



Original Research Article

## Comparison of Symptoms after Routine Double J Stenting Versus Non Double J -Stenting Following Uncomplicated Ureteroscopic Lithotripsy (URSL) in Dhulikhel Hospital, Kathmandu University Hospital

Karmacharya A<sup>1\*</sup>, Joshi HN<sup>2\*</sup>, Rajbhandari M<sup>1\*\*</sup>, Karmacharya R<sup>1\*</sup>

<sup>1</sup>Lecturer, <sup>2</sup>Assistant Professor,

\*Department of Surgery, Dhulikhel Hospital, Kathmandu University Hospital, Nepal.

\*\*Department of Pathology, Dhulikhel Hospital, Kathmandu University Hospital, Nepal.

Corresponding Author: Karmacharya A

Received: 20/01/2014

Revised: 11/02/2014

Accepted: 17/02/2014

### ABSTRACT

**Background:** The placement of a ureteral catheter or stent is a routine practice after ureteroscopic stone extraction. Though ureteral stents have been important and indispensable urologic tools, there are various disadvantages resulting from it which adversely affect the quality of life.

**Objective:** This study was carried out to evaluate if the DJ stenting is still important as a routine procedure following uncomplicated ureteroscopic lithotripsy .

**Method:** Between May 2012 to July 2013, 58 patients were admitted to the Department of Urology, Dhulikhel Hospital, Kavre, Nepal with ureteric stones of various sizes and various locations. In this hospital based prospective, comparative study all of the above patients were treated by ureteroscopic lithotripsy. Following the procedure, patients were randomized to the non-stented (n=30) who had no stent placed at the end of the operation and stented (n=28) group having Double DJ stent placement. The assessment criteria included operative time, postoperative analgesia, complications including ( flank pain, suprapubic pain with voiding, urgency and dysuria), and the stone free state. Data were entered in MS excel and analyzed with SPSS version 16.

**Results:** A total of 58 patients underwent ureteroscopic lithotripsy for stones in various parts of the ureter. The age range of the stented group was 30 to 65 years with mean age of 34.33 years with a female predominance with females 16 (55.6%) and males 12(44.4%). The mean size of the stones in the stented group was 11.3mm with the maximum number of stones in the upper ureter 14 (50%), lower ureter 12 (42.9%) and mid ureter 2 (7.1%). The age group of non-stented group ranged from 28-60 years with mean age of 38.66 years. The male to female ratio was 1:1 with 15 patients in each group. The mean size of the stone was 9.9 mm with the highest number of them in the lower ureter 24(80%). The operative time was longer in the stented group compared to non-stented. Post operatively there was a significant difference in the need for pain killers in the stented group 70% with only 20% in non stented group. The incidence of hematuria and dysuria was higher in the stented group compared with non-stented. However, there was no statistical difference in the two groups in terms of other symptoms. Mean duration of Hospital stay in patients in both non-stented group and stented group was 2 days. Both groups had 100% stone -free rate

**Conclusion:** Postoperative DJ stenting following uncomplicated URSL is not required as a routine procedure. The non-stenting group has less need for analgesics and less irritative symptoms and also less economic burden to the patients.

**Key words:** Double J, Ureter, Stent.

## INTRODUCTION

First ureteroscopy was performed by Hugh Hampton Young in 1912 on a patient with posterior urethral valve.<sup>[1]</sup> In 1983 Huffman performed first ureteroscopic removal of ureteric stone.<sup>[2]</sup>

Among various treatment modes for ureteral stone, ureteroscopy is one of the options.<sup>[3]</sup> Decrease in the size of the ureteroscope and the use of flexible variety has made the procedure of stone removal more effective. The placement of stents has been a standard practice since 1967.<sup>[3]</sup> It re-establishes urinary flow from kidney to bladder by passing both extrinsic and intrinsic causes of ureteral obstruction. It provides relief from post operative ureteric obstruction and renal colic due to ureteral edema caused by stone manipulation and also accelerates healing process.

Though ureteral stents have been an indispensable tool, their use is now being questioned. There are various disadvantages resulting from it including flank pain, voiding symptoms, infections, stent related stone formation and encrustation.<sup>[4,5]</sup> Thus, various studies recommend them to be used only for procedures with complications such as ureteric injury or if a stone fragment remained at the end of the procedure.<sup>[6,7]</sup>

The stent has been in use for more than 30 years in Nepal as a routine practice. However, the incidence and severity of patient discomfort after ureteroscopic lithotripsy and Double J stenting has not been well documented. Thus, the study is undertaken to verify if URS stenting is mandatory or not and to develop a rationale regarding their use.

## MATERIALS AND METHODS

This case-control study was conducted in Dhulikhel Hospital, Kavre District after receiving clearance from ethical committee. This study was designed as a prospective randomized controlled trial conducted in Department of Urology between 1st May 2012 to 30th June 2013. The data were collected by history, physical examinations and Radiological (IVP) and sonological investigations.

All of the patients underwent URSL by intraluminal Pneumatic (ballistic) Swiss lithoclast with semirigid Storz ureteroscope of 7.5 and 9.5 Fz under spinal or general anesthesia and was catheterized post procedure and kept in post operative ward. All of the patients were given IV fluid, analgesia and proton pump blocker for 6 hours then switched to oral medication. All patients were checked on 1st postoperative day with X-ray KUB for radiological clearance of stone and position of Double J stent. The criteria of inclusion for study were stones sized less than 15 mm and absence of complications during the procedure including ureteric injury, evidence of mucosal edema or hemorrhage. Similarly, stones bigger than 15mm, stone present in pelvis, any complications after the procedure or patients not fit for anesthesia or pregnant were not eligible. The patients were randomized into stented and not stented group depending on the procedure.

A standard proforma was prepared for the case as well as control group. All of the patients were assessed for duration of operation, requirement of post operative analgesics, complications including hematuria, dysuria, flank pain, lower

abdominal pain, nocturia, frequency and urgency during their stay in Hospital. All patient were reviewed after 2 week with follow-up Ultrasound Kidney Ureter Bladder (KUB) to document stone free status. Statistical analysis was performed using Statistical Package for Social Sciences software (SPSS) version 16.

## RESULTS

A total of 58 patients meeting the eligibility criteria were randomized into the stented (cases) and non stented (control) groups at the end of the ureteroscopic procedure. Total of 28 patients were included in the stented group and 30 in the non-stented group. The indications for ureteroscopic lithotripsy were the stones obstructing variable locations of the ureter including upper, mid or lower. The stones varied in sizes from 2mm to 15mm with mean sized of 11.3mm and 9.9mm in the stented and non-stented groups respectively. The different locations of the stone included 14(50%) in the upper ureter, 12(42.9%) in the lower ureter and 2(7.1%) in the mid ureter in the stented group. Similarly, maximum number of stones were retrieved in lower ureter 24(80%) in the non-stented group followed by 4(13.3%) in mid and

2(6.7%) in upper ureter respectively. The operative time was longer in the stented group in compare to the non-stented group. However, there was no significant difference in the duration of hospital stay in both groups post operatively with the mean duration of 2 days. Similarly, there were no statistical differences with respect to patient gender, age, stone location and mean size of the stone between the two groups.

Out of 58 patients considered for the procedure, 31 were females and 27 were males. Mean age of stented group was 34.53 years and non-stented was 38.66 years. Post operatively, all the patients including stented and non-stented required parenteral analgesics. However, in the first two weeks following the procedure only 20% of patients in the non-stented and 67% of patients in the stented group consumed oral analgesics. The irritative voiding symptoms and complications were observed in both stented and non stented groups. The incidence of hematuria and dysuria were higher in the stented group compared to non-stented group. However, there was no significant difference between the two groups in respect to other symptoms and complications.

**Table 1. Demographic Data and Comparison of Post operative symptoms in the stented and non stented groups.**

Variables	Stented			Non stented			P-Value
Age	34.53 years			38.66 years			0.207
Sex	Male	12	44.4%	Male	15	51.6%	
	Female	16	55.6%	Female	15	48.4%	
Stone size	11.3 mm			9.9 mm			
Stone Site	Upper	14	50%	Upper	2	6.7%	
	Mid	2	7.1%	Mid	4	13.3%	
	Lower	12	42.9%	Lower	24	80%	
Operative time mean	46.7 min			32.3min			
Hematuria	20			12			0.01
Dysuria	13			9			0.03
Flank Pain	7			7			0.77
Lower Abdomen pain	4			5			0.8
Nocturia	10			5			0.09
Frequency	10			8			0.4
Urgency	3			5			0.511

## DISCUSSION

The introduction of flexible ureteroscope with the better optic visualization, durability and variation in design including the size has made it a good treatment option for urolithiasis. Though the use of DJ stent after the stone extraction was previously advocated by the urologists after all ureteroscopic lithotripsy, its routine use is currently debatable. In our study different variables such as age, sex, stone size, days of hospital stay were comparable in both stented and non stented groups and were not statistically significant (p value >0.05).

A number of studies have suggested the placement of stent is associated with more morbidities such as hematuria, dysuria, flank pain. Besides the irritative symptoms there are incidences of complications such as migration, encrustation and sometimes even stone formation.<sup>[8,9]</sup> These findings are consistent with ours in terms of hematuria and dysuria. In our study there was a statically significant association between the lower urinary tract symptoms such as hematuria and dysuria with the stent. However, there was no noticeable difference in other symptoms including flank pain, nocturia, urgency and frequency between the two groups. These findings are similar to other studies.<sup>[10-12]</sup>

Regarding the requirement of analgesics post operatively our study revealed there was no significant difference in the need for parenteral analgesia in two groups. However, during the first two weeks of post operative period the stented group had more consumption of oral analgesics in compare to the non stented group. Similar findings have been revealed in various other studies.<sup>[13-15]</sup> The operative time was longer in the stented group irrespective of location of stone in our study. The study by Xu Y et al<sup>[16]</sup> is also comparable with our study.

The removal of the stent was performed in next 4-8 weeks in all stented

groups. The follow up showed stone free state in both groups by ultrasound indicating there was no effect on the success and stone free state. Though both groups were free of early complications the presence of any late complications requires further monitoring.

## CONCLUSION

Stent placement after ureteroscopy results in morbidity mainly in the form of irritative bladder symptoms without any significant difference in stone clearance rates, post procedural analgesia and duration of hospital stay. However, the long term complications like development of ureteric strictures among the stented and non-stented needs further evaluation.

## REFERENCES

1. Agrawal A, Shrestha P, Belokar WK. Early experience in ureteroscopy for the management of ureteric stone. *JCMS-Nepal* 2011; 7:28-33.
2. Prabhakar M. Retrograde ureteroscopic intrarenal surgery for large (1.6-3.5cms) upper ureteric/renal calculus. *Indian J Urol* 2010; 26(1): 46-9.
3. Miyaoka R, Monga M. Ureteral stent discomfort : Etiology and management. *Indian J Urol* 2009; 25(4): 455-60.
4. Papadovkakis S, Stolzenburg JU, Truss MC. Treatment strategies of ureteral stones. *EAU-EBU update series* 2006;4:184-90.
5. Ahallal Y, Khallouk A, Farih MH. Risk factors analysis of management of ureteral Double J stent complications. *Rev Urol* 2010; 12:147-51.
6. Hubner WA, Plas EG, Stoller ML. The double J ureteral stent; in vivo and in vitro flow studies. *J Urol* 1992; 148:278-80.
7. Ullah I, Alam K, Wazir BG, Shah F, Nawaz A, Malik A. Indications and morbidity of Indwelling ureteral stenting. *Ann Pak Inst Med Sci* 2011; 7(4): 173-5.

8. Chew BH,Knudsen BE,Denstedt JD. The use of stents in contemporary urology. *Curr Opin Urol* 2004; 14: 111-5.
9. Bregg K, Riehle RA Jr. Morbidity associated with indwelling internal ureteral stents after shock wave lithotripsy.*J Urol* 1989;141: 510.
10. Jeong H, Kwak C, Lee SE.Ureteric stenting after ureteroscopy for ureteric stones: A prospective randomized study assessing symptoms and complications. *BJU* 2004; 93:1032-5.
11. Shah OD,Matalga RM, Assimmos DG.Selecting treatment for distal ureteral calculi shock wave lithotripsy versus ureteroscopy.*Rev Urol* 2003;5(1): 40-4.
12. Srivastava A, Gupta R,Kumar A,Kapoor R, Mandhani A. Routine stenting after ureteroscopy for distal ureteral calculi is unnecessary: results of randomized controlled trial. *J Endourol* 2003; 17(10): 871-4.
13. Chen JJ, Yip SKH, Wong MYC,Cheng CW.Ureteroscopy as an out-patient procedure: the Singapore General Hospital Urology Centre experience. *Hong kong Med J* 2003; 9:175-8.
14. Alapont JM, Broseta E, Oliver F. Ureteral avulsion as a complication of ureteroscopy.*Int Braz J Urol* 2003;29: 18-23.
15. Chen YT, ChenJ,Wong WY. Is ureteric stenting necessary after uncomplicated ureteroscopic lithotripsy? A prospective randomized controlled trial. *J Urol* 2002; 167(5):1977-80.
16. Xu Y, Wei Q, Liu LR. A prospective randomized trial comparing non-stented versus routine.

How to cite this article: Karmacharya A, Joshi HN, Rajbhandari M et. al. Comparison of symptoms after Routine Double J stenting versus Non Double J -stenting following uncomplicated ureteroscopic lithotripsy (URSL) in Dhulikhel Hospital, Kathmandu University Hospital. *Int J Health Sci Res.* 2014;4(3):116-120.

\*\*\*\*\*

International Journal of Health Sciences & Research (IJHSR)

**Publish your work in this journal**

The International Journal of Health Sciences & Research is a multidisciplinary indexed open access double-blind peer-reviewed international journal that publishes original research articles from all areas of health sciences and allied branches. This monthly journal is characterised by rapid publication of reviews, original research and case reports across all the fields of health sciences. The details of journal are available on its official website ([www.ijhsr.org](http://www.ijhsr.org)).

Submit your manuscript by email: [editor.ijhsr@gmail.com](mailto:editor.ijhsr@gmail.com) OR [editor.ijhsr@yahoo.com](mailto:editor.ijhsr@yahoo.com)