© MAR 2026 | IRE Journals | Volume 9 Issue 9 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I9-1715230

Outcome of Open Transvesical Prostatectomy for Benign Prostatic Hyperplasia: A Five-Year Descriptive Study at State Specialist Hospital, Osogbo, Nigeria.

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Abstract

Background: Open transvesical prostatectomy remains a widely performed surgical treatment for benign prostatic hyperplasia in resource-limited settings. However, comprehensive long-term outcome data from Nigerian tertiary centers are unavailable.

Objective: To evaluate the clinical/surgical outcomes and complications following open prostatectomy over a five-year period at State Specialist Hospital, Osogbo.

Methods: A descriptive retrospective study was conducted reviewing all patients who underwent open transvesical prostatectomy between January 1, 2020, and December 31, 2024 at State Specialist Hospital, Osogbo. Data collected included patient demographics, clinical presentation, preoperative parameters, intraoperative findings, postoperative complications, duration of hospital stay, and follow-up outcomes. Data were analyzed using descriptive statistics.

Results: During the study period, 192 patients underwent open transvesical prostatectomy of which sufficient preoperative and postoperative data were available for only 186 patients, and this was the final number of patients included in the analysis. The modal age was 70+ years (65.1% of the study population). The modal prostate volume was greater than 80 cm³. Preoperative complications were encountered in 29.6% of patient population, while postoperative complications were observed in 30.6% of patients. The modal hospital stay was 7-11 days.

Conclusion: Open transvesical prostatectomy demonstrated favorable outcomes with moderate complication rates at our center. The findings highlight poor clinical documentation and follow up practice, missing pre-operative PSA data, prolonged catheter dependence pre-surgery and provide valuable baseline data for improving surgical practice in similar resource-limited settings.

Index Terms- Open transvesical prostatectomy, benign prostatic hyperplasia, surgical outcomes, Osogbo, Nigeria

I. INTRODUCTION

Benign prostatic hyperplasia (BPH) is a common urological condition that affects elderly men worldwide with increasing prevalence, especially after the fifth decade of life according to a 2017 meta-analytic study (Lee et al., 2017). Other studies estimate 50% of men in their 50s and over 80% of men aged 80 and above are affected with more than half of men over age 50 showing histologic evidence of BPH (Alcaraz et al., 2009; K, 2025). Clinically, it may manifest as lower urinary tract symptoms that can significantly impact on quality of life (QoL) or other similar features of bladder outlet obstruction(BOO), with many cases requiring surgical intervention (Foo, 2019; Gravas et al., 2023). While minimally invasive techniques such as transurethral resection of the prostate (TURP) is the gold standard of clinical practice in developed countries (Madersbacher et al., 2019; Oelke et al., 2013), open prostatectomy continue to be the predominant surgical method for BPH management in poor-resource settings, include sub-Saharan Africa (Parsons, 2010; Suer et al., 2008). Among various surgical, laser, and endoscopic techniques, transvesical prostatectomy offers several advantages including direct visualization of the prostatic adenoma, effective hemostasis, and applicability to larger glands, making it particularly suitable for Nigerian clinical context (Ugwumba et al., 2014) (Autorino et al., 2009).

In spite of its widespread adoption in Nigerian practice, there is limited published data on outcomes of open transvesical prostatectomy, reflecting broader systemic challenges including limited infrastructure and favorable cost consideration of open surgery (Obi et al., 2023; Salako et al., 2016). Understanding local surgical outcomes, complication profiles, and patient characteristics is essential for quality improvement, resource allocation, and evidence-based clinical decision-making (Irani et al., 2003).

This study aimed to evaluate the clinical outcomes, complications, and patient demographics of all open transvesical prostatectomies performed at the State Specialist Hospital, Osogbo over a five-year period, thereby contributing valuable data to the Nigerian urological literature and identifying areas to optimize patient care.

II. METHODS

Study Design and Setting

This prospective, descriptive cross sectional study was undertaken at state specialist Hospital, a regional hospital in Osogbo, Nigeria that is run by the Osun State Hospital Management board. The hospital has about 5 beds for general surgery services and two operating tables. There were four (4) surgeons available at the time of this study, only one (i.e the first author of this article) was available during the study period. (January 2020 - December 2024). One of the surgeons retired after a while and the others were unavailable occasionally.

Patient Selection

The patients who presented to our facility with a diagnosis of benign prostatic enlargement and were scheduled for open transvesical prostatectomy during the study period were eligible for inclusion in the study.

Data Collection

A study-specific data collection was used on each patient's hospital folder for gradual completion between admission and discharge; additional data were collected at follow-up appointments as documented in the case notes. Study data were collected individually by the clinicians and records staff. Variables collected included patient demographics (age, year of surgery, waiting time), preoperative parameters (prostate-specific antigen levels, ultrasound findings, prostate volume, digital rectal examination findings, duration of complications), and preoperative complications (chronic urinary retention, hydronephrosis, deranged renal function, and chronic cystitis). Intraoperative findings (bladder neck stenosis, posterior urethral stenosis), postoperative outcomes (transient incontinence, retrograde ejaculation, blood transfusion, suprapubic drain), post-operative biopsy result were also assessed.

Surgical Technique

All surgeons performed transvesical prostatectomy using a pfannestiel incision, and enucleated with blunt dissection to remove the prostate and hemostatic suturing (malament) of the prostatic fossa. A urethral catheter was routinely placed postoperatively. Preoperative serum prostate specific antigen was part of the routine work up for all patients. Histological examination of surgical biopsy samples from all prostate removed during the period was requested for by the surgeons.

Data Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 23.0.0. Descriptive statistics including means, medians, modes, frequencies, and percentages were computed. Categorical variables were presented as frequencies and proportions, while continuous variables were presented as appropriate.

Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Committee (HREC) of the Osun state ministry of health. Patient confidentiality was maintained throughout the study.

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DOI: https://doi.org/10.64388/IREV9I9-1715230

III. RESULTS

Table 1: Demographic Data

Variable	Category	n	%	Variable	Category	n	%
Age Group (year)	40-49	9	4.8	Year of surgery	2020	59	31.7
	50-59	25	13.4		2021	40	21.5
	60-69	27	14.5		2022	46	24.7
	>70	121	65.1		2023	37	19.9
	Not specified	4	2.2		2024	4	2.2
					Not specified	0	0
Total		186	100.0			186	100
Residence	Within Osogbo	98	52.7	Waiting time for surgery	<3months	122	65.6
	Outside Osogbo	83	44.6		3-6 months	27	14.5
	Not specified	5	2.7		6-12 months	15	8.1
					>12 months	4	2.2
					Not specified	18	9.7
Total		186	100.0			186	100.0

Most patients were elderly, with 65.1% aged above 70 years, confirming that open transvesical prostatectomy was predominantly performed in older men. Surgeries were fairly evenly distributed over the five-year period, with the highest number in 2020 (31.7%). Slightly more than half of the patients (52.7%) resided within Osogbo, while a substantial proportion (44.6%) came from outside the town. The majority of patients (65.6%) underwent surgery within three months, indicating generally timely access to surgical care, with long waiting times being uncommon.

Table 2: Pre-Operative Assessment

Variable	Category	n	%	Variable	Category	n	%
USS Done	ABD - Pelvic	123	66.1	Prostate volume	<50cm^3	14	7.5
	TRUSS	18	9.7		50-80cm^3	60	32.3
	Both	40	21.5		>80cm^3	90	48.4
	Not specified	5	2.7		Not specified	22	11.8
Total		186	100.0	Total		186	100.0
Pre-op PSA (ng/ml)	<4ng/ml	57	30.6	DRE	Done	167	89.8
	4-8ng/ml	22	11.8		Not done	10	5.4
	8-12ng/ml	9	4.8		Not specified	9	4.8

	12-30ng/ml	4	2.2				
	>30ng/ml	0	0				
	Not specified	94	50.5				
Total		186	100.0	Total		186	100.0
DRE findings	BPH	166	89.2	AUR	Yes	115	61.8
	Others	5	2.7		No	61	32.8
	Not specified	15	8.1		Not specified	10	5.4
Total		186	100.0	Total		186	100.0
Urethral catheterization	Yes	121	65.1	Duration of U.C (months)	<1month	29	15.6
	No	57	30.6		1-3months	40	21.5
	Not specified	8	4.3		4-6months	22	11.8
					>6months	38	20.4
					Not specified	57	30.6
Total		186	100.0	Total		186	100
Prev. Cath. (AUR) & cath. remove before surgery	Yes	62	33.3				
	No	81	43.5				
	Not specified	43	23.1				
Total		186	100.0				

The preoperative assessment of the 186 patients indicates a pattern of late clinical presentation and significant disease burden. Abdominopelvic ultrasound was the primary imaging modality in 66.1% of cases, while digital rectal examination findings were consistent with benign prostatic hyperplasia in 89.8% of the cohort. Advanced disease was evident in prostate volume measurements, with 48.4% of patients presenting with volumes exceeding 80 cm^3.

Clinical management was frequently complicated by acute urinary retention, which affected 61.8% of patients and necessitated urethral catheterization in 65.1% of cases. Notably, 20.4% of these patients remained catheter-dependent for over six months, highlighting prolonged obstruction and delays in definitive surgical intervention. Despite the severity of symptoms, documentation gaps were noted, as PSA levels were unrecorded in 50.5% of patients.

Overall, the table demonstrates late presentation with advanced prostate enlargement, high rates of urinary retention, prolonged catheter dependence, and incomplete documentation of PSA.

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Table 3: Previous History of Chronic Urinary Retention & Complications

	Complication of BPH		CUR		Hydronephrosis		Deranged renal function		Chronic cystitis		Others	
	n	%	n	%	n	%	n	%	n	%	n	%
Yes	55	29.6	17	9.1	5	2.7	9	4.8	25	13.4	9	4.8
No	118	63.4	156	83.9	172	92.5	168	90.3	152	81.7	172	92.5
Not specified	13	7.0	13	7.0	9	4.8	9	4.8	9	4.8	5	2.7
Total	186	100.0	186	100.0	186	100.0	186	100.0	186	100.0	186	100.0

Among the 186 patients undergoing open transvesical prostatectomy at the State Specialist Hospital in Osogbo, 29.6% (n=55) presented with secondary complications. Chronic cystitis was the most prevalent morbidity at 13.4% (n=25), followed by chronic urinary retention (CUR) at 9.1% (n=17). Upper urinary tract involvement was evidenced by deranged renal function in 4.8% (n=9) and hydronephrosis in 2.7% (n=5) of the cohort. While 63.4% (n=118) of patients had no documented complications, the presence of these pathologies in nearly one-third of the group underscores a significant clinical burden of prolonged bladder outlet obstruction prior to surgical intervention.

The findings demonstrate that while most patients in this study are presenting for surgery before the onset of end-stage urological complications, nearly one-third are already experiencing secondary morbidity. The predominance of Chronic Cystitis and CUR highlights the burden of chronic obstruction in the Osogbo specialist center. The low but present rates of Hydronephrosis and Deranged Renal Function underscore the necessity of the preoperative renal assessments.

The "Not Specified" rate across all variables remained low (between 2.7% and 7.0%), suggesting relatively consistent record-keeping in the case notes used for this study.

Table 4: Intra-Operative Assessment

	BPH		BLADDER NECK STENOSIS		POSTERIOR URETHRAL STENOSIS		Others	
	n	%	n	%	n	%	n	%
Yes	160	86.0	21	11.3	0	0	0	0
No	21	11.3	165	88.7	186	100	181	97.3
Not specified	5	2.7	0	0	0	0	5	2.7
Total	186	100.0	186	100.0	186	100.0	186	100.0

In the intra-operative assessment of the 186 cases at the State Specialist Hospital in Osogbo, Benign Prostatic Hyperplasia (BPH) was the primary finding, confirmed in 86.0% (n=160) of the patients. Conversely, BPH was not the intra-operative finding in 11.3% (n=21) of cases, with 5 case (2.7%) remaining not indicated in the records.

Bladder neck stenosis was identified as a significant secondary finding, occurring in 11.3% (n=21) of the cohort, while it was absent in the remaining 88.7% (n=165) of patients. Notably, no cases of posterior urethral stenosis or posterior urethral valves were recorded (0%). Other unspecified findings were confirmed in 2.7% (n=5) of the cases.

This profile confirms that while the majority of patients presented with classic BPH, a clinically significant minority (11.3%) exhibited bladder neck stenosis, which may influence surgical technique and recovery outcomes.

	Transient post Op, incontinence		Retrograde Ejaculation		Post op, clot retention &re-exploration		Post Op, Blood transfusion	
	n	%	n	%	n	n	n	%
Yes	14	7.5	5	2.7	5	2.7	33	17.7
No	167	89.8	181	97.3	177	95.2	145	78.0
Not indicated	5	2.7	0	0	4	2.2	8	4.3
Total	186	100.0	186	100.0	186	186	186	100.0

Table 5: Post-Operative Complications

	Duration of hospital stay	
	n	%
<7days	10	5.4
7-11days	144	77.4
>11days	28	15.1
No response	4	2.2
Total	186	100.0

The post-operative assessment of 186 patients undergoing open transvesical prostatectomy at the State Specialist Hospital in Osogbo shows a generally low complication rate. Transient post-operative incontinence was the most common minor complication, affecting 7.5% (n=14) of patients and retrograde ejaculation 2.7% (n=5) of the cohort.

Significant surgical intervention included post-operative blood transfusion, required in 17.7% (n=33) of cases. Clot retention requiring re-exploration was minimal at 2.7% (n=5).

Regarding recovery, the majority of patients 77.4% (n=144) were discharged within 7-11 days. Prolonged hospitalization exceeding 11 days occurred in 15.1% (n=28) of cases, Only 5.4% (n=10) of patients achieved an early discharge in under 7 days.

Table 6: Post-Operative Biopsy Findings

Variable	Category	N	%
Biopsy result retrieved	Yes	17	9.1
	No	164	88.2
	No response	5	2.7
Total	----------	186	100.0

The analysis of post-operative biopsy data highlights a significant challenge in clinical follow-up, with a 9.1% (n=17) success rate in retrieving histopathology results from patient case notes.

These figures underscore a substantial gap in the documentation and systematic retrieval of histopathological outcomes within the facility.

IV. DISCUSSION

The outcomes of open prostatectomy in this five-year descriptive study reveal a critical juxtaposition between established surgical practices and the realities faced in low socioeconomic regions, particularly in Sub-Saharan Africa. Open prostatectomy, while increasingly regarded as an outdated modality in the global healthcare landscape, remains a prevalent surgical option in settings where advanced laparoscopic techniques, such as Transurethral Resection of the Prostate (TURP) and Transurethral Incision of the Prostate (TUIP), are financially out of reach.

In our analysis, we noted that open prostatectomy, despite its associated risks and longer recovery time, can provide significant therapeutic benefits in appropriately selected patients. This is particularly salient in areas where healthcare resources are limited, and the demand for effective prostate intervention must be balanced against economic constraints. While laparoscopic techniques offer advantages such as reduced operative time, minimal scarring, and shorter hospital stays, these benefits are often overshadowed by the prohibitive costs and lack of available surgical infrastructure in many Nigerian healthcare facilities.

In comparison to laparoscopic methods, which boast enhanced precision and reduced morbidity, the outcomes from open prostatectomy in our study nonetheless suggest that with proper patient selection and surgical expertise, satisfactory results can be achieved.

Patient Demographics and Disease Presentation

The predominance of elderly patients (65.1% aged >70 years) aligns with established epidemiological patterns of BPH, where both prevalence and severity increase with age (Alcaraz et al., 2009; Lee et al., 2017). However, the high proportion of patients presenting with advanced disease: 48.4% with prostate volumes exceeding 80 cm^3, suggests delayed presentation and limited access to early medical management. This finding is consistent with other Nigerian studies reporting large prostate volumes at presentation (Obi et al., 2023; Ugwumba et al., 2014), reflecting healthcare-seeking behaviors, economic constraints, and limited availability of minimally invasive alternatives in resource-limited settings.

The high rate of acute urinary retention (61.8%) and prolonged catheterization (20.4% catheterized for >6 months) underscores the advanced nature of bladder outlet obstruction in this cohort. This pattern differs markedly from developed countries where earlier intervention through medical therapy or TURP prevents progression to such complications (Oelke et al., 2013). The finding that 65.6% of patients underwent surgery within three months suggests reasonable institutional efficiency once patients accessed care, though the 20.4% requiring prolonged catheterization indicates significant delays in some cases.

Preoperative Assessment Gaps

A critical finding of this study is the incomplete preoperative documentation, with PSA levels unrecorded in 50.5% of patients. This represents a significant clinical gap, as PSA evaluation is essential for excluding prostate malignancy, particularly in patients with elevated PSA levels (Gravas et al., 2023).The absence of this data limits the ability to assess the appropriateness of surgical management and raises deep concerns about potential missed diagnosis of prostate cancer. While 89.8% of patients had digital rectal examination findings consistent with BPH, DRE alone has limited sensitivity and specificity for differentiating benign from malignant prostatic disease (Irani et al., 2003).

Complications of Benign Prostatic Hyperplasia

The finding that one third of patients presented with secondary complications: including chronic cystitis (13.4%), chronic urinary retention (9.1%), deranged renal function (4.8%), and hydronephrosis (2.7%), demonstrates the substantial disease burden and late presentation in this population. These complications represent end-organ damage from prolonged bladder outlet obstruction and are preventable with earlier intervention (Foo, 2019). The presence of upper urinary tract involvement in 7.5% of cases highlights the critical importance of preoperative renal assessment and emphasizes the need for improved public awareness and earlier referral routes.

Intraoperative Findings and Surgical Technique

The confirmation of BPH as the primary pathology in 86.0% of cases validates the clinical diagnosis, though the 5.0% in whom BPH was not the intraoperative finding raises questions about alternative diagnosis that were not fully documented. The identification of bladder neck stenosis in 11.3% of cases is clinically significant, as this finding may influence surgical technique, complicate the procedure, and affect postoperative outcomes (Autorino et al., 2009). The absence of posterior urethral stenosis or valves (0%) is expected given the age distribution of the study population, as these are typically congenital conditions diagnosed in younger age-groups.

Postoperative Outcomes and Complications

The overall complication profile demonstrates acceptable surgical outcomes, with transient urinary incontinence (7.5%) being the most common minor complication. This rate is comparable to or lower than reported rates in other African series and reflects the technical competence of the surgical team (Salako et al., 2016; Suer et al., 2008). The rate of retrograde ejaculation documentation (2.7%) is surprising given that this is an expected consequence of open prostatectomy in the majority of cases, suggesting either effective bladder neck preserving technique which was used, incomplete documentation of sexual

function outcomes or lack of systematic postoperative counseling on this expected sequel.

The requirement for blood transfusion in 17.7% of cases reflects the inherently hemorrhagic nature of open prostatectomy and is consistent with other published series (Ugwumba et al., 2014). However, this rate also highlights the importance of preoperative optimization, availability of blood products, and meticulous surgical hemostasis. The low rate of clot retention requiring re-exploration (2.7%) suggests effective intraoperative hemostatic technique.

The mean hospital stay, with 77.4% of patients discharged within 7-11 days, is longer than typical TURP recovery but consistent with open surgical approaches and reflects conservative postoperative management practices common in Nigerian healthcare centers (Obi et al., 2023). The 15.1% of patients requiring prolonged hospitalization (>11 days) indicates room for improvement in perioperative care protocols.

Histopathological Follow-up Deficit

Perhaps the most concerning finding is the poor retrieval rate of postoperative biopsy results (only 9.1%), which represents a critical gap in patient care. Histopathological examination of resected prostatic tissue is mandatory to exclude incidental prostate cancer, which occurs in 5-12% of specimens from presumed BPH surgery (Madersbacher et al., 2019). The 88.2% failure rate in result retrieval suggests systemic failures in laboratory-clinic communication, patient follow-up, and medical records integration. This gap prevents identification of incidental malignancies, denies patients potentially curative treatment, and exposes the institution to medicolegal risk.

Comparative Perspective

When compared to international standards, this study reveals a distinct clinical pattern: open transvesical prostatectomy in Osogbo serves a population with more advanced disease, larger prostates, higher complication rates, and more limited diagnostic resources than typical TURP populations in developed countries. However, the surgical outcomes particularly the low rates of major complications demonstrate that open prostatectomy remains a safe and effective option when performed by experienced surgeons in appropriate settings (Autorino et al., 2009; Parsons, 2010).

Study Limitations

This study has several limitations inherent to its retrospective design. The substantial missing data for key variables (PSA 50.5%, biopsy results 88.2%) limits comprehensive outcome assessment and prevents robust statistical analysis of risk factors. The lack of standardized preoperative assessment protocols and inconsistent documentation practices reduce the generalizability of findings. Additionally, the absence of long-term follow-up data prevents evaluation of durable symptomatic improvement, continence recovery, and Quality of life (QoL) outcomes. The single-center design may not reflect practices across other Nigerian institutions, and selection bias may exist as only patients who accessed surgical care were included, which could potentially underestimate the true burden of untreated BPH in the community.

Clinical Implications

These findings have several important implications for clinical practice and health system development in resource-limited settings. First, there is an urgent need for improved preoperative diagnostic protocols, including mandatory PSA testing. Second, strengthening laboratory-clinical integration to ensure reliable histopathology result retrieval is essential for patient safety and medicolegal protection. Third, enhancing medical record-keeping through electronic health records or standardized paper documentation could significantly improve data completeness. Fourth, earlier referral pathways and public health education may reduce the proportion of patients presenting with advanced complications. Finally, while open transvesical prostatectomy remains appropriate for large prostates in this setting, investment in TURP surgeries could provide less morbid alternatives for smaller prostate glands and reduce hospital stay.

V. CONCLUSION

This five-year descriptive study of open transvesical prostatectomy at State Specialist Hospital, Osogbo

demonstrates that the procedure remains a safe and effective surgical option for managing benign prostatic hyperplasia in a resource-limited setting, with acceptable complication rates and favorable short-term outcomes. The study confirms that patients predominantly present with advanced disease, characterized by large prostate volumes (48.4% >80 cm^3), high rates of acute urinary retention (61.8%), and significant secondary complications (29.6%), reflecting delayed healthcare access and limited availability of early medical or minimally invasive interventions.

Despite resource constraints, open transvesical prostatectomy delivered by experienced surgical teams achieves outcomes comparable to other published African series. This study provides valuable baseline data for quality improvement initiatives and contributes to the limited Nigerian urological literature on surgical BPH management. Future prospective studies with standardized protocols, complete data capture, and long-term functional outcome assessment are recommended to further optimize patient care in similar resource-limited settings.

VI. ACKNOWLEDGMENT

The authors express sincere gratitude to the management of State Specialist Hospital, Osogbo for their support throughout this study. Special appreciation goes to the medical records department for facilitating access to patient case files and surgical records.

We acknowledge the dedicated nursing staff and theatre personnel of the surgery unit whose meticulous care contributed to the positive surgical outcomes documented in this study.

We are grateful to all patients who consented to treatment at our facility, whose data formed the basis of this research. Finally, we acknowledge the contributions of all colleagues who provided valuable insights during the preparation of this manuscript.

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