

Correcting eyelid disorders

Surgical intervention can improve quality of life for Pets with entropion, ectropion and small eyelid masses.



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In a small animal practice, veterinarians see eyelid disorders almost every day. Often, corrective action should be taken as soon after diagnosis as possible to alleviate the condition and ensure a good quality of life for the Pet. It is essential to educate clients that these conditions are not only painful for their Pet, but they may also adversely affect the Pet's long-term visual health. In this article, we will discuss the most common eyelid disorders and basic surgical approaches for entropion and ectropion correction, eyelid tacking and small eyelid mass removal as well as follow-up therapy.

Eyelid defects such as entropion (inverted eyelid margin) and ectropion (everted eyelid margin) have distinct breed predilections. Entropion is seen in many breeds, including the Chow Chow, Chinese Shar Pei, Saint Bernard, English Springer Spaniel, American Cocker Spaniel, English Bulldog, Rottweiler, Toy and Miniature Poodle, Great Dane, Bullmastiff and several sporting breeds.¹ Ectropion is much less common than entropion and is generally seen in the lower eyelid of hounds and sporting breeds.

Patient evaluation and preparation for surgery

Because most surgical eyelid procedures require general anesthesia, it is important to perform a complete physical examination, preoperative lab work and a thorough ocular examination before anesthesia. Although eyelid tacking may not necessitate general anesthesia in most circumstances, it is imperative to evaluate the eye for preexisting pathology before surgery. This includes a Schirmer tear test, fluorescein corneal stain and examination of the eyelids and eye with an ophthalmoscope. Before surgery, the eyelid should be evaluated while the Pet is still awake to avoid overestimating or underestimating the amount of correction caused by distortion of normal eyelid tension while the Pet is under anesthesia. Failure to perform this evaluation could lead to a poor surgical outcome.

The positioning of the Pet for the best surgical approach may differ depending on the breed and the portion of the eyelid requiring repair. Please refer to *Figure 2*, page 26 (*Surgical treatment of cherry eye*) for positioning techniques and materials.

Preparation of the surgical site requires care and gentle tissue handling. Ensure the

clipper blades are sharp—a dull clipper blade will cause abrasion and swelling of the tissue before surgery, which further complicates gauging the appropriate amount of tissue resection. Clipping the hair may not be necessary for eyelid tacking or eyelid procedures on Pets with short hair. The risk of preoperative swelling outweighs the risk of infection in most circumstances, so use your best judgment when deciding to shave the area. Great care should be exercised when cleansing the surgical site. An ophthalmic irrigating solution can be used along with gentle blotting of the area. Surgical preparation with a soap solution, such as chlorhexidine scrub, should be avoided due to possible irritation of the eyelid, cornea or conjunctiva. If a dilute chlorhexidine solution is used, the tissue should be blotted—not scrubbed—with soaked gauze. Use extreme caution, and do not allow the solution to contact the cornea or conjunctiva. Pre-soaked cotton swabs can also be used to remove debris. Using an eye lubricating ointment is not suggested because the tissue may become slippery and difficult to handle. A sterile eye wash solution should be used throughout the procedure to moisten the cornea and prevent drying and irritation.

Eyelid tacking to temporarily correct entropion

Eyelid tacking is a procedure used in puppies for the temporary relief of entropion caused by excessive skin folds, commonly seen in Chinese Shar Peis. This technique is designed to physically hold the eyelid open long enough for the puppies to grow and compensate for the excessive skin.²

As stated earlier, general anesthesia may not be necessary for this procedure; however, adequate immobilization and pain relief are needed. Clipping and sterile

preparation are often not necessary. Nonabsorbable suture material is desirable, but a long-lasting absorbable suture is also acceptable.

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Usually, two or three vertical mattress sutures are all that is required for each eyelid. When placing the suture, start 2 to 3 cm from the eyelid margin. It is important to take a sizable portion of tissue to avoid early dehiscence. The second suture bite should be 1 to 2 cm distal to the first one. Remember that slight overcorrection of the entropion caused by pulling the suture taut is actually preferred.

Postoperative care should include application of a topical ophthalmic antibiotic preparation every six to eight hours as long as the sutures are in place. Careful treatment and monitoring of concurrent corneal ulceration, if present, is recommended. An Elizabethan collar may be needed, depending on the age and the size of the Pet.

The sutures should remain in place for two to three weeks. This procedure may have to be repeated in certain Pets, and ultimately, the entropion may require permanent surgical correction once the skull has fully formed and expanded the skin folds.

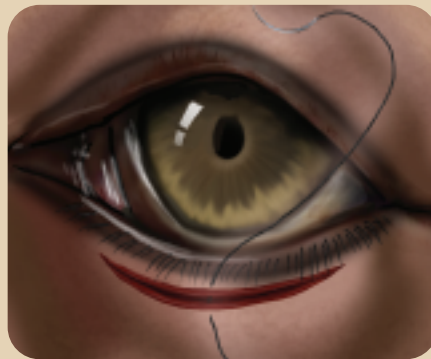
Permanent correction of entropion

Most conformational entropion cases can be corrected using the modified Hotz-Celsus

Figure 1: Alternative method of correcting entropion



1A: Grasp and clamp an amount of skin that produces the desired degree of eversion of the lid margin to correct the entropion. This will provide some hemostasis but is also traumatic to the tissue. Use iris or Metzenbaum scissors to excise the crimped portion of skin.



1B: Starting in the middle of the incision and using 4-0 to 6-0 absorbable sutures, place simple interrupted sutures to close the elliptical incisions, spacing the sutures 2 to 3 mm apart. Allow room for a slight degree of tissue swelling when tying the knot. Cut the free end of the suture that will be closest to the eyelid margin short to avoid trauma to the cornea. The other free end distal to the eyelid may be left longer for easier grasping during suture removal.

technique, which involves excising an elliptical-shaped portion of skin near the affected lid margin. Excision can be carried out in one of two ways, either by using a scalpel blade to create the incision margins or by using mosquito forceps to crimp the skin before excision with iris or Metzenbaum scissors.

In the scalpel blade technique, the first step is to make an initial partial-thickness incision parallel to and within 2 mm of the lid margin. The incision length should be slightly longer than the defect. The second partial thickness incision should be made in an elliptical shape, with a width in the center of the tissue to be excised sufficient to correct the degree of inversion. Using iris or Metzenbaum scissors, remove the skin outlined by the incisions.

An alternative procedure, which may be

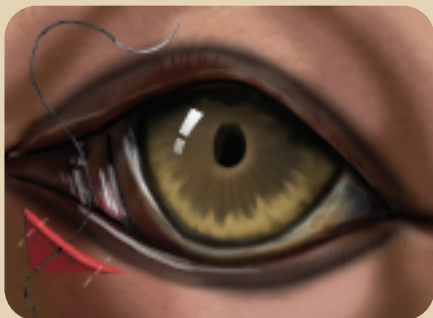
preferable for surgeons less experienced with the procedure, is to crimp the skin using mosquito forceps and excise the crimped skin with iris or Metzenbaum scissors before suturing the incision. This procedure is described in *Figures 1A* and *1B*.

After surgery, an Elizabethan collar is necessary to prevent premature dehiscence and damage from the Pet traumatizing the surgical site. Sutures should be removed at the standard time postoperatively (10 to 14 days), depending on healing.

Correction for medial canthus entropion

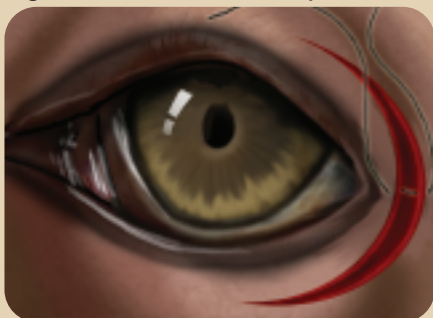
For certain breeds, such as Boston Terriers, Shih Tzus, Pugs, Lhasa Apsos and Pekingese, lower lid entropion near the medial canthus can be problematic because of a limited access area and possible nasal

Figure 2: Triangular incision



The base of the triangular incision is created parallel to the eyelid margin and is equal in length to the length of the entropion. The base to apex distance of the triangular incision should evert the tissue sufficiently to correct the entropion.¹ The incision should be closed as in *Figure 1B*, starting in the middle of the base and suturing it to the apex, then working outward.

Figure 3: Arrowhead technique



An elliptical incision (arrowhead) is made around the lateral canthus. This incision is sutured starting at its center next to the lateral canthus. The margins of the incision should be slightly longer than the actual lid defect.

folds. This condition is, however, very common in these breeds and can be overlooked as a major cause of epiphora.

Using a modification of the Hotz-Celsus procedure described above, a triangular portion of skin is removed with the base of the triangle parallel to the defect of the eyelid (*Figure 2*).

For lateral canthus entropion that involves the upper and lower lid, the same techniques are employed. However, a larger incision is used in a procedure referred to as the arrowhead technique (*Figure 3*). Complications include excessive scarring, failure to adequately evert the lid, too much eversion, temporary depigmentation of the skin or dehiscence. Regardless of technique or surgical skill, some corrections will fail to produce the desired effect initially. This stresses the need for good communication with clients beforehand to ensure that they

understand the scope of this procedure and possible need for additional surgery.

Ectropion

Surgical repair of ectropion is rarely indicated because of the lack of overt damage or long-term side effects. However, surgical intervention is indicated when overexposure of the eye results in chronic keratitis. Owners may seek ectropion correction for purely cosmetic purposes for their Pet, too. The procedure generally consists of excising a V-shaped wedge of tissue, including the eyelid margin, and then closing the incision along the margin of the eyelid (*Figure 4A*, page 50). Lid margin apposition is the client's only gauge of your surgical skills, so take time to approximate the skin edges as closely as possible. Using a subcuticular pattern and burying the knot is important for cosmetic skin closure (*Figure 4B*, page 50).

Figure 4: Surgical ectropion surgery



4A: First, assess the degree of excision needed, then create a full-thickness, V-shaped wedge of the affected eyelid margin, taking care to avoid traumatizing the cornea.



4B: Perform a two-layer closure of the conjunctiva and skin using 4-0 to 6-0 absorbable suture material.¹ Introduce the suture deep into the subcutaneous tissue on one side of the wound and pass it toward the dermis; then pass the suture across the incision line, introduce it in the subcutaneous tissue close to the dermis and pass it deeper into the tissue towards the bulbar conjunctiva. Knot the beginning and end of the suture and pull the knots below the skin. Avoid engaging conjunctival tissue during suturing because this can cause lid margin inversion, increased scarring or corneal abrasion.

Small eyelid mass removal

Small masses of the eyelid margin are relatively common, especially in the aging Pet population. Although the incidence of malignancy is relatively low in dogs (20 to 25 percent), it is always an important factor when determining surgical margins. The majority of neoplasms are squamous papillomas or sebaceous adenomas and do not require wide surgical margins.³ In cats, however, the incidence of malignancy is much higher, necessitating more aggressive techniques. In this article, the surgical technique discussed will be limited to small mass removal. The term “small mass” is somewhat arbitrary, but traditionally a mass occupying less than a third of the eyelid margin would be considered small.

After preparing the area for surgery as described previously, perform the procedure as described in *Figure 5* (page 52). For slightly larger masses, however, consider using the house-top technique described in *Figure 6* (page 52).

It is imperative with eyelid mass removal to make certain that the eyelid margins are approximated in order to ensure a cosmetically satisfying appearance once the incision is closed. As with any mass that is excised, histopathology should always be performed to make a definitive diagnosis and offer a sound prognosis. Postoperative care should include an Elizabethan collar to prevent trauma, and suture removal should be performed in 10 to 14 days.

Figure 5: Removal of small eyelid masses



Using Metzenbaum scissors, make a full-thickness, V-shaped, wedge incision on either side of the mass and excise the mass. Place a two-layer closure of the conjunctiva and skin using 4-0 to 6-0 absorbable suture, as discussed in *Figure 4B*. Ensure that the internal sutures and the free ends of the suture do not contact the cornea. Hemorrhage at the surgical site can make closure difficult, but once pressure is created from the suture closure, hemorrhage typically resolves.

Figure 6: House-top technique



A house-top incision is made by making two parallel, full thickness incisions on either side of the mass, then converging in a wedge shape at the distal margin of the mass. As with the first procedure for small mass removal, preserve cosmetic appearance by closing the conjunctiva and skin in two layers as shown in this figure.

Conclusion

All of the procedures described in this article are well within the reach of new or inexperienced surgeons. As with any surgery, it is important to understand and communicate the possible unintended results of these procedures with clients. Setting expectations that you may have to perform additional procedures to achieve the desired effect will reduce the likelihood of a dissatisfied client. Similarly, educating clients about the importance of diligent home care can greatly reduce the risk of postoperative complications. These procedures can be some of the more results-oriented and rewarding in the practice of veterinary medicine. Mastering these simple procedures not only helps provide Pets with immediate relief from the irritation caused by these conditions, but also helps improve their long-term quality of life,

thus helping us fulfill our roles as allies for patients' health. 🐾

References

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