

Comparison of Digital Scout Film of Non Contrast Enhanced Computerized Tomography (NCCT) Scout Film and Kidney-Ureter Bladder (KUB) Radiography for Ureteric Calculi

Introduction and Objective: Urolithiasis is a leading cause of chronic renal insufficiency and renal failure in our region. Around 70-80% stone are radiopaque. Gold standard investigation for urolithiasis is NCCT with sensitivity and specificity of 99-100%. The sensitivity of NCCT scout film is a subject of discussion particularly in ureteric stones. So our objective is to determine sensitivity of digital NCCT scout film and kidney-ureter bladder (KUB) radiography for ureteric calculi.

Materials and Methods: A prospective study was done at Aga Khan University Hospital, Karachi, Pakistan. We assessed radiology of 100 patients, who underwent ureterorenoscopy from January 2008 to 30th June 2011. All patients had NCCT as well as X-ray KUB. Digital scout films were reviewed by a senior radiologist and X-rays by another radiologist on monitor with resolution power of three mega pixel (TURPIX). The demographic data, stone visibility, size and location and Hounsfield unit was recorded. Data was analyzed on SPSS version 17. P-Value of <0.05 was considered as significant.

Results: Out of 100 patients, 77% were male and 23% female with mean age of 43 years. Forty four were proximal, 19 mid and 37 distal ureteric stones. Mean size of stone was 9.07 ± 3.72 mm. Fifty nine percent of proximal ureteric stones were seen on NCCT scout film while 84% were visible on X-ray. In mid ureteric stone, sensitivity of NCCT scout film and X-ray was 26 and 47 percent respectively. In the distal ureteric stones the sensitivity of NCCT scout film and X-ray was 62 and 81 percent respectively. Fifty four ureteric stones were visible on NCCT scout film and 76 were visible on X-ray, making sensitivity of 54% and 76% respectively. Sixty four ureteric stones had Hounsfield unit of >500, out of which 65% were visible on scout (P=0.003) and 87% were seen on X-ray KUB (P=0.001).

Conclusion: X-ray KUB is more sensitive than NCCT scout film for ureteric stones. We conclude that if the stone is visible on NCCT scout film, the X-ray KUB can be avoided and these patients can be followed with X-ray KUB. A majority of stoned with Hounsfield unit of >500 are radiopaque.