



Carica Papaya Root Extract in Management of Urolithiasis

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Abstract

These days urolithiasis is on progressive rise due to increased urinary solute and altered electrolyte biokinetics. In addition change in dietary composite also made the women equally vulnerable for the presentation. Though surgical removal and lithotripsy are measures available for alleviation of uroliths Clinical manifestation, but recurrence is very common posing encumbrance and agonizing discomfort. In present scenario of available various indigenous drug composite, clinical evaluation of Carica papaya root extract 10-25 ml with Piper nigrum 1-3 daily in empty stomach ensure relief of abdominal colic and passage of uroliths per urethra in majority cases with complete absence of uroliths in USG of KUB or in urine and no recurrence on weekly one dose in 2 yrs of post therapy follow up without any adversity.

Keywords: Urolithiasis; Electrolyte Biokinetics; USG; KUB

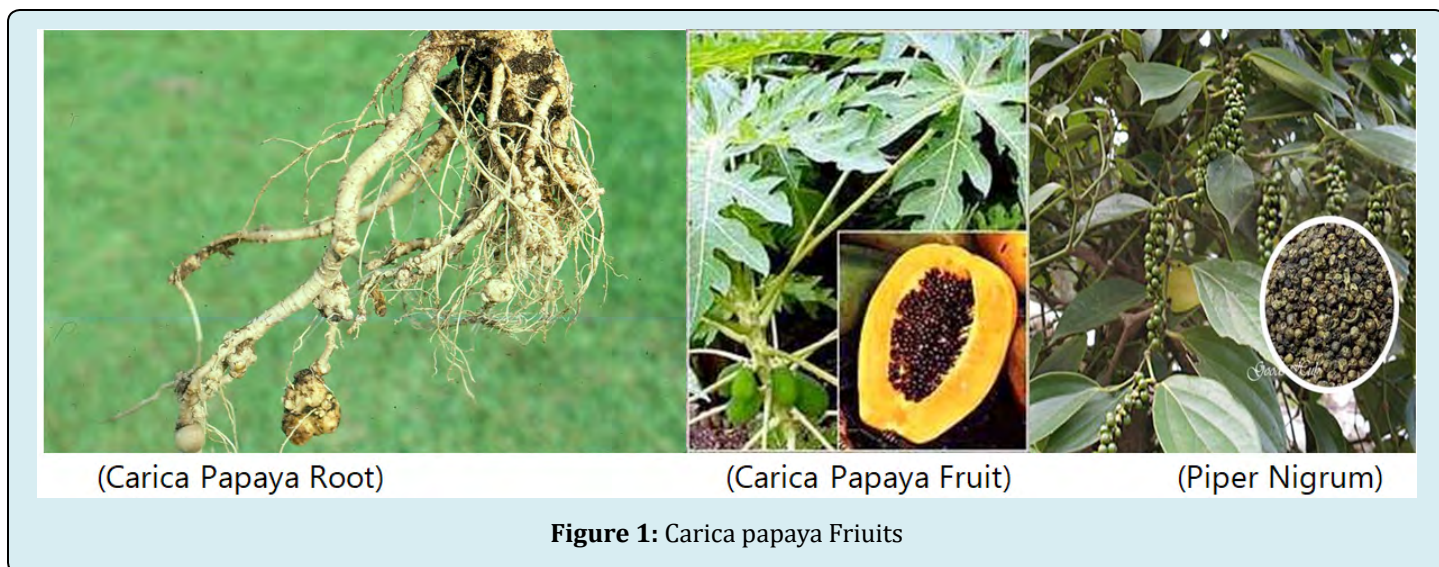
Introduction

Progressive increase in the incidence of calcium oxalate, phosphate calculi of the upper urinary tract during the 20th century [1-14] is due to changed dietary composition posing an increase in urinary solute load, not only due to altered nutrition resulting from use of irrational food constituent, presentation and storage of food remain full of noxious chemical use, which not only generate non dietary constituent but also generate some enzymes inhibitor to compete with various body enzyme intends altered ionic exchange and urine crystallization. In addition recurrent urinary tract infection due to increasing misuse of broad spectrum antibiotics and declined water intake, predispose for urolithiasis due to presence of urea splitting bacteria. In addition carbohydrate rich dietary habit increases urinary calcium and magnesium excretion [15-17]. Considering the

efficacy of therapeutics in vogue and option for surgical removal or lithotripsy is not only a costly affair but also encumbrance due to recurrence. Thus to check recurrence and alleviate presentation and elimination of crystal, check infection, a clinical evaluation of watery extract of Carica papaya root and Piper nigrum berries been done at RA. Hospital & Research Centre, in association with Centre for Indigenous Medicine & Research, Warisaliganj (Nawada) Bihar.

Material & Methods

Patients of urolithiasis and abdominal colic (due to uroliths) attending medical OPD of RA. Hospital & Research Centre, Warisaliganj (Nawada) Bihar during last 3 years were selected and evaluated by Centre for Indigenous medicine & Research for clinical response of watery extract of Carica papaya root with Piper nigrum berries (Figure 1).



Index for Selection of Patients

- Agonising abdominal pain, in the loin, suprapubic region and back.
- Frequency of micturation and gritting sensation
- Any history of passage of crystal per urethra or hematuria
- Any history of surgery or lithotripsy for stone removal.

Selected patients (or parent of the patient) were interrogated, examined and investigated for presence of uroliths i.e, urine for crystals, X-ray, KUB, IVP, USG for KUB to ascertain presence of crystal, its size, location and sequelae.

In addition serum Creatinine, serum calcium, serum uric acid and blood urea been assessed to adjudge the safety profile in terms of hemato, hepato-renal status. All the patients of urolithiasis without consequent adversity affecting renal function been considered for evaluation of clinical efficacy of watery extract of Carica papaya root and Piper nigrum berries in empty stomach daily for 3 months

and patients were followed during the therapy to observe the-

- Relief in clinical presentation
- Any adversity
- History of passage of crystal per urethra
- Any disease related sequel

While during post therapy follow up for 2 years, patients were observed for-

- Any recurrence of presentation
- Any untoward effects (as long term toxicity).

For the purpose a follow up card been issued to every patient or parent or MSW covering the patients group and been advised to enter all the details or observation by the patient or parent i.e, passage of crystal, blood in urine, agonizing pain during micturation, inability to pass urine or retention of urine with distended bladder. Pre, Post and during the therapy each patient's renal functions been duly assessed to adjudge the safety profile of the drug.

Based on the Observation Clinical Response was Graded as (Table 1)

Grades of Clinical Efficacy	Characteristics
Grade I	Complete relief of pain in abdomen, absence of crystals in urine and USG with or without history of passing crystal per urethra and without any recurrence and untoward effects.
Grade II	Complete relief of pain and other presentation, absence of crystal in USG but presence of crystal Flecks in the urine, without any untoward effect and recurrence during follow up
Grade III	Relief of pain with frequent recurrence, dysuria, presence of crystal in the urine but of reduced size no untoward effects
Grade IV	No response

Table 1: Grades of Clinical Efficacy/Characteristics.

Observation

- Among the selected patient 59% were male and 41% female of age group <5yrs-35yrs, 11% patients were of age <5 yrs, 18% of age group 5-10years while 17% cases were of 30-35years (Table 2).
- 20% patients were suffering from <1 year while 8% from >5 years (Bar diagram) (Figures 2 & 3).
- 36% patients had history of passing crystal per urethra, 57% recurrent UTI and 20% with painful hematuria (Tables 4).
- Out of all 56% was newly detected case of uroliths while 13% and 65% were cases of uroliths removal by surgery and lithotripsy respectively (Tables 5).

Age group		Number of patients			
(Age in Years)		Male	Female	Total	%
<	5	32	21	53	11
5-	10	52	40	92	18
10-	15	42	30	72	
15-	20	48	29	77	
20-	25	38	22	60	
25-	30	36	24	60	
30-	35	50	38	88	17

Table 2: Distribution of Patients as Per Age & Sex.

II. Bar Diagram

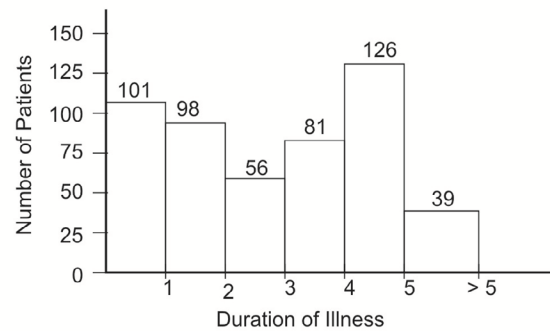


Figure 2: Bar Diagram Showing Distribution of Patients as per Duration of Illness.

II. Pie Diagram

Male 59%

Female 41%

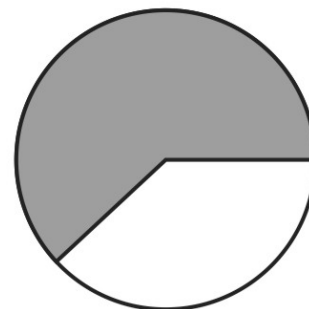


Figure 3: Pie Diagram Showing Distribution of Male: Female Composition.

Presenting feature	Number of patients	
Agonizing abdominal pain	502	
Frequency of micturation	502	
Gritting sensation during urination	490	98%
Retention of urine	234	47%
Backache	282	56%
Painful micturation	480	96%
Passage of uroliths	182	36%
Painful hematuria	98	20%
Recurrent pyrexia	288	57%

Table 3: Distribution of Patient as Per Presentation.

Therapeutic measures	Number of patient	%
Newly detected case	282	56
Treated medically with recurrence	088	18
Treated surgically with recurrence	064	13
Lithotripsy with recurrence	034	06.5
On non-conventional measures	034	06.5

Table 4: Distribution of Patient as per their Therapeutic Status.

Particulars	Number of patients
Relief in presenting complaint	
Complete	488
Marked	014
Passage of uroliths per urethra	403
Ultrasonography for KUB	
Absence of crystals	488
Decline in size of crystal	014
With desend	
Safety profile	
Blood urea	488
Unchanged	014
Raised	014
Serum Creatinine	
<1.5 mg	502
>1.5mg	Nil

Table 5: Outcome of the Study.

Results

- 97% patients had clinical relief within 48 hours of therapy and had complete relief of the presenting feature while 13% had marked improvement in 15 days of therapy.
- 80% patient's revealed passage of uroliths through urine after 45 days of therapy and after 2 month 97% patient's USG revealed absence of stone while 3% show marked regression of size and change in site of the stone.
- No patient revealed any alteration in hemato, hepatic and renal function or any other side effects or recurrence of presentation during 2 years of post-therapy follow up.
- 97% patient had Grade I clinical response while 3% Grade II response.

Discussion

In India incidence of urolithiasis varies regionally and in spite of available measures for urolith removal i.e. surgery and lithotripsy [18-21], recurrence is very rampant due to changed mineral biokinetics due to changing dietary strategy. In addition various indigenous composite formulations are in vogue and possess proved efficacy and no ancient literature affirm the use of common home plant *Carica papaya* root extract in management of urolithiasis but present study affirms its equipotency with high safety profile and this clinical supremacy can be attributed to [22-24]. Lithotriptic action of glucohydrolase, butanic acid while cryptoglavin as a potent antibacterial constituent of *Carica papaya* and Pergunodiene, isopiperolene and trachiene of *Piper nigrum*, effective against common urinary pathogen *Escheresia colil*, *Alloxanthine*, *Cis valloxanthin* of *Carica papaya* acts as a diuretic and help expel the calculi. Musculo relaxant action of Piperin relieves abdominal colic synergized by local anesthetic action of Carpaine. Piperidine acting as an anti-oxidant prevents aggregation of urinary flecks in Urinary path way.

Conclusion

All patients had clinical relief and passage of uroliths without any recurrence and untoward effects thus this must be considered as a boon for the patients of urolithiasis

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