

B04: Croup and Epiglottitis

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Introduction

Croup and epiglottitis are infectious inflammations of the upper airway. Although adults and children can develop swelling in their upper airways as a result of illness, this inflammation is significantly more pronounced in children because of their inherently smaller airways. Both croup and epiglottitis are serious medical emergencies that require early identification and intervention.

Essentials

- Epiglottitis in children is typically of abrupt onset and is associated with the “three Ds”: drooling, dysphagia, and distressed breathing. Classically, children adopt a “tripod” position and are reluctant to lie down; coughing is rare. Adults may complain only of a severe sore throat, fever, and muffled voice. Do not attempt to visualize the oropharynx in these cases, unless necessary to control the airway in severely decompensated patients. Because prehospital treatment options are so limited, urgent transport to an appropriate facility is of high importance.
- The onset of croup is slower and is generally associated with a prodromal history of viral symptoms (fever, cough, nasal congestion). The barking or seal-like cough, with or without inspiratory stridor, is the hallmark of croup. Treatment of croup should be initiated regardless of the degree of stridor, as the inflammation can extend throughout the entire respiratory tract (a condition known as laryngotracheobronchitis).
- Croup is most prevalent in children between six months and three years of age, and is uncommon in those over six years old.
- Paramedics should be aware of the possibility of other causes of upper airway obstruction, including foreign bodies, trauma, and inhalation injuries.
- **Epinephrine should not be nebulized for croup.** Clinical and Medical Programs and BC Children’s Hospital specialists are investigating alternatives for paramedic management of croup. Watch for a future practice update.

Additional Treatment Information

- Because the inflammation of croup can extend throughout the respiratory tract, compromising ventilation and oxygenation, paramedics must be aware of the potential for sudden deterioration. An early warning sign of deterioration is a fall in oxygen saturation, but supplemental oxygen can artificially prop up SpO₂, limiting the usefulness of this tool. Patients with croup should not be kept on oxygen and should be monitored closely for other signs of increasing respiratory distress.
- Although cold or hot, humid air can sometimes provide for temporary relief of symptoms in croup, these should not be considered definitive treatments.

General Information

- Epiglottitis is a cellulitis of the epiglottis and surrounding structures caused either by a bacteremia or direct invasion by pathogenic organisms. Bacteria, viruses, and fungi have all been implicated in infectious epiglottitis, but similar symptoms can be seen in cases of trauma, inhalational injury, and airway burns. Although the disease was once commonly seen in children (again, because of the significant differences in airway size), epiglottitis has become comparatively rare due to routine immunization against *Haemophilus influenzae* type B (Hib) as part of childhood vaccinations. Risk factors for the development of epiglottitis, in both children and adults, include non-compliance with recommended immunization schedules and immune deficiencies.
- As a general rule, croup is caused by a viral infection, and thus often presents with a history of viral symptoms (nasal congestion, cough, sore throat, fever). It is important to remember that, although the primary manifestation of croup is upper airway stridor, the entirety of the respiratory tract can be inflamed (laryngotracheobronchitis).
- In both croup and epiglottitis, the tissues of the upper airway can act as a one-way valve, allowing exhalation

while restricting inspiration. The prolonged inspiratory time can be a helpful tool to differentiate between upper and lower airway inflammation. If mechanical ventilation becomes necessary, higher airway pressures may be necessary to overcome this phenomenon.

Interventions

First Responder

- Position of comfort.
- Provide reassurance.
- Monitor oxygen saturation and provide supplemental oxygen to maintain SpO₂ >90%.
- Provide positive pressure ventilation as required.

Emergency Medical Responder – All FR interventions, plus:

- Transport early.
- Consider ACP intercept.

Primary Care Paramedic – All FR and EMR interventions, plus:

- Epinephrine should not be nebulized for croup. Clinical and Medical Programs and BC Children's Hospital specialists are investigating alternatives for paramedic management of croup. Watch for a future practice update.

Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Consider need for invasive airway management in severely decompensated patients. CliniciCall must be consulted prior to attempting intubation for patients with perfusing rhythms who are breathing spontaneously.
- Consider need for antipyresis.

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