FELINE OPHTHALMOLOGY

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Eyelids

**Congenital agenesis of the lateral upper lid**

This is a rare but difficult lesion. Cats are born with a normal medial upper lid for about a third of its length (this is variable) and then there is a large defect between this point and the lateral canthus. The result is exposure keratitis due to lack of an upper lid (which is more important in protecting the cornea than the lower lid) and trichiasis from adjacent hairs contacting the cornea. Surgery is difficult due to the large size of the defect and various complex procedures have been suggested.

**Eyelid tumours**

These are uncommon in the cat compared to the dog. Squamous cell carcinoma occurs particularly in white skin with reduced protection from UV light and may be nodular but also ulcerative and erosive and not immediately obvious as a tumour; hence it can involve much of the lid margin before action is taken.

Conjunctiva

The feline conjunctiva can develop spectacular chemosis which is oedema of the conjunctiva. The conjunctiva can balloon out from behind the eyelids almost obscuring the eye. It always looks striking but is not an indicator of severity. Various infectious agents have been implicated.

**Symblepharon**

Symblepharon is the permanent adhesion of conjunctival surfaces following inflammation and ulceration in cat flu of young cats. It may occur in feral or poorly cared-for kittens and also in pedigree breeding households. Palpebral and bulbar conjunctiva, nictitating membrane and cornea may be involved in various combinations. Because the active inflammation has often subsided by the time the animal is homed the changes may be mis-interpreted as congenital. The degree of the problem may vary from insignificant through to effective blindness and may also be very asymmetrical between the eyes. Correction is surgical but this is not straightforward. Each case requires individual assessment. Many cases are not suffering more than a cosmetic problem and should be left alone.

Cornea

**Corneal sequestrum**

Sequestrum is a condition unique to the cat. Following prolonged ulceration a black plaque of necrotic cornea develops in the stroma. The most common primary problems are indolent (boxer-type) ulcers but cases are also seen due to mechanical damage from entropion or other factors. The clinical appearance is unmistakeable: The necrotic tissue behaves like a sequestrum in bone acting as a foreign body causing irritation and pain and becoming a surgical problem. Some sequestra may slough but this may take several months while the cat continues in pain.

Excision is by superficial keratectomy leaving a surgical defect. It is difficult to predict the nature or difficulty of the surgery, the simple reason being that the lesion is densely black and it is difficult to appreciate its depth and hence the required depth of the excision. The necrosis can indeed extend right down to Descemet’s membrane. Some kind of reconstruction is often needed. Heavy vascularisation is favourable and helps the healing.

**Eosinophilic keratitis**

A proliferative irregular pale pink mass of inflammatory tissue advances across the cornea from the limbus. There is usually a thick white discharge adherent to the surface and conjunctival involvement. It may be unilateral or bilateral, local or diffuse and advance from any direction. The appearance can be severe and alarming but it is not very painful. It responds well to topical steroids, frequently initially (4-6 times daily) and then reducing over several weeks. Dexamethasone or prednisolone acetate would be suitable.

Anterior uvea

Uveitis may be a manifestation of systemic disease involving several agents in the cat.

**Chronic uveitis syndrome**

This is a low to medium grade anterior uveitis in mature or older cats, usually male outdoor cats or ex-strays which are usually FIV +ve. It is often referred to as lympho-plasmacytic uveitis in pathology reports. There is chronic uveitis with keratic precipitates and darkening and thinning of the iris along with small grey raised ‘follicles’ and blood vessel prominence on the iris surface. It may appear to occur in one eye only but examine the other carefully for milder signs. Glaucoma, cataract and lens luxation may occur secondarily and these are serious complications. There may be a posterior component in the form of dense accumulations of cells in the anterior vitreous. There may be a good response to topical steroids in the early stages.
**Uveal neoplasia**

**Melanoma**

These usually grow diffusely in the anterior uvea causing a blotchy increase in iris pigmentation initially then diffuse darkening and thickening and ultimately glaucoma. There is a major difficulty in distinguishing benign naevus or freckle formation, which is common in older cats, from true melanoma. Naevi can even transform into melanomas. Deciding when enucleation is necessary can be difficult. A higher proportion of feline than canine melanomas is malignant. **lymphoma** may occur as a diffuse iris thickening usually with considerable exudate and cells shed into the anterior chamber. **Intraocular sarcoma** is an interesting intraocular tumour probably unique to the cat. They are rare. They are said to arise following trauma although this is not invariable. Histologically they have the appearance of sarcomas and spread widely though the eye including down the optic nerve and are undoubtedly malignant. Distant metastases and local recurrence can occur following enucleation. Although these are rare any progressive discoloration or thickening in an eye should be regarded as potentially serious.

**Lung-eye syndrome**

Primary lung tumours may metastasise to the eye of the cat as they do to the digits in the lung-digit syndrome. The tumour grows in spreading sheets within the eye rather than as a solid mass and often does not have the appearance of a tumour. As a general note non-pigmented thickening can be very difficult to diagnose in the cat without histology. When contemplating removing any eye with a non-diagnosed progressive abnormality, especially in an older cat, radiograph the chest first and assume the prognosis is very poor and enucleation can then be performed electively.

**The fundus**

There is much less variation in the appearance of the feline than the canine fundus. The tapetum is very bright and usually a yellow-green colour fairly consistently extending 1-2 disc diameters below the optic disc. The disc is simple and circular, the colour is a dark grey-pink and it often has some pigment and conus immediately surrounding it. The vessels do not anastamose on the surface of the disc. Hypopigmentation is common in pale cats with blue irides. They may have a complete tigroid non-tapetal fundus, i.e. choroidal vessels showing through as a stripy pattern.

**Hypertension**

Older cats are often presented with ocular/visual symptoms such as hyphaema, blindness, vitreous haemorrhage, retinal exudation, haemorrhage and detachment. In teenage cats this is nearly always due to hypertension. Hypertension is a common problem in older cats and they usually present with the eyes initially. Where the main complaint is blood in the eye try to examine the fundus beyond the blood and be sure to examine the other eye. Bloods, especially renal parameters, and T4 are usually needed along with blood pressure measurement if available. The prognosis for sight is usually poor but that does not seem to be a major factor in the owner’s decision-making and probably rightly so.

**Sclerosing orbital pseudotumour ‘Frozen orbit syndrome’**

Fibro-inflammatory tissue proliferates behind the eye binding the tissues and fixing the globe and the lids in an open position. Severe exposure keratitis results. The condition eventually spreads to the fellow eye. The aetiology is unknown and there is no known treatment.

**Enrofloxacin (Baytril)**

Excessive doses of enrofloxacin (Baytril, Bayer) can cause sudden and irreversible blindness in cats due to toxic damage to the retina. The problem is associated with excessive oral dosage, prolonged courses and intravenous use. Do not exceed $5$ mg/kg per day and in general proceed with care.

**Trauma**

**Head trauma**

The globe can be damaged by blunt trauma (usually cars) and is often full of blood when presented. Further information can only be acquired with ultrasound if available. Protect the surface with copious lubrication. Stabilise the patient and manage head and other lesions first. These eyes have usually sustained severe intraocular disruption often with posterior scleral rupture. Unless there is spontaneous improvement it is usually safe to assume the prognosis is very poor and enucleation can then be performed electively.

**Cat claw trauma**

Feline eyes are regularly lost to cat claw injuries. Cat claws are sharp and powerful and long enough to cross the anterior chamber and penetrate the lens. Always take ocular cat claw injuries seriously initially. The corneal entry site often seals itself well. Lens rupture, however, considerably complicates any penetrating injury and must be identified at an early stage if possible. The exposure of lens material via a large tear will cause an ongoing lens-induced uveitis and progressive cataract. Bacteria may be inoculated into the lens which is a favourable environment for bacterial growth while leukocyte and drug penetration are poor. If lens rupture is confirmed or suspected then consider referral. Small lens penetrations can self-seal and cause only a local cataract. Large penetrations can lead to intractable uveitis and total cataract and lens removal may be the best means of prevention.
**Enucleation**

When performing enucleation in cats, excessive traction on the eye being removed can damage the opposite optic nerve at the chiasm and blind the opposite eye. Position the eye as necessary during enucleation (an assistant helps) but never pull.

**Dental injury**

The last upper molar in the cat only has a thin rim of bone caudal to it. When using an elevator to remove this tooth it is easy for the elevator to slip off the bone and enter the orbit and the eye ventrally.