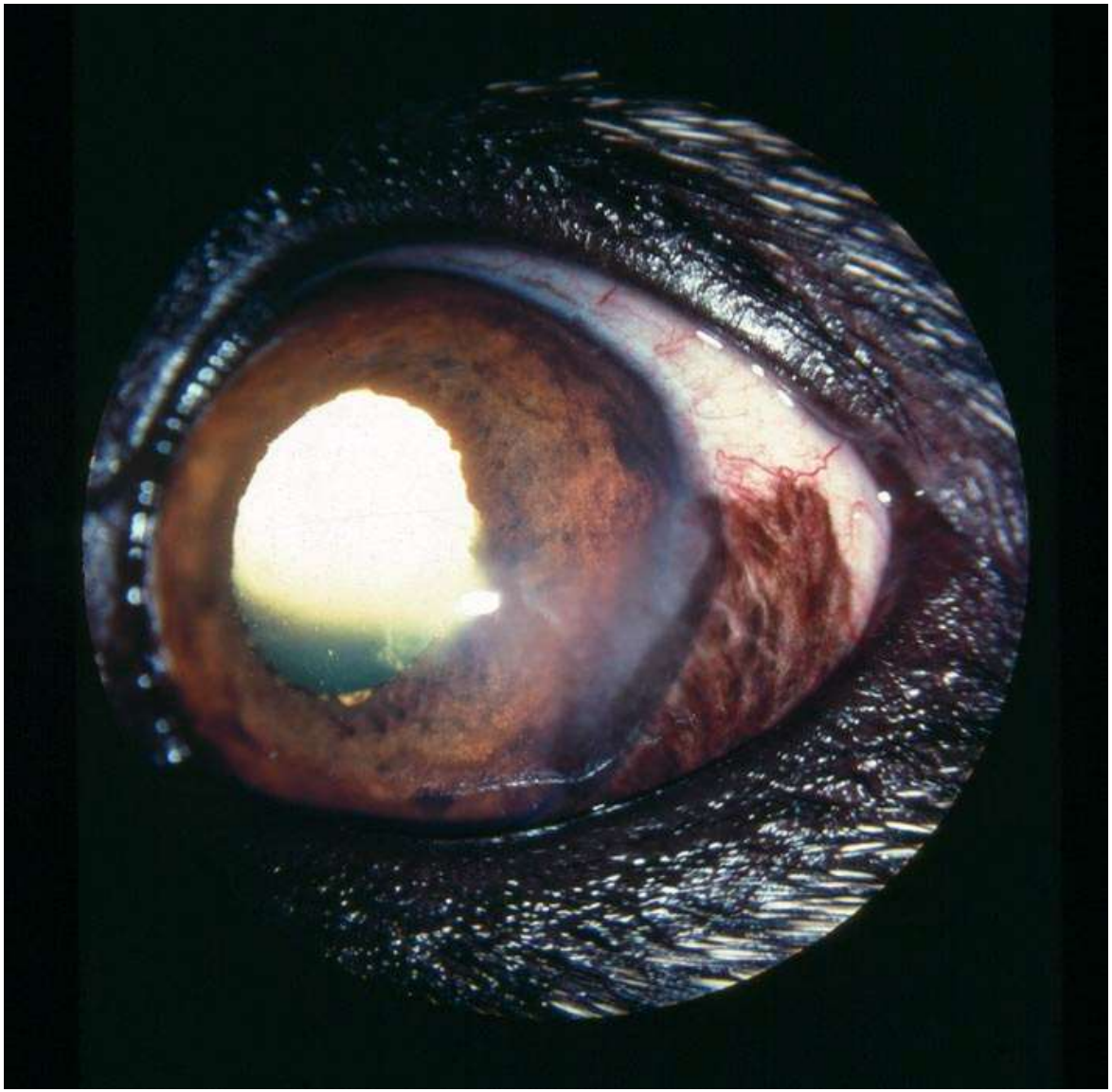
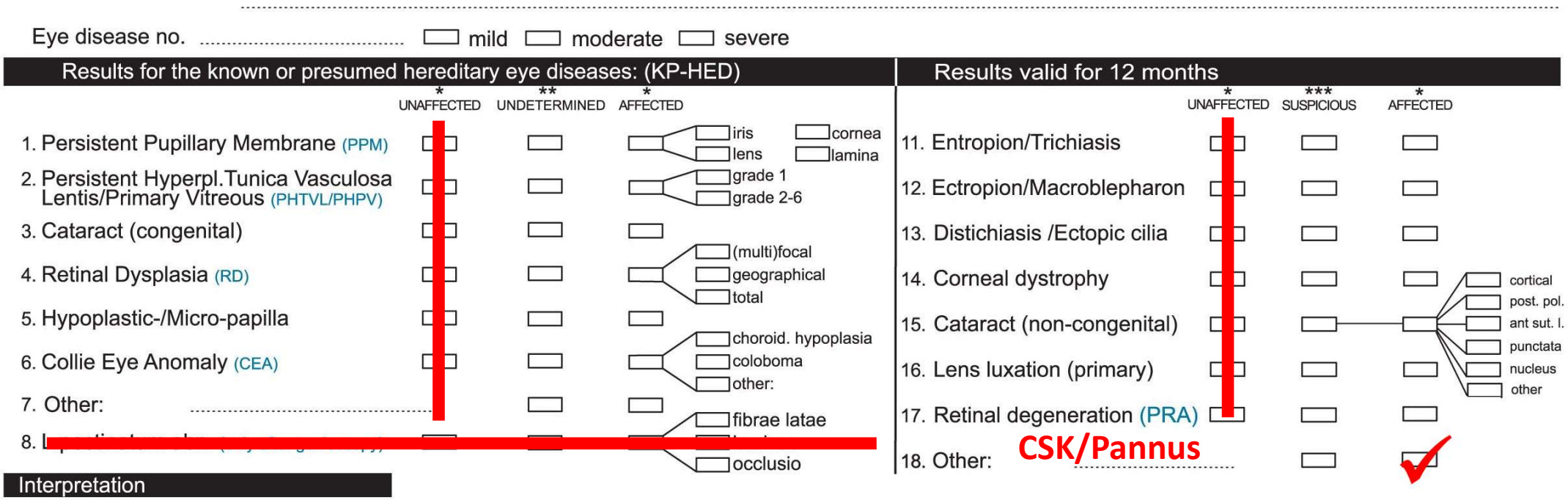
HED SESSION – Budapest 2016

In cooperation with the Dutch panel

Groenendaele dog, 5 years, bilateral finding



Groenendaele dog, 5 years, bilateral finding



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.

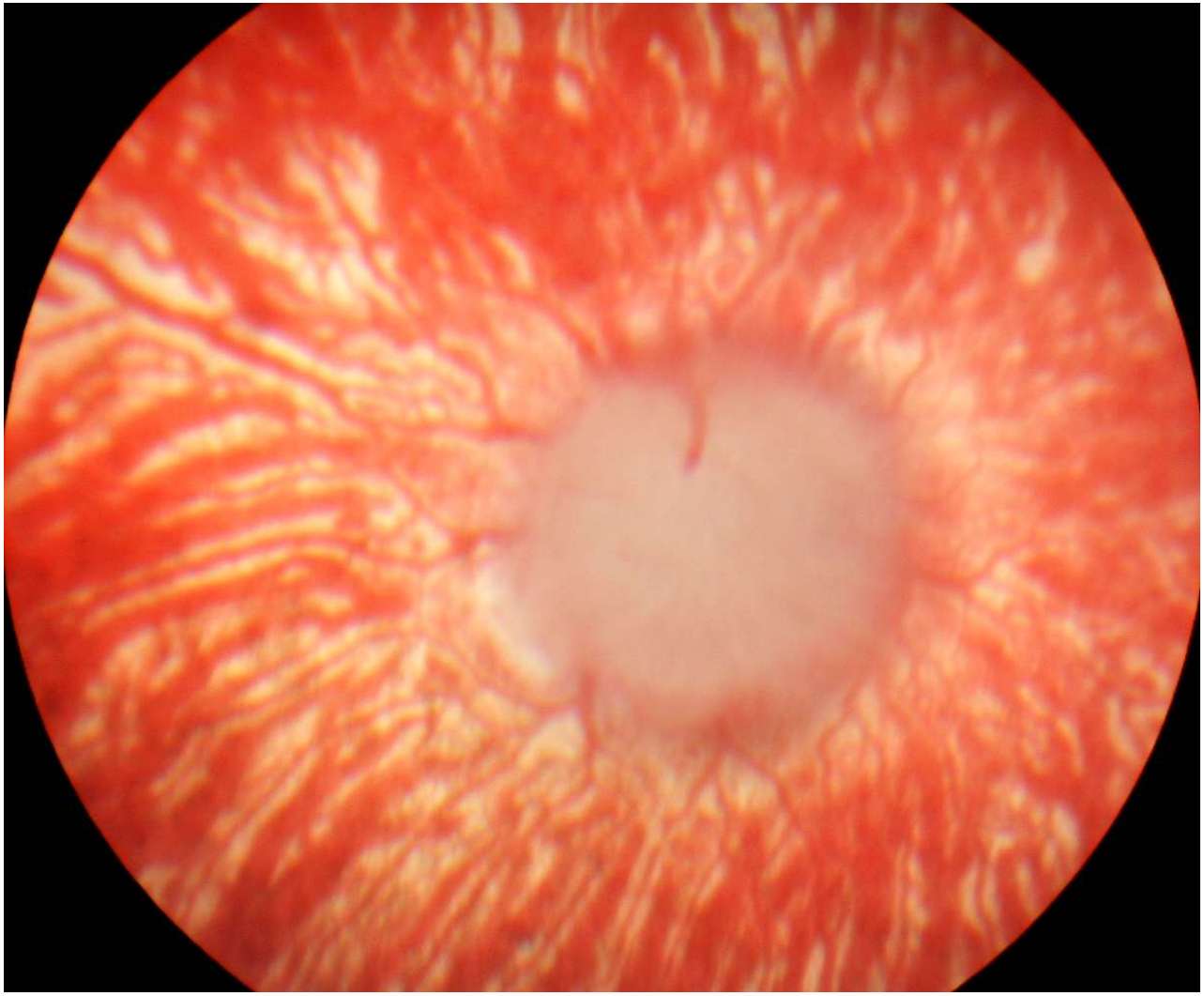
HED-Manual Chapter 5. Definitions

- **Chronic superficial keratitis (CSK)/Pannus**: Presumed hereditary eye disease; bilateral inflammatory disease of the **cornea** which usually starts as a greyish haze at the **inferior** or **inferotemporal cornea**, followed by the formation of a vascularized subepithelial opacity that begins to spread 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

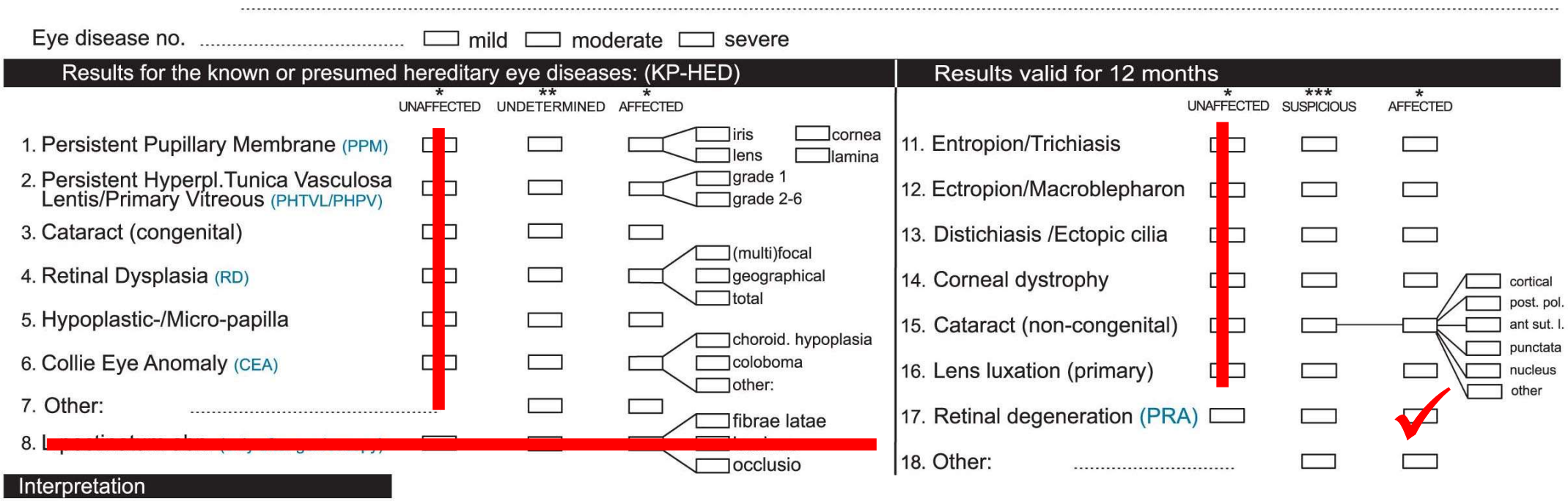
HED-Manual Chapter 6 Guidelines

- **Tick No “18. Other”** on the certificate for KP-HED**,** which are considered not to be congenital/developmental or which are progressive, and not yet named on the form.
  The available name of the disease in the list of ‘Definitions’ of this Manual (see chapter 5) is used: **Chronic superficial keratitis (CSK)/Pannus**

Border Collie, 4 years, bilateral finding, OS



Border Collie, 4 years, bilateral finding, OS



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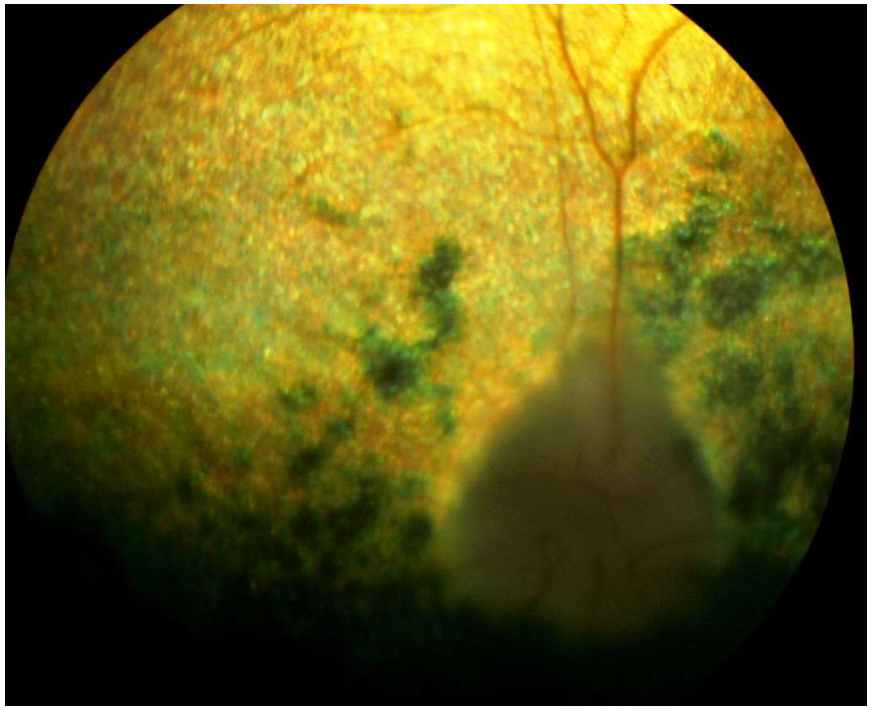
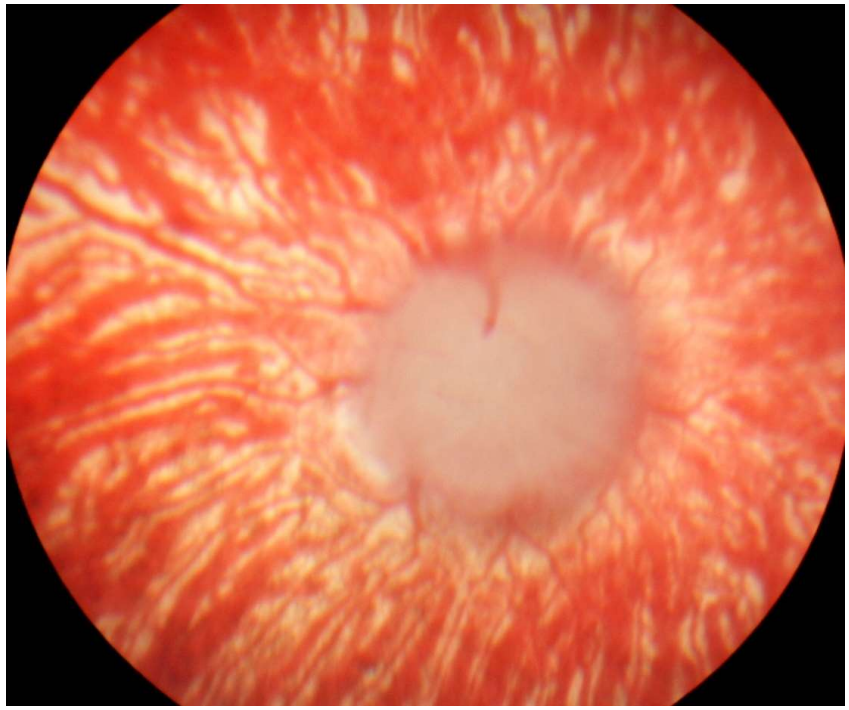
HED-Manual Chapter 5. Definitions

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

HED-Manual Chapter 5. Definitions

… With progression of the disease there are more generalized changes with hyperreflectivity of the **tapetal fundus**, depigmentation and uneven pigment distribution in the **non-tapetal fundus**, severe vascular attenuation and a pale optic disc.



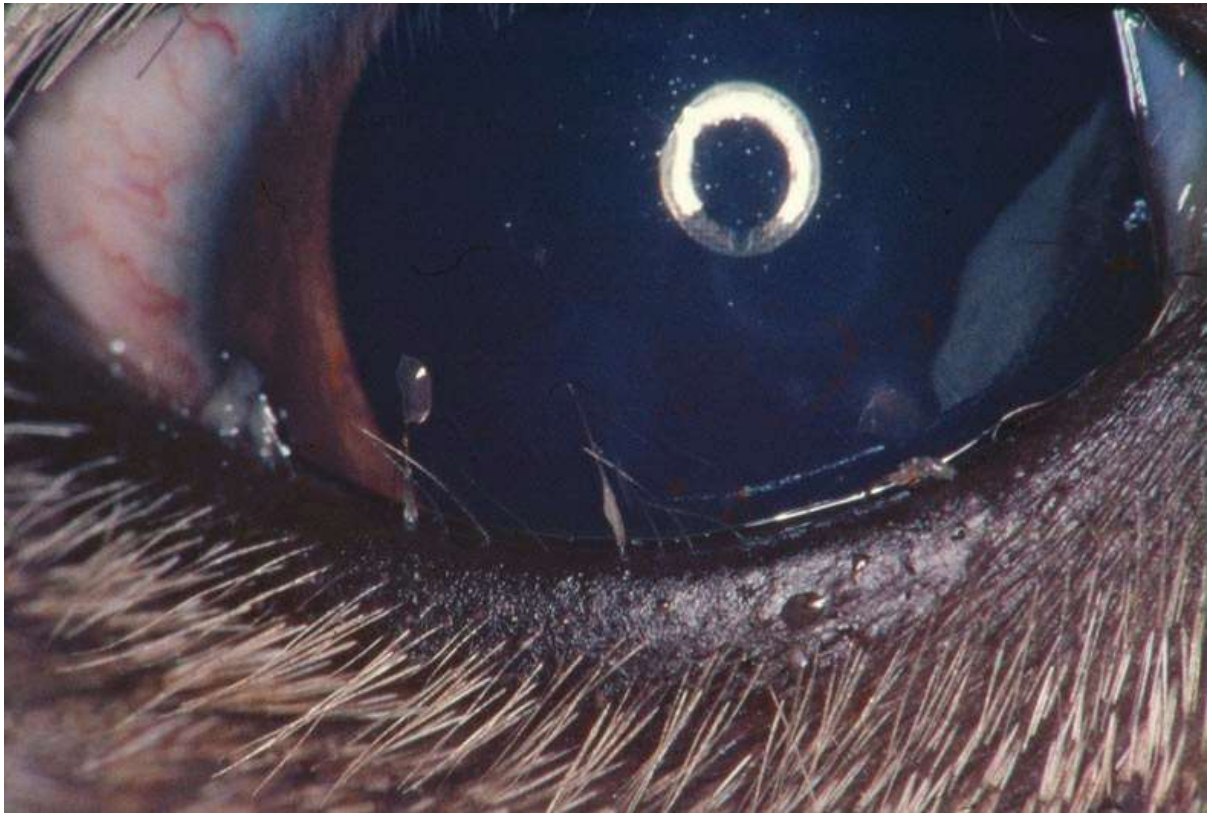


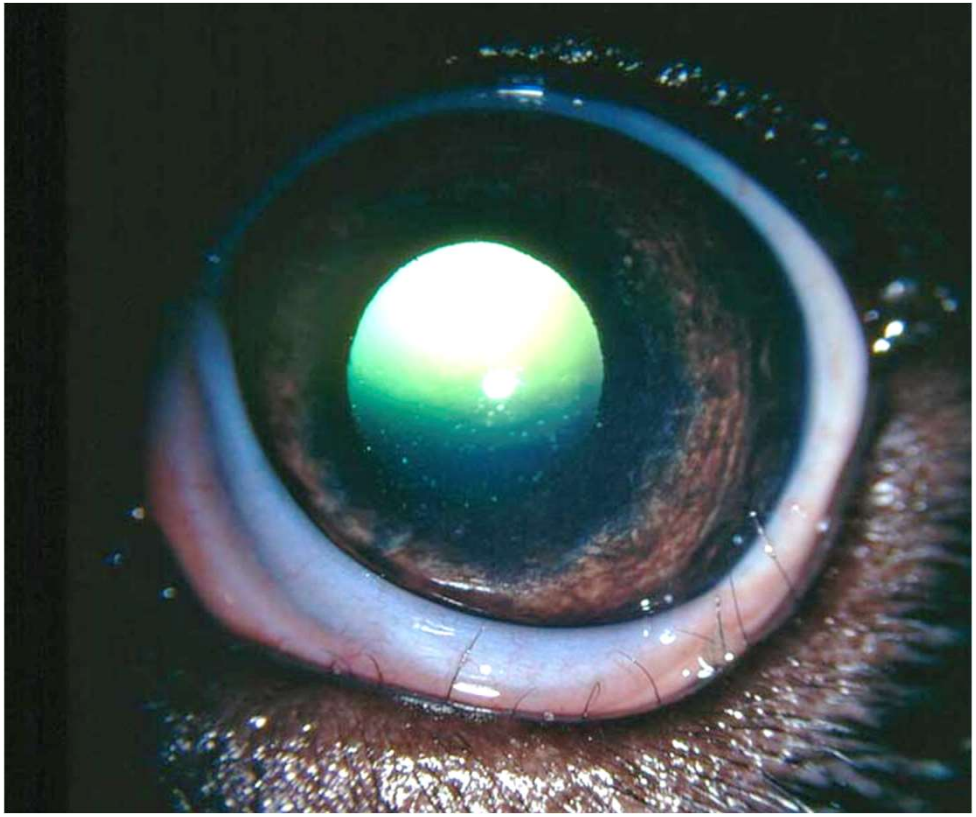
HED-Manual Chapter 5. Definitions

There are multiple genetic types of PRA including different forms of **rod-cone dysplasia and degeneration (rcd1-4)** and **progressive rod cone degeneration (prcd)**. DNA-tests for specific forms and breeds are available.

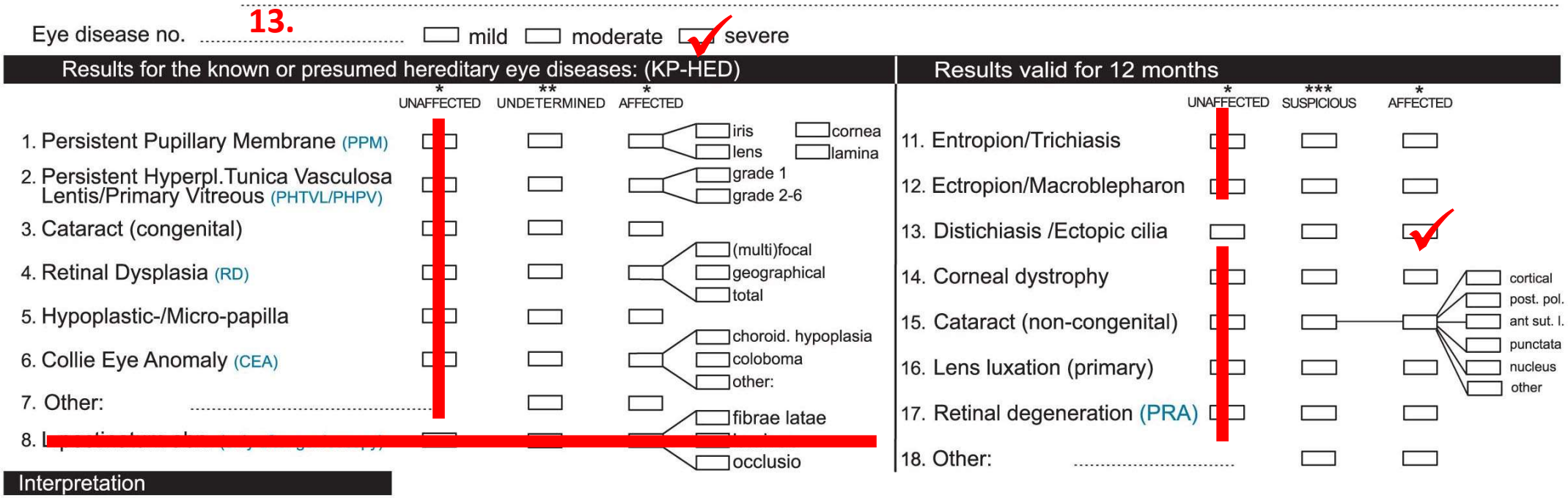
- **Retinal degeneration** can also be due to non-hereditary causes, e.g. inflammation and/or infection, toxicity, etc., affecting retinal structures with degeneration of cells or entire cellular layers. The end-stage is often complete retinal atrophy, which may appear ophthalmoscopically similar to (hereditary) PRA

Flat coat Retriever, 1 year, OD& OS





Flat coated Retriever, 1 year, OD & OS



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HED-Manual Chapter 5. Definitions

- **Distichiasis:** presumed hereditary eye disease; single or multiple hairs (cilia) from an abnormally located hair follicle in the eyelid margin, usually growing from or in between the **Meibomian glands,** and arising from the Meibomian duct openings, which may cause ocular irritation. The defect is due to abnormal differentiation of a tarsal gland. Distichiasis usually occurs at an early age (< 1-2 years), but may occur any time in life
- **Ectopic cilia:** presumed hereditary eye disease; single or multiple hairs (cilia) from an abnormally located hair follicle in the eyelid margin, usually growing from or in between the **Meibomian glands** emerging through the eyelid **conjunctiva**. Ectopic cilia occur more frequently in younger dogs. They generally cause severe discomfort and **corneal** disease

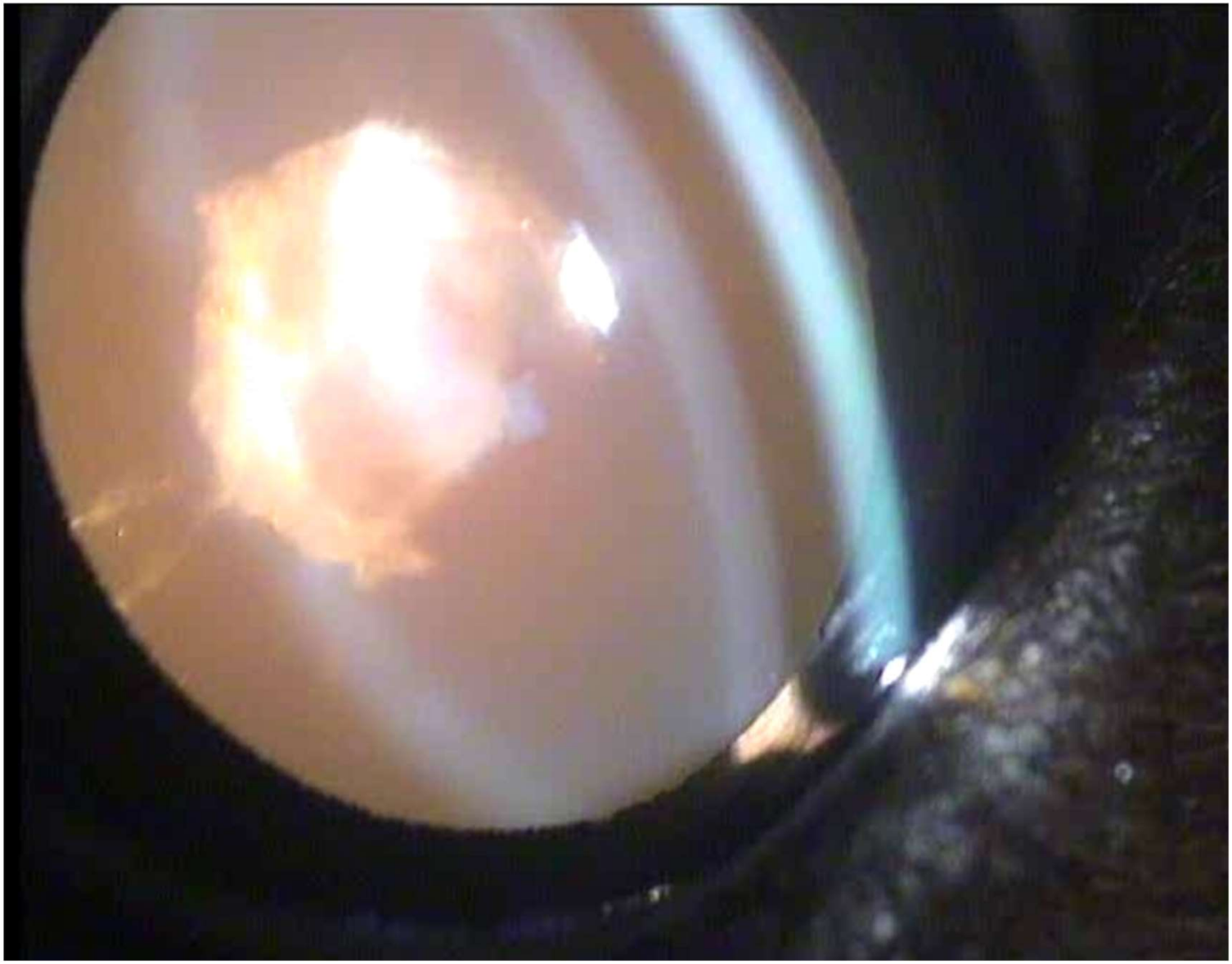
HED-Manual Chapter 6 Guidelines

- *Distichiasis/ectopic cilia* Presumed inherited eye disease Single or multiple hairs (cilia) from an abnormally located hair follicle in the eyelid margin, usually growing from or in between the Meibomian glands, and arising from the Meibomian duct openings, or emerging through the eyelid conjunctiva which may cause ocular irritation. The defect is due to abnormal differentiation of a tarsal gland. Distichiasis usually occurs at an early age (< 1-2 years), but may occur any time in life.

  No further details, such as e.g. number of hairs, or encircling distichiasis or ectopic cilia are to be written on the form.

- In chapter 8, The veterinary ophthalmologists' breeding advice, the general advice for distichiasis/ectopic cilia is: "optional", but in severe cases: "no breeding". Thus in case of e.g. hard, stiff hairs, or ectopic cilia distinctly irritating the cornea, the examiner will also tick the box: "severe" in the comment area.

Dobermann, 1.5 years, OS



Dobermann, 1.5 years, OS

Eye disease no. ..... ☐ mild ☐ moderate ☐ severe

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

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

Results valid for 12 months

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

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
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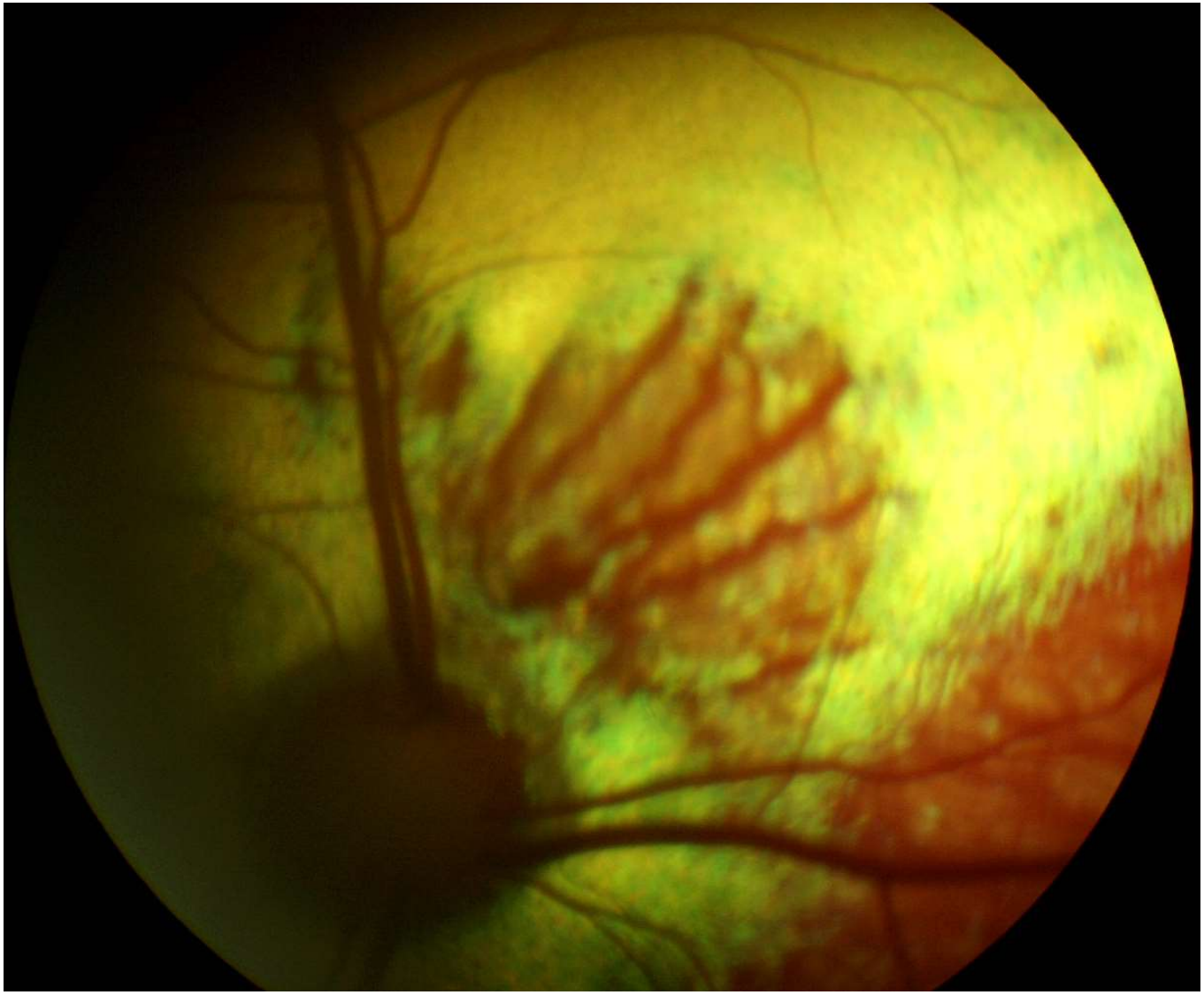
HED-Manual Chapter 5. Definitions

- **Cataract:** any hereditary or non-hereditary, congenital or acquired, non-physiological opacity of the **lens** and/or its capsule. The defect may result in blindness if complete and bilateral. 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. DNA-tests for specific breeds are available.

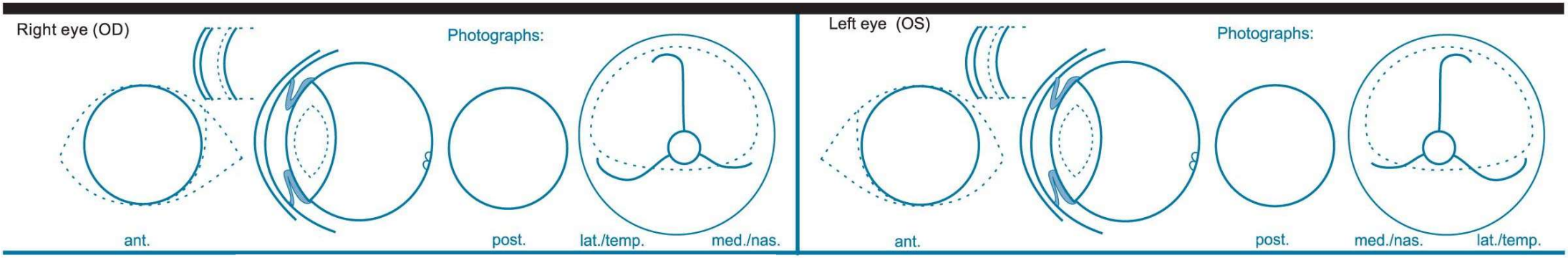
HED-Manual Chapter 6 Guidelines

Cataracts diagnosed at older age are ticked as non-congenital (acquired). If there is distinct proof the cataract is congenital in origin (e.g. associated PPM), the boxes for congenital and non-congenital cataracts can be ticked. It is strongly recommended to draw the cataract in the "pre-drawings" on the certificate, as seen from the anterior lens capsule (see separate instructions for drawing and filling the form).
For the Scheme it is advised all bilateral or unilateral cataracts and especially cortical cataracts are presumed hereditary

Birman (Himalayan) cat, 2 years, OS



Birman (Himalayan) cat, 2 years, OS



Descriptive comments: focal tapetal hypoplasia

Eye disease no. ..... ☐ mild ☐ moderate ☐ severe

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

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

Results valid for 12 months

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

Interpretation

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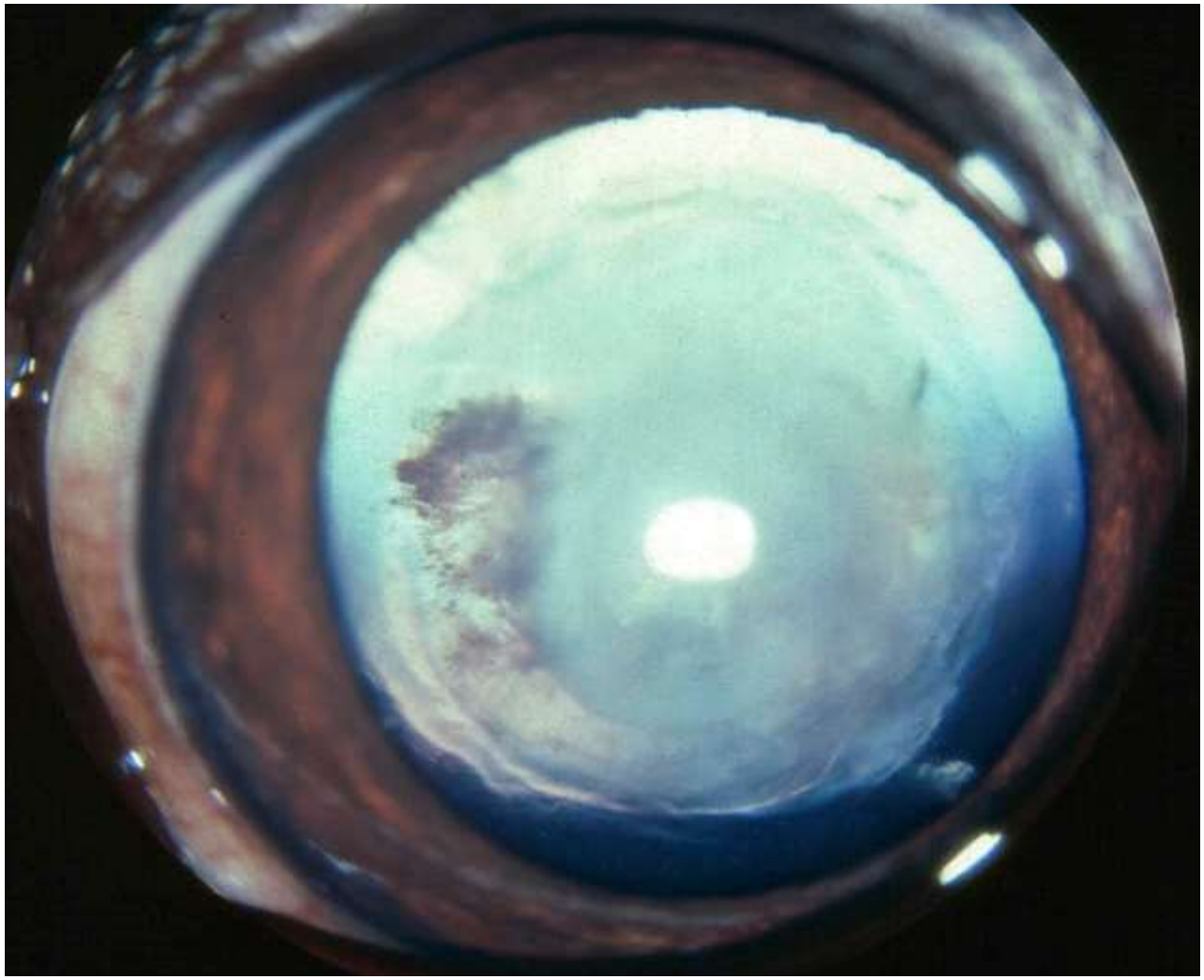
HED-Manual Chapter 5. Definitions

- **Hypoplasia:** defective development of an organ or part resulting in a smaller than normal size or immature state
- Tapetum lucidum: area with reflective cell layer in the superior half of the fundus, located in the choroid

HED-Manual Chapter 6 Guidelines

- Any Findings in the eye or adnexa (KP-HED or others) not listed in the section “results” no 1-8 and 11-18 should be described in the field “descriptive comments”

Bouvier de Flandres, 1 year, unilateral, OD



Bouvier de Flandres, 1 year, unilateral, OD

Eye disease no. ..... ☐ mild ☐ moderate ☐ severe

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

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☑	☐ grade 1 ☑ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:	☐	☐	☐	
8. L.pectinatum abn. (only after gonioscopy)	☐	☐	☐	☐ fibrae latae ☐ laminae ☐ occlusio

Results valid for 12 months

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

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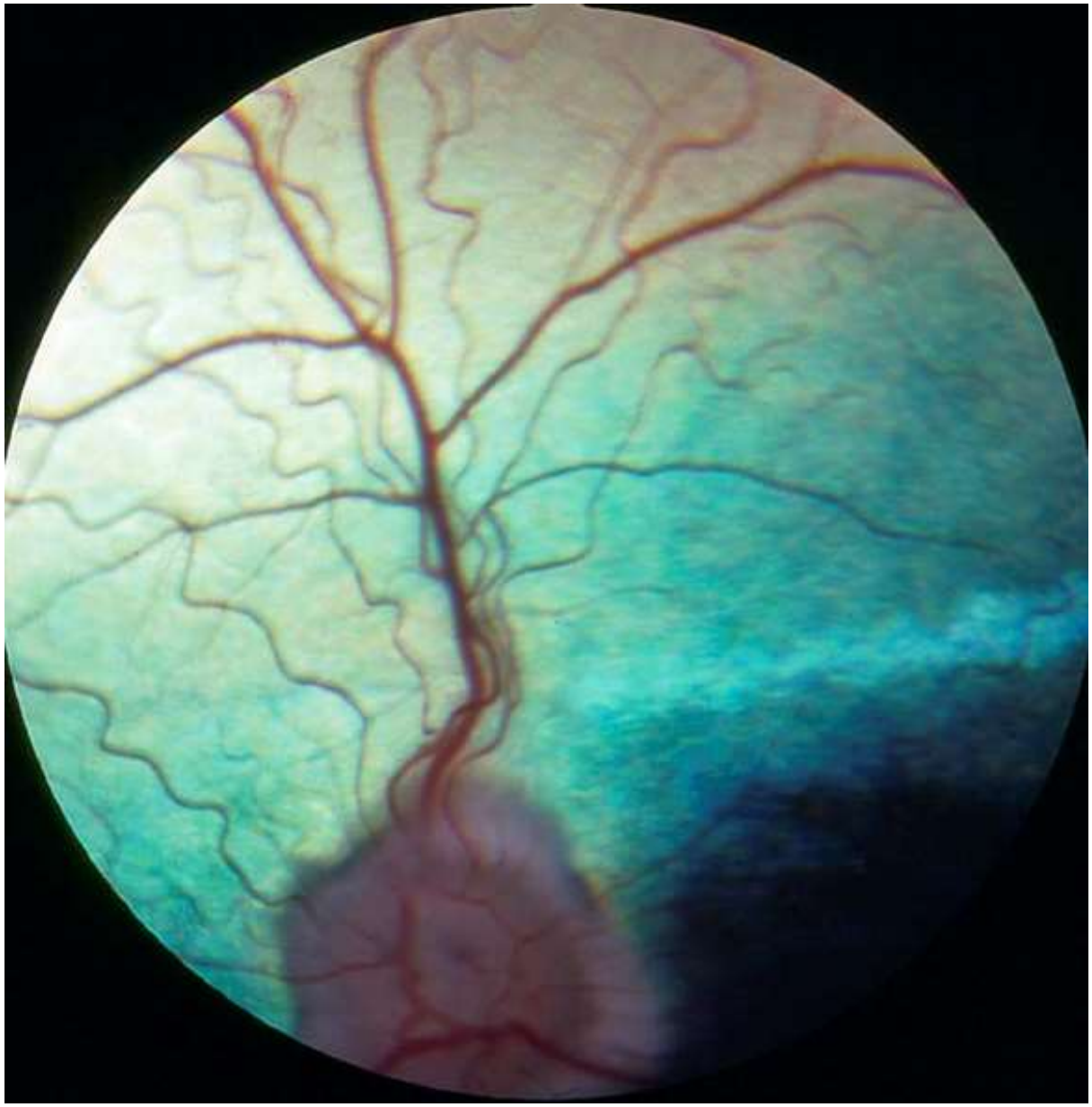
HED-Manual Chapter 5. Definitions

- Persistent hyperplastic tunica vasculosa lentis/ persistent hyperplastic primary vitreous (PHTVL/ PHPV): known or presumed hereditary, congenital eye disease which results from failure of regression of the embryologic vascular network, surrounding the developing lens and primary vitreous. The latter fails to regress within the first 2-3 weeks after birth. The defect is currently graded in 6 levels of severity, in which grade 1 is characterized by uni- or bilateral small, yellow to brown dots mainly centrally, retrolentally on the posterior capsule of the lens. These are stationary and do not affect vision. The more severe forms (2-6) usually occur bilaterally and cause visual impairment or blindness. Known hereditary e.g. in the Dobermann and the Staffordshire Bull terrier

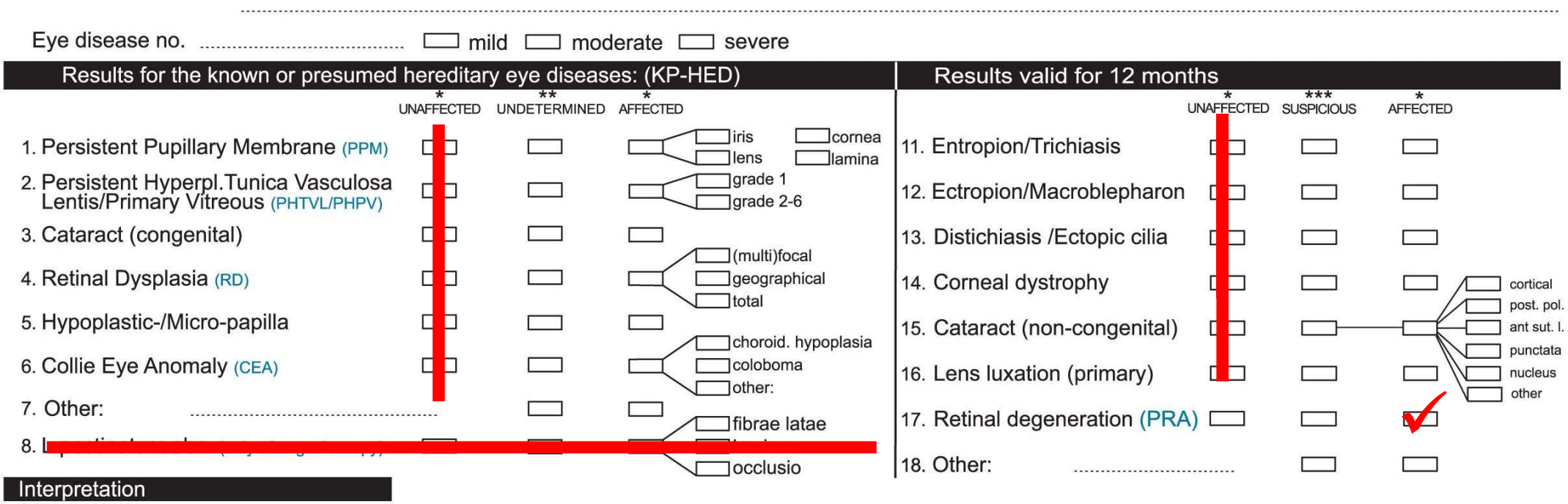
HED-Manual Chapter 6 Guidelines

- *PHTVL/PHPV* Known hereditary disease in the Dobermann and the Staffordshire Bull Terrier. Minor, yellow-brown dots of fibrous tissue remaining retrolentally, more or less centrally on the posterior capsule of the lens (See fig. 21) are ticked as grade 1. These grade 1 dots are not to be confused with scattered pigment, retrolental near or on the posterior capsule of the lens. If they are unilateral, and of minimal degree, ‘undetermined’ is ticked
- **Unilateral or bilateral severe forms are ticked as ‘affected’**

Saarloos Wolfhound, 4 years, OS



Saarloos Wolfhound, 4 years, OS



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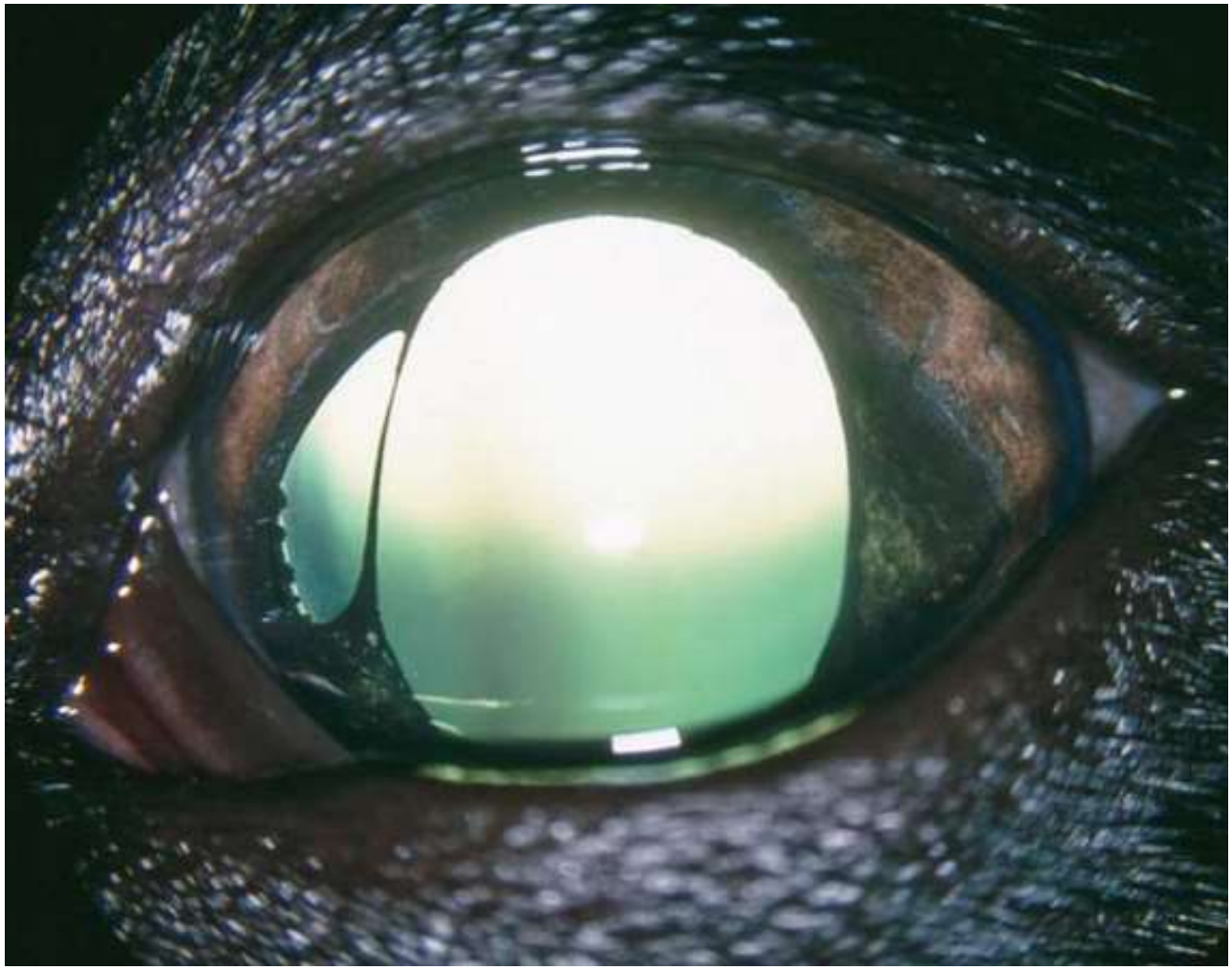
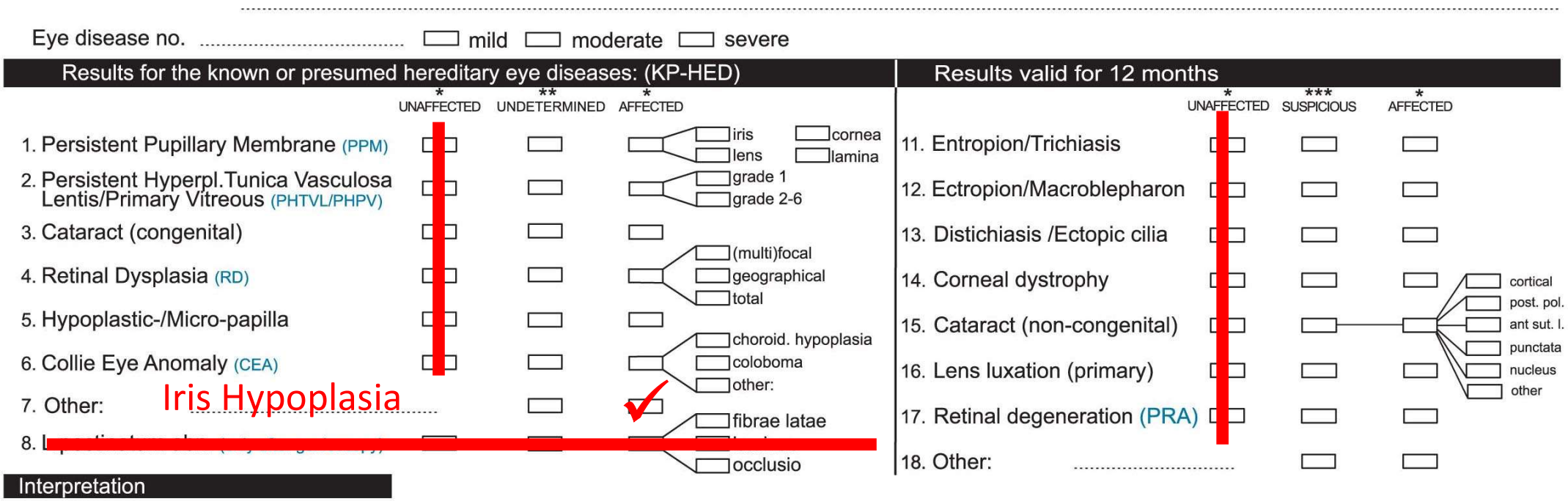
Rottweiler, 4 years, OS



Rottweiler, 4 years, OS



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HED-Manual Chapter 5. Definitions

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

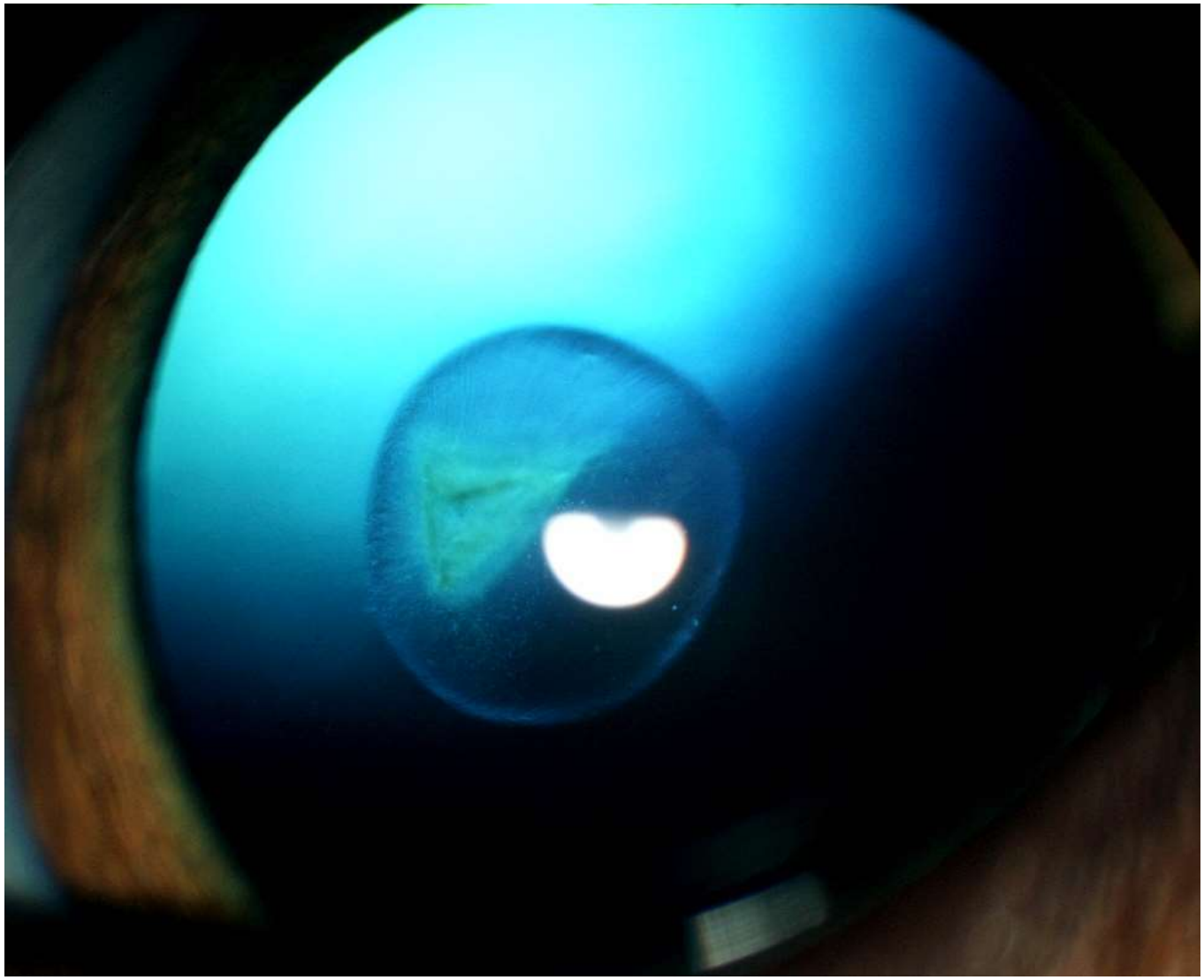
- Iris coloboma: see and use hypoplasia iris

HED-Manual Chapter 5. Guidelines

- Tick no “**7. Other”**, on the certificate, **known and presumed hereditary eye anomalies** (congenital/ developmental, non-progressive).
  The available name of the disease in the list of ‘Definitions’ of this Manual (see chapter 5) is used:
- **Iris hypoplasia**

Bengal cat, 1 year, bilateral finding, OD

The cat was also seen at 3 months of age; since then, the lesions have not changed



Bengal cat, 1 year, bilateral finding, OD

The cat was also seen at 3 months of age; since then, the lesions have not changed

Eye disease no. ..... ☐ mild ☐ moderate ☐ severe

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

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☑	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other:		☐	☐	
8. Lipofuscinosis ceroidalis (only after gonioscopy)	☐	☐	☐	☐ fibrae latae ☐ lamina ☐ occlusio

Results valid for 12 months

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

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HED-Manual Chapter 5. Definitions

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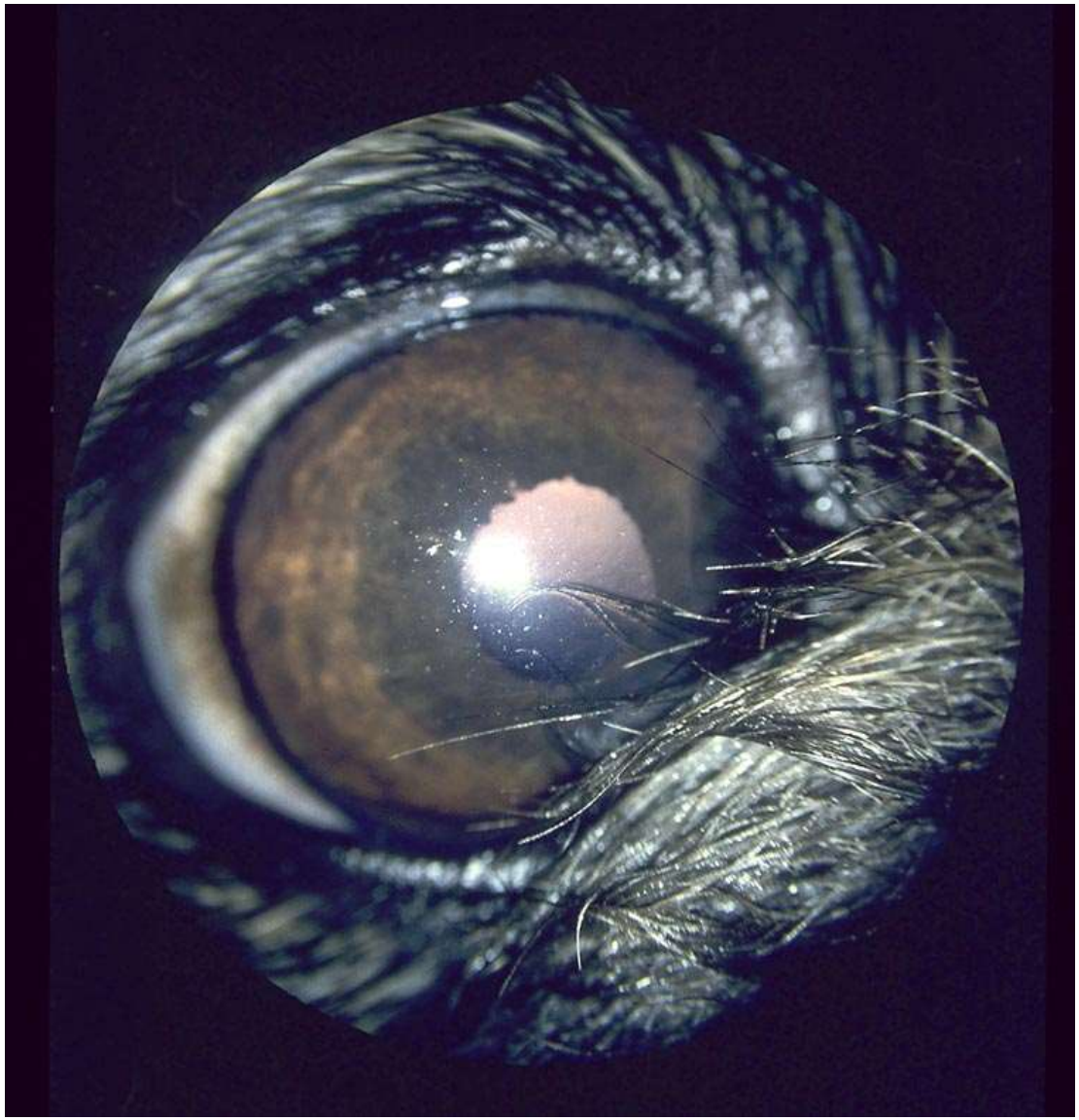
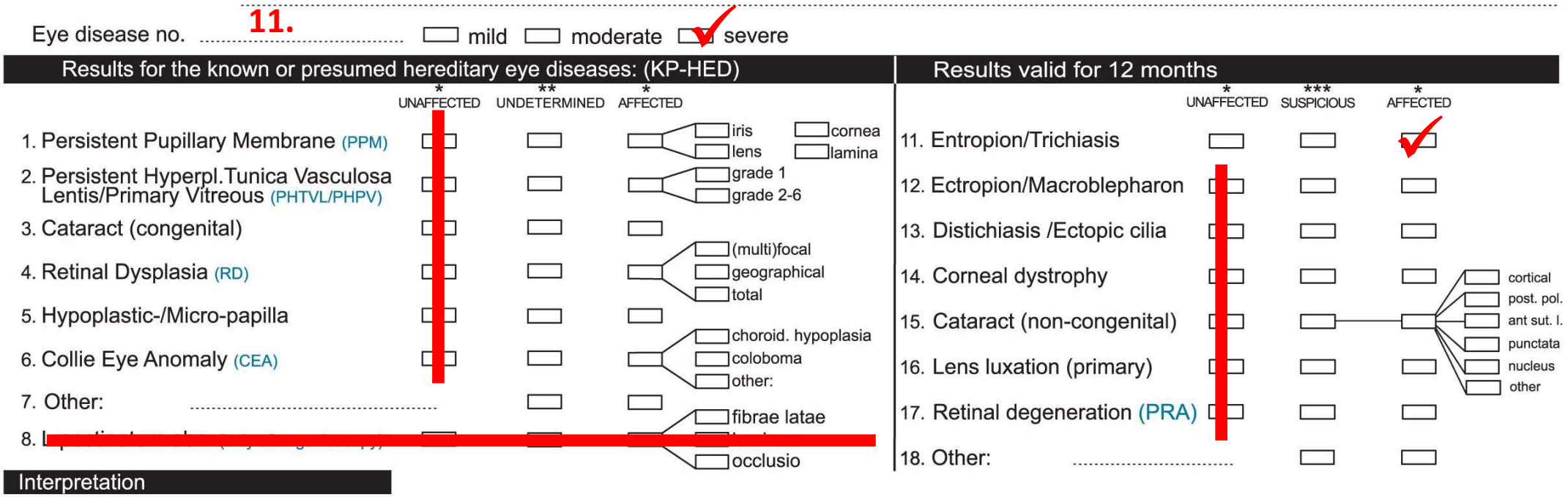
HED-Manual Chapter 6 Guidelines

Cataracts diagnosed at older age are ticked as non-congenital (acquired). If there is distinct proof the cataract is congenital in origin (e.g. associated PPM), the boxes for congenital and non-congenital cataracts can be ticked. It is strongly recommended to draw the cataract in the "pre-drawings" on the certificate, as seen from the anterior lens capsule (see separate instructions for drawing and filling the form). **For the Scheme it is advised all bilateral or unilateral cataracts and especially cortical cataracts are presumed hereditary**

Pekingese, 3 years, bilateral findings



Pekingese, 3 years, bilateral findings



* "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.

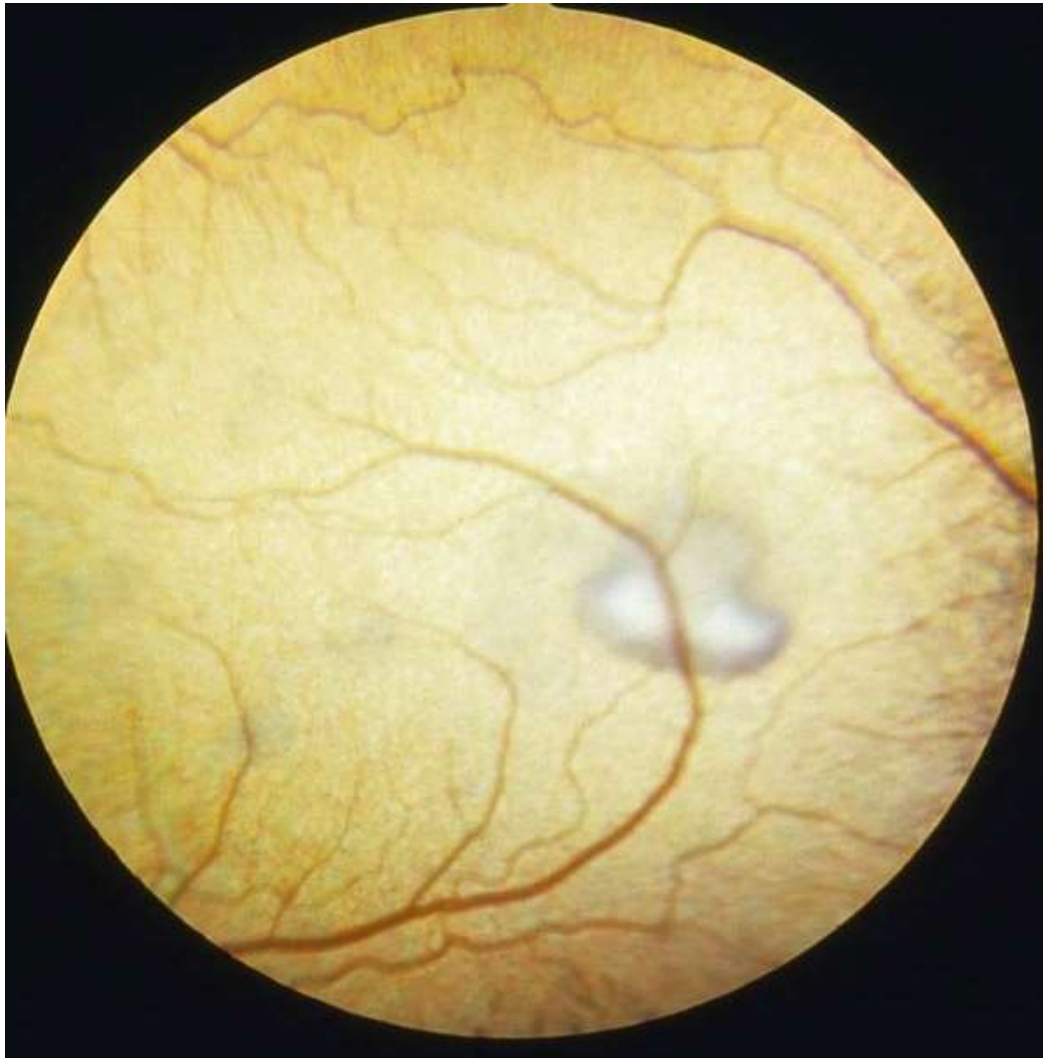
HED-Manual Chapter 5. Definitions

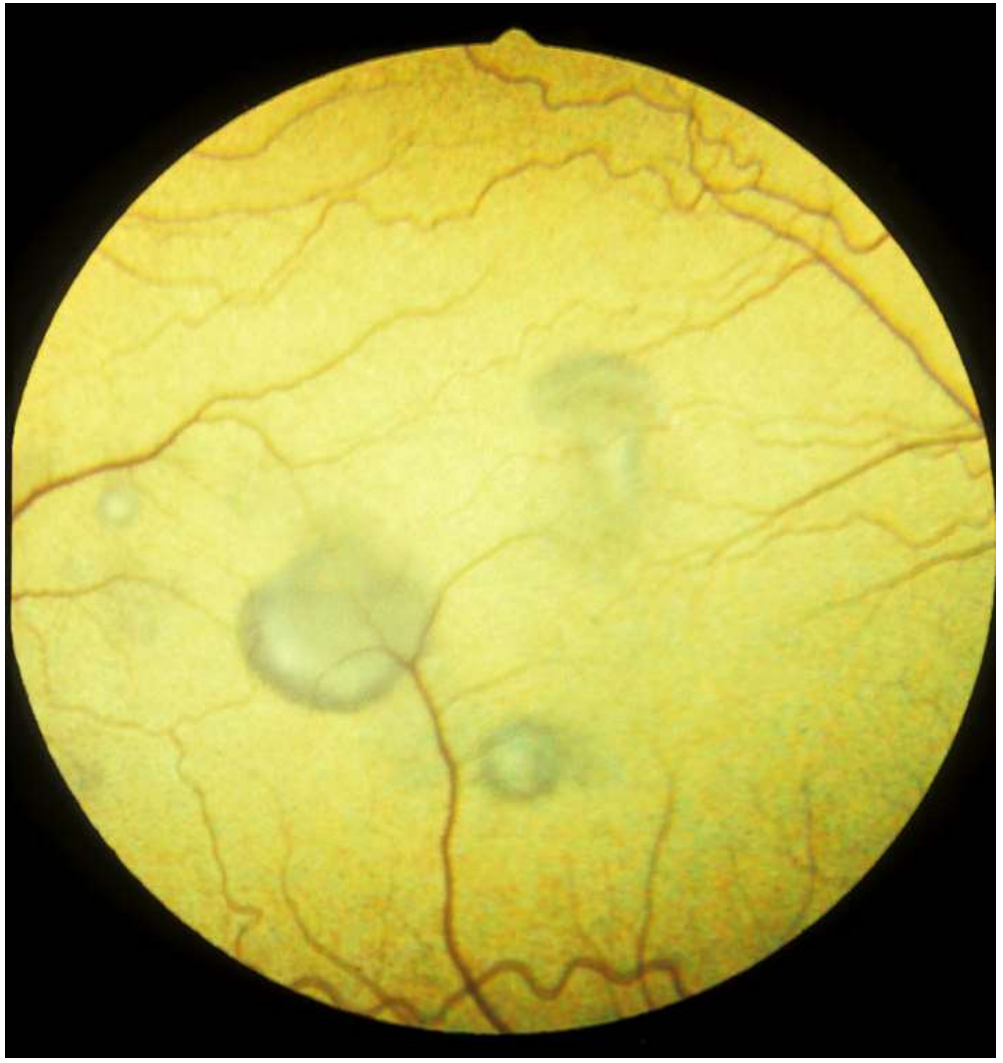
- **Entropion: presumed hereditary eye disease**; a conformational defect resulting in “in-rolling” of one or both of the margins of the **eyelids** which may cause ocular irritation. It is likely that entropion is influenced by several **genes** (polygenic), defining the skin and other structures which make up the eyelids, the amount and weight of the skin covering the head and face, the orbital contents and the conformation of the skull. Secondary, non-hereditary entropion may also occur, for example due to trauma, severe enophthalmos, loss of orbital fat, etc.
- **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 conjunctiva and/or the globe. Predominantly on the nasal folds or on the lateral part of the superior eyelid edge

HED-Manual Chapter 6 Guidelines

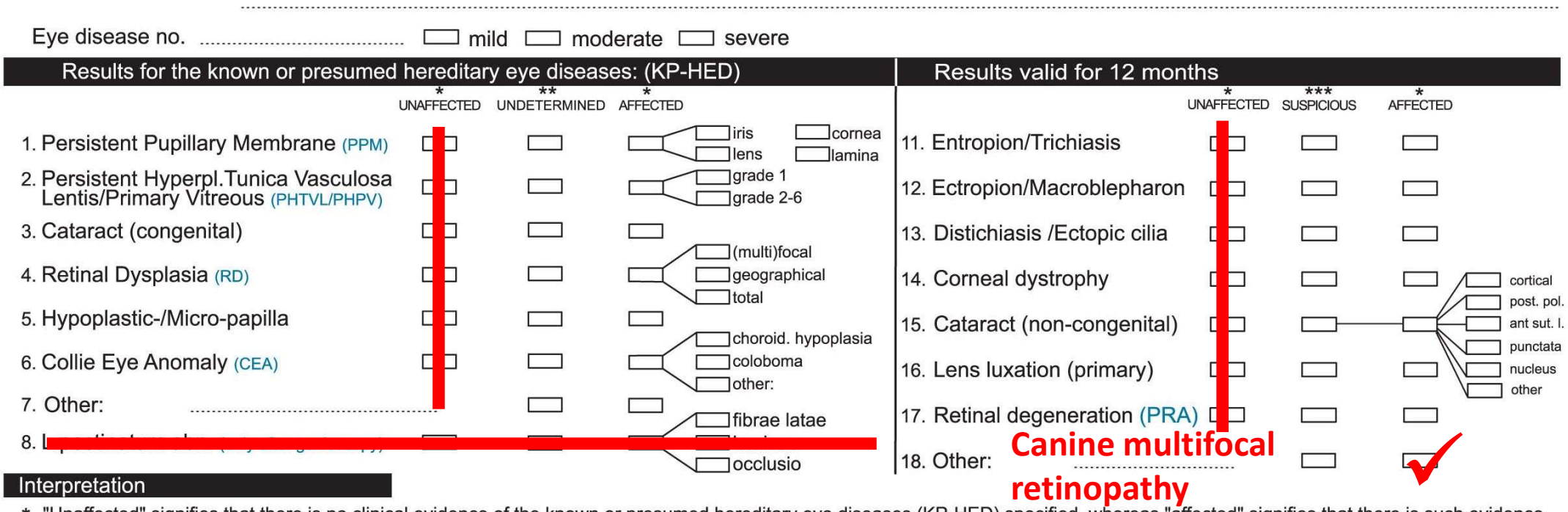
Entropion/trichiasis No further details such as e.g. deleting or encircling entropion or trichiasis are to be mentioned on the form. In chapter 8, The veterinary ophthalmologists' breeding advice, the general advice for entropion/trichiasis is: "optional", but in severe cases: "no breeding".

Coton de tulear, 1 year, OU





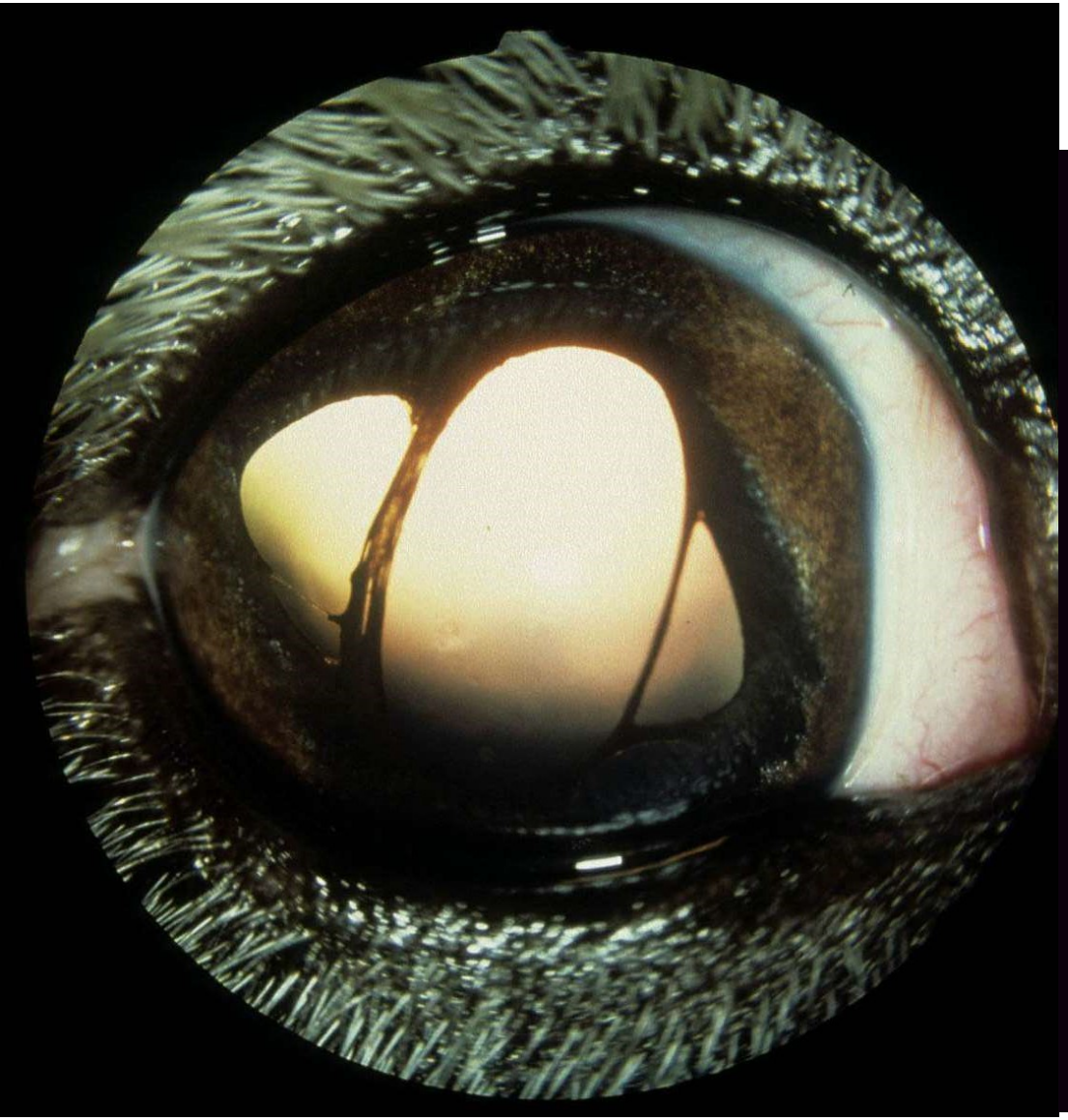
Coton de tulear, 1 year, OU

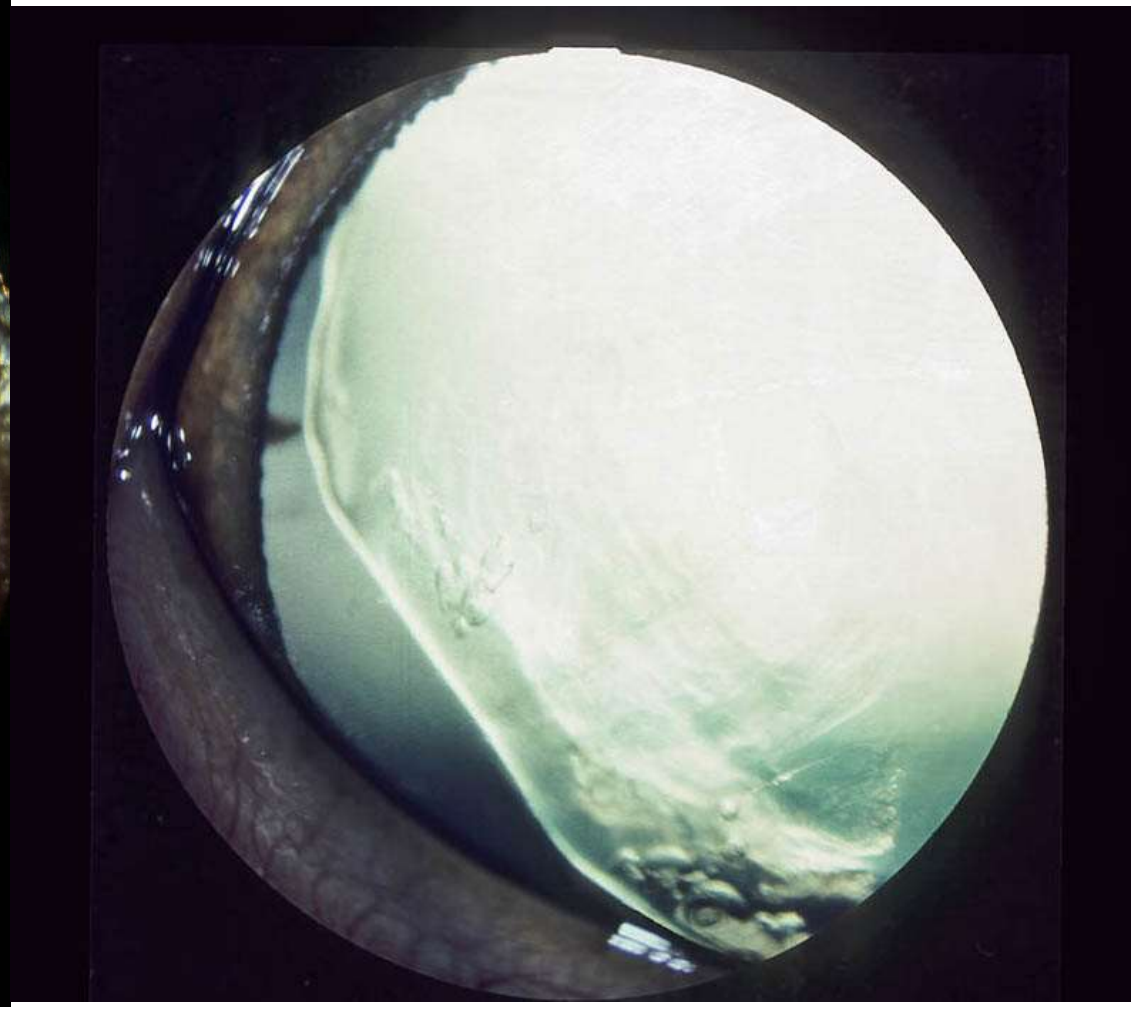


HED-Manual Chapter 5. Definitions

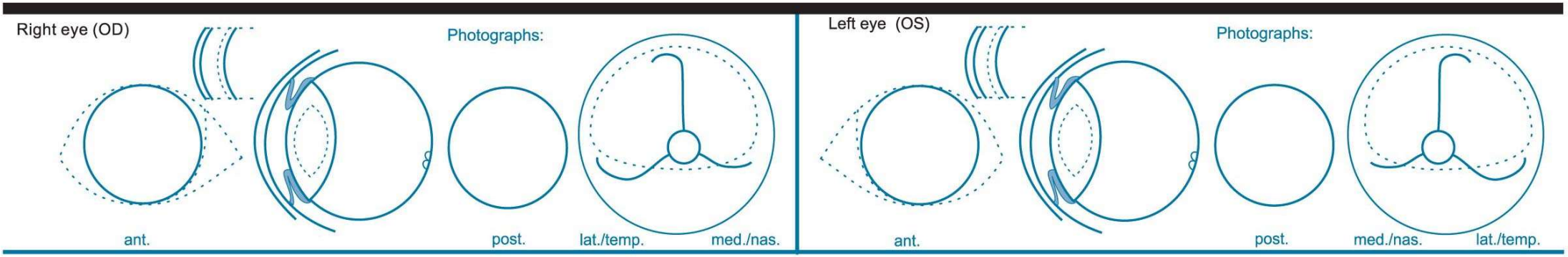
- Canine multifocal retinopathy (CMR): known hereditary congenital eye disease; autosomal mode of inheritance suspected. DNA-tests for specific breeds are available. Recognized as barely progressive, grey to tan bulging areas of circumscribed retinal detachments, generally more or less up to one optic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

Timboektu Hunting dog, 2 years, OD & OS





Timboektu Hunting dog, 2 years, OD & OS



Descriptive comments: OD: Iris Hypoplasia + OS: Lens hypoplasia

Eye disease no. ..... ☐ mild ☐ moderate ☐ severe

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

	* UNAFFECTED	** UNDETERMINED	* AFFECTED	
1. Persistent Pupillary Membrane (PPM)	☐	☐	☐	☐ iris ☐ lens ☐ cornea ☐ lamina
2. Persistent Hyperpl.Tunica Vasculosa Lentis/Primary Vitreous (PHTVL/PHPV)	☐	☐	☐	☐ grade 1 ☐ grade 2-6
3. Cataract (congenital)	☐	☐	☐	
4. Retinal Dysplasia (RD)	☐	☐	☐	☐ (multi)focal ☐ geographical ☐ total
5. Hypoplastic-/Micro-papilla	☐	☐	☐	
6. Collie Eye Anomaly (CEA)	☐	☐	☐	☐ choroid. hypoplasia ☐ coloboma ☐ other:
7. Other: Mult. ocular anom.	☐	☐	✓	
8. [illegible]	☐	☐	☐	☐ fibrae latae ☐ occlusio

Results valid for 12 months

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

Interpretation

* "Unaffected" signifies that there is no clinical evidence of the known or presumed hereditary eye diseases (KP-HED) specified, whereas "affected" signifies that there is such evidence.
** The animal displays clinical features that could possibly fit the KP-HED mentioned, but the changes are inconclusive.
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HED-Manual Chapter 5. Definitions

- **Hypolasia iris:** presumed hereditary eye disease characterized by congenital absence of iris (sphincter) tissue or colobomatous defects due to failure in closure of the optic fissure. It may be a separate disorder or associated with other ocular malformations. See and use iris hypoplasia

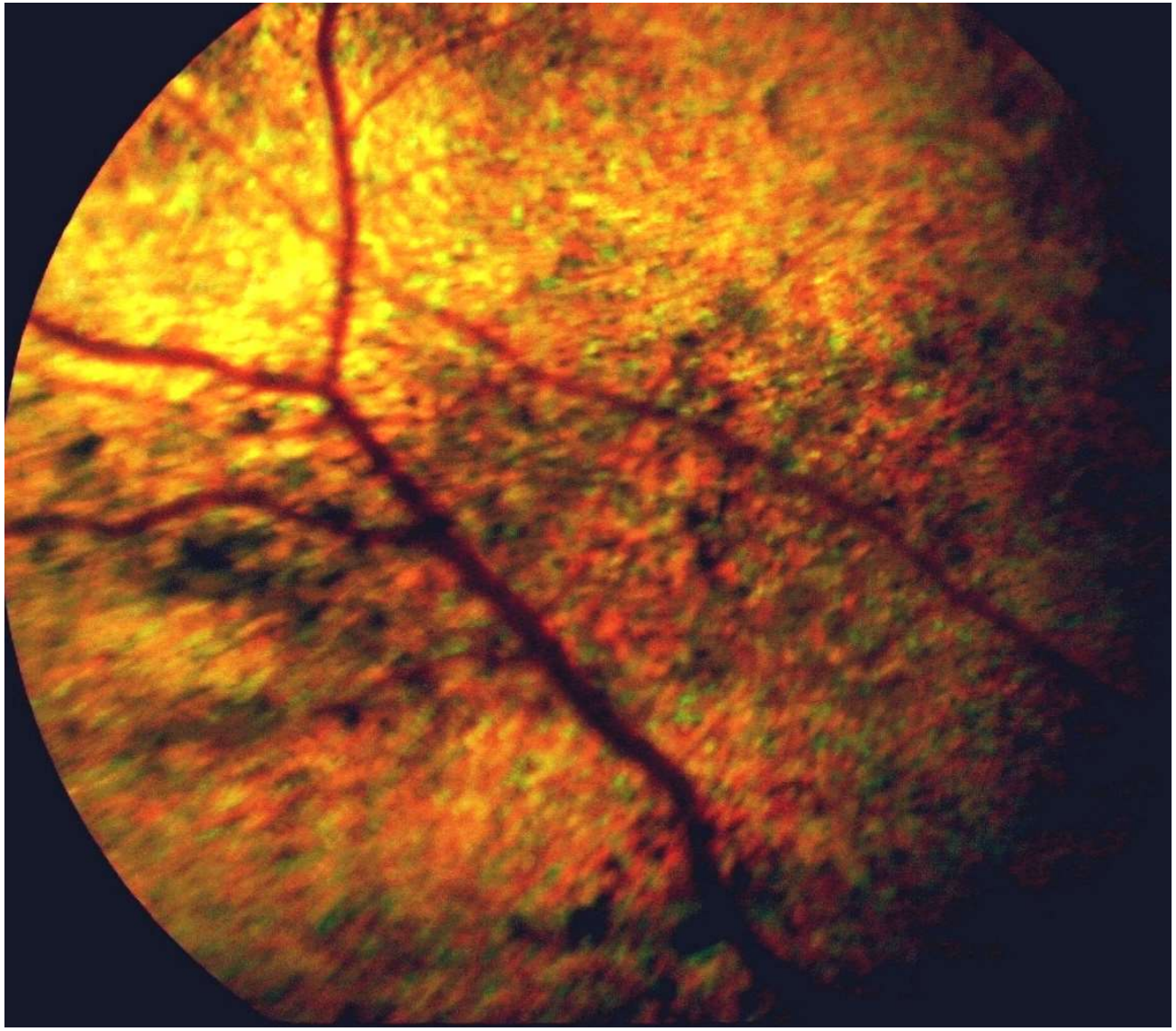
HED-Manual Chapter 6 Guidelines

Tick no "**7. Other"**, on the certificate, **known and presumed hereditary eye anomalies** (congenital/ developmental, non-progressive).
The available name of the disease in the list of 'Definitions' of this Manual (see chapter 5) is used:

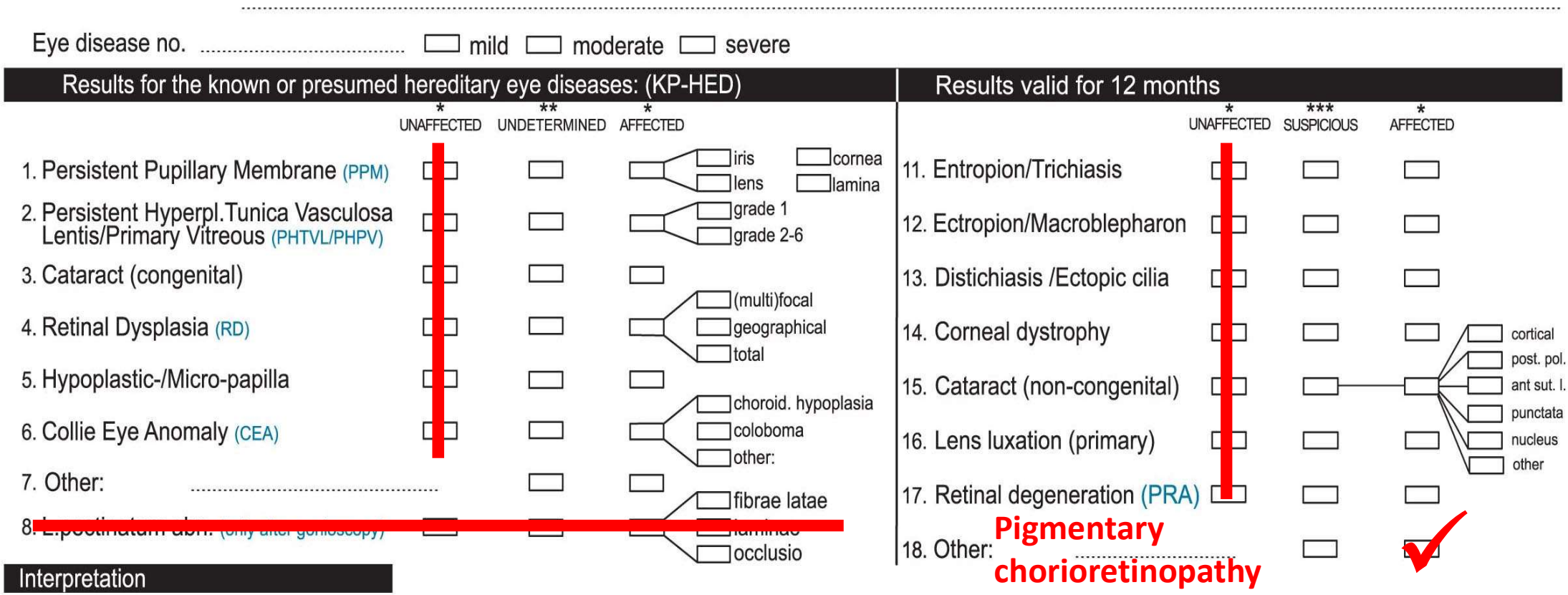
- Iris hypoplasia
- Lens hypoplasia

- Multiple ocular anomalies (two or more): To be ticked at number "7. Other", on the certificate. The anomalies found can be e.g. microphthalmia, iris hypoplasia, persistent pupillary membranes, lens anomalies, posterior segment colobomas or other developmental defects. The anomalies found are to be specified in the descriptive comments field.

Chinese crested dog, 3 years, OU



Chinese crested dog , 3 years, OU



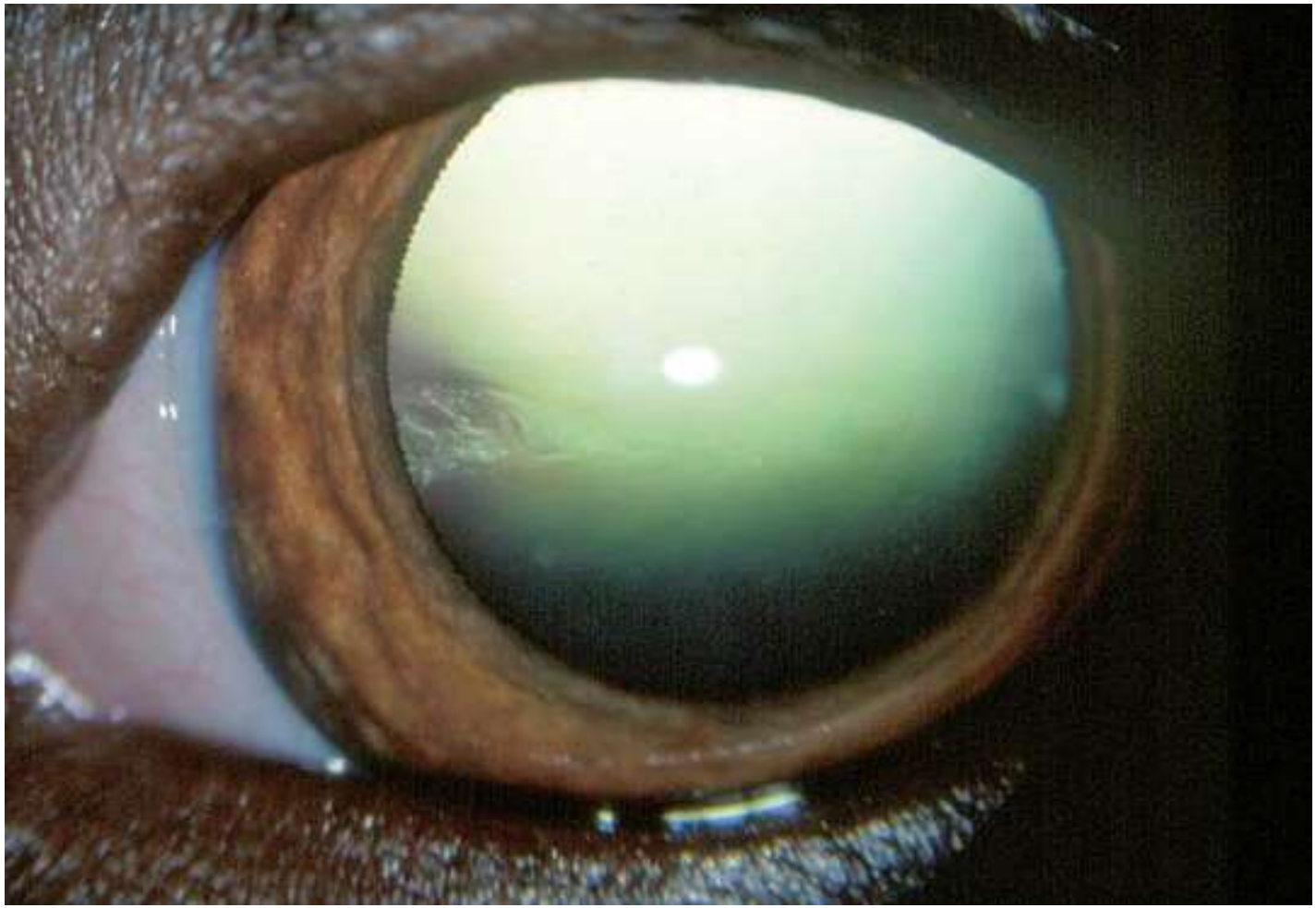
HED-Manual Chapter 5. Definitions

- **Pigmentary chorioretinopathy**: **presumed hereditary eye disease,** occurs with a higher than normal incidence in the Chinese Crested dog breed. Recognized as bilateral, progressive, circumscribed areas with pigmented or light-colored center, leading to visual impairment or blindness.

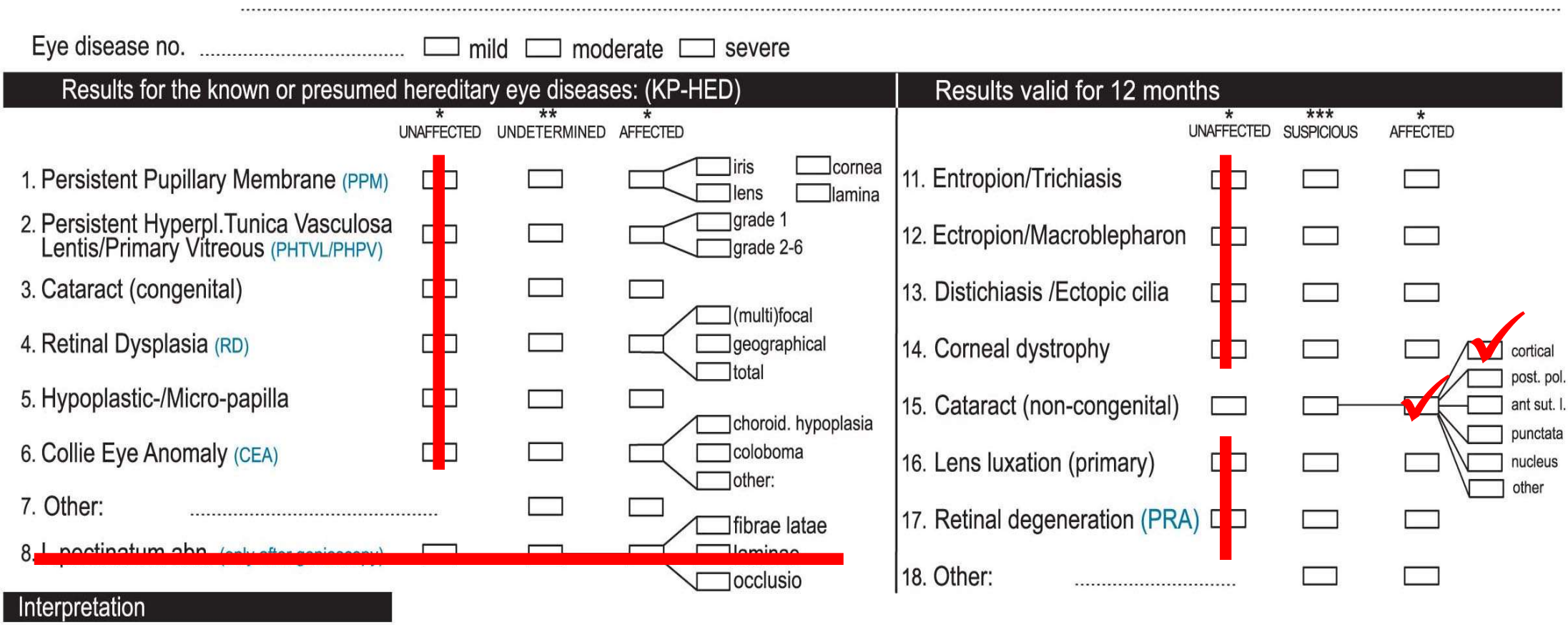
HED-Manual Chapter 6 Guidelines

- **Tick no "18. Other",** on the certificate for KP-HED**,** which are considered not to be congenital/developmental or which are progressive, and not yet named on the form. The available name of the disease in the list of 'Definitions' of this Manual (see chapter 5) is used
- **Pigmentary chorioretinopathy** (e.g. Chinese crested)

German shorthaired pointer 4 years



German shorthaired pointer 4 years



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

HED-Manual Chapter 5. Definitions

- **Cataract:** any hereditary or non-hereditary, congenital or acquired, non-physiological opacity of the **lens** and/or its capsule. The defect may result in blindness if complete and bilateral. 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. DNA-tests for specific breeds are available.

HED-Manual Chapter 6 Guidelines

Cataracts diagnosed at older age are ticked as non-congenital (acquired). If there is distinct proof the cataract is congenital in origin (e.g. associated PPM), the boxes for congenital and non-congenital cataracts can be ticked. It is strongly recommended to draw the cataract in the "pre-drawings" on the certificate, as seen from the anterior lens capsule (see separate instructions for drawing and filling the form). For the Scheme it is advised all bilateral or unilateral cataracts and especially cortical cataracts are presumed hereditary