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:

- 77 positive cases
- 369 medical records
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)
SEX PREDISPOSITION

Entire Male: 26
Neutered Male: 24
Neutered Female: 17
Entire Female: 9
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
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
AVOID biopsy of end-stage muscles
(adipose or connective tissue replaces muscle tissue)

MOST USEFUL BIOPSY SITE: temporal muscle

IF ORO-PHARINGEAL DYSPHAGIA: biopsy of lingual muscle

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

Mononuclear cell infiltration

Regenerative changes

Fibrosis and Adipose tissue
DIAGNOSIS

Clinical signs

Responsiveness to immune-suppressive therapy

Histopathology

Exclusion of other neuromuscular diseases
TREATMENT

Immunosuppressive therapies

Monotherapy 52%
- Prednisolone
- Prednisolone + Azathioprine
- Prednisolone + Cyclosporine

Combination therapy 48%

*Other drugs used were Methotrexate and Leflunomide
SUPPORTIVE TREATMENT

- Prokinetic drugs
- Gastro protectants
- Antibiotics
- Pain relief
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

Dogit Blue Go Slow Anti-Gulping Dog Bowl

Bailey Chair
Aspiration pneumonia
Inability to drink/eat

Poor quality of life

GUARDED PROGNOSIS
Breeding

In order to reduce the risk of VIP:

inbreeding coefficient (CoI) 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.

\[ \text{= probability of homozygosity} \]
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 CoI in our study was 16.3%
Breeding Recommendation

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

A Beginner’s Guide to COI
http://www.dogbreedhealth.com/a-beginners-guide-to-coi/
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

...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
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 & COI

Check your prospective puppy’s COI (or COI of both parents) by going to the Kennel Club’s online Mate Select programme:

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


Association of an MHC class II haplotype with increased risk of polymyositis in Hungarian Vizsla dogs
Massey J¹, 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/
To all the affected Vizsla...
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Any questions?