SCLEROTISATION AS AN ADJUNCTIVE METHOD OF RESTRICTIVE PROSTATE CYST TREATMENT IN MALE DOGS - A PRELIMINARY REPORT

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Abstract

The aim of this work was to determine the efficacy of sclerotisation of the prostatic retention cysts by giving a 10% solution of povidone-iodine into their lumen. This procedure was considered as an alternative method for diminishing the enlarged prostate size. Diagnosis of prostatic retention cysts in 4 dogs aged from 7 to 13 years was based on physical examination, including rectal and through abdominal integuments palpation, and on endorectal sonography. Subsequently, the puncture of the solitary cysts was performed under sonographic control. After removing their fluid content, a 10% solution of povidone-iodine was introduced into the cyst lumen. During 3 weeks, the cyst size was gradually diminished and after 5 weeks, no cysts were found under sonographic control. No recurrences were noticed during 6 months of observation. Sclerotherapy appeared to be a minimally invasive technique for prostatic cysts treatment, and can be considered as non-invasive technique, and hence can be recommended to clinical practice.

Key words: dog, prostate, retention cyst treatment, povidone-iodine.

Prostatic retention cysts originate mainly from the retention of glandular secretion. They are mostly found in large breed dogs, predominantly in boxers. The frequency of the cysts in dogs varies among authors. According to the selected opinion, their frequency in male dogs amounts 2.6%-5.3% (4, 8). Their characteristic features found during sonographic examination are as follows: smoothness, thinness, and laxity of walls, oval or circular shape, increased transparency for ultrasound waves, and acoustic enhancement in the far field. Their walls are marginated and shadows of inner echoes are absent. (5).

An iodinated compound is introduced into the cyst according to the procedure used in the treatment of chronic insufficiency states: diseases of arteries and veins (5), kidneys (1), liver (7), and prostate cysts (1, 6). Such a procedure consists of local injection of a drug into the lumen of the cyst in order to induce an inflammatory reaction. Among selected substances used for the purposes mentioned are: povidone-iodine, ethyl alcohol, glucose, bismuth phosphate, and polidocanol (1, 2). In our study, we try to induce the sclerotic reaction in the wall of the prostatic retention cysts with iodine compound.

Material and Methods

Four dogs were included into the treatment of prostatic retention cysts, which was performed as a prospective study during 2006. Diagnostic procedures were done in order to exclude the infectious or neoplastic aetiology of all cysts and to confirm their homogenous character. Criteria included were in accordance to the results obtained by the examinations performed. First, the dogs were examined clinically. Dogs with diagnosed retention cysts (diameter bigger than 2.0 cm) were included into the study. Sonographic examination and thin needle aspiration biopsy (TNAB) were performed using ultrasound scanner (Logison 860, PI), microconvex probes 3.5/5/7.5 MHz, and transvaginal probe 3.5/5/7.5 MHz. For TNAB, Westcott Biopsy Needles (G.B) were used. In order to avoid
amplifications of echo and reverberations that might have disturbed image during needle insertion, the urethra was not catheterised during biopsy procedure. The biopsy procedure was well tolerated by all 4 animals. Dogs B, C, and D simultaneously treated against benign prostate hypertrophy (BPH) with megestrol acetate (Megace, Bristol-Meyers Squibb, USA) at the daily oral dose of 55 mg/kg of b.w. for four weeks.

Case A. A 7-year-old Boxer dog, weighing 30 kg. The dog was admitted due to prostate treatment for the second time. Two months earlier, BPH with retention cysts was diagnosed. The dog was castrated and 5 mg/kg of b.w. of enrofloxacin (Enrobioflox, Vetoquinol, Poland) was given for 5 d. Clinical improvement was mediocre. However, difficulties in defecation and urination persisted. The temperature was 38.4ºC, WBC - 6.2 (10³/µL), RBC - 7.02 (10³/µL), Hb - 17.6 g/L, and Ht - 50.4%. Symmetrical prostate enlargement was painless during rectal examination. Radiographic examination revealed cephalad displacement of the urinary bladder and the enlargement of the prostate with dorsal dislocation of the rectum (Fig.1). During sonographic examination the size of homogenous parenchyma of prostate was 7.52 x 5.43 cm and the cyst size was 3.48 x 3.52 cm.

![Fig. 1. Dog A; the radiographic view: u b – urinary bladder, p – prostate gland, r- rectum.](image)

Under USG control, a transcutaneous TNAB of the prostate parenchyma was performed in order to collect material for bacteriological and histological examination. Microbiological culture showed the bacterial count less than 100 000/L. Histopathology (HE staining) revealed mainly parenchyma cells, small amount of prostatic epithelial cells with no atypical cells (benign prostate hypertrophy-BPH). After aspiration of 5.5 cm³ of serous liquid, i.e. the whole content of cyst, its cavity was flushed with 0.9% NaCl. Then 1.5 ml (1/3 of the cyst volume) of a 10% povidone-iodine was applied into the cyst lumen.

Case B. An English Bulldog 10-year-old, weighing 28 kg. The dog manifested haematuria, coprostasis, and painful defecation with strong vocalisation. Body temperature was 38ºC, WBC - 7.8 (10³/µL), RBC - 6.15 (10³/µL), Hb - 15.8 g/L, and Ht - 45.4%. Rectal examination disclosed symmetrical, painless prostatic gland. Cephalad displacement of the urinary bladder, and rectum by prostate compression were observed in radiographic examination. USG examination revealed cyst, and its size was 2.28 x 1.85 cm. TNBA under USG control allowed to collect samples from prostate parenchyma for bacteriological culture (bacterial count was less than 100 000/L) and histopathological evaluation (HE staining). No atypical cells were observed in the prostate. BPH was demonstrated in histological examination. Following this, the serous content of the cyst was aspirated (3.5 cm³). Then flushing with 0.9% NaCl and injection into the cyst of 0.8 ml (1/3 of cyst volume) of a 10% povidone-iodine ended the procedure.

Case C. A 13-year-old Boxer dog, weighing 35 kg. The dog showed recurrent intermittent hind limb lameness. Coprostasis and problems with urination completed clinical symptoms. Body temperature - 38.6ºC, WBC - 9.7 (10³/µL), RBC - 8.25 (10³/µL), Hb - 16.0 g/L, and Ht - 48% were recorded as admissible. Rectal examination exhibited a painless enlargement of the prostate gland. Radiographic examination showed a cephalad displacement of the urinary bladder and the compression of the rectum by the gland. Homogenous parenchyma of the gland was 4.5 x 7.2 cm and with cyst - 1.04 x 1.32 cm in diameter as found during USG examination. Bacterial count in microbiological samples taken from parenchyma was less than 100 000/L; and in histopathological sections, the prevalence of parenchymal cells over epithelial ones and lack of atypical cells was observed. As a next step, the serous cyst fluid (2 cm³) was removed and the cyst lumen was flushed with 0.9% NaCl. Partial (1/3) filling of the cyst with a 10% of povidone-iodine completed the procedure.

Case D. Great Dane 11-year-old, weighing 48 kg. Coprostasis and difficulties in defecation, stranguria with haematuria, and haemospermia completed clinical information. Body temperature was 38.8ºC, WBC - 9.8 (10³/µL), RBC - 8.15 (10³/µL), Hb - 18.8g/L, and Ht - 47.8%. Symmetrical painless enlargement of the prostate gland was found during rectal examination. Radiographic examination showed cephalad displacement of the urinary bladder and prostate compressing the rectum. Sonographic image showed enlarged homogeneous gland parenchyma (8.8 x 13.8 cm), one cyst (1.89 x 2.1 cm) and three other ones with their diameters less than 1.50 x 1.50 cm. During transcutaneous sonographic examination, TNAB sample was taken from the gland parenchyma. Bacteriological examination showed a bacterial count of less than 100 000/L. Histopathological analysis demonstrated mainly parenchyma cells, small amount of epithelial cells, and lack of atypical cells (BPH). A serous fluid (3.5 cm³) was taken from the largest cyst. The lavage with 0.9% NaCl done and after that the injection into the cyst of 1.0 ml (1/3 of cyst volume) of 10% povidone-iodine was performed.

Diagnostic and therapeutic procedures were performed with premedication using atropine sulphate.
Atropinum sulfuricum; W.Z.F. Polfa, Poland) - 0.05 mg/kg of b.w. subcutaneously, acepromazine (Sedalin; Vetoqinol, F) - 0.5 mg/kg of b.w. intramuscularly, and 2.0% dexamethasone (Eurovet Animal Health B.V.) - 1-2 ml/dog intramuscularly. General anaesthesia was induced with xylazine (Rometar; SPOFA, Czech Republic) at a dose of 2 mg/kg of b.w. intramuscularly and ketamine (Narkamon SPOFA; CZ) at dose of 5 mg/kg of b.w. intramuscularly and maintained with halothane (Narcotan; Lečiva, Czech Republic) administered via a semi-closed system.

Results

During the treatment, no complications expressed by subfebrile body temperature were noted in dogs A and C. Increased erythrocyte sedimentation time rate, increase in WBC count to 18 (10³/µL), and temperature to 40°C were registered in the dog D. This dog was given Enrofloxacin. There were no complications in the later period. Clinical symptoms abated by the end of antibiotic treatment. Dog B revealed haematuria that stopped spontaneously by day 7.

Ultrasoundographic checkout was done once a week. Gradual decrease in cyst volume was registered 3–4 weeks after the procedure (Fig. 2).

Fig. 2. Dog B; l p – lobe of prostate, r c – retention cyst (sagittal plane).

Instead of increased echoes of parenchyma, there were noticed expected scar formations. After 6 months of observation, no recurrences were noted in all 4 dogs. Due to owners’ apprehension about possible recurrences, the dogs B, C, and D were castrated 6 months later.

Discussion

In all 4 treated dogs during USG tests, all ultrasonographical features of retention cysts associated with benign prostatic hypertrophy were displayed. Additional examinations, such as histopathological, cytological, and bacteriological analyses excluded abscess formation or neoplastic process in the prostate.

All data collected indicated a little possibility of spontaneous atrophy of retention cysts. Usually, they tend to enlarge gradually, that was ascertained in other cases observed in our study. Restricting therapy of prostatic retention cysts through the castration and antibiotic therapy not always deliver satisfactory results. Dog A served as a supporting example. In practice, there is need for another treatment modalities and necessity of monitoring due to the fact that the majority of cysts may develop into abscesses and other complications described in the introduction.

Surgical treatment, such as prostate marsupialisation and omentisation are invasive procedures with the possibility of problems during intra- and postoperative period (3). In our opinion, they should be reserved for the treatment of prostate abscesses. Our own observations are similar to Boland et al. (2) results. Dogs with paraprostatic cysts abscessation were excluded from the study.

Therapy used in our study consisted of one sonography-guided aspiration of its entire content, flushing with 0.9% NaCl, and injection into the cyst lumen of 10% solution of povidone-iodine. The volume of the agent injected was chosen as 1/3 of the volume of fluid aspirated in order not to expand the cysts. During control examinations, a gradual decrease in cysts size was registered 3–4 weeks after the application of the povidone-iodine. By 5 weeks, no cysts were found by the USG examination. The follow-up period without cystic reoccurrences was 6 months. It is worth noting that the sclerotisation by applying 10% povidone-iodine into the lumen of prostatic retention cysts was relatively simple, safe, and effective.

After five weeks, no cysts were found during USG examination (Fig. 3).

Fig. 3. Dog C; l p – left lobe of prostate. Sagittal plane.

References


