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Semen pictue in dogs with benign prostatic hyperplasia

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Abstract
Prostate is the only accessory sex gland in dogs. Benign Prostatic hyperplasia is more commonly seen in adult intact dogs above 5 years of age. BPH began with an alteration of androgen: estrogen ratio secreted by the testis (Bomberg- Thalen and Linde Forsberg, 1993). An over production of dihydro testosterone (DHT) within the prostate was the primary mediator of BPH (Gloyna *et al.,* 1970; Barsanti and Finco, 1986). The study was carried out with the aim to investigate the effect of Benign Prostatic Hyperplasi on the semen Parameters in dogs.

Keywords: BPH in dog, semen, benign prostatic hyperplasia

Introduction
Prostate is the only accessory sex gland in dog and its function is to produce a fluid which transported and supported the survival of sperm and which was delivered to the urethra during the terminal phase of ejaculation. Well described disorders of the prostate included Benign Prostatic Hyperplasia (BPH), squamous metaplasia, prostatic inflammation, both acute and chronic, prostatic cyst and prostatic neoplasia (Kraweic and Heflin, 1992) [7] of which BPH was reported to be the most frequent disorder, characterised by an increase in size of the organ due to hyperplasia (Chew, 1997) [4]. There was reports on study of semen parameters in dogs with BPH. The goal of the study is to know the effect of this prostatic disesase on semen picture.

Materials and Methods
216 male dogs of different breeds aged > 4 yrs brought to Madras Veterinary College Teaching Hospital with symptoms of dysuria, recurrent urinary tract infection, tenesmus and constipation were screened for BPH using ultrasonography. The 8 dogs diagnosed positive for BPH were selected for the study.
Manager NDDB, 2-4 Retd Professors Madras Veterinary College TANUVAS Chennai.
Semen was collected by digital manipulation (Plate1). Collection was accomplished by using sterile gloved hands. The prepuce was pushed gently behind the bulbus glandis and pressure was exerted behind the bulbus glandis with fingers. The semen was collected in a sterile glass semen collection vial. The dog was released once the penis became flaccid and the prepuce returned to the normal position.
The semen was evaluated for colour, volume, sperm motility, concentration and abnormality. For a period of 6 months as week 0 week 1 week 2, month 1, month 2, month 3, month 4, month 5, and month 6.

Semen volume
The volume of the sperm rich fraction is directly assessed from the graduated semen collection cup.

Colour
Colour was assessed directly from the collection cup immediately after collection of each ejaculate. The colour was classified as white to milky white.

Motility
A drop of semen was kept on a clean, dry, pre warmed glass slide and covered with a clean cover slip. The percentage of progressive motile spermatozoa was made by visual evaluation of wet mount preprations under high power of phase contrast microscope. The percentage of spermatozoa with normal vigorous and forward linear motion was subjectively assessed.

Spermatozoal concentration
The concentration of spermatozoa in the sperm rich fraction was assessed separately by Naubauer - haemocytometer (Allen, 1991) [1].

Live and dead spermatozoa
Live and dead spermatozoa was assessed by Nigrosin- Eosin staining technique (Hancock, 1951) [6].

Abnormal spermatozoa
The abnormal spermatozoa percentage was assessed by gently mixing a drop of Nigrosin- Eosin stain and a drop of semen on a warmed microscope slide, smeared, air dried and examined microscopically under oil immersion. Individual spermatozoa were evaluated for abnormalities arising in the head, middle piece and tail. These abnormalities were further classified into major and minor abnormalities. A minimum of 200 spermatozoa were counted and classified.

Results
Out of the 8 dogs screened semen could be collected from only 4 dogs for 6 months period.

Semen Colour
The first and third fraction of semen were clear and watery while the sperm rich fraction varied from white to milky white in colour and remained so for all the dogs in the study.

Semen Volume
The mean semen volume during week 0, week 1, week 2, month 1, month 2, month 3, month 4, month 5, month 6 were 3.17±0.44, 3.50±0.29, 3.77±0.42, 3.87±0.67, 3.20±0.55, 3.17±0.03, 3.53±0.26 and 3.27±0.41 ml respectively.

Sperm concentration
The mean sperm concentration during week 0, week 1, week 2, month 1, month 2, month 3, month 4, month 5, month 6 in the control group was 290.00±5.77, 280.00±0.00, 280.00±11.55, 280.00±10.00, 280.00±13.33, 280.00±11.54, 283.33±3.33, 290.00±5.77 and 280.00±5.77 respectively.

Live and Dead
The mean live sperm percentage during pre treatment, week 1, week 2, month 1, month 2, month 3, month 4, month 5 and month 6 in the control group was 81.33±1.20, 81.66±0.88, 81.00±1.00, 80.33±1.86, 79.67±2.02, 81.60±2.33, 81.66±2.32, 81.66±2.02 and 82.00±1.00 respectively.

Sperm Motility
The mean sperm motility percentage during pre treatment, week 1, week 2, month 1, month 2, month 3, month 4, month 5, and month 6 in the control group was 70.00±0.00, 68.33±3.33, 70.00±2.88, 70.00±2.88, 70.00±2.88, 70.00± 2.88, 71.67±3.33, 71.67±1.66 and 70.00±2.88 respectively.

Sperm Abnormality (Minor): The mean sperm abnormality on pre treatment, week 1, week 2, month 1, month 2, month 3, month 4, month 5 and month 6 were 2.33±0.67, 2.67±0.67, 2.33±0.33, 2.00±0.00, 2.67±0.33, 2.00±0.58, 2.00±0.58, 3.67±0.67 and 2.67±0.88 percent respectively.

Sperm Abnormality (Minor)
The mean sperm abnormality (minor) during pre treatment, week 1, week 2, month 1, month 2, month 3, month 4, month 5 and month 6 in the control group was 3.67±0.30, 3.33±0.67, 3.33±0.88, 3.00±0.57, 3.33±0.33, 2.67±0.67, 2.00±0.57, 2.67±0.88 and 2.67±0.88 percent respectively.

Discussion
Benign prostatic hypertrophy (BPH) is the most common age-related condition in sexually intact male dogs; it was noteworthy that >80% of sexually intact male dogs >5 years of age had gross or microscopic evidence of BPH (Sirinarumitr *et al*) [8].
The colour was classified as white to milky white. Though hematuria is symptom seen in dogs with BPH none the dogs were found to have abnormal colour or presence of blood in the semen. There were no changes in the semen volume, sperm concentration and live and dead count of the sperms. But sperm abnormalities were noted. The minor sperm abnormalities in the present study noticed were where bent tail and looped tails. (plate 2. And 2 A.).

Fig 1: Semen collection using digital manipulation

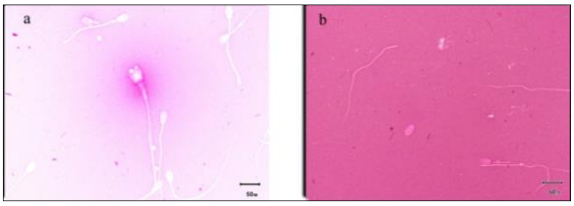

Fig 2: A. Double head (a) and detached head (b). Smear of a sperm rich fraction air dried and stained with eosin - nigrosin (x 100 X)

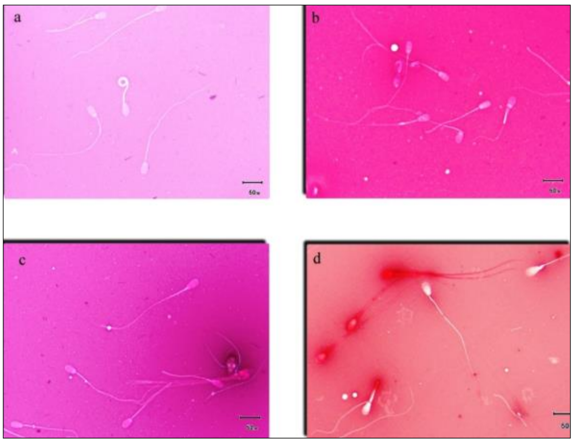

Fig 3: B. Bent tails and coiled tails (a &b), looped tail (c), split tail (d). Smear of a sperm rich fraction air dried and stained with eosin - nigrosin (x 100 X)

Conclusion

The study observed that while benign prostatic hyperplasia (BPH) did not significantly affect semen volume, concentration, or live/dead sperm ratios in dogs, it did lead to an increase in minor sperm abnormalities, particularly bent or looped tails. These changes may be attributed to BPH's impact on the prostate, suggesting that while semen quality remains largely unaffected, structural sperm issues can arise. Further studies are needed to explore long-term effects and potential treatments for BPH-related fertility concerns in dogs.

References

1. Allen WE, Noakes DE, Renton JP. In: Canine Medicine and Therapeutics, 3rd ed. Chandler EA, Thompson DJ, Sutton JB, Price CJ, editors. Blackwell Scientific Publications; c1991. p. 659-666.
2. Bamberg-Thalen B, Forsberg CL. The effects of medroxyprogesterone acetate and ethinylestradiol on hemogram, prostate, testes and semen quality in normal dogs. J Vet Med A. 1992;39:264-270.
3. Barsanti JA, Finco DR. Canine prostatic disease. Vet Clin North Am Small Anim Pract. 1986;16:587-599.
4. Chew DJ. An overview of prostatic disease. Comp Cont Educ Pract Vet. 1997;19:80-85.
5. Gloyna RE, Siiteri PK, Wilson JD. Dihydrotestosterone in prostatic hypertrophy. J Clin Invest. 1970;49:1746-1753.
6. Hancock AE. The physiology of reproduction in the dog. Vet Rec. 1951;61:771-779.
7. Krawiec DR, Heflin D. Study of prostatic disease in dogs: 177 cases (1981-1986). J Am Vet Med Assoc. 1992;200:1119-1122.
8. Sirinarumitr K, Johnston SD, Kustritz MV, Johnston GR, Sarkar DK, Memon MA, *et al*. Effects of finasteride on size of the prostate gland and semen quality in dogs with benign prostatic hypertrophy. J Am Vet Med Assoc. 2001;218:1275-80.