



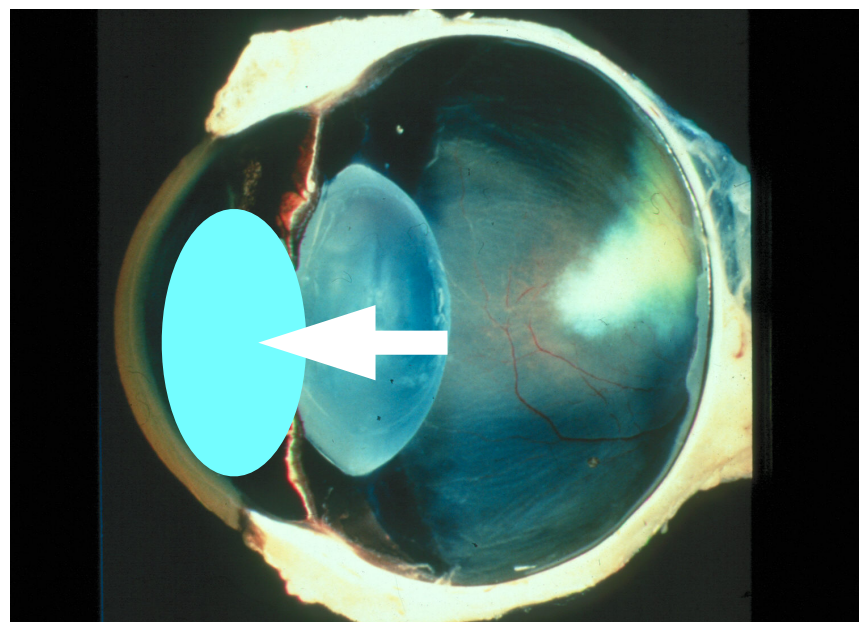
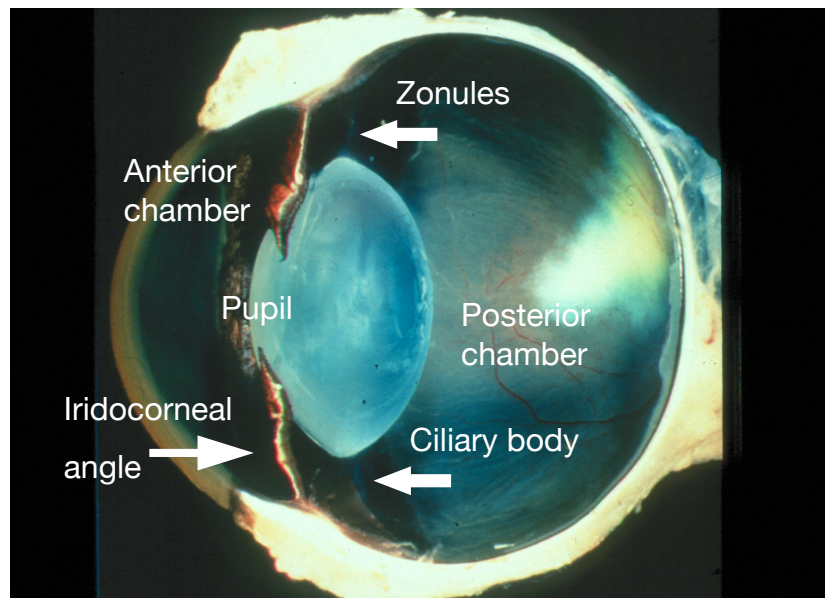
Lens Luxation

Lens luxation refers to the dislocation of the lens inside the eye. Sometimes this can be a primary inherited problem, for example in terrier breeds, and sometimes it can be secondary to other conditions (such as long standing cataracts, chronic uveitis or glaucoma). Accurate diagnosis of the cause of lens luxation is extremely important in the management of the condition.

The fluid in the eye (aqueous) is produced by the ciliary body and is secreted into the posterior chamber. From there it moves through the pupil into the anterior chamber and then drains out through the iridocorneal angle.

Primary lens luxation occurs when the ligaments holding the lens in place (the zonules) are abnormal. This can cause the lens to become free inside the eye and can lead to glaucoma if the lens moves forward through the pupil into the anterior chamber and blocks this flow of aqueous. The aqueous can then no longer escape from the eye and hence the pressure rises leading to secondary glaucoma.

However, lens luxation can



also be secondary to glaucoma if the eye enlarges due to chronic elevation in intraocular pressure (IOP). The stretching caused by the eye enlarging can lead to breakdown of the zonules. It is thus vital to determine if the lens luxation is causing the glaucoma, or if the glaucoma is the cause of the lens luxation. Incorrect diagnosis leads to disastrous



consequences for the eye as the treatment for these conditions is completely different, and treating with the incorrect medication can make the condition much worse. Referral to a specialist in veterinary ophthalmology ensures the best possible decision making in reference to the condition.

Primary lens luxation

Primary lens luxation is inherited in many terrier breeds and also in Border Collies. In this condition the ligaments holding the lens in place (the zonules) are inherently weak, leading to them breaking down. When enough of these zonules break down the lens begins to wobble (phacodonesis) and, as the lens rests against the iris, the iris can also be seen to wobble (iridodonesis). When all the zonules break down the lens can dislocate (i.e. luxate).

If the lens falls backwards (posterior lens luxation) the IOP can remain normal but vision becomes blurred as the lens no longer helps to focus the image on the retina. Such animals are long sighted but they generally cope well with this situation. However, when the lens changes position like this there is an increased risk that the eye could become blind from a retinal detachment.

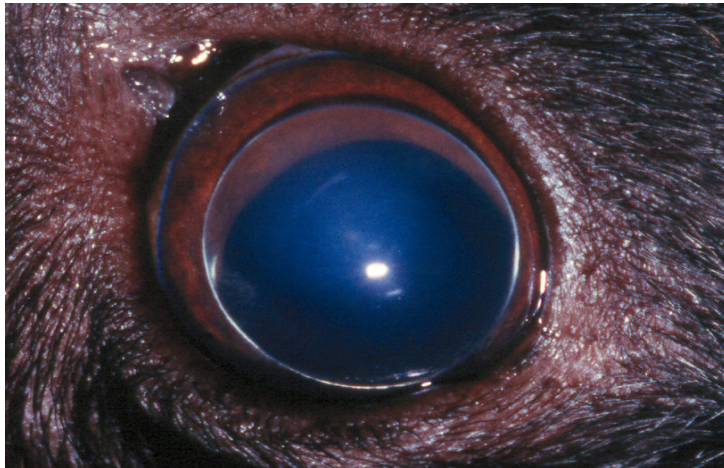
Lens luxation is more serious when the lens becomes trapped in the pupil or moves through the pupil into the anterior chamber (anterior lens luxation). This blocks fluid flow in the eye and acute elevation in IOP results, with painful and blinding consequences for the eye. Urgent

surgical treatment is required for primary anterior lens luxation.

Symptoms

Early symptoms may include lens wobble or iris wobble, or sometimes the vitreous can move around between broken zonules and be visible coming through the pupil. These are very subtle signs but can be recognised by a specialist in ophthalmology who is monitoring the eye for signs preceding lens luxation in cases of known predisposition.

More obvious signs include distortion of the pupil, or sometimes the lens is seen in the anterior chamber before the onset of disastrous complications such as glaucoma.



Usually, however, the first sign of anterior lens luxation is the development of a sudden onset glaucoma. This rapidly leads to a red, cloudy, painful blind eye. When these symptoms develop in terrier breeds or Border Collies primary lens luxation urgently needs to be ruled out.



Treatment

Primary lens luxation is a condition requiring emergency surgery in the form of intracapsular lens extraction (ICLE). This operation removes the entire lens from the eye and re-establishes normal fluid flow in the eye, thus returning the IOP to normal. To be effective this operation needs to be performed as soon as possible. After removing the lens in this way it is not possible to place an implant lens thus leaving the eye without a lens (termed “aphakic”). Such eyes have blurred near vision but reasonable distance vision. Although not perfect, this vision is far preferable to the painful blindness that results from glaucoma secondary to lens luxation. Even after this operation some eyes can become blind due to complications such as retinal detachment, corneal clouding (oedema), or chronic increase in intraocular pressure (glaucoma) which can occur months or even years after the operation.

It is important to realise that some medications commonly used to treat primary glaucoma can make the glaucoma secondary to lens luxation much worse. Proper assessment by a specialist in veterinary ophthalmology is vital for accurate diagnosis and treatment.

Predisposed eyes may be treated medically to try to prevent anterior lens luxation, or prophylactic removal of a lens predisposed to luxation may be recommended.

Secondary lens luxation

Sometimes primary lens luxation leads to secondary glaucoma, but chronic primary glaucoma can also lead to secondary lens luxation. It is vital to determine whether the lens luxation is primary or secondary because treatment for the two conditions is completely different. Chronic glaucoma can lead to the eye enlarging (termed buphthalmos). This leads to stretching of the zonules supporting the lens, and eventually lens luxation can result.

Sometimes long standing cataracts and chronic inflammation (uveitis) leads to degradation of the zonules and can lead to lens luxation. Most lens luxations in cats are secondary to chronic uveitis.

A specialist in ophthalmology will be able to determine whether the lens luxation is primary or secondary by using a combination of slit lamp biomicroscopy, gonioscopy and ultrasound examination (see diagnostic facilities). This will then allow the best treatment for the eye and also the fellow predisposed eye to help prevent similar problems developing.