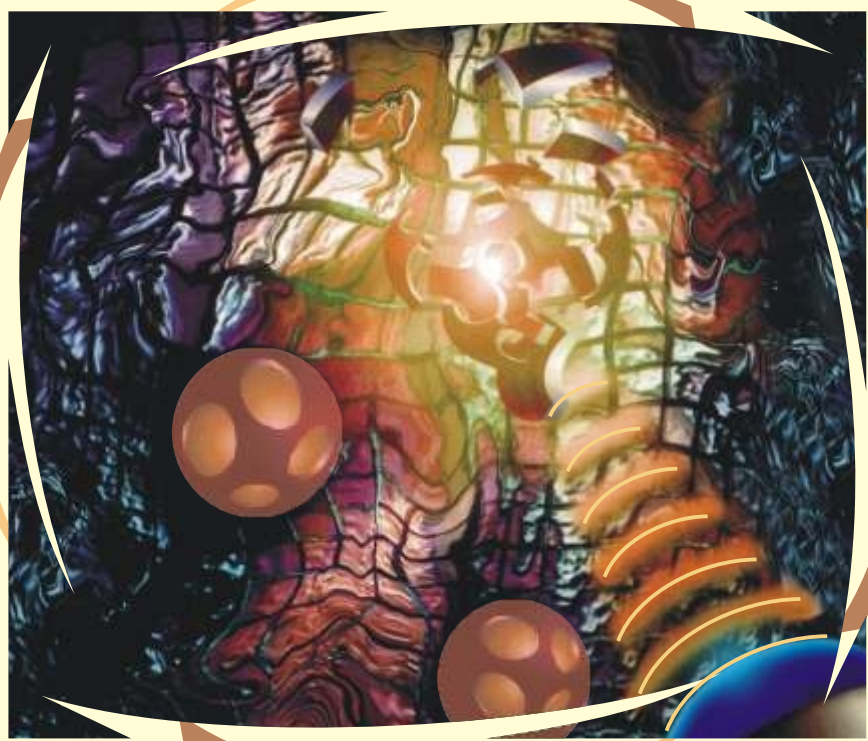


Lithotripsy



AASHRAY
Urology Institute

What is Lithotripsy?

Lithotripsy literally means "breaking of stones". Lithotripsy is a non-invasive, painless procedure that uses sound waves to fragment stones in the urinary system. The lithotripter (or LITHOTRIPSY machine) produces energy outside the body; that is directed onto the stone through the skin under X-ray or ultrasound guidance. The sound wave travels through the body but cannot pass through the stone. The stone has to absorb the energy, which causes it to break, as if it was being directly hit. The procedure is also called Extra-corporal Shock Wave Lithotripsy (ESWL). Extra-Corporal means 'from outside the body'.

- Patients unfit for surgery or anesthesia
- Patients having co-morbid conditions like uncontrolled diabetes, uncontrolled hypertension, severe respiratory disease, solitary kidney etc.
- Stones not amenable for endoscopic manoeuvres
- All age groups

A stone in ureter may have to be "pushed back" into the kidney before subjecting to ESWL for better results.

What are Urinary Stones?

Urinary stones are deposits of certain salts that form in the urinary system. They begin as tiny crystals and build into a hard stone that may stay in the kidney or move down into the urinary system. (i.e. in ureter, bladder or urethra), thereby obstructing the flow of urine. They can potentially damage the kidney by causing urinary obstruction, infection, and even kidney failure. Hence they need to be treated in time even if they are not causing pain any more.

If the stone is big or its passage is expected to be painful, a special tube is inserted between the kidney and bladder (Double "J" stent).

However, precautions should be taken in case of pregnant women, patients with bleeding disorders, "poorly functioning kidneys", obstructions in the 'blast path', morbidly obese patients, very young patients, patients with severe orthopaedic deformities, renal artery calcifications, aortic aneurysms, pacemakers, urinary tract infection etc.

Who can have Lithotripsy?

Lithotripsy is ideal for

- Small stones in the kidney, less than 1.5 - 2.0 c.m. in size, soft in consistency, with no "Down-the-road blockage"

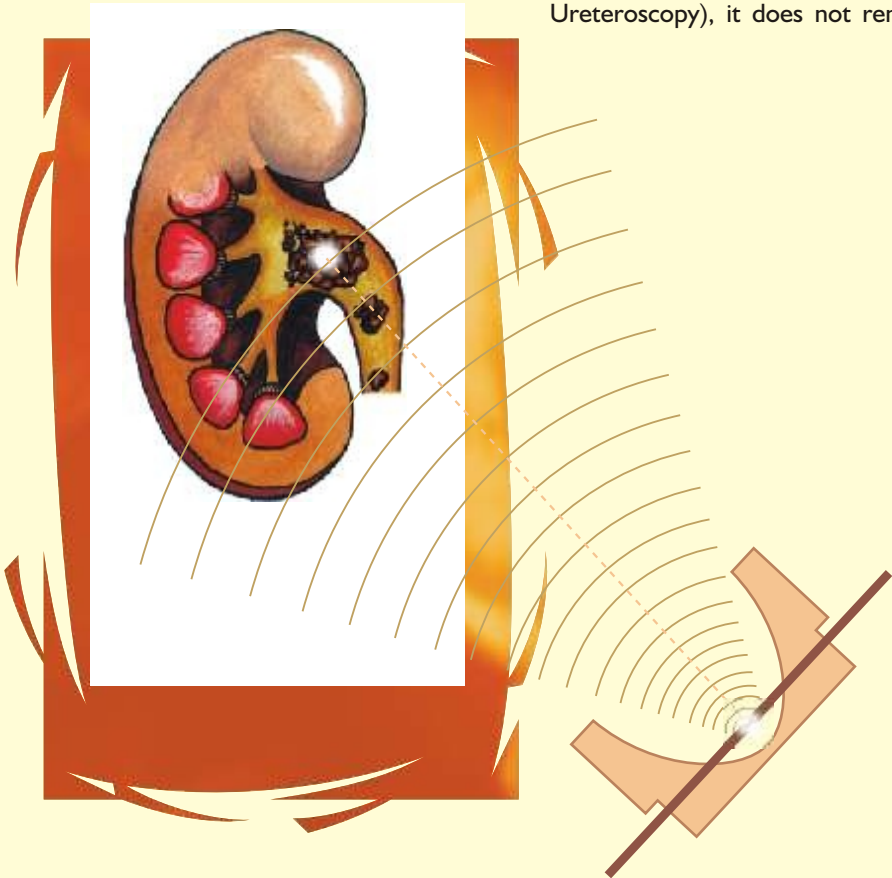
Patients with big/hard stones are not suitable for lithotripsy; they are best managed with minimally invasive procedures like Percutaneous Nephrolithotripsy (PCNL) or Ureteroscopy (URS).

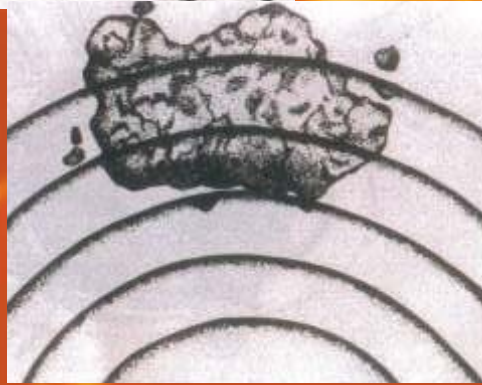
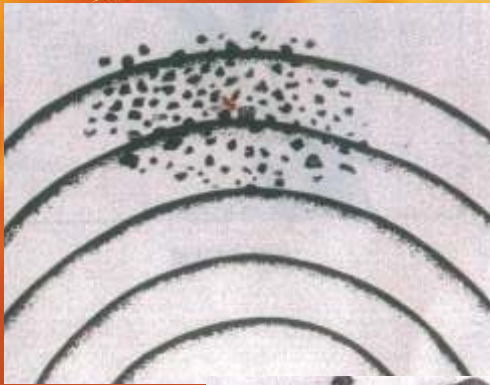
Advantages:

- Non-invasive procedure
- No or minimal anesthesia
- No scars
- Safe and with no/very minimal side effects
- No pain
- No hospital stay required
- No blood loss, hence no transfusions and risk of AIDS
- No convalescence (rest) period after lithotripsy

Disadvantages:

- “Multiple sittings” - Depending on the size and hardness of the stone, some patients require more than one sitting of lithotripsy.
- “Non-fragmentation” - It should be understood that the procedure is machine dependant and in some cases, the machine would fail to break the stone.
- “Non-clearance” - It is important to realise that the lithotripsy machine “breaks” the stone and unlike other procedures(e.g. P.C.N.L. or Ureteroscopy), it does not remove





the stone. The excretion of the crushed stone particles depends upon the urine pressure, so the time taken for complete stone clearance varies from person to person.

- “Requirement of ancillary procedure” Lithotripsy usually does not work well for stones located in the ureter or bladder. A stone in ureter may have to be “pushed back” into the kidney

before subjecting to ESWL for better results.

Some patients may require endoscopic procedure like P.C.N.L. or Ureteroscopy later on, in case of non-fragmentation of stone or complications of lithotripsy like “Steinstrasse”.

Complications:

Some common complications are:

Renal colic - passage of stone fragments may be painful if they do not break into small pieces.

Hematuria Very occasionally, significant bleeding in the urine may take place; especially, if any blood thinning medicines like aspirin or cloprigel are not stopped in adequate time before lithotripsy.

Bruising of the skin.

Fever especially if the urine infection is not treated before lithotripsy.

The *Lithotripsy* procedure

Before coming to hospital

Stop smoking - seven smoke free days reduce the risks of pneumonia and clots in the legs.

Get some gentle exercise - the fitter you are, the faster you will recover.

Eat lots of fruit and vegetables - to improve your resistance to infections and to heal faster. Also stops you getting constipated.

Stop any blood thinning medicines including aspirin.

During the procedure

- In the Lithotripsy Room, the doctor first administers some medications to help you relax.
- You will be awake during the procedure.
- You will be placed on the lithotripsy table and the anesthetic cream will be applied on the side of your body. The doctor will then localise the stone with x-ray guidance and then, the lithotripsy machine (the Lithotripter) will be put against the side of your body, close to the stone. A cushion filled with fluid is raised under the table to rest under the kidney.
- The doctor will send shock waves through your body to crush the stones. You will hear a tapping sound as the stones break but won't feel pain.
- It is important not to move during the procedure once the sound waves have been focussed on the stone.
- The procedure normally lasts for 45 60 minutes.

What happens after *Lithotripsy*?

- About 3-4 hours after lithotripsy, you will return home.
- Your doctor will prescribe medicines in case of discomfort or infection. You may pass sand-like particles through your urine for a few weeks after the



lithotripsy.

- You may see some blood in urine, which is normal and expected; it is usually self-limiting and should not be a cause for concern.
- You can continue with your normal activities.
- You need to come for follow-up, with check x-ray, as advised (usually after 3-4 weeks). If needed, you will be advised second sitting.

doctor if:

- You have fever higher than 101.0 *F
- You experience renal colic (severe pain in the side and back) and it is not relieved by the prescribed painkillers.
- You cannot urinate within 6-8 hours after ESWL.
- You have large amounts of blood in your urine.

Lithotripsy - CHECK LIST

Before being subjected to lithotripsy, you should check the following:

How do I take care of myself at home?

- Drink plenty of liquids. It will make it easier to flush out the stone fragments.
- Take the medications and follow the diet prescribed.

Some discomfort is normal, as is a little blood in the urine. However, Visit your

1. Is your stone an appropriate indication for lithotripsy? In other words, if your stone is too big or hard, it will not give the desired results.
2. Are you offered lithotripsy because the alternate minimal invasive procedures like P.C.N.L. are not available at the centre?

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3. Is the Lithotripsy machine of a good make and what is its success percentage?
4. Will the procedure be painful?
5. Is anesthesia required for the lithotripsy procedure?
6. Have you been explained about the number of sittings required and chances of failure of lithotripsy?
7. Is your centre capable of carrying out an alternative M.I.U.S. procedure, in case Lithotripsy procedure fails?

**If the answer to any of these basic questions is adverse,
you should rethink.....**

We, at Aashray, offer.....

1. A dedicated center for stone surgery offering ALL minimally invasive options.
2. We are very selective in offering ESWL only if it's actually indicated
3. ALLENGERS extra-corporeal LITHOTRIPSY system - for the first time in Gujarat.
4. EMLA Cream (for the first time in Gujarat) - avoids anesthesia, still making the procedure absolutely painless; thereby increasing the effectiveness of the procedure.
5. World class endoscopy instruments (including world's best SWISS LITHOCLAST intra-corporeal lithotripter) and expertise in the rare case that lithotripsy procedure fails.

In other words, at AASHRAY, you are in expert hands.



Lithotripsy - the pain - free way out !



AASHRAY
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