

Routine Ultrasound Imaging after Transplant Ureteric Stent Removal in Paediatric Renal Transplant Recipients

– does it change clinical practice?

J Woellner¹, H Wilcox¹, B Das², JC Clothier¹, J Stojanovic¹, GM Walsh¹, C Callaghan², HE Jones¹

Evelina London Children's Hospital¹, Guy's Hospital, London²

Introduction During paediatric renal transplantation a double J transplant ureteric stent is routinely inserted to prevent major urological complications (MUC) and usually removed electively at 4-6 weeks post transplant unless there is a clinical indication for urgent stent removal. Paediatric renal transplant recipients (RTR) at our centre undergo an elective post-stent removal graft ultrasonography (PSRGU). Here we evaluated whether this is useful in the detection of major urological complications (MUC).

Methods Retrospective data collection retrieved from electronic case notes and presented as median (range).

Results Between January 2012 and December 2016 81 patients successfully received a kidney transplant. 60 were followed up at our centre. 6 were excluded from analysis: 2 had cutaneous ureterostomies, in 2 cases the stent was removed unexpectedly during clean intermittent catheterisation and 2 patients had early stent removal in the first week post transplant as part of a trial.

54 patients underwent transplant ureteric stent removal (figure 1). 48 were removed electively at 38 (16-73) days post transplant. 30 patients underwent a routine PSRGU 7 (1-55) days later. 14 patients had urgent scans (most commonly for serum creatinine rise) at 6 (1-20) days and 4 patients had no follow-up scan.

Outcome	Routine PSRGU (n = 30)	Urgent PSRGU for rise in serum creatinine (n = 12)	Urgent PSRGU for other reason (n = 2)
No change in management	27	11	1
Repeat imaging or more intensive monitoring, but no ureteric intervention	1	0	1
Invasive intervention for suspected MUC	0	1	N/A
Further investigation or intervention for incidental finding	2	0	N/A

Figure 2: Clinical outcomes following routine and urgent USS after elective stent removal.

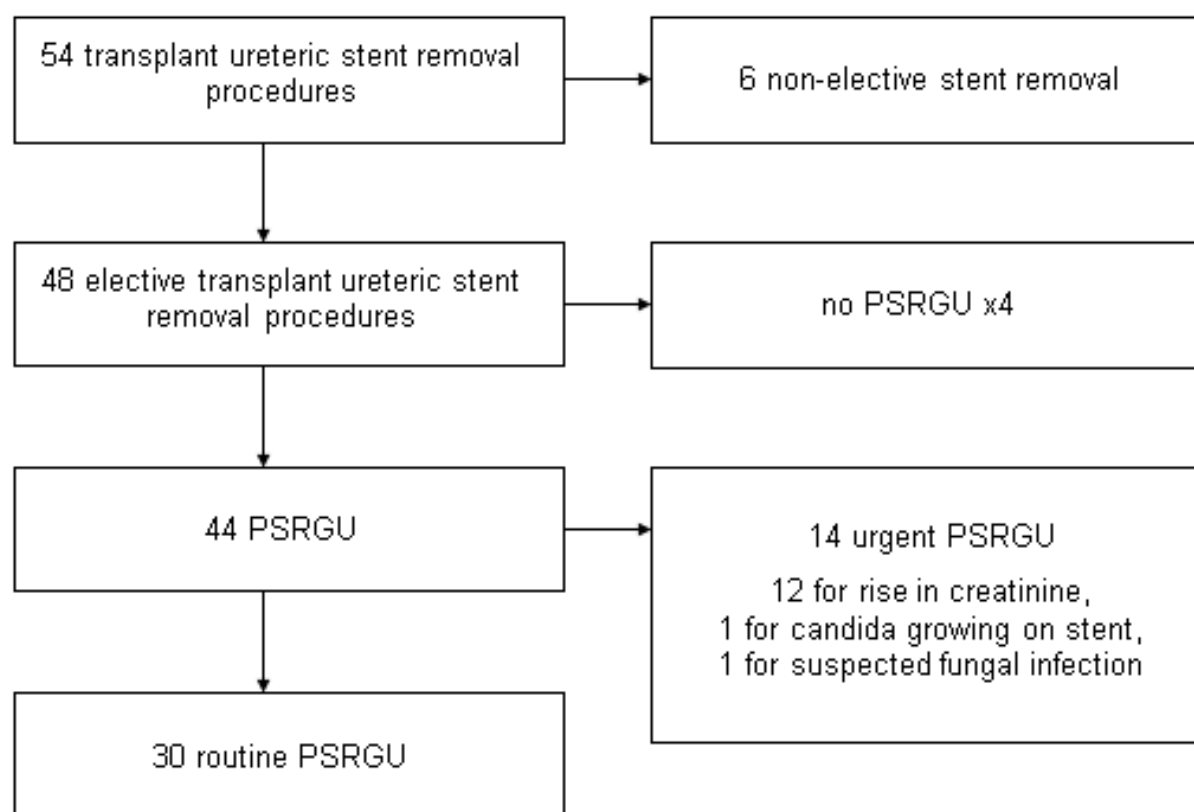


Figure 1: Flow chart summarises paediatric patients who underwent ureteric stent removal

27 of the patients undergoing routine PSRGU had no change in their management or a repeated ultrasound scan. 2 required ultrasound angiography for incidental (non-ureteric) findings (figure 2).



Figure 3: Nephrostogram in case with MUC

One of the patients, who underwent an urgent PSRGU, was found to have a MUC: This patient had an uncomplicated routine stent removal on day 29 post-transplant. 4 days later the creatinine rose from 30 to 56µmol/l and an urgent ultrasound revealed hydronephrosis. A nephrostogram showed a narrowed distal 1/3 of the ureter (figure 3) and the patient underwent successful surgical resection of the ureteric stricture with subsequent ureteric re-implantation.

6 patients underwent urgent stent removal at 24 (13-48) days post transplant with the most common reason being urinary tract infection. None of this group had a MUC.

Discussion Routine PSRGU following elective stent removal did not lead to the detection of any MUC in this paediatric cohort. The single case with a ureteric stricture as MUC was diagnosed due to graft dysfunction and underwent an urgent PSRGU. In summary this highlights the importance of regular clinical review including measuring serum creatinine following stent removal, which is protocol in our centre.