

# INCIDENCE AND HAEMATO - BIOCHEMICAL CHANGES IN CANINE LYMPHOMA

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## INTRODUCTION

Enlargement of lymph nodes is a common clinical finding in dogs with a wide range of underlying disease states, but may sometimes be the primary presenting complaint. The single most common cause of lymphadenopathy in the dog is primary lymphoid neoplasia (lymphoma) affecting the lymph node. A study was conducted to evaluate the rate of incidence, age of occurrence and serum biochemical changes in dogs with lymphoma.

## MATERIALS AND METHODS

The Fine Needle Aspiration Biopsy (FNAB) as described by Mills, (1984) and Cowell et al. (2003), blood and sera samples were collected from canines showing lymphadenopathy, which attended Small Animal Clinics (SAC), Madras Veterinary College (MVC) Teaching Hospital and two private Pet Clinics, Chennai for a period of eight months. Particulars of animal like age, breed and sex were recorded. Cytology, haematology, serology and ultra scanning were carried out. FNAB, blood and serum samples from nine

healthy dogs were also collected for comparative study.

## RESULTS AND DISCUSSION

Four cases of lymphoma, which include one lymphoblastic leukemia, were encountered among the 34139 cases during the study period. All the four cases showed generalized peripheral lymphadenopathy and pyrexia. Diagnosis of lymphoma was made by cytology and tissue core biopsy (Histopathology).

### INCIDENCE:

The incidence rate was low when compared to the previous reports of 30 per 100000 dogs (Rosenthal and MacEwen,1990) and 33 per 100000 dogs (Teske,1994). The samples collected during the study period were only from cases that attended the MVC Hospital and two Private Clinics. That might be the reason for the lower incidence rate.

### AGE:

The mean  $\pm$  SE age of dogs which showed lymphoma was  $8.25 \pm 0.64$  (Range 7-10). This was in close agreement with Day and Whitbread (1995). They reported that the mean

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age of dogs with lymphoma was  $7.5 \pm 2.8$  years. However, the mean age was high when compared to the earlier report of Teske's (1994) 6.6 years.

#### HAEMATOLOGY:

Out of four cases one was diagnosed as lymphoblastic leukemia which had a mean leucocyte count of 1,21,000/ $\mu$ L (range 80,000 – 1,87,600) and differential count of lymphoblast was 98% and neutrophil 2% in the peripheral blood smear. It also had a severe anaemia (Hb: 3.5 g/dL, PCV: 13% and RBC:  $1.47 \times 10^6$  /  $\mu$ L).

The other three dogs showed a normal differential count and mild anaemic changes. The haematological values were as follows; Hb: 9.5g/dL (range 8.0–10.5), PCV: 28.67% (range 25-31), and RBC:  $4.91 \times 10^6$  /  $\mu$ L (range 4.12-

5.32). Mild anaemia observed in this study was a common finding as reported by Teske (1994). The mean PCV (28.67%) observed in this study was also observed by Teske (1994) in 9.7% of the dogs with lymphoma.

#### SERUM BIOCHEMISTRY:

The values of serum biochemistry are shown below in table.

Hypercalcemia (mean 14.08 mg/dL) was observed in all the four dogs. Calcium values were increased progressively in two dogs. High BUN in two (37.67 and 95 mg/dL) and hypoglobulinemia in two dogs (2.33 and 2.2 g/dL) were also observed.

Hypercalcemia and high BUN values observed in this study in lymphoma were best documented earlier (Weller *et al.*,1982). Hypercalcemia in lymphoma was caused by

Sl.No.	PARAMETER	OBSERVED RANGE	MEAN $\pm$ S.E	NORMAL RANGE (MEAN)
1	Calcium (mg/dL)	13.57 – 19.30	$14.08 \pm 1.84$	7.8 – 12.1 (10.93)
2	Creatinine (mg/dL)	0.3 – 0.84	$0.67 \pm 0.15$	0.3 – 1.0 (0.6)
3	BUN (mg/dL)	15.5 – 95	$42.95 \pm 17.93$	11.6 – 33.2 (19.30)
4	Phosphorus (mg/dL)	3.2 – 4.0	$3.63 \pm 0.19$	2.0 – 4.4 (2.68)
5	Total protein (g/dL)	5.8 – 7.7	$6.45 \pm 0.44$	5.9 – 8.5 (7.47)
6	Albumin (g/dL)	2.65 – 3.5	$3.13 \pm 0.24$	2.6 – 4.1 (3.39)
7	Globulin (g/dL)	2.2 – 4.9	$3.47 \pm 0.70$	3.3 – 4.9 (4.08)

parathyroid hormone like peptides and transforming growth factors. A decreased glomerular filtration resulted in the elevated BUN levels found in this study correlated with previous reports (Weller and Hoffman,1992 ; Weller et al.,1982).

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