



**THE RETROSPECTIVE STUDY OF SMALL ANIMAL CASES PRESENTED TO THE  
VETERINARY TEACHING HOSPITAL, UNIVERSITY OF IBADAN, IBADAN, 2009-2013**

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**ABSTRACT**

The study was conducted in the Veterinary Teaching Hospital, University of Ibadan in order to determine total number and patterns of presentation of the clinical cases in small animal cases to the Veterinary Teaching Hospital, University of Ibadan. Case notes of the animals presented to the hospital over the period under study were used for this study. Many diseases were diagnosed from 2009 to 2013. A total of 3784 cases were presented. On the basis of yearly documentations, 632, 801, 694, 874 and 783 cases were presented for 2009, 2010, 2011, 2012 and 2013, respectively. The pattern of presentation over this years dwindled contrary to the expectation of a yearly increase in case presentation rate. Endoparasitic conditions [39.43 % (n = 1492)] were the highest of the cases, vaccination and deworming (prophylaxis treatments) was 28.25 % (n = 1069), ectoparasitic conditions were 19.48% (n = 737), while the lowest categories presented were nervous conditions [0.05 % (n=2)], cardiac condition [0.05% (n=2)] and ear abnormalities [0.08% (n=3)]. For the endoparasitic and heamoparasitic conditions were helminthosis [28.04 % (n =1061)] and babesiosis [9.59% (n =363)]. Tick infestation and mange had the highest proportions of ectoparasitic cases with 11.05% (n=418) and 5.66% (n=214), respectively. Deworming, ARV and DHLPPiV were the major prophylactic cases with the following findings; 13.40%, 7.11% and 7.74% (n = 507, 269 and 293 respectively). Leptospirosis was the most important bacterial condition of the cases with proportion of 1.37 % (n =52). Enteritis also raised important concern with a value of 1.43 % (n=54). The pattern of cases presented and analyzed in this study is good for planning by the hospital for procurement of facilities and inputs, for evaluation of performance of the hospital, epidemiological survey, disease reporting and for planning effective preventive and control measures for infectious and zoonotic diseases.

**KEYWORDS:** Ectoparasite, Endoparasite, Haemoparasite, Deworming and Vaccination.

**INTRODUCTION**

The rate at which people keep dogs and cats has steadily increased in our society due to the specific purposes which these animals serve. Hence, the affirmation by Kornbalt and Schantz in 1980 that the population of dogs as the most common pet and sentinel animal globally had been on a consistent increase, they also constitute an important factor in parasitic zoonoses as a result of the close association with man. (Kornbalt *et al.*, 1980).

The numbers and types of pets kept as companion are increasing in number and in range of animal species including dogs, cats, rodents, rabbits, ferrets, birds, amphibians, reptiles and ornamental fish. Population of dogs and cats in European Union (EU) countries was estimated to be more than 128 million (FEDIAF, 2012) Household pets are animals kept by people for company, enjoyment, work and psychological support (Dansorg *et al.*, 2016).

Small animals are used as companion animals, as many houses have dogs and cats in their vicinity. It has been discovered that the most widespread form of interspecies bonding occurs between humans and dogs. (Tacon *et al.*, 2002).

They are useful for the purpose of security and protection. Police departments use dogs successfully to gather evidence, deter crime, protect officers, control crowds, and apprehend suspects.

Dogs have lived and worked with humans in so many roles that they have been nicknamed 'Man's Best Friend'. They have been bred for herding livestock (William *et al.*, 2007), hunting (Serpell *et al.*, 1995), rodent control, guarding, helping fishermen with nets, detection dogs, pulling loads. (Dewey *et al.*, 2002). Service dogs such as guide dogs, utility dogs, assistance dogs, hearing dogs, and psychological therapy dogs provide assistance to individuals with physical or mental disabilities (psychdog.org, 2005). In recent times, it has

been discovered that people often enter their dogs in competitions, such as dog shows, dog walk, breed conformation shows or sports including racing, agility competition, dog exhibitions and parades. Dog meat is consumed in some parts of the world such as in the East Asian countries, including Korea, China, and Vietnam. Also in some part of African Countries. Due to their closeness in physiology parameters to man, dogs are often used as model research animals especially in drug trials and novel surgical investigations.

Pets can harbor diseases that can affect man and animals, in a way that such zoonotic diseases are easily transmitted between animals and their owners through direct contact (via petting, licking and physical injury) and indirectly through food and environmental contamination (Song *et al.*, 2013). Other by biting or through physical injury (Such as cat scratch disease and rabies) or through inhalation (psittacosis) or contact with urine or environmental contamination with urine (leptospirosis) or faces (helminthosis) or feaco-oral ingestion such as it applies to salmonellosis and campylobacteriosis (Wieler *et al.*, 2011).

Blood parasites are living organisms which inhabit the blood and feed on its constituents or nutrients. (Bhattacharjee and sarmah, 2013). They equally constitute a great threat to the existence of these pets.

The blood parasites are difficult to control due to the resistance of some parasites to drugs, and there is no successful vaccine against most of blood parasites due to several factors such as antigenic variation and difficulties in propagation of these organisms in artificial media. The infection with blood parasites can be suspected from general symptoms of disease such as decrease in production, emaciation, loss of appetite and jaundice. Affected animals also take time to reach the peak of production after recovery (Herenda, 1994).

Zoonoses are important to vulnerable people such as the young, old, pregnant, immunocompromised as they can be easily infected (Dansorg *et al.*, 2016).

Disease surveillance is the continuous scrutiny of the occurrence of diseases and health related events to enable prompt intervention for the control of diseases (Buehler *et al.*, 2004).

It involves continuous systematic collation, collation analysis and interpretation of data on disease occurrence and public health related action (Heymann, 2004, Last, 2004 and Bonita, *et al.*, 2006).

Disease notification is the official and timely reporting of the occurrence of specific diseases and condition to designated public health authority by clinicians and other health personnels for action using designated reporting tools (Abdulraheem *et al.*, 2004). Disease notification is

an important source of data for effective and efficient surveillance system (Abdulraheem *et al.*, 2004).

Disease surveillance and notification are important strategies for an effective prevention and control of diseases that have tendency to be an epidemic (Isere *et al.*, 2015). Effective disease surveillance allow for early detection of disease outbreak and timely institution of control measures to reduce morbidity and mortality from impending epidemics of such diseases (Dairo, 2010).

It is the duty of the clinicians to report to the Local Government department. The Local Government officer will then report same to the State Ministry of health and then the State Ministry of Health officer will report to the epidemiology division of the Federal Ministry of Health (Federal Ministry of Health 2010, Abubarkar *et al.*, 2004).

At the Federal Ministry of Health level, the data are analyzed and information is sent to the appropriate department for planning for appropriate intervention aimed at disease control. Records keeping and analyses are important procedure for generating data and information for the appropriate authorities saddled with the responsibilities of local and national disease prevention and control.

## MATERIALS AND METHODS

### Study Area

The study was conducted in the Veterinary Teaching Hospital, which is situated in the Faculty of Veterinary Medicine, University of Ibadan, Ibadan, Oyo State.

### Study Population

The study populations were canine and feline that were presented in the Veterinary Teaching Hospital, University of Ibadan.

### Data collection

Data were collected from case files and case records of the Veterinary Teaching Hospital, University of Ibadan from 2009 to 2013. The records include all animal information, owner's name, sex, species, case history, tentative, final diagnosis, laboratory results and treatment.

**RESULTS**

The results are presented below:

**ENDOPARASITIC CONDITIONS****Table 1: Showing results of the endoparasitic conditions presented at the VTH**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
1.	HELMINTHOSIS	205	318	188	196	154	1061	71.1
2.	BABESIOSIS	71	76	68	64	84	363	24.3
3.	CANINE TRYPANOSOMOSIS	7	3	2	5	11	28	1.9
4.	EHRlichiosis	10	3	6	4	7	30	2.0
5.	COCCIDIOSIS	2	2	5	-	-	9	0.6
6.	HEPATOZOONOSIS	-	-	-	-	1	1	0.1
	TOTAL	295	402	269	269	257	1492	100

**ECTOPARASITIC CONDITIONS****Table 2: Showing results of the ectoparasitic conditions presented at the VTH**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
7.	MANGE	40	49	40	44	41	214	29.0
8.	TICK INFESTATION	43	40	83	133	119	418	56.7
9.	LICE INFESTATION	-	-	1	-	1	2	0.3
10.	FLEA INFESTATION	-	-	-	2	2	4	0.5
11.	MYIASIS	5	13	18	34	29	99	13.5
	TOTAL	88	102	142	213	192	737	100

**PROPHYLAXIS****Table 3: Showing results of the prophylaxis case presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
12.	ANTI-RABIES VACCINATION	49	53	51	69	47	269	25.2
13.	DHLPP VACCINATION	23	57	59	87	67	293	27.4
14.	ROUTINE DEWORMING	82	86	88	137	114	507	47.4
	TOTAL	154	196	198	293	228	1069	100

**REPRODUCTIVE CONDITIONS****Table 4: Showing results of the reproductive conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
15.	PSEUDOPREGNANCY	-	1	1	4	2	8	28.7
16.	AGALACTIA	-	3	-	-	1	4	14.3
17.	ORCHITIS	1	-	1	-	-	2	7.1
18.	MASTITIS	1	-	-	2	1	4	14.3
19.	DYSTOCIA	-	-	-	-	1	1	3.6
20.	INFERTILITY	-	-	-	2	-	2	7.1
21.	METRITIS	-	-	-	2	-	2	7.1
22.	PYOMETRA	-	-	1	-	-	1	3.6
23.	CRYPTOCHIDISM	-	-	-	2	-	2	7.1
24.	BRUCELLOSIS	-	-	-	2	-	2	7.1
	TOTAL	2	4	3	14	5	28	100

**URINARY DISORDERS****Table 5: Showing results of the urinary disorders presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
25.	NEPHRITIS	1	2	-	-	1	4	33.3
26.	URINARY TRACT INFECTION	-	4	-	2	2	8	66.7
	TOTAL	1	6	-	2	3	12	100

**BACTERIAL CONDITIONS****Table 6: Showing results of the bacterial conditions presented at the VTH**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
27.	COLLIBACILOSIS	-	-	-	1	-	1	1.7
28.	LEPTOSPIROSIS	14	9	7	12	10	52	86.6

29.	TETANUS	7	-	-	-	-	7	11.7
	TOTAL	21	9	7	13	10	60	100

**VIRAL CONDITIONS****Table 7: Showing results of the viral conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
30.	PARVOVIRUS ENTERITIS	-	1	-	1	2	4	50
31.	CANINE DISTEMPER	2	-	1	-	1	4	50
	TOTAL	2	1	1	1	3	8	100

**SYSTEMIC CONDITIONS****Table 8: Showing results of the systemic conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
32.	PERITONITIS	-	1	-	-	-	1	1.9
33.	ASCITES	1	1	-	-	1	3	5.9
34.	ORGANOPHOSPHATE POISONING	-	3	3	5	4	15	29.4
35.	SEPTICAEMIA	4	3	6	5	3	21	41.2
36.	HEPATIC DYSFUNCTION	-	2	-	1	-	3	5.9
37.	LIVER CIRRHOSIS	6	-	1	1	-	8	15.7
	TOTAL	11	10	10	12	8	51	100

**GASTROINTESTINAL CONDITIONS****Table 9: Showing results of the gastrointestinal conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
38.	ENTERITIS	-	6	16	14	18	54	66.7
39.	TENESMUS	-	-	-	1	-	1	1.2
40.	GASTRITIS	-	5	1	-	1	7	8.7
41.	ULCERATIVE STOMATITIS	-	-	-	1	-	1	1.2
42.	CONSTIPATION	4	5	3	3	3	18	22.2
	TOTAL	4	16	20	19	22	81	100

**NEOPLASTIC CONDITIONS****Table 10: Showing results of the neoplastic conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
43.	TRANSMISSIBLE VENERAL TUMOUR	2	4	3	1	1	11	33.3
44.	OTHER TUMOURS	6	5	6	2	3	22	66.7
	TOTAL	8	9	9	3	4	33	100

**RESPIRATORY CONDITIONS****Table 11: Showing results of the respiratory conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
45.	PLEURAL EFFUSION	-	-	-	-	1	1	7.7
46.	PNEUMONIA	3	-	1	1	6	11	84.6
47.	PULMONARY OEDEMA	-	-	1	-	-	1	7.7
	TOTAL	3	-	2	1	7	13	100

**SKELETAL CONDITIONS****Table 12: Showing results of the skeletal conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
48.	OSTEOMYELITIS	1	-	-	-	-	1	16.7
49.	HIP DYSPLACIA	-	-	-	1	2	3	50
50.	CONGENITAL BONE DEFORMATION	-	1	-	-	-	1	16.7
51.	CALCIUM DEFICIENCY	-	1	-	-	-	1	16.7
	TOTAL	1	2	-	1	2	6	100

**OCULAR CONDITIONS****Table 13: Showing results of the ocular conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
52.	EYE PROLAPSE	1	-	-	-	-	1	16.7
53.	GLAUCOMA	-	-	-	-	1	1	16.7
54.	CONJUNCTIVITIS	-	-	-	1	3	4	66.6
	TOTAL	1	-	-	1	4	6	100

**NERVOUS CONDITION****Table 14: Showing results of the nervous conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL
55.	PARALYSIS	1	-	4	-	2	7

**CARDIAC CONDITION****Table 15: Showing results of the cardiac conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL
56.	ENDOCARDITIS	-	-	-	1	2	3

**EAR ABNORMALITY****Table 16: Showing results of the ear abnormality presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL
57	OTITIS	5	9	5	-	3	22

**OTHER CONDITIONS****Table 17: Showing results of the other conditions presented at the VTH.**

S/N	CASES	2009	2010	2011	2012	2013	TOTAL	%
58.	MALNUTRITION	9	11	-	3	-	23	14.7
59.	HYPOGLYCAEMIA	-	-	-	-	6	6	3.9
60.	ALLERGIC REACTION	-	2	-	4	-	6	3.9
61.	SNAKE BITE	1	1	1	2	2	7	4.5
62.	PHOTOSENSITIZATION	-	-	-	-	2	2	1.3
63.	ALLERGIC DERMATITIS	-	2	1	1	1	5	3.2
64	TRAUMATIC INJURY	25	19	22	21	20	107	68.5
	TOTAL	35	35	24	31	31	156	100

**DISCUSSION**

Out of 3784 cases presented to the Veterinary Teaching Hospital, University of Ibadan, 3776 cases were those of dogs while 8 were cases of cats which implies that the rate at which people keep cats as pets is still very low compare to that of dogs. This may call for further investigation about keeping of cats in this part of the world.

Generally, this study revealed that helminthosis, tick infestation and babesiosis were most prevalent disease conditions and clinical diagnoses.

From the results, it is worth to mention that internal parasites were the highest cases. These findings are in agreement with Siham *et al.* (2008) who stated that internal parasites were common among the cases of alimentary tract disorders in all species especially during the summer and autumn. The presence of internal parasites could be attributed to bad management, poor hygiene, poor awareness of the owners on the need to regularly deworm their pets. Siham's findings is hereby made relevant considering the fact that a large percentage, 71.1% (n=1492) of endoparasitic cases

presented was caused by helminthes. This could therefore be blamed on the poor financial and social status of most Nigerian dog owners which predisposes the animal to straying and food scavenging. (Oduye, 1984).

There is a relatively high occurrence of ticks in the environment. This explains the high occurrence of heamoparasitic diseases such as babesiosis (n=363), ehrlichiosis (n=33). Occurrence of these diseases can be reduced by reducing tick infestation through usage of acaricides and other prophylactic measures.

Prophylaxis, which is a very important aspect in small animal medicine, witnessed an increase in number of cases as the year progressed till year 2012. This may be attributed to the continuous client education which has been embarked upon by different health agencies and veterinary extension workers. Basic instructions, health care protocols and advice offered at the clinic during visit of clients has also been very helpful in exposing clients to basic prophylactic measures that should be ensured.

A similar study, on prophylactic care assessment by Amen *et al.* (2012) in Taraba State, Nigeria, found that only 1128 (13.50%) received antirabies vaccine from 8370 cases presented to the Veterinary Teaching Hospital from 2003 to 2012. They found out that people had poor knowledge of rabies vaccination and that people's attitude is better with education, exposure and age. They, therefore, recommended educational program for dog owners to improve their knowledge and reduce the risks of exposure to rabies. A similar survey on awareness and knowledge of people of Oyo State on rabies by Adejumobi *et al.* (2016) found that 79.5% of the respondents were aware of rabies through informal means and experience within their society. However this people had poor knowledge about antirabies vaccination, pre and post exposure prophylaxis. They also found out that most of the people that knew about rabies were educated. They also recommended education as a means of improving knowledge.

Routine deworming experienced an increase from year 2009 till 2012, then a sharp fall in 2013. This decrease was also noticed for ARV and DHLPPV. The increase could be due to reasons explained above, while a fall could be due to numerous reasons in which a sharp decrease in level of satisfaction derived by the clients is inclusive. This conclusion could be drawn due to a general fall in the number of cases presented in the year 2013.

Education on routine deworming is also very important as the cases of helminthosis that occur yearly are far more than that of deworming. Client education is highly important in this aspect. A similar study by Stull *et al.* (2007) on the knowledge of clients on deworming protocols showed 13% and 39% compliance with the established guidelines for puppies and kittens, respectively. They also recommended education as a veritable tool that can be used to improve knowledge and attitude of dog owners and general public.

Workable strategies for client education should be practiced in order to increase the level and number of cases brought for prophylaxis in the VTH. This is needed due to the relatively low number of prophylactic cases especially as regards ARV and DHLPPiV.

Pseudo pregnancy represents the highest reproductive case which could imply that many breeders/pet owners are more interested in the reproductivity of the bitches, which is as a result of the financial return gotten due to the sales of puppy. This is also corroborated by the relatively high incidence of mastitis and agalactia, with prevalence of 14.3% each. Pseudo pregnancy could also be due to mating of bitches when they are on heat but when the ovulation period had lapsed. Use of infertile male could also cause this condition.

Low prevalence of parvovirus enteritis and canine distemper being noticed within the study period may be

related to the extent at which dog owners vaccinated their dogs as indicated by the number of cases being presented for DHLPP vaccination in the clinic. A similar study by Sayed-Ahmed *et al.* (2021) found a prevalence of 59.7% in dogs presented with gastroenteritis between March 2012 and February 2013 screened by CPV/Canine Corona antigen tests kits. Adejumobi *et al.* (2017) also reported a prevalence of 61% of parvovirus infection in gastroenteritis cases presented to the veterinary clinic between years 2005 and 2015. These reported prevalence by these researchers are higher when compared to the one found in this study.

In many cases, especially when the animal is in a weakened state, sudden death, preceded by a very high temperature, may be the only sign of the presence of septicemia. Hence, septicemia as recorded in the VTH could be any condition in which the extent of organs involved in the course of the condition cannot be identified by the clinician. Often times, such animals died before reaching a conclusive diagnosis.

Organophosphate poisoning may arise from contamination of food material, with organophosphorus insecticides or by skin contact or inhalation. It could also be due to self-medication practiced by some dog owners. These could be the cause of the 15 cases presented. This represents dog owners that allow their pets to be exposed to such poisoning which most often cause a long lasting effect on the animals.

Traumatic injury was also highly prevalent with most of the injuries due to dog bites wounds inflicted on themselves when they fought.

## CONCLUSION

The need for proper record keeping in primary, secondary and tertiary health facilities is very crucial. It is inevitable to keep good record that can be processed to give information about the patient's demography, management practices, health care history and diseases manifestation. This information from such records can help the hospital in planning and disease reporting and the animal health management authorities, at various levels, in the management and control of emerging animal and zoonotic diseases.

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