ISSN: 1220-3173; E-ISSN: 2457-7618

THERAPEUTIC MANAGEMENT IN BENIGN PROSTATIC HYPERTROPHY ASSOCIATED WITH PERIANAL HERNIA IN DOGS - CASE STUDY

MANAGEMENTUL TERAPEUTIC ÎN HIPERTROFIA BENIGNĂ A PROSTATEI ASOCIATĂ CU HERNIA PERIANALĂ LA CÂINE - STUDIU DE CAZ

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ABSTRACT

The association between perianal hernia and benign prostatic hypertrophy is commonly found in intact male dogs aged over 5 years. Conservative drug therapy such as osaterone acetate is recommended when the genetic value of reproduction, age or overlapping conditions do not allow surgery.

This case analyses the evolution of a dog diagnosed with benign prostatic hypertrophy associated with bilateral perianal hernia, which initially followed a conservative treatment to maintain its reproductive function, and later due to recurrence of symptoms surgery was required. This case study highlights the limited therapeutic efficacy of drug treatment compared to surgical treatment.

Keywords: benign prostatic hypertrophy, perianal hernia, osaterone acetate, steroidal antiandrogens

REZUMAT

Asocierea herniei perianale cu hipertrofia benignă a prostatei este frecvent întâlnită la câinii masculi necastrați cu vârsta mai mare de 5 ani. Terapia conservatoare cu medicamente de tipul osateronului acetat este recomandată atunci când valoarea genetică de reproducție, vârsta sau afecțiunile suprapuse nu permit intervenția chirurgicală.

Acest caz analizează evoluția unui câine diagnosticat cu hipertrofie benignă a prostatei asociată cu hernia perianală bilaterală, care inițial a urmat un tratament conservativ pentru a-și păstra funcția reproductivă, urmând ca ulterior datorită recidivării simptomatologiei să se recurgă la intervenția chirurgicală. Acest studiu de caz evidențiază eficacitatea terapeutică limitată a tratamentului medicamentos comparativ cu tratamentul chirurgical.

Cuvinte cheie: hipertrofia benignă a prostatei, hernia perianală, osateron acetat, steroizi antiandrogenici

Perineal hernia occurs when the muscles of the pelvic diaphragm fail to support the rectal wall, thus appearing the persistence of rectal stasis and defective defecation. The cause of pelvic diaphragm damage is incompletely defined, but is believed to be associated with sex hormones and congenital or acquired muscle weakness. The pelvic diaphragm is stronger in female dogs than in males. Pelvic diaphragm atrophy, possibly of neurological origin, has also been reported. Any situation that causes an increase in intrapelvic pressure can accentuate the rupture of the pelvic diaphragm (1, 3).

Perianal hernia can be unilateral or bilateral. Most herniations occur between the levator ani, external anal sphincter and internal obturator muscles. There are also hernias between the sacrotuberous ligament and the coccygeus muscles (sciatic hernia), the levator ani and ischiourethralis muscles, bulbocavernosus and ischiocavernosus muscles (ventral hernia) (2, 9). The hernial contents are surrounded by a thin layer of perineal fascia (hernial sac), subcutaneous tissue and skin. The hernial sac may contain pelvic or retroperitoneal adipose tissue, serous fluid, deviated or dilated rectum, a rectal diverticulum, prostate, bladder, or small intestine. Usually in cats, only the rectum is found in the hernial sac (7, 9).

Perineal hernias are more common in dogs than in cats. They occur almost exclusively in intact male dogs (93%). Perineal hernias in females are often linked to trauma. Dogs with short tails may be predisposed to herniation. The most commonly affected are the Boston Terrier, Boxer, Pekingese, Collie, Dachshund breeds. Most perineal hernias occur in dogs over 5 years of age. The average age is about 10 years (2, 3, 8).

The main indication for this condition is surgery, taking into account the whole symptomatic picture, the overlapping conditions, the content of the hernial sac, the size of the prostate (3, 5).

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MATERIAL AND METHODS

Case presentation

A 7 years old, Jack Russel Terrier, was brought to the clinic for examination because the owner noticed that the dog had difficulties in defecating. The dog has Pedigree and it was used for breeding. The clinical examination showed a good general condition, the patient was normothermic with normal sensitivity to transabdominal palpation. Rectal examination was also performed, which showed an increase in the volume of the prostate and the presence of a rectal diverticulum on the right side.

In order to establish a diagnosis and the therapeutic management, it was decided to perform a set of paraclinical investigations. Blood tests were performed - biochemistry and haematology, urine sediment and summary examination, urine culture, abdominal ultrasound and ultrasound-guided puncture of the prostate, abdominal radiography.

Blood samples were collected and used for biochemical and haematological analysis. Biochemical analysis was performed with Spotchem SP-4430 (Arkray, Japan) and haematological tests were performed with BC-2800 vet (Mindray, China). Abdominal ultrasound was performed with M5vet (Mindray, China). The prostate puncture was performed and the sample was sent to a partner veterinary laboratory. Also, radiographs and urine samples were performed at a partner diagnostic veterinary center.

RESULTS AND DISCUSSIONS

By correlating the results of paraclinical investigations, the dog was diagnosed with benign prostatic hypertrophy, urinary tract infection and bilateral perianal hernia.

Biochemical and haematological analysis revealed normal levels (Tables 1 and 2).

Urine summary evaluation showed: increased specific urinary density, pH 8 and proteinuria. *Staphylococcus pseudintermedius* colonies (> 100,000 cfu / mL of urine) developed on culture media. After performing the antibiogram, it was found that *Staphylococcus pseudintermedius* is sensitive to: amoxicillin + clavulanic acid, cephalexin, cefazolin, cefoxitin, imipenem, trimethoprim + sulfamethoxazole, enrofloxacin, marbofloxacin, oxytetracycline, cephalothin, and it is resistant to ampicillin, chloramphenicol, erythromycin, tetracycline, penicillin.

The abdominal ultrasound showed a prostate with a homogeneous structure, slightly hyperechoic, regular contour, with the size of 34.3 mm / 43.4 mm. After examination of the sample collected by ultrasound-guided puncture, cellularity specific to benign prostatic hypertrophy was identified (Fig. 1) (6).

Table 1

Biochemical analysis of the presented case

Parameters	Result	Reference value	Unit of measurement
GLU	81.46	77 – 119	mg/dL
ALT	54	17 – 100	UI/L
TP	6.2	5.3 – 7.2	g/dL
Crea	0.54	0.5 – 1.6	mg/dL
ALKP	28.87	5 - 141	UI/L

GLU: Glucose, ALT: Alanine aminotransferase, TP: Total protein, CRE: Creatinine, ALKP: Alkaline Phosphatase

Table 2

Haematological analysis of the presented case

Parameters	Result	Reference value	Unit of measurement
WBC	8.72	5.2 – 13.9	K/L
RBC	7.93	5.7 – 8.8	M/L
HGB	17.6	12.9 – 18.4	g/dL
HCT	53.2	37.1 - 58	%
MCV	67.1	60 – 76	fL
MCH	22.3	20.5 – 24.2	pg
MCHC	33.2	31 – 36.2	g/dL
RDW	15.2	10.6 – 14.5	%
PLT	404	186 – 545	K/L
MPV	11.1	7 – 14.1	fL

WBC: white blood cell, RBC: red blood cell, HGB: haemoglobin, HCT: haematocrit, MCV: mean corpuscular volume, MCH: mean corpuscular haemoglobin, MCHC: mean corpuscular haemoglobin concentration, RDW: red cell distribution width, PLT: platelet, MPV: mean platelet volume

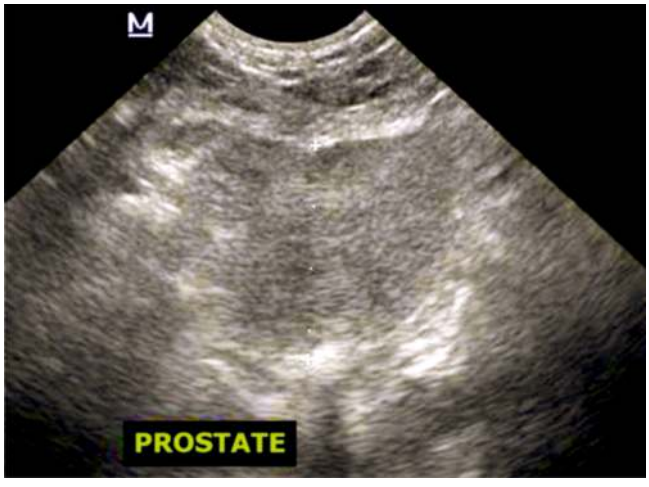

Fig. 1. Transabdominal ultrasound image of the prostate of the presented case indicating benign prostatic hypertrophy. The prostate is symmetrically enlarged and normoechoic to slightly hyperechoic

Following the radiological examination, it was observed the partial prolapse of the prostate in the pelvic duct and that the pelvis and the spine had normal conformation (Fig. 2).

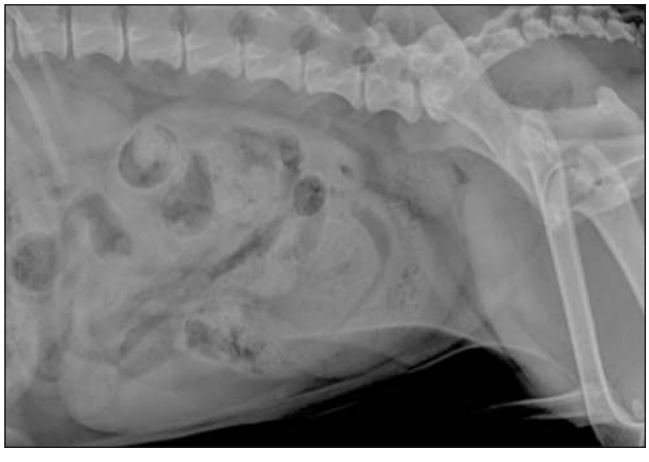

Fig. 2. Left lateral abdominal radiographs of the presented case indicating the partial prolapse of the prostate in the pelvic duct and the ventral deviation of the urinary bladder

Taking into account the high genetic value of the patient, it was established the initiation of the conservative therapeutic management and the postponement of the orchidectomy operation. The purpose of the treatment was: to decrease in prostate size, the remission of urinary tract infection, ensuring a normal intestinal transit, and the prevention of constipation.

The treatment consisted in the administration of the Osateron acetate (Ypozane), at a dose of 0.5 mg / kg / day for 7 days. Osateron acetate is a steroid chemically related to progesterone and has a strong progestogenic and antiandrogenic action.

It inhibits the effects of excess male hormones (testosterone) through various mechanisms: it prevents androgens from binding to their prostate receptors and blocks the transport of testosterone into the prostate. No adverse effects on sperm quality were observed (4, 10). In order to obtain the remission of urinary tract infection, Enrofloxacin was administered at a dose of 5 mg /kg, twice per day for 21 days. It was recommended to take one teaspoon of Laxavet twice per day and Florentero probiotics 1 per day. A diet rich in soluble and insoluble fibre, prebiotics and probiotics has also been recommended.

Given the complications that can occur in the case of perineal hernia, surgery was recommended to correct muscle defects. General anaesthesia was performed with midazolam 0.2 mg / kg IM, butorphanol 0.15 mg / kg IM + ketamine 10 mg / kg IV.

The surgical approach was performed as follows: a curvilinear incision was made starting from the cranial to the coccygeal muscles, curving over the hernia sac 2 cm laterally to the anus and extending up to 2-3 cm ventrally on the pelvic floor. The hernial contents were identified and reduced by subcutaneous dissection (Fig. 3) (7).

Fig. 3. Intraoperative aspect of hernial sac, weakening of the fascia and muscles of the perineum

The muscles involved in the hernia, the internal pudendal artery and vein, the pudendal nerve, the caudal rectal vessels and the sacrotuberous nerve and ligament were identified. The suture with non-absorbable 2/0 monofilament thread was started between the external sphincter and the levator years, and the coccygeal muscles. The sutures were placed at a distance of 1 cm. Sutures were made in the ventral area between the external anal sphincter and the internal obturator muscle. Blood vessels and nerves have been carefully identified to prevent trauma to these structures. The subcutaneous connective tissue was sutured in continuous thread with 3-0 absorbable monofilament thread and for the skin suture was used 2/0 non-absorbable monofilament thread (Fig. 4).

Fig. 4. Surgical repair of perineal hernia

Postoperatively, analgesics such as Butorphanol were administered at a dose of 0.1 mg / kg for 5 days to minimize exertion and rectal prolapse. Cold compresses were applied immediately after surgery and two to three times a day for 15-20 minutes for the first 48-72 hours to reduce bleeding and inflammation. Enrofloxacin antibiotic therapy was also continued.

The postoperative evolution was favourable, there were no complications and two weeks after the surgery, the wires were removed, and the first ultrasound check was performed. Following the ultrasound examination, no significant changes were observed compared to the examination prior to the start of treatment. At the one-month control, the urine analysis was repeated, and it revealed a sterile urine and in normal biochemical parameters. The ultrasound examination showed a discrete decrease of the prostate size (Fig. 5).

Fig. 5. Transabdominal ultrasound image of the prostate of the presented case

After three months, the owner returned to the clinic, signalling that the defecation difficulties had reappeared. On ultrasound examination of the prostate, the persistence of prostate hypertrophy was detected, and it was decided to perform an orchidectomy (Fig. 6).

Fig. 6. The orchidectomy of the presented case

In approaching the case we had to take into account the genetic value of the patient. The established treatment procedures aimed at reducing the clinical manifestations but also at preserving the reproductive function. Antiandrogenic therapy, antibiotic therapy for treating urinary tract infection, laxatives for maintaining optimal intestinal transit were instituted. Given the discomfort and complications that can cause perianal hernias, it was decided to reduce them by surgery. Due to the inefficient response to antiandrogenic medication and to ensure an optimal quality of life of the patient, surgical sterilization was resorted to.

CONCLUSIONS

The case study was performed on a patient with benign prostatic hypertrophy and the treatment of the disease initially followed a conservative procedure in order to preserve reproductive function. Specific antiandrogenic medication supplemented with adjuvant medication was administered to correct collateral clinical signs and it was performed surgery to reduce perineal hernias. Clinical signs have relapsed, proving that conservative therapy is ineffective for a long term, which is why surgical sterilization has been used. Thus far, orchidectomy has been shown to be the most effective treatment for reducing prostate size in patients diagnosed with benign prostatic hypertrophy, drug treatment being effective only for a limited period of time.

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