

## Role of Suprapubic Cystostomy in BPH Patients Presented with first time for Acute Retention of Urine

Khalid Hussain<sup>a</sup>

Maria Tariq<sup>b</sup>

Imran Amin<sup>c</sup>

Bilal Ahmed<sup>d</sup>

Bilal Akhtar<sup>e</sup>

Azeem Ahmed<sup>f</sup>

**Abstract:** *The study compares the role of suprapubic cystostomy versus per urethral catheterization in BPH patients with acute retention of urine. Majority 80% patients were 50-70 years old. The higher number of patients in Group A (18/25) voided normally with good flow rate of almost 15ml/sec and non-significant residual urine, compared to Group B (13/25). In Group B, 12 patients required re-catheterization while only 7 in Group A needed to have their suprapubic catheter opened. All patients took Tamsulosin 0.4mg daily. Patients in Group A had their suprapubic catheter clamped and tested for voiding through the urethra; while Group B was tested without a catheter. The flow rate and PMRV noted. In group A, 7 patients had retention relieved by a suprapubic catheter. Two patients pulled out per urethral catheterization and was excluded from the study. The results showed the effectiveness of suprapubic cystostomy for benign prostatic hyperplasia patients with first-time urine retention.*

**Key Words:** BPH, Retention, Suprapubic Cystostomy, AUR, PUC, TWOC

### Introduction

One of most painful and significant event in the natural history of benign prostatic hyperplasia (BPH) is the acute retention of urine. Acute retention of urine is related with discomfort, patient inconvenience and significant anxiety. Approximately 1/3<sup>rd</sup> of patients undergoing surgical intervention due to benign prostatic hyperplasia, present with complaints of acute retention of urine (Bozkurt *et al.*, in 2016). The effect of acute urinary retention is equivalent to an acute renal colic attack, on health-related quality of a patient's life (Khan *et al.*, 2009). Once acute

retention of urine was believed to be an absolute indication for open prostatectomy but due to the development of advanced and successful medical treatment and the patient's desire to avoid surgical intervention has results in to more conservative management commonly being adopted. The management & approach for acute retention of urine have undergone a significant transformation over the last few decades as shown in figure 1. Decompression of the bladder either by using suprapubic or urethral catheterization is immediate treatment in the case of AUR (Mishra *et al.*, 2012).

<sup>a</sup> Assistant Professor/Head of Urology Department, DHQ Teaching Hospital, Gujranwala, Punjab, Pakistan.  
Email: [khaliduroy@yahoo.com](mailto:khaliduroy@yahoo.com) (*Corresponding Author*)

<sup>b</sup> PGR Urology, DHQ Teaching Hospital, Gujranwala, Punjab, Pakistan.

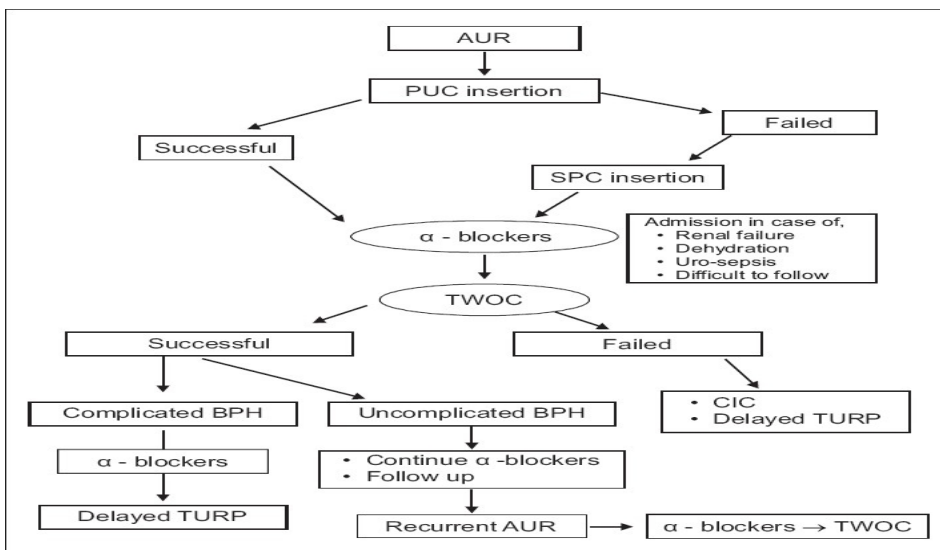
<sup>c</sup> HOD & Professor of Surgery, DHQ Teaching Hospital, Gujranwala, Punjab, Pakistan.

<sup>d</sup> PGR Urology, DHQ Teaching Hospital, Gujranwala, Punjab, Pakistan.

<sup>e</sup> Senior Registrar Urology, GMC Teaching Hospital, Gujranwala, Punjab, Pakistan

<sup>f</sup> PGR Urology, DHQ Teaching Hospital, Gujranwala, Punjab, Pakistan

**Citation:** Hussain, K., Tariq, M., Amin, I., Ahmed, B., Akhtar, B., & Ahmed, A. (2022). Role of Suprapubic Cystostomy in BPH Patients Presented with first time for Acute Retention of Urine. *Global Drug Design & Development Review*, VII(IV), 14-20. [https://doi.org/10.31703/gdddr.2022\(VII-IV\).02](https://doi.org/10.31703/gdddr.2022(VII-IV).02)



**Figure 1:** Diagrammatic Illustration of acute retention of urine in BPH.

Actually, there are many variations among different countries, in terms of medical management, hospital admission, the time interval of catheterization, treatment protocols after a unsuccessful trial without a catheter trial and delayed or emergency surgery.

Foleys catheterization per urethra is a practically easy procedure, when compared with suprapubic cystostomy it has less complications rate and it can be done by general medical practitioners. But it has a high incidence of injury to the bladder neck, urethra and a higher rate of urine leakage alongside. When compared with SPC, per urethral catheterization was associated with less stricture formation (0.0% versus 17.0%), less bladder neck and urethral damage, and is also associated with less urinary tract infections (18.0% versus 40.0%).

One benefit of a suprapubic catheter is that it can be clamped rather than being removed while giving a patient a trial without a catheter, which eliminates the trouble of redo catheterization in case of failure of TWOC. But suprapubic resulted in, catheter blockage, hematuria, and pain (François, et al., 2006). The main disadvantages and complications after SPC are catheter misplacement or dislodgement, injury to bowel or

perforation, urine extravasations, acute peritonitis, upgrading of tumor and metastatic seedling (in case of urinary bladder carcinoma) and late bladder perforation.

Research precedence using per urethral catheterization for acute retention of urine in BPH patients and after 03 days of that trial without a catheter, given to see a successful resumption of micturition are available. However, the literature is devoid of any study showing the role of suprapubic cystostomy due to acute retention of urine in BPH patients in the successful resumption of micturition. To address the acute gap, present study was designed.

## Material and Methods

This Quasi Experimental Study is materialized at Urology Department, DHQ Teaching Hospital Gujranwala, from July 2021 to December 2021, on a sample of 50 patients (25 in each group). After approval from the hospital ethical committee patients with first time AUR due to BPH were included in the study while patients with other cause of AUR, such as stricture, CA prostate, carcinoma of the urinary bladder, neurogenic bladder, gross hematuria with clots, in early postoperative duration, after transurethral

resection of prostatic tissues, any history of surgery or intervention at the neck of bladder or urethral or prostate, or retention due to calculi, drugs induce and trauma were excluded from this study. Patient meeting the inclusion criteria enrolled in our study and equally divided into 2 groups. Patients in group A underwent suprapubic cystostomy and patients in group B underwent per urethral catheterization for acute retention of urine. All patients received Tamsulosin 0.4mg once daily. After 72 hours of the procedure, group A patients, trial was given to void per urethra, by clamping a suprapubic catheter while in group B patient given trial without a catheter by removing per urethral catheterization and both groups observed voiding and retention of urine. The flow rate and PMRV noted in both groups.

Data is recorded on a proforma and analyzed using SPSS version 22.0.

## Results

Most of the patients in our study were in range of 50-70 years i.e. 80%. In group A, 18 patients out of 25 voided normal with a flow rate of more than 15ml/sec and non-significant residual urine. While in group B 13 patients out of 25 voided normal with a flow rate of more than 15ml/sec and with non-significant residual urine, and 12 patients underwent re-catheterization to relieve retention of urine as shown in figure 2 & 3 respectively. While in group A only 7 patients went into retention which was resolved by opening suprapubic catheter. Two patients pulled out per urethral catheterization and was excluded from the study.

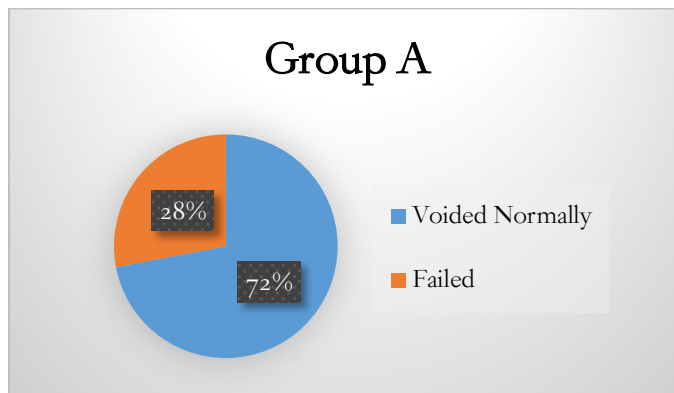


Figure 2: showing results of TWOC in Group A

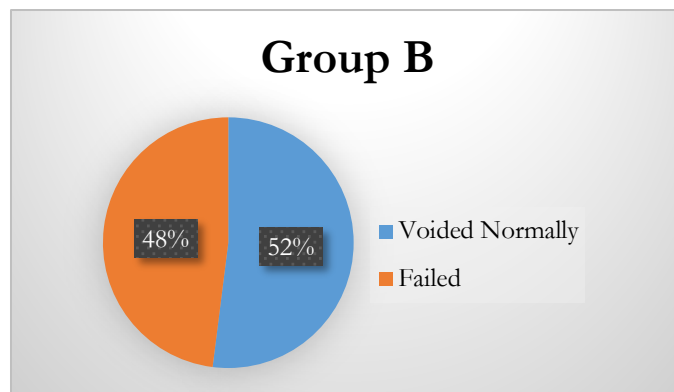


Figure 3: showing results of TWOC in Group B

## Discussion

10 % of men in the age of 70s and thirty percent in the age of 80s will experience acute urine retention (AUR) in the upcoming 05 years. 65% causes of AUR is due to BPH. Men with acute retention of urine usually have a history of lower urinary tract symptoms (LUTS) for an average of 32 months prior to the AUR. The risk of acute retention of urine in the natural history of BPH was 1.6% at 05 years for men between the age group of 40-50 years and approximately ten percent for men aged between 70-80 years. The incidence of recurrence of acute urine retention in patients who previously presented with the first episode of acute retention of urine is approximately 75-85% in BPH patients without any use of alpha blockers (Muruganandham et al., 2007). Most of the patients in our study were also in this range i.e. 50-70%.

Patients who present with first episode of acute urine retention are at increased risk for further future attacks of acute urine retention. Following a trial without catheter, the risk of a second episode of AUR ranges from 38-56%. Usually it depends on the size of the prostate, duration of the time between TWOC and catheter insertion, and post void residual urine (PVR) (Clayton et al., 2017). A Study conducted by Kharkov *et al.* concluded that approximately eighty five percent of patients underwent surgical management following after one year of acute urine retention episode. Due to the high incidence and risk for second time retention, many patients elect to undergo surgical intervention. A study by Emberton M *et al.* collected data from a sample of 5,792 patients having lower urinary tract symptoms due to BPH, on medical management and concluded that the first incident of AUR is a strong predictor of further episodes of AUR (Emberton, Mark, et al. 2006).

In the UK, a survey found that over 400 consultant urologists used per urethral catheterization for 98% of cases when managing AUR, with suprapubic catheterization (SPC) only used in case of per urethral catheterization failure. In France, a cross-sectional survey of 2,618 BPH

patients with AUR found that 83% were managed with urethral catheterization and 17% underwent SPC (François, et al. 2006).

Per urethral Foleys catheterization is a practically less demanding and easy procedure, having less complications rate when compared with suprapubic and it can be done by general medical practitioners. But it has a high incidence of injury to bladder neck, urethra and a higher rate of urine leakage alongside. When compared with SPC, per urethral catheterization was associated less stricture formation (0.0% versus 17.0%), avoided bladder neck and urethral damage, and associated with fewer urinary tract infections (18.0% versus 40.0%). Horgan et al. conducted a study by using a non-randomized design, he studied 86 patients with BPH AUR, and compared the outcomes for 03 years after initial decompression (either per urethral catheterization or suprapubic). Thirty patients underwent per urethral catheterization, the incidence of UTI in these was approximately 40% while only ten patients with SPC had UTI, 18%). When compared with SPC, per urethral catheterization was associated less stricture formation (0.0% versus 17.0%), avoided bladder neck and urethral damage and associated with fewer urinary tract infections (18.0% versus 40.0%). Seven of eleven patients who catheterized per urethra given TWOC and remained unsuccessful. One benefit of a suprapubic catheter is that it can be clamped rather than removed while giving a patient a trial without a catheter, which eliminates the trouble of redo catheterization in case of failure of TWOC. But suprapubic resulted in catheter blockage, hematuria, and pain.<sup>3</sup> The main disadvantages and complications after SPC are catheter misplacement or dislodgement, injury to bowel or perforation, urine extravasations, acute peritonitis, upgrading of tumor and metastatic seedling (in case of urinary bladder carcinoma ) and late bladder perforation.

In the survey of the United Kingdom, TWOC was given after two days in approximately 74% of patients catheterized per urethral for AUR while only 3% end with immediate surgery. 68.7%

patients were re-catheterized after the failure of TWOC and underwent delayed surgery. And subsequent further TWOC given later in 11.7% patients. In the survey of French, TWOC was given after 3 days of catheterization in 72.8% cases. 57.5% of patients who had failed TWOC were re-catheterized and then underwent elective surgical intervention. Success of TWOC depends upon number of factors like age below 65 years, a volume of less than one liter of urine at the time of catheterization, high detrusor pressure of more than 35 cmH<sub>2</sub>O, prolonged catheterization and an identified precipitating factor e.g., postoperative acute retention of urine. These factors are usually linked with a higher success rate of trial without a catheter. Per urethral catheter of more than 3 days is associated with a higher rate of complications like urine leakage alongside the Foleys catheter, hematuria, increased time of hospital stay and urosepsis. There are strong recommendations that immediate management either by urethral or SPC can effectively be followed by a TWOC after 1 to 3 days, allowing the men for successful voiding in approximately forty percent cases, and surgery may be performed later if needed. BPH related acute retention of urine may be because of a sudden stimulation of alpha one adrenergic receptors. The logic behind the use of alpha blockers in BPH patients is that it causes relaxation of smooth muscle fibers located in the

bladder neck, prostatic urethra, prostate and its capsule, thus acts on the dynamic part of bladder outflow resistance (Caine M, et al., 1975). Alpha blockers play a vital role in symptomatic BPH patients by preventing AUR. Many studies have been done, and concluded the efficacy of  $\alpha$ -antagonist to improve the outcome of trial without catheter. The success rate of TWOC was significantly more in patients receiving an  $\alpha$ -1-blocker (53.0 with alpha blocker versus 39.6% without  $\alpha$ -1-blocker). In our study we used tamsulosin 0.4mg once daily for 3 days before TWOC.

## Conclusion

---

The results of study concluded the role and efficacy of suprapubic cystostomy in benign prostatic hyperplasia patients presented with first time retention of urine. SPC is better than per urethral catheterization in acute retention of urine in BPH patients. If after removal of per urethral catheter patient goes into retention again per urethral catheterization will be considered which will be troublesome for patients while in case of SPC we can clamp the suprapubic catheter to give trial of micturition, retention will be relieved by removing the suprapubic clamp if trial is not successful.

## References

- Acobsen, S. J., Jacobson, D. J., Girman, C. J., Roberts, R. O., Rhodes, T., Guess, H. A., & Lieber, M. M. (1997). Natural history of prostatism: risk factors for acute urinary retention. *The Journal of Urology*, *158*(2), 481–487. [https://doi.org/10.1016/s0022-5347\(01\)64508-7](https://doi.org/10.1016/s0022-5347(01)64508-7).
- Breum, L., Klarskov, P., Munck, L. K., Nielsen, T. H., & Nordestgaard, A. G. (1982). Significance of Acute Urinary Retention Due to Infravesical Obstruction. *Scandinavian Journal of Urology and Nephrology*, *16*(1), 21–24. <https://doi.org/10.3109/00365598209179635>.
- Caine, M., Raz, S., & Zeigler, M. (1975). Adrenergic and Cholinergic Receptors in the Human Prostate, Prostatic Capsule and Bladder Neck. *British Journal of Urology*, *47*(2), 193–202. <https://doi.org/10.1111/j.1464-410X.1975.tb03947.x>.
- Clayton, J. L. (2017). Indwelling Urinary Catheters: A Pathway to Health Care–Associated Infections. *AORN Journal*, *105*(5), 446–452. <https://doi.org/10.1016/j.aorn.2017.02.013>.
- Desgrandchamps, F., De La Taille, F., & Doublet, J. D. (2006). MANAGEMENT OF ACUTE URINARY RETENTION IN FRANCE: CROSS-SECTIONAL SURVEY IN 2635 MEN WITH BPH. *European Urology Supplements*, *5*(2), 196. [https://doi.org/10.1016/s1569-9056\(06\)60700-8](https://doi.org/10.1016/s1569-9056(06)60700-8).
- Dubey, D., Kapoor, R., & Muruganandham, K. (2007). Acute urinary retention in benign prostatic hyperplasia: Risk factors and current management. *Indian Journal of Urology*, *23*(4), 347. <https://doi.org/10.4103/0970-1591.35050>.
- Elhilali, M., Vallancien, G., Emberton, M., Alcaraz, A., Harving, N., Van Moorselaar, J., Matzkin, H., & Hartung, R. (2004). 225 Management of acute urinary retention (AUR) in patients with BPH: A worldwide comparison. *European Urology Supplements*, *3*(2), 59. [https://doi.org/10.1016/s1569-9056\(04\)90226-6](https://doi.org/10.1016/s1569-9056(04)90226-6).
- Emberton, M. (2006). Definition of at-risk patients: dynamic variables. *BJU International*, *97*(s2), 12–15. <https://doi.org/10.1111/j.1464-410X.2006.06099.x>.
- Emberton, M., & Anson, K. (1999). Acute urinary retention in men: an age old problem. *BMJ*, *318*(7188), 921–925. <https://doi.org/10.1136/bmj.318.7188.921>.
- Emberton, M., Lukacs, B., Matzkin, H., Alcaraz, A., Elhilali, M., & Vallancien, G. (2006). Response to Daily 10 Mg Alfuzosin Predicts Acute Urinary Retention and Benign Prostatic Hyperplasia Related Surgery in Men With Lower Urinary Tract Symptoms. *Journal of Urology*, *176*(3), 1051–1056. <https://doi.org/10.1016/j.juro.2006.04.044>.
- Horgan, A. F., Prasad, B., Waldron, D. J., & Osullivan, D. C. (1992). Acute Urinary Retention. Comparison of Suprapubic and Urethral Catheterisation. *British Journal of Urology*, *70*(2), 149–151. <https://doi.org/10.1111/j.1464-410X.1992.tb15693.x>.
- Mcneill, D., Mitchell, S., & Hargreave. (2001). Sustained-release alfuzosin and trial without catheter after acute urinary retention: a prospective, placebo-controlled. *BJU International*, *84*(6), 622–627. <https://doi.org/10.1046/j.1464-410X.1999.00277.x>.
- Mcneill, S. A., & Hargreave, T. B. (2004). Alfuzosin Once Daily Facilitates Return to

Voiding in Patients in Acute Urinary Retention. *Journal of Urology*, 171(6 Part 1), 2316–2320.

<https://doi.org/10.1097/01.ju.0000127743.80759.7a>.

Thomas, K., Oades, G., Taylor-Hay, C., & Kirby, R. S. (2005). Acute urinary retention: what is the impact on patients quality of life? *BJU International*, 95(1), 72–76.  
<https://doi.org/10.1111/j.1464-410X.2004.05254.x>.