

## *From a previous newsletter*

A little more than a year after setting up the referral service and taking to the road, it seems a good time to reflect and look more closely at what presented itself under the spotlight of the slit lamp and ophthalmoscope within the first year. You may recognize some of the cases discussed in this letter ...

**Abbreviations** used: KCS (keratoconjunctivitis sicca), KC (keratoconjunctivitis).

Proportional representation of conditions seen:

**Corneal disease:** 31.4 %

**Intraocular disease:** 19.8 %

**Conjunctival disease:** 11.2 %

**Lid problems (lid masses, infection, inflammation, distichia and ectopic cilia, entropion, ectropion):** 10.2 %

**Glaucoma:** 7.4 %

**Third eyelid disease:** 5.2 %

**Hypertension:** 4.5 %

**Neuro-ophthalmology (where the main lesion is of neurological origin):** 3.7 %

**Exophthalmos:** 2.3 %

**Nasolacrimal duct disease:** 2 %

**Episcleral disease:** 1.5 %

**Blindness of central origin:** 0.8 %

The classification used relates to what was regarded to be the dominant problem or part of the eye affected, disregarding any of the (sometimes many) other abnormalities found on the same examination. Such a classification is of course simplistic. Many conditions affect several parts of the eye (e.g. KCS, plasmacytic conjunctivitis, uveitis, congenital abnormalities) and some diseases, although mainly of interest to us because of their intraocular effects are just part of a much more systemic problem (e.g. hypertension). Although a disease of intraocular origin, glaucoma is also considered a separate condition.

*Neoplastic disease* accounted for 62.5 % of the **exophthalmos** cases seen and *cellulitis* for the remainder. Amongst the types of neoplasms seen were squamous cell carcinoma (cat), nictitans gland adenocarcinoma (cat), mast cell tumor (dog), and meningioma (dog). Meningiomas are the only common primary tumor of the optic nerve. Surgical exploration following enucleation in this canine case showed a hard (indicating cartilaginous or boney metaplasia) bulky mass within the posterior orbit, suggesting the tumor may have originated from the optic nerve meninges. Cranial extension and (optic) nerve compression then further result in progressive exophthalmos and signs such as papilloedema and retinal detachment (**figure 1**).

*The feline adenocarcinoma case presented with very subtle third eyelid prominence. Clinically, such protrusion could easily be mistaken for enophthalmos and it could be argued that in these cases there is very little actual*

*displacement of the globe. Two months later, there was acute prolapse of the neoplastic gland which was removed surgically.*

*Entropion* was a commonly presented **eyelid** problem. It was mostly bilateral and of primary nature. Breeds affected with lateral canthus entropion included the Great Dane, Dalmation, Chow Chow, Bordeaux dog, Standard Poodle, Rottweiler, Bernese Mountain dog and Newfoundland dog. Lateral canthoplasty was the technique of choice for correction in these cases. Medial canthus entropion (associated with epiphora) was common in brachycephalics, but rarely necessitated surgical correction.

*An unusual condition in a cat, ectopic cilium and resulting corneal ulceration was diagnosed. Before surgical correction, a contact bandage lens was applied to confirm the secondary nature of the ulcer.*

15.4 % of all **conjunctival** disease was thought to be of *allergic* or *immune mediated* origin. Diseases of the drainage apparatus included punctal aplasia and hypoplasia, imperforate punctum, nasolacrimal duct obstruction and dacryocystitis. The use of punctal plugs (**figure 2**) was helpful in creating a larger opening than that obtained by simply snipping away the membrane over the imperforate punctum. Episcleral disease included *episcleritis* (nodular or diffuse) and episcleral *neoplasia* (melanoma).

*Gland (re) prolapse* made up for 76.5 % of all **third eyelid** problems seen. The pocket technique was the repositioning technique of choice. Breeds affected included Bulldogs, Lhasa Apsos, the Newfoundland dog, Great Dane, Basset and St Bernard. A significant proportion of these cases had already been operated on using the Kaswan Martin technique. Failure of repositioning, simplicity of gland removal and the ongoing debate on the necessity of repositioning would make third eyelid gland prolapse my favourite condition to be rooted out by genetic engineering. For now, each case will have to be looked at individually, but removing the gland should be avoided. *Scrolling of the third eyelid cartilage* was either seen with gland prolapse or as a separate condition (Weimaraner, Newfoundland dog, Great Dane).

In 64.86 % of the cases with **corneal disease** integrity of the cornea was lost, making *ulceration* by far the most common problem presented with. Approximately 70 % of these ulcers were superficial. 43.6 % of all conjunctival disease and 11.7 % of all corneal disease was associated with *keratoconjunctivitis sicca*. This meant that 20 % of all corneal and conjunctival problems could be linked with KCS, perhaps indicating again that this disease is as prevalent as ever. Out of 31 cases 2 were cats, one of which was referred for corneal sequestration. 14 canine cases were bilateral, two of which were of (in my experience very rare) acute onset. *Drug toxicity* to sulphonamide treatment (salazopyrine and sulphasalazine) was suspected in two dogs. 4 *parotid duct transpositions* were carried out. Other corneal disease included *pannus*, *lipid keratopathy* (one case diagnosed with systemic hyperlipidaemia), *endothelial disease* (degeneration) and *corneal dystrophy* or *degeneration*. The latter was suspected to be the underlying cause of ulceration in several cases. Histology also provided some useful information on what was thought to represent corneal (superficial) dystrophy in the rabbit.

*Corneal sequestration* was not uncommon (7.2 %) and this was in all but 2 cases (spontaneous extrusion, keratectomy) treated with a corneo-conjunctival graft. The end result is a much clearer cornea (**figure 3,4**) than that usually achieved by pedicle grafting (**figure 5**). Almost half the cases were Persians. Another interesting disease was *eosinophilic keratitis (keratoconjunctivitis)*. This was diagnosed by corneal scraping (more commonly presented chronic and typical cases – **figure 6**) or, in one less typical case where recurrent superficial corneal erosion and the most moderate of fibrovascular infiltrate were the main clinical features, by corneal biopsy. All cases were unilateral. In one case Herpes virus was isolated following acute and intense chemosis, shortly after the start of topical steroid treatment. The unilateral occurrence may suggest that this was associated with virus reactivation (virus latency within sensory ganglia) rather than acute infection (one of the other 5 cats in the household was diagnosed with “flu” at the same time). This is interesting, as a possible causative link between Herpes and eosinophilic KC is suspected.

*Cataracts* and *uveitis* were the most common **intraocular** problems. Electroretinography (**figure 10**) was very useful to help demonstrate normal retinal function versus retinal disease in eyes where the fundus could not be examined (e.g. cataracts, intraocular haemorrhage).

*An interesting case of severe panuveitis with bilateral serous retinal detachments was seen in a Cocker. Each time there was good response (including retinal re attachment) to corticosteroid treatment and Furosemide. The cause was presumably immune mediated, but the initial attack and subsequent recurrence both followed the use of a spot on flea preparation.*

*Another very interesting finding was the isolation of *Encephalitozoon cuniculi* from emulsified lens material following cataract surgery on the left eye of a dwarf rabbit, perhaps additional evidence that this microsporidial parasite is responsible for cataract formation and resulting phacoclastic uveitis.*

Other intraocular conditions included *congenital abnormalities* (persistent pupillary membranes, vascular remnants within the vitreous, persistent primary vitreous, optic disc colobomata and optic nerve hypoplasia – see **figure 7**), *lens luxation*, *vitreous degenerative disease*, *retinal disease* (*detachment*, *tears*, *degeneration*, *hypertensive retinopathy*). Degenerative vitreous disease, although rare to be presented as a primary problem, was a common additional finding. Intraocular *neoplasms* included iris melanoma (cat), ciliary body adenoma (dog), melanoma (dog – see **figure 9**) and lymphoma (cat). The possible intraocular extension from meningioma (see under exophthalmos) should also be considered.

14 cases of **hypertension** (diagnosed by clinical signs and Doppler blood pressure measurement) were seen. Of these, 8 were cats. This almost suggests that hypertension is more common than is generally accepted in the dog. Increasingly busy life styles and owner's expectations? Whereas in cats the disease was fairly typical in its presentation (referred for visual deterioration or sudden onset blindness), the hypertension in dogs was in all cases an incidental finding or diagnosed in addition to the problem the animal was referred for.

**Glaucoma** was thought to be *primary* (goniodysgenesis) in 11.5 % of all cases. Pigment dispersion, lens luxation, neoplasia, uveitis (2 FIV+ cats) accounted for most of the *secondary* cases whilst one *congenital* case (multiple abnormalities) was seen. Three cases were treated with *intrascleral prosthesis* as an alternative to enucleation. A follow up on a feline case treated with a Raffan implant in the left eye 3 years earlier showed a normotensive and comfortable eye (**figure 8**).

Two suspected cases of sudden acquired retinal degeneration syndrome were seen (Dachshund and cross breed dog), but blindness of central origin could not be excluded and no electroretinography was performed. *Anisocoria* was the most commonly presented **neuro-ophthalmologic** problem, and the results of pharmacological testing of the dilated pupil using direct and indirect parasympathomimetics were confusing to say the least. In one dog (Staffordshire Bull Terrier), presented with a dilated non-response pupil and ventrolateral strabismus in the left eye, a central lesion (III cranial nerve) was strongly suspected and confirmed by magnetic resonance imaging (**figure 11**). Pharmacological pupil testing however suggested that this was a postganglionic lesion.

The vast majority of animals referred were dogs and cats. Rabbits (dacryocystitis, keratoconjunctivitis, ulcerative keratitis and corneal dystrophy, uveitis, cataracts), the occasional horse (cataracts, uveitis, episcleral disease) and exotics (corneal and intraocular disease) made up the remainder.

And so we come to the end of this letter. I would like to thank all referring vets for sending cases, Malcolm Silkstone at Abbey's and Julia Baker at Finn's for their helpful and useful comments with histology, and Leo Pharmaceuticals (manufacturers of Fucithalamic® Vet) for their much appreciated support with this Newsletter.

