



Spring 2010  
Newsletter

Welcome to the Eye Vet newsletter. Eye Vet is a veterinary ophthalmology referral service run by Natasha Mitchell MVB CertVOphthal MRCVS through Crescent Veterinary Clinic, Dooradoyle Road, Limerick.

This newsletter is produced quarterly, and is also available online at [www.eyevet.ie](http://www.eyevet.ie)

## Examination Technique

### Measuring intraocular pressure



Fig 1: The Schiotz tonometer.

Intraocular pressure (IOP) is measured in the investigation of glaucoma and uveitis. The IOP cannot be reliably measured using digital palpation. Most often in general practice a Schiotz tonometer *figure 1*, is used because the instrument is relatively inexpensive. This is a reliable instrument but it must be cleaned thoroughly after every use. The footplate must be parallel with the cornea and because of this it usually requires three people to complete the procedure; one person holds the dog in dorsal recumbency, one applies the instrument and one reads the scale. The reading is converted to mmHg with a chart provided.

Although expensive, the Tono-Pen is a much more versatile and user-friendly instrument, *figure 2*. The cornea is anaesthetised with topical anaesthetic (e.g. proxymetacaine 0.5%, Minims vials). Care must be taken when restraining the animal not to place any pressure on the neck, which could falsely increase IOP. Sedative drugs reduce IOP, and ketamine increases it – Thus, if possible, the animal is best assessed without pharmacological aid, apart from topical anaesthesia.



Fig 2: Using the Tono-Pen.

Next Newsletter...

The next newsletter will review uveitis.

## Case Study

### Clinical Case

A six-year-old Bassett hound presented with a history of a red left eye *figure 3* since that morning. She was depressed and inappetent.

### Examination

The left eye had marked conjunctival hyperaemia and episcleral congestion. The cornea was oedematous making it difficult to view inside the eye, but the pupil was dilated. There was a negative menace response and dazzle reflex, and there was a negative consensual PLR to the right eye. The intraocular pressure was 68mmHg, as estimated by the Tono-Pen (normal is 10-25mmHg).

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## Differential Diagnosis

Raised intraocular pressure causing glaucoma. Potential causes include inherited primary glaucoma, or glaucoma secondary to impairment of aqueous humour outflow such as primary lens luxation, uveitis, hyphaema, intraocular tumour or inflammatory cells. Gonioscopy confirmed a narrow drainage angle in the apparently normal right eye.

## Diagnosis

Primary glaucoma due to goniodysgenesis – a mal-formed drainage angle.

## Treatment

Treatment for glaucoma is as varied as the causes, and involves reducing the amount of aqueous humour made in the eye, increasing the drainage of the fluid from the eye, or a combination. Surgery in the form of drainage implants, or most recently endolaser cytophotocoagulation (ECP) is not as successful in dogs as it is in humans, although ECP is increasing in favour. The equipment is very expensive and it is not available in Ireland.

Glaucoma medications are most commonly used. Topical carbonic anhydrase inhibitors such as dorzolamide (Trusopt) or brinzolamide (Azopt) are needed 3-4 times daily to reduce the production of aqueous humour within the eye. Topical prostaglandin analogue drops, such as latanoprost (Xalatan) or travoprost (Travatan) used twice daily are indicated to increase the drainage of aqueous humour from the eye, although they should not be used if uveitis is present.

The drops may be used in combination for synergistic effect. In emergency situations, a Mannitol drip may be given to dehydrate the eye, shrinking the vitreous and thus reducing the intraocular pressure. Unfortunately in this case, the initial response to a Mannitol drip and topical Xalatan and Azopt relapsed after just 24 hours. Because the condition is so painful and vision is permanently lost, enucleation is recommended in these circumstances.

However in this case, the owner was strongly opposed to enucleation, but agreed to ocular evisceration and placement of an intra-scleral prosthesis. In other words, the dog's outer corneal and sclera are left in place, the contents of the eye removed and a silicone prosthesis placed inside the eye to maintain its shape, *figure 4*. Despite the fact that the eye is always a different colour to the other eye, the owner was delighted with the outcome as the dog was now pain-free. Topical medication was started prophylactically in the fellow eye to try to delay the onset of glaucoma in this eye.



*Fig 3: The left eye has conjunctival hyperaemia and episcleral congestion. There is corneal oedema, making the enlarged pupil difficult to see*



*Fig 4: The day after intrascleral prosthesis surgery in the left eye, there is corneal oedema and blood between the cornea and the implant, but the dog is very comfortable*

## Tip

Warn owners that glaucoma is often a bilateral disease and the second eye needs close monitoring and prophylactic treatment. Without treatment, 50% will develop glaucoma in the second eye within 8 months.

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