Diagnostic Examination of the Eye

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Ophthalmic Examination

“More is missed by not looking than by not knowing” [Thomas McCrae, 1870-1935]

Ophthalmic Examination

- External exam

Ophthalmic Examination

- External exam
- Internal exam

Know Equipment & Anatomy!

Oh, oh

Know Equipment & Anatomy!

I can’t see a thing?
Basic Ophthalmic Exam

Advanced Ophthalmic Examination

Maze Test

Finoff & Magnification

Anyone over 40?

Turn off the lights
Pupillary Light Reflex

Dazzle Reflex

Hey!
That’s Bright

Cotton Ball

Menace Response

Neuro-ophthalmic Exam

CN 2, 3, 4, 5, 6, 7

Culture
**Culture**

**Schirmer Tear Test**

- STT 21 mm/min
- 2 mm/min

KCS

≤ 15mm/min consider Rx

This is the most underused, but indicated ophthalmic test in practice. ... (missing cats)

Why do you wait to get to here??

Why not treat here??

Do you see these breeds???

When do I treat???
**Fluorescein sodium**

**Indications:**
- Detection of epithelial defects
- Evaluation of nasolacrimal system
- Determination of tear breakup time - TBUT
- Seidel’s test

**Corneal Ulceration - horse**

**Tear Break-up Time (TBUT)**

LOOKS LIKE KCS, BUT STT IS >15MM
Tear Break-up

Tear Break-up

Tear Break-up - Human

Abnormal Tear Break-up - Canine

N-L Evaluation

Seidel Test
Seidel Test

Positive Seidel Test - Human

Positive Seidel Test - Canine

Rose Bengal

- Indications:
  - Detection of dry, stressed, devitalized epithelial cells
  - KCS?
  - Viral, fungal keratitis?

Topical Anesthetics

- Proparacaine 0.5%
- Rapid onset of action, 15-20 seconds with 15-20 minute duration.
Topical Anesthetics

- Prolonged use will:
  - diminish duration of anesthesia
  - retard wound healing
  - result in keratitis and corneal epithelial erosions

Nasolacrimal Irrigation

Cytology

Cytology brush
Intraocular Pressure Determination

Indications:
- Any red or painful eye
- Breeds that are predisposed to glaucoma
- Predisposed breeds with a history of glaucoma in the opposite eye
- Follow up in animals with medically controlled glaucoma

Intraocular Pressure Determination

- Determination of intraocular pressure (IOP) is indicated in all eyes with:
  - Diffuse corneal edema
  - Anisocoria
  - Fixed and dilated pupils
  - Episcleral congestion
  - Blindness
  - Buphthalmos
  - Anterior uveitis

Intraocular Pressure Determination

- There are 3 specific ways to determine intraocular pressure:
  - Indentation tonometry
  - Applanation tonometry
  - Rebound tonometry
Schiotz Tonometry

Do your patients behave for this?

Trust your result?

Applanation Tonometry

Transducer tip
Applanation Tonometry

Tonopen-Avia

Takes 6 readings with 3 touches

Tonovet - Rebound Tonometry

No topical anesthesia

IOP - What is significant?
IOP - What is significant?

Weight  250  180  120

Intraocular Exam

Indications
- Examination of the anterior segment of the eye:
  - Adnexa
  - Conjunctiva
  - Cornea
  - Aqueous
  - Iris
  - Lens
  - Anterior Vitreous

Biomicroscopy
Heine monocular slitlamp
Kowa SL-15 slitlamp

Own an iPhone?
Indirect Ophthalmoscopy

Indirect Ophthalmoscopy

Indirect Ophthalmoscopy

Direct ophthalmoscopy
Direct ophthalmoscopy

<table>
<thead>
<tr>
<th>Direct Ophthalmoscope</th>
<th>PanOptic Ophthalmoscope</th>
<th>Indirect (20D) Ophthalmoscope</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOV 9° (2.5 mm)</td>
<td>29° (7 mm)</td>
<td>56° (14 mm)</td>
</tr>
<tr>
<td>LM 17.2x</td>
<td>3.2x</td>
<td>1.74x</td>
</tr>
<tr>
<td>AM 405x</td>
<td>7.43x</td>
<td>4.04x</td>
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FOV - Field of view; LM - Lateral magnification; AM - Axial magnification

PanOptic

Man saying Hello?

Farmer saying Hello?

It is all about perception

Man in flood - HELP
Etiology?

Ultrasound Biomicroscopy
- 50-100 mHz

Electroretinogram
- Electroretinogram
- Under anesthesia vs awake
- Prior to cataract Sx
- SARDS
- Blind unknown
Questions?