## Respiratory Case Challenges: Cats Leah A. Cohn, DVM, PhD, DACVIM (Internal Medicine) University of Missouri Columbia, MO

Diseases of the respiratory tract are a common reason for cats seeking veterinary medical attention. Depending on the location and type of respiratory disease, the clinical signs are variable. These clinical signs range from those that are irritating to owners (e.g., chronic nasal discharge) to those which are life-threatening and require immediate medical attention (e.g., respiratory distress).

The approach to a cat showing respiratory signs is to first localize the clinical signs to the region of the respiratory tract which is affected. Once the clinical signs are localized, an appropriate list of differential diagnoses can be made. Those differential diagnoses will drive the diagnostic tests that need to be performed. It goes without saying that tests should be performed in stabilized patients, and ideally should start with the least invasive diagnostics. Basic evaluation such as CBC, serum biochemistry, and urinalysis seldom lead to a specific diagnosis but do provide valuable information about the animals overall health and may point to clues as to the respiratory disease. For example, neutrophilia might be supportive of bacterial infections and eosinophilia might suggest either parasitic or allergic disease. Usually, some form of imaging is required for evaluation of animals with respiratory disease. Radiographs are the mainstay of imaging, but in some cases special techniques are preferable. Invasive techniques are also commonly required to visualize anatomic structures within the respiratory tract and to obtain samples for cytologic and/or histopathologic evaluation and for microbial culture. Specific treatment will depend if the underlying disorder is infectious, inflammatory, anatomic (structural) or neoplastic.

Localizing the origin of respiratory disease can often be performed by evaluation of the clinical presentation of the cat. The major anatomic subdivisions include the nasal cavity/pharyngeal region, upper airways (larynx, trachea), lower airways (bronchi), pulmonary parenchyma, pleural cavity, thoracic wall or diaphragm. Sometimes non-respiratory disease can present with clinical signs suggestive of respiratory disorders, but these conditions are usually ruled out in a straightforward manner (e.g., diabetic ketoacidosis and anemia may both alter respiratory pattern although they are not respiratory diseases). Classically cats with nasal disease have nasal discharge (serous, mucoid, purulent, mucopurulent, sanguineous or hemorrhagic) and sneezing. While most acute presentations of nasal signs in cats are due to infectious disease (e.g., herpes and calicivirus), the causes of chronic nasal signs are typically much more difficult to pinpoint. Nasal neoplasia, dental disease, foreign bodies, cryptococcosis, inflammatory rhinitis, and idiopathic rhinosinusitis are all common causes of nasal signs in cats. Cats with pharyngeal disease may have stertor; in young cats nasal polyps should be strongly considered, while in older cats pharyngeal neoplasia is a common cause of stertor. Reverse sneezing can localize disease to the caudal nasal passages/pharynx. Upper airway disease is less common in cats than dogs, but like dogs, cats may present with stridor, cough or respiratory distress. Laryngeal paralysis, aberrant migration of cuterebra larvae, and neoplasia are important but not very common causes of upper airway disease in cats. Disorders of the lower airway may present with respiratory distress, cough or wheezing. Feline lower airway disease may be eosinophilic or neutrophilic, and may be associated with allergy, larval heartworm infection (heartworm associated respiratory disease or "HARD"), other airway parasites (eg. Aleurostrongylus abstrussus) or may remain idiopathic. Cats with pulmonary parenchymal disease may have systemic signs of illness (eg, fever, lethargy, weight loss, anorexia, etc) or localized signs of illness (eg, tachypnea, cough, or respiratory distress). Although less common than they are in dogs, cats are susceptible to bacterial pneumonia and fungal pneumonia as well as pneumonia due to Toxoplasmosis, plague, tularemia, and mycobacterial infection. Pulmonary edema and neoplasia are both important causes of pulmonary disease in cats. Interstitial lung diseases like pulmonary fibrosis, eosinophilic pneumonia and lipid pneumonia have also been reported in cats. Disorders of the pleural cavity may be associated with systemic signs of illness or a rapid shallow breathing pattern or overt respiratory distress (especially on inspiration). Chylothorax, pyothorax, and mediastinal mass due to lymphoma are all common causes of pleural disease in cats. Thoracic wall and diaphragmatic disorders when leading to respiratory alterations, most commonly are associated with increased respiratory effort and/or paradoxical breathing patterns.

In this lecture, cats presenting to the University of Missouri Veterinary Medical Teaching Hospital for evaluation of a variety of respiratory diseases will be discussed in detail. Key points about each case will be presented.