



Shock wave lithotripsy (SWL) for kidney stones

Shock wave lithotripsy (SWL) is a non-invasive treatment to crush kidney stones into small pieces that you can pass more easily and with less pain.

What is shock wave lithotripsy (SWL) and what does it do?

- Shock wave lithotripsy (SWL) is a treatment to get rid of kidney and ureteral stones.
- SWL uses a special machine to create high energy shock waves.
- These shock waves crush a kidney stone into smaller pieces so that you can pass them out of your body more easily and with less pain.
- The shock waves do not hurt any other body parts as they pass through to the kidney stone and break it up with minimal effect on surrounding tissue.
- X-ray is most commonly used to aim the shock waves directly at the stone. In some cases, ultrasound can be used as well.

- The pieces are flushed out with your urine.
- It is important to know that SWL may not be available at your local hospital.

Are there times when SWL can't be used?

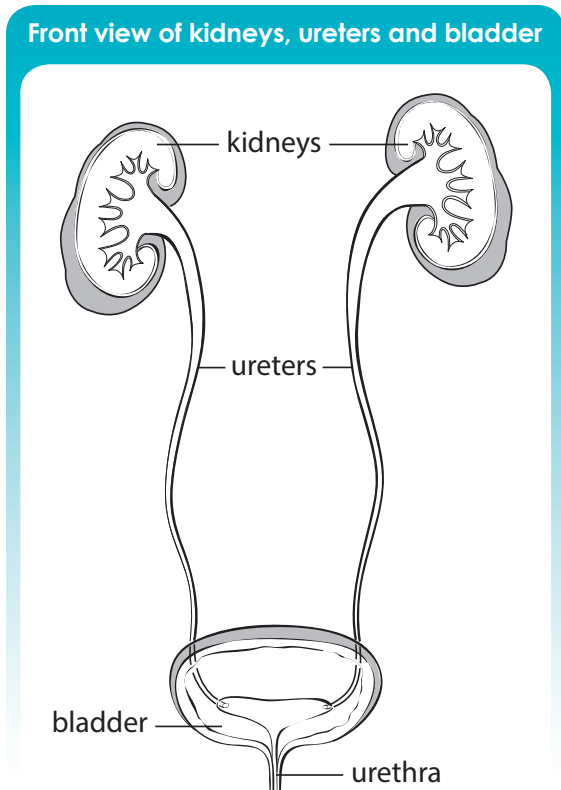
- SWL does not always work and may not be used if:
 - Stones are very large
 - Stones are very hard stones
 - Patients are very overweight because shock waves may not be able to reach the stone
 - Patients are pregnant
- Patients with cardiac pacemakers will need special care. If you have a pacemaker, be sure to tell the team before the SWL.
- For some stones, you may need more than one SWL treatment to get rid of them all.
- Blood thinners need to be stopped for SWL. If it is important for you to remain on blood thinners, ureteroscopy is a better option.

What do I need to know before my SWL?

- Your urologist will discuss treating your stone problem with SWL based on:
 - The size of the stone
 - The location of the stone in the kidney or ureter
 - Features of the stone (density or skin to stone distance measured on CT)

The team must have the results of your imaging for your SWL appointment.

- You may also need urine and blood tests, or an electrocardiogram (ECG).
- If you have a urinary infection, you will need to take antibiotics before your SWL.



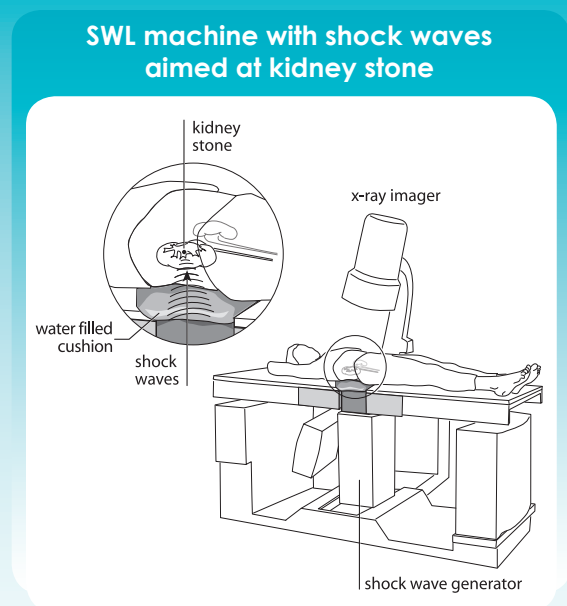
- SWL is an out-patient treatment – you will go home the same day most times
- You may be given instructions to fast or reduce food and liquids for several hours before your treatment.
 - If you have diabetes, you will receive special instructions.
- You need to make plans for a responsible adult to drive you home after your SWL due to the sedation you are given for the treatment.
 - **The SWL may be cancelled if you do not have a ride.**

What do I do about my medication?

- You may take most of your medications as usual.
- Bring a list of your medications to your SWL appointment.
- If you are taking any blood thinners (including aspirin), your doctor will give you special instructions stopping them.
- **You will need to stop taking your blood thinners before your treatment or your SWL cannot be done.**

What happens during the SWL

- You may need an X-ray if the team does not have recent imaging studies for you.
- You will have an IV line put into your arm with a sedative to relax you and, if needed, medication to relieve pain.
- Once you are comfortable on the lithotripsy machine, X-rays or ultrasound will be aimed at the stone. (See section: *What is shock wave lithotripsy (SWL) and what does it do?*)
- A water- filled cushion filled with water will be placed under you between the shock wave machine and your body to conduct the shock waves. (See diagram: *SWL machine with shock waves aimed at kidney stone*)
- It is important to lie still during your treatment so that the shock waves can be aimed exactly at the stone.
- During the treatment you will hear a clicking sound and have a tapping feeling as each shock wave is sent into your body.
- The treatment takes 30 to 60 minutes, until:
 - the stone is sufficiently broken up or
 - a maximum number of shocks has been sent out
- After SWL, you will be observed for any complications prior to discharge.
- You may get a prescription for pain killers.



- You will be given instructions about follow-up imaging and appointment with your doctor within a few weeks.

What happens right after my SWL?

- You should not travel long distances right after your SWL.
 - You may choose to stay overnight in the same city as your treatment hospital if your home is far away.

What happens when I get home after the SWL?

- You may pass pieces of your kidney stone for a few weeks after SWL.
- By 12 weeks after treatment, many patients are stone-free.
- You may have pain and/or see mild bruising on the skin where the shock waves went into the body.
- In the first few days, when you pass stone pieces, you may have back ache or feel pain on the side of your body where the stone was treated
- Use your pain killers whenever you need them.
- Acetaminophen (like Tylenol™) or ibuprofen (like Advil™) should take care of any mild pain.
- You may see blood in your urine for a week or two.
- Drink at least two litres (about eight 8 oz. glasses) of fluids every day for the first few weeks. Doing this helps clear blood from your urine or flush out pieces of the stone.

- Most people can return to work and their normal activities after a day or two
- It is important that you see your urologist within a few weeks to see how well the SWL worked.
 - You will need to have an x-ray done just before your follow-up appointment.

What do I do if I have problems after an SWL?

After your SWL, you need to get medical attention from your doctor or the the hospital right away in the following situations:

- **severe and constant pain** that does not get any better with your prescription medication
- chills or **fever** above 38.5°C or 101°F
- nausea and **vomiting** that won't stop
- constant heavy **bleeding in your urinary tract** (tomato juice consistency)

Your SWL treatment has been scheduled for:

_____ (time)

on _____ (date)

at _____

_____ (location)

Checklist of items required for SWL:

1. Bring
 - all recent **x-rays** with you or make sure that they have been sent ahead by your doctor
 - laboratory test results
 - a list of your **medications**
2. Tell your doctor ahead of time if you
 - are **pregnant**
 - have a heart **pacemaker**
3. Ask about instructions for **fasting** or **limiting your food and drinks** before your treatment.
4. Ask about using medication, especially **blood thinners**, aspirin, or anti-inflammatory drugs.

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