New Tool for Fundic Imaging

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In the Literature

Balland O, Russo A, Isard PF, Mathieson I, Semeraro F, Dulaurent T. Assessment of a smartphone-based camera for fundus imaging in animals. *Vet Ophthalmol*. 2017;20(1):89-94.

FROM THE PAGE ...

Fundic imaging was performed to asses a smartphone imaging adapter with an optical system that mounts to the bumper and aligns with a smartphone camera. The resulting images have a magnification and field of view similar to that seen with direct ophthalmoscopy.

Fundic imaging with the D-EYE was performed on 5 cats, 5 dogs, and 5 rabbits after pupillary dilation and fundic examination. For each patient, a multishot series and video sequence were recorded to evaluate device utility. The device was found to safely and reliably capture still images and video of the fundus in all animals. Posterior segment anatomic structures were readily viewed in sufficient detail. Video recording was more representative of ophthalmoscopic examination and enabled distinction between tapetal overexposure versus true pathologic tapetal hyperreflectivity.

Normal and pathologic anatomy was readily discerned and documented non-invasively. Potential benefits include relative low cost and portability. Limitations include a narrow field of view, compatibility with a limited number of smartphones, and somewhat common overexposure of the tapetal fundus with still images.

Although a potentially useful tool in the clinical setting, the D-Eye is not a substitute for a thorough ophthalmoscopic examination.

... TO YOUR PATIENTS

Key pearls to put into practice:

1 Time and patience are needed to master a new technique. Regardless of equipment used, fundic imaging might initially be practiced on highly compliant patients with no history of ophthalmologic disease—ideally in a quiet environment with limited distractions.

2 Mydriasis is essential when imaging the posterior segment. Topical 1% tropicamide is a good choice for inducing mydriasis because of its relatively quick onset and short duration of action in most domestic mammalian species.[1] Mydriatic agents should be avoided in patients with a history of glaucoma and/or suspected lenticular instability.

3 Controlling light intensity during ocular imaging is helpful in obtaining quality images.[2] High-intensity light sources can overexpose the tapetal fundus. Low-intensity light can fail to illuminate important anatomic structures. Familiarity with equipment and software is important so proper adjustments can be made.

References

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2. Zvornicanin E, Zvornicanin J, Hadziefendic B. The use of smart phones in ophthalmology. *Acta Inform Med*. 2014;22(3):206-209.