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Preface: Respiratory Diseases in Dogs and Cats
Lynelle R. Johnson ix

Clinical Application of Pulmonary Function Testing in Small Animals
Anusha Balakrishnan and Carissa W. Tong 273

Pulmonary function tests (PFTs) are important diagnostic tools that have wide clinical applications in human and veterinary medicine. Widespread use of PFTs in measuring lung volumes in veterinary medicine was historically limited by the need for specialized equipment to accurately perform and interpret these tests, and by lack of patient cooperation. However, recent advances and modifications have allowed PFTs to be safely performed in conscious veterinary patients with minimal stress. This article focuses on the most commonly used tests of pulmonary function including tests of pulmonary mechanics and of gas exchange in the lungs.

Laryngeal Disease in Dogs and Cats: An Update
Catriona M. MacPhail 295

Video content accompanies this article at http://www.vetsmall.theclinics.com

Laryngeal diseases are manifested by obstructive breathing patterns reflecting functional or mechanical upper airway obstruction. Laryngeal paralysis is the most common disease of the larynx. Diagnosis requires close attention to anesthetic plane and coordination of respiratory effort with laryngeal motion. Surgical arytenoid lateralization improves clinical signs and quality of life in dogs; however, aspiration pneumonia is a recognized complication, and generalized neuropathy can progress. Laryngeal collapse can result from any cause of chronic upper airway obstruction but is most often associated with brachycephalic obstructive airway syndrome. Although uncommon, laryngeal neoplasia has a guarded to grave prognosis regardless of treatment.

Chronic Rhinitis in the Cat: An Update
Nicki Reed 311

The etiology of feline chronic rhinitis is incompletely understood and often is a diagnosis of exclusion. History, clinical signs, and investigations performed to reach this diagnosis are discussed. Several treatment options are provided, although cure of this frustrating disease is rarely achieved.

Fungal Rhinosinusitis and Disseminated Invasive Aspergillosis in Cats
Vanessa R. Barrs and Jessica J. Talbot 331

Fungal rhinosinusitis, including sinonasal aspergillosis (SNA) and sino-orbital aspergillosis (SOA), is the most common type of aspergillosis encountered in cats. Other focal forms of aspergillosis including
disseminated invasive aspergillosis occur less frequently. SOA is an invasive mycosis that is increasingly recognized and is most commonly caused by Aspergillus felis, a close relative of Aspergillus fumigatus. SNA can be invasive or noninvasive and is most commonly caused by A fumigatus and Aspergillus niger. Molecular methods are required to correctly identify the fungi that cause SNA and SOA. SNA has a favorable prognosis with treatment, whereas the prognosis for SOA remains poor.

Canine Nasal Disease: An Update 359
Leah A. Cohn
Nasal disease in dogs is common and is often accompanied by chronic nasal discharge with or without other clinical signs. A thorough history and physical examination often guide the most appropriate choice of diagnostic testing to provide the best chance of attaining a diagnosis as to cause, and therefore, the most appropriate treatment. The purpose of this article is to guide the practitioner through a logical approach to the evaluation of dogs that are presented with signs of nasal disease.

Feline Asthma: Diagnostic and Treatment Update 375
Julie E. Trzil
Asthma is an important allergic lower-airway disease in cats affecting approximately 1% to 5% of the pet cat population. New diagnostics are being developed to help better differentiate asthma from other lower-airway diseases and improve monitoring. In addition, new treatments are being developed to help in refractory cases or in those cases in which traditional therapeutics are contraindicated. This article discusses potential pitfalls in the diagnosis of asthma. In addition, current literature investigating new diagnostic tests and therapies for feline asthma is reviewed.

Canine Chronic Bronchitis: An Update 393
Elizabeth Rozanski
Chronic bronchitis is a syndrome defined by cough on most days for at least 2 months for which no specific cause can be identified. Older small breed dogs are most commonly affected, but bronchitis can also be documented in midsize and larger breed dogs. Diagnostic testing includes physical examination, laboratory testing, radiography, and airway evaluation via bronchoscopy, cytology, and culture. Treatment is directed at reducing exposure to irritants, reducing airway inflammation, and controlling cough.

Canine Infectious Respiratory Disease 405
Krystle L. Reagan and Jane E. Sykes
Canine infectious respiratory disease complex (CIRDC) refers to a syndrome of diseases that can be caused by several different bacterial and viral pathogens. These pathogens are often highly contagious, and infections are common. Clinical signs are frequently mild and self-limiting; however, some individual cases progress to severe disease. Clinical diagnosis of CIRDC is often based on history of exposure and physical
examination findings; however, determining the etiologic agent requires application of specific diagnostic tests, and results can be difficult to interpret because of widespread subclinical infections.

An Update on Tracheal and Airway Collapse in Dogs 419
Ann Della Maggiore

Tracheal and airway collapse (bronchomalacia) are common causes of chronic cough in middle-aged to older dogs in which weakening of cartilage within the respiratory system leads to narrowing of airways, irritation, inflammation, partial to complete airway obstruction, and other secondary effects. Tracheomalacia occurs in small-breed dogs, whereas bronchomalacia can occur in any size dog. Successful treatment involves correct identification of the problem, recognition of concurrent disease processes, and appropriate medical therapy. Surgical intervention and intraluminal stenting are readily available so it is important to understand indications for such procedures.

Update on Canine Idiopathic Pulmonary Fibrosis in West Highland White Terriers 431
Henna P. Laurila and Minna M. Rajamäki

Canine idiopathic pulmonary fibrosis (CIPF) is a chronic, progressive, interstitial lung disease (ILD) affecting older West Highland white terriers (WHWTs). According to one classification, CIPF is a familial fibrotic ILD in the group of idiopathic interstitial pneumonias. Etiology is unknown but likely arises from interplay between genetic and environmental factors. CIPF shares features with human idiopathic pulmonary fibrosis and human nonspecific interstitial pneumonia. This article describes clinical signs, findings in physical examination, arterial oxygenation, diagnostic imaging, bronchoscopy, bronchoalveolar lavage, histopathology, disease course, and outcome of WHWTs with CIPF; compares canine and human diseases; summarizes biomarker research; and gives an overview of potential treatment.

Bacterial Pneumonia in Dogs and Cats: An Update 447
Jonathan D. Dear

Bacterial pneumonia is a common clinical diagnosis in dogs but seems to occur less often in cats. Underlying causes include viral infection, aspiration injury, foreign body inhalation, and defects in clearance of respiratory secretions. Identification of the specific organisms involved in disease, appropriate use of antibiotics and adjunct therapy, and control of risk factors for pneumonia improve management.

Canine and Feline Exudative Pleural Diseases 467
Steven E. Epstein and Ingrid M. Balsa

Exudative pleural diseases are a common cause of respiratory distress and systemic illness in dogs and cats. This article covers the pathophysiology, development, and classification of exudative pleural effusions. The most current diagnostic strategies, causes, imaging findings, and medical or surgical treatment options for select diseases are reviewed in detail.