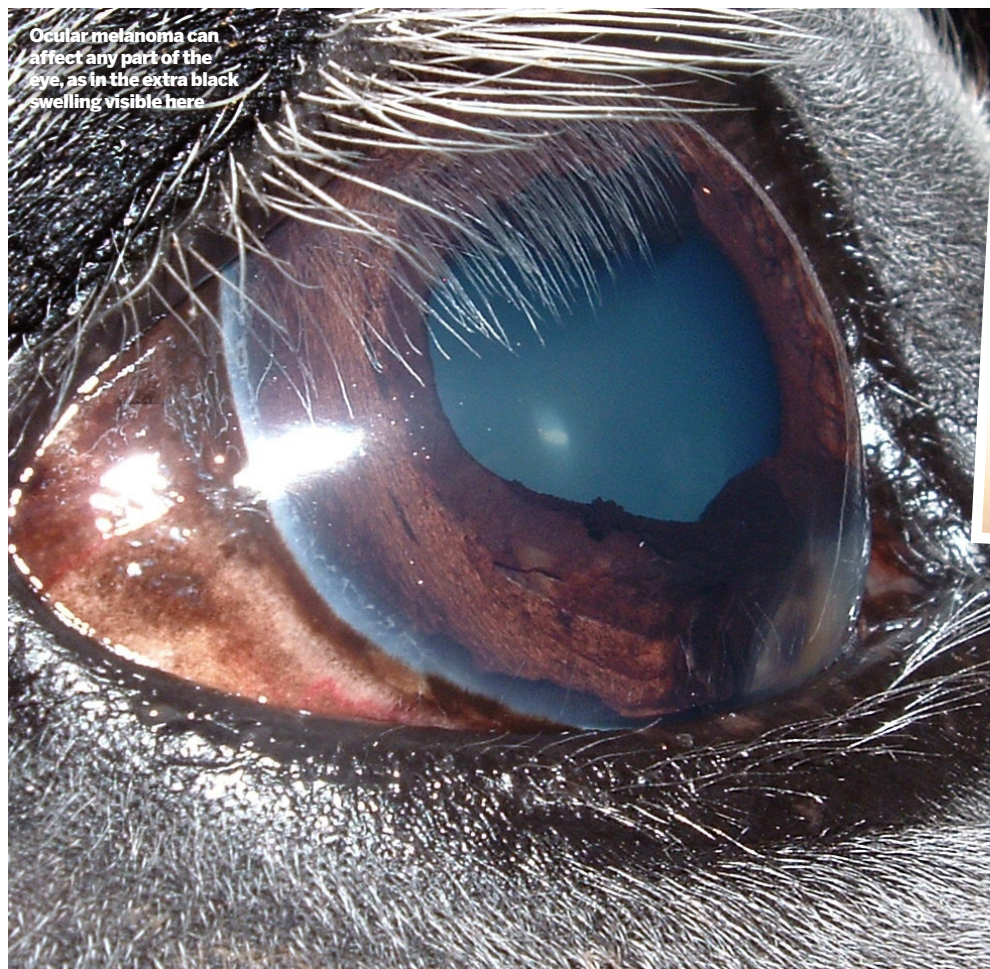


Tackling tumours



Internal view of the eye, showing a pigmented mass — a melanoma

significant damage by disrupting normal eyelid function or rubbing directly on the eye. Due to the proximity of vital structures, some treatments for sarcoids elsewhere on the body are deemed too hazardous to use near the eyelid.

► Lymphosarcoma

LYMPHOSARCOMA are tumours of cells in the blood and can occur throughout the body. One study found 27% of horses with lymphosarcoma elsewhere also had lesions in or around the eye.

Infiltration of the eyelids and conjunctiva are the most common manifestation of lymphosarcoma but all structures of the eye can be affected.

► Melanoma

THIS tumour is usually pigmented (black), and can affect any part of the horse's eye. It can also be non-pigmented or variable pigmented.

Melanoma are typically seen in grey horses where there is a genetic predisposition, but can be found in horses of other colour. Older horses are predisposed.

► Mast cell tumour

A tumour of the immune cells, in other species mast cell tumours (MCT) can be aggressive and spread readily (metastasize) to other parts of the body.

In the horse, they are usually slow-growing, non-metastatic and



Eye tumours and cysts are some of the most common equine ophthalmic problems. **Philip Ivens MRCVS** reveals how pioneering methods are making treatment more successful

TUMOURS can occur in all parts of the eye and its associated structures.

Typical sites include the eyelid, the inner "third eyelid" or the mucous membrane known as the conjunctiva that covers the eye. The surface of the eye (cornea), the central structure known as the iris and the optic nerve can also be affected.

Signs of tumours include lumps or bumps, discharge or cloudiness and pain — indicated by excessive blinking or the horse holding the eye closed.

You may also notice a change in the horse's behaviour.

A detailed ophthalmic examination is required for a diagnosis to be made. Such an examination will probably include the use of specialist equipment, such as ultrasound, and may need to be carried out by the specialist.

Treatment is often challenging due to the complicated anatomy of the area and the sensitivity of the eye. Methods are evolving, however, and prognosis can be good.

Types of tumour

► Squamous cell carcinoma

THIS tumour can affect various structures — most notably the third eyelid, towards the inner eye. The conjunctiva and cornea can also be affected.

Squamous cell carcinoma (SCC) should be suspected with any erosive, cobblestone or cauliflower-like raised ocular mass. Lesions are typically white-pink and rough or fleshy in appearance but may occasionally be firm with a smooth surface.

Draught horses, appaloosas and paint horses are more at risk. Irritation from ultraviolet (UV) light is thought to promote the development of SCC.

► Sarcoid

THESE skin tumours are of fibrous tissue origin. Sarcoids around the eye and eyelid are common and may result in



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superficial, although in rare cases may have spread. The conjunctiva, white of the eye (sclera), third eyelid and globe are all areas where MCT has occurred.

Treatment options

Amniotic membrane transplantation is one of the more promising treatments. Amnion is a constituent part of the placenta. It is anti-inflammatory and also anti-angiogenic, meaning it decreases the chance of the blood vessel formation that is generally detrimental to corneal healing. It can also decrease scar tissue formation and produces chemicals promoting cell growth and subsequent healing.

Amniotic membrane transplants are used in human medicine to treat corneal perforations and deep or infected corneal ulcers.

The University of Florida, USA, has pioneered the use of equine amnion in equine eye surgery. The membrane acts as a graft and support for the cornea when a substantial part has had to be removed because an SCC has been cut away.



A lymphosarcoma — a tumour of the blood cells — of the third eyelid

Radiation therapy

THERE are also different types of radiation therapy. Radiation from radioactive sources, such as strontium and iridium, can either be held in place or placed within the tissue — a method called **brachytherapy**.

Radiation can also be delivered from an external machine and aimed at the area requiring treatment; this method is known as **teletherapy**.

Historically, the sheer size of the animal prevented the use of teletherapy on horses, but it is now offered by a few UK centres.

Iridium wires are used in difficult sarcoids cases around the eye with success rates of more than 90%. Strontium is used for a number of corneal tumours, most commonly SCC.



The same eye post-surgery to remove the third eyelid and lymphosarcoma

Strontium can be applied during surgery to the remaining corneal tissue (stroma). This type of therapy is carried out alongside surgery and decreases the chance of recurrence of the tumour.

The cost and availability of brachytherapy limits its use to a few specialist centres, but for challenging cases it is an important treatment.

Teletherapy is expensive and availability is scarce, but it is a potentially useful treatment for deeper structures of the eye where brachytherapy materials cannot be placed.

Antibiotic hope

COLLEAGUES at Liverpool University have pioneered an antibiotic with anti-tumour properties in the treatment of



Mast cell tumours originating from the conjunctiva and third eyelid — the horse recovered well following treatment

'THE CYSTS POPPED LIKE BALLOONS'

LUCY HENMAN knew that her eventer Courting Success (known as 'Jack') had iris cysts when she bought him a few years ago, but was unaware how much they had grown.

"When the cysts were pointed out last year I was shocked by their size," said Lucy, wife of tennis ace Tim. "The two dark, spherical objects in Jack's right eye were quite noticeable in certain light."

Jack had not displayed any discomfort or unusual behaviour until a particular showjumping round.

"He hesitated before each fence — something he had never done before," said Lucy, who consulted John Parker FRCVS. "We decided that the cysts potentially affected his vision."

Ophthalmic expert Rob Lowe performed laser surgery under standing sedation.

"I was worried about the treatment but was reassured it was quite straightforward," said Lucy. "Each cyst was burst with a laser, like popping a balloon. The procedure took around half an hour and, within two weeks, I was able to work Jack again."

"We still have the odd pole down, but I feel reassured that the cysts are no longer a problem."

ocular SCC.

The treatment, known as Mitomycin-C, is applied via ocular drops. Good results have been reported when the antibiotic is used alone or, for bigger tumours, with surgery.

Photodynamic therapy (PDT) is an evolving treatment for various conditions.

In humans, PDT involves injecting a photosensitiser into the bloodstream. This concentrates selectively in certain cells, which are then exposed to a special light — such as laser or ultraviolet — to destroy the abnormal tissue.

This method is not yet possible in the horse, but there have been trials of injecting a photoactive agent locally into the wound-bed immediately after surgical resection of the tumour. This is then followed by light irradiation.

Early results have been positive but more research is needed to evaluate this treatment. **H&H**

IS IT A TUMOUR?

THE equine eye has a structure known as the *granula iridica*, or *corpora nigra*, a knobbly protrusion from the upper and lower margin of the pupillary edge. Its role is unknown but it is thought to act as a light shade in bright conditions.

Iris cysts are smooth, hollow spheres that can develop on the *corpora nigra*. They look very much like a tumour, especially a melanoma, appearing both black and solid.

These cysts are relatively common and do not cause any harm if small. If they obscure the horse's field of view, however, they can cause behavioural problems. Very rarely, large cysts may impinge on the back of the cornea and cause *corneal oedema*.

A detailed ophthalmic examination by a specialist, combined with ocular ultrasound, can diagnose iris cysts, which can then be deflated via needle aspiration or ablated with a laser.