

Benign Prostatic Hypertrophy

(Patients Profile and Management)

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SUMMARY

A retrospective review of 235 patients of Benign Prostatic Hypertrophy (BPH) who were managed surgically in the Department of Urology, Shaikh Zayed Hospital, Lahore from June, 1987 to June, 1989 is presented. Out of these patients, 192 cases (81.7%) were treated by trans urethral resection of prostate, 32 patients (13.6%) treated by open prostatectomy and 11 cases (4.6%) had bladder neck incision. Majority of the patients (70.21%) had significant pre-existing medical problems. The mean age of the patients was 68.1 years and 89.37% were more than 55 year of age. The overall mortality rate of surgical management of B.P.H. was 1.2% with a morbidity rate of 15.6%. The mean age was 68.1 years. The common modes of presentation were prostatism (43.41%), acute urinary retention (35.33%), chronic retention (17.44%) and other like vesical calculi (3.82%).

The overall morbidity was 15.79% and included intra-operative bleeding (3.41%), TUR syndrome (1.70%), cardiac arrhythmias (0.85%), extravasation (1.70%), failure to void (3.41%), post-operative bleeding (1.28%), UTI (2.12%) and epididymitis (1.28%). Increased morbidity was noticed in patients, presenting with pre-operative acute urinary retention, those who have had prolonged indwelling bladder catheterization, those aged more than 70 years, urban population, when T.U.R.P. time was more than 75 minutes, prostate gland size was more than 45 grams, patients who had pre-existing urinary tract infection and those who had associated vesical calculi.

The overall mortality was 1.28%. Mortality, morbidity and hospital stay were comparable to previously reported international studies.

INTRODUCTION

During the past 50 years trans-urethral prostatectomy has become the primary method to relieve bladder outlet obstruction due to benign or malignant disease¹. The mortality rate from trans-urethral resection of prostate (T.U.R.P) has declined steadily over the last 3 decades, with rates as low as 0.2% quoted in recent surveys².

Despite the fact that prostatectomy is one of the most commonly performed urological operations, reports of its follow-up are surprisingly sparse and incomplete. In particular, the long term follow-up and the patient's own perception of the success of the operation have, to a large extent, not been documented³. Few data, which are available, have

mostly come from developed countries and reports from developing countries are non-existent.

Shaikh Zayed Hospital, Lahore is a 360 bed teaching hospital. Department of Urology treats about 2000 patients per year. When an adequate number of patients with Benign Prostatic Hypertrophy (BPH) became available, it was decided to analyse the data and document our experience.

SUBJECTS AND METHODS

Two hundred and thirty five cases of B.P.H. were managed at the Department of Urology Shaikh Zayed Hospital, Lahore, from June 1987 to May 1989 were included in this study. All patients who had Trans-urethral Resection of Prostate (TURP),

Open Prostatectomy (OP) and Bladder Neck Incision (BNI) were included in this study. Patients who have malignant prostate were excluded from the study.

Detailed information regarding medical history, indications for surgery, pre-operative evaluation, operative management, intra and post-operative complications was collected from hospital notes.

Majority of these patients (80%) were seen more than once post-operatively, in their follow-up period, which ranged from 6 to 104 weeks. Mean follow-up period was 41 weeks.

RESULTS

The age of the patients ranged from 48 to 98 years. However, 89.37% patient were more than 55 years of age. The mean age was 68.1 years. Age distribution of cases is shown in Table 1.

Table 1: Distribution of cases according to age.

Age group	No.	Percentage
48-55 years	25	10.63
58-65 years	70	29.79
68-72 years	70	29.79
74-98 years	70	29.79

Table 2 outlines the modes of presentation. The most common indication for surgery was symptoms of prostatism in 102 patients (43.41%), acute urinary retention in 83 patients (35.33%), chronic urinary retention in 41 patients (17.44%) and other indication like vesical calculi in 9 patients (3.82%).

Table 2: Common modes of presentation.

Presentation	No.	Percentage
Prostatism	102	43.41
Acute urinary retention	83	35.33
Chronic retention	41	17.44
Other (Vesical calculi etc.)	9	3.82

One hundre and sixty five patients (70.21%) had associated medical problems (Table 3). The most common of which were chronic obstructive pulmonary disease (COPD) in 52 patients (22.13%), hypertension in 42 patients (17.88%), diabetes mellitis in 35 patients (14.89%), history of previous

myocardial infarction (M.I.) and cardiac arrythmias in 24 patients (10.22%), renal insufficiency i.e. serum creatinine more than 1.5 mg/dl in 7 cases (2.97%).

Table 3: Pre-existing medical problems.

Medical problem	No.	Percent
No. history of medical problem	70	29.79
C.O.P.D.	52	22.13
Hypertention	42	17.88
Diabetes Melitis	35	14.89
M.I./Arrythmias	24	10.22
Renal Insufficiency	7	2.97
Others	5	2.12

Table 4 outlines the various surgical procedure performed. Out of total patients, 192 patients (81.7%) were treated by TURP 32 patients (13.6%) had OP and 11 patients (4.6%) had BNI.

Table 4: Surgical procedures.

Procedure	No.	Percent
T.U.R.P.	192	81.71
O.P.	32	13.71
B.N.I.	11	4.68

Surgery was performed under General anaesthesia in 70 patients (29.97%), Epidural anaesthesia in 130 patients (55.32%) and combined in 35 patients (14.8%), when Epidural anaesthesia alone was not effective (Table 5). Epidural anaesthesia was preferred in cases of COPD and hypertensive patients.

Table 5: Type of anaesthesia used.

Anaesthesia	No.	Percentage
Epidural	130	55.32
General	70	29.79
Combined	35	14.89

Table 6 presents the time taken by each procedure, weight of the gland removed by various procedures and duration of hospital stay. The mean duration of procedure was 37 minutes for B.N.I., 75 minutes for TURP and 95 minutes for OP. The average duration of hospital stay days for TURP and

B.N.I. patients, while the patients who underwent OP stayed in the hospital for an average period of 5 days.

The average weight of resected gland was 20 grams (10-65 g) in cases treated by TURP and 63 grams (35-280 g) in those treated by OP (Table 6).

Table 6: Length of surgical procedures, weight of gland removed and duration hospital stay.

Parameter	TURP	OP	BNI
Length of procedure (minutes)			
Range	30-90	75-120	30-45
Mean	75	90	37
Weight of gland (gram)			
Range	10-65	35-280	-
Mean	20	68	-
Hospital stay (days)			
Range	2-7	5-7	2-4
Mean	3	5	3

Table 7: Intra and post-operative complications.

Complications	No.	Percent
Bleeding	8	3.41
TUR syndrome	4	1.70
Cardiac arrhythmias	2	0.85
Extravasation	4	1.70
Failure to void	8	3.41
Post-operative bleeding	3	1.28
UTI	5	2.12
Epididymitis	3	1.28
Total	37	15.79

Prophylactic antibiotics were given for the first 48 hours in 2/3rd of cases, while definitive antibiotics were used in 1/3rd of cases, according to culture and sensitivity.

Thirty seven patients developed intra and post-operative complications showing an overall morbidity rate of 15.79% (Table 7). The most common intra-operative complication was bleeding in 8 cases (3.41%), requiring more than 2 units of blood transfusion. T.U.R. syndrome, which is defined as dilutional hyponatremia from excessive absorption of irrigation fluid with clinical symptoms and signs of mental confusion, nausea, vomiting and hypertension occurred in 4 cases (1.7%), Cardiac

arrhythmias in 2 cases (0.85%) and fluid extravasation in 1.7%) 4 cases.

TUR syndrome was managed by diuretics and observation in all cases. Fluid extravasation was managed by conservative treatment in (4 cases) and 1 case required operative treatment.

Immediate post-operative complications included failure to void in 8 cases (3.41%), bleeding requiring transfusion in 3 cases (1.8%) and genito-urinary infection proven by culture in 8 cases (3.41%).

There were 3 post-operative deaths showing a mortality rate of 1.28%. A post-operative death was defined as one occurring within 30 days of the operation, or if the death occurred during hospitalization of more than 30 days after operation, when patient remained in hospital for other medical reasons. The cause of death was sepsis with multi-system involvement in one and M.I. in two cases.

EVALUATION OF RISK FACTORS

Acute retention of urine

Out of 83 cases who presented with pre-operative acute urinary retention, 3.3% developed post-operative urinary tract infection as compared to 1.1% who did not present with pre-operative acute urinary retention. These patients also had higher rate of post-operative failure to void (2.2%) of cases as compared to 1.2% of those, who did not present with acute retention of urine.

Age

In this study 40% of our patients were more than 70 years of age, with a mortality rate of 1.1% compared with 0.1% in the age group of less than 70 years. M.I. was the most common cause of higher mortality in patients more than 70 years of age. Amongst post-operative complications failure to void was three times higher in patients aged more than 70 years compared to those younger than 70 years of age. There was no age related difference regarding other complications.

Medical problems

There was no statistical difference noted in mortality or morbidity among patients having past history of Ischaemic heart disease as compared to those without history of Ischaemic heart disease. However, incidence of post-operative pulmonary complications was five times higher in patients with

Table 8: Mortality of prostatectomy: Comparison of current review with international studies.

Author of study	Country of study	Year of study	TURP			OP			Total		
			No.	Deaths	%	No.	Deaths	%	No.	Deaths	%
Holtgrewe & Valk	USA	1962	2015	50	2.5	0	0	0	2015	50	2.5
Singh et al.	England	1973	935	12	1.28	219	4	1.83	1154	16	1.3
Melchior et al.	USA	1974	2223	30	1.3	0	0	0	2223	30	1.3
Leach	England	1979	119	2	1.68	481	12	2.49	600	14	2.33
Murphy	USA	1979	415	6	1.45	0	0	0	415	6	1.45
Mebust et al	USA	1989	3885	9	0.23	0	0	0	3885	9	0.23
Present study	Pakistan	1991	203	2	0.99	32	1	3.13	235	3	1.28

history of COPD, compared with those who had no history of COPD.

Patients who had renal insufficiency pre-operatively did not have any higher intra-operative complications rate, although post-operative complications were twice as common compared to those with normal renal functions pre-operatively.

Prostate gland size

In patients with gland size of more than 45 grams, there was five times higher incidence of intra-operative and post-operative bleeding, compared with a gland size of less than 45 grams. Similarly incidence of TUR syndrome was also four times higher, if gland size was more than 45 grams, compared to smaller gland size. Comparatively higher incidence of failure to void was also noticed in patients with a larger gland size removed by TURP.

Resection time

The incidence of intra and post-operative bleeding was six times higher, when the resection time was exceeded beyond 75 minutes as compared to those with the resection time of less than 75 minutes. Moreover fluid extravasation occurred mostly in those who had lengthy resection procedure. TUR syndrome was particularly noticed to be more common in cases with resection procedure of more than 75 minutes.

Associated vesical calculi

This was an interesting finding in 9 cases (3.82%). These patients were managed by OP. There was an increase in morbidity rate, because of existing pre-operative U.T.I., which was difficult to eradicate pre-operatively.

DISCUSSION

In 1962 Holtgrewe and Valk⁴ reported their series of 2015 cases of TURP. They had a mortality rate of 2.5% and a morbidity rate of 18% with M.I. as the leading cause of death. The other morbidity problems were epididymitis (6%) Re. do-TURP (3.4%), pneumonia (1.3%) and extravasation (1.1%). Their average patient's age was 69 years and average amount of gland resected by TURP was 22 grams.

In 1974, Melchior et al⁵ reported their series of 2,223 patients of TURP with a mortality of 1.3% and morbidity of 17% M.I. was again the leading cause of death. The other common morbidity problems were bleeding (2.8%), epididymitis (2.1%), non-specific sepsis (1.8%) and hemostatic procedures (1.1%).

In recent series by Mebust et al², published in 1989, which comprised of 3,885 patients of TURP mortality rate was 0.23% and morbidity rate of 18%. However, unlike previous studies, which had M.I. as the leading cause of death, they had sepsis as the commonest cause of death. The other morbidity problems were bleeding requiring blood transfusion (2.5%), TUR syndrome (2%), cardiac arrhythmias (1.1%) and extravasation (0.9%).

In our series of 235 patients out of which 192 cases were treated with TURP, the over all mortality rate was 1.28% and a morbidity of 15.79%. The mortality rate is higher compared to other studies because it included treatment modalities other than TURP. However the results are comparable to other similar studies like ours where various surgical treatment modalities were used in the management of B.P.H.

The incidence of pre-existing medical problems

in our cases was 70% which is less compared to other studies, because of the fact that majority of our patients were of rural origin with less environmental pollution and non-sedentary mode of living. COPD was the leading problem (22%), followed by hypertension (18%), D.M. (15%), M.I/Cardiac arrhythmias (10%) and renal insufficiency (3%).

Apart from Mebust et al series², the details, regarding pre-operative status of patients are lacking in other series. However, in our study the incidence of bleeding was 3.4%, which is higher as compared to Mebust et al² series. In our study, bleeding was related to lengthy resection time of more than 75 minutes and gland size of more than 45 grams. The similar observation was also been made in Mel Chior et al series¹.

In our study, 35.3% of patients presented with acute urinary retention and had higher morbidity, especially post-operative failure to void and increased rate of U.T.I. compared to those who did not present with acute retention of urine. However it did not increase the mortality rate as was reported by Melchior et al¹. Only 3% of our patients had renal insufficiency which increased the morbidity rate as reported by Melchior et al¹ but did not significantly increase the mortality as all such cases were managed pre-operatively by suprapubic stab cystostomy, until their renal functions improved.

Regarding the use of prophylactic antibiotics, which is controversial, we used it in 64.7% of the our patients compared to 61% in Mebust et al² series. Nielsen et al⁵ found it useful in reducing post-operative infection rate.

However, Gibbon's et al⁶ and Holl and Rous⁷ did not find it beneficial in reducing post-operative infection. The appropriate duration of prophylactic anti-biotic is also not clear, although we use it for an average of 48 hours post-operatively^{8,9}.

Vasectomy was not done in any of our patients. Epididymitis developed 1.3% of our cases. Melchior et al¹ did vasectomy in 95% of their patients and epididymitis occurred in 2.6% of their cases.

Holtgrewe and Valk³ performed vasectomy in 10% of their patients with epididymitis rate of 6.1%. Similarly Mebust et al² did vasectomy in 10.5% of their patients with epididymitis rate of 0.18. Thus the role of vasectomy is controversial and although vasectomy does decrease the incidence of epididymitis but difference is not statistically significant.

Most complications are temporary and the overall results of prostatectomy are good. Many series

show that upto 9% of patients may consider themselves worse after prostatectomy than they were before it. So this requires the continuing need for accurate pre-operative assessment, meticulous surgical technique, good post-operative care and reliable post-operative follow-up with regular and honest review of one's own results.

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