathing:** Respiratory rate 40 bpm, SaO₂ 85%, air entry reduced bilaterally; started on face mask 5 L/min immediately.
- **Circulation:** Pulse rate 140 bpm, BP 100/60 mmHg, CRT<2 sec.
- **Disability:** GCS E4V5M6, afebrile to touch (T: 36°C).

The patient had no history of fever, cough, or rhinitis and was afebrile to touch. There was no history of asthma or allergic reactions in the past. An immediate bedside X-ray showed a stepple sign (Figure 1). The Westley Croup score was calculated to 8, suggestive of severe croup. In view of suspected croup, adrenaline nebulization and injection dexamethasone 0.6 mg IV were given. Despite the treatment, stridor and brassy cough persisted with respiratory distress. On detailed history, it was found that the patient had eaten squid in the afternoon, which she had not had before, and there was a family history of allergies to multiple drugs and seafood. A bedside airway ultrasound showed edematous vocal cords with turbulent airflow. In view of suspected anaphylaxis, 0.3 mg of 1/1000 adrenaline was given intramuscularly in the anterolateral thigh. After 5 minutes, respiratory distress reduced, O₂ requirement decreased, and saturation improved to 98% in room air. Child CBC, CRP were within normal limits, ruling out infection. The child was admitted for close monitoring and discharged the next day.



Figure 1: X-ray chest PA view showing stepple sign suggestive of edema in the subglottic area which is characteristic of croup.

Case 2

A 10-year-old boy presented to the ER with sudden onset of noisy breathing and brassy cough with multiple episodes of vomiting and woke up from sleep in the afternoon. On arrival at the ED, the patient was triaged red and shifted to the pediatric resuscitation bay.

Examination:

- **Airway:** Stridor and brassy cough.
- **Breathing:** RR 34 bpm, SaO₂ 84% in RA, AE bilateral wheeze.
- **Circulation:** BP 100/70 mmHg, PR 145 bpm, CRT<2 sec.
- **Disability:** E4V5M6, temperature 36°C.

On detailed history, the mother said he had oyster for the first time in the morning. There was no history of fever or cough.

Along with the cough, he had multiple episodes of vomiting with abdominal pain. An X-ray chest and neck showed a stepple sign suggestive of subglottic edema. An X-ray chest showed a diffuse opacity suggestive of negative pressure pulmonary edema (Figure 2). He was given inj. adrenaline 0.3 ml IM and inj. hydrocortisone 100 mg IV. Adrenaline nebulizations were also started. Symptoms were not resolved; two more doses of adrenaline IM were given, and later adrenaline infusion was started. Patient symptoms started improving gradually. Repeat chest X-ray was normal. The patient was shifted to ICU and monitored and discharged on day 2.

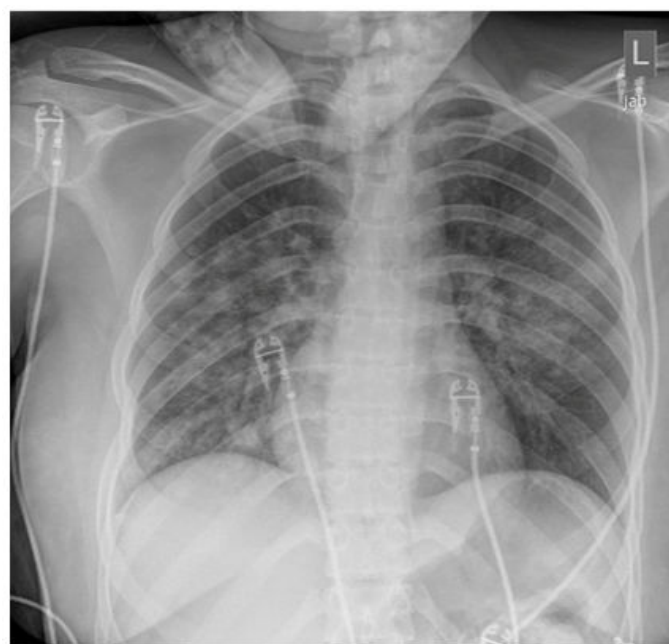


Figure 2: X-ray chest PA View showing negative pulmonary edema due to sever laryngospasm.

Results and Discussion

This case highlights the importance of considering anaphylaxis in the differential diagnosis of acute respiratory distress in children, especially when there is a history of exposure to potential allergens. The initial presentation mimicked spasmodic croup, but the persistence of symptoms despite standard treatment for croup and the detailed history pointed towards anaphylaxis. Prompt recognition and treatment with intramuscular adrenaline were crucial in managing the patient's condition effectively.

Conclusion

Anaphylaxis can present with symptoms similar to croup, making diagnosis challenging. A thorough history and consideration of potential allergens are essential in such cases. Early administration of adrenaline can be lifesaving and should be considered when standard treatments for croup are ineffective.

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