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A Rare Case of Squamous Cell Carcinoma in Third Eye Lid and its Surgical Management in a Dog

R. Uma Rani*, S. Sivaseelan and N. Pazhanivel

Veterinary University Training and Diagnostic Centre, Thirupparankundram, Madurai – 625 005, TANUVAS, Tamil Nadu.

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Abstract

An eight year old, Dobermann dog was brought with the history of having a mass in the left eye and was treated by a local veterinarian without any improvement. On clinical examination a small reddish mass in the left third eyelid, congested bulbar and palpebral conjunctiva were noticed. Under general anaesthesia, third eyelid extraction was performed in the left third eyelid as a surgical treatment of choice and the mass was confirmed as squamous cell carcinoma on histopathological examination.

Key words: Dog, Third eye lid, Squamous cell carcinoma , Third eyelid extraction.

The most common third eyelid tumors in dogs are adenocarcinoma, papilloma and malignant melanoma (Stehlik *et al.,* 2019). Squamous cell carcinoma is a malignant neoplasm that arises from the keratinized stratified squamous epithelium and may originate in the eye conjunctival limbus bulb, nictitating membrane, bulbar conjunctiva, or eyelid epidermis. It is the most common type of malignant eyelid tumor found in horses, cattle and cats and rare in dogs (Sano *et al.,* 2019, Alessio *et al.,* 2021) and it represents only 0.8% among ocular neoplasms in dogs (Dees *et al*., 2010). The present report records a rare case of squamous cell carcinoma in the left third eye lid of a dog and its successful surgical management.

Case History and Observations

An 8-year-old, male Doberman dog was presented with a mass in the left eye since 20 days and was treated for a week period, without any improvement. Clinical examination revealed that the left third eyelid was swollen with a small reddish mass on the central area of the bulbar surface of the third eyelid (Fig.1). Epiphora and congested bulbar and palpebral conjunctiva could be observed. Macroscopically, it did not manifest invasion in the gland of third eyelid and other ocular structures. Ophthalmic examinations did not reveal any other abnormalities in either of the eyes. Thoracic and abdominal radiographs did not reveal any signs of metastasis. All the biochemical and haematological parameters were within the normal range. Based on the history and clinical examination the case was suspected for non-invasive tumor in the left third eyelid. Surgical removal was decided upon and the animal was prepared for aseptic surgery.

Treatment and Discussion

The dog was premedicated with atropine sulphate @ 0.04 mg/kg body weight s/c and xylazine hydrochloride @ 1 mg/kg body weight i/m. General anaesthesia was induced with Ketamine Hcl and Diazepam @ 5mg and 0.5 mg/kg body weight i/v respectively. The dog was positioned in right lateral recumbency, and the left eye was prepared routinely for surgery. An encircling conjunctival incision was made at the base of the third eyelid with a Bard barker blade No. 15. Metzenbaum scissors was used to undermine the bulbar and palpebral conjunctiva on either side of the third eyelid within the fornices and the left third eyelid was excised at the base. The conjunctiva was closed with simple continuous sutures using 5-0 vicryl with care to place the knots deep within the dorsonasal

**Correspondence author* : Email : kamleshharini@yahoo.com

Fig.1: Squamous Cell Carcinoma in the left third eyelid of a dog

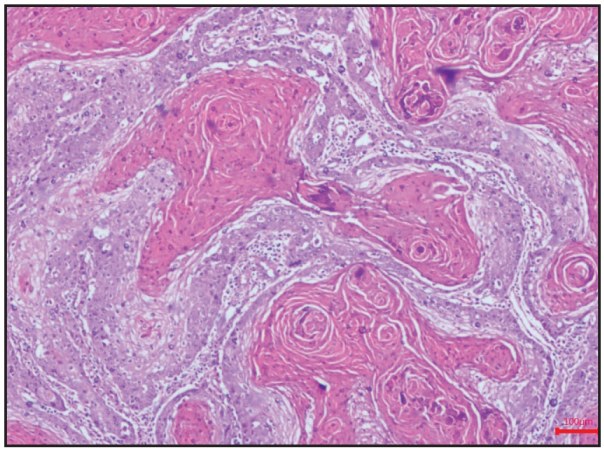

Fig.2: Histopathology of squamous cell carcinoma in the left third eyelid of a dog

and ventrotemporal fornices on either end of the incision to avoid corneal irritation. Post operatively Ofloxacine eye drops and artificial tear ointment QID for 10 days were administered. The animal was given Inj. Intacef @ 25 mg/kg b.wt i/v for 5 days and Inj. Melonex @ 0.2 mg/kg i/m b.wt. for 2 days. Healing of conjunctival incision was observed on 15th post operative day evaluation and there was no recurrence of tumor till two years of post surgery.

On gross examination, the tumor mass was mushroom like, firm, reddish, and had the dimensions of approximately 1.2 × 0.8 × 0.7 cm in size. The tissue sample was fixed in 10% neutral-buffered formalin and processed for histopathological examination. Histopathological examination revealed squamous cells with hyperchromatic nuclei arranged in clumps suggestive of squamous cell carcinoma (Fig.2).

In dogs, squamous cell carcinoma present in the skin, at slightly pigmented or hairy sites like the digits, the nasal planum, the oral mucosa and rarely, the eye (Northrup and Gieger, 2010, Alessio *et al.,* 2021). Eyelid tumors are relatively common in all domestic species. However, the most common eyelid neoplasms in dogs are meibomian adenoma, papilloma, histiocytoma and melanoma (Maggs, 2008) and unusual to find squamous cell carcinoma in the third eyelid of companion animals (Alessio *et al.,* 2021). In a retrospective study of third eyelid neoplasms in dogs and cats, 145 dogs were evaluated and only one (0.8%) was diagnosed with squamous cell carcinoma of the third eyelid, highlighting the rarity of this presentation in dogs (Dees *et al*., 2010).

Older animals are at greater risk for developing squamous cell carcinoma, with the average age at presentation being 8 to 10 years for dogs and 10 to 12 years for cats (Withrow, *et al.*, 2013). Ocular or adnexal squamous cell carcinoma in animals and humans is suspected to be a result of the chronic effect of ultraviolet light on the epithelium involves the tumor suppressor gene *p53 (*Teifke and Lohr , 1996). Treatment and prognosis will depend on the exact location, size and severity of the issue. Currently, various therapeutic approaches are available, such as surgical excision, electrosurgery, cryosurgery, radiation, and hyperthermia and the treatment of choice is excision of the lesion with a wide surgical margin. Surgical procedure is highly dependent on the size, location, and stage of the lesions, and degree of invasion of the underlying tissue and surgical treatment should be aimed at removing sufficient tissue to leave surgical margins free of neoplastic cells (Scott *et al.,* 2001). Although, recurrence rates following the excision of squamous cell carcinoma of the ocular surface ranged an average of 30%. (Pigatto *et al*., 2010). In the present case, the adopted surgical procedure was third eyelid extraction to avoid recurrence as the tumor was noninvasive and there was no evidence of recurrence during the follow up period of two years. Early diagnosis and treatment of squamous cell carcinoma are

key because small, early-stage tumors are the most amenable to treatment and carry the best prognosis. Since it is uncommon in dogs, squamous cell carcinoma of the third eyelid may be misdiagnosed, delaying correct treatment and accelerating the development of the tumor (Ferreira, *et al*., 2008). But in the present case early diagnosis and timely surgical intervention would have resulted a positive outcome and could save the vision of the dog.

Summary

An unusual case of squamous cell carcinoma in the left third eyelid of the eight year old dog and its successful surgical management is reported.

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