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**N Gurunathan**
Assistant Professor, Department of Veterinary Surgery & Radiology, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, Tamil Nadu, India

**S Tina Roshini**
Assistant Professor, Department of Veterinary Surgery & Radiology, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, Tamil Nadu, India

**N Arul Jothi**
Professor & Head, Department of Veterinary Surgery & Radiology, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, Tamil Nadu, India

**Corresponding Author:**
**N Gurunathan**
Assistant Professor, Department of Veterinary Surgery & Radiology, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, Tamil Nadu, India

# Successful surgical treatment and management of urolithiasis in six dogs with herbal supportives *Aerva lanata* (Sirukann Pillai) and Neeri syrup - a clinical study

**N Gurunathan, S Tina Roshini and N Arul Jothi**

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**Abstract**
Urolithiasis is a common UT condition reported in canine patients. In the present study, six dogs with cystic calculi (4 male and 2 female dogs) were reported to the Department of Veterinary Surgery & Radiology, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, with clinical signs of blood mixed urine, difficulty in urination and general dullness. Biochemistry parameters showed a mild rise in BUN and creatinine levels in 3 dogs with normal haematology. Herbal supportive preoperatively, *Aerva lanata or Mountain Knot Grass* (Sirukann Pillai), one tsp mixed in 50 ml warm water once a day, was given for reducing the calculi formation. Surgical treatment by urethrotomy and cystotomy was performed in 3 dogs with complete urethral obstruction. All the dogs were given a tablet. Amoxicillin @ 10mg/kg b.wt. P.O. BID for 7 days, supplemented with syrup neeri @ 5ml per 20 kg b.wt. BID, Preoperative and postoperatively for 2 weeks, followed by twice weekly for 3 months. All the dogs showed improvement in BUN and creatinine levels with no recurrence of calculi on follow-up for 6 months. The dogs were also advised to follow the renal diet. The improvements in the conditions are mainly being supported by the renal supplementation of Neeri syrup,a herbal supportive which acts as a urinary neutraliser, a gentle diuretic, and an antiseptic. All six dogs were recovered uneventfully. Hence, for the general UT health in dogs, herbal supplements are beneficial pre- and post-treatment.

**Keywords:** Cystic calculi, *Aerva lanata*, syrup Neeri (Herbal supplement), dogs

## Introduction
The development of crystalloids sediment anywhere in the urinary tract, made up of one or more poorly soluble urine molecules, is known as urolithiasis. When urine gets oversaturated with crystallogenic compounds, an aggregate of crystalline and matrix materials known as a urolith forms in one or more places inside the urinary tract. It can be made up of one or more mineral kinds. Magnesium ammonium phosphate, or struvite, is the most prevalent substance found in canine uroliths. This is typically associated with infections of the urinary tract. Struvite uroliths develop when the pH of the urine is more than 6.5 and the urine becomes supersaturated with phosphorus, magnesium, and ammonium (uma *et al.* 2018) [2]. In certain instances, the animal may be anorectic with vomiting, lethargy, flank and renal pain in addition to dysuria, hematuria, and stranguria. Caliculi can be found in the urine of certain animals. The formation of urinary calculi can occur in a matter of weeks or months. The amount of crystalline material and the level of infection present will typically determine the formation speed. The most sensible course of action is surgical removal.
Herbal medication is now a popular option for the health and extended quality of life of animals to prevent their pain and death from worsening diseases (Waki Kogika, 2015) [3]. An increase in the glomerular filtration rate can be seen, and with this frequently noticeable diuretic effect, herbal is indicated in bacterial infections and inflammatory conditions in kidney disease, serving as an auxiliary in the treatment and prophylaxis of urolithiasis. However, their mechanism of action is still difficult to describe due to the multiple substances in their composition. Stones and mineral metabolites are excreted as a result of the increased urine volume, which affects the development and expansion of deposits.

**History**

Six dogs of different breeds, sexes, and ages (Table 1) were reported to the Department of Veterinary Surgery & Radiology, Rajiv Gandhi Institute of Veterinary Education and Research, Puducherry, with clinical signs of blood mixed urine, difficulty in urination and general dullness. Biochemistry parameters showed a mild rise in BUN and creatinine levels in 3 dogs with normal haematology (Table 1). The type of calculi observed was struvite, calcium oxalates (Table 2). Surgical treatment by urethrotomy and cystotomy was performed in 3 dogs with complete urethral obstruction. All six dogs were pretreated with Herbal supportive *Aerva lanata or Mountain Knot Grass* (Sirukann Pillai), one tsp mixed in 50 ml warm water once a day was given for reducing the calculi formation. The other 3 dogs with normal micturition were orally treated with herbal support (syrup Neeri) to manage the urolith.

**Materials and Methods**

After complete examination of the animals, surgical correction for dogs with complete urethral obstructions was surgically treated with urethrotomy (Ghosh *et al.* 2020) [1] and cystotomy under general anaesthesia using premedication with diazepam (0.5mg/kg BW) followed by tramadol (4mg/kg BW) intravenously. General anaesthesia was induced using propofol (4mg/kg BW) and maintained with 2% isoflurane with an oxygen flow rate of 2 litres. Under aseptic preparation, the animals were placed on dorsal recumbency, and laparotomy was performed with a caudal mid-ventral approach to exteriorise the bladder. The urinary bladder wall was moderately thickened, edematous, and the blood vessels on the serosal surface were severely engorged. Cystotomy was performed, and around fifty cystoliths of varying sizes were removed. The large calculus obstructing the urethra was pushed into the bladder in a retrograde manner and was removed through the cystotomy site. The urinary bladder was flushed with metronidazole solution and catheterised using an infant feeding tube size 7 - 8. The bladder was closed by Cushing's suture pattern, followed by Lembert pattern using polyglactin 910 (size 2-0). The muscle layer was apposed by an interlocking suture pattern, subcutaneous tissue by a walking suture pattern and skin by an intradermal pattern using polyglactin 910 (size 2-0). Urethral obstruction was cleared by a standard urethrotomy procedure.

All the dogs were given tablet. Amoxicillin @ 10mg/kg b.wt. P.O. BID for 7 days, supplemented with syrup neeri @ 5ml per 20 kg b.wt. BID, Postoperatively for 2 weeks, followed by twice weekly for 3 months.

**Result and Discussion**

Dogs with urethral obstructions were started with herbal urinary tract supportive syrup neeri @ 5ml per 20 kg body weight orally pre-operative and postoperatively for 2 weeks and maintained dose for 3 months weekly twice. In the other three dogs (1 male and 2 female) without any urethral obstructions with normal urination, were also treated with urinary tract supportive syrup neeri @ 5ml per 20 kg body weight orally twice a day for 3 weeks, and followed by 3 months weekly twice.

***Aerva lanata or Mountain Knot Grass* (Sirukann Pillai) is** a natural kidney stone remedy, and a source of antioxidants. It is also traditionally used to treat various ailments like back pain, fever, and urinary problems. The herbal urinary tract supportive *syrup Neeri* contains various herbal ingredients. The main key ingredients, such as *Punarnava, Panchtrin Mool, Clas, Kasni, Makoya, Solan, Guduchi*, etc., have the property of *antinephrolithic*, which reduces the sediment formation at the kidneys, *antiurolithic* and *lithotripic*, which inhibits the nucleation and formation of calcium oxalate crystals, having *cytoprotective* properties (Fraqueza, 2018) [4]. The *diuretic* property is useful in filtration and the generation of urine freely (Bezerra *et al.*, 2014) [5]. Further, the use of this neeri syrup helps in relieving signs and symptoms of U.T.I., Soothes the urinary tract and maintains the urinary pH. (urinary neutraliser), Improves the body's defence mechanism. All the dogs showed is gradual change in the urinary consistency, were normal urine observed from blood mixed urine. Micturition began to be normal. As these dogs were been maintained on the syrup neeri for 3 to 6 months, there were no reports of reoccurrence of the calculi, which were confirmed with radiography and biochemistry. The serum biochemistry showed normal BUN and creatinine values post-treatment (Table 1). All six animals recovered uneventfully.

**Conclusion**

From the present study, the use of *Aerva lanata or Mountain Knot Grass* (Sirukann Pillai) (Fig 4) and Neeri syrup herbal supportive (Fig 5) containing medicinal herbs showed successful clearance of uroliths and prevented the formation of calculi. As animal health needs more supportive treatments, medicinal herbal products are gaining importance. Many cases with risk in surgery or post-surgery need support which have multi-dimensional properties, such as herbal ingredients, which have been utilised in the syrup Neeri. Hence, this can be recommended in canine patients as a prophylaxis or post-treatment remedy.

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**Table 1:** Clinical data of treated dogs

| Animal No. | Breed | Age | Sex | Pre-BUN (mg/dl) | Pre-Creatinine (mg/dl) | Post-BUN (mg/dl) | Post-Creatinine (mg/dl) |
|---|---|---|---|---|---|---|---|
| 1 | German Shepherd | 6 | Male | 30.2 | 0.98 | 26.3 | 0.84 |
| 2 | Pug | 4 | Male | 29.7 | 1.26 | 27.4 | 0.98 |
| 3 | Pug | 5 | Female | 32.4 | 1.45 | 20.6 | 1.24 |
| 4 | Dachshund | 6 | Male | 27.8 | 1.64 | 27.2 | 1.48 |
| 5 | Non- descriptive | 5 | Male | 16.8 | 1.32 | 20.8 | 1.60 |
| 6 | Labrador | 7 | Female | 25.3 | 1.53 | 25.8 | 1.34 |

**Table 2:** Distribution of urinary stone types

| Animal No. | Type of calculi |
|---|---|
| 1 | struvite |
| 2 | calcium oxalate |
| 3 | calcium oxalate |
| 4 | struvite |
| 5 | struvite |
| 6 | struvite |

**Fig 1:** Labrador with cystic calculi (Animal No.6)

**Fig 2:** Dull and depressed Pug (Animal no.3)

**Fig 3:** Calculi in urine (Animal No.4)


**Fig 4:** *Aerva lanata* (Sirukann Pillai)

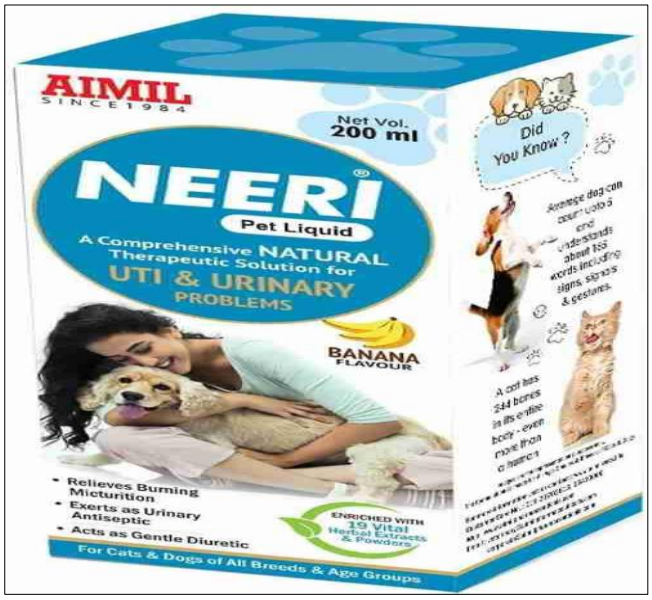


**Fig 5:** Syrup Neeri

## References


1. Ghosh CK, *et al.* Surgical Management of Urolithiasis in a Male Labrador: A Case Report. Indian J Vet Sci Biotechnol. 2020;16(1):77-79.
2. Uma S, *et al.* Cystolith in a dog: A case report. J Entomol Zool Stud. 2018;6(1):924-927.
3. Waki M, Kogika MM. Urolitíase em Cães e Gatos. In: Jericó M, Neto JPA, Kogika MM, editors. Tratado de Medicina Interna de Cães e Gatos. 1st ed. Editora Roca; 2015.
4. Fraqueza ACM. A Fitoterapia na profilaxia e terapêutica de infeções do trato urinário não complicadas: o caso particular da cistite [Mestrado para Ciências Farmacêuticas Dissertação]. Universidade do Algarve; 2018.
5. Bezerra WKT, das Silva MDG, Bezerra AMF, Santo Bezerra KK, Vieira AL, Pereira DS, *et al.* O uso de fitoterapia com ação anti-inflamatória que atuam no sistema gênito-urinário. Informativo Técnico do Semiárido. 2014;8:24-36.