

Evidence Discussion – Observation of Known Renal/Ureteral Stone(s) (AB-4.2)

Serial imaging can be used to follow the progress of a passing stone, and might also be used by the urologist and/or nephrologist as they monitor non-obstructing stones for growth. No evidence was found on the optimum frequency of imaging in people who have or have had renal or ureteric stones.³

Non-contrast CT of the abdomen and pelvis consistently provides the most accurate diagnosis but also exposes patients to ionizing radiation. Traditionally, ultrasonography has a lower sensitivity and specificity than CT, but does not require use of radiation. However, when these imaging modalities were compared in a randomized controlled trial they were found to have equivalent diagnostic accuracy. Both modalities have advantages and disadvantages. Kidney, ureter, bladder (KUB) plain film radiography is most helpful in evaluating for interval stone growth in patients with known stone disease, and is less useful in the setting of acute stones. MRI provides the possibility of 3D imaging without exposure to radiation, but it is costly and currently stones are difficult to visualize.⁴

Follow-up imaging for asymptomatic patients with radiopaque stones should be with retroperitoneal ultrasound and plain film radiography. Follow-up for radiolucent stones, hydronephrosis or retained stone on ultrasound, or symptomatic patients, non-contrast CT is indicated.

Patients with staghorn calculi who are being considered for surgery, CT Abdomen and Pelvis (any contrast level), with or without 3-D reconstruction can be performed. Additionally nuclear imaging may be indicated when there is concern for poor kidney function.

References

1. Fulgham PF, Assimos DG, Pearle MS, et al. Clinical Effectiveness Protocols for Imaging in the Management of Ureteral Calculous Disease: AUA Technology Assessment. The Journal of Urology. 2013;189(4):1203-1213.
2. Pearle MS, Godfarb DS, Assimos DG. Medical management of kidney stones: AUA guideline. American Urological Association (AUA). 2019.
3. National Institute for Health and Care Excellence (NICE); 2019 Jan 8. ISBN-13: 978-1-4731-3190-3

4. Wayne Brisbane, Michael R. Bailey, and Mathew D. Sorensen. An overview of kidney stone imaging techniques. *Nat Rev Urol*. 2016 Nov; 13(11): 654–662.