

IDIOPATHIC INFLAMMATORY POLYMYOPATHY IN THE HUNGARIAN VIZSLA



Clinical features of idiopathic inflammatory polymyopathy in the Hungarian Vizsla.

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IDIOPATHIC INFLAMMATORY POLYMYOPATHY IN THE HUNGARIAN VIZSLA (VIP)

- HISTORY OF VIP
- BRIEF DESCRIPTION OF OUR RETROSPECTIVE STUDY
- FEATURES OF THE DISEASE
- DIAGNOSTIC AIDS & FINDINGS
- TREATMENT
- KEY NOTES
- OUTCOME
- BREEDING RECOMMENDATION
- FUTURE PLANS



History of VIP

- First known case born 1991; presented VIP 1994 to RVC (CR)
- 14 cases reported in 2006 by Foale et al.
- 3 cases published in 2011 by Haley et al.
- 77 cases reported in 2015 by Tauro et al.



Retrospective cohort study 1992-2013:

- DNA collection from the affected families by D. Addicott (collating information and initiating database)
- Medical records contributed to the genomics research (CIGMR, University of Manchester)



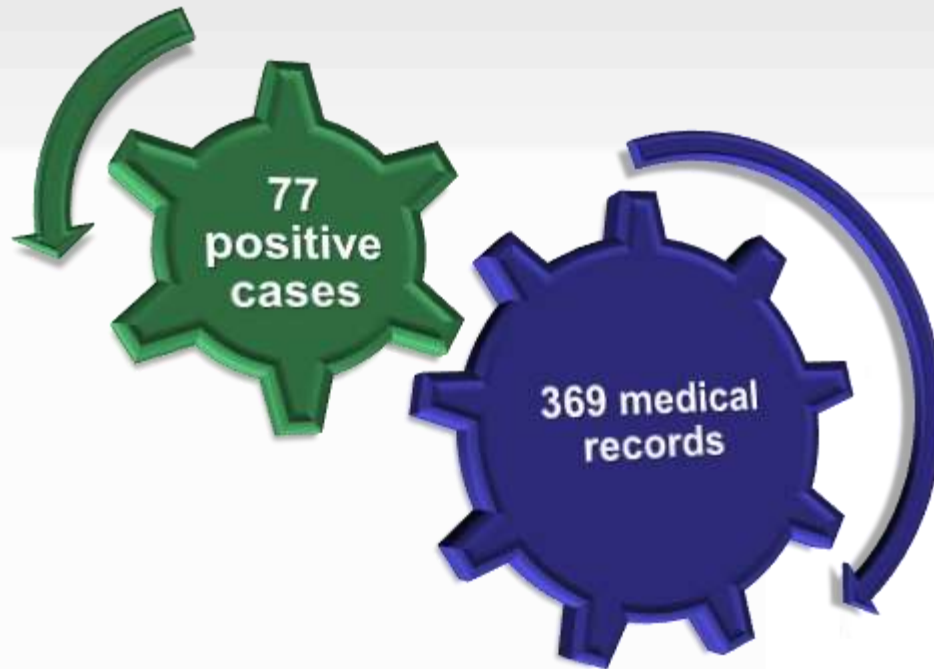
Retrospective cohort study 1992-2013:

Medical records:

- ✓ Kennel Club registration number
- ✓ Pedigree name
- ✓ Common name
- ✓ Coat colour
- ✓ Gender
- ✓ Age
- ✓ Weight
- ✓ Clinical signs
- ✓ Diagnostic tests performed
- ✓ Treatment



Retrospective cohort study 1992-2013:



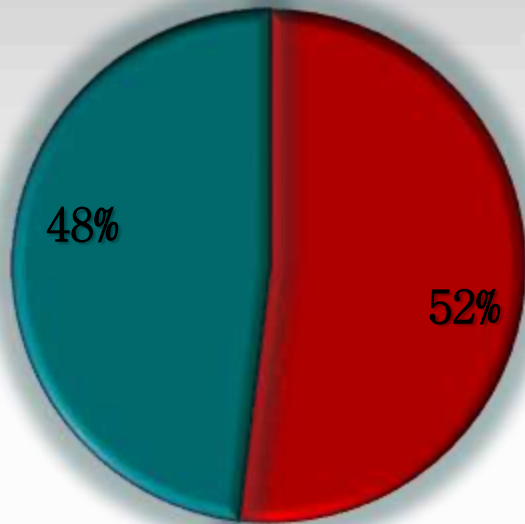
Features of VIP

AGE OF ONSET: 2.4 y.o. (0.2 – 10.3 years)

AGE OF DEATH: 6.4 y.o. (1.0 – 14.5 years)

SURVIVAL TIME: 3.9 y. (0.1 – 12.5 years)

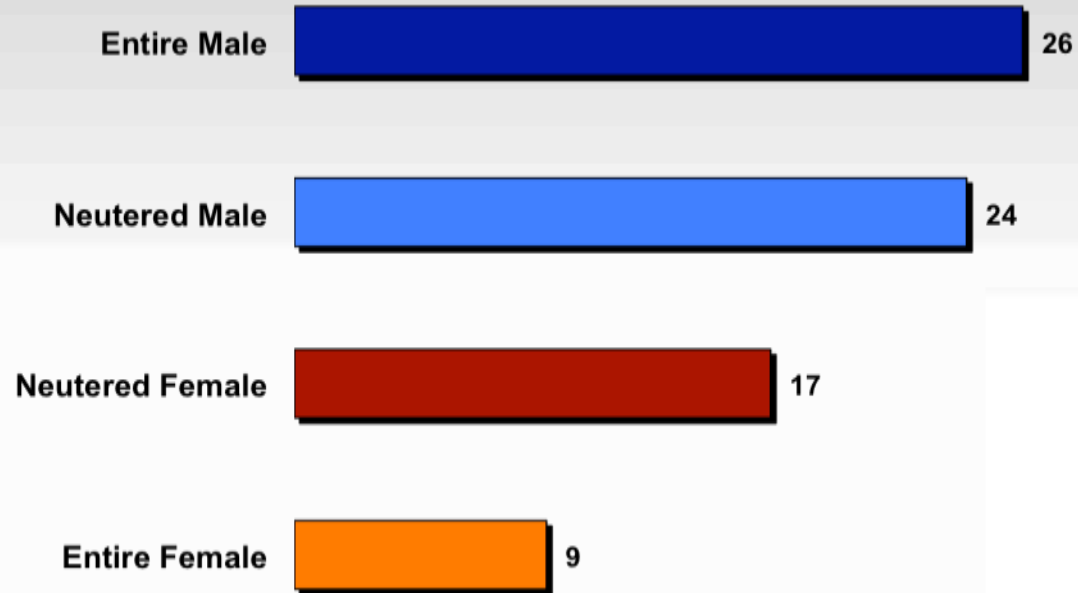




- DECEASED
- ALIVE



SEX PREDISPOSITION



Common presenting signs



- **Eating/Drinking difficulty** 90%
- **Dysphagia** 90%
- **Sialorrhea** 87%
- **Masticatory muscle atrophy** 84%
- **Regurgitation** 79%



Eating difficulty



Drinking difficulty



Less common presenting signs



- Generalised atrophy 43%
- Exercise intolerance 35%
- Generalised weakness 30%
- Trismus 21%
- Lameness 19%
- Pain in opening mouth 12%





DIAGNOSTIC Aids & Findings

- **Bloods:**
 - Elevated CK
 - Negative serology for MMM and MG
 - Negative for protozoal diseases
- **Radiography:**
 - Megaoesophagus*
 - Aspiration pneumonia
- **Electrodiagnostics:**
 - Abnormal EMG
- **Histology:**
 - Muscle biopsy
- **Post-mortem**

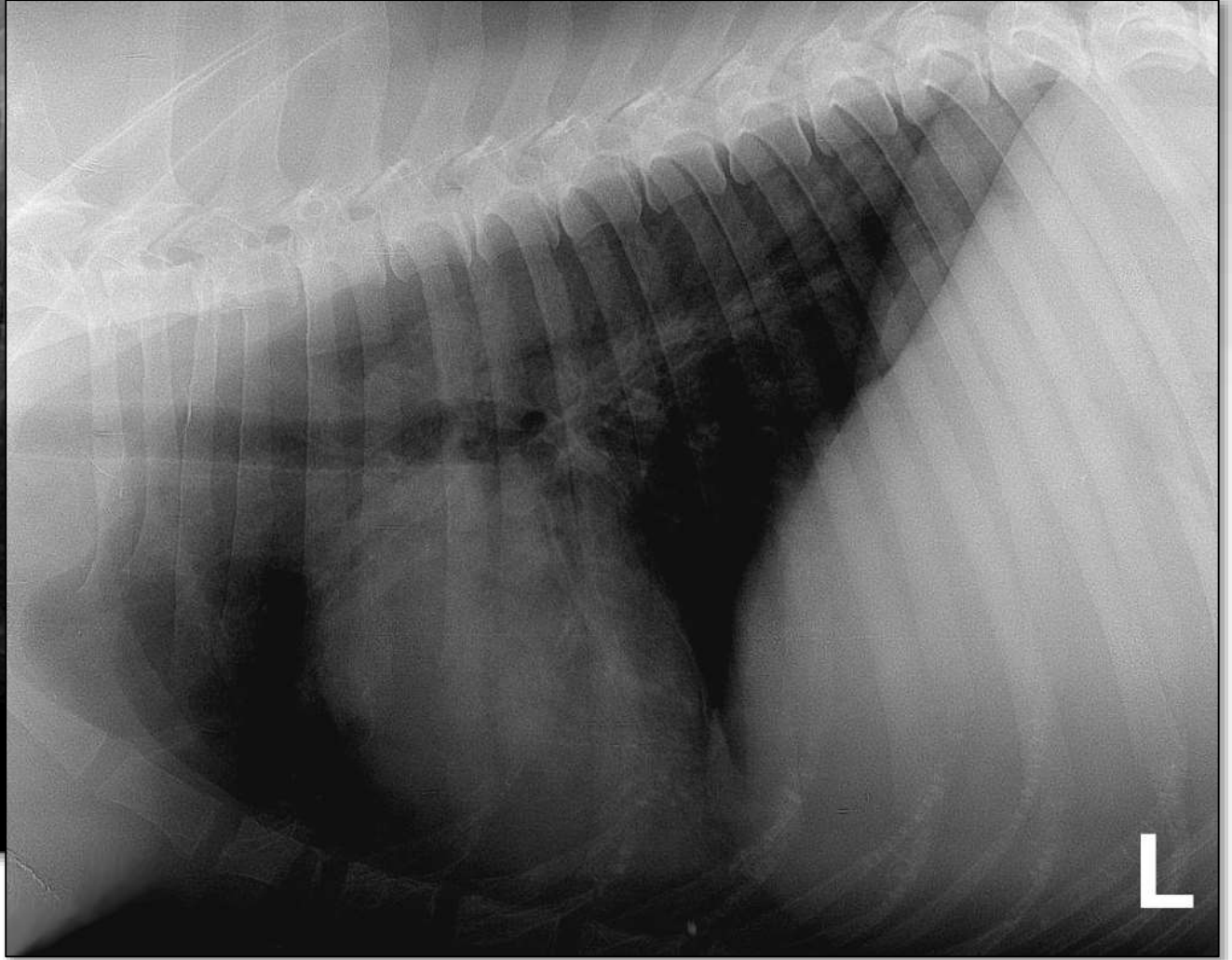
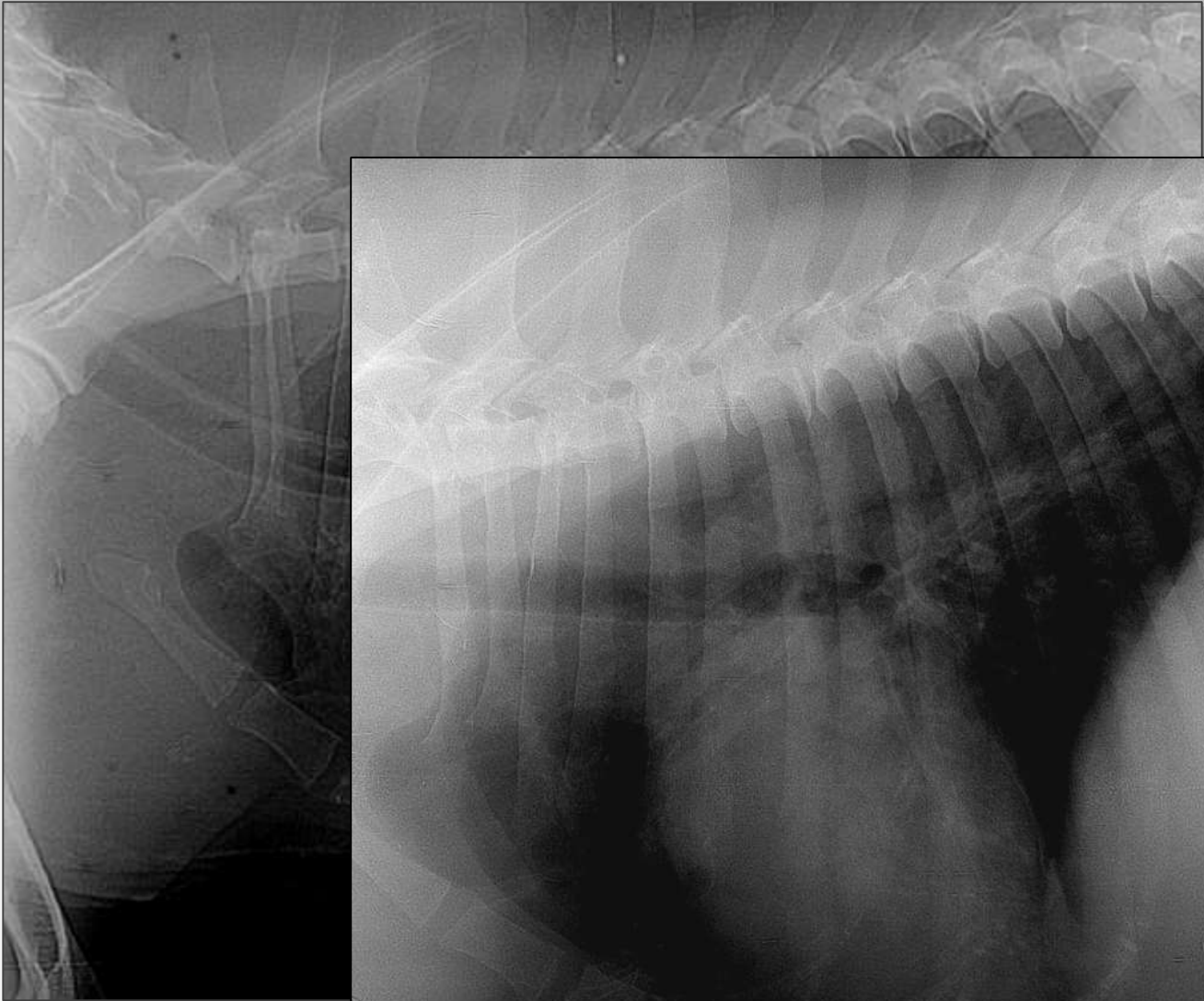
*Fluoroscopy may help to diagnose oral and pharyngeal swallowing dysfunction.



Other features of VIP

- Co-existence of VIP with other immune-mediated diseases
- Evidence of response to immune-suppressive treatment
 - ✓ Myasthenia gravis
 - ✓ Masticatory Muscle Myositis
 - ✓ Atopy
 - ✓ Sebaceous adenitis
 - ✓ Keratoconjunctivitis sicca
 - ✓ Steroid-responsive meningitis arteritis
 - ✓ Immune-mediated polyarthritis





Muscle Biopsy

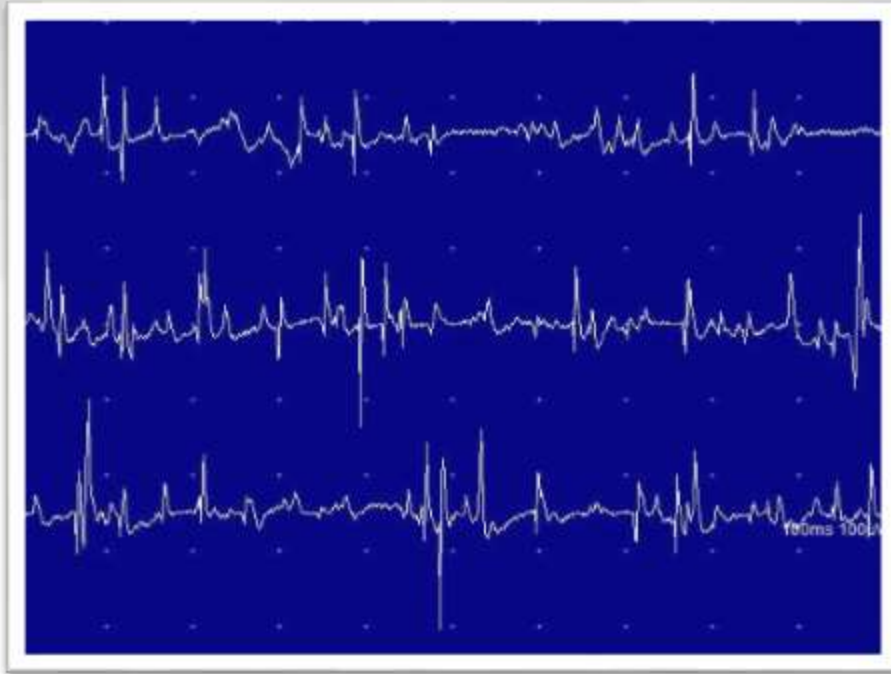


GOLD STANDARD FOR DIAGNOSIS, however...

...in seven cases the muscle biopsies did not confirm an inflammatory process and the dogs subsequently responding to immunosuppressive therapy.



Electromyography (EMG)



- **Positive sharp waves**
- **Fibrillation potentials**
- **Prolonged insertional activity**



MRI



BIOPSY: Hints and Pitfalls

AVOID biopsy of end-stage muscles
(adipose or connective tissue replaces muscle tissue)

MOST USEFUL BIOPSY SITE: temporal muscle

IF ORO-PHARYNGEAL DYSPHAGIA: biopsy of lingual muscle

EMG & MRI: help to identify the appropriate muscle to sample



Muscle Biopsy



IN OUR STUDY:

A conjugated to horseradish peroxidase (SPA-HRPO) detected antibody (IgG) bound to the neuromuscular junction in two cases.

A FUTURE GOAL:

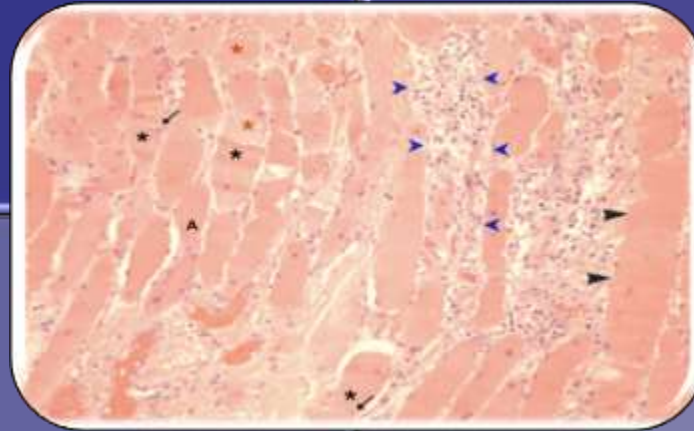
Further investigations to identify myositis-specific autoantibodies.



Histology

Degenerative changes

Regenerative changes



Mononuclear cell
infiltration

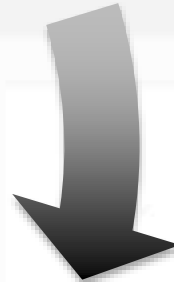
Fibrosis and
Adipose tissue

Responsiveness
to immune-
suppressive
therapy



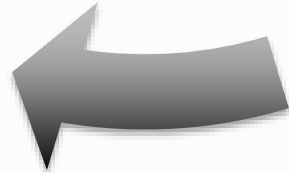
Clinical signs

DIAGNOSIS

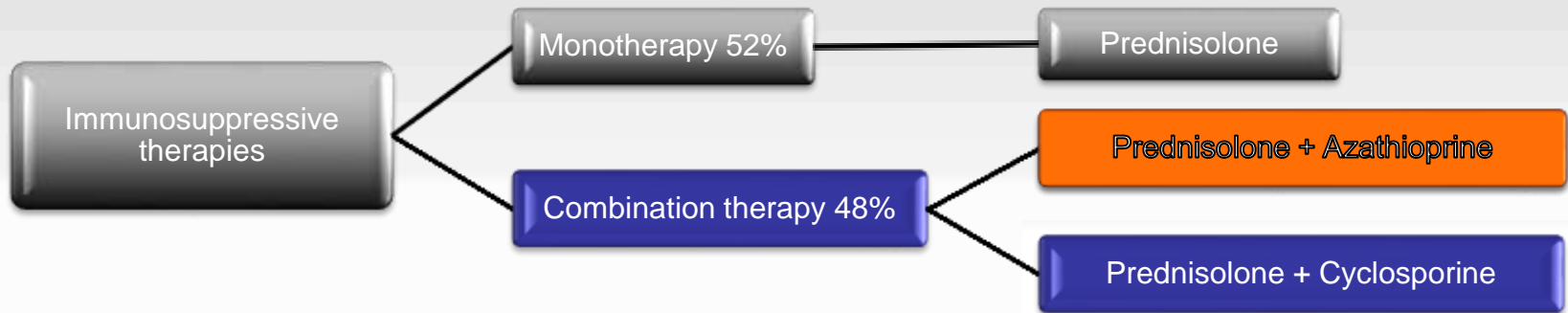


Exclusion of
other
neuromuscular
diseases

Histopathology



TREATMENT



90%



*Other drugs used were Methotrexate and Leflunomide

SUPPORTIVE TREATMENT

**Prokinetic
drugs**

**Gastro
protectants**

Antibiotics

Pain relief



KEY NOTES

Withdrawal of drugs within a 1-year period



Earlier relapse and increased mortality in 23%

KEY NOTES

- **EARLY DIAGNOSIS**
- **SLOW TAPERING PROTOCOL**
- **CAREFUL MONITORING / ADJUSTMENT DOSE**
- **CAREFUL FEEDING TECHNIQUES + COUPAGE**



KEY NOTES

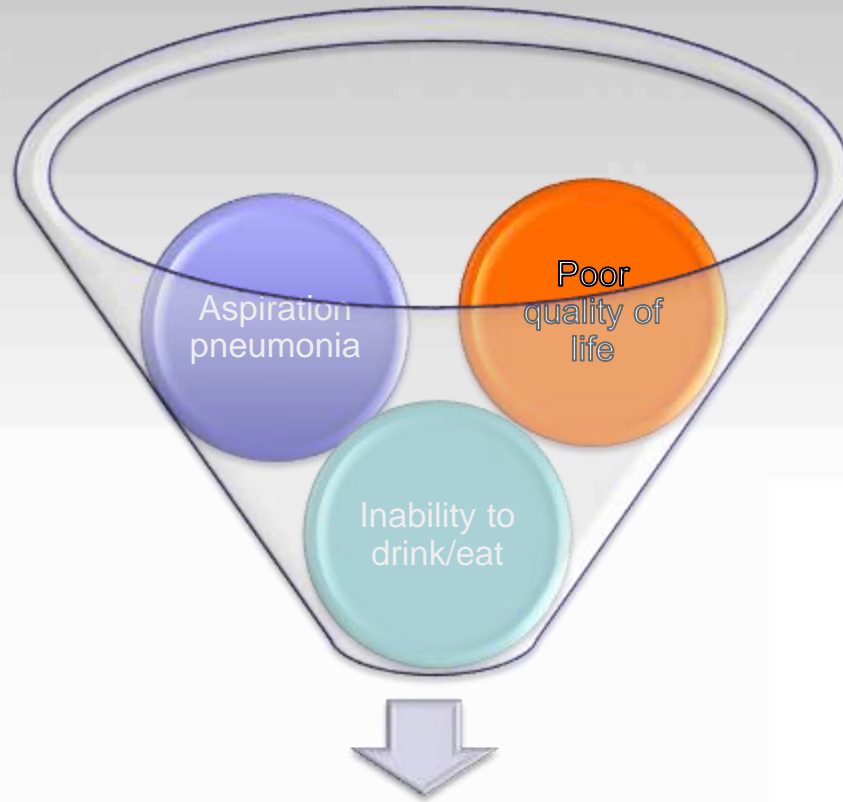


Bailey Chair



Dogit Blue Go Slow Anti-Gulping Dog Bowl





GUARDED PROGNOSIS



Breeding

In order to reduce the risk of VIP:



inbreeding coefficient (Col)
of the resulting puppies, as measured from a
five generation pedigree
should be less than 12.5%



Breeding

Inbreeding coefficient (CoI):

it measures the common ancestors of dam and sire, and indicates the probability of how genetically similar they are.

= probability of homozygosity



Breeding

Higher is the Inbreeding coefficient (Col)

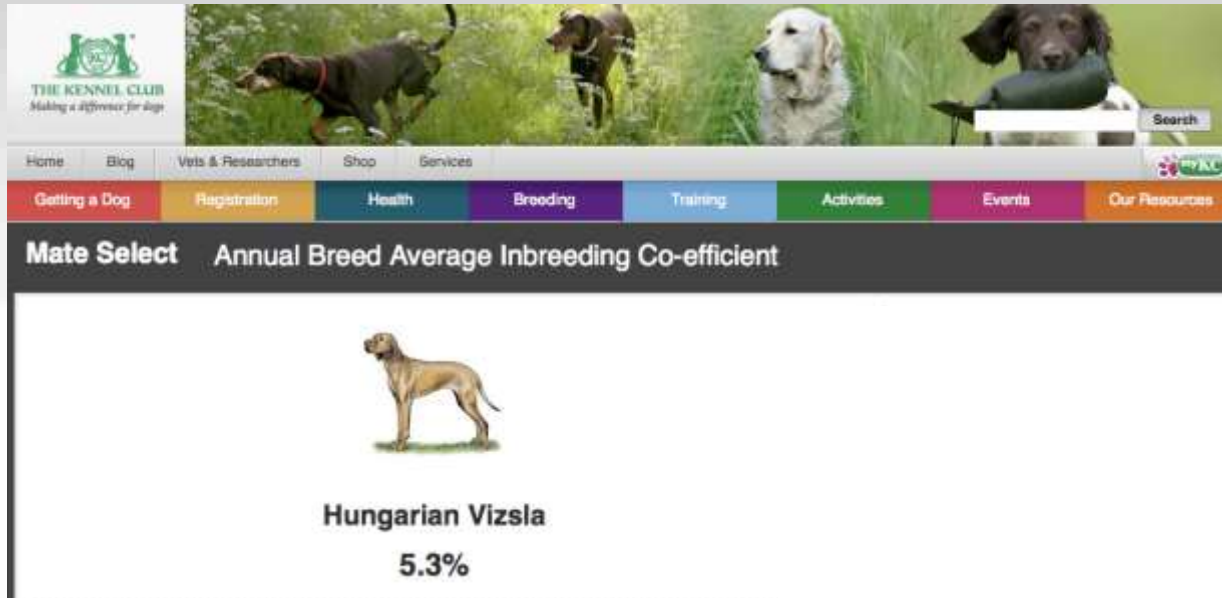
= less diversity

=“rapid build up of disease genes”

e.g. Col >25% being the equivalent of a mother/son mating



Breeding



However the average Col in our study was 16.3%



Breeding Recommendation



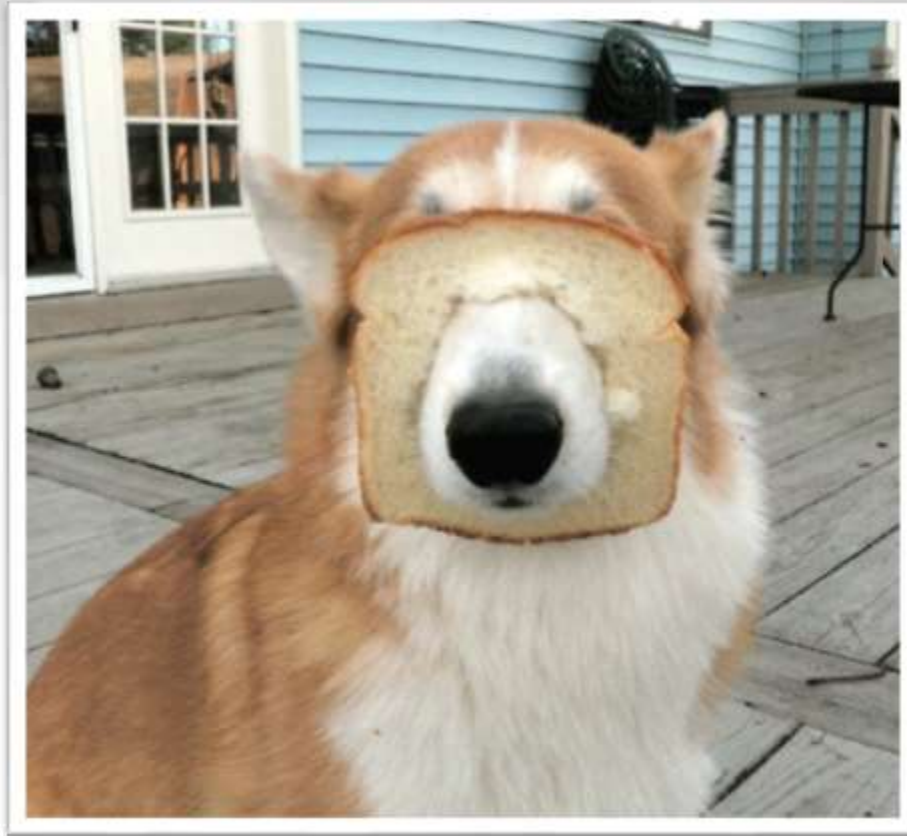
Breeding of dogs with immediate relatives with VIP should be avoided.



INBREEDING

It only hurts the childrens' childrens' children.

Few examples of inbreeding



Few examples of inbreeding



Kenny the White Tiger

“Down’s syndrome”?

“He died at the age of ten (in 2008), around half the lifespan of a typical captive tiger”.

Few examples of inbreeding



Bull terrier

...from **100 Years of Breed “Improvement” (Science and Dogs).**

Few examples of inbreeding



Basset Hound

...from **100 Years of Breed “Improvement” (Science and Dogs).**

Few examples of inbreeding



Boxer

...from **100 Years of Breed “Improvement” (Science and Dogs).**

Few examples of inbreeding



English bulldog

...from **100 Years of Breed “Improvement” (Science and Dogs).**

Few examples of inbreeding



Dachshund

...from **100 Years of Breed “Improvement” (Science and Dogs).**

Few examples of inbreeding



German Shepherd

Few examples of inbreeding



CKCS

“Prudent Man” principle

- ✧ To get a true picture of how inbred a certain dog is, then, you should go back at least five generations and ideally ten.
- ✧ Having a **low COI** may show that the breeder has tried to follow good breeding practice and limit inbreeding.



Breeding & Col

Check your prospective puppy's COI (or COI of both parents)

by going to the Kennel Club's online Mate Select programme:

<http://www.thekennelclub.org.uk/services/public/mateselect/kinship/Default.aspx?breed=2038>



Genetic studies

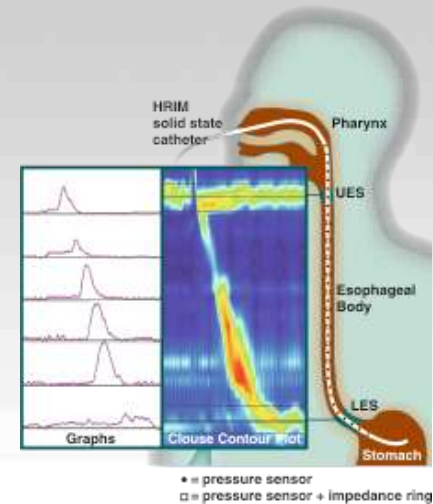
Investigation of MHC Class II haplotype*

- ❖ MHC Class II haplotype associated with an increased risk of Polymyositis in the Vizsla.
- ❖ Increasing frequency with degree of relatedness
- ❖ Support the hypothesis of an immune-mediated aetiology



* [PLoS One](#). 2013;8(2):e56490. doi: 10.1371/journal.pone.0056490. Epub 2013 Feb 14.
Association of an MHC class II haplotype with increased risk of polymyositis in Hungarian Vizsla dogs
[Massey J](#)¹, [Rothwell S](#), [Rusbridge C](#), [Tauro A](#), [Addicott D](#), [Chinoy H](#), [Cooper RG](#), [Ollier WE](#), [Kennedy LJ](#).

Future studies

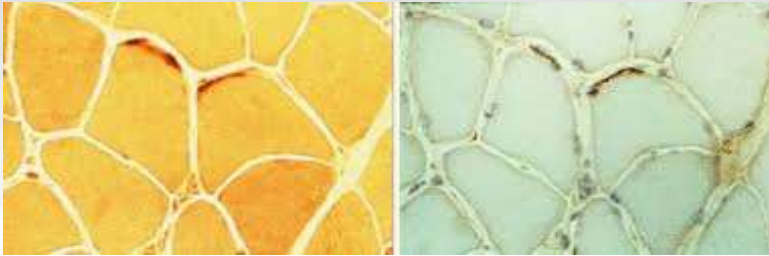


Oesophageal high-resolution manometry:

'gold standard' for assessing oesophageal motor function in people



Future studies



Identify myositis-specific autoantibodies

The identification and characterization of autoantibodies is an important cornerstone in the diagnosis.



Future studies



Developing a DNA screening test

<http://www.vizslahealth.net/polymyositis/dna-collection/>



Spice



Cedar



Jasper



**B
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**A
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BEFORE

AFTER

RADIO



To all the affected Vizsla...



Acknowledgements



Mrs. Di Addicott



Dr. Clare Rusbridge



Mrs. Penny Knowler



ANY QUESTIONS?

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