

## Research Article

# The age and mode of presentation of benign prostatic hyperplasia at Hubli in Karnataka

H. L. Prasad<sup>1\*</sup>, B. S. Madakatti<sup>2</sup>, M. L. Manjunath<sup>3</sup>

<sup>1</sup>Department of General Surgery, Mysore Medical College and Research Institute, Mysore, Karnataka, India

<sup>2</sup>Department of General Surgery, Karnataka Institute of Medical Sciences, Hubli, Karnataka, India

<sup>3</sup>Department of Physiology, Shivamogga Institute of Medical Sciences, Shivamogga, Karnataka, India

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### \*Correspondence:

Dr. H. L. Prasad,

E-mail: medicogen.doc@gmail.com

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## ABSTRACT

**Background:** The peculiarities of the prostate are that in old age when most of organ regresses in size it enlarges and causes trouble. By virtue of its position, it guards outlet of urinary bladder. It must be admitted that even today the extent nature of etiology, pathogenesis and diagnosis are all-debatable. Therefore, the present study was aimed at elucidating the age and mode of Benign Prostatic Hyperplasia among the patients in and around Hubli, Karnataka.

**Methods:** The study was conducted after the institutional ethical committee approval and written informed consent from all the patients. 21 cases of BPH were included in the present study. The signs and symptoms of mode of presentation were recorded. The urine was examined for the presence of albumin, pus cells, epithelial cells and RBCs.

**Results:** The maximum incidence of the disease was in the age group of 60-69 years. Majority of the patients had difficulty in micturition followed by increased frequency of micturition both during day and night Patient with retention usually had distension of bladder. These patients complained of dull aching pain in the suprapubic area and in the groin region. Burning micturition (14.28%), dribbling of urine (4.76%), urgency (4.76%), and haematuria (4.76%) were present. Routine urine examination showed albumin (28.56%), pus cells (23.80%), epithelial cells (19.04%) and haematuria (4.76%).

**Conclusion:** Incidence of BPH at Hubli region of Karnataka is 0.3001% of total hospital admission. The maximum age incidence of BPH is in the age group of 60-69 years. Majority of the patients had difficulty in micturition increased frequency of micturition both during day and night a large number of cases show association with presence of urinary tract infection.

**Keywords:** Benign prostatic hyperplasia, Micturition, Dribbling, Hematuria

## INTRODUCTION

Prostate is an accessory gland of male reproductive system. This glandular organ lies beneath the bladder and above urogenital diaphragm. It is clasped on each side by the levator prostate part of levatorani. Its female homologue is the small group of paraurethral gland (of Skene). The ejaculatory duct perforates the prostate posteriorly.

The peculiarities of the prostate are that in old age when most of organ regresses in size it enlarges and causes trouble. By virtue of its position where it guards outlet of urinary bladder when it enlarges it obstructs the urinary passages, thereby resulting in not only local back pressure effects on the bladder like trabeculation and diverticula formation but also on the upper urinary tract. Later on the ultimate renal damage is detrimental to life. As it is essentially a disease of old age, many of the other

disease of old age (like diabetes mellitus) occur in association and contribute to patient mortality and morbidity. The ideal treatment of Benign Prostatic Hyperplasia (BPH) is surgical provided patient report early with their symptoms and not late when they present with acute retention or a renal failure.

BPH has been known for several centuries to be a cause of urinary dysfunction. It was mentioned in the Egyptian Papyri as early 1500 BC and was discussed by the Hippocrates 1000 years later. It is most common benign tumor in men older than 50 years and results in need for prostatectomy in 20-30% of men. Approximately 25% of men over 40 or 50 suffer from lower urinary tract symptoms caused by BPH.<sup>1</sup> The normal prostate reaches  $20 \pm 6$  gm in men between 21 and 30 years and this weight remains essentially constant with increasing age unless benign prostatic hyperplasia develops. The prevalence of pathological BPH is only 8% at 4<sup>th</sup> decade; however 50% of male population has pathological BPH when they are 51 to 60 years old. The average wt. of a prostate that is recognized at autopsy to contain BPH is  $33 \pm 16$  gm. Only 4% of prostates in men more than 70 years old reach size  $>100$  gm.

In a study of  $> 900$  prostatectomy's reported in 1923 John Hopkins hospital the average age of men presenting clinically with symptoms of BPH were  $60 \pm 9$  years. while the average age of men requiring prostatectomy was  $67 \pm 8$  years.<sup>2</sup> It is estimated that doubling of hyperplasia in men 31-50 years if age is 4.5 years, in men 51-70 years is 10 years and is increases to  $>100$  years in patients beyond 70 years old. The incidence rate of BPH is 3/1000 man-years at 45-49 years to 38/1000 man-years at 75-79 years.<sup>3</sup>

Above mentioned data indicate that with age there is increase in the weight of the prostate accompanied by an increase in the incidence of BPH identified histologically. These findings correlate closely with the development of urinary outlet obstructive symptoms in men. At age 57 approximately 25% of men note a decrease in the force of their urinary stream. At age 75 this increase linearly to 50%. Based upon data from the normative ageing study, the cumulative incidence of BPH judged by physical or symptoms for 40 years old men surviving to age 80 are 78% and that of prostatectomy is 29%.

The microscopic incidence of BPH is fairly consistent in several countries both in western and developing nations. This suggests that the initiation of BPH may not be environmentally or genetically influenced. The data also suggest that the prevalence of microscopic BPH increases with age in all male population and that all men will develop BPH if they live long enough.

The majority of instances, prostate pathology are manifested by derangement of urination owing to the intimate anatomical relationship between the bladder and prostate. Still it must be admitted that even today the

extent nature of etiology, pathogenesis and diagnosis are all-debatable. Therefore, the present study was aimed at elucidating age and mode of benign prostatic hyperplasia among patients in and around Hubli, Karnataka.

## METHODS

The present clinical study on benign prostatic hyperplasia was conducted on patients who were admitted in the teaching hospital. The study was conducted after the institutional ethical committee approval and written informed consent from all the patients. 21 cases of BPH were included in the present study. Detailed examination of cases were done and entered in proforma cases sheets for analytical study. All the patients who were diagnosed as BPH were included in the study. All cases diagnosed as carcinoma of prostate preoperative and post-operative prostatic cancer were excluded from the study.

The age of the patients with BPH included in the study was noted. The mode of presentation of patients was also recorded. The signs and symptoms of mode of presentation included difficulty in micturition, acute retention of urine, increased frequency, burning micturition, dribbling of urine, urgency, haematuria, distension of bladder, enlargement of prostate etc. The urine was examined for the presence of albumin, pus cells, epithelial cells and RBCs. The urine culture was performed for the investigation of presence or absence of *E. coli*, *Klebsiella*, *Proteus*, *Pseudomonas* etc. The blood urea level in BPH was assayed using standard procedure. The residual urine in BPH and hydronephrosis was done by using ultrasonographic method.

## Statistical analysis

The data were represented as Mean  $\pm$  SD. The statistical analysis was done using a SPSS Statistical Software Package. P value less than 0.05 was considered the level of significance.

## RESULTS

In the present study we analyzed in detail 21 cases of BPH in our surgical department. The total number of hospital admissions was 29990, and total surgical admissions were 3523. Accordingly, the incidence of BPH in this contributes 0.3001% of total admission and 2.55% of surgical admissions. The youngest patient in this study was of 48 years and oldest was 78 years. The maximum incidence of the disease was in the age group of 60-69 years. Out of 21 cases studied, (8 cases) 38.08% belong to this group (Table 1).

The mode of presentation of BPH (Table 2) was varied. Majority of the patients had difficulty in micturition. This was present in 15 cases (71.40%) the next commonest symptoms were acute retention of urine present in 13 cases (61.88%), followed by increased frequency of micturition both during day and night in 10 cases

(47.60%). Patient with retention usually had distension of bladder. These patients complained of dull aching pain in the suprapubic area and in the groin region. Burning micturition in 3 cases (14.28%), dribbling of urine in 1 case (4.76%), urgency in 1 case (4.76%), haematuria in 1 case (4.76%) were present.

**Table 1: The age of presentation of benign prostatic hyperplasia in patients (N=21). Values are represented as percentage.**

Age (years)	No. of cases	Percentage
40-49	1	04.76
50-59	5	23.80
60-69	8	38.08
70-79	7	33.32
<b>Total</b>	<b>21</b>	<b>100</b>

**Table 2: The mode of presentation of signs and symptoms of benign prostatic hyperplasia (N=21). Values are represented as percentage.**

Symptoms	No. of cases	Percentage
Difficulty in micturition	15	71.40
Acute retention of urine	13	61.88
Increased frequency	10	47.60
Burning micturition	3	14.28
Dribbling of urine	1	04.76
Urgency	1	04.76
Haematuria	1	04.76
Distension of bladder	10	47.60
P/R enlargement of prostate	21	100.00

Routine urine examination showed albumin in 6 cases (28.56%), the quantity analysis of albumin varied from traces to 2+. Next common abnormalities were pus cells presenting in 5 cases (23.80%) followed by epithelial cells in 4 cases (19.04%), then haematuria in 1 case (4.76%) each (Table 3). Out of 21 cases 15 showed growth on urine culture. Commonest organism isolated in urine culture was E. coli in 7 cases (33.32%) followed by Klebsiella in 5 cases (23.80%), Proteus in 2 cases (9.52%), pseudomonas in 1 cases (4.76%). 6 cases showed no growth in urine culture. Most of the organisms are sensitive to 3<sup>rd</sup> generation cephalosporins either cefotaxime or cefoperazone (Table 4).

**Table 3: Urine examination of patients with benign prostatic hyperplasia (N=21). Values are represented as percentage.**

Examination	Positive	Percentage
Albumin	6	28.56
Pus cells	5	23.80
Epithelial cells	4	19.04
RBCs	1	04.76

**Table 4: Urine culture of patients with benign prostatic hyperplasia showing the organisms (N=21). Values are represented as percentage.**

Type of organism	No. of cases	Percentage
E. coli	7	33.32
Klebsiella	5	23.80
Proteus	2	09.52
Pseudomonas	1	04.76
No growth	6	28.56

In the present study majority (90.48%) of patients showed urea level within normal limits i.e. 19 out of 21 cases studied. Only 2 cases (9.52%) showed urea level above 40 mg% (Table 5). Out of 21 cases only 7 cases (33.33%) had significant amount of residual urine i.e. >150 ml (Table 6). In only 1 case (4.76%) hydronephrosis was present. In that case IVP was done, which showed mild hydronephrosis secondary to BPH (Table 7).

**Table 5: Blood urea level of patients with benign prostatic hyperplasia (N=21). Values are represented as percentage.**

Blood urea	No. of cases	Percentage
15-40 mg%	19	90.48
>40 mg%	2	09.52

**Table 6: Residual urine volume in patients with benign prostatic hyperplasia (N=21). Values are represented as percentage.**

Amount of residual urine	No. of cases	Percentage
<150 ml	14	66.67
>150 ml	7	33.33

**Table 7: Hydronephrosis in patients with benign prostatic hyperplasia using ultrasonography (N=21). Values are represented as percentage.**

Findings	No. of cases	Percentage
Hydronephrosis	1	4.76
Nonnal	20	95.24

## DISCUSSION

BPH has been known for several centuries to be a cause of urinary dysfunction. It was mentioned in the Egyptian Papyri as early 1500 BC and was discussed by the Hippocrates 1000 years later. It is most common benign tumor in men older than 50 years and results in need for prostatectomy in 20-30% of men. Approximately 25% of men over 40 or 50 suffer from lower urinary tract symptoms caused by BPH.<sup>4</sup>

The normal prostate reaches  $20 \pm 6$  gm in men between 21 and 30 years and this weight remains essentially constant with increasing age unless benign prostatic hyperplasia develops. The prevalence of pathological BPH is only 8% at fourth decade; however 50% of male population has pathological BPH when they are 51 to 60 years old. The average wt. of a prostate that is recognized at autopsy to contain BPH is  $33 \pm 16$  gm. Only 4% of prostates in men were more than 70 years old with a size of  $>100$  gm each.

In a study of  $>900$  prostatectomy's reported in 1923 John Hopkins Hospital the average age of men presenting clinically with symptoms of BPH was  $60 \pm 9$  years. While the average age of men requiring prostatectomy was  $67 \pm 8$  years.<sup>2</sup> It is estimated that doubling of hyperplasia in men 31-50 years if age is 4.5 years, in men 51-70 years is 10 years and is increases to  $>100$  years in patients beyond 70 years old. The incidence rate of BPH is 3/1000 man-years at 45-49 years to 38/1000 man-years at 75-79 years.<sup>5</sup>

Above mentioned data indicate that with age there is increase in the weight of the prostate accompanied by an increase in the incidence of BPH identified histologically. These findings correlate closely with the development of urinary outlet obstructive symptoms in men. At the age of 57, approximately 25% of men note a decrease in the force of their urinary stream. At age 75 this increase linearly to 50%. Based upon data from the normative ageing study, the cumulative incidence of BPH judged by physical or symptoms for 40 years old men surviving to age 80 are 78% and that of prostatectomy is 29%. The microscopic incidence of BPH is fairly consistent in several countries both in western and developing nations. This suggests that the initiation of BPH may not be environmentally or genetically influenced. The data also suggest that the prevalence of microscopic BPH increases with age in all male population and that all men will develop BPH if they live long enough.

The average group in which the maximum incidence if enlarged prostate described was in the range between 60-69 years, which comprises 38.08% of patients. Youngest patient present in the study was 48 years old and oldest was 78 years old. Age specific incidence in the present study is in line with the study of Glynn RJ et al.<sup>6</sup> In the present study, age specific incidence is comparable to Glynn study incidence in 6<sup>th</sup> decade. But thereafter the incidence in the present study is decreased, which may be due to low life expectancy among Indians. Main bulk of the patients presents in 60-80 years.

The main presenting signs and symptoms was difficulty in micturition (71.40%). In T. E. Udawadia (1983) series,<sup>7</sup> 97 of open group and 82 of TURP group cases were studied, which presented with acute retention and which required preoperative catheterization. Among these, 73 of open group and 64 of TURP group cases had preoperative urinary infection and 20 of open group and

22 of TURP group cases had impaired renal function. However, in my study of 21 cases difficulty in micturition was the commonest symptom noted in 71.40% of cases. Next commonest presentation was acute retention of urine noted in 8 cases of open group and 5 cases of TURP group, followed by increased frequency of micturition in 47.6% cases.

Among these, 9 of open group and 6 of TURP group cases had preoperative urinary infection. Burning Micturition was present in 14.28% of cases. However, the present study results are not comparable with author's series, may be because of negligence and high degree of tolerance towards the symptoms among the patients who present themselves at a later stage of disease process.

The routine urine examination showed Albumin in 6 cases (28.56%), which varies from traces to 2+. Similarly pus cells which were present in 5 cases (23.80%), varied from 2-3 pus cells to significant pyuria. Haematuria was present in 4.76% of cases. In the study, Gram-negative bacteria were the predominant one, which were isolated in urine culture. Out of 21 cases E. coli was present in 7 cases (33.33%). Next common organism was Klebsiella in 5 (23.80%) cases. Proteus was present in 9.52% of cases. Pseudomonas was present in 4.16% cases. Most of the organisms are sensitive to third generation cephalosporins either cefotaxime or cefoperazone. Prior history of catheterization, large residual urine, diabetes mellitus and azotemia increase the risk of urinary tract infection. However 6 cases (28.56%) showed no growth probably because of prior use of antibiotics by general practitioner for urinary symptoms.

In the study of 219 cases by Single, G. C. Tresidder and J. P. Blandy (1973) blood urea level was less than 50 mg% in 174 (80%) cases, between 50-150 mg% in 36 (16.4%) cases, and more than 151 mg% in 6 (2.3%) cases and in three cases no data was available.<sup>8</sup> In this study, only 9.52% of cases had high blood urea level and 90.4% of cases were within normal limits. This elevation in blood urea may be due to retention of urine and minimal functional changes in kidney due to backpressure, which usually returned to normal levels after catheterization and adequate rehydration. Only 33.33% of the cases had significant amount of residual urine. This is not a reliable investigation to know the extent of urinary bladder outlet obstruction, as it is positive in less than 50% of cases. Hydronephrosis was occurred due to backpressure as a result of bladder outlet obstruction. In the present study it occurred in 4.76 % of cases, which is comparable well with the study of Lepor et al.,<sup>9</sup> which has a value of 3%.

## CONCLUSION

Incidence of BPH at Hubli region of Karnataka is 0.3001% of total hospital admission. The maximum age incidence of BPH is in the age group of 60-69 years. Majority of the patients had difficulty in micturition. This was present in (71.40%) of cases; the next commonest

symptoms were acute retention of urine present in 61.88% of cases, followed by increased frequency of micturition both during day and night in 47.60%, of cases. Many of the patients with retention were catheterized prior to admission, which has increased the incidence of urinary tract infection rate. A Large number of cases show association with presence of urinary tract infection.

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