

Original article

A comparative study of two surgical approaches of Benign Prostatic Hyperplasia in a tertiary care teaching hospital.

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Abstract:

Background: Benign prostatic hyperplasia is an age related common urinary complaint. The treatment of such disease can be accomplished by conservative and operative means. Many surgical options are available for the resection of hypertrophic tissue of prostate. We organised a prospective study to compare the two surgical techniques (Transvesical and Transurethral) in terms of complications, morbidity/mortality.

Materials and Methods: 60 patients were divided into two groups; Group I (30 patients) were planned for Transvesical prostatectomy while Group II (30 patients) were posted for Transurethral resection of prostate. The two groups were compared in terms of immediate complication, duration of hospital stay, duration of immobilisation and overall morbidity and mortality of the patients.

Results: Most of the patients were of 51-70 years in both the study groups. The most common complaint of the patients visiting to our out-patient clinic was increased frequency of urination in both the groups. On comparing the delayed post-operative complications, urinary tract infection (UTI) was observed in 5 patients in Group I while only one patient had symptoms of UTI in Group II ($p=0.01$). Statistical significant difference was observed in duration of hospital stay in between the groups with TURP operated patients had better recovery ($p=0.001$).

Conclusion: TURP is more advantageous than Transvesical prostatectomy in terms of shorter duration of hospital stay, lesser immediate and delayed post-operative complications and hence better patient outcome.

Keywords: Benign Hypertrophy of Prostate, Transurethral resection of Prostate, Transvesical Prostatectomy

Introduction

Benign prostate hypertrophy (BPH) is defined as the non-malignant enlargement in size of prostate. It usually involves transitional zone of prostate, effecting stromal and epithelial cells. This growth of gland causes urethral obstruction resulting in resistance to urine flow, which results in hypertrophy, instability and atony of bladder muscles.¹The important symptoms of BPH are increased urinary

frequency, nocturia, urgency, incontinence, intermittent streams during voiding and incomplete bladder emptying. If left untreated, BPH behaves as a progressive disease. It can lead to increased risk of urinary tract infection and bladder stones.²

The activity of 5-alpha reductase which converts testosterone to dihydro-testosterone is accountable for prostatic hyperplasia and thus 5-alpha reductase inhibitors afford base for medical treatment. Other

methods of management comprises of watchful wait, non-surgical treatment like alpha blockers (doxazosin, alfuzosin), and 5-alpha reductase inhibitors (fenesterides, dutasterides) for mild to moderate BPH.^{3,4}

Second line of treatment is minimal invasive therapies including two techniques, transurethral microwave thermotherapy and transurethral needle ablation. The mechanism of action of both these techniques is to create enough heat which can cause cell necrosis resulting in decrease in size of prostate.^{5,6}

Surgical management includes two types, open transvesical prostatectomy (TVP) and transurethral resection of prostate (TURP). But TURP is considered as the gold standard method for surgical intervention in symptomatic patients. But still open prostatectomy is having an important position in urology because long term results and patients satisfaction rate are good enough. Besides this, TVP is one stage procedure in contrast to TURP which is a two stage procedure. In TVP there is no requirement of unique or sophisticated apparatus, which is the major advantage in developing countries.^{7,8}

The demerits of TVP are that duration of hospital stay is generally longer with an average hospital stay ranging from 6 to 10 days with about 5 days of catheterisation period. This is much less in TURP and thus is preferred technique. Due to presence of various modern antibiotics urinary tract infection is not a common post-operative problem (6–8%) in both TURP and TVP.^{9,10}

This study was done to compare the results of transvesical and transurethral prostatectomy and to decide which technique is the preferred one for the developing countries like India.

Materials and Methods

After approving our study from Institutional Ethical Committee and informed consent from 60 patients we organised a prospective study in our tertiary care hospital admitted with complaints of urinary obstruction or other associated signs and symptoms of benign hypertrophy of prostate from November 2013-October 2014. The cases posted for Transvesical/Transurethral prostatectomy, signs and symptoms of benign prostatic hyperplasia were included in our study. The patients which are posted for retropubic or who had underwent primary closure of urinary bladder with Freyer's prostatectomy, patients with chronic liver/renal disease and the patients refused by the concerned anaesthetist due to associated co-morbidity were excluded from the study.

The patients were divided into two groups of 30 patients each. Group I (30 patients) were planned for Transvesical prostatectomy while Group II (30 patients) were posted for Transurethral resection of prostate. All the patients selected for the study underwent a pre-anaesthetic check-up prior to the procedure. Foley's catheterisation was done in all the patients one day prior to the date of operation. A common anaesthesia regimen and procedure was performed in all the cases and all operations was performed under spinal anaesthesia.

The two groups were compared in terms of any immediate complication, duration of hospital stay, duration of immobilisation and overall morbidity and mortality of the patients. We presented our data in numbers and compared the above mentioned variables from the previous studies available from Cochrane/Medline search.

Statistical Analysis: All the parametric data was analysed using Student's t-test and non-parametric

data using Chi-Square/Fisher test whichever is applicable. Data was analysed using statistical package for social sciences (SPSS). A p value of <0.05 was considered statistically significant.

Results

All patients were successfully enrolled in our study without any drop outs. The number of patients posted for Transvesical prostatectomy among 51-60, 61-70, 71-80, 81-90 and 91-100 years was 8, 12, 5, 4 and 1 respectively [Table 1]. However, among the same age wise categorisation in patients underwent TURP the number of patients were 10, 9, 7, 3 and 1 [Table 1].

All the patients presented in our OPD clinic for either of the prostatectomy had signs and symptoms of increased frequency of urination. 26 patients had symptoms of dysuria in Group I while 19 patients was admitted for the same complaint in Group II [Figure 1]. 14 patients had complaints of straining towards stream in Group I while 17 patients had similar problems in Group II [Figure 2]. Apart from these symptoms the other complaints that led the patients for admission in our hospital for Transvesical prostatectomy were 12 patients with acute retention, 4 patients with chronic retention, 5 patients with haematuria, and 6 patients had past history of retention and 9 patients with dribbling. However, the symptoms for the patients planned for TURP were 11 patients with acute retention, 1 patient with chronic retention, 3 patients with haematuria, and 11 patients

had past history of retention and 7 patients with dribbling [Figure 1].

The immediate post-operative complication in patients underwent Transvesical prostatectomy was bleeding (2 patients), chest pain (1 patient) and clot retention (1 patient). However, in patients operated for TURP had immediate post-operative complications in the form of bleeding (1 patient), disorientation (1 patient) and clot retention (3 patients). No statistical significance was observed on comparing the immediate post-operative complications of the two groups [Table 2]. On comparing the delayed post-operative complications, urinary tract infection (UTI) was observed in 5 patients in Group I while only one patient had symptoms of UTI in Group II (p=0.01) [Table 2]. Post-operatively, two patients had wound infection and three patients had stricture in Group I while no other delayed complications was observed in patients underwent TURP [Table 2].

We also observed post-operative immobilisation in both the groups. In patients of Transvesical prostatectomy 12 patients were immobilised for 0-5 days while in patients operated for TURP 28 patients were immobilised for the same time period (p=0.001) [Table 3]. Similar statistical significance was observed in the duration for hospital stay within 5-10 days in between the groups (p=0.001) [Table 3]. None of the patient had mortality in any of the study groups

Table 1: Demographic distribution according to age.

Age (years)	Transvesical Prostatectomy [Number (%)]	TURP* [Number (%)]
51-60	8 (26.7%)	10 (33.3%)
61-70	12 (40.0%)	9 (30.0%)
71-80	5 (16.7%)	7 (23.3%)
81-90	4 (13.3%)	3 (10.0%)
91-100	1 (3.3%)	1 (3.3%)

*TURP: Transurethral Resection of Prostate

Table 2: Post-operative Complications.

Variables	Immediate Post-operative Complication			Delayed Post-operative Complication		
	Transvesical Prostatectomy [Number]	TURP [Number]	P value	Transvesical Prostatectomy [Number]	TURP [Number]	P value
Bleeding	2	1	0.87			
Chest Pain	1	0	-			
Disorientation	0	1	-			
Clot Retention	1	3	0.54			
Hypotension	0	0	-			
Urinary Tract Infection				5	1	0.01*
Wound Infection				2	0	-
Stricture				3	0	-
Epididymo-orchitis				0	0	-

*p<0.05

Table 3: Duration of Post-operative Immobilisation.

Post-operative Immobilisation (days)	Transvesical Prostatectomy [Number (%)]	TURP [Number (%)]	P value
0-5	12	28	0.001*
5-10	18	2	0.001*

*p<0.05

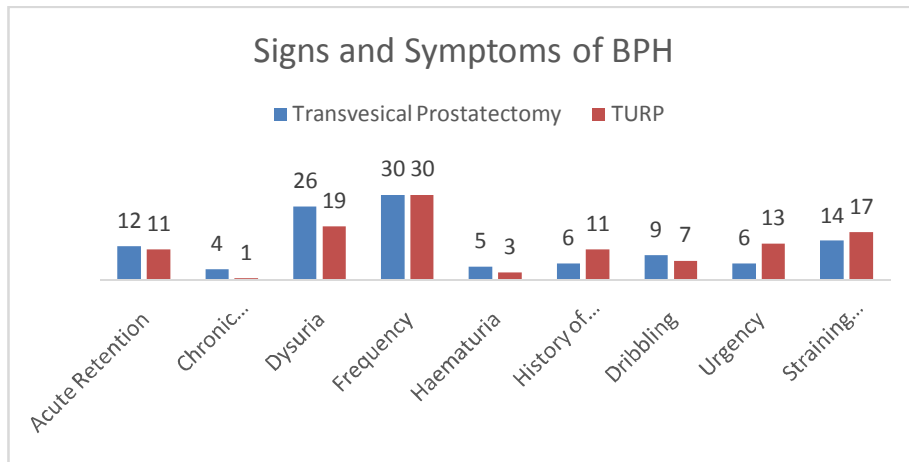


Figure 1: Signs and Symptoms of BPH.

Discussion

The growth of prostate is not constant. It shows significant increase in size during fetal and puberty stage. After puberty, the dimensions of prostate remain more or less invariable till old age when in normal conditions it undergoes atrophy.¹¹ Studies suggest that the risk of BPH is highest in particular age (38% in men aging 41-50 years and 10% in men 71-80 years old).⁶ Another study found that about 78% of cases of benign prostatic hyperplasia in men are from age group of 70-80 years. In our study maximum patients were in the age group of 50-70 yrs.¹²

Among various symptoms of BPH, increased frequency of micturition in night was the major complaint described by most of the patients in this study. Decreased urinary flow and hesitancy were the most common obstructive symptoms described in some studies while increased rate and nocturia were the most common irritative symptoms in other studies.^{13,14}

Previous studies^{15,16} suggest that in the transvesical prostatectomy, postoperative duration of hospital stay was more as compared to TURP. In transvesical prostatectomy, time of immobilization was than a week, while in TURP it is less than 3-4 days. These findings co-relates with our study. Decrease in hospital stay declines the burden of patients in

hospital in heavily populated countries like India. Besides this it also decreases the financial burden of hospital on patients making it cost effective.

It was believed that the main reason behind the increase incidence of wound infection rate (20-50%) is due to urinary retention in patients of BPH and also the requirement of pre-operative Foley's catheterization.¹⁷ Researchers found that other problems like urethral stricture, urinary incontinence and erectile dysfunction are less common (2-3%).¹⁸ In our study we found that there was significant difference in the frequency of post-operative urinary tract infection in patients undergoing TURP and TVP. So, in this concern, TURP is considered as better surgical technique. In present study delayed complications like infection, urinary strictures etc were not present in patients undergoing TURP whereas they were present in TVP patients, but the difference was non-significant. In a similar study postoperative wound infection was present in 16% and post-operative complications like urethral stricture in 2%. Urinary tract infection in 2% patients were noted.^{19,20}

Conclusion:

TURP is more advantageous than Transvesical prostatectomy in terms of shorter duration of hospital stay, lesser immediate and delayed post-operative complications and hence better patient outcome.

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