

Clinical study of Kshar Yog in Management of Urolithiasis

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Abstract:

Renal calculi are very much common either due to low water intake or high oxalate/calcium diet. Patient fears of the operative procedure on knowing of being diagnosed with renal calculi i.e. mutraashmari. Many look for alternative treatment modality and avoid the surgical procedure. India is a country where the economic condition plays a very major role in medical facility for a person with an average financial background. Here, an affordable modality of treatment can help the common man. Hence an effort was made in an open prospective clinical trial to assess role of kshar yoga in 10 patients with renal calculi for two months. Statistical improvement was seen in frequency of renal colicky pain and overall reduction in size of renal calculi was observed. Moderate improvement was seen in 40% of patients, 35.56% patients got marked improvement, while mild improvement was found in 24.44% of patients.

Introduction

Increased incidence of urinary calculi is noticed in hilly, dessert and tropical regions. Geography has an effect in terms of temperature and humidity which also seems to influence the incidence of urinary calculi in human being. Peak age is 3rd to 5th decade. Majority of patients reporting the onset of disease are aged between 20-30 years of life. Male to female ratio 3:1, increased citrate concentration in female may protect them from calcium stones. This may be because lower levels of testosterone. Ashmari or urolithiasis is the formation of urinary calculi at any level of the urinary tract. Clinically, it is characterized by colicky pain as they pass down along the ureter and manifest by hematuria. Formation of any Urinary stone is generally as follows

Urinary saturation→ Super saturation→ Nucleation→ Crystal growth→ Crystal aggregation→ Crystal retention → renal calculi

The methods of management of urinary calculi are mainly surgical. Even though they are useful, they involve considerable amount of risk and are also expensive. The rate of recurrence after surgery is also as high as 50%. In the light of above situation, it is highly relevant to search for an alternative treatment which is both effective and inexpensive. There are various measures described in Ayurveda for the management of ashmari. There are several medicinal preparations prescribed in the classics which are claimed to be effective and safe. One among such formulation is “Ksharyoga” which is selected for the present study since the ingredients are easily available and mode of administration is simple.

AIM

Assess effect of kshar yoga in management of urolithiasis.

Materials and Methods

Materials

Kokilaksh Kshar(~alkali), Sal Ammoniac, Alum and Saltpetre were taken in equal quantities and liquefied in a closed system.

Dose: 10 drops of prepared drug mixed with 25ml of water in b.d dose.

Methods:

A total of 10 patients were selected randomly. After informed consent, they were undertaken for this open prospective clinical study. The patients were observed for 60 days. Subjective parameters were observed every 15 days and USG (KUB) was done at the start and end of study.

Inclusion criteria:

1. Patients of age group 15yrs to 55yrs of both sexes irrespective of religion, occupation and Socio-economic status.
2. Patients presenting symptoms of ‘*Mootrashmari*’ according to classics along with findings of calculus in kidney, ureter, and bladder by one of the diagnostic method like USG, X-Ray KUB etc.

Rejection Criteria:

1. Patients belonging to age group below 15yrs. And above 55 years.
2. Patients of urolithiasis with any complications.
3. Patients of urolithiasis suffering from acute abdominal pain, hypertension, etc.
4. Presence of Pitta dominant lakshanas like burning micturition, fever, gastritis, etc.

Assessment of parameters

The study included two subjective parameters- abdominal pain and dysuria. Objective parameter included USG findings before and after the trial period.

A. Abdominal pain

1: Present

0: Absent

B. Dysuria

1: Present

0: Absent

C. Ultrasonography

Values were considered as per the findings.

Observations and Results

In the present clinical trial, 7 patients were male and 3 were female. Out of the 10 patients under study, 09 patients experienced no abdominal pain soon after commencing the trial drug. It was observed that Dysuria was relieved in 6 patients within the first week itself whereas 9 patients were relieved from dysuria in 15 days itself.

The USG findings show 63.86% reduction in size of urolithiasis as an average of the size noticed in 10 subjects of the clinical trial.

The USG findings show reduction in size of urolithiasis which is shown in the table given below:

SR. NO		B.T	A.T
1	LK-MP-NO	4	0
2	RK-UP-NO	7	5.9
3	RK-MP-NO	9	4.3
4	RK-LP-NO	6	0
5	RK-UVJ-NO	7.4	4.2
6	RK-UP-NO	7	3.2
7	RK-UVJ-NO	6.4	1.9
8	RK-UVJ-NO	2.6	0

9	LK-LP- NO	5.3	2.5
10	RK-UP- NO	4	2

N	Visit (DAY)		Mean	S.D.	S.E.	't' value	P	Significance
10	1 st	B. T	5.87	1.91488 3	0.60553 9	-	-	-
10	60 TH	A. T	2.4	2.03960 8	0.64498 1	7.669978	<0.1	SIGNIFICANT

Percentage of reduction in size of calculus in each patient,

4	0	4	100
7	5.	1.	15.
	9	1	71
9	4.	4.	52.
	3	7	22
6	0	6	100
7.	4.	3.	43.
4	2	2	24
7	3.	3.	54.
	2	8	29
6.	1.	4.	70.
4	9	5	31
2.	0	2.	100
6		6	
5.	2.	2.	52.
3	5	8	83
4	2	2	50

Discussion

Higher number of male subjects corresponds to the incidence rate mentioned in modern literature.

Mootrashmariis a grievous disease formed mainly due to *vata* and *Kapha doshasadushti*.

As per Ayurvedic texts, continued consumption of dosha vitiating factors without giving importance to shodhana results in Shleshma vitiation. This Shleshma further vitiates the *Bastigata-mootra*. Here in *basti*, these vitiated doshas attain shape of gravel i.e. *Asmari*. As per *Acharya Sushruta* ‘over a due course of time, one sees mud particles settled down at the bottom of a new water-filled pitcher’. In the same way the *Mootrashmari* is formed in *Mootravaha strotas*.

As Ashmari is kapha vata pradhana tridoshaja disease, the kshara due to its teekshna and ushnaguna can alleviate kapha and vata affecting prakritivighata. Kshar, by virtue of its *lavana rasa* and *ushnavirya*, dissolves the renal calculi.

The murtata of ashmari due to kapha dosha which is also the material cause is eroded by the Ksharana guna of kshara, whereas the katinatha of ashmari is reduced by its sookshma and snigdha guna. Thus kshara helps in ashmaribhedana.

The rationality of combining navasadar with turti and kalmisora was to counteract the possible side effects of kshara with the properties of navasadar and turti antagonistic to kshara.

Another theory states that renal calculi are formed due to alteration in pH. Concentrated urine is one of the causes for formation of urolithiasis. *Kshara* has pH between 9-11 and it is alkaline in nature. So it has a property to neutralize acidic media. Internal consumption helps to change the pH of urine, thus preventing the hyper concentration of urine. As a result, disintegrate and dissolution of the calculi is achieved. The resulting size reduction and diuretic property of the drug helps to reduce the dysuria. The prepared drug being a *kshar* reduces *koshtagat vaat*. And hence, the drug showed immediate results in reducing abdominal pain. It was observed that the patients experienced no abdominal pain as long as they were on trial drug. However, some amount of pain, in patients of incomplete calculi expulsion, was experienced when they discontinued the drug after the period of 60 days. Moreover, the drug showed better tolerance compared to other conventional drugs and has better palatability.

Conclusion

The study showed excellent improvement in the subjective and objectives parameters and hence we conclude that this drug has significant effect in cases of urolithiasis. However, more research is required with a larger sample size for further assessment.

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Abbreviations:

A.T AFTER TREATMENT

B.T BEFORE TREATMENT

RK RIGHT KIDNEY

LK LEFT KIDNEY

VUJ: VESICO URETHRAL JUNCTION

LP: LOWER POLE

UP: UPPER POLE

MP: MIDDLE POLE

NO: NON OBSTRUCTIVE