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A Study of Prostate Weight in the Pre-Operative and Post-Operative Transurethral Resection of the Prostate Cases and to Compare it with Western Scenario

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Abstract

Background: Benign Prostatic Hyperplasia (BPH) is the most common benign neoplasm of the aging male. The incidence of prostatomegaly increased with age. Enlargement of prostate is the disease of the advancing years and is never seen in early life, It is common disease of man and up to no 2 to 4 of 40 men in their sixties is operated for BPH. *Objective:* To clinically study the pre-operative prostate weight and post-operative weight in transurethral resection of the prostate patients with reference to prostatic weight loss and compare it with western studies. *Materials and Methods:* This study is carried out in Owaisi Hospital & Deccan College of Medical Science, Hyderabad from August 2015 to September 2016. A total 63 cases of BPH, aged between 43-85 years (men age 62.8y) with the lower urinary tract symptoms were evaluated by using American Urological Association (AUA) score, Q Max <15 ml/sec and digital rectal examination, who underwent transurethral resection of prostate were enrolled for the study. *Results:* Majority of patients were from severe followed by moderate AUA Symptom score. The Prostate specific antigen (PSA) was measured in all cases. The preoperative and post operative prostate size was measured and calculation done accordingly. *Conclusion:* Majority of the parameters taken in this study is comparative to the western study. Which indicate the behavioral/natural pattern of BPH and the management and their outcome in Indian scenario and the western scenario are almost the same.

Keywords: BPH; PSA; AUA; TURP.

Introduction

As the age of human male advances the prostate gland enlarge in size [1]. Site Benjamin Brodie (1783-1820) has aptly described the various accompaniments of old age. "When the hair becomes grey and scanty, when specks of the earthy matter being deposited in the tunic of artery and a white zone is formed at margin of cornea, a this same period the prostate gland usually - I might perhaps say invariably - starts increase in size" [2].

Benign Prostatic Hyperplasia (BPH) is the most

common benign neoplasm of the aging male. The incidence of prostatomegaly increased with age. Approximately 70% of men, older than 70 years have histological evidence of BPH. The life time incidence of any type of intervention in BPH is 35% in 50 year age group males. But studies had been done in western world. There are not enough studies in India to support this; hence our objective is to clinically study the pre-operative prostate weight and post-operative prostate weight in transurethral resection of the prostate patients with reference to prostatic weight loss and correlate it with the western studies.

Enlargement of prostate is the disease of the

advancing years and is never seen in early life. BPH is common disease of men and 2 to 4 out of 10 men in their sixties is operated for BPH it is rare before the age of 40 [3]. The most common reason for intervention in patients with bladder outlet obstruction secondary to BPH is to alleviate urinary tract symptoms [4]. BPH has been known for several centuries to be the cause of urinary dysfunction, it was mentioned in Egyptian era as early as 1500 BC and was discussed by Hippocrates 100 yrs later but there are not much supportive evidence from Indian scenario hence the need of the study.

Different modalities are available for management of BPH, but till date surgery is treatment of choice for symptomatic BPH. Currently transurethral resection of prostate (TURP) is the preferred treatment for symptomatic BPH in all but largest of glands [5] same has been studied in our study.

Materials and Methods

This study was carried out in the Owaisi Hospital and Deccan College of Medical Sciences, Hyderabad, India from August 2011 to September 2013. A total of 63 patients of BPH, aged between 43-85 years with the history of lower urinary tract symptoms were studied. Only cases having prostatic hypertrophy in which surgery was indicated were included in this study. No Obvious systemic disease was active. If so, it was treated or controlled preoperatively. Control of UTI before the actual treatment started. Patients who were willing to investigate and to get the preferred treatment were included in this study. All patients include have been given informed consent for the treatment and for the research work and for

publication in any journal if and when needed. Patients with bleeding disorders, cardiac pacemaker or neurogenic bladder were excluded from this study. The study was approved by Institutional Ethics Committee.

Evaluation is done by using American urology association (AUA) score, Q max <15 ml/sec and DRE (digital rectal examination). All patients and were included in this study. Patients were assessed by AUA symptoms score which is followed through out the world for BPH, DRE uroflowmetry, ultrasound (abdomen, pelvis, PVR, prostate size) operative time, amount of resected tissue, intraoperative complications, perioperative complications, post op complications, improvement of symptoms after surgery, duration of catheterization.

Results

The age of the patients ranged from 43 to 85 years. The mean age was 62.8 years. Majority of patients were in the age group of 51 to 60 years with only 02 patients aged above 80 years (Table 1). AUA symptom score was calculated in 33 patients. In remaining 30 patients presented with retention of urine AUA score could not be calculated (Table 1). Prostate specific Antigen (PSA) estimation was done in range of 0-2ng/ml (65.1%). 17.5% patients had PSA in the range of 2-4ng/ml. 14.3% has PSA in the range of 4-10ng/ml. two patients has PSA > 10ng/ml. None of these patients has hard prostate clinically and the raised PSA level in these patients were either secondary to Foley's catheterization of prostatitis (Table 1).

The commonest associated medical disease was

Table 1: Age, AUA Score and PSA Level of the patients

Characteristics	Patients (n=63)	
	Number	Percentage
Age (Years)		
41 - 50	09	14.3
51 - 60	21	33.3
61 - 70	18	28.6
71 - 80	13	20.6
81 - 90	02	3.2
AUA Symptom Score (Grade)		
Mild (0-7)	03	4.8
Moderate (8-19)	20	31.8
Severe (20-35)	10	6.3
PSA Level (ng/ml)		
0 - 2	41	65.1
2 - 4	11	17.5
4 - 10	09	14.3
> 10	02	3.2

AUA - American Urology Association,

PSA - Prostate Specific Antigen

hypertension which was seen in 28.6% of cases followed by Diabetes mellitus (28.6%), chronic obstructive lung disease (9.5%) and ischemic heart disease (7.9%) (Table 2).

On transabdominal ultrasonography 2 patients had bladder calculi. 13 patients presented with haematuria. 02 patients had serum creatinine above normal level (> 1.5mg/dl) (Table 3). The smallest gland had a weight of 38gms while the largest gland had a weight of 110gms on ultrasonography. Average weight of gland was 74gms (Table 3). On intra-operative cystoscopy, severe trabeculations were present in 79.4% of patients (Table 4). Bladder

neck was obstructive in 96.3% of patients (Table 4). 15.9% of cases had hypertrophy of lateral lobes only. 69.8% had both lateral and medial lobes involved, while only 14.3% of patients had involvement of just the median lobe (Table 4).

Weight of tissue resected ranged from a minimum of 10gms to a maximum of 60gms. The mean resected weight was 28.6gms (Table 5). The duration of postoperative urethral catheterization ranged from 1 to 7 days. 52.4% of the patients required <2 days of postoperative catheterization. Catheterization > 4 days required in patient with large gland (Table 5). Over all postoperative complications rate was 28.9%.

Table 2: Associated Medical Conditions of the Patients

Associated Medical Conditions	Patients (n=63)	
	Number	Percentage
Hypertension	18	28.6
Ischemic Heart Disease	05	7.9
Diabetes Mellitus	18	28.6
Pulmonary Tuberculosis	01	1.6
COPD	06	9.5
Chronic Renal Failure	02	3.5
Others (Scoliosis)	01	1.6

COPD - Chronic Obstructive Pulmonary Disorder

Table 3: Ultrasonography Findings Level of the patients

Findings	Patients (n=63)	
	Number	Percentage
Renal Conditions		
Haematuria	13	20.7
Retention	30	47.6
Associated Bladder Calculi	02	3.2
Serum Creatinine > 1.5mg/dl	03	4.8
Weights of Prostate gland (gms)		
Less Than 40	10	6.3
41 - 60	29	46.03
61 - 80	09	14.3
81 - 100	12	19.1
More than 100	03	4.8

Table 4: Intra-operative Cystoscopy Findings of the patients

Findings	Patients (n=63)	
	Number	Percentage
Bladder Trabeculations		
Not Significant	02	3.2
Moderate	11	17.5
Severe	50	79.4
Incidence of BNO		
Obstructive	61	96.3
Non Obstructive	02	3.2
Lobes involved in BPH		
Lateral lobes only	10	15.9
Lateral and medial lobe	44	69.8
Median lobe only	09	14.3

BNO – Bladder Neck Obstruction,
BPH - Benign Prostatic Hyperplasia

Table 5: Post - Surgical Outcomes of the Patients

Outcomes	Patients (n=63)	
	Number	Percentage
Weight of the Resected Tissue (gms)		
Less than 15	11	17.5
15.1 - 30	29	46
30.1 - 45	18	28.6
45 - 60	04	6.4
More than 60	01	1.6
Improvement in Symptoms (Remarks)		
Excellent	48	76.2
Good	15	23.8
No Change	00	00
Worse	00	00
Postoperative Catheterization (Number of days)		
< 2	33	52.4
2 - 4	24	38.1
More than 4	06	9.5
Complications		
Early		
Hemorrhage	02	3.2
Fever	06	9.5
Clot retention	01	1.6
Epididymo-orchitis	00	00
Urinary tract infection	05	7.9
Failure to void	00	00
Acute renal failure	00	00
Death	00	00
Late		
Bulbar Stricture	00	00
Meatal stenosis	01	1.6
Incontinence of urine	00	00

Associate10 reported average weight of 22gms.

The commonest complication was fever (9.5%), UTI (7.9%), hemorrhage (3.2%), clot retention (1.6%) and meatal stenosis (1.6%). There was no death in the series (Table 5). Patient assessment of Post operative improvement in symptoms was listed in Table 5.

Discussion

The age of the patients ranged from 43 to 85 years. The mean age was 62.8 years. 33.3 % of patients are between 51-80 years age group. Only 2 patients in the series were above 80 years of age. This study is almost comparable with study of Narmada Gupta et.al who found 65.9 yrs was mean for patients of BPH undergoing surgery [6]. Age incidence from an Indian study shows age ranged from 57-70 years (Shreevastava 1959 [7]). Higher age incidence was seen in western series which-shows mean age of 69 years (Hoitgrewe and Valk 1962 [8], Melchior 1974 [9], Mebust and Hoitgrewe 1989 [10]). This may be related to increase life expectancy in the Western

population as compared to Indian population.

With regard to AUA score, in our study out of 63 cases, 30 patients came with AUR. 10 patients (63.5%) presented with severe score, 20 patients (31.8%) presented with moderate score and 3 patients (4.8%) are with mild score. In study done by M.J. Barry et al, they found severe AUA score in 57%, moderate in 32% and mild in 16% of patients which is comparable to our study.

Associated Medical Disorders are likely to be more common in patients with Benign Prostatic Hyperplasia due to peculiarity of the age group affected. Commonly associated medical problems include Hypertension, Diabetes mellitus, chronic obstructive lung diseases, Ischemic heart disease, Tuberculosis and chronic renal failure. Diabetes mellitus is particularly important as uncontrolled blood sugar levels increase the incidence of urinary tract infection. In the present study 52.3% patients had associated medical disorders. Salvatierra [13] had 52 % of his patients with associated medical disorders with Ischemic heart disease leading the

list. Mebust and associates had 75.7% of patients with risk factors with pulmonary problems (14.5%) leading the list.

With regard to Urine Culture, out of the 30 patients who had presented with retention of urine, 17.5 % showed positive urine culture. Sheth (1954) has shown that patients with history of catheterization had 100% incidence of a positive urine culture and patients with retention of urine had 50% incidence of a positive urine culture. Marshall [13] has shown that incidence of bacteremia is less with sterile urine post operatively.

The average weight of prostate gland obtained by transabdominal ultrasonography was 62.8gms. The smallest gland had weight of 38gms while the largest gland had a weight of 110gms. Estimation of weight of prostate gland is very important because most urologist prefer to perform transurethral resection and more recently laser therapy for small glands under 60gms, while open suprapubic or retropubic for glands above 60gms. Transrectal ultrasound provides urologist with an accurate estimation of transition zone and median lobe volume, a more pertinent measurement than total prostate volume when potential blood loss and other complications related to operative time are considered".

Weight of tissue resected tissue in TURP ranged from 10 to- 70 gms. The mean resected weight was 28.6gms. Mebust and Similar average weight was reported by Holtgrewe and Valk.

Prostatectomy without catheterization has tried by Eppisch and Lipsky in Austria (1976) but is was not successful. Prolonged urinary catheterization leads to increased morbidity of patients. In our study most of the patients required catheterization between 3-6 days when operated for TURP which is comparable with the study of Jens Rassewiler et al [15].

With regard to postoperative complications, in our study we had 3.1% case of secondary hemorrhage, which developed haematuria on post-operative day. In the co-operative study the post operative bleeding necessity of blood transfusion. This study showed that incidence was higher in those patients who was greater than 45gms of tissues resected or if resection time was greater than 90 min [15]. Clot retention is an important complication because clots act as a foreign body in the bladder including spasms and can block the catheter. The latter complication is amenable to treatment if recognized earlier. In the present study 1.6% patients developed this complication. This was within 6 hrs after TURP. In the series of Harvey et al, the incidence of clot retention of TURP is reported to be 2.5% in the co-

operative study conducted by American Urological Association incidence of clot retention after TURP was 3.9% [12]. In the study conducted by Mebust and associates the incidence of clot retention was 5.3% [10].

Post-operative urinary tract infection is an inevitable complication of postoperative catheterization. Post Operative Urinary Tract Infection presents as symptomatic burning in micturition and the urine examination shows significant bacteruria. In present study 7.9% patients has post-operative urinary tract infection. In the co-operative study conducted by the American Urological Association incidence of UTI after TURP was reported to be 2.5% [15]. Patients who were on long term catheterization and patients admitted with perurethral catheter (catheterized elsewhere at periphery centers) before operation showed more incidence of urinary tract infection. It was evident from this series that urinary tract infection definitely contributes to increased morbidity in the form of postoperative incontinence, stricture and epididymo-orchitis. In our study, no retention of urine was observed after catheter removal. Study conducted by Malik Masood et. at showed retention of urine after catheter removal in 4% of patients.

There was no death in the present study. Over the past 50 to 60 years, there has been a gradual reduction in the immediate postoperative mortality rate associated with TURP. The mortality rate of Mebust and associates in their evaluation of 3885 patients was 0.2%, while Melchior and associates [9] in their study on 2223 patients reported mortality rate of 1.3%. Holtgrewe and Valle had reported a mortality rate of 2.5% in their evaluation of 2,105 cases of TURP. In more recent studies, Ala-Opas and colleagues (1993) found no immediate mortality in a series of over 400 patients undergoing a TURP.

Conclusion

Majority of the parameters taken in this study is comparative to the western study. Which indicate the behavioral/ natural pattern of BPH and the management and their outcome in Indian scenario and the western scenario are almost equal, but the difference is that we don't have the bulk of the article to compare with the Western literature. This is one of the smaller studies because the volume of patient was very less and the long term follow up is still waiting. The future will see the long term outcome and the multi institutional study in Indian scenario which will be interesting and will be more benefit to

the budding urologist and the patients.

Conflicts of Interest

None declared

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