

OCULAR SQUAMOUS CELL CARCINOMA IN A LABRADOR DOG AND ITS SURGICAL MANAGEMENT

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A 6-year-old male Labrador dog was presented with complaint of growth of a mass on its right eye developing since 3 months. Though the size of the mass was small, it was ulcerated and attached to the palpebral conjunctiva of lower eyelid. Tentatively it was diagnosed as a tumour growth and surgical excision was planned. Under general anaesthesia using mixture of Atropine-Xylazine-Ketamine the mass was excised. The wound on lower palpebral conjunctiva was sutured. Post-operatively parenteral antibiotics, analgesics and instillation of eye drops were recommended. Ocular healing was uneventful with granulation tissue on 10th post-operative day. Histopathological study of the excised mass revealed as a squamous cell carcinoma.

Key words: Dog, squamous cell carcinoma, surgical intervention.

Introduction

Squamous cell carcinoma (SCC) is a neoplastic condition of squamous epithelial cells and usually superficial in origin (Withrow and Vail, 2007; Dreyfus *et al.*, 2011). It occurs in all domestic species and usually seen in skin and at those places where the skin passes into a mucous membrane. The tumours are particularly common in areas of the skin where there is a deficiency of melanin (Vegad, 2012). Ocular SCC, one of the uncommon tumour in dogs which comprises up to two thirds of feline eyelid and third-eyelid tumours and has a predilection for the lower eyelid and medial canthus of white cats (Willis and Wilkie, 2001; Withrow and Vail, 2007). In general, ocular SCCs affecting any structure of eye globe and adnexa are less frequent in dogs (Karasawa *et al.*, 2008; Montiani-Ferrira *et al.*, 2008; Pigatto *et al.*, 2010). Most of these tumours are benign and rarely metastasize to distant organs (Withrow and Vail, 2007).

Originating from squamous epithelial cells, SCC presents varying features from incomplete carcinoma in intra epidermal form to highly malignant tumor type in its invasive form and exhibiting different degrees of differentiation in member cells of its progeny

(Burkhard *et al.*, 2001; Raskin, 2001). Grossly, SCC occurs as nodular or erosive lesion showing red firm plaque to cauliflower like ulcerated mass and may be seen in any organ of the body lined by epithelium like skin, eye, oral and nasal cavities, tongue, oesophagus, lung, penis, vagina and footpad (Stone, 1990; Viswanath *et al.*, 1998; Walder and Gross, 1992). This paper reports a case of successful treatment of ocular SCC in a dog.

Case History and Diagnosis

A 6-year-old male Labrador dog was presented with history of a mass on its right eye (Fig.1). The mass was gradually growing since 3 months. Clinical signs observed like ocular discharge and sometimes bleeding when the animal tries to rub the mass due to irritation. Pupillary light reflex and menace responses were intact bilaterally. On physical examination there was normal vision except the ocular mass. The mass was ulcerated and attached to palpebral conjunctiva of lower eyelid. Thoracic, abdominal and skull radiography did not demonstrate any evidence of metastasis. There was no history of previous treatment prior to its presentation. Tentatively it was diagnosed as a tumour growth and surgical excision was planned.

Surgical Treatment

After keeping 12 hours of fasting, the dog was anaesthetized using mixture of atropine sulphate @ 0.04mg/kg body weight, xylazine @ 1mg/kg body weight and ketamine @ 5 mg/kg body weight intramuscularly. General anaesthesia was maintained by ketamine hydrochloride through the venous port attached to 5% dextrose normal saline. Lower eyelid lashes were trimmed and hairs around the mass were shaved. Then the site was prepared aseptically for surgery (Fig.2). The tumour mass was held with a Babcock forceps and a circular incision was made around the mass (Fig.3). Then the tumour tissue was excised from the base. The wound was sutured with chromic catgut no 2-0 (Fig.4,5). Excised mass was sent for histopathological study. Bleeding was checked by adrenalin swab. Post-operatively the dog was treated with inj. Ceftriaxone (Intacef) @ 10 mg/kg body weight I.M. for 5 days and inj Meloxicam (Melonex) @ 0.3 mg/kg bodyweight I.M for 3 days. For eye instillation topical eye drop Zenflo-D was recommended twice daily for 10 days. Ocular healing was uneventful with granulation tissue on 10th post-operative day and re-examination after 15 days did not reveal any complaint.

Results and Discussion

Both in cats and dogs, the squamous cell carcinoma (SCC) tumour is believed to be caused due to increased exposure to solar radiation, lack of adnexal pigmentation, possibly chronic ocular surface irritation (microtrauma), viral agents, high expression of cyclo-oxygenase-1 (COX-1) and COX-2, hormonal, genetic and immunologic factors (Montiani-Ferrira *et al.*, 2008; Pigatto *et al.*, 2010; Takiyama *et al.*, 2010).

The clinical signs of ocular SCC may include epiphora, conjunctival vascular injection, mucopurulent ocular discharge, protrusion of third eyelid conjunctival/corneal roughening or ulceration and corneal

neovascularization or pigmentation in addition to a mass lesion (Withrow and Vail, 2007). In this case also some of these clinical signs were observed.

In general, small eyelid and ocular surface tumours are best diagnosed by excisional biopsy. Certain tumours can be amenable to simple excision and can be properly managed in general practice (Conceicao *et al.*, 2010; Takiyama *et al.*, 2010). In the present study, the diagnosis was based on history, clinical signs and confirmed by histopathological examination of the mass after surgical excision.

Treatment of squamous cell carcinoma often combines surgery with local radiation therapy or chemotherapy (Karasawa *et al.*, 2008). Surgical excision is the primary treatment option for most patients with SCC. The ability of completely excising the tumour mass depends upon the factors such as size and location of the tumour (Webb *et al.*, 2009). In the present case, the squamous cell carcinoma on lower palpebral conjunctiva was successfully treated only by surgical excision. Histopathological study of excised mass consisted of proliferated tumour cells forming keratin pearls is a common finding of well-differentiated SCCs (Fig.6). Recurrence rates following excision of ocular surface squamous neoplasia ranged from 15% to 52% with an average of 30% (Shin *et al.*, 2001). Here the dog was followed up for next six months and there was no sign of recurrence.



Fig.1. Showing gross tumour mass on lower eyelid



Fig.2. Preparation of the site for surgery.



Fig.3. Excision of the tumour mass



Fig.4. Repair of wound on palpebral conjunctiva.



Fig.5. Recovery of the patient after operation.

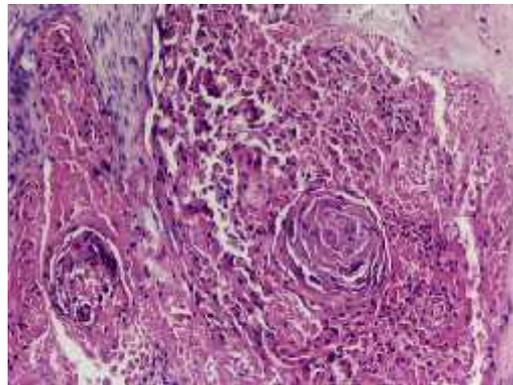


Fig.6. Histological section showing squamous cell carcinoma (H&E stain).

References

Burkhard, M.J., Valenciano, A. and Barger, A. (2001). Respiratory tract. In: Atlas of Canine and Feline Cytology. 1st ed. W.B. Saunders, Philadelphia. Pp. 135-185.
 Conceicao, L.F., Ribeiro, A.P., Piso, D.Y.T.

and Laus, J.L. (2010). Considerations about ocular neoplasia of dogs and cats. *Cienc Rural.*, **40**: 2235-2242.
 Dreyfus, J., Schobert, C.S. and Dubielzig, R.R. (2011). Superficial corneal squamous cell carcinoma occurring in

- dogs with chronic keratitis. *Vet. Ophthalmol.*, **14**: 161-168.
- Karasawa, K., Matsuda, H. and Tanaka, A. (2008). Superficial keratectomy and topical mitomycin C as therapy for a corneal squamous cell carcinoma in a dog. *J. Small Anim. Pract.*, **49**: 208-210.
- Montiani-Ferrira, F., Kiupel, M., Muzolon, P. and Truppel, J. (2008). Corneal squamous cell carcinoma in a dog: a case report. *Vet. Ophthalmol.*, **11**: 269-272.
- Pigatto, J.A.T., Hunning, P.S., Pereira, F.Q., Almeida, A.C.R.V., Gomes, C., Albuquerque, L. and Driemeier, D. (2010). Corneal squamous cell carcinoma in a dog. *Acta. Sci. Vet.*, **38**: 197-200.
- Raskin, R.E. (2001). Skin and subcutaneous tissue. In: Atlas of Canine and Feline Cytology. 1st ed. W.B. Saunders, Philadelphia. Pp. 35-92.
- Shin, H.J., Sohn, J.H., Goo, S., Park, J.Y., Choi, C.H., Kim, E.K., Cho, S.H., Yoo, N.C. and Roth, J.K. (2001). Squamous cell carcinoma of the cornea. *Yonsei Medical Journal*, **42**(5): 576-579.
- Stone, R.W. (1990). An unusual case of recurrent lingual ulcerations caused by squamous cell carcinoma. *Can. Pract.*, **15**: 23-25.
- Takiyama, N., Terasaki, E. and Uechi, M. (2010). Corneal squamous cell carcinoma in two dogs. *Vet. Ophthalmol.*, **13**: 266-269.
- Vegad, J.L. (2012). A textbook of Veterinary General Pathology. 2nd edn. IBD publisher. Pp. 376-378.
- Viswanath, S., Vijayarathi, S.K., Sreenivas Gowda, R.N. and Rao, S. (1998). Pathology of canine oral neoplasms. *Ind. J. Vet. Pathol.*, **22**: 150-153.
- Walder, E.J. and Gross, T. (1992). Neoplastic diseases of the skin, Veterinary Dermatopathology. 1st ed. Mosby Yearbook, St. Louis. Pp. 336-341.
- Webb, J.L., Burns, R.E., Brown, H.M., LeRoy, B.E. and Kosarek, C.E. (2009). Squamous Cell Carcinoma. Compendium: Continuing Education for Veterinarians. **3**: 133-142.
- Willis, A.M. and Wilkie, D.A. (2001). Ocular oncology. *Clin. Tech. Small Anim. Pract.*, **16**: 77-85.
- Withrow, S.J. and Vail, D.M. (2007). Ocular tumors. In: Withrow & MacEwen's Small animal clinical oncology. 4th ed Saunders Elsevier, St Louis, USA. Pp. 686-698.