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RESPIRATORY EMERGENCIES

Respiratory emergency cases can present in many forms and respiratory distress may encompass many different disease processes that may entail many different treatments. However, emergency stabilization immediately after presentation may initially be similar and can be discussed more broadly. Many patients benefit from sedation (often with drugs such as butorphanol) to reduce their anxiety level and potentially the sensation of dyspnea. Any patient presenting as a respiratory emergency has the potential of being hypoxic, so administration of oxygen, in the short-term, is a relatively innocuous, and potentially life-saving, therapy. Butorphanol can be administered IV or IM – ideally an IV catheter may be placed for quick, easy administration, but the level of restraint necessary to place an IV catheter may not be safe for a patient in respiratory distress. Oxygen may also be delivered through many means – some examples include oxygen mask, nasal oxygen tube(s), oxygen incubator/cage, or endotracheal intubation with attachment to an oxygen source.

Initial evaluation should determine the ability to pass air through the upper airway, characterize the respiratory pattern, evaluate bronchovesicular and/or referred airway sounds, and note any respiratory discharge. Animals with significant upper airway swelling or obstruction may have a severely compromised or complete inability to pass air through the glottis and into the airway. Such conditions typically point to disease at the level of the oropharynx, larynx, or proximal trachea and include oropharyngeal masses or abscesses, laryngeal paralysis or masses, and tracheal masses or collapse. If the patient is unable to effectively pass air, the airway must be secured – options for securing the airway include routine endotracheal intubation, endotracheal intubation performed over a guidewire, and emergency tracheostomy and tracheal intubation. Once a patent airway is established, such patients are typically stable and can maintain normal hemoglobin oxygen saturation as the problem has been bypassed; however, chest radiographs remain indicated to rule out concurrent disease. Depending on the suspected underlying disease, cervical/skull radiographs, or even CT scan, may be indicated to determine the extent of pathology. Patients with laryngeal paralysis likely warrant consideration for a laryngeal tie-back surgery while patients with a mass or swelling may warrant a debulking or draining procedure.

Patients with pleural space disease present with a restrictive respiratory pattern and usually notable increased work in inspiration as they work to overcome the pressures now present in the pleural space (recall the pleural space typically maintains a slightly negative pressure). Although chest radiographs may be utilized to confirm the diagnosis, a high index of suspicion for pleural space disease should occur after physical examination. Quiet bronchovesicular sounds ventrally speaks to pleural effusion while quiet bronchovesicular sounds dorsally likely represent a pneumothorax. If available, ultrasound can also quickly be used to diagnose pleural space disease, although its use may be more reliable for the detection of pleural effusion than a pneumothorax. Outside of sedation (if necessary), the first step for a patient with diagnosed pleural effusion or pneumothorax should be thoracocentesis. A pneumothorax can progress rapidly and thoracocentesis can be life-saving. While pneumothorax frequently occurs following trauma, it can also occur secondary to pneumonia, pulmonary bulla(e), neoplasia, and chronic interstitial disease. Pleural effusion tends to accumulate more slowly but thoracocentesis can provide relief and a diagnosis, especially in cases of chylothorax, pyothorax, hemothorax, and neoplastic effusion. Chest radiographs taken post-thoracocentesis often serve greater utility and can allow evaluation of the pulmonary parenchyma, cardiac silhouette, cranial mediastinum, and lymph nodes.

Cats with asthma can decline acutely with severe bronchoconstriction. A common clinical challenge is determining if a cat in respiratory distress has primary cardiac disease or primary respiratory disease. Cats with asthma often have a history of cough, while cats with cardiac disease alone rarely cough. Physical examination can provide support – the respiratory pattern for cats with asthma tends to be obstructive and generally shows an increase in expiratory exertion and expiratory time. Cats with cardiac disease tend to have either an increase in both inspiratory and expiratory effort with pulmonary edema or an increase in inspiratory effort with pleural effusion. Although cats with cardiac disease and congestive heart failure may occasionally display bradycardia, cats with respiratory disease tend to have higher vagal tone and commonly present with bradycardia. If radiographs can safely be performed, cats with asthma classically have a bronchial pulmonary pattern. Due to the clinical instability of many cats in an asthmatic crisis, treatment must often be initiated with

only a presumptive diagnosis. Bronchodilation is the initial treatment of choice for an asthmatic cat and is usually achieved through β2-agonists – either terbutaline administered IM or IV or albuterol administered via inhalation. Terbutaline may be the safest option as many cats may find the mask/inhaled administration of albuterol more stressful. Chronically, asthmatic cats are treated with immune modulating therapies, but these are less useful in the acute setting.

References

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