



## Comparative Study of Fifty Cases of Open Pyelolithotomy and Ureterolithotomy With or Without Double J Stent Insertion

### KEYWORDS

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### INTRODUCTION:

Urinary stones are very common in all age groups. Whenever ureteroscopic removal of stones or lithotripsy is not possible, open surgery is indicated. In most centers, surgeons like to use DJ stent after this procedure due to less complication including impaction of stone and stricture formation. Temporary drainage of the upper urinary tract is commonly provided by internal ureteral stents. Indwelling ureteral stents provide free drainage from the kidney to the bladder, reduce or eliminate urinary leakage and provide management option for retained stones post-op. It is also considered that DJ stent insertion facilitates passage of stone fragment due to passive dilatation. However it can cause complications such as post op pain, irritative symptoms like Urgency, Frequency, Hematuria, Dysuria and UTI. Late complications like malposition, migration, encrustation, fracture, urinary leak, urinary fistula, strictures and forgotten stent can also occur.

### AIMS AND OBJECTIVES

- To study the cases of open pyelolithotomy and ureterolithotomy in whom the insertion of DJ stent is indicated and not indicated and comparing them in terms of benefits and adverse effects.

- Benefits of DJ stent insertion

1. Post operative urinary leak
2. Retained stones

- Adverse effects

1. Post operative pain
2. Burning Micturition
3. Lower urinary tract symptoms like urgency, frequency, hematuria, dysuria
4. UTI and fever
5. Late complications like malposition, migration, encrustation, fracture, fistula, strictures, leak and forgotten stents.

### METHODS:

The comparative study of cases of open pyelolithotomy and ureterolithotomy with or without Double J stent insertion is a prospective, randomized controlled trial.

All the patients who were operated for open pyelolithotomy or open ureterolithotomy, with or without placement of Double J ureteral stent, between May 2011 and November 2013 were included in this study. Total 50 patients were included in this study, irrespective of the size and site of stone. The patients who did not submit to this method or in whom, it was impossible to collect the data pre, intra

postoperatively as well as absence of follow up or excretory urography were excluded from this study.

The 50 patients selected for this study were divided into 2 groups: Stented group A having 25 patients and non-stented group B having 25 patients. All the patients admitted with renal or ureteral calculi were properly examined and investigated by blood examination, X-ray KUB, ultrasonography, intravenous pyelography and other relevant investigations whenever required. They were accordingly assessed and planned for open pyelolithotomy or ureterolithotomy. Per operatively, site, size, number of calculi, impaction by calculi, condition of kidney and ureters were assessed and decision about placement of Double J stent was taken. At the end of procedure, the patients were transferred to the recovery room for observation and were discharged once they were vitally stable with satisfactory pain control and tolerating oral feeds. All the patients were evaluated by Xray KUB at two weeks to check stone free status. Patients with double J stent were scheduled for cystoscopic removal after 6 weeks under local anesthesia in majority of patients and under general anesthesia as and when required. The outcome measures were post operative urinary leak, retained stones, post operative pain, irritative urinary symptoms, hematuria, number of visits to emergency room, late complications and stone free status.

### DISCUSSION

Ureteral stents are functionally used to re-establish or maintain the patency of ureter. Nephrolithiasis is one of the very common indications for placement of ureteral stents, post operatively. These ureteral stents re-establish and maintain the patency of the ureter. They passively dilate the ureter and urine flows through the center of the hollow stent as well as around the stent, facilitating the passage of debris. Stent insertion initially increases ureteral peristaltic activity, but with time, the frequency and amplitude of ureteral peristalsis decreases. Apart from nephrolithiasis, these stents are placed in cases of ureteral obstruction due to a tumor, retroperitoneal fibrosis or complicated urinary tract infection. They are also used after ureteral anastomosis to buttress the repair and ensure continued urine flow in spite of inflammation and swelling. Sometimes, ureteral stents are placed prophylactically in cases of ESWL where the stone size is larger (>1.5cm) and to prevent ureteral obstruction post ESWL.

In our study, we have selected 25 patients for the placement of Double J stent and the other 25 patients were non-stented. These 2 groups were compared for post-operative complications like urinary leak, retained stones, early and late post-operative complications. Of these, urinary leak was present in 24% of the stented patients while

it was in 32% of the non-stented patients.

Urinary Leak	Stented Patients	Non-stented patients
Present	6 (24%)	8 (32%)
Absent	19 (76%)	17 (68%)
Total	25	25

8% of the stented patients and 16% of the non-stented patients had retained stones.

Retained Stones	Stented Patients	Non-stented patients
Present	2 (8%)	4 (16%)
Absent	23 (92%)	21 (84%)
Total	25	25

Early post-operative complications like loin pain, burning micturition, urgency, frequency and hematuria were seen more in stented as compared to non-stented patients.

Early post-op complications	Stented Patients	Non-stented Patients
Loin Pain	11 (44%)	4 (16%)
Burning micturition	8 (32%)	3 (12%)
Urgency	3 (12%)	-
Frequency	3 (12%)	-
Hematuria	2 (8%)	-
Fever and UTI	2 (8%)	-

3 of the 25 stented patients had late post-operative complications. One of them had stent fracture and the other had slipping of stent and its migration into bladder causing severe hematuria and irritative bladder symptoms. In the third patient, retained stones were present, so lithotripsy was performed three times. DJ stent was kept for 75 days and at time of removal of DJ stent cystoscopically, it was found stuck in pelvis region and we were unable to remove it. Later it was removed by nephrotomy.

Late Post -op complications	Stented Patients	Non-stented patients
Present	3 (12%)	-
Absent	22 (88%)	-
Total	25	25

## CONCLUSION

Urolithiasis is one of the most common and oldest diseases of urinary tract. Open pyelolithotomy and open ureterolithotomy for large obstructing calculi in urinary tract has been routinely performed in our institute. Stenting after open surgery has been recommended to prevent the development of ureteral leak; it also facilitates passage of stone fragments and promotes ureteral healing after surgery.

In this study, 50 cases of open pyelolithotomy and ureterolithotomy were studied in two groups (with and without insertion of DJ stent). The two study groups were comparable with respect to patient age, sex, pre operative RFT, number of stone, stone size, obstruction caused by calculi, hydronephrosis, hydroureter, impacted calculi, operative time, post op urinary leak, retained stones and late com-

plications.

From here we can conclude that, for straight forward cases with no obstruction, non impacted calculi, no variations in form of intrarenal pelvis, no to mild hydronephrosis and hydroureter with no significant disparity between proximal and distal ureter, absence of multiple stones (calculable stones present), normal RFT, in these cases DJ stent insertion should be avoided. By avoiding DJ stent in such patients, complications like loin pain, burning pain in micturition, irritative bladder symptoms (frequency, urgency, dysuria), fever, hematuria and UTI and late complications like stent fracture, stent migration, stucked stent can be avoided. Also the chances of another procedure (mainly cystoscopy) for removal of DJ stent can be avoided. Instrumentation in form of cystoscopy for removal of DJ stents can lead to infection. Also, in tertiary centers and general hospitals, where Patients come from far away places, further visits can be avoided by optimal use of Double J stents in open pyelolithotomy and ureterolithotomy.

And in patients with obstructed by calculi, impacted calculi, intrarenal pelvis, moderate to gross hydronephrosis and presence of hydroureter with disparity between proximal and distal ureter, presence of multiple calculi, abnormal RFT, it is indicated to put DJ stents in these patients for reduced incidence of Urinary leak and easy management of retained stones.