

Original article

# Surgical Management of Benign Prostatic Hyperplasia in A Tertiary Health Centre

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## ARTICLE INFO

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## ABSTRACT

**Background and aims.** Benign prostatic hyperplasia (BPH) is a common cause of lower urinary tract symptoms with attendant negative impact on the quality of life. The management of benign prostatic hyperplasia (BPH) could be medical or surgical. The indications for surgical intervention include severe lower urinary tract symptoms and failed medical therapy among others. Common surgical options for BPH are Transurethral resection of the prostate (TURP), Holmium laser resection of the prostate (HoLEP) and open simple prostatectomy among others. The traditional gold standard surgical intervention for BPH remains TURP. Due to lack of facilities and expertise open simple prostatectomy is the most common surgical intervention for BPH in a developing economy like ours. This study was aimed at presenting pattern of presentation of patients with symptomatic benign prostatic hyperplasia and open simple prostatectomy in the management of BPH and its outcome in our environment. **Methods.** We retrospectively reviewed patients that were managed surgically for benign prostatic hyperplasia between July 2013 and June 2022 in a tertiary health center located in sub-Saharan African. Information extracted and analyzed from the hospital records included; patient's biodata, symptoms on presentation, findings on digital rectal examination (DRE), laboratory investigations including PSA, indications for surgery, surgical procedures, type of anesthesia and post-operative complications. **Results.** A total of 151 cases of open simple prostatectomy were studied. Rate of prostatectomy over the studied period was 4.2%. The age range of the patients was 42-90 years with a mean of 67.6 +/- 8.7 years. All the patients presented with lower urinary tract symptoms. The pre-operative serum prostate specific antigen range was 1-46ng/ml with a mean of 7.38 +/- 8.95. The most common indication for surgery was failed medical therapy. Ninety patients (59.67%) had retropubic simple prostatectomy. The surgeries were done predominantly under regional anesthesia. The duration of surgery ranged between 53-150 minutes with a mean of 132.08 minutes fifty-one patients (37.33%) received blood transfusion. Thirty-three patients (21.85%) developed post-operative complications. The most common complication was surgical site infection. There was no mortality. Voiding was satisfactory in all our patients. **Conclusion.** Open simple prostatectomy remains an effective option for symptomatic BPH especially in a poor resource setting. This could serve as policy frame work for capacity building in the field of urology.

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## INTRODUCTION

Benign prostatic hyperplasia (BPH) is defined as the glandular and stromal hyperplasia within the prostatic transition zone [1]. It is a nonmalignant disease of the prostate. It is a common cause of lower urinary tract symptoms [2]. The diagnosis of BPH is made following clinical, radiological and laboratory features of a benign prostate enlargement [3]. The management of symptomatic BPH is largely medical and surgical and in some cases it can be watchful waiting [4]. The common indications for surgical interventions include recurrent acute urinary retention, recurrent hematuria, recurrent urinary tract infection, renal failure and failed medical therapy among others [5]. The surgical options for benign prostatic hyperplasia range from invasive to minimally invasive techniques [6]. The common invasive approaches are open simple prostatectomy and transurethral resection of the prostate (TURP). TURP remains the gold standard for surgical treatment

of BPH [7]. It had since replaced open simple prostatectomy especially if patients' prostate size is less than 60g [8]. The advantage of TURP over open simple prostatectomy are good cosmetics as no surgical scar is involved, short hospital stay and reduced rate of blood transfusion [9]. It is however more expensive and requires special training. Open simple prostatectomy is the most common surgical intervention for BPH in a poor resource setting [10]. It is equally effective compared to TURP [10]. It has a low re treatment rate [11]. Although it is no longer the gold standard treatment options for symptomatic BPH, open simple prostatectomy is a treatment options for symptomatic BPH in a poor resource setting. This study is undertaken to determine and document the pattern of presentation of patients with symptomatic benign prostate enlargement, surgical treatments and outcome in our immediate environment.

## METHODS

### *Study design and setting*

This is a hospital based retrospective study conducted in a tertiary health center. All the patients that had open simple prostatectomy from June 2013 to July 2022 were studied.

### *Data collection procedure*

The records of the patients were retrieved from the hospital medical records department. The information extracted from the records includes the biodata of the patients, clinical features on presentation, laboratory investigation including PSA, indications for surgery, surgical procedure, and type of anesthesia and post-operative complications. All data obtained were analyzed using SPSS version 23. Results were presented in tables and pie chart.

## RESULTS

A total of 151 cases of simple prostatectomy were carried out. These were done via open approach. This accounted for 4.2% of all the surgeries carried out in our center over the period under review. There was a failed attempt at transurethral resection of the prostate (TURP). The age range of the studied group was 42-90 years with a mean of 67.6 +/- 8.7 years. (Figure1). All the patients in this review presented with lower urinary tract symptoms. 120 patients (79.40%) presented with incomplete bladder emptying, forty patients (26.49%) developed straining on micturition, 100 patients (66.22%) had poor urinary stream, fifty patients (33.11%) reported intermittency, ninety patients (59.6%) presented with urinary frequency, ten patients (6.622) had urgency, eighty patients (52.9%) had nocturia, twenty-one patients (13.9%) presented with acute urinary retention. Majority (100 patients, 66.22%) of the study group did not have any co morbidity while the most common co morbid clinical condition was hypertension (46 patients, 30.46%).

Diabetes mellitus accounted for (5 patients, 3.31%). Failed medical therapy was the most common indication for surgery. (80 patients, 52.985%) as shown in table 1.

*Table 1. Indications for prostatectomy and type of surgery.*

Factors	Frequency N=151	Percentage 100%
<b>Failed medical therapy</b>	80	52.98
<b>Recurrent Acute Urinary Retention</b>	30	19.86
<b>Bladder stones</b>	26	17.21
<b>Lower Urinary Tract Symptoms</b>	10	6.62
<b>Renal insufficiency</b>	5	3.31

The pre-operative serum prostate specific antigen ranged from 1-46ng/ml with a mean of 7.38+/8.95. Majority of the patient (87patients, 58.4%) had PSA of 1-4ng/ml while thirty-seven patients (24.8%) had PSA of 5-9ng/ml and twenty-sevenpatients (16.8%) had PSA of more than or equal to 10ng/ml.146 patients (97.33%) had surgery under regional anesthesia while the remaining 5patients (2.6%) cases were done under general anesthesia. Ninety patients (59.67%) had retropubic prostatectomy alone and another ten but with herniorraphy while 45 patients (29.8%) had transvesical prostatectomy (Table 2).

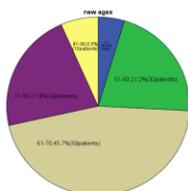
**Table 2. Simple prostatectomy and attendant procedures**

Type of surgery performed	Frequency n=151	Percentage (%)
<b>Retropubic alone</b>	90	59.6
<b>Transvesical alone</b>	45	29.8
<b>Retropubic +inguinal herniorrhaphy</b>	9	5.96
<b>Transvesical +cystolithotomy</b>	6	3.97
<b>Retropubic +umbilical herniorrhaphy</b>	1	0.66

The duration of surgery ranged from 53-150 minutes with a mean of 132.08minutes. The largest prostate specimen that was enucleated in this series was 610g in size. The length of hospital stay/ catheter time was between 4-14days with a mean of 5.033 days the prostate specimens for all the patients in this review showed benign prostatic hyperplasia except one which was adenocarcinoma of the proatate. Fifty-one patients (33.77) received blood transfusion. Thirty-three patients (21.85%) developed post-operative complication. The most common complication was surgical site infection. This was classified according to modified Clavindo grade as shown in table 3. Voiding was satisfactory in all the patients following the surgery. Sixty patients were able to do urowflowmetry with a Qmax of 20mls/s (Figure 1). Showing the age distribution of the study group.

**Table 3. Post-operative complications**

Modified Clavien Grade	Complication	Frequency (%)	Management
<b>I. Any deviation from the normal Postoperative course with no need for Pharmacological treatment or surgical, radiological or endoscopic intervention</b>	Vesicocutaneous fistula	(10)6.62	Continuous bladder drainage
	Retrograde ejaculation	4(2.7)	Behavioral
<b>II. Complication requiring pharmacological treatments, blood transfusion</b>	Surgical Site Infection	15(9.93)	Antibiotics
	Intraoperative hemorrhage	1(0.66)	Transfusion
<b>III. Complications requiring surgical, Radiological or Endoscopic intervention</b>	Bladder neck stenosis	1(0.66)	Dilatation
	Rectourethral fistula	1(0.66)	Repair
<b>IV. Life threatening complication</b>	Acute kidney injury	1(0.66)	Dialysis
<b>V. Death of the patient</b>	Ni		



**Figure1. Showing the age distribution of the study group**

## DISCUSSION

All the patients in this review had open simple prostatectomy. This is almost similar to what had been reported from other settings similar to our environment. Salako et al in Ile-Ife Nigeria reported open enucleation rate of 93.7% [10]. A rate of 90% was reported in Ghana [12]. This is however in sharp contrast to the reports from Europe and United State of America where open enucleation accounts for less than 3% [13].

There was a failed trial attempt at TURP due to failure of the resectoscope. This is a reflection of the state of surgical practice in a developing economy where the most common surgical intervention for BPH remains open simple prostatectomy due to lack of facilities and expertise for endoscopic procedures [14].

The age range of the patients studied was 42-90 years with a mean of 67.6 years. This is similar to what has been reported in other series further corroborating BPH as a disease of the elderly [15],[10]. The most common symptoms noted in our patients was incomplete bladder emptying. This may not be unconnected to progressive increase in the post void residual volume, although post void residual volume was not determined in this review. Residual urine volume in the face of prostatic obstruction may underline the symptom of incomplete bladder emptying. This was however in contrast to was reported in Maiduguri, Nigeria where the most common presenting symptoms was urinary frequency [16].

The co morbid clinical conditions in our patients were hypertension and diabetes mellitus. These are usually the clinical conditions that may be seen in the elderly and BPH being a disease of the elderly.

Serum prostate specific antigen is a nonspecific marker of prostate cancer [17] however it is generally believed that a score of less than 4ng/ml is unlikely to be associated with malignancy [18]. This review agrees with this observation as majority of the patients had a PSA of less than 4ng/ml. Although PSA of 4-10ng/ml which has been said to be a diagnostic gray zone and PSA of more than 10ng/ml may both raise a concern for the need to exclude prostate cancer, the findings of benign prostatic hyperplasia in all the patients except one even though some of them had PSA of more than 10ng/ml lays credence to the fact that PSA is not sufficiently specific to discriminate between benign prostatic hyperplasia and prostate cancer [19]. Majority of our patients had their procedure done under regional anesthesia. This is favored in our center except if it is otherwise contraindicated.

The most common indication for surgery in this review did not agree with what was reported in other series where recurrent acute urinary retention was said to be the most common indication for surgery [10]. This may be due to variation in socioeconomic status where some could easily afford the cost of medications and thus trial of medication.

Majority of our patients had retropubic approach to open simple prostatectomy. We prefer this approach because of its excellent approach of the prostate with lower risk of damage to the ureter compared to transvesical approach. There is also better haemostatic control. Transvesical approach is considered when there is attendant bladder pathology to be concomitantly addressed. The rate of complications in the studied group was 21.85%. This is slightly lower compared to the reports from other similar series [20],[10]. The most common complication was surgical site infection. This conforms to what was reported by Salako et al in Ile-Ife, Nigeria [21]. Other similar series have reported blood transfusion as the most common complication [22]. Most of the complications were class II modified Clavindo system for post-operative complication. About 33.71% of our patients received blood transfusion. This is similar to the reports from other series. This study discovered a patient with giant benign prostatic hyperplasia.

A giant benign prostatic hyperplasia is defined as a prostate specimen that weighs more than 500g [23]. This has been reported to be the largest prostate ever enucleated in Nigeria and the largest ever enucleated in a patient under the age of 50years in the medical literature [24]. All our patients reported satisfactory voiding on follow-up. This reflects the efficacy of open simple prostatectomy in ameliorating the burden of benign prostatic hyperplasia.

## CONCLUSION

Open simple prostatectomy remains an effective surgical treatment option for symptomatic benign prostatic hyperplasia especially in a low resource setting. This study may however serve as a policy frame work for capacity building in the field of endoscopy urology which is still largely lacking in our immediate environment. It is a retrospective study and thus it is prone to recall and miscalculation bias.

### *Disclaimer*

The article has not been previously presented or published, and is not part of a thesis project.

**Conflict of Interest**

There are no financial, personal, or professional conflicts of interest to declare.

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