The Effects on Intraocular Pressure with Intravitreal Injection of Cyclodestructive Gentamicin in Dogs with Persistent Glaucoma

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ABSTRACT Glaucoma is a common blinding disorder in animals due to raised intraocular pressure (IOP). The objective in this study was to evaluate the surgical outcome for treatment of end-stage glaucoma by intravitreal injection of cyclodestructive gentamicin. Sixteen eyes of twelve dogs at the National Taiwan University Veterinary Hospital (NTUVH) from 2000 to 2002 diagnosed as persistent end-stage glaucoma were included in this study. Ophthalmic examination was performed by slit-lamp biomicroscopy and ophthalmoscopy. IOP was measured in every pre-operative and post-operative follow-up examination using an electronic applanation tonometer (Tonopen®XL). Surgical procedures included intravitreal injections of gentamicin 25 mg followed by dexamethasone 1 mg. The IOP was reduced in 87.5% of operated eyes (14/16 eyes) within a month postoperatively and 73% (8/11) of treated cases in a longer follow-up up to 8 months. Pre-operative mean IOP of 16 eyes was 54.2 mmHg (range from 40.6 to 90 mmHg) and post-operative mean IOP was 19.4 mmHg (range from 9.5 to 60.5 mmHg). Based on this small-scaled study, the intravitreal injection of gentamicin is effective in more than 70% of treated cases with persistent end-stage glaucoma. [Yung-Yue Jeng, Pen-Heng Chang, Lih-Seng Yeh, *Chung-Tien Lin. The Effects on Intraocular Pressure with Intravitreal Injection of Cyclodestructive Gentamicin in Dogs with Persistent Glaucoma] Taiwan Vet J 30 (3): 188-192, 2004. *Corresponding author TEL: 02-2735 9931, FAX: 02-2735 9931, E-mail: ctlintu.edu.tw]

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INTRODUCTION

Common clinical signs of glaucoma include corneal edema, painful eye, lacrimation, blepharospasm, depression or inappetence, episcleral congestion, dilated pupil, buphthalmos, and blindness. Pain and vision loss are often significant features of the condition and difficult to control. Visual loss is due to damage to the optic nerve and retina by elevated intraocular pressure (IOP) and the blindness is usually irreversible [7]. Thus, glaucoma is one of the most common causes of blindness in the dog. Aqueous humor is produced by the ciliary body epithelium and drained through the iridocorneal angle. Abnormal production of aqueous or inadequate drainage of aqueous humor triggers IOP elevation in animals [1,2]. Causes of glaucoma may be primary or secondary and the secondary glaucoma is more commonly seen in dogs [3]. The goal of management is to maintain IOP less than 30mmHg and improve clinical signs.

Glaucoma management remains a challenging task with relatively low success rate. Surgical techniques have been focused on increasing aqueous humor outflow or reducing aqueous humor production. Many surgical methods have been described for the treat-