

# Anterior Uveitis in Dogs

(Inflammation of the Front Part  
of the Eye, Including the Iris)

## Basics

### OVERVIEW

- Inflammation of the front part of the eye, including the iris (known as “anterior uveitis”); the iris is the colored or pigmented part of the eye—it can be brown, blue, or a mixture of colors
- May be associated with co-existent inflammation of the back part of the eye, including the retina (chorioretinitis); the retina contains the light-sensitive rods and cones and other cells that convert images into signals and send messages to the brain, to allow for vision
- May involve only one eye (known as “unilateral anterior uveitis”) or both eyes (known as “bilateral anterior uveitis”)

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Dogs

#### Breed Predilections

- None for most causes
- Inflammation of the front part of the eye (anterior uveitis) associated with cysts that may be free floating or attached to the iris (known as “iridociliary cysts”) in the golden retriever (so-called “golden retriever uveitis” or “pigmentary uveitis”)
- Increased incidence of uveodermatologic syndrome (a rare syndrome in which the dog has inflammation in the front part of the eye, including the iris [anterior uveitis] and co-existent inflammation of the skin [dermatitis], characterized by loss of pigment in the skin of the nose and lips) in the Siberian husky, Akita, Samoyed, and Shetland sheepdog

#### Mean Age and Range

- Any age may be affected
- Mean age in uveodermatologic syndrome—2.8 years
- Mean age for golden retriever uveitis—8.6 years

### SIGNS/OBSERVED CHANGES IN THE PET

- Red eye (membranes)



- Cloudy eye—due to fluid buildup in the clear part of the eye (known as “corneal edema”); cloudiness of aqueous humor (the “aqueous humor” is the transparent liquid that fills the front part of the eyeball) due to increased protein content and suspended cellular debris (condition known as “aqueous flare”); accumulation of white blood cells in the anterior chamber of the eye (condition known as “hypopyon”)
- Painful or uncomfortable eye—signs include squinting or spasmodic blinking (known as “blepharospasm”); avoidance of light (known as “photophobia”); or rubbing the eye
- Vision loss—variable
- Loss of clarity of the eyeball surface, or cornea (known as “corneal edema”)
- Discharge from the eye; usually excessive tearing, may have mucus and/or pus in the discharge
- Keratic precipitates—aggregates of inflammatory cells adhering to various areas of the inner lining of the cornea (known as “corneal endothelium”); the cornea is the clear outer layer of the front of the eye
- Development of blood vessels in the clear part of the eye (known as “corneal vascularization”), especially around the outside (known as “brush border”)
- Small or constricted pupil, frequently resistant to medical treatment to dilate the pupil
- Swelling of the iris
- Decreased pressure within the eye (known as “intraocular pressure” [IOP]) is consistent with anterior uveitis, but is not seen in all cases
- Scar tissue between the back of the iris and the front of the lens of the eye (known as “posterior synechia”); the lens is the normally clear structure directly behind the iris that focuses light as it moves toward the back part of the eye (retina)
- Accumulations of white blood cells (hypopyon), red blood cells (known as “hyphema”), or fibrin in the anterior chamber of the eye
- Long-term (chronic) changes may include color variation of the iris; development of cataracts (opacity in the normally clear lens, preventing passage of light to the back part of the eye [retina]); movement of the lens out of its normal location (known as “lens luxation”); secondary glaucoma (in which the pressure within the eye [intraocular pressure] is increased secondary to inflammation in the front part of the eye); and softening and loss of tissue of the eyeball (known as “phthisis bulbi”)

## CAUSES

- Infectious—fungal or mycotic infections (such as *Blastomyces dermatitidis*, *Cryptococcus neoformans*, *Coccidioides immitis*, *Histoplasma capsulatum*); protozoal infections (such as *Toxoplasma gondii*, *Neospora caninum*, *Leishmania donovani*); rickettsial infections (such as *Ehrlichia canis*, *Rickettsia rickettsii*); bacterial infections (such as *Leptospira*, *Bartonella*, *Brucella canis*, *Borrelia burgdorferi* [Lyme disease], and any generalized disease caused by the spread of bacteria in the blood [known as “septicemia” or “blood poisoning”]); algal infection (*Prototheca*); viral infections (such as adenovirus, canine distemper virus, rabies virus, herpes virus); parasitic infections (due to invasion of parasitic larvae into the tissues of the eye)
- Immune-mediated—reaction to lens proteins (due to cataract or lens trauma); uveodermatologic syndrome (a rare syndrome in which the dog has inflammation in the front part of the eye, including the iris [anterior uveitis] and co-existent inflammation of the skin [dermatitis], characterized by loss of pigment in the skin of the nose and lips); post-vaccinal reaction to canine adenovirus vaccine; inflammation of blood vessels (known as “vasculitis”)
- Cancer—primary tumors of the eye (especially uveal melanoma and adenomas or adenocarcinomas of the iris); secondary tumors due to the spread of the cancer (metastasis)—lymphoma is most common; “lymphoma” is a type of cancer that develops from lymphoid tissue, including lymphocytes, a type of white blood cell formed in lymphatic tissues throughout the body
- Metabolic—increased levels of lipids (compounds that contain fats or oils) in the blood (known as “hyperlipidemia”); increased protein in the blood leading to sludging of the blood (known as “hyperviscosity”); generalized (systemic) high blood pressure (hypertension)
- Miscellaneous—unknown cause (idiopathic); trauma; golden retriever uveitis; disorder of the cornea (the clear outer layer of the front of the eye) characterized by the presence of ulcers, with or without inflammation (condition known as “ulcerative keratitis”); abscess involving the cornea (known as a “corneal stromal abscess”); inflammation of the sclera, the tough white outer coating of the eye (condition known as “scleritis”); movement

of the lens out of its normal location (lens luxation); dental disease or inflammation/infection of the gums and supporting structures of the teeth (known as “periodontal disease”); presence of poisons or toxins in the blood (known as “toxemia”) of any cause

## **RISK FACTORS**

- None specific
- Suppression of the ability to develop a normal immune response (known as “immune suppression”) and geographic location may increase incidence of certain infectious causes of inflammation of the front part of the eye, including the iris (anterior uveitis)
- Breed predilections—golden retriever, Siberian husky, Akita, Samoyed, and Shetland sheepdog

## **Treatment**

### **HEALTH CARE**

- Outpatient medical management generally sufficient

### **ACTIVITY**

- No changes indicated in most cases
- Reduced exposure to bright light may alleviate discomfort

### **DIET**

- No changes indicated

### **SURGERY**

- None in most cases
- Specific instances requiring surgical treatment include removal of ruptured lenses, surgical removal of cataracts, and surgical management of secondary glaucoma (in which the pressure within the eye [intraocular pressure] is increased secondary to inflammation in the front part of the eye)

## **Medications**

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

### **STEROIDS**

- Topical steroids are medications that are applied directly to the eye, such as prednisolone acetate 1% and dexamethasone 0.1%; other topical steroids (such as betamethasone, hydrocortisone) are less effective in the treatment of inflammation within the eye—stopping topical steroids abruptly may result in rebound of inflammation of the eye
- Subconjunctival steroids are medications that are administered by injection into the moist tissues surrounding the eye (known as the “conjunctiva”), such as triamcinolone acetonide and methylprednisolone; often not required; may be used in severe cases, followed by topical and/or systemic anti-inflammatory drugs
- Systemic steroids: medications that are administered by injection or by mouth (orally), such as prednisone; will only be used if generalized (systemic) infections have been eliminated as possible cause of the uveitis

### **NONSTEROIDAL ANTI-INFLAMMATORY DRUGS**

- Topical nonsteroidal anti-inflammatory drugs (NSAIDs) are medications applied directly to the eye, such as flurbiprofen and diclofenac
- Systemic NSAIDs are medications administered by injection or by mouth (orally); examples are aspirin, carprofen, tepoxalin, meloxicam (NSAIDs will not be administered at the same time as oral or injectable steroids and will be avoided if blood is present in the front of the eye [hyphema])

### **TOPICAL MYDRIATIC/CYCLOPLEGIC MEDICATION (TO DILATE THE PUPIL AND TO DECREASE PAIN IN THE EYE)**

- Atropine sulfate 1%—applied directly to the eye to dilate the pupil and to decrease pain in the eye

# Follow-Up Care

## PATIENT MONITORING

- Recheck in 3–7 days, depending on severity of disease
- Pressure within the eye (intraocular pressure or IOP) will be monitored at recheck to detect secondary glaucoma (in which the pressure within the eye is increased secondary to inflammation in the front part of the eye)
- Frequency of subsequent rechecks dictated by severity of disease and response to treatment

## POSSIBLE COMPLICATIONS

- Generalized (systemic) complications, including death, may occur as a result of a generalized underlying disease causing the anterior uveitis
- Complications involving the eye include secondary cataract (opacity in the normally clear lens, preventing passage of light to the back part of the eye [retina]); secondary glaucoma (in which the pressure within the eye [intraocular pressure or IOP] is increased secondary to inflammation in the front part of the eye); movement of the lens out of its normal location (lens luxation); retinal detachment; and softening and loss of tissue of the eyeball (phthisis bulbi)

## EXPECTED COURSE AND PROGNOSIS

- Extremely variable; depends on underlying disease and response to treatment

## Key Points

- Potential of generalized (systemic) underlying diseases causing signs of inflammation of the front part of the eye, including the iris (anterior uveitis); therefore, appropriate diagnostic testing is important
- In addition to symptomatic treatment of the eye, treatment of underlying disease (when possible) is paramount to a positive outcome
- Compliance with treatment and follow-up recommendations may reduce the likelihood of complications