FELINE RESPIRATORY DISTRESS

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Respiratory distress in cats is common and challenging. Cats often compensate well for pulmonary diseases, and some conditions can rapidly fulminate. It is crucial to balance the equal goals of limiting stress on the cat with respiratory distress, and to work to identify the specific cause of the distress so that appropriate therapy can be provided.

Phone triage- Home care of the cat with respiratory distress is not advised. Cats with respiratory distress should be evaluated by a veterinarian as soon as possible. Cats with known pre-existing therapy may receive additional therapy at home immediately before leaving to come to the hospital, such as an additional dose of furosemide to a known heart failure cat, or albuterol/terbutaline and prednisone to a known lower airway disease cat.

Initial examination and stabilization-Initial physical examination should focus on the major body systems (heart, brain and lungs) and include an assessment of respiratory rate and effort, with a specific focus on evaluation increased airway sounds, or dull/absent sounds with increased effort. Auscultation of the heart may document a murmur or gallop, although it should be recalled that that murmurs may be hard to hear in the ER at times. Rectal temperature should be recorded, as hypothermia is common in cats with congestive heart failure. Following rapid assessment, supplemental oxygen should be provided, and a history obtained from the cat's family. Most cats with respiratory distress do not have remarkably revealing histories, but care should be taken to inquire about past diagnosis (including auscultation of a heart murmur), possible trauma/exposure to the outdoors, and any other changes, such as decreased appetite, cough (or suspected "hairballs") or PU/PD. Following a brief physical examination and assessment of the cat's medical history, an initial attempt at therapy should be provided, including continuing oxygen therapy, diuretics, glucocorticoids, or thoracocentesis. In a growing number of hospitals, ultrasonography (US) is readily available. Used of US is vital for rapid assessment of pleural effusion with minimal training, with more advanced training and practice, other assessments, such as left atrial size, evidence of LV hypertrophy, or mediastinal masses may also be provided. In my experience, the use of ultrasound has largely negated the need to perform a "diagnostic" thoracocentesis, and limits unnecessary discomfort to cats, and eliminates the possibility of iatrogenic pneumothorax.

Thoracic radiographs are ultimately required to (well at least HELP..) determine the cause of respiratory distress in most cats. Ideal positioning is NOT required when cats are in respiratory distress. It may be wise to start with a single view, and then to allow the cat to recover for a few minutes before taking a second view.

A standard approach to interpretation of the thoracic radiograph includes evaluation of the pulmonary parenchyma, the pleural space, the cardiac silhouette, ribs and diaphragm. Tips for evaluation of chest film include

1) When looking for pleural effusion, small volumes will obscure the lung/diaphragm interface on a DV or VD projection.
2) Cardiomegaly may be subtle, even in fulminate heart failure.
3) Patchy infiltrates are most often heart failure.
4) Bronchial disease can look like metastatic disease.
5) Rib fractures can accompany coughing/respiratory distress.
6) If films look normal, consider upper airway disease.

Other diagnostic testing may include echocardiography, pleural effusion cytology, transoral tracheal wash, and/or computed tomography. A reasonable overview is to try to determine "heart or not heart" and then pursue diagnostic testing from there. In our ER less than 50% of cats with respiratory distress have heart failure, so it is wise to keep an open mind as to the potential causes, including consideration of a)upper airway disease b) lower airway disease c)Parenchymal disease d) pleural space disease or e) trickery. Hypoventilation may cause hypoxemia or hypercarbia, but these will not be easily appreciated on physical examination.

DISORDERS TO BE FAMILIAR WITH

UPPER AIRWAY: Nasopharyngeal polyps- Young cats, with loud stridor/stertor, occasionally dysphagia. Direct visualization on oral examination, removal with traction or ventral bulla osteotomy. Nasopharyngeal stenosis- narrowing of NP, treat with balloon or stent. Laryngeal paralysis- cats may be clinical with unilateral paresis, maybe idiopathic or due to tumor/infection etc. May be managed medically or surgically (avoid if possible!) Laryngeal masses- usually squamous cell carcinoma, may be benign. Specific therapy dependent on underlying condition.

LOWER AIRWAY: Feline asthma, which implies reversible bronchoconstriction and chronic bronchitis are common disorders. Infection, such as mycoplasma may also result in respiratory disease. Therapy is currently directed towards addressing the underlying irritant and then long-term prednisone.

PARENCHYMAL DISEASE: Congestive heart failure, typically from cardiomyopathy may result in pulmonary edema. This may appear patchy in distribution. Pro-NT BNP testing has been recently introduced and may be helpful in identifying cats at risk of CHF or in CHF. Infection is rare in adult cats, but may occasionally occur in kittens or due to atypical organisms (eg. Toxoplasmosis), and finally neoplasia (metastatic or primary) may occur in cats as well. Pulmonary contusions may also result parenchymal infiltrates. Recall that severe bronchial disease may look like metastatic disease.

PLEURAL EFFUSION: May represent congestive heart failure, pyothorax, chylothorax or neoplasia (specifically lymphoma). Pleural effusion is a sign, not a final diagnosis.
Other pleural space diseases ("parasites") include pneumothorax (spontaneous or traumatic), diaphragmatic hernia, or neoplasia.

Therapeutic approach to respiratory distress in best directed at the "best guess" of the underlying disease process. Specific tips that are important to consider for evaluating cats with respiratory distress are:

1)Iatrogenic pneumothorax is **very** common following thoracocentesis in cats with long-standing effusions. Pleural effusion leads to the thickening of the pleura, and this if nicked, will continue to leak air. Recall that normal lung seals quickly.
2)Old cats don't get new onset asthma. Airway disease in cats is a young to middle age cat disease. Cats may cough their entire lives, but barring lifestyle changes(eg moving to a different climate or with a smoker) they should not develop cough as geriatric cats.
3) Cold cats have heart failure. While admitably, cats may be hard to "temp" if they are stressed, cats that are hypothermic are very commonly in heart failure.
4) Cats that eat well in oxygen are hyperthyroid or have neoplastic disease. Anorexia is common in the stressed/short of breath cat, and finding a cat who is truly devouring the offered food, makes the likelihood of cancer or hyperthyroidism higher.
5) Pro terminal BNP, a biomarker of atrial stress, may prove useful in cats.
5) Bronchial disease may appear similar to mets.
6) Rounded lung lobes, suggest chronic effusion, and increase the risk for pneumothorax.

References available upon request (Elizabeth.rozanski@tufts.edu)