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<http://www.pediatricurologycasereports.com>**Ayurvedic management of paediatric urolithiasis (mutrashmari): A case report****Monika Meshram<sup>1\*</sup>, Kiran Khandare<sup>1</sup>, Sabir Ali<sup>2</sup>**<sup>1</sup>Department of Shalyatantra, Central University in Wardha, Maharashtra, India<sup>2</sup>Department of Kaumarbhritya, Central University in Wardha, Maharashtra, India**ABSTRACT**

Mutrashmari (Urolithiasis) is one of the most common disorders of the Mutravaha srotas (Urinary system). In the contemporary medical science, it is correlated with urolithiasis. It is a highly prevalent condition with a high recurrence rate that has a large impact on the quality of life of those affected. Paediatric urolithiasis is an important encountered kidney disorder in clinical practice. A 9-year-old patient approached the OPD with complaints of pain abdomen associated with nausea, vomiting and burning micturition. On interrogation, patient's parents gave the history of using bore well water for consumption. Ultrasound scan of the abdomen revealed the renal calculi measuring 6 mm in the vesico ureteric junction causing hydro nephrosis and another 3.5 mm calculus in the upper pole of the right Kidney. It was diagnosed as vataaja ashmari (Type of Renal calculi) based on signs and symptoms and investigational reports. Most of the renal calculi in children comprise of either calcium oxalate or calcium phosphate. Based on Ayurvedic line of management, the patient was administered Chandraprabhavati, Gokshuradi guggulu and a polyherbal syrup containing diuretics. The calculi were expelled out within 7 days after the administration of oral Ayurvedic medicines relieving great pain and suffering. An attempt has been made to present the Ayurvedic management of mutrashmari (Urolithiasis) in paediatric age with successful emergency pain management. This case study intends to instill confidence among Ayurvedic physicians for the management of mutrashmari (Urolithiasis) by Ayurvedic means involving non-invasive procedure, avoiding surgical intervention and being cost effective.

Our case illustrates a safe and effective surgical technique for localizing and excising a type IIA-1 urethral duplication while minimizing risk of injury to the sphincteric mechanism and neurovascular structures.

**Key Words:** Ayurveda, urolithiasis, urinary calculi, renal calculi, mutrashmari

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**Introduction**

Urolithiasis is the stone formed in urinary tract [1]. According to Ayurveda, it is considered as Mutrashmari which is one of the common and distressing maladies [2]. It is considered as one among the astamahagadha (Incurable Diseases). Sushrut acharya, Father of surgery, explains the process of stone formation in detail with symptoms and management in the Ayurvedic classical text, Sushruta Samhita [3]. The formation of urinary

stone is a complex physio chemical process which involves sequence of events as urinary saturation-super saturation-Nucleation-Crystal growth- crystal retention-Stone formation [4]. Children can present with stones at any age and calcium stones are most common. Between 5% and 10% of the human population suffer from urinary stone disease during their lifetime, and of these cases 2%-3% are children [5].

## Case presentation

AA 9 year old female patient was brought to the outpatient department of MGACH & RC on 25<sup>th</sup> Feb 2021 with the complaints of pain abdomen. On interrogation, it was found that she had pain abdomen and vomiting 15 days back for which she was treated in a local clinic by a Physician with analgesic and antiemetic drugs. Ultrasound scan on 11<sup>th</sup> Feb 2021 confirmed the presence of urinary calculi in the Right kidney. She was referred to Pediatrician as pain persisted in the supra pubic region as well as in the flanks. The patient was advised to undergo Lithotripsy immediately. Later, she was brought to the OPD for a second opinion and treatment. On interrogation, it was revealed that the patient's family has been consuming bore well water from past 3 months. The pain was insidious in onset. The pain was experienced on and off and she had two episodes of vomiting since its onset.

## On examination

Per abdomen -Tenderness ++ in the suprapubic region and in the Right renal angle.

## Investigation

(Diagnostic Imaging)Renal calculi measuring 6 mm in the vesico ureteric junction causing hydronephrosis (Right) and 3.5 mm in the upper pole of the Right Kidney.

## Diagnosis

Clinical features along with the Ultrasound scan reports suggest that it is a case of Urinary calculi. Based on the symptoms, it was diagnosed as Vataaja Ashmari. Treatment [6,7] She was advised the following drugs for ten days initially on OPD basis.

- Chandrabhavati 1 tab twice daily with water.
- Gokshuradi guggulu 1 tab twice daily with water.
- Concentrated extract of *Vetiveria zizanioides* syrup 5 ml twice a day.
- Polyherbal Ayurvedic syrup 5 ml twice a day after food.

The herb mineral formulations (1-2) were given from the OPD and procured from IMPCL (Indian Medicine Pharmaceutical Corporation Ltd), Almora, India.

## Results

After one week of treatment, she again complained of dysuria. Patient's mother suspected the calculi being expelled out and collected the renal calculi. It was handed over to the OPD and medicines were again continued to avoid recurrence. A follow up Ultrasound scan of abdomen and pelvis revealed absence of calculi and hydro nephrosis.

## Discussion

AUrolithiasis is a potential emergency often resulting in acute abdominal, low back, flank or groin pain. While pediatric urinary stone disease was once considered rare, the incidence of this disease is increasing now, particularly in females. Pediatric urolithiasis is associated with significant morbidity, particularly since stones tend to recur and thus, should not be underestimated [8]. Several studies have documented that higher water hardness (Bore well water) is associated with higher incidence of urolithiasis [9]. The approximate frequency of kidney stone types in the pediatric age group is calcium with phosphate or oxalate (57%), struvite (24%), uric acid (8%), cysteine (6%), endemic (2%), mixed (2%), and other types (1%) [10]. The most important line of treatment of all kinds of kidney stones is to increase urine volume, thereby decreasing solute concentration and super saturation. Studies from different geographical areas show that characteristics of urolithiasis among children vary wide [5]. Extracorporeal Shockwave Lithotripsy (ESWL) is the preferred treatment in pediatric patients with calculi [11]. According to Ayurveda, "Ashmari" (renal calculi)

is a disease of Vata-Kapha origin. Sanga (obstruction) in Mutravaha Srotas (urinary system) is the main pathology of the disease.

Urinary stones are classified on basis of doshas as Vata, Pitta, Kapha etc and treatment is mentioned accordingly. In this case, based on the symptoms like Teevra vedanam (Intensity of pain), it was diagnosed as Vataja Ashmari. Vatakapha shamaka chikitsa, Mutravirechana chikitsa (diuretics) along with Apana vayuanuloman chikitsa (Correction of vitiated Vata) specific to Mutravaha srotas (urinary system) was followed. Hence, in this condition polyherbal formulations were advised [12].

**Chandraprabha Vati:** It is an herb mineral formulation indicated in Mutrakrichra (Dysuria), Ashmari (Urinary calculi) and found to be safe for renal function [13]. It contains Shilajithu (bitumen) which is a drug of choice for the management of Vastigatavyadhi (Urinary disease). Its ingredient, Camphor (*Cinnamomum camphora*) acts as anti-inflammatory, antiseptic, diuretic and recommended in urinary tract infections.

Other contents like Yavakshara (alkali preparation of barley) and Svarjikakshara (Baking soda) are the alkaline substances which decrease the acidity of urine and used in the treatment of Ashmari, Mutrakrichra. It contains potassium chloride, potassium sulphate, potassium bicarbonate and potassium carbonate, thus acts as an alkalizer and helps in the disintegration of renal calculi [14].

**Gokshuradi Guggulu:** It is an Ayurvedic preparation containing drugs like Gokshura (*Tribulus terrestris*), Guggulu (*Commiphora mukul*), Triphala (Combination of Haritaki (*Terminalia chebula*), Bibhitaki (*Terminalia bellerica*) and Amalaki (*Phyllanthus emblica*)), and Trikatu (Combination of Shunti (*Zingiber officinale*), Pippali (*Piper longum*) and Maricha (*Piper nigrum*) and musta (*Cyperus rotundus*) indicated in Ashmari (Urinary calculi). Gokshura has Ashmari nashana (lithotriptic) and Mutrala (Diuretic) property. Diuretic activity of Gokshura (more than furosemide) has been confirmed in several experimental studies [15]. It contains potassium nitrate in rich quantity which acts as

alkalizer and thus helps in preventing urolithiasis [14]. Guggulu has Vatashamaka (Correction of vitiated Vata), Ashmari bhedana (Lithotriptic) and Mutrala (Diuretic) properties. It contains guggulosterones which help in relieving pain, inflammation and also by its lekhana (scraping) action; it is beneficial in removing the stone. Syrup containing Usheera (*Vetiveria zizanoides*) is used in the treatment of burning urination, excess heat. Usheera is sheeta (cold) in veerya (potency), useful in mutrakrichra (dysuria). The Ayurvedic Pharmacopoeia of India also recommends the root of Usheera in dysuria [16].

Poly herbal syrup containing lithotriptic drugs like Pashanabheda (*Berberis ligulata*), Punarnava (*Boerhavia diffusa*), Palashapushpa (*Butea monosperma* flower), Sweta parpati, Varuna Ghana (*Crataeva nurvala*) Shuddha Shilajatu (*Asphaltum*), Lajjalu (*Mimosa pudica*), Yavakshara (ash of *Hordeum vulgare*) processed with decoction of Pashanabheda (*Berberis ligulata*), Apamarga (*Achyranthes aspera*), Gokshura (*Tribulus terrestris*), Kulattha (*Dolichos biflorus*), Arkamoola (*Calotropis procera*). The drugs mentioned above are good diuretics.

Treatment with aqueous extract and alcoholic extracts of Punarnava (*Boerhavia diffusa*), have been found to significantly decrease the concentrations of stone forming constituent's calcium oxalate and phosphorous in the urine. Root extracts of *Boerhavia diffusa* possess ant urolithiasis activity and its use in propulsion of urinary stones is justified [17]. In this case, though the patient was advised immediate hospitalization and lithotripsy for management of urolithiasis, it has been well managed by only Ayurvedic medicines without any hospitalization and hydration therapy. Pain management in a child of 9 years by noninvasive procedure is very significant, cost effective and both the calculi have been expelled out within 7 days without any lithotripsy.

## Conclusion

Urolithiasis can result in severe pain. Surgical intervention need not be the only management in such emergency conditions. In this case, though the patient was advised immediate hospitalization and lithotripsy

for management of urolithiasis, it has been well managed by only Ayurvedic medicines without any hospitalization and hydration therapy. Pain management in a child of 9 years by noninvasive procedure is very significant, cost effective and both the calculi have been expelled out within 7 days. This case illustrates a situation where methodical Ayurvedic intervention can result in successful management.

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