CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
SJIF Impact Factor: 7.187
http://doi.org/10.5281/zenodo.4065116

Available online at: http://www.iajps.com *Research Article*

URETEROSCOPIC REMOVAL OF LOWER URETERIC STONES; WITH OR WITHOUT PLACEMENT OF STENT IN URETER

[1]Dr Pervez Ahmed, [2]Dr. Jamil Ahmed, [3]Dr. Hayat Kakar, [4]Dr Ghulam Sarwar

[1]Associate professor urology Bolan University of Medical and Health, Sciences Quetta, Email: pervezahmed757@gmail.com., [2]Assistant professor urology Bolan University of Medical and Health, Sciences Quetta, Email: jamilahmedkhan@gmail.com., [3]Senior registrar urology Bolan University of Medical and Health Sciences Quetta, Email: dr.hayatsiut@gmail.com., [4]Consultant general surgeon NGB Hospital, Email: gsarwar_636@hotmail.com

Article Received: July 2020 **Accepted:** August 2020 **Published:** September 2020

Abstract:

Objective: *To determine treatment results and post-operative complications after removal of lower ureteric stones using ureteroscopy with or without ureteric stenting*

Design and duration: *Cross sectional study done in six months duration from January to June 2020.*

Setting: *Study was conducted at urology department of Bolan University of Medical and Health Sciences Quetta.*

Patients and Methods: *Total 180 cases having lower ureteric stones were divided into three groups depending on use of double J stent, ureteral stent and no stent after ureteroscopic removal of stone. Presenting complaints, duration of symptoms, stone size, site, operation time, post-operative pain, analgesia need for post-operative pain and lower urinary tract symptoms, all data was documented on a proforma and analyzed using SPSS software version 24. Frequency and percentage were calculated for qualitative data while means and standard deviation calculated for quantitative data. P-value less than 0.05 was considered statistically significant.*

Results: *There were 180 cases in this study including 58.3% male and 41.7% female cases. Age range of patients was 15-70 years with mean age of 43.26±7.53. After ureteroscopic removal of stone DJ stent was placed in 34.4%, ureteral stent in 32.2% and no stent placed in 33.3% cases. Mean stone size was 7.43±1.54 mm.*

Conclusion: *Removal of lower ureteric stones via ureteroscopy without placement of stent is a relative safer procedure having less complications, shorter hospital stay and early recovery.*

Key words: *ureteric stone, ureteroscopy, double-J stent, ureteral stent.*

Corresponding author:

Dr. Pervez Ahmed,

Associate professor urology Bolan University of Medical and Health, Sciences Quetta, Email: pervezahmed757@gmail.com.

QR code

Please cite this article in press Pervez Ahmed et al, ***Ureteroscopic Removal Of Lower Ureteric Stones; With Or Without Placement Of Stent In Ureter,*** *Indo Am. J. P. Sci, 2020; 07(09).*

INTRODUCTION:

Extracorporeal shock wave lithotripsy and ureteroscopy are two common modes of treatment of ureteric stone. [1,2][2] Ureteroscopy is a treatment of choice in such patients. [3] It is a minimal invasive procedure with low morbidity and few complications. [4,5] Use of ureteral stent after uncomplicated ureteroscopy is controversial. Use of ureteral stent relieves colic and urinary obstruction also promotes healing and prevent urinary tract strictures. [6] Ureteral stents are associated with infection, pain and irritable bladder symptoms. [7] Stent placement requires skills and it is an expensive procedure requiring second ureteroscopy for stent removal latter on. In routine procedures stent placement can be avoided in simple cases. [8,9] Prevalence of ureteral strictures in patients with ureteric stones is 3-24%. [10] Due to repeated injury and irritation by stone causes formation of ureteric strictures. YAG laser techniques is one of various modes of treatment but due to its complication of strictures formation it is avoided most of the time. Laser technique causes thermal injury of ureter but in ureteroscopy cold knife is used to avoid any injury and minimizing chances of stricture formation. [10]

PATIENTS AND METHODS:

This is a cross sectional study in which patients were selected using consecutive sampling technique. Sample size was calculated using WHO sample size calculator. Total 180 cases having lower ureteric stones were divided into three groups depending on use of double J stent, ureteral stent and no stent after ureteroscopic removal of stone. Three groups were formed in first group those patients included in which ureteroscopic removal of ureteric stone was followed by DJ stenting ((N=62). In second group ureteric stet was inserted (N=58) and in third group no stent was inserted (N=60). Presenting complaints, duration of symptoms, stone size, site, operation time, post-operative pain, analgesia need for post-operative pain and lower urinary tract symptoms, all data was documented on a proforma and analyzed using SPSS software version 24. Frequency and percentage were calculated for qualitative data while means and standard deviation calculated for quantitative data. P-value less than 0.05 was considered statistically significant. Written consent was taken from all the patients in study group. Those having sepsis, renal failure, bilateral ureteric stones or with stone size> 15mm were excluded from the study. Those with single kidney were also excluded from study. Preoperatively CBC, urea, creatinine, urine complete examination, ultrasound KUB and where needed CT KUB were done. A guide wire of 0.035 inch diameter was inserted into ureter then ureteroscope was introduced on it. Stents used were 6 Fr in size. Patients in group-1 were readmitted for DJ stent removal after 4 weeks. Ureteric stent was inserted in second group and close monitoring was done for 24 hours. Complete fragmentation of stone was labelled as successful ureteroscopy with confirmation on post-operative radiographs. A proforma was used on which all data was documented like name, age, gender, stone size, operative time, hospital stay duration, dysuria and post-operative analgesics need, hematuria, frequency, urgency, fever, urinary tract infection and visual analog pain score.

RESULTS:

There were 180 cases in this study including 105(58.3%) male and 75(41.7%) female cases. Age range of patients was 15-70 years with mean age of 43.26±7.53. After ureteroscopic removal of stone DJ stent was placed in 34.4% (Group- I), ureteral stent in 32.2% (Group-II) and no stent placed in 33.3% cases (Group- III). Mean stone size was 7.43±1.54 mm, 7.76±1.66mm and 7.92±1.53mm in Group- I, Group-II and Group- III respectively.

	Group- I (N=62)	**Group- II (N=58)**	**Group- III (N=60)**
Mean Age ±S.D	39.2±3.4	41.2±5.3	43.6±7.8
Mean stone size (mm)	7.43±1.54	7.76±1.66	7.92±1.53
Stone side Right Left	 34(54.8%) 28(45.2%)	 27 (46.5%) 31 (53.4%)	 33 ((55%) 27 (45%)
M/F (ratio)	38/23	32/27	35/25
Mean operative time (minutes)	40.1±15.4	31.28±7.6	30.5±7.6

Visual analog pain scale was used to measure pain post operatively and mean score after 48 hours was calculated as 3.9±2.5, 4.3±2.2 and 4.6±1.9, and after one week as 2.4±1.6, 2.3±1.8 and 2.7±1.4 respectively in three groups. Hematuria was almost equally in all groups. Dysurea (24.2%), frequency/urgency (32.2%) and need of analgesics

(25.8%) were most common among patients with DJ stent while Urinary tract infection and fever were having almost equal frequency in all three groups.

Post-operative characteristics	Group- I (N=62)	Group- II (N=58)	Group-III (N=60)	P-value
Mean pain score after 48 hours	3.9±2.5	4.3±2.2	4.6±1.9	0.011
After one week	2.4±1.6	2.3±1.8	2.7±1.4	0.037
Hematuria	5(8.1%)	5 (8.6%)	3 (5%)	0.214
Dysuria	15(24.2%)	9 (15.5%)	7 (11.7%)	0.005
Need of analgesics	16 (25.8%)	8 (13.8%)	5 (8.3%)	<0.05
Urinary tract infection	5 (8.1%)	4 (6.9%)	5 (8.3%)	0.248
Fever	3 (4.8%)	2 (3.4%)	5 (8.3%)	0.143
Frequency/urgency	20 (32.2%)	15 (25.9%)	6 (10%)	<0.05
Mean Hospital stay (hours)	36 (58.1%)	36 (62.1%)	24 (40%)	0.001

DISCUSSION:

In real colic and ureteric stones stents have been used for 30 years. [10] Ureteric stent placement is practiced frequently after ureteroscopy and shock wave lithotripsy.[11,12] Ureteric stents relieve urinary obstruction and reduce renal colic. It also prevent stricture formation. Due to its complications they may need removal. [12,13] According to a study ureteric stets are associated with few symptoms such as flank pain in 80%, urinary problems in 73% ad reduced work capacity in 58%. [5] They affect physical and psychological health and reduce routine performance of a person. [14] In our study frequency of post-operative hematuria, flak pain, dysuria, frequency, urgency and fever were determined among three groups, first with DJ stent, second with ureteric stent and third without stent. Ibrahim et al reported urinary tract infection and hematuria in 20% cases without stent and in 19% cases with stent. [6] He also concluded that mean duration of hospital stay and physical activity level was same among stented band non-stented patients. While results of a study done by Borboroglu were contrary to it as he found low frequency of flank pain among non-stented patients than those with stent. [7] In our study patients with and without stents showed significant difference in incidence of flank pain, hematuria, urgency, dysuria and mean hospital stay. In our study stented patients had reduced flank pain than non-stented patients. Nabi et al reported high frequency of lower urinary tract infection among those with stents. [8] Similar results were reported by Ibrahim et al[6] and Borboroglu et al[7] with lower incidence of bladder and flank pain among non-stented patients. Makarov et al studied complications of ureteral stenting after ureteroscopy and concluded to omit stenting. [14,15] Richer et al reported high rate of complications with ureteral stents. [16] Placement of urinary catheter after ureteroscopy increases complication rate and hospital stay as well. [17] Another study reported high risk of post-operative complications among non-stented patients after bilateral ureteroscopy, or history of recurrent urinary tract infection or with urolithiasis. [18-20] In our study randomized comparison of patients done with ureteric stent, DJ stent and those without stent. Our study has few shortcomings such as lack of any valid score to assess lower urinary tract symptoms and there was no assessment of amount of analgesia used postoperatively and no estimation of cost.

CONSLUSION:

Stent placement after ureteroscopic removal of ureteric stone is a common practice in urological departments in our country which is related to complications in many patients. Stent placement can be omitted safely after ureteroscopy which will decrease stent related complications, decrease hospital stay, early recovery and it is cost effective as well.

REFERENCES:

1. Pansota., M.S; Rasool, M., Saleem, M. S., et al.:Indications and complications of double j ureteral stenting: our experience. J. Med Sciences; 2013; 11: 8-12.
2. Wang, C. J., Huang, S. W., Chang, C. H. et al.: Indication of stented uncomplicated ureteroscopic lithotripsy: a prospective randomized controlled trial. Urol. Res., 2008; 37: 83-88.
3. Harman, W. J., Sershon, P. D., Blute M. L., et al.: Ureteroscopy: Current practice and long term complications. J. Urol., 1997; 157: 28-32.
4. Richler, S., Ringel, A., Shaleve, M et al.: The indwelling ureteric stent: a “friendly” procedure with unfriendly high morbidity. BJU InT. 2000; 85: 408-411.

5. Joshi, h. B., Stain Thorpe, A., MacDonagb, R. P. et al.: "Indwelling ureteral stents: evaluation of Symptoms, quality of life and utility" J. Urol., 2003; 169: 1065-1069.
6. Ibrahim, H. M ., Al-Kandari, A. M., Shaaban, H. S. et al.: Role of ureteral stenting after uncomplicated ureteroscopy for distal ureteral stones: a randomized, controlled trial. J. Urol., 2008: 180: 961-965.
7. Borboroglu, P. G., Amling, C. L., ScheNkman, N. S. et al.: Ureteral stenting after ureteroscopy for distal urerteral coluli: a multi-institutional prospective randomized controlled study assessing pain, outcomes, and complications. J. Urol., 2001., 166: 1651-1657.
8. Nabi, G., Cook, J., N; Dow and McClinton, S.: "Outcomes of stenting after uncomplicated ureteroscopy: systematic review and meta-analysis. Br. M. J. 2007; 334: 572-575.
9. Hussien, A.,Rifffat, E., Zaki, A. et al.: Stenting versus non stenting after non-complicated ureteroscopic maniplutation of stones in bilharzial ureters. Int. J. Urol., 2006; 13: 886-890.
10. Hu H, Xu L, Wang S, Yu X, Yang H, Peng E, Cui L, Li C. Ureteral stricture formation after removal of proximal ureteral stone: retroperitoneal laparoscopic ureterolithotomy versus ureteroscopy with holmium: YAG laser lithotripsy. PeerJ. 2017 Jun 30;5:e3483.
10. Boddy, S. M., Nimmon, C. C., Jones, S. et al.: Acute ureteral dilatation after ureteroscopy. An experimental study. Br. J. urol., 1988; 61: 27-30.
11. Turk, T. M. T. and Jenkins, A. D.: A comparison of ureteroscopy to in situ extracorporeal shock wave lithotripsy for the treatment of distal ureteric calculi. J. urol., 1999; 161: 45-49.
12. G. M. Preminger, H. G., Tiselius, D. G. Assimos. Et al.: "2007 guidelines for the management of ureteral calculi," EUR. Urol., 2007; 52: 1610-1631.
13. Sing, I., Gupta, N. P., Hemal, A. K et al.: severely encrusted polyurethane ureteral stents: management and analysis of potential risk factors. Urology, 2001; 58: 526-530.
14. Joshi, H. B., News, N., Stainthorpe, A., et al.: "ureteral stent symptoms questianaire: development and validation of a multidimensicnol quality of life stents, "Current opinion in urology, vol. 16, no. 2, PP. 77-82, 2006. View at publisher.
15. Makarov, D. V., Trock, B. J., Allaf, M. F and Nissenkorn,I.: The effect of ureteral stent placement on-oist-ureteroscopy complications: a meta-analysis, Urology, 2008; 71: 796-800.
16. Reichter, S., Ringel, A., Shapey, M et al.: The indwelling ureteric stent|: a "friendly" procedure with unfriendly high morbidity. BJU Ind. 2000; 85: 408-411.
17. Netto Jr., N. R., Ikonomidis, Jand Zillo, C.: Routine ureteral stenting after ureteroscopy for ureterol lihiasis: is it really necessary? J. Urol., 2003 170: 103-106.
18. Hollenbeck, B. K., Schuster, J. G., Seifman, B. D. et al.: Identifying patients who are suitable for stentless ureteroscopy following treatment of urolithiasis. J. Urol., 2003: 170: 103-106.
19. Jeong, H., Kwak, C and Lee, s. E.: ureteric stenting after ureteroscopy for ureteric stones: a prospective randomize study assessing symptoms and complications. B. j. urol., 2004: 93: 1032-1035.
20. Srivastava, A., Gupta, R., Kumar, A., et al.: Routine Stenting after ureteroscopy for distal ureteric calculi is necessary: Results of a Randomized controlled trial. J. Endourol, 2003; 17: 871-874.