

Laryngeal paralysis in dogs



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About me

- Qualified Cambridge, 1990
- Post graduate training at Bristol vet school in canine medicine and general/ENT surgery until 1994
- Lecturer and Senior Lecturer in Small Animal Soft Tissue Surgery, University of Bristol 1997-2009
- Presently Head Of Surgical Referrals, Bath Veterinary Referrals

Introduction

- Laryngeal paralysis has been recognised in dogs for many years
- Most cases have been seen in medium to large breeds but an increasing number of giant breed dogs, such as Newfies, are treated

What is laryngeal paralysis?

- A loss of movement of the vocal cords
- Due to loss of the nerve supply to the muscles of the larynx



The larynx

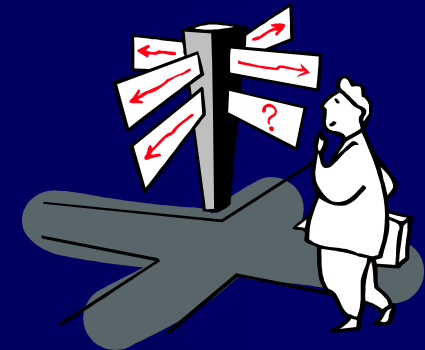
- “the voice-box”/ “Adam’s apple”
- Joins the mouth/pharynx to the trachea (“windpipe”)
- Key functions:
 - free air movement
 - cough
 - voice



Normal
canine
larynx

Symptoms of laryngeal disease

- Loss of opening of vocal folds: leads to difficulty breathing and abnormal noise
- Loss of movement of vocal cords: change in bark
- Loss of closure of vocal folds: cough



Difficulty in breathing (dyspnoea)

- Results in tendency to pant
- Also reluctant to exercise or restricted exercise ability
- In some cases, may lead to fainting on exercise
- Occasionally, can result in asphyxiation

Dyspnoea

Worsened by:

- Exercise
- Excitement
- Distress
- Heat



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Respiratory noise

- Most obvious when panting
- Classically, on inspiration
- Described as stridor (“wheezing, roaring”):
harsh, dry rasp
- The noise of “a man sawing wood”

Change in bark (dysphonia)

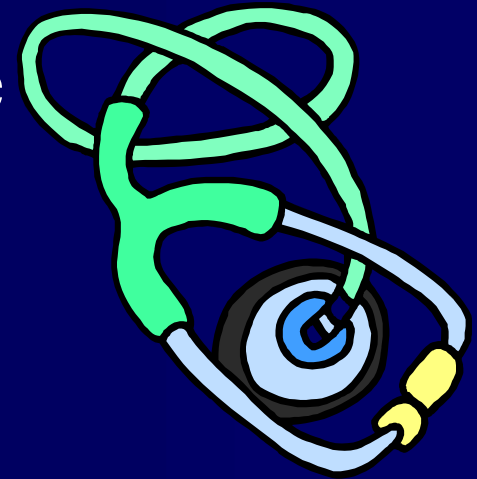
- 60% of owners report a change in their dog's bark
- This is an early symptom
- Since it is gradual, it is often not appreciated by owners
- Bark becomes muted, hoarse or absent

Cough

- Most dogs with LP cough
- In some dogs, coughing is the main symptom
- The cough tends to be harsh and “ineffectual”: retching, throat clearing, *smoker’s cough*

Other causes of similar symptoms

- Many diseases of the respiratory or cardiac systems can cause these symptoms!
- Examples are the common conditions of bronchitis and cardiomyopathy
- In addition, arthritis etc. can cause reluctance to exercise



Confirming the diagnosis

- Confirming the diagnosis is critical before considering treatment!
- Steps in diagnosis:
 - History
 - Clinical examination
 - Blood samples
 - Xray
 - Examination under anaesthesia

History

- The typical symptoms have been mentioned already
- Other questions to check for unrelated or other diseases
- Often, this is a key part of the diagnosis

Airway noises (inspiratory)



- **Stridor:** wheezing, roaring or whistling.
A harsh, dry noise
Associated with laryngeal or tracheal disease
- **Stertor:** snoring or snuffling
A moist, grumbling noise
Associated with nasal or pharyngeal disease

Other airway noises



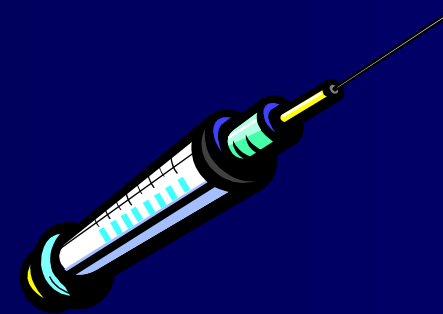
- **Honking cough:** musical, wheezing cough
Suggestive of dynamic obstruction of the trachea
- **Reverse sneezing:** sudden onset and offset
retching inspiratory noise
Dog appears very distressed
suggestive of nasopharyngeal spasm

Clinical examination

- Focuses on evaluation of the respiratory, cardiac and locomotor systems
- In some cases, observation at exercise can be helpful
- Important to try and confirm LP, check for other causes of symptoms and to identify complicating factors

Blood samples

- There is no blood test for LP!
- Blood samples are mostly useful to assess for other diseases and as a pre-anaesthetic test
- Some clinicians also like to check thyroid function

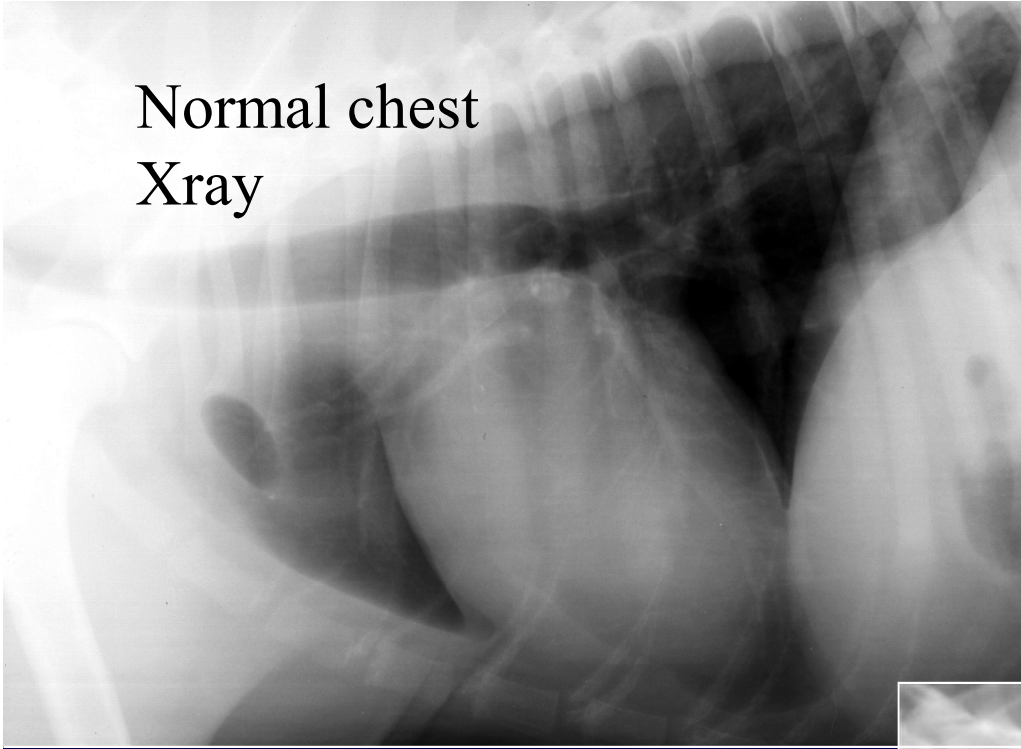


Xrays

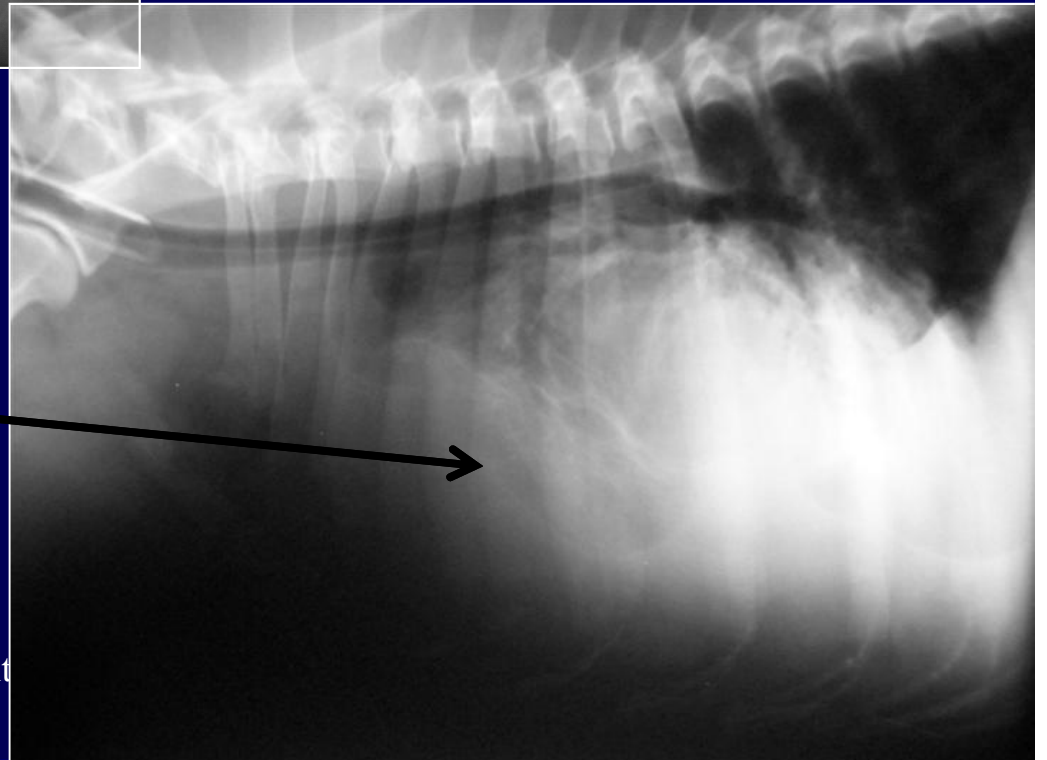
- Radiographs of the chest are important to:
- Look for possible causes of LP
- Check for other disease
- Check for complications of LP e.g. pneumonia



Normal chest
Xray



Chest Xray of
dog with a
tumour in the
chest



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Examination under anaesthesia

- The definitive diagnostic test
- Does require some experience to be reliable
- Occasionally, dogs with LP have difficulty recovering from GA
- Often sensible to combine radiography and EUA with anaesthesia for surgery



Vets approach to the acute case

- Avoid stress!
- Key issues are excitement/distress, hyperthermia and oxygen delivery



Manage stress

- Reassurance
- Sedation: with airway obstruction, benefits of sedation outweigh concerns about respiratory depression
- Avoid manual restraint e.g. for Xrays
- Give time to settle

Hyperthermia

- A key feature in animals with severe airway obstruction
- Manage with sedation
- Also *controlled* cooling:
environment
wet towels
fans
avoid dramatic measures (hoses, ice, enemas)



Oxygen delivery

- Cooling and calming will reduce requirements
- Supplementary oxygen should be supplied with care. Avoid:
 - Stress (e.g. mask)
 - Overheating (e.g. oxygen tent)

Management of the chronic case

- Remember, if the condition is chronic, the animal may have decompensated but may be stabilised and returned to the chronic state
- With medical treatment, cooling and sedation, emergency surgery or tracheotomy is rarely required

Common laryngeal diseases (dog)

- Laryngeal paralysis (90%)
- Laryngeal collapse (10%)
- Laryngeal neoplasia (rare)
- Laryngeal chondritis/granuloma (rare)

Laryngeal paralysis

- **Much the commonest upper airway obstruction in dogs**
- **Bilateral (cf. horses)**
- **Elderly (over 9yo), medium-large breed dogs particularly Labrador and Golden Retrievers, Irish Setters and Afghan Hounds**
- **Very common but often missed by owners and vets: gradual onset, often assumed that old dog is slowing up, stridor may not be apparent at rest**

Treatment of LP

- Conservative management (steroids, Corvental) suppresses cough
- LP severely inhibits lifestyle of dog
- LP occasionally results on asphyxiation
- Surgery can be highly successful
- Various techniques in texts but only “tie-back” recommended as primary treatment

Surgery for LP

- Surgery highly successful *in the right hands*
- In the hands of the inexperienced, the surgery is dangerous and stressful
- Given the outcome (over 90% owner satisfaction), surgery is recommended even in these elderly patients

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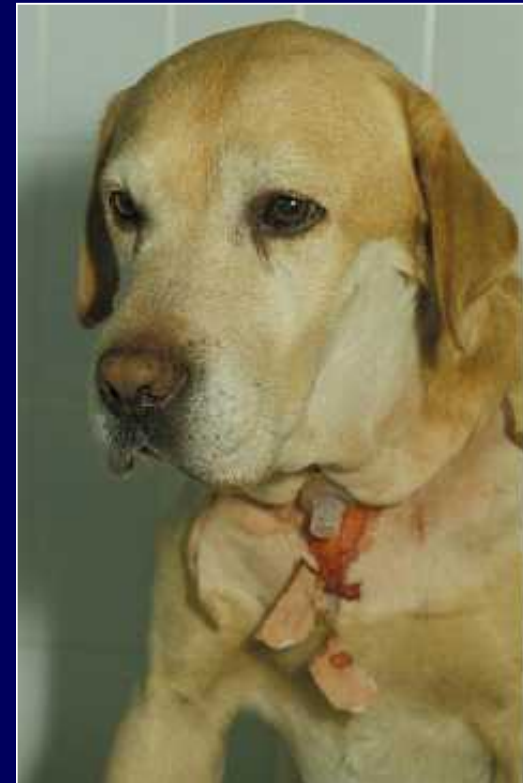


Alternatives to tie back surgery

- Various other surgeries have been described
- None are as well evaluated or as safe/effective

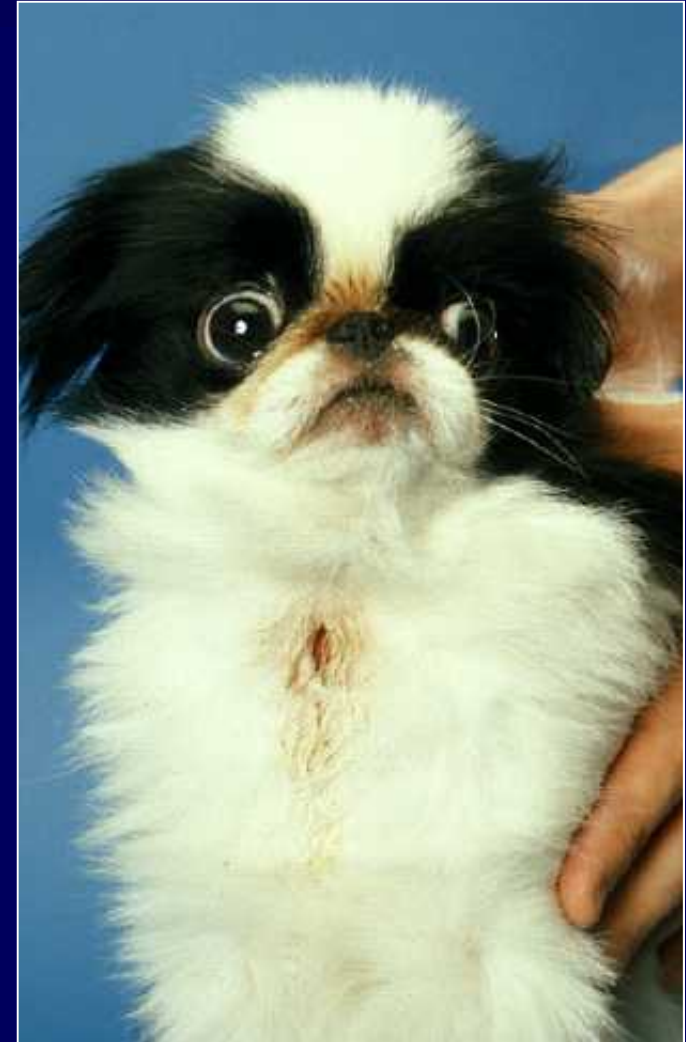
Tracheotomy tube

- Compared to people or horses, managing dogs with tubes is extremely demanding
- Tracheotomy is only useful as a emergency measure, and even in that context is best avoided



Permanent tracheotomy

- Creation of a “window” between the skin and the trachea
- Aim is to create a permanent bypass of the larynx
- Uncommonly performed but useful when other surgery fails



Should my dog have surgery?

- Surgery is best suited for dogs where there is an obvious reduction in ability to exercise
- Also where the possibility of asphyxiation is a real concern



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Dogs where surgery is not advised



- If coughing is the major symptom, rather than dyspnoea
- In dogs with concurrent swallowing/vomiting diseases (e.g. megaesophagus)
- Dogs with moderate-severe concurrent disease (heart, other)

Alternatives to surgery

- Lifestyle changes
- Medication: corticosteroids reduce coughing but have little effect on exercise ability
- Medication: other drugs for bronchitis also reduce cough, but do not “open the airway”

Results of surgery

- Following surgery by an experienced surgeon, owner satisfaction is reported as 90-95%
- Most dogs are greatly improved within a few days (maximum improvement takes several weeks)
- Significant problems are surgical failure, pneumonia and chronic cough
- All dogs will cough more after surgery!

Care after surgery

- Usually hospitalised overnight (if nursing care is available and dog is calm)
- Close attention to exercise and feeding for the first few weeks is important



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Post op feeding

- Risk of inhalation of food/fluids after surgery, especially in first 6 weeks
- Water only, no milk
- Feed a soft but firm food: pate consistency
- In long term, can re-introduce usual diet, but stop if coughing worsens

Post op exercise

- Minimal initially and lead exercise only for 4-6 weeks in most cases
- May require halter or harness
- Well behaved dogs can be walked to heel
- Swimming is not recommended except under controlled conditions





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Why do dogs get LP?

- In most dogs it is considered “idiopathic”: no identified cause
- Often it is part of a generalised degeneration of the nerves
- In some breeds it is part of a defined neurological disease e.g. “Inherited polyneuropathy of Leonbergers”
- Has been linked to hypothyroidism

Other symptoms

- Since it is often part of a generalised nerve degeneration, other symptoms may be seen
- In most dogs, these are not severe enough to be important to the patient
- Common findings are poor hind foot carriage/stumbling
- If not severe, these do not preclude surgery

Disease in Newfies

- Is it becoming more common, or more commonly recognised?
- Is it part of a specific disease syndrome, or does it fit the “idiopathic” group?
- Is the outcome of surgery similar to other breeds?: *probably, if performed by an experienced surgeon*
- Is the surgery harder than in other breeds?: *probably, therefore best done by a surgeon with substantial experience of the technique*

Summary of LP management



- Surgery can be challenging and hazardous
- Done well, surgery usually is very successful, although a small number will have problems with aspiration and pneumonia
- Not all dogs will benefit from surgery, although selecting the right cases can be difficult



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