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COMPARISON OF COMPLICATIONS OF DOUBLE J STENT AND WITHOUT STENT FOLLOWING URETEROSCOPY FOR URETERIC STONES

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Abstract

Background: *Ureteroscopy stone treatment is used for removing ureteric stones. It is the recommended first therapy for the majority of ureteric stones. There is debate about the use of double-J (DJ) stents during URS stone removal.*

Objective: *The aim of this study was to compare the Complications of Double J Stent and without Stent Following Ureteroscopy for Ureteric Stones.*

Material and method: *The current case –control study was carried out at Institute of Kidney Diseases Hayatabad Peshawar from January 2023 to June 2023. A total of 60 individuals participated in this study. Each participant underwent Ureteroscopy for ureteric stones using lithoclast and a semi rigid Storz ureteroscope. Following the surgery, each individual was catheterized and maintained in the post-operative ward. Depending on the technique, the patients were randomly assigned to either the stented or non-stented group and was evaluated for the duration of the surgery, the need for post-operative painkillers, complications such as hematuria, dysuria, flank pain, lower abdominal pain, nocturia, frequency, and urgency during their hospital stay. After two weeks, all patients were evaluated with a follow-up Kidney Ureter Bladder Ultrasound (KUB) to record their stone-free status. SPSS software Version 16 was used for the statistical analysis.*

Results: *Following ureteroscopic surgery, 60 participants who satisfied the eligibility requirements were randomly assigned to either the stented (cases) or non-stented (control) groups. There were 31 individuals in the non-stented group and 29 in the stented group. Stones obstructing the ureter at various points and ranged in size from 2 to 15 mm, with the mean diameters for the stented & non-stented groups being 11.3 and 9.9 mm, respectively. Compared to the non-stented group, the stented group's operating time was longer. However, the mean duration of the hospital stay for both groups after surgery was two days, with no discernible difference in that time. Likewise, there were no statistically significant differences between the two groups in terms of patient gender, age, stone position, or average stone size. The stented group noticed a greater incidence of hematuria and dysuria than the non-stented group. Regarding further complications and consequences, there was not a noticeable distinction between the two groups.*

Conclusion: *Our study concluded that as a standard treatment, postoperative Double J Stent following ureteroscopy for ureteric stones is not necessary. Participants in the non-stenting group suffer from less irritative symptoms, a lesser need for analgesics, and a lower financial burden.*

INTRODUCTION

Ureteroscopy stone treatment (URS) is a procedure which is used for breaking up and removing ureteric stones. It has been reported that URS stone removal has a higher overall stone-free rate than extracorporeal shock wave lithotripsy. It is the recommended first therapy for the majority of ureteric stones according to current European recommendations.[1]There is debate about the use of double-J (DJ) stents during URS stone removal. DJ stent insertion complications include pain, hematuria, infection, lower urinary system symptoms, and a decreased quality of life.[2] It is believed to lessen stricture rate, streamline the removal of stone pieces, and lessen post-URS blockage.[3] There is insufficient and inadequate standardization in the concept of uncomplicated URS (UURS). It is a technique with "no evidence of perforation or lack of clinically significant edema," according to Denstedt et al. On retrograde pyelography, free passage of contrast into the bladder is exclusive of edema.[4] Despite being an essential tool, ureteral stents are currently being questioned for their utility. Flanking pain, voiding symptoms, infections, and stent-related stone development and encrustation are some of the disadvantages that might arise from it.[5] [As] a result, some studies advise against using them for treatments that have consequences such ureteric damage or if a stone piece is still present after the surgery.[6] However, there is a lack of data on the complications of Double J Stent an Following Ureteroscopy for Ureteric Stones. Therefore the current study was carried out to determine the Comparison of Complications of Double J Stent and without Stent Following Ureteroscopy for Ureteric Stones.

Material and Method

The current case –control study was carried out at Institute of Kidney Diseases Hayatabad Peshawar from January 2023 to June 2023. A total of 60 individuals participated in this study . History, physical examinations, and radiological (IVP) and sonological investigations were used to collect the data. Under spinal or general anesthesia, each individual had URSL using an intraluminal pneumatic (ballistic) Swiss lithoclast and a semi rigid Storz ureteroscope of 7.5 and 9.5 Fz. Following the surgery, each individual was catheterized and maintained in the post-operative ward. Each recipient received intravenous hydration, analgesia, and a proton pump blocker for six hours before switching to oral medicine. On the first postoperative day, every individual were examined using X-ray KUB to determine the Double J stent's location and radiological clearance of the stone. Stones less than 15 mm and the absence of adverse reactions from the treatment, such as ureteric damage, signs of mucosal edema, or bleeding, were essential criteria for participation in the study. pregnant women or individuals unfit for anesthesia, had stones larger than 15 mm, had pelvic stones, or experienced any difficulties following the treatment were excluded. Depending on the technique, the patients were randomly assigned to either the stented or non-stented group. Both the case and the control group received a normal proforma.Each individual was evaluated for the duration of the surgery, the need for post-operative painkillers, complications such as hematuria, dysuria, flank pain, lower abdominal pain, nocturia, frequency, and urgency during their hospital stay. After two weeks, all patients were evaluated with a follow-up Kidney Ureter Bladder Ultrasound (KUB) to record their stone-free status. SPSS software Version 16 was used for the statistical analysis.

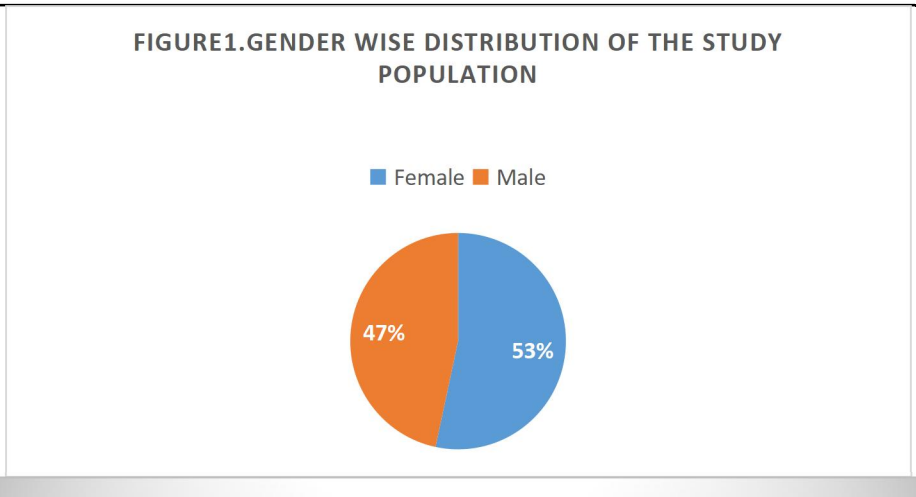
Results

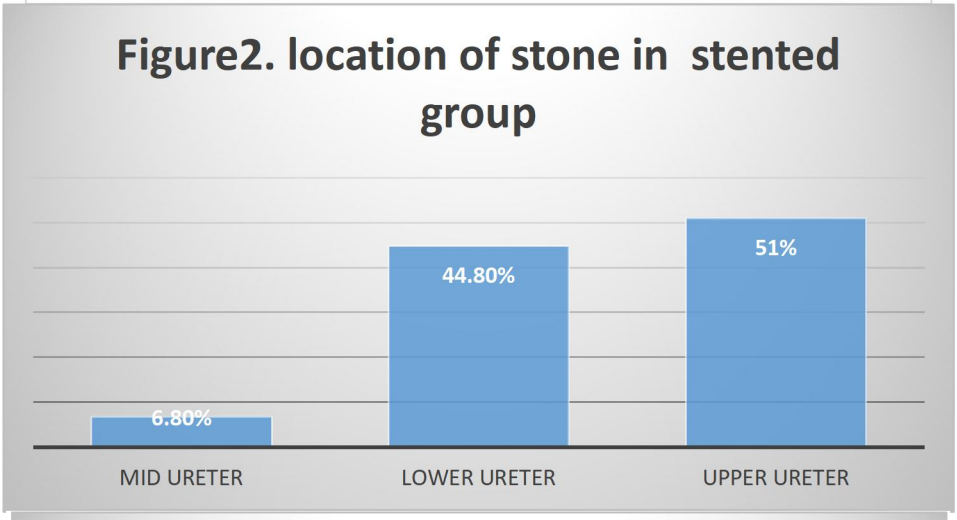
Following ureteroscopic surgery, 60 participants who satisfied the eligibility requirements were randomly assigned to either the stented (cases) or non-stented (control) groups. There were 32(53.3%) female patients and 28(46.6%) male patients among the 60 individuals that were assessed for the operation **(figure1).**There were 31 individuals in the non-

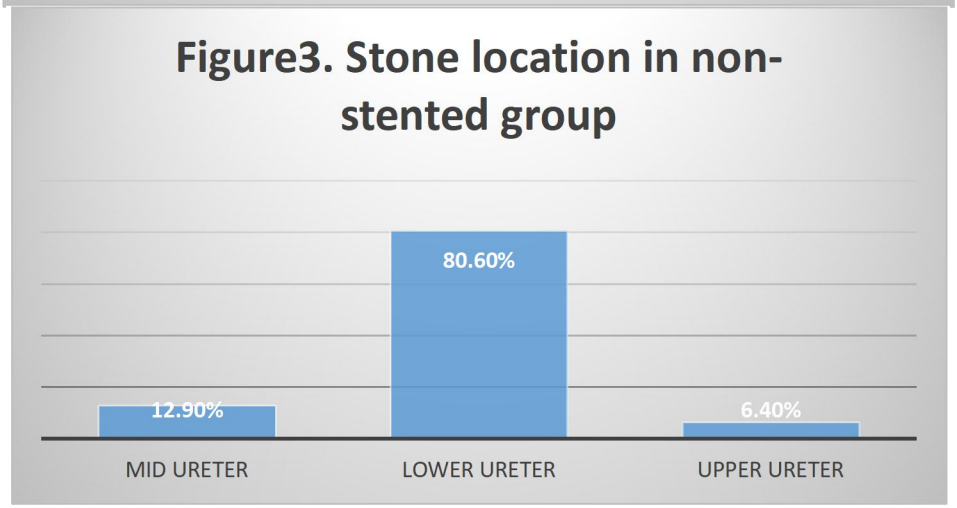
stented group and 29 in the stented group. Stones obstructing the ureter at various points, such as the upper, mid, or lower, were the reasons for ureteroscopic lithotripsy. The stones ranged in size from 2 to 15 mm, with the mean diameters for the stented & non-stented groups being 11.3 and 9.9 mm, respectively. The stone was found in three distinct places in the stented group: two (6.8%) in the mid-ureter, 13 (44.8%) in the lower ureter, and 15 (51%), in the upper ureter **(figure 2).** Similarly, the non-stented group recovered the most stones in the lower ureter 25(80.6%), followed by the mid-ureter, 4(12.9%) and the upper ureter 2(6.4%)**(figure 3).** Compared to the non-stented group, the stented group's operating time was longer. However, the mean duration of the hospital stay for both groups after surgery was two days, with no discernible difference in that time. Likewise, there were no statistically significant differences between the two groups in terms of patient gender, age, stone position, or average stone size.. The non-stented group's mean age was 39.67 years, whereas the stented group's was 35.54 years. Parenteral analgesics were necessary for all patients, stented and non-stented, after surgery. However, only 21% of the individuals in the non-stented group and 70 % of individuals in the stented group took oral analgesics within the first two weeks after the treatment. Both the stented and non-stented groups experienced the same irritative voiding symptoms and consequences. The stented group noticed a greater incidence of hematuria and dysuria than the non-stented group. Regarding further symptoms and consequences, there was not a noticeable distinction between the two groups. Demographic features and Post-operative complications in the stented and non-stented groups is represented in **table 1.**

Table 1. Demographic characteristics and post-operative complications in the non-stented and stented groups

Parameters	Non stented N= 31	Stented N= 29	Value of P
Gender			(p value >0.05)
Female	15(48.3%)	17(58.6%)	
Male	16(51.6%)	12(41.3%)	
Mean age in years	39.67	35.54	0.207
Size of stone	9.9 mm	11.3mm	(p value >0.05)
Mean operative time in minutes	33.4	47.8	-
Hospital stay	2 days	2 days	-
Dysuria	10	14	0.03
Pain in the flank area	8	8	0.77
Hematuria	14	21	0.01
Nocturia	6	11	0.09
Pain in the lower abdomen	5	6	0.8
Urgency	4	6	0.511
Frequency	9	11	0.4







Discussion

The advent of the flexible ureteroscope, which has improved optic visualization, durability, and design variety, including size, has made it an appropriate therapy for urolithiasis. The routine use of DJ stent is presently up for debate, despite the fact that urologists historically recommended its use following all ureteroscopic lithotripsy and stone extraction. A number of variables in our research, including age, sex, stone size, and hospital stay days, were similar in the stented and non-stented groups & were not statistically noteworthy (p value >0.05). Numerous

investigations have indicated that hematuria, dysuria, and flank pain are among the additional morbidities linked to stent insertion. In addition to the irritating symptoms, problems include migration, encrustation, and occasionally even stone formation can occur.[7-8]In regards to hematuria and dysuria, their results align with our own. In the study we conducted, there was a statistically significant correlation between the stent and lower urinary tract symptoms such dysuria and hematuria. Other symptoms, such as flank pain, nocturia, urgency, and frequency, did not, however, differ significantly between the two groups. These results are comparable to those of previous research.[9-10-11] In terms of the demand for analgesics after surgery, our research showed that there was no apparent distinction between the two groups' requirements for parenteral analgesia. However, compared to the non-stented group, the stented group used more oral analgesics during the preliminary two weeks following surgery. Similar results have been observed in a number of other studies.[12-13-14] In our investigation, the stented group's operating time was lengthier regardless of the stone's location. Additionally, our study and the one by Xu Y et al. are comparable.[15] Over the course of the following four to eight weeks, the stent was removed from each stented group. Ultrasonography results from the follow-up revealed that both groups were in a stone-free state, suggesting that there was no impact on either condition. Even though neither group experienced any early problems, any late problems need to be vigilantly monitored.

Conclusion

Our study concluded that as a standard treatment, postoperative Double J Stent following ureteroscopy for ureteric stones is not necessary. Participants in the non-stenting group suffer from less irritative symptoms, a lesser need for analgesics, and a lower financial burden.

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