HED SESSION 2022 - KAHOOT

In cooperation with the Austrian Panel (AKVO)

Dr. Petra Benz
(Austria)

Dr. Reka Eördögh
(Hungary)

This session and the information on how to correctly issue the ECVO certificate is based on the ECVO Manual 2021

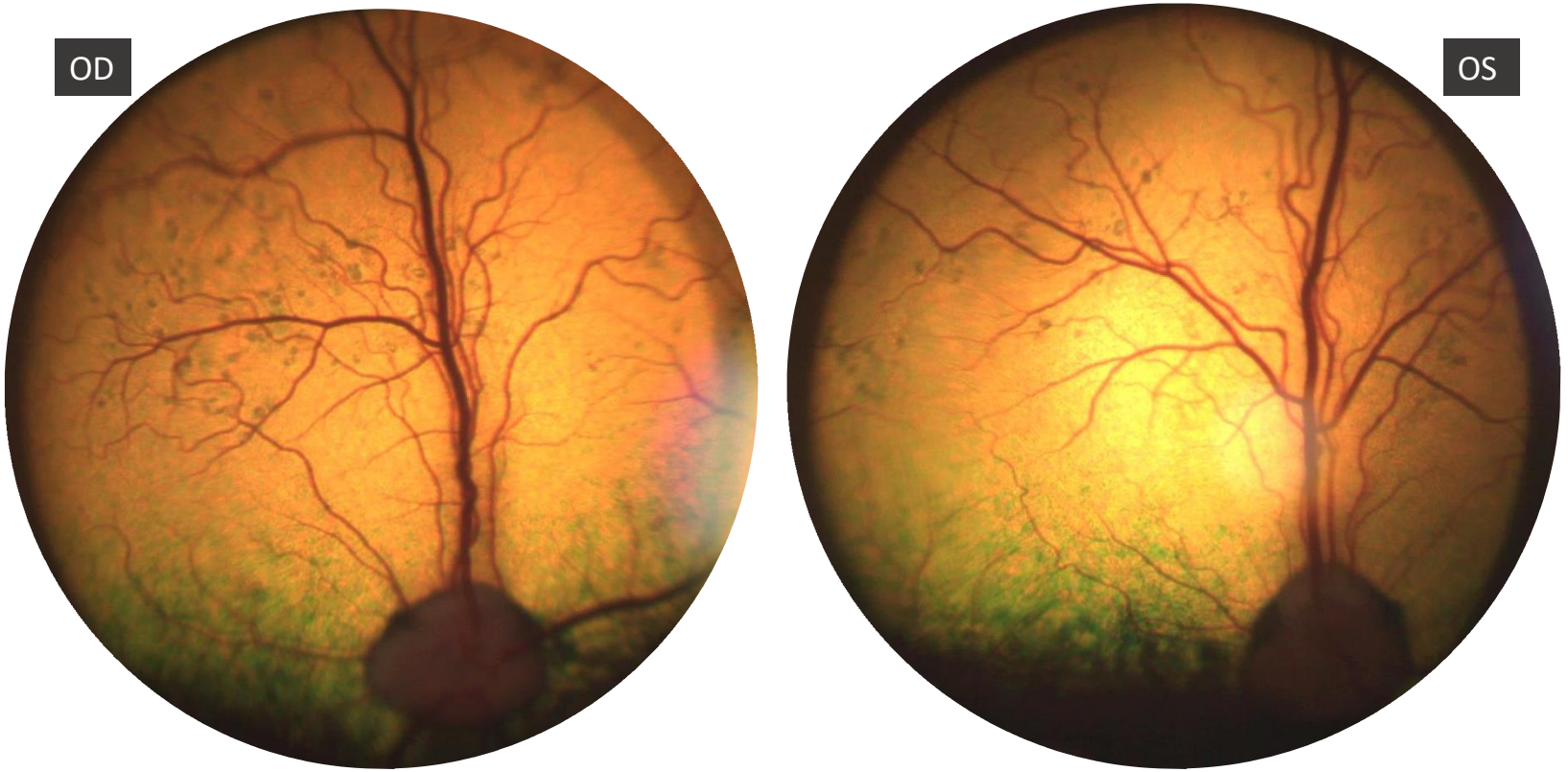
Comments to Chapter 8 Vet Advice:

- In this manual (Chapter 8), we choose the term « Veterinary Ophthalmologists' advice relating to HED control » and intentionally avoid the words "pass", "fail", "certifiable" and "registerable".
- The ECVO does not prescribe breeding rules, nor does it serve as a registry organization. Breed clubs and registry organizations operate independently of the ECVO and set their own standards for registration. Any registry organization may use the information in this manual and the results of examinations performed by ECVO Diplomates and panellists (ESE = Eye Scheme Examiners under the ECVO Eye Scheme) for the registration of animals with respect to their suitability for breeding.

HED SESSION – Kahoot!

Case 1

Welsh Springer Spaniel, 5y, m, bilateral finding Slides: Marianne Richter



Welsh Springer Spaniel, 5y, m, bilateral finding Slides: Marianne Richter

▲ 4. Retina Dysplasia: multifocal

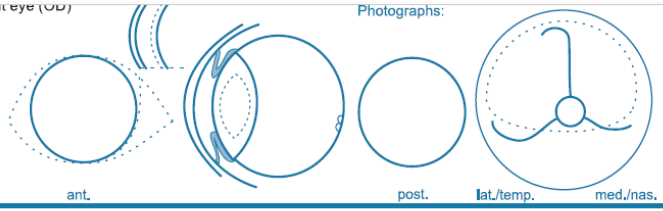
◆ 18: other: Retinal Pigment Epithelial Dystrophy

● 18. other: Retinopathy, canine multifocal

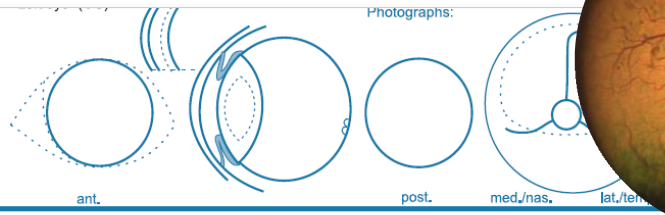
■ 4. Retina Dysplasia: geographical

Welsh Springer Spaniel, 5y, m, bilateral finding

Right eye (OD) Photographs:



Photographs:



Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality~~ (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Retinal dysplasia: KP-HED; abnormal development of the retina with ophthalmoscopic changes observed early in life, characterized by neuroretinal folding (s), rosettes and partial or total retinal detachment; non-progressive and generally recognized to have three forms: (multi)focal, geographic and total.

Retinal dysplasia- (multi)focal: seen ophthalmoscopically as linear (vermiform), triangular, curved or curvilinear foci of retinal folding that may be single or multiple. Its significance to vision is unknown. When seen in puppies this condition may partially or completely resolve with maturity. The two other forms of retinal dysplasia (geographic and complete) which are known to be hereditary in some breeds and, in their most severe form, may cause blindness. The genetic relationship between folds and more severe forms of retinal dysplasia is undetermined

HED Manual Chapter 6 Guidelines

Retinal dysplasia (RD) Linear (vermiform), triangular, curved or curvilinear foci of retinal folding that may be single or multiple seen ophthalmoscopically, the boxes at “4. Retinal dysplasia” and “(multi)focal” “affected” are ticked. In puppies, linear or round juvenile folds, usually in the peripapillary area, may be observed as a result in inequity in the relative growth rates of the optic cup and these folds resolve as the animal matures. These folds are not accurately referred to as dysplasia and should be ticked “unaffected” but can be described in the comments area. In the English Springer Spaniel, Golden Retriever, Labrador Retriever and Samoyed these juvenile folds are considered as retinal dysplasia (RD) and should be ticked “undetermined” or “affected”.

HED Manual Chapter 8 Vet Advice

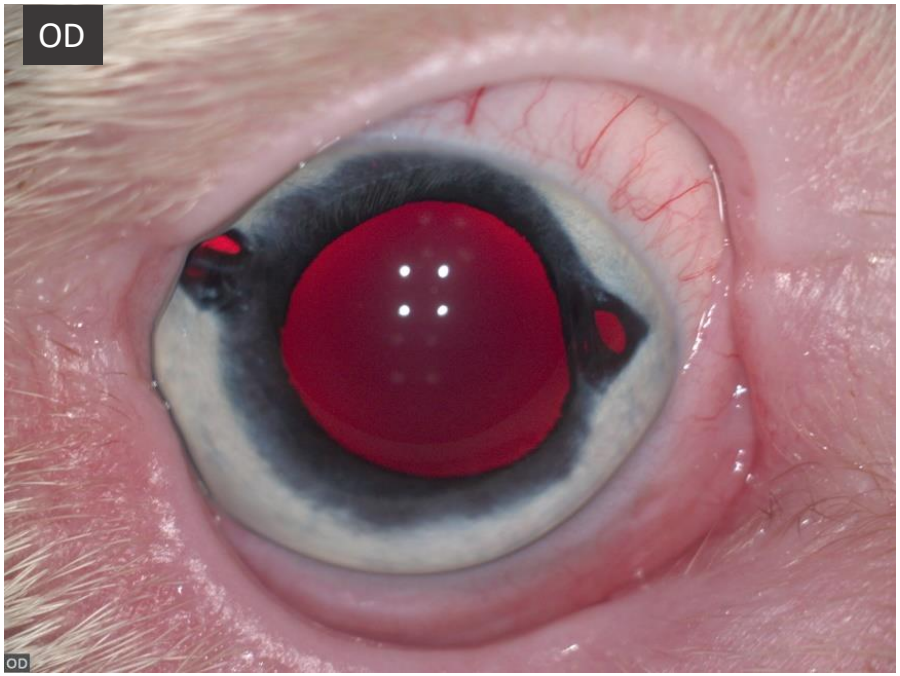
4- Retinal Dysplasia (RD): - (Multi-)focal form in any breed: OPTIONAL. Note: different advice may be given for specific breeds by the breeding clubs

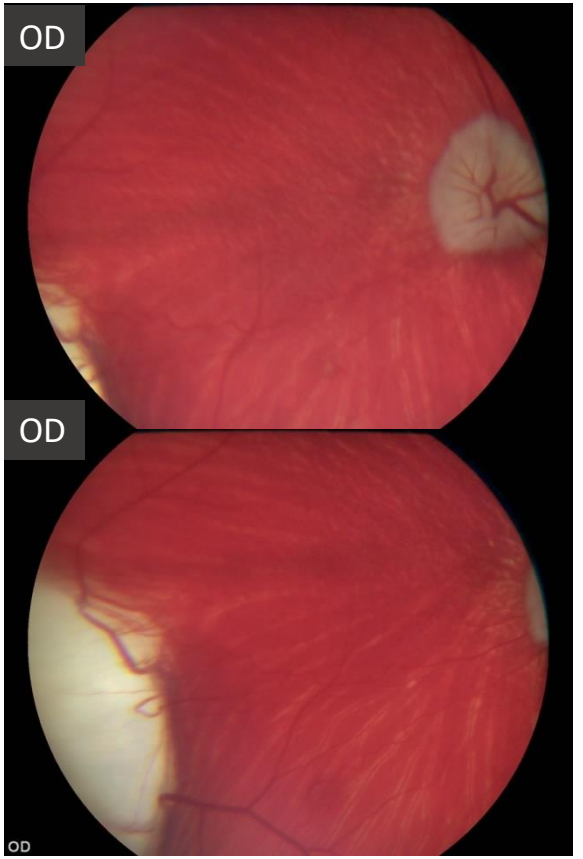
HED SESSION – Kahoot!

Case 2

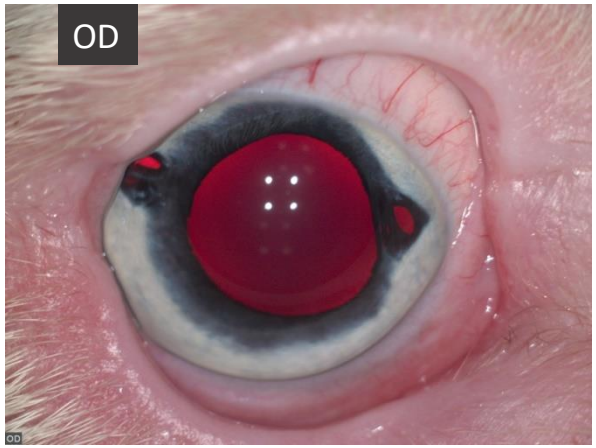
Dogo Argentino, 1y, m, bilateral finding

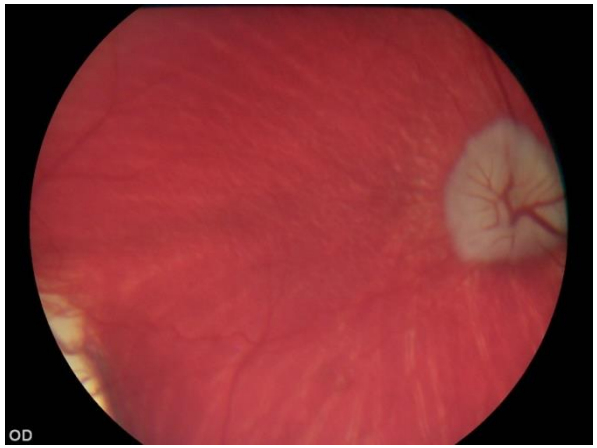
Slides: Reka Eördögh

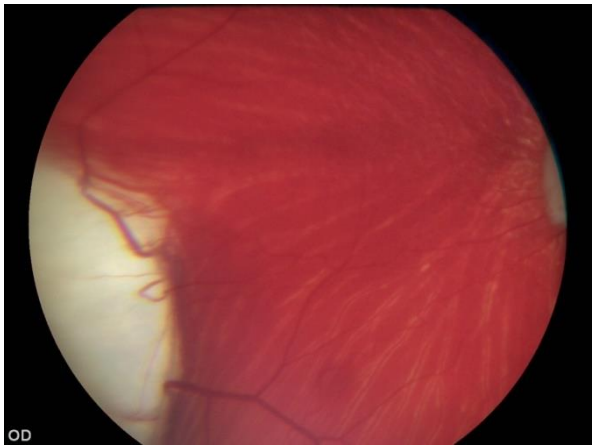




Dogo Argentino, 1y, m, bilateral finding Slides: Reka Eördögh







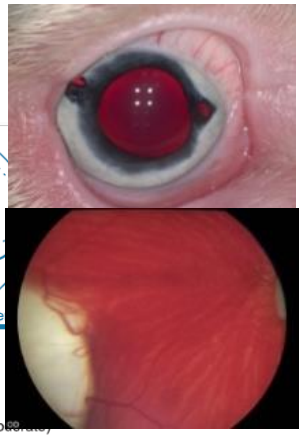
▲ 7. other: iris coloboma, choroidal hypoplasia

◆ 7. other: choroidal hypoplasia in non-colli breeds

● 6. Collie Eye Anomalie: affected

■ 7. other: multiple other KP-HEDs
Descriptive comments: iris hypoplasia, retinal coloboma, choroidal coloboma

Dogo Argentino, 1y, m, bilateral finding



Right eye (OD) Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./te

Descriptive comments: **7. Other: iris hypoplasia, choroidal coloboma, retinal coloboma (Merle ocular dysgenesis)**

Eye disease no. **7** severe

Cataract other: punctata; suture line tip; suture line; nuclear ring; nuclear fiberglass/pulverulent

8. ICAA: PLA: mild; moderate; severe

ICA (width): narrow (moderate); closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)				iris; lens; cornea; lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)				grade 1; grade 2-6
3. Cataract (congenital)				
4. Retinal Dysplasia (RD)				(multi)focal; geographical; total
5. Hypoplastic-/Micro-papilla				
6. Collie Eye Anomaly (CEA)				choroid. hypoplasia; coloboma; other:
7. Other: **multiple other KP-HEDs**			X	
8. IridoCorneal Angle Abnormality (ICAA)				mild; moderate; severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis				
12. Ectropion / Macroblepharon				
13. Distichiasis / Ectopic cilia				
14. Corneal dystrophy				
15. Cataract (non-congenital)				cortical; post. pol.; nuclear; other
16. Lens luxation (primary)				
17. Retinal degeneration (PRA)				
18. Other:				

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | Examiner

HED Manual Chapter 5 Definitions

Coloboma: congenital defect of a portion of the eye due to a failure in closure of the body halves; most frequently affecting the iris or the optic nerve at the 6 o'clock position. The latter is a presumed hereditary congenital eye disease that if large, may cause retinal detachment resulting in blindness or visual impairment.

Hypoplasia iris: KP-HED; characterized by congenital thinning and/or absence of iris (sphincter) tissue or colobomatous defects due to failure in closure of the optic fissure. It may be a separate disorder or associated with other ocular malformations. See and use "iris hypoplasia"

HED Manual Chapter 6 Guidelines

Note: If there is a congenital lack of tissue in the iris and lens, the term "**hypoplasia**" is used: iris hypoplasia, lens hypoplasia. Reason: Iris tissue can be absent in full-thickness, but also only partially (hypoplastic); The lens equator may have a flattened curvature due to abnormal development of zonular fibers or ciliary processes. Only if uni- or bilateral iris tissue is missing (full thickness) or failed to develop (developmentally colobomatous) e.g. in one of the specific breeds Australian Shepherd, Dalmatian, Rottweiler, also the box "severe" is to be ticked in the comment area

For congenital absence of tissue of the eyelid, retina, choroidea, sclera or optic nerve/papilla use the term "**coloboma"**, e.g. eyelid coloboma, retinal coloboma, choroidal coloboma, scleral coloboma and/or optic nerve coloboma

HED Manual Chapter 6 Guidelines

If there is no specific box available on the certificate for the KP-HED, the box at number “7. Other” and/or at number “18. Other” is to be ticked and the definition name of the disease (in the list in chapter 5) is written (online: is used). Only if there are more than one KP-HEDs present which are not listed in the results field under no 1-6 and no 11-17, the box “affected” at “7. Other” and/or at “18. Other” is ticked and the term "Multiple other KP-HEDs" is written (online: is used); the KP-HED must also be specified in the comment field using the definition name in the list in chapter 5.

HED Manual Chapter 8 Vet Advice

Coloboma:

- Retina: NO BREEDING from the affected animal
- Choroidea: NO BREEDING from the affected animal

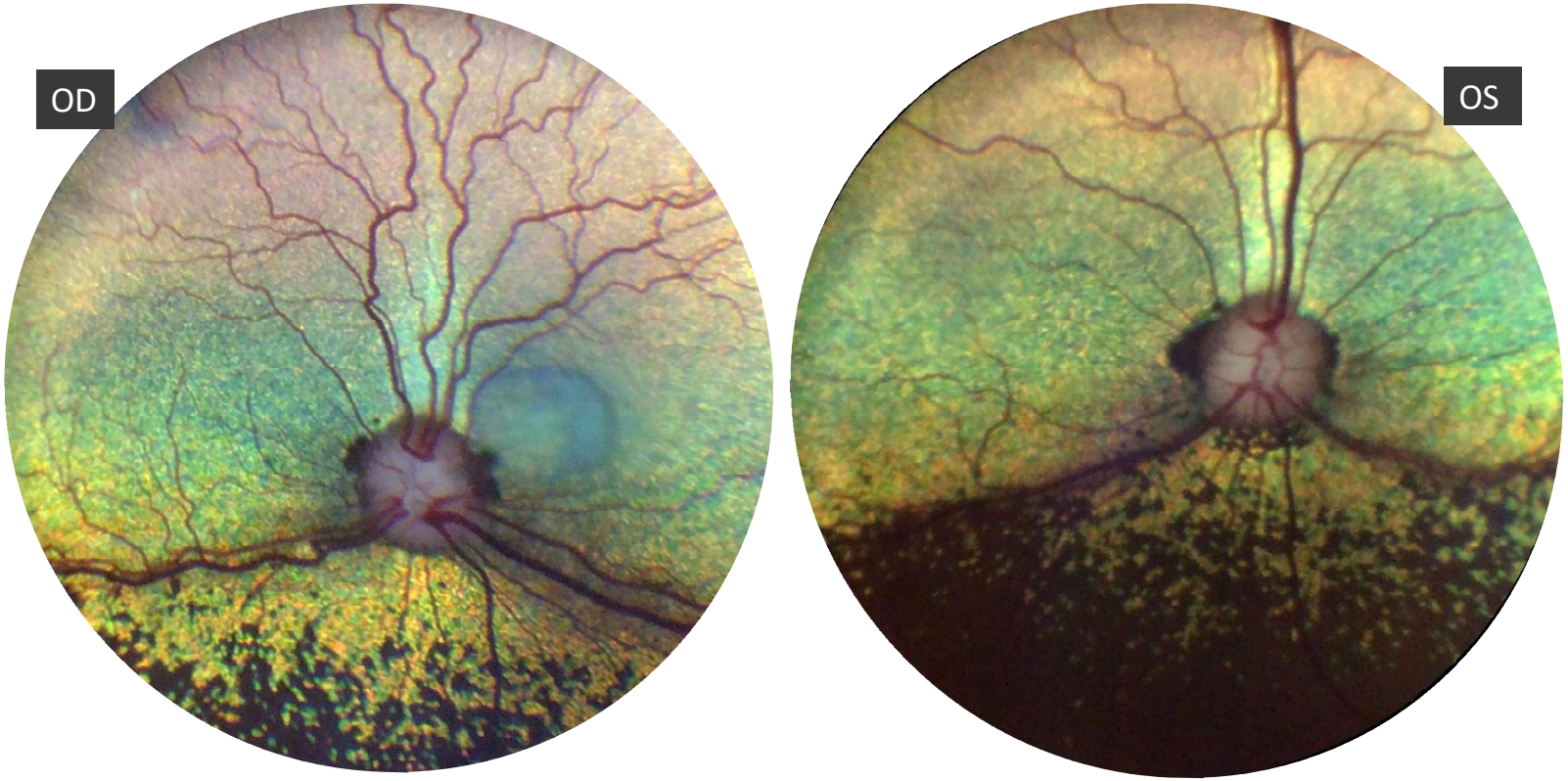
Hypoplasia:

- Iris: OPTIONAL, Note: In severe cases: NO BREEDING from the affected animal

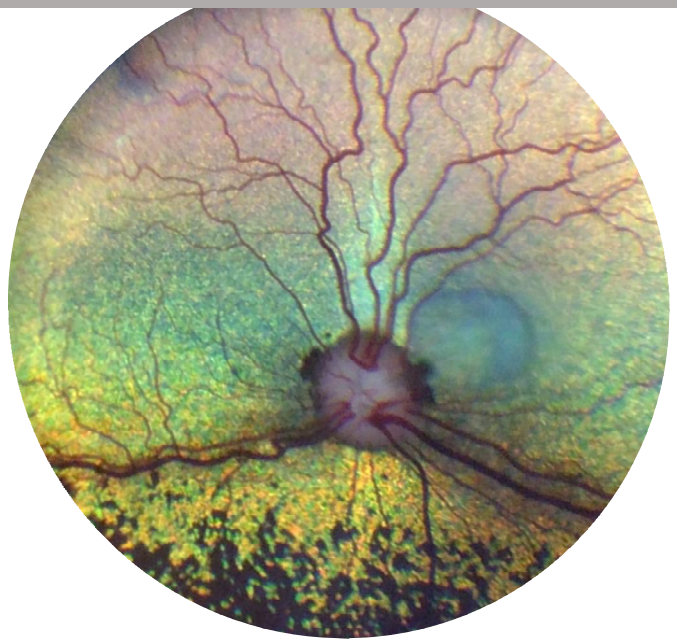
HED SESSION – Kahoot!

Case 3

Flat Coated Retriever, 1.5y, f, unilateral finding Slides: Franziska Matheis

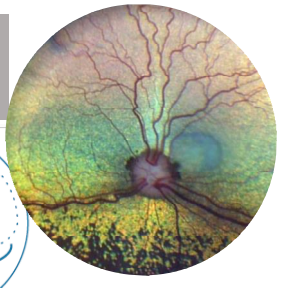


Flat Coated Retriever, 1.5y, f, unilateral finding Slides: F. Matheis



▲ 18 other: Other presumed retinal degeneration	◆ 18 other: Retinal pigment epithelial dystrophy
● 7 other: Retinal coloboma	■ 18 other: Retinopathy, canine multifocal, suspicious

Flat Coated Retriever, 1.5y, f, unilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	~~☐~~	~~☐~~	~~☐~~	~~☐ mild ☐ moderate ☐ severe~~

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other: CMR	☐	✖	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.

** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.

*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in 6 months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Canine multifocal retinopathy (CMR): KP-HED; autosomal mode of inheritance suspected. DNA-tests for specific breeds are available. Recognized as barely progressive, grey to tan bulging areas of circumscribed retinal detachments, generally more or less up to one optic disc diameter

HED Manual Chapter 6 Guidelines

For number "18. Other ": KP-HEDs that are not considered to be congenital / developmental or progressive and are not yet mentioned on the form are mentioned here. The terminology for the diseases can be found in "Definitions", Chapter 5, which are to be used (and are listed in the dropdown menu in the computerized forms). These are:

ÅRetinopathy, Canine multifocal (CMR)

Comment:

A bullous retinal detachement can be caused by i.e. inflammation or migrating larvae… When the DNA Test for CMR is negativ, the lesion is only suspicious for CMR and we should do a reexam

Chapter 3 Eye Scheme:

9. 2. “Suspicious” (no. 11-18 on the certificate) cases If an animal displays minor, but specific clinical signs of the KP-HED mentioned, “suspicious” is ticked for the relevant disease (no 11-18 on the certificate). Further development will confirm the diagnosis. It is required that “suspicious“ cases are re-examined after the period prescribed on the Certificate, by a minimum of three members of the National Panel or by a Chief or deputy Chief Panellist, whose decision is final…

- Rationale: "suspicious" means that the clinical signs are minor but specific (e.g., a tiny cataract only barely visible with the naked eye in retro-illumination); If the lesion a) has progressed at the next examination - tick "affected"; b) remains unchanged (still "minor") until the next examination - tick "unaffected" (Note: For KP-HEDs with the advice "NO BREEDING", the advice applies as long as the lesion is classified as "suspicious").

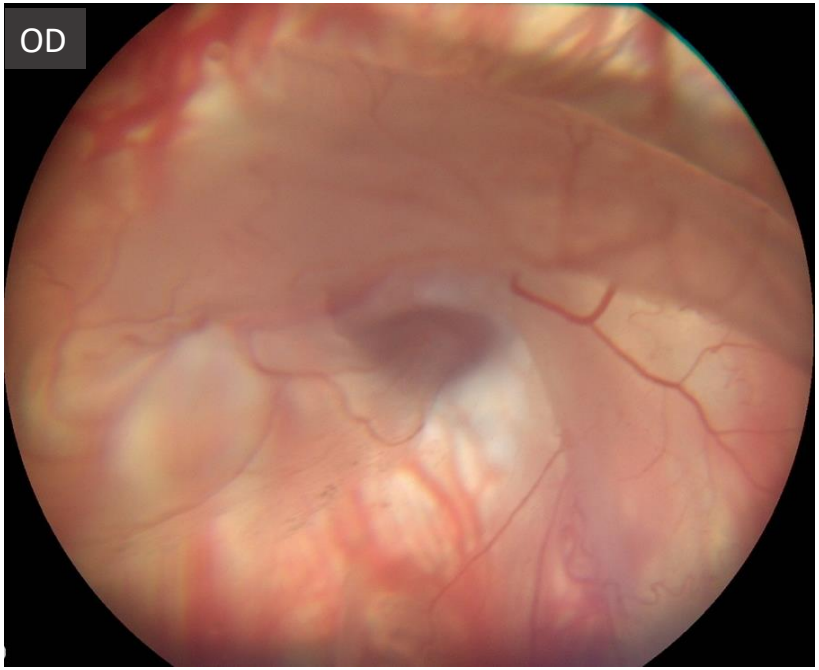
HED Manual Chapter 8 Vet Advice

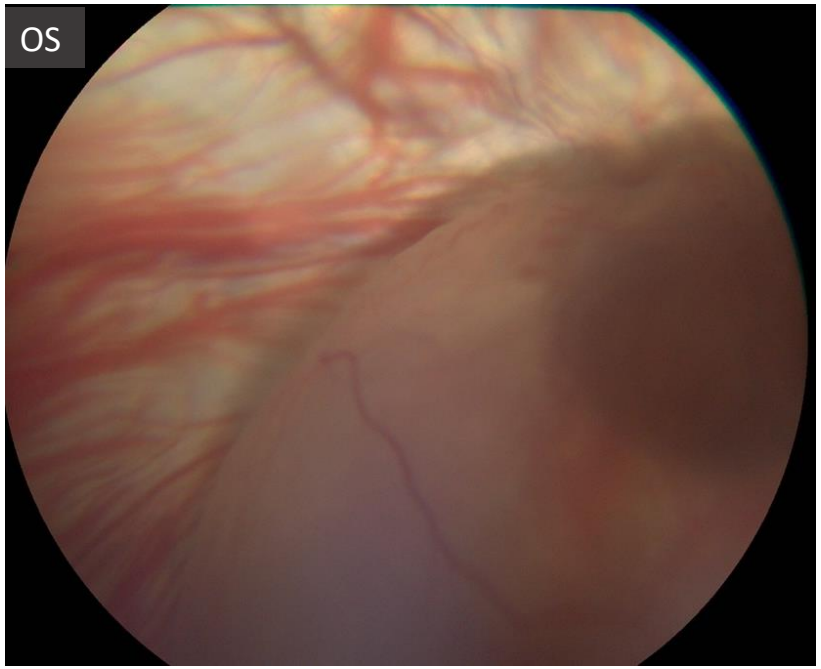
Canine multifocal retinopathy (CMR): NO BREEDING from the affected animal

HED SESSION – Kahoot!

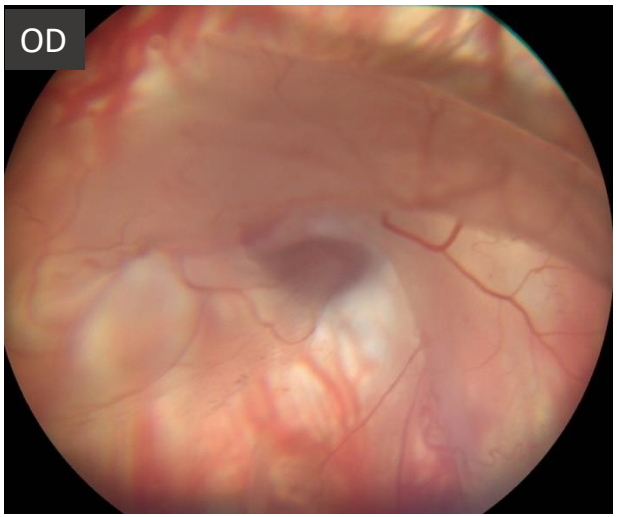
Case 4

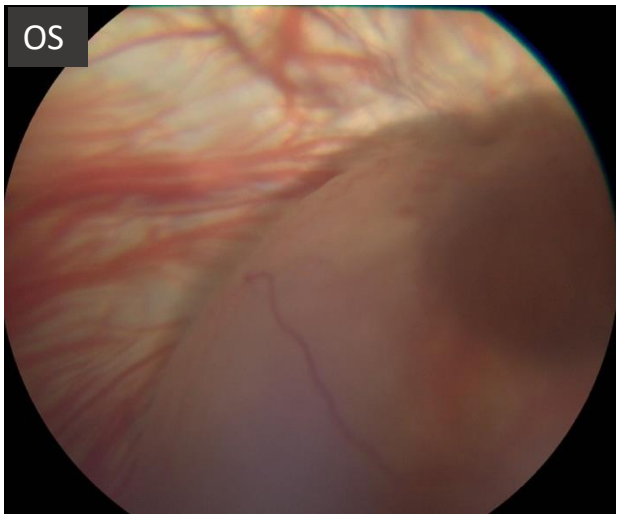
Shetland Sheepdog, 8m, m, bilateral finding Slides: Reka Eördögh





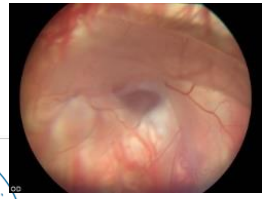
Shetland Sheepdog, 8M, m, bilateral finding Slides: Reka Eördögh

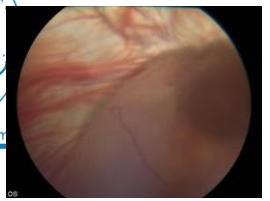




- ▲ 4. Retinal dysplasia: total
- ◆ 6. CEA: other: retinal detachment
- ● 6. CEA: choroidal hypoplasia, coloboma, other: retinal detachment
- ■ 18. other: other presumed hereditary retinal degenerations

Shetland Sheepdog, 8M, m, bilateral finding





Right eye (OD) Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./tem

Descriptive comments:

6. CEA - other: retinal detachment

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~Iridocorneal Angle Abnormality (ICAA)~~	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | Examiner

HED Manual Chapter 5 Definitions

Collie Eye Anomaly (CEA): KP-HED; a congenital syndrome of ocular anomalies mainly in Collie breeds affecting the choroid and sclera and indirectly the retina and optic disc. It is characterized by bilateral and often symmetrical defects including choroidal hypoplasia (CH or CRD) with or without coloboma, retinal detachment and intraocular haemorrhage. Vision varies with the degree to which an individual is affected and may be minimally compromised to having severe visual impairment or blindness. DNA-tests for choroidal hypoplasia in specific breeds are available

HED Manual Chapter 6 Guidelines

Collie eye anomaly (CEA) In cases where the animal displays clinical features that could possibly fit this KP-HED, but the changes are not specific enough, the result of the examination is: “undetermined”. In dogs of a relevant breed that were not examined until after the 8th week of age, CEA can be masked (“go normal”) later in life. In such cases the breeder/owner is advised to distinguish the status of the animal by e.g. DNA testing. The box “affected – other” has to be specified in the comment area of the ECVO certificate (retinal detachment or –haemorrhage)

HED Manual Chapter 8 Vet Advice

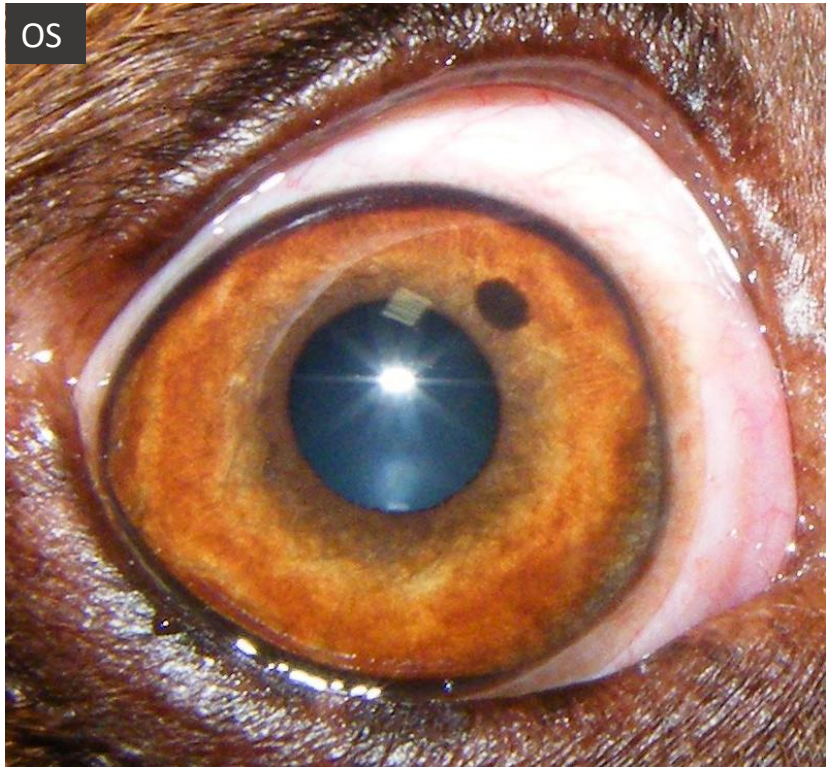
6- Collie Eye Anomaly (CEA):

- Choroidal hypoplasia (CH)/chorioretinal dysplasia (CRD): OPTIONAL
- Coloboma and other defects (retinal detachment, haemorrhage): NO BREEDING from the affected animal

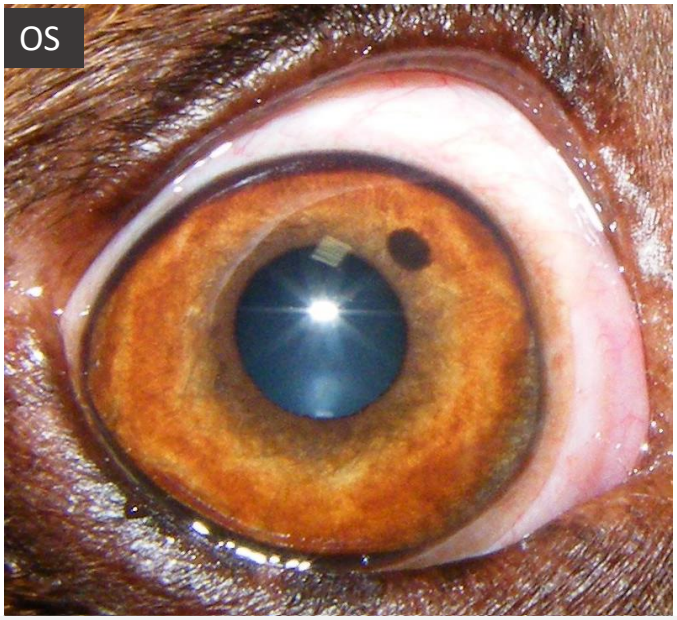
HED SESSION – Kahoot!

Case 5

Labrador Retriever, 3y, m, unilateral finding Slides: Petra Grinninger

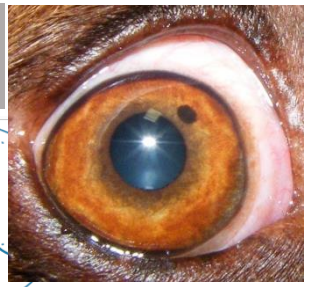


Labrador Retriever, 3y, m, unilateral finding Slides: Petra Grinninger



- ▲ Comments: Iris naevus/melanocytoma
- ◆ 18 other: uveal melanoma “affected”
- ● 7. Other: Iris hypoplasia “affected”
- ■ 18 other: iris melanoma “suspicious”

Labrador Retriever, 3y, m, unilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐
4. Retinal Dysplasia (RD)	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐
6. Collie Eye Anomaly (CEA)	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐
8. IridoCorneal Angle Abnormality (ICAA)	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion / Trichiasis	☐	☐	☐
12. Ectropion / Macroblepharon	☐	☐	☐
13. Distichiasis / Ectopic cilia	☐	☐	☐
14. Corneal dystrophy	☐	☐	☐
15. Cataract (non-congenital)	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐
17. Retinal degeneration (PRA)	☐	☐	☐
18. Other: Iris melanoma	☐	☒	☐

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in 12 months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

- **Iris melanoma:** KP-HED; a neoplasm caused by malignant transformation of melanocytes in the iris. Occurs with a higher than normal incidence in the Labrador Retriever. Left untreated it may result in secondary glaucoma and/or metastasis. Without a histological examination, an iris melanoma cannot be differentiated from a benign melanocytoma in every case. A distinction may become possible depending on the further development.

HED Manual Chapter 6 Guidelines

Iris melanoma

- If there are typical "clinical" signs of an iris melanoma (raised, black-brown lesion in the iris whose growth has been noted), at "18. Other": "Iris melanoma" is written (online: is used) and the box "affected" is ticked.
- If a small, non-raised pigmentation is noticed for the first time, and no information about an increase in size is available, at "18. Other": "Iris melanoma" is written (online: is used) and the box “suspicious” is ticked and re-examination in 6-12 months required.
- If the lesion is not progressive, tick “unaffected” and write in “descriptive comments”: “Pigmented lesion on the iris – to be observed”.
- If the lesion is progressive, tick “affected”.

HED SESSION

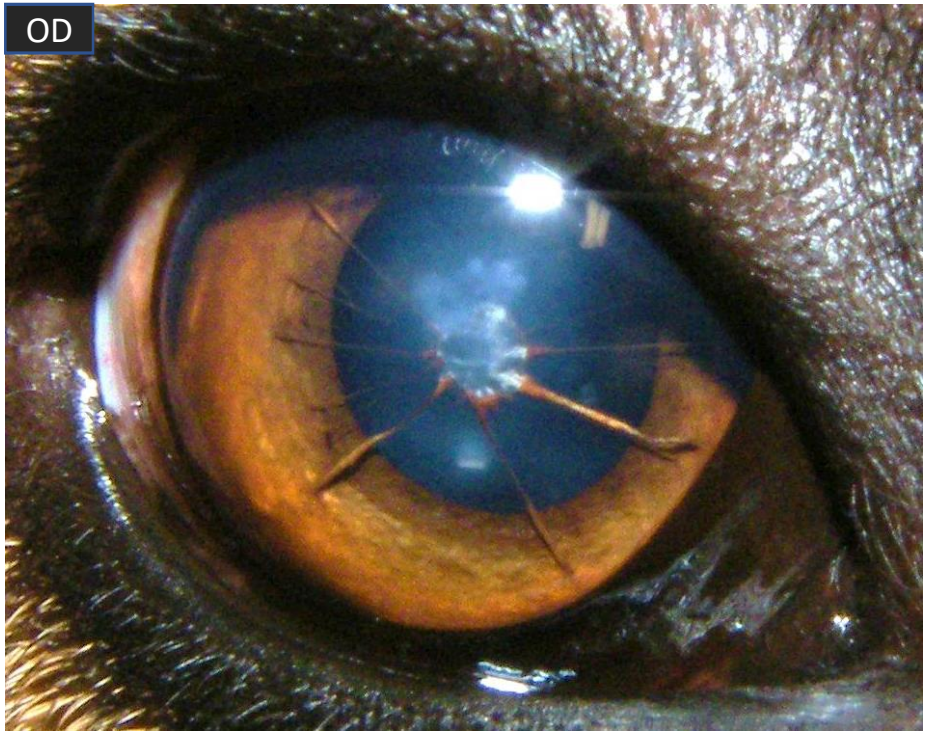
HED Manual Chapter 8 Vet Advice

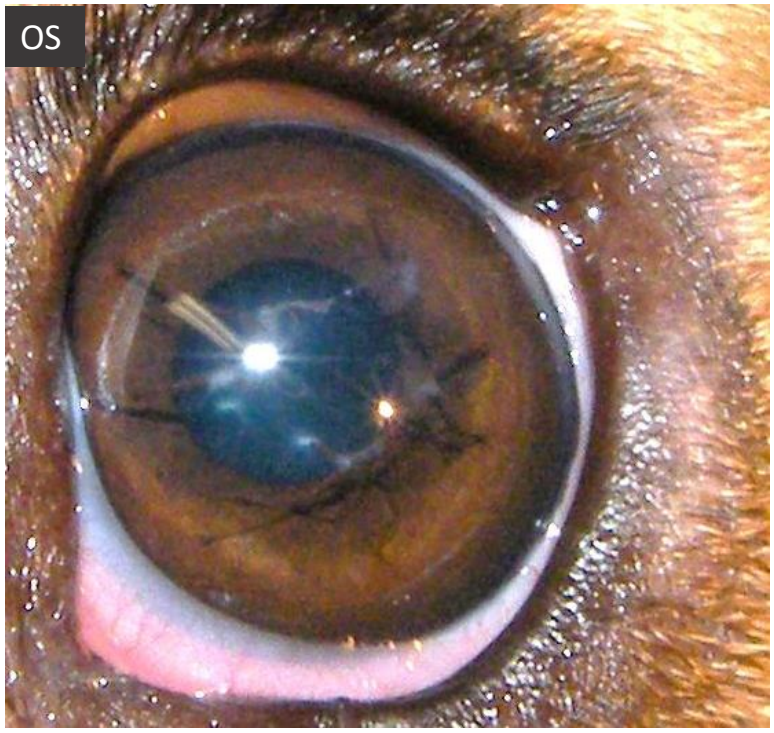
Å**Iris melanoma:** NO BREEDING from the affected animal

HED SESSION – Kahoot!

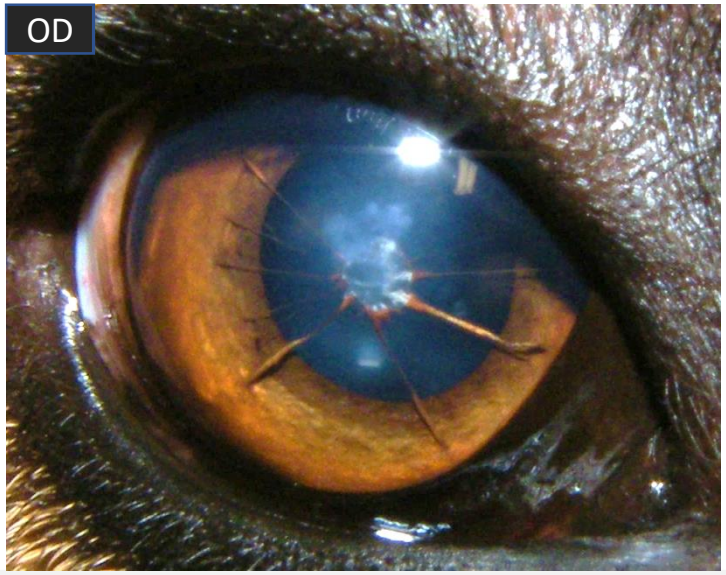
Case 6

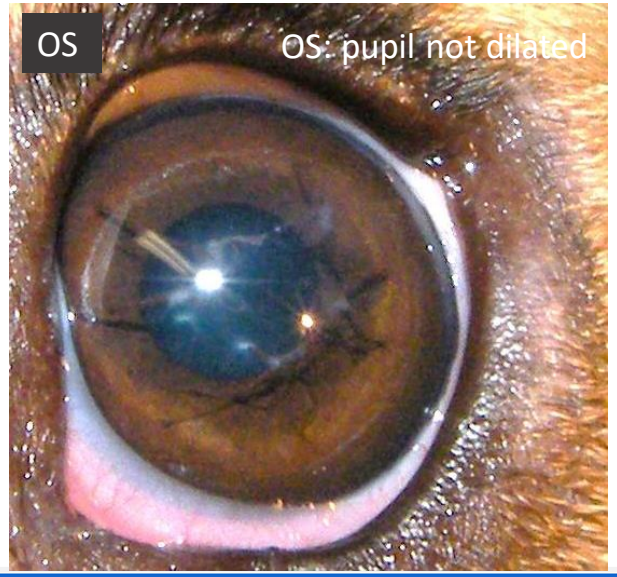
Jack Russel Terrier, 1y, m, bilateral finding Slides: Petra Grinninger





Jack Russel Terrier, 1y, m, bilateral finding Slides: Petra Grinninger





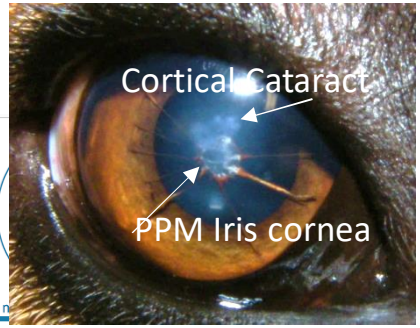
▲ 1. PPM: Iris, Cornea

◆ 1. PPM: Iris, Lens

● 1. PPM: Iris, Cornea
15. Cataract (non congenital), cortical

■ 1. PPM: Iris, Cornea
3. Cataract (congenital) affected

Jack Russel Terrier, 1y, m, bilateral finding



Right eye (OD) Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☒	☒ iris ☐ cornea ☐ lens ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. IridoCorneal Angle Abnormality. (ICAA)	☒	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☒	☐	☐	
12. Ectropion / Macroblepharon	☒	☐	☐	
13. Distichiasis / Ectopic cilia	☒	☐	☐	
14. Corneal dystrophy	☒	☐	☐	
15. Cataract (non-congenital)	☐	☐	☒	☒ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☒	☐	☐	
17. Retinal degeneration (PRA)	☒	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Persistent pupillary membrane (PPM): KP-HED; in which blood vessel remnants of the embryological vascular network (tunica vasculosa lentis, TVL) in the anterior part of the lens fail to regress which normally occurs during the first 4 to 5 weeks of life. These remnants may be found on the surface of the iris at the colarette, the lens capsule or against the corneal endothelium or strands may bridge from iris to iris, iris to cornea, iris to lens, with or without sheets of tissue in the anterior chamber.

HED Manual Chapter 6 Guidelines

Persistent pupillary membrane (PPM) Remnants of the pupillary membrane, still distinctly present after pupil dilatation, from the iris collarette, with corneal, and/or with lens involvement, are ticked at “1. PPM” “affected” and the relevant box of other parts involved:

Strands from iris to cornea: boxes PPM, iris and cornea are ticked;

HED Manual Chapter 8 Vet Advice

1- **Persistent Pupillary Membrane (PPM):**

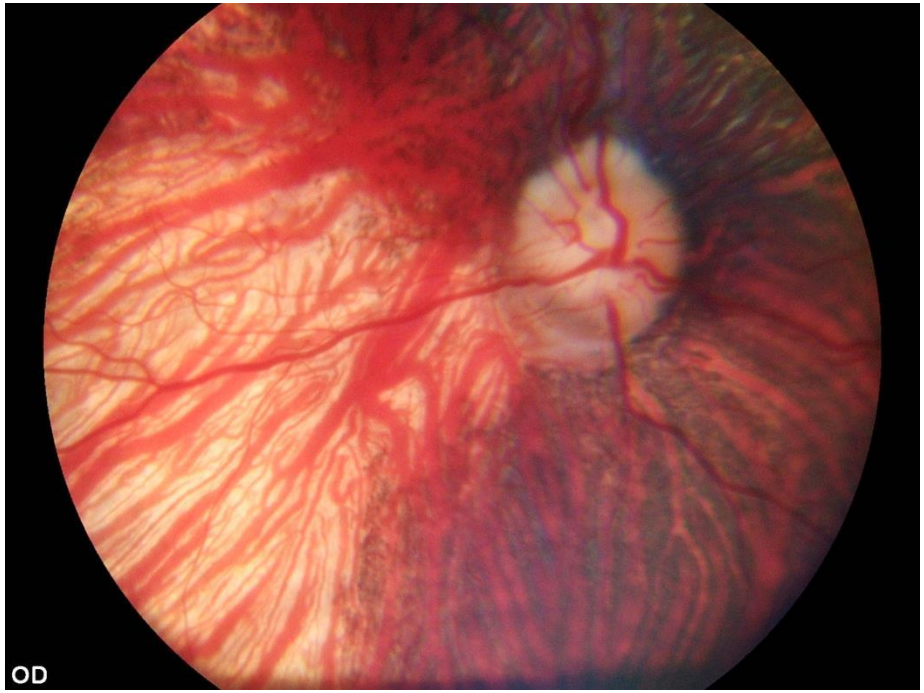
- Strands iris to cornea: NO BREEDING from the affected animal

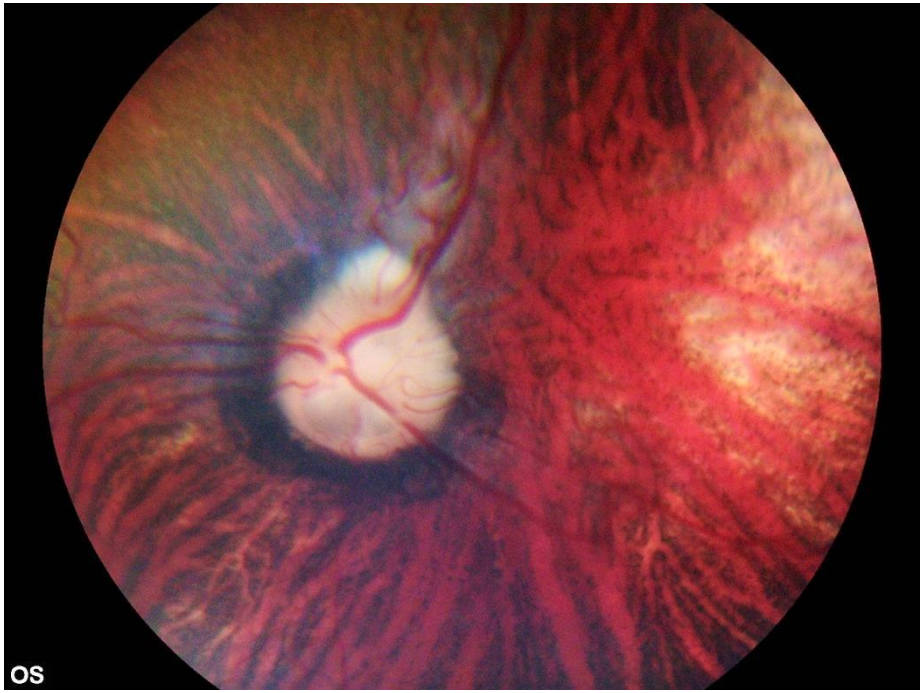
HED SESSION – Kahoot!

Case 7

Collie, 7w, m, bilateral finding

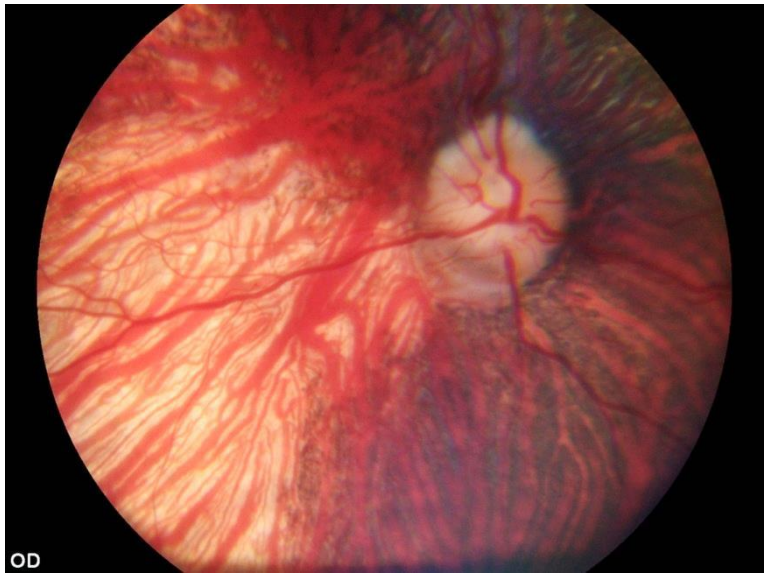
Slides: Reka Eördögh

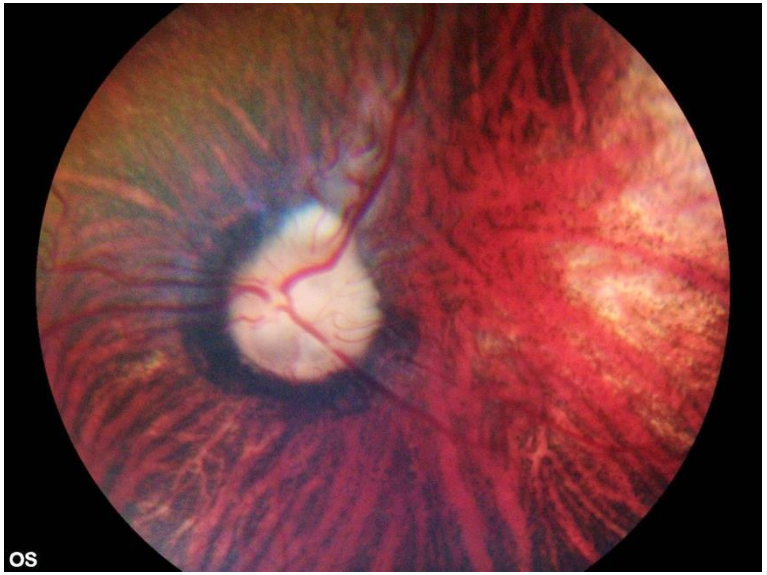




Collie, 7w, m, bilateral finding

Slides: Reka Eördögh





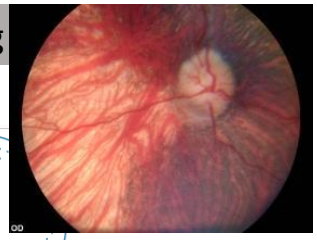
▲ 6. Collie Eye anomaly: choroidal hypoplasia, coloboma

◆ 7. other: choroidal hypoplasia

● 6. Collie Eye anomaly: coloboma

■ 6. Collie Eye anomaly: choroidal hypoplasia

Collie, 7 w, m, bilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. IridoCorneal Angle Abnormality (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Collie Eye Anomaly (CEA): KP-HED; a congenital syndrome of ocular anomalies mainly in Collie breeds affecting the choroid and sclera and indirectly the retina and optic disc. It is characterized by bilateral and often symmetrical defects including choroidal hypoplasia (CH or CRD) with or without coloboma, retinal detachment and intraocular haemorrhage. Vision varies with the degree to which an individual is affected and may be minimally compromised to having severe visual impairment or blindness. DNA-tests for choroidal hypoplasia in specific breeds are available

HED Manual Chapter 6 Guidelines

Collie eye anomaly (CEA) In cases where the animal displays clinical features that could possibly fit this KP-HED, but the changes are not specific enough, the result of the examination is: "undetermined". In dogs of a relevant breed that were not examined until after the 8th week of age, CEA can be masked ("go normal") later in life. In such cases the breeder/owner is advised to distinguish the status of the animal by e.g. DNA testing. The box "affected – other" has to be specified in the comment area of the ECVO certificate (retinal detachment or –haemorrhage)

HED Manual Chapter 8 Vet Advice

6. Collie Eye Anomaly (CEA):

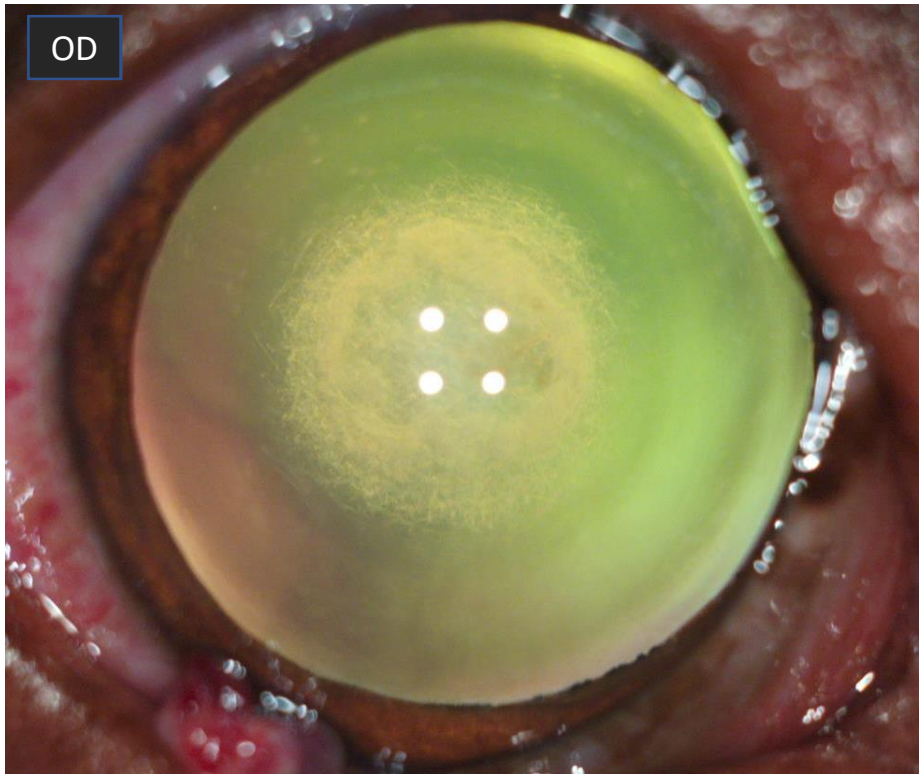
- **Choroidal hypoplasia (CH)/chorioretinal dysplasia** (CRD): OPTIONAL
- **Coloboma and other defects** (retinal detachment, haemorrhage): NO BREEDING from the affected animal

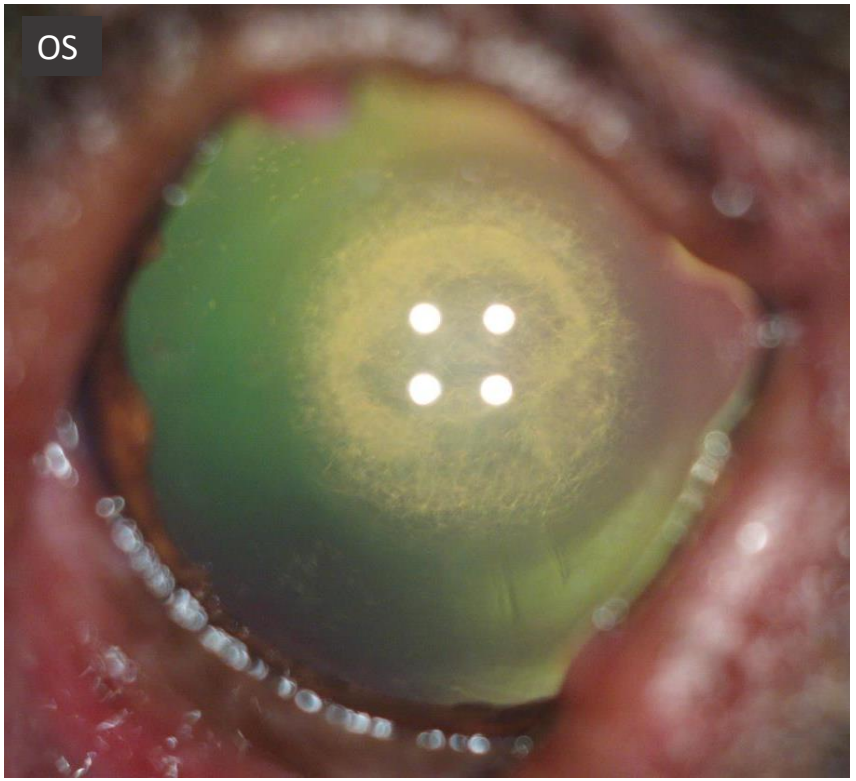
HED SESSION – Kahoot!

Case 8

Doberman, 8y, f, bilateral finding

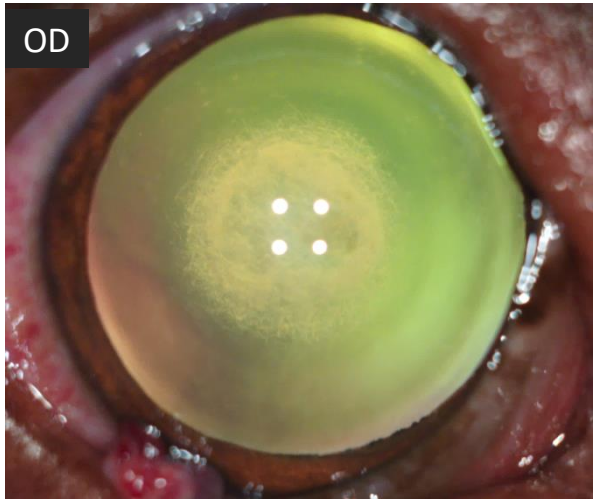
Slides: Reka Eördögh

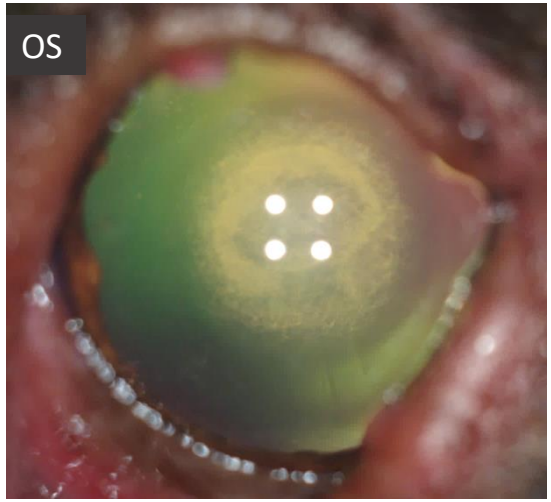




Doberman, 8 y, f, bilateral finding

Slides: Reka Eördögh





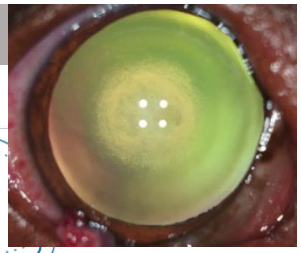
▲ 15. Cataract (non congenital): Other: nuclear fiberglass/pulverulent

◆ 3. Cataract (congenital)

● 15. Cataract (non congenital): Nuclear

■ 15. Cataract (non congenital): Cortical

Doberman, 8y, f, bilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☒ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☒	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☒	☐ cortical ☐ post. pol. ☐ nuclear ☒ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 6 Guidelines

Other lens opacities (cataracts – other): Certain lens opacities/cataracts can occur frequently in a certain breed of dog (therefore presumed hereditary), but are considered regarding breeding "optional" or of low priority because they usually remain clinically less relevant. These opacities vary in size, location and transparency: some opacity is whitish but very small (e. g. punctate, suture tips, suture line), others are almost transparent but more extensive (e. g. fiberglass like or pulverulent, nuclear ring). Clinical significance: these lens opacities usually remain unchanged or limited and have no clinically relevant effect on vision. These lens opacities are summarized under "15. Cataract (non-congenital)" – "other" and specified in the comment field.

- **Nuclear fiberglass-like/pulverulent:** Fiberglass or crystal-like opacities in the nucleus or scattered fine pulverulent granules parallel to the suture lines in the posterior nucleus and later with fibrillary opacities in the entire fetal nucleus, which may become dense and extending into the adult nucleus. These nuclear opacities are generally bilateral and do not impair vision significantly

HED SESSION

HED Manual Chapter 8 Vet Advice

Cataract “other”: OPTIONAL, low priority

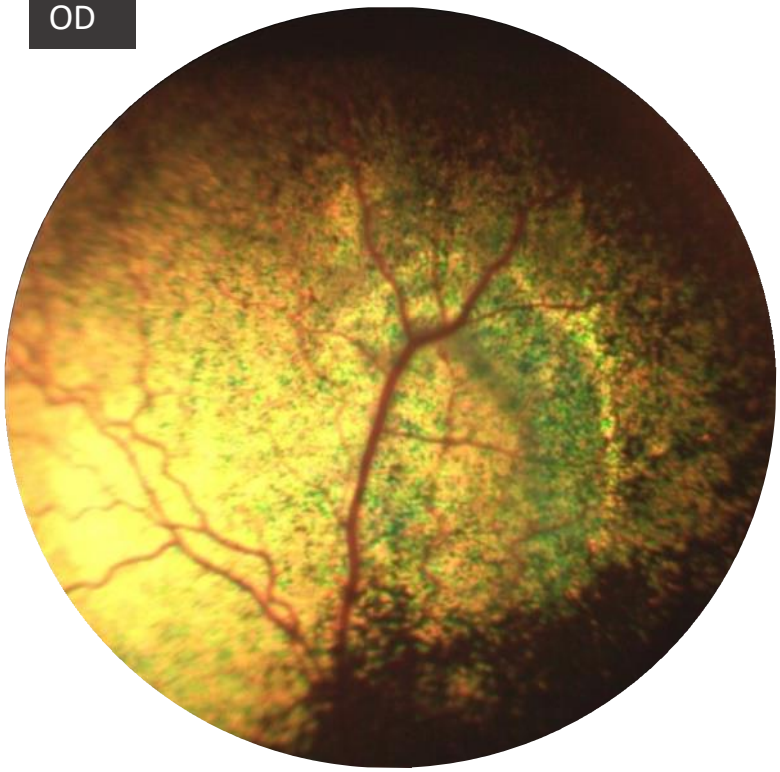
HED SESSION – Kahoot!

Case 9

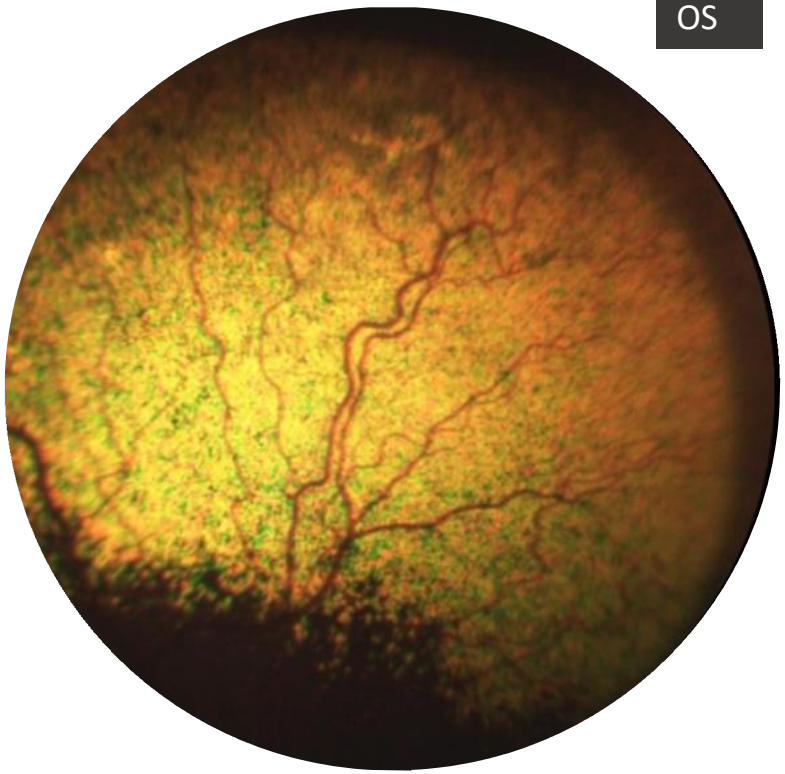
Cavalier King Charles Spaniel, 3y, f, bilateral finding

Slides: Marianne Richter

OD

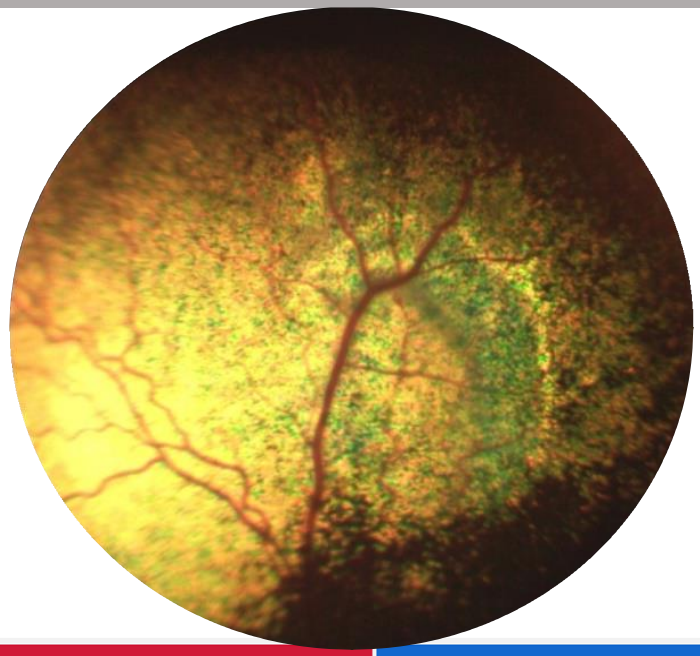


OS



Cavalier King Charles Spaniel, 3y, f, bilateral finding

Slides: Marianne Richter



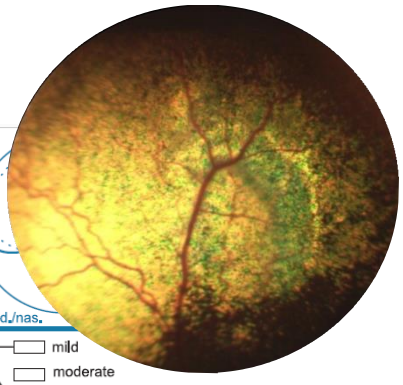
▲ 4. Retina Dysplasia: multifocal

◆ 7. Other: Retina Dystrophy: RPE65

● 7. Other: Retinal coloboma

■ 4. Retina Dysplasia: geographical

Cavalier King Charles Spaniel, 3y, f, bilateral finding



Right eye (OD) — Photographs: — ant. — post. — lat./temp. — med./nas.

Photographs: — ant. — post. — med./nas.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. IridoCorneal Angle Abnormality (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

Literature:

- In vivo imaging comparison of unilateral circular retinal plaques in retriever dogs to dysplasia and detachment in the English Springer Spaniel (Stephanie C. Osinchuk, Lynne S. Sandmeyer, Bruce H. Grahn, *Veterinary Ophthalmology.* 2020;23:957–963)
- The geographic form of retinal dysplasia in dogs is not always a congenital abnormality (Dolores M. Holle, Mary E. Stankovics, Carolyn S. Sarna and Gustavo D. Aguirre; *Veterinary Ophthalmology* (1999) 2, 61-66)

HED Manual Chapter 5 Definitions

- Retinal dysplasia: KP-HED; abnormal development of the retina with ophthalmoscopic changes observed early in life, characterized by neuroretinal folding(s), rosettes and partial or total retinal detachment; non-progressive and generally recognized to have three forms: (multi)focal, geographic and total
- Retinal dysplasia- geographical: any irregularly, horseshoe- or bladder-like shaped area of abnormal retinal development, most often in the central part of the tapetal area of the fundus, in close association with the dorsal retinal vasculature, containing both areas of thinning and areas of elevation representing focal retinal detachment and areas of retinal disorganization. This form may be associated with vision impairment; although it's a congenital disease, its manifestation might not be visible until after 8 weeks of age.

HED Manual Chapter 6 Guidelines

the boxes 4: Retinal dysplasia and geographical are ticked

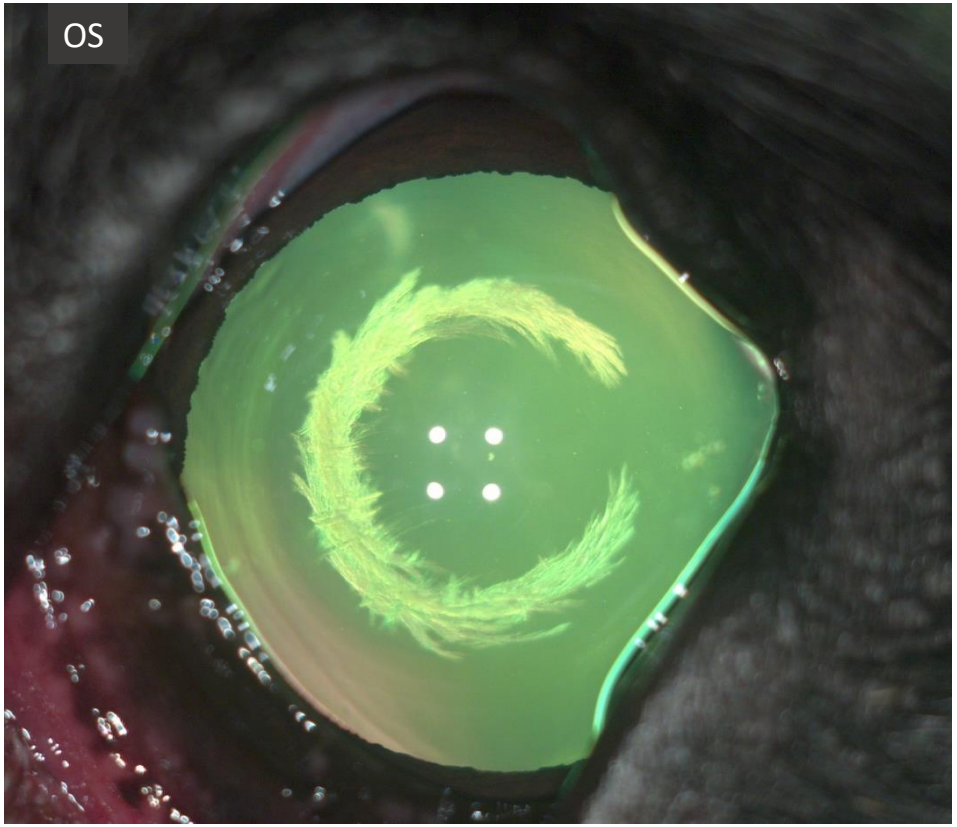
HED Manual Chapter 8 Vet Advice

Geographic form: OPTIONAL. Note: different advice may be given for specific breeds by the breeding clubs.

HED SESSION – Kahoot!

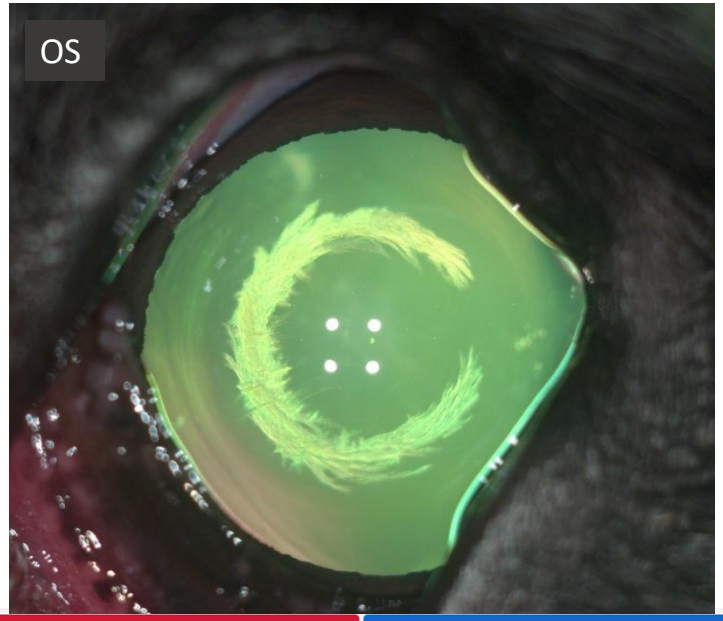
Case 10

German Shepherd, 5 y, f, unilateral Slides: Reka Eördögh



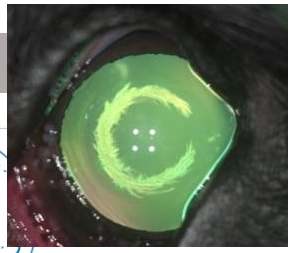
German Shepherd, 5 y, f, unilateral

Slides: Reka Eördögh



- ▲ 15. Cataract (non-congenital) cortical
- ◆ 15. Cataract (non-congenital) Other: nuclear ring
- ● 15. Cataract (non-congenital) nuclear
- ■ 15. Cataract (non-congenital) Other: nuclear fiberglass/ pulverulent

German Shepherd, 5 y, f, unilateral



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. IridoCorneal Angle Abnormality (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 6 Guidelines

Nuclear cataracts: any whitish opacity in the nucleus (embryonal, fetal, juvenile, adult); exceptions: fiberglass like and pulverulent cataracts (see Other lens opacities)

HED Manual Chapter 8 Vet Advice

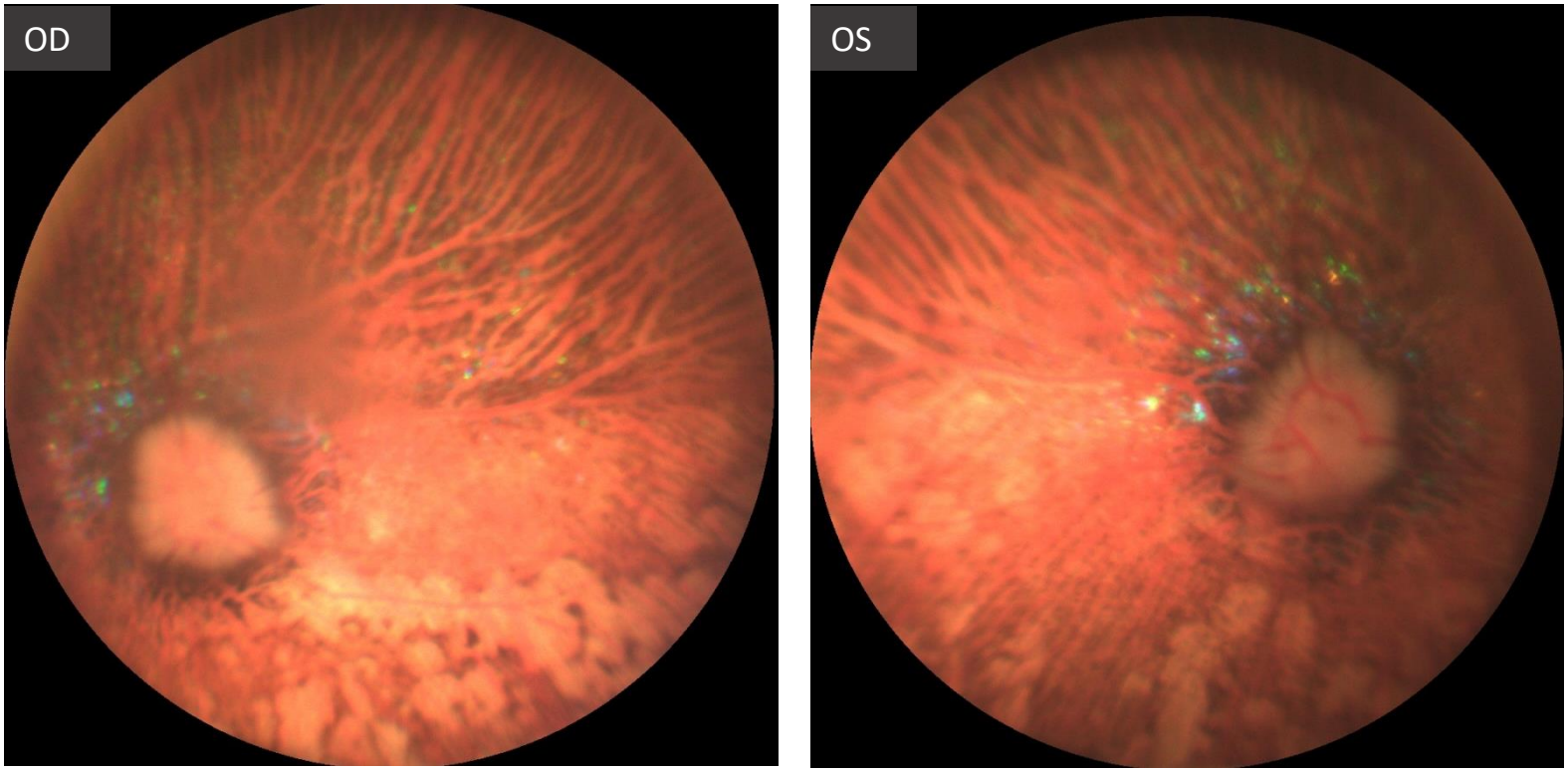
15- Cataract (hereditary, non-congenital):

ÅCataract „nucleus“: NO BREEDING from the affected animal

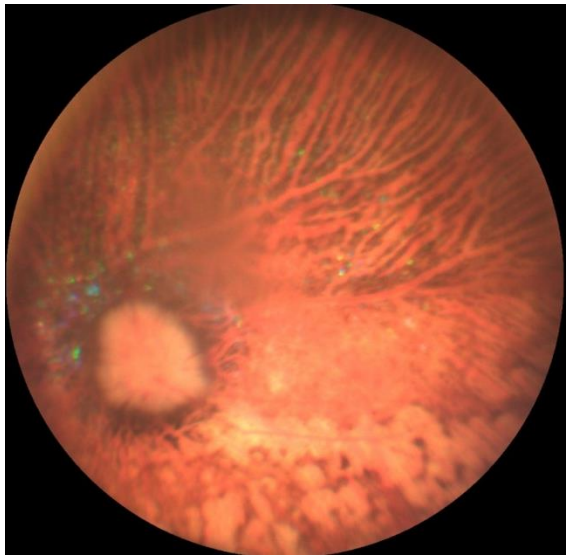
HED SESSION – Kahoot!

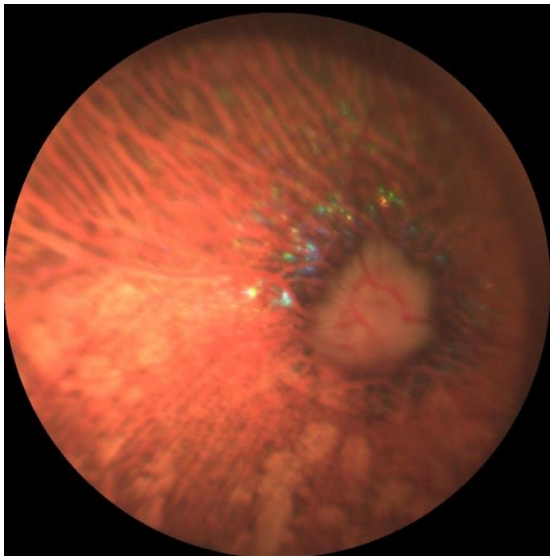
Case 11

Maltese, 7y, f, bilateral findings Slides: Marianne Richter



Maltese, 7y, f, bilateral findings Slides: Marianne Richter





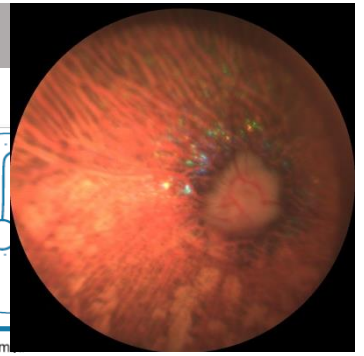
▲ 7. other: Choroidal hypoplasia in Non-Collie breeds

◆ 18. other: Uveodermatologic Syndrome

● 18: other: Other presumed hereditary retinal degeneration

■ 17. Retinal Degeneration (PRA)

Maltese, 7y, f, bilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas.

Descriptive comments: .....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. IridoCorneal Angle Abnormality. (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☒	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | Examiner

HED Manual Chapter 5 Definitions

Retinal degeneration/Progressive Retinal Atrophy (PRA): KP-HEDs; a group of bilateral, hereditary dysplastic and/or degenerative diseases of the photoreceptors primarily, progressing to blindness in both eyes simultaneously. The onset of the blindness depends on the affected breed and the type of process (dysplasia and/or degeneration). The photoreceptor abnormalities can be detected by an electroretinogram (not part of a routine ECVO Scheme eye examination) before there are detectable fundus changes observed by ophthalmoscopy. These funduscopic changes consist in the early disease of a change in reflectivity with greyish discoloration mainly in the periphery and mid-periphery in the tapetal area of the fundus accompanied by slight vascular attenuation. With progression of the disease there are more generalized changes with hyperreflectivity of the tapetal fundus, depigmentation and uneven pigment distribution in the non-tapetal fundus, severe vascular attenuation and a pale optic disc.

HED Manual Chapter 5 Definitions

Retinal degeneration/Progressive Retinal Atrophy (PRA): …There are multiple genetic types of PRA including different forms of rod-cone dysplasia and degeneration (rcd 1-4) and progressive rod cone degeneration (prcd). DNA-tests for specific forms and breeds are available. Retinal degeneration can also be due to non-hereditary causes, e.g. inflammation and/or infection, toxicity, etc., affecting retinal structures with degeneration of cells or entire cellular layers. The endstage is often complete retinal atrophy, which may appear ophthalmoscopically similar to (hereditary) PRA

HED Manual Chapter 6 Guidelines

The box(es) for the KP-HED (1-6, 11-17) on the certificate and the specifying box, if available (e.g. for type or grade) are ticked.

Tick at 17. Retinal degeneration (PRA): affected

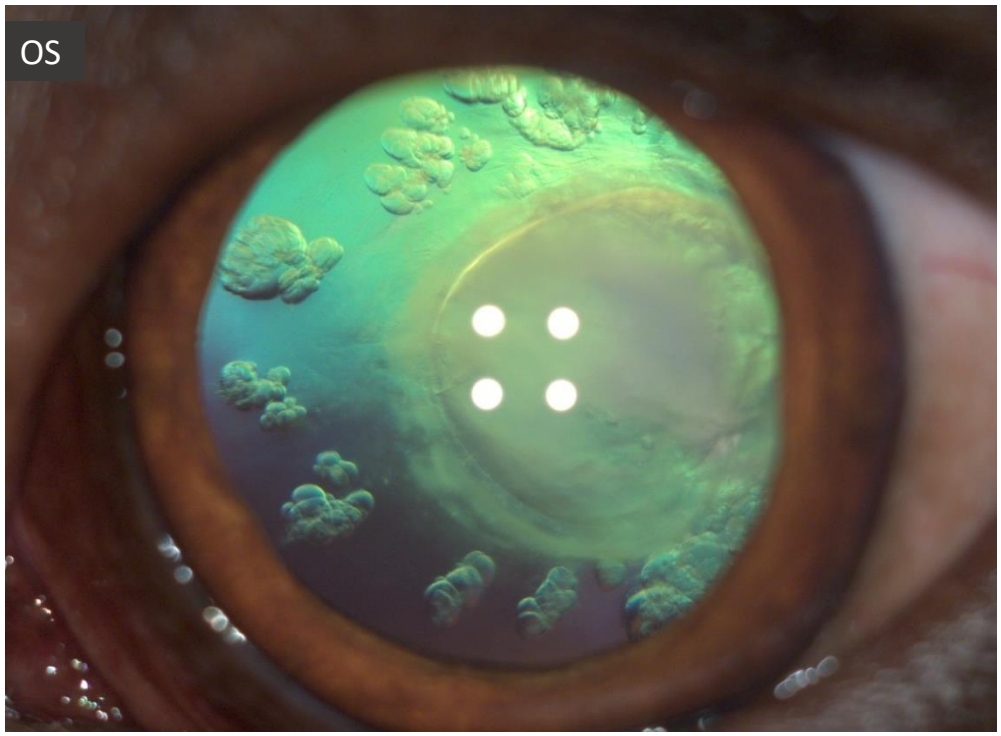
HED Manual Chapter 5 Vet Advice

17. **Retinal Degeneration/Progressive Retinal Atrophy (PRA):** NO BREEDING from the affected animal, its parents or offspring In instances where a DNA-based genetic test for recessive PRA is available breeders may choose to breed from carrier animals that have outstanding characteristics while still avoiding production of affected offspring. All such matings should be carefully controlled and all offspring subjected to DNAbased testing.

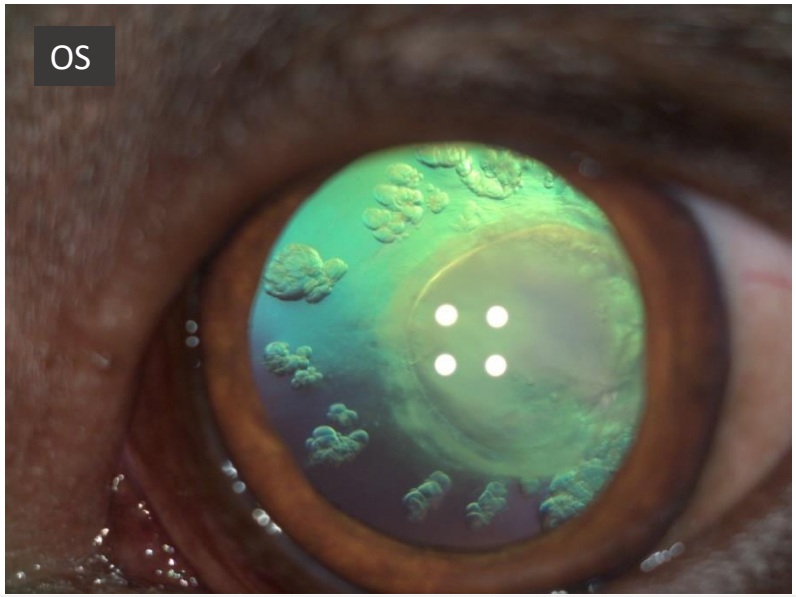
HED SESSION – Kahoot!

Case 12

Labrador Retriever, 7m, m, unilateral finding Slides: Reka Eördögh



Labrador Retriever, 7m, m, unilateral finding Slides: Reka Eördögh



▲ 15. Cataract (non-congenital): Nuclear and cortical

◆ 15. Cataract (non-congenital): Nuclear

● 3. Cataract (congenital)

■ 3. Cataract (congenital), 7. other: Lenticonus, 15. Cataract (non congenital): cortical

Labrador Retrevier, 7mon, m, unilateral finding

Right eye (OD) Photographs:

ant. post. lat./temp. med./nas. ant. post. me

Descriptive comments: .....

.....

.....

Eye disease no. ..... severe

15. Cataract other: punctata; suture line tip; suture line; nuclear ring; nuclear fiberglass/pulverulent

8. ICAA: PLA: moderate; severe

ICA (width): narrow (moderate); closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)				iris; lens; cornea; lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)				grade 1; grade 2-6
3. Cataract (congenital)			X	
4. Retinal Dysplasia (RD)				(multi)focal; geographical; total
5. Hypoplastic-/Micro-papilla				
6. Collie Eye Anomaly (CEA)				choroid. hypoplasia; coloboma; other:
7. Other: Lenticonus			X	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~				mild; moderate; severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis				
12. Ectropion / Macroblepharon				
13. Distichiasis / Ectopic cilia				
14. Corneal dystrophy				
15. Cataract (non-congenital)			X	cortical; post. pol.; nuclear; other
16. Lens luxation (primary)				
17. Retinal degeneration (PRA)				
18. Other:				

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Lenticonus: anomaly of the lens in which the anterior or posterior surface protrudes in a conical form; it is usually congenital

HED Manual Chapter 6 Guidelines

For number “7. Other”: known and presumed hereditary eye anomalies (congenital/developmental, non-progressive) that are not yet mentioned on the form are mentioned here.

- Lenticonus

Congenital cataracts: If cataracts are observed in the period between birth and the 8th week of age the entity is ticked “affected” at “3. Cataract (congenital)”; if diagnosed later in life but there is distinct indication the cataract is congenital in origin (e. g. in microphthalmos, in the lens cortex adjacent to PPM, or PHA) the entity is ticked “affected” at “3. Cataract (congenital)”

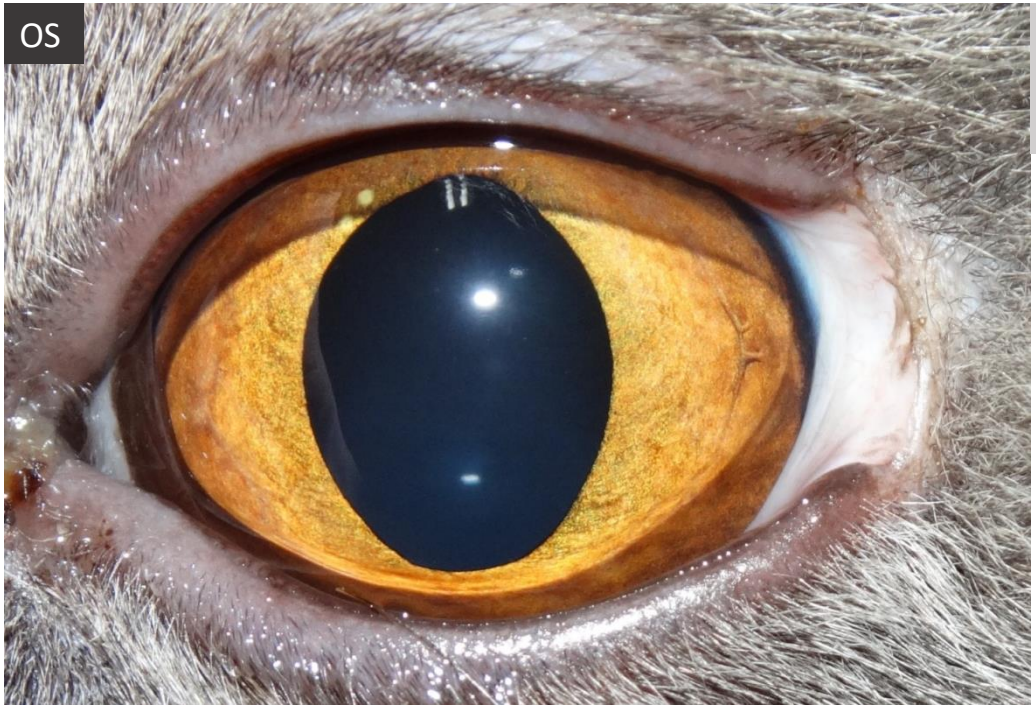
HED Manual Chapter 8 Vet Advice

- **Cataract (congenital):** NO BREEDING from the affected animal
- **Lenticonus:** NO BREEDING from the affected animal
- **Cataract „cortical“:** NO BREEDING from the affected animal

HED SESSION – Kahoot!

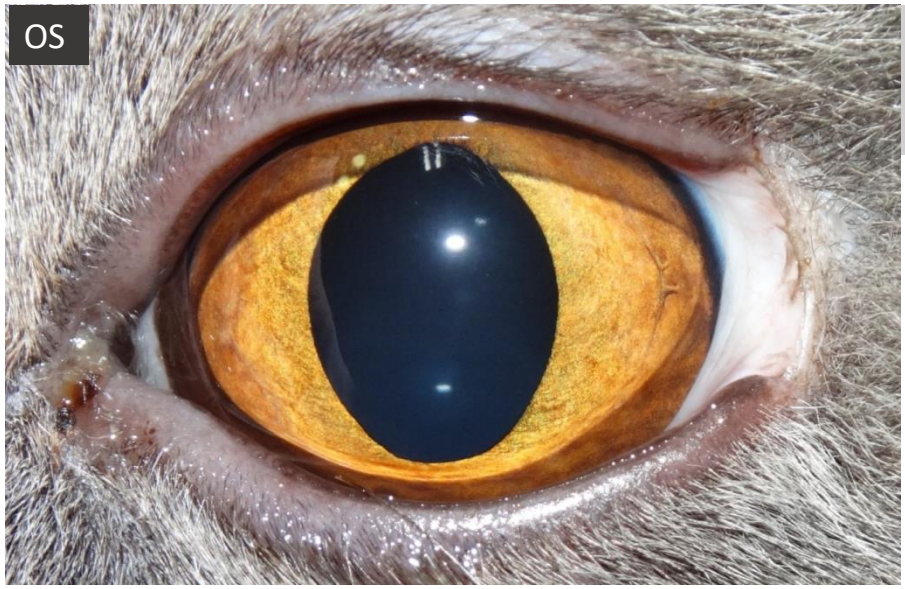
Case 13

British Shorthair Cat, 7m, f, unilateral finding Slides: Reka Eördögh



PPM is not visible after dilatation of the pupil

British Shorthair Cat, 7m, f, unilateral finding Slides: Reka Eördögh



PPM is not visible after dilatation of the pupil

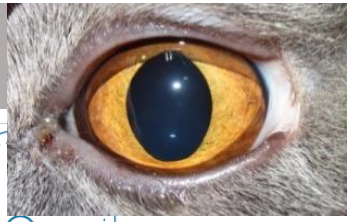
▲ 7. Other: eyelid coloboma

◆ 7. Other: eyelid hypoplasia
Descriptive comments: PPM Iris to Iris

● 7. Other: eyelid hypoplasia

■ 7. Other: eyelid coloboma
Descriptive comments: PPM Iris to Iris

British Shorthair Cat, 7m, f, unilateral finding



Right eye (OD) Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other: Eyelid coloboma	☐	☐	☒	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Coloboma: congenital defect of a portion of the eye due to a failure in closure of the body halves; most frequently affecting the iris or the optic nerve at the 6 o'clock position. The latter is a presumed hereditary congenital eye disease that if large, may cause retinal detachment resulting in blindness or visual impairment.

HED Manual Chapter 6 Guidelines

For number “7. Other”: known and presumed hereditary eye anomalies (congenital/developmental, non-progressive) that are not yet mentioned on the form are mentioned here.

ÅEyelid coloboma

Strands from iris to iris: boxes PPM and iris are ticked; Remnants of the pupillary membrane, which are not distinctly visible on the iris surface/collarette (using 10 x magnifications) after pupil dilatation, are not mentioned on the form.

HED Manual Chapter 8 Vet Advice

Coloboma:

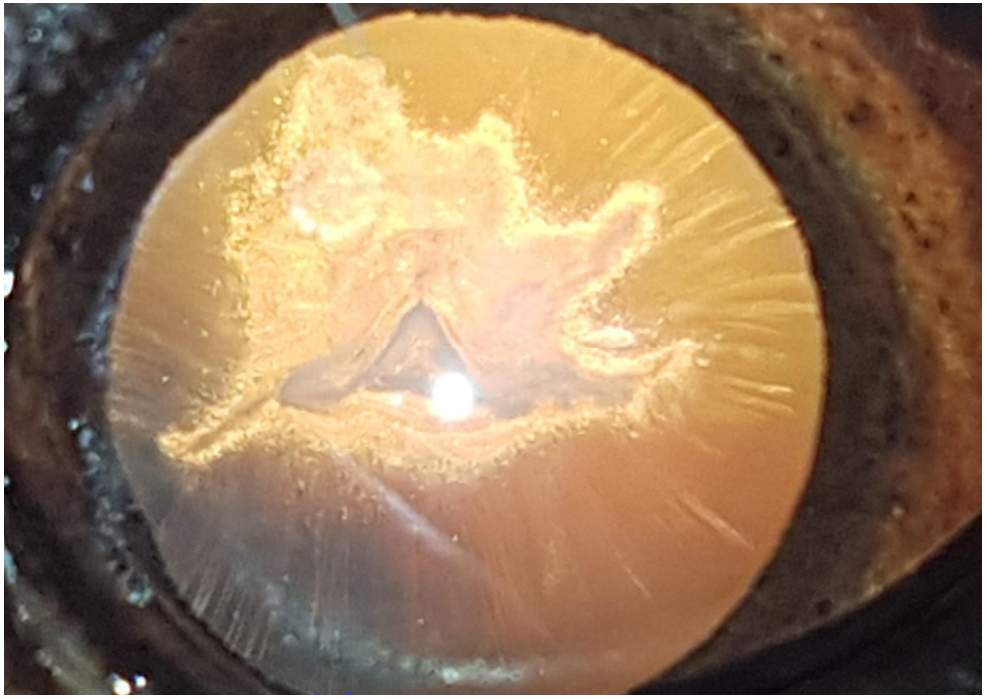
- Eyelid: NO BREEDING from the affected animal

HED SESSION – Kahoot!

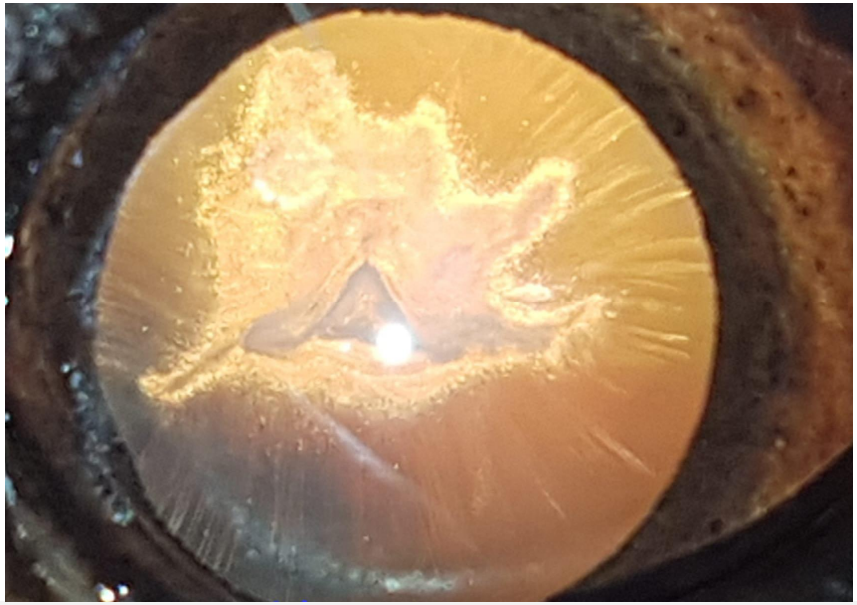
Case 14

Golden Retriever, 7y, m, bilateral finding

Slides: Peter Rechberger



Golden Retriever, 7 y, m, bilateral finding Slides: Peter Rechberger



▲ 15. Cataract (non-congenital): Posterior polar and cortical

◆ 15. Cataract (non-congenital): nuclear

● 15. Cataract (non-congenital): Posterior polar

■ 15. Cataract (non-congenital): cortical

Golden Retriever, 7y, m, bilateral finding

Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 6 Guidelines

Cortical cataracts: any opacity in the anterior and/or posterior cortex unilateral or bilateral (except the posterior polar cataract and those listed under “other opacities”) · **Posterior polar cataract**: is a subtype of the cortical cataract, it presents as a distinctive triangular (sometimes discoid) plaque situated in the central posterior cortex, in general adjacent to the posterior capsule. Sometimes there is a smaller satellite rosette lesion adjacent to the central opacity. It can be stationary as well as progressive (progression may begin at any age). In the progressive type, whitish opacification changes take place in the posterior cortex in the form of radiating rider opacity

HED Manual Chapter 8 Vet Advice

ÅCataract „**cortical**“: NO BREEDING from the affected animal

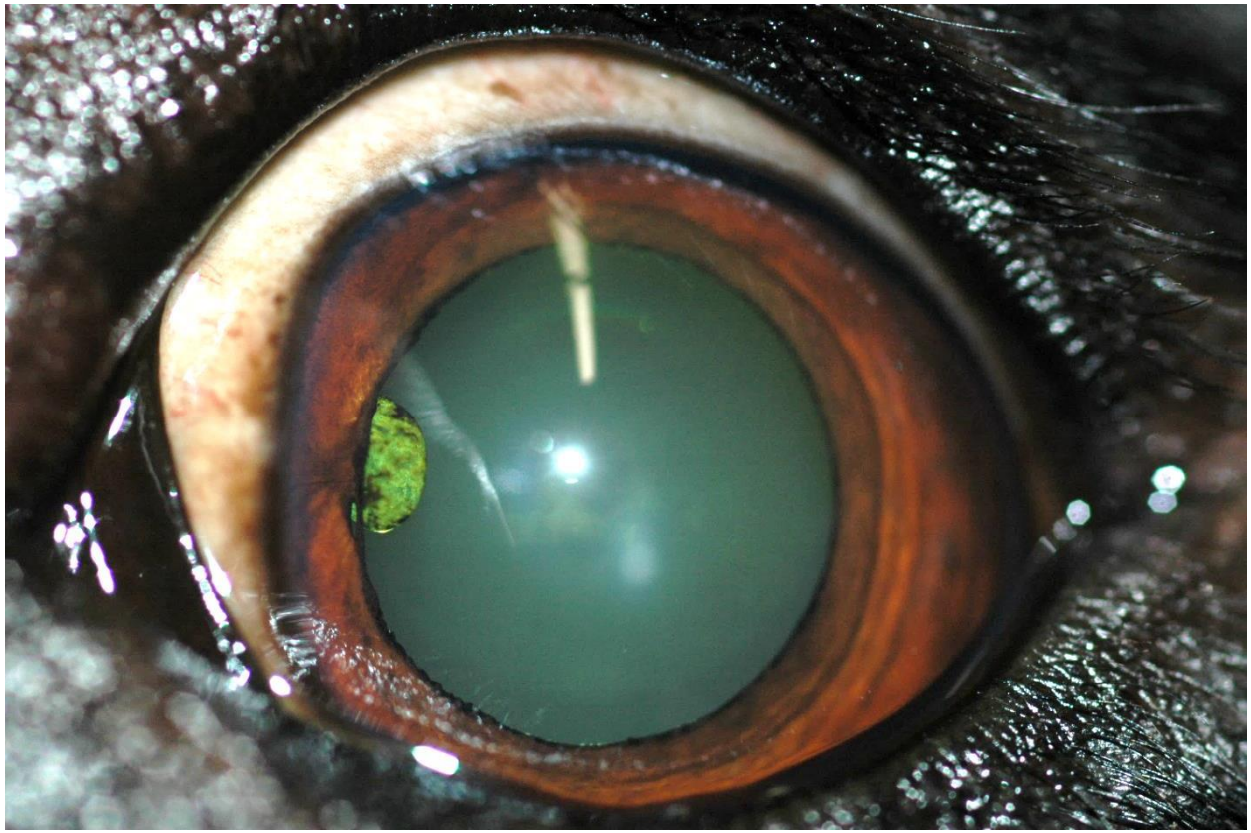
ÅCataract „**post. pol**“: NO BREEDING from the affected animal

HED SESSION – Kahoot!

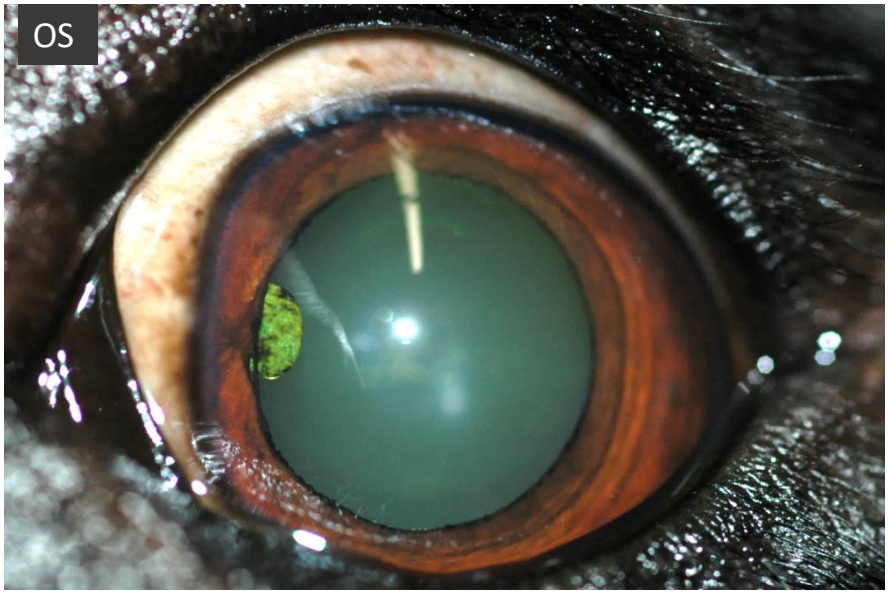
Case 15

Rottweiler, 7y, m, unilateral finding

Slides: Sabine Wacek



Rottweiler, 7y, m, unilateral finding Slides: Sabine Wacek



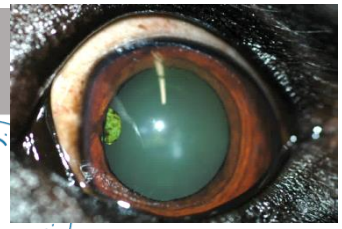
▲ 18. Other: iris melanoma

◆ 7. Other: iris cyst

● 18. Other: uveitis, pigmentary

■ 18. Other: uveal cyst

Rottweiler. 7y, m, unilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other: **Uveal cyst**	☐	☐	☒	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Uveal cyst: KP-HED; usually pigmented membrane spheres of various sizes, arising from posterior pigmented epithelial cells of the iris/ciliary body and which remain attached, or break free floating as more or less pigmented spheres in the anterior chamber. When reaching maximal size, cysts tend to adhere to the endothelial surface in the center of the cornea, thus causing visual impairment. Severe cases which occur with a higher than normal incidence in the Great Dane (Deutsche Dogge) and in the Golden Retriever and may lead to secondary glaucoma

HED Manual Chapter 6 Guidelines

Uveal Cysts If there are only 1-3 free separate floating cysts and no connected signs of glaucoma and/or uveitis at “18. Other”: “uveal cyst(s)” is written (online: is used), and the box “affected” is ticked. ECVO Manual: Chapter 6 - Guidelines (2021) Known and Presumed Hereditary Eye Diseases (KP-HED) in Dogs and Cats 14 Only if there are several cysts and/or signs of uveitis and/or glaucoma also the box “severe” is to be ticked in the comment area. Tonometry before dilation is recommended

HED Manual Chapter 8 Vet Advice

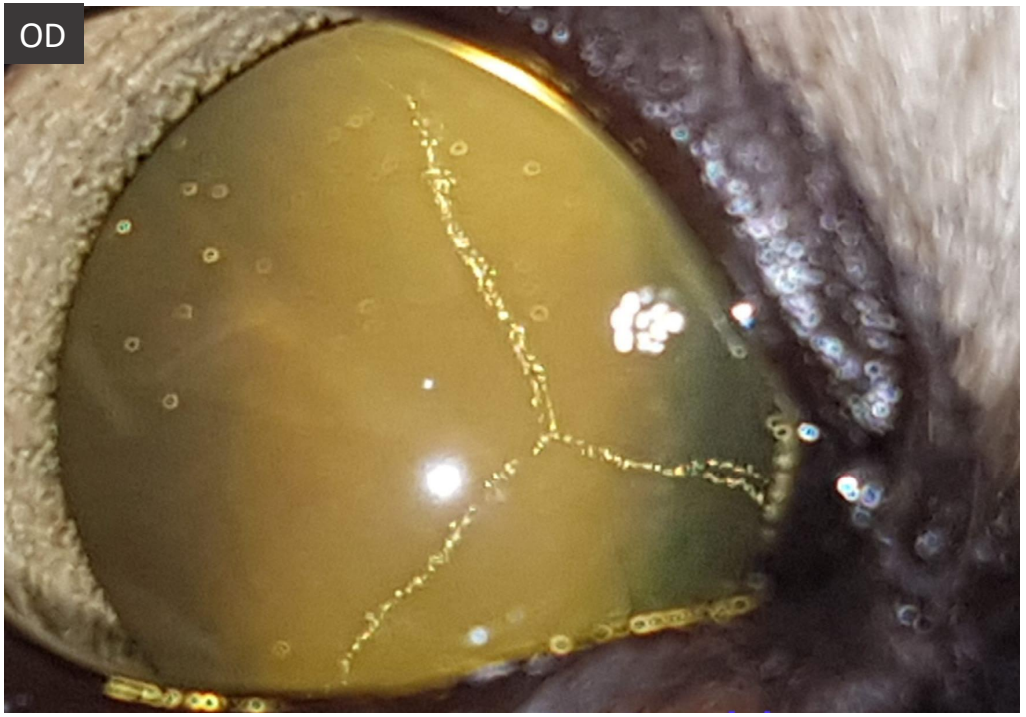
Uveal Cysts: OPTIONAL,

Note: In severe cases the advice may be: NO BREEDING from the affected animal

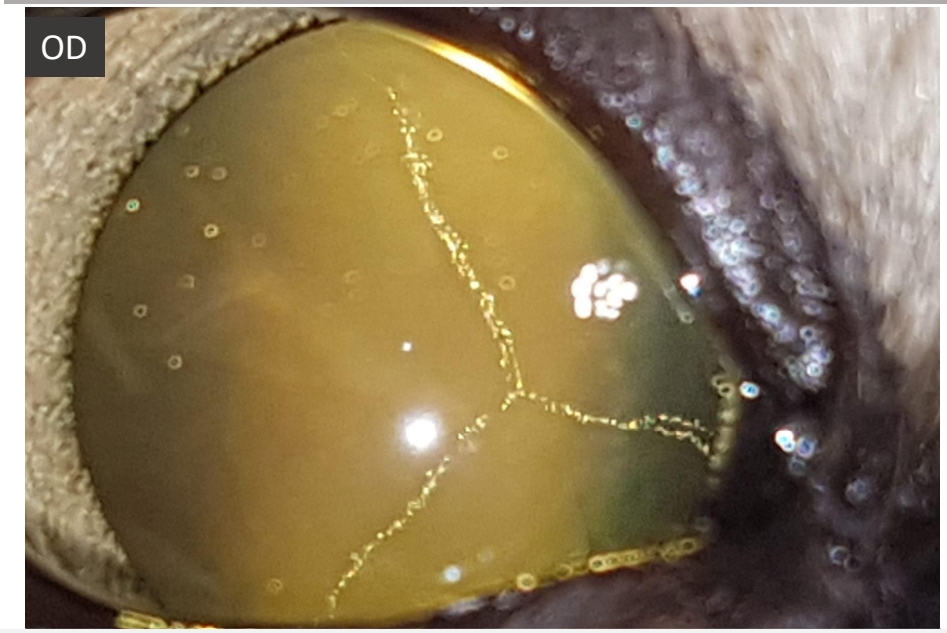
HED SESSION – Kahoot!

Case 16

European Shorthair Cat, 7 y, f, bilateral finding Slides: Peter Rechberger



European Shorthair Cat, 7y, f, bilateral finding Slides: Peter Rechberger



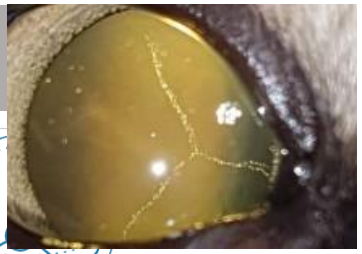
▲ 15. Cataract (non-congenital): Other: suture line tip

◆ 15. Cataract (non-congenital): Other: punctate

● Descriptive comments: suture line cataract

■ 15. Cataract (non-congenital): Other: suture line

European Shorthair Cat, 7y, f, bilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☒ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☒	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☒	☐ cortical ☐ post. pol. ☐ nuclear ☒ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 6 Guidelines

Other lens opacities (cataracts – other): Certain lens opacities/cataracts can occur frequently in a certain breed of dog (therefore presumed hereditary), but are considered regarding breeding "optional" or of low priority because they usually remain clinically less relevant. These opacities vary in size, location and transparency: some opacity is whitish but very small (e. g. punctate, suture tips, suture line), others are almost transparent but more extensive (e. g. fiberglass like or pulverulent, nuclear ring). Clinical significance: these lens opacities usually remain unchanged or limited and have no clinically relevant effect on vision. These lens opacities are summarized under "15. Cataract (non-congenital)" – "other" and specified in the comment field.

- **Suture line**: clearly defined whitish line or dots in the cortex that form an upright or inverted Y; sometimes faint dotted circular opacities can be seen in its center

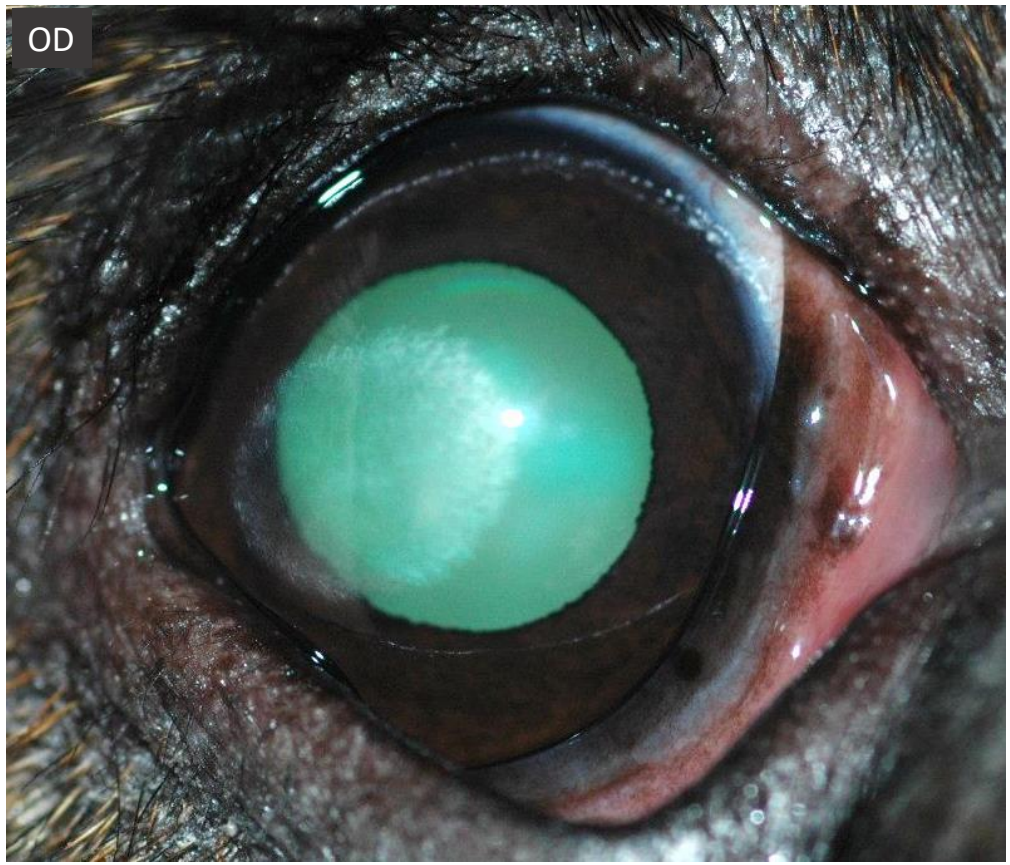
HED Manual Chapter 8 Vet Advice

Cataract “other”: OPTIONAL, low priority

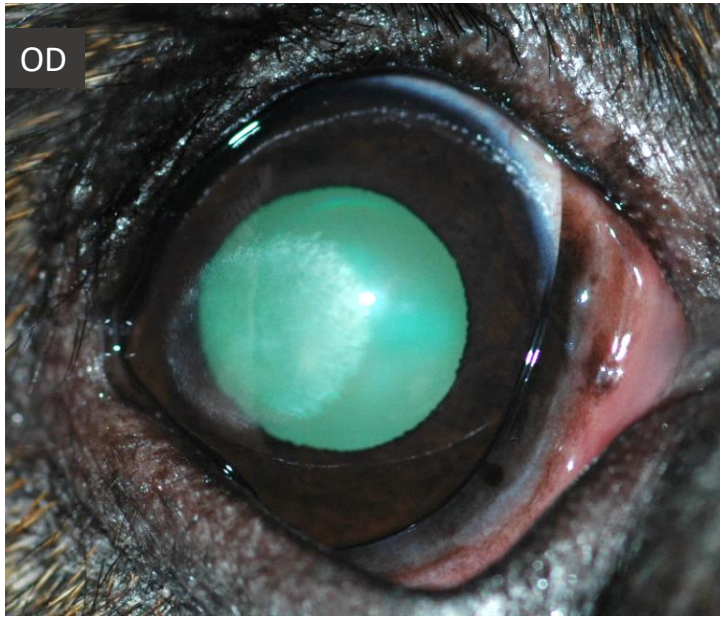
HED SESSION – Kahoot!

Case 17

Dachshound, 9y, m, bilateral finding Slides: Sabine Wacek



Dachshound, 9y, m, bilateral finding Slides: Sabine Wacek



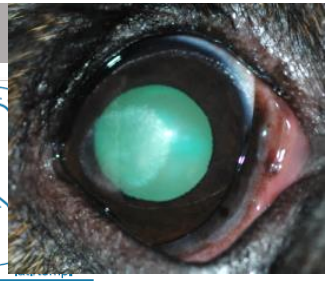
▲ 14. Corneal dystrophy

◆ 18. Other: Keratitis punctate

● Descriptive comments: corneal degeneration

■ 18. Other: Chronic superficial keratitis

Dachshound, 9y, m, bilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas.

Descriptive comments: .....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. IridoCorneal Angle Abnormality (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☒	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | Examiner

HED Manual Chapter 5 Definitions

Corneal dystrophy, epithelial/stromal: non-inflammatory corneal opacity (white to grey with crystalline appearance) in one or more of the corneal layers. Often it is associated with deposits of cholesterol and other lipids (or fats) within the cornea

HED Manual Chapter 6 Guidelines

Corneal dystrophy Corneal dystrophy is to be ticked "affected" at "14. Corneal dystrophy", and the details described in the field Descriptive comments. In cases of endothelial dystrophy (bilateral progressive diffuse, deep corneal edema, e.g. in Chihuahua, Boston Terrier etc.) or macular dystrophy (bilateral diffuse haziness of the cornea with multiple whitish/grey macula like lesions throughout the corneal stroma, periphery slightly less affected, e.g. in Labrador Retriever) or severe forms of stromal dystrophy (e.g. in Siberian Husky) is recognized, also the box "severe" is to be ticked in the comment area.

HED Manual Chapter 8 Vet Advice

14. **Corneal Dystrophy**:

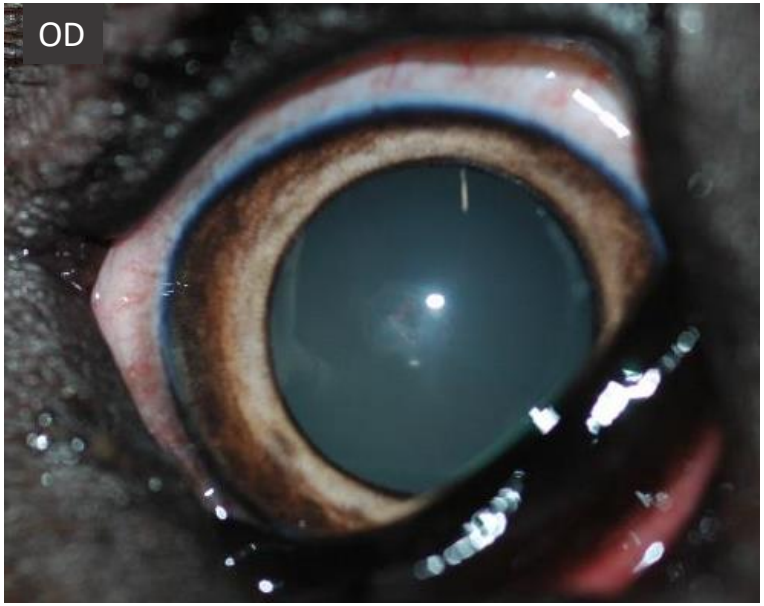
ÅEpithelial and/or stromal: OPTIONAL;

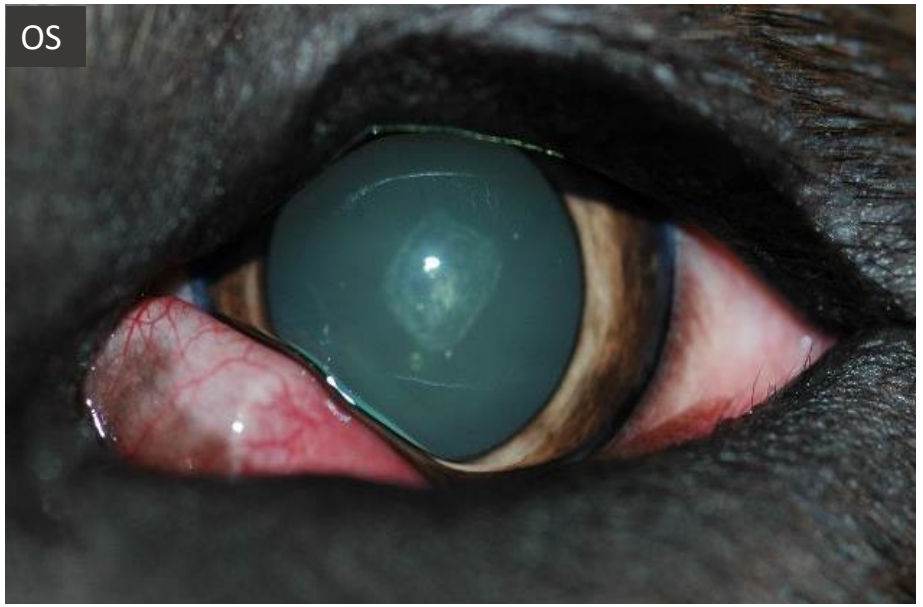
Note: In severe cases that cause visual problems and/or pain for the dog, e.g. in Siberian Husky or Shetland Sheepdog: NO BREEDING from the affected animal.

HED SESSION – Kahoot!

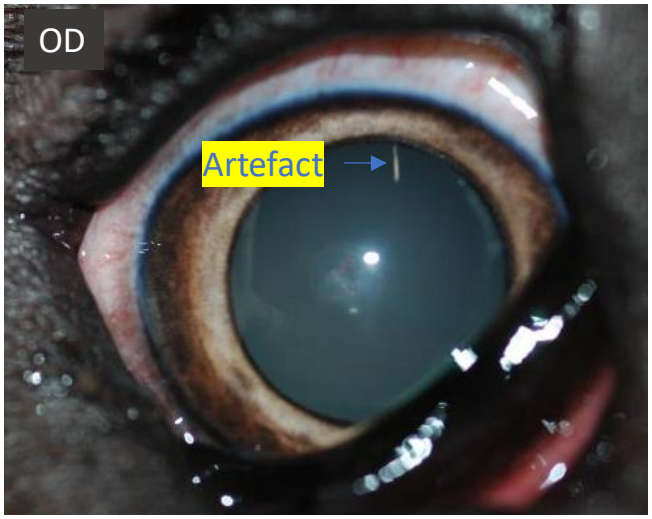
Case 18

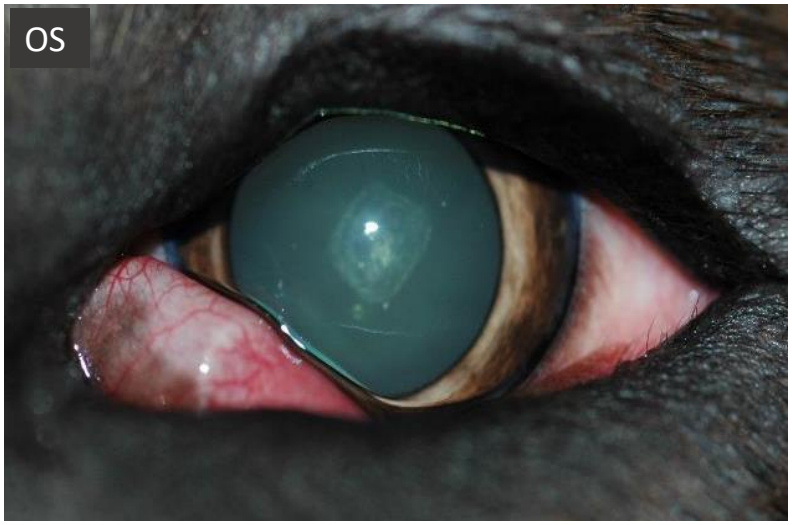
Great Dane, 1,5 y, f, bilateral finding Slides: Sabine Wacek





Great Dane, 1,5 y, f, bilateral finding Slides: Sabine Wacek





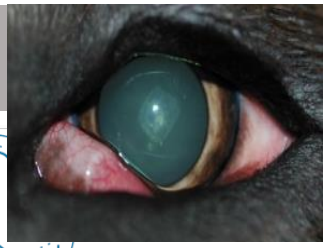
▲ 15: cataract (non-congenital) nuclear
7. other: nictitating membrane: prolapse of the gland

◆ 15: cataract (non-congenital) post. Pol. + cortical 7. other: nictitating membrane: eversion of cartilage

● 15: cataract (non-congenital) cortical
7. other: nictitating membrane: prolapse of the gland

■ 15: cataract (non-congenital) nuclear
7. other: nictitating membrane: eversion of cartilage

Great Dane, 1,5 y, f,
bilateral finding



Right eye (OD) Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☒	
8. IridoCorneal Angle Abnormality (ICAA)	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Nictitating membrane: eversion of cartilage

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☒	☒ cortical ☒ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Nictitating membrane, eversion of the cartilage: KP-HED; scroll-like curling of the cartilage of the nictitating membrane, usually everting the margin. The condition may occur in one or both eyes and may cause mild ocular irritation

HED Manual Chapter 6 Guidelines

For number “7. Other”: known and presumed hereditary eye anomalies (congenital/developmental, non-progressive) that are not yet mentioned on the form are mentioned here

ÅNictitating membrane, eversion of the cartilage

HED SESSION

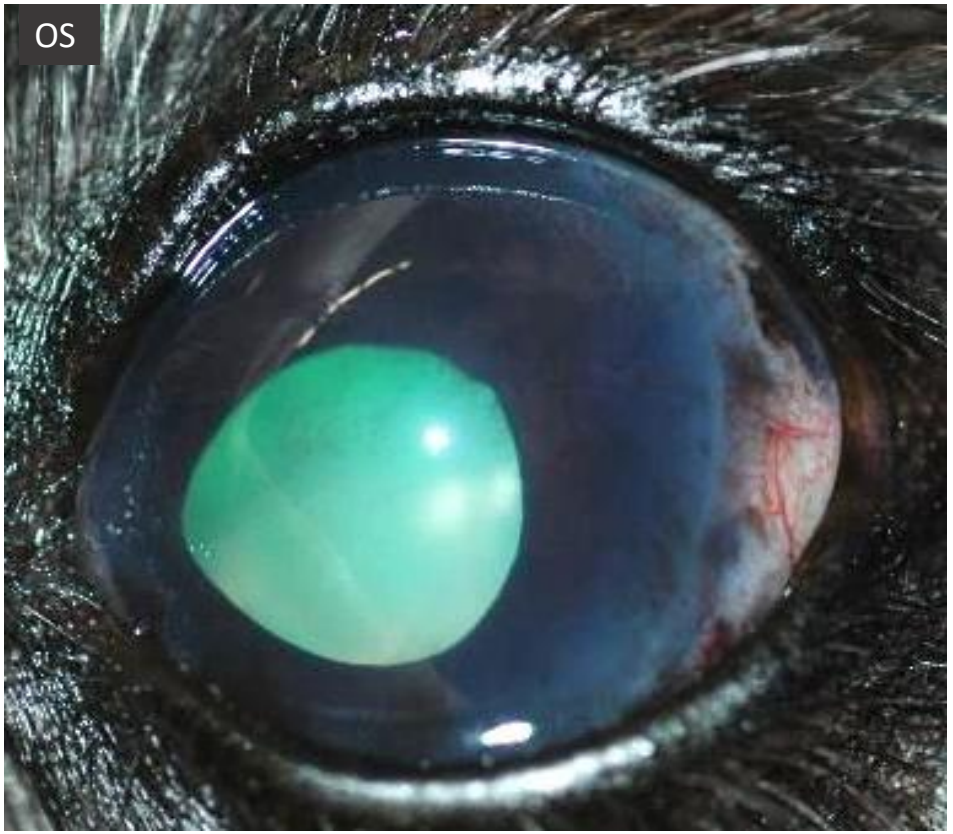
HED Manual Chapter 8 Vet Advice

ÅNictitating membrane, eversion of the cartilage: OPTIONAL

HED SESSION – Kahoot!

Case 19

Cairn Terrier, 12 y, f, bilateral finding Slides: Sabine Wacek



Cairn Terrier, 12 y, f, bilateral finding Slides: Sabine Wacek

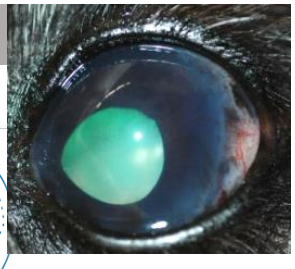
▲ 18. Other: pigmentary glaucoma

◆ 18. Other: uveitis, pigmentary

● 18. Other: ocular melanosis

■ 18. Other: uveodermatologic syndrom

Cairn Terrier, 12 y, f, bilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

.....

.....

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☒	Ocular melanosis

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | **Examiner**

HED Manual Chapter 5 Definitions

Ocular melanosis: KP-HED; an abnormal proliferation of melanocytes within the uveal tract that may cause an elevation of the intraocular pressure/glaucoma when an obstruction of the aqueous outflow pathways occurs, occurs with a higher than normal incidence in the Cairn Terrier.

HED Manual Chapter 6 Guidelines

For number "18. Other ": KP-HEDs that are not considered to be congenital / developmental or progressive and are not yet mentioned on the form are mentioned here

- Ocular melanosis (do not use Glaucoma –pigmentary; e.g. Cairn Terrier)

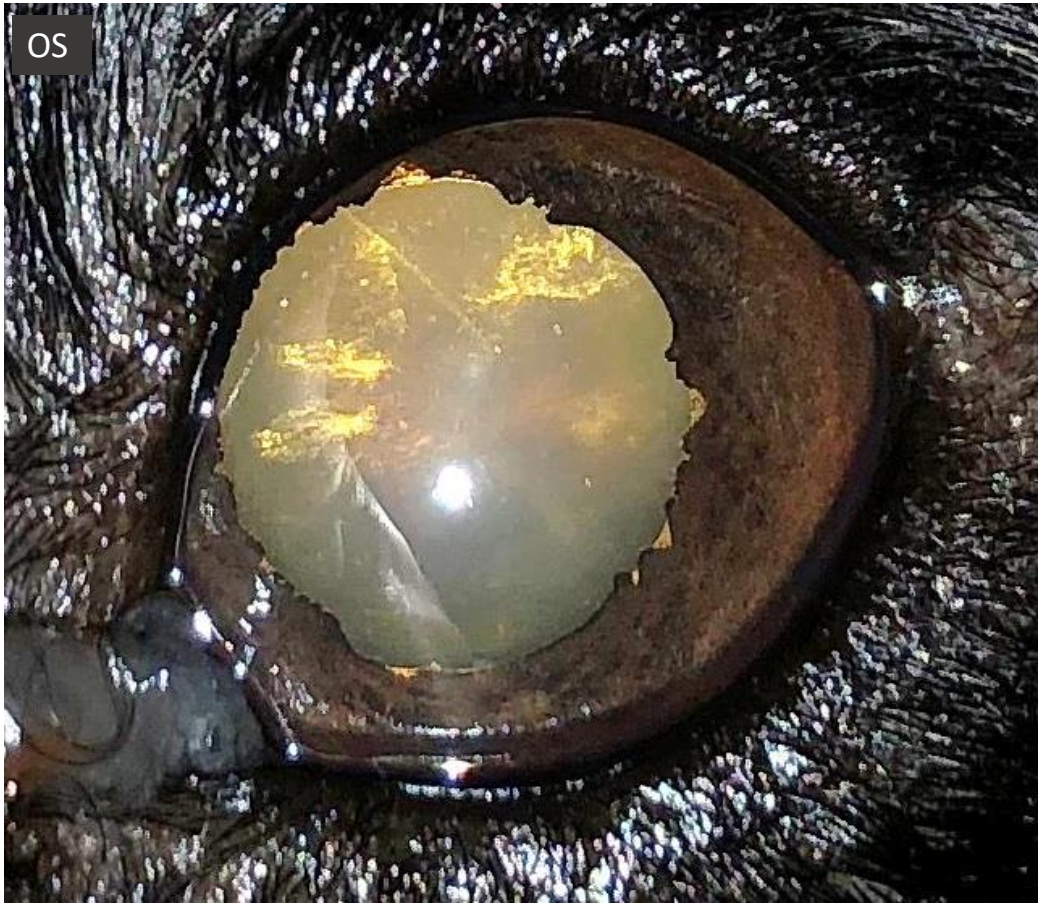
HED Manual Chapter 8 Vet Advice

- Ocular melanosis: NO BREEDING from the affected animal (e.g. Cairn Terrier)

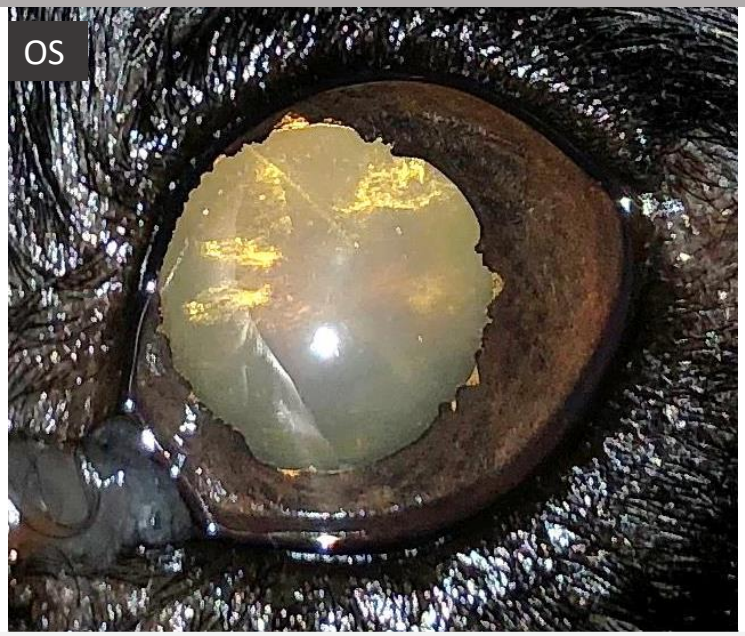
HED SESSION – Kahoot!

Case 20

Poodle, 6 y, m, unilateral finding Slides: Silvia Stadler



Poodle, 6 y, m, unilateral finding Slides: Silvia Stadler



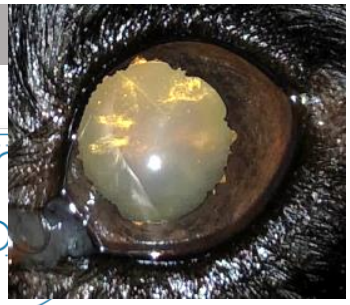
▲ 15. Cataract (non-congenital): cortical
7. other: iris hypoplasia

◆ 15. Cataract (non-congenital): nuclear
7. other: iris hypoplasia

● 15. Cataract (non-congenital): cortical
Descriptive comments: iris atrophy

■ 15. Cataract (non-congenital): nuclear
Descriptive comments: iris atrophy

Poodle, 6y, m, unilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: **Iris atrophy**

Eye disease no. ..... ☐ severe

15. Cataract other: ☐ punctata ☐ suture line tip ☐ suture line ☐ nuclear ring ☐ nuclear fiberglass/pulverulent

8. ICAA: PLA ☐ mild ☐ moderate ☐ severe

ICA (width) ☐ narrow (moderate) ☐ closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. ~~IridoCorneal Angle Abnormality (ICAA)~~	☐	☐	☐	☐ mild ☐ moderate ☐ severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis	☐	☐	☐	
12. Ectropion / Macroblepharon	☐	☐	☐	
13. Distichiasis / Ectopic cilia	☐	☐	☐	
14. Corneal dystrophy	☐	☐	☐	
15. Cataract (non-congenital)	☐	☐	☐	☐ cortical ☐ post. pol. ☐ nuclear ☐ other
16. Lens luxation (primary)	☐	☐	☐	
17. Retinal degeneration (PRA)	☐	☐	☐	
18. Other:	☐	☐	☐	

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | Examiner

HED Manual Chapter 5 Definitions

Iris atrophy: degenerative loss of iris tissue, to be differentiated from iris coloboma/hypoplasia. May occur spontaneously as aging change or be secondary to inflammation or glaucoma

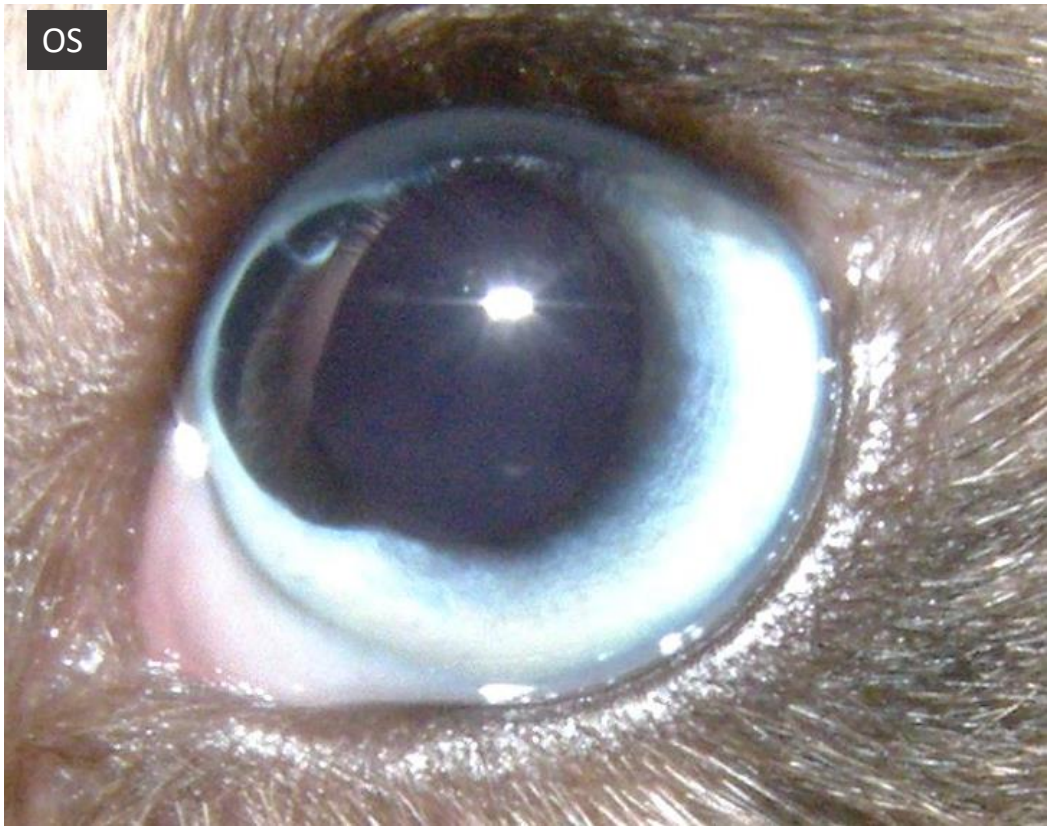
Comment:

Iris atrophy (acquired abnormality) is not be confused with iris hypoplasia (congenital abnormality) and should be described in the field Descriptive comments only.

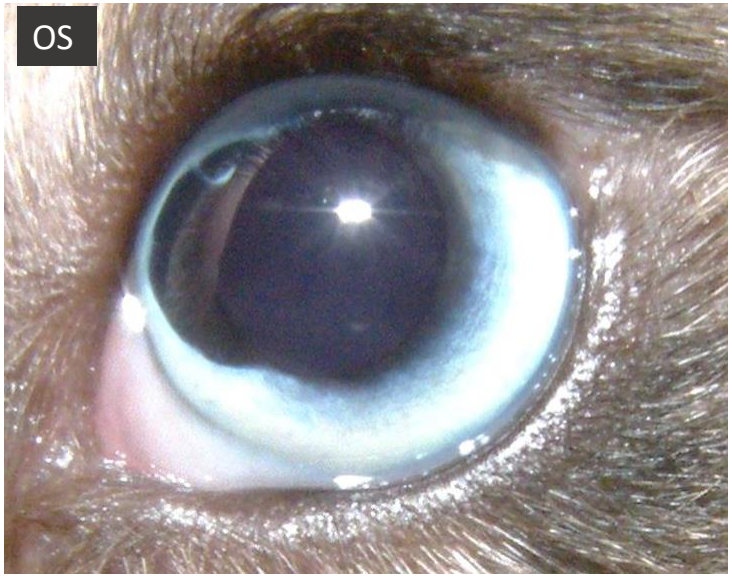
HED SESSION – Kahoot!

Case 21

Australian Shepherd, 1,5y, f, unilateral finding Slides: Petra Grinninger



Australian Shepherd, f, 1,5y, unilateral finding Slides: Petra Grinninger



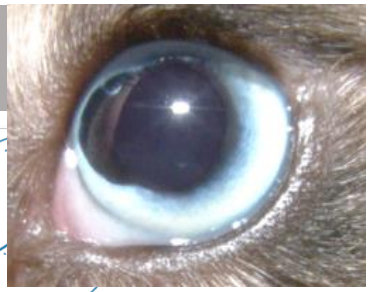
▲ 7. other: iris coloboma

◆ 18. other: iris melanoma

● 7. other: iris hypolplasia

■ 18. other: uveal cyst

Australian Shepherd, f, 1,5y, unilateral finding



Right eye (OD) — Photographs: ant. post. lat./temp. med./nas.

Photographs: ant. post. med./nas. lat./temp.

Descriptive comments: .....

Eye disease no. Nr 7 severe

15. Cataract other: punctata; suture line tip; suture line; nuclear ring; nuclear fiberglass/pulverulent

8. ICAA: PLA: mild; moderate; severe

ICA (width): narrow (moderate); closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)				iris; lens; cornea; lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)				grade 1; grade 2-6
3. Cataract (congenital)				
4. Retinal Dysplasia (RD)				(multi)focal; geographical; total
5. Hypoplastic-/Micro-papilla				
6. Collie Eye Anomaly (CEA)				choroid. hypoplasia; coloboma; other:
7. Other: Iris hypoplasia				
8. ~~IridoCorneal Angle Abnormality (ICAA)~~				mild; moderate; severe

Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
11. Entropion / Trichiasis				
12. Ectropion / Macroblepharon				
13. Distichiasis / Ectopic cilia				
14. Corneal dystrophy				
15. Cataract (non-congenital)				cortical; post. pol.; nuclear; other
16. Lens luxation (primary)				
17. Retinal degeneration (PRA)				
18. Other:				

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
*** The animal displays minor, but specific clinical signs of the KP-HED mentioned. Further development will confirm the diagnosis. Reexamination in .....months.

FOR FUTHER INFORMATION: P.T.O. | Examiner

HED Manual Chapter 5 Definitions

Hypoplasia iris: KP-HED; characterized by congenital thinning and/or absence of iris (sphincter) tissue or colobomatous defects due to failure in closure of the optic fissure. It may be a separate disorder or associated with other ocular malformations. See and use iris hypoplasia

HED Manual Chapter 6 Guidelines

Note: If there is a congenital lack of tissue in the iris and lens, the term "hypoplasia" is used: iris hypoplasia, lens hypoplasia. Reason: Iris tissue can be absent in full-thickness, but also only partially (hypoplastic); The lens equator may have a flattened curvature due to abnormal development of zonular fibers or ciliary processes.

Only if uni- or bilateral iris tissue is missing (full thickness) or failed to develop (developmentally colobomatous) e.g. in one of the specific breeds Australian Shepherd, Dalmatian, Rottweiler, also the box “severe” is to be ticked in the comment area

HED Manual Chapter 8 Vet Advice

Hypoplasia:

- Iris: OPTIONAL, Note: In severe cases: NO BREEDING from the affected animal