Direct Observation of Practical Skills (DOPS) – Ophthalmology 2023.

Timetable *

Delegates 30

6 groups of 5 students

8-830:	**Setup**
0830-0900	**Registration**
0900-0930	**Introduction and demonstration**
0930-1000	**Station 1 – history taking and examination**
1000-1030	**Station 2 – Adjunctive ophthalmic tests**
1030-1100	**Coffee break**
1100-1130	**Station 3 – Slit lamp exam - cornea**
1130-1200	**Station 4 – Slit lamp exam – ant segment**
1200-1230	**Station 5 – Distant direct and lesion localisation**
1230-1300	**Station 6 – Fundoscopy – close and indirect**
1300-1400	**Lunch**
1400-1730	**DOPS examination – see timetables below**

*students rotate through each station in groups of 5, each station has two places and students should divide themselves in two sub groups of 2/3 as needed.

Examinations timetable

NB DOPS is observed over a period of 15 minutes including time for discussion and assessment with the examinee. Examiner will inform the candidate if they have passed and if not discuss what areas to practice in preparation for re-examination. Re-examination of one part of the DOPS may be attempted immediately after the DOPS if the examiner deems appropriate. An opportunity to repeat all or part of the DOPS may be given at the end of the examination session if time allows.

Examiner	**TK**	**RS**	**KS**
1400-1415	1	2	3
1415-1430	4	5	6
1430-1445	7	8	9
1445-1500	10	11	12
1500-1515	break	break	break
1515-1530	13	14	15
1530-1545	16	17	18
1545-1600	19	20	21
1600-1615	22	23	24
1615-1630	break	break	break
1630-1645	25	26	27
1645-1700	28	29	30
1700-1715	Re-sit	Re-sit	Re-sit
1715-1730	Re-sit	Re-sit	Re-sit

Station 1: HISTORY TAKING and EXAMINATION – ROLE PLAY IN PAIRS. Exam room 1, lit.

Part 1: HISTORY TAKING (time allowed in DOPS = 2 minutes) **ROLE PLAY IN PAIRS/3s**

The examiner will provide breed, age and a simple history without significant detail. They will have a selection of case histories with photographs to facilitate the role play.

e.g.:

- Smokey has been blinking a lot
- Boris' eye looks red
- Chance has been rubbing at his eyes
- Doris had had a sticky discharge from both eyes.
- Luna has suddenly started bumping into things.

The student will then be expected to run through the questions they would want to know the answers to. This is not a test of theoretical knowledge and so the assessors should not answer the questions. The purpose of this is to ensure the student can take a pertinent history.

Example questions include the following – it is up to the assessor to determine if the questions are appropriate:

• Duration of signs • Unilateral or bilateral • Speed of onset • Any discharge or swelling • Any history of trauma • Any prior history of ocular disease • Any associated systemic signs • Any response to current or previous treatment • Any bumping into objects and if so, any difference between dark and light condition

Part 2: HANDS OFF EXAM (time allowed in DOPS = 2 minutes) **ROLE PLAY IN PAIRS/3s USING TOY DOG**

Equipment – toy dog

Candidates should practice checking the following, make sure you explain clearly what you are doing to your partner:

• Appearance of the head, checking for symmetry.

• Periocular regions

• Eyes

- Position of the lids and globes
- Globe and pupil sizes in ambient lighting conditions
- Any change of colouration (i.e. redness -conjunctival hyperaemia, blue tinge of the cornea)
- Increase in blink rate/blepharospasm
- Any discharge

additionally comment on mentation and visual behaviour

Additional information:

During this session we expect you to concentrate on:

1. Obtaining an appropriate history and anamnesis for ocular patients
    - Specific emphasis on the importance of bred pre-dispositions on the diagnosis of ocular disease in purebred dogs and cats
    - Consideration of effects of concurrently used medications on the ocular examination
    - Ophthalmic record keeping
2. Order of the ocular examination: hands off – hands on
    - Hands off: Observation of normal ocular movement, blink rate, discharge, mentation etc
    - Hands on: palpation, opening mouth, blink responses etc

Part 3: Hands on examination. Time allowed in DOPS = 2 minutes.

Perform in pairs/3s, one to hold TOY DOG whilst the other examines the "patient". Examiner to explain clearly what they are doing and expecting to see to the holder.

The student should communicate what they are assessing at this stage, demonstrating the examination where possible (keeping in mind that using a model will prevent demonstrating some of the following):

- Move head to check the physiological nystagmus
- Check eyelid position, conformation and apposition
- Check blink ability by palpating medial and lateral canthus and degree of eyelid opening
- Menace test
- Palpate around the globes for pain or swelling and check eyes can be retropulsed
- Open mouth to assess any pain
- Visual assessment of cornea, sclera and overlying structures, anterior chamber and iris /pupil for any gross abnormalities
- Comment that at the end of the exam they would:

    o Perform Schirmer tear test

    o Perform fluorescein stain

    o Check intraocular pressure

Part 4: Pen torch examination *(you will not be expected to perform this on a human partner in DOPS but may be expected to demonstrate how you would perform using a toy dog).*

perform in pairs, pen torch exam on partners

Remember to comment that would REDUCE LIGHTS FOR PEN TORCH EXAM

DEMONSTRATE

- Use of focal light source to aid examination of adnexa and anterior chamber on partner
- Direct and consensual PLR – practice on partner
- Swinging flash light test - practice on partner
- Cover uncover test - practice on partner

Further information:

Consider how you would demonstrate the following

1. Neuro-ophthalmic examination
    a. Practical application of pupillary light, dazzle and menace responses as well as vestibulo-ocular reflexes
    b. Additional methods of vision assessment both in a practical and a laboratory (*) setting
2. Focal direct illumination without magnification
        i. Use of a pen torch of Finhoff Transilluminator for examination of adnexa, cornea and pupillary light reflexes

STATION 2: ADJUNCTIVE OPHTHALMIC DIAGNOSTIC TESTS

Note you may be asked to demonstrate Schirmer tear testing in the DOPS exam.

This station is designed to allow you to discuss nasolacrimal investigation, ophthalmic stains and gonioscopy and to practice tonometry. These are considered essential ophthalmic diagnostic skills.

Tonometry & gonioscopy:

This station allows you to practice the three different types of tonometry commonly used in clinical practice:

1) Rebound tonometry – The Tonovet
2) Applanation tonometry – The Tonopen and the "IOP vet"
3) Indentation tonometry – The Schiotz tonometer

We would expect you to be able to report normal IOP ranges, explain the principles of each type of tonometer, know their advantages and disadvantages and to be able to demonstrate their use.

Use the rubber balls and water filled gloves to practice. Discuss gonioscopy with your demonstrator.

Nasolacrimal investigation:

(thanks to Kate Salmon MRCVS)

A common ocular presentation is wetting of the periocular region, most commonly at the medial canthus.

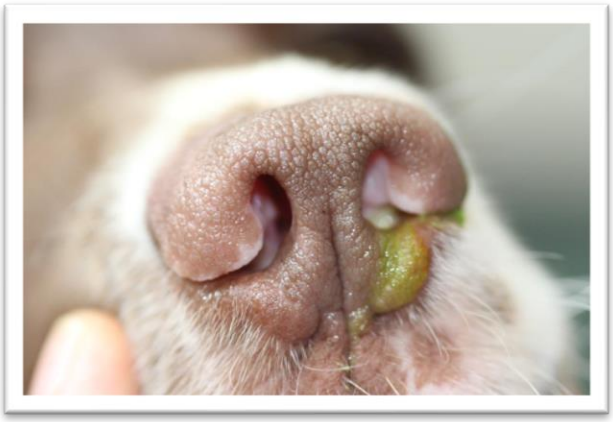
Important history points:

- Is this an acute or chronic problem?
- Unilateral or bilateral?
- Is there any associated ocular discomfort?
- What is the discharge like? Purulent or watery?
- Epiphora or tear overflow?

1. **<u>The Jones Test for Lacrimal Patency.</u>**

Performing the Jones test can be helpful. Fluorescein dye is applied to both eyes. If the nasolacrimal duct is patent, dye should appear at the ipsilateral nostril within 10 minutes. Where drainage is poor (or if too much dye is applied), overflow of dye on the face may be seen from the medial canthus.

Tip: to encourage flow of the dye to the nostril, gravity can be helpful. Feeding the patient a few treats on the floor can persuade them to look down.



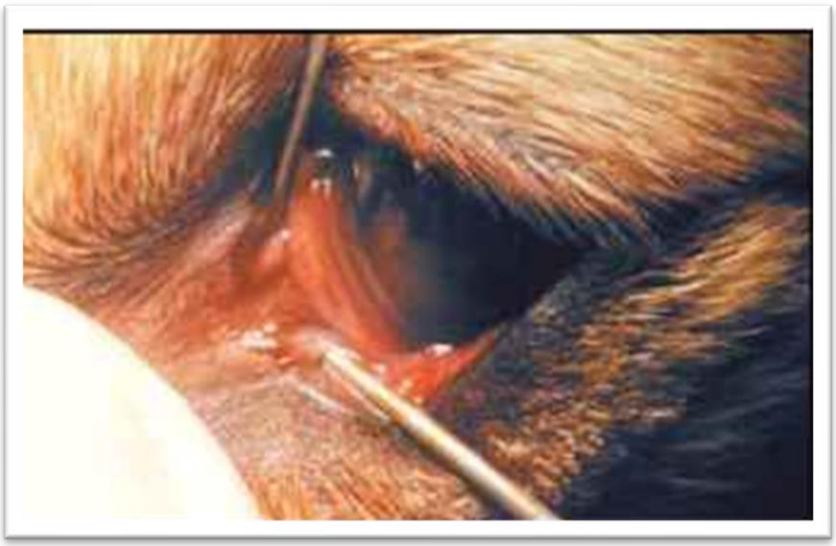
Question: This test has a high false negative result and should be interpreted with caution. What is the most common reason for a false negative result in dogs and cats, and how may breeds vary?

2. Nasolacrimal Canulation and Flushing

The patency of the nasolacrimal system can also be tested by catheterization and flushing with saline. Under topical anaesthesia, the upper lacrimal punctum and canaliculus can be catheterised using a nasolacrimal cannula (22–24 gauge) or an intravenous catheter (22–24 gauge; without stylet) and flushed with saline. This should result in fluid passing out through the lower lacrimal punctum (via the lacrimal sac and lower canaliculus). Occlusion of the lower punctum with a fingertip should result in fluid passing through the nasolacrimal duct to the distal nasal punctum. Tipping the nose of the patient downwards will encourage the fluid to flow out through the nares, rather than posteriorly into the nasal cavity. Those patients with accessory openings may be observed swallowing. If the patient is anaesthetised then the throat should be packed.

Location of the nasolacrimal ducts:

a) Dogs and cats



P*hoto from BSAVA manual of ophthalmology; Chapter 10: The lacrimal System; Claudia Hartley*

Rabbit

Picture taken from "Common Procedures in Rabbits" J. Graham; Vet Clin Exot Anim 9 (2006) 367–388

Flushing the duct:

Ophthalmic stains:

Remind yourselves of the difference between the "vital stains" (rose Bengal and Lissamine green) and fluroscein. Be aware of the different formulation of each (strip vs liquid) and the advantages and disadvantages of each. The "vital stains" stain epithelial cells which are not protected by the mucin or the glyocalyx as well as damaged cells. Fluroscein brightly stains exposed corneal stroma.

Schirmer tear testing:

Understand normal values and factors which affect these.

Understand how to safely and reproducibly perform this test.

STATION 3: SLIT LAMP EXAM – CORNEA. Dimmed light, exam room 2.

Examination in dim light / darkness with magnification

Equipment:

- SLIT LAMP
- Eye models – ***cornea segment set up**** (corneal simulacrum slide)
- Vacutainers for assessing large KPs (EDTA)
- Vacutainers for assessing small KPs (plain)
- NB both vacutainers can be used for assessment of stromal deficits.
- Agar eyes with FB
- (pen torch and macro lens)

*see instructions with training eyes if needed.

Aims:

- Use the slit lamp to identify a simulated corneal foreign body and it's depth within the cornea.
- Use the slit lamp to assess the depth of a simulated corneal stromal defect.
- Use the slit lamp to identify the location of simulated keratic precipitates on the "endothelial" surface of the corneal simulacra.
- Use the slit lamp to differentiate the location of anterior and posterior corneal simulated lesions.
- Use the slit lamp to demonstrate the principle of retroillumination of corneal opacities, both anterior and posterior.

Part 1: SLIT LAMP EXAMINATION – corneal foreign body (Time allowed in DOPS = 2 minutes)

• Use the slit lamp to view the agar eye or corneal simulacrum slide
Ensure:

- Adjust magnification as appropriate
- Demonstrate appropriate use of open beam to examine -remember to adjust light intensity and use different angles.
- Demonstrate use of corneal slit beams to assess the foreign body size and depth. Remember to increase light intensity as narrow beam and to use extreme oblique angle to assess depth.
- Understand the principle of retroillumination

Part 2: SLIT LAMP EXAMINATION – Assessment of depth of stromal defect (not examined in DOPS)

Tall beam, narrow (0.1mm for "corneal section", max brightness) and broad (0.8mm, modulate brightness, best for retroillumination) slits. Use oblique illumination, maximal corneal section view obtained with maximal angle of illumination.

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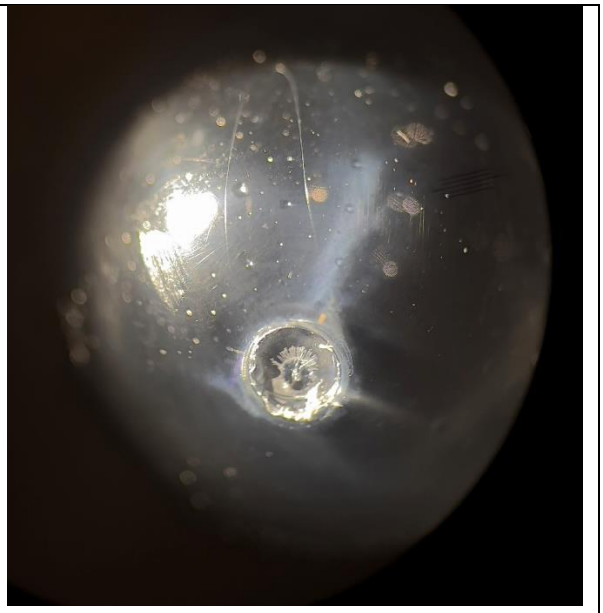
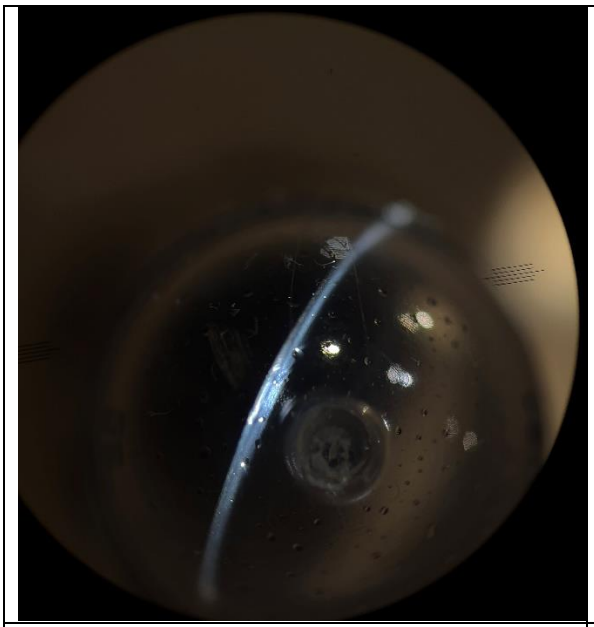
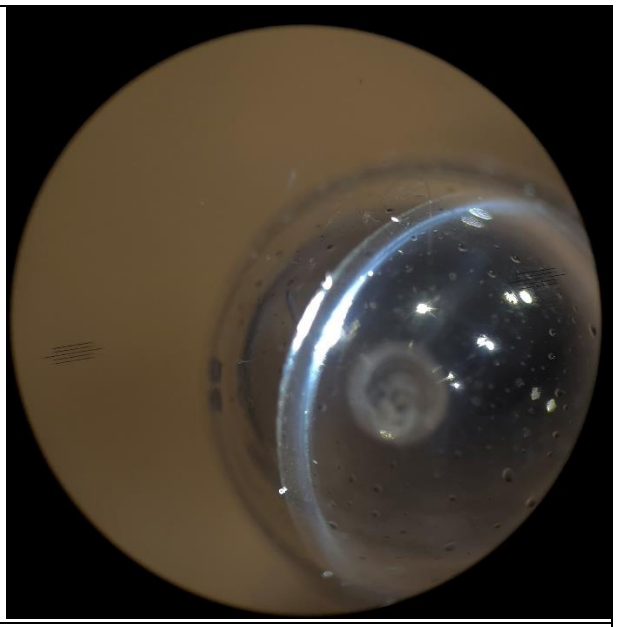
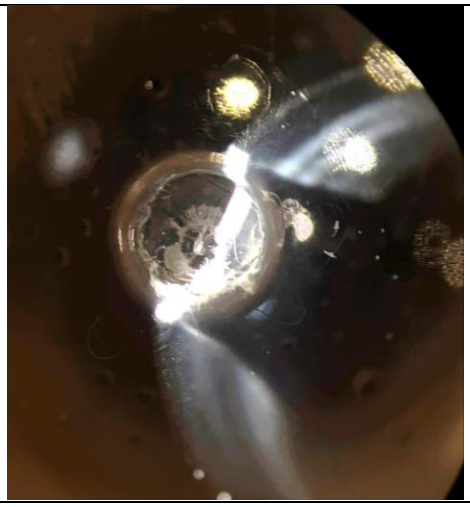
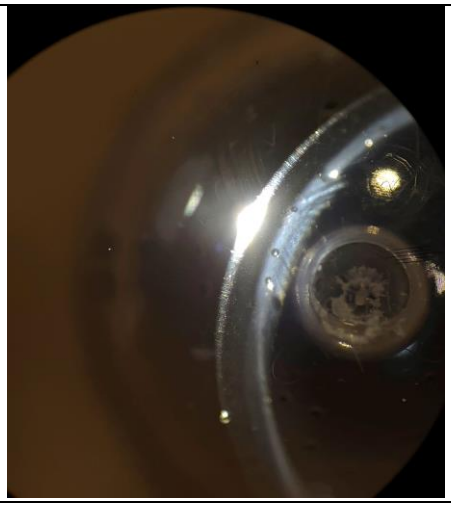
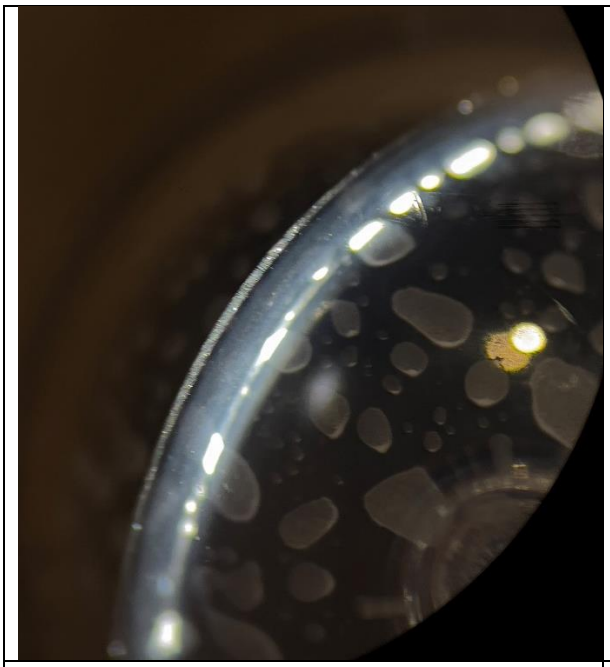
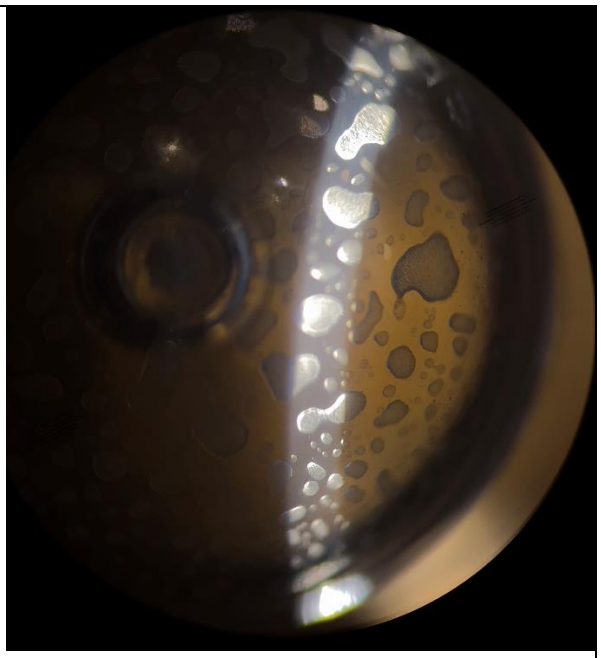
	
Corneal “section”- using vacutainer to simulate cornea. 0.1 mm slit, 12mm high, 45 degrees illumination, maximal brightness	Open beam,oblique illumination

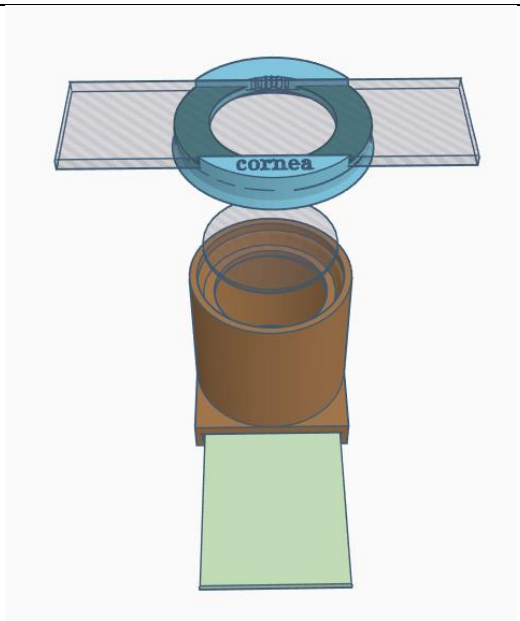
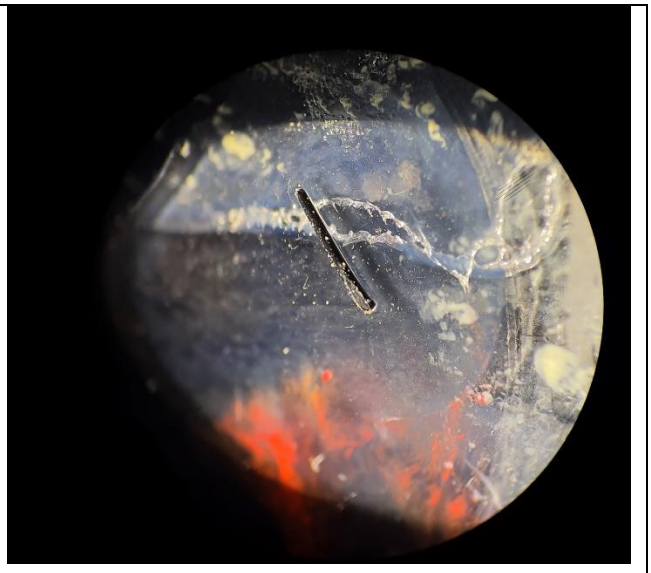
	
Corneal “section”- using vacutainer to simulate cornea. 0.1 mm slit, 12mm high, 15 degrees illumination, maximal brightness NB how little of the corneal section is visible.	Corneal “section”- using vacutainer to simulate cornea. 0.1 mm slit, 12mm high, 45 degrees illumination, maximal brightness. Note nice broad corneal section.

	
Corneal “section” for assessing depth of defect- using vacutainer to simulate cornea. 0.1 mm slit, 12mm high, 15 degrees illumination, maximal brightness.	Using corneal illumination to retroilluminate defect

Part 3: SLIT LAMP EXAMINATION - Keratitic precipitates examination (not examined in DOPS)

	
Assessment of KPs: Corneal section used to confirm “endothelial” location.	Broad beam at less oblique angle to allow retroillumination of KPs

Part 4: SLIT LAMP EXAMINATION - Corneal slide simulacrum examination (not examined in DOPS)

	
Training eye set up in “corneal” mode	Training eye : corneal foreign body – practice imaging with open beam, narrow beam, retroillumination

Additional notes:

The candidate is expected to :

- Understand the principles of the slit lamp biomicroscope
- Have an awareness of various models available for veterinary use (hand-held) vs instruments predominantly available for human use (table mounted)
- Methods of illumination and magnification used in slit lamp biomicroscopy
- Interpretation of findings on slit lamp biomicroscopy

STATION 4: SLIT LAMP EXAM ANTERIOR CHAMBER

Examination in dim light / darkness with magnification Exam room 2 (dark)

NB this will not be examined in the DOPS.

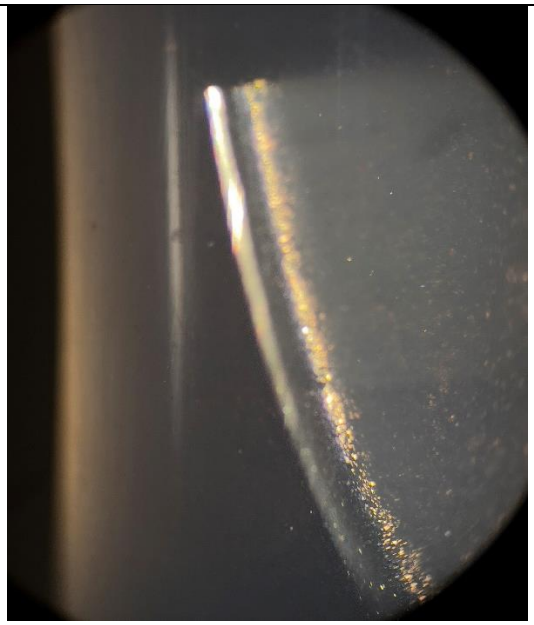
Equipment –

- Slit lamp
- eye models – ANTERIOR segment set up for localisation of ant and posterior lens lesions and anterior chamber depth assessment
- aqueous humour simulacra – for assessment of aqueous flare.
- Slit beam torch for gross localisation of lesions

Aims:

- Use the slit lamp and the eye models to localise anterior and posterior lens lesions.
- Use the slit lamp and the aqueous simulacra to identify both plasmoid and particulate aqueous flare.
- Use a slit beam to grossly identify anterior and posterior lens lesions and aqueous flare.

	
Training eye: ant segment setup, see instructions if needed.	Broad beam, 45 degree illumination to “split cornea from anterior lens from posterior lens.

	
12mm 0.1 mm slit NB marked plasmoid flare with scant particulates and KPs (lipid vesicles precipitiating from the milk added to the fluid to mimic flare)	1mm, 0.1mm. 45 degree slit used for subtlest assessment of flare, particulate only in this case.

STATION 5: Examination in darkness – distant direct ophthalmoscopy

Examination in dim light / darkness using a direct ophthalmoscope Exam room 2 (dark)

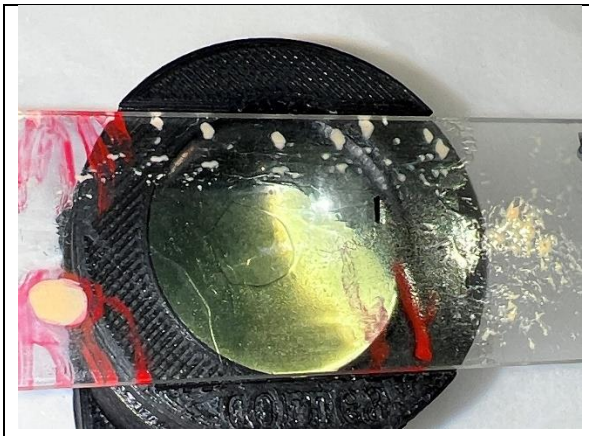
Not examined in DOPS but expect candidate to explain that would use.

Equipment:

- Direct ophthalmoscope
- Slit beam torch to assist in localisation of lens lesions
- Eye models - ANTERIOR segment set up for localisation of ant and posterior lens lesions
- Eye models – corneal set up for differentiating refractive lesions from opacities

Aims:

- Use the distant direct technique to localise corneal, anterior lens and posterior lens lesions using the principles of parallax.
- Use the distant direct technique to differentiate opacities in the optical media from changes in refractive behaviour.

	
Training eye in “corneal mode” for distant direct comparison of refractive change vs opacity.	Training eye in “anterior segment mode” - use this for assessing lesion localisation using parallax. Try with different sized pupils.

STATION 6: Examination in darkness- Distant indirect ophthalmoscopy and close direct ophthalmoscopy

Examination in dim light / darkness using a direct ophthalmoscope Exam room 2 (dark)

Equipment needed:

- Direct ophthalmoscope
- Indirect lens and pen torch
- Eye model - ANTERIOR segment set up with cataracts
- Eye model – POSTERIOR segment set up

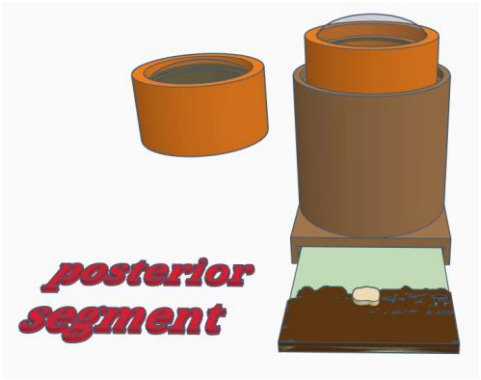
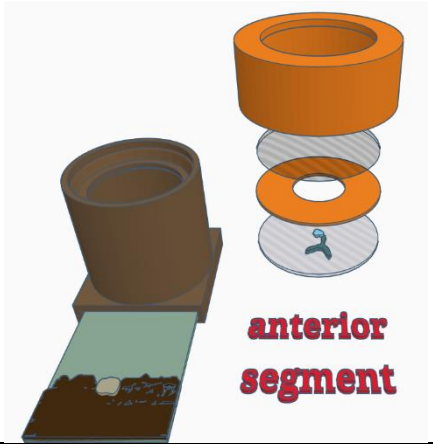
Aims:

- Use close direct ophthalmoscopy to examine the fundus when cataracts are present – note the problems in clear fundus visualisation with this technique. Attempt to read target words on the fundus.
- Use monocular indirect ophthalmoscopy to examine the fundus when cataracts present – note the advantages of this technique over close direct ophthalmoscopy. Attempt to read target words on the fundus.
- Use close direct ophthalmoscopy to examine the fundus with an optically "perfect" visual axis – note the degree of magnification and detail that this technique offers. Attempt to read target words on the fundus.
- Use monocular indirect ophthalmoscopy to examine the fundus with an optically "perfect" visual axis. Attempt to read target words on the fundus. (examined in DOPS, time allowed 2 minutes)

Additional notes:

The candidate is expected to :

- Understand the principles of monocular and binocular indirect ophthalmoscopy
- Practical application of indirect ophthalmoscopy
- Understand the principles of direct ophthalmoscopy
- Practical application of direct ophthalmoscopy
- Perform basic interpretation of ophthalmoscopic findings

	
Training eye in “posterior segment” mode – this allows maximal visual clarity for practicing fundoscopy	Training eye in “anterior segment” mode use this mode with cataracts to demonstrate the effect of visual axis opacities on direct vs indirect ophthalmoscopy

THE DOPS ASSESSMENT (afternoon)

The aspects that make up the DOPS assessment are as follows

- History taking
- Ophthalmic examination – hands off
- Ophthalmic examination – hands on
  - Examination in ambient light with the naked eye
  - Examination in dim light / darkness with magnification
  - Examination in darkness – indirect ophthalmoscopy
- Demonstrate correct use of slit lamp

The student is to perform an ophthalmic exam as described above. At each step, they are asked to describe clearly what they are doing and what they are looking for. The student should demonstrate that they have a systematic approach to the examination.
The student is not expected to perform a neurological exam (other than points included below) nor a general physical exam during the DOPS assessment. If they begin to do so, the assessor should stop them and move them on to the next stage.

HISTORY TAKING (2 minutes)
The examiner will provide breed, age and a simple history without significant detail e.g.:

- • Smokey has been blinking a lot
- • Boris' eye looks red
- • Chance has been rubbing at his eyes

The student will then be expected to run through the questions they would want to know the answers to. **This is not a test of theoretical knowledge** and so the assessors should not answer the questions. The purpose of this is to ensure the student can take a pertinent history. Example questions include the following – it is up to the assessor to determine if the questions are appropriate:

- • Duration of signs
- • Unilateral or bilateral
- • Speed of onset
- • Any discharge or swelling
- • Any history of trauma
- • Any prior history of ocular disease
- • Any associated systemic signs
- • Any response to current or previous treatment
- • Any bumping into objects and if so, any difference between dark and light conditions

OPHTHALMIC EXAMINATION – HANDS OFF (2 minutes)
Model dog to be used
The student should communicate what they are assessing from a distance:

- Appearance of the head, checking for symmetry
- Periocular regions
- Eyes
  - Position of the lids and globes
  - Globe and pupil sizes in ambient lighting conditions

- Any change of colouration (i.e. redness -conjunctival hyperaemia, blue tinge of the cornea)
- Increase in blink rate/blepharospasm
- Any discharge

OPHTHALMIC EXAMINATION – HANDS ON
Either a model or a live dog may be used
Examination in ambient light with the naked eye (2 minutes)
The student should communicate what they are assessing at this stage, demonstrating the examination where possible (keeping in mind that using a model will prevent demonstrating some of the following):

- Move head to check the physiological nystagmus
- Check eyelid position, conformation and apposition
- Check blink ability by palpating medial and lateral canthus and degree of eyelid opening
- Palpate around the globes for pain or swelling and check eyes can be retropulsed
- Open mouth to assess any pain
- Visual assessment of cornea, sclera and overlying structures, anterior chamber and iris /pupil for any gross abnormalities

Comment that at the end of the exam they would.:

- Perform Schirmer tear test*
- Perform fluorescein stain
- Check intraocular pressure

*you may be asked to demonstrate in the DOPS

Examination in dim light / darkness with magnification (with direct ophthalmoscope or slit lamp)
Either a model eye or a live dog may be used
The student should communicate what they are assessing at this stage, demonstrating the examination where possible (keeping in mind that using a model will prevent demonstrating some of the following):

- • Eyelid margins, conjunctiva, third eyelid and cornea o colour, vascularity, lustre, opacities, swellings, foreign body
- Anterior chamber Depth, presence of aqueous flare, fibrin, blood
- Iris and pupil o colour, stability, mobility, shape of pupil
- Lens (would have to mention that would need to examine after dilating)
- position, stability, presence of opacities Transparency
- Vitreous (would have to mention that would need to examine after dilating)

Examination in darkness – distant indirect ophthalmoscopy

- ***a model eye to be used*** **(2 minutes)**

The student should communicate what they are assessing at this stage, demonstrating the examination where possible. The student is expected to:

1. State that would apply 1% tropicamide to dilate pupils and examine 20 minutes later (student expected to state that they would do this but assessor may prompt)
2. Demonstrate performing distant indirect ophthalmoscopy using a hand held lens and pen torch

3. State what they are assessing i.e.appearance of the retinal vasculature, optic nerve head, tapetal fundus, non-tapetal fundus and choroidal vasculature

SLIT LAMP EXAMINATION (2 minutes)

• Use the slit lamp to view the agar eye o Adjusting magnification and beam or slit to assess the foreign body

APPENDIX:

GONIOSCOPY

Notes collated by Dr. Renata Stavinohova. References are listed at the end of the summary.

What is gonioscopy?

- Gonioscopy = technique that allows examination of the anterior face of the iridocorneal angle (ICA) and ciliary cleft (CC).[1]
- Light rays directed at the ICA do not return to the examiner's eye because they are totally internally reflected.[1]
    - total internal reflection = light rays exceed a "critical angle" as they attempt to pass from a medium of higher refractive index (1.376 for cornea) to one of lower refractive index (1.00 for air). [1]
    - A goniolens on the cornea can overcome this problem by removing the cornea-to-air interface and creating a new contact lens-to- air interface instead. [1]
- Provides additional information about the aetiology of the glaucoma (health of ICA is a possible predictor for the heritability of primary closed-angle glaucoma).[1]
- In some breed ICA changes with age.[4,5]

What is gonioscopy used for?

- Evaluation of the pectinate ligament and the iridocorneal angle (ICA) width; in its extent of 360 degrees.[1,2]

    - **Normal pectinate ligament:**
        i. consists of fine strands of tissue that originate as solitary or "tent-like" structures from the iris base, traverse the CC, often interweaving, and insert onto the corneal endothelial surface.[2]

    - **Pectinate ligament abnormality (PLA):** an abnormal PL that can be divided into 2 predominant types:[2]
        i. **Fibrae latae** (FL): fibres with a confluent (broad) base and shortened thin insertions at the cornea or thick fibres (<5 fibres).[2]
        ii. **Laminae (LA):** plates or sheets of continuous tissue (>5 fibres), with or without flow holes.[2]
    - **B. Iridocorneal angle (ICA) width:** is evaluated by comparison of the length of the pectinate ligament and the distance from the origin of the pectinate ligament to the anterior surface of the cornea at the transection area[2]
        - **open, closed, narrow[2]**

Review and study photos and examples:[2]

https://www.ecvo.eu/media/ecvo_hedsession_gonioscopy2018.pdf

- **Other:**
    - The presence of peripheral anterior synechia[1]
    - Peripheral iris cysts[1]
    - Foreign bodies, neoplasia, granulomas, traumatic irideal dialyses or other injuries, and anterior segment colobomas[1]
    - To identify intraocular extension of limbal masses such as melanomas[1]
    - To define the extent of intraocular neoplasia, for example uveal neoplasia or Feline Diffuse Iris Melanoma[1]

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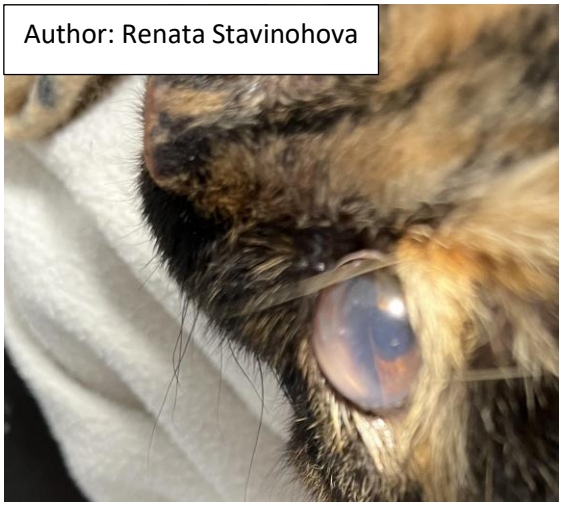

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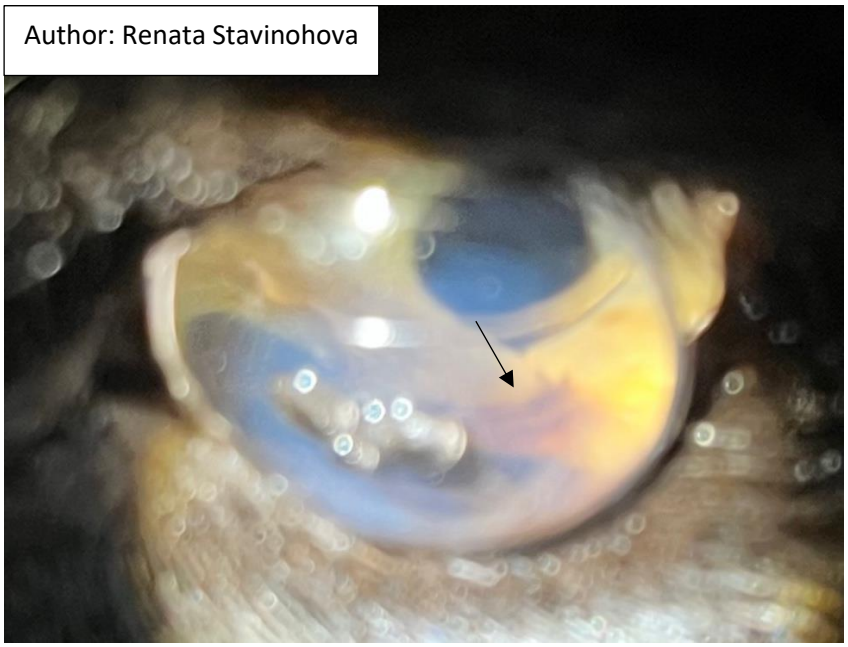

What type of goniolense does exist?

- **<u>Direct</u>**
    - very convex to avoid reaching the critical angle and allow the examiner to look obliquely across the anterior chamber to the opposite ICA[1]

    - The image is real and magnified 1.5–3×[1]
        - Examiner must look into the lens from all four quadrants to obtain a complete image of the ICA (360 degree)[1]
    - **The Koeppe lens is** held in place by a combination of the vacuum created by pressing the lens onto the anesthetized corneal surface and the small "flange" placed into the conjunctival fornices[1]
    - **Lovac-Barkan lens** is held in place by a vacuum created via a syringe and a silicone tube attachment[1]
- **<u>Indirect</u>**
    - single or multiple mirrors or prisms that reflect the light rays emanating from the ICA through a plano anterior contact lens, ensuring that the critical angle is not reached[1]
    - The entire circumference of the angle can be observed simply by minimal rotation of the lens or by changing focus from mirror to mirror[1]
    - do not provide magnification[1]

Photos of some of the indirect lenses can be found in:

- Kirk N. Gelatt (Editor), Gil Ben-Shlomo (Associate Editor), Brian C. Gilger (Associate Editor), Diane V. H. Hendrix (Associate Editor), Thomas J. Kern (Associate Editor), Caryn E. Plummer (Associate Editor); **Ophthalmic Examination and Diagnostics** Part 1: The Eye Examination and Diagnostic Procedures. *Heidi J. Featherstone1 and Christine L. Heinrich* Veterinary Ophthalmology, 6th Edition, May 2021; **page 633**
- https://www.optometry.org.au/wpcontent/uploads/Professional_support/Clinical_areas_interest/Gonioscopy-Clinical-Note-12.01.2021.pdf?utm_source=All+staff+-+National+Office+%26+State+Divisions&utm_campaign=cbbab2f24f-EMAIL_CAMPAIGN_2020_12_02_03_45_COPY_01&utm_medium=email&utm_term=0_e672f5be93-cbbab2f24f-216915881

How to perform gonioscopy ?[1,3]

<u>Koeppe lens</u>

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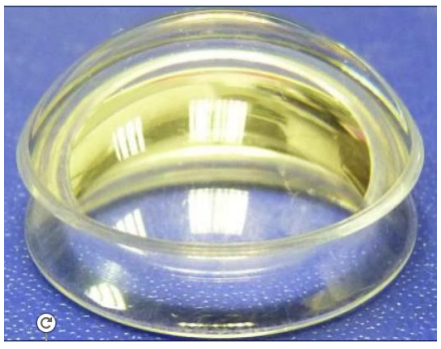

1. Assess the eye and cornea for contraindications[1]
2. Discuss the procedure with the owner so they know what to expect[3]
3. Table to set as mid-height, assistant to restraint the animal[1]
4. The patient's head should be hold "nose down" by the assistant[1]
5. Apply a drop of proxymetacaine[1] and repeat a drop in a few seconds
6. Prepare your slit lamp, a clean swab, a goniolens and a coupling gel or fluid near the table
    a. Fill the inner / concave part of the goniolens half -way with a coupling gel or fluid (avoid air bubbles or overfilling)[1]
7. Open eyelids (with your hand) and place the goniolens on the cornea (with your second hand) that the edge of the lens slides under neath the third eyelid
    a. the inferior edge of the lens is placed first which will help to displace the third eyelid[1]
8. If possible move the eyelids over the goniolens and hold the goniolens on the cornea
9. With a Koeppe lens, initial gentle pressure onto the lens is required to create a vacuum, which will then allow retention of the lens on the cornea[1]
10. Switch the lights off
11. Open eyelids and clean the redundant gel on the goniolens with a swab
12. Slit lamp biomicroscopy or*[1]
13. Start ventrally at 6 and look up to 12 o'clock (ventro-nasal-dorsal x ventro- temporal-dorsal)
14. Remove the lens from the cornea: open the eyelid and dislodge the lens
15. Examine the fellow eye (always)

NB: Avoid ongoing pressure on the cornea/globe as this will cause artificial opening/closing the ICA/CC[1]

Demonstration:

1

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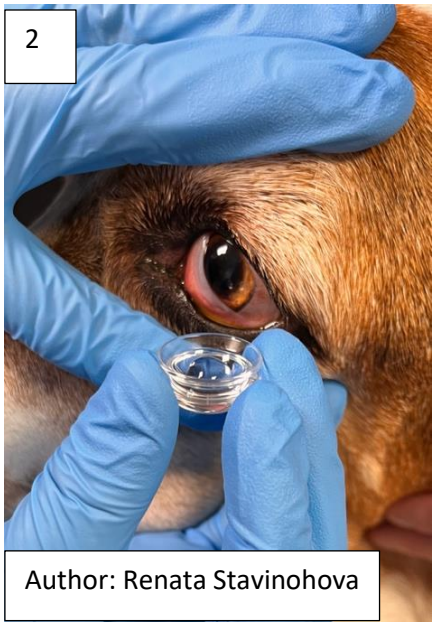
2



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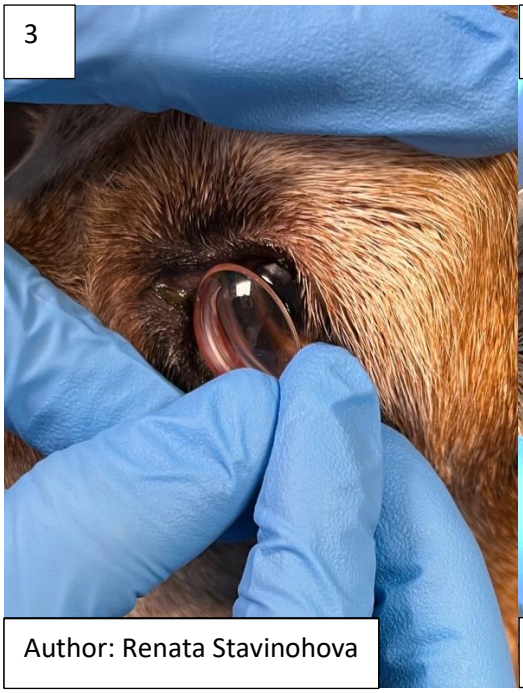

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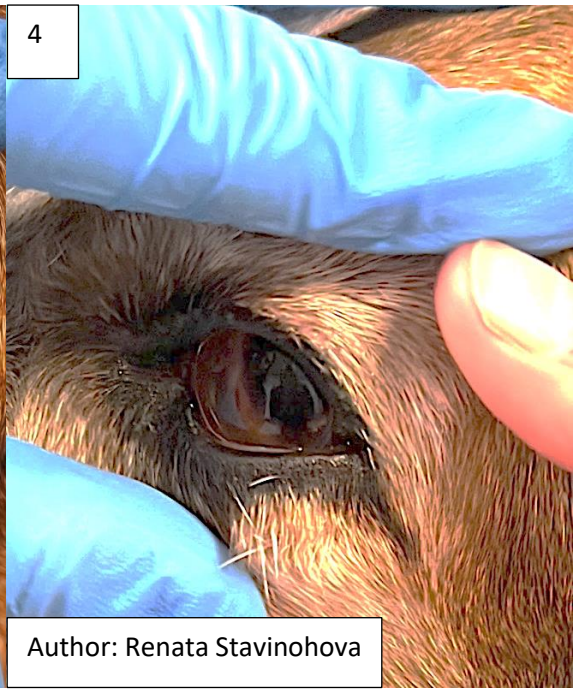

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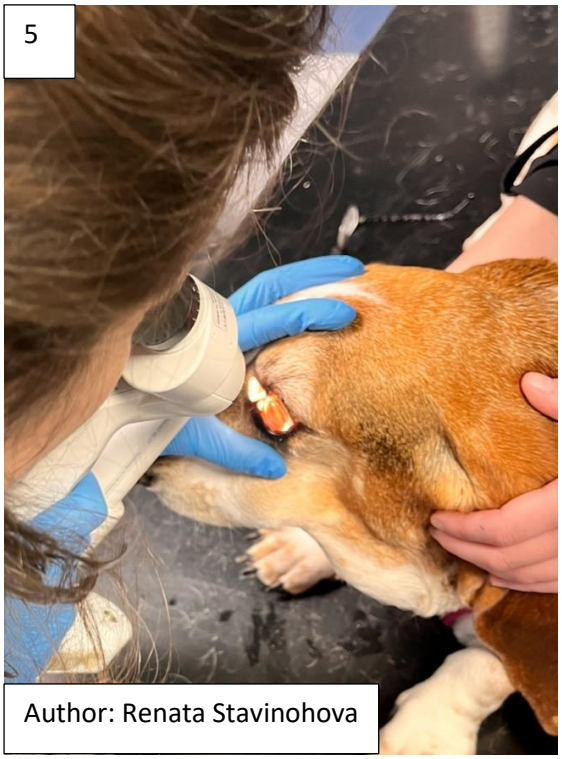

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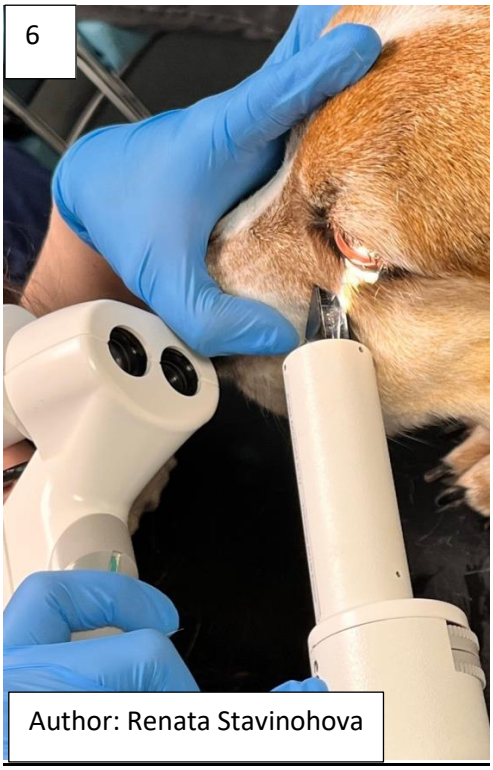

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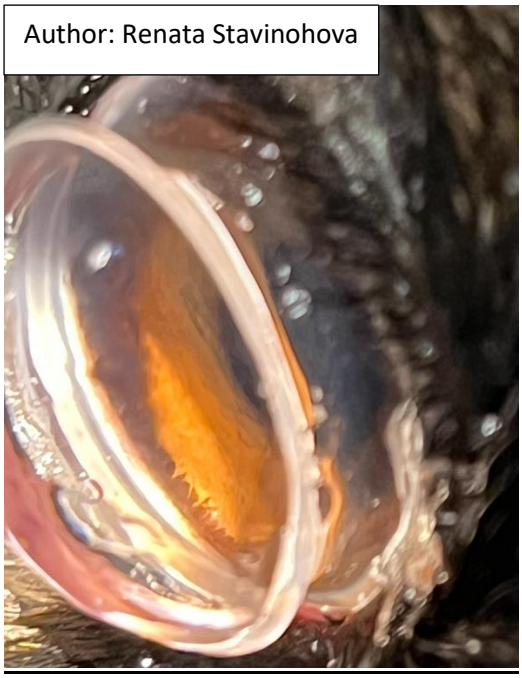
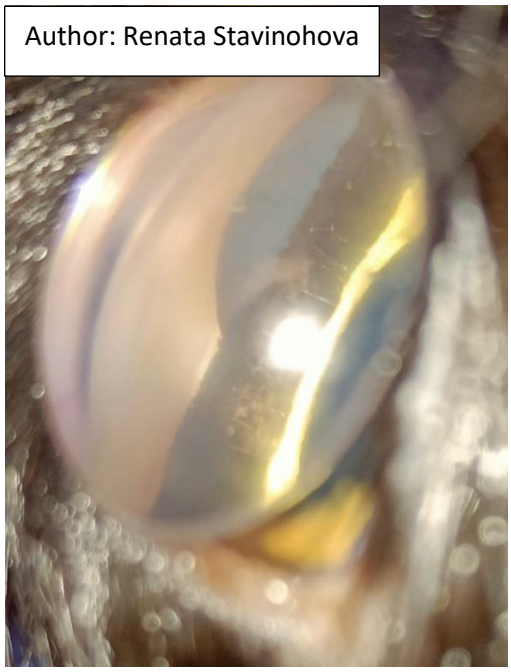
CANINE ICA **FELINE ICA**





Lovac Barkan

- The silicone tubing attached to the lens is flushed with sterile saline until the small well on the concave side of the lens is filled with fluid[1]
- The lens is then applied to the eye as previously described for the Koeppe lens and the eyelids are closed firmly over the lens while further saline is flushed through the silicone tube via an attached syringe[1]
- Once all air bubbles have been displaced between the lens and the cornea, the syringe is detached and the silicone tube is left to hang freely, creating gentle suction, which secures the lens on the corneal surface without additional manual support[1]
- To remove the lens inject more sterile saline via tube

Gonioscopy lenses should be cleaned between patients[1]

Coupling gel or fluid - methylcellulose solution[1], carbomer type gel or saline (Lovac Barkan)[1]

***A portable slit-lamp biomicroscope is ideal but a handheld fundus camera or direct ophthalmoscope can be used[1]**

High-resolution ultrasound and ultra- sound biomicroscopy provide a more complete picture of the ICA and CC[1]

References:

1. Kirk N. Gelatt (Editor), Gil Ben-Shlomo (Associate Editor), Brian C. Gilger (Associate Editor), Diane V. H. Hendrix (Associate Editor), Thomas J. Kern (Associate Editor), Caryn E. Plummer (Associate Editor); **Ophthalmic Examination and Diagnostics** Part 1: The Eye Examination and Diagnostic Procedures. *Heidi J. Featherstone1 and Christine L. Heinrich* Veterinary Ophthalmology, 6th Edition, May 2021

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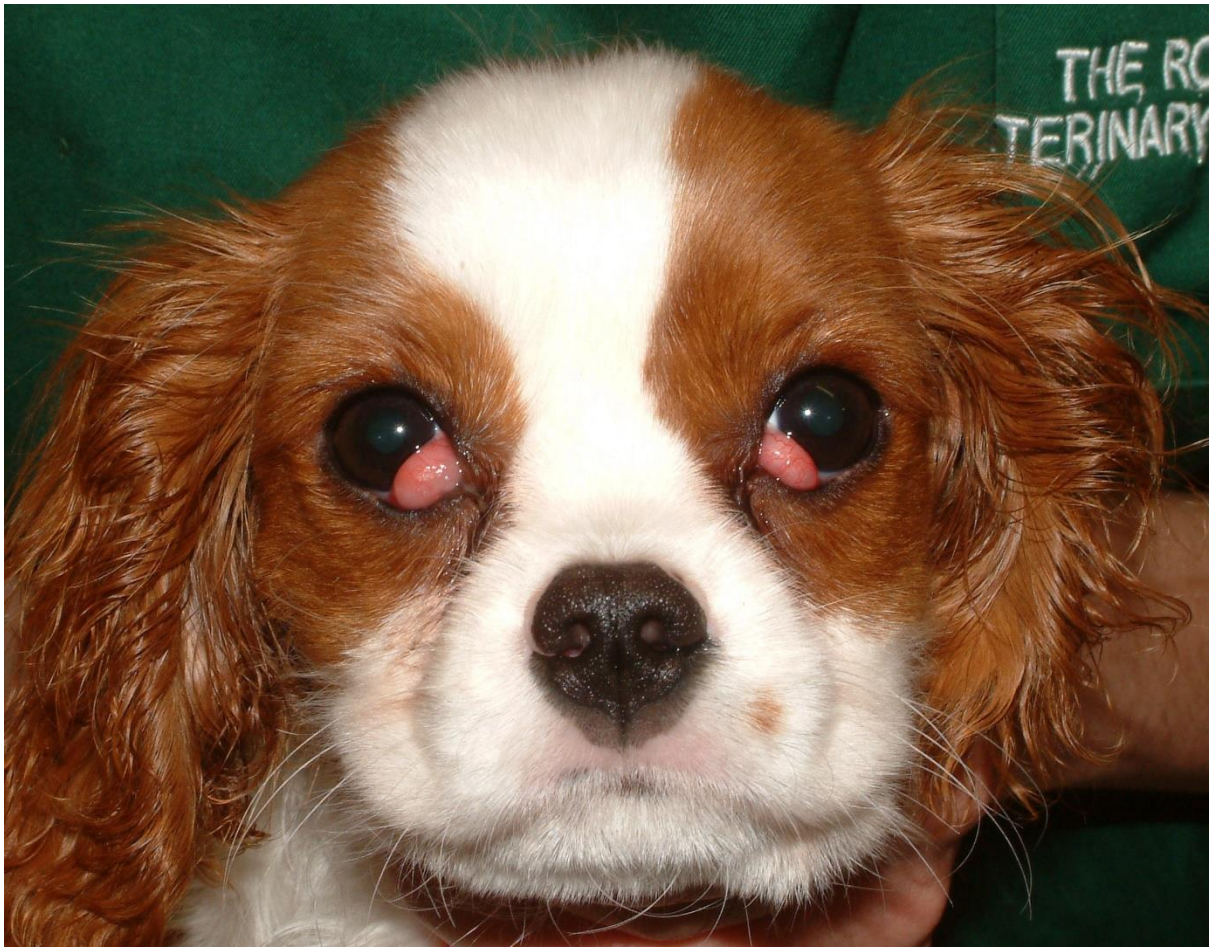
APPENDIX 2: EXAMPLES OF CASE HISTORIES FOR PRACTICIING TAKING OPHTHALMOC HISTORY:

Case1:

Signalment: 4 month old F CKCS

- **Presentation:** Rosie presented with pink swellings in the corners of both eyes.
- **History:** Rosie is her owner's first dog, they have had her for 6 weeks. Vaccinated and wormed. Left eye swelling appeared 7 days ago, right eye swelling appeared today. Both eyes have been open and comfortable although she has had slightly red eyes for a few weeks.
-



Case 2:

Signalment: 8 year old MN English Bulldog

Presentation: Roscoe has been seeing another vet for a corneal ulcer for the last 10 days. The eye has gotten much more comfortable over the last 24hours but the appearance has changed. His usual vet is not sure what's happened and has asked your advice.

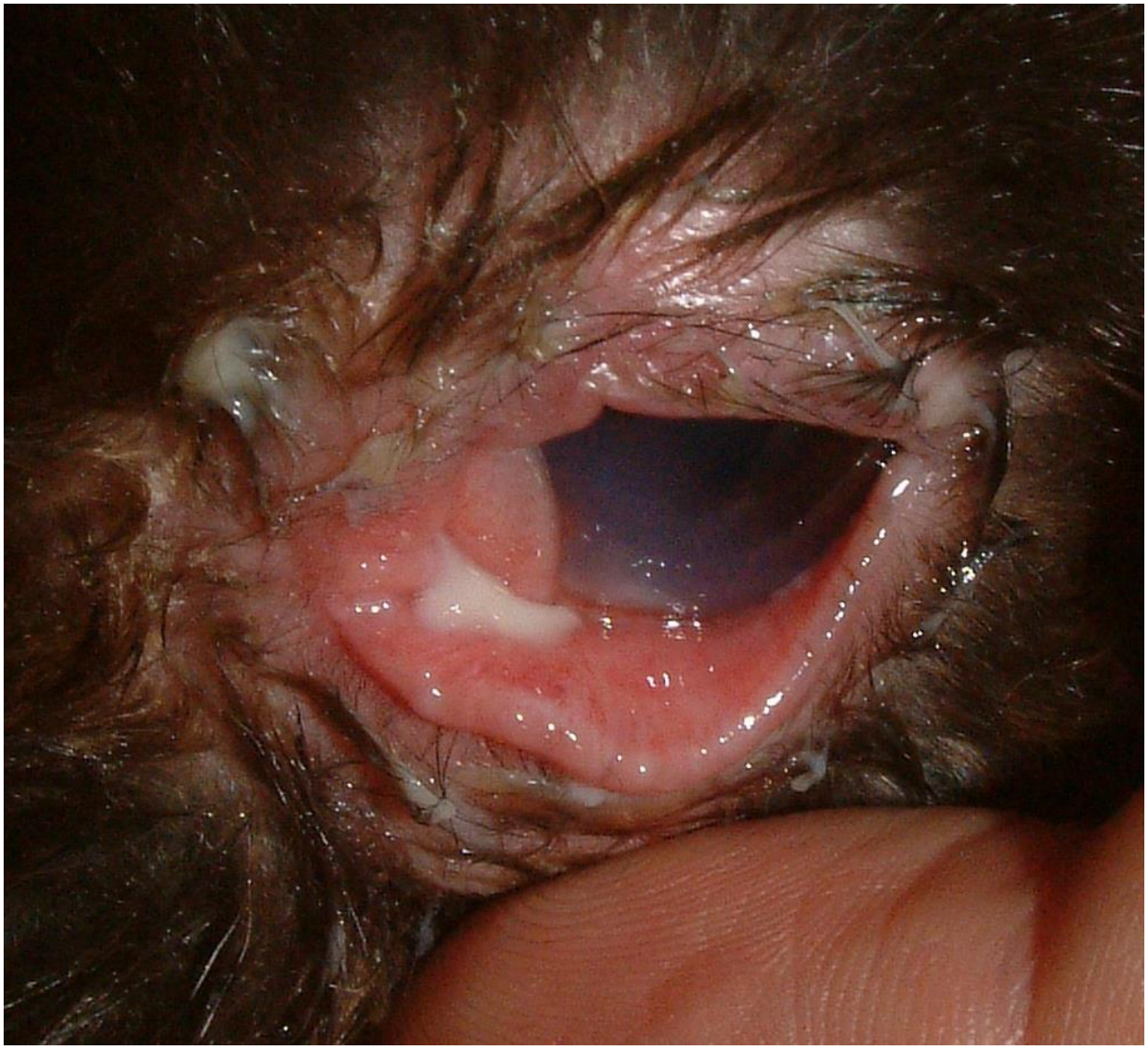
History: Roscoe has been with the breeder owner since birth, he is unvaccinated. The owner is reluctant to volunteer any history about his eyes but it appears he has had "sticky eyes" for the last 18months and has been treated for "eye infections" by the owner using eye ointment they have sourced themselves from the internet. 2 weeks ago the left eye became acutely painful and they presented to their local veterinary surgeon who diagnosed an ulcer.

Case 3:

Signalment: 8 year old Netherland Dwarf Rabbit

Presentation: Sooty presented with a 2 week history of a sore left eye.

History: Sooty is a house rabbit and is fully vaccinated. He is a fussy eater and enjoys treats. He has been increasingly off his food the last month and the owner feels he has been losing weight.



Corneal Sequestrum

Signalment: 8 year old Persian FN

Presentation: Garfield's right eye has become suddenly painful.

History: A rescue cat, Garfield has only been with his current owner for 6months. He has sticky brown discharge around both eyes and his nose since arriving. He suddenly developed a painful right eye with a new tenacious yellow discharge.