

Original article

Outcome of 500 cases of transurethral resection of Prostate (TURP) in District level teaching Hospital

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Abstract

Type of Study: This is a prospective study in a district level teaching from 1st march 2003 to December 2008. The sample size was n – 500. All Patients were evaluated with history, clinical examination and allied investigations. As per selection criteria we did TURP and each patient was followed up to six months.

Purpose & Importance of TURP: It has been established that open prostatectomy has got higher morbidity than that of transurethral resection of prostate (TURP). The shorter hospital stay, early institution to working place, minimum blood loss, and acceptable financial involvement makes it excellent patient's compliance. **Method:** The prospective studies include n – 500 cases of LUTS predominately obstructive voiding symptoms. After evaluation & fulfilling the selection criteria standard TURP were done in all cases. **Result:** The mean Q max improved in n – 476 cases (from 6.68 ml/ sec. to 17.47ml/second) in early post-operative period. Among others most of the cases improved within 06 months. Some of the cases (0.25%) needs secondary procedure for late complications like stricture urethra. Erectile dysfunction was not a major problem in our series. Death noticed in two cases in post operative ward due to cardiogenic shock. **Conclusion:** The outcome of the present study has been compared with other studies and it appears that TURP is an excellent minimally invasive procedure for the management of symptomatic BPH.

Key Word: Benign hyperplasia of Prostate, TURP, Complications.

Introduction

The prostate is a male organ which most likely to be enlarged with the progression of age. Histopathologic evidence of BPH is present in approximately 8% of men in their fourth decade and in 90% of men by their ninth decade¹. In other studies it was concluded that BPH is first detectable around the fourth decade of life and nearly all men by the ninth decade².

In the Olmsted county longitudinal study, it was very clearly observed that the progression of BPH is related to age. There was an average increase in the International Prostate Symptom Score (IPSS) of 0.18 points per year, ranging from 0.05 for men in their fifties to 0.44 for those in their seventies. There was also a decrease in peak flow rate of 2% per year and a median prostate growth of 1.9% per year. Symptom worsening is the most common sign of progression. Identifying those patients at risk of BPH progression is crucial to optimize their management³. However BPH may not produce any

symptom unless it causes any obstruction to outflow of urine⁴.

For many decades (1909 until the late 1990s), transurethral resection of the prostate (TURP) has been considered the gold standard surgical treatment for lower urinary tract symptoms (LUTS) and its related complication. Despite the efficacy and safety of pharmacotherapy, the surgical management of BPH is still recommended when medical therapy fails⁵.

The aims and objectives of TURP over open surgery are designed to decrease blood loss, reduce hospital stay and other complications. After 1990 various newer techniques⁶ are being introduced some of which are unique but costly; transurethral vaporization of the prostate (TUVP), bipolar TURP, photo-selective vaporization of the prostate (PVP), Electro vaporization of the prostate⁷ and holmium laser enucleation⁸ etc. Laser enucleation of prostate is more costly and morbidity may be lower but the overall outcome is comparable to TURP.

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Transurethral incision of prostate (TUIP) may be a good option for men with fibrous prostate, minimally enlarged prostate, high risk patients⁹. Reports; comparing these various prostatic ablative techniques by Van Melick et al¹⁰, Eaton and Francis¹¹, and Gilling et al¹². All the studies demonstrate that improvement is roughly equivalent to TURP in terms of urodynamics, symptom scores, and uroflowmetry for at least 7 years of follow – up.

In the background of various recent options and their outcome in published literature; TURP appears simple, minimally invasive, cost effective, widely used and comparable to any other options even in the modern era¹³. This study was undertaken to evaluate the outcome of TURP in a teaching hospital situated at districted level; less privileged area of Bangladesh.

Material and Methods

It was a prospective interventional study, conducted in the Department of Urology; Diabetic Association Medical College Hospital, Faridpur. The period of study was from 1st march 2003 to December 2008. A total 500 men with benign prostatic hyperplasia were enrolled in the study after informed written consent. All patients were admitted in the hospital as per selection criteria. Overall evaluation was done with the history with IPSS score (AUA (American Urological Association symptom index score; minimum 07, maximum 35), physical examination including DRE (Digital Rectal Examination). Investigations such as urinalysis, culture and sensitivity (C/S), complete blood count, fasting blood sugar, creatinine, LFT (liver function test), prostate specific antigen (PSA), ultrasonogram of the kidney, ureter bladder (KUB) prostate with PVR, uroflowmetry, chest X – ray and electrocardiogram. Patients with mild to moderately enlarged and fibrous prostate, predominately obstructive voiding symptom, bothersome IPSS score mild (8-19) to moderate (20-30), Q max less than 10 ml/sec in uroflowmetry and PVR more than 100ml were included in the study. Patient with hugely enlarged prostate, high PSA, suspicious DRE finding (malignancy), having associated symptomatic bladder diverticulum or a big hard bladder calculus, unilateral and bilateral inguinal hernia was excluded from the study.

All patients were evaluated cystoscopically and standard TURP was done under spinal anaesthesia. The mean operating time was 31 ± SD 3.5 minute.

Commonly used irrigation fluid was 1.5 % glycine. A 20 – 22 Fr. foley trichannel catheter (BARD) was used at the end of the procedure. Normal saline irrigation was started immediately. A gentle traction to catheter was maintained up to 06 to 24 hours. Prophylactic antibiotics ceftriaxone or ciprofloxacin was used in all cases. Total per – operative blood loss was insignificant. No patient did not need blood transfusion or develop trans-urethral resection (TUR) syndrome but n – 02 died in postoperative ward due to acute miocardial infarction (MI). Urethral catheter removed within 2nd to 4th post –operative day before their discharge.

All patients were followed carefully for up to six months. The follow –up protocol was initially every 02 weeks for 1st month, monthly up to 3rd month, at the end of 06th month. On demand follow – up was also done afterwards. During follow – up all patients were evaluated with history, physical examination. Investigations like urinalysis, C/S. Ultrasogram of KUB prostate with PVR, Uroflowmetry were done as routine. Retrograde urethrocystogram and micturating cystourethrogram (RGU + MCU) were done only in suspected cases of complications like stricture.

All data were processed and analyzed using SPSS software. The statistical tests used to analyze the data were descriptive statistics, pair t test, the level of significance was set at .001 and P<0.001 was considered significant.

The protocol was approved by ethical committee of the Diabetic Association Medical College Hospital, Faridpur.

Result

Histopathological examination report was available in 2nd post – operative day. It revealed nodular hyperplasia in n – 421 and nodular hyperplasia with chronic prostatitis in n – 79 cases. No malignancy was reported.

Table – I: Age of the patients (n – 500)

Age	No of Patient	% of the Patient
Minimum 42	Maximum 96	mean 70.96

A total 500 patients were selected for TURP. The age range was 42 – 96 years, mean 70.96 (Table I). Significant improvement of symptoms following TURP was noticed in n – 476 (95.20%) patients.

Mean Pre-operative PVR was 289.95 ml and post operative PVR was significantly improved to 15.31ml (Table II). Pair t test was done and showed the difference was statistically significant (p value was < 0.001). Mean pre – operative Q max was 6.68 ml/ sec. and postoperative Q max was improved to 17.47ml/sec. Pair t test was done and showed the difference was statistically significant (p value was < 0.001)

cases bladder neck contracture which was noticed, managed by bladder neck incision (BNI) with Collin’s knife. Erectile dysfunction was noticed in n – 52 cases initially which improved with time in n – 40 cases. In rest of the cases has given the options various treatment were but response was not remarkable may be due elderly aged patients or lack of sexual interest.

Table –I I: Shows the Result of TURP in terms of Qmax and PVR (n – 500)

Pre-operative	Post-operative	% of the Patient
Q max- 6.68 ml/ sec. (n – 476) Mean PVR 289.95 ml	Q Max 17.47ml/sec. Mean PVR 15.31ml.	95.2%
Q max 6.68 ml/ sec. (n – 22) Mean PVR 289.95 ml	Q max n – 22 < 10ml/sec Mean PVR < 10 ml	04.4%
Death	n – 02	00.4%
Total	n – 500	100%

In n – 22 (4.40%) cases mean Q max was <10ml/sec and there was no noticeable improvement (Table I). Deaths due to acute MI in first post – operative day in n – 02 (0.4%) cases; though the preoperative blood pressure and ECG was unremarkable. However there may be pre existing silent ischemic heart disease; leading to acute MI.

Table - III shows Overall outcome (n – 500)

Total Complicated Patients	67	13.4 %
Impotence	52	10.4 %
Stricture	07	1.4 %
Incontinence	05	1 %
Bladder neck contracture	03	0.6 %
Un-complicated Patients	433	86.6%
Total No. of Patients	500	100 %

Incontinence (Table III) noticed in n – 20 (4.0%) cases immediately after removal of catheter. Reassurance and perineal exercise (Kegel exercises) adopted. Incontinence improved in n – 15 cases within 03 months. Rest of the cases (n – 05, 01%) were managed by use of pads and referred for further work – up and management. Post operative urethral stricture was noticed in n – 07 (1.40%) cases. Of them n – 03 was (0.6%) in bulber urethra and n – 04 (0.8%) was in the navicular fossa. Bulbar urethral stricture was managed by optical internal urethroto-my and stricture at navicular fossa was managed by OMG substitution meatoplasty. In n – 03 (0.6%)

Discussion

TURP was the first successful, minimally invasive transurethral surgical procedure which stands with time. Till 1990; the only standard endoscopic procedure for symptomatic BPH was TURP¹³ when medical therapy fails or inadequate¹⁴.

The relative frequency of TURP compared to open prostatectomy varies from country to country. In 1990, the relative frequency rate of TURPs in United States was 97%, with similar rates in Denmark and Sweden. The lower rate of TURP were noted in Japan (70%) and France (69%)¹. Various other minimally invasive procedures are available including laser ablation of prostate. But still TURP is a good choice throughout the world for its efficacy and cost benefit effect¹⁴.

In our series we use spinal anaesthesia in all of our cases although general or epidural anaesthesia are other options. In a large national survey in 13 institutions in USA by Mebust et al, it was observed that up to 79% of transurethral prostate resections are performed with spinal or epidural anesthesia¹⁵.

Symptom score and flow rate improvement with TURP is superior or comparable to that of any minimally invasive therapy¹⁶. The degree of outflow obstruction is closely related to the increasing amount of PVR. Barry and colleagues found a significant correlation between high PVR and low flow rate¹⁷. In our study the inclusion criteria was PVR more than 100ml, mean 289.95 + (SD)113.80 ml.

After TURP, PVR improved in majority of the patients up to 20.10 + (SD) 13.80 ml. Only in 22 patients PVR was more than 90 ml. So it is clearly evident that TURP improved PVR significantly. Uroflowmetry is the electronic recording of the urinary flow rate throughout the course of micturation. The peak flow rate (Q max) more specifically identifies patients¹⁸, need TURP. Significant differences were noted in both Q max & Q wave between normal volunteers and patients with BPH who were selected for prostatectomy¹⁹. After prostatectomy both parameters improved significantly in patients and the post operative values approximated to those of the normal population. In present study mean Q max improved from >10ml/sec. to 17.47 (SD) + 2.89 ml in n – 476 (95.20%) cases. But in n – 22 (4.40%) cases it did not. Ala-opas and colleagues (1993) found no immediate mortality in a series of over 400 patients under going TURP²⁰. But in our study two patients (0.4%) were died due to acute MI though per-operative cardiac status was good but there may be silent coronary diseases.

Once it was the belief that TURP is intimately related to erectile dysfunction in some of the cases. These studies were based on relatively poor evidence from uncontrolled studies; published prior to 1994. It is now observed that the effect of TURP on erectile dysfunction is controversial. In 1995 VA Cooperative Study comparing the outcomes of TURP and watchful waiting in 556 men with moderate LUTS²¹. In this study, TURP was not associated with changes in sexual performance immediately. At the end of the 3-year of the study it was observed that 19% of patients in the surgery group and 21% of those in the watchful waiting group reported that their sexual performance was worse, while 3% in each group reported that it was improved. In general, the spouses thought that the patients' sexual performance was unaffected over the course of the study. Many authors have carefully analyzed sexual function before and after either minimally invasive treatments for patients with BPH or surgical resection of benign enlarged prostates. In the majority of the cases, sexual function was affected at least in a small cohort. It appeared safe to assume erectile dysfunction would not follow a TURP as estimated originally but some patients may have deterioration of sexual function following intervention²². In our

series we have no control group in this regard. Erectile dysfunction noticed in n – 52 (10.40%) cases initially which improved with time in n – 40 (08%) cases. In rest of the cases we have offered the options of medical and other management but they were not interested to receive the treatment may be due older age or unresponsiveness of their spouse. In various studies about 1% of the patient may notice incontinence²³ after TURP and this is consistent to the present study (n – 05, 01%). In different studies 2% of patients may develop iatrogenic urethral stricture diseases; may be related to narrow urethra or longer resection time²³. In this study the 1.4% patients developed post TURP stricture urethra; consistent to reference international studies. In reviewing the literature, the AHCPR guideline panel used Meta analysis to combine the various clinical studies, They noted that the chance of improvement of patient symptoms following a TURP was 70% to 96% with a mean confidence interval (CI) of 88%²⁴. In this study the rate of improvement is 95.20%.

Table – IV: Shows the result of TURP in long terms of patient's satisfaction

Outcome	No of Patient	% of the Patient
¹ Excellent	476	95.2%
² Poor	22	04.4%
Death	2	00.4%
Total	500	100%

The overall outcome in terms of patient's satisfaction and complications are comparable with other international studies (Table IV). However longer follow – up may preclude the efficacy of the procedure in the present set up.

Conclusions

Transurethral resection of the prostate is considered as one of the best effective minimally invasive treatment for BPH. Here the morbidity and mortality is less than that of open prostatectomy. It is cost – effective and the hospital stay is short. Other minimally invasive options like laser enucleation etc are costly but the final outcome is comparable to TURP. In any case careful case selection is the primary factor will influence the outcome. In doubtful cases; urodynamic study is extremely helpful for proper selection of cases.

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