

Clinical Management of Vitamin A Responsive Dermatitis in a Labrador Retriever Dog

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ABSTRACT

A five-year-old Labrador Retriever dog was presented to the Small Animal Medicine Unit, Veterinary College and Research Institute, Hospital Namakkal, with a history of recurrent skin lesions and mild pruritus for more than two years. The dog was active and alert with pink conjunctival mucous membrane and rectal temperature of 39.4°C. Generalised dry crusty lesions, patchy alopecia, hyperkeratinization, and rancid fat odour were noticed on integumentary system examination. Haematology revealed leukocytosis with neutrophilia. Skin scrapings, tape impression technique and Wood's lamp technique were negative for other skin infestations and infections. Abdominal ultrasonography revealed a normal spleen, liver and kidney. Histopathology of the skin showed no keratinization. Based on clinical examination and differential diagnosis for primary keratinization disorder, the animal was treated with Inj. Vitamin AD₃E- 2ml along with supportive. Appropriate topical therapy was given. The skin lesions were cured rapidly and completely with vitamin A therapy, and the case was confirmed as a vitamin A-responsive dermatosis.

Keywords: Dog, Vitamin A, Dermatitis

INTRODUCTION

Besides its essential role in vision, Vitamin A is important in cellular differentiation [e.g. growth, reproduction, immune response] and in maintenance of epithelial integrity (Watson, 1998). Vitamin A-responsive dermatosis is a nutritionally responsive scaling disorder that is rare and features noticeable follicular plugging, focal areas of crusting and hyperkeratotic plaques with keratinaceous frond-like plugs. Lesions are found on the ventral and lateral aspects of the chest and abdomen. Clinical signs usually begin between the ages of 2 and 5 years and get severe with time (Heinrich *et.al.*, 2018). Concurrent ceruminous otitis externa is common (Hnilica, 2006), not a systemic vitamin A deficiency, but likely indicates a localised deficiency in the epidermis, a problem with epidermal uptake, relating to cutaneous utilization. The skin lesions are cured rapidly and completely with vitamin A therapy (Ihrke and Goldschmidt, 1983). Even though clinical signs get cured with vitamin A, there could not be any evidence of deficiency of vitamin A. The diagnosis is made by first ruling out other causes through a skin biopsy. Biopsy of affected skin shows excessive scaling of skin and hair follicles. In this report, the effective diagnosis and management of keratinization disorder are studied.



Fig.1: Dry crusty lesion noticed



Fig. 2: Patchy alopecia on the ventral neck



Fig. 3: Scales all over the body

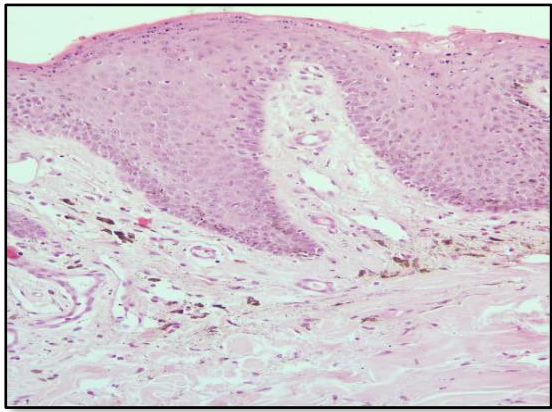


Fig. 4: Skin histopathology - Mild acanthosis with elongation of rete pegs and no stratum corneum (H&E X 100)



Fig. 5: Complete recovery of the animal (Day- 21).

HISTORY AND OBSERVATION

A Labrador Retriever dog was brought to the Small Animal Medicine Unit, Veterinary College and Research Institute, Hospital, Namakkal with a history of recurrent skin lesions and mild pruritus for more than two years. On Clinical Examination animal was active and alert with normal vital parameters. Dermatological examination revealed generalized dry crusty lesions (Fig. 1), patchy alopecia (Fig. 2), hyperkeratinization, scales with rancid fat odour were noticed (Fig.3). Skin scraping, tape impression, wood lamp techniques and Ultrasonography were carried out to rule out other causes such as mites, Malassezia, dermatophytes and systemic diseases. Skin biopsy was done using a 6mm punch biopsy needle and sent for histopathology.

RESULTS AND DISCUSSION

Based on general clinical examination, the case was diagnosed as keratinization disorder. For further differentiation of primary and secondary keratinization disorders, hematology was done, which revealed leucocytosis and neutrophilia. Serum biochemistry revealed that all parameters were within normal range. Skin scraping examination was negative for mite infestation. The tape impression technique was negative for yeast infection. Wood's Lamp technique was negative for dermatophyte infection. Abdominal organs were found to be normal on abdominal ultrasonography. Histopathology of skin biopsy revealed mild acanthosis with elongation of rete pegs and no keratinization in the epidermis. The dermis showed dilatation of vessels with few melanocytes (Fig. 4). As the secondary causes

were ruled out, the case was concluded as a primary keratinization disorder. The animal was treated with Inj.Vitamin AD3E @ 6000 IU/Kg I/M once a week for 4 weeks (Beigh et. al., 2013). Oral therapy of Tab. Isotretinoin @1mg/kg SID P/O, along with oral liver supportive, was given for one month. Treatment with oral vitamin A at 10,000IU SID P/O resulted in improvement over a 5-to-8-week period (Nsebitt, 1967). Apart from that, the animal was shaved for the topical application of shampoo benzoyl peroxide, which has antibacterial, degreasing and keratolytic activity (Moriella,1995), once in 3 days and a liquid paraffin and salicylic acid mixture to be applied after bathing once in 3 days. The former is a moisturiser and acts as a base and lubricant for salicylic acid, and the latter has keratolytic, keratoplastic, mild antipruritic and bacterostatic properties (Moriello and Mason, 1995). The animal responded to vitamin A therapy after four weeks of treatment, and there was a complete recovery (Fig. 5). Hence, the case was confirmed as a vitamin A-responsive dermatosis. The clinical signs relapse if vitamin A supplementation is withdrawn (Jackson, 2012). Vitamin A responsive dermatosis is incurable but will remain in remission while oral vitamin A therapy is administered (Mariella, 1995). Histopathology helps to identify follicle-oriented with feet keratinization defect, but the final diagnosis relies on the response to Vitamin A therapy (Heinrich et.al., 2018).

CONCLUSION

Vitamin A-responsive dermatosis, though uncommon, should be considered in dogs presenting with scaling, crusting and alopecia. This case highlights the effective diagnosis, treatment, and management of the condition, leading to a favourable outcome.

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