

MANAGEMENT OF EXPOSURE KERATOPATHY AND CORNEAL ULCERATION IN BUPHTHALMIC DOGS

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Introduction

With the increasing popularity of the Chinese Pugs among pet lovers, more numbers of pugs are being presented to the veterinary hospitals, common reason being eye diseases. Corneal injuries vary from corneal oedema to corneal perforation and staphyloma. Startup (1984) observed that Chinese Pugs are more prone for corneal injuries and subsequent infection because of their prominent eyeball and large cornea.

Materials and Methods

In the case of buphthalmic eyes, chances of corneal drying (xerophthalmia) were more which may lead to exposure keratosis (Gelatt, 2000). In order to avoid this, frequent lavage of the eye with sterile normal saline was advised. In severe cases of buphthalmia especially in dry weather, use of ocular lubricants like carboxy methyl cellulose eye drops³ was advised. In the case of dogs presented with corneal oedema and opacity, in addition to antiglaucoma therapy, 6% hypertonic saline eye drops⁴ and an ocular non-steroidal anti-inflammatory drug like flurbiprofen eye drops⁵ were advised at 4-6 hourly interval.

Out of all the ocular cases in pugs, 197 dogs (90.4%) were having varying degrees of keratitis, corneal oedema and ulceration of cornea, resulting in photophobia, lacrimation, pain and associated symptoms. Those dogs with superficial corneal ulcers were treated in the same pattern as in the case of simple corneal oedema and opacity. Those dogs which were having excessively bulging eyes were subjected to temporary tarsorrhaphy in order to avoid drying of cornea. Among those dogs having ulcerative keratitis, 18 dogs (9.1%) were having descemetocoele and 34 dogs (17.3%) were having staphyloma. In the case of staphyloma, attempts were made to reduce the protruding iris and sutured the corneal injury, whenever possible, after debridement. When the corneal ulcer is deep and extensive, the ulcerated surface was covered with processed collagen shields after debridement. Such collagen shields were retained *in situ* with the help of temporary tarsorrhaphy. These

collagen shields got absorbed by third day and hence reapplied them at three days interval until the healing was complete. In the case of nine dogs (4.6%) having staphyloma, there was severe infection and suppuration along with systemic disturbances. There were necrosis and pus accumulation in the eyeball. Thorough debridement and lavage with normal saline and antibiotic solutions (gentamycin solution) were made to clear the pus from the eyeball. They were treated with systemic antibiotics (oral cephalexin⁶ @ 20 mg/kg twice daily x 7 days) along with the treatment for staphyloma.

Results and Discussion

Among the dogs presented with corneal affections, 79.8% dogs (174 numbers) were below one year of age and 26 puppies (14.9%) were below six months of age. According to Gelatt (1981), the effects of elevated IOP in dogs varied with age of the animal and young animals rapidly developed buphthalmia.

On ophthalmological examination, menace reflex was found to be sluggish, whereas corneal and palpebral reflexes were found to be normal, ruling out the possibility of neurogenic keratitis (Gelatt, 2000).

On performing indentation tonometry, the average value of intraocular pressure (IOP) was 47 ± 2.32 at the time of presentation and all of them were buphthalmic. This value got reduced to an average value of 29.33 ± 0.76 after treatment. Helper (1989) reported that buphthalmic eyes will have dilated pupil and Gelatt (1997) reported that dogs with IOP of 40 mm of Hg or more will result in buphthalmos. IOP values were in agreement with Priya (2009).

Townsend (2007) pointed out that topical beta blockers administered 8-12 hrs interval decreased production of aqueous humor and thereby IOP also. Hasegawa et al. (2001) opined that lower IOP could be maintained with medical therapy alone for a long period in dogs with open angle glaucoma. Additionally, the affected eyes were advised to be lavaged with normal saline solution in order to avoid corneal drying. Also, during the period of dry weather, such cases were advised to use

ocular lubricant eye drops in order to prevent xerophthalmia effectively. Very successful results obtained in such cases were supported by the observations made by Gelatt (2000).

In the case of excessively bulging eyes, performing temporary tarsorrhaphy for 3-5 days along with other topical medications provided excellent results. This may be due to the prevention of xerophthalmia very effectively until the IOP is normalized, as suggested by Startup (1984), Raji (2006) and Jose (2010).

In the case of dogs presented with staphyloma, attempts were made to reduce the prolapsed iris back into the anterior chamber, after debridement, and sutures were placed to appose cornea (Startup, 1984) followed by collagen grafting and temporary tarsorrhaphy. In the case of descemetocoele also, after thorough debridement and placement of collagen eye shields, tarsorrhaphy was performed (Malenda, 2000, Raji, 2006 and Jose, 2010). This process was repeated 2-3 times. By 7th day itself there was good healing of the ulcer and after that only medical treatment was continued (Raji, 2006 and Jose, 2010).

All the dogs with descemetocoele regained corneal clarity with in a period of 30-45 days time, even though corneal healing was complete with in 7-10 days. These findings were in accordance with Raji (2006) and Jose (2010). Corneal oedema and opacity persisted for 15-30 days depending on extend of the lesion (Samuelson, 1991). Dogs presented with staphyloma also had good recovery and cornea healed completely with in 10-15 days. In both the cases, where prolonged recovery period was required, excessive corneal vascularization and melanin pigment deposition were the common post operative complication. Startup (1984) observed corneal vascularization as an important part of corneal healing.

In the case of severely infected cases of staphyloma, after debridement and lavage of the eyeball with antibiotic solutions or normal saline, routine treatment for staphyloma was adopted. Additionally, systemic antibiotic treatment was given with oral cephalixin tablets. Among these animals, all of them had complete healing of the corneal injury. But, none of them regained vision in the affected eye. But a slightly contracted, small, cosmetically acceptable eye could be restored. These findings were in accordance with Raji (2006), Jose (2010) and Anoop *et al.* (2010).

Conclusion

It is therefore concluded that one reason for higher occurrence of corneal lesions in Chinese Pug breed of dogs was on account of buphthalmia which may result in exposure keratosis and xerophthalmia. The treatment protocol should be selected according to the nature and gravity of the lesion and the major goal should be to reduce the IOP, buphthalmia and xerophthalmia.

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