SURGICAL MANAGEMENT OF OCULAR SQUAMOUS CELL CARCINOMA IN A MONGREL DOG: A CASE REPORT

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An eight year old male mongrel dog was presented with the history of growth of a mass on its right side upper palpebral conjunctiva developing since last 2 months. A small round swelling of the mass was observed. It was planned for surgical resection of the offending mass. Under general anaesthesia using atropine-xylazine-ketamine combination, the mass was excised from its base and the tumour bed was cauterized with liquid nitrogen swab. The incised tissue was sutured with absorbable suture material and the bleeding was checked by topical application of adrenaline soaked swab. Post-operatively antibiotic and steroid eye drops were advised for five days. The excised tissue mass was sent for histopathological examination which revealed it as a case of squamous cell carcinoma.
Keywords: Squamous cell carcinoma, Upper eyelid, Ocular reflexes, Corneal surface.

Squamous cell carcinoma (SCC) is the most common type of non-melanoma cancer of the conjunctiva in adult dogs. However, it is an uncommon cancer. Squamous cells are the flat, thin cells that cover many of the outer and inner surfaces of the body. SCC is malignant epidermal carcinoma and it is a neoplastic condition of squamous epithelial cell and usually superficial in origin (Withrow and Vail, 2007; Dreyfus *et al.*, 2011). It occurs in all domestic species and usually seen on skin and at places where the skin meets the mucous membrane. The tumours are particularly common in areas of the skin where there is a deficiency of melanin (Vegad, 2012). Ocular SCC tends to occur at sites of sun damaged skin. It usually occurs at the transitional zones i.e. at limbus and the lid margin. The tumour invades the stroma deeply and may be fixed to underlying tissues.

Histologically, it is similar to squamous cell carcinomas occurring elsewhere. Early cases may be treated by complete local excision combined with extensive diathermy cautery of the area. However, in advanced and recurrent cases radical excision including enucleation or even exenteration may be needed along with postoperative radiotherapy. This paper reports a case of successful treatment of ocular SCC in a dog.

Case History and Diagnosis

An eight year old male mongrel dog was presented with the history of a full eye sized mass on its left upper eyelid (Fig.1). The mass was gradually growing since 2 months. Clinical signs observed like ocular discharge and bleeding when the animal rubbed the mass against hard surface like wall or with paws/ claws. Ocular reflexes were intact bilaterally. Small blood vessels were visible within the tumour. A central depression with crusting and ulceration also was seen. No radiographic signs suggestive of metastasis were observed. No previous treatment was done. Tentatively it was diagnosed as a tumour growth and surgical excision was planned.

Surgical treatment

The dog was premedicated with cocktail mixture of atropine sulphate @0.04mg/kg body.wt. xylazine hydrochloride @1mg/kg body wt. I/M. During surgery the animal was maintained under incremental doses of ketamine hydrochloride along with 5% dextrose normal saline. Upper eyelid lashes were trimmed and hairs around the mass were shaved. Then the site was prepared aseptically for surgery. The tumour mass was held with a Babcock forceps and a circular incision was made around the mass and the tumour tissue was excised from the base (Fig.2). The excised tumour mass was sent for histopathological study. Adrenalin swab was applied to check bleeding.

Postoperatively the dog was treated with Ceftriaxone 20mg/kg body weight and melonex 0.5mg/kg body weight along with fluid therapy, antiseptic wound dressing. Topical eye drop Zenflox-D was recommended. Ocular healing was fruitful with granulation tissue on 12th post-operative day (Fig.4).

Fig.1.Tumour mass on right side upper palpebral conjunctiva

Fig.2.Surgical excision of tumour mass

Fig.3.After surgery

Fig.4. After fruitful recovery

Result and Discussion

A squamous cell carcinoma is a type of cancer that originates in the squamous epithelium. It may appear to be a white skin mass, or a raised bump on surface. Often the raised mass will necrotise in the center and ulcerate, with occasional bleeding. As carcinomas are characteristically malignant and particularly invasive, it should be treated without delay. Squamous cell carcinomas are seen more in dogs that live at high altitudes and in dogs that spend a lot of time in the sun. Dogs that have light coloured skin and hair are more prone to this type of cancer. The observed loss of the various cytokeratins, the strong p53 expression, and low numbers of caspase 3 positive cells were suggestive that a p53 mutation might have caused this primary corneal SCC. Over expression of the tumour-suppressor gene p53 is likely to be a consequence of ultraviolet radiation exposure. Two factors, chronic irritation of the corneal surface (microtrauma) and exposure to UV radiation played a major role in the formation of primary SCC as also reported by Montiani-Ferrira *et al.* (2008).

SCCs are common tumours of dogs and cats. They vary in appearance, location and biologic behaviour; however, they are typically locally aggressive, with a reported low to moderate metastatic potential. Early recognition, diagnosis, and treatment are essential. Diagnosis of SCC relies on cytologic or histologic examination of the

tumour. Many treatment modalities are available with surgical excision being the mainstay of therapy. A favourable prognosis exists for patients with well-differentiated tumours that can be completely excised and without evidence of vascular or lymphatic invasion or distant metastases. Recurrence rates following excision of ocular surface squamous neoplasia averages 30% as also recorded by Shin *et al.* (2001). In this case the dog was followed up for four months after surgery and there was no sign of recurrence rather a fruitful recovery was noticed.

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