



Research Article

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AYURVEDIC MANAGEMENT OF PAEDIATRIC UROLITHIASIS (MUTRASHMARI): A CASE REPORT

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Received on: 11/12/16 Revised on: 22/12/16 Accepted on: 05/01/17

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DOI: 10.7897/2277-4343.08116

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 borewell water for consumption. Ultrasound scan of the abdomen revealed the renal calculi measuring 6 mm in the vesico ureteric junction causing hydronephrosis 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 noninvasive procedure, avoiding surgical intervention and being cost effective.

Keywords: Ayurveda, Urolithiasis, Urinary calculi, Renal calculi, Mutrashmari.

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). Sushrutacharya, Father of surgery, explains the process of stone formation in detail with symptoms and management in the Ayurvedic classical text, Sushruta Samhita³. The formation of urinary stone is a complex physio chemical process which involves sequence of events as urinary saturation- supersaturation-Nucleation-Crystal growth- crystal retention-Stone formation⁴. 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 Study

A 9-year-old female patient was brought to the outpatient department of RARI-MD on 25th Feb 2016 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 11th Feb 2016 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 borewell 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 Vataja Ashmari.

Treatment ^{6,7}

She was advised the following drugs for ten days initially on OPD basis.

1. Chandraprabhavati 1 tab twice daily with water
2. Gokshuradi guggulu 1 tab twice daily with water
3. Concentrated extract of *Vetiveria zizanioides* syrup 5 ml twice a day

4. Polyherbal Ayurvedic syrup 5ml twice a day after food.

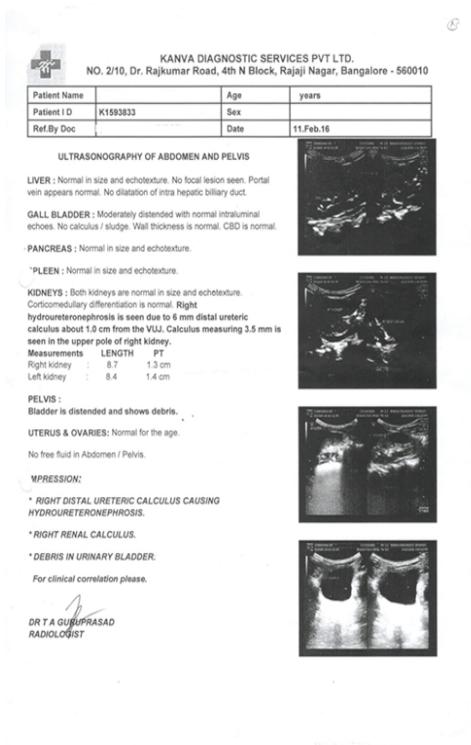
The herbomineral formulations (1-2) were given from the OPD and procured from IMPCL (Indian Medicine Pharmaceutical Corporation Ltd), Almora, India.

RESULT

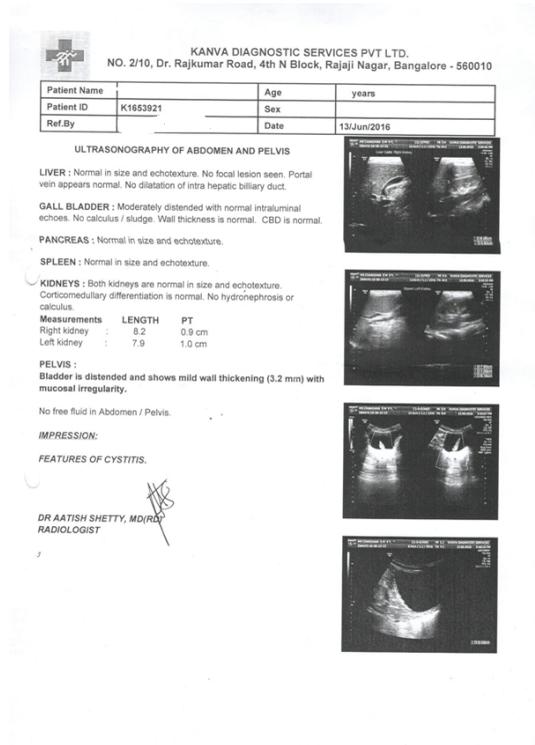
After one week of treatment, she again complained of dysuria. Patient's mother suspected the calculi being expelled out and collected the renal calculi. It was handed over to the OPD and medicines were again continued to avoid recurrence. A follow up Ultrasound scan of abdomen and pelvis revealed absence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

Table 1: Changes in subjective and objective parameters observed before and after the treatment

	Subjective Criteria	
	Before treatment	After treatment
Pain in the Abdomen and Right Renal angle	Present	Absent
Vomiting	Present	Absent
Haematuria	Present	Absent
	Objective Criteria	
	Before treatment	After treatment
Hydronephrosis	Present	Absent
Tenderness in the renal angle	Present	Absent
USG Report of Abdomen/Pelvis	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. (USG Report 1)	No calculi found. (USG Report 2)
Renal Calculi	-	As seen in Image 1



Ultrasound scan report before the treatment (USG Report 1)



Ultrasound scan report after the treatment (USG Report 2)



Image 1: Expelled urinary calculi

DISCUSSION

Urolithiasis 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 females⁵. Pediatric urolithiasis is associated with significant morbidity, particularly since stones tend to recur and thus, should not be underestimated⁸. Several studies have documented that higher water hardness (Borewell water) is associated with higher incidence of urolithiasis⁹. The approximate frequency of kidney stone types in the pediatric age group is calcium with phosphate or oxalate (57%), struvite (24%), uric acid (8%), cystine (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 supersaturation. Studies from different geographical areas show that characteristics of urolithiasis among children vary wide⁵. Extracorporeal shockwave lithotripsy (ESWL) is the preferred treatment in pediatric patients with calculi¹¹.

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 Ashmari¹². Vatakapha shamaka chikitsa, Mutravirechana chikitsa (diuretics) along with Apana vayu anuloman chikitsa (Correction of vitiated Vata) specific to mutravahasrotas (urinary system) was followed. Hence, in this condition polyherbal formulations were advised.

Chandraprabha Vati: It is a herbomineral formulation indicated in Mutrakrichra (Dysuria), Ashmari (Urinary calculi) and found to be safe for renal function¹³. It contains Shilajithu (bitumen) which is a drug of choice for the management of Vastigatavyadhi (Urinary disease). Its ingredient Camphor (*Cinnamomum camphora*) act 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 calculi¹⁴.

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*)], 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 studies¹⁵. It contains potassium nitrate in rich quantity which acts as alkalizer and thus helps in preventing urolithiasis¹⁴. Guggulu has Vata shamaka (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 zizanioides*) 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 dysuria¹⁶.

Poly herbal syrup containing lithotriptic drugs like Pashanabheda (*Berberia 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 (*Berberia 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 antiurolithiasis activity and its use in propulsion of urinary stones is justified¹⁷.

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. This case illustrates a situation where methodical Ayurvedic intervention can result in successful management.

ACKNOWLEDGEMENT

Authors are highly thankful to Assistant Director In-charge, RARI-MD, Bangalore and Director General, CCRAS, New Delhi for their constant support and encouragement.

REFERENCES

1. Lingeman JE, Matlaga B, Evan AP. Surgical management of urinary lithiasis. In: Walsh PC, Retik AB, Vaughan ED, Wein AJ, editors. Campbell's urology, chap 44. Philadelphia: Saunders; 2006. pp. 1431–1507.
2. Mahanta Rabi Narayan, A Conceptual Patho- Clinical Study on the Disorder of Mutrabaha Srotas w. s. r. to Mutrashmari (Urolithiasis), Int. J. Ayurveda. Pharm Research, 2014; 2(1): 30-39
3. Sushruta, Sushruta Samhita, edited by Sharma Dr. Anant Ram, Chaukhamba Surabharati Prakashan, Varanasi, Vol. 2, Chikitsasthana, 7th chapter, Shloka no. 29, Page No. 236.
4. Rathod RB, AmilKanthwar RH, The effect of Kadali kshar in the management of Mutrashmari (Urolithiasis), IJRAP,6(3),May-June 2015, 315-320.
5. Nikolaos Partalis and George Sakellaris, Essentials in Pediatric Urology, 2012: 79-88 Research Signpost. ISBN: 978-81-308-0511-5
6. Ayurvedic Pharmacopeia of India, Part-I, 2nd edition, Government of India, Ministry of Health and Family welfare, Department of Indian systems of Medicine and Homeopathy, pg – 512
7. Ayurvedic Pharmacopeia of India, Part-I, 2nd edition, Government of India, Ministry of Health and Family welfare, Department of Indian systems of Medicine and Homeopathy, pg – 209.
8. Maria Goretti et al, Pediatric primary urolithiasis: Symptoms, medical management and prevention strategies, World J Nephrol. 2015 Sep 6; 4(4): 444–454.
9. Biradar A. N et al, V. S Influence of Water Quality on Urolithiasis, World Journal of Pharmaceutical Research, Vol 3, Issue 10, 2014, 483
10. Ahmed H, Al Salem, An illustrated guide to paediatric urology, Springer publication, page 278.
11. Sean McAdams and Aseem R. Shukla, Pediatric extracorporeal shock wave lithotripsy: Predicting successful outcomes, Indian J Urol. 2010 Oct-Dec; 26(4): 544–548.
12. Charaka. Charaka Samhita (Ayurveda Dipika's Ayushi Hindi commentary). Harish Chandra Kushwaha, editor. 5 th ed. Varanasi: Chaukhamba Orientalia; 2012; Chikitsa sthana, 26/37, p.678)
13. Doddamani et al, The safety of Ayurvedic herbomineral formulations on renal functions, An observational study, Int J Res Ayurveda Pharm 2015, 6(3), 209-302
14. Sheshashayi B et al, A Case study on Mutrashmari (Urolithiasis) using Yavaksharadi yoga. Int J Res Ayurveda Pharm 4(1), Jan-Feb-2013.
15. Anitha Baby M., M. Paramkush Rau, A Critical Review On Gokshura – An Ayurveda Diuretic Drug, Anveshana, volume 1, Issue5, AAMJ_343_351.
16. C.P.Khare , Indian Medicinal plants, An Illustrated Dictionary, Springer, 2007, pg- 700
17. Balaji L G, Evaluation of Antiurolithiatic Activity of the Aqueous and Alcoholic Extracts of Roots of Boerhaavia Diffusa, IAJPR. 2015; 5(1): 525-530.

Cite this article as:

Shubhashree M. N., Doddamani S.H., Giri S.K., Triveni D.P., Sulochana Bhat. Ayurvedic management of paediatric urolithiasis (Mutrashmari): A case report. Int. J. Res. Ayurveda Pharm. 2017;8(1):77-80 <http://dx.doi.org/10.7897/2277-4343.08116>

Source of support: Nil, Conflict of interest: None Declared

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