

Short Communication

An early trial of catheter removal after transurethral resection of the prostate at Sindh Institute of Urology and Transplant.

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Abstract

Background: Transurethral resection of the prostate gland (TURP) is considered a gold standard in Benign Prostatic Hypertrophy. This study aimed to determine the effectiveness of early catheter removals at 48 hours after TURP in patients with mild to moderate enlargement of the prostate.

Methodology: A single interventional study was conducted on 79 male subjects with mild to moderate prostate enlargement, and moderate to severe lower urinary tract symptoms. The outcome was measured six hours after trial without a catheter.

Results: The mean age of participants was 64.9 ± 7.8 years, and the mean size of the prostate was 54.8 ± 5.9 gm. The frequency of procedural success was 91% (72) and patients with age < 60 years, 24(96%) had procedural success compared to 48(88.9%) age ≥ 60 years.

Conclusion: Early catheter removal trial was found successful in most of the study participants at 48 hours after TURP.

Keywords

Benign Prostatic Hypertrophy, Transurethral Catheterization, Early Removal of the Catheter



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Introduction

Benign prostatic hyperplasia (BPH) is an endemic disease in the male population, and its prevalence increases with advancing age after 4 decades¹. Lower urinary tract symptoms are more prevalent in individuals aged 70 or older, and the risk increases with ageing². Transurethral resection of the prostate (TURP) is a commonly used surgical intervention for BPH³. It usually results in immediate success, as it removes the obstructing tissue and provides prolonged improvement of symptoms and voiding variables⁴. After TURP, an indwelling Foley's catheter is used to prevent hemorrhage, monitor urine, prevent complaints of excessive irritation and ease urination⁵. The timeframe for bladder irrigation and catheter removal varies from hospital to hospital but is generally 3 to 5 days⁶. The hospital staff and society bear a substantial financial and administrative burden⁷. Hospitalization costs account for 35% of this cost, and post-operative irrigation accounts for 7%⁸. Lengthy hospital stays have been considered to be a drawback of TURP. However, with newer techniques⁹, a short post-operative catheterization period can alleviate this disadvantage, making early discharge of patients possible^{4,9,10}. Approximately 92% of patients successfully passed urine after trial without catheter (TWOC) at 48 hours post-surgery^{3,6}. Catheter removal after TURP may depend on many factors, including countries' socio-economic condition, locality of the setting, and the expenses afforded by the institution and the community. By removing the catheter early after surgery, there is no significant risk of re-catheterization or hemorrhage while also reducing the incidence of UTI and shortening hospital stays¹¹⁻¹³. This study aimed to investigate the possibility of early catheter removal at 48 hours in patients undergoing TURP for mild to moderate prostate enlargement.

Methodology

An interventional study was conducted on 79 subjects at the Department of Urology, Sindh Institute of Urology and Transplantation (SIUT), Karachi. The sample size was calculated through WHO online software Open EPI version 3 using $p=$

92%³, $d=6\%$, and $C. I=95\%$. In this study, non-probability purposive sampling was used to enroll participants, and it included male patients undergoing TURP between 45 and 75 years of age, with mild to moderate prostate enlargement (prostate size on TRUS is 30 to 100 grams) and moderate to severe lower urinary tract symptoms (symptom scores above 15). At the same time, patients with prostatic carcinoma, urethral stricture, previous prostatic surgery, and complications such as capsular perforation and heavy venous bleeding that rendered them unsuitable for irrigation termination were excluded.

This study was conducted after the ethical review committee's approval and subjects fulfilling inclusion and exclusion criteria were enrolled after explaining the study objective and informed consent. Data collection was carried out using a pro forma. The pre-operative preparation was completed at an outpatient clinic, and patients were admitted 24 hours before the surgery. A prophylactic antibiotic was given just before the surgery. TURP was performed under spinal anesthesia by a urologist at SIUT, with more than two years of experience with TURP. The patient was placed in a lithotomy position, and standard TURP was done using a continuous flow resectoscope. During the procedure, irrigation fluid was used continuously. At the end of TURP, 22F three-way Foley's catheter was placed, bulb infiltrates with 30 ml of distilling water, and irrigation continued with normal saline. Postoperatively the patient was monitored for the color of urine in the catheter. In the recovery room, all patients were irrigated with saline. Irrigation was stopped when the effluent appeared clear or light pink, and patients were encouraged to drink 2 to 3 liters of water over the next 48 hours. Irrigation was resumed for an additional period of six to twelve hours in cases of heavy hematuria or clot retention until the effluent became clear.

In 48 hours following TURP, avoiding TWOC was performed. Those patients who passed urine were labeled as successful trials, and those failing to void were re-catheterized and were labeled as unsuccessful trials. The outcome was measured at

6 hours after TWOC. Data were analyzed using a SPSS version 16.0. Mean Standard Deviation was calculated for quantitative variables like age, prostate size, and duration of symptoms. Frequency and percentage were calculated for success. Stratification was done regarding age, size of prostate, and duration of symptom to see the effect of these on the outcome. The Chi-square test was applied, and p-value < 0.05 was taken as significant.

Results

During the study period, 79 patients were enrolled in this study. The mean age of enrolled participants was 64.9 ± 7.8 years, the duration of symptoms 18.19 ± 6.5 months, and the mean size of the

prostate was 54.8 ± 5.9 gm. The procedure was successful in 72 (91%) patients. The stratification analysis based on age, duration of symptoms, and prostate size is presented in Table 1. Out of patients with age less than 60, 24 (96%) had procedural success compared to 48 (88.9%) of patients having age ≥ 60 years. Twenty seven (93.1%) patients with a duration of symptoms of < 15 months had procedural success, as compared to 45 (90%) patients with a duration of symptoms \geq of 15 months who had procedural success. For those patients whose prostate weight was 50 gms, 21 (91.3%) had procedural success, as compared to 51 (91.1%) of patients whose prostate weighed ≥ 50 gms. None of the variables showed significant association with procedural success p-values > 0.05.

Table 1: Procedural success based on age, symptoms chronicity, and prostate size.

Variables		Success n(%)		p-value
		Yes	No	
Age	< 60 years	24(96)	1(4)	0.28
	≥ 60 years	48(88.9)	6(11.1)	
Duration of symptoms	< 15 months	27(93)	2(6.9)	0.49
	≥ 15 months	45(90)	5(10)	
Size of the prostate	50 gm	21(91.3)	2(8.7)	0.67
	> 50 gm	51(91.1)	5(8.9)	

Discussion

For years, the appropriate time for catheter removal after prostatic surgery has been the center of debate. Apprehension with regards to potential harmful effects that might ensue following the early removal of the catheter has led to a reluctance to standardize the procedure at an institutional level; despite having evidence advocating the practice of early catheter removal, more data from different settings were needed to institute this practice as a standard on a large scale. The purpose of this study has been to generate empirical evidence to corroborate the proposition of early catheter removal as it can result in a substantial reduction in the financial burden associated with prolonged hospital stays. It can also reduce the risk of acquiring Urinary Tract Infections (UTIs) or contracting other nosocomial infections. In the

present study, early catheter removal at 48 hours post-TURP is proved to be a safe and effective procedure regardless of age, duration of symptoms, and prostate size.

The primary outcome for the present study was a TWOC in which the patient had to demonstrate urination to be deemed as a successful trial. This was particularly important as it provided an opportunity to document actual improvement without solely relying on subjective reports that are susceptible to bias. Previous studies also employed this result-oriented approach in their methodologies^{11,12}. Even though similar findings have now been reported, this study adds further weight to the previous findings and substantiates the argument of early catheter removal. There is mounting global and local evidence regarding the

feasibility of early catheter removal. Durrani et al., in their RCT conducted in Hayatabad Medical Complex, Peshawar, even contended that catheter removal on the first pre-operative day did not cause any post-operative complications and resulted in a shorter hospital stay¹¹. Another study conducted in Kidney Centre postgraduate Training Institute, Karachi, found no difference in early and late catheter removals in patients with Acute Urinary Retention (AUR)¹². Many international studies have also found catheter removal on the 1st post-operative day to be safe and equally effective as delayed catheter removal in patients who have undergone TURP^{9,13,14}. Contracting UTI is one of the most common complications of the urinary tract surgeries. However, the surgical procedure often does not cause the infection itself, but the prolonged hospital stay makes the patient more prone to acquiring it. Early catheter removal shortens the hospital stay, thereby reducing the risk of UTIs and other infections. Where early catheter removal within 36-48 hours has become part of the standard protocol for TURP in many regions around the globe, many reputable establishments, such as National Health Service in the UK, now endorse this procedure¹⁵.

There is all the more reason to introduce this procedure in Pakistan at a broader scale for the reduction in cost and the financial burden of the TURP. Owing to the explosive rise in population in our country, catering to the masses has become even more of a challenge. In the present scenario, effective allocation of valuable health care resources has become paramount. Shortening unwarranted hospital stays so that other individuals can benefit from the services is one necessary measure that has to be undertaken, and early catheter removal post-TURP will prove to be instrumental in achieving this goal. The study finding suggested that the frequency of procedural success was relatively high in all study subjects. However, it was found to be more pronounced in the subjects aged less than 60 years, with symptoms of less than 15 months history, and those with prostate weight less than 50 gm. Despite this being a single intervention study with no alternative procedure performed, the

implications of this research study are far-reaching. The findings of this research study served to further strengthen the premise of early catheter removal by providing evidence of success rates from SIUT Karachi, which can, in turn, inform policymaking in the future.

Conclusion

An early trial of catheter removal at 48 hours after transurethral resection of the prostate (TURP) was found to be successful in 91% of the recruited sample. Age, duration of symptoms, and prostate size did not significantly impact the success rate of trial without a catheter.

Conflicts of Interest

The authors have declared that no competing interests exist.

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