



ABOUT THE DISEASE

The formation or movement of stones can occur anywhere within the urinary tract, but the stones that reside within the urinary bladder are referred to as **bladder stones**, or **uroliths**. The stones that reside within the kidneys are referred to as kidney stones, or nephroliths.

Uroliths typically start as a binding of urinary bladder crystals, which then grow and expand to eventually form a stone-like material.

There are several different types of **uroliths**, but the two main types are composed of:

- Struvite – combination of ammonium, phosphate, and magnesium
- Calcium Oxalate – as the name suggests, a combination of calcium and certain oxalates

Generally, there are very few clinical symptoms of **uroliths** until patients develop secondary urinary tract infections. Please see the [Urinary Tract Infection](#) document for additional information. Some symptoms may include:

- Straining to urinate (stranguria)
- Increased frequency of urination, while urinating small amounts at one time (pollakiuria)
 - This is not to be confused with an increased frequency of urination, with large amounts of urine (polyuria)
- Blood in the urine (hematuria)
- Painful urination (dysuria)

OBTAINING A DIAGNOSIS

Performing a simple urine test (urinalysis) is not adequate to diagnose bladder stones but is still required to determine a secondary urinary tract infection.

Ultrasound is the diagnostic of choice for finding **uroliths** residing within the urinary bladder. Although, ultrasound will have difficulty detecting **uroliths** that have accidentally entered the urethra.

X-rays (radiographs) are less favorable, as calcium oxalate stones are the only **uroliths** that are reliably visible on film.

A urine culture and sensitivity may be utilized in cases that are poorly responding to antibiotic therapy. With this test, the bacteria are grown at a reference laboratory, which helps guide antibiotic therapy. However, even with bacteria found in-clinic, there is a 25% chance of bacterial growth at the reference laboratory. While a culture and sensitivity can help guide therapy, it should not be the sole criteria to stop treating a patient with distinctive symptoms.

The composition of a **urolith** can only be determined once the stone is obtained and sent to a reference laboratory for testing.

TREATMENT

Treatment of underlying infection, inflammation, and pain will achieve the most immediate medical relief.

Surgical removal of **uroliths** is the quickest and most effective method to remove the stones from the urinary bladder, reducing ongoing urinary tract infections, and improving quality of life more rapidly. This procedure is called a cystotomy.

Alternative to surgery, specialty prescription diets exist which can help prevent urinary crystals and dissolve struvite stones. However, there are no diets available that will dissolve calcium oxalate stones. Patients often require repeated urine testing while struvite stones are dissolving, as the bacterial populations may change through management. Prescription diets are required life-long to prevent both types of urinary crystals and **uroliths**.

TIPS FOR SUCCESS

- Maintain dietary restrictions to only prescription food, without exceptions.
 - Do not mix other store-bought foods, do not add treats, and do not add people foods.
 - There are no store-bought or home-made diets that can replace the food science and proven benefits of prescription foods.