

fast-acting parenteral corticosteroid. Because bronchitis is often associated with infectious and parasitic causes, further diagnostics may be required for a longer-term treatment plan.

The cause of lung parenchymal disease should be identified because it is likely to dictate treatment. Patients with pneumonia are usually systemically ill. Fever, dehydration, leukocytosis with an inflammatory left shift, and inflammatory airway cytology are all signs of pulmonary infection. In addition to supplemental oxygen, these patients should receive intravenous fluids, antibiotics, and physical therapy to encourage loosening and clearance of the infectious material. A mitral murmur, lung crackles, and serous-to-pink-tinged acellular airway fluid may indicate pulmonary edema, requiring diuretic therapy (see Chapter 176). Blood in the airway is seen with trauma and acquired coagulopathies such as rodenticide intoxication and, if severe enough, may require transfusion of clotting factors and/or red blood cells (see Chapter 31).

With pleural fluid accumulation, fluid cytology and radiographs are often necessary to distinguish the cause (see Chapter 164). Thoracocentesis is a valuable therapeutic and diagnostic tool when approaching pleural space disease. If pleural accumulation of air or fluid is rapid or if the fluid is viscous and inflammatory, a thoracostomy tube can facilitate drainage and allow repeated evacuation of the pleural space.

Respiratory distress in dogs and cats can be challenging. Definitive diagnostic investigation may not be

possible at the time of presentation, but critical observation and focused physical examination help rank differential diagnoses of respiratory distress. The clinician should have a thorough understanding of the manifestations of multiple differentials of respiratory distress based on the pattern of breathing and be able to quickly identify appropriate treatments. A rational emergency diagnostic and treatment plan is based on understanding of respiratory function and alterations associated with specific diseases.

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## CHAPTER 9

# Acute Respiratory Distress Syndrome

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**A**cute respiratory distress syndrome (ARDS) is a severe inflammatory disorder of the lungs that can result in life-threatening respiratory failure in dogs and cats. It can be caused by a wide range of precipitating conditions, all of which lead to lung inflammation, alveolar capillary leakage, and protein-rich pulmonary edema. Acute lung injury (ALI) is a milder form of inflammatory injury to the lungs that also can progress to ARDS.

### Risk Factors

ARDS has many potential causes. It may result either from direct pulmonary insult or from a generalized inflammatory response such as systemic inflammatory

response syndrome (SIRS) or sepsis. Box 9-1 lists many of the risk factors proposed in dogs, but this list is not exhaustive. Sepsis of either pulmonary or nonpulmonary origin is the most common predisposing cause of ARDS identified in dogs. Risk factors have not been characterized in cats, but the few available reports suggest similar underlying etiologies. A single patient may have multiple precipitating causes.

### Pathophysiology

The pathogenesis of ARDS is similar regardless of the underlying etiology and is characterized by an overwhelming inflammatory process that leads to epithelial