

### **Kidney stones – a brief summary**

You have been found to have a kidney stone or have been diagnosed with renal colic - pain caused by a stone blocking the flow of urine from the kidney to the bladder. This is usually a very painful condition but sometimes stones cause intermittent pain and treatment is not always urgent. Treatment becomes urgent if pain is severe or unrelenting or if there are complications such as a compromise to your kidney function or superimposed infection and fever. Bleeding may occur but does not necessarily indicate a more severe condition.

The pain from kidney stones occurs because there is a blockage to the flow of urine causing back pressure and swelling in the kidney. This causes distension which is painful. Treatment obviously involves removing the cause of the obstruction, in this case a kidney stone. This may however require an initial temporary procedure to relieve the obstruction, leaving the stone in place, with a subsequent procedure to remove the stone under safer and more controlled conditions.

In very general terms, smaller stones have a higher chance of passing through into the bladder without the need for surgical intervention. Stones less than 4-5 mm have roughly a 90% chance of passing but of course in some cases, this will not occur. If your pain is not severe it may be reasonable to wait a short time to see if the stone does pass spontaneously. If pain persists or if there are other complications, intervention will be required. The position of the stone may also influence the decision of whether or not to wait or intervene. A stone close to the bladder may potentially pass more readily than a stone higher up toward the kidney. If treatment is deferred, it is important to try to strain your urine, especially after a bout of pain to see whether or not the stone has actually passed into the bladder and has then been voided out. If you can produce the stone, no further treatment would be required. The stone can be sent for chemical analysis which may give us an indication as to the underlying cause for your stone disease. If the stone does not pass, it may be necessary to repeat your scan to check on the position of the stone and determine whether or not treatment is necessary. Larger stones have a lower chance of passing. Stones over 5 mm have roughly only a 50:50 chance of passing while stones over 8-9mm have a very low chance of passing, roughly about 10%.

Surgical treatment for stones causing a blockage to the flow of urine from the kidney usually involves passing a telescope into the bladder and then into the ureter to the level of the stone. A laser fibre is then used to vaporise the stone and a basket can be used to remove the fragments. The closer the stone to the bladder, the easier this procedure generally becomes. When stones are high up in the ureter, the procedure becomes technically more difficult and in fact it may not be possible to feed the telescope to the level of the stone. If the stone cannot be reached at this initial procedure, a JJ stent will be inserted. This is a thin plastic tube with one end in the kidney and one end in the bladder. This tube allows the passage of urine alongside the stone so that the kidney is no longer blocked. It also causes the ureter to expand making any subsequent treatment much easier and more importantly,

safer. The stent however can be associated with symptoms such as back pain (often similar to the pain of a blockage), frequency of urination and bladder irritation as well as blood in the urine. **Stent symptoms vary from person to person, but it must be remembered that with a stent in good position, there is no cause for concern with regard to injury to the kidney or bladder. Normal activities can be undertaken when a stent has been placed. There are no special precautions required.**

Once the stone has been destroyed with laser and all fragments removed, it may sometimes be necessary to leave a JJ stent in place after the procedure to protect the kidney from any blood clots or fragments that may have been missed. Sometimes the stent needs only to be in place for a couple of days in which case a string may have been left attached to the end for easy removal. This can potentially be removed at a hospital outpatient department, by your local doctor, by your Urologist or even by yourself. Sometimes however, if the procedure was more involved or difficult, the stent may need to remain in place for a week or more to allow any inflammation to settle down completely. It is generally a very simple procedure to then remove the stent but does require to look inside the bladder with a telescope. With larger stones however, it may in fact take two procedures with the laser to clear all the stone material. This is often the case when a large stone is identified in the kidney itself, where retrieval of all the fragments can be slightly more difficult.

Stones that are identified in the kidney that are not causing any blockage may still require treatment. This would be to prevent episodes of blockage and pain in the future as well as to reduce the risk of bleeding and infection that can occur with some stones. This treatment for kidney stones that are not causing a blockage can be performed on an elective basis at a convenient time. Treatment may involve fragmentation with shockwaves or with a telescope and laser and the pros and cons will have been discussed with you prior to treatment. In general terms, the shockwave treatment is much easier and better tolerated but has a lower clearance rate of the stone. While the telescope and laser is more invasive and requires placement of a JJ stent, the treatment generally results in a more complete clearance of the stone and allows treatment of more than one stone at a single sitting.

Once you have been cleared of your stones, investigations can be undertaken to look for an underlying cause for your stone disease. Generally, stones are not related to diet, but dietary modification may be necessary if certain imbalances are detected. The mainstay of reducing the risk of stone formation is to maintain a good fluid intake so that your urine is generally light-coloured and clear. A low salt diet is also recommended. A small number of kidney stones are composed of a substance called uric acid and these can be dissolved. This can take three or four weeks and is therefore not recommended if the stone is causing an acute blockage. Larger uric acid stones may also be resistant to dissolution.

Some videos and more information is available on my website at [endeurology.com.au](http://endeurology.com.au).