

Pediatric Respiratory Emergencies



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KEYWORDS

- Pediatric respiratory emergency • Foreign body aspiration • Asthma • Epiglottitis
- Bronchiolitis • Pneumonia

KEY POINTS

- Children with respiratory complaints commonly present to the ED and it is imperative that physicians be able to promptly recognize and treat these disease processes.
- Maintain a high level of suspicion for foreign body aspiration in patients with good history even when presenting with normal examination.
- Provide supportive management in epiglottitis without increasing anxiety or agitation and involve consultants early.
- Bronchiolitis treatment recommendations have changed based on current AAP guidelines. Supportive care is the mainstay of current bronchiolitis therapy.

Respiratory emergencies are 1 of the most common reasons parents seek evaluation for their children in the emergency department (ED) each year, and respiratory failure is the most common cause of cardiopulmonary arrest in pediatric patients. Whereas many respiratory illnesses are mild and self-limiting, others are life threatening and require prompt diagnosis and management. Therefore, it is imperative that emergency clinicians be able to promptly recognize and manage these illnesses. This article reviews ED diagnosis and management of foreign body aspiration, asthma exacerbation, epiglottitis, bronchiolitis, community-acquired pneumonia, and pertussis.

NONINFECTIOUS EMERGENCIES

Foreign Body Aspiration

Epidemiology

Although recognition and management has improved, foreign body aspiration (FBA) remains common in children. FBA can occur in children of all ages, although most occurrences are in children younger than 4 years, with a peak incidence between the first and second birthdays.¹ White and colleagues² reviewed FBA cases from

Disclosure: The authors have nothing to disclose.

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Emerg Med Clin N Am 34 (2016) 77–96

<http://dx.doi.org/10.1016/j.emc.2015.08.006>

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1955 to 1960 and compared these with FBA cases from 1999 to 2003. Comparison revealed similarities in the types of aspirated foreign bodies. Organic foreign bodies were the most common (Fig. 1).^{3,4} The type of foreign body aspirated should raise concern about different airway problems (Box 1).

Clinical presentation

It is important to maintain a high degree of suspicion for FBA. A large number of patients presenting with a good history and normal examination were found to have FBA.⁵ Conversely, one should also be concerned if there is a poor history but good examination for FBA because approximately half of cases occur without a choking event having been witnessed.^{6,7} Clinical symptoms and signs vary based on the location of the foreign body and the degree of obstruction (Box 2).

One complicating factor is that the clinical presentation may change over time as a result of movement of the foreign body within the respiratory tract. It is also important to remember that an ingested foreign body lodged in the upper thorax may cause compression or local inflammation leading to respiratory distress that is indistinguishable from an aspirated foreign body.

Evaluation

Neck and chest radiographs, including posteroanterior (PA) and lateral views, should be obtained to evaluate for the presence of a foreign body. Radiopaque foreign bodies are easily visualized on radiographs, whereas radiolucent foreign bodies pose a greater challenge. If a foreign body is not radiopaque, the evaluator should look for secondary signs of FBA such as overinflation, opacification, or atelectasis of the distal lung (Fig. 2).

Additional radiography views such as inspiratory and expiratory views or lateral decubitus views may be obtained⁸ (Fig. 3). Fluoroscopy is also beneficial in the diagnosis of FBA, particularly in young patients who cannot cooperate with inspiratory and expiratory views. Recent studies investigated the use of virtual bronchoscopy (computerized tomography [CT]) as a noninvasive alternative to diagnose and localize aspirated foreign bodies (Fig. 4). When obstructive pathology is depicted with virtual bronchoscopy, a therapeutic bronchoscopy should be performed; however, in cases where no obstructive pathology is detected, proceeding to rigid bronchoscopy might not be clinically useful.⁹

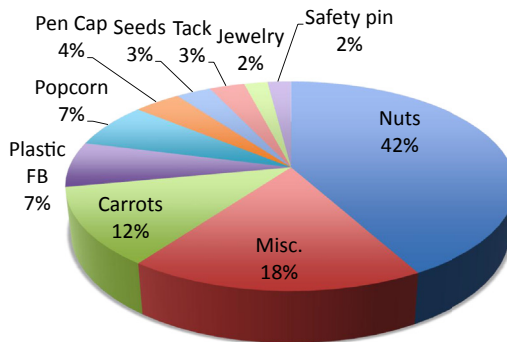


Fig. 1. Foreign body type. (Data from Tan HK, Brown K, McGill T, et al. Airway foreign bodies (FB): a 10-year review. *Int J Pediatr Otorhinolaryngol* 2000;56(2):91–9; and Hsu, W, Sheen TS, Lin CD, et al. Clinical experiences of removing foreign bodies in the airway and esophagus with a rigid endoscope: a series of 3217 cases from 1970 to 1996. *Otolaryngol Head Neck Surg* 2000;122(3):450–4.)

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