

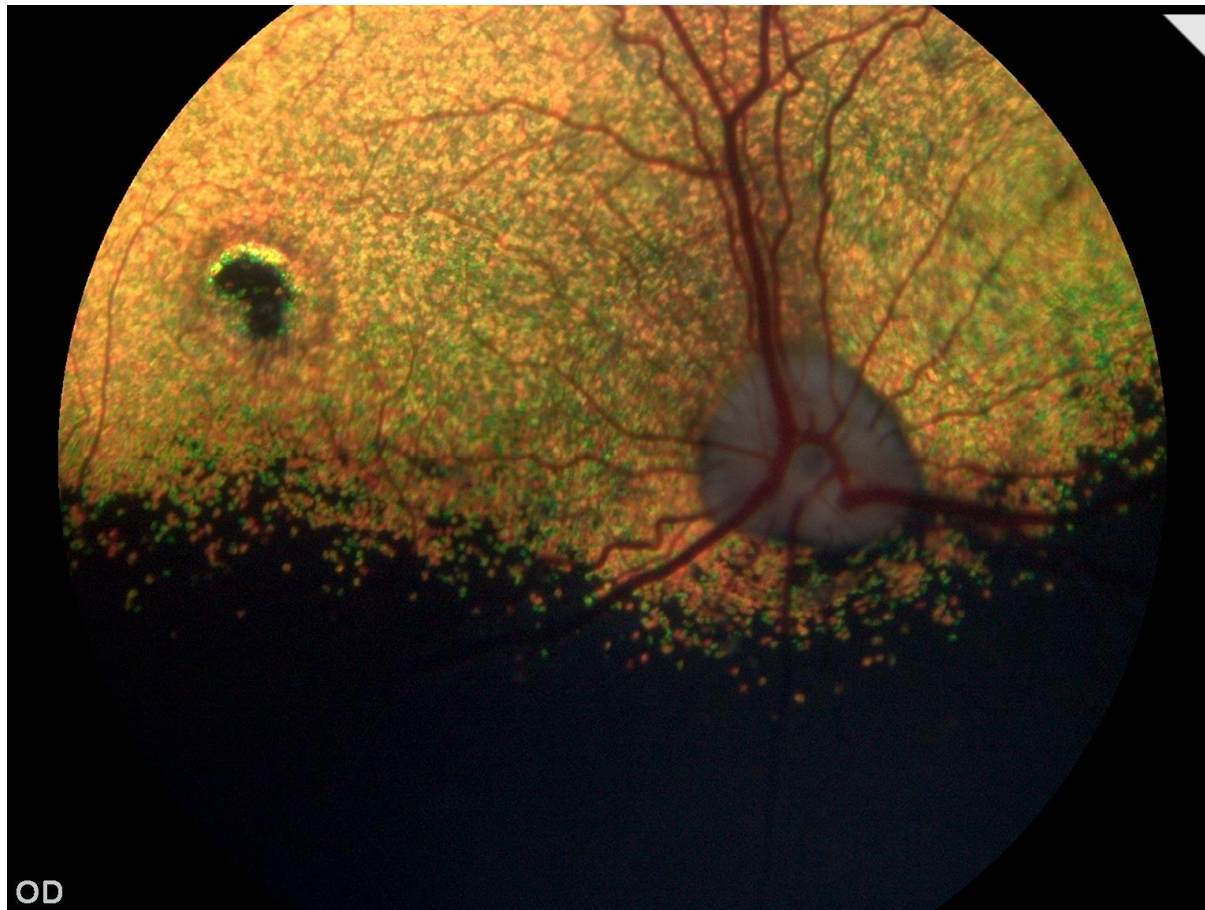
# HED SESSION . ANTWERP 2019



In cooperation with the Belgium panel

Labrador Retriever, 6yo, Male, unilateral (OD)

2





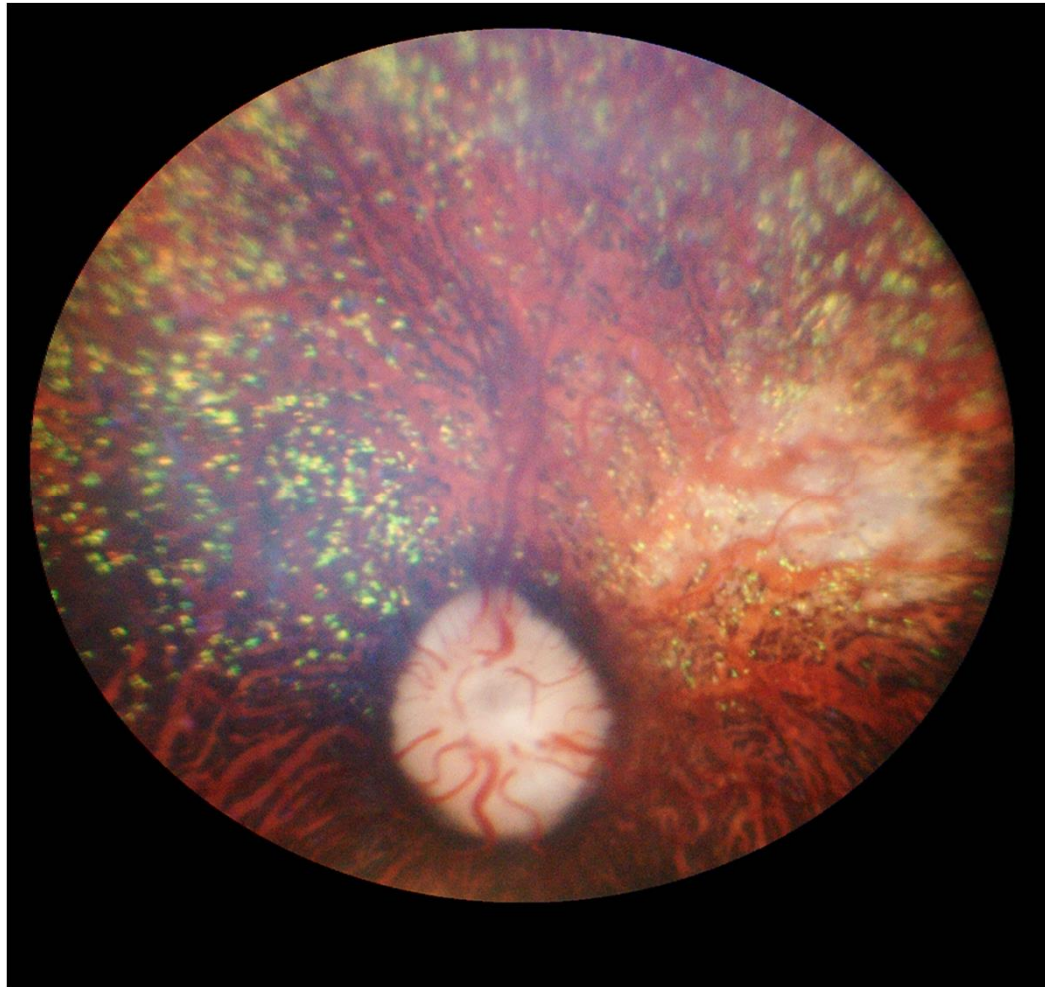
# HED Manual Ch. 5 Definitions

“ **Chorioretinitis**: an inflammatory process of the choroidal and outer retinal structures, observed in the acute phase as blurring, swollen, edematous areas and later as **chorioretinal scarring shown as pigmented spots with hyperreflective borders**

## HED Manual Ch. 6 Guidelines

“ Section Examination, part: **‘Descriptive comments’**: In this section, the examiner should **describe any findings** in the eye and adnexae, either **KP-HED or other**.

Australian Shepherd, 3yo, Male, left eye,  
bilateral finding



# Australian Shepherd, 3yo, Male, left eye, bilateral finding

Descriptive comments:

.....

.....

.....

- 8. ICAA: PLA
  - mild
  - moderate
  - severe
- ICA (width)
  - narrow (moderate)
  - closed (severe)

Eye disease no. ....  mild  severe

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	* UNAFFECTED	** UNDETERMINED	* AFFECTED		* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> lens	<input type="checkbox"/> cornea <input type="checkbox"/> lamina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> choroid. hypoplasia <input checked="" type="checkbox"/> coloboma <input type="checkbox"/> other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
							<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macrolepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## HED Manual Ch. 5 Definitions

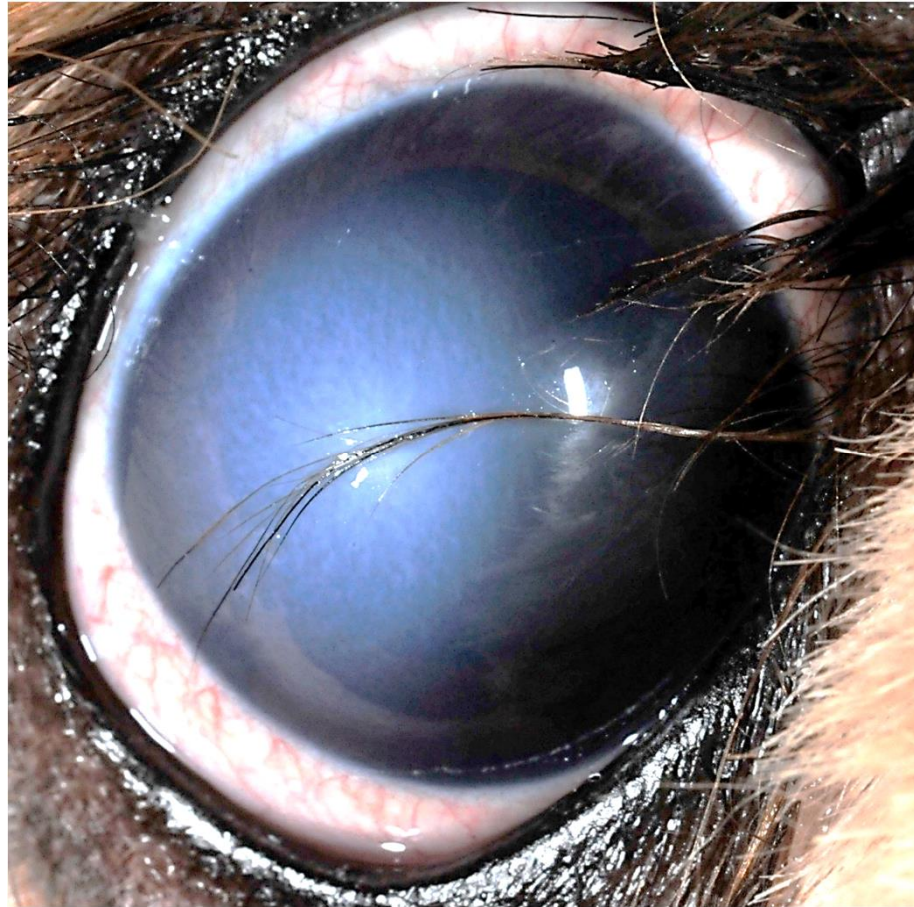
- “ **Collie Eye Anomaly (CEA)**: known hereditary congenital eye disease;
- “ a congenital syndrome of ocular anomalies **mainly in Collie breeds** affecting the choroid and sclera and indirectly the retina and optic disc.
- “ characterized by bilateral and often symmetrical defects including **choroidal hypoplasia** with or without **coloboma**, **retinal detachment** and **intraocular hemorrhage**.



# HED Manual Ch. 6 Guidelines

**“ Tick no 6. Collie eye anomaly (CEA)**

Shih-tzu, 4yo, Female, Right eye  
Bilateral/symmetrical



# Shih-tzu, 4yo, Female, Right eye, Bilateral/symmetrical

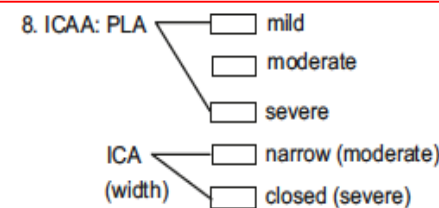
Descriptive comments: **14. endothelial**

.....

.....

.....

Eye disease no. **14**  mild  severe



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

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

## Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

# HED Manual Ch. 5 Definitions

- “ **Trichiasis:** presumed hereditary eye disease or acquired abnormality of **deviated hairs** on a **normal place** around the lid fissure, **irritating** the conjunctiva, the free lid margin of the opposite lid and/or the globe.
- “ **Macroblepharon:** Fissure length (stretched) in dog **over 40 mm**

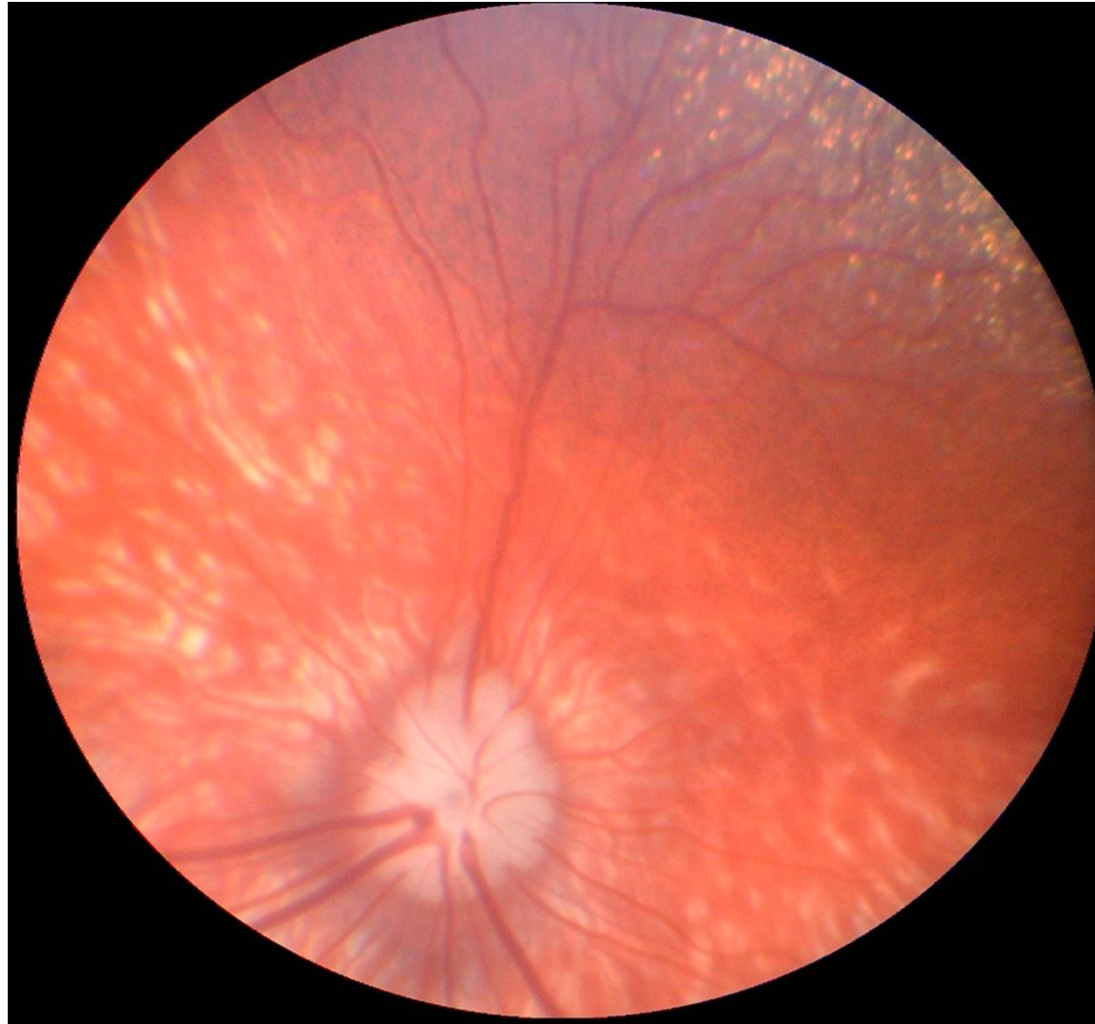
# HED Manual Ch. 5 Definitions

- ” **Corneal dystrophy**: presumed hereditary eye disease; **non-inflammatory corneal opacity** in one or more of the corneal layers (epithelium, stroma, endothelium), usually bilateral but not always symmetrical. The onset in one eye may precede the other.
- ” **Endothelial corneal dystrophy**: abnormal **loss** of the inner lining (**endothelium**) of cornea causing progressive fluid retention (**edema**) leading to increased corneal thickness, keratitis, corneal clouding and decreased vision

## HED Manual Ch. 6 Guidelines

- ” **Tick no 11: Entropion/Trichiasis:** No further details such as deleting or encircling entropion or trichiasis are to be mentioned. Only if there are clinical signs of **corneal irritation** such as detritus on the lid hairs, corneal edema, vessels, defects or pigmentation at the location of the entropionised lid margin, the examiner will also tick the box: “**severe**” in the comment area.
- ” **Tick no 12: Macropharon**
- ” **Tick no 14: Corneal dystrophy.** If **endothelial dystrophy** (bilateral progressive diffuse, deep corneal edema is recognized, the examiner will also tick the box: “**severe**” in the comment area.

Merle Australian Shepherd, 3yo, Female, left eye,  
bilateral finding



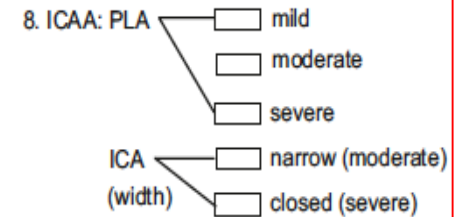
# Merle Australian Shepherd, 3yo, Female, left eye Bilateral finding, Genetic test of CEA: carrier

Descriptive comments:

.....

.....

.....



Eye disease no. ....  mild  severe

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	<sup>*</sup> UNAFFECTED	<sup>**</sup> UNDETERMINED	<sup>*</sup> AFFECTED		<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	12. Ectropion/Macropharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe	18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

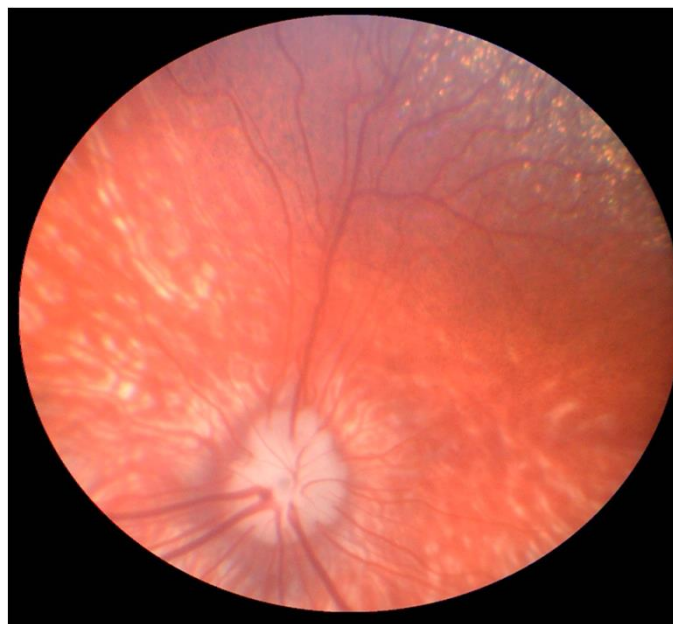
### Interpretation

- \* "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.



# HED Manual Ch. 5 Definitions - Guidelines

“ Normal fundus



American Bobtail cat, 1yo, Female. Right eye,  
bilateral finding



# American Bobtail, 1yo, Female, Right eye, bilateral finding

Descriptive comments: .....

Eye disease no. ....  mild  severe

8. ICAA: PLA  mild  moderate  severe

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

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	* UNAFFECTED	** UNDETERMINED	* AFFECTED		* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: <b>Eyelid coloboma</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> mild <input checked="" type="checkbox"/> moderate <input checked="" type="checkbox"/> severe	17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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.

## HED Manual Ch. 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.
- “ For coloboma in eyelid, retina, choroid, sclera or optic nerve/papilla use the anatomical name first then the anomaly, e.g. **eyelid coloboma**.

## HED Manual Ch. 6 Guidelines

**Tick no 7. Other:** known and presumed hereditary eye anomalies (congenital/developmental, non-progressive) are mentioned here.

“The terminology for the diseases is given in chapter 5. Definitions of this manual are to be used: **eyelid coloboma**.”

Bengale, 1yo, Female. Left eye,  
Bilateral asymmetrical finding



# Bengale, 1yo, Female, Left eye, Bilateral asymmetrical finding

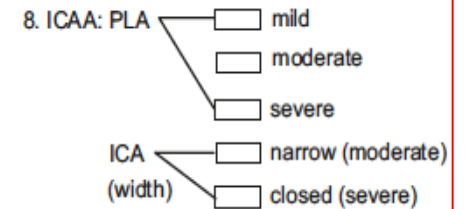
Descriptive comments:


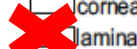
.....

.....

.....

Eye disease no. ....  mild  severe



Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	<sup>*</sup> UNAFFECTED	<sup>**</sup> UNDETERMINED	<sup>*</sup> AFFECTED	<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED	
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>  <input checked="" type="checkbox"/> 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Cataract (congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Retinal Dysplasia (RD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Hypoplastic-/Micro-papilla	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Collie Eye Anomaly (CEA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
7. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<del>8. IridoCorneal Angle Abnormality. (ICAA)</del>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Cataract (non-congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Lens luxation (primary)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Retinal degeneration (PRA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**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.

## HED Manual Ch. 5 Definitions

- “ **Persistent pupillary membrane (PPM): blood vessel remnants of the embryological vascular network** in the anterior chamber **fail to regress** which normally occurs during the first 4 to 5 weeks of life.
- “ may be found on the surface of the **iris at the collarette**, on 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 (**lamina**) in the anterior chamber.



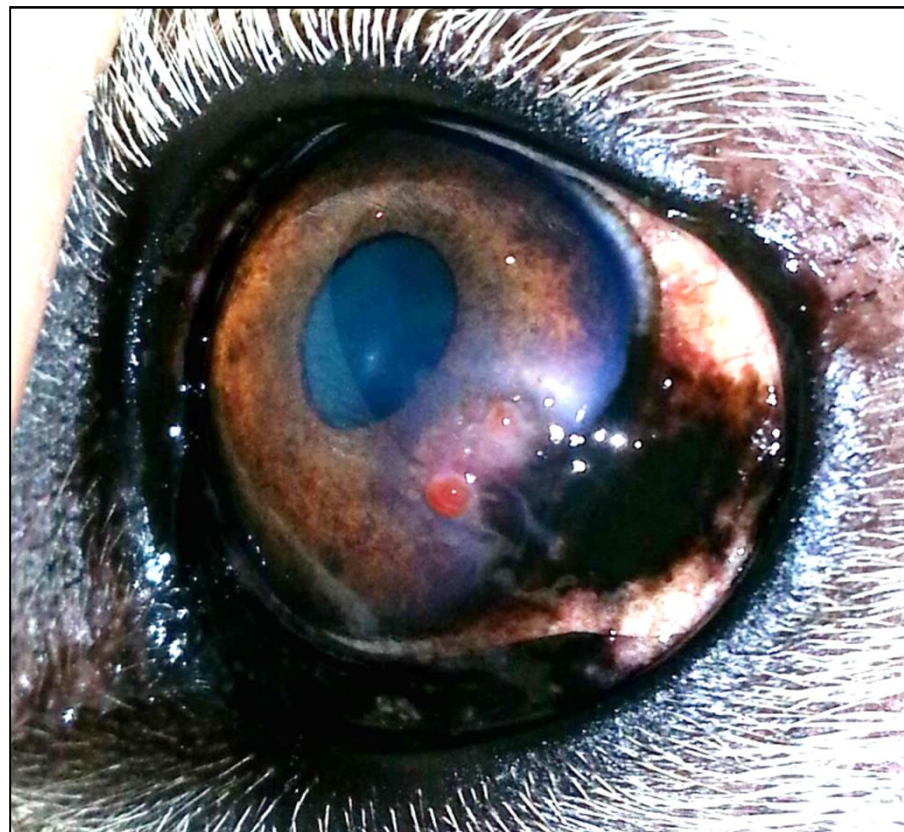
# HED Manual Ch. 6 Guidelines

**Tick no 1 “affected” : Persistent pupillary membrane (PPM) and tick also the respective box of other parts involved.**

Areas which can be involved:

- “ retrocorneal: **boxes PPM and cornea**
- “ strands from cornea to iris: **boxes: PPM, cornea and iris**
- “ strands iris to iris: **boxes PPM and iris**
- “ Strands iris to lens: **boxes: PPM, iris and lens,**
- “ connected to areas of cataract: **tick also no 3 for congenital cataract**
- “ strands connected to a sheet/“spider web” of tissue in the anterior chamber: **boxes PPM, lamina and other parts involved are ticked**

White Swiss Shepherd dog, 7yo, Female, bilateral  
OD OS



# White Swiss Shepherd dog, 7yo, Female, bilateral

Descriptive comments:

.....  
 .....  
 .....

8. ICAA: PLA  mild  
 moderate  
 severe

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

Eye disease no. ....  mild  severe

**Results for the known or presumed hereditary eye diseases (KP-HED):** **Results valid for 12 months**

	* UNAFFECTED	** UNDETERMINED	* AFFECTED		* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macropharion	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: <b>CSK/Pannus</b>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

## HED Manual Ch. 5 Definitions

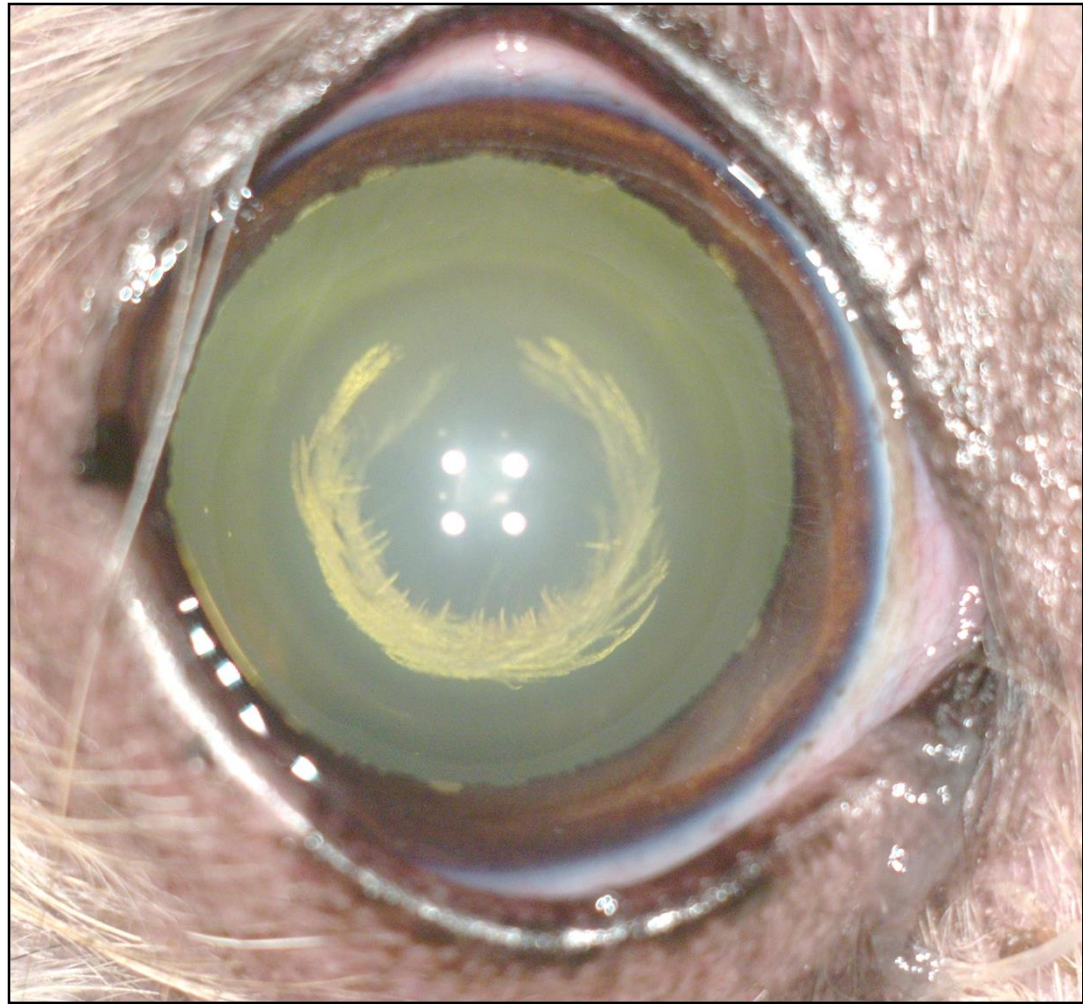
- “ **Chronic superficial keratitis(CSK)/Pannus:** Presumed hereditary eye disease; bilateral inflammatory disease of the cornea usually **starting** as a greyish haze at the **inferior or inferiotemporal cornea**, followed by the formation of a vascularized subepithelial opacity spreading towards the central cornea; **pigmentation** follows the **vascularization**.
- “ The disease can be seen with **concurrent plasmoma (=plasmocytic infiltration of the external conjunctiva of the 3<sup>rd</sup> eyelid)** and/or **medial canthus erosion**.

## HED Manual Ch. 6 Guidelines

### **Tick no 18. Other: Chronic superf. Keratitis/Pannus**

for abnormalities, which are considered not to be congenital/developmental or which are progressive, and not yet named on the form

Bichon Frisé, 7yo, Male, unilateral, Right eye.  
1st examination



# Bichon Frisé, 7yo, Male, unilateral. Right eye. 1st examination

Descriptive comments: .....

Eye disease no. ....  mild  severe

8. ICAA: PLA  mild  moderate  severe

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

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	<sup>*</sup> UNAFFECTED	<sup>**</sup> UNDETERMINED	<sup>*</sup> AFFECTED		<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l.
5. Hypoplastic-/Micro-papilla	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> punctata <input checked="" type="checkbox"/> nucleus <input type="checkbox"/> other
6. Collie Eye Anomaly (CEA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	16. Lens luxation (primary)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. Retinal degeneration (PRA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<del>8. IridoCorneal Angle Abnormality. (ICAA)</del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/> mild <input checked="" type="checkbox"/> moderate <input type="checkbox"/> severe</del>	18. Other: .....	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>	<del><input type="checkbox"/></del>

**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.

## HED Manual Ch. 5 Definitions

- ” **Cataract:** any hereditary or non-hereditary, congenital or acquired, non-physiological **opacity of the lens and/or its capsule.**
- ” All **bilateral or unilateral** cataracts and **especially cortical cataracts** are known and **presumed hereditary eye diseases**

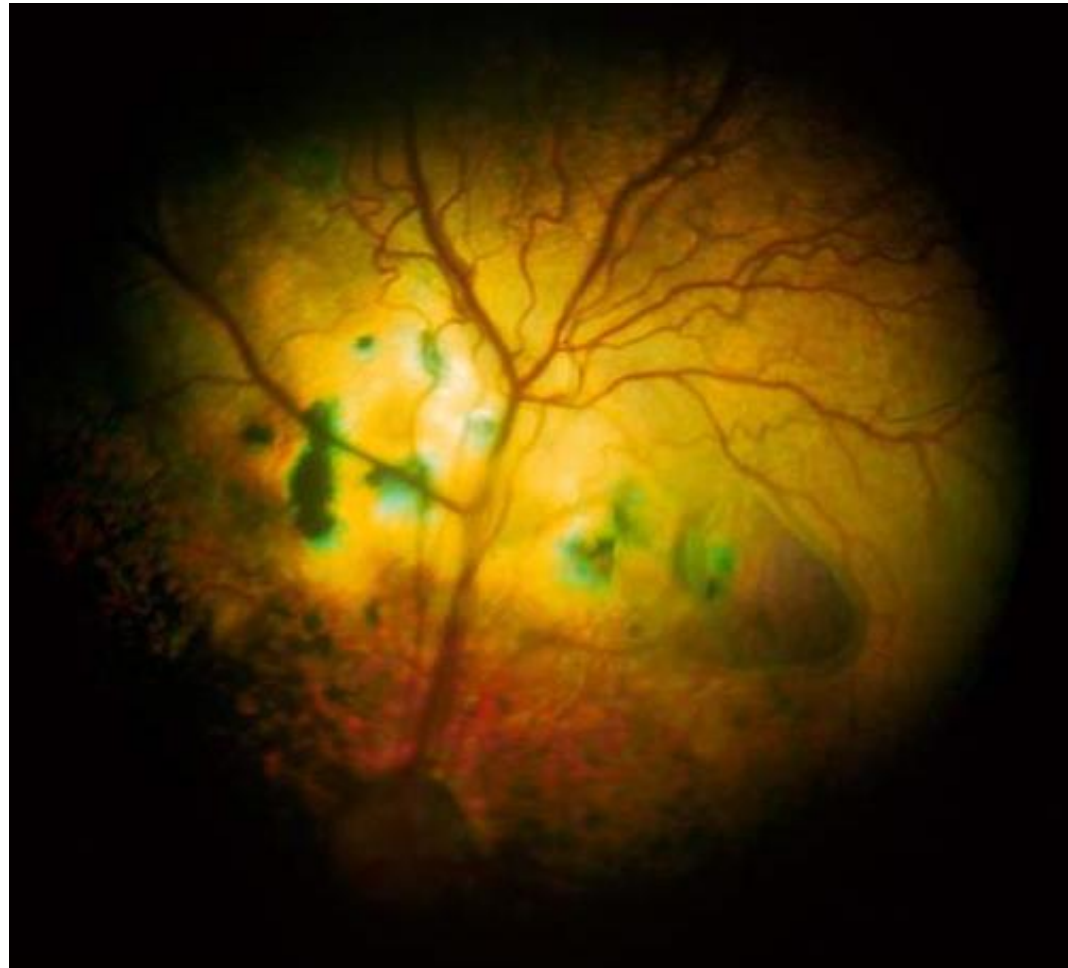


## HED Manual Ch. 6 Guidelines

**Tick no 15: Cataract:** To describe the type of cataract, the general box for cataract and, if available, the **specifying box for the type of cataract** should be ticked.

- “ If cataracts are observed in the period between birth and the 8th week of age the entity is ticked as congenital (no 3)
- “ Cataracts diagnosed at **older age** are ticked as **non-congenital (acquired)**, no 15
- “ It is strongly recommended to **draw the cataract** in the "pre-drawings" on the certificate.

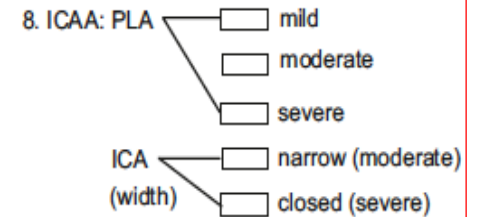
English Springer Spaniel, 5yo, Female, bilateral



# English Springer Spaniel, 5yo, Female, bilateral

Descriptive comments:

.....  
 .....  
 .....



Eye disease no.  mild  severe

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

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

## Results valid for 12 months

	<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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.

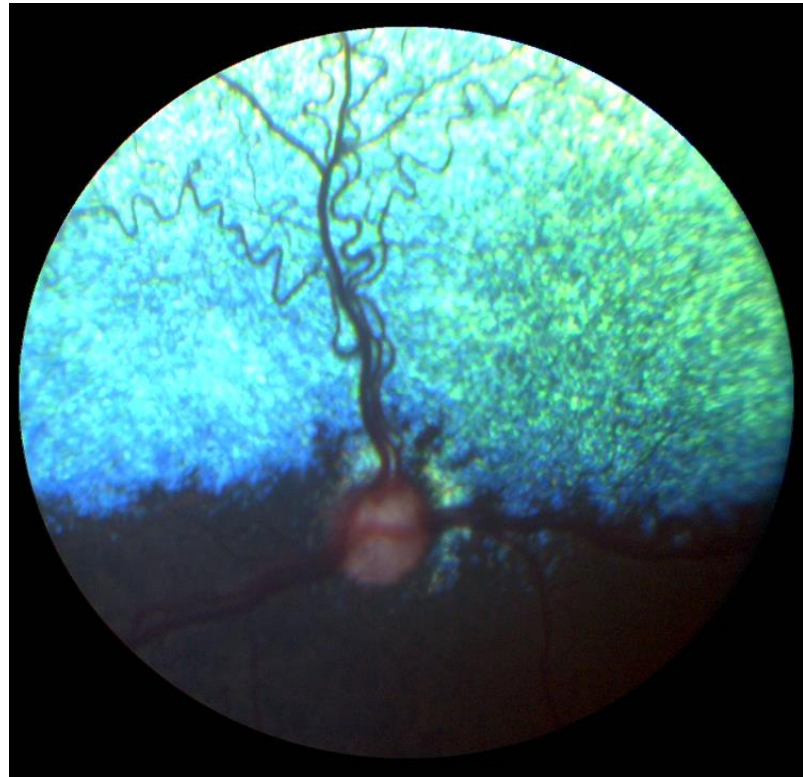
## HED Manual Ch. 5 Definitions

- “ **Retinal dysplasia**: presumed hereditary eye disease; abnormal development of the retina observed early in life: **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**, 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.

# HED Manual Ch. 6 Guidelines

## **Tick no 4: Retinal dysplasia and geographical**

Miniature Dachshund, 3yo, Female, visual both eyes  
OD OS



# Miniature Dachshund, 3yo, Female, visual both eyes. Mild anisocoria

Descriptive comments: .....

Eye disease no. ....  mild  severe

8. ICAA: PLA  mild  moderate  severe  
ICA (width)  narrow (moderate)  closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	UNAFFECTED *	UNDETERMINED **	AFFECTED *	UNAFFECTED *	SUSPICIOUS ***	AFFECTED *	
1. Persistent Pupillary Membrane (PPM)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Cataract (congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Retinal Dysplasia (RD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant. sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
6. Collie Eye Anomaly (CEA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. IrdoComeal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**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.

## HED Manual Ch. 5 Definitions

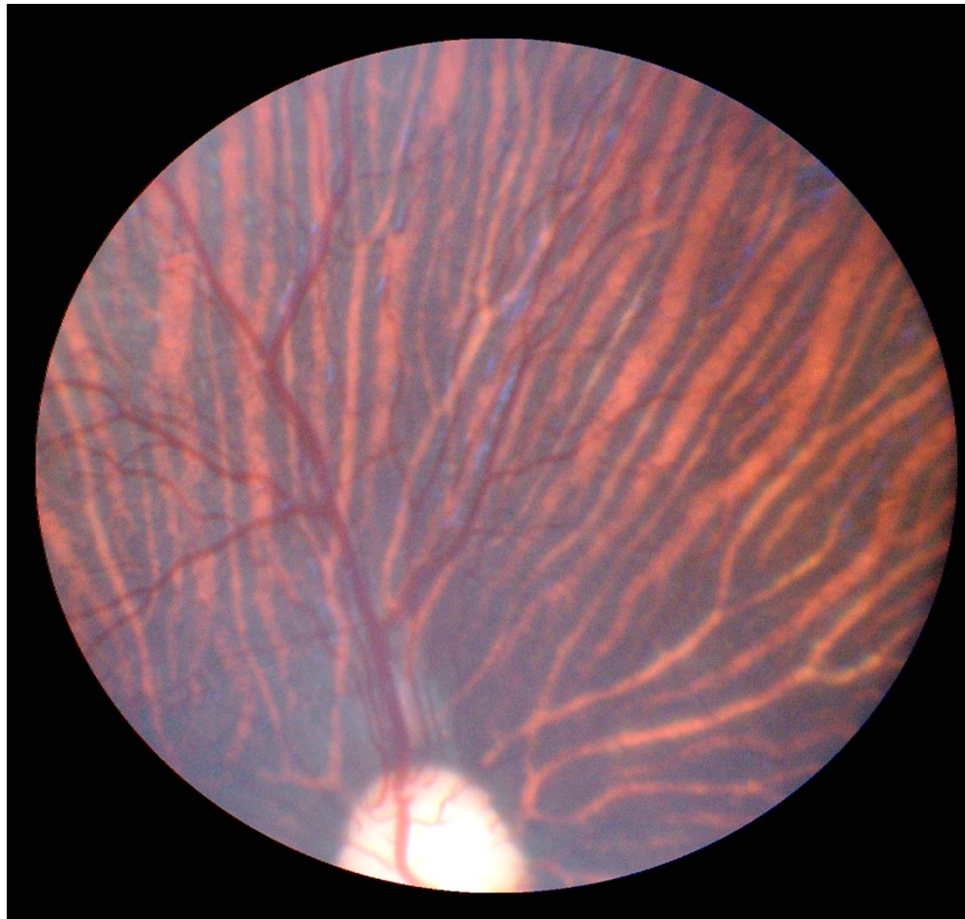
- “ **Hypoplasia: defective development** of an organ or part resulting in a **smaller than normal size** or immature state
- “ **Optic disc hypoplasia:** presumed hereditary eye disease; congenital failure of development of the optic nerve which causes **visual deficiency** and abnormal pupil response in the affected eye.
- “ **Micropapilla:** small optic disc which is **not associated with vision impairment.**



# HED Manual Ch. 6 Guidelines

## **Tick no 5: Hypoplastic-/Micropapilla**

Rough Collie, 8yo, Male, bilateral presentation



# Rough Collie, 8yo, Male, bilateral finding

Descriptive comments:

.....  
 .....  
 .....

8. ICAA: PLA  mild  
 moderate  
 severe

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

Eye disease no. ....  mild  severe

**Results for the known or presumed hereditary eye diseases (KP-HED):** **Results valid for 12 months**

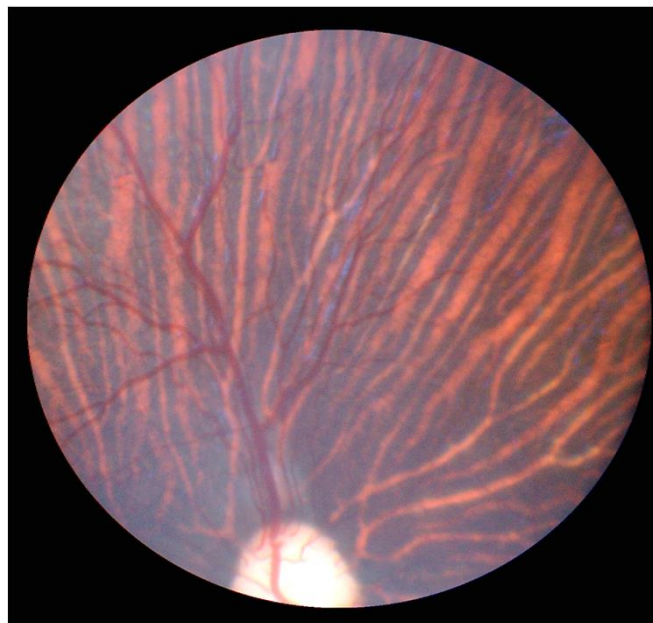
	* UNAFFECTED	** UNDETERMINED	* AFFECTED		* UNAFFECTED	*** SUSPICIOUS	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. IrdoComveal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Entropion/Trichiasis	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Ectropion/Macroblepharon	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Corneal dystrophy	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Cataract (non-congenital)	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Lens luxation (primary)	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Retinal degeneration (PRA)	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Other: .....	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**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.

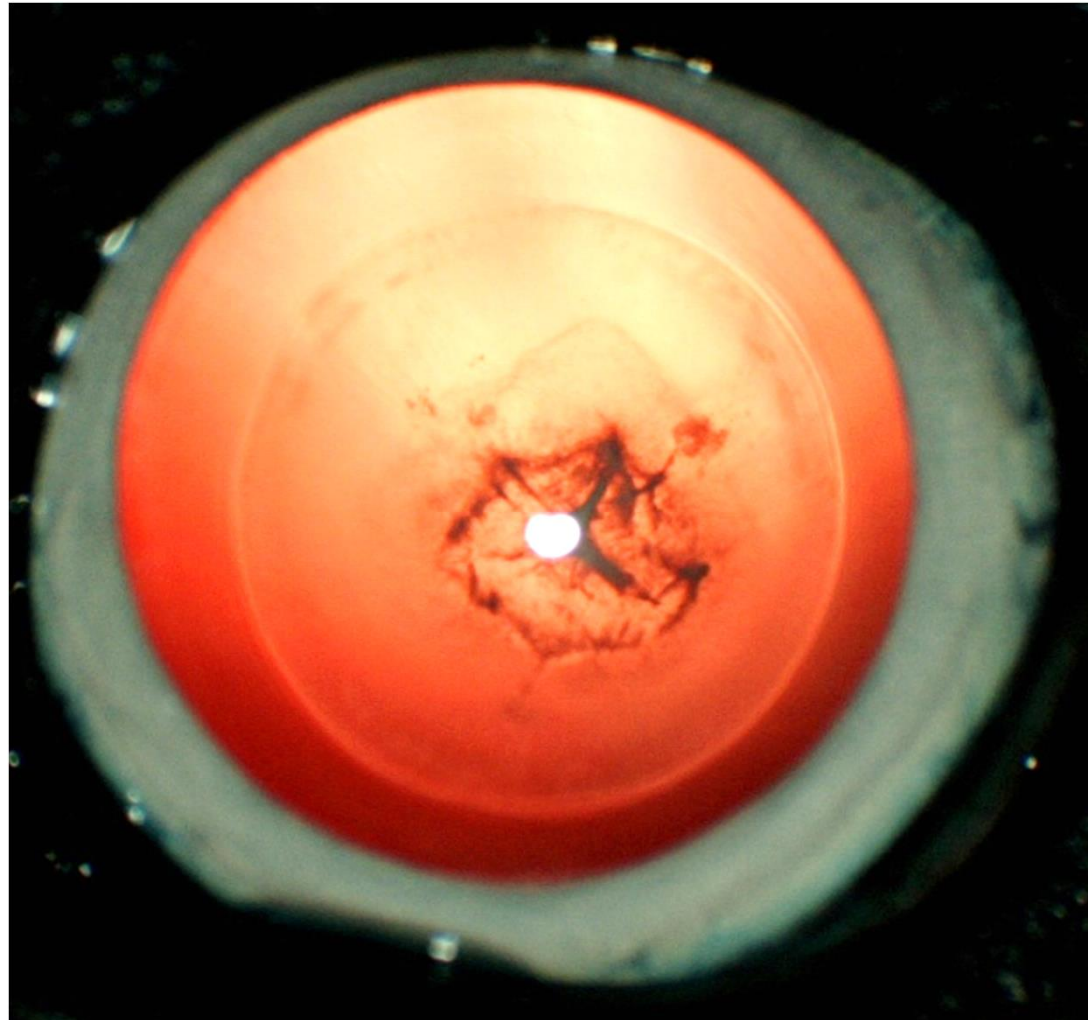
# HED Manual Ch. 5 Definitions - Guidelines

“Normal fundus



Siberian Husky, 11month old, Female,  
bilateral/symmetrical

45



# Siberian Husky, 11month old, Female, bilateral/symmetrical

Descriptive comments:

.....

.....

.....

- 8. ICAA: PLA
  - mild
  - moderate
  - severe
- ICA (width)
  - narrow (moderate)
  - closed (severe)

Eye disease no. ....  mild  severe

Results for the known or presumed hereditary eye diseases (KP-HED):	Results valid for 12 months
---	-----------------------------

	* UNAFFECTED	** UNDETERMINED	* AFFECTED		* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Hypoplastic-/Micro-papilla	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IrdoCorneal Angle Abnormality. (ICAA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Cataract (non-congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Lens luxation (primary)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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.

## HED Manual Ch. 5 Definitions

- “ **Cataract**: any hereditary or non-hereditary, congenital or acquired, non-physiological **opacity of the lens and/or its capsule**.
- “ All **bilateral or unilateral** cataracts and **especially cortical cataracts** are known and **presumed hereditary eye diseases** except in cases known to be associated with trauma, other causes of ocular inflammation, metabolic disease, nutritional deficiencies, persistent pupillary membrane, persistent hyaloid artery or old age.

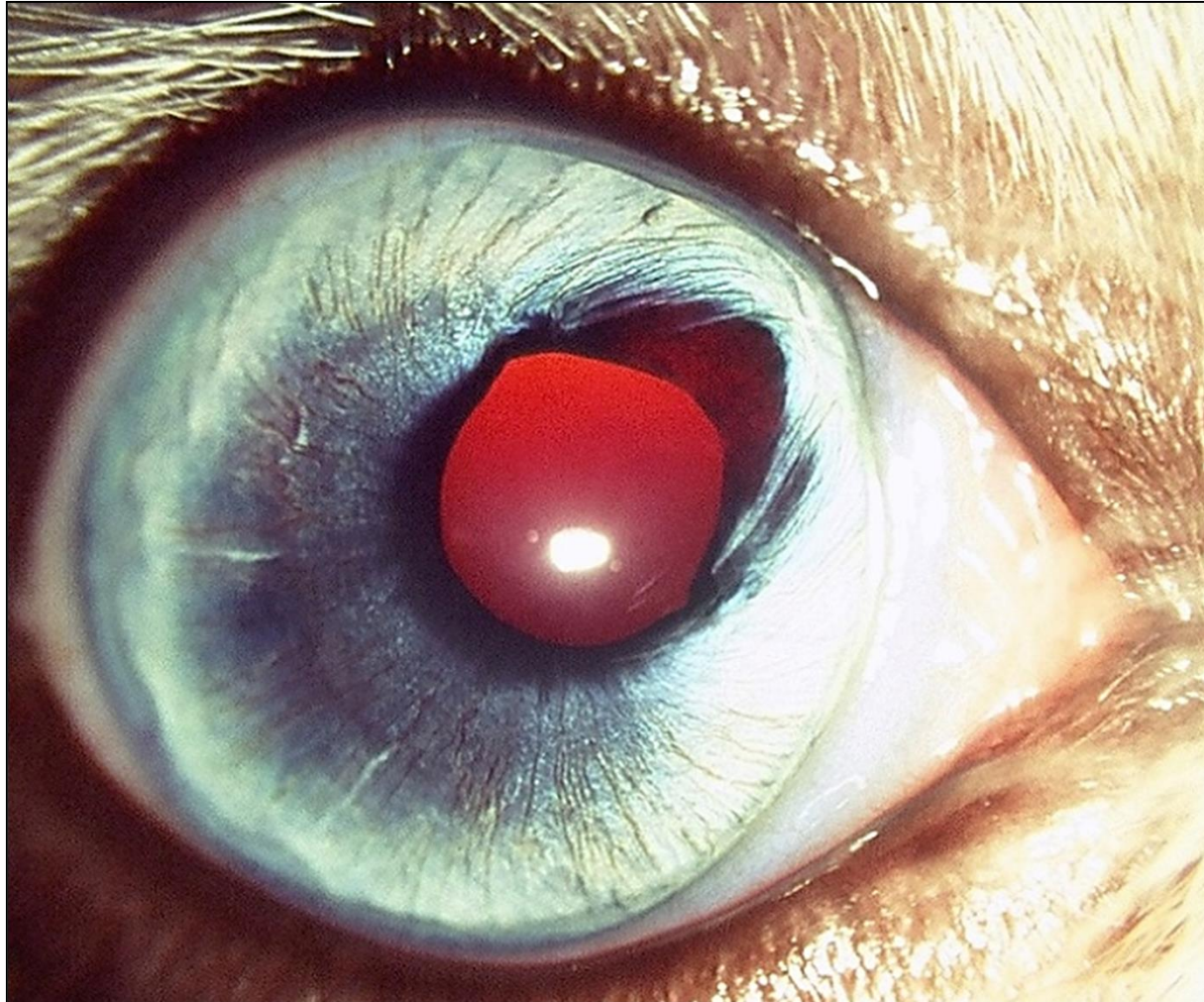
## HED Manual Ch. 6 Guidelines

### **Tick no 15: Cataract: post. polar & cortical**

- “ To describe the type of cataract, if available, the **specifying box for the type of cataract** should be ticked.
- “ It is strongly recommended to **draw the cataract** in the "pre-drawings" on the certificate.



Australian Shepherd, 1yo, Female  
Only right eye affected



# Australian Shepherd, 1yo, Female

## Only right eye affected

Descriptive comments: .....

Eye disease no. ....  mild  severe

8. ICAA: PLA  mild  moderate  severe  
ICA (width)  narrow (moderate)  closed (severe)

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	* UNAFFECTED	** UNDETERMINED	* AFFECTED		* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentic/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: <b>Iris hypoplasia</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<del>8. Iridocorneal Angle Abnormality (ICAA)</del>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe	18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**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.

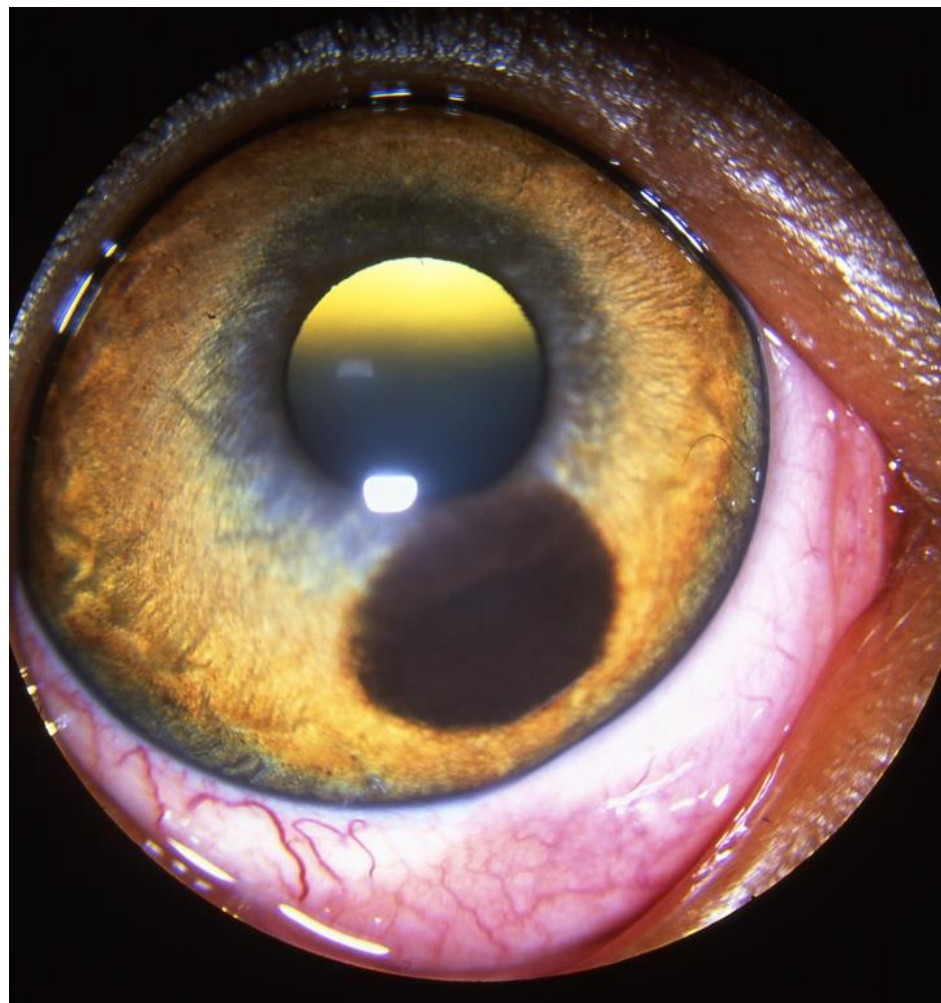
## HED Manual Ch. 5 Definitions

- “ **Hypoplasia: defective development** of an organ or part of it resulting in a **smaller** than normal size or **immature** state
- “ **Hypoplasia iris:** presumed hereditary eye disease characterized by **congenital absence of iris (sphincter) tissue.** It may be a separate disorder or associated with other **ocular malformations.**

# HED Manual Ch. 6 Guidelines

## **Tick no 7: Iris hypoplasia**

Labrador Retriever, 6yo, Female, right eye,  
unilateral finding



# Labrador Retriever, 6yo, Female, right eye, unilateral finding

Descriptive comments: .....

Eye disease no. ....  mild  severe

8. ICAA: PLA  mild  moderate  severe

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

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	<sup>*</sup> UNAFFECTED	<sup>**</sup> UNDETERMINED	<sup>*</sup> AFFECTED		<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input checked="" type="checkbox"/> moderate <input type="checkbox"/> severe	18. Other: Iris melanoma	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

## HED Manual Ch. 5 Definitions

**Melanoma iris:** presumed hereditary eye disease,

” a locally invasive cancer of melanocyte (pigment) cell **origin** within the iris.

” Occurs with a higher than normal incidence in the **Labrador** retriever.

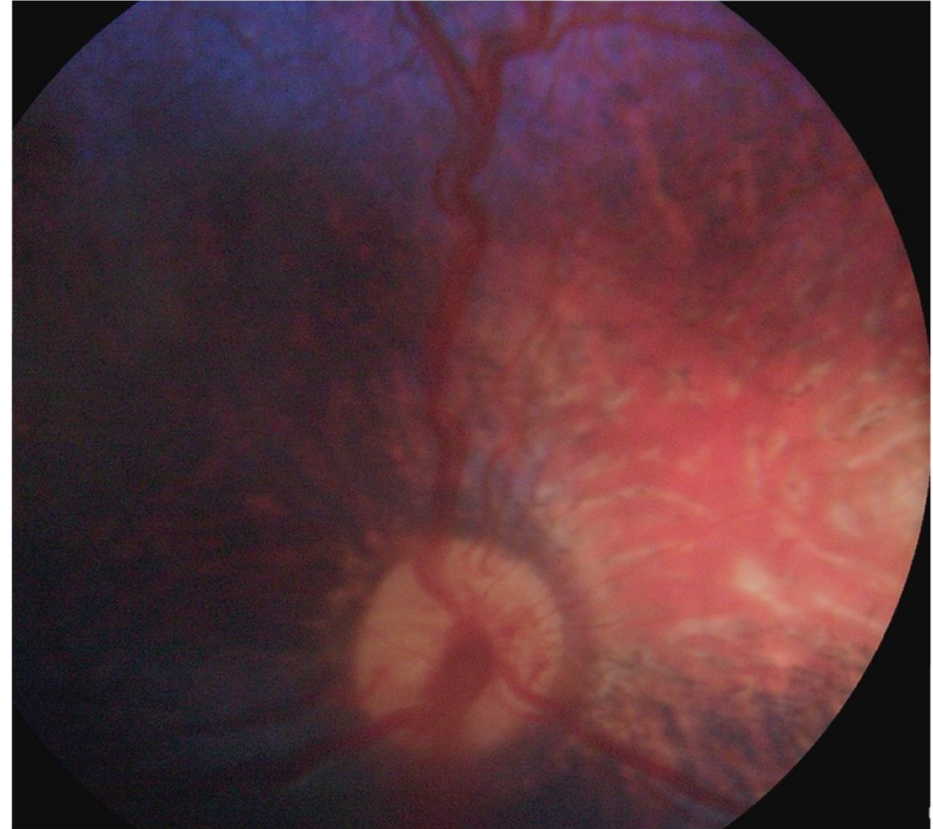
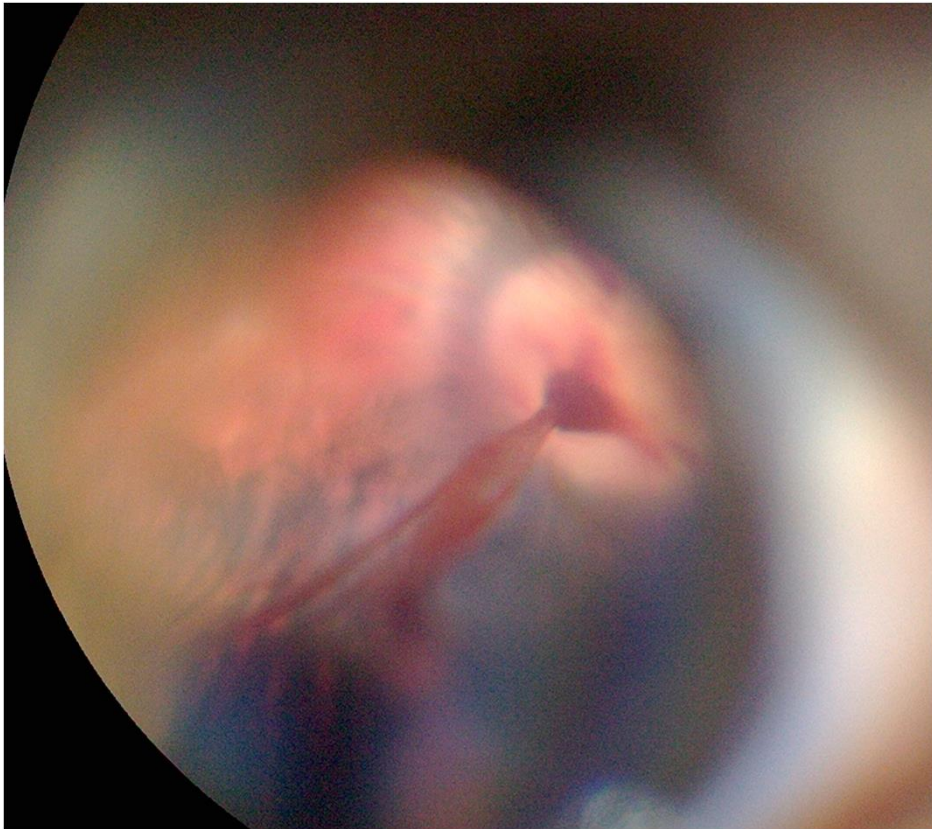
” Left untreated it may result in **secondary glaucoma**.

## HED Manual Ch. 6 Guidelines

**Tick no 18. Other: Iris melanoma**



# Shetland sheepdog, 3mo, Male, right&left eye



# Shetland sheepdog, 3mo, Male. right & left eye

Descriptive comments:

.....  
 .....  
 .....

Eye disease no. **7**  mild  severe

8. ICAA: PLA  mild  
 moderate  
 severe
- ICA (width)  narrow (moderate)  
 closed (severe)

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

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

## Results valid for 12 months

	<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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.

## HED Manual Ch. 5 Definitions

**Persistent hyaloid artery (PHA):** congenital defect resulting from abnormalities in the development and regression of the hyaloid artery.

The blood vessel remnant can be present in the vitreous as a small **patent vascular strand (PHA)** or as a **non-vascular strand** that appears grey-white (persistent hyaloid remnant)

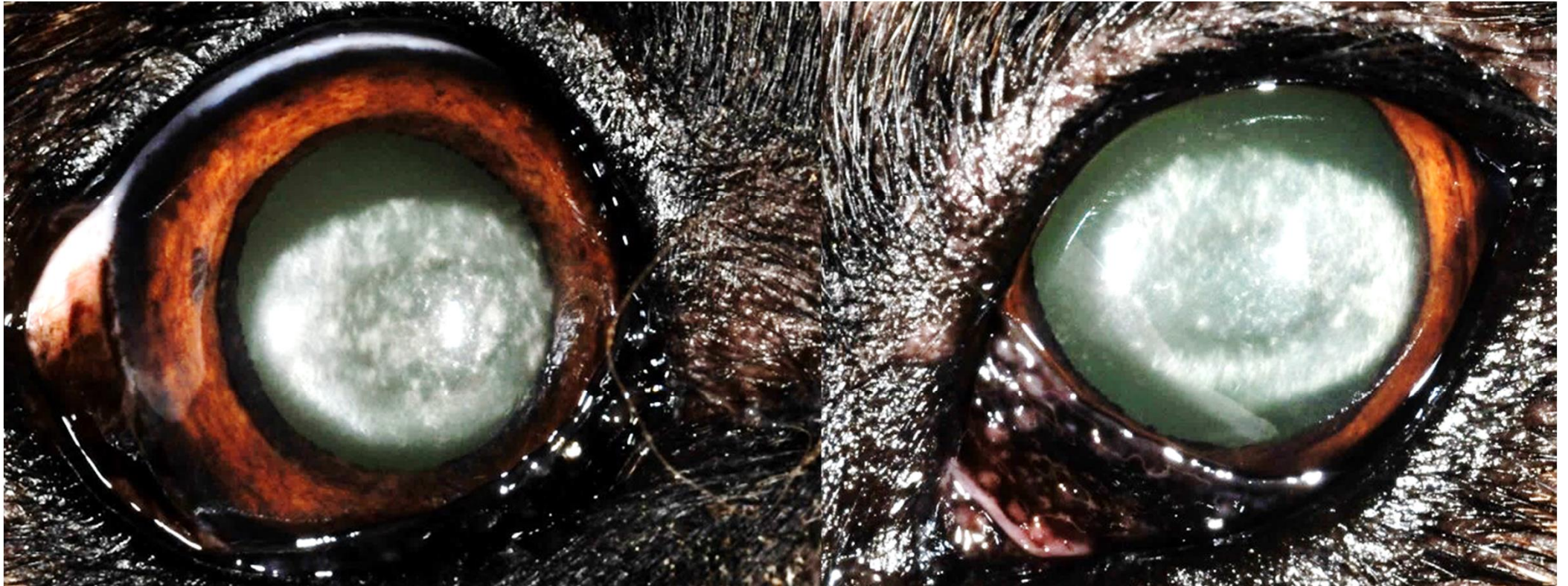
## HED Manual Ch. 6 Guidelines

### **Tick no 7: Other, Hyaloid artery, persistent: affected, severe**

- “ known and presumed hereditary eye anomalies (congenital/developmental, non-progressive) are mentioned here. The terminology for the diseases is given in chapter 5. Definitions of this manual are to be used: **Hyaloid artery, persistent**
- “ Only if there is a Mittendorf’s dot with signs of capsular cataract and/or a Bergmeister papilla with a patent vascular or non-vascular fibrous strand in between them, at number “7”: Other: Persistent hyaloid artery is written and the box “affected” **plus the box: “severe” in the comment area are ticked**

German Shepherd, 5yo, Male, bilateral

61



# German Shepherd, 5yo, Male, bilateral

Descriptive comments:

.....

.....

.....

8. ICAA: PLA  mild  
 moderate  
 severe
- ICA (width)  narrow (moderate)  
 closed (severe)

Eye disease no. **14**  mild  severe

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

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

### Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant. sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: <b>CSK/Pannus</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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.

## HED Manual Ch. 5 Definitions

- ” **Corneal dystrophy:** presumed hereditary eye disease; non-inflammatory corneal opacity in one or more of the corneal layers (epithelium, stroma, endothelium), usually bilateral not always symmetrical. The onset in one eye may precede the other
- ” **Chronic superficial keratitis(CSK)/Pannus:** Presumed hereditary eye disease; bilateral inflammatory disease of the cornea **starting** as a greyish haze at the **inferior or inferiotemporal cornea**, followed by a vascularized subepithelial opacity spreading towards the central cornea; **pigmentation** follows the **vascularization**. Vision impairment occurs, if severe.
- ” The disease can be seen with **concurrent plasmoma** and/or **medial canthus erosion**.

# HED Manual Ch. 5 Guidelines

## Tick no 14: Corneal dystrophy, severe

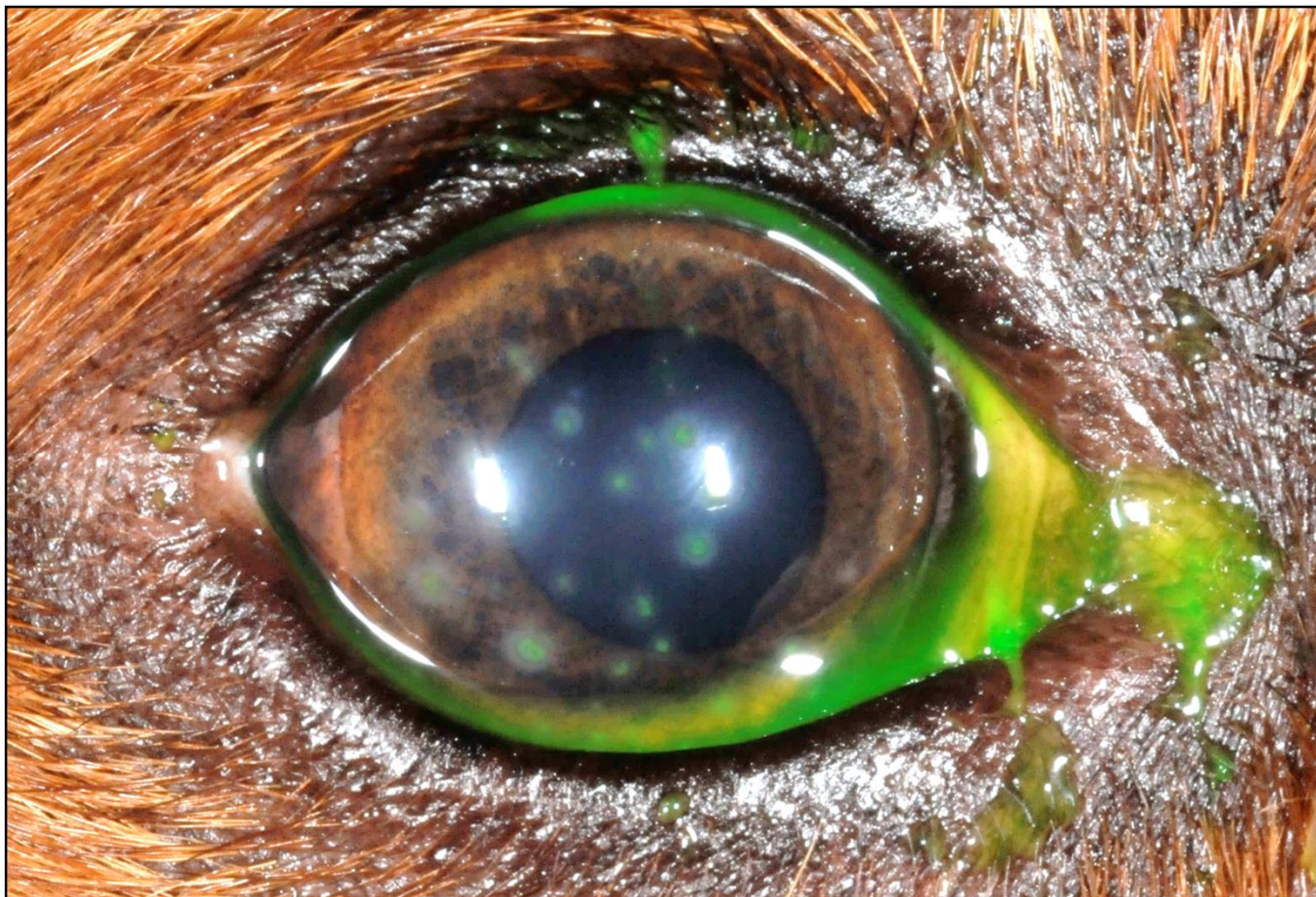
**tick: “severe’ in the comment area:** Only if **visual impairment**, or endothelial or macular dystrophy are recognized

## “ Tick no 18. Other: **Chronic superficial keratitis (CSK)/Pannus:**

The available name of the disease in the list of ‘Definitions’ of this Manual (see chapter 5) is used: **Chronic superficial keratitis (CSK)/Pannus**



Dachshund longhaired red , 5yo, Female,  
bilateral findings



# Dachshund, longhaired red 5yo, Female, bilateral findings

Descriptive comments:

.....

.....

.....

8. ICAA: PLA  mild  
 moderate  
 severe
- ICA (width)  narrow (moderate)  
 closed (severe)

Eye disease no. ....  mild  severe

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

**Results valid for 12 months**

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

	<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: Keratitis, Punctate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

## HED Manual Ch. 5 Definitions

“ **Keratitis, punctate**: presumed hereditary eye disease; inflammation of the cornea accompanied by multiple small areas of corneal ulceration

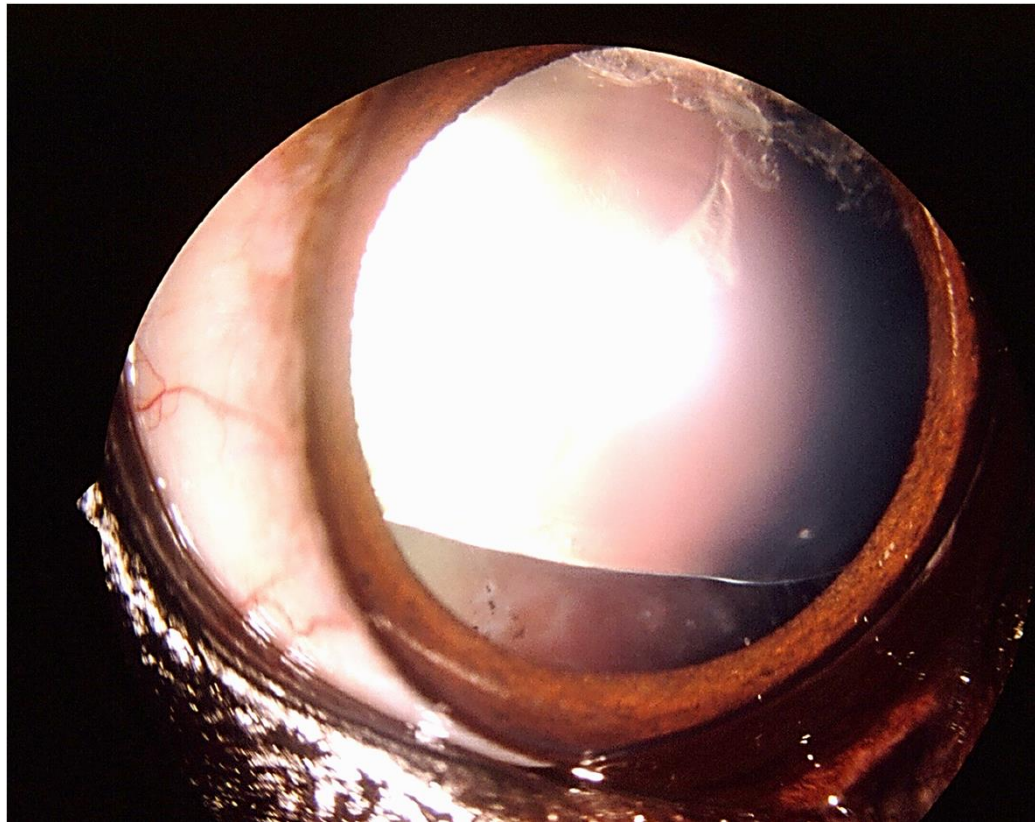
## HED Manual Ch. 6 Guidelines

### **Tick no 18. Other: and Keratitis, Punctate**

The available name of the disease can be found in the list of 'Definitions' of this Manual (see chapter 5) and is used:

**Keratitis, Punctate**

Labrador Retriever, 1yo, Female, right eye  
unilateral finding



# Labrador Retriever, 1yo, Female, right eye unilateral finding

Descriptive comments:

.....  
 .....  
 .....

8. ICAA: PLA  mild  
 moderate  
 severe

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

Eye disease no. ....  mild  severe

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

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

### Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input checked="" type="checkbox"/> post. pol. <input type="checkbox"/> ant. sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## HED Manual Ch. 5 Definitions

“ **Hypoplasia lens:** presumed hereditary eye disease characterized by congenital incomplete formation of the lens equator, sometimes called lens coloboma. **See and use lens hypoplasia**”

## HED Manual Ch. 6 Guidelines

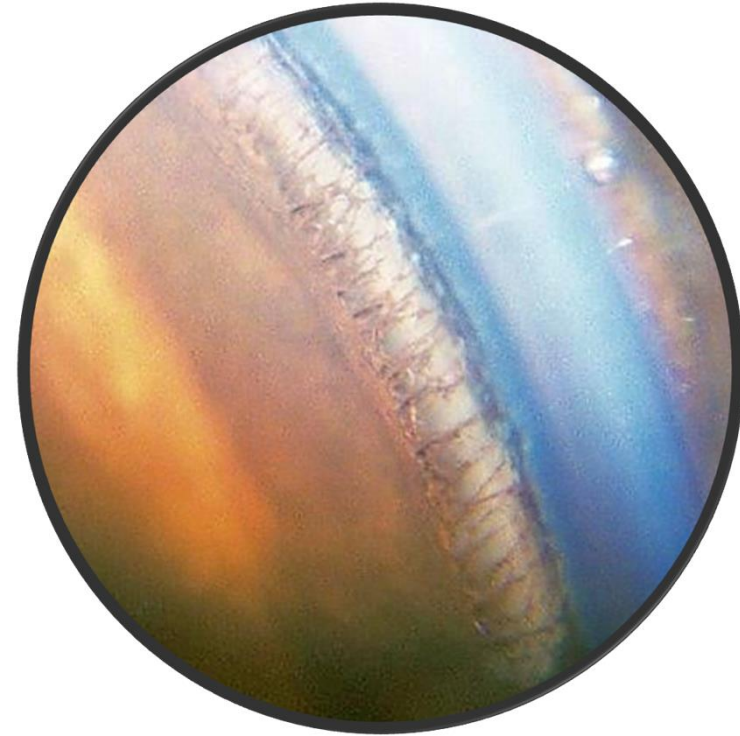
**Tick no 7: Other: lens hypoplasia & no 15: cataract, cortical**

The terminology for the diseases is given in chapter 5.  
Definitions of this manual and are to be used: **lens hypoplasia and cataract**



# HED session: Gonioscopy

Antwerp 2019



## Grading of ICAA

### PLA

- " 0 – 50% Fib.latae = **unaffected**
- " >50-100% Fib.latae **and/or** < 25% Laminae = **affected (mild)**
- " 25-50% Laminae = **affected (moderate)**
- " > 50% Laminae = **affected (severe)**

### ICA width



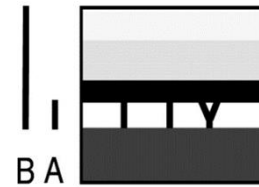
Ratio A/B:

**PL not visible**

Terminology:

**closed**

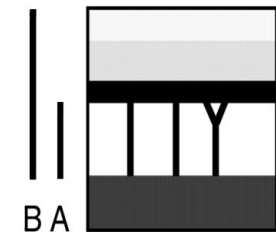
**affected (severe)**



**A < 1/3 of B**

**narrow**

**affected (moderate)**

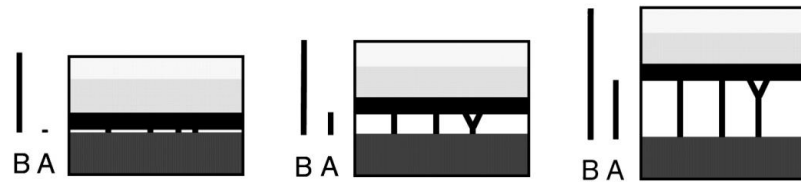


**A ≥ 1/3 of B**

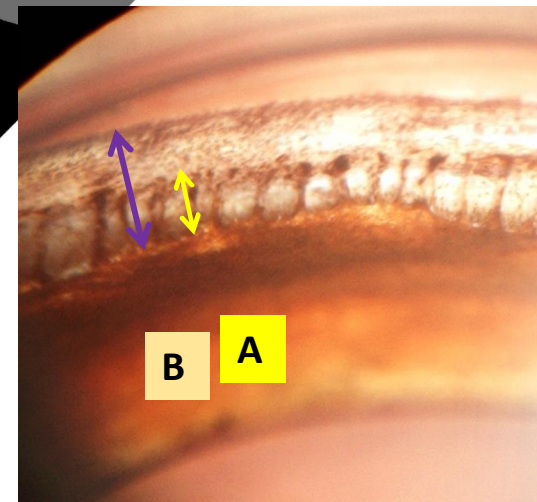
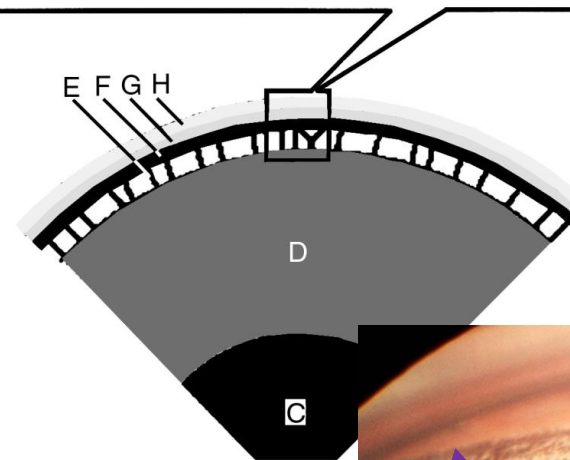
**open**

**normal**

- “ **Fibrae latae (FL)** = fibres with confluent (broad) base and shortened thin insertions at the cornea or thick fibres (< 5 fibres)
  
- “ **Laminae (LA)** = plates or sheets of continuous tissue (> 5 fibres), with or without flow holes



Terminology:	<b>closed</b>	<b>narrow</b>	<b>open</b>
Ratio A/B:	<b>PL not visible</b>	<b><math>A &lt; 1/3</math> of B</b>	<b><math>A \geq 1/3</math> of B</b>



**Comparison between 2 distances:**

**A = length of PL**

**B = distance from the origin of the PL to the anterior surface of the cornea at the transection area**

C = Pupil

D = Iris

E = PL

F = inner/deep pigment band

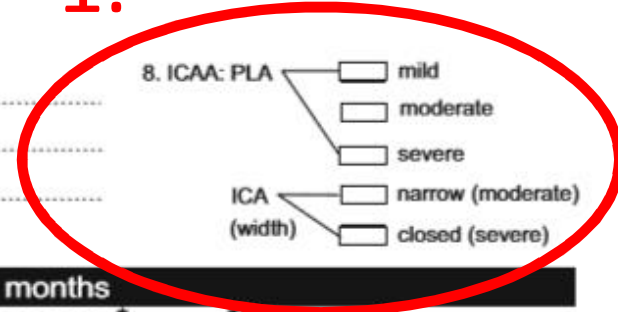
G = outer/superficial pigment band

H = corneal transection

# ECVO Certificate

Descriptive comments: .....

1.



Eye disease no. ....  mild  severe

Results for the known or presumed hereditary eye diseases (KP-HED):				Results valid for 12 months			
	UNAFFECTED *	UNDETERMINED **	AFFECTED *	UNAFFECTED *	SUSPICIOUS ***	AFFECTED *	
1. Persistent Pupillary Membrane (PPM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant. sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. IrdoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> mild <input type="checkbox"/> moderate <input type="checkbox"/> severe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2.

## 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.

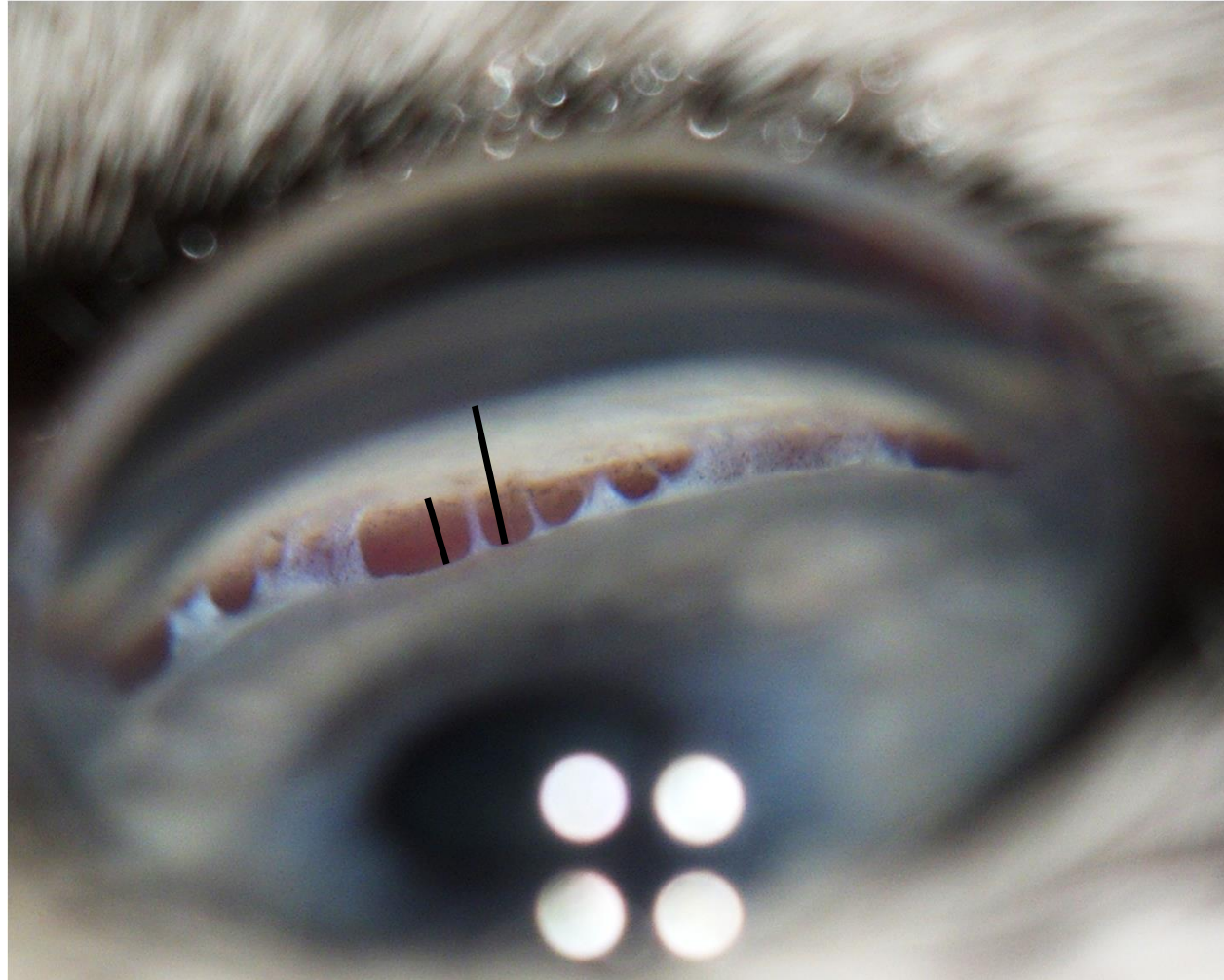
\*\* The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.

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

Each picture represents one quarter of the iridocorneal angle.

The rest of the iridocorneal angle is similar to the picture shown.

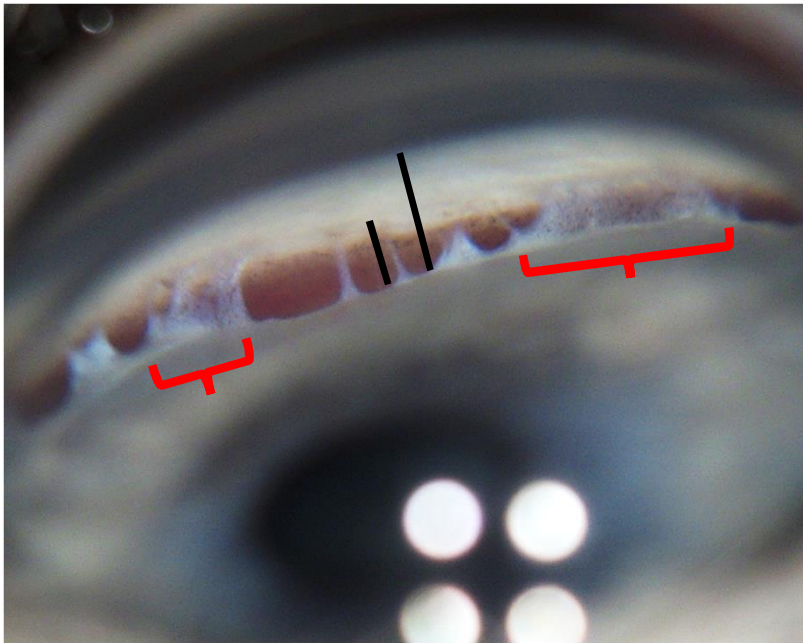
# Case 1: Siberian Husky, 2yo, Male. Gonioscopy



# Siberian Husky, 2yo, Male. Gonioscopy

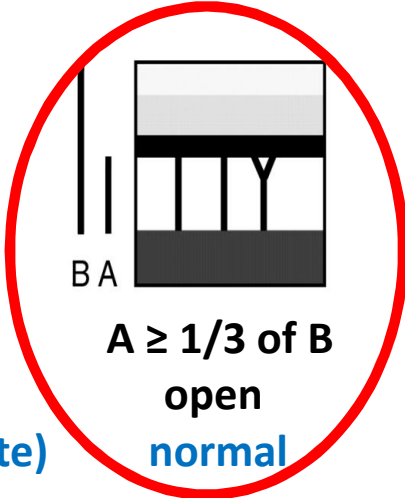
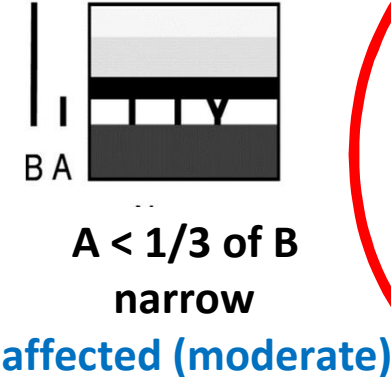
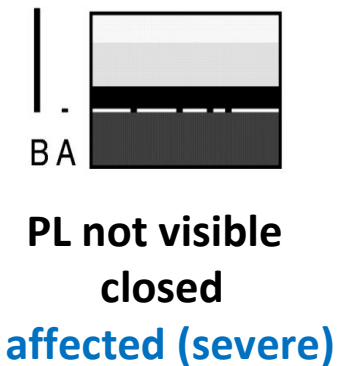
## PLA

- 0 – 50% FL = **unaffected**
- >50-100% FL and/or < 25% LA = **affected (mild)**
- 25-50% LA = **affected (moderate)**
- > 50% LA = **affected (severe)**



## ICA width

Ratio A/B:  
Terminology:





# Siberian Husky, 2yo, Male. Gonioscopy

Descriptive comments:

.....  
 .....  
 .....

Eye disease no. ....  mild  severe

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)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6
3. Cataract (congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total
5. Hypoplastic-/Micro-papilla	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:
7. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> mild <input checked="" type="checkbox"/> moderate <input type="checkbox"/> severe

## Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant. sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Interpretation

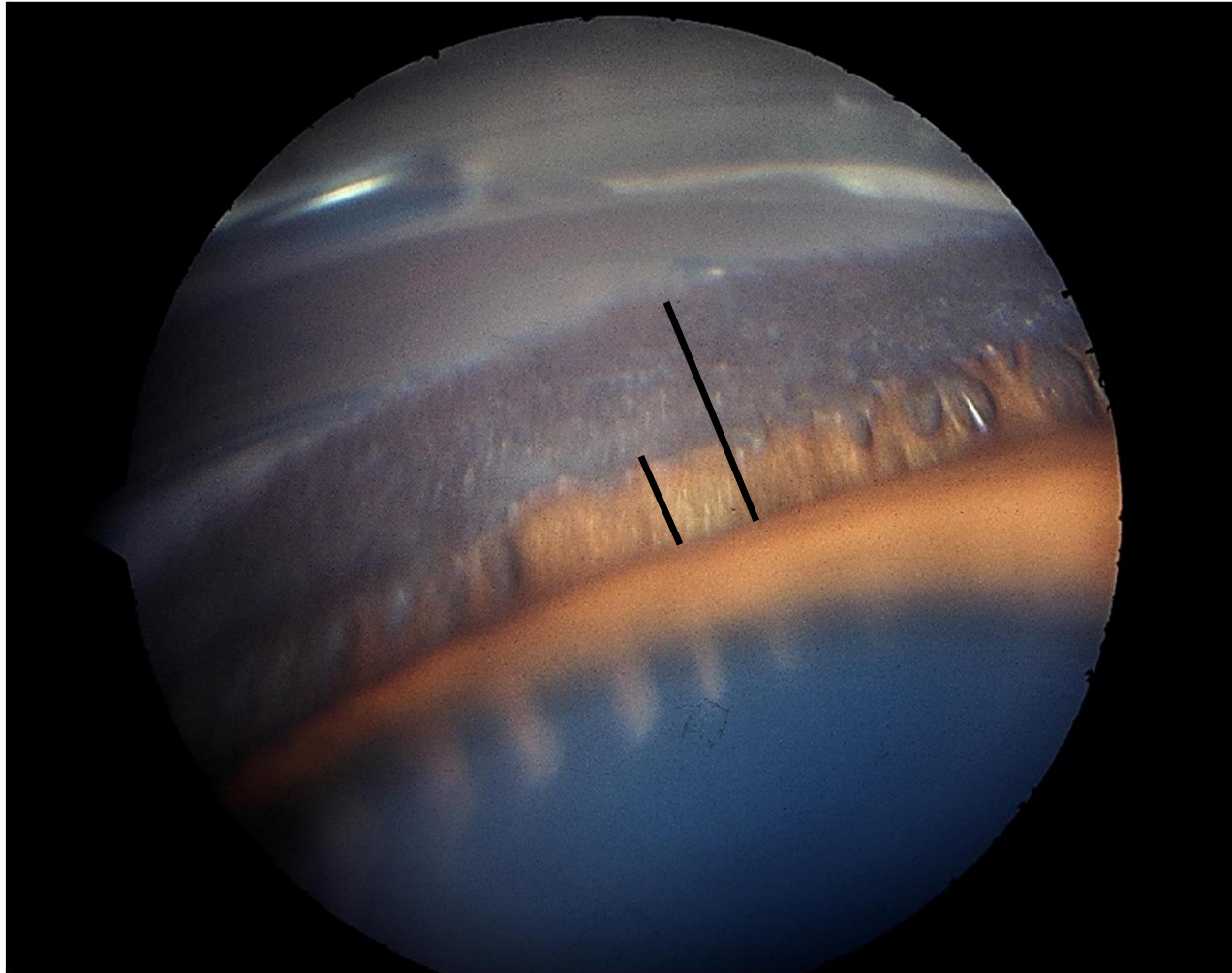
- \* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
- \*\* The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are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

# Case 1.

Vet advice: breeding is optional

- “ Mild-moderate forms: OPTIONAL (according to present scientific information available: if these dogs are used, it is recommended to breed these dogs to unaffected graded dogs).
- “ *Iridocorneal angle formation may progressively change with age from normal/unaffected to abnormal/affected (mild/moderate/severe) regarding PLA and ICA-width. Therefore, gonioscopy should be started before breeding and repeated every 3 years*

## Case 2: Golden Retriever, 2yo, Female. Gonioscopy



# Golden Retriever, 2yo, Female. Gonioscopy

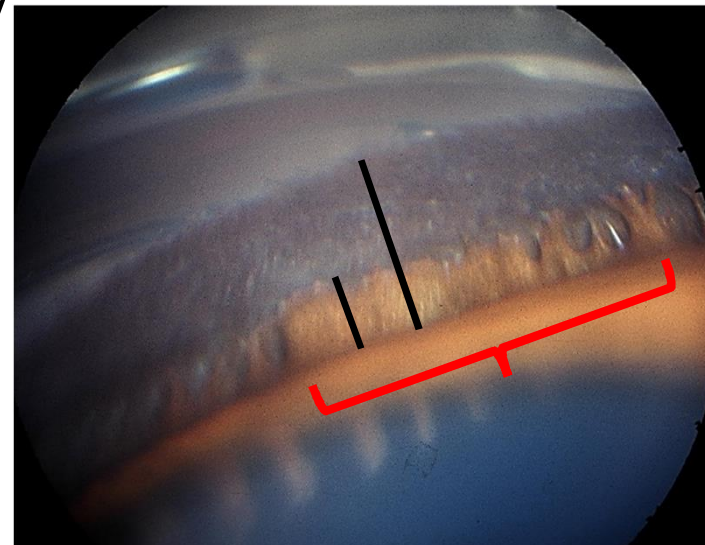
## PLA

" 0 – 50% FL = **unaffected**

" >50-100% FL **and/or** < 25% LA = **affected (mild)**

" 25-50% LA = **affected (moderate)**

" > 50% LA = **affected (severe)**

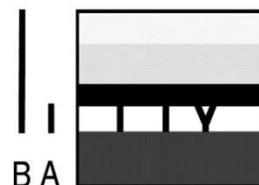


## ICA width

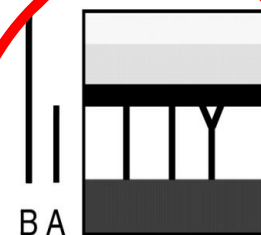


Ratio A/B:  
Terminology:

**PL not visible**  
**closed**  
**affected (severe)**



**A < 1/3 of B**  
**narrow**  
**affected (moderate)**



**A ≥ 1/3 of B**  
**open**  
**normal**

# Golden Retriever, 2yo, Female. Gonioscopy

Descriptive comments:

.....

.....

.....

8. ICAA: PLA  mild  
 moderate  
 severe

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

Eye disease no. ....  mild  severe

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

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

## Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

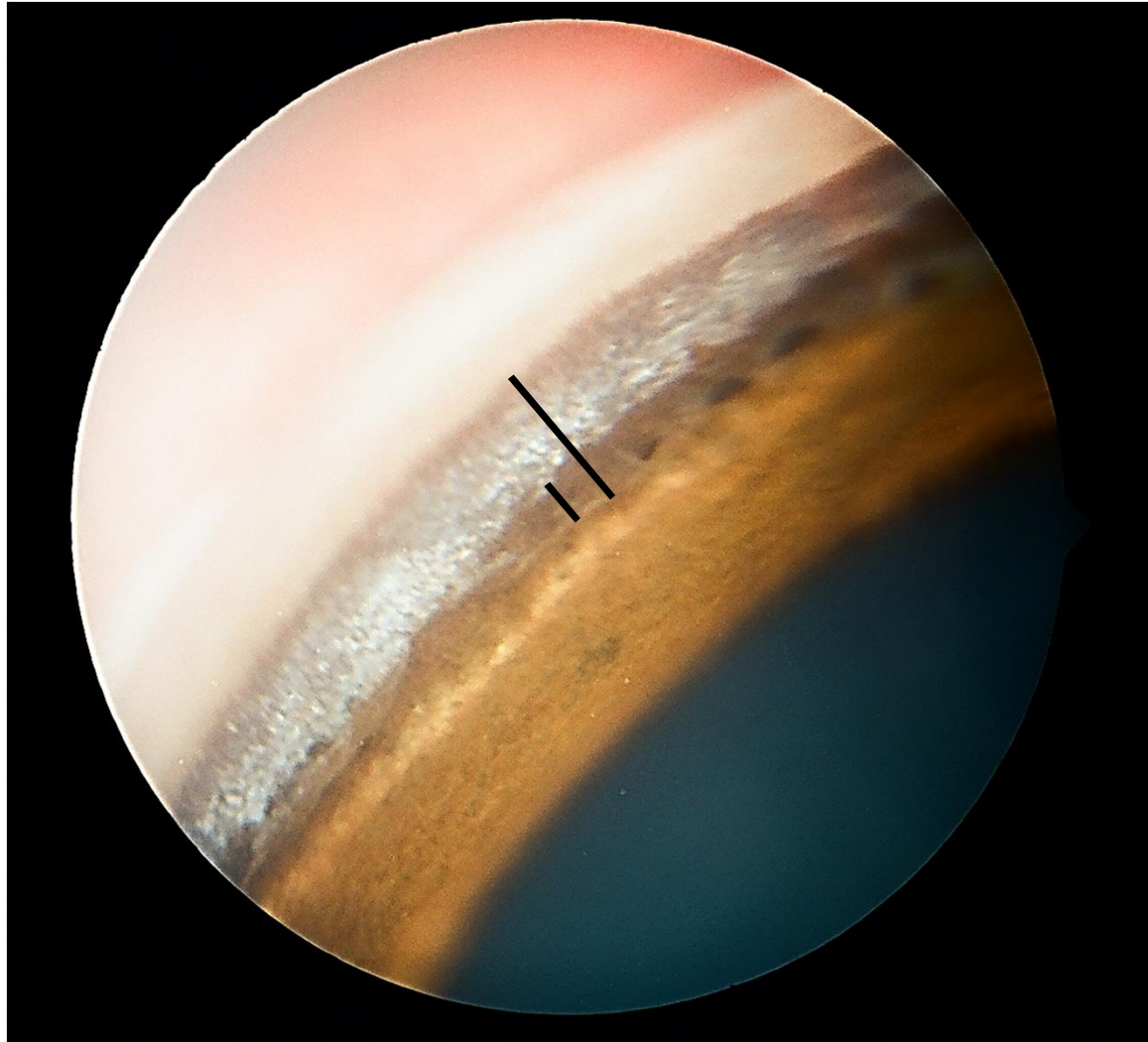
## Interpretation

- \* "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.

## Case 2.

“ Vet advice: no breeding from the affected animal

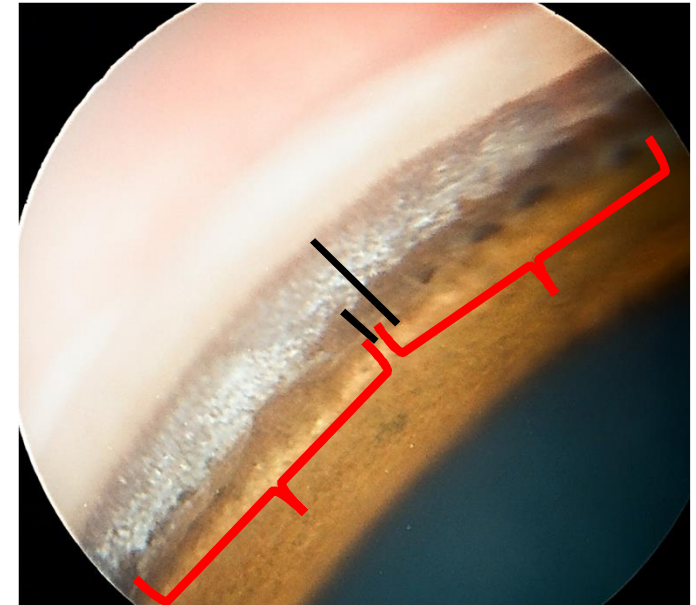
# Case 3: Leonberger, 1yo, Male. Gonioscopy



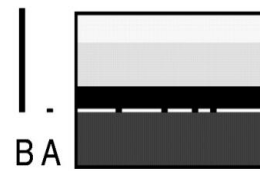
# Leonberger, 1yo, Male. Gonioscopy

## PLA

- " 0 – 50% FL = **unaffected**
- " >50-100% FL **and/or** < 25% LA = **affected (mild)**
- " 25-50% LA = **affected (moderate)**
- " > 50% LA = **affected (severe)**

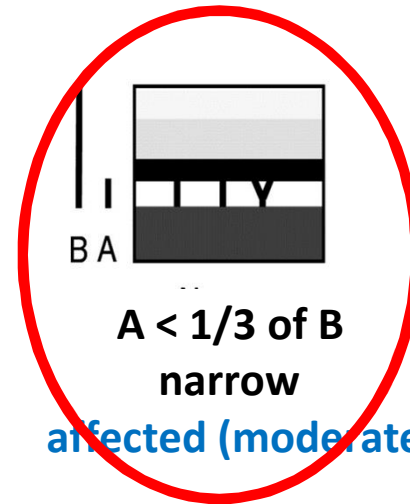


## ICA width

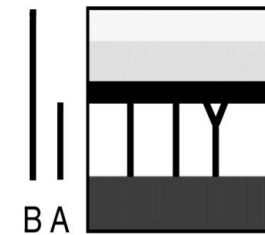


Ratio A/B:  
Terminology:

PL not visible  
closed  
**affected (severe)**



**A < 1/3 of B**  
narrow  
**affected (moderate)**



**A ≥ 1/3 of B**  
open  
**normal**



# Leonberger, 1yo, Male. Gonioscopy

Descriptive comments:

.....

.....

.....

Eye disease no. ....  mild  severe

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)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> mild <input checked="" type="checkbox"/> moderate <input checked="" type="checkbox"/> severe

## Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

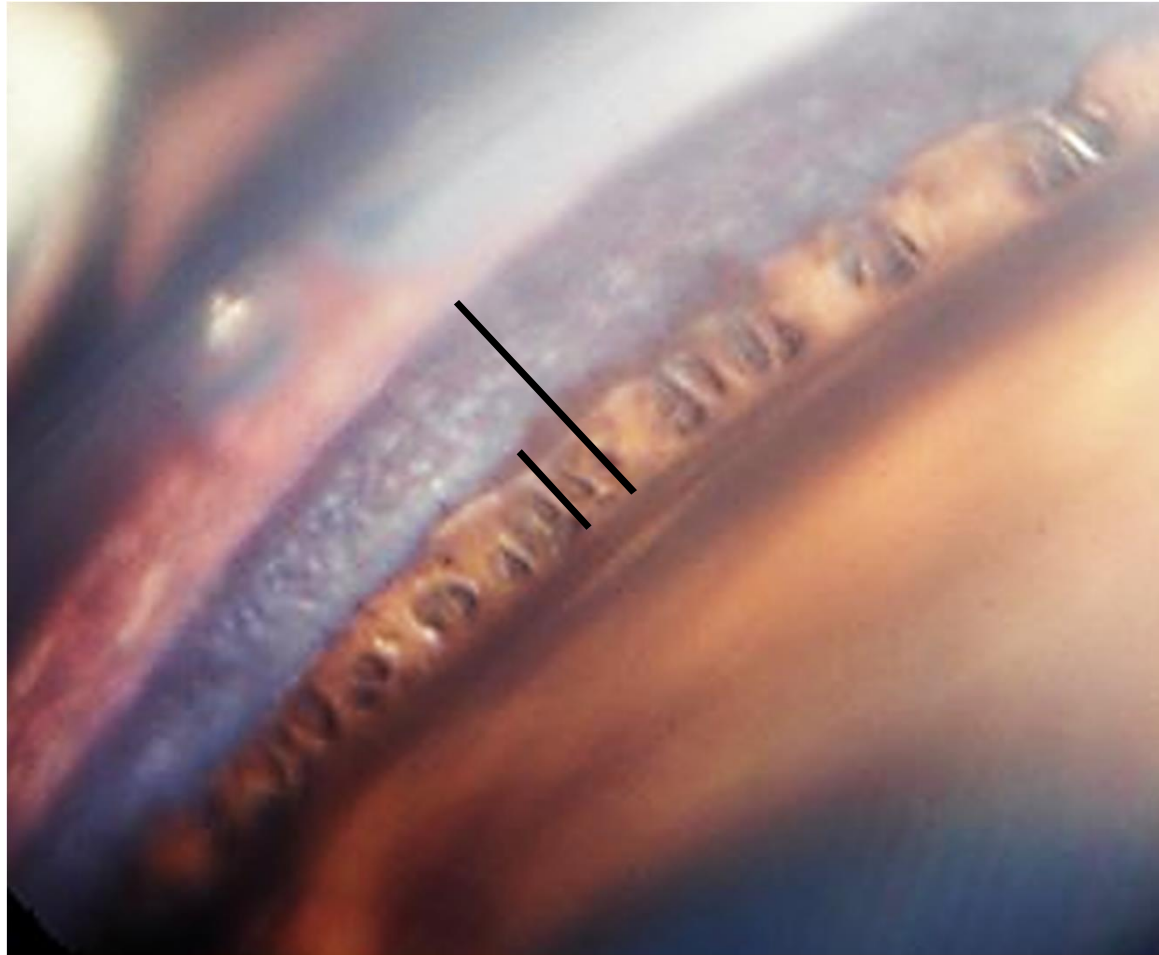
## Interpretation

- \* "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.

## Case 3.

“ Vet advice: no breeding from the affected animal

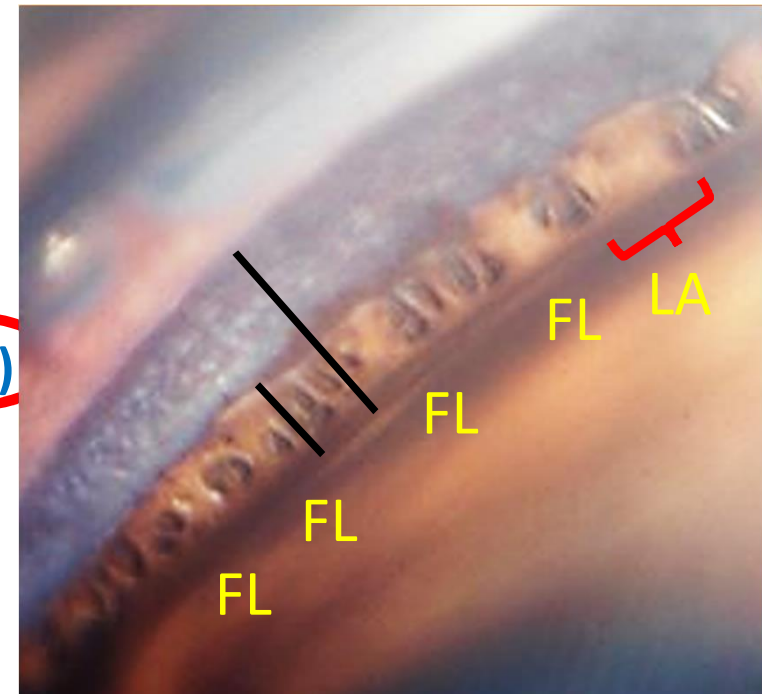
# Case 4: Leonberger, 2yo, Female. Gonioscopy



# Leonberger, 2yo, Female. Gonioscopy

## PLA

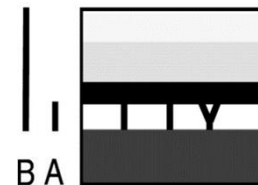
- " 0 – 50% FL = **unaffected**
- " **>50-100% FL and/or < 25% LA = affected (mild)**
- " 25-50% LA = **affected (moderate)**
- " > 50% LA = **affected (severe)**



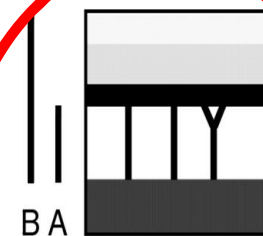
## ICA width



Ratio A/B:  
Terminology:  
**PL not visible**  
**closed**  
**affected (severe)**



Ratio A/B:  
Terminology:  
**A < 1/3 of B**  
**narrow**  
**affected (moderate)**



Ratio A/B:  
Terminology:  
**A ≥ 1/3 of B**  
**open**  
**normal**

# Leonberger, 2yo, Female. Gonioscopy

Descriptive comments:

.....

.....

.....

Eye disease no. ....  mild  severe

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)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> iris <input type="checkbox"/> cornea <input type="checkbox"/> lens <input type="checkbox"/> lamina
2. Persistent Hyperpl. Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> grade 1 <input type="checkbox"/> grade 2-6
3. Cataract (congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Retinal Dysplasia (RD)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (multi)focal <input type="checkbox"/> geographical <input type="checkbox"/> total
5. Hypoplastic-/Micro-papilla	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Collie Eye Anomaly (CEA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> choroid. hypoplasia <input type="checkbox"/> coloboma <input type="checkbox"/> other:
7. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. IridoCorneal Angle Abnormality. (ICAA)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> mild <input checked="" type="checkbox"/> moderate <input type="checkbox"/> severe

## Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Interpretation

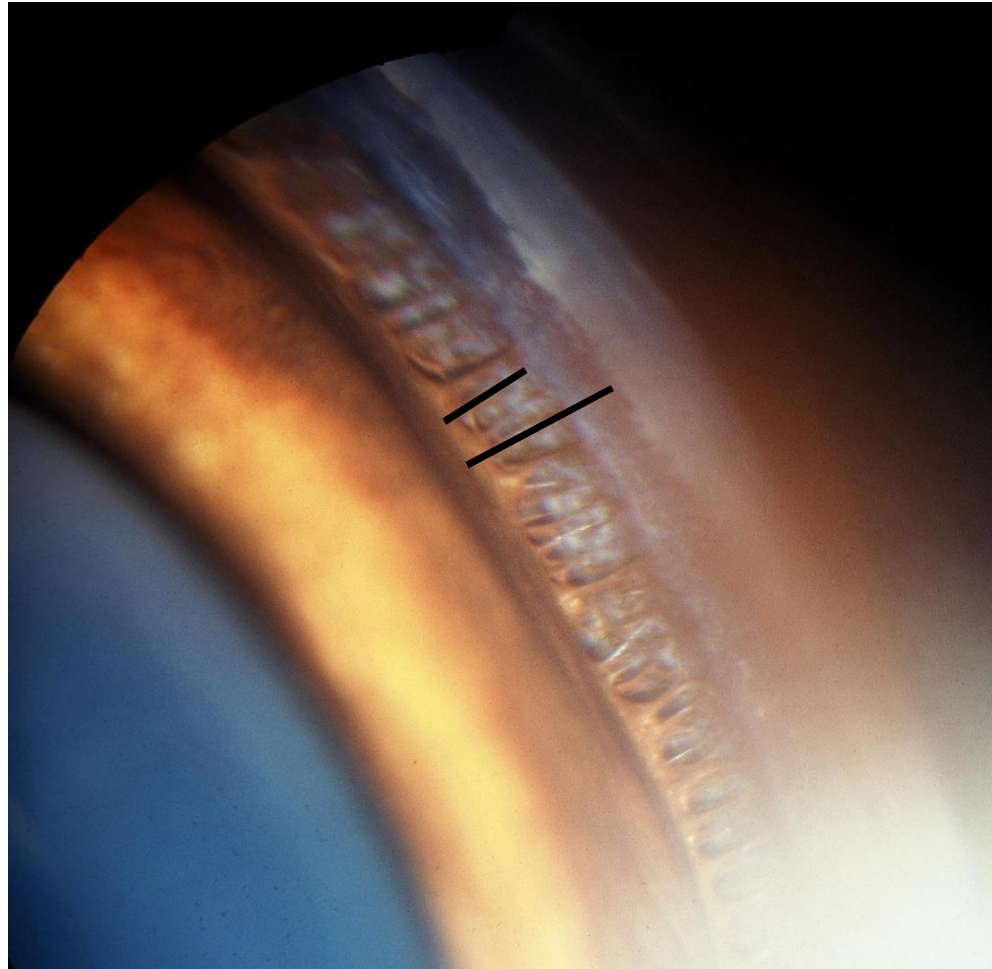
- \* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
- \*\* The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are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

## Case 4.

Vet advice: optional

- “ Mild-moderate forms: OPTIONAL (according to present scientific information available: if these dogs are used, it is recommended to breed these dogs to unaffected graded dogs).
- “ *Iridocorneal angle formation may progressively change with age from normal/unaffected to abnormal/affected (mild/moderate/severe) regarding PLA and ICA-width. Therefore, gonioscopy should be started before breeding and repeated every 3 years*

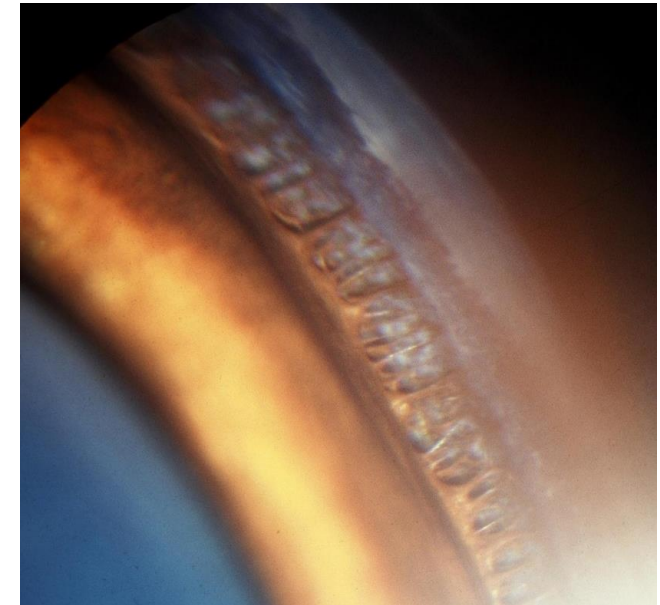
# Case 5: Labrador Retriever, 1yo, Male. Gonioscopy



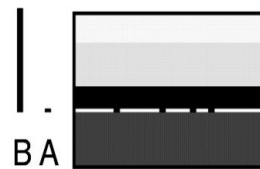
# Labrador Retriever, 1yo, Male. Gonioscopy

## PLA

- " 0 – 50% FL = **unaffected**
- " >50-100% FL **and/or** < 25% LA = **affected (mild)**
- " 25-50% LA = **affected (moderate)**
- " > 50% LA = **affected (severe)**

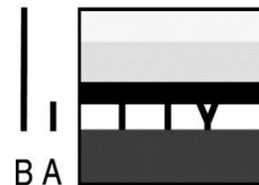


## ICA width

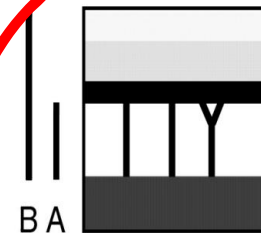


Ratio A/B:  
Terminology:

**PL not visible**  
**closed**  
**affected (severe)**



**A < 1/3 of B**  
**narrow**  
**affected (moderate)**



**A ≥ 1/3 of B**  
**open**  
**normal**



# Labrador Retriever, 1yo, Male. Gonioscopy

Descriptive comments:

.....

.....

.....

8. ICAA: PLA  mild  
 moderate  
 severe
- ICA (width)  narrow (moderate)  
 closed (severe)

Eye disease no. ....  mild  severe

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

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

## Results valid for 12 months

	<sup>*</sup> UNAFFECTED	<sup>***</sup> SUSPICIOUS	<sup>*</sup> AFFECTED
11. Entropion/Trichiasis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Interpretation

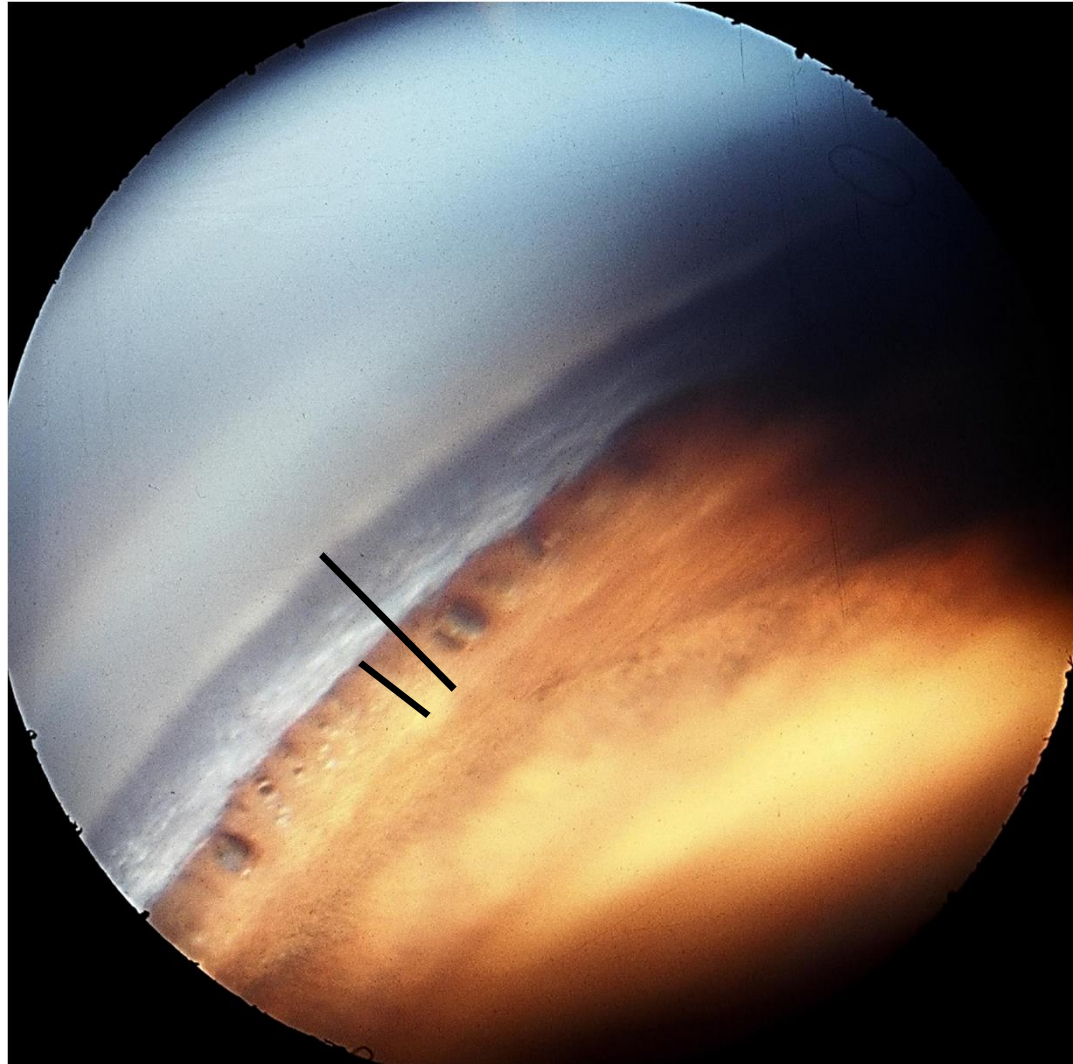
- \* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
- \*\* The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are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

## Case 5.

Tick: unaffected

*“ Iridocorneal angle formation may progressively change with age from normal/unaffected to abnormal/affected (mild/moderate/severe) regarding PLA and ICA-width. Therefore, gonioscopy should be started before breeding and repeated every 3 years*

# Case 6: Leonberger, 2yo, Male. Gonioscopy



# Leonberger, 2yo, Male. Gonioscopy

## PLA

" 0 – 50% FL = **unaffected**

" >50-100% FL **and/or** < 25% LA = **affected (mild)**

" 25-50% LA = **affected (moderate)**

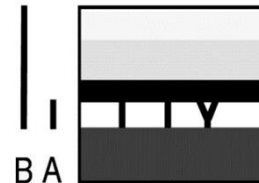
**> 50% LA = affected (severe)**

## ICA width

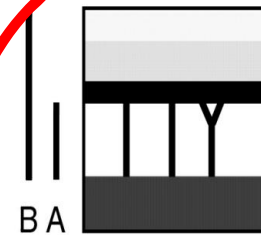


Ratio A/B:  
Terminology:

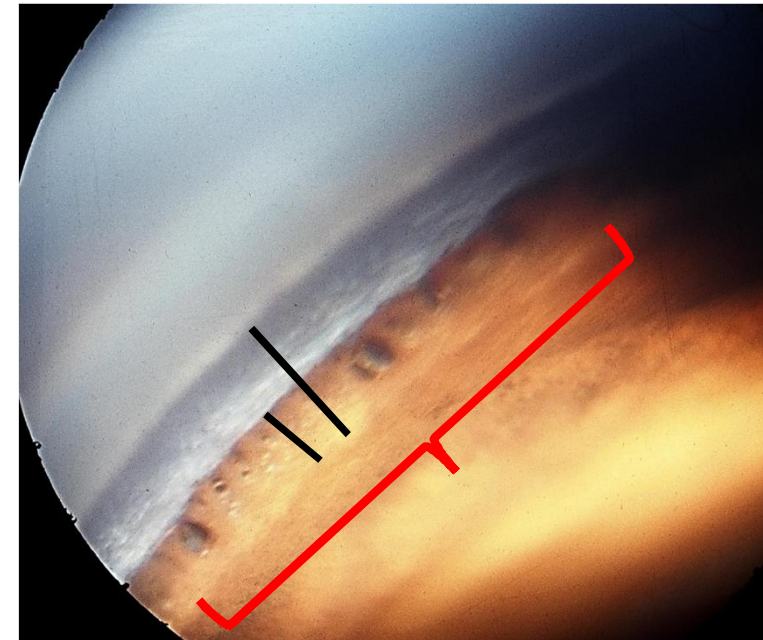
**PL not visible**  
**closed**  
**affected (severe)**



**A < 1/3 of B**  
**narrow**  
**affected (moderate)**



**A ≥ 1/3 of B**  
**open**  
**normal**



# Leonberger, 2yo, Male. Gonioscopy

Descriptive comments:

.....  
 .....  
 .....

8. ICAA: PLA  mild  
 moderate  
 severe

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

Eye disease no. ....  mild  severe

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

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

## Results valid for 12 months

	* UNAFFECTED	*** SUSPICIOUS	* AFFECTED
11. Entropion/Trichiasis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Ectropion/Macroblepharon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Distichiasis /Ectopic cilia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Corneal dystrophy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> cortical <input type="checkbox"/> post. pol. <input type="checkbox"/> ant sut. l. <input type="checkbox"/> punctata <input type="checkbox"/> nucleus <input type="checkbox"/> other
15. Cataract (non-congenital)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Lens luxation (primary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Retinal degeneration (PRA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Other: .....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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.

## Case 6.

“ Vet advice: no breeding from the affected animal