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## **Research Article**

## TREATMENT OF BLADDER UROLITHS IN A DOG BY INJECTABLE HOMEOPATHY

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#### **ABSTRACT**

The occurrence of stones in the renal system in small animals is a frequent problem that impairs the quality of life of patients. It becomes recurrent in many cases, especially if there is a concomitant racial pattern, sedentary lifestyle, and/or inadequate diets. Diagnosis is performed in routine exams or, mostly, with the exacerbation of clinical signs. These signs may vary from simple cystitis, obstruction of the ureters or urethra with urine dripping, to extreme pain conditions. Conventional treatment should be carried out along with changes in routine associated with the administration of specific medicines, depending on the material of origin of the stones, and even with the performance of surgical procedures for uroliths removal. However, this disease can be addressed by complementary therapies, such as homeopathy, which aims to balance the vital energy and uses medicines of plant, animal, and mineral origins that are better indicated for each patient and their particularities. This study aimed to report the treatment of urolithiasis in a dog using homeopathy in Veterinary Medicine. The patient was diagnosed with partial obstruction of the urethra and was treated with the injectable homeopathic medicines Silicea terra, Cantharis vesicatoria, and Ruta graveolens, associated with the oral administration of Arsenicum album. After a 60-day treatment period, the animal no longer presented stones in the urethra or bladder, returning to its normal function.

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#### **INTRODUCTION**

Canine and feline urolithiasis is one of the main causes of urinary stones formation, occurring from the renal pelvis to the urethra. The mutation that causes cystinuria, and consequently urolith, and the inheritance mode were determined in several dog breeds. These features make cystinuria challenging to control and traditional treatment ineffective<sup>1</sup>. The formed stones change the physiology of the urinary tract, varying according to its composition<sup>2</sup>. Due to the low solubility of cystine in urine with a pH < 7.0, and because typical dog urine has a pH range of 5.5 to 7.5, there is a high risk of stone formation throughout life<sup>3</sup>. The relative occurrence of cystine stones in dogs varies depending on the country of origin. Stone formation is considered a relatively common finding among these species, and the treatment basically includes evaluating and removing any urethral and bladder obstruction when necessary. The procedure includes passing a small-caliber catheter and dislocating the stone by retro-hydropropulsion or cystocentesis<sup>4</sup>.

Surgical treatment is indicated for removing stones when the conservative treatment mentioned above and dietary management associated with the administration of

nutraceuticals are not effective. However, surgery is an invasive procedure and includes disadvantages such as anesthesia, surgical complications, the possibility of incomplete removal of uroliths, and the persistence of the primary cause predisposing to stone formation<sup>4</sup>. There are additional problems that may occur, such as decreased urine storage capacity by the urinary vesicle as a result of successive procedures and scars on the epithelium of this organ; the possibility of stenosis and predisposition to new obstructions when urethrostomy is performed; and also to predispose the patient to a permanent incontinent state. Surgical treatment should be considered when anatomical abnormalities are present, if drug dissolution is not possible, when there is a need to culture the urinary tract mucosa, or when stoned are large enough to cause urethral obstruction<sup>4,5</sup>.

Given the possible sequelae of cystotomy and urethrostomy procedures, integrative/alternative treatments must be considered, observing the general state of the animal and the pathology stage, whether partial or total, thus determining its urgency<sup>6</sup>. In partial obstruction, complementary treatments should be considered, such as homeopathic treatments, regardless of the stone composition.

Homeopathy was announced by the German physician Samuel Hahnemann, in 1796, as an alternative to conventional treatments to better conduct a real cure for various diseases. Since then, several cases have been reported of clinical improvement and cure of various diseases that affect patients. Therefore, Homeopathy is an option for treating urolithiasis in various animal species.

This study aimed to report the treatment of urethral obstruction and subsequent bladder stones in an elderly dog using oral and injectable homeopathy, demonstrating immediate clinical improvement.

#### **Experimental Section**

An 11-year-old Jack Russel, male, not neutered, and weighing 7.9 Kg, was seen at NaturalPet Veterinary Clinic, in Brasilia, Brazil, on August/2021 with a history of urinary incontinence with a stimulus of constant urination. On the physical examination, the patient was very anxious, fearful, reactive to the slightest stimulus, and presented mild urinary incontinence. The animal presented normal colored mucosa, TPC 2", heart and respiratory rate within the expected range for age and species. The pulse was steady, rapid, and threadlike, and Temperature 38°C. Discomfort on abdominal palpation at the height of the prostatic urethra and bladder were observed, and blood was collected for complete blood count and biochemical measurements. Moreover, a large amount of urinary sediment was visualized in the patient's bladder in the US images.

The animal was previously treated by another colleague in a conventional clinic and diagnosed, after abdominal ultrasound (US), with partial obstruction of the urethra. Figure 1A shows the bladder with adequate fluid repletion, usual shape, thickened and hypoechoic walls measuring 0.43 cm thick, irregular inner margins, and anechogenic and heterogeneous content with fine echogenic debris in suspension. Penile urethra (Figure 1B) with a thickened and irregular wall, presence of hyperechogenic and heterogeneous structures forming a posterior acoustic shadow and measuring between 0.26 cm in length and 0.25 cm in height, and others measuring 0.33 x 0.30 cm (Figure 1C) in the topography of the urethral lumen with partial obstruction. Furthermore, a single splenic nodule (Figure 1D) was observed measuring between 0.18 cm in length and 0.27 cm in height and did not show vascular pattern at color Doppler mapping. Hilar and intrasplenic region vascular architecture preserved in terms of caliber and path of vessels. In conclusion, Cystitis/Crystalluria/Sedimentation was visualized. Urethritis/Penile urethra had obstructive debris. An immediate urethrostomy was indicated after the imaging exam (US) for urethral unblocking. However, this problem had already occurred six months before, but the stone remained in the bladder, which was then removed by cystotomy. The pet ownerthen refused to perform the procedure due to possible post-operatory urethral stenosis. Besides, it was a recurrent problem given that the animal had previously undergone a procedure for stone removal with no success since the animal was in the same condition as before six months after the procedure.

Therefore, the pet ownersought the Complementary Medicine service at Naturalpet Clinic, searching for palliative treatment for this pathology. The therapy was started right after the physical examination. The treatment was immediately started

with the intravenous administration of Silicea terra D35, Ruta graveolens D35, associated with Cantharis vesicatoria, 1mL of each ampoule. The same medications were prescribed to be subcutaneously administered by the dog owner, one ampoule per day, as follows: Day 1 - S. terra; Day 2 - R. graveolens; Day 3 - C. vesicatoria, for 30 days. Additionally, Arsenicum album 30CH, 30 mL, 5% alcohol, three drops once a day for 30 days, was prescribed as a background medicine. After 30 days of treatment, the animal underwent another abdominal US, and medication was prescribed on alternate days, subcutaneously, as follows: Day 1 - S. terra; Day 2 - nothing was applied; Day 4 - R. graveolens; Day 5 - nothing was applied; Day 6 - C. vesicatoria and so on, for 30 days. After this period (60 days of treatment), the patient underwent an additional evaluation by abdominal US, and the same medications were prescribed only three times a week, subcutaneously, as follows: Monday, Wednesday, and Friday, application of one ampoule of each of the medications S. terra, R. graveolens, and C. vesicatoria, associated in the same syringe for another 30 days.

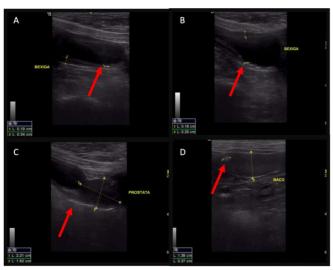


Figure 1 A) Increased bladder wall thickness. B) Presence of stones in the prostatic urethra. C) Dimension of stones present in the urethra. D) Presence of splenic nodule with increased density.

#### RESULTS AND DISCUSSION

The blood count of the sample collected on the first day the patient visited the clinic was within the expected normal range for the animal's age and species. The following biochemical dosages were verified: Creatinine - 1.21mg/dL; ALT - 125 U/L; Alkaline phosphatase - 92 U/L; Phosphorus - 4.96 mg/dL; Potassium - 4.45 mmoL/L; Urea - 43 mg/dL. After 30 days from treatment initiation, the animal improved in clinical condition. According to the dog owner, the frequency of urinary incontinence was reduced to one to two times a day, in contrast to the behavior observed prior to treatment initiation, characterized by frequent incontinence. The US images showed a thin-walled bladder (Figures 2A and B) of 0.29 cm thick. However, the bladder was not completely full. It also had anechogenic content in the lumen with some hyperechogenic punctiform images deposited in the dependent region, which could be related to crystals. Two small hyperechogenic structures measuring 0.18 cm and 0.19 cm and some sediments were also visualized, but there was no material along the urethra. The prostate (Figure 2C) had regular contours, reduced

dimensions (2.21 cm long x 1.62 cm high), hypoechoic parenchyma, and homogeneous texture. The spleen (Figure 2D) showed normal dimensions, regular contours, parenchyma with homogeneous texture and preserved echogenicity, presenting a rounded hyperechogenic image with homogeneous texture, defined margins, and measuring 0.37 cm.



**Figure 2**A) Increased bladder wall thickness. Red arrow indicates the presence of stone. B) Presence of stones in the bladder. C) Visualization of the prostate within the normal range. D) Presence of increased density splenic nodule.

After 60 days of treatment initiation, the animal no longer had signs of urinary incontinence, returning to his usual behavior. An additional abdominal US was performed, showing a thin-walled bladder (Figure 3A) with thickness ranging between 0.19 cm and 0.22 cm, and anechogenic content in the lumen. No images suggested the presence of stones in the urinary vesicle and throughout the urethra. The spleen (Figure 3B) showed normal dimensions, regular contours, parenchyma with homogeneous texture and preserved echogenicity, presenting a rounded hyperechogenic image with homogeneous texture, defined margins, and measuring 0.33 cm.

Urolithiasis is a common and recurrent problem in dogs<sup>7</sup>. The occurrence of total or partial urethral obstruction in dogs is considered a surgical emergency. Depending on the case, surgery is needed for the immediate urethral unblocking since it can lead to severe consequences for patients. In the situation reported in this study, the animal was still presenting urinary incontinence, which allowed attempting a conservative treatment for the patient. The acquired knowledge of urolithiasis is complex and multifaceted. However, disease eradication is among the highest possible challenges, as it requires a complete review of all factors responsible for stone formation<sup>8</sup>.



Figure 3 A) Normal bladder wall thickness, absence of stones. B) Presence of splenic nodule with increased density.

In this context, Veterinary Homeopathy becomes an important therapy for controlling this disease. This therapy has been advancing by leaps and bounds in the scope of Veterinary Medicine in the last five years. This improvement has been specially noticed after the popularization of the injectable pharmaceutical form, which provides a speed of action associated with greater effectiveness against the various diseases to be treated. According to Valle and Carvalho<sup>9</sup>, the injectable homeopathic treatment comprises a more effective pharmaceutical form than the traditional form previously prescribed by most homeopaths. In addition to being more effective, pet owners report that the injectable form is more practical as they only need to administer it once a day. Also, the prescribers have the guarantee that their patient will be effectively medicated. Therefore, this is the best pharmaceutical formto be used in the veterinary homeopathic practice.

Corroborating Coelho et al. 10, homeopathy is based on the law of similars, and it has been used to treat urolithiasis. Thus, the medicines used in this case were chosen based on the degree of similarity and the French Homeopathy precepts. Ruta graveolensas well as various homeopathic medicines havea vast sphere of action<sup>11,12</sup>. It was used in this patient to promote muscle relaxation, causing the opening of the urethra to facilitate the passage of stones. Silicea terra is considered a polychrestmedicine in the Homeopathic Materia Medica and is known for its draining activity. It was administered to the patient using an ultra-diluted form and based on the similarity method, aiming to stimulate the biological functions and lead to a favorable response in disease control. Cantharis vesicatoria is indicated for the renal environment and acts in the epithelial cells, especially in the bladder<sup>13</sup>. Arsenicum album was also prescribed since it is a medicine indicated for the patient's pathogenesis.

The patient showed clinical improvement in the first week of treatment. After 30 days of treatment, an abdominal US was performed. The images showed no stones along the urethra. Two small stones were seen inside the bladder in addition to a nodule in the spleen suggestive of calcification due to its image. The animal was treated with the same medications for another 30 days, totaling 60 days of treatment. At the end of this period, another abdominal US was performed, showing no sediment or stone in the bladder. Therefore, the patient had full resolution of the initial problem within 60 days of homeopathic treatment. Regardless of the type of stone, which was not researched in this case, the homeopathic therapy was effective in its purpose, improved the patient's quality of life, prevented any invasive procedure, and showed complete disease resolution.

## CONCLUSION

In the case reported here, the homeopathic therapy used had a critical and favorable response, with no side effects or recurrences up to the present time, no need for invasive procedures, and no discomfort to the patient. Further studies are necessary to confirm these results.

#### **Declaration of Conflict of Interest**

The authors declare no conflict of interest in the present study.

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