

# Effect of Urinary Retention on the Satisfaction and Complication Rate in Benign Prostatic Hyperplasia Patients Undergoing Prostatectomy

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## Abstract

A cohort study from January 2000 till January 2005 included all patients who underwent prostatic surgery with histopathology report of benign prostatic hyperplasia. Patients were divided into elective or retention group. Data of patient demographics, satisfaction and postoperative complications were collected. Total of 119 patients, retention (n = 30), elective group (n = 89). Retention rate was 25%. There was no effect of retention on postoperative complication (elective = 44%, retention = 41%) p value = 0.826, odds ratio 0.878, CI (0.363 - 2.124) nor any effect on patients' satisfaction (elective = 54%, retention = 59%) p value = 0.661, odds ratio = 1.256, CI (0.520 - 3.034). Patients' age and prostate size did not show any effect on postoperative outcome. While presence of inflammatory cells in benign prostatic hyperplasia (BPH) histopathology showed positive effect on satisfaction (BPH alone = 47%, BPH + inflammation = 71%) p value = 0.037, and a protective effect on postoperative complications (BPH alone = 45%, +BPH with inflammation = 18%) p value = 0.167. Conclusion: Retention rate is comparable to the international reports. The presence of inflammatory cells in the benign prostatic hyperplasia histopathology showed a positive effect on postoperative satisfaction.

## Keywords

Benign prostatic hyperplasia; Prostatectomy; Satisfaction; Postoperative outcome

## Introduction

**A**cute urinary retention (AUR) presents in 0.4 - 25% of urological practice and as an indication for transurethral resection prostate (TURP) in 25 - 30%. In Proscar Long-Term Efficacy and Safety Study (PLESS) pharmaceutical trial acute urinary retention occurred in 3% of treatment arm, and 7% of placebo

arm; while in Prostate World Study Group (PROWESS) trial acute urinary retention represents 1% in treatment arms and 2.5% in placebo arm. In Saudi Arabia, Mosli *et al.* reported that till year 2000, the rate of benign prostatic hyperplasia (BPH) patients presenting with urine retention reached 57% in some Saudi hospitals compared to the international reports of 30%<sup>[1]</sup>. With the doubled incidence of acute urinary retention in

our country we questioned its effect on prostatectomy postoperative outcome. We constructed this study looking for the effect of urinary retention on satisfaction and complication rate in patients who underwent prostatectomy.


### Material and Methodology

A cohort study, from January 2000 till January 2005 included all BPH patients who underwent prostatic surgery (TURP), bladder neck incision (BNI), and open prostatectomy. Their histopathology was reviewed. We included patients whose histopathology report was benign prostatic hyperplasia with or without inflammation while the malignant histopathology (prostate cancer, atypical small acinar proliferation (ASAP) and prostate intracytoplasmic neoplasia (PIN))

were excluded. Patients were divided into elective group (who underwent prostatic operation and admitted on elective basis) or retention group (who underwent prostatic operation with a history of recurrent or refractory retention). Patients' demographics, prostate size, patient age and histopathology, satisfaction and postoperative complications were collected. Patients have given their informed consent and the study protocol has been approved by the institute's ethical committee.

### Outcome Measurement

The study's primary outcome is postoperative satisfaction and complication rate. Patient satisfaction was assessed using a direct questionnaire (Appendix 1), which was submitted to all postoperative patients (after



هذا الاستبيان مخصص لمرضى قسم جراحه المسالك البولييه لقياس مدى رضئى المرضى بعد اجراء عمليات جراحية

العمر:-----

الجنس: انثى ☐ ذكر ☐

هل تم اجراء عملية جراحية لك: نعم ☐ لا ☐

اسم العملية-----

تاريخ اجراء العملية-----

هل حدث لك اى مضاعفات بعد اجراء العملية

لا ☐ نعم ☐

اذا كانت الاجابة بنعم اذكر ماهي-----

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مامدى رضاك عن العلاج الجراحي الجراحية الذي تم اجراءه لك

راضى ☐ غير راضى ☐

اذا كنت غير راضى ماهو السبب-----

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Appendix 1. Patient satisfaction questionnaire used in our study.

6 - 12 months) in the waiting area during their clinic visit. The questionnaire asks for patients' demographics and if they are satisfied or not with the operation done.

Complications were retrieved from patients' medical files for any documentation of at least one of the following complications occurring within 12 months postoperatively in the absence of co-association with other different causes. Complications sought included: Bladder neck obstruction, failure to void, urge urinary incontinence, retrograde ejaculation, urinary tract infection, urethral stricture, and stress urine incontinence.

The study secondary outcomes include patients age (which were recorded at the time of operation), prostate size (which was assessed using transabdominal ultrasound done preoperatively), and histopathology of BPH with inflammation confirmed by the presence of inflammatory cells in prostate resected tissue during the operation.

### Surgical Procedure

All patients underwent prostate operations either TURP, BNI or transvesical prostatectomy in a standard step by different surgeons. All procedures were done under general or spinal anesthesia, with prophylactic antibiotic and all patients were continued on ciprofloxacin 500 mg orally twice a day for 14 days.

### Exclusion Criteria

All patients diagnosed with prostate cancer, or if their TURP resected tissue histopathology showed any prostate cancer, ASAP and PIN were excluded.

### Statistical Analysis

Data were collected using Microsoft Excel 2003 (Microsoft Corp., Redmond, WA USA). Statistical analysis was performed using SPSS for Windows, Version 15.0 (SPSS Inc., Chicago, IL USA) cross-tab, chi-square test with risk estimate were used for data analysis. All values are considered statistically significant at  $P$  values  $\leq 0.05$ .

### Results

The total study sample of 119 were further divided into two study groups: the retention group, including patients who underwent prostatic operation with a history of recurrent or refractory retention ( $n = 30$ ); and elective group, who underwent prostatic operation and

admitted on elective basis ( $n = 89$ ). Both the retention and elective groups had a comparable means 65y, 63y, respectively. Procedures performed for the retention group included 93% TURP, 7% open prostatectomy, while in the elective group 84% had TURP, 1% had open prostatectomy and 15% BNI.

Histopathology review for the retention group showed 63% with pure BPH histopathology while 37% included inflammatory response in the BPH histopathology. The elective group had 84% BPH and 7% BPH with inflammation.

Retention rate in our study was 25%. There was no effect of retention on patients' satisfaction rate (elective group = 54%; retention group = 59%)  $p$  value = 0.661, odds ratio = 1.256, confidence interval (CI) (0.520 - 3.034) nor any effect on postoperative complication rate (elective group = 44%; retention group = 41%)  $p$  value = 0.826, odds ratio 0.878, CI (0.363 - 2.124), urinary tract infection (UTI) 5% and 7%, bladder neck obstruction (BNO) 5% and 0 - retrograde ejaculation (RGE) 4% and 0 - urethral stricture 17% and 7%, urge incontinence 9% and 4%, stress incontinence 0 -4%-failure to void 2% and 4% in elective and retention group, respectively) (Table 1).

Secondary analysis of our study group identified other factors that can affect the postoperative outcome. Patients age and prostate size did not show any effect with  $p$ -value = 0.471 CI (1.56 - 6.92), and 0.441 CI (8.32 - 2.69), respectively.

While the presence of inflammatory cells in the BPH histopathology showed positive effect on satisfaction (BPH alone = 47%, BPH + inflammation = 71%)  $p$ -value = 0.037, and a protective calculated effect on postoperative complications (BPH alone = 45%, BPH + inflammation = 18%), the  $p$  value = 0.167 is not significant because of the absence of histopathology specimen in BNI procedures (Figs. 1, 2, and 3).

### Discussion

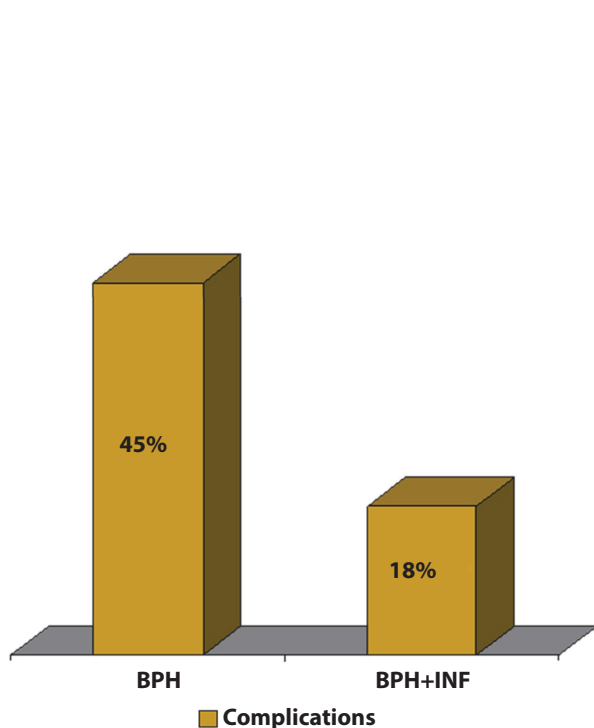
Benign prostatic hyperplasia (BPH) is the expected disease in most aging men with symptoms reported in 25% of men over 40 years and more than 30% of men over 65 years, affecting their quality of life<sup>[1-8]</sup>. Benign prostatic hyperplasia can lead to complications such as acute urinary retention (AUR) and BPH- related surgeries<sup>[8]</sup>.

In fact, acute urinary retention is an indication for operation in 20 -30% of BPH patients. In Saudi Arabia

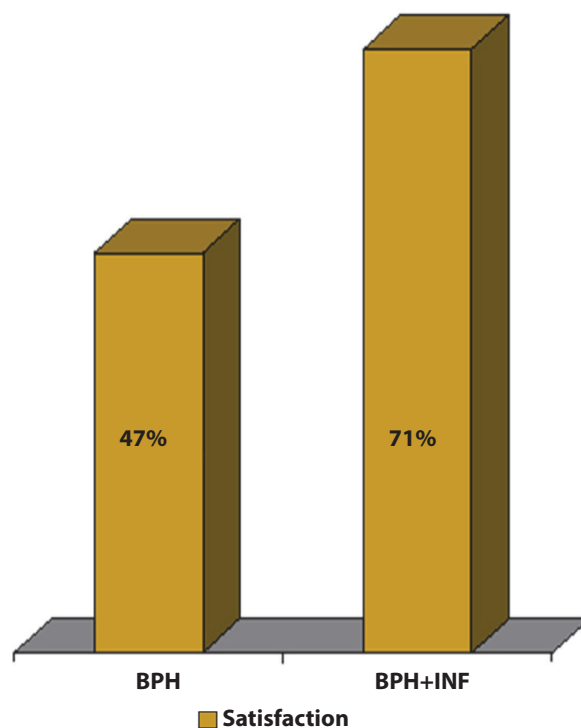
**Table 1.** Patients' demographics and primary analysis results comparing retention and elective groups.

Total Number	Retention Group	Elective Group
119	30	89
Mean Age	65 years	63 years
Operative Procedures		
-TURP	93%	84%
-Open Prostatectomy	7%	1%
-BNI	0	15%
Histopathology		
-BPH	63%	89%
-BPH + Inflammation	37%	7%
Satisfaction Rate	59%	54% $p = 0.661$ , Odds 1.256
Complication Rate	41%	44% $p = 0.826$ , Odds 0.878
-Urinary Tract Infection	7	5
-Bladder Neck Obstruction	0	5
-Retrograde Ejaculation	0	4
-Urethral Stricture	7	17
-Urge Incontinence	4	9
-Stress Incontinence	4	0
-Failure to Void	4	2

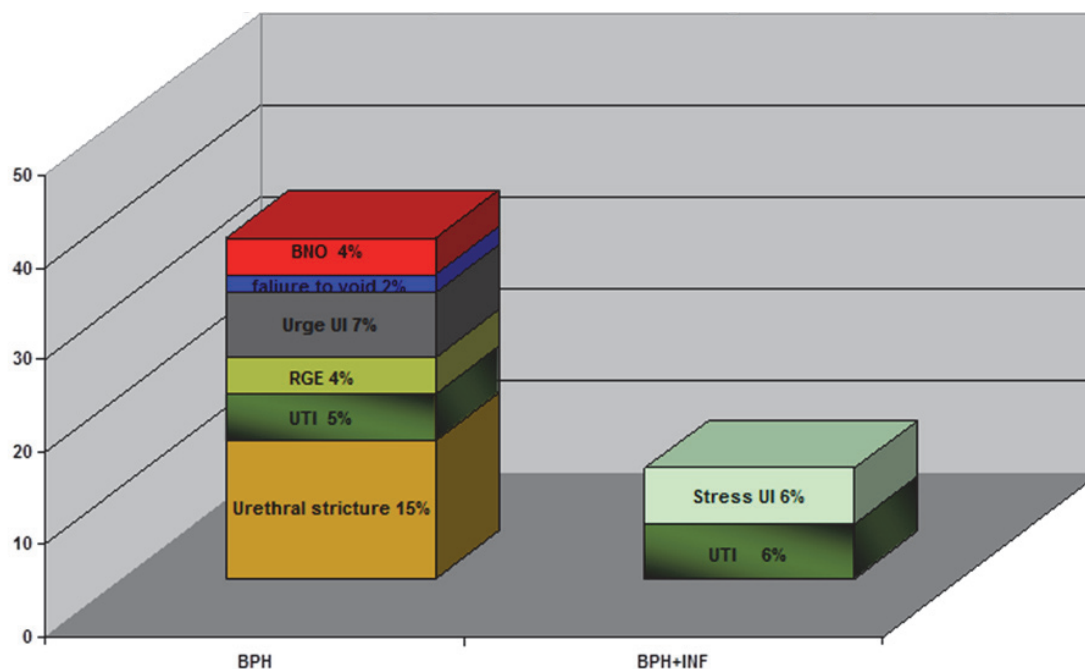
TURP: Transurethral resection prostate; BPH: Benign prostatic hyperplasia; BNI: Bladder neck incision.



**Figure 1.** Postoperative complication rates difference when patients were divided according to their histopathology and the presence or absence of inflammatory cells. (BPH: Benign prostatic hyperplasia; BPH+INF: Benign prostatic hyperplasia + inflammation).



**Figure 2.** Post-operative satisfaction rate difference when patients were divided according to their histopathology. (BPH: Benign prostatic hyperplasia; BPH+INF: Benign prostatic hyperplasia + inflammation).



**Figure 3.** Type of complications in both histopathology divided groups. (BNO: Bladder neck obstruction; Urge UI: Urge urine incontinence; RGE: Retrograde ejaculation; UTI: Urinary tract infection; Stress UI: Stress urine incontinence).

the incidence of AUR reaches as high as 57% *i.e.*, almost double the international reports of 30%<sup>[1]</sup>, in our institute AUR is as high as 54%.

Few papers address the role of prostate inflammation in BPH progression, risk AUR and response to medical therapy<sup>[9-12]</sup>. Chughtai *et al.*<sup>[13]</sup> postulated inflammation as the third component in BPH pathogenesis and symptom progression by activating CD4+ lymphocytes. In this study, our hypothesis was that AUR has an effect on the patient postoperative outcome (complication and satisfaction), but the results showed that in both comparable groups (retention and elective groups) there was no difference in the postoperative outcome between them. Secondary analysis of prostate size and patient age, showed no effect on both postoperative satisfaction and complication rates.

The presence of inflammatory cells in the BPH histopathology showed a significant effect on patient satisfaction. We believe that it has unexplainable protective effect on postoperative complication rate but the p value was not significant because of the absence of histopathology in BNI cases (Fig. 3).

## Conclusion

Retention rate in our study is comparable to international reports. History of urinary retention does not have any effect on postoperative satisfaction nor complication rate, while the presence of inflammatory cells in the BPH histopathology showed a positive effect on patients' post-operative satisfaction and a protective effect on prostatic post-operative complications.

## Acknowledgement

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## Conflict of Interest

The author has no conflict of interest.

## Disclosure

The author did not receive any type of commercial support either in forms of compensation or financial for this study. The author has no financial interest in any of the products or devices, or drugs mentioned in this article.

## Ethical Approval

Obtained

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## تأثير احتباس البول على نتائج عمليات البروستات ورضى المرضى والمضاعفات بعد العملية

مي احمد بانخر

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**المستخلص.** يهدف البحث الى دراسة تأثير احتباس البول على رضى المرضى بعد عمليات البروستات ومضاعفات العملية وتم عمل الدراسة على جميع مرضي تضخم البروستات الحميد واقصاء حالات اورام البروستات الخبيث كما تم تقسيم المرضى الى مجموعتين: مجموعه تعاني من احتباس بول متكرر او لا يستجيب للعلاج والمجموعة الاخرى للذين لم يعانون هذه المشكلة وتم جمع معلومات المرضى ومدى رضاهم والمضاعفات بعد العملية. وكان مجموع الحالات التي تم جمعها ١١٩ وتم تقسيمهم الى مجموعه التي اصبحت باحتباس بول وعددها ٣٠ مريض وفي المجموعة الاخرى ٨٩ ومع التحليل الاحصائي لم يوجد اي فرق بين المجموعتين من ناحية مضاعفات العملية او مستوى الرضى بعد العملية. ولم نجد اي تأثير لعمر المريض او حجم البروستات على النتائج المدروسة بينما وجد ان التشريح المجهرى يقسم المرضى الى مجموعتين، مجموعه تضخم بروتستات مع وجود علامات التهاب واخرى بدون التهاب. ووجد ان وجود التهاب يؤثر بطريقه ايجابية على رضى المرضى ويقلل المضاعفات بعد العملية