**EQUINE EOSINOPHILIC KERATITIS: A CASE REPORT**

A 19-year-old Thoroughbred gelding presented with a three-week history of a non-healing ulcer in the left eye, which had deteriorated on treatment with topical antibiotics and systemic NSAIDs.

At the initial examination, moderate mucopurulent discharge was present in both eyes. The pupil was miotic in the left eye. The dazzle reflex, menace response and consensual pupillary light reflex (left to right) were present. The palpebral conjunctiva was moderately hyperaemic and chemotic. A large superficial ulcer was present in the left eye with well demarcated and firmly attached epithelial margins; the underlying basement membrane had a stippled white appearance. Fine neovascularisation from the ventral limbus was evident. No active inflammation was present in the anterior chamber. Examination of the lens and fundus was unremarkable in both eyes. A drop of atropine 1% was administered at the end of the examination to treat the reflex uveitis.

Patient work up included: sedation, zygomatic nerve block, placement of a subpalpebral lavage system, topical anaesthesia for a nasolacrimal flush with sampling of the flushed fluid for parasitological examination and a corneal cytobrush sample for corneal cytology. In house cytology was performed during the consult using a Diff Quik® stain, which revealed large numbers of eosinophilic granulocytes and a mixed lymphoplasmacytic inflammation with moderate to marked numbers of rod shaped and coccoid bacteria. The nasolacrimal flushing was free of parasites on in house microscopy. Based on the clinical appearance and cytology results, a diagnosis of eosinophilic keratitis (EK) was made. The patient was initially treated with topical ofloxacin (Exocin®) and dexamethasone-neomycin-polymyxinB (Maxitrol®) eye drops via the subpalpebral lavage system. Deworming was recommended using oral ivermectin with repeat treatment after a four-week interval.

After one week the corneal ulcer in the left eye had a clear appearance but had not resolved (Fig.1). Conservative treatment was continued but after three weeks the healing response in the left eye was still considered unsatisfactory. At this stage a superficial keratectomy was performed under standing sedation. A standing keratectomy requires a deep sedation, a retrobulbar nerve block and additional periocular nerve blockade. A temporary tarsorrhaphy was placed to help retain the contact lens. Initial treatment included topical chloramphenicol eye drops, systemic antibiotics (trimethoprim and sulphadiazine) as well as systemic NSAID (flunixin meglumine). Topical steroids were not prescribed at this stage as they can delay wound healing and as the corneal stroma was exposed by the surgery, steroids could increase the risk of secondary infection and corneal melting ulcer. After 10 days, the soft contact lens was removed and the ulcer had been epithelialised (Fig.2). Post-surgical treatment included topical dexamethasone (Maxitrol®), which was slowly reduced over the following six weeks.

The aetiology and aetiopathogenesis of EK remains unknown. The clinical picture can include the conjunctiva. EK represents one of the equine immune-mediated keratopathies. Long-term treatment with topical corticosteroids is a predisposing factor for mycotic, viral and bacterial infection of the ocular surface. In our experience, some cases of EK have had concomitant parasitic infection of the nasolacrimal system with the Thelazia sp. nematode. Given this treatment with a course of systemic ivermectin might be a useful addition to the treatment plan. Keratectomy of the diseased cornea may significantly shorten the healing period and can be curative in cases of EK.

**Fig. 1** Eosinophilic keratitis with a chronic non-healing superficial ulcer and a whitish-dull central area one week after initial treatment (19y/o, thoroughbred gelding)

**Fig. 2** Appearance of the keratectomy-site 10 days post surgery; the cornea is epithelialised and the neovascularisation has progressed into the surgical site. Note the mild whitish infiltrate ventral to the keratectomy site, which subsequently cleared with further topical steroid treatment.

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- Eosinophilic keratitis
- Arena surfaces research
- News on our cancer centre

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**MRI OF THE CARPUS AND PROXIMAL METACARPAL REGION**

Annamaria Nagy and Sue Dyson have recently completed a large study on magnetic resonance imaging (MRI) of the carpus and proximal metacarpal region of 30 sound (cadaver study) and 50 lame horses (clinical study).

Knowledge of variations in sound horses has helped to avoid misdiagnosis in lame horses. MRI enabled diagnosis of a variety of lesions, not detected by conventional imaging, in horses of a wide range of work disciplines.

Knowledge gained from high-field images was crucial for interpretation of clinical low-field images. The distribution of injury types differed considerably from previous studies, which can be related to different populations or to the knowledge gained from our cadaver studies.

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**WORK BEGINS ON NEW CANCER CENTRE!**

Due to open in summer 2012, our state-of-the-art cancer centre for animals has been specifically designed to treat horses, dogs and cats.

It also aims to further knowledge and understanding of cancer, not only in animals, but also in people.
ARENA SURFACES RESEARCH

Recent research at the Animal Health Trust has investigated arena surface mechanical properties using a mechanical hoof.

The mechanical hoof records information on grip, firmness, elasticity and dampening of the surface.

We have tested different arena surface types (sand and rubber, sand and fibre, waxed sand and woodchip) at livery yards, private yards and competition venues.

Preliminary results show that mechanical properties differ between arena surface types (e.g. sand and fibre is the least elastic surface type whereas sand and rubber is the most elastic surface type).

However the environment, usage and the base of the arena also affect the properties of the superficial layers.

NO CASE TOO STRAIGHTFORWARD

The Centre for Equine Studies focuses on lameness and poor performance in all sorts of horses and ponies, from the elite athlete to a much loved pet. Our clinicians can usually see horses within one to two days, unless exceptionally busy, and are happy to investigate both acute and chronic injuries.

Early referral usually results in early diagnosis, with the best chance of successful treatment. Specific diagnoses and successful treatments usually result in happy clients. Even if the prognosis is poor, clients are usually much happier to have a specific diagnosis, than not to know the cause for what is wrong.

Nothing is too straightforward - be it the evaluation of a swelling, or a suspected subsolar abscess that cannot be localised. We also offer neurological assessments - in fact some horses that are performing suboptimally may have an underlying neurological problem.

Please feel free to talk to our clinicians about your problem horses. We also are willing to provide advice about the interpretation of radiological and ultrasonographic images and to advise you how to investigate further.

BURGHLEY BURSARY TO HELP FIGHT STRANGLES

The Land Rover Burghley Horse Trials has awarded a £15,000 bursary to the AHT. The bursary will be used to help fund the development of a rapid result blood test to identify horses infected with Strangles.

The AHT has already developed a test that can detect the disease, however the result is not known for 48 hours. The aim of the new research is to develop the test to produce a result within 10 minutes. The test, which is being developed in conjunction with Forsite Diagnostics Ltd, will be a useful tool for disease screening at sales and competitions.

Dr Richard Newton of the AHT who is carrying out the research in partnership with Professor Andrew Waller, said: “Without this vital funding to carry out the painstaking work that will give us the confidence to launch the test, it will remain no more than a theoretical possibility.”

The Bursary was presented at last year’s Land Rover Burghley Horse Trials (1-4 September 2011) – in recognition of the 50th Anniversary of the event.

PROXIMAL LESIONS OF THE ACCESSORY LIGAMENT OF THE DEEP DIGITAL FLEXOR TENDON IN FORELIMBS AND HINDLIMBS

Injuries of the accessory ligament of the deep digital flexor tendon (ALDDFT) have traditionally been associated with palpable soft tissue swelling in the proximal two-thirds of the metacarpus and metatarsus.

Sue Dyson has recently documented a series of horses with forelimb lameness, with no localising clinical signs, with lesions at the origin of the ALDDFT detected ultrasonographically.

Proximal lesions in hindlimbs have been associated with transient mild swelling; lesions are readily missed unless the most proximal aspect of the ligament is examined from the plantaromedial aspect of the metatarsus.

Transverse (7cm distal to the accessory carpal bone) and longitudinal ultrasonographic images of the proximal metacarpal region of an eight-year-old event horse. The ALDDFT is enlarged and has a diffuse reduction in echogenicity (arrows), with loss of fibre pattern in the longitudinal image.