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Introduction & Objectives: Ultra-low dose CT scan of kidney, ureter and bladder (ULD-CTKUB) with radiation exposure <1.9 msv, was introduced for follow up of ureteric stones. Our goal was to improve compliance, reduce radiation exposure and improve diagnostic accuracy.

Materials & Methods: Patients who attended accident and emergency department with clinical features of renal colic underwent low dose CT scan of kidney, ureter and bladder (LD-CTKUB). It was also advised to do an x-ray of kidney, ureter and bladder (x-ray KUB) at the same time. Stones which were not seen in CT scout film or in x-ray KUB were followed up with ULD-CTKUB. Also, if x-ray KUB was not done at the same time and the stone was not convincingly seen in the CT scout film, ULD-CTKUB was used for follow up. However, when the stone was seen in CT scout film or in x-ray KUB, follow up was done with x-ray KUB only. For recurrent stone formers with radiopaque stones, x-ray KUB or ultrasound KUB were the follow up investigation of choice. However, when the stones were radiolucent and not appropriate for ultrasound, ULD-CTKUB was used for follow up.

Results: Out of 20 patients (16 males and 4 female) over 7 months, 12 patients had ULD-CTKUB and 8 had a ULD-CT pelvis only as initial solitary stone was situated in lower ureter or vesico-ureteric junction. Mean effective dose of ULD-CTKUB was 1.3 msv (range 0.8 to 1.9) as compared to 4.1 msv for the original low dose CTKUB (LD-CTKUB) (range 2.4 to 5.9). Mean stone size was 6.5 mm (range 2-23 mm). 1 patient had an ileal conduit and a 23 mm ureteric stone which was radiolucent. ULD-CTKUB diagnosed stone passage in 12 patients. The mean HU density was 535 (range 400 to 650). The low numbers to date are due to lack of awareness amongst clinicians regarding the differences between ULD-CTKUB and LD-CTKUB, and gradual uptake by the radiology department whilst developing CT protocols to find the optimal settings for ULD-CTKUB.

Conclusions: ULD-CTKUB significantly reduced radiation exposure. The development of a new follow up protocol subdividing ULD-CTKUB into CTKUB and CT pelvis has further reduced radiation dose. However, staff education is critical to increase utilisation. ULD-CTKUB should replace X-ray KUB for follow up of ureteric stones as the radiation dose is equivalent but the diagnostic accuracy is better allowing for appropriate management of patients.