

# OCULAR DIAGNOSTICS & PHARMACY 101

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Canine and feline patients with ocular disease can range from relatively simple to emergency cases. Knowing how to differentiate the causes of ocular redness, discharge and pain is critical to delivering the best treatment and ensuring the best outcome for the patient's long term vision.

In addition to a complete physical examination, every patient with ocular disease should have a methodical and thorough examination of both eyes. Assess the symmetry of the patient's eyes and orbits. Are the eyes sunken, or bulging? Evaluate for the presence of discharge and the nature of the discharge. Is the discharge clear and consistent with epiphora (excess tearing), or is it mucopurulent indicating a primary or secondary bacterial infection, or is it the thick, ropy discharge often associated with decreased tear production (dry eye)?



After the eyes have been grossly examined, further diagnostic tests should be done in a specific order to ensure test results are accurate. If desired, bacterial cultures and/or PCR swabs should be collected first. If there is any reason to suspect decreased tear production (thick, ropy chronic discharge, dull appearance to the normally shiny corneal surface, etc) a Schirmer Tear Test should be performed prior to putting any medication or flush in the eye. Next, fluorescein stain is used to evaluate for the presence of a corneal ulcer. Fluorescein will adhere to the deeper layers of the cornea (stroma) but not the corneal epithelium. Excess stain should be flushed out and the eye can be examined under white light, but blue light, from a Wood's lamp or from the blue filter on your ophthalmoscope, can enhance visualization of stain uptake. A positive test for corneal ulceration will appear bright green. Patency of the nasolacrimal ducts can also be assessed with fluorescein stain. The presence of stain in the nares confirms patency of the ducts, while the absence of stain should direct the veterinarian to perform a tear duct flush.

It's always important to completely examine behind the third eyelid and in the conjunctival sulcus to rule out the presence of a foreign body. Many cases of corneal ulceration are secondary to a foreign body lodged in the tissues that overlie the cornea during blinking. Grass seeds, plant material and even remnants of a cat's claw from a fight are among the many possible culprits. Proparacaine 0.5% is a common topical anesthetic used to assist in the examination of the eye. It's onset of action is quick (less than 30 seconds) and the effect persists for 15-20 minutes. Head-shy or aggressive patients may require systemic sedation and/or anesthesia to completely evaluate the eye and surrounding tissues.

Once the ocular tissues have been anesthetized, samples for cytology can be collected from the cornea, third eyelid or conjunctiva. This is also the ideal

# Most Common Rule-outs for Ocular Disease

## CANINE PATIENTS

Corneal ulceration

Conjunctivitis (Commonly allergic +/- secondary bacterial infection)

Keratoconjunctivitis sicca (dry eye)

Uveitis, often idiopathic

Glaucoma

## FELINE PATIENTS

Viral or bacterial conjunctivitis +/- secondary keratitis (corneal inflammation/disease)

Uveitis, often viral or other infectious causes

Corneal ulceration

A well-stocked veterinary treatment room and pharmacy should minimally include the following consumables and medications to adequately address the needs of most ocular patients:

- Schirmer Tear Test Strips
- Fluorescein Stain Strips
- Sterile eye flush
- Triple antibiotic ointment--VETROPOLYICIN® (bacitracin-neomycin-polymyxin) Veterinary Ophthalmic Ointment
- Triple antibiotic ointment with hydrocortisone--VETROPOLYICIN® HC (bacitracin-neomycin-polymyxin-hydrocortisone acetate 1%) Veterinary Ophthalmic Ointment
- Anti-chlamydial ointment-- Terramycin® (oxytetracycline HCl) Ophthalmic Ointment
- Atropine ointment or solution
- Corticosteroid suspension
- Cyclosporine ointment--Optimmune® (0.2% Cyclosporine, USP) Ophthalmic Ointment

Unfortunately, most of the ophthalmic medications veterinarians must rely on are actually FDA-approved for human use and must be used extra-label for our canine and feline patients. When available, the veterinary approved brand has been indicated above.

With a proper examination and diagnostics you can successfully treat many of your canine and feline patients with ocular disease and preserve their vision.

time to perform tonometry and assess the intraocular pressure.

Instruments such as the TONO-PEN® or TonoVet® make tonometry extremely simple and accessible to all veterinary practices. (Gone are the frustrating days of using a Schiottz tonometer!) Importance should be placed on the individual numbers collected during tonometry (normal range is 15-27 mmHg) and the difference between the numbers obtained from the left and right eye should be compared. The difference between the two eyes should be no greater than 5 mmHg in the normal patient.

A thorough examination of the eyes and the surrounding tissues can now take place via direct and/or indirect ophthalmoscopy. The lids should be closely examined for distichiae or tumors that could be irritating the cornea.

