

Urologic J.J Stents: Uses and Complications

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Urinary stents are an important tool in a urologist's armamentarium to prevent obstruction of the urinary tract. The concept for their development was the placement of a tube within an obstructed or manipulated ureter, to provide a free passage of urine from the kidney to the bladder. They are thus indwelling urinary catheter, internally placed from the renal pelvis to the urinary bladder within the ureter with the specific function to provide active and prophylactic treatment of renal and ureteric obstruction¹. Historically, Peck first reported the use of ureteric catheters⁴. The first clinical application was reported in 1967⁵ and later in 1970⁶. The common problem with these early stents was their tendency to migrate⁸. Initially the problem was partially overcome by the introduction of a single "J" or pigtail at upper end. This end was retained in the renal pelvis which prevented the downward migration. However, there still remained the upward migration with the stent moving up and disappearing from the ureteric orifice. Subsequently addition of a second "J" to the lower end prevented migration in either direction⁸. The stent is thus self retaining due to two curves (coils) at either end which prevent migration from its fixed place. The curvatures, one at each end, give the catheter its "J" shape and hence the name "J.J" The list of clinical indications for the insertion of J.J stents are broadly classified into three groups. Firstly, obstruction of upper urinary tract which includes ureteral obstruction due to calculus, acute hydronephrosis of pregnancy, pelvi-ureteric junction obstruction, retroperitoneal fibrosis and ureteral stricture^{2,3,9,10}. Secondly, the operative group includes pyeloplasty, uretero-ureterostomy, uretero-neocystostomy, uretero-enterostomy, extended pyelolithotomy and ureterolysis. In these cases stents minimise any post-operative problems that may be caused by extravasation of urine due to leakage from areas of ureter that may have been damaged during the time of operation^{2,11-14}. Thirdly, the miscellaneous group includes ureteric trauma and ureteric fistulae¹⁵⁻¹⁷. Clinical usage of the stents have evolved a new group (prophylactic group), which is aptly defined in the article, "Experience with indwelling Jj ureteral stents¹¹, in this issue of the journal. This group includes cases where stents are inserted prophylactically to prevent ureteric obstruction due to stone debris after extra corporeal shockwave lithotripsy (ESWL), after laser lithotripsy, after ureterorenoscopy and dormia extraction¹⁸⁻²¹. J.J stents have proved their efficacy in preventing obstruction in majority of these indications. However, their usage has not been free from complications. The frequent complications encountered during the indwelling period are migration in either direction, crystalloid encrustation, breakage and bladder mucosa erosion. These complications may exist singly or in combination. Infections in stented patients are not associated with significant morbidity and in majority can be successfully treated by antibiotics. Some times a persistent infection may develop despite appropriate antibiotic treatment which necessitates stent removal for eradication of infection⁷⁻²². Usage of J.J stents is now frequent in Pakistan and the paper in this issue has highlighted that the commonest indication of use is to prevent obstruction after ESWL and laser lithotripsy. This is expected when one considers that urolithiasis remains the commonest urological ailment in our country. Since ESWL remains the treatment of choice in 85% of these cases, the usage of stents would play a significant role in the management of this group of patients and in other indications.

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