

DEEP PYODERMA ASSOCIATED WITH FILARIOSIS IN A DOG

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ABSTRACT

Skin associated filarid nematodes commonly found in dogs in Kerala are considered non-pathogenic. However, they can occasionally cause eosinophilic dermatitis, which may develop to pyoderma due to secondary bacterial invasions. A 7-year-old, male Labrador Retriever was presented to the Peripheral Veterinary Clinic, Kakkavayal with a complaint of skin lesions on right hind limb. On examination, multifocal areas of alopecia and purulent exudations could be noted on the right hind limb. Wet film examination revealed the presence of microfilariae, which were found to be unsheathed on Leishman staining. Bacteriological culture of the exudate revealed the presence of coagulase negative staphylococci that was sensitive to cephalixin. The animal was successfully treated with ivermectin and cephalixin, supported with pantoprazole. It was concluded that in cases of canine dermatitis involving extremities, wet-film examination can be a valuable tool for diagnosis to rule out the possibilities of filariosis.

Key Words: Microfilariosis, Pyoderma, Wet-film, Coagulase negative Staphylococci

INTRODUCTION

Skin is the largest organ in the body. It also forms the first line of defence against most pathogens (Eckert *et al.*, 1997). Structural and functional integrity of the skin is thus imperative for the health of dogs. Dermatitis is the inflammation of skin. Even though the major etiology of canine dermatitis is bacteria or fungus, many underlying factors contribute to the precipitation of canine dermatitis (Santoro *et al.*, 2015). Thus, thorough clinical examination and differential diagnosis is of paramount importance in successful treatment of canine dermatitis.

Filarial nematodes are viviparous in nature and are known to predilect various organs of the host. Organisms such as *Dirofilaria repens* and *Dipetalonema reconditum* are nematodes found in the subcutis. The females bear live microfilaria that enter the circulatory system, which are picked up and transmitted by mosquito vectors. Filarial nematodes such as *D. repens* and *D. reconditum* are generally considered nonpathogenic. However, they are known to cause eosinophilic dermatitis (Rocconi *et al.*, 2012) that can result in bacterial invasion of the skin, resulting in pyodema.

CASE HISTORY AND OBSERVATIONS

A 7-year-old, male Labrador Retriever weighing 40 kg was presented to University Peripheral Veterinary Clinic, Kakkavayal, Wayanad with history of skin lesions and hair loss on right hind limb since two weeks. On general inspection, the animal was active and alert with a body condition score of seven. Rectal temperature was 38.2°C and the conjunctival mucous membrane was congested. A large area of alopecia was noted on the lateral aspect of right knee, which on palpation resulted in the exudation of blood tinged pus. Moist, erythematous lesions were present on the ventral neck and multiple areas of alopecia with signs of dermatitis was also noted on the metatarsal region of both hind limbs (Fig. 1a and 1b).

Area with active lesion was clipped, swabbed with spirit and allowed to dry. The pus was expressed and submitted for culture and sensitivity. Possibility of contact dermatitis was ruled out by enquiring the managerial practices. To rule-out filarial dermatitis, a wet film examination was done, which revealed the presence of microfilariae in the peripheral blood. A thick smear was prepared and stained with Leishman stain, which revealed that the microfilariae were unshathed (Fig. 2).

On culturing the skin swab, coagulase negative staphylococci were obtained, and the isolates were sensitive to amoxicillin, cephalixin, ceftriaxone, tazobactam, gentamicin and amoxicillin-clavulanate. Based on history, clinical signs and

laboratory investigation, the case was diagnosed as deep pyoderma associated with filarial dermatitis.

TREATMENT AND DISCUSSION

Treatment was initiated with Ivermectin @ 50 µg/kg PO once daily for three days. Cephalixin @ 30 mg/kg PO BID supported with pantoprazole @ 1mg/kg PO OD daily for two weeks were also advised. After 12 days of initial treatment, skin lesions started to resolve and no pus could be expressed from the lesions (Fig. 3a). Wet-film examination revealed absence of microfilariae. A subcutaneous injection of ivermectin @ 200 µg/kg was given on the 12th day of treatment and the owner was advised to continue the oral cephalixin and pantoprazole for two more weeks. Review on 35th day of initial treatment showed significant improvement as the lesions resolved fully and hair had started to grow in the areas of alopecia (Fig. 3b). Erythematous lesion on ventral neck was also completely resolved. Cephalixin was advised for one more week along with supplementation of omega-3 and omega-6 fatty acids (Liq. Vitabest DermTM, 5mL TID). By 5th week of treatment, the animal was discharged as cured.

The occurrence of canine microfilariosis is much less in Wayanad, compared to other districts of Kerala. In the present case, although the clinical manifestation was that of deep pyoderma, the distribution of



Fig.1a Alopecia, with subcutaneous nodular lesions containing pus on the distal part of right lateral thigh

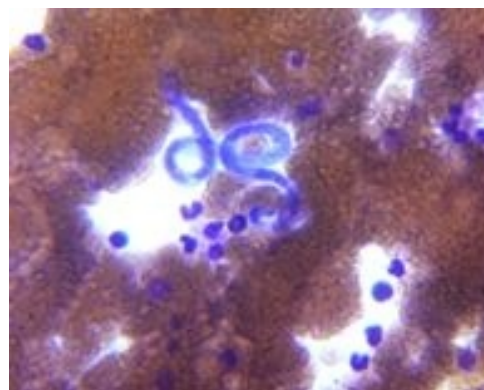


Fig. 2 Unsheathed microfilaria in a thick blood smear (1000X)



Fig. 1b Multifocal patches of erythema and alopecia along the distal part of limb



Fig. 3a Lesions on the distal part of right lateral thigh. Disappearance of pustular nodules noted with initiation of hair growth

lesions along the distal metatarsal region raised the suspicion of filarial dermatitis (Tarello, 2011). Localisation of adult worms in the subcutis sometimes elicit an eosinophilic response (Pazdzior-Czapula *et al.*, 2018), that manifests as pruritus and erythema (Omeragic *et al.*, 2018). The lesions are usually encountered in hind limbs, flank and back, where the adult localize (Tarello, 2011; Traversa *et al.*, 2011).

The immunological alteration of skin can result in secondary bacterial infection that manifests as pyoderma (Rjeibi *et al.*, 2017). Subcutaneous filariasis often goes



Fig. 3b Lesions along distal part of limb. Marked reduction in pruritus, regrowth of hair

undiagnosed or remains under diagnosed usually because of the non-pathogenic nature of the nematode. Wet film examination is a cheap test to perform and can readily detect circulating microfilariae.

SUMMARY

The present report deals with a case of deep pyoderma associated with subcutaneous filariasis in a dog. The distribution of skin lesions prompted in including subcutaneous filariasis as a differential diagnosis for underlying cause of dermatitis, and was confirmed using a wet film examination of peripheral blood. The case was successfully treated using ivermectin and cephalexin, supported with pantoprazole. It was concluded that a wet film examination is important when ruling-out primary skin lesions while treating cases of pyoderma.

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