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# Utility of Homoeopathic Medicines in Management of Nephrolithiasis

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## ABSTRACT

Urolithiasis is the process of formation of stones anywhere in the urinary tract. It is a disorder of the urinary tract which is caused by a wide range of aetiological factors. Urolithiasis is one of the third most common afflictions found in humans. Approximately 80% of all kidney stones are composed predominately of calcium oxalate. These stones may lead to obstruction with dilation or stretching of the upper ureter and renal pelvis as well as spasm leading to severe episodic abdominal pain. Homeopathy, on the other hand, is a very effective cure for kidney problems and it is very cost effective for the patient to treat Kidney Stones. It eradicates the problem from its roots and helps prevent any further diseases and problems in the kidney. There are various Homoeopathic remedies which are very helpful to break and remove the kidney stones from the body and remove the recurrency of the kidney stones from Homoeopathic Medicines and these helps to establish the permanent cure of the patient.

***KEYWORDS***: *Kidney stone, Nephrolithiasis, Calcium oxalate, Calcium Phosphate, Uric acid, Struvite stone, Cystine stone, Homoeopathy, Homoeopathic Medicines*

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## DEFINITION

- **Kidney stone disease**, also known as **Nephrolithiasis** or **urolithiasis**, is when a solid piece of material (kidney stone) develops in the urinary tract. Kidney stones typically form in the kidney and leave the body in the urine stream.
- Nephrolithiasis, or kidney stone disease, is a common, painful, and costly condition.
- While a stone may form due to crystallization of lithogenic factors in the upper urinary tract, it can subsequently move into the ureter and cause renal colic. If a stone grows to more than 5 millimeters (0.2 in), it can cause blockage of the ureter, resulting in severe pain in the lower back or abdomen. In some regions, the risk is higher, most notably in countries such as Saudi Arabia, where the lifetime risk of developing a renal stone in men aged 60–70 is just over 20%.

## INTRODUCTION

- There are various types of kidney stones. It is clinically important to identify the stone type, which informs prognosis and selection of the optimal preventive regimen.
- ***Calcium oxalate stones are most common (~75%);*** next, in order, are *calcium phosphate (~15%), uric acid (~8%), struvite i.e.,*(Magnesium ammonium phosphate) *(~1%), and cystine (<1%) stones.* Many stones are a mixture of crystal types (e.g., calcium oxalate and calcium phosphate) and also contain protein in the stone matrix. Rarely, stones are composed of medications, such as *acyclovir, indinavir, and triamterene.*

## EPIDEMIOLOGY

- Nephrolithiasis is a global disease. Data suggest an increasing prevalence, likely due to Westernization of lifestyle habits (e.g., dietary changes, increasing body mass index).
- National Health and Nutrition Examination Survey data 2007–2010 indicate that up to 19% of

men and 9% of women will develop at least one stone during their lifetime. The prevalence is ~50% lower among black individuals than among whites. The incidence of nephrolithiasis also varies by age, sex, and race.

**PATHOGENESIS-**

- In the consideration of the processes involved in crystal formation, it is helpful to view urine as a complex solution. A clinically useful concept is *super saturation (the point at which the concentration product* exceeds the solubility product).
- However, even though the urine in most individuals is supersaturated with respect to one or more types of crystals, the presence of inhibitors of crystallization prevents the majority of the population from continuously forming stones.
- The most clinically *important inhibitor of calcium-containing stones is urine citrate*. While super saturation is a calculated value (rather than being directly measured) and does not perfectly predict stone formation, it is a useful guide as it integrates the multiple factors that are measured in a 24-h urine collection.
- Recent studies have changed the paradigm for the site of initiation of stone formation. Renal biopsies of stone formers have revealed calcium phosphate in the renal interstitium.
- It is hypothesized that this calcium phosphate extends down to the *papilla and erodes through the papillary epithelium*, where it provides a site for deposition of calcium oxalate and calcium phosphate crystals.
- The majority of calcium oxalate stones grow on calcium phosphate at the tip of the renal papilla (*Randall's plaque).*
- Thus, the process of stone formation may begin years before a clinically detectable stone is identified. The processes involved in interstitial deposition are under active investigation.

**PREDISPOSING FACTORS-** Predisposing factors for kidney stones are-

- Environmental and dietary causes
- Low urine volumes: high ambient temperatures, low fluid intake
- Diet: high protein, high sodium, high calcium
- High sodium excretion
- High oxalate excretion
- High urate excretion
- Low citrate excretion

**RISK FACTORS-**

- **Genetic Risk Factors-** The risk of nephrolithiasis is more than twofold greater in individuals with a family history of stone disease. While a number of monogenic disorders cause nephrolithiasis.
- The two most common and well-characterized rare monogenic disorders that lead to stone formation are *primary hyperoxaluria and cystinuria*.
- *Primary hyperoxaluria* is an autosomal recessive disorder that causes excessive endogenous oxalate generation by the liver, with consequent calcium oxalate stone formation and crystal deposition in organs. Intraparenchymal calcium oxalate deposition in the kidney can eventually lead to renal failure.
- *Cystinuria* is an autosomal recessive disorder that causes abnormal reabsorption of filtered dibasic amino acids. The excessive urinary excretion of cystine, which is poorly soluble, leads to cystine stone formation. Cystine stones are visible on plain radiographs and often manifest as staghorn calculi or multiple bilateral stones.
- Stones are due to composed of medications, such as *acyclovir, indinavir, and triamterene.*
- Infections can cause Struvite **stones** are virtually always **caused** by a urinary tract **infection** (UTI) as a result of an enzyme secreted by certain types of bacteria like klebsiella, E.coli, Proteus mirabilis.

**CAUSES-**

- *Dehydration from low fluid intake* is a major factor in stone formation. Individuals living in warm climates are at higher risk due to increased fluid loss.
- *Obesity, immobility, and sedentary lifestyles* are other leading risk factors.
- *High dietary intake of animal protein, sodium, sugars including honey, refined sugars, fructose and excessive consumption of fruit juices* may increase the risk of kidney stone formation due to increased uric acid excretion and elevated urinary oxalate levels.
- Kidney stones can result from an underlying metabolic condition, such as distal renal tubular acidosis, hyperparathyroidism, primary hyperoxaluria, or medullary sponge kidney. 3–20% of people who form kidney stones have medullary sponge kidney.
- Kidney stones are more common in people with Crohn's disease; Crohn's disease is associated

with hyperoxaluria and malabsorption of magnesium.

- A person with recurrent kidney stones may be screened for such disorders. This is typically done with a 24-hour urine collection. The urine is analyzed for features that promote stone formation.

**Acquired causes-**

- Hypercalcaemia of any cause.
- Ileal disease or resection (increases oxalate absorption and urinary excretion)
- Renal tubular acidosis type I

**Congenital and inherited causes-**

- Familial hypercalciuria
- Medullary sponge kidney
- Cystinuria
- Renal tubular acidosis type I (distal)
- Primary hyperoxaluria

**Types of Stones-**

- **CALCIUM OXALATE-** Calcium is one component of the most common type of human kidney stones, calcium oxalate. Some studies suggest that people who take calcium or vitamin D as a dietary supplement have a higher risk of developing kidney stones.
- **CALCIUM PHOSPHATE-** Higher urine phosphate levels and higher urine Ph (typically ≥ 6.5) are associated with an increased likelihood of calcium phosphate stone formation. Calcium phosphate stones are more common in patients with distal renal tubular acidosis and primary hyperparathyroidism.
- **URIC ACID-** The two main risk factors for uric acid stones are persistently low urine pH and higher uric acid excretion.
- Urine pH is the predominant influence on uric acid solubility; therefore, the mainstay of prevention of uric acid stone formation entails increasing urine pH. While acidifying the urine is not easily done, alkalinizing the urine can be readily achieved by increasing the intake of foods rich in alkali (e.g., fruits and vegetables) and reducing the intake of foods that produce acid (e.g., animal flesh). Urine uric acid excretion is determined by uric acid generation. Uric acid is the end product of purine metabolism; thus reduced consumption of purine-containing foods can lower urine uric acid excretion.
- **STRUVITE STONES-** Struvite stones, also known as *infection stones or triplephosphate stones, form only when the upper urinary tract is infected* with urease-producing bacteria such as *Proteus mirabilis, Klebsiella pneumoniae, or Providencia species.*
- *Urease produced by these bacteria* hydrolyzes urea and may elevate the urine pH to a supraphysiologic level (>8.0). Struvite stones may grow quickly and fill the renal pelvis (*staghorn calculi).* Struvite stones require complete removal by a urologist. New stone formation can be avoided by the prevention of UTIs. In patients with recurrent upper UTIs (e.g., some individuals with surgically altered urinary drainage or spinal cord injury), the urease inhibitor *acetohydroxamic acid* can be considered.
- **Cystine stones-** These stones tend to form only in patients with cystinuria, an autosomal recessive disorder affecting 1 in 15,000 adults in the USA that accounts for only 1% of patients with nephrolithiasis. In cystinuria, nephrolithiasis is the only clinical manifestation and it arises as a result of abnormal renal tubule transport which in turn leads to large amounts of urinary cystine excretion. The diagnosis can be made by finding typical hexagonal crystals in the urine.
- ***LOCATION***- Urolithiasis refers to stones originating anywhere in the urinary system, including the kidneys and bladder. Nephrolithiasis refers to the presence of such stones in the kidneys. Calyceal calculi are aggregations in either the minor or major calyx, parts of the kidney that pass urine into the ureter (the tube connecting the kidneys to the urinary bladder). The condition is called ureterolithiasis when a calculus is located in the ureter. Stones may also form or pass into the bladder, a condition referred to as bladder stones.
- ***SIZE***- Stones less than 5 mm (0.2 in) in diameter pass spontaneously in up to 98% of cases, while those measuring 5 to 10 mm (0.2 to 0.4 in) in diameter pass spontaneously in less than 53% of cases.
- Stones that are large enough to fill out the renal calyces are called *staghorn stones* and are composed of struvite in a vast majority of cases, which forms only in the presence of urease-forming bacteria. Other forms that can possibly grow to become staghorn stones are those composed of cystine, calcium oxalate monohydrate, and uric acid.

**CLINICAL FEATURES**

- Many patients with renal stone disease are asymptomatic, whereas others present with pain, haematuria, UTI or urinary tract obstruction.

- A common presentation is with acute loin pain radiating to the anterior abdominal wall, together with haematuria: a symptom complex termed renal or ureteric colic.
- The hallmark of a stone that obstructs the ureter or renal pelvis is excruciating, intermittent pain that radiates from the flank to the groin or to the inner thigh. This pain, known as renal colic, is often described as one of the strongest pain sensations known. Renal colic caused by kidney stones is commonly accompanied by urinary urgency, restlessness, hematuria, sweating, nausea, and vomiting.
- The pain steadily increases in intensity to reach a peak in a few minutes.
- The patient is restless and generally tries unsuccessfully to obtain relief by changing position or pacing the room.
- The intense pain usually subsides within 2 hours but may continue unabated for hours or days. It is usually constant during attacks.
- Patients with large renal stones known as staghorn calculi (see the image below) are often relatively asymptomatic. The term "staghorn" refers to the presence of a branched kidney stone occupying the renal pelvis and at least one calyceal system. Such calculi usually manifest as infection and hematuria rather than as acute pain.
- Dysuria (painful urination),
- Nocturia (excessive at night),
- Urinary hesitancy,
- Fever,
- Chills and
- Abnormal urine color or smell.

**SIGNS**

- Loin tenderness – is usually manifestation of associated infection.
- Palpable kidney in the presence of staghorn calculus, or when obstruction has remitted.

**DIAGNOSIS**

- Diagnosis of kidney stones is made on the basis of information obtained from the history, physical examination, urinalysis, and radiographic studies.
- Clinical diagnosis is usually made on the basis of the location and severity of the pain, which is typically colicky in nature (comes and goes in spasmodic waves). Pain in the back occurs when calculi produce an obstruction in the kidney.
- Physical examination may reveal fever and tenderness at the costovertebral angle on the affected side.
- About 90% of stones contain calcium and these can be visualised on plain abdominal X-ray (radio-opaque stones) but *non-contrast CTKUB is the gold standard for diagnosing a stone within the kidney or ureter, as 99% are visible using this method*.
- Where a *CT scan is unavailable, an intravenous pyelogram* may be performed to help confirm the diagnosis of urolithiasis.
- *Ultrasound* can show stones within the kidney and dilatation of the renal pelvis and ureter if the stone is obstructing urine flow.
- *Microscopic examination of the urine*, which may show red blood cells, bacteria, leukocytes, urinary casts, and crystals;
- *Urine culture* to identify any infecting organisms present in the urinary tract and sensitivity to determine the susceptibility of these organisms to specific antibiotics.
- *Complete blood count*, looking for neutrophilia (increased neutrophil granulocyte count) suggestive of bacterial infection, as seen in the setting of struvite stones; look for calcium, urea, uric acid, parathyroid hormone.
- *Renal function tests* to look for abnormally high blood calcium levels (hypercalcemia).
- *24 hour urine collection* to measure total daily urinary volume, urea, creatinine, magnesium, sodium, uric acid, calcium, citrate, oxalate, and phosphate.
- Collection of stones (by urinating through a Stone Screen kidney stone collection cup or a simple tea strainer) is useful. Chemical analysis of collected stones can establish their composition, which in turn can help to guide future preventive and therapeutic management.

**MANAGEMENT**

- Stone size influences the rate of spontaneous stone passage. For example, up to 98% of small stones (less than 5 mm (0.2 in) in diameter) may pass spontaneously through urination within four weeks of the onset of symptoms, but for larger stones (5 to 10 mm (0.2 to 0.4 in) in diameter), the rate of spontaneous passage decreases to less than 53%.
- The indications for intervention to manage or remove stones from the renal tract are summarized.

| Clinical presentation | Procedure |
|---|---|
| Obstruction and/or anuria | Emergency nephrostomy or stent |
| Pyonephrosis associated with stone | Emergency nephrostomy or stent |
| Stone in a patient with solitary kidney | Urgent PCNL, stent, ESWL or ureteroscopy |
| Severe pain and persistence of stone in renal tract | Urgent PCNL, stent, ESWL or ureteroscopy |

- (ESWL = extracorporeal shock wave lithotripsy; PCNL = percutaneous nephrolithotomy)

**PREVENTIVE THERAPY IN PATIENTS WITH STONE RISK FACTORS-**

**Fluid intake** should be high to avoid periods when urine is concentrated, even at night.

**Dietary calcium.** In patients with hypercalciuria, a calcium intake of 800–1000 mg/day to reduce risk of bone demineralization. No dietary calcium restriction for hypercalciuria.

**Sodium** is an important determinant of excretion of calcium and in hypercalciuric patients, sodium intake should be not more than 2 g/day. This is important in those treated with thiazide diuretics – a high salt intake here increases risk of hypokalaemia, which can promote hypocitraturia.

Another reason to restrict sodium is that natriuresis promotes urinary excretion of oxalate and uric acid.

**Dietary protein.** In patients with hypercalciuria in whom excessive intake of animal protein is suspected (dietary history or excessive 24-hour excretion of sulphate), less dietary protein can reduce calcium excretion.

**Thiazide diuretics** (chlorthalidone, indapamide) stimulate renal calcium reabsorption and reduce urinary calcium excretion.

**Oxalate.** Patients with hyperoxaluria should restrict intake of the many sources of oxalate.

**Hypocitraturia.** Potassium citrate is preferred over sodium because the former promotes citrate excretion and for the need to restrict sodium for reasons already mentioned.

**Hyperuricosuria.** Allopurinol 100 mg/day. Urine should be maintained alkaline in case of uric acid or cystine stones using potassium citrate or acetazolamide.

**Cystinuria.** Chelating agents, e.g. penicillamine and tiopronin are effective in reducing stone formation, but have various side effects. Urinary alkalinization must be maintained at all times. In patients who can tolerate such a regimen, cystine stones can even be dissolved.

**HOMOEOPATHIC MANAGEMENT-**

- **SCOPE-** "Renal colic is caused by a stone in the ureter, which by its irritation causes a spasmodic clutching of the little circular fibres of that canal; the proper medicine relaxes these fibres, and the pressure from behind forces these calculi out at once."-Kent.
- There are various Homoeopathic Medicines by which we can manage the urolithiasis. Some of them are listed below:
- ***Berberis Vulgaris-*** is an excellent remedy for treating a variety of issues related to kidney and renal health. This remedy soothe pain that radiates into the back or shoots towards the bladder. Indicated for Kidney stones if the pain is on the left side. It is especially helpful for reducing bubbling sensations as well as general discomfort or sensitivity in the kidney region. Patient experiences stitching, cutting pain from left kidney following the course of the ureter into bladder & urethra. The patient is experiencing burning & soreness in region of kidneys.
- **Benzoic Acid** -Excess of uric acid in urine. Urine high coloured, urinous odour highly intensified. Dark brown, highly offensive. Gonorrheal & syphilitic patients. Pain suddenly change their locality. Rheumatism & gout.
- ***Cantharis-*** for kidney stone patient has constant urging to urinate, passing but a few drops at a time, which is mixed with blood. Intolerable urging before, during & after urination. Violent paroxysms of cutting & burning in whole renal region. Urine is jelly like, and shredy. The patient has raw pain, sore, burning in every part, internally & externally. Over sensitiveness of all parts. The patient drinking even small quantities of water will have an increased pain in bladder.
- **Colocynth-** Pains on urinating over whole abdomen. Vesical catarrh, discharge like fresh white of egg. Red hard crystals. Renal colic < left side. Agonising pain in abdomen causing patient to bend double, with restlessness, twisting & turning to obtain relief. > hard pressure. Pains < eating & drinking > warm application. Shooting pains like electric shocks. Complaints from anger, indignation, mortification.
- **Dioscorea-** Renal colic with pains radiating to the extremities. Colic pains < bending forward & while lying. > on standing erect or bending backwards. Violent twisting colic, occurring in

regular paroxysms as if abdomen were grasped & twisted by a powerful hand. Pain suddenly shift to different parts, appear in remote localities as fingers & toes.

- **Epigea Repens**- Renal calculi, gravel, uric acid deposits. Fine sand in urine of a brown colour. Dysuria, tenesmus after urination. Burning in neck of bladder while urinating. Chronic cystitis, mucopus, pyelitis, incontinence of urine.
- **Fabiana Imbricata ( Pichi )-** Excoriating urine & calculi. Uric acid diathesis. A terebinthine diuretic. Vesical tenesmus & burning after urination. Dysuria, cystitis, prostatitis, gonorrhea. Cholelithiasis & liver affections.
- ***Hydrangea Arborescens-*** is a very effective remedy for gravel, profuse deposit of white amorphous salts in urine, calculus, renal colic, and bloody urine. It acts on ureter and is indicated for pain in lumbar region. Urine in these patients is hard to start. Bloody urine with heavy deposit of mucus is also a prominent symptom. Renal stone symptoms are related to great thirst with abdominal symptoms and enlarged prostate.
- ***Lycopodium-*** is best suited for right side kidney stone. Kidney stone patient has pain shooting across lower abdomen from right to left. Pain in back relieved by urinating. Urine slow in coming must strain. Most prominent symptom in this patient is Red sand in urine and Polyuria during the night. Kidney stone patients usually suffer from the Excessive accumulation of flatulence in the lower abdomen. These people desire warm food and drinks and the complaints aggravated from 4-8pm.
- **Medorrhinum-** Renal colic. Painful tenesmus when urinating. Severe pain in renal region > by profuse urination. Intense pain in ureters, with sensation of passing of calculus. Urine flows very slowly. Ailments from suppressed gonorrhea. Women with chronic pelvic disorders. < thinking of ailments, day time. > lying on abdomen.
- **Nitric Acid** - Cloudy phosphatic urine. Scanty, dark, offensive, smells like horse's urine. Urine bloody, albuminous, turbid, looks like remains of cider barrel, cold on passing. Pricking splinter like pains. Complaints after continued loss of sleep, over exertion of mind & body.
- **Nux vomica-** Renal colic, right sided. Pain extends to the right thigh & to the genitals. Frequent ineffectual urge for urination with dribbling of urine. Haematuria, strangury. While urinating, itching in urethra & pain in neck of bladder. Backache, must sit up or turn over in bed. Bad effects of coffee, tobacco, alcohol, highly spiced food, overeating, long continued mental exertion. Over sensitiveness to all external impressions.
- **Ocimum Canum -** It has specific action in diseases of the kidney, bladder and urethra, The symptoms are excruciating crampy pains in the region of kidney with violent vomiting every few minutes. The patient twists and turns in agony and wrings her hands with intensity of the colic.
- ***Pareira Brava-*** use is considered in cases of chronic retention of urine where excessive straining to pass urine is needed. It is a chief remedy for urinary problems. It acts as a stimulant and tonic, relieving irritation of the urinary tract, indicated by constant urging, great straining & pain down the thighs during urination. Neuralgic pain in the anterior crural region (shin area of the leg) is the very important symptom in this remedy.
- ***Sarsaparilla Officinalis*** – For Kidney Stone with Burning at Close of Urination. In case of kidney stone with excessive burning at the close of urination, Sarsaparilla Officinalis is the medicine that you can count on. Urine passed is scanty. Urine may contain slimy or sandy particles. It is for right-sided kidney stones.
- **Tabacum-** Renal colic, violent spasmodic pains along ureter, left side. With deathly nausea & vomiting. Vomiting violent, with cold sweat, on least motion, with faintness > open air. Nausea incessant as if seasick > in fresh cold air. Vertigo, death like pallor, on opening the eyes. Face pale, blue, pinched, sunken, collapsed. Terrible, faint, sinking feeling at the pit of stomach. Icy coldness of surfaces.
- **Thlaspi-** Renal colic. Accumulation of gravel. Brick dust sediment. Urine heavy, phosphatic. Dysuria & spasmodic retention. Uric acid diathesis. Renal & vesical irritation. Urethritis, urine runs away in little jets. Haematuria & albuminuria.

**CONCLUSION-**

Not necessarily what illnesses are discovered, every patient has to be advised to stay hydrated by drinking a lot of water. Likewise in this Renal calculi the person is necessary to drink more water and it helps to relieve the complaints. Homoeopathy and there are various indicated Homoeopathic Remedies which are helpful for the patients to improve complaints along with the removal of stones. Conditions in which surgery has a high degree of risk, such as diabetes,

hypertension, or other conditions, or for those who are looking for a surgical alternative that is both economically feasible and psychologically advantageous.

**References-**

[1] Allen H. C; Allen's Keynotes Rearranged and Classified with leading Remedies of the Materia medica and Bowel Nosodes; 10thedition; January 5, 2018; B. Jain Publishers (P) Ltd; New Delhi.

[2] Boericke William; Pocket Manual of Homoeopathic Materia Medica and Repertory; 11th Edition; 2012; B. Jain Publisher (P) Ltd; New Delhi.

[3] Davidson Stanley; Davidson's principles & Practice of Medicine, 21st Edition; April 2010; Churchill Livingstone Elvister; U. K.

[4] Golwala A. F.; Golwala's Medicine for students; 24th Edition; 2014; The National Book n Depot; Mumbai.

[5] Harrison Tinsley. R; Harrison's principle of Internal Medicine; vol-II; 19th edition; 2015; McGraw Hill companies; Europe.

[6] https://www.researchgate.net/publication/280910483_Nutritional_Management_of_Kidney_Stones_Nephrolithiasis

[7] https://www.homeobook.com/renal-calculi-homeopathy-therapeutics/

[8] https://www.linkedin.com/pulse/homoeopathy-kidney-stones-dr-ks-gopi/

[9] https://shodhganga.inflibnet.ac.in/bitstream/10603/148785/6/06_chapter%201. pdf