

**Review Article**

## Hemangiosarcoma of the third eyelid in dogs

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**Abstract:** Hemangiosarcoma is a malignant tumor of vascular endothelial origin. Primary neoplasms are extremely rare in the third eyelid of dogs. This tumor may occur in any part of the eye. The clinical signs can be varied, but hemorrhage may be the most common clinical sign. Treatment reported for dogs with conjunctival neoplasia is surgical excision and the definitive diagnosis requires histopathological examination. Thus, the aim of the present study is to conduct a mini review of third eyelid hemangiosarcoma in dogs, addressing its epidemiological, clinical and pathological aspects.

**Keywords:** Hemangiosarcoma, third eyelid, dog, tumor, neoplasm.

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### MINI REVIEW

Hemangiosarcoma (HSA) is a malignant neoplasm originated in vascular endothelial cells. This tumor can appear on the entire body, being the liver, spleen, heart and skin the primary sites most affected [1].

HSA of primary ocular origin is a rare neoplasm in dogs, but when identified, the third eyelid and the bulbar conjunctiva near to the limbus are the places most affected by this neoplasm [2]. Thus, the aim of this study is to conduct a mini review of the third eyelid hemangiosarcoma in dogs, presenting its epidemiological, clinical, and pathological aspects.

The average age for the occurrence of hemangiosarcomas in dogs is between 8 and 13 years, but younger animals can also be affected [3]. There is no racial predisposition. However, some studies suggest a higher occurrence in male dogs than females [4-5]. Large dogs, mainly German Shepherd, Golden Retriever and Labrador seem to be more predisposed to the development of this neoplasm [6].

The clinical signs in dogs with HSA in the eye can vary according to the size and location. However, ocular discomfort due to the presence of the mass and

hemorrhage are the most common clinical signs observed [1].

The cause of HSA of the third eyelid in dogs are unknown [1]. Exposure to ultraviolet light has been associated with the development of cutaneous hemangiosarcomas, especially in animals with low pigmentation and light hair. However, the association of UV radiation and the development of third eyelid hemangiosarcomas in dogs is unclear [3].

In general, hemangiosarcomas behave aggressively, with high rate of metastases. This is probably due to the vascular origin of the tumor and its dissemination by hematogenic pathway [3-7]. However, metastases from HSA with origination in the third eyelid has not yet been reported [3, 4].

Macroscopically, third eyelid hemangiosarcomas appear as masses of different sizes, ranging from gray to red, soft, friable, hemorrhagic and oftentimes with necrosis [4-8].

Histologically, HSA are constituted by irregular vascular channels, filled with erythrocytes. Neoplastic cells are pleomorphic, ranging from elongated to oval. Anisocytosis, anisocariosis and the amount of mitosis can be varied [1-3].

The main differentials of third eyelid HSA in dogs are: melanoma, squamous cell carcinoma, mast cell tumor, papilloma, lymphoma and hemangioma [2]. Only histopathological examination and immunohistochemistry are able to diagnose this tumor precisely [8]. The main immunohistochemical markers for hemangiosarcomas are: Von Willebrand factor (vWF), CD117 (KIT), vascular endothelial growth factor receptor-3 (VEGFR-3), vascular endothelial growth factor-C (VEGFC) and CD44 [9].

Surgical excision of the mass with a wide safety margin is the recommended treatment [2]. Surgical excision is usually curative, and the prognosis is favorable. However, relapses can occur, especially when the surgical margin is compromised [3]. The combination of surgery and cryotherapy has been shown to be a promising technique for the treatment of third eyelid SAH in a feline [1].

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