

## Clinical Management of Hypothyroidism in Dog: A case Report

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### Abstract

A 5 years old intact male Labrador dog body weight 30 kg was presented to VCC, BVC, Patna with history of bilateral generalized alopecia, crusty skin, pruritus and inappetance since last 2 months. The dog was also showing heat seeking behavior. Thyroid function test indicated decreased  $T_3$ ,  $T_4$  and TSH suggestive of hypothyroidism. All the parameters of Liver function test and Kidney function test were in normal range. Hematology revealed almost normal values except Leukocytosis and Neutrophilia. Considering case of hypothyroidism the dog was treated with Levothyroxine sodium (Tab Thyronorm<sup>R</sup>) @20  $\mu$ g/kg body weight PO, q 12hrs. Ketokonazole shampoo (2%) once a week along with vitamins and mineral supplementation (Tab. Nutrich<sup>R</sup>) @ 1tab PO, q 12hrs. and skin moisturizer (Spot on Allerderm<sup>R</sup>) topically once a week for 4 weeks. The dog showed Dramatic recovery. Condition started improving from the 2<sup>nd</sup> week after the start of treatment. The dog showed almost complete recovery after two months of the treatment. Since the Value of TSH was decreased therefore it was advised to keep the dog on Levothyroxine supplementation for the rest of its life.

### Introduction:

Hypothyroidism is one of the most commonly encountered endocrine disorders of dogs (Williams *et al.*, 1996). Occurrence of the disease is common in medium to large sized dogs of 4 to 8 years age group. Most commonly Affected breeds include Golden Retriever, Doberman Pinscher, Irish Setter, Miniature Schnauzer, Dachshund, Cocker Spaniel, Airdale Terrier, Boxer, Poodle, Borzoi, Beagle, Irish Setter and Old English Sheepdog (Scott-Moncrieff, 2007). Primary Hypothyroidism is very common, which may be caused by lymphocytic thyroiditis, idiopathic thyroid atrophy, or, more rarely, neoplastic destruction, resulting in loss of functional thyroid tissue and impaired thyroxine ( $T_4$ ) production. Secondary hypothyroidism, which is less common, is caused by reduced secretion of thyrotropin (TSH) by the pituitary gland. Tertiary hypothyroidism is caused by a deficiency of hypothalamic thyrotropinreleasing hormone (TRH), and has not been documented in dogs (McKeown, 2002). The present case reports less common secondary hypothyroidism and its clinical management.

### Case History and Diagnostic work-up:

A 5 years old intact male Labrador dog of 30 kg body weight was presented to VCC, BVC, Patna with history of bilateral generalized alopecia, crusty skin, pruritus and inappetance since last 2 months. The Department of Veterinary Gynaecology and Obstetrics, Bihar Veterinary College, BASU, Patna. dog was also showing heat seeking behavior. The dog was treated for dermatitis by various local vets. A thorough physical examination was done and blood samples were collected for CBC (Complete Blood count ) and biochemical estimations including LFT( liver function tests), KFT (kidney function tests) and thyroid function tests ( $T_3$ ,  $T_4$  and TSH). The CBC revealed Leukocytosis with neutrophilia. The parameters of LFT and KFT were in normal range while the value of  $T_3$ ,  $T_4$  and TSH were Less than normal range. Considering the values of  $T_3$ ,  $T_4$ , TSH and clinical signs the case was diagnosed as secondary hypothyroidism.

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Table 1: Complete Blood Count

Parameters	Obtained Value
Haemoglobin (Hb)	12.7 gm/dl
PCV	44.1%
RBC	7.77 millions/cumm
WBC	18400 /cumm
Platelets count	2.70 Lac/ mL
Neutrophils	86.0%
Lymphocytes	10.0%
Monocytes	3.0%
Eosinophils	1.0%
Basophils	00%

Table 2 : Liver Function Test and Kidney Function Test

Parameters	Obtained Value
Serum SGPT (ALT)	27 IU/L
Serum Creatinine	0.49 mg/dl
Blood Urea Nitrogen (BUN)	15.4 mg/dl

Table 3. Thyroid Function Test

Parameters	Obtained Value (Pre- Treatment)	Obtained Value (Post-Treatment)
T <sub>3</sub> (Total)	0.20 ng/ml	0.60 ng/ml
T <sub>4</sub> (Total)	0.91 ug/dl	4.50 ug/dl
TSH	0.005 uIU/mL	0.004 uIU/mL



Figure 1. Bilateral Generalized Alopecia and crusty skin



Figure 2. Post treatment hair growth and normal skin (after two months)

## Treatment:

The dog was treated with Levothyroxine sodium (Tab Thyronorm<sup>R</sup>) @20 µg/kg body weight PO, q 12hrs. Ketokonazole shampoo (2%) once a week along with vitamins and mineral supplementation (Tab. Nutrich<sup>R</sup>) @ 1tab PO, q 12hrs. and skin moisturizer (Spot on Allerderm<sup>R</sup>) topically once a week for 4 weeks. The dog showed Dramatic recovery. Condition started improving from the 2<sup>nd</sup> week after the start of treatment. The dog showed almost complete recovery after two months of the treatment. Since the Value of TSH was decreased therefore it was advised to keep the dog on Levothyroxine supplementation for the rest of its life.

## Discussion:

The present clinical and hematobiochemical findings were in accordance with that of Haritha *et al.*, (2017) who recorded a decreased value of T3 and T4 in a five years old Labrador dog with alopecia associated with hypothyroidism. Dermatological changes are more commonly observed in 60-80% hypothyroid dogs (Haritha *et al.*, 2017). McKeown (2002) recorded hypothyroidism in six years old Boxer with neurological signs of head tilt and facial nerve paralysis which disappeared after eight weeks of treatment with Levothyroxine sodium as recorded in the present study. However neurological signs were not observed in the present study.

## References:

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