

## Affections of eyelids in animals

### Anatomy and physiology;

- Consists of movable folds of skin, loose connective tissue, muscular tissue, tarsus and conjunctiva.
- Dorsal and ventral folds form *palpebral fissure*.
- Sensory supply is by ophthalmic to upper eyelid and maxillary to the lower eyelid.
- The upper eyelid is more movable.
- Have protective eyelashes (*cilia*) at the margins
- Upper and lower eyelids unite to form lateral and median canthi.
- There is a well developed *orbicularis oculi* muscle. Sphincter muscle responsible for blinking. Innervated by palpebral branch of facial nerve.
- Posterior to muscle is dense connective tissue layer called *tarsus*. A poorly defined fibrous sheet (well developed in upper eyelid) which continues with septum orbitale.
- Dorsal to tarsus is *levator palpebrae superioris* which helps to raise the upper eyelid. Innervated by oculomotor nerve.
- Deep to levator is Miller's muscle which is innervated by sympathetics. Paralysis of this muscle causes a disease called Ptosis i.e. drooping of upper eyelid (Horner's syndrome).
- Contains *meibomian glands* or *tarsal glands* having outlets as tiny apertures along the lid margins.
- The innermost layer of eyelid is *palpebral conjunctiva* containing lymphoid follicles, accessory lacrimal glands of *Krause and Wolfring*.

### Blinking:

- 90% bilateral in human beings.
- 80% in dogs.
- 60% in cattle and other animals.
- Voluntary due to trauma.
- Involuntary, normally 25/5min in all. May go as high as 100/5min.
- Helps in continuous spreading of precorneal tear film over cornea.
- Helps in continuous removal of precorneal tear film towards median canthus.
- Helps in the removal of foreign bodies, if any.

**Precorneal Tear Film:** Constantly bathes the cornea and conjunctiva and anterior of eyelid. Gives nutrition to avascular cornea. Consists of three layers;

1. **Outer oily layer:** Secretions come from meibomian glands.
2. **Middle aqueous layer:** True tear film and the secretions come from lacrimal gland, accessory lacrimal glands of 3<sup>rd</sup> eyelid and accessory glands of conjunctiva.

3. **Inner mucin layer:** Secretions come from accessory glands and helps in uniform spread of precorneal tear film.

### congenital Affections:

1. **Ablepharon:** Rarest condition in which there is congenital absence of eyelids.
2. **Ankyloblepharon:** Mostly seen in dogs.

- Fusion of upper and lower eyelids.
- Normal physiological for first 10-15 days of life in dogs.
- May be pathological due to *Staph.* Infection usually associated with purulent discharge.
  - Treated by surgical separation under suitable anaesthesia after removal of the discharge.
  - Topical antibiotic ointments are used qid for 7-8 days.

### 3. Cloboma:

- Congenital full thickness or partial notching of the eyelid with absence of eye lashes, seen at birth.
- There is exposure of cornea and conjunctiva leading to keratitis and conjunctivitis.
- Surgical correction is indicated for cosmetic purpose which is only done at 3-4 weeks of age. Till then prevent keratitis/conjunctivitis by daily flushing using 2% Boric acid/NSS and instillation of artificial tears, 0.5% methyl cellulose (6-8 times daily) or using topical antibiotics.

### 4. Dermoid cyst:

- Typical cutaneous growth with long hair, lying in different directions, mostly present at the lateral canthus.
- May be pigmented or non-pigmented.
- Unilateral or bilateral.
- Single or multiple.
- May extend upto conjunctiva and/or cornea.

### Treatment: Surgical.

- Appropriate anaesthetic technique (GA/sedation with regional anaesthesia).
- Complete asepsis.
- Dermoid is excised along with healthy tissue and wound is closed using non absorbable suture material (1-0 or 2-0) applying simple interrupted suture pattern.
- Postoperatively use topical antibiotic ointments with corticosteroids for 6-8 days. Uses of ointments prevent adhesions.

### 5. Narrow palpebral fissure (Blepharophimosis or micropalpebral fissure):

- A condition rarely seen in terriers, the chows and is often responsible for the development of entropion.
- Enlargement of the palpebral fissure is done by lateral **canthotomy** and **canthoplasty** under suitable anaesthesia.
- Stretch lateral canthus with thumb and finger and cut the canthus upto the desired length with scissors.
- Check the haemorrhage, if any, with topical 1:5000 adrenaline.
- Suture the underlying conjunctiva to upper and lower cut surfaces of the skin with 5-0 or 6-0 absorbable suture using interrupted suture pattern.
- Use topical ocular antibiotics for 6-8 days postoperatively.

#### 6. **Large palpebral fissure (Macropalpebral fissure):**

- Abnormally large palpebral fissure mostly seen in bulldogs, spaniels, hounds and may result into ectropion.
- Corrected by permanent lateral tarsorrhaphy, if required.

#### 7. **Trichiasis:**

- The regular eyelashes assume an abnormal deviation so that they come in contact with cornea or conjunctiva causing irritation.
- Mostly congenital but may be acquired due to moderate entropion or blepharospasms or nasal folds of some breeds.
- Mostly seen in Pekingese and pug breeds of dogs.
- **Symptoms:** Epiphora, may be corneal damage and keratitis or conjunctivitis. Mucoid discharge is normally seen.
- **Treatment:** Mostly electro-epilation is done. Treat entropion if present. Remove nasal folds as per need. Adopt appropriate anaesthetic technique before adopting any treatment. Postoperatively, topical eye antibiotics for 6-8 days.

#### 8. **Distichiasis:**

- Congenital second abnormal row of eyelashes is present.
- Mostly seen in American Cocker Spaniel, Pekingese, Poodle and terrier breeds.
- The row is usually incomplete with one to many eyelashes arising from the orifices of meibomian glands.
- Usually upper eyelid is involved.
- Such eyelashes may occur spontaneously at any age and any breed.
- Rarely cause any clinical symptom except when causing irritation of cornea or conjunctiva.
- **Symptoms:** Epiphora, may be keratitis or conjunctivitis.
- **Treatment:** Removal of unwanted cilia by plucking, electro-epilation or by lid-splitting. Adopt appropriate anaesthetic technique before adopting any treatment. Postoperatively, topical eye antibiotics for 6-8 days.

9. **Districhiasis:**

- A rare condition where multiple cilia arise from one follicle

10. **Ectopic Cilia:**

- These are eyelashes or cluster of lashes that grow through the conjunctiva.
- Mostly seen on the upper palpebral surface.
- Highly irritating to the cornea and conjunctiva.
- **Symptoms:** Unilateral blepharospasms, Epiphora or Mucoïd discharge, conjunctivitis, keratitis are common clinical symptoms.
- **Treatment:** Electro-epilation. Adopt appropriate anaesthetic technique before adopting any treatment. Postoperatively, topical eye antibiotics for 6-8 days.

**congenital/ACQUIRED Affections:**

11. **Entropion:** Inversion of lid margins of the eyelid seen in almost all the animals.

- **Etiology:**

1. Congenital mostly involving the lower eyelid primarily because of the weakness of the tarsal plate. Mostly seen in Chow-chow, Blood hound, Labrador, Doberman, St. Bernard, Irish setter breed of dogs.
2. Acquired as a result of cicatricial contraction following injuries/ chronic inflammation.
3. Acquired due to blepharospasms associated with the painful eye

disease also known as **spastic entropion**.

- **Symptoms:**
  1. Typical in rolling of the lid margin.
  2. Epiphora.
  3. Blepharospasms.
  4. May be conjunctivitis or keratitis.
  5. May be vascularization (Pannus) or ulceration of the cornea.
- **Treatment:**
  1. **Surgical:** Modified Hotz Celsus blepharoplasty is done under suitable anaesthetic technique.
  2. Postoperatively, topical eye antibiotics with corticosteroids for 6-8 days.
  3. Local antiseptic dressing of the suture line for 8-10 days or till the sutures are removed.
  4. If corneal ulcers treat accordingly.

**12. Ectropion:** Typical eversion of the lid margin exposing the palpebral and bulbar conjunctiva. Seen in all the species.

- **Etiology:**
  1. Congenital due to the inadequacy of lateral retractor muscle of the eye.
  2. Acquired due to decreased tone of the orbicularis oculi muscle, secondary to trauma, surgery, thermal or chemical injury or chronic inflammation.
- **Symptoms:**
  1. Typical turning out of the lid margin.
  2. Epiphora.
  3. Blepharospasms.
  4. May be conjunctivitis or keratitis.
- **Treatment:**
  1. **Surgical:** V-Y blepharoplasty is done under suitable anaesthetic technique.
  2. Postoperatively, topical eye antibiotics with corticosteroid for 6-8 days.
  3. Local antiseptic dressing of the suture line for 8-10 days or till the sutures are removed.

**13. Blepharitis:** Inflammation of the eyelids may be superficial/deep, acute/sub acute/chronic.

- **Etiology:**
  1. Traumatic.
  2. Bacterial – *Staph.*
  3. Fungal – Microsporium, Trichophyton.
  4. Parasitic – Demodex, strongyloids.
  5. Allergic – pollens.
  6. Neoplastic.
- **Symptoms:**
  1. Pain, mostly photophobia.
  2. Blepharospasms.
  3. Hyperaemia.
  4. Oedema.
  5. Serous to purulent discharge.
  6. Alopecia.
  7. Epiphora.
  8. May be associated with keratitis or conjunctivitis.
- **Treatment:**
  1. Adopted as per the etiological factor (both local as well as systemic). Includes topical antibiotic or antifungal (Nystatin BID daily for 3-4 weeks or amphotericin B BID daily for 3-4 weeks).
  2. Topical corticosteroids are beneficial in allergic blepharitis.

14. **Hordeolum:** Localized suppurative inflammation of lid margin usually due to *Staph.*

**Types:**

- **External Hordeolum:** Also known as ‘**Stye**’ involves glands of Zies and Moll. Mostly seen in young dogs characterized by solitary or multiple small abscesses on the lid margin.
- **Internal Hordeolum:** Also known as ‘**Chalazion**’ and involves meibomian glands. The swelling is mostly seen on the palpebral conjunctiva. The condition is mostly seen in middle aged dogs.

**Treatment:**

- Hot compression of the swelling followed by manual compression with cotton plug and then flushing the affected eye using 2% Boric acid or NSS.
- Topical antibiotics with corticosteroids qid daily for 6-8 days.

15. **Traumatic eyelid injuries:** Mechanical involving skin or full thickness of the eyelid mostly leading to lacerations. Plastic surgery is done with minimum debridement under suitable anaesthesia along with suitable postoperative management.

16. **Neoplasms:** Adenomas, adenocarcinomas, Melanoma or Papillomas have been seen. Mostly the tumors of the eyelids are benign. Treated as per method adopted for the management of any neoplastic condition following radical surgery and appropriate

postoperative management.

17. **Symblepharon:** Adhesions between palpebral conjunctiva and cornea or between palpebral and bulbar conjunctivae following conjunctival injuries. Manual severing of such adhesions is done under suitable anaesthetic technique to separate the palpebral conjunctiva from either cornea or bulbar conjunctiva. Postoperatively always use ocular antibiotic ointments for 6-7 days to prevent reoccurrence.