New Diagnostic Techniques of Canine Glaucoma: The Use of Slit-Lamp Biomicroscopy, Electronic Applanation Tonometry, and Gonioscopy in Glaucoma-Affected Dogs

Chung-Tien LIN*, Shi-Mei WANG

Department of Veterinary Medicine, National Taiwan University, Taipei, Taiwan

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ABSTRACT Glaucoma is a common and vision-threatening ophthalmic disorder in the dog. Thirty-five dogs suffering from glaucoma were presented at the National Taiwan University Veterinary Hospital (NTUVH) for ophthalmic examination. We have used ophthalmic specialist diagnostic techniques for determination of the severity and types of the 35 canine glaucoma cases by performing slit-lamp biomicroscopy, electronic applanation tonometry and contact-lens type of gonioscopy. Among the 35 canine glaucoma cases (51 affected eyes) examined, the sex ratio of the patients between males and females was 3:4. The mean age of affected dogs was 6.9 years old. The predominant affected dog breeds was crossbred/mongrel (34%). The ratio of bilateral to unilateral glaucoma was approximately 1:1. There were high proportion of the dogs with previous history or concurrent ocular disorders of anterior uveitis or lens luxation. The leading presenting signs of the glaucoma-affected dogs were blepharospasm, buphthalmos (enlarged globe), and blindness at their first admission. A variety of ophthalmic and glaucoma diagnostic techniques have been used to diagnose glaucoma and accompanying ocular lesions. Ophthalmic examination using slit-lamp biomicroscope and indirect/direct ophthalmoscopes revealed that mydriasis, corneal edema, episcleral congestion, lens luxation, uveitis, and hypema were common ocular findings in these affected dogs. The diagnosis of glaucoma was confirmed by the measurement of intraocular pressure (IOP) using an electronic Tonopen applanation tonometer. Among 51 glaucomatous eyes of the 35 dogs, 7 eyes (14%) showed IOP reading less than 30 mmHg but with glaucoma signs, 26 eyes (51%) with IOP between 30-50 mmHg, and 18 eyes (35%) with IOP more than 50 mmHg. Gonioscopic examination was performed using a Lovac Barkan goniolens for determination of the opening of the iridocorneal aqueous humor filtering angle. Based on the results of thorough ophthalmic examination, most of the glaucoma cases were at an advanced stage of glaucoma with narrow (to close) angles or obstructed iridocorneal filtering angles. Most of the were secondary glaucoma and occurred following other ocular diseases. These clinical findings based on the techniques suggest that glaucoma is a major and common complication of various other primary ocular diseases. We find that these ophthalmic specialist diagnostic techniques are powerful and reliable for diagnosis of the glaucoma cases and they should be used for any glaucoma-suspected cases or red eye cases on a routine basis. [*Lin CT and Wang SM. New diagnostic techniques of canine glaucoma: The use of slit-lamp biomicroscopy, electronic applanation tonometry, and gonioscopy in glaucoma-affected dogs. J Chin Soc Vet Sci 27(4): 241-246, 2001. *Corresponding author TEL: 02-2735 9931. FAX: 02-2735 9931, E-mail: ctlin@ccms.ntu.edu.tw]

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