A foreign body in an infant airway

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An otherwise healthy infant presented to the emergency department (ED) with a history of screaming and sudden hoarseness. Lateral neck and chest radiographs were obtained that did not demonstrate a radiopaque foreign body within the upper or lower airway. The child was otherwise stable during his stay in the ED, with persistent, but periodic stridor and cough, unresponsive to albuterol nebulizers. The child was brought to the operating room for direct laryngoscopy and bronchoscopy to rule out an airway foreign body.

Upon exposing the larynx, a bluish-colored foreign body was seen in a vertical orientation obstructing nearly the entire subglottis with significant granulation in the subglottic region (Figure 1). Further examination of the object revealed it to be an artificial fingernail.

More than half of deaths from foreign body aspiration occur in children between the ages of six months and four years [1]. The narrow pediatric glottis and cricoid ring structures are anatomical landmarks at which foreign bodies can be trapped proximally [2]. The diagnosis in pediatric patients may be challenging since any process causing narrowing or obstruction of the airway lumen may produce similar signs to those of foreign body aspiration. With radiolucent foreign bodies, there may be limitations of radiographic studies in the diagnosis of aspired foreign bodies. The sensitivity and specificity of chest X-ray (CXR) are reported to be 68%, and 67%, respectively for the diagnosis of tracheobronchial foreign bodies. Normal CXR findings occur in 24% of patients with endoscopically verified airway foreign bodies [3].

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Posteroanterior and lateral neck radiographs may show an infraglottic density or swelling in patients with laryngotracheal foreign bodies. Computed tomography (CT) scanning is useful to show foreign bodies in the airway that are radiolucent on plain radiographs [4] with the three-dimensional position within the chest. The disadvantage of CT scan is exposure to radiation. Magnetic resonance imaging (MRI) is also useful in detecting foreign bodies of the airway, however, the disadvantages of MRI include the length of the exam and the need for sedation in pediatric patients.

A negative chest X-ray does not exclude the diagnosis of a foreign body in a pediatric airway. Patients in whom the clinical suspicion for aspirated foreign bodies is high are recommended to undergo a direct laryngoscopy and bronchoscopy under general anesthesia for definitive diagnosis and treatment [5].

Keeping the patient as comfortable as possible with avoidance of coughing and movement while maintaining spontaneous ventilation is crucial to avoid displacement of the foreign body, total occlusion of the airways and enhance outcome.

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References