

MEDICAL LITHOTRIPSY

A Clinical Study With an Indigenous Drug

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INTRODUCTION

“ Urinary stone has afflicted mankind from primitive times. Although some progress has been done recently in understanding its causes, stone formation still remains one of the major disorders of urinary system. It is estimated that one – third of the patients having a stone in the kidney ultimately lose the kidney either by operation nephrectomy or by consequent degeneration. It is now recognized that surgical removal of the calculi does

not necessarily result in the cure of the disease. It is because calculi formation frequently reflects the underlying abnormalities which should be identified and corrected or else calculi are bound to recur”.

PHYSIOLOGY

Here a short review of the physiological functions of the kidneys will be helpful in understanding the important role played by these organs. Kidneys eliminate waste products of tissue metabolism, help in maintaining water balance and temperature regulation of body, and acid-base equilibrium of blood. Kidneys have lot of reserve power but beyond which there will be deterioration of functions, which will be very harmful to the health of person and will endanger life.

AETIOLOGY

The following are some of the important factors in calculus formation in urinary tract.

- (a) Hereditary – and familial predisposition.
- (b) Endemic in certain hilly regions – probably due to consumption of mineral or hard waters.
- (c) Vitamin A deficiency in diet.
- (d) Metabolic disturbances with excess intake of purin----cocoa- chocolates- leafy vegetables etc.
- (e) Hyperparathyroidism and Hypocalcaemia. In disease of bones, prolonged bed rest as in T.B. Spine, Poliomyelitis, renal tubular acidosis, excess intake of Vitamin D, Milk – alkalies, stomach powders etc.
- (f) Crystalloid – colloid imbalance in blood.

TYPES OF CALCULI

Calculi are composed of one or more of the following ingredients deposited from the urine in the pelvis of kidney or at times in the substance of the kidney, due to factors mentioned above and are usually impregnated and held together with fibrin etc. Ingredients are calcium, phosphorous, magnesium, ammonium, cystine, xanthine uric acid, urates, oxalates etc.

- I. Calcium Oxalates: Dark – brown often spiky found in highly acid urine.
- II. Uric acid and Urates: Light – brown round or other shaped found in highly acid urine e.g. gout
- III. Composite Stones: In alternative layers of urates and oxalates in different forms.
- IV. Phosphates: In infected alkaline urine.
- V. Cystine and Xanthine are rare varieties.

CLINICAL FEATURES

They may remain silent or get encysted and become silent or symptomless, or cause chronic pyelitis. When a stone starts shifting it causes attacks of renal colic, with partial obstruction, it causes intermittent hydro or pyonephrosis. The complete obstruction may lead to anuria, uraemia and death. In bladder it may cause irritation, frequency, strangury and haematuria.

MANAGEMENT

Depends upon correct diagnosis, careful history, physical examination, laboratory test of urine, plain X-ray of abdomen, cystoscopy. Pyelography descending I.V.P. or ascending, will help to locate the calculus.

RENAL COLIC

Atropine, Morphine, Pethidine, Transentinal by injections, Deproprone - pancreatic extract may help. Formentations, Alkaline or acid mixture and rest after the attack to heal inflammation caused by Calculus.

Allopathy has nothing specific to offer except diuretics and surgery. Since as described before, surgery is not a cure as stone formation does not stop till aetiological factors are not corrected. Because people are reluctant for surgery, we were tempted to try Calculus of Indigenous origin in our series of cases hearing about good reports of some of Ayurvedic drugs in this malady.

MATERIAL AND METHOD

Fifty cases of renal colic attending our clinics in the years 1962 – 1966 were studied. Their past & present history, diet, mode of life, work etc. were carefully noted. Their examination during the attack – radiation of pain etc. difficulty in passing urine, tenderness in loin, B.P. etc. done. Laboratory examination of urine, stool, plain X-ray of abdomen and descending I.V.Pyelography were done to find out and located calculi.

Their Ages:	10-25	26-35	36-45	Over 46	
	6	21	18	5	- 50

Sex :	16 Females	34 Females			- 50
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Duration :	1-2 Months	3-6 Months	Over 6 Months		
	18	21	11		- 50

Plain X-ray showed Radio opaque stones only in 21, location of stones with X – ray and descending Pyelography

- 2 Kidney substance
- 3 Pelvis of Kidney
- 7 Ureter at Different sites
- 4 Bladder
- 5 Urethra at different sites

—
21
—

Urine examination was positive in all cases and showed:

Albumen R.B.C. Pus cells.

Epithelial cells – and crystals of Calcium oxalate in some ,urate, uric acid,

Phosphates in other cases.

DOSAGE & OBSERVATION

Only 21 cases with definite shadows of radio opaque stones were taken for study. The rest were excluded from further study.

All were advised to carry on routine work wherever possible. When not in acute attack of renal colic, with attention to bowels and were asked to urinate in a clean bottle to note passage of calculus if any. They were advised to carry this bottle with them to place of work too. Diet advised being plain, non – spicy avoiding leafy vegetables, tomatoes; nuts, Plenty of water, weak tea, and aerated waters were freely permitted to flush out urinary system. Some who got further attacks of renal colic were given rest, fomentation – anti spasmodic mixture and atropine injection too. All were put on calcury tablets by mouth in dosage 2 q.d.s. with water and weekly results were noted, as to passage of stone in urine, frequency and colour of urine and severity of attack. Side effects if any of drug were also recorded. Treatment was carried on uninterrupted for eight weeks at end of which plain X-ray was repeated in all 21 cases.

Only eight showed radio opaque shadows – while one showed multiple small shadows in the kidney. In this case, there was formerly one big shadow showing thereby that a calculus had broken into small multiple fragments.

Urine was clear in 11 cases and positive in 12 cases.

9 cases had passed intact calculi of sizes varying from big millet to rice grain during the course of treatment of eight weeks. In case of four now showing absence of radio opaque shadows, of renal colic according to patients increased number but diminished in severity. Urine showed clarity to normal slowly in cases, which passed calculi down and out. Neither side effects nor signs of toxicity were noticed in this study.

Result of treatment:

21 CASES	9 cases passed Calculi	4 cases passed disintegrated calculi sediment
	8 cases did not pass Calculi	1 case of which showed disintegration of Calculi into smaller bits.
	As per X-ray 11 cases showed Clear urine	10 + 2 showed urine still positive. 2 probably clearly slowly.

No side effects of the drug could be noted.

DISCUSSION

Renal Calculi are common in our country probably due to Vitamin A deficit and diet and use of mineral and hard waters – stomach powders, alkalis purine substances. The existing allopathic treatment with diuretics and surgery is not satisfactory. In spite of reduced risks of mortality and morbidity due to modern methods SURGERY is presented as costly ordeal by many and stones often recur even after an operation if causative factors are not attended to Nephrectomy on one side puts the existing other kidney to extra strain whenever possible this should be avoided.

Treatment we tried in our study has given very encouraging results. Nine cases passed intact calculi in urine, four got rid of calculi as disintegrated sediment that is 13 out of 21 that is 62% approx success. While one showed fragmentation probably prior to exit that 5% approx that is 67% over all benefit against 33% failures.

Eight week period is too short for success of this sort of medical therapy. A longer course of treatment and observation with more number of cases will be helpful.

The drug seems to be acting as under:

- (1) Disintegration of Calculi;
- (2) Flushing it out with diuresis it produces;
- (3) Anti – spasmodic: Reduces severity of attacks of renal colic, which is less unbearable.
- (4) Antiseptic: Reduces frequency, strangury, fever of cystitis, pyelitis etc.

SUMMARY & CONCLUSION

Fifty cases of renal colic were studied. Twenty-one of these 50 cases showed radio opaque calculi. These were located with descending I.V. pyelography and confirmed with urine examination. These latter number 21 – were put on calcury tablets by mouth in dosage of 2 q.d.s. and weekly results were noted as to severity of attacks of renal colic. Urine examination and watch as to whether they passed calculi as they were advised to urinate only in clean bottle. Side effect of drug if any were noted. Treatment was continued unabated for eight weeks. This was followed by plain X – rays in all 21. Only eight showed radio opaque shadows now and one of them showed small multiple Calculi in place of big one seen in the first X-ray. Beneficial effect was seen in 13 cases – out of which nine passed intact calculi and four as sediment. $9+4 = 13$ out of $21=62\%$ one case in stage of disintegration = 5%, before being voided in urine. No side effects were noted and the drug was well tolerated.

This drug gave very encouraging results in 67% cases. A long-term study with more cases will be helpful in drawing final conclusions. Calcury has therefore a definite place in the treatment of renal calculi and must be tried in all – stones, unless very urgent before resorting to surgery. Treatment is economical, effective, nontoxic and does not require qualified supervision.

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