**Abstract**

**Objective:** To find out various modes of benign prostate hyperplasia (BPH) presentation in our region and their relation to postoperative failure to void after transurethral resection of prostate (TURP).

**Methods:** A study was conducted at Urology Department, Sandeman Teaching Hospital Quetta and Akram Hospital (Private) Quetta from January 2000 to December 2003. All BPH patients in whom the primary mode of presentation was accurately determined and later on underwent TURP were included in the study. Four modes of presentation were defined: (1) lower urinary tract symptoms (LUTS), (2) acute retention, (3) chronic retention and (4) acute on chronic retention. After relevant investigations all these patients underwent TURP. Postoperatively catheter was removed when the urine was clear, usually within 48 hours of operation. Patients failing to void were recatheterized and given a second trial without catheter (TWOC) at third day of recatheterization. Resumption of spontaneous voiding on either the first or second TWOC was defined as "successful TWOC". Failure to void on second TWOC was defined as "failure to void" and was managed by a six week period of catheterization, followed by an additional TWOC. Statistical analysis was used to see any significant relation of failure to void postoperatively to mode of presentation of BPH, age of the patients and weight of the resected prostatic tissues.

**Results:** A total of 345 BPH patients were included in the study. Of these 270 (78.3%) patients presented with urinary retention and 75 (21.7%) with lower urinary tract symptoms (LUTS). Patients who presented with retention were acute retention 129 (37.4%), chronic retention 81(23.5%) and acute on chronic retention 60 (17.4%). The proportion of men failing to void after TURP was significantly higher (P <0.05) in those with (i) acute retention as compared to LUTS (ii) chronic retention compared to acute retention and (iii) acute on chronic retention as compared to acute retention. The proportion of men failing to void postoperatively was highly significant (P <0.005) in those with retention of any type as compared to LUTS. Age of the patients and weight of the resected prostatic tissues were found not significant factors in relation to failure to void postoperatively.

**Conclusion:** BPH patients in our region present very late, most of them (>78%) with complication of urinary retention. Mode of presentation of BPH greatly influences the postoperative outcome of this disease. Patients presenting with complications of chronic and acute on chronic retention have less favourable results regarding postoperative voiding after TURP. Moreover age of the patient and weight of the prostate are not significant factors in relation to failure to void postoperatively (JPMA 55:20;2005).

**Introduction**

Benign Prostatic Hyperplasia (BPH) and its related signs and symptoms are extremely common among elderly men, suggesting it to be a natural concomitant of aging. This is specially true in our region with less health awareness where bothersome lower urinary tract symptoms (LUTS) in aging men are taken for granted as old age sequelae. Scarcie health resources and economic constraints cause further delay in presentation and treatment.

In western world more than 90% patients of BPH are treated based on symptoms severity and the degree to which a patient is bothered by his symptoms. In contrast to this 70-80% patients of BPH in developing countries seek medical advice only when they get complications of the disease.

Various complications of long standing untreated BPH include acute and chronic urinary retention, recurrent urinary tract infections, secondary bladder stones and diverticuli, upper urinary tract dilatation and renal insufficiency. Long standing obstruction due to BPH causes ischemia, excessive collagen deposition and certain changes in neuromuscular tissues of urinary bladder which may also affect postoperative outcome of this disease. Impaired detrusor contractility has been reported in men with long standing BPH and patients with this finding achieve a less satisfactory outcome after surgery.

The aims of the study were to determine the ratio of various modes of BPH presentation in our region and their relation to postoperative failure to void after transurethral resection of prostate.

**Patients and Methods**

This study was conducted at Urology Department Sandeman Provincial Teaching Hospital, Quetta from January 2000 to December 2003. All BPH patients in whom the primary mode of presentation was accurately determined and later on underwent transurethral resection of prostate (TURP) were included in the study.
In addition to mode of presentation of BPH, age of the patients, weight of resected prostatic tissues and results after trial without catheter (TWOC) were recorded. Four modes of presentation of BPH were defined: lower urinary tract symptoms (LUTS), acute retention, chronic retention and acute on chronic retention. Routine ultrasound examination of kidneys and bladder to assess postvoid residual urine volume was obtained in patients presenting with lower urinary tract symptoms (LUTS) and all patients in this diagnostic category had a postvoid residual urine less than 500ml. The definitions for retention of urine were based on those used by Hamm & Speakman1 and the residual urine volumes recorded were those drained by catheterization at initial presentation. Acute retention was defined as a painful inability to void with a urine volume on catheterization of less than 1000ml. Chronic retention was defined as the presence of postvoid residual urine volume greater than 500ml (estimated on bladder ultrasound scan) with or with out upper tract dilatation on ultrasound and / or renal function deterioration occurring in a patient who was still able to void spontaneously (frequent small quantity and even continuous dribbling due to overflow incontinence) and acute on chronic retention was defined as painful inability to void with a urine volume on catheterization of greater than 1000ml.

Complete medical history was taken for all patients and International Prostate Symptoms Score (I-PSS) questionnaire was filled for those presenting with lower urinary tract symptoms (LUTS). Physical examination including digital rectal examination (DRE) done in each patient. Ultrasonography of kidneys, bladder and prostate was carried out for all patients and for postvoid residual urine for those presenting with LUTS. Intravenous urography and urethrogram was performed in selected patients where it was indicated. Uroflowmetry in patients with LUTS could not be performed due to unavailability of a uroflowmeter.

All patients were operated on by one of three consultant urologists and one consultant general surgeon highly experienced in endoscopic urological procedures. The prostatic tissues resected were sent to histopathological department for determining the total weight of the tissues and histopathological findings. Patients who had Ca prostate, neurological deficits, complicated diabetes mellitus or associated stricture urethra were excluded from the study.

TURP was done usually on the next available operating list in all those patients who had normal renal functions but for those with an elevated serum creatinine, TURP was performed when the creatinine had stabilized. Postoperatively catheters were removed when the urine was clear, usually within 48 hours of operation. Patients failing to void were recatheterized and given a second trial without catheter (TWOC) at third day of recatheterization. Resumption of spontaneous voiding on either the first or second TWOC was defined as a "successful TWOC". Failure to void on second TWOC was defined as "failure to void" and was managed by a six week period of catheterization followed by an additional TWOC.

In postoperative follow up all patients were interviewed, physically examined and ultrasound examination for postvoid residual urine were carried out at the end of the 2nd week of their successful TWOC.

All patients presenting with LUTS voided successfully and those who failed to void after TWOC. Fisher's exact test was used for comparing the proportions of qualitative variables (Outcomes related to modes of presentation). In all statistical analysis only P-values < 0.05 were considered significant.

Results

A total of 345 BPH patients were included in the study, of which 270 (78.3%) presented with urinary retention and 75 (21.7%) with lower urinary tract symptoms (LUTS). All patients who presented with LUTS had severe lower urinary tract symptoms (I-PSS >20). Patients who presented with urinary retention had acute retention 129 (37.4%), chronic retention 81 (23.5%) and acute on chronic retention 60 (17.4%).

One patient, who initially presented with acute retention, underwent revision TURP at 10th day of the initial TURP procedure. In this patient the initial procedure was terminated incompletely because of perforation of prostatic capsule and opening of large venous sinuses early in the procedure. However this patient voided successfully following TWOC 48 hours after the second TURP. So for the purpose of subsequent analysis he was included in the "successful TWOC" group.

All patients presenting with LUTS voided successfully following TURP. Seven (5.4%) out of 129 patients with acute retention, 11 (13.6 %) of 81 patients with chronic retention and 9 (15.0%) of 60 patients with acute on chronic retention failed to void on catheter removal.

The proportion of men failing to void after TURP was significantly higher (P<0.05) in those with acute retention as compared to LUTS. Similarly the proportion of men failing to void after TURP was significantly higher (P<0.05) in those with chronic retention and acute on chronic retention compared to acute retention. The proportion of men failing to void after TURP was highly significant (P<0.005) in those with retention of any type compared to
significant (P<0.005) in those with retention of any type compared to those with LUTS as shown in Table 1.

All except 3 (0.9%) patients voided successfully after 6 week period of catheterization. These 3 patients who failed to void even after 6 weeks of catheterization were treated with a permanent indwelling catheter and all these patients initially had presented with chronic retention.

The mean age of the patients who voided successfully was 64.7 ± 9.2 years and those who did not was 66.4 ± 8.6 years. So the difference in age between the two groups was not statistically significant (P>0.05). Similarly there was no significant difference (P>0.05) in weight of resected prostatic tissues in the successful voiders (mean 28.6 ± 15.8 grams) versus the unsuccessful group (mean 31.2 ± 18.4 grams) as shown in Table 2.

Although some patients initially developed transient urinary incontinence after removal of catheter but the condition subsided in few days postoperatively and no patient had permanent incontinence. Two patients died in this series less than 30 days postoperatively, resulting in overall mortality rate of 0.6%.

Table 1. Outcome related to mode of presentation.

<table>
<thead>
<tr>
<th>Mode of presentation</th>
<th>Successfully voided after TWOC*</th>
<th>Failed to void after TWOC</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. LUTS**</td>
<td>75</td>
<td>0</td>
<td>0.0487</td>
</tr>
<tr>
<td></td>
<td>Vs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute retention</td>
<td>122</td>
<td>7</td>
</tr>
<tr>
<td>2. Acute retention</td>
<td>122</td>
<td>7</td>
<td>0.0461</td>
</tr>
<tr>
<td></td>
<td>Vs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic retention</td>
<td>70</td>
<td>11</td>
</tr>
<tr>
<td>3. Acute retention</td>
<td>122</td>
<td>7</td>
<td>0.0458</td>
</tr>
<tr>
<td></td>
<td>Vs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute on chronic retention</td>
<td>51</td>
<td>9</td>
</tr>
<tr>
<td>4. Any type of retention</td>
<td>243</td>
<td>27</td>
<td>0.0013</td>
</tr>
<tr>
<td></td>
<td>Vs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LUTS</td>
<td>75</td>
<td>0</td>
</tr>
</tbody>
</table>

*Trial without catheter
** Lower urinary tract symptoms.

Table 2. Outcome related to age and weight of prostate (resected).

<table>
<thead>
<tr>
<th>Patients who voided successfully after TWOC* (n=318)</th>
<th>Patients who failed to void after TWOC (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age (years) mean ± SD</td>
<td>Age (years) mean ± SD</td>
</tr>
<tr>
<td>64.9 ± 11.3</td>
<td>66.1 ± 9.7</td>
</tr>
<tr>
<td>2. Weight of prostate (grams) mean ± SD</td>
<td>Weight of prostate (grams) mean ± SD</td>
</tr>
<tr>
<td>28.7 ± 15.8</td>
<td>31.2 ± 18.4</td>
</tr>
</tbody>
</table>

*Trial without catheter
Urinary retention both acute and chronic are the complications of long standing untreated BPH which also influence/ affect the postoperative outcome of this disease. In our series 5.4% patients with acute retention, 13.6% patients with chronic retention and 15.0% patients with acute on chronic retention failed to void after removal of catheter postoperatively. Moreover, age of the patients and weight of the prostate are not significant factors in relation to failure to void postoperatively.

From the results of our study it can be concluded that BPH patients in our region present very late, most of them (>78%) with complication of urinary retention.

Mode of presentation of BPH greatly influences the postoperative outcome of this disease. Patients presenting with complications of chronic and acute on chronic retention have less favourable results regarding postoperative voiding after TURP. Moreover, age of the patients and weight of the prostate are not significant factors in relation to failure to void postoperatively.

References