

# Inflammation of the Eyelids

## (Blepharitis)

### Basics

#### OVERVIEW

- Inflammation of the outer (skin) and middle portion (muscle, connective tissue, and glands) of the eyelid, usually with secondary inflammation of the moist tissue lining the inner surface of the eyelid (known as the “palpebral conjunctiva”)
- Anterior (front) blepharitis may be associated with bacterial infection, self-trauma to the eyelids (as from rubbing or scratching), or posterior (back) disorders of the meibomian glands
- The meibomian glands are located along the edge of the back part of the eyelids, just under the lining (palpebral conjunctiva) of the inner surface of the eyelid; they produce secretions along the edge of the eyelid to help hold tears within the eye

#### SIGNALMENT/DESCRIPTION OF PET

##### Species

- Dogs
- Cats

##### Breed Predispositions

- Listed under “Causes”

#### SIGNS/OBSERVED CHANGES IN THE PET

- Discharge from the eye(s); may be clear or may contain mucus and/or pus
- Squinting or spasmodic blinking (known as “blepharospasm”)
- Redness of the eyelid (known as “hyperemia”), fluid buildup in the eyelid (known as “edema”), and thickening of the eyelid
- Itchiness (known as “pruritus”)
- Scratching and/or rubbing the face and eyelids, leading to skin trauma, with or without bleeding and dried discharge (skin lesions are known as “excoriations”)
- Loss of pigment (known as “depigmentation”) of the skin and/or hair
- Loss of hair (known as “alopecia”)
- Swollen, cream-colored meibomian glands; the meibomian glands are located along the edge of the back part of the eyelids, just under the lining (palpebral conjunctiva) of the inner surface of the eyelid; they produce



secretions along the edge of the eyelid to help hold tears within the eye

- Elevated, pinpoint openings of the meibomian glands
- Abscesses
- Scales and dried discharge on the surface of a skin lesion (known as “crusts”)
- Small, raised skin lesions (known as “papules”) or small, raised skin lesions containing pus (known as “pustules”)
- Single or multiple, small red swellings
- Coexistent inflammation of the moist tissues of the eye (known as “conjunctivitis”) and/or inflammation of the cornea (known as “keratitis”); the cornea is the clear part of the eye, located in the front of the eyeball
- In Siamese and similar cats with color points, long-term (chronic) inflammation of the eyelids (blepharitis) often causes lightening of hair on the affected eyelids, due to an increased temperature of the skin

## CAUSES

### **Congenital (Present at Birth) Disorders**

- Eyelid abnormalities—may promote self-trauma or moist inflammation of the skin (known as “dermatitis”)
- Prominent folds of skin around the nose; abnormal eyelashes that turn inward, against the cornea (the clear part of the eye, located in the front of the eyeball; condition known as “trichiasis”); and lower lid “entropion,” in which the lower eyelid is curled inward toward the eyeball—shih tzus, Pekingese, English bulldogs, Lhasa apsos, pugs, Persian and Himalayan cats
- Two rows of eyelashes present in a single eyelid (known as “distichia”)—shih tzus, pugs, golden retrievers, Labrador retrievers, poodles, English bulldogs
- “Ectopic cilia,” in which one or more eyelashes grows in an unusual location (may grow through the conjunctiva, leading to irritation of the eye)
- Lateral lid “entropion,” in which the outer portion of the eyelid (away from the nose) is curled inward toward the eyeball—Chinese shar-peis, chow chows, Labrador retrievers, Rottweilers; adult cats (rare)
- Condition in which the eyelids do not close completely (known as “lagophthalmos”)—short-nosed, flat-faced (known as “brachycephalic”) breeds of dogs; Persian, Himalayan, and Burmese cats
- Deep pocket in the corner of the eye (closest to the nose)—dogs with long heads (known as “dolichocephalic dogs,” such as collies)
- Masses composed of “displaced” skin, frequently with long hair (masses known as “dermoids”)—Rottweilers, dachshunds, and others; Burmese cats

### **Allergic Disorders**

- “Allergy” is an unusual sensitivity to a substance (such as pollen)—the immune system responds to the presence of the substance leading to signs (such as itchiness); “antigen” is a substance (such as pollen) that induces a sensitivity or immune response; “antibody” is a protein that is produced by the immune system in response to a specific antigen—when the body is exposed to the antigen, the antibody responds, causing the signs of the allergic response
- Atopy” is a disease in which the animal is sensitized (or “allergic”) to substances found in the environment (such as pollen) that normally would not cause any health problems
- Various allergic disorders can cause inflammation of the eyelids (blepharitis); they include atopy; food or medication allergies; insect-bite allergy; flea-bite hypersensitivity; inhalant allergies; *Staphylococcus* hypersensitivity

### **Bacterial Infections**

- Localized abscess of eyelid glands (known as a “hordeolum”)—usually staphylococcal infection; may be external (sty in young dogs) or internal (in old dogs, involves one or more meibomian glands)
- Generalized bacterial inflammation of the eyelids (blepharitis) and meibomian glands (known as “meibomianitis”)—usually caused by *Staphylococcus* or *Streptococcus*
- Nodular inflammatory lesions containing pus (known as “pyogranulomas”)
- Allergic reaction to skin bacteria (known as “*Staphylococcus* hypersensitivity”)—young and old dogs

### **Tumors or Cancer**

- Benign tumors (known as “sebaceous adenomas”) and cancer (known as “sebaceous adenocarcinomas”)—originate from meibomian gland
- Squamous cell carcinoma—white cats
- Mast cell tumors—may masquerade as swollen, reddened lesion; mast cell tumors contain mast cells; mast cells are immune-system cells that frequently are located near blood vessels in the skin; mast cells contain histamine; they usually are involved in allergy and inflammation

### Other Disorders

- External trauma—eyelid lacerations; thermal or chemical burns
- Fungal or mycotic infections
- Parasitic—demodectic mange (*Demodex injai*); sarcoptic mange; *Cuterebra* or *Notoedres cati* infestation
- Inflammatory enlargement of a meibomian gland in the eyelid (known as “chalazia” [plural] or “chalazion” [singular])—sterile, yellow-white, painless meibomian gland swellings caused by a granulomatous inflammatory response to escape of meibum (the substance secreted by the glands) into surrounding eyelid tissue; the meibomian glands are located along the edge of the back part of the eyelids, just under the lining (palpebral conjunctiva) of the inner surface of the eyelid; they produce secretions along the edge of the eyelid to help hold tears within the eye
- Nutritional disorders—zinc-responsive skin abnormality (Siberian huskies, Alaskan malamutes, puppies); fatty acid deficiency
- Hormonal or endocrine disorders—inadequate production of thyroid hormone (known as “hypothyroidism”) in dogs; excessive production of steroids by the adrenal glands (known as “hyperadrenocorticism” or “Cushing's disease) in dogs; skin lesions secondary to diabetes mellitus (sugar diabetes)
- Viral infection—long-term (chronic) inflammation of the eyelids (blepharitis) in cats secondary to feline herpes virus-1 (FHV-1)
- Irritant—reaction to medications applied directly to the eye (topical ocular drugs); nicotine smoke in environment
- Inherited inflammatory disorder that affects the skin and muscles of unknown cause (condition known as “idiopathic familial canine dermatomyositis”)—collies and Shetland sheepdogs
- Inflammation of the border between the cornea (the clear part of the eye, located in the front of the eyeball) and the sclera (the white part of the eye, composed of a tough covering that protects the eyeball) characterized by the presence of nodules (condition is known as “nodular granulomatous episclerokeratitis”)—also known as “fibrous histiocytoma” and “collie granuloma” in collies; may affect the eyelids, cornea, or conjunctiva
- Eosinophilic granuloma (a mass or nodular lesion containing a type of white blood cell, called an eosinophil)—cats; may affect eyelids, cornea, or conjunctiva
- Eyelid contact with tear overflow and discharge containing pus (“tear burn”)
- Inflammation of the moist tissues of the eyelids and eye (conjunctivitis)
- Inflammation of the cornea (keratitis)
- “Dry eye” (known as “keratoconjunctivitis sicca” or KCS), such as with inadequate tear production
- Inflammation of the nasolacrimal sac, part of the tear drainage system (condition known as “dacryocystitis”)
- Disease involving the bony cavity containing the eyeball (known as “orbital disease”)
- Radiation therapy
- Medication that irritates the eye when it comes into contact with the eye—any drug; often the antibiotic, neomycin
- Unknown cause (so-called “idiopathic disease”)—particularly in cats with long-term (chronic) idiopathic inflammation of the moist tissues of the eyelids and eye (conjunctivitis), especially Persian and Himalayan cats

### RISK FACTORS

- Breed susceptibilities to eyelid abnormalities that are present at birth (congenital abnormalities), such as “entropion,” in which the lower eyelid is curled inward toward the eyeball or “ectropion,” in which the eyelid is turned outward
- Outdoor pets—trauma

- Inadequate production of thyroid hormone (hypothyroidism)—may promote long-term (chronic) bacterial disease in dogs
- Canine seborrhea, in which the dog has a skin disorder causing dry or oily scales—may promote long-term (chronic) generalized inflammation of the meibomian glands (meibomianitis) with increased likelihood of *Demodex injai* infestation, which can cause inflammatory enlargement of a meibomian gland in the eyelid (chalazia” [plural] or chalazion” [singular]) and inflammation of the eyelids (blepharitis)

## Treatment

### HEALTH CARE

- Secondary disease—treat primary, underlying disease
- Suspected self-trauma to the eyelids—apply an Elizabethan collar
- Medications applied directly to the skin of the eyelids and/or eyes (known as “topical medications”) include antibiotics such as gentamicin, neomycin, tetracycline and antiviral medication (such as trifluridine solution)—may cause a drug reaction leading to inflammation of the eyelids and conjunctiva (known as “blepharoconjunctivitis” [rare]); discontinuing the medication may resolve condition
- Cleanse eyelids—to remove dried discharge (crusts); apply warm compresses for 5–15 minutes, 3–4 times daily, avoiding surfaces of the eyes; may use saline, lactated Ringer's solution, or a commercial eye cleansing agent (such as I-Lid n Lash™); must clip hair around the eyes short

### DIET

- Dietary changes only necessary with food allergy–induced blepharitis

### SURGERY

- Temporary sutures placed in the eyelids to pull out or evert “curled-in” eyelids—used in cases of spastic entropion (in which the eyelid is curled inward toward the eyeball) secondary to squinting or spasmodic blinking (blepharospasm); or in puppies before permanent surgical correction of entropion
- Repair eyelid lacerations
- Surgical repair of eyelid abnormalities
- Rarely lancing for large abscesses will be done

## 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

### ANTIBIOTICS

- Systemic (given by mouth [orally] or by injection)—generally required for effective treatment of bacterial eyelid infections; the veterinarian may choose an antibiotic such as amoxicillin–clavulanic acid, or cephalexin
- Topical (applied to the eyelids and/or eyes)—the veterinarian may try neomycin, polymyxin B, and bacitracin combination or chloramphenicol—avoidance of neomycin will be done, if it is suspected of causing irritation for the particular pet

### CONGENITAL (PRESENT AT BIRTH) DISORDERS

- Topical (applied to the eyelids) antibiotic ointment—until surgery is performed to prevent frictional rubbing of eyelid hairs or eyelashes on the surface of the eye
- Saline, lactated Ringer's solution, or eye irrigant—to regularly flush the pocket in the corner of the eye, nearest the nose, to remove accumulated debris

### EXTERNAL TRAUMA

- Topical (applied to the eyelids and/or eyes) antibiotic ointment—for spastic entropion (in which the lower eyelid is curled inward toward the eyeball) secondary to squinting or spasmodic blinking (blepharospasm) and pain to reduce friction until entropion is relieved surgically

- Systemic (given by mouth [orally] or by injection) antibiotics

## ALLERGIC DISORDERS

- Allergic reaction to the bacteria on the skin (*Staphylococcus* hypersensitivity) with inflammation of the eyelids (blepharitis)—systemic (given by mouth [orally] or by injection) broad-spectrum antibiotics and systemic steroids (such as prednisolone); many pets respond dramatically to systemic steroids alone; systemic cyclosporine (to decrease the immune response) if condition does not respond to treatment with steroids
- Infected meibomian glands—systemic antibiotics, such as oral tetracycline or doxycycline or cephalexin for at least 3 weeks; topical (applied to the eyelids) antibiotics, such as polymyxin B and neomycin with 0.1% dexamethasone or topical 0.02% tacrolimus ointment; tacrolimus is a medication that decreases the immune response (an “immunosuppressive drug”); some dogs also may have *Demodex injai* infestation and require treatment for demodectic mange
- Failure of treatment—may try injections (so-called “allergy shots”) of *Staphylococcus aureus* bacterin (Staphage Lysate SPL)
- Atopy—oclacitinib or Apoquel

## BACTERIAL INFECTIONS

- Antibiotics based on bacterial culture and sensitivity testing
- While waiting for results of bacterial culture and sensitivity testing—the veterinarian may choose to treat with topical (applied to the eyelids) polymyxin B and neomycin with 0.1% dexamethasone ointment; plus a systemic (given by mouth [orally] or by injection) broad-spectrum antibiotic

## FUNGAL OR MYCOTIC INFECTION

- *Micorsporum canis* infection—treatment includes 2% miconazole cream, 1% clotrimazole cream, or diluted povidone-iodine solution (1 part to 300 parts saline) applied topically for at least 6 weeks

## PARASITIC

- Demodectic mange (demodicosis; *Demodex*)—localized disease—see handout for Demodectic Mange
- Demodicosis; some dogs require generalized (systemic) treatment with moxidectin, ivermectin, or milbemycin oxime
- *Notoedres* infestation—lime-sulfur dips
- Sarcoptic mange (*Sarcoptes scabiei*)—treat as for generalized skin disease, using such products as selamectin, ivermectin, milbemycin, amitraz dips

## UNKNOWN CAUSE (IDIOPATHIC DISEASE)

- Signs often controlled with topical (applied to the eyelids and/or eyes) polymyxin B and neomycin with 0.1% dexamethasone; occasionally also may administer systemic (given by mouth [orally] or by injection) prednisolone and/or a systemic (given by mouth [orally] or by injection) antibiotic

## Follow-Up Care

### PATIENT MONITORING

- Depends on cause and type of treatment
- Bacterial infection—systemic (given by mouth [orally] or by injection) and topical (applied to the eyelids and/or eyes) treatment for at least 3 weeks; should notice improvement within 10 days
- Most common causes of treatment failure—inadequate concentration of antibiotics; failure to correct one or more factors that increase the likelihood of development of inflammation of the eyelids (blepharitis); stopping medications too soon

### PREVENTIONS AND AVOIDANCE

- Depend on cause
- Minimize stress for cats with inflammation of the moist tissues of the eye caused by feline herpesvirus (known as “herpetic conjunctivitis”)

## POSSIBLE COMPLICATIONS

- Scarring that affects the eyelids and results in eyelid abnormalities (such as inability to close the eyelids [lagophthalmos])
- Spastic entropion (in which the eyelid is curled inward toward the eyeball) secondary to squinting or spasmodic blinking (blepharospasm) and pain
- Inability to open eyelids—secondary to matting of discharge and hair
- Tear-film deficiency as a result of loss of proper secretions from the meibomian glands
- Recurrence of bacterial infection or feline herpes virus-1 inflammation of the eyelids and conjunctiva (blepharoconjunctivitis)

## EXPECTED COURSE AND PROGNOSIS

- Depends on cause

## Key Points

- Inflammation of the outer (skin) and middle portion (muscle, connective tissue, and glands) of the eyelid, usually with secondary inflammation of the moist tissue lining the inner surface of the eyelid (known as the “palpebral conjunctiva”)
- May be associated with bacterial infection, self-trauma to the eyelids (as from rubbing or scratching), or disorders of the meibomian glands
- The meibomian glands are located along the edge of the back part of the eyelids, just under the lining (palpebral conjunctiva) of the inner surface of the eyelid; they produce secretions along the edge of the eyelid to help hold tears within the eye
- Most pets with feline herpesvirus-1 inflammation of the eyelids (blepharitis) cannot be cured, but the condition often can be controlled medically; clinical signs often recur when the cat is stressed
- Minimize stress for pets with inflammation of the moist tissues of the eye caused by feline herpesvirus (herpetic conjunctivitis)
- Keep the Elizabethan collar on at all times, when self-trauma is suspected