

## AN EPIDEMIOLOGICAL STUDY OF CANINE NEOPLASMS\*

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Received: 20-01-2011

Accepted: 27-07-2011

### ABSTRACT

The incidence of neoplasms among canines in Thrissur area of Kerala was studied. Samples were obtained from the canine cases presented to the University Veterinary hospitals of Mannuthy and Kokkalai as well as from the carcasses brought for post mortem examination in the Centre of Excellence in Pathology, College of Veterinary and Animal Sciences, Mannuthy during an year. Collected samples were subjected to histopathological studies for diagnosis of tumour type. Age, sex and breed of the affected animals were analyzed. Sixty one tumour cases were obtained. Sixty six per cent of the tumours were benign. Skin and soft tissue tumours were the common type observed. Maximum cases were observed in the 5 to 8 year group. Fifty eight per cent of the affected animals were females. Breed wise analysis revealed that German shepherds were the most affected.

**Key words:** Incidence, Neoplasms, Canines.

The emergence of quality veterinary care has increased the life expectancy of pets making them more susceptible to diseases of old age such as tumours. Compared with humans, dogs tend to develop tumours twice as frequently, but cats only half as frequently. These tumours can be seen in most of the breeds in varying geographical regions covering wide age groups. Pet animals with spontaneously developing tumours provide an excellent opportunity to study various aspects of the disease from etiology to treatment. Therefore the present study is undertaken to investigate the pathoepidemiology of various neoplasms among dogs in and around Thrissur area, Kerala.

Samples were obtained from the canine cases presented to the Veterinary hospitals of Mannuthy and Kokkalai and carcasses brought for the post mortem examination in the Centre of Excellence in Pathology, College of Veterinary and Animal Sciences, Mannuthy during a period of 12 months i.e., from December 2008 to December 2009 were utilized for the study. Any abnormal mass detected was examined in detail. The tissues collected were preserved in 10% neutral buffered

formalin and subjected to routine histopathological studies (Bancroft and Gamble, 2002). Detailed epidemiological data was collected in each case and the age, sex, breed and location wise occurrence of various tumours in dogs was also recorded.

Sixty one tumour cases were reported in sixty animals because of the presence of multiple tumour types in a dog. All the tumours were diagnosed based on microscopic examination. Tumours are broadly classified as benign and malignant. In the present study benign and malignant tumours were 66 per cent and 34 per cent respectively. This is in accordance with Nair *et al.* 2007 who reported 68.75 per cent of canine tumours as benign and 31.25 per cent as malignant.

In this study, tumours of the skin and soft tissues accounted for 32.8 per cent of the cases, tumours having their origin from mammary glands 29.51 per cent and those of the genital system 21.31 per cent, especially TVT. Tumours of the alimentary tract contributed 6.56 per cent, tumours from the haemolymphatic system 4.92 per cent, tumours of eye and ear origin 3.3 per cent and a tumour case

\*Part of the M.V.Sc thesis submitted by the first author to the Kerala Agricultural University

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TABLE 1: Different types of tumours.

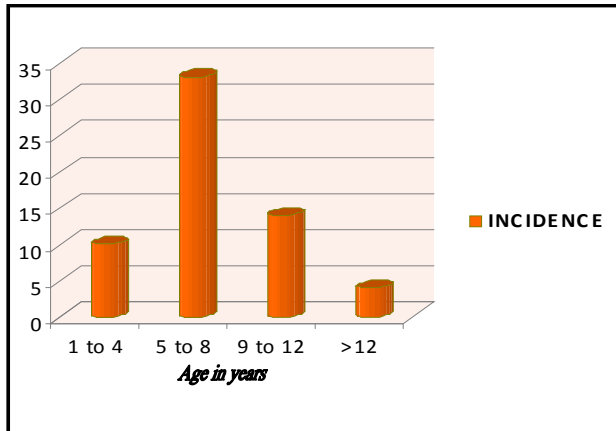
	Tumour	Incidence
TUMOURS OF THE SKIN AND SOFT TISSUES		
	Sebaceous adenoma	3
	Sebaceous epithelioma	1
	Melanocytoma	1
	Hepatoid gland adenoma	2
	Hepatoid gland carcinoma	2
	Eccrine carcinoma	1
	Fibroma	6
	Neurofibroma	1
	Malignant fibrous histiocytoma (MFH)	1
	Liposarcoma	1
	Hemangiosarcoma	1
TUMOURS OF BONE		
	Osteosarcoma	1
TUMOURS OF HEMOLYMPHATIC SYSTEM		
	Lymphosarcoma	1
	Acute Lymphoblastic Leukemia	1
	Canine multicentric lymphoma	1
TUMOURS OF ALIMENTARY TRACT		
	Ossifying epulis	1
	Hepatocellular carcinoma	1
	Cholangiocellular carcinoma	1
	Pancreatic carcinoma	1
TUMOURS OF EYE AND EAR		
	Adenoma of nictitans gland	1
	Ceruminous carcinoma	1
TUMOURS OF THE GENITAL SYSTEM		
	Sertoli cell tumour	2
	Transmissible Venereal Tumour (TVT)	11
MAMMARY TUMOURS OF DOGS		
	Benign mixed tumour	7
	Simple adenoma	1
	Myoepithelioma	1
	Complex adenoma	1
	Fibroadenoma	1
	Solid carcinoma	1
	Simple carcinoma	1
	Mammary sarcomas	5

from bone (1.64 per cent). Different types of tumours encountered in each system is described in Table 1.

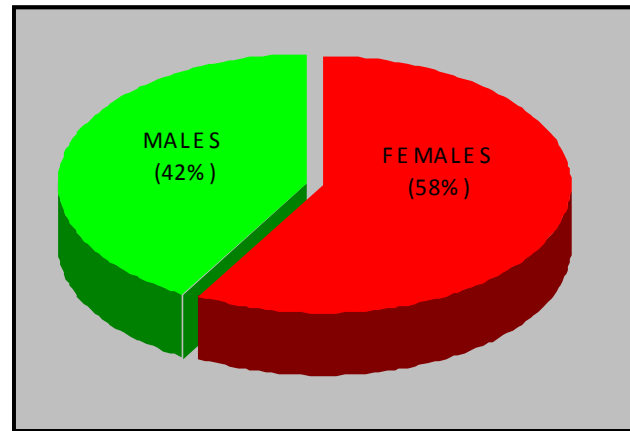
MacEwen and Withrow (1989) reported that mammary neoplasms are the most common tumours of the female dog comprising 52 per cent of all neoplasms in the bitch. Degloorkar *et al.* (1992) reported that venereal granuloma was the most common tumour in canines. Nair *et al.* (2007) reported a high incidence of mammary tumour (41.6 percent) followed by skin tumour (31.25 percent). These findings disagreed with the present

observation where skin and soft tissue tumours were of high incidence followed by mammary tumours.

Thirty three out of sixty (55 per cent) tumour bearing animals were in 5 to 8 year group, 21.67 per cent in 9 to 12 year group, 16.67 per cent in 1 to 4 year group and 6.67 per cent (four cases) were reported in greater than 12 year group (Fig.1). The results of the present study is in accordance with the observations of Bhaskara Rao and Malleswara Rao (2009) who stated that the majority of tumour bearing animals were in the age group of 5 to 8 years



**Fig. 1:** Age wise distribution of tumours.



**Fig. 2:** Sex wise distribution of tumours.

(46.15 per cent) followed by 9 to 12 years (30.77 per cent), 13 to 16 years (17.95 per cent) and least in 1 to 4 years (5.13 per cent).

Out of 60 tumour bearing animals 35 (58 per cent) were females and 25 (42 per cent) were males (Fig. 2). But Singh *et al.* (2004) reported that the occurrence of neoplasms was more in case of male animals (76.47 per cent) than in female animals (23.53 per cent). Moreover Bhaskara Rao and Malleswara Rao (2009) revealed that the incidence of tumours was highest in males (56.09 per cent) when compared to females (43.91 per cent). In the present study 29.5 per cent of cases (18 out of 61) reported was mammary tumours in bitches and also 73 per cent of the TVT cases were in females. This contributed to an increase in the percentage of females. If mammary tumours are excluded, 58.14 per cent (25 out of 43) cases were in males and 41.86 per cent (18 out of 43) cases were in females.

German shepherds, were the most affected, i.e., 17 (28.33 per cent), 13 (22 per cent) were Mongrels,

six cases (10 per cent) each from Labrador and Rottweiler, three cases (5 per cent) from Doberman, two cases (3.33 per cent) each from Cocker spaniel and Boxer and one case (1.76 per cent) each in Dalmatian, Spitz, Lhasa apso and Bull mastiff.

Bhaskara Rao and Malleswara Rao (2009) found that higher incidence of tumours was in German shepherd (35.90 per cent) followed by Pomeranian (30.77 per cent), Labrador (23.08 per cent), Lhasa apso (5.13 per cent), Doberman (2.56 per cent) and Dachshund (2.56 per cent). But Kujur *et al.* (2009) and Dayananda (2009) reported a high incidence of skin tumours among non-descript animals (31.76 per cent) followed by German shepherd (14.1 per cent).

The report on the occurrence of tumours depends on different patterns of breed distribution in the areas of study. In the present area of study GSD dogs are found to be the most popular ones, which contributed to their high percentage.

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