

# Management of Respiratory Emergencies in Small Animals

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## KEYWORDS

- Upper airway • Respiratory distress • Cough • Pulmonary edema • Oxygen
- Ventilation • Pleural effusion

## KEY POINTS

- Respiratory distress is a common presenting complaint for animals brought to the emergency room, and it is important for clinicians to feel comfortable diagnosing and treating these animals.
- Prompt recognition of the localization of the source of respiratory distress, based on history, pattern recognition, and physical examination findings, will help to determine the underlying cause and is key to determining an appropriate therapeutic course.
- Careful handling, minimizing stress, and rapid and focused treatment are crucial in the management of all patients in respiratory distress.

Respiratory distress is a common presenting complaint for dogs and cats in the emergency room and may develop during hospitalization for noncardiopulmonary disease as well. Appropriate management and a favorable outcome require rapid recognition, assessment of the underlying cause, and timely interventions. This article focuses on current recommendations for emergent diagnostics and management of dogs and cats either presenting to the emergency room with respiratory distress or developing respiratory distress while hospitalized.

The initial approach to a patient with respiratory distress involves localization of the affected region(s) of the airway, lungs, or pleural space, and creation of an initial list of differential diagnoses based on patient history, signalment, and physical examination findings.

Localization is key in determining the best step in management. Respiratory dysfunction occurs because of difficulty in getting oxygen into the lungs (eg, upper airway obstruction, pleural effusion, or lower airway disease) or with difficulty in gas exchange (eg, abnormalities at the alveolar-capillary membrane caused by edema, neoplasia, or hemorrhage).

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## UPPER AIRWAY DISEASE

Normal upper airway physiology reflects negative pressure ventilation; this involves a drop in pressure in the lumen of the upper airway during inspiration, which permits room air to move into the lungs down the pressure gradient. Increased resistance, resulting from narrowing of the upper airway lumen, requires increased inspiratory pressure for equivalent flow rate and clinically may be recognized as loud or stridorous breathing. Increased resistance may be associated with a fixed and/or dynamic obstruction. Specific sites commonly associated with upper airway obstruction include the larynx (eg, due to paralysis, collapse, or masses), the nasopharynx (eg, due to abnormalities in the soft palate or pharyngeal tissues), the cervical trachea, and the nasal passages (**Fig. 1**). Brachycephalic dogs and cats are at increased risk of upper airway obstruction because of their abnormal anatomy, and older large-breed dogs are at increased risk of laryngeal paralysis.

## LOWER AIRWAY DISEASE

Lower airway diseases include bronchial disease, such as feline lower airway disease (“asthma”) and canine chronic bronchitis. Lower airway disease may present as an emergency in cats with moderate to severe bronchoconstriction, and dogs can present for increased coughing and wheezing. Respiratory distress from lower airway disease is associated with expiratory airflow obstruction. During inspiration, the airways are open, but often collapse or narrow during expiration, resulting in increased expiratory effort and often an expiratory “push” on physical examination. Many dogs with lower airway disease/chronic bronchitis are overweight or obese (**Fig. 2**). Eosinophilic bronchopneumopathy (or bronchitis), commonly seen in northern-breed dogs,



**Fig. 1.** A 10-year-old Maine coon cat with a laryngeal squamous cell carcinoma evident on laryngeal examination.

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