Proceedings of the Southern European Veterinary Conference
- SEVC -

Sep. 30-Oct. 3, 2010, Barcelona, Spain

Next SEVC Conference:

Sep. 30-Oct. 2, 2011 - Barcelona, Spain

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DISTICHIASIS/DISTRICHIASIS
This is most common form of eyelash disease in dogs. Cilia arising from meibomian glands and exit from the normal meibomian gland opening at the lid margin (single cilia - distichiasis; multiple cilia from a single follicle- districhiasis). It can occur on both upper and lower eyelid. Clinical signs include epiphora, blepharospasm, and conjunctivitis, and sometimes keratitis. Only those hairs creating a problem need to be treated. It may be congenital or secondary (chronic) meibomianitis which results in glandular metaplasia. Breeds commonly affected include Poodle, St. Bernard, Golden Retriever, Boxer, Shetland Sheepdogs, Bedlington Terrier, Yorkshire Terrier, Pekingese and American Cocker Spaniel.

Treatment can be medical (if only a few distichia present and problem is minor, or if animal is poor surgical candidate - use sterile lubricants as needed) or surgical. Epilation is pulling out the hair with topical anesthesia and cilia forceps. This provides temporary relief, but hairs do grow back. Complications with other types of distichia surgery include recurrence of distichia, and scarring of eyelid with or without entropion.

Electrolysis involves running a fine needle along hair shaft to the root and using heat to destroy the follicle. It is not recommended if distichia are numerous and it is a time consuming procedure. For basal meibomian gland cautery, an electro scalpel or cryosurgery probe is used to destroy the base of the meibomian glands to a depth of 1/2 the eyelid thickness. It destroys the germinal hair bulb of the distichia. There are several eyelid splitting techniques reported. Cryosurgery works well but depigments lid margins. The depigmentation is usually transient, but can be permanent.

TRICHIASIS
Normal position but directed toward cornea. Few cause clinical disease, most are secondary to previous injury and scar formation. They occurs in Poodles, Chihuahuas and other small breeds. Clinical signs include epiphora, conjunctivitis, and keratitis. Treatment is directed toward removing the offending hairs or correcting the eyelid deviation.

ECTOPIC CILIA
Cilia grow down from the meibomian gland and exit through the palpebral conjunctiva. This occur frequently near the center of the upper lid. Often very small and magnification is required to observed these. Fluorescein stain may coat the mucous and tears on the cilia making it easier to visualize. Animals with ectopic cilia often have ocular (corneal) pain and chronic corneal erosions. Diagnosis is made with the eyelid everted and magnification to look for a papilla of tissue containing the hair(s). Conjunctival resection is the preferred treatment. There is an average of 20% recurrences after electro-epilation.

**EYELIDS**

**Agenesis:** Absence of or part of the eyelid. Seen most commonly in cats. It is a bilateral defect in the upper lid extending from the lateral canthus toward the medial canthus. Size of defect varies. Causes exposure keratitis, eyelid hairs can rub on the surface of the cornea producing severe discomfort. Treatment: Small kittens recommend lubricating ointments until old enough to have reconstruction surgery of the eyelids. Surgical Correction in adults: blepharoplasty; taking a pedicle graft from the lower lid and third eyelid to fix the defect.

**Ankyloblepharon:** Adhesion of the upper and lower edges of the eyelids. If the eyes are not opened by 14 days, they should be opened with gentle traction. If this is unsuccessful then a tip of a scissor can be placed in a small opening at the medial canthus. Neonatal conjunctivitis can develop from Ankyloblepharon. Small amount of discharge may be noted in the medial canthus. Sometimes there can be a large accumulation of discharge causing the eyelids to appear swollen. The cause is usually due to a genital infection in the bitch. In cats herpes virus can be the cause.

**Entropion:** Entropion is an inward rolling of the eyelid margin. This causes the eyelid hairs to rub on the cornea. It is most common in dogs and sheep, and uncommon in horses and cats (except for Persians). Entropion can be either congenital or acquired. Congenital entropion may not manifest itself initially, and it may be inherited in certain breeds. Commonly affected breeds include Chow, English Bulldog, Toy and Miniature Poodle, Norwegian Elkhound, Great Dane, Rottweiler, Pug, Shar Pei, and sporting breeds. It is sometimes seen in combination with ectropion. Acquired entropion can be spastic (secondary to chronic irritation and pain) where spasms of the orbicularis oculi muscle occur. Given enough time, it may be irreversible. If spastic entropion is suspected, a drop of topical anesthetic should be placed on the cornea to relieve superficial pain and the eye should be observed shortly after topical anesthesia for resolution of the entropion. Acquired entropion can also be cicatricial, and results from prior or previous eyelid damage. Clinical signs seen with entropion include epiphora, blepharospasm, conjunctivitis, and keratitis. The amount and type of signs varies with the extent of involvement and duration. Medial entropion may occlude the lower lacrimal punctum.

**Basic entropion surgical procedure: Modified Hotz-Celsius.** This is a relatively simple procedure but must still require planning. An incision 3 mm from the eyelid margin to a depth that includes orbicularis oculi muscle is made the length of the entropic area. The ends of the first incision are joined by a ventral elliptical incision, the width previously determined by evaluating the degree of eversion. Closure is with simple interrupted sutures using 4-0 to 6-0 nonabsorbable suture. Trim suture ends short.

In many large and giant breed patients with lateral lower lid entropion, the palpebral fissure is oversized. In these dogs the stretched fissure length often varies from 40
to 50 mm. If the lid fissure is shortened in these patients, the lateral entropion usually disappears without specific correction. For large and giant breeds with minor central ectropion and lateral entropion of the lower and upper lids, the lateral canthoplasty procedure by Wyman can be modified, using two, nonabsorbable traction sutures attaching the lateral canthus to the periosteum of the zygomatic arch, thus stabilizing the lateral canthus.

The large and giant breeds of dogs with entropion and enophthalmia present additional challenges because the globe-lower eyelid contact is often absent and entropion repair is less predictable. The breeds with excessive forehead skin folds also complicate entropion surgery that may require concurrent excision of large amounts of the forehead skin which will affect the dog's appearance.

**Ectropion:** Ectropion is eversion of the eyelid margin. It is often congenital, and a breed characteristic, in St. Bernard’s, Bloodhounds, Basset Hounds, and American Cocker Spaniels. is also seen sporadically in other breeds. Acquired ectropion can be cicatricial (resulting from previous eyelid damage), senile (caused by decreased tone to the orbicularis oculi muscle), physiologic (seen in hunting breeds, especially following exercise with overall facial muscle fatigue; see slight droop of lower eyelid and relaxation of other facial muscles), and paralytic (following damage to the branches of CN VII; other signs of CN VII damage are usually concurrent). Clinical signs may be only cosmetic. Affected dogs tend to have exposure conjunctivitis with accumulation of debris in the lower conjunctival fornix. If the ectropion is severe, you may see keratitis. Medical treatment involves cleaning the eyes daily. Surgical treatment is necessary only if keratitis or severe conjunctivitis are present. Recommended surgical procedures include V to Y correction for cicatricial ectropion and the Kuhnt-Szymanowski technique for “simple” ectropion repair. Pedicle grafts, Z-plasties and free transplants can be used for severe (cicatricial) pure ectropion.

**Combined entropion/ectropion:** These may occur simultaneously in St. Bernard’s, Chow Chows, and English Bulldogs. The lateral lower eyelid has ectropion while the central portion of the lower eyelid has entropion. Treatment is usually not needed as it is characteristic for most of these breeds. You can use lateral canthoplasty with or without reconstruction of a lateral canthal ligament in severe cases.

**Medial canthoplasty for brachycephalic dog breeds**
This medial canthoplasty procedure reduces the size of the palpebral fissure, removes the caruncle hairs and replaces the medial canthus laterally, away from the nasal folds. The lacrimal puncta and canaliculari should be identified and protected during surgery. A “diamond” shaped area of skin, upper and lower lid margin and outer conjunctiva of the nictitating membrane, including the caruncle hairs, is removed.

**Redundant skin folds around/above the eye**
Redundant skin folds around the eye, complicated by heavy ears usually do not directly irritate the eye, but cause pressure on the lid margins and canthi, resulting in medial and upper lid entropion and trichiasis. Breeds affected are the Bloodhound, Chow-Chow, and Shar Pei, English Cocker Spaniel, Basset Hound, English Bulldog and Pug. There is usually entropion of both the upper and lower eyelids at the lateral canthus as well as ectropion of the central part of the lower eyelid. The irritation results in extra lacrimation and blepharospasm. A simple Hotz-Celsius entropion correction is seldom sufficient. Surgical correction of trichiasis does prevent further direct irritation (Stades procedure and medial canthoplasty).
**Traumatic eyelid injuries**

Eyelid lacerations are fairly common injuries. It is important to thoroughly examine the globe both externally and via ophthalmoscopy. The nasolacrimal system should also be evaluated for damage, especially with medial canthal injuries. Eyelids are highly vascular and have a great capacity to heal and resist infection. Minimal debridement is needed due to vascular supply, and an eyelid “tag” or flap should never be excised. Post operative care includes topical and/or systemic antibiotics, Elizabethan collar as needed, and topical ice packs during recovery and warm compresses 2-4 days post-op.

**References:**
