

# Role of Increased Sexual Activity in Expulsion of Distal Ureteral Stone Size 5 to 10 mm in Married Male

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## ABSTRACT

**Aim and Objective:** To find out the role of increased sexual activity in expulsion of distal ureteral stone size 5 to 10 mm in married male.

**Material & Method:** The study was conducted in FJMU/SGRH Lahore. 60 Married male in age range of 20-45 years were included in the study. Diabetic and hypertensive patients were excluded. The patients were divided randomly into 2 groups of 30 patients in each group. Patient in group A were advised to have sexual intercourse 3-4 times a week along with symptomatic treatment for 4 weeks. Patients in group B were advised not to have sexual activity or masturbation during the 4 weeks of study and given symptomatic treatment. alpha-blocker blocker were not used in either group. Informed consent was taken, ethical issues were taken into account. Telemedicine was utilized. Patients were instructed to pass the urine in a container, to record the stone expulsion day/week, number of pain attacks and number of analgesic injections required per week. Data regarding age, stone size, stone expulsion day/week and number of colicky attacks per week were recorded. Difference between two groups analyzed using chi-square test. P value less than 0.05 will be taken as significant. The patients whose symptoms worsened or who went into urosepsis were admitted on priority basis for ureteroscopic lithotripsy. Follow up done on weekly basis by history/examination, ultrasonography KUB, digital x-ray KUB and plain CT KUB.

**Results:** Age range was 20-45 years in both groups. In group A stone size was 5-6.9 mm was in 14/30 patients (46.6%). 7-8.9 mm in 12/30 patients (40%) and 9-10 mm in 4/30 patients (13.3%). In group B stone size range 5-6.9 mm was in 13/30 patients (43.3%), 7-8.9 mm in 12/30 patients. (40%) in 9-10 mm in 5/30 patients (16.6%). In group A stone expulsion at the end of first two weeks was 76.6% and in 3 to 4<sup>th</sup> week it was 86.6%. in group B stone expulsion in first two weeks was 55% and 73.3% in 3<sup>rd</sup> to 4<sup>th</sup> week. In group A number of colicky attacks in first two weeks were 43.3% and in 3<sup>rd</sup> to 4<sup>th</sup> week were 23.3%. in group B number of colicky attacks in 1-2 weeks were 53.3 % and in 3 to 4 weeks were 30%.

**Conclusion:** Married males, with distal ureteral stones (5-10mm), who practice sexual intercourse 3-4 times / week have increased stone expulsion and decreased frequency of ureteric colicks and the need for analgesia. Increased sexual activity has emerged as a new modality in MET, however further clinical trials are needed.

**Keywords:** Ureterorenoscopy, Lithotripsy, Tamsulosin, alpha-Blocker, Nephrolithiasis, ESWL, Medical Expulsion Therapy (MET). PDEI-5

## INTRODUCTION

The prevalence of urolithiasis is increasing worldwide. The average life time risk for urolithiasis is in the range of 5-21%<sup>1</sup>. Generally active and working adult are mostly affected. Stones are commonly formed in the calyx and cause symptoms if move to obstruct upper or lower urinary tract<sup>2</sup>. About 20% of urinary tract stones are ureteric and about 70% of ureteric stones are located in distal ureter. Burden of stone disease is increasing even in developed countries like UK<sup>3</sup>. The expulsion of distal ureteral calculi varies between 15-95% depending upon site and size of stone<sup>4</sup>. Medical Expulsive Therapy involves the use of drugs like steroids, calcium channel blockers, alpha blockers and PDE-5 inhibitors and more recently increased sexual activity. PDE-5 inhibitors and increased sexual activity act via NO pathway of ureteral relaxation<sup>5</sup>. MET has become a well-established modality for ureteric stone management size up to 10mm. The EUA (European Association of Urology) recommend the use of MET for all ureteral stones; however, the AUA (American Urological Association) recommend MET only for distal ureteral stone size 5-10mm. The National Institute of Health and Care Excellence (NICE) recommend the use of a-blocker for MET of distal ureteral stone of size less than 10 mm<sup>7</sup>. Mainstay of MET are a-blockers and they work via inhibition of norepinephrine resulting in distal ureteral relaxation so help in expulsion of distal ureteral stone. For the first time Doluoglu found that sexual intercourse 3-4 times increase the expulsion of distal ureteral stone, decrease analgesia requirement and shorten the expulsion time<sup>8</sup>. Nitrergic fibers have been found in human and porcine intravesical ureter about 20 years ago. It has been suggested by the studies that NO can cause distal ureteral relaxation either produce endogenously or

given exogenously. So, NO is an important neurotransmitter in both ureteral relaxation and penile erection<sup>9</sup>. In our study we utilized the NO pathway involved in the relaxation of distal ureteral muscle and expulsion of stone with increased sexual activity in married men. Currently the increased sexual activity is regarded as unique therapeutic modality in MET for distal ureteral stone.

## MATERIAL AND METHOD

The study was conducted at Fatima Jinnah Medical University and Sir Ganga Ram Hospital Lahore from 01-10-2021 to 31-03-2022. It was a randomized clinical trial. 60 married males in age range of 20-45 years with stone size of 5 to 10 mm in distal ureter were included in the study. Diabetic and hypertensive were excluded from the study. Informed consent was taken. Ethical issues were taken into consideration. The detailed history and examination conducted. Ultrasonography KUB, X-ray KUB digital, CT Plain KUB with renal protocol and urine complete examination were the modalities of diagnosis. Facility of telemedicine was utilized. 60 patients were divided into two groups A and B, each comprising of 30 patients. Group A patients were advised to have sexual intercourse at least 3-4 times per week along with symptomatic treatment. Group B patient were advised not to have sexual intercourse/masturbation during the study period of 4 weeks. However symptomatic treatment was given to these patients. Alpha-Blockers were not used in the either group. The patients in both the groups were instructed to pass urine in a container to ensure passage of stone, to record the episodes of the pain per week, analgesic injection required per week. Relevant data such as name, age, address, phone number, number of pain attacks per week, number of analgesic injections required per week, stone size

and day/week of passing the stone were recorded. Senior registrar level doctor was advised to remain in telephonic contact with all the patients. Follow-up was done on weekly basis by history, examination, ultrasonography KUB, X-Ray KUB and Plain CT KUB if needed. Difference between the two groups were analyzed statistically by using Chi-Square test and P value less than 0.05 was taken as significant. The patients whose symptoms worsened or who did not pass the stone in 4 weeks were admitted on priority basis for ureteroscopic Lithotripsy.

## RESULTS

Age range was 20-45 years in both groups. In group A, mean age was 28 years and in group B mean age was 29.5 years. In group A, 13/30 (43.3%) patients were in age range of 20-25 years, 9/30 (30%) in age range of 26 to 38 years and 8/30 (26.6%) were in age range of 39 to 45 years. In group B, the patient in age range of 20-25 years were 15/30 (50%), 8/30 (26.6%) in age range of 26-38 years, 7/30 (23.3%) in age range of 39-45 years. Table 1 and Table 2 show the age range.

In group A mean stone size was 8.3mm and in group B, it was 7.9mm. In group A stone size in range of 5-6.9mm was in 14/30 (46.6%), 7 to 8.9 mm size was in 12/30 (40%) and 9-10mm size 4/30 (13.3%). In group B stone size range 5-6.9 mm in 13/30 (43.3%), 7-8.9mm in 12/30 (40%) and 9-10 mm in 5/30 (16.6%) patients. Stone size has been shown in table 3. In group A stone expulsion at the end of 1-2 weeks was in 23/30 (76.6%) and in 3-4 week it was 26/30 (86.6%) shown in table 5. In group B, the stone expulsion in 1-2 week was in 17/30 (55%) and in 3-4 week it was 22/30 (73.3%) as shown in table no 6. In group A number of colicky attacks per week in 1-2 weeks were 43.3% and in 3-4 week were 23.3%. In group B colicky attacks in 1-2 weeks were 53.3% and 3-4 weeks were 30% as shown in table no.7 & 8. Similarly, the patients in group A required less number of analgesic injection as compared to group B. In group A, 4/30 (13.3%) required ureteroscopic lithotripsy/lithoclast and 7/30 (23.3%) in group B needed ureteroscopic Lithotripsy/Lithoclast. One patient (3.3%) in group B needed ureterolithotomy.

Table 1: Group A Age Range (n=30)

Sr. No.	Age Range (Years)	N	%age
1	20-25	13	43.3
2	26-38	9	30
3	39-45	8	26.6

Table 2: Group B Age Range (n=30)

Sr. No.	Age Range (Years)	N	%age
1	20-25	15	50
2	26-38	8	26.6
3	39-45	7	23.3

Table 3: Group A Stone Size (n=30)

Sr.No.	Stone Size (mm)	N	%age
1	5-6.9	14	46.6
2	7-8.9	12	40
3	9-10	04	13.3

Table 4: Group B Stone Size (n=30)

Sr.No.	Stone Size (mm)	N	%age
1	5-6.9	13	43.3
2	7-8.9	12	40
3	9-10	05	16.6

Table 5: Stone Expulsion Rate Group A Size (n=30)

Sr.No.	Stone Expulsion Week	N	%age
1	1 <sup>st</sup> to 2 <sup>nd</sup> week	23	76.6
2	3 <sup>rd</sup> to 4 <sup>th</sup> week	03	10
Total		26	86.6

Table 6: Stone Expulsion Rate Group B Size (n=30)

Sr.No.	Stone Expulsion Week	N	%age
1	1 <sup>st</sup> to 2 <sup>nd</sup> week	17	56.6
2	3 <sup>rd</sup> to 4 <sup>th</sup> week	05	16.6
Total		22	73.2

## DISCUSSION

The urinary stone disease prevalence is increasing day by day, but the management options are still limited. The management of renal or ureteral stones depends on various factors such as stone factor (size, site, composition, presence and duration of obstruction), clinical factors (pain severity, associated infection, obesity, hypertension, solitary kidney and coagulopathies), anatomical factors (PUJ obstruction, renal ectopia and horseshoe kidney) and last but not the least technical factors (competency of the surgeon, equipment available, cost of the treatment modality)<sup>8</sup>. The ureteral stone management include MET, active intervention, with either shock wave lithotripsy or ureteroscopic management (pneumatic, electrohydraulic and holmium YAG laser) and finally open ureterolithotomy. MET with a-blockers potentially decrease the duration and increase the chances of stone expulsion especially in distal ureteral stone size less than 10 mm<sup>9</sup>. The a-blocker act via norepinephrine pathway of ureteral dilatation. Recently the nitrous oxide (NO) pathway causing relaxation of distal ureter and thus helping in passage of stone has emerged as a novel modality in the MET activated with sexual activity. Our study is based on this later mechanism of ureteral dilatation during increased sexual activity. However substantial amount of literature is lacking on this new modality of management. In one systematic metanalysis review by Chaolo HC Juman et.al, found that increased sexual activity (thrice a week) is comparable to a-blocker in expulsion of distal ureteral stone size up to 10 mm especially those patients who are reluctant to pharmacological treatment<sup>10</sup>. In an another randomized controlled trial by Liw, Mao-Y et.al, concluded that at least 3 sexual intercourse per week after SWL can effectively increase the stone passage rate, decrease the formation of steinstrasse and the relief of renal colic<sup>11</sup>. This also supports our study. In a study by Muhammad Sayed Abdel – Kader et.al found the stone expulsion rate about 82% in group with increased sexual activity in second week and it was 89% in 4<sup>th</sup> week. While in control group in 2<sup>nd</sup> week it was 53% and 71.4% in the 4<sup>th</sup> week<sup>12</sup>. The results of this study also go in favor of our study. In our study the stone expulsion rate was 76.6% in 2<sup>nd</sup> week and 86.6% in 4<sup>th</sup> week in the group with thrice a week sexual activity. In the control group it was 55% in 2<sup>nd</sup> week and 73.3% in 4<sup>th</sup> week. In a study by Bayraktar Z, Albayraks et.al concluded that thrice a week sexual activity is almost as effective as Tamsulosin in expulsion of distal ureteral stone size 5-10mm. They also concluded that increased sexual activity also reduces the need of analgesia<sup>13</sup>. In our study, we also found decreased colicky attacks and analgesia need 43.3% in 2<sup>nd</sup> week and 23.3% in 4<sup>th</sup> week. In control group the colicky attacks in 2<sup>nd</sup> week were 53.3% and 30.9% in 4<sup>th</sup> week. In a prospective randomized controlled study by Gokhan Doluoglu et.al in which they divided the patients into three groups, group I was instructed to have sexual activity thrice a week, group II patients were given tamsulosin (0.4 mg) daily and patients in group III were given symptomatic treatment and advised not to engage in sexual activity. Stone expulsion rate controlled after two and 4 weeks. In 4<sup>th</sup> week 83.9% patients in sexual intercourse group passed the stone, 77.6% in tamsulosin group and 68.8% in control group passed the stone<sup>14</sup>. These results also correspond with our study. In another interesting prospective randomized controlled study by Hassan Turgut et.al in which they evaluated the efficacy of masturbation on spontaneous expulsion of distal ureteral stone size 5 to 10 mm. They concluded that masturbation at least 3 to 4 times per week was as effective as tamsulosin and decreased need of analgesia<sup>15</sup>. The same author Hassan Turgat conducted a study evaluating the efficacy of sexual intercourse in women, he found stone expulsion rate in sexual intercourse group 85.7% and 60% in control group<sup>16</sup>. We conducted our study only on married male due to social reasons. However limited study material is available in literature so it needs further clinical trials nationally and internationally. Now female Urologists are available in Lahore, they can conduct the same study in married females.

## CONCLUSION

MET has been established as the first line treatment in distal ureteral stone size 5-10mm. Married male with distal ureteral stone size 5-10mm practicing sexual intercourse 3-4 times per week have increased stone expulsion rate and decreased frequency of ureteric colic and the need of the analgesia. So increased sexual activity has emerged as a new, unique and novel management option in MET in such patients. However more trials nationally and globally are the need of the time in the support of this study.

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