How to make best use of the direct ophthalmoscope

Our new Masterclass column is opened with expert advice on how to perform an ophthalmic exam.

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Ophthalmologists, whatever their gender, might be seen as just grown-up boys with toys! Slit lamp biomicroscope, head-mounted indirect ophthalmoscope, Finhoff transilluminator and more; it seems that you have to have a lot of cash and a fair bit of expertise to be a dyed-in-the-wool ophthalmic expert.

Yet the man who taught me just about everything I know about the subject, Dr Keith Barnett, carried around a direct ophthalmoscope in his back pocket and made the vast majority of diagnoses with that and that alone. Now the vast majority of veterinary surgeries will have these simple facilities for basic ophthalmological examination, yet very few veterinary surgeons use the direct ophthalmoscope to best effect.

The key to ophthalmology is first being able to obtain an adequate view of all parts of the eye and secondly being able to describe what is seen. We will cover the first important topic of adequate visualisation in this article.

A prerequisite of good ophthalmological examination is adequate immobilisation of the animal. For the vast majority of examinations, holding the animal’s muzzle lightly with one hand and the ophthalmoscope with the other is sufficient, but in some cases a restraining hand from an assistant to avoid the animal moving backwards is invaluable.

Pen-torch external examination

The first technique to use on any dog presenting with an ocular problem is an overall external examination with a pen-torch in a light and then moderately darkened room. Gross abnormalities of shape, colour or position of the globe and adnexa will be obvious.

Use of the pen-torch should present no problems, but one useful tip is to move the light around in a circular motion in front of the eye: this avoids mistaking reflections from the cornea or lens as opacities, for while a genuine lesion will remain still, reflections move with the light beam.

Direct and consensual light reflexes should be assessed. A crisp, clear reflection from the ocular surface shows a devent tear film and a healthy epithelium, but a broken-up reflection denotes either a defective tear film or an eroded corneal epithelium or both.

This is also the time to observe eye movements and obvious sight deficits. Sometimes a low-power head loupe can prove useful to obtain higher magnification if examination of the eyelid margin for distichia, or the lacrimal puncta is required although this is often left until direct ophthalmoscopy is used.

Distant direct ophthalmoscopy

Before taking a close examination of the eye with the direct ophthalmoscope, visualisation of the tapetal reflex from a distance of around two feet should be achieved. The ophthalmoscope is set at 0 dioptres and the bright tapetal reflex is seen when the observer’s eye is in line with the optical axis of the animal’s eye.

This has a number of purposes. First it allows the animal to become accustomed to examination with the ophthalmoscope. Second it allows assessment of any opacities in the ocular media such as cataracts which reduce the reflex. Third, it allows note to be taken of increased tapetal reflex such as would be seen in advanced...