

# EPIDEMIOLOGICAL STUDY OF CANINE BABESIOSIS IN AND AROUND JUNAGADH CITY, GUJARAT

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In present study, prevalence was estimated on the basis of history, clinical signs and detection of the organisms in the blood of infected dogs. Dogs exhibited clinical symptoms of high fever, anemia, lethargy, history of tick infestation, congested/pale/icteric mucous membranes, hematuria and epistaxis. A total of 375 dogs suspected for canine babesiosis from different breeds, gender and age group were presented to Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Junagadh, Gujarat during period of two years. Higher incidence of canine babesiosis was seen in Labrador Retrievers (26.23%) in breed wise group, gender-wise in male dogs (59.02%) and infant age (0-1 years) group (35.18 %) in age wise. Adoption of blood microscopy as screening test of canine babesiosis in dogs is recommended.

**Keywords:** Canine Babesiosis, Prevalence.

Babesiosis is one of the important tick-borne diseases of domestic and wild canidae, caused by intra-erythrocytic piroplasma of the genus *Babesia*. Canine Babesiosis, a tick-borne haemoprotozoan disease, is well established clinically in the tropical and subtropical world including India and is an important clinical disease in metropolitan and megacities (Varshney *et al.*, 2008). There are two distinct species of *Babesia* – *B. canis* and *B. gibsoni* (Azaziah *et al.*, 2010). *Babesia* infection is transmitted by ticks *Dermacentor reticulatus*, *Rhipicephalus sanguineus* and *Haemaphysalis leachi*. The tick vector is usually specific to each species of *Babesia*. Transplacental transmission is also reported (Fukomoto *et al.*, 2005). Clinically canine babesiosis has been found to result in a wide range of presentations from sub clinical to serious illness characterised by fever, depression, pallor, jaundice, lymphadenopathy, splenomegaly, weakness and collapse associated with intravascular and extravascular haemolysis, hypoxic injury, systemic inflammation, thrombocytopenia. After initial acute infection, the dog may become a chronic carrier (Irwin, 2009). Information does not exist on the prevalence of canine babesiosis in dogs in and around Junagadh, Gujarat. Hence present study was

undertaken to estimate the prevalence of canine babesiosis in dogs based on age, breed and gender in and around Junagadh, Gujarat.

## Materials and Methods

Total of 375 blood samples were collected from dogs with clinical signs of high fever, inappetance, anemia, lethargy, history of tick infestation, congested/pale/icteric mucous membranes, lymphadenopathy, hematuria and epistaxis from different breeds, gender and age group which were presented were presented to Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Junagadh during May, 2014 to April, 2016. For haemoprotozoan examination a drop of blood from ear tip was placed on a clean glass slide drawn into a smear, air dried, fixed in methanol, stained with Giemsa stain and examined under light microscope by using the oil immersion objective (100X). The prevalence of babesiosis in the local population was calculated.

## Results and Discussion

Blood smears examination revealed that 16.27% (61/375) of dogs were positive for babesiosis irrespective the species of piroplasm (Table.1). Similarly Chaudhuri (2006) reported 8.9% of dogs in Uttar Pradesh and 21.7% of dogs in Assam, respectively infected with *Babesia* but the

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Part of M.V.Sc. Thesis

species of piroplasm infecting these dogs were not reported. These variations in the occurrence of canine babesiosis could be

attributed to prevalence of tick population, season, immune status of the host and other managerial practices.

**Table.1: Breed, Sex and age wise distribution of dogs affected by Babesiosis**

Over all incidence	Suspected cases	Positive Cases	Percentage (%)
<b>Total Cases</b>	375	61	16.27
<b>Breed wise incidence</b>			
Belgium Shephard	1	0	0
Cocker Spanial	1	0	0
Cross Breed	2	0	0
Dalmation	4	0	0
Dashound	1	0	0
Doberman	11	2	3.29
German Shepherd	84	12	19.67
Golden Retriever	4	1	1.64
Great Dane	18	7	11.48
Labrador Retriever	80	16	26.23
Lhasa Apso	2	0	0
Non-descript	88	10	16.39
Pomeranian	18	3	4.91
Pug	8	1	1.64
Rottweiler	16	3	4.91
Saint Barnard	6	0	0
Spitz	31	6	9.84
<b>Sex wise incidence</b>			
Male	239	36	59.02
Female	136	25	40.98
<b>Age wise incidence</b>			
0 – 1 year	108	38	35.18
1 – 4 year	145	14	09.65
4 year & Above	122	09	07.37

#### ***Breed wise incidence***

Breed wise occurrence out of positive cases was higher in Labrador retriever (16/61, 26.23%), followed by German shepherd (12/61, 19.67%), Non-descript (10/61, 16.39%), Great Dane (7/61, 11.48%) and Spitz (6/61, 9.84%). Pomaranian and Rottweiler were next in line with an equal prevalence of (3/61, 4.91%) and Pug and Golden retriever have lower prevalence of (1/61, 1.64%). It is however difficult to gauge the actual breed wise prevalence from the present study as the total population of each breed in surrounding region of Junagadh is not known. Breed preference of owners is also variable in different areas so there is variation in the incidence of parasite in *Indian Journal of Canine Practice*

respective breed of the area concurrent attitudes of the owners towards care and management of their pets. Thus the over-presentation of Labradors could be due to the fact that the number of Labradors may be more in the population surrounding Junagadh.

#### ***Sex Wise Incidence***

Out of total 375 suspected dogs 239 were male and 136 were female. Among this total 36/239 (59.02%) male and 25/136 (40.98%) female were found to be positive for canine babesiosis (Table.1). This finding is in agreement with the findings of Nalubambaking *et al.* (2015). Since, babesiosis can also be transmitted by non-vectors transmission as blood exchange

during fighting and biting as also reported by Bostrom *et al.*, (2008). Direct dog-to-dog transmission may be an important route of transmission, as reported in this study particularly in males as inter-dog aggression is more in males than females.

#### **Age Wise Incidence**

The age wise incidence was higher in infants (35.18 %), followed by 1–4 year age group (09.65 %) and 4 years and above age group (07.37 %) was in agreement to Fernandes *et al.* (2009) who reported greater prevalence in dogs up to 12 months of age (54.28%), followed by dogs of 12 – 48 months (34.29%) and above 48 months (11.43%) due to the underdeveloped immune system. The youngest dog with babesiosis was 30 days old Rottweiler. Many authors reported babesiosis in different age group of dogs. Therefore it can be opined that the age is not the criteria for babesia infection and depends on the transmitting vector and the immune status of the host.

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