

A 2-year-old boy is brought to the emergency department by his babysitter due to "noisy breathing." The patient has had rhinorrhea, congestion, and cough for 2 days. The cough is worse today, and he has developed a high-pitched noise during inspiration that worsens when he cries. Earlier today, he was playing in the same room as his 6-year-old brother, who also has cold symptoms. The babysitter is unsure of the patient's immunization status. On examination, temperature is 38 C (100.4 F), pulse is 140/min, and respirations are 44/min. Pulse oximetry shows 96% on room air. The patient is alert with mild suprasternal retractions and has a dry, harsh cough. His pharynx is mildly erythematous without tonsillar enlargement or asymmetry. The lungs are clear to auscultation. Which of the following is the most likely diagnosis?

- ☐ A. Bronchiolitis
- ☐ B. Croup
- ☐ C. Epiglottitis
- ☐ D. Foreign body aspiration
- ☐ E. Laryngomalacia
- ☐ F. Retropharyngeal abscess

**Submit**



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- ☐ A. Bronchiolitis [14%]
- ☒ B. Croup [67%]
- ☐ C. Epiglottitis [6%]
- ☐ D. Foreign body aspiration [10%]
- ☐ E. Laryngomalacia [4%]
- ☐ F. Retropharyngeal abscess [0%]

[Proceed to Next Item](#)

Explanation:

User Id: [REDACTED]

Key respiratory tract infections in children		
Diagnosis	Classic pathogen	Presentation
Laryngotracheitis (croup)	<ul style="list-style-type: none"><li>Parainfluenza virus</li></ul>	<ul style="list-style-type: none"><li>Age 6 months to 3 years</li><li>"Barky" coughing, stridor, hoarse voice</li></ul>
Epiglottitis	<ul style="list-style-type: none"><li><i>Haemophilus influenzae</i></li></ul>	<ul style="list-style-type: none"><li>Unvaccinated children</li><li>Sore throat, dysphagia, drooling, "tripod" positioning</li></ul>



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Bronchiolitis	<ul style="list-style-type: none"> <li>Respiratory syncytial virus</li> </ul>	<ul style="list-style-type: none"> <li>Age &lt;2 years</li> <li>Wheezing, coughing</li> </ul>

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**Croup**, or laryngotracheitis, is a viral respiratory illness most commonly caused by **parainfluenza** virus and typically presents in children age 3-36 months. The illness usually begins with nonspecific symptoms (eg, rhinorrhea, congestion, fever); classic croup then presents with a **dry, "barky," seal-like cough**, **hoarseness**, and **inspiratory stridor** due to upper airway obstruction. The stridor worsens with agitation or excitement and may be inspiratory or biphasic (inspiratory and expiratory) in very severe cases.

Croup is typically a clinical diagnosis. If the diagnosis is unclear, anteroposterior neck radiographs will reveal subglottic edema known as the **"steeple sign"** (red arrow). Treatment is aimed at reducing subglottic edema; corticosteroids (eg, dexamethasone) are useful for mild cases and nebulized racemic epinephrine is added for patients with stridor at rest.

**(Choice A)** Most commonly caused by respiratory syncytial virus, bronchiolitis is a lower respiratory tract illness that presents with fever, respiratory distress, and wheezing.

Bronchiolitis does not cause inspiratory stridor or a seal-like cough.



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**(Choice A)** Most commonly caused by respiratory syncytial virus, bronchiolitis is a lower respiratory tract illness that presents with fever, respiratory distress, and wheezing. Bronchiolitis does not cause inspiratory stridor or a "barky" cough.

**(Choice C)** Epiglottitis is an uncommon bacterial infection due to routine vaccination against *Haemophilus influenzae*. A typical presentation includes an ill-appearing, unvaccinated child with acute onset of high fever, sore throat, drooling, and respiratory distress. Although stridor is often present, the gradual onset and "barky" cough are more consistent with croup.

**(Choice D)** Foreign body aspiration presents with sudden-onset respiratory distress or stridor, typically without a history of preceding upper respiratory symptoms or fever. This patient has low-grade fever and upper respiratory symptoms in addition to having had contact with a sick sibling at home, making foreign body aspiration a less likely diagnosis.

**(Choice E)** Laryngomalacia, caused by collapse of supraglottic structures during inspiration, presents with chronic inspiratory stridor that begins in the neonatal period and is worse in the supine position. Infectious symptoms (eg, fever, rhinorrhea, congestion, cough) are not seen.

**(Choice F)** Retropharyngeal abscesses are deep-space neck infections most common in children age <4 and present with high fever, muffled voice, and limited rotation of the neck due to pain, none of which are present in this patient.

#### Educational objective:

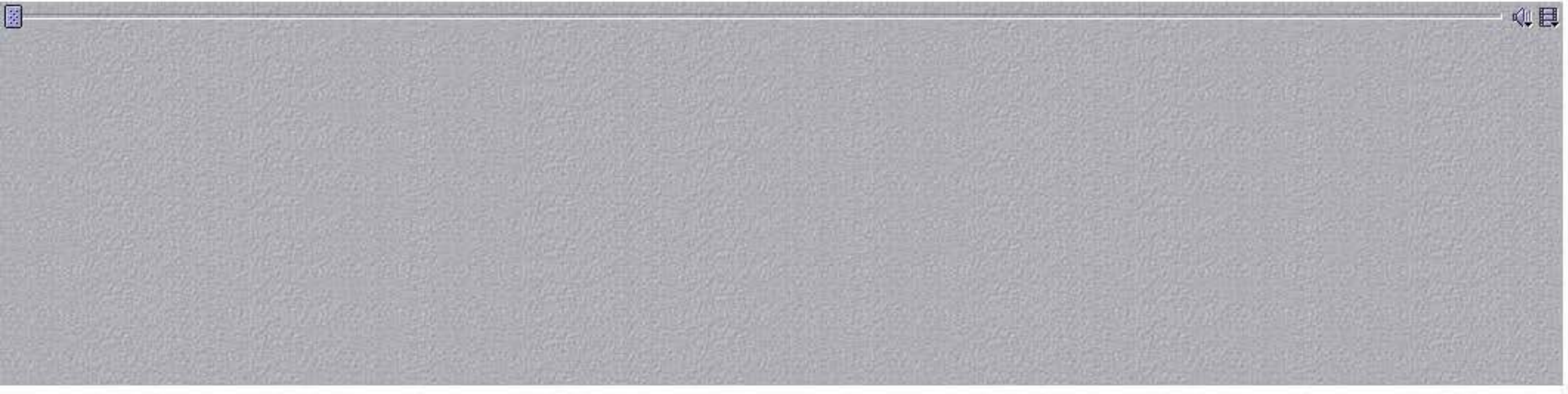
Croup is a viral illness caused by parainfluenza that presents with a "barky," seal-like cough, hoarseness, and inspiratory stridor preceded by nonspecific infectious symptoms (eg, rhinorrhea, fever).

#### References:

1. [Croup: an overview.](#)
2. [Viral croup: diagnosis and a treatment algorithm.](#)



Media Exhibit





Media Exhibit

