

Original Research Article

Prevalence of Prostatic Disorders in Dogs in Jos, Plateau State, Nigeria

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Abstract: The study was carried out to determine the prevalence of prostatic disorders in a large population of dogs in Jos, Plateau State. Medical records from 2 major veterinary hospitals were retrieved. A total of 38,201 cases in male dogs were presented to the small animal units of the hospitals from 1st January 2011 to 31st December 2016, out of which a total of 2 (0.01%) were found to be prostatic disorders. These prostatic disorders were benign prostatic hyperplasia 1(50%) and prostatic carcinoma 1(50%). The study revealed a prevalence of 0.01% of prostatic disorders observed in intact male dogs of ages 2years and 3years. Based on breeds of dog affected by these disorders, the German shepherd and Mongrel were the predisposing breeds. In conclusion, it is either those prostatic diseases are rare in dogs in Jos or the conditions are misdiagnosed.

Keywords: Prevalence, prostatic disorder, dog.

INTRODUCTION

The sole accessory sex gland in the male dog's urogenital tract is the prostate gland [1, 2, 3, 4]. It is located just caudal to the bladder in the area of the bladder neck and proximal urethral [2]. The gland is surrounded by a capsule containing smooth muscle fibers that extends into the organ, dividing the alveolar tissue into distinct lobules [5, 3]. Its primary function is to produce prostatic fluid which reduces the viscosity of the ejaculate [2, 5]. The prostatic fluid is acidic and plays a bactericidal role during rest by preventing ascending bacterial infections and plays a major role during ejaculation in the production of the seminal fluid in which it acts as support to the sperm cells and transports sperm. Recent studies report that prostatic fluid appears to have an important role in modulating uterine contractions and fertility in bitches [2, 3]. Basal prostatic secretion is constantly entering the prostatic excretory duct and prostatic urethra. In the absence of micturition or ejaculation, urethral pressure moves prostatic fluid cranially into the bladder by prostatic fluid reflux mechanism [2]. The gland depends on androgens and estrogen from the testicles to maintain its size and function. The normal prostate in the intact male dog increases in weight due to normal growth and glandular hyperplasia from the first 5 years with a peak at 4years of age [2].

Disorders of the prostate are fairly common in the dog with prostamegally evident in two thirds of dogs, over 5years of age [4, 5]. Clinical signs may be

diverse and non-specific [6]. Most dogs with prostatic disorders are middle aged or older intact animals. Although neutered dogs are at a reduced risk of prostatic diseases, prostatic neoplasia is still possible [4]. The normal prostate of a young to middle age intact dog is homogenous, medium to fine echotexture, and most commonly with moderate echogenicity. In neutered dogs, the prostate is atrophied and less echoic than in the intact dog [2].

MATERIALS AND METHODS

Study Area

This retrospective study was carried out in Jos, Plateau state in the North-Central region of Nigeria. Jos is located between Latitude 9°56'N and longitude 9°56'E. There are two major Veterinary hospitals in Jos providing veterinary services to Plateau state and its environs (Kaduna State, Bauchi State, Gombe State, Nassarawa State and the Federal Capital Territory (FCT)). Medical records of the two veterinary hospitals were assessed to retrieve cases of prostatic disorder.

Data collection

Medical record search was made for prostatic disorders from 1st January 2011 to 31st December 2016.

RESULTS

Data management and analysis. The data retrieved from the medical records were tabulated as follows:

Table 1: The Age, Weight, Breed and Genital status of Dogs affected by Prostatic Disorders from January 2011 to December 2016 in Jos

Breed	Prostatic Conditions	Weight	Age of dog	Genital status
Mongrel	Benign Prostate Hyperplasia	21kg	3 years	Intact
German shepherd	Prostatic Carcinoma	12kg	2 years	Intact

Table 2: The Frequencies and Percentages of Prostatic Disorders in Dogs from January 2011-December, 2016

Breed	Prostatic Disorders	Number of Occurrence	Percentages
Mongrel	Benign Prostate hyperplasia	1	50%
German shepherd	Prostatic carcinoma	1	50%
Total		2	100

The results of this study are presented in Tables 1-2. A total of 38,201 cases were presented to the small animal units from 1st January 2011 to 31st December 2016. Out of which a total 2(0.01%) dogs had prostatic disorders. Table 1 shows the breed, prostatic condition, weight, age and genital status of dogs. The breeds of dog predisposed to prostatic disorders within the period of study were the Mongrel and German shepherd, both were intact. The weights of the dogs are 21kg and 12kg respectively, between ages 2 -3years. The number of occurrences and percentages are 1(50%) and 1(50%) for both benign prostatic hyperplasia and prostatic carcinoma (Table 2).

DISCUSSION

Benign prostatic hyperplasia (BPH) is the most common canine prostatic disorder [7,8] with almost 100% of intact dogs developing histologic evidence of BPH with aging [7]. Adenocarcinomas and Transitional cell carcinomas are the most common canine prostatic neoplastic diseases, with the dog being the only animal besides man to have an occurrence. The result of this study concurs that BPH and prostatic carcinoma (PC) are two common prostatic disorders in dogs. In this study, PC and BPH disorders were found in intact dogs. According to Wheeler [3], prostatic diseases are diseases of intact male dogs except for prostatic neoplasia which is commonly diagnosed in castrated and intact males [9]. The reason for having prostatic neoplasia in castrated dogs is not entirely known yet, but it is speculated that once prostatic atrophy starts after castration, neoplastic cells present will increase their growth rate [10]. In this study, the age of dogs affected by these prostatic disorders were 2years and 3years for PC and BPH respectively; studies have reported that BPH is a condition of older dogs. For instance, 50% of intact dogs over 5years and 95% of intact dogs older than 9years show signs of BPH [5, 11, 3]. Levy *et al* [12] reported that male dogs leaving in kennels with an intense sexual activity develop BPH at a young age of 2-3years.

Based on breed, German shepherd and Mongrel were found to have these disorders. Vendramin and Sauberli [9] reported a case of cystic benign prostatic hyperplasia in a 3years old Rottweiler.

CONCLUSION

There is dearth of information concerning prostatic disorders in dogs in Jos, Plateau state. It is either that prostatic diseases are rare or misdiagnosed in dogs. Therefore it is recommended that a prospective study investigating histopathologic lesions in prostate sample of dogs be undertaken.

REFERENCES

1. Gradil, C. M., Yeager A., & Concannon, P. W. (2006). In: Recent Advances in Small Animal Reproduction, Concannon P.W., England G., Versteegen III J. and Linde-Forsberg C. (Eds.). *International Veterinary Information Service*, Ithaca NY (www.ivis.org), Last updated: 19-Apr-2006;A1234.0406.www.ivis.org.Retrieved 17/06/2017
2. Polisca A., Troisi, A., Fontaine, E., Menchetti, L., & Fontbonne ,A. (2016). A Retrospective Study of Canine Prostatic Diseases from 2002 to 2009 at the Alfort Veterinary College in France. *Theriogenology*, 85, 835-840.
3. Wheeler, R. (2014). Prostate. In: Mechanisms of Disease in Small Animal Surgery 3rd edition. Bojrad.M.J and Monnet, E (eds). *Eton Newmedia, Jackson,WY,USA*. www.ivis.org. Retrieved 18/06/2017.
4. White, R. S. A. (2005). *Prostatic Disease Update*. In: Proceedings of the North American Veterinary Conference. January 8th -12th Orlando Florida, USA. www.ivis.org. Accessed 12/12/2016.
5. Fila, D., & Berglavaz, A. (2012). Benign Prostate Hyperplasia in aged dogs affects semen gross and individual motility. In: Proceedings of 7th International Symposium on Canine and Feline Reproduction In a Joint Meeting with European Veterinary Society for Small Animal Reproduction

- July 26th – 29th, Whistler, Canada. Retrieved 18/06/2017
6. Teske, E. (2009). *Urogenital Cytology: Part I-Prostatic Diseases*, In : Proceedings of the 34th World Small Animal Veterinary Congress. Sao Paulo, Brazil. www.ivis.org. Retrieved 18/06/2017
 7. Romagnoli, S. (2007). *The Canine Prostate: What it does and Why Does it Grow so Much*. In: Proceedings of the Southern European Veterinary Conference. www.ivis.org. Retrieved 24/12/2014.
 8. Romagnoli, S. (2007). *How I Treat Benign Prostatic Hyperplasia in the Dog*. In: Proceedings of the Southern European Veterinary Conference. www.ivis.org. Retrieved 24/12/ 2014
 9. Bertram Vendramin, J. L., & Sauberli, D. (2011). *Long term Management of Cystic Benign Prostatic Hyperplasia in a Valuable Breeding Dog*. In: Proceedings of the Society for Theriogenology Annual Conference August 9th – 13th, Milwaukee, WI, USA. www.ivis.org. Retrieved 6/6/2016.
 10. Christensen, B.W. (2011). *Treatment of Prostatic Disease*. In: Proceedings of the Society for Theriogenology Annual Conference. August 9th - 13th, Milwaukee, WI, USA. www.therio.org. Retrieved 6/6/2016
 11. Zambelli, D., Cunto, M., & Gentilini, F. (2011). *Validation of a Model to Develop a Symptom Index for Benign Prostatic Hyperplasia in Dogs*. In: Proceedings of the Society for Theriogenology Annual Conference. 9-13, Milwauki,WI, USA. www.therio.org. Retrieved 1/9/2015.
 12. Levy, X., Routier, J. Y., Fontbonne, A., Nudelman, N., Boutant, P. A., Elbaz, J. M., & Roger, P. (2016). *Presumptive Glandular Prostatic Hyperplasia in Felids – A Clinical Case in a Cheetah*. In: *Proceedings of the 8th International Symposium on Canine and Feline Reproduction*. June 22nd – 25th, Paris,France. www.ivis.org. Retrieved 16/02/2017.