Hemangiosarcoma of the Third Eyelid in a Dog

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ABSTRACT

Background: Hemangiosarcoma (HSA) is a malignant tumor of vascular endothelial origin. Primary neoplasms are extremely rare in the third eyelid of dogs. Neoplasia affecting ocular surface has been associated with increased exposure to solar radiation. Treatment reported for dogs with conjunctival neoplasia is surgical excision. Definitive diagnosis is confirmed in the histopathological examination. In this report, we describe a case of HSA of the third eyelid in a dog that was successfully treated with surgical excision.

Case: A 5-year-old female Boxer dog was referred to the Ophthalmology Section of the Veterinary Clinics Hospital of the Federal University of Rio Grande do Sul (UFRGS), presenting a red mass in the third eyelid of the right eye. Physical examination it was normal except for the ocular disease. The dog had signs of ocular discomfort an epiphora. On ophthalmic examination a fixed, raised, red mass approximately 4 to 5 mm in diameter was identified on the anterior surface of the third eyelid in the right eye. Under general anesthesia, and using an operating microscope the mass was excised with a gross margin and submitted for histopathological analysis. Microscopic examination revealed a lesion composed of neoplastic mesenchymal cells forming irregular channels containing blood. These plump cells showed moderate anisocytosis and anisokaryosis with a low mitotic index. The postoperative treatment involved the administration of systemic carprofen 4 mg/kg, daily for 5 days. In addition, topical broad-spectrum antibiotic containing tobramycin 0.3%, and a non-steroidal anti-inflammatory solution of sodium diclofenac 0.1%, administered six times a day for two weeks. The surgical wound was left to heal by second intention. After surgery, the dog had no signs of ocular discomfort. No complications or recurrence of the lesion have been noted after two years of follow-up.

Discussion: Excessive exposure to ultraviolet radiation has been implicated as a risk factor for development of the ocular surface tumors in dogs. In this case, the outdoor housing of the dog in a sunny area resulted in a high exposure to solar radiation. In dogs these tumors usually present as small, red, raised lesions of the conjunctiva, most commonly on the leading margin of the third eyelid. In the present case, the ophthalmic examination revealed a small red mass protruding from the anterior surface of the conjunctiva of the third eyelid. Definitive diagnosis is made after histopathologic examination. Possible differential diagnoses for the nictitans mass in dogs include squamous cell carcinoma, melanomas, adenocarcinomas, mastocytomas, papillomas, hemangiomas, angiookeratomas, histiocytomas, and lymphosarcoma. The diagnosis of hemangiosarcoma in this dog was confirmed through the histopathology of the mass after surgical excision. This case was similar to previously reported HSA in dogs in terms of their histopathological characteristics. There is little information about the success of the treatment of HSA only by surgical removal as compared with surgical excision associated with adjacent therapies. In this study, the surgical removal of the mass with a margin of safety was the treatment of choice. The surgical wound was left to heal by second intention. After surgery, the dog had no signs of ocular discomfort. Postoperatively, antibiotic eye drops, and a non-steroidal anti-inflammatory were administered. The surgical wound healed well postoperatively. Periodic evaluations were realized and there are no signs of recurrence after two years. HSA should be considered as differential diagnosis in dogs with any third eyelid mass. In the present case, surgical excision was effective for the treatment of HSA in third eyelid of a dog.

Keywords: hemangiosarcoma, nictitans membrane, canine.
INTRODUCTION

Hemangiosarcoma is a malignant tumor of vascular origin that may originate anywhere in the body [4,5,8]. Primary neoplasms, especially of vascular origin, are extremely rare in the third eyelid of dogs and include only four documented cases in literature [2,7,9]. The cause of HSA in most cases is unknown. Neoplasia affecting ocular surface has been associated with increased exposure to solar radiation [11,12]. HSA may occur in any part of the eye and ocular adnexa [2,6,7,9]. Treatment reported for dogs with conjunctival neoplasia is surgical excision [2,7,9]. Definitive diagnosis requires histopathological examination. The morphology of HSA range from well differentiated cavernous dilatations of blood vessels to highly cellular and anaplastic neoplasms [9]. This report describes a case of HSA of the third eyelid in a dog that was successfully treated with surgical excision.

CASE

A 5-year-old Boxer dog was referred to the Ophthalmology Section in the Veterinary Clinics Hospital of the Federal University of Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil, for evaluation of a red mass on the third eyelid in the right eye. This mass was observed two months before the appointment. The owner reported that the dog live outdoors on a farm. The patient was in good physical condition. The dog had signs of eye discomfort, epiphora, and bleeding at the right eye. On ophthalmic examination a fixed, raised, red mass approximately 4 to 5 mm in diameter was identified on the anterior surface of the third eyelid in the right eye (Figure 1). The dog was visually with pupillary normal light reflexes in its both eyes (OU). Schirmer tear test (Schirmer Tear Strips®) values were 17 and 30 mm in the left and right eye, respectively. Fluorescein stain (Fluorescein strips®) was negative. Intraocular pressure measured with an applanation tonometer (Tonopen XL®) was normal (16 mmHg OD, 18 mmHg OS). Portable slit lamp biomicroscopy (Kowa SL 15®) of the OD revealed a mild hyperemia of the palpebral and bulbar conjunctiva of the nictitans membrane. The remainder of the ophthalmic examination of the right eye was unremarkable. The left eye was normal. Regional lymph nodes showed no increasing volume, and, thoracic and abdominal radiography showed no abnormality. A complete blood count and serum chemical profile were also normal.

The surgical procedure was performed under inhalation anesthesia, and using an operating microscope. The mass was excised completely with safe margin using tenotomy scissors. The surgical wound was left to heal by second intention. After surgery, the dog had no signs of ocular discomfort. Postoperative treatment consisted of topical broad-spectrum antibiotic (tobramycin 0.3% - Tobrex®) and a non-steroidal anti-inflammatory solution (sodium dicofenac 0.1% - Still®) administered six times a day, for two weeks. Systemic carprofen (Rimadyl®), 4 mg/kg per day for 5 days, was prescribed. The removed tissue was placed in 10% buffered formalin, fixed and processed routinely for histological examination. The histopathological evaluation was performed by the Sector of Veterinary Pathology (SVP), Department of Veterinary Clinical Pathology, Faculdade de Veterinária (FaVet), Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil. HSA was diagnosed based on the results of histopathological examination, which revealed tumor infiltration in third eyelid. The tumor was composed of neoplastic mesenchymal cells forming irregular channels containing blood (Figure 2). These plump cells showed moderate anisocytosis and anisokaryosis with a low mitotic index.

The dog was re-examined 10 days postoperatively and the surgical wound was healed. Two years post surgically there was no evidence of neoplasm recurrence.

DISCUSSION

Neoplasia of third eyelid has been described in horses, cats and dogs [1,5,6,13]. HSA in the third eyelid of dogs are quite uncommon and include only four documented cases in literature [2,7,9].

Various studies have shown a linear relationship between exposure to ultraviolet radiation and development of neoplasia affecting ocular surface [2,4,5,7,12,13]. The outdoor housing of the dog of this report in a sunny area resulted in a high exposure to solar radiation. This case presents similarities to reports previously described. Previous studies have indicated that the average age for presenting the HSA in dogs is between 5 and 13 years old and usually affecting large breed dogs [2,7,9]. In our case, the dog was large breed and had five years of age.
Clinical signs will depend on the size and location of the tumor but they are usually concomitant with the presence of a red mass in the third eyelid with spontaneous bleeding [2,7,9]. In this report, tumor of vascular origin was considered due to bloody eye discharge. However, to obtain a definitive diagnosis is necessary histopathological evaluation of the mass after an incisional or excisional biopsy [2,7,9]. Possible differential diagnoses for the nictitans mass in dogs include squamous cell carcinoma, melanomas, adenocarcinomas, mastocytomas, papillomas, hemangiomas, angiokeratomas, histiocytomas, and lymphosarcoma [1,3,5,8,11,14]. In the present case, the diagnosis was based on history and clinical signs, and confirmed by histopathological examination of the mass after surgical excision. Microscopically, HSA is characterized by vasoformative proliferations of neoplastic endothelial cells with frequent intraluminal erythrocytes [2,5,7,9]. According to the histopathologic investigation performed on the mass excised, a conjunctival HSA was diagnosed. In the present case, histological appearance was similar to that previously described. Treatment of the HSA of the third eyelid is highly dependent on the location of the tumor and the degree of invasion of the underlying tissue [2,7,9,10]. In this case, hemangiosarcoma was confined to the conjunctiva of the third eyelid without invading underlying structures. Due to the location and size of the mass, in the present case, the surgical removal including a margin of normal tissue was performed. Through this procedure, the nictitating membrane was preserved. Although the nictitating membrane involvement often requires removal, this procedure had to be avoided because of the predisposition to the development of keratoconjunctivitis sicca [2].

In two previous reports the third eyelid and amputation of the affected third eyelid was performed [2]. In dogs, gland of nictitating membrane provides about 25-40% of the total tears. Complete excision of the nictitating membrane can predispose to keratoconjunctivitis sicca at later time. This highlights the importance of the diagnosis and early treatment to prevent the spread of HSA through the nictitating membrane. Furthermore, better prognosis has been attributed to early detection and removal of the tumor with a safety margin [7].

HSA of the third eyelid in a cat has been successfully treated with a combination of surgical excision and cryotherapy [10]. Due to the limited number of cases of HSA in the third eyelid reported in previous studies limited information regarding the efficacy of the treatments can be obtained. Moreover, there are no publications in the literature comparing surgical treatment alone with surgical excision associated with adjacent therapies such as cryotherapy. In the present case, the treatment was apparently successful, because our patient is still alive without presenting evidence of metastasis and recurrence two years after the treatment. Due to the small number of cases reported on the HSA in the third eyelid of dogs, it has been difficult to determine a prognosis regarding metastasis or recurrence.

Surgical excision was effective for the treatment of HSA in the third eyelid of a dog. The findings indicate that HSA must be considered in the differential diagnosis of the neoplasm that affects the third eyelid in dogs.
REFERENCES


