

EVALUATION OF CLINICAL EFFICACY OF *DHAULA PHINDAWRI* (*NOTHOSAERVA BRACHIATA* Linn. Wight.) IN THE MANAGEMENT OF UROLITHIASIS (*MUTRASHMARI*)

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ABSTRACT

Abstract: *Ashmari* is a disease which is caused due to vitiation in *Apana Vata* and *Mutravaha Strotasa*. Formation of stones in the *Mutravaha Strotas* is known as *Mutrashmari*. *Ashmari* is of four kinds, such as those born from *Kapha*, *Vata*, *Pitta* and *Shukra* separately; all these residing in *Shleshma (Kapha)*. *Ashmaris* gets formed when *Vata* dries up the semen, urine, *Pitta* or *Kapha*. All types of *Ashmaris* are caused by the combination of all the three *Doshas*. Different types of formulations are explained. There are certain drugs that are not mentioned in classics. *Dhaua Phidawri* is one such drug whose classical reference is not available and it is used for its lithotriptic properties in Rajasthan and Maharashtra.

Objectives- This study was carried to evaluate the lithotriptic action of drug in patients suffering from urinary calculi.

Results- It was found that 6 patients (20%) got *Uttam Labha* in symptoms, 11 patients (37%) got *Madhyama Labha* in symptoms, 10 patients (33%) got *Alpa Labha* in symptoms, while 3 patients (10%) did not get any *Upashaya* in symptoms.

Conclusion- It was observed that the folklore drug *Dhaua Phidawri* can be used effectively in the patients suffering from urinary calculi.

Key Words: *Dhaua Phidawri*, *Nothosaerva brachiata*, *Ashmari*, Urolithiasis, Calculi, Renal Stones

INTRODUCTION: Review of Disease-

Mutrashmari or Renal Calculus or Urolithiasis means formation of *Ashmari* i.e. Urolith or Calculus in the *Mutravaha-Strotasa* (Urinary system). *Sushrutacharya* had included this dangerous disease in *Ashta-Mahagada*, which has been very difficult to treat¹. As this disease has many systemic complications, if not treated properly such as renal failure, nephro calcification, hydronephrosis, pyelonephrosis, stricture in urinary tract etc². *Acharyas*, considered *Ashmari* as dreadful as god of death. The successful treatment of this disease has become a challenge to modern physician as well as Ayurvedic physician. Today we can see the great complications like ureter injury, such as ureteral perforation and avulsion, retained or forgotten ureteral stent, sepsis³, & 7.7% failure rates of surgical treatment in this disease with the costly

management⁴. There are two kinds of therapies in modern medicine viz. Hydrotherapy (if calculus is of size < 5 mm & surgical removal of calculus if it is of > 5 mm. According to the available knowledge, there is no such medicine in modern science which crushed down urinary calculus or reduces size of it. Treatment used in modern science are not effective in prevention of recurrent calculi, where as some herbal medicine claims to prevent recurrence of calculi with minimal or no side effects.

Scope of Study- The usages of plants are known to us from *Vaidik Kala*. The knowledge of usage of medicinal plants increases gradually with the increase of their usage. There are so many preparations mentioned in *Ayurveda Samhitas* for the management of diseases, some of them are still under controversy. Very few of them are under research work

to confirm the truth of these statements. The Indian indigenous drugs have great importance both from the professional & economical points of view. “*Dhaua Phindawri*” (*Nothosaerva brachiata* Linn. Wight.) one of the traditional / indigenous drugs which are claimed as having very good lithotriptic property by tribal public and *Vaidyas* since very long time. Hence research work was carried on this traditional drug⁵.

To explain the advantages of “*Dhaua Phindawri*” (*Nothosaerva brachiata* Linn. Wight.) Over the other therapeutic drugs for achieving better effect and to avoid disadvantage of other therapies for *Mutrashmari*, the work was carried forward.

Drug Details- *Dhaua Phindawri* is a drug used in some parts of Maharashtra and

Rajasthan by local peoples in treatment of Calculi. It is an annual herb found in sandy depressions or ditches. The shrub has many spreading branches from the base to upwards; stem and branches sub erect, striate, glabrous or thinly hairy, Leaves narrowly to broadly elliptic, elliptic-oblong or ovate, entire, thinly hairy to glabrous or almost so, obtuse to sub acute at the tip, lamina of the lower main stem-leaves c. 10-40 (-50) x 6-20 mm, gradually or more abruptly narrowed to a petiole about half the length of the lamina, upper and branch leaves becoming shorter and narrower.

Flowers in dense, 3-15x 2-2.5 mm spikes, which are clustered in the leaf-axils of the stem and branches or on very short auxiliary shoots; spikes sessile, or the terminal spike on auxiliary shoots.

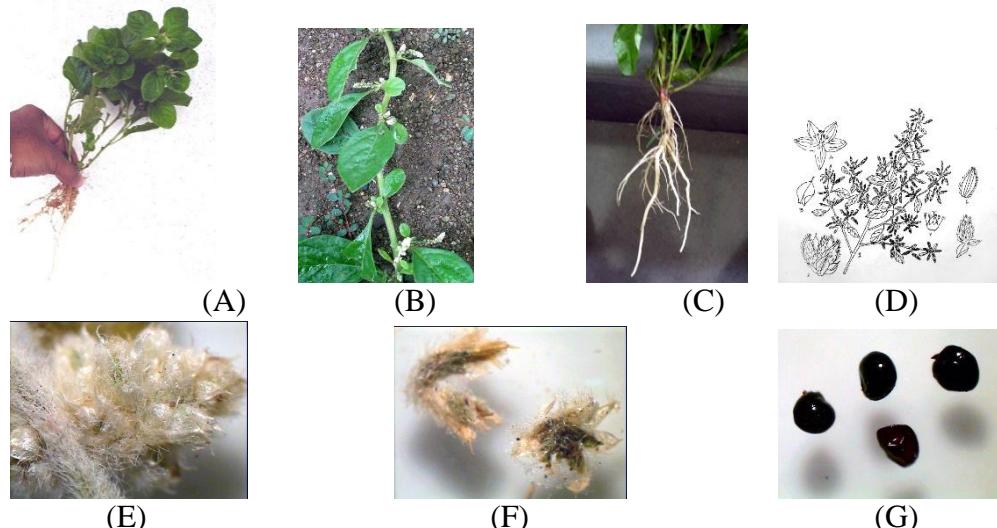


FIG A, B, C, D- *Dhaua Phidawri* plant; E- Inflorescence, F- Open Flower, G- Seeds (FIG A, B, C are Original Photos by Mobile camera phone by Dr. Prakash M. Sutar from District Ahmednagar in August 2005), D- *Dhaua Phidawri* plant; (E- Inflorescence, F- Open Flower, G- Seeds are Original Microscopic Photographs collected herb- Courtesy Zandu Pharmacy- Mumbai)

ASHMARI NIDAN

HETU-SAMPRAVTI-

According to *Sushruta* due to foods and activities, *Kapha* gets aggravated, combines with urine, reaches the urinary bladder and staying there produces calculi (stones)⁶.

Madhava explains that one each from *Vata*, *Pitta* and *Kapha* and another one

from *Shukra* (semen); thus *Ashmaris* are dreadful like the god of death⁷.

Acharya Charaka explains that *Ashmaris* (stone, calculi) gets formed when *Vata* dries up the semen, urine, *Pitta* or *Kapha* stored in the urinary bladder, just as bile gets solidified in (gall bladder of) the cow. All types of *Ashmaris* are caused by the combination of all the three *Doshas*⁸.

Purvarupa (Premonitory Symptoms):

Vagbhata⁹- Distension of the bladder, severe pain in and around the site of stone, urine emitting the smell of goat, difficulty for elimination of urine, fever and loss of appetite.

Sushruta¹⁰- Fever, pain in bladder, loss of taste, difficult micturition, pain in the head of the bladder, scrotum and penis; troublesome body aches and urine having the smell of the goat. Specific symptoms and color of the *Dosha* producing the disease, urine becoming vitiated, thick and turbid and difficult micturition are seen in the patient, in the premonitory stage of calculi.

Rupa (Clinical Features)

Vagbhata¹¹- Pain near the umbilicus, raphae and head of the bladder; stream of urine interrupted when its path is obstructed (by the stone) and easy flow when its path is free, urine is clear, resembles *Gomedaka* gem (dolomite) in color (yellow), when it causes a wound by friction, the urine will be mixed with blood, pain becomes more on excretion (straining to pass urine).

Sushruta¹²- After manifestation, the person has in the area of the umbilicus, bladder, raphae (perineal), penis and other areas nearby during micturition, interruption of stream of urine, urine mixed with blood, urine scattering (spreading in many streams); urine resembling *Gomedaka* (dolomite stone) in color (light yellow), very turbid and containing sand (gravel); there is pain during running, jumping, swimming, riding, exposure to sunlight, long walk etc.

Lakshanas-Signs and Symptoms

Pain in the region of the heart, weakness of the thighs, pain in the abdomen, tremors, thirst, upward movement of *Vata* (reverse peristalsis), emaciation, debility, yellowish-white colour of the body, loss of taste and improper digestion are the symptoms of the persons suffering from urinary gravel¹³.

When obstructed during its coming out of the urinary passage, it gives rise to secondary diseases such as debility,

exhaustion, emaciation, abdominal pain, loss of taste, anemia, burning micturition, thirst, pain in the region of heart and vomiting.

Over-indulgence in physical exercise, consuming heat producing medicines, and alcoholic drinks; fast riding on animals or other vehicles for long time, eating flesh of animals (or birds) of marshy places, eating foods too frequently and indigestion; these and other causes makes for increase of one or all the *Doshas* together, which in turn get localized in the urinary bladder and urinary tract producing difficulty in micturition¹⁴.

If it gets bigger and obstructs the passage, complications such as debility, exhaustion, emaciation, pain in the lower abdomen, loss of appetite, anemia, burning micturition, thirst, pain in the heart and vomiting will develop.

Samprapti Sanghatanatmaka Vivaran

- 1) *Udbhava Sthana: Pakwashayoth Vyadhi*
- 2) *Adhishthana : Kidney, Ureter, Bladder*
- 3) *Vyaktisthan : Kidney, Ureter, Bladder*
- 4) *Sanchara : Rasayani,*
- 5) *Agni : Vishama*
- 6) *Ama : Jatharagnimandyajanya/ Dhatwagnimandyajanya/ Malasanchayajanya Ama*
- 7) *Ashrya : Mutravahastrotas Ashrita*
- 8) *Doshas : Vata Pradhan Tridosha*
- 9) *Dushya : Rasa, Rakta*
- 10) *Rogamarga : Madhyam*
- 11) *Strotas : Mutravaha Srotas*
- 12) *Srotodushti type : Sanga*
- 13) *Vyadhi Swabhava : Chirakari*
- 14) *Specialities : Mahagada*

Sthana of Ashmari

According to *Charaka*¹⁵, *Sushruta*¹⁶, *Vagbhata*¹⁷ & other Acharyas, place of *Ashmari* is *Basti* (bladder). But in *Nidan*

Sthana, Acharya Sushruta had mentioned *Mutravaha-Srotas* (urinary tract) as *Basti* indirectly¹⁶. Hence all *Acharyas* were indirectly ready to agree *Mutravaha Srotasa* (kidney, ureter, bladder & urethra) as *Basti* for formation or place of *Ashmari* (urinary calculus).

Modern science has mentioned types of *Ashmari* according to their places¹⁸:

- Renal calculus
- Ureteric calculus
- Vesical calculus
- Cholelithiasis (Gall Bladder stone)
- Prostatic calculus

Etiology:

- 1) Hypercalcuria-----33%
- 2) Oxaluria-----15%
- 3) Acid urine-----11%
- 4) Cystinuria-----3%
- 5) Infection-----1%
- 6) Unknown cause---37%

Causes of Hypercalcuria:

- 1) Primary parathyroidism--29%
- 2) Bone disease-----19%
- 3) Excess of milk, alkali (milk-alkali syndrome)/ vitamin-16%
- 4) Renal tubular acidosis-----9%
- 5) Unknown-----27%

Pathology of Urolithiasis

Pathogenesis

Normal urine contains a number of crystalloids. These are held in a supersaturated solution by the protective action of colloids, namely; Mucin and Chondroitin sulphate. Under certain circumstances these crystalloids become precipitated, and at the same time, the colloids are also modified regarding their solvent action, and thus acquiring a kind of adhesive property. Thus the precipitated crystals are bound together by the altered colloids to form stones. Therefore, for formation of stones, changes in both crystalloids and colloids are essential.

Formation of Renal Calculi

Calculi is formed by encircling any carbonic particle with urinary salts—

In center- Uric acid or Oxalate

Outer side- Phosphate

Chikitsa of *Mutrashmari*- Ayurvedic view:

It is to be treated with medicine if recent and when increased in size it requires cutting (surgical therapy). In its premonitory stage, therapies like oleation are desirable; by these the disease gets mitigated¹⁹.

***Chhedan*- (Surgical operation)²⁰**- When the *Ashmari* does not get reduced by the use of medicated *Ghee*, alkalies, decoction, milks and enema to the bladder, then the next treatment is *Chhedan*. Success in the surgical treatment is uncertain even for an skilled surgeon; hence this treatment is considered as the last resort.

If this surgical treatment, is not performed death is sure and if done the result is uncertain; hence it should be done only after obtaining consent of the well-wishers of the patient.

Ashmarighna property of *Dravya*⁵:

(Jharkhande Ojha)

Actions of *Ashmarighna* drugs are difficult to explain. These drugs form a layer on a calculus and stay as a part of calculus. Bilnon & polyphenol are dissolving ions work as complexing agent. May be because of this, they work as a lithotriptic drugs. Some drugs are beneficial because of their *Mutral Guna* (Diuretic action).

Saponins are also useful as an *Ashmarighna*. They release the surface tension of *Ashmari*, & by increasing dissolving capability prevents accumulation of particles (gravels).

Dhauila Phindawri-

The predicted properties by carrying experiment are as below:

Rasa- Kashaya, Tikta & Madhura

Virya- Sheet--- Guna- Sheeta-

Karma- Mutravirechaniya

Investigations for Urinary Calculus

- 1) Urine examination –routine & microscopic
- 2) Radiological examination like Ultrasonography of abdomen or K.U.B.

Table no 1-PATHYAPATHYA FOR Mutrashmari²¹

No.	Aahara	Pathya	Apathya
1	Anna Varga	<i>Tambadi Junni Sali, Flour, Satu</i>	Corn, Vari, Nachani, Save Etc. Ruksha Dhanya.
2	Shaka Varga	<i>Tandulaja, Kale Math, Lal Math, Padval, Mula, Ghol</i>	<i>Shevaga, Tomato, Tambada Bhopala, Dodaka, Ghosali, Methi, Ambadi, Chukka.</i>
3	Dvidal	<i>Muga, Kulitha</i>	<i>Vala, Vatane, Pavate, Mataki, Chavali, Udida,</i>
4	Mansa Varga	Goat, Hen	Fish, Duck, Crabs, Prawn, Pig, Sheep,
5	Phala Varga	<i>Kohala, Kakadi, Grapes, Coconut, Date, Water Melon</i>	<i>Jambhula, Kachche Kavatha, Pineapple, Alubukhar, Pitch, Karmal, Ambade.</i>
6	Dugdha Varga	Milk, Curd, Butter Milk, <i>Loni, Ghee</i> (From Cow Milk)	Milk Of Cheese.
7	Jala Varga	Cold Water, <i>Sanskari Jala</i>	<i>Paryushita Jala, Very Hot Water</i>
8	Kanda Varga	Ginger, Green Cucuma, <i>Kelicha Kanda, Mula</i>	Garlic, Aravi, Carrot, <i>Sabudana</i>
9	Madhu Varga	<i>Hirada, Gel, Karavia Honey</i>	<i>Madhusharkara, Jambhula Madha.</i>
10	Other Aahara	<i>Dhane, Jire, Kothimbir, Ela, Tamarind, Cane, Santal, Durva, Sabja, Ahaliv, Jestimadha, Gavati Chaha, Mendi, Gula, Shunth, Tea, Coffee.</i>	---
Vihara		Rest, Bath (Cool Water), <i>Lepa, Tub-Bath, Fomentation, Oleation, Uttarbasti, Basti.</i>	<i>Shrama, Vyavaya, Vyayama, Heat Contact, Ratraujagarana, Yana Pravasa, Raktamokshana.</i>

AIM:

“To Study The Efficacy Of *Dhaura Phindawri* (*Nothosaerva brachiata*) In The Management Of Urolithiasis (*Mutrashmari*), At Suburbuan Region Of Mumbai”.

MATERIALS AND METHODS:

Number of patients : 30
 Age & sex : Age 12-60yrs & of either sex
 Place of Study :SMT.K.G.Mittal
 Punarvasu Ayurvedic Medical College and Hospital, Charni road, Mumbai
 Formulation (*Kalpana*): *Kwatha*
 Dose of drug : 30ml x twice a day
 Time of administration: *Pragbhukta*
 Treatment period : 8 weeks

Pathyapathy : Pathyapathy was explained to the Patients according to *Nidana*.

Investigations : U.S.G.-- K.U.B. / Whole Abdomen

INCLUSION CRITERIA—

- Age 12-60yrs & of either sex
- Patients with 6-10mm and above of Renal Calculi without any complication like Hydronephrosis.

EXCLUSION OF CRITERIA—

- Patients having Renal failure.
- Patients on dialysis.
- Patient having Nephrocalcification.
- Moderate to severe Hydronephrosis.

- Pyelonephrosis.
- Stricture in urinary tract.

OBSERVATIONS AND RESULTS:

The change in Sign and symptoms were observed before treatment (BFT) and after treatment (AFT) it is shown in following tables-

Table no. 2 shows Upashaya according to Symptoms in patients

No.	Symptoms	No. of patients		Upashaya in percentage
		Before Rx	After Rx	
1	Pain at Umbilicus	9	2	77.78 %
2	Pain at Paraumbilical region	5	1	80%
3	Pain at Hypogastric region	3	1	66.67%
4	Pain at Anal region	3	1	66.67%
5	Pain at Scrotum	6	1	83.33%
6	Pain at Urethra	3	0	100%
7	Pain at Rt. Lumber/ post renal region	13	5	61.54%
8	Pain at Lt. Lumber/ post renal region	15	8	46.67%
9	Pain at both Lumber/ post renal region	7	4	42.86%
10	Pain at back (Dullache over post renal area)	12	5	58.33%
11	Severe pain (Rt or Lt. Lumber region)	6	0	100%
12	Radiating pain	6	0	100%
13	Aggravation of pain by movements	16	3	81.25%
14	Aggravation of pain by forceful defecation / Constipation	15	4	73.33%
15	Aggravation of pain by fasting	15	1	93.33%
16	Frequent micturition	20	5	76.92%
17	Oligouria	26	6	80%
18	Obstructive micturition / Anuria	0	0	-
19	Dysuria- <i>Murtramarga-Kshobh</i>	3	1	66.67%
20	Dysuria- <i>Murtramarga-Kshat</i>	5	0	100%
21	<i>Gomed-Varni Mutra-Pravrutti</i>	17	2	88.25%
22	<i>Aavil / Sandra Mutra Pravrutti</i>	16	3	81.25%
23	<i>Aachchha Mutra Pravrutti</i>	0	0	-
24	Haematuria or <i>Araktavarni mutrata</i>	6	0	100%
25	<i>Mutradhara Vishirna</i>	3	2	33.33%
26	Fever with / without chills	16	0	100%
27	Anorexia	16	4	75%
28	Chest pain (sp.- <i>Hritpida</i>)	13	2	84.61%
29	<i>Sarvanga Kampa</i>	10	3	70%
30	<i>Murchchha</i> (unconsciousness)	8	2	75%
31	Cutting of lips by teeth	5	0	100%
32	Pressure on umbilicus by hand	8	1	87.5%
33	Holding of genitalia	0	0	-
34	Burning over bladder region	0	0	-
35	Heaviness over bladder region	3	0	100%
36	<i>Shaitya</i> (Coolness) over bladder region	3	1	66.67%
37	Burning / painful micturition	16	2	87.5%
38	Vomiting / Nausea	9	0	100%

DISCUSSION : “*Dhauila Phindawri*” is a traditional drug & having very less

information in literatures. It has been correlated with *Pashanabhesha* by few

Acharyas. It has good antilithiatic & diuretic properties.

It was found that 6 patients (20%) got *Uttam Labha* in symptoms, 11 patients (37%) got *Madhyama Labha* in symptoms, 10 patients (33%) got *Alpa Labha* in symptoms, while 3 patients (10%) did not get any *Upashaya* in symptoms.

Upashaya in no. of gradations of each symptoms of *Mutrashmari* is as follows

- 1) The use of *Dhauila Phindawri* in *Mutrashmari* shows that severity of umbilical pain was lowered by 77.78%,
- 2) Paraumbilical pain was lowered by 80%,
- 3) Hypogastric region pain was lowered by 66.67 %,
- 4) Anal region pain was lowered by 66.67%,
- 5) Scrotal pain was lowered by 83.33%,
- 6) Urethral pain was lowered by 100%,
- 7) Rt. Lumbar /post renal region pain was lowered by 68.42%,
- 8) Lt. Lumbar/ post renal region pain was lowered by 52.17%,
- 9) Both Lumbar/ post renal region pain was lowered by 64.28%,
- 10) Dull ache over post renal area was lowered by 66.67%,
- 11) Severe pain (Rt. or Lt. Lumbar) was lowered by 100%,
- 12) Radiating pain was lowered by 100%,
- 13) Aggravated pain by movements was lowered by 88%,
- 14) Aggravated pain by forceful defecation / Constipation was lowered by 80 %,
- 15) Aggravated pain by fasting was lowered by 93.75%,
- 16) Frequent micturition was lowered by 80.56%,
- 17) Oliguria was lowered by 81.57%,
- 18) Dysuria-(*Murtramarga-Kshobh*) was lowered by 66.67%,
- 19) Dysuria-(*Murtramarga-Kshat*) was lowered by 100%,
- 20) *Gomed-Varni Mutra-Pravrutti* was lowered by 89.48%,
- 21) *Aavil/ Sandra Mutra-Pravrutti* was lowered by 76.19%,

- 22) Haematuria or *Arakta Varni Mutrata* was lowered by 100 %,
- 23) *Mutradhara Vishirna* was lowered by 57.14%,
- 24) Fever with/ without chills was lowered by 100%,
- 25) Anorexia was lowered by 80%,
- 26) Chest pain (sp.- *Hritpida*) was lowered by 85.71%,
- 27) *Sarvanga Kampa* was lowered by 72.72%,
- 28) *Murchchha* (unconsciousness) was lowered by 75%,
- 29) Cutting of lips by teeth was lowered by 100 %,
- 30) Pressure on umbilicus by hand was lowered by 87.5%,
- 31) Heaviness over bladder region was lowered by 100%,
- 32) *Shaitya* (Coolness) over bladder region was lowered by 66.67%,
- 33) Burning / painful micturition was lowered by 100 %,
- 34) Vomiting/ Nausea was lowered by 100 %
- 35) 10 patients (33.37%) in gradation 22 had symptom of *Vyapet Sukham*. By using *Dhauila Phindawri Panchanga Kwatha* for 8 weeks, study shows that 25.5% got *Upashaya*, Out of 30 patients 10 were had this symptom (in total grade 22) during treatment. There were 5 calculi from 3 patients remain unreduced in size.

There were 9 calculi reduced by 1 to 39% of their previous sizes, 24 calculi were reduced by 40 to 69% & 13 calculi reduced by 70 to 100%. 20% got *Uttam Labha* in total no. of calculi, 7% got *Madhyama Labha*, 13% got *Alpa Labha* & 60% did not get any *Labha* in total no. of calculi.

Out of total number of subjects, 23% subjects got *Uttam Labha* in total size of calculi, 57% got *Madhyama Labha*, 10% got *Alpa Labha* & 10% did not get any *Labha* in total size of calculi.

Other statistical results of clinical trials are as follows:

- 1) There is maximum 18 mm sized calculus found in one patient & minimum 2 mm sized calculi found in 4 patients before treatment.
- 2) After treatment 13 calculi disappeared (expelled out by treatment) from total 51 calculi (total 391mm sized) (25.5% *Upashaya*).
- 3) 18 patients (60%) were found with history of duration having renal calculi.
- 4) 10 patients had *Vyapet Sukham* symptom during treatment. (Calculi gets expelled out of urinary tract).
- 5) Study shows patients of calculi in Kidney got *Alpa Labha* (16.67%) in reducing calculi number. Patients of ureteric calculi got *Uttam Labha* (100%) and there is *Alpa Upashaya* to the patients with calculi in urinary bladder.
- 6) Study shows patients of calculi in Kidney got *Madhyam Labha* (44.44%) in reducing size of calculi. Patients of ureteric calculi got *Uttam Labha* (100%) and there is *Alpa Labha* (38.09%) to the patients with calculi in urinary bladder.
- 7) Total 17 patients (57%) got *Madhyama* type of *Upashaya* in total size of calculi per patient by *Dhauila Phindawri*.
- 8) Total 11 patients (37%) got *Madhyama* type of *Upashaya* in symptoms of urinary calculi by *Dhauila Phindawri*.
- 9) Total 18 patients (60%) did not get any type of *Upashaya* in number of calculi. 25.5% *Upashaya* found in number of calculi.
- 10) 10 patients got *Vyapet Sukham Lakshana* during treatment.
- 11) 100% *Upashaya* found in ureteric calculi. *Dhauila Phindawri* gave *Madhyama Labha* on *Mutrashmari*.

CONCLUSION

Dhauila Phindawri with its lithotriptic and diuretic properties acts on *Mutravaha Strotasa*. The present clinical study shows that the drug- *Dhauila Phindawri* works on signs and symptoms of *Ashmari* effectively & also on reducing the size & number of calculi with property of expelled out calculi. Normal diameter of

ureter ranges from 5mm to 8mm. As a part of study, it was found out that a patient with 18 mm calculi in kidney also. But it was not causing hydronephrosis as there was no obstruction. Considering the encouraging results obtained in this trial this study can be performed on a larger sample size to further validate its efficacy in the management of *Ashmari*.

Thus, *Dhauila Phindawri* works on above symptoms effectively & also on reducing the size & No. of calculi with property of expelled out calculi. This work proves that *Dhauila Phindawri* has Antilithiatic & Diuretic action.

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