TRANS-ABDOMINAL INTRA-PROSTATIC INJECTION OF ETHANOL AND OXYTETRACYCLINE HCL UNDER ULTRASONOGRAPHIC GUIDANCE AS A NEW APPROACH FOR TREATMENT OF BENIGN PROSTATIC HYPERPLASIA IN DOGS

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INTRODUCTION

- The canine prostate is a well developed musclo-glandular body that compensates the absence of seminal vesicles and bulbo-urethral glands.
- In dogs, it completely encompasses the proximal portion of the male urethra and neck of the bladder (Victoria and Melonei, 2005)
INTRODUCTION

- The most common prostatic diseases are benign prostatic hyperplasia (BPH), intra-prostatic cyst, para-prostatic cysts, prostatic abscess, prostatic calculi, prostatic urethral stricture and neoplasm (Safwat, 1989)

- About 90% of the dogs with prostatic affections were over 4 years of age. Doberman Pinscher was the most common breed with prostate disease (Krawiec and Heflin, 1992)
INTRODUCTION

- BPH is a spontaneous and age-related disorder of intact dogs, which is associated with clinical signs of sanguinous prostatic fluid, constipation and dysuria (Johnston et al, 2000)
- The dog is the only species, along with humans, in which prostatic hypertrophy develops spontaneously and almost universally with age.
- Benign prostatic hyperplasia (BPH) is benign enlargement of the prostate glands that is thought to result from hormonal imbalance.
INTRODUCTION

The occurrence of BPH was studied with different incidence. It was recorded in 87% (Hornbuckle, 1978), 60% (Weaver, 1978), and 80% (Johnston et al, 2000) in all male dogs over 5 years of age.

The following pathophysiologic sequence of prostatic diseases was suggested: prostatic hyperplasia → ductile blockage → prostatic fluid stasis → prostatic cyst formation + infection → prostatitis → prostatic abscess → end-stage prostate disease
INTRODUCTION

Diagnosis of BPH in dogs is based on: case history, clinical signs, abdominal and rectal palpations, laboratory investigations, contrast radiography, ultrasonography and ultrasound guided-needle biopsies. Definitive diagnosis of BPH is frequently based upon histopathologic criteria (Thrall, 2005)
INTRODUCTION

Various treatment modalities were suggested for treatment of BPH in dogs including: Castration and antiandrogen therapy, transurethral microwave thermo-therapy, oral treatment with chlormadinone acetate at 2.0 mg/kg/day/7 days, chemoablation using transurethral intraprostatic absolute ethanol injection (20 mL/animal), oral administration of a new steroidal antiandrogen, osaterone acetate, 5alpha-reductase inhibitor finasteride, transurethral injection (using prostaject device) of ethyl alcohol and intra-glandular injection of ethanol, phenol, polidocanol and oxytetracycline Hcl
AIM OF THE WORK

The aim of the present study is to evaluate a new minimally invasive alternative chemical destruction of prostate in case of BPH by trans-abdominal intra-prostatic injection of absolute ethanol or oxytetracycline Hcl.
**Material and Methods**

- *Animals:* 12 dogs
- *Location:* Surgery clinic at Faculty of Veterinary Medicine, Cairo University.
- *Collecting data:* Full case history, animal description, all clinical signs and all physical, abdominal and rectal examinations' findings.
MATERIAL AND METHODS

Ultrasonographic examination was carried out on each case to confirm the diagnosis of benign prostatic hyperplasia. Toshiba ultrasound device connected with 3.7-5 MHz convex transducer was used. The dogs were tranquilized with xylazine HCl. The prostate could be examined in dorsal recumbency with both sagittal and transverse scans.
MATERIAL AND METHODS

Group I
(5 Dogs)

- Intra-prostatic injected with absolute ethanol (5-10ml) by using the ultrasound guided needle after aspiration of prostatic fluid if present

Group II
(5 Dogs)

- Intra-prostatic injected with oxytetracycline HCl (5-10ml) by using the ultrasound guided needle after aspiration of prostatic fluid if present
MATERIAL AND METHODS

- The treated dogs were followed up every 15 days for 2 months by ultrasound examination.
- Repeated intra-prostatic injections, whenever required, were carried out after one month of the first injection.
- The animals were followed up till 6 months post injection by phone calls for any recurrence of clinical signs.
- All data about each dog were recorded in a special report.
MATERIAL AND METHODS

Two of the affected dogs were excluded from the treatment protocol because they were suffered cauda equina syndrome with paraplegia beside BPH. These animals were euthanized on the request of the owners by using high dose of thiopental sodium given intravenously. Postmortem examination was carried out and the affected prostates were excised
RESULTS

- The age of the dogs ranged between 4-14 years. Rottweiler breed was the most common affected dogs. The affected dogs’ breed were Rottweiler (4), German shepherd (3), Dopperman (3), Griffon (1) and Bull Mastiff (1).

- The most common signs were tenesmus, dysurea, hematuria, anorexia, spontaneous dripping of blood from the penis without urination and constipation.

- On rectal examination, the dogs had enlarged prostates. The abdominal examination revealed distension and pain.
BPH in a 4-year-old German Shepherd dog
ULTRASONOGRAM OF MODERATE DEGREE OF BPH IN A 4-YEAR-OLD GERMAN SHEPHERD DOG SHOWING HOMOGENEOUS, FINE AND SLIGHTLY HYPERECHOIC ECHOTEXTURE WITH SMOOTH HYPERECHOIC CAPSULE
Ultrasonogram of moderate degree of BPH in a 6-year-old German Shepherd Dog showing two intra-prostatic cysts.
ULTRASONGRAM OF SEVERE DEGREE OF BPH IN 10-YEAR-OLD ROTTWEILER DOG.
A) Ultrasoundogram of a 5-year-old German Shepherd dog showing a moderate degree of BPH. 

B) Ultrasoundogram of the same dog after aspiration of the cystic fluid and intra-prostatic injection of absolute ethyle alcohol.
ULTRASONOGRAM OF THE SAME DOG AFTER 45 DAYS OF INTRA-PROSTATIC INJECTION OF ABSOLUTE ALCOHOL SHOWING APPROXIMATELY NORMAL-SIZED AND HYPERECHOIC PROSTATE GLAND
ULTRASONOGRAM OF MODERATE DEGREE OF BPH WITH INTRAPROSTATIC CYST IN A 5-YEAR-OLD GERMAN SHEPHERD DOG
ULTRASONOGRAM OF THE PREVIOUS DOG AFTER 15 DAYS OF INTRA-PROSTATIC INJECTION OF OXYTETRACYCLINE HCl SHOWING DECREASED-SIZED AND HYPERECHOIC PROSTATE GLAND WITH REGRESSION OF THE INTRAPROSTATIC CYST
Ultrasonogram of the same dog in Figure (8) after 3.5 month of intra-prostatic injection of Oxytetracycline HCL showing decreased-sized and hypechoic prostate gland with regression of the intraprostatic cyst.
GROSS APPEARANCE OF BPH: URINARY BLADDER (U.B) AND BILATERALLY SYMMETRICALLY ENLARGED PROSTATE GLAND (PG)
CONCLUSIONS

In conclusion, Trans-abdominal intra-prostatic injection of either oxytetracycline Hcl or ethanol is an easy applicable, safe, quick, cheap, less invasive and effective approach for treatment of canine BPH and consequently in human BPH especially in high risk or sexually active patients after further study.
THANK YOU!