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The Prevalence of Reproductive Diseases of Dogs in Zaria, North-Western Nigeria

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Abstract

A total of eight hundred and two dogs were examined at a survey of Small Animal Clinic of the Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, with structured questionnaire and visitations to households and cattle herds with dogs carried out for six months to determine the rate of occurrence of reproductive diseases of dogs within the study areas. 382 of these 802 dogs examined had reproductive diseases, diagnosed by clinical and laboratory examinations. The disorders revealed were abortion (5.05%}, uterine prolapse (0.08%), conception failure (2.16%), stillbirth (0.41%), metritis (2.01%), vaginitis (0.98%), neonatal death (1.72%), weak pup/ small litter (2.94%), vaginal prolapse (0.08%), vaginal polyps (0.08%) and transmissible venereal tumour (0.44%) in female dogs. While in males were; preputial discharge (0.17%), posthitis (0.17%), cryptorchoditism (0.52%), orchitis (0.34%), Prostatic disease (0.34%), testicular degeneration (0.17%) infantile penis (0.17%), infertility (5.55%), inability to mate (0.34%), epididymitis (2.0%) and transmissible venereal tumour (0.34 %). The sex distributions were 0.44 % and 0.42% for female and male dogs respectively, with overall prevalence rate of 21.3% for these reproductive disorders. The occurrence of reproductive diseases causing infertility is considered a limiting factor to dog breeding with significant production losses to breeders. The economic and public health significant of those amongst these diseases with underlying infectious causes such as brucellosis between those in contact with infected dogs and the general public is also considered to be important.

Keywords: Dogs, Reproductive Diseases, Stillbirth, Abortion

Introduction

Domestic dogs can be successfully bred in almost all kinds of environments, but are always directly or indirectly dependent on man (1). Since their domestication, a strong link has been established between dogs and humans, and dogs have been selectively bred for more than 14000 years for various behavioral traits, sensory capacities, and physical attributes (1). The dogs were kept mainly for companionship, hunting, sporting, and security purposes (2). Dogs are nicknamed Man's best friend, because of their profound intimacy with humans and significance within the society. Perhaps, among the domestic animals, they are conspicuously the most favored pets (3).

Now that link persists even more strongly, with affection and care for dogs having generated a tremendous industry devoted to caring for its health, nutrition, training and therapy (4). The breeding of dogs has also assumed an increasingly profitable investment providing sustainable means of livelihood to breeders in localities and cities in Nigeria and globally (2).

In many households and institutional settings such as farms, firms, and dog kennels for commercial enterprises in Nigeria today, there are predominantly exotic dog breeds and indigenous dogs that are bred native from the localities in Nigeria, popularly known as mongrels by indigenes. The Indigenous dogs are long-headed (dolichocephalic) domesticated dogs, with their feeding pattern being largely omnivorous as a direct consequence of the high domestication (5). An adult Nigerian indigenous dog weigh between 15 and 25kg (6). At present, there are increasing numbers of this breed of dogs in Nigeria being successfully bred widely across the country with the same preponderance as their various exotic breeds. The emerging career opportunity and vast lucrative evolving dog breeding industry are however not without its inherent challenges that are fast becoming an inexorable threat to the gains that abound in the business of dog breeding enterprises (7).

One commonest setback to the success of this enterprise is the occurrence of reproductive diseases in dogs which is a widespread phenomenon (8) It is usually a consequence of the spreading of uncontrolled infectious and non-infectious conditions, where pets, strays, and feral dogs are infected and affected respectively with many of these conditions (9, 10).

These reproductive conditions which could be of infectious or other causes include: infertility (conception failure, abortion stillbirth, and neonatal death), dystocia, retained placenta, metritis, placentitis, vaginitis, mastitis, orchitis, epididymitis and prostatic diseases (8). Davidson (2005) reported that bitches with reproductive conditions are more frequently presented or encountered nowadays by practitioners in most of the world, many of which are of economic and public health significance.

The Dog population in Nigeria is at about 16.7 million according to the dog population census report by the Management Information System of the Federal Department of Livestock and Pest Control.

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FAO (2006) reported that about 90% of these dog's roam freely and are prone to several infectious and non-infectious diseases as these animals are generally in parts of the world where human and animal health services are scarcely provided or non-existent (7).

A large-scale and planned study to determine the status of reproductive diseases in Zaria, Kaduna State, and Nigeria as a whole has not been carried out. The success of any control program for infectious or non-infectious reproductive disease can only be achieved if there is information on the disease that can only be generated through the conduct of a survey.

Material and methods

Study Area

The study was conducted at the Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria, located in the Northern Guinea Savannah zone of Nigeria, on latitude, 11°5' 8" N and longitude, 7°43' 12" E and at an elevation of 650 m above sea level. It has an average annual maximum and minimum ambient temperature of 31.0 ± 3.2°C and 18.0 ± 37°C respectively. Zaria has an average annual rainfall of 1100 mm usually lasting from May to October and with a mean relative humidity of 72 %. The dry season covers the period from November to April with mean daily temperatures ranging from 15-36 °C, and mean relative humidity of between 20 - 37 % (5).

Study Design

A structured questionnaire and survey of dogs in residential areas and cattle herds with guard dogs for a year and a half were conducted to determine the rate of reproductive diseases occurring among the dogs in the study area. The clinical and laboratory examinations carried out the diagnoses of these diseases. Skin scrapping and vaginal swabs were taken following a thorough examination of genitalia as well as blood and skin biopsies where necessary. The vaginal swabs were obtained by dipping the stick swab deeply into the anterior vaginal area of each dog to be sampled and scooping the vaginal floor with the swab, gently removed, kept, and labeled for laboratory analysis.

Statistical Analysis

The data obtained were entered into SPSS version 16 for analysis. Descriptive statistics were used to show the distribution of dogs along the factors of location, sex, and breed on the occurrence of the reproductive diseases. Values of $p<0.05$ were defined as significant (11).

Results and Discussion

The distribution of reproductive diseases of dogs and the prevalence of specific reproductive diseases in each sex obtained during the survey study are shown in Tables 1 and 2. In Table 1, the female dogs had an overall prevalence of reproductive diseases of 21.44%; with abortion (5.05%); birth of weak pup/small litter size (2.94%); conception failure (2.16%); and metritis (2.01%) having the highest prevalence in that order. While the male dogs on the other hand, as shown in Table 2, had an overall prevalence of reproductive diseases of 2.11%, where, infertility in males (5.55%) and epididymitis (2.0%) were the reproductive diseases with the highest prevalence in that order.

The survey shows there is a wide range of reproductive diseases of dogs in Zaria, with these reproductive conditions in the encountered dog population were though different in the rates of their prevalence. The findings are significant to the economy of dog breeders in Zaria, Kaduna State as well as the public health significance of those that might be of zoonotic causes among the conditions.

These reproductive conditions become inevitable among the dog population in Zaria as the dog density per km^2 is high, coupled with unhygienic conditions and unrestricted management system of dogs which predisposes those dogs to greater risks of many infectious and non-infectious conditions in most parts of this study area. This was neither known to have been adequately reported nor was there measure (s) seen to have been targeted to control these conditions previously in the area.

The overall prevalence of reproductive disease in dogs could be a limiting factor to dog breeding and therefore the control of these disorders should be taken cognizance of by dog breeders as potential sources of major production losses. It also provides further information for establishing an effective control program for these diseases.

It is recommended that dog breeders in the area employ all measures that will help limit reproductive diseases, including proper dog husbandry, good hygiene, and healthy breeding partners (12-15).

There should also be effective regulations and overhauling of management practices of dogs and food animal husbandry to reduce the risk of transmission of infections.

Table 1. The prevalence of specific reproductive diseases of female dogs during the survey in Zaria

Reproductive Diseases	Number of Dogs Affected	Prevalence (%)
Abortion	92	5.05
Uterine prolapse	1	0.08
Conception failure	39	2.16
Stillbirth	5	0.41
Metritis	29	2.01
Vaginitis	12	0.98
Neonatal death	21	1.72
Weak pup/small litter	54	2.94
Vaginal prolapse	1	0.08
Vaginal polyps	1	0.08
Transmissible venereal tumour	6	0.44
Overall	**261**	**21.14**

Table 2. The prevalence of specific reproductive diseases of male dogs during survey in Zaria

Reproductive Diseases	Number of Dogs Affected	Prevalence (%)
Preputial discharge	1	0.17
Posthitis	1	0.17
Cryptorchidism	3	0.52
Orchitis	2	0.34
Prostatic disease	2	0.34
Testicular degeneration	1	0.17
Infantile penis	1	0.17
Infertility*	95	5.55
Inability to mate**	2	0.34
Epididymitis	12	2.00
Transmissible venereal tumour	2	0.34
Overall	**121**	**21.11**

*Grouped in this context are other cases among which are; shortened interestrous intervals, fading estrous, prolonged interestrous intervals, decreased conception rate or subfertility, faded pups and delayed puberty. **Grouped in this context include obese and those dogs with physical and psychological problems.

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