**MULTISLICE Non-Contrast CT IVP / CT KUB**

**State-Of-The-Art Imaging of Urinary Calculi**

**Non-Contrast Transverse Image** showing a 6 mm sized calculus (white arrow) in the region of the right uretero-vesical junction with PCS dilatation (red arrow) and perinephric fat stranding (blue arrow).

**Post–Contrast Delayed Images** showing a dilated PCS and delayed nephrogram & excretion of contrast (black arrow) & contrast in the bladder (red arrow).

**What is Multislice CT IVP ?**

Multislice CT imaging of the urinary tract, when properly performed, allows for rapid detection of urinary calculi, including renal, ureteral, and bladder calculi.

Non-Contrast CT IVP is significantly better than Routine IVP for acute renal colic.

Curved Reformatted Images allow for 3D Multiplanar visualization of the ureters, especially when dilated due to obstruction. This is performed on an Advanced 3D Workstation to produce "IVP-like" coronal sections depicting the course of the ureters as shown above.

Contrast CT IVP is sometimes required to assess the function of the kidneys.

**How is the Study performed ?**

At VITAL IMAGING, we obtain a thin spiral set of high-resolution (3 mm) non-contrast images through the urinary tract. This invariably suffices to look for any calculi. However if a renal mass, infective lesion or function of kidney needs to be seen than a Contrast CT is required, for which an immediate post-contrast phase and a delayed phase is obtained which also allows for distinction between ureteral stones and arterial calcifications & phleboliths.

**What is the accuracy of CT IVP compared to Routine IVP for detection of urinary calculi?**

CT IVP is much more accurate and much faster than IVP and should be the modality of choice for detection of urinary calculi.
Points To Remember:

Non-Contrast CT IVP:
A ONE-STOP SHOP FOR ACUTE RENAL COLIC

Non-Contrast CT IVP is significantly better than IVP for urinary calculi and evaluation of urinary obstruction.

Contrast CT IVP may be required to assess the function of kidneys, mass lesions & infection.

Advantages of Non-Contrast CT IVP over Routine IVP

- Faster (just 30 sec)
- Most sensitive (mm sized calculus is visible)
- No bowel preparation required
- No fasting required.
- Acute appendicitis, the closest differential is also ruled out simultaneously.
- Economical.

CT is Best for Evaluating Patients with Microhematuria (1)

One of the most significant developments in the evaluation of renal colic has been the use of unenhanced spiral CT for the detection of urinary calculi and the evaluation of urinary obstruction. (3)

Diagnosing Urinary Tract Stones: Non-Contrast Spiral CT vs. IVP

When Non-Contrast Spiral CT is readily available, the amount of time required to evaluate patients in the emergency department is actually reduced and potential contrast complications that may occur with conventional radiologic imaging is avoided. Chang comments that when Spiral CT is available, it is the imaging study of choice for flank pain and presumed diagnoses of urinary tract stones. (2, 4)

In addition, unenhanced helical CT can detect radiolucent stones that would not be detected on plain radiographs (5)

REFERENCES:


(For private circulation only)