Original Article

# Transurethral Resection of Prostate versus Transvesical Approach: Frequency of Postoperative Urinary Incontinence: Two Year Study

Muhammad Jawaid Rajput, Abdul Sattar Memon and Noshad A. Shaikh


## ABSTRACT

**OBJECTIVE: To compare the results of transvesical prostatectomy with transurethral resection of prostate in respect to the presentation and severity of postoperative urinary incontinence.**

**DESIGN: Comparative study.**

**PLACE AND DURATION OF STUDY: This study was carried out in two tertiary care centres. Liaquat University of Medical and Health Sciences Jamshoro from where all cases of TRUP were collected and Muhammad Medical College Mirpurkhas where all transvesical prostatectomies were performed. It was a two years study from April 2004 to March 2006.**

**PATIENTS AND METHODS: Two groups were made and 50 cases were kept in each group by adopting non-probability convenient sampling technique. Patient underwent TURP were kept in group A and transvesical prostatectomy group was titled as group B. Patients having associated stricture urethra, urinary bladder stones or bladder diverticulum and later on proved as carcinoma of prostate were excluded from the study. Urinary incontinence in patients after both procedures was compared.**

**RESULTS: From group A 07 (14%) patients developed incontinence postoperatively and all had stress type of incontinence. While in group B 11 (22%) patients developed urinary incontinence; among them 05 (45.45%) had stress incontinence and 06 (54.55%) developed continuous urinary leakage. Rate of recovery after conservative measures remained rapid with group A as compared to group B.**

**CONCLUSION: Frequency and severity of postoperative urinary incontinence is more with transvesical approach. But the facility of TURP is not freely available. Therefore improvement in the technique of open prostatectomy is mandatory.**


**KEY WORDS: TURP – Transvesical prostatactomy – Urinary incontinence.**

## INTRODUCTION

Benign prostatic hypertrophy is the most common benign tumor in men[1]. Its prevalence is approximately 20% in men aged 41-50, 50% in men aged 51-60 and to over 90% in men older than 80 years[2]. The prostate is composed of both stromal and epithelial elements and each, either alone or in combination, can give rise to hypertrophic nodule[3]. Alpha blocker therapy may result in excellent responses in patients with BPH that has a significant component of growth muscles. While those having predominantly epithelial cells might respond better to 5 alpha reductase inhibition, while those having significant collagen in the stroma may not respond to either[4]. Transurethral resection of the prostate (TURP) is the Gold standard, and 95% of simple prostatectomy can be done endoscopically[5].

Pakistan is a third world country and there is a lack of awareness as well as ignorance about health care among majority of our population, especially in the rural areas where there is already shortage of quality health care services. Facilities for the sophisticated procedure like TURP are even rarer, only available in major health care facilities of some main cities, as in our province. Therefore we designed this study to standardize TVP by comparing it with gold standard procedure TURP, the facility for which to perform is not easily accessible to our poor population.

## PATIENTS AND METHODS

This study was carried out in two tertiary care centres Liaquat University of Medical and Health Science, Jamshoro and Muhammad Medical College Mirpurkhas, to compare the results of TURP with transvesical prostatectomy in respect to post procedure incontinence. This is a two year study from April 2004 to March 2006.

Two groups were made and 50 cases of BPH were selected for each group by non-probability convenient sampling technique. Patients who underwent TURP were put in group A and transvesicle prostatectomy group was titled as group B. Decision for the approach was based on institution. Transurethral approach was adopted at Muhammad Medical College

Hospital, Mirpurkhas and TURP at Liaquat University Hospital, Jamshoro. Patients having associated urethral stricture, urinary bladder stone or diverticulum were excluded from the study. Urinary incontinence was compared between both groups after the procedures by following the patients weekly up to 12 weeks. Symptoms of incontinence were controlled by pelvic floor exercise, drugs (Anticholinergic) i.e. Oxybutynin 5-mg 2-4 times/day, Imipramine hydrochlorid 25-mg 2-4 times/day, Nusculotropic Flavoxate hydrochloride 200-mg 3-4 times/day.

Prostate size/weight was calculated by the formula:

π/6 × anteroposterior × transverse diameter × sagittal diameter.

A well-informed consent was obtained from all study subjects. A predesigned proforma was used to record information regarding demographics, presenting complaints, history, examination, investigations, treatment outcomes, complications and follow-up. SPSS version 16 was used to analyze data. Chi-square test was used to differentiate the proportions, while continuous data were analyzed by applying t-test. P-value up to 0.05 was considered significant.

## RESULTS

Among group A 43 patients were admitted with acute retention of urine and 07 patients were operated due to more irritating symptoms. Among group B 45 patients were operated for urinary retention and 5 patients with more irritating symptoms. Mean prostate size was 70-g and 76-g for group A and group B respectively (P=0.12). Mean age of group A subjects was 63±8.9 years while it was 69±9.6 years in group B (P=0.14). Majority of the patients in both groups were in their 6$^{th}$ decade of life **(Table I)**. Urinary incontinence was observed in 7 patients after TURP (Group A) and in 11 subjects after TVP (Group B) which was insignificant (P=0.298). No continuous leaking of urine in the absence of intra-abdominal pressure was observed in any subject of group A **(Table II)**. During follow up symptomatic improvement was observed in all 7 subjects of group A latest up to 10$^{th}$ week, whereas 1 subject of group B remained non-responsive to conventional therapy **(Table III)**.

**TABLE I:**
**AGE DISTRIBUTION OF STUDY SUBJECTS**

| Age range | Group A(n=50) | Group B(n=50) |
|---|---|---|
| 50-60 years | 25 (50%) | 23 (42%) |
| 61-70 years | 19 (38%) | 18 (36%) |
| 71-80 years | 04 (8%) | 08 (16%) |
| > 80 years | 02 (4%) | 01 (2%) |

**TABLE II:**
**COMPARISON OF URINARY INCONTINENCE BETWEEN STUDY GROUPS**

| | Group A (n=50) | Group B (n=50) |
|---|---|---|
| No incontinence | 43 (86%) | 39 (78%) |
| Stress incontinence (associated with coughing and sneezing) | 7 (14%) | 5 (10%) |
| Continuous leaking (without increased intra-abdominal pressure) | 0 | 6(12%) |

**TABLE III:**
**FOLLOW UP OBSERVATIONS FOR SYMPTOMATIC IMPROVEMENT**

| Follow-up Period | Group A (n=7) | Group B (n=11) |
|---|---|---|
| 2-3 weeks | 3 (42.85%) | 2 (18.18%) |
| 4-6 weeks | 2 (28.57%) | 4 (36.36%) |
| 7-8 weeks | 1 (14.29%) | 1 (9.09%) |
| 9-10 weeks | 1 (14.29%) | 1 (9.09%) |
| 11-12 weeks | 0 | 2 (18.18%) |
| Non-respondent | 0 | 1 (9.09%) |

## DISCUSSION

In recent decades, various interventional procedures for the treatment of symptomatic benign prosthetic hyperplasia (BPH) have been developed. Most of them have been considered potential alternative to open prostatic surgery such as transurethral resection of prostate (TURP), or transurethral incision of prostate (TUIP)[5]. Despite good results observed in the initial clinical studies, most concepts and procedures were never generally accepted[6]. However, they contributed considerably to knowledge regarding treatment of symptomatic and obstructive BPH[7]. Only a few procedures have stood the test of time and became part of the urological armamentarium[8]. Currently interventional methods are classified by their effect on prostate tissue in procedures with immediate tissue ablation (open prostatectomy, TURP, vaporization techniques, laser resection technique), procedures with delayed tissue ablation (transurethral high energy microwave thermo therapy, transurethral needle ablation, interstitial laser coagulation) and other procedures (TUIP, stents) with relief in obstruction without tissue ablation[9]. Out of these the cost and results of open prostatectomy and transurethral resection of prostate are compatible[10]. Whichever procedure is

adopted, two main concerns that make operating surgeons most worried are bleeding during and in immediate postoperative phase and incontinence at the time of removal of catheter.

In our study two most popular procedures for BPH were compared for post operative urinary incontinence. The patients were divided in group A and group B. Group-A underwent transurethral resection of prostate. In this group 07 (14%) patients developed post-operative urinary incontinence. In group-B patient underwent transvesical prostatectomy. In this group 11 (22%) patients developed postoperative urinary incontinence. We have sub-classified incontinence in two categories, stress incontinence and continuous leaking of urine.

In group A all 7 (14%) patients had stress incontinence i.e. with coughing and sneezing. While in group B 05 (10%) had stress incontinence and 06 (12%) had continuous dribbling of urine. This proportion is consistent with other studies[11].

Measures used for controlling the symptoms were pelvic floor muscle exercise and medicine including anticholinergic drugs (Oxybutynin, imipramine hydrochloride)[12]. Antihistamine (Chlorpheraireamine maleate)[13], and Musculotropic relaxants (Flavoxate hydrochloride)[14].

Improvement observed in group A was rapid as 5 (71.42%) patients become symptoms free within 6 weeks duration and remaining 2 (28.58) in 10 weeks. While in group B, it took upto 12 weeks to improve. Similar observations have also been made in a study by Margel D et al[15]. One patient in group B remained incontinent with continuous leaking of urine and required condom catheter.

The analysis of clinical studies shows a great variety of different results. The main reason is that the design of past and present studies ignored the pathophysiological aspect of BPH, especially the obstructive component and the fact that the outcome of most procedure depends on the operator/user[16].

In a study at Japan TURP is found superior to transurethral vaporization of prostate (TUVP) and transurethral radiofrequency thermotherapy (TURF), interstitial laser coagulation of prostate (ILCP) and transurethral microwave thermotherapy (TUMT) with regard to efficacy and overall usefullness[17]. One study showed that the functional length of the sphincter unit is the portion with positive closure pressure, and this is where urethral pressure is greater than bladder pressure[18].

In men the functional length is longer and the maximum closure pressure builds up in the prostatic segment, reaches a peak in the membranous urethra and drops as it reaches the level of bulbous urethra[19]. The entire functional length in men is about 6-7cm[20]. After prostatectomy, there is usually no positive pressure in the entire prostatic fossa, minimal closure pressure at the apex of the prostate and normal or greater than normal pressure within the voluntary sphincter segment of the membranous urethera[21].

It means that it is the functional length of the sphincter segment above the genitourinary diaphragm that determines the degree of incontinence[22]. High pressure is almost always recorded within the voluntary sphincter despite the common belief “Itrogenically induced incontinence” is due to damage to the voluntary sphincter. Its true incidence is very low and makes patients become permanently incontinent[23].

Postoperative urinary incontinence is multifactorial and its main cause is decreased functional length of prosthetic urethera. Sometimes hypertrophic overactive urinary bladder may lead to incontinence with frequency and urgency. Infrequently trauma to external sphincter mechanism lead to permanent incontinence.

In this study only one patient became permanently incontinent. In that patient prostate was fibrosed in that patient and during enucleation probably trauma to external sphincter mechanism may have occurred. Rest of the patients in both groups who developed incontinence, recovered with in few weeks time.

## CONCLUSION

Frequency of postoperative urinary incontinence is higher and more severity in transvesical approach than in TURP. As the facility of TURP is not freely available improvement in expertise with transvesical approach is mandatory**.**

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*AUTHOR AFFILIATION:*

**Dr. Muhammad Jawaid Rajput**
*(Corresponding Author)*
Associate Professor, Department of Surgery
Muhammad Medical College
Mirpurkhas, Sindh-Pakistan.

**Prof. Abdul Sattar Memon**
Professor
Department of Surgery
Liaquat University of Medical & Health Sciences

**Dr. Noshad A. Shaikh**
Professor, Department of Surgery
LUMHS, Jamshoro, Sindh-Pakistan.