



A DESCRIPTIVE STUDY OF POST-OPERATIVE COMPLICATIONS OF TRANSURETHRAL RESECTION OF PROSTATE IN A TERTIARY CARE HOSPITAL

General Surgery

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ABSTRACT

Objective- Study was conducted to recognize the post-operative complications of transurethral resection of prostate (TURP), its incidence, association with factors like age, prostate volume or other comorbidities and the need for re-intervention for its management in a tertiary care hospital. **Methods-** It was a hospital based, descriptive, longitudinal study conducted for the duration of 2 years (October 2018 to September 2020). 54 BPH patients undergoing TURP were diagnosed and complications like bleeding, retention, disorientation etc were analysed. **Results-** Majority of patients falls between 61-70 years of age. Most common post-operative complication was hematuria followed by urinary retention. There was no significant association of age, prostate volume and comorbidities with post-operative complications. **Conclusion-** TURP is safe, with minimal life-threatening morbidity even in a resource-poor economy where TURP is gradually gaining grounds. Bipolar and laser treatments may further minimize the risks of this technically difficult procedure.

KEYWORDS

Transurethral resection of prostate (TURP), Benign Prostatic Hyperplasia (BPH), Lower Urinary Tract Symptoms (LUTS)

INTRODUCTION

It has been long recognized that enlargement of the prostate and the development of lower urinary tract symptoms (LUTS) are age-dependent events.¹ The primary cause of prostatic enlargement is benign prostatic hyperplasia (BPH).² The surgical approaches for removing BPH tissue were highly effective at relieving LUTS and decreasing bladder outlet obstruction (BOO).³ Surgical intervention is an appropriate treatment alternative for patients with moderate-to-severe lower urinary tract symptoms (LUTS) and for patients who have developed acute urinary retention (AUR) or other BPH-related complications. For patients with advanced stages of BPH, surgical treatment, transurethral resection of the prostate (TURP) remains the gold standard.⁴ The 2003 AUA Guideline recognized that transurethral resection of prostate (TURP) remained the benchmark for therapy due to a high success rate in symptom scores, urinary flow, postvoid residue and low retreatment rate on long-term follow up. TURP has been linked with a 120% increase in urine flow and is also known to increase the maximal urine flow rate (Q_{max}) by 9.7 ml/s.⁵ International prostate symptoms score and QOL indicators are improved by 70.6% following this procedure.⁶ However, multiple complications can be observed after TURP: perioperative bleeding, blood transfusions, transurethral resection (TUR) syndrome, prolonged catheterization, long hospital stay, urinary incontinence, and retrograde ejaculation are the most important.

Hence the present descriptive observational study was done to assess the outcome of post operative complications of transurethral resection of prostate (TURP).

MATERIAL AND METHODS

This study was a descriptive longitudinal study conducted at department of General Surgery of a tertiary care hospital. The study was done after permission from the Institutional Ethics Committee and Review Board for the duration of two years from October 2018 to September 2020.

Inclusion Criteria:

1. Patients with BPH undergoing Transurethral Resection of Prostate (TURP)
2. Patient aged more than 60 years

Exclusion Criteria:

Patients having malignancy of prostate on post-op histopathology report and those who didn't give the consent are excluded from the study.

Sample size for the present study was 54 patients. After written valid

informed consent of patient, case proforma filled with all basic details like age, residence, socioeconomic status, address. A thorough history and physical examination was done to identify patients of BPH. All BPH patients who underwent TURP were followed in post operative period for urine output, colour, abdominal girth to detect any complication like bleeding, retention, disorientation etc. The complaints were recorded and managed as per protocols.

1) Bleeding: It is the most common post operative complication in TURP. It is managed by

- Traction to the catheter
- Flushing and continuous glycine irrigation
- Medications like Tranexamic acid

2) Retention of urine: Usually occurs due to blockage of catheter by clots

- Flushing and glycine irrigation to remove clots
- Catheter change whenever needed
- Cystoscopy whenever needed

3) Disorientation of TUR syndrome: Usually occurs due to electrolyte imbalance

- Serum electrolytes will be done and corrected
- Proper fluid management

4) Infection /orchitis: It is due to perioperative bacterial infection, indwelling catheter. It is managed by

- Antibiotics
- Scrotal support
- Vitamin C supplementation

5) Incontinence: Damage to external sphincter mechanism leads to incontinence. It is managed by

- Pelvic floor exercises
- Anti-cholinergic agents/ Duloxetine

6) Scarring/stricture urethra/Bladder neck obstruction: It occurs due to prolonged catheterization/ aggressive resection of small prostate. It is managed by

- Cystoscopic dilation of stricture
- Transurethral incision of prostate

Treatment modalities included conservative management as described above for the correction of the post-operative complications and further evaluation for any re-intervention needed. Association among the study groups is assessed with the help of Pearson's Chi-Square test.

'p' value < 0.05 is taken as significant. Appropriate statistical software was used for statistical analysis. Graphical representation was done in MS Excel 2010.

RESULTS

Majority of the patients (51.8%) were from the age group of 61-70 years. The mean age of patients was 71.52 ± 7.22 years. 68.6% patients had BMI in the normal range. The mean BMI of patients was 24.77 ± 3.29 kg/m². Comorbidities that were present- hypertension (16.7%), raised BMI (12.9%), diabetes mellitus (11.1%) and ischaemic heart disease (7.4%). The mean volume of prostrate of patients was 67.46 ± 5.76 cm³ while the mean residual urine amount was 211.31 ± 59.15 ml. 42 (77.8%) patients had frequent need to urinate while 27 (50%) and 18 (33.3%) patients had nocturia and difficulty starting urination respectively (Table-1). The most common post-operative complication was hematuria (7.4%) followed by urinary retention (5.5%) (Table-2). There was no significant association of age, comorbidities and volume of prostate with post-operative complications of patients as per Chi-Square test ($p > 0.05$).

Table 1: Distribution of patients according to Symptoms

Symptoms	N	%
Frequent need to urinate	42	77.8%
Nocturia	27	50%
Difficulty starting urination	18	33.3%
Weak urine stream	14	25.9%
Dribbling at the end of urination	10	18.5%

Table 2: Distribution of patients according to Post-Operative Complications

Post-op Complications	N	%
Hematuria	4	7.4%
Urinary retention	3	5.5%
Early urge incontinence	3	5.5%
Urinary tract infection	2	3.7%
Ca prostate	2	3.7%
TUR syndrome	1	1.8%

DISCUSSION

A hospital based descriptive, longitudinal study was conducted with 54 patients to evaluate post-operative complications of Transurethral Resection of Prostate (TURP). TURP aims to resect tissue from the transition zone of the prostate to treat LUTS secondary to BPO. TURP is still regarded as a standard surgical procedure for the treatment of LUTS secondary to BPO in prostates ≤ 80 mL³. TURP syndrome is one of the major complications due to extravasations, hyperglycemia, and surgical time. The pathophysiological mechanism includes hypervolemic hyponatremia, hyperglycemia due to irrigation fluid type, venous sinus damage, and operating time. The main mechanism is of course hypervolemic hyponatremia which induces myocardial depression, hypotension, and mental disturbances (agitation, confusion, nausea, and visual loss). The clinical features are related with the severity of hyponatremia. This is a rare complication but a serious one⁶. The prevention hallmarks are carefully surgical practice and minimizing the resection time. The treatment consists of furosemide administration and hypertonic sodium solution administration.

Majority of the patients (51.8%) in the study were from the age group of 61-70 years. 68.6% patients had BMI in the normal range. The most common post-operative complication in our study was hematuria (7.4%) followed by urinary retention (5.5%), early urge incontinence (5.5%), urinary tract infection (3.7%), Ca prostate (3.7%) and TUR syndrome (1.8%). This is similar to the studies of Matta R et al⁹ and Pesha A¹⁰. Matta R et al⁹ retrospective, population-based cohort study observed factors associated with an increased rate of complications included having a preoperative urinary obstruction event, a non-TURP procedure and geographical location. Pesha A¹⁰ retrospective study identifying the complications after TURP found an incidence of 40% of early urge incontinence and 0.35% of total incontinence. Complications were bleeding, perforation of prostatic capsule, external urethral sphincter injury, urethral stricture, bladder neck stenosis, retrograde ejaculation, detrusor muscle injury, infection complications (sepsis, epididymitis).

Among postoperative complications, incontinence is a big issue. The possible causes of incontinence include sphincter failure, detrusor

muscle incompetence, strictures, bladder neck hyperactivity, and residual tissue¹¹. Urethral stricture remains a late postoperative problem. The patients are usually presented to the urologist for meatal strictures and/or deeper strictures (bulbar position) associated with voiding difficulties. The main surgical reason is discrepancies between instruments/catheter size and urethral diameter.

Another problem is post-TURP infections. Bacteremia can usually be asymptomatic and treated using antibiotics against gram-negative and gram-positive bacteria. The clinical scenario is determined by chills, fever, and occasionally hemodynamic and respiratory decompensation.

It was observed in the present study that majority of the patients with hematuria were in the age group of 61-70 years (3.7%) while majority of the patients with urinary retention were in the age group of 71-80 years (3.7%). There was no significant association of age and post-operative complications of patients as per Chi-Square test ($p > 0.05$). Matta R et al⁹, Rassweiler J et al¹² and Mbaeri TU et al¹³ noted similar observations in their studies. Matta R et al⁹ retrospective, population-based cohort study examining the complication rates after benign prostatic enlargement surgery and the effects of age, comorbidity and preoperative medical therapy reported rates of complications increased by age group, with the highest rate of complications among the ≥ 80 -year group.

Rassweiler J et al¹² study observed early urge incontinence occurs in up to 30-40% of patients; however, late iatrogenic stress incontinence is rare (<0.5%). Despite an increasing age (55% of patients are older than 70), the associated morbidity of TURP maintained at a low level (<1%) with a mortality rate of 0-0.25%. Mbaeri TU et al¹³ reported mean age of 69.26 ± 10.46 years and overall complication rate was 24.74%.

It was observed in our study that there was no significant association of comorbidities and post-operative complications of patients as per Chi-Square test ($p > 0.05$). This is comparable to the studies of Hong JY et al¹⁴ and Kumar A et al¹⁵. Hong JY et al¹⁴ study reported postoperative complication rate was significantly higher in patients who had a comorbidity preoperatively and were 50 to 59, 60 to 69 and 70 to 79 years old.

In the present study, the mean volume of prostrate of patients with hematuria and urinary retention was 68.75 ± 2.63 cm³ and 68.00 ± 3.46 cm³ respectively. There was no significant association of volume of prostrate and post-operative complications of patients as per Chi-Square test ($p > 0.05$).

Most frequent complications within the first four to six weeks after TURP are prolonged urinary retention, postoperative bleeding with clot retention, and UTI. The rate of clot retention with major bleeding was 2-5% in recent studies¹⁵. Djavan B et al¹⁶ reported previous acute urinary retention with high retention volumes (>1000 cc) represents a risk factor of post-TURP voiding difficulties. UTI can be minimized with routine use of prophylactic antibiotic regimens and by minimizing the disconnection of the draining systems¹⁷. After all complications that were noted, all could be managed conservatively in our study. None of the complications required any re-intervention.

Rassweiler J et al¹² study summarised Technological improvements such as microprocessor-controlled units, better armamentarium such as video TUR, and training helped to reduce perioperative complications (recent vs. early) such as transfusion rate (0.4% vs. 7.1%), TUR syndrome (0.0% vs. 1.1%), clot retention (2% vs. 5%), and urinary tract infection (1.7% vs. 8.2%).

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