Kidney Stones

What Are Kidney Stones?

Kidney stones, also known as renal calculi, nephrolithiasis, or urolithiasis, are hard deposits made of minerals and salts that form inside one or both kidneys. They most commonly affect people aged 30-60. Over 1 in 10 people will be affected by kidney stones. Kidney stones can form in any part of the urinary tract, from the kidneys to the bladder, typically when urine becomes concentrated, allowing minerals to crystallise and clump together.

Kidney stones are usually small, like a grain of sand, and pass easily in your urine but passing larger stones can be very painful. Medication to ease pain and nausea may be required as well as advice to drink plenty of water. Kidney stones usually cause no permanent damage, but sometimes large stones may not pass and become stuck in the urinary tract, requiring specialist procedures and surgery. Left untreated, larger stones may block the flow of urine and cause infection, kidney damage or even kidney failure.

Early diagnosis and appropriate management of kidney stones can prevent complications and improve outcomes. At Birmingham Urology Clinic, our consultants are experienced in promptly diagnosing and treating kidney stones.

Types Of Kidney Stones

- **Calcium stones:** The most common type.
- **Struvite stones:** Usually caused by urinary tract infections.
- **Uric Acid stones:** Result from high acid levels in the urine.

Symptoms Of Kidney Stones

- **Pain:** Severe pain in the side and back, below the ribs, often spreading to the lower abdomen and groin (renal colic).
- **Changes in urine:** Urine may appear pink, red, or brown due to blood.
- **Urination issues:** Painful urination, frequent urination, or a persistent urge to urinate.

Causes Of Kidney Stones:

- **Dehydration:** Not drinking enough water can lead to concentrated urine, increasing the risk of stones.
- **Diet:** High intake of certain foods (e.g., oxalate-rich foods like spinach, nuts, chocolate) or high-protein diets.
- **Obesity:** Increased BMI.
- **Medical conditions:** Some medical conditions (e.g., hyperparathyroidism, cystinuria) can increase the risk.

- **Genetics:** Family history of kidney stones.
- **Medication:** Certain medication may increase your risk including:
- **Aspirin.**
- **Antacids** (used to reduce fluid build-up).
- **Certain antibiotics.**
- **Certain antiretroviral medicines** (used to treat HIV).
- **Certain anti-epileptic medicines.**

Diagnosis Of Kidney Stones

If your urologist suspects that you have a kidney stone, you may have diagnostic tests and procedures, such as:

- **CT scans or X-rays** maybe performed urgently i.e. within 24 hours of developing symptoms, if a kidney stone is suspected. Imaging is required to detect stones and to assess the likelihood of the stone passing naturally. CT scans are preferred over X-rays which can miss small kidney stones.
- **Ultrasound**, a non-invasive test that is quick and easy to perform is another imaging option to diagnose kidney stones.
- **Urinalysis:** Tests for infection, blood, stone fragments. You may be asked to do a 24-hour urine collection test to check if you are excreting too many stone-forming minerals or too few stone-preventing substances.
- **Metabolic tests:**
    - **Blood tests** to check kidney function and levels of substances that may cause stones, such as calcium or uric acid.
    - **Analysis of passed stones.** You may be asked to urinate through a strainer to catch stones that you pass. Identifying stone composition helps guide treatment and prevention.

Treatment

- **Small kidney stones** may cause pain until the stone is passed – this can take 1 – 2 days. Treatment options:
    - **Drink plenty of water:** Up to 3 litres to helps flush out smaller stones.
    - **Pain relief:** Medication to alleviate pain and discomfort.
    - **Medical management:** Alpha-blockers to help stones pass.
    - **Anti-sickness medicine:** If you experience nausea.
    - **Avoid:** Fizzy drinks and eating too much salt.
- **Large stones** that are too big to pass naturally require intervention:
    - **Shockwave lithotripsy (SWL):** A non-invasive outpatient procedure that uses ultrasound shock waves to break up the stone, allowing it to pass naturally.
    - **Ureteroscopy (URS):** Uses a thin scope and lasers, to break up the stone under general anaesthetic.

- **Percutaneous nephrolithotomy (PCNL):** Involves a nephroscope inserted through the skin to remove or break stones within the kidney. This requires a general anaesthetic.
- **Open surgery:** Rarely needed, only if other methods are unsuccessful or not suitable.

- **Recurrent kidney stones.** Some individuals are prone to recurrent stones. Risk factors include:
  - High-protein, low-fibre diet.
  - Inactivity or being bed-bound.
  - Family history.
  - Recurrent urinary tract infections.
  - Previous kidney stones.

- **Prevention of recurrent kidney stones**
  - **Hydration:** Drink plenty of water daily.
  - **Dietary changes:** Limit foods high in oxalates and sodium. Refer to BAUS kidney stone prevention diet.
  - **Medication:** As prescribed to prevent recurrence.
  - **Regular follow-up:** Especially for those with a history of kidney stones.

Kidney stones are a common condition that can cause significant discomfort and complications if left untreated. Early diagnosis and appropriate management of kidney stones can prevent complications and improve outcomes. For more information or to schedule a consultation, please contact our clinic.

Why Choose Birmingham Urology Centre?

Our experienced urologists provide comprehensive evaluation and treatment for kidney stones. We use the latest diagnostic tools and techniques to ensure accurate diagnosis and effective treatment plans tailored to each patient's needs.

Contact Us

If you are experiencing urinary symptoms or need further evaluation of your urinary tract, contact the Birmingham Urology Centre to discuss how we can assist you. Our team is committed to providing personalised care and will guide you through every step of the process, from initial consultation to recovery and beyond.