

Primary Conjunctival Mast Cell Tumor in a Korean Native Jindo Dog

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Abstract : A 9-year-old, intact female Jindo dog weighing 23 kg was presented to the Veterinary Medical Teaching Hospital of Chungnam National University with a history of two months of ocular discharge. Initial ocular examination showed a 2 cm elongated mass arising from the ventral bulbar conjunctiva of the left eye. Ocular ultrasound, performed to rule out any orbital and intraocular involvement, was negative. Thoracic radiographs and abdominal ultrasonography revealed no abnormalities. Fine needle aspiration (FNA) of mass was performed. Aspiration cytology showed the presence of a round cell population mostly characterized. A moderate amount of eosinophils was present among round cells. The mass was excised and identified histologically as a mast cell tumor. Six months after surgical treatment, thoracic radiographs and abdominal ultrasonography did not reveal any clinical signs of local recurrence or metastatic disease.

Key words : Mast cell tumors, conjunctiva, surgical excision, Jindo dog.

Introduction

Mast cell tumors are the most common cutaneous tumors in the dogs, but mast cell tumor of the conjunctiva is rare in dogs. Conjunctival mast cell tumors are considered rare in dogs and historically have been reported to be benign, as in the cases previously described there was no evidence of metastasis or local recurrence after surgical excision (10,13).

In the present study we describe the clinical, cytologic and histopathologic findings of a primary conjunctival mast cell tumor in a 9-year-old, intact female Jin-do dog.

Case

A 9-year-old, intact female Jin-do dog weighing 23 kg was examined for a 2 month history of ocular discharge. Physical examination revealed no abnormal finding. Initial ocular examination showed a 2 cm elongated mass arising from the ventral bulbar conjunctiva of the left eye (Fig 1). Mild swelling of the third eyelid was also present. Direct and indirect papillary light reflexes were normal. Schirmer tear test readings obtained using commercially available test strips (Schering Plough Ltd, Hertfordshire, England, UK) were normal, and no alteration in intraocular pressure was revealed. The right eye was normal.

Differential diagnoses included primary and metastatic conjunctival tumors and non-neoplastic conjunctival masses. On admission, the dog's rectal temperature, heart rate, respiratory rate, and results of hematologic examination and blood chemistry were all within reference intervals. Ocular ultra-

sound, performed to rule out any orbital and intraocular involvement, was negative. Thoracic radiographs and abdominal ultrasonography revealed no abnormalities. Fine needle aspiration (FNA) of mass was performed. Aspiration cytology showed the presence of a round cell population mostly characterized. A moderate amount of eosinophils was present among round cells (Fig 2). Under general anesthesia, surgical excision of the mass was performed. Histologically, the tumor was confirmed to be grade I mast cell tumor according to the mast cells separated by collagen fibers and distinct cell borders (Fig 3).

The owner did not consent to chemotherapy. Six months after surgical treatment, thoracic radiographs and abdominal ultrasonography did not reveal any clinical signs of local



Fig 1. Clinical photo of a dog at presentation. Diffuse thickening and hyperemia of the ventral bulbar and third eyelid conjunctiva is seen. No recurrence was seen after 6 months.

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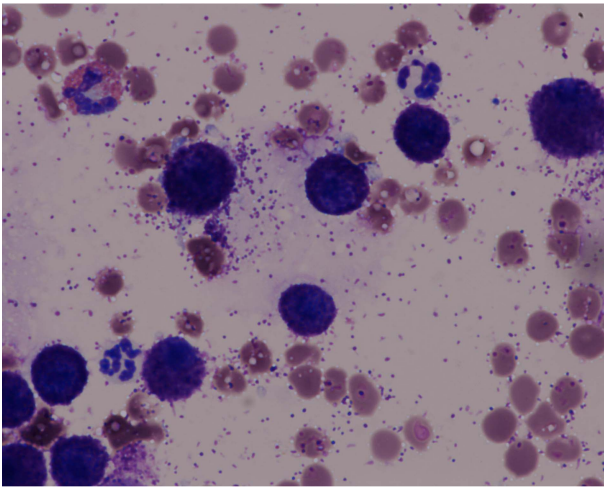


Fig 2. Cytologic smear from the conjunctival mass. The densely packed granules in the cytoplasm have a high affinity for the stain and some of the components of mast cell granules are chemotactic for eosinophils (Diff-Quick, $\times 1,000$).

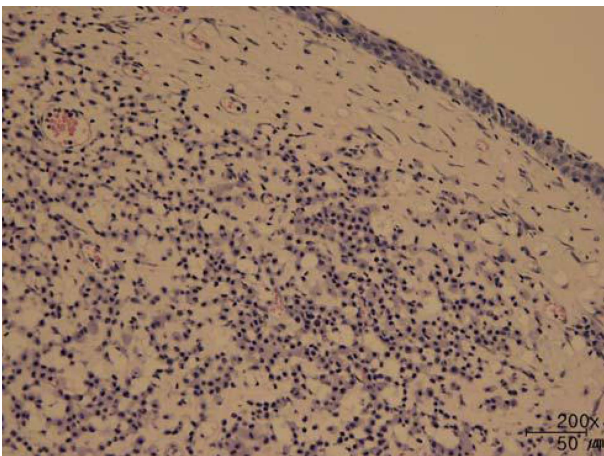


Fig 3. Hematoxylin and eosin-stained section of the conjunctival mast cell tumor. Note that tumor cells are loosely arranged and separated by collagen bundles. Cells have medium-sized granules and distinct cell borders.

recurrence or metastatic disease.

Discussion

Primary conjunctival neoplasia is unusual in dogs but tumors may arise from the epithelial, vascular or connective tissue element (12). Vascular tumors are often focal, raised, soft, red masses with visible feeder vessels arising from the surface of the conjunctiva or third eyelid (11,14,15). Neoplasms of the conjunctiva are represented by melanoma, squamous cell carcinoma, mast cell tumor, hemangioma, lymphoma, histiocytoma, papilloma and transmissible venereal tumor (1,2,5,6,8,10,12,13,16,18).

Mast cell tumors are frequently diagnosed tumors in dogs

and occur most commonly in the skin. Mast cell tumors comprise 17% to 21% of all skin tumors in the dog and may arise in dermal or subcutaneous location. Boxers and Boston terriers appear to have a hereditary predisposition for mast cell tumors; a sex predilection does not appear to exist (4,17). The etiology of mast cell tumors in the dog is largely unknown. On rare occasions mast cell tumors have been associated with chronic inflammation or the application of skin irritants (17).

Conjunctival mast cell tumors has been described arising from the third eyelid, the bulbar and the palpebral regions in other dogs (7,9,10,13). In present case, the mass arising from the ventral bulbar and the posterior third eyelid of the left eye in Jin-do dog. Clinical signs of eyelid or ocular surface tumors may include epiphora, conjunctival vascular injection, mucopurulent ocular discharge, protrusion of the third eyelid, corneal ulceration, and corneal neovascularization or pigmentation. Some clinical features of our case (conjunctival hyperemia, protrusion of the third eyelid and ocular discharge) included those clinical signs.

Mast cell tumors initially are diagnosed on the basis of fine-needle aspiration (FNA) cytology. In this case, mast cells appeared as small to medium-sized round cells with the densely packed granules in the cytoplasm had a high affinity for the stain and some of the components of mast cell granules were chemotactic for eosinophils (Fig 2). Although FNA is convenient for diagnosis, FNA cytology is not sufficient for grading a mast cell tumor, therefore histologic assessment is strongly recommended. Histopathological grade is strongly predictive of outcome for dogs with mast cell tumors (13).

Histological grading and clinical staging of mast cell tumors are important tools in predicting the biologic behavior of the tumor and clinical outcome. Due to the wide variation of histological patterns seen in mast cell tumors, pathologists have not agreed on criteria to be used for histological grading. A number of different grading systems have been proposed (3). Despite the differences in grading systems, studies indicate that histological grading of mast cell tumors is helpful in predicting biological behavior of the tumor (3).

Clinical staging of mast cell tumors is used in conjunction with histological grading to aid in establishing a prognosis and therapeutic regime (17). There are variable treatment options for each clinical stage, although controversy continues regarding the optimal means of treating mast cell tumors (3). Available methods of control include surgical excision, cryosurgery, radiation therapy, and chemotherapy, either individually or in various combinations. Surgical excision alone is recommended for solitary tumors, although studies have shown that 30% to 50% of tumors recur even following wide surgical excision (17).

Extracutaneous mast cell tumors in dogs are rare, and limited treatment information is available. Primary extracutaneous sites of mast cell tumors included the conjunctiva, oral cavity, salivary gland, larynx, spinal canal and disseminated visceral disease of unknown origin (9,10,12,13). Most of these extracutaneous mast cell tumors are solitary cases. A difficulty

observable mass or without specific clinical signs in dogs with some extracutaneous mast cell tumors delays diagnosis and contributes to a worse prognosis. However, previously reported primary conjunctival mast cell tumors were successfully treated with a transconjunctival resection. In our case, six months after surgical treatment, thoracic radiographs and abdominal ultrasonography did not reveal any clinical signs of local recurrence or metastatic disease.

The mast cell tumor is one of the most common tumors of the dogs. Rapid tentative diagnosis is possible with fine needle aspiration and cytological examination. Histological grading of the tumor, in conjunction with clinical staging, aid the practitioner in choosing an appropriate treatment and establishing a more accurate long term prognosis.

In conclusion, extracutaneous mast cell tumors are rarely diagnosed in dogs, and there has been a few previous report of a primary mast cell tumors associated with the bulbar and the third eyelid. While the follow-up time in this patient was short, initial follow-up demonstrated a good outcome after surgical resection of the tumor.

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진도견에서 발생한 원발성 결막 비만세포종양 1예

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요약 : 9년령 23kg의 암컷 진도견이 2개월 동안의 안구 분비물을 주요증상으로 본원에 내원하였다. 초기 안검사에서 좌측 아래 안구 결막 부위에서 크기 2cm의 길게 돌출된 종괴를 발견하였다. 다른 안구 및 주위 조직의 이상소견을 확인하기 위해 안구초음파를 실시하였고 모두 음성으로 판명되었다. 또한 흉·복부에 실시한 X-ray 검사에서도 특이 소견이 관찰되지 않았다. 세포학적 검사에서 다수의 원형세포와 중등도의 호산구 (eosinophils)가 관찰되었다. 종괴는 외과적으로 절제되었고 조직학적 검사를 통해 비만세포종 (mast cell tumor)로 진단되었다. 수술 후 6개월 뒤 실시한 흉복부 X-ray 및 초음파 검사에서 종양의 전이 또는 재발은 관찰되지 않았다.

주요어 : 비만세포종, 결막, 수술적 제거, 진도견