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Lip to Lid transpositional flap technique for management of lower eyelid tumour in a dog

N. Umeshwori Devi[1†], Jasmeet Singh Khosa[1] and Anju Poonia[2]

Guru Angad Dev Veterinary and Animal Science University, Ludhiana-141004 (Punjab)

[1]Assistant Professor, Department of Veterinary Surgery and Radiology, [2]Assistant Professor, Department of Teaching Veterinary Clinical Complex, College of Veterinary Science, Ludhiana

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Eyelid growths are common in dogs and are mostly benign (Stades and Woerdt, 2021), with adenomas and adenocarcinomas of the meibomian gland being the most frequent in older dogs. Surgical excision with wide skin margins is generally recommended to prevent recurrence, but this often results in large eyelid defects that cannot be closed primarily. Defects involving more than one-third of the eyelid margin typically require reconstructive procedures to restore proper eyelid function (Gelatt and Blogg, 1969).

Eyelid reconstruction requires tissues with structural and anatomical similarity to the conjunctiva to minimize postoperative corneal complications. Various specialized reconstructive techniques have been described, including axial pattern flaps (Fahie and Smith, 1999), free oral mucosa grafts using the mucocutaneous subdermal plexus flap technique (Irwing *et al.*, 2025), combined mucosal graft/ transposition skin flaps, and eyelid-skin flap techniques. When reconstruction of the palpebral mucosa is required along with eyelid repair, oral mucosa from the upper lip can be used to replace full-thickness defects of the upper and/or lower eyelids (Pavletic *et al.*, 1982; Pavletic, 2018).

A 7.5-yr-old male Labrador retriever was presented with a history of swelling on the left lower eyelid for one and a half months. Clinical examination revealed a large nodular, ulcerated swelling involving the entire lower eyelid, while the left eye itself appeared normal (Fig. 1). Radiographs showed no bony abnormalities around the eye, and routine clinical and biochemical parameters were within normal limits.

The dog was premedicated with butorphanol (0.2 mg/kg body weight), acepromazine (0.05 mg/kg), and glycopyrrolate (0.01 mg/kg). Anaesthesia was induced with propofol (4 mg/kg) and maintained using isoflurane inhalation throughout the procedure. Following aseptic preparation, the swelling and the entire lower eyelid were excised with adequate healthy tissue margins.

Reconstruction of the lower eyelid was achieved using a composite graft harvested from the upper lip mucosa and skin of the left maxillary region. Three incisions were made to create the graft: the first incision (AB = 2.5 cm) along the oral mucosa from the left lip commissure rostrally, matching the length of the eyelid to be reconstructed; the second incision (BD = 5 cm)

Fig. 1: Nodular ulcerated swelling on lower eyelid.

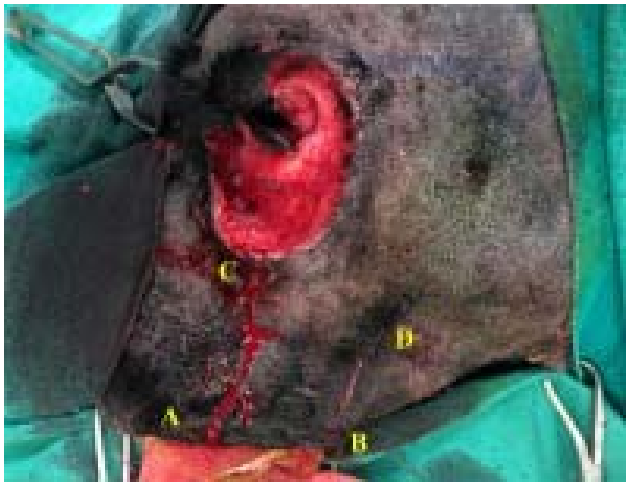

Fig. 2: Resection of lower eyelid growth and making of 3 incision AB (oral mucosa), AC and BD (maxillary

†Corresponding author; Email: umeshwori.nameirakpam@gmail.com

Fig. 3: Harvesting of subdermal flap and transpositioning of oral mucosa towards lower eyelid defect.

Fig. 5: Excellent functional outcome in the reconstructed eyelid.

Fig. 3: Harvesting of subdermal flap and transpositioning of oral mucosa towards lower eyelid defect.

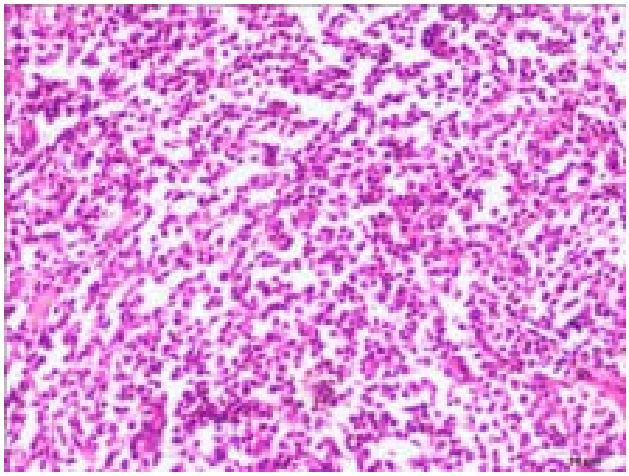

Fig. 6: Chronic active inflammation: presence of eosinophils and macrophages (H & E, 200X).

extending dorsally from the lip commissure at approximately 45–55° to an imaginary line along the upper eyelid margin at the lateral canthus, with a length twice that of AB; and a third incision (AC) from the resected growth margin to the rostral tip of the mucosal incision, parallel to BD (Fig. 2). Subdermal tissue was undermined to create a flap, which was then transposed at 120° (Fig. 3). The skin flap was rotated to form the lower eyelid conjunctival margin, aligning the rostral margin toward the lateral canthus and the caudal margin toward the medial canthus. The remaining conjunctiva and harvested mucosa were sutured in a simple continuous pattern using PDS 3-0, and the skin flap margins were closed with simple interrupted sutures using nylon 1-0 (Fig. 4).

Postoperatively, the dog received cefotaxime (20 mg/kg body weight, i.m., twice daily for 5 days) and meloxicam (0.4 mg/kg, i.m., once daily for 3 days). Wound care included regular dressing with povidone-iodine. Mild discharge was noted from two sutures at the medial canthus in the immediate postoperative period, but the wound healed uneventfully by day 12, and sutures were removed. Functional outcome of the reconstructed eyelid was excellent (Fig. 5).

Long-term follow-up at six months revealed no recurrence of the lesion. However, epiphora was observed, for which lifelong instillation of carboxymethylcellulose was advised. Mild conjunctival pigmentation and mild medial ectropion were also noted. A small "dog ear" formation was present, but the cosmetic appearance was deemed acceptable to the owner. Histopathological examination of the excised tissue revealed chronic active inflammation (Fig. 6).

In this case, reconstruction using adjacent eyelid skin was not suitable, as trichiasis from the reconstructed eyelid could have led to secondary keratitis, pigmentary keratitis, or corneal ulceration. To prevent such complications, oral mucosa was harvested as a mucocutaneous transpositional subdermal flap, allowing for complete reconstruction of the left lower eyelid.

Similar approaches have been reported in the literature. Pena and Garcia (1999) used oral mucous

membrane grafts to reconstruct upper eyelids in a dog with loss of three-quarters of the eyelid margin, where the lower eyelids had become thin due to repeated surgery for distichiasis. Irving *et al*. (2025) reported the use of free labial mucocutaneous grafts for eyelid reconstruction in four dogs, resulting in functional eyelids with good cosmetic outcomes, despite superficial flap necrosis in all cases, which delayed complete healing up to eight weeks.

In conclusion, the lip-to-lid mucocutaneous transpositional subdermal flap proved to be a suitable single-stage technique for lower eyelid reconstruction in this dog, providing excellent functional outcomes and satisfactory cosmetic results.

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