European Veterinary Conference
Voorjaarsdagen

Amsterdam, Netherlands
24 - 26 April, 2008

Next meeting:

Apr. 23-25, 2009 - Amsterdam, Netherlands

www.voorjaarsdagen.org

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Managing Traumatic Prolapse of the Eye
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Prognostic Indicators

Owners of pets with traumatic prolapse of the globe will want to know whether the eye can be salvaged. This question actually has two components, as in some cases vision may be salvaged, while in other cases the eye will be blinded, but the globe can be salvaged cosmetically (i.e., not be enucleated). Criteria that will help the clinician answer these questions include:

1. What is the skull conformation? Traumatic prolapse is common in brachycephalic dog breeds, due to the shallow orbit and poor lid closure. Therefore, in these breeds minimal trauma may cause prolapse. However, frequently there will be no additional injuries to the eye, skull or body. On the other hand, in cats and in mesocephalic and dolichocephalic dogs, the eye is situated in a deep orbit and is protected by tight lid closure. In these animals, traumatic prolapse is frequently accompanied by other intraocular or bodily injuries, and the prognosis is poorer.

2. Duration of prolapse. As with every medical emergency, prognosis depends on quickly obtaining medical attention. This is especially true in prolapse, as the lids can not close over the globe, leading to corneal exposure and desiccation. Depending on the duration of the prolapse, animals may present with corneal ulceration, necrosis or perforation.

3. Intraocular injury. Hyphema is a bad prognostic indicator, as it implies trauma to the uvea or globe rupture. Clinicians should recall that even if the anterior part of the eye looks intact, rupture may be present posteriorly. Retinal detachment and lens luxation may also result from trauma and be obscured by hyphema. An ultrasound examination may aid in imaging intraocular injuries. At the same time, the patient should be examined for traumatic injuries to the skull and other organs.

4. Pupils. Formerly, it was postulated that mydriasis carries poor prognosis for vision and miosis has favorable prognosis. Today, it is recognized that pupil size is not a reliable vision prognostic indicator. However, pupillary light reaction (PLR) is an important sign. If the pupil cannot be seen (due to hyphema), the consensual PLR should be checked.

5. Strabismus and extraocular muscles. Many prolapse cases present with strabismus due to rupture of extraocular muscles. The medial and ventral recti muscles and the inferior oblique muscles are the most vulnerable to rupture, and therefore most patients will present with lateral or dorsolateral strabismus. Following recovery, the initial cosmetic appearance may be displeasing, due to excessive visible (medial) conjunctiva. However, with time it may become pigmented, and less visible. Excess conjunctiva may also be covered through medial tarsorrhaphy (canthoplasty). Surgical re-attachment of the muscles is more challenging due to muscle size and fibrosis.

Clinicians should remember that ciliary arteries, which supply blood to the anterior segment of the eye, are carried in the extraocular muscles. Therefore, rupture of too many muscles will result in ocular ischemia.

Overall prognosis for vision is rather poor, with only 20% of dogs reportedly remaining visual. However, prognosis for cosmetic salvage is better. Unless prognostic indicators are very poor, you should attempt globe replacement at presentation. In most cases, enucleation should not be considered as initial therapy, and can always be discussed at later stages.

Treatment

Owners who telephone regarding traumatic ocular prolapse should be instructed to keep the cornea moist, using water, moist gauze, vaseline, ophthalmic lubricants, etc. Upon presentation, conduct the prognostic tests described, including ophthalmic examination, fluorescein staining, PLR test, and possible ultrasound evaluation. The cornea should be washed, cleaned and lubricated. As noted, the skull and other organs should also be checked.

After the patient has been stabilized and anesthetized, the lids should be rolled/pulled out over the equator, using muscle/strabismus hooks, forceps, etc. The globe
is pushed back into the orbit using gentle pressure. A lateral canthotomy may be required to facilitate replacement. A temporary tarsorrhaphy is performed to maintain lid closure. Depending on the size of the animal, 2-4 horizontal mattress sutures, using 2-0 to 4-0 non-absorbable monofilament material (e.g., nylon) are used, with stents for tension relief. Ideally, all sutures should be pre-placed, and then tied together. Make sure that the suture passes through the lid margin (meibomian gland openings) and not through the palpebral conjunctiva. If post-operative topical therapy is possible, leave a small opening at the medial canthus for applying drugs. Compresses (to reduce swelling) and an Elizabethan collar should be applied.

Post-operative therapy includes systemic antibiotics, and (depending on the animal’s state) systemic steroids (to control secondary uveitis and possible optic neuritis, and to reduce orbital tissue swelling). If an opening was left at the medial canthus, topical antibiotics and atropine should be administered. After 10 days it is possible to begin removing sutures. It is better to remove one suture at each visit, rather than all at once. Check the eye for keratoconjunctivitis sicca, corneal ulceration, keratitis and function of the facial and trigeminal nerves. Appropriate medical therapy, including antibiotics, ocular lubricants and/or topical steroids should be provided. If lagophthalmous is still present when all sutures have been removed, do not hesitate to replace them.

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