

COMPREHENSIVE GUIDE ON UROLITHIASIS (KIDNEY STONES) FOR PATIENTS

Indian and International Medical Tourists



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Intended Audience

India - USA - Bangladesh - Nepal - Pakistan - Sri Lanka - Myanmar - China - Maldives -
Bhutan- EU

Delhi NCR - Gurgaon - Faridabad - Ghaziabad - Sonipat - Panipat - Meerut - Noida



Information for Medical Tourists visiting India for treatment of Renal Stones

New Delhi is the Capital of India. Coming to New Delhi, India for treatment can be a wise decision. India offers to its guests coming for Urolithiasis treatment excellent benefits which include

1. High Quality Surgery
2. International standards in term of Patient safety and Infection Control
3. Global Best Practices
4. Economical Services



[Dr Vijayant Govinda Gupta, is a Surgeon and Urologist based in New Delhi, India.](#) He has been providing treatment of Kidney Stones to his patients in an Economical and Ethical way since many years.

His practice welcomes international guest and medical tourists.

My team shall be able to arrange for you

1. Translator for your language
2. Comfortable Homely stay
3. Food in your local cuisine
4. Safety
5. Visa Services
6. Travel arrangements for you and your family
7. Banking services and arrangement of currency
8. Follow up visits and Online medical support

Patients from the following countries are most welcome

***Pakistan - Nepal - Bangladesh - Myanmar - Bhutan - Sri Lanka -
Maldives - China - USA - EU - Russia***

Leave a message on admin@drvijayantgovinda.com to schedule an appointment and arrange a language interpreter

Information for Patients from Delhi NCR for Kidney Stones

Dr Vijayant Govinda Gupta, is a Surgeon and Urologist based in New Delhi, India. He has been providing treatment of Kidney Stones to his patients in an Economical and Ethical way since many years. [Find his clinics here..](#)

His practice welcomes all patients in Delhi NCR to avail

High Quality Surgery
Global Best Practices
International Safety Standards
Latest technology
Infection control
Ethical and Scientific advice

Patients from the following areas are most welcome.

[Clinic Locations \(Click Here\)](#)

Karol Bagh - Patel Nagar - Rajinder nagar - Pusa Road - Laxmi Nagar - Noida - South Delhi - Shastri Nagar - Punjabi Bagh - Kamla Nagar - Inder Lok - Connaught Place - Central Delhi - West Delhi - Saket - Lodhi Road - Rohtak Road - Civil Lines - University - Shalimar Bagh



Leave a message on admin@drvijayantgovinda.com or call +919592999184 to schedule an appointment and arrange a language interpreter. If required economical lodging, food and banking services can be arranged.

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Renal Calculi (symptoms diagnosis and treatment)

What are renal stones?

Kidneys (also called Renal or Reniform) are two paired organs situated in the retroperitoneum or back that filter water and waste products including calcium, oxalate, phosphate and uric acid from the blood into the urine. This urine is then stored in the collecting system of the kidney which includes calyx, infundibulum and renal pelvis in which urine is ejected from the glomeruli and is temporarily stored before being passed into the ureters to the bladder to be removed from the body.

Kidney stones (also called renal calculi or urolithiasis) are formed in these collecting systems inside the kidney. So, kidney stones are stones formed in the kidney and renal collecting system.

How do renal stones form?

There are many theories regarding formation of kidney stones. But the most commonly accepted and the least controversial is the "Crystallization and Nucleation" theory.

Crystallization and nucleation theory suggests that in some finite amount of liquid, only a certain amount of salt can be dissolved and when that capacity is exceeded the salt moves out like crystals. A day to day example would be the example of mixing sugar or salt in water. In one glass of water if we keep adding sugar or salt, at one point no more sugar or salt will mix and the extra salt or sugar will precipitate out.

Similarly, the kidney regularly removes dangerous salts like calcium, oxalate and phosphate by mixing it with water and excreting it as urine. If the amount of water is less in the urine (concentrated urine) or the amount of salts is very high, they will form stones in the kidney.

But as simple as it sounds, other factors may alter the urinary concentrations such as presence of proteins, infections, obstruction, inflammation, blood, foreign bodies that may cause stone formation to occur even in lesser concentration.

What are different types of renal stones?

There are many different types of renal stones or calculi depending on the salt they are formed from. Their names and common names are given below:

Chemical Name	Common Name	Characteristic
Calcium Oxalate	Whewellite	Most common, Very Hard
Calcium Phosphate	Apatite	Soft, Usually metabolic cause
Uric Acid		Metabolic, Transparent on XRay
Triple Phosphate	Struvite	Infectious stones

Which are the most common type of renal stones in India?

The most common type of renal stones in the world are Calcium Oxalate. By logic and common experience calcium oxalate stones are also the most common renal calculi in India too. But, due to the different Indian diet and increasing prevalence of Diabetes and Obesity in our country, metabolic stones such as calcium phosphate and uric acid are very common in India too. Delhi and surrounding areas such as Uttar Pradesh, Haryana, Punjab and Rajasthan including cities such as Dwarka, Gurgaon, NCR, Sonapat, Panipat, Faridabad, Meerut, Noida and Gurgaon lie in the renal stone belt of Northern India where stone formation is the highest in the world.

Why do renal stones form in the Indian population?

India, especially North India is a stone belt. Formation of renal calculi especially kidney stones is extremely common and the lifetime risk of forming a stone is very very high. There are several reasons for this.

1. Climate - North India has a severely hot Summers and this produces conditions of severe sweating, leading to passage of highly concentrated urine.
2. Water intake - India is essentially a dry area, with lack of potable water. This also affects people as intake of water is not commensurate with the amount of sweating.
3. Diet - Indian diet is rich in stone forming elements and poor in stone preventing elements

- a. Dairy prominent diet - North Indians usually consume a lot of dairy rich in fat and calcium yet poor in protein. High intake of milk, ghee and curd is common
 - b. Oxalate rich foods - Indian food is rich in Green vegetables such as Bathua, Spinach etc.
 - c. Phosphate rich Wheat based diet - North indian diet is rich in Wheat and other cereals except rice.
 - d. Lack of protein - Indians usually are vegetarians and good quality protein is poor in our diet like eggs and white meat.
4. Long working hours - Indians are hard working people and work longer than normal hours which can lead to stress, water loss and erratic diets
 5. Obesity and Diabetes - Indians are going through a epidemic of these two diseases which lead to production of acidic urine, again creating conditions perfect for urolithiasis.

All these conditions make Indians the ideal population for stone formation. And this can be seen in our statistics where many professional bodies continuously warn about such high prevalence of renal stones in our population.

What are the symptoms of renal stones?

Kidney stones can produce the following symptoms. But remember in the majority of patients, renal stones can be completely silent and asymptomatic. And these silent stones can completely damage the kidney before being treated.

- Asymptomatic (50%)
- Flank pain - Pain the back on the side of the stone that comes and goes. The pain can be bearable or may be severe enough to require admission
- Fever - High or low grade fever, usually associated with pain in the flank.
- Pyuria - Presence of burning in urine or pus in urine.
- Hematuria - Presence of blood in the urine - blood may be mixed with urine, or may come as clots. Hematuria is usually painful in renal stones.
- Flank swelling or presence of lump (Rare)

How to prevent renal stones?

You may have suffered renal stones, had them treated or have just come to know that you have renal stones. Somebody in your family may have suffered a kidney stone and may have got you worried. There are certain lifestyle and dietary modification that will not only prevent stone formation but may also prevent growth of already present renal calculi. They are:

- Drink plenty of water (not soda, not juice, not cola) - Plain clear water of atleast 3 litres per day.

- Avoid sugar laden and carbonate beverages - Give up cola, soda, and artificial flavored fruit juices.
- Citrus fruits are good for prevention - Freshly squeezed juices or even fresh lime juice may be beneficial.
- Moderate salt intake - Take only the American Heart Association recommended Salt intake of 2 tsp.
- Avoid High salt foods especially pickles and Papad
- Avoid Red Meat. Moderate amounts of Chicken, Fish and Eggs are allowed.
- Milk and milk products to be consumed in moderate amounts. Severely restricting calcium intake may have the paradoxical effect of increasing stone formation by increasing oxalate.
- Green leafy vegetables and tomatoes - One of the biggest myths that they form stones. They are rich in oxalate, but as a part of balanced diet, consuming them can be healthy.
- Exercise and maintain a Healthy Body Weight - Reaching target BMI prevents stone formation.
- Keep diabetes under control - Well controlled blood sugar helps in preventing Renal Stones.

What are the complications of renal stones?

Kidney stones need prompt treatment. Left unattended urolithiasis can cause severe complications such as:

1. Non functional Kidneys - Stones can silently continually damage kidneys by progressive pressure, infection and obstruction finally leading to the death of the kidney
2. Obstruction - Stones can get stuck in the collecting system, pelvis or ureter, leading to blockage of urine and swelling of the kidneys called Hydronephrosis.
3. Severe Infection of Kidneys - Stones harbor bacteria and can cause severe infection, inflammation, and obstruction of kidneys causing Pyelonephritis and Pyonephrosis.
4. Malignancy - Chronic stones and continuous infection may give rise to cancer or malignancy in the affected kidney
5. Renal Failure - Damage to both kidneys can cause renal failure and patients may need dialysis or transplant to survive.
6. Economic - Recurrent infections, pain, fever may require recurrent need to expensive medicines, admission and surgery leading to economic crisis in the family.

Why should renal stones be treated?

Kidney stones and renal calculi need prompt evaluation, early diagnosis and careful and complete treatment. For the fear of complications enumerated earlier, good treatment of urolithiasis is essential.

Inadequate treatment can prove costly in the long term.

Many patients continue to take traditional medicines for Renal Stones (Ayurvedic, Homeopathic and others). Though I have nothing against them, kindly do not take risks with your own health as any alternative treatment options that have scientific depth are already included in the allopathic arsenal of the Urologist.

The best doctor to treat renal stones is an Urologist. Urologists who are either MCh or DNB are the best equipped to treat and deal with renal calculi. Kindly beware of untrained general surgeons and Diploma holders claiming knowledge of treatment options for renal calculi. They are nothing but quacks peddling treatments without understanding the disease process intimately. Each aspect of renal calculi needs proper evaluation and careful follow up to prevent long term complications.

[I am a Urologist in Delhi NCR with 3 years of training from the most prestigious Institution in the Country and I specialise in the management of Urolithiasis.](#)

What are the various diagnostic tests for renal calculi?

Kidney stones can be difficult to adequately detect and diagnose. Correct diagnosis is essential to plan adequate treatment. Good diagnosis is essential for good treatment.

The various modalities used for diagnosis of kidney stones are

1. Ultrasound (Ultrasonography) for kidney stones - The basic most investigation. The most common investigation, but can sometimes be false. At Dr Vijayant G Guptas practice, ultrasound is properly evaluated to detect the abnormalities that may have been missed.
2. Intravenous Pyelography (Intravenous Urography, IVU, IVP) - This test requires dye is given in the veins which when excreted in the kidney, is photographed with X-RAYS. With this technology, detailed imaging for kidney stones can be done.
3. CT Urography (CTU) - More advanced than IVP but more expensive. May not be necessary in all cases.

What are the different types of treatments available for renal stones?

There are varied treatment options available for renal stones. Which is the best treatment for kidney stones is a decision taken by you and your urologist in consultation keeping all things in consideration like

- Economy
- Facilities
- Stone composition and size
- Kidney anatomy
- Patient factors such as size, sex and weight
- Any previous surgeries

The best doctor to treat renal stones is an Urologist. Urologists who are either MCh or DNB are the best equipped to treat and deal with renal calculi. Kindly beware of untrained general surgeons and Diploma holders claiming knowledge of treatment options for renal calculi. They are nothing but quacks peddling treatments without understanding the disease process intimately. Each aspect of renal calculi needs proper evaluation and careful follow up to prevent long term complications.

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Medical Therapy of renal stones

● *What is conservative therapy?*

Conservative therapy of renal stones is also known as medical management of renal stones. This includes all the non surgical methods to manage kidney stones such as use of medicines, lifestyle modifications, dietary management etc. Conservative treatment does not mean lack of treatment. It includes active surveillance to identify any risk factors and patients are taken off medical treatment at the first hint of any complication.

Conservative therapy includes close regular follow up and titration of medicines to achieve desired results.

The common drugs used in medical management are potassium citrate, uricase, alkalizers, analgesics, ayurvedic medicines like neeri or others.

● *Is it effective?*

Conservative therapy in correctly selected patients and if properly administered is very effective in preventing growth of renal stones. But it usually does not lead to disappearance or removal of stones from the kidney. In some metabolic stones, medical therapy may lead to complete cure also. But that is rare.

Conservative medical therapy is more apt to prevent stone formation or prevent growth of stones.

● *Selection criteria*

The following patients are ideal candidates for conservative therapy

1. Non obese/healthy body weight
2. Adults
3. No Diabetes
4. Single stone smaller than 5 mm
5. No metabolic abnormality
6. Both kidneys normal
7. No obstruction or infection
8. Not pregnant or women should have completed family

● *Advantages*

The advantages of medical therapy is obviously avoiding surgery.

● *Disadvantages*

The disadvantage of medical therapy is

1. Delay in treatment when stone can grow
2. Stone may cause complication
3. Recurrent pain/infection
4. Cost of waiting

Considering the disadvantages of medical management of renal stones, it is best recommended as a second line treatment option rather than first line.

● *What is metabolic workup?*

Some kidney stone formers are also recurrent stone formers. These patients have suffered from renal stones from childhood and form stones repeatedly within a short time. This is especially painful and costly to receive treatment again and again. Many of these patients may be metabolic stone formers. What metabolic means, that in their genes or their body is made up in such a way that some processes in the body make their stone formation easy.

E.g. in normal human beings, how much ever calcium is eaten, only a part will be absorbed, whereas in some patients they absorb too much calcium leading to stone formation. These patients usually form huge stones and sometimes both kidneys may be completely replaced by stones or may be calcified.

It is essential that these patients are identified early and undergo a metabolic workup. A metabolic workup is a special battery of many tests performed on blood and urine. It is performed over a period of 3 days. During these days the patient receives special diet that helps the urologist to identify the specific stone anomaly and help him offer a cure.

A metabolic workup is best conducted under the supervision of a qualified urologist.

● *When to perform metabolic workup?*

A metabolic workup is performed usually once all stones are cleared as the presence of stones can cause wrong results. The ideal time to perform a metabolic workup is once the treatment of stones has been stopped and the patient is back to routine diet and activities. This period is usually 6 weeks after treatment is over.

PCNL

● *What is PCNL*

PCNL also called PNL also called Percutaneous Nephrolithotomy is a minimally invasive method to treat kidney stones which avoids the big incisions of conventional open pyelolithotomy surgery and yet provides complete stone clearance and superior results.

In India, the layman term for PCNL is Laser Stone Surgery and Dr Vijayant Govinda Gupta is an expert in PNL surgery in Delhi NCR, India.

In PCNL, the patient is laid down on his stomach (Prone) after a ureteric catheter has been placed from his penis into the kidney. Then using a needle, a hole is created from the back to within the kidney. Using this tract or hole, the urologist/kidney surgeon introduces a high quality camera (nephroscope) into the kidney and under vision breaks down the entire stone and removes. This fragmentation of stone can be done by either a pneumatic lithotripter or Holmium Laser.

Lately, PNL is being done with the patient lying on their back (supine PNL). I and my team are comfortable performing the surgery both ways.

PNL is usually performed under general anesthesia, with the patient completely asleep. The surgery takes approximately 1-2 hours. The patient after the surgery would need to stay in the hospital for one to two days. Usually at the completion of the procedure a small stent is placed into the kidney called a DJ stent which needs to be removed in a separate procedure after 4 weeks.

The patient can resume his daily diet on the same day and is allowed to walk and do his daily activities after 2 days. Rest from office is required for 2 weeks and from heavy work for atleast a month.

● *Is it effective*

PNL is currently the most effective treatment modality for stone clearance. It has the highest rates of complete removal of stones in any single modality in use. Combining it with RIRS and ESWL can give most patients excellent results. But, due to its invasive nature and few complications, its primary preference in patients is slightly lower.

● *Selection criteria*

PNL is effective in almost all kinds of stones in the kidney. Certain patients are ineligible for PNL. The contraindications to PNL are

1. Solitary single small upper calyceal stones
2. Pregnancy
3. Multiple small stones
4. Bleeding disorders

5. Lung dysfunction or inability to be turned prone

● *Advantages*

The advantages of PCNL are many

1. Complete stone clearance in one sitting
2. Minimally invasive
3. Small scar less than 5 mm
4. One single stitch
5. Early recovery
6. Minimal pain

● *Disadvantages*

There are some disadvantages of PCNL which include

1. Risk of bleeding, infection or prolonged pain (<1%)
2. Need for multiple punctures
3. Need of Xray
4. Need of Contrast
5. Need of anesthesia
6. Need of admission
7. Some amount of bedrest

But even with these disadvantages it is a safe gold standard procedure for treatment of kidney stones in patients of urolithiasis.

● *What are newer versions of PCNL?*

To minimise disadvantages and to improve patient compliance many newer modifications have been introduced in PNL surgery which are all available with me and my team at the best urology hospital and clinic for treatment of kidney stones in Delhi NCR and India. These newer techniques are

1. **Minimally Invasive PCNL (MIP)** - Instead of using the conventional 24 french nephroscope, we use smaller sized scopes which make the incision even smaller than 5 mm. There are many variations of this technique like Mini Perc, Micro PNL, Chinese PNL or Ultra Mini PNL. I have the equipment to perform all these variations at my centre in Delhi and NCR according to patient preference and choice.
2. **Tubeless PNL and Totally tubeless PNL** - In many patients earlier the surgeon would place two tubes - one nephrostomy catheter in the back and one stent in the kidney. With today's improvements, I only put one or none at all and this is called tubeless or totally tubeless. I perform both of these procedures in Delhi NCR.
3. **Supine vs Prone PCNL** - Traditionally PNL is done with the patient lying on the stomach and the hole made from the back. This position is both uncomfortable for the patient and the surgeon. In today's times, supine PCNL is coming in vogue where the patient lies on the back and puncture is made in the side. This

technique called supine PNL is comfortable for the surgeon but does not make any real difference to the patient.

● *What is laser surgery for stones*

Laser surgery is the use of Holmium (Ho:Yag) laser for breaking stones. This laser fibre can be passed through any instrument to do the job. But traditionally in India and in Delhi NCR, to the uneducated Layman, PNL is touted as laser surgery. The indian patient thinks that small incision means laser surgery which is actually a misnomer.

● *Complications of PCNL*

PCNL or PNL is a very safe surgery. Technological advancements and surgeon expertise have made PNL a straightforward surgery with excellent patient satisfaction. The factors that make PNL safe are

1. Safe Surgeon - A well qualified Urologist who knows his PNL. Choosing a properly qualified MCh Urology surgeon guarantees adequate experience and exposure.
2. Latest technology - Good quality well equipped operating rooms with german quality nephroscopes, fluoroscopy equipment and trained staff.
3. Well planned surgery - Choosing the patient and his indication

Sometimes even with the best surgery complications may occur. Most common complications are

1. Bleeding - Routine minor bleeding may occur in 50% of the patients but severe bleeding may occur in 0.1% patients. Sometimes this bleeding may require additional procedures like blood transfusion or angioembolization.
2. Infection and sepsis - Kidney stones are teeming with bacteria and dead material. During breaking the stone, bacteria may enter the blood and cause infection, fever, sepsis or fall in BP. This complication is also fortunately rare.

● *Cost of PCNL*

PNL is a costly surgery. Adequate training, good results and high quality equipment is very expensive. Some surgeons may offer this surgery for cheap but me and my team are still to figure out the reason, because good quality can never come cheap.

At my centre, you are assured of the best in quality, training and experience. Because of our commitment to patient care, we are motivated to provide the surgery at the most economical price point without compromising quality.

PNL may be covered with some insurances and empanels such as CGHS, DGHS and ESI.

Take an appointment today to plan your surgery with us.



RIRS

● *What is RIRS*

RIRS or Retrograde Intrarenal Surgery or Flexible Nephroscopy or Endoscopic Intrarenal Surgery is a novel, innovative and advanced technology to treat renal stones without any incision or cut anywhere in the body. A highly flexible scope is introduced into the kidneys via the penis and using very fine laser fibres, the renal calculi are crushed to dust. With this no cut or incision is given anywhere in the body. This avoids any blood loss, reduces risk of infection and usually can be done in day care without any admission.

This surgery requires specialised flexible scopes that are manufactured by Karl Storz and Olympus in the world and India.

This surgery is now available at Delhi NCR for the benefit of patients from India and abroad. Dr Vijayant Govinda Gupta, MCh Urology is trained in performing RIRS and offers this surgery at all his centres.

● *Is it effective*

Yes, RIRS is very effective in treating stones, if the surgery is done in appropriate patients. Just because a technology exists, does not mean that it has to be applied blindly to everyone. In well selected patients, with adequate preparation and correct technique, upto 90% of the stones can be completely cleared.

In many patients RIRS is combined with PNL and ESWL to achieve even 98% results. But it all depends on the stone, patient and the surgeon.

● *Selection criteria*

As of now RIRS is approved and recommended for the following patients

1. Stones less than 1.5 cm
2. Non staghorn stones
3. Non obstructed and non infected systems
4. Adequate ureteral diameter to admit the scope

● *Advantages*

There are several advantages to RIRS that can make the patient experience superior.

1. No cut/incision/bleeding
2. Less risk of infection
3. Daycare
4. Painless

● *Disadvantages*

The most major disadvantage of RIRS is that the miniature size of the scope. With such miniature scopes, it is not possible to retrieve the stones and these stones are

dusted and allowed to pass out. These fragments may lodge and appear on post operative xrays as residual fragments and affect the success rate.

● *Complications of RIRS*

Complications of RIRS are usually minor. The two most fearsome complications are

1. Failure to gain access - sometimes the surgeon may not be able to pass the scope due to a narrow ureter and the procedure may need to be abandoned.
2. Failure to clear stones - Sometimes a second sitting may be required to clear all stones.

● *Cost of RIRS*

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At my centre, you are assured of the best in quality, training and experience. Because of our commitment to patient care, we are motivated to provide the surgery at the most economical price point without compromising quality.

RIRS may be covered with some insurances and empanels such as CGHS, DGHS and ESI.

Take an appointment today to plan your surgery with us.



ESWL

● *What is Lithotripsy*

ESWL or Shockwave Lithotripsy or Lithotripsy is a procedure by which by giving shocks from outside the body, the stone is broken inside the body. These shockwaves are generated by a specialised machine and using a water bath, these shockwaves are focussed on the stone inside the body.

● *How does it work*

These shockwaves generated by the machine go and shake the stone. Stones are basically a collection of dust and this dust moves around producing very minute fractures in the stone, effectively breaking them. This breaking happens over a prolonged period and many sittings of shocks may be required before complete stone breakage occurs. These broken stones then need to be passed out of the body with the help of urine flow by the patient himself that may be painless or painful.

● *Is it effective*

ESWL or Lithotripsy is very effective if given in adequately chosen patients and stones. If correctly selected patients are chosen, ESWL has a success rate of around 50 to 80%

● *Selection criteria*

Currently Dr Vijayant Govinda Gupta offers ESWL for the following indications

1. Thin patients
2. Adults
3. Not pregnant
4. No bleeding conditions
5. Upper calyceal stones, Pelvic Stones and Ureteral Stones of size less than 1.5 cm
6. Lower and middle calyceal stones of size less than 1 cm
7. Stones that are not very hard (HU between 1000 to 1200)

● *Advantages*

No Incision
No Bleeding
No need for admission
Daycare procedure

● *Disadvantage*

There are certain disadvantages of ESWL which is slowly phasing out this technology from the mainline urology.

1. Very low success rate as small fragments are always left behind
2. Passing fragments can be very painful for some
3. Sometimes stone may not break
4. A large stone may break and spread around, making the next surgery complicated
5. Risk of infection and sepsis
6. Some studies suggest that ESWL may actually cause hypertension, pancreatitis and Diabetes.

• *Cost of ESWL*

At Dr Vijayant Govinda Gupta's Urolithiasis clinic ESWL facility is available. Though used sparingly, some patients can still benefit from this technology.

Finish



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