

Chronic Bronchitis in Dogs

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Chronic bronchitis, or inflammation of the bronchioles, results from insult to the bronchial epithelium leading to a vicious cycle of inflammation, mucosal edema and excessive mucus production. Ultimately, this leads to destruction of the bronchiolar walls, bronchiectasis and a loss of normal protective mechanisms. Chronic bronchitis is most commonly seen in middle age to older small breed dogs. Typically, a chronic productive cough will be present although some dogs will have a dry, hacking cough. Exercise or excitement may exacerbate the coughing episodes. Some dogs will have cyanosis, collapse, expiratory distress and a pronounced sinus arrhythmia. Paroxysmal coughing is often elicited on tracheal palpation. It is important to note that many dogs with bronchitis will have a completely normal physical examination.

Bronchial or bronchointerstitial pattern may be noted on thoracic radiographs. A lack of radiographic abnormalities does not rule out the presence of chronic bronchitis. Approximately 25 % of dogs with chronic bronchitis will have no clinically important findings on thoracic radiography. Radiography may also help rule out other conditions associated with chronic bronchitis such as secondary bacterial pneumonia, bronchiectasis or other unrelated cardiopulmonary diseases.

Cytologic evaluation of airway cells via endo-tracheal wash or bronchoalveolar lavage is required for a definitive diagnosis of chronic bronchitis. In addition, bacterial culture should be performed on the fluid. The presence of increased mucous and numbers of neutrophils and/or eosinophils is consistent with chronic bronchitis. Degenerative neutrophils or intracellular bacteria in a patient with an increased neutrophil percentage is indicative of a bacterial infection, not chronic bronchitis. Dogs with chronic bronchitis should have an increase in the percentage (>5%) of non-degenerate neutrophils (and/or eosinophils) in their bronchoalveolar lavage fluid. Activated macrophages, increased bronchial epithelial cells and goblet cells can also be seen. Dogs with chronic bronchitis can have concurrent airway infection or pneumonia. If chronic bronchitis is suspected in a dog with evidence of bacterial infection, the infection should be treated and repeat bronchoalveolar lavage performed. Bronchoscopy may reveal rough, thickened mucosa, hyperemia, excessive mucous and occasionally nodular proliferation, bronchiectasis or dynamic collapse of the small airways. Treatment centers on medical management. Since this is a chronic disease, life long pharmacologic therapy is usually necessary. Underlying contributory factors (dust, smoke, aerosols, perfumes, powders) should be identified and avoided. Anti-inflammatory

doses of corticosteroids (prednisone 1 mg/kg q 24h, PO) are the mainstay of treatment. Corticosteroids may be administered systemically (orally) or directly to the lung via metered dose inhaler with pediatric spacer (fluticasone 110µg/ actuation q 12h). Life long therapy with corticosteroids is indicated in almost all cases. The ultimate goal of treatment is to alleviate bronchial inflammation. Failure to do so, even in the face of an asymptomatic patient, will lead to chronic structural changes and a loss of pulmonary function. Clinical remission (i.e., resolution of clinical signs) often fails to predict resolution of airway inflammation. Therefore, patients should be monitored with serial bronchoalveolar lavage cytologic evaluations and medications adjusted accordingly to alleviate inflammation. Maintenance of a good body condition score and the use of a harness instead of a neck collar should be encouraged. Bronchodilators have been advocated, but are rarely efficacious and should not be used as sole therapy. Antibiotics based on culture and sensitivity with good penetration into the airways should be used for dogs with secondary bacterial infections. Other therapies include nebulization and coupage, cough suppressants (which are contraindicated with concurrent infection), and expectorants. Chronic bronchitis is a progressive and incurable disease, but medical management can result in clinical remission and can markedly slow the progression of the disease. Bronchiectasis or pulmonary hypertension and cor pulmonale are poor prognostic indicators.

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