Cysts of the iris and its related structure, the ciliary body (an area of anatomy collectively termed the anterior uvea), have been reported in many species including man, dogs, cats and horses. Cysts can be easily observed when they form at the iris margin (typically associated with the corpora nigra – see below) or if they become detached float and freely within the anterior chamber of the eye where they appear as dark, pigmented spherical structures. Cysts can occasionally rupture depositing pigment in the inner surface of the cornea. If cysts form on the posterior (or inner side) aspect of the iris or ciliary body they may not be visible unless medicines are used to artificially dilate the pupil.

Many horses who have cysts of their corpora nigra are middle aged or older although cysts may be present at birth, albeit in small forms, only to enlarge in later life. The cause of these cysts is not properly understood although they are not thought to be related to inflammation within the eye, either present or in the past. It is suspected that these cysts represent a separation of two epithelial layers within the iris and ciliary body which would normally be tightly bonded together (much like layers of tissue paper separating) which suggests a localised design problem within this portion of tissue.

When corpora nigra become cystic they tend to loose their roughed, ‘sea anemone’ like appearance, enlarging to a variable degree as a smooth ‘bubble’. The significance of any given cyst is primarily related to what degree it obscures the pupil and hence their affect on sight. The horse’s pupil varies greatly in size depending on the prevailing lighting conditions. Where a cyst blocks an area of pupil normally open, it will create a visual field deficit (i.e. an inability to see a portion of one’s environment).

Most cysts are small and the affected individuals do not appear to be inconvenienced by the visual field deficit. However, behavioural and athletic consequences are reported in a certain percentage of individuals and this may be related to the size and location of the cyst, the underlying temperament of the individual and the necessity for good vision (jumping at speed is likely to requires better visual acuity than undertaking dressage). If cysts grow large enough they can press on the inner surface of the cornea causing damage to the corneal endothelium (an important structure that regulates fluid levels within the cornea, maintaining corneal clarity as a result). Cysts large enough to press on the endothelium are, however, extremely rare.

In diagnosing cysts of the anterior uvea, consideration should be given to the possibility of the lesion being a melanoma (a pigmented tumour). However it is usually relatively easy for a clinician to distinguish a cyst from a tumour on appearance alone and if there is any debate then an ultrasound exam will allow differentiation of the two.

There are several scientific case studies which demonstrate the behavioural and athletic improvement in certain individuals who have had iris cysts removed by laser treatment. A series nine of horses which presented to the Ohio State Veterinary School showed marked improvement in head shaking and shying following the laser ablation of iris cysts. Likewise a gelding used for competitive pleasure driving was successfully treated for a head shaking problem at the University of California following iris cyst treatment and behavioural modification therapy. A study undertaken at the University of North Carolina resolved problems including decreased jumping performance, visual disturbance and head shaking in all 8 horses treated. The results of treatments undertaken at the Equine Eye Clinic mirror those results achieved in the States. It is worth pointing out that the majority of head shaking and shying issues occur in the absence of iris cysts but when cysts are present and disturbances of vision are suspected then cyst removal should be considered. Laser deflation and coagulation of equine corpora nigra cysts is a simple non invasive technique with minimal surgical complications and postoperative care. The procedure, which lasts about 10 minutes, involves focusing a head mounted laser beam down to an area approximately 0.4mm in diameter via a special handheld lens (see below left). This concentrated beam of laser energy allows the targeted destruction of the cyst with no effect on surrounding tissue. Anti-inflammatories are given in most cases as a matter of routine for a few days but eyes undergo surgery with minimal reaction. Improvement in vision should be noticeable almost immediately following surgery.
Laser ablation of iris cysts. Infra-red photograph (right) of the cyst during deflation shows the cyst wall being heated up.

Single iris cyst. Removal of this relatively small cyst resulted in a marked behavioural improvement for this patient.

Immediate postoperative appearance following transcorneal laser ablation of multiple ventral iris cysts. Note the small lens, microlentis, and the corneal band opacity.