



BENIGN PROSTATIC HYPERPLASIA: CLINICAL PROFILE AND COMPARATIVE STUDY OF TRANSURETHRAL RESECTION OF PROSTATE WITH FREYER'S OPEN PROSTATECTOMY IN A RURAL SETUP IN CENTRAL INDIA

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ABSTRACT

Objectives: To study the clinical profile of patients suffering from benign prostatic hyperplasia (BPH) in a rural set-up. To study the procedural differences between Freyer's open prostatectomy and transurethral resection of prostate. To study, the morbidity patterns and complications occurring in open prostatectomy vs trans-urethral resection. **Methodology:** Randomized prospective cross sectional study in which 100 patients of Benign prostatic hyperplasia, satisfying the selection criteria (inclusion and exclusion criteria) were randomly divided into two groups, using envelope method, of which 50 patients were operated by "Transurethral resection of Prostate" (Group A) and 50 patients were operated by "Modified Freyer's Supra-pubic Trans-vesical Prostatectomy" (Group B) **Results:** The mean operative time in transurethral resection of prostate group was 72.31 ± 2.16 minutes, while in open group it was 47.50 ± 3.74 minutes. The difference was found statistically significant with a p value < 0.001 . The mean weight of the resected tissue in transurethral resection of prostate group was 9.87 ± 2.91 grams, while mean weight of enucleated tissue in open group was 39.82 ± 3.24 grams. The difference was again found statistically significant with a p value < 0.001 . Urinary tract infection was found in 7 patients (7%) of which, 2 patients (4%) were of transurethral resection of prostate group and 5 patients (10%) belonged to the open surgery group. Retention of urine on removal of catheter postoperatively was found in 9 patients (9%) of which, 7 patients (14%) were of transurethral resection of prostate group whereas 2 patients (4%) were from open group. **Conclusion:** The study was concluded as follows: Transurethral resection of prostate (TURP) has proved superior to open Freyer's prostatectomy even in rural circumstances in terms of early ambulation of patient, shorter convalescence and thus, shorter hospital stay and early return to routine activities, indirectly in terms of expenditure and financial burden to the patient.

KEYWORDS: Benign prostatic hyperplasia (B.P.H.), Freyer's Prostatectomy.

INTRODUCTION

Benign prostatic hyperplasia (B.P.H.) is one of the commonest neoplastic growth that occurs in men. It affects the elderly males in their 5th to 7th decade of life. Benign prostatic hyperplasia is the major cause of most of the urinary symptoms and is also the most common benign tumor of men above the age of 50 years. The various attempts at nonsurgical treatment for prostatic symptoms such as Alpha-adrenergic antagonists, 5-alpha-reductase inhibitors and prostatic stents required long-term treatment and follow up, before drawing any conclusion. However they had in common, the same disadvantage of leaving the prostate in place with a high incidence of relapse of symptoms. Observing this deficit

in medical treatment, vision for complete removal of prostate gland was initiated.

An open procedure, which soon became the standard method of prostatectomy, was first performed by Sir Peter Freyer (1900). It was him, who revolutionized the idea that "prostate should be removed for the relief of symptoms". The four approaches for access to prostate gland were supra-pubic, retro-pubic, perineal and urethral. Step by step nurturing of minimally invasive surgery for prostatomegaly finally led to the dramatic entrance of transurethral endoscopic surgery. It was a leap for mankind because after this, surgery didn't remain fearful and painful anymore. Until 40yrs ago, an open procedure was the standard method of

prostatectomy, before transurethral resection of prostate took over. It was first performed by Hopkins in 1976. Endoscopic surgery triumphed and was quickly accepted. Also labeled as the “no incision” surgery, it provided distinct advantages of decreased pain, reduced hospital stay, less morbidity, early convalescence and no scar. These second generation endoscopic procedures largely replaced open procedures. The advent of endoscopic surgery further reduced the complication rates, but recently the controversies have arisen regarding, the role of transurethral resection of prostate in causation of higher morbidities and higher re-operation rates. Thus, it became necessary to clearly establish, the differences between the two procedures, which is statistically significant. Many studies started all over the world (1, 4-7). The present study entitled “Benign prostatic hyperplasia, its clinical Profile and comparative study of transurethral resection of prostate with Freyer’s open prostatectomy” was undertaken in a rural set-up in Central India, for comparing the results of transurethral resection of prostate with modified Freyer’s supra-pubic open prostatectomy.

METHODOLOGY

MATERIAL AND METHODS

The present study was carried out in the department of surgery, in a rural setup, from May 2010 to May 2012 in a randomized prospective cross sectional design. 100 consenting patients of Benign prostatic hyperplasia, satisfying the selection criteria (inclusion and exclusion criteria) were randomly divided into two groups, using envelope method, of which 50 patients were operated by “Transurethral resection of Prostate” (Group A) and 50 patients were operated by “Modified Freyer’s Suprapubic Trans-vesical Prostatectomy” (Group B).

The inclusion criteria

All patients with benign prostatic hyperplasia, with age range 45-80 years, presenting with either acute retention of urine, chronic retention of urine or symptoms of prostatism with American Urological Association (AUA) score of 20-35 (severe score), fulfilling hematological, hepatic and renal criteria were included in the study. Only those patients with American Urological Association score of 8-19 were considered for surgery, which had other definite indications for prostatectomy. These were, recurrent or persistent urinary tract infection; recurrent gross hematuria of prostatic origin, not responding to medical therapy, hydronephrosis and hydroureter. Patients with concurrent urinary bladder diverticulum with benign prostatic hyperplasia were not included in the study in order to remove any kind of bias which could arise regarding ease of procedure and duration of surgery.

The exclusion criteria

1. All patients with medical co-morbid illnesses like Diabetes Mellitus, Ischemic heart diseases or chronic obstructive pulmonary disease were excluded

2. Renal and Hepatic Failure
3. Previous Bladder and Urethral Surgeries
4. Carcinoma Prostate
5. Patients unfit for surgery
6. Patients with simultaneous stricture urethra and benign prostatic hyperplasia, and
7. Patients with major bleeding disorder.

Tabulation of the following findings was done meticulously

GENERAL EXAMINATION

Presence of pallor, icterus, pulse, Blood Pressure and lymph-adenopathy were noted.

DIGITAL RECTAL EXAMINATION (DRE)

Prostate was evaluated on the basis of finger reaching at the top, consistency, nodules, adherence of mucosa and tenderness into grades – I, II, III and IV.

Consistency- Firm/hard.

Nodules- Yes/No

Adherence to the mucosa- Yes/No

Tenderness– Yes/No

PER ABDOMINAL FINDINGS

Kidneys- palpable/not palpable

Kidneys- ballotable/non-ballotable

Suprapubic fullness- yes/no

Suprapubic percussion- resonant/dull

PERI-OPERATIVE APPROXIMATE BLOOD LOSS

Suction method in TURP

Sponge Method in Open

OPERATIVE FINDINGS

a) Urethra

b) Prostate

c) Bladder

TOTAL WEIGHT OF PROSTATIC TISSUE REMOVED POST OPERATIVE

1- Pack or traction used for number of days

2- Closed drainage till days

3- Hemoglobin

4- Post-operative urine culture and sensitivity

Positive / negative

If positive – nature of growth

Statistical analysis

All values were expressed as percentage or mean \pm standard deviation. The significance of differences between comparative parameters of transurethral resection of prostate and open Freyer's prostatectomy was tested using Z test (as sample size was >30 with 95% confidence interval) P value <0.05 was considered significant and P value <0.01 was considered highly significant. All the parameters were statistically analyzed using EPI7 INFO program. The extent of agreement between findings of Digital Rectal Examination and

comparison to trans-abdominal ultra-sonography for enlargement of prostate was measured through kappa statistics.

RESULTS

The operative time was more in transurethral resection of prostate (TURP) group as transurethral resection of prostate demands gentle instrument handling, quality precision, good hemostasis and excellent skills, which can have reflection on operative time and complication rates. Transurethral resection of prostate showed more immediate and early complications in terms of slightly higher incidence of primary and secondary hemorrhage, leading to more clot retention and immediate reoperation and thus obviating more need for blood transfusion. The retention of urine on catheter free trial postoperatively was also more in transurethral resection of prostate group. However, all such complications were in early

post operative period, with no major effect on the total post-operative hospital stay.

Open prostatectomy showed more early morbidities in terms of slightly higher postoperative urinary tract infection, wound infection and wound gaping all related to skin incision and urinary sepsis, while the few cases in Transurethral resection of prostate were probably due to improper instrument sterilization. Late morbidities e.g. urethral stricture, bladder neck contracture, recurrent retention and re-operative rates occurred more in Transurethral resection of prostate, as remnant channelized tissue invariably led to edema initially and adhesions later. However the overall incidences of these delayed complications were low and were managed safely with good acceptance by patients previously satisfied with “no scar surgery”.

Table 1: Patient characteristics

Characteristics	Group-A[TURP] (n = 50) Mean ± SD	Group-B[OPEN] (n = 50) Mean ± SD	P value
Age (in years)	48.86 ± 13.17	48.57 ± 10.27	> 0.05
Height (in cm)	159.14 ± 6.86	161.29 ± 5.26	> 0.05
Weight (in kg)	62.57 ± 5.91	63.83 ± 6.82	> 0.05

Table 2 showing clinical presentation of patients

Category	Group A (TURP) n=50	Group B (Freyer's Prostatectomy) n=50	Total N=100
Acute Retention	29(58%)	31(62%)	60(60%)
Chronic Retention	11(22%)	12(24%)	23(23%)
Prostatism	10(20%)	7(14%)	17(17%)

Table 3: Showing pre-operative and post-operative urinary tract Infection

	Pre-operative urine culture		Post operative urine culture positive	
	Group A n=50	Group B n=50	Group A	Group B
Positive	2(4%)	4(8%)	1(50%)	3(75%)
Negative	48(96%)	46(92%)	1(2.08%)	2(4.34%)
Total	50	50	2(4%)	5(10%)

Table4: Incidence of side effects. Data given as n (%)

Side effect	Group-A[TURP] (n = 50)	Group-B[OPEN] (n = 50)
Hemorrhage (primary & secondary)	8 (22.86)	5 (14.29)
Need for blood transfusion	5 (14.29)	3 (8.57)
Urinary retention	3 (8.57)	2 (5.71)
Urinary sepsis	1 (2.86%)	2 (5.71)
Wound infection	0 (0%)	4 (11.43)

DISCUSSION

The common modes of presentation of benign prostatic hyperplasia were acute retention of urine (60%), chronic retention of urine (23%) and symptoms of prostatism (17%), especially nocturia, day frequency and decreased caliber of stream. Rarely patients presented with other symptoms like, recurrent UTI, hematuria etc. Most patients presented within six months and delay in presentation to the hospital in a rural set-up was associated with patient's ignorance of condition, poverty,

lack of nearby facilities for health care and patient's durability to bear symptoms till it became impossible. Digital rectal examination was found to be nearly equivalent to trans-abdominal ultra-sonography in grading of prostatomegaly proving that clinical assessment is almost as good as radiological assessment in benign prostatic hyperplasia. However, symptoms correlated poorly with the size of prostate gland, detected either clinically on digital rectal examination or assessed by trans-abdominal ultra-sonography.

In a study done by Beng J K S et al (1977) at department of surgery, university of Singapore on 100 open and 100 TURP patients, he found that maximum no of cases of benign prostatic hyperplasia came to the clinicians after 60 yrs of age.^[1] Ahmed MN et al (1983) performed a study on 100 patients at S M H S hospital, Srinagar, Kashmir and concluded that 39% patients of benign prostatic hyperplasia were between 51-60 yrs age group followed by 35% patients between 61-70 yrs age. Only 2% patients came for prostatectomy after 80 yrs of age.^[2] Morris G E et al (1985) conducted a study with 600 prostatectomy performed at Kingston hospital (393 TURP, 207 open) and concluded that most cases i.e. 76% were between 60 -80 yrs age group followed by 13% in >80 yrs age group. Very few patients presented below 60 yrs of age.^[3] Gupta R L et al (1999) in his study done at university college of medical sciences and associated G T B hospital, Delhi found that more than 80% patients of prostatomegaly presented to the hospital at 80 yrs of age whereas minimum no of patients (5-10%) presented at around 40 yrs age group.^[4] Leopar H et al (2004) in his study at the department of urology, New York University School of Medicine found that men older than 50 yrs were at risk for benign prostatic hyperplasia whereas it was rarely identified in men younger than 40 yrs.^[5] Zhi et al (2012) did his work in the department of Urology, Third Xiangya hospital, Central South University, Changsha, Hunan, China and found that maximum no of patients were between 60-80 yrs age group and there was a decline in presentation after 80 yrs age.^[6] Patients under 50 years rarely presented with prostatic symptoms. In the present study, 57% patients belonged to 61-70 yrs age group followed by 25% patients in the age group of 51-60 yrs. The minimum numbers of patient were seen in the age group of 71-80 yrs. All the studies have shown that benign prostatic hyperplasia presents most commonly at 6th to 7th decade of life with few series showing increasing incidence with increasing age. The present study is in agreement with the studies reported in literature.

Bengoechea et al (1966) performed a study for two years (Sep 1962- Sep 1964) and found that 66.6% patients were admitted with acute retention of urine whereas 33.3% patients were admitted with chronic retention of urine or prostatism or other symptoms.^[7] In a study done by Beng J K S et al (1977) at the department of surgery, University of Singapore on 100 open and 100 TURP patients, it was found that most patients of prostatomegaly attended hospital in emergency with acute retention of urine (60%) whereas very less no of patients came with chronic retention of urine or prostatism or other symptoms.^[1] In the present study, most common mode of presentation of patients with Benign prostatic hypertrophy was acute retention of urine (60%) cases followed by 23% patients with chronic retention of urine whereas only 17% patients had symptoms of prostatism. Most patients with benign prostatic hyperplasia presented with acute retention of

urine. This is more so in a rural setup where patients bear symptoms till it becomes impossible. The present study is in agreement with the study of Bengoechea et al (1966) and Beng J K S et al (1977).

Simpson R J et al (1997) at the university of Sterling found that most of the patients presented within 6 months of onset of symptoms whereas only a few came after 1 yr of onset of symptoms.^[8] Gupta R J et al (1999) in his study at UCML and GTB Hospital New Delhi found that most of the patients came after 6 months of onset of symptoms whereas very few came within 6 months of onset of symptoms.^[4] Zhi et al (2012) in his work at department of Urology at China concluded that mean duration of presentation of patients to the hospital was 79.5 ± 62.3 (5-240) months.^[6] In our study, 58% of patients presented within 6 months of onset of symptoms; followed by 19% patients who presented between 6 months to 1 year. There were only 5% patients who presented with duration more than 2 years. Most patients presented within 0-6 months of onset of symptoms whereas only a few presented late. The present study is in agreement with the above mentioned studies.

CONCLUSION

Our study was concluded as follows: Transurethral resection of prostate (TURP) has proved superior to open Freyer's prostatectomy in terms of early ambulation of patient, shorter convalescence and thus, shorter hospital stay and early return to routine activities, even in a rural background and hence indirectly in terms of expenditure and financial burden to the patient.

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