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Laryngeal Paralysis and Collapse Fact Sheet

Laryngeal paralysis occurs when the vocal folds are unable to abduct (open) in response to exercise or respiratory demands.

There is the only one muscle involved in opening the vocal fold as this is controlled by one of the longest nerves in the body. This nerve leaves the brain, travels down the neck, circles around the heart, and then travels back up the neck to enter the larynx.

What causes laryngeal paralysis?

There are several possible causes of laryngeal paralysis. The disease may occur from birth (congenital disease) in some animals (e.g. Bouvier de Flanders, Bull Terriers and Dalmatians especially). Trauma (e.g. neck surgery or bite wounds) and cancerous infiltration of the nerve (e.g. from a throat or neck mass) may also be cause in some dogs.

However, the majority of cases of laryngeal paralysis occur in the older dog. This form of laryngeal paralysis is usually seen in the middle-aged and older (median 9.5 years) large breed dog and is thought to be due to an 'age-related' decline in nerve function

Laryngeal paralysis can also occur in the smaller breed dog and even the cat. It is likely that differences in lifestyle and respiratory dynamics limit the clinical expression of the disease in these smaller animals.

How would I know if my dog has laryngeal paralysis?

Laryngeal disease may cause the following clinical signs: exercise intolerance, noisy breathing, coughing and gagging, change or loss of voice.

Many of the clinical signs of laryngeal disease that may be apparent (e.g. a soft cough, exercise intolerance), are often attributed to 'old age' or 'heart disease', particularly as they will develop insidiously. However, there are two audible features that are very characteristic of laryngeal disease – a soft 'ineffectual' cough, and inspiratory stridor.

Many dogs with laryngeal disease are asymptomatic at rest. However, rapid decompensation of the respiratory status can occur if the dog becomes excited, is exercised more intensively than usual, or is unable to find a cool area on a hot day. When this happens, the dog can suddenly develop respiratory distress, with rapid escalation into a life-threatening crisis if appropriate action is not taken immediately.

It is important to realise that the disease affecting the larynx usually develops slowly. As a consequence, dogs with laryngeal disease may display relatively minor clinical signs, the significance of which may be overlooked and attributed to 'old age'. However, it is also possible for animals to present as an acute emergency with severe cyanosis and respiratory distress induced by a period of excitement, exercise or hot weather. Successful management of these conditions requires immediate and effective resuscitation, followed by prompt alleviation of the obstructive process.

How will my vet know if my dog has laryngeal paralysis?

Diagnosis of laryngeal disease is usually straightforward for the clinician who is experienced with the disease. The characteristic breathing noises associated with laryngeal disease can be very characteristic, and the sensitivity of physical examination alone has been shown to be more than 90% for clinicians experienced with the disease.

Definitive diagnosis of laryngeal disease requires visualisation of the laryngeal structure, and correlation of movement of the vocal folds during respiration.

Click here to view video This can be performed in the conscious dog with an ultrasound probe placed directly on the larynx. Direct visualisation of the larynx under a light plane of anaesthesia (laryngoscopy) is the more common method. This can require experience to ensure accuracy as anaesthesia will itself induce changes to laryngeal function. Anaesthesia may also be an increased risk in these dogs, due to the presence of their disease.

Referral of the dog to a specialist surgical centre for further diagnostic investigation and management should therefore be considered.

What other considerations are there?

Most dogs with laryngeal paralysis are elderly, and may have features of other hormonal or other disease on examination or blood work. The challenge for the clinician is to recognise the significance of these other disease processes on the presenting condition. In most cases, definitive surgical management of the laryngeal disease is the treatment of choice. In others, control of the underlying systemic disease will allow alleviation of the laryngeal compromise and thus delay the need for definitive surgical management of the laryngeal disease.

Routine diagnostic work-up of the patient with laryngeal disease would usually include a complete physical examination, complete blood count, biochemistry profile and urinalysis, and x-rays of the chest. Pursuit of any abnormalities detected in this diagnostic investigation will depend on the severity of the laryngeal disease, and the considered role of the abnormality on the presenting condition.



How is laryngeal paralysis treated?

Definitive management of laryngeal paralysis is directed at permanently securing the vocal fold(s) in an open position. Surgeons differ in their preference of suture location and placement, but clinical function appears to be similar regardless of technique. Most surgeons only secure a single vocal fold (usually the left), though others advocate a bilateral laryngoplasty. There is little evidence in the literature to definitively appraise the difference in clinical outcome between unilateral and bilateral procedures, although complications appear more frequent with the latter.

Laryngoplasty should only be performed by a surgeon who is experienced with the technique. The consequences of a failed procedure can be devastating for the patient, and there are limited salvage options available. In experienced hands, however, good success rates are reported, with few unexpected complications.

The most significant complication is aspiration pneumonia. This is more likely to occur in those animals with megaesophagus or eating difficulties prior to surgery. These clinical features are usually evident prior to surgery so that the risk of this complication occurring can be determined. Careful feeding in the immediate post-operative period should be performed until normal swallowing ability is assured.



Will my pet get better?

Prompt and effective management of laryngeal paralysis can be associated with improvements in breathing efficiency and restoration of an acceptable quality of life. Some animals may have a persistent cough, and low grade noise may still be heard when they pant. Usually, however, their restored airway enables them to exercise at a good level for their age.

If you have any further questions about laryngeal paralysis you should speak to your veterinary surgeon who will be able to discuss this condition with you more fully.

If you are concerned about the health of your pet you should contact your veterinary surgeon.

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