Irish Wolfhound Pneumonia Survey

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Overview

- Purpose of the survey
- Results to date
- Links to recognised conditions
- Future directions

Purpose of the survey

- There is a huge wealth of experience out there that we need to tap into
- Many Wolfhounds owners recognise pneumonia as a severe, potentially life threatening condition, but we need to increase awareness, especially amongst those responsible for wolfhound healthcare
- Treatment protocols require an evidence base

Survey Participants

- 53 completed surveys returned between March 2013 and April 2014
- Age range when first affected 3 months to 10 years
- 17 entire females, 7 neutered females, 23 entire males and 6 neutered males

Clinical signs 1

Nasal discharge

Reported in 13 animals (24%)

Serous, mucoid and mucopurulent discharge reported

Wolfhound Rhinitis

- "Irish Wolfhound Rhinitis syndrome"
- Described by Wilkinson in 1969
- Condition in puppies
- Watery nasal discharge
- Discharge becomes purulent and may be blood tinged
- Chronic moist cough
- Most often only a proportion of a litter affected
- Attributed to viral infection of puppies during whelping

Clinical signs 2

Inappetance

Reported in 45 animals, to different extents (85%)

Clinical signs 3

High temperature

Reported in 43 animals (81%)

11 of these animals had pyrexia severity score of 5/5

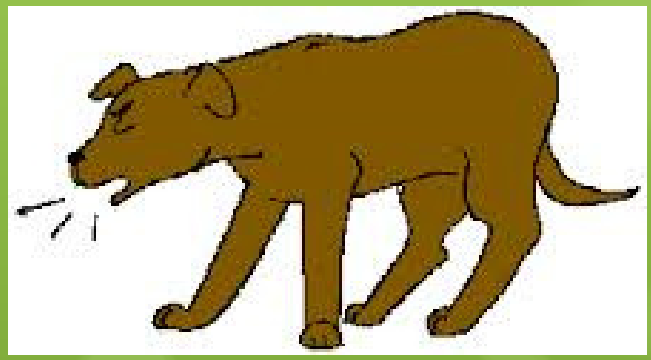
Clinical signs 4

Cough

Reported in 39 animals (74%)

20 of these animals had cough severity score of 5/5

For 6 animals, there was a documented link with Kennel Cough



Kennel Cough

- Infectious tracheobronchitis
- Caused by parainfluenza virus and *Bordetella bronchiseptica* bacterium
- Affects all breeds-airborne droplets

Clinical signs 5

Rapid breathing

Reported in 47 animals (87%)

16 of these animals had tachypnoea severity score 5/5

Clinical signs 6

Extended neck

Reported in 43 animals (81%)

13 of these animals had extended neck severity score 5/5

The typical "pneumonia stance" is a combination of extended neck and rapid breathing and arises because the animals cannot get enough oxygen when they breathe normally

Total signs score

- Maximum possible 35
- Range 5-28
- 18 animals score 20 or more
- Total signs score correlated with overall outcome

Time to treatment

The time between occurrence of signs and onset of treatment correlated with outcome

Range of treatments given

- Antibiotics-all animals
- NSAIDs-26 animals
- Mucolytics-12 animals
- Corticosteroids-3 animals
- IVFT
- Appetite stimulants
- Coupage-12 animals

Antibiotic use

- Enrofloxacin (Baytril)
- Cefalexin (Ceporex)
- Cetiofur (Excenel)
- Clindamycin (Antirobe)
- Lincomycin (Lincocin)
- Marbofloxacin (Marbocyl)

Antibiotic use

- Metronidazole (Flagyl)
- Clavulanate potentiated amoxycillin (Clavucil)
- Cefuroxime (Zinacef)
- Azithromycin (Zithromax)
- Trimethoprim potentiated sulphonamide (Trimacare)

Antibiotic use

Broadly three groups

- Penicillin types
- Activity against anaerobes
- Others

Antibiotic use

- 21/53 (40%) animals had three antibiotics or more
- 16/53 (30%) animal had a combination of two antibiotics
- 16/53 (30%) animals only had one antibiotic

Antibiotic use and outcome

- 16/53 animals received cetiofur (30%)
- 7 of these animals had recurrent pneumonia (44%)
- 5 of these animals died of pneumonia (31%)
- 14/37 animals not receiving cetiofur had recurrent pneumonia (38%)
- 9/37 animals not receiving cetiofur died of pneumonia (23%)

Other conditions documented in wolfhounds with pneumonia

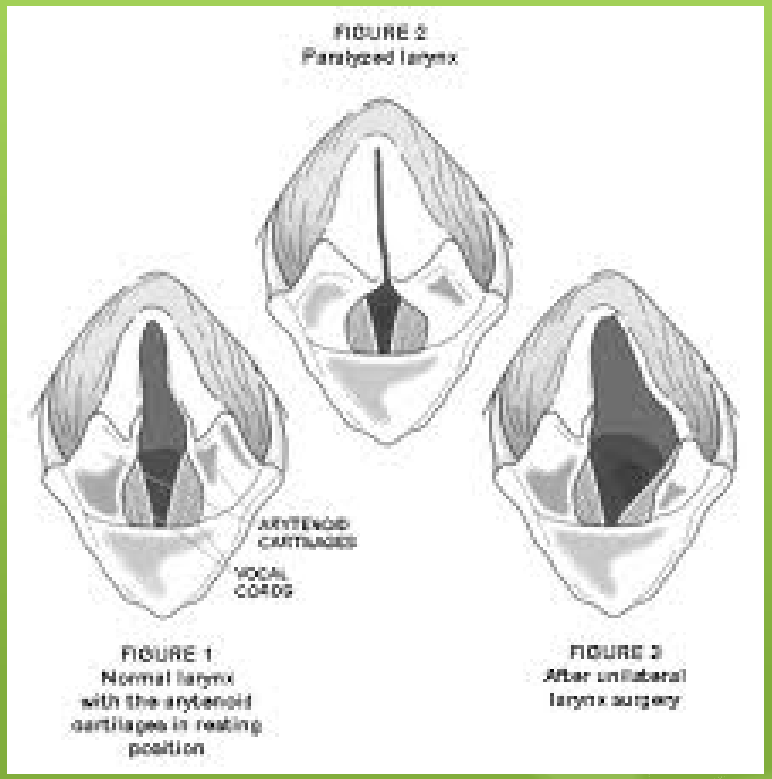
1. Laryngeal paralysis
2. Ciliary dyskinesia
3. Megoesophagus
4. Inhalation pneumonia

In a way these all come down to the same thing-material that should not be there ends up in the lungs

5. Heart disease > confusion of signs

Laryngeal Paralysis

- Inability to abduct the arytenoid cartilages during inspiration leading to partial airway obstruction



Laryngeal Paralysis

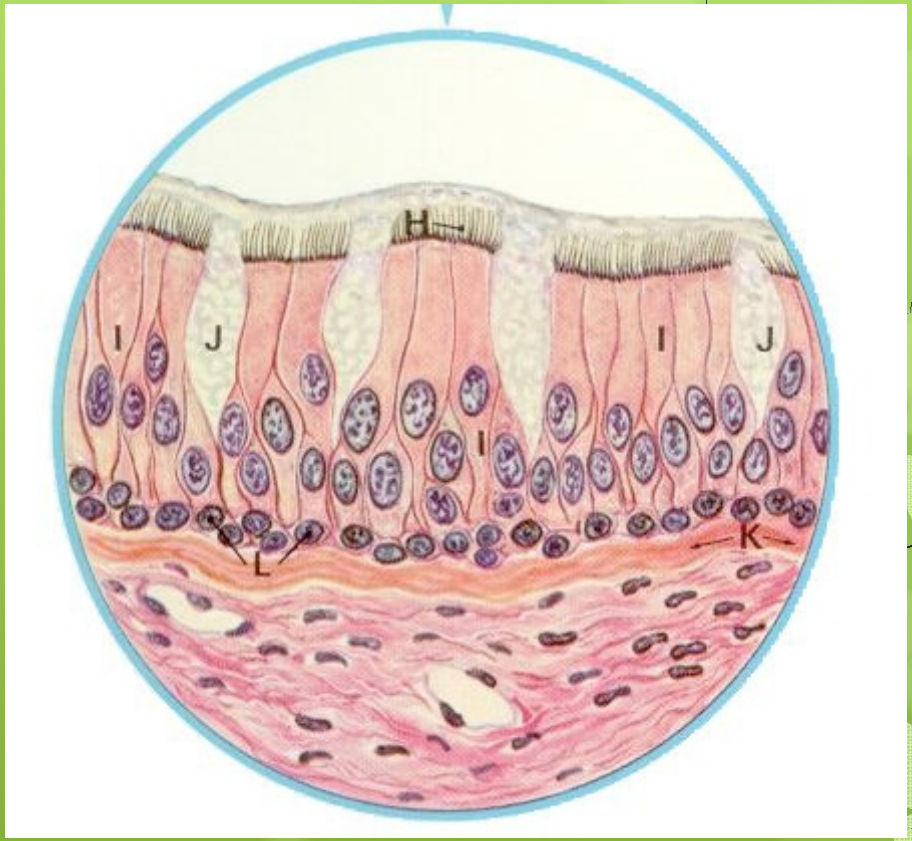
- May be congenital or acquired
- Acquired form in Irish Wolfhounds
- Acquired disease may be due to trauma, neoplasia, polyneuropathy or endocrinopathy
- In IW most often due to neuropathy
- Leaves the airway without one of its natural protective mechanisms

Primary Ciliary Dyskinesia

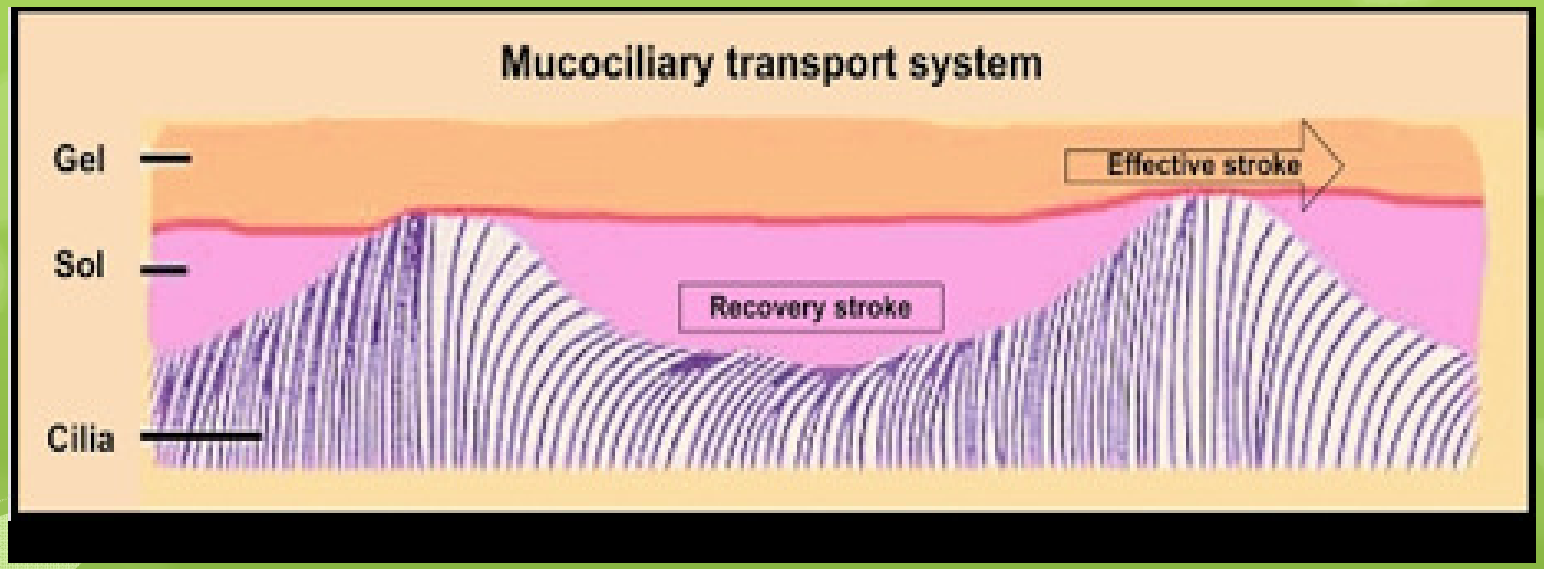
- Recognised condition in humans
- Recognised in many dog breeds (e.g.English springer spaniel, Edwards *et al*. 1989; Newfoundland, Watson *et al*., 1999; Staffordshire bull terrier, De Scally *et al.,* 2004, and many others…)
- Rare reports in cats

What are cilia?

- Tiny hairs
- Respiratory tract
- Oviduct
- Middle ear
- (Flagellae)

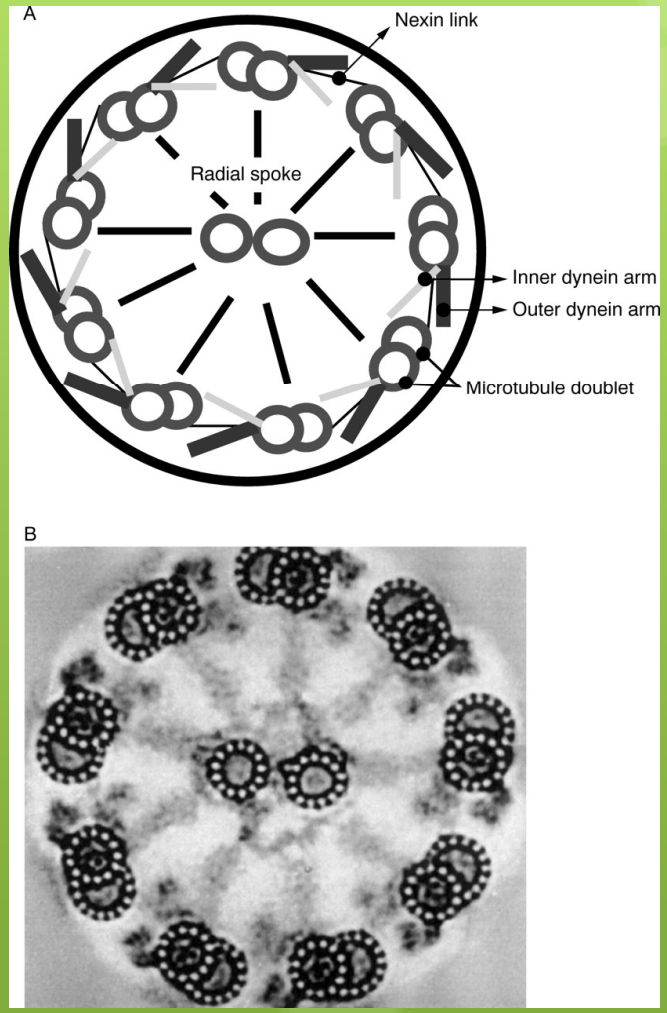


Keeping airways clean



Ciliary movement

- Structure
- Coordination



Effects of ciliary dyskinesia

- Abnormal cilia beat pattern of movement (CBP)
- Abnormal cilia beat frequency (CBF)

Lead to >

- Recurrent respiratory tract infections (upper and lower)
- Range of respiratory signs and severity of disease
- May progress to permanent lung damage (bronchiectasis)

PCD in Wolfhounds

Autosomal recessive condition

- Homozygous=affected puppies
- Heterozygous="carriers", may have more fragile ciliary function than normal animals

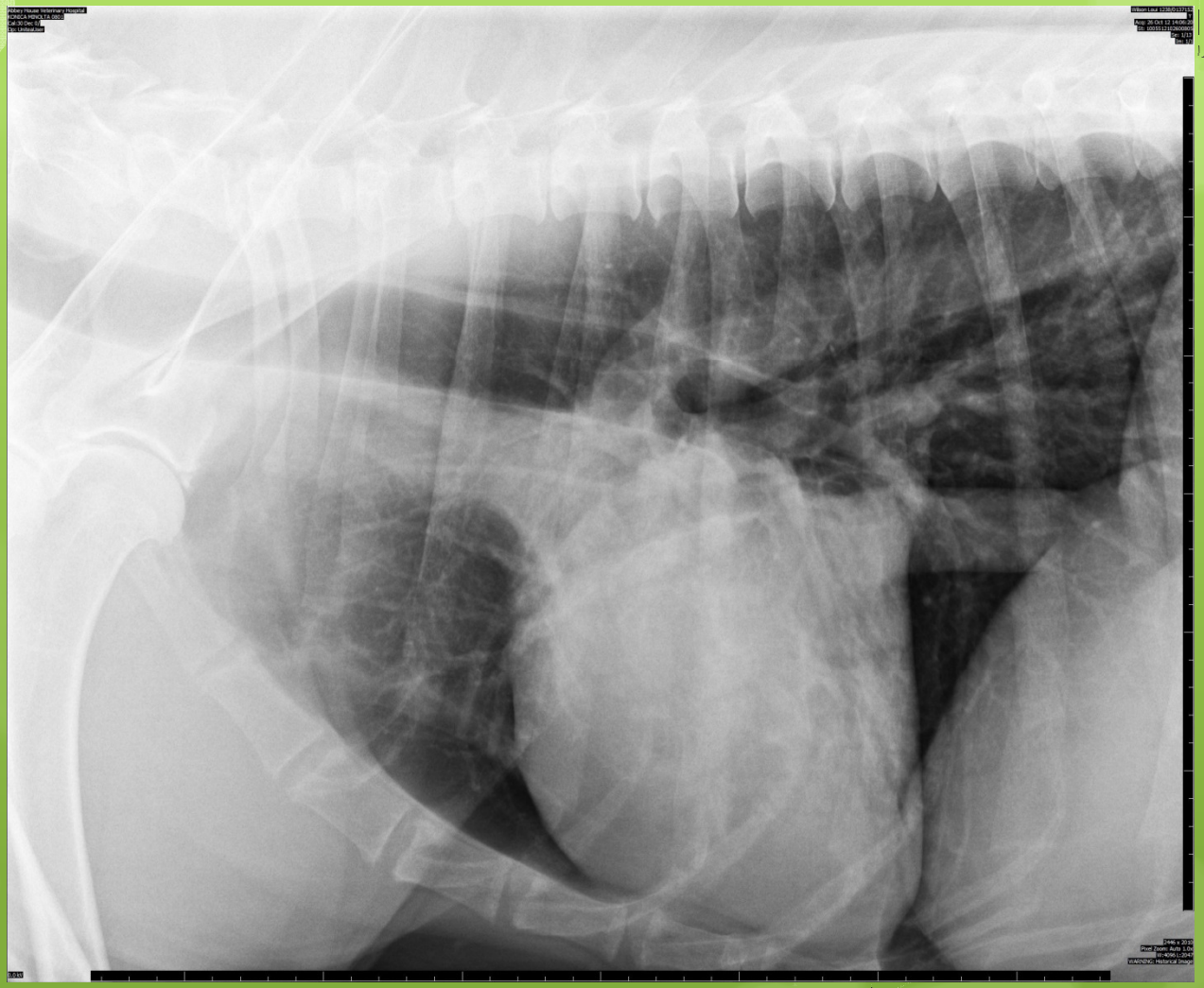
Megoesophagus and inhalation pneumonia

- When the oesophagus is wide and floppy material that is swallowed is not transported effectively into the stomach
- This material may remain in the oesophagus and then reflux into the pharynx and end up in the airway

Pneumonia diagnosis

- Auscultation
- Radiography
- Tracheal wash
- Monitoring of blood gases

Before pneumonia



Acute lobar pneumonia

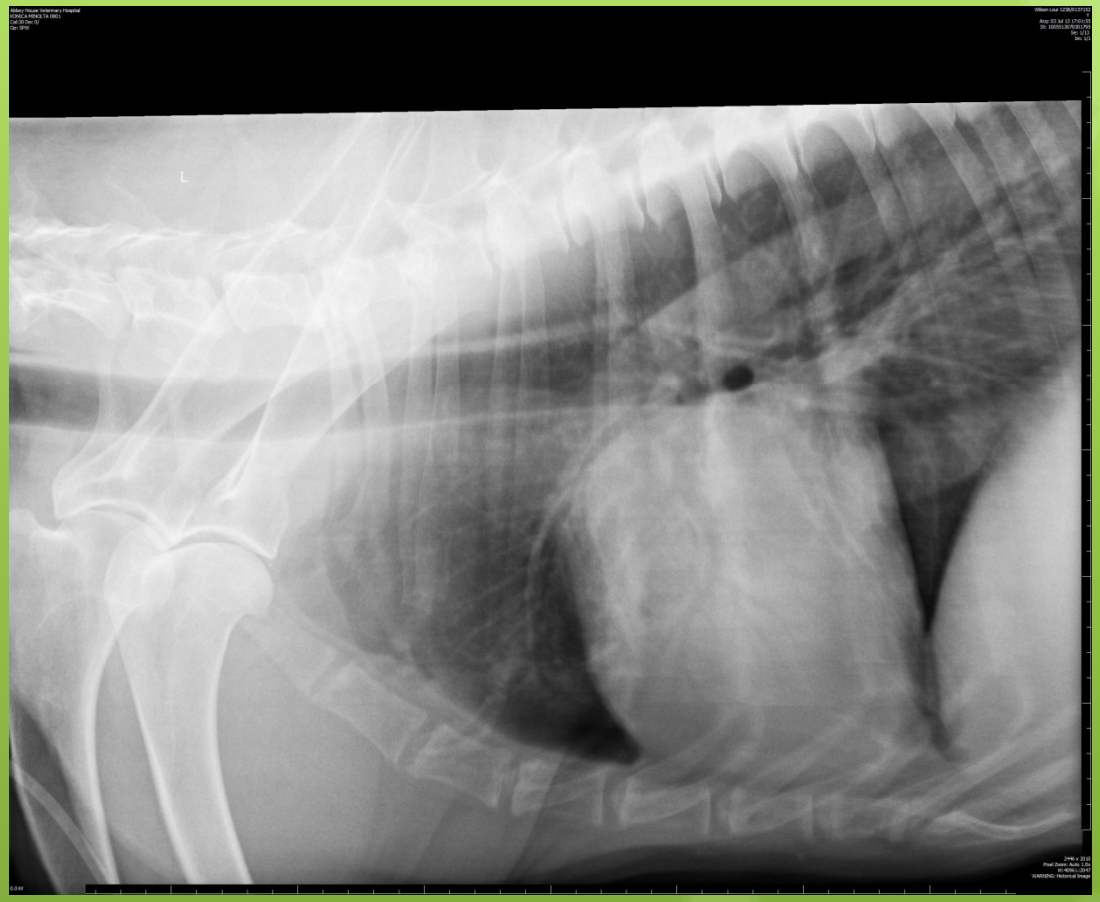
Lobar pneumonia

Lobar pneumonia

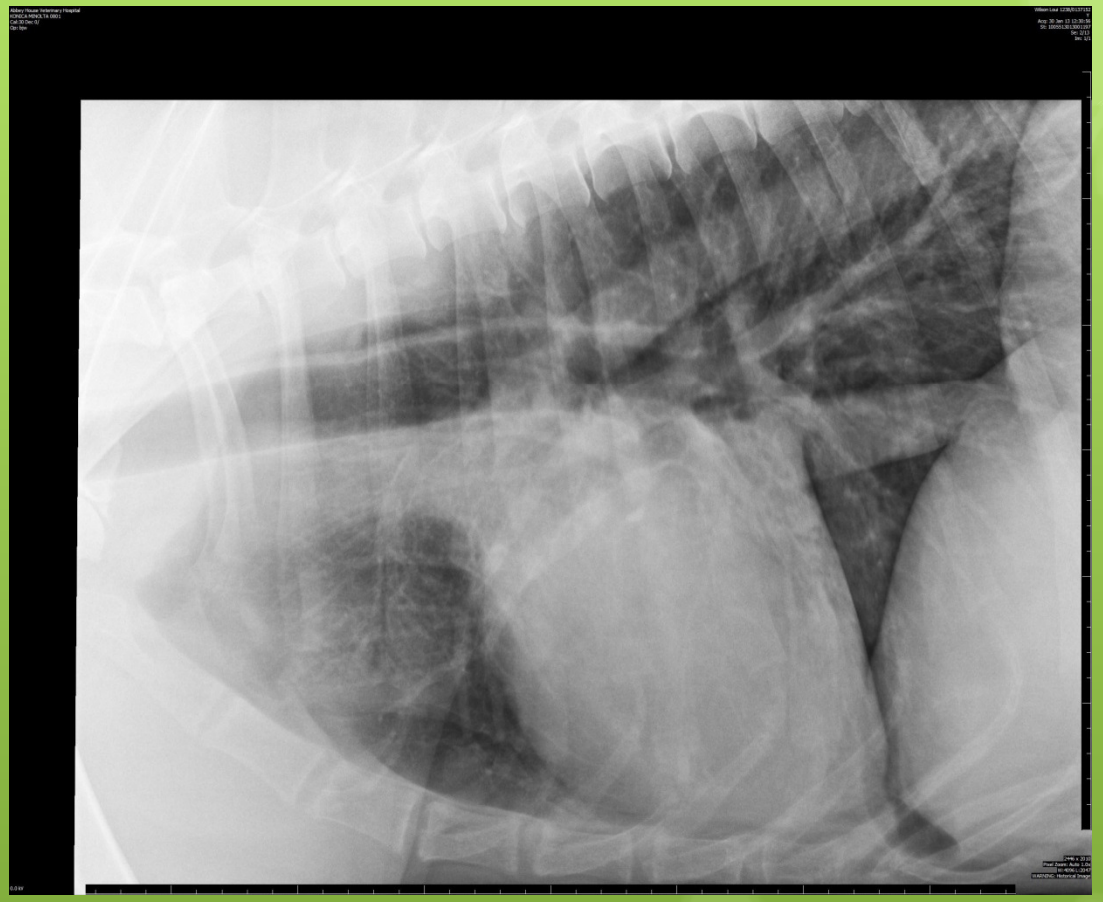
Lobar pneumonia

Resolving lobar pneumonia

Chronic changes



Acute diffuse pneumonia



Infectious agents

- Streptococci
- Staphylococci
- E. coli
- Klebsiella
- Mycoplasmas

Pneumonia Treatment

- Immediate appropriate antibiotics

1. Enrofloxacin (=Baytril)
2. Clindamycin (=Antirobe)
3. Azithromycin (=Zithromax)
4. Amoxycillin/Clavulamic acid
5. Cetiofur (=Excenel)

- Pulmonary physical therapies

1. Steam inhalation
2. Coupage
3. Fluid therapy
4. Light exercise

Summary

- There is probably a genetic component to pneumonia in the Irish Wolfhound which is more that just body shape/size, though this plays a part
- Abnormal respiratory tract clearance mechanisms may be involved
- Prompt, aggressive and prolonged multitherapy with antibiotics and lots of supportive care is required

Future directions

- Prospective study
- Significance of PCD
- Amassing of more data
- Evidence based approach