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OPHTHALMIC EXAMINATION

The ophthalmic examination of an animal, especially for dogs, starts before the animal is situated on the examination table. It is important to observe the behavior of the animal as it walks into the examination room. Slow and cautious walking can have many reasons behind it, one of them being a decrease in vision. Bumping into things is an obvious sign that a problem exists with vision, but avoidance of large objects, while stumbling over a small object on the floor are signs of a more subtle decrease in vision. This is also a time when an indication can be obtained regarding comfort of the animal. Many dogs may walk into the examination room with eyes wide open. But when placed on the examination table will immediately close the affected eye(s) in anticipation of the examination.

History taking is the next step. Questions should be asked regarding comfort (squinting, pawing at the eye, avoiding touch from the owner on the affected side; redness (constant versus intermittent, when is the redness most pronounced); character and amount of discharge if present; and of course vision. Questions regarding vision should include whether vision is mostly affected during the day, or at night and whether peripheral vision appears to be affected.

Ophthalmic examination is best performed in a quiet room in which the lights can be dimmed. Vision is evaluated by the menace response. Care should be taken to completely cover the eye that is not evaluated. The blink response is usually fairly complete in dogs. Cats often have a very minimal response and even slight movement of the eyelids indicates a positive menace response. Very young puppies and kittens have not developed a menace response yet. Evaluation of vision in these animals is best performed by placing them on a table and allowing them to walk around on the table. They will stay away from the edge. They may or may not track a cotton ball dropped in front of them.

Symmetry of the position and formation of the eyes is evaluated next. Size of the globe and pupil, position of the eyelids and of the globe is evaluated and left and right compared. Retropulsion of both eyes is gently performed and compared left to

right. The breed should be considered when evaluating this as it is virtually impossible to retropulse a globe in breeds such as a Chihuahua. The eyelids are evaluated for position, function, and size. The presence of eyelid tumors is noted and whether or not these eyelid tumors touch the cornea. The eyelid margin is evaluated for the presence of distichiae, ectopic ciliae or overfilled glands. This is best performed with a bright light such as a Finoff transilluminator. The conjunctiva, third eyelid and sclera are evaluated for redness, swelling (chemosis) and presence of foreign bodies/tumors. Slitlamp biomicroscopy is the ideal choice to evaluate the anterior segment of the eye as it provides magnification and illumination at the same time and allows the examiner to evaluate a cross section of the cornea and lens. In practice, magnification and illumination can be obtained by using an otoscope. An optical cross section of the cornea and part of the lens can be obtained using the slitbeam on a direct ophthalmoscope. A normal cornea has a glossy appearance and is transparent and of uniform thickness. Pigmentation, fibrosis, edema, crystalline or cellular infiltrate, vascularization, lack of corneal luster and loss of epithelium/stroma (ulceration) can be seen in various corneal diseases. The anterior chamber is evaluated for the presence of cells and protein by using a very focal bright light source. If cells/protein is present, the light can be seen spanning the area between the cornea and the lens. The iris is evaluated for color, texture and obvious abnormalities such as atrophy, pigmented lesions and neovascularization. The major arterial circle of the iris is often visible in the periphery of the iris, especially in animals with blue eyes. The lens is evaluated for position and transparency. Nuclear sclerosis does not prevent visualization of the fundus reflex, but may blur fine details in the fundus. Examination of the fundus is an important part of a physical examination in any animal. The fundus can be examined using direct or indirect ophthalmoscopy. Direct ophthalmoscopy is easy to perform, but allows visualization of a small part of the fundus only at high magnification. Relatively large lesions can be easily missed using this technique. Indirect ophthalmoscopy is the method of choice to evaluate the retina. A headset is used in ophthalmology specialty practices. In general practice, a bright light source such as a Finoff transilluminator and an indirect viewing lens can be used for indirect ophthalmoscopy. There is a learning curve for this technique, but once the technique has been mastered, it will allow the veterinarian to view a large part of the fundus at lower magnification. This is very useful as a screening method for lesions in the fundus. Four parts are evaluated in the fundus:

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the optic nerve, the retinal vasculature, the tapetum and the non-tapetal area. The optic nerve is evaluated for color, shape, size and elevation. There is a huge variation of normal especially in dogs in optic nerve size and shape. The retinal vessels are evaluated for shape, size and color. The tapetum is evaluated for brightness, and the presence or absence of lesions. Finally, the non-tapetal area is evaluated for the presence or absence of pigment clumping and lesions.

After the various parts of the eye have been examined, tear production should be measured using a Schirmer Tear Test. Fluorescein staining can be used in the diagnosis of corneal ulceration and measurement of intraocular pressure confirms the presence of uveitis or glaucoma.

Most ophthalmic diseases can be diagnosed using the examination steps and simple diagnostic procedures listed above. Additional diagnostic tests such as an ocular ultrasound, electroretinography, CT scan or MRI may be needed in selected cases.