

## Acute Onset Flank Pain—Suspicion of Stone Disease (Urolithiasis)

Kidney stones form from salts in urine and can travel through or block the ureter, the tube that carries urine from the kidney to the bladder. Stones can cause sharp pain on one or both side(s) of the body between the upper belly area and the back, often called flank pain. Flank pain can also be caused by other things such as appendicitis or diverticulitis (inflamed pouches of the bowel).

The best imaging test to identify a kidney stone and possible blockage in the ureter is a CT scan (<https://www.radiologyinfo.org/en/info/abdominct>). The CT scan can identify the size and location of the stone, which can predict the likelihood that a stone will pass on its own, with larger stones less likely to do so.

A CT scan with contrast fluid injected intravenously into the blood vessels may be needed to differentiate between a stone and a phlebolith, a calcification in a vein, or to determine other causes of flank or abdominal pain not seen on the initial CT scan.

Other imaging tests like ultrasound (US) and MRI do not use radiation, but both tests can miss smaller stones. For pregnant women, US is the best initial test. For patients with a history of kidney stones, younger patients, or follow-up imaging to see if a stone has moved or passed out of the body, an MRI or a combination of a US and x-ray test may be used to reduce radiation exposure. For more information, see the (<https://www.radiologyinfo.org/en/info/stones-renal>) Kidney and Bladder Stones (<https://www.radiologyinfo.org/en/info/stones-renal>) (<https://www.radiologyinfo.org/en/info/stones-renal>) page.

— By Søren Meibom, PhD. This information originally appeared in the *Journal of the American College of Radiology*.

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