

The Outcome of Transvesical Prostatectomy—A Multicenter Retrospective Study

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Abstract

Background: Benign Prostatic Hyperplasia (BPH) is one of the commonest causes of lower obstructive uropathy and usually presents with lower urinary tract symptoms. However, in developing nations, the presentation is late often large prostate and associated complications of bladder outlet obstruction (diverticulae, stones, impaired renal function etc.) warranting open prostatectomy. **Objective:** The objective of this study is to share our experience of perioperative outcomes of open transvesical prostatectomy over a year involving two referral centers in Monrovia Liberia. **Methodology:** This was a retrospective study performed at The John F. Kennedy Medical Center and the Saint Joseph Catholic Hospital involving a total of 31 patients. **Results:** The mean age was 64.6 years (SD = 9.03) with a range 52 - 85 years. The study showed that 54.8% (17/31) of patients had preoperative catheter. The maximum duration of Catheter was greater than 4 weeks with a mean duration of 3.17 weeks. The mean hemoglobin was 11.30 g/dl. The commonest presenting complication was urinary retention at 25.8% (8/31) followed by hematuria 16.1% (5/31). Hypertension 41.9% (13/31) and diabetes 6.5% (2/31) were the commonest comorbidity. The rate of postoperative complication was 38.7% with the commonest being surgical site infection 16.1% (5/31) and clot retentions 9.7% (3/31). There was a high rate of transfusion was 77.4% (24/31) patients. Up to about 13% (4/32) patients had coexisting stricture with 6.5% (2/31) patients treated with urethroplasty and 6.5% (2/31) patients treated by dilatation. The mortality rate was 6.5% (2/31) from renal impairment and severe sepsis. **Conclusion:** BPH is a common cause of lower obstructive uropathy. Most patients present with complications of the disease such as refractory symptoms, bladder stones or diverticulae necessitating surgery. However, due to the absence of endourological equipments in most parts of Africa and the large prostate at presentation, most settings consider open transvesical prostatectomy as a viable option. The perioperative mor-

bidity is relatively higher, but the outcome remains acceptable.

Keywords

Benign Prostatic Hyperplasia (BPH), Perioperative Complication, Lower Obstructive Uropathy, Open Transvesical Prostatectomy

1. Introduction

Benign Prostatic Hyperplasia (BPH) is one of the commonest causes of lower obstructive uropathy and usually presents with lower urinary tract symptoms [1] [3]. Most patients in the developed nations seek earlier care and are usual candidates for the less invasive transurethral resection of the prostate (TURP) [1]. However, in developing nations, the presentation is late often large prostate and associated complications of bladder outlet obstruction (diverticulae, stones, impaired renal function etc.) warranting open prostatectomy [1].

Prostatectomy is one of the most commonly performed operations across the world [2]. Open prostatectomy has been the only surgical option for the management of BPH during most of the 20th century, however the frequency of open prostatectomy has gradually decreased with the widespread use of endoscopic equipments [2]. Transurethral resection of the prostate (TURP) is now considered as the gold standard for treatment of BPH because it is less invasive methods, cost effectiveness with lower morbidity [2] [3].

Though the usual indications of open transvesical prostatectomy includes an adenoma of 80 cc or greater with associated bladder stone or diverticulum; yet another important indication is the absence of endourological equipments common in most African settings [2]. Open prostatectomy offers the advantages of a lower re-treatment rate and more complete removal of the prostate adenoma under direct vision, while it avoids the risk of additional hyponatremia (TURP syndrome) [4].

Therefore, the objective of this study is to share our experience of perioperative outcomes of open transvesical prostatectomy over a year involving two referral centers in Monrovia Liberia and establish baseline information about the procedure and outcome; to our knowledge no such information has been earlier documented in Liberia.

2. Materials and Methods

The study was performed at two hospitals, The John F. Kennedy medical Center and the Saint Joseph Catholic Hospital in Monrovia. A total of 31 patients were included in the study. The hospitals' records were retrospectively reviewed from February 2018 to February 2019 for cases of open transvesical prostatectomy and data on age, presentation, duration of catheterization, perioperative complications, transfusion requirement and associated urethral stricture were retrieved and recorded.

Patients with retropubic prostatectomy were excluded from the study. All patients in the study had a preoperative ultrasound assessing prostate volume, residual bladder volume, bladder stones and evidence of hydronephrosis. The indication for open transvesical prostatectomy was independent of prostate volume as there was no other option as transurethral resection or Holium Laser enucleation of the prostate in both facilities.

Indications of prostatectomy included patient with BPH refractory to medical treatment or presenting with complications as recurrent acute urinary retention, chronic urinary retention, bladder stones, recurrent urinary tract infection, hernia, hemorrhoids, obstructive uropathy and recurrent hematuria. The standard open transvesical prostatectomy was performed under regional or general anesthesia with the patient in the supine position. A Pfannenstiel incision was used and the bladder mobilized of the surrounding perivesical fat. A longitudinal incision was made to explore the intravesical cavity and the patency of the ureteral meatus assessed. An appropriate plane between the adenoma and the prostate capsule was developed. The adenoma was dissected off using the index finger until the attachment of the distal urethral which was cut off using a Metzenbaum scissors. Harris' Stitch and balloon tamponade were used to achieve hemostasis in the prostatic fossa. A 3-way 22 Fr catheter was left in place for irrigation with normal saline. The irrigation was stopped after the irrigation fluid appeared clear usually on the 2nd or 3rd day postoperatively.

Postoperatively, all patients had a complete blood count but patients with postop hemoglobin of 8 g/dl or lower were transfused. Normal Creatinine, blood urea and nitrogen as well as serum electrolytes were also surrogate of early discharge. The patients received postoperative antibiotics for a minimum of 72 hours. Follow ups were done weekly for 4 weeks in the urologic clinic and then subsequently as required. Catheters were removed around postoperative day 14 unless dictated by post-operative complications.

The data was analyzed using IBM SPSS data editor and the results are presented as percentage or mean standard deviation

3. Result

This was a multicenter retrospective study from February 2018 to February 2019 involving a total of 31 patients treated for benign prostate hyperplasia. The study showed in (Table 1) a mean age of 64.6 years (SD = 9.03) with a range 52 - 85 years. The commonest age range managed for BPH in our study as shown in (Table 2) was 61 - 70 years comprising 41.9% (13/31) followed by age range 51 - 60 years about 35.5%. The study showed that 54.8% (17/31) of patients had preoperative catheter placed either for urinary retention or hematuria. The maximum duration of Catheter was greater than 4 weeks with a mean duration of 3.17 week. Hemoglobin was as low as 6.90 g/dl with the mean hemoglobin at 11.30 g/dl. In (Table 3), most of the patient presented with urinary retention at 25.8% (8/31) followed by hematuria 16.1% (5/31) which were treated as emergency. Other complications on presentation include hernia 9.7% (3/31),

Table 1. Clinical parameters.

	N	Minimum	Maximum	Mean	Std. Deviation
Age	31	52.00	85.00	64.6452	9.03898
Duration of Preop Catheter (wks)	17	1.00	4.00	3.1765	1.18508
Hemoglobin	31	6.90	16.00	11.3097	2.05237

Table 2. Age range of patients presenting with BPH.

Age in Years	Frequency	Percent
51 -60	11	35.5
61 - 70	13	41.9
71 - 80	6	19.4
81 -90	1	3.2
Total	31	100.0

Table 3. Complications at presentation of patients with BPH.

	Frequency	Percent
Urinary Retention	8	25.8
Haematuria	5	16.1
Hernia	3	9.7
epidydimio-orchitis	3	9.7
Stones	1	3.2
Urinary Retention and Stones	1	3.2
Urinary Retention and hernia	3	9.7
None	7	22.6
Total	31	100.0

epidydimio-orchitis 9.7% (3/31), urinary retention and hernia 9.7% (3/31), urinary retention and stones 3.2% (1/31). Hypertension 41.9% (13/31) and diabetes 6.5% (2/31) were the commonest comorbidity. These patients were managed along with an Internist for optimization before surgery.

The total postoperative complications in (Table 4) was about 38.7% with surgical site infection accounting for 16.1% (5/31) which was treated with continuous wound care. There were 3 clot retentions 9.7%; two were taken back for relook cystostomy and clot expulsion. Another was treated by forceful irrigation. One patient developed vesicocutaneous fistula that closed spontaneously after 21 days of catheterization while another developed pelvic abscess that was drained surgically. The rate of transfusion in the series was 77.4% (24/31) patients. Up to 13% (4/32) patients had coexisting stricture with 6.5% (2/31) patients treated with urethroplasty and 6.5% (2/31) patients treated by dilatation prior to prostatectomy. The mortality rate was 6.5% (2/31) from renal impairment and severe

Table 4. Postoperative complications of transvesical prostatectomy.

	Frequency	Percent
None	19	61.3
pelvic abscess	1	3.2
orchitis	2	6.5
clot retention	3	9.7
surgical site infection	5	16.1
vesico-cutaneous	1	3.2
Total	31	100.0

sepsis following a fulminant necrotizing infection in one diabetic patient. However, the 3-month postoperative follow-ups of the rest of the patients were unremarkable.

4. Discussion

Currently, there are various modalities for the surgical management of BPH but TURP is the now the gold standard because of its cost effectiveness, less invasiveness with fewer complications [2] [3] [5]. Holium laser enucleation of the prostate is even being considered as an alternative to open prostatectomy for large prostate not amenable to TURP due to its good outcome and safety profile [1] [5]. However, the initial setup and maintenance of these endourological equipments are far from being available in most sub-Saharan and developing nations [2]. Therefore, open prostatectomy is still to date a suitable option for BPH refractory to medical treatment and those presenting with complications [1] [3] [5]. Open transvesical prostatectomy may offer some benefits because it allows inspection of the bladder in the absence of cystoscopy and simultaneously treat complications as bladder stone and diverticula [4] [5].

Data from our study displayed a mean age of 64.6 ± 9.03 years with a range 52 - 85 years. This finding is consistent with six retrospective studies in other developing nations Liaqat Ali *et al.* (2008), Khattak S. *et al.* (2004), Ugwumba *et al.* (2014), Berhanu *et al.*, Ibrahim *et al.* (2013), Salako *et al.* (2016), which found similar results (67.8 years, 63.4 years, 65.2 ± 6.8 years, 63.8 ± 9.9 years, 63.8 ± 9.9 , 67 years) respectively [2] [3] [6] [7] [8]. Nevertheless, a few retrospective studies [1] [10] showed a higher mean age in the 7th decade of life. The age specific prevalence in our series was commonest amongst patients 61 - 70 years comprising 41% (13/31). This result concurred with Berhanu *et al.*, and Khattak S. *et al.* who reported their highest prevalence in the 6th decade.

This study demonstrated a high level of preoperative catheterization at 54.8% with a mean duration of 3.14 weeks. The prolonged preop catheterization was attributed to most patients presenting with urinary retention with associated alteration in electrolytes and renal function that needed correction before surgery.

Results from many retrospective studies in sub-Saharan African showed varying duration of preoperative catheterization ranging from 1 week to 58 weeks [3] [6] [7] [9]. The heterogeneity in the data could be based on the availability of Urologist, the presentation of patients, the local expertise and local guidelines of management.

Most of the patients presented with urinary retention at 25.8% followed by hematuria 16.1% and were treated as emergency. Liberia is a developing nation with most patients not affording basic healthcare. This accounts for the late presentations with associated high numbers of presenting complications. Most contemporary series from Ghana, Nigeria and East Africa [1] [2] [4] [6] [9] [11] have shown that urinary retention is the commonest presenting complication with refractory urinary retention being a common indication for surgery.

The total early postoperative complications in our study was about 38.7% with surgical site infection accounting for 16.1% followed by clot retention. There is an obvious variation amongst many studies Liaqat Ali *et al.* (2008), Ugwumba *et al.* (2014), Berhanu *et al.* Ibrahim *et al.* (2013), Salako *et al.* (2016), Moslemi *et al.* (2010), Ceylan *et al.* (2006), Kyei *et al.* (2012), the commonest postoperative complications to each were (febrile urinary tract infection, urinary tract infection, clot retention + wound infection, transient incontinence, surgical site infection, epididymo-orchitis, clot retention + epididymo-orchitis, clot retention) respectively. Despite the heterogeneity in the various study populations, it is obvious that infectious complications and clot retention are consistent findings. This indicates that measures for infection control and correction of coagulopathy are crucial for open prostatectomy. The practice of urology in Liberia is evolving and so its nursing care. There were lapses in continuous bladder irrigation, contributing to clot retention with leaked irrigation fluid to the pelvis possibly leading to wound infection and pelvis abscess.

There was a relatively high transfusion rate in our series 77.4% (24/31) patients. The fact that patients presented with a hemoglobin as low as 6.90 g/dl with the mean hemoglobin at 11.30 g/dl could have contributed to the high perioperative transfusion rate. All the procedures were done by a surgical resident and a Urologist Consultant for teaching purpose. This could have accounted for some of the blood loss requiring transfusion. One study in Nigeria, Ibrahim *et al.* (2013), showed a similar high transfusion rate of 68.98% in total as the inclusion criteria was prostate weighing more than 200 grams. However other literature reviewed a much lower transfusion rate ranging from 5% to 30% [2] [4] [5] [6] [7] [10]. The mortality rate was 6.5% (2/31) from renal impairment and severe sepsis following a fulminant necrotizing infection in one diabetic patient. Most studies [1] [2] [4] [5] [7] [10] reported no mortality during their series, However, other literature [3] [6] [8] [9] [12] [13] showed a mortality rate around 1%. Most of these deaths were attributed to pulmonary embolism and severe postoperative hemorrhage. The marked difference in our data could be possibly explained by the relatively lower sample size giving a higher mortality rate.

5. Study Limitation

This study is challenged by its retrospective design which is subject to selection bias. The relatively lower sample size limits the potential for a more robust statistical and comparative analysis with other high-volume studies.

6. Conclusion

BPH is a common cause of lower obstructive uropathy. Most patients present with complications of the disease such as refractory symptoms, bladder stones or diverticulae necessitating surgery. However, due to the absence of endourological equipments in most parts of Africa and the large prostate at presentation most settings consider open transvesical prostatectomy as a viable option. The perioperative morbidity is relatively higher, but the outcome remains acceptable.

Conflicts of Interest

The authors declare no conflict of interest towards this publication.

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