
CUTANEOUS LYMPHOMA (MYCOSIS FUNGOIDES) IN A DOG

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ABSTRACT

An eight-year-old intact male Labrador retriever was referred for evaluation of chronic dermatitis marked by generalized alopecia, ulcerative nodules and plaques, and hypopigmentation of mucocutaneous junctions. The condition was tentatively diagnosed as cutaneous lymphoma based on clinical findings and cytology, and was later confirmed by histopathological examination. Although treatment was initiated with retinoids and interferons, the condition deteriorated and dog was euthanized two weeks after diagnosis.

Keywords: Cutaneous lymphoma, Mycosis fungoides, Dog

INTRODUCTION

Cutaneous lymphoma is a very rare neoplastic condition in dogs with an incidence of 3 to 8 per cent of all forms of lymphomas and 1 per cent of canine

skin tumors (Fontaine *et al.*, 2010 and Gross, 2005). The etiology remains unclear and is widely debated. Although many researchers have proposed the involvement of viral agents in the development of this condition in humans and animals (Caciolo *et al.*, 1984), many others have suggested chronic inflammation as an important risk factor (Fontaine *et al.*, 2010). The present case report describes the interesting clinical manifestations and diagnosis of cutaneous lymphoma in an eight-year-old intact male Labrador retriever.

CASE HISTORY AND OBSERVATIONS

An eight-year-old intact male Labrador retriever was referred to the District Veterinary Centre, Kannur for evaluation of chronic dermatitis with pruritus and scaling noticed over the past three years. The dog was treated with topical and systemic antibiotics, antifungals, ectoparasitocidal agents, anti-allergic drugs and vitamin supplements by the referred veterinarian. However

no improvement was observed. Also generalized plaques and nodules appeared during the last six months. On presentation, the animal was dull, depressed with high temperature (105 °F) and all the lesions were severely infected. On dermatological examination, the lesions were found to be extremely pruritic. Generalized alopecia was noticed. Raised plaques of variable thickness and ulcerative nodules measuring few millimetres to several centimetres in diameter were seen all over the body with a greater distribution over the face (Fig. 1). Erythematous ulcerations were observed on paw pads and were severely infected (Fig. 2A). Remarkable hypopigmentation on the upper and lower lips, and muzzle were observed. The shape of the nostrils was completely distorted by large ulcerative nodules (Fig. 2B). A few raised plaques were observed in the oral mucosa also. A complete blood count, serum biochemistry panel and blood smear examinations were performed. Hematology revealed mild anemia (Hb: 6.5 g/dL and PCV: 19%) and leucocytosis with neutrophilia (WBC count: 28000/ μ L). Haemoprotozoans and neoplastic lymphocytes were not observed on peripheral blood smear examination. Serum biochemistry revealed elevated liver enzymes (ALT: 420 U/L and ALP: 510 U/L) and hypercalcemia (Serum calcium: 15.9 mg/dL). Ultrasonography of the internal organs did not show any architectural

abnormalities. Giemsa stained impression smears of cutaneous plaques revealed large lymphocytes, eccentric nucleus with fine chromatin, and mild to moderate amounts of basophilic cytoplasm. Large number of neutrophils were also identified (Fig. 3A). Histopathology of the most representative sample revealed epidermis and underlying dermis infiltrated by medium to large sized lymphoid cells with scanty cytoplasm, round to oval irregular nuclei and prominent nucleoli. Mitotic figures were brisk (Fig. 3B). The histopathological findings confirmed the condition as high grade cutaneous lymphoma (mycosis fungoides).

TREATMENT AND DISCUSSION

Though the treatment was initiated with isotretinoin at the rate of 2 mg/Kg, PO, once daily (Isotroin 20 mg, Cipla, India) in combination with interferon- α at the rate of 1.5×10^6 IU/m², SC, every other day (ReliFeron, Reliance Life Sciences, India) as per Lee *et al.* (2018) along with antibiotics and supportive medications, the condition was found to worsen during the subsequent visits. Hence the dog was euthanized two weeks after diagnosis of the condition as per the request of the owner. A post-mortem examination could not be performed due to the sentimental concerns of the owner.



Fig. 1. Severely debilitated dog with generalized alopecia, raised plaques of variable thickness and ulcerative nodules all over the body

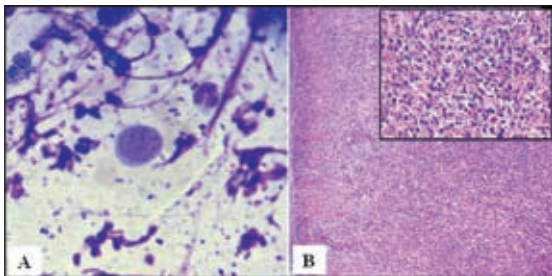


Fig. 3. Large lymphocytes, eccentric nucleus with fine chromatin, moderate amounts of basophilic cytoplasm in impression smear of cutaneous plaques [Giemsa X 1000] (A). The epidermis and dermis infiltrated by large lymphoid cells with scanty cytoplasm, round to oval irregular nuclei and prominent nucleoli [H&E X 100 & X 400] (B)

Cutaneous lymphoma is a rare and deadly neoplasm in dogs. It occurs in old dogs at an average age of 9 years and above and has no breed or sex predilection (Brown *et al.*, 1980). Beale and Bolon (1993) have observed higher predisposition for English cocker spaniels and Boxers to this condition. Cutaneous lymphoma has been reported in Labrador retrievers by Suárez-Bonnet *et al.* (2019) as in the present case. Due to the slow progression of cutaneous lymphoma in addition to pruritus being a prominent clinical sign,

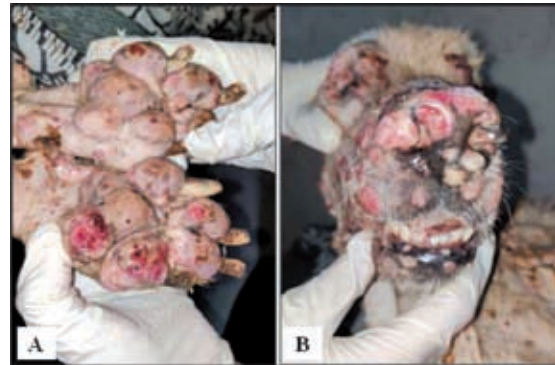


Fig. 2. Erythematous ulcerations on paw pads (A), depigmentation of muzzle, lips, and large ulcerative nodules distorting the shape of nostrils (B)

the condition may be misdiagnosed as allergies and treated accordingly before an accurate diagnosis is made. Conversely, Santoro *et al.* (2007) have reported a 12 times higher risk of developing cutaneous epitheliotropic T-cell lymphoma in dogs with atopic dermatitis. In the present case, a three year history of chronic pruritus was reported. On presentation, the patient had clear signs of cutaneous lymphoma which was subsequently confirmed by dermato-histopathology. However, due to the delayed presentation, we could not confirm whether chronic dermatitis was due to an insidiously progressing cutaneous lymphoma or due to an allergic condition which later predisposed to neoplasia as reported by Santoro *et al.* (2007).

Based on clinical manifestations and histopathologic features, the condition can be divided into three subforms namely mycosis fungoides, pagetoid reticulosis

and Se'zary syndrome (Gross, 2005). In the case described here, the dog was presented with exfoliative erythroderma, patches, plaques, nodules and depigmentation of the mucocutaneous junctions. There were no neoplastic lymphocytes in peripheral blood smear though leucocytosis was observed which could probably be due to sepsis. Involvement of epidermis and dermis was also observed histopathologically. These findings were very much consistent with mycosis fungoides. Though hypercalcemia is not a common feature of cutaneous lymphoma according to Campbell (2004), it was observed in the present case. Similar observations were made by Bhang *et al.* (2006) in a seven year old Yorkshire terrier diagnosed with mycosis fungoides.

In this case, although we initiated the treatment with a combination of isotretinoin and interferon- α , the dog was euthanized due to the declining quality of life as a result of ulceration of most of the lesions, sepsis and unmanageable pruritus. The unsatisfactory response to treatment could be due to delayed presentation of the case and thereby a delayed diagnosis.

SUMMARY

The clinical manifestations and diagnosis of cutaneous lymphoma (mycosis fungoides) in an 8-year-old Labrador retriever is described.

ACKNOWLEDGEMENT

The authors are thankful to the Director, Animal Husbandry Department, Kerala and the District Animal Husbandry Officer, Kannur, Kerala for providing facilities for the study.

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