

Research Article

Reporting the Complications of Open Transvesical Prostatectomy by Using the Clavien Dindo Classification at the Ignace Deen National Hospital, Conakry

Thierno Oumar Diallo^{*}, Mamadou Diawo Bah, Mamadou Dian Barry, Alimou Diallo, Youssouf Keita, Alpha Madiou Barry, Thierno Sounounou Diallo, Mamadou Moussa Barry, Ibrahima Bah, Abdoulaye Bobo, Oumar Raphiou Bah

Urology Department, Ignace Deen National Hospital, Conakry, Guinea

Abstract

Background: Benign prostatic hyperplasia (BPH) is a condition of the elderly whose incidence is constantly increasing. Open surgery for benign prostatic hypertrophy is still widely used in developing countries. The aims of this study was to report the postoperative complications for BPH using the Clavien Dindo Classification (CDC) in the urology department of Ignace Deen National Hospital. **Methods:** This was a retrospective, single-center documentary study focusing on post-operative complications after Open prostatic (OP) Surgery, over a period of 2 years (June 1, 2021 to May 31, 2023). A total of 380 patients underwent OP surgery for BPH followed in the urology department during the study period. **Results:** Among the 630 patients followed during the study period. A total of 76(20%) patients experienced 90 complications. Clavien Dindo grade I and grade II complications were reported in 45.6% and 42.2% respectively. Among grade I complications, bladder clots n=16 (17.8%) and vesicocutaneous fistulas 20 (22.3%) were predominant. Surgical site infection n=25(27.8%) was the main CDC grade II complication treated with antibiotics. Higher grade complications were rarer. **Conclusion:** post-operative complications for benign prostatic hyperplasia surgery are common in our department. The Clavien Dindo classification is a reproducible tool for reporting postoperative complications in our patients. Complications are mainly grade I and grade II complications.

Keywords

Benign Prostatic Hyperplasia (BPH), Clavien Dindo Classification (CDC), Open Prostatic Surgery

1. Introduction

Benign prostatic hyperplasia (BPH) is one of the most common benign tumors affecting the elderly men. Its incidence increases with age. It is estimated to be around 50% in men over 60 years of age and in men over 85 years of age, it is greater than 90% [1, 2]. BPH causes obstructive and irri-

tating urinary symptoms that impair patients' quality of life, sometimes requiring surgical treatment. Surgical treatment is indicated in cases of medical treatment failure or in patients with complications. Transurethral resection of the prostate (TURP) and open prostatic surgery (OP) have remained the

^{*}Corresponding author: thiernobgl87@gmail.com (Thierno Oumar Diallo)

Received: 1 January 2025; **Accepted:** 20 January 2025; **Published:** 5 February 2025



Copyright: © The Author(s), 2025. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

standard care for surgical treatment of BPH for several decades [3]. Open surgery for BPH is still widely practiced in some centers in Africa, but with significant complications [4, 5]. However, there is a lack of consensus in the surgical community on how to relate a particular complication to the effect of comparing surgical outcomes. Clavien-Dindo and al [6] introduced in 1992 a five-grade classification system, analyzing a cohort of patients who underwent cholecystectomy. The modified version of the classification is widely used in surgical settings due to its reproducibility and simple use [7]. The European Association of Urology recommends the use of CDC to report complications in urology [8]. The objective of this study was to report the transvesical open prostatectomy for benign prostatic hyperplasia complications using Clavien Dindo's modified version in our urology department.

2. Methods

This is a retrospective cohort study which took place in the urology department of the Ignace Deen National Hospital (Conakry). The study investigated postoperative complications of OP prostatectomy for benign prostatic hyperplasia indicated for prostate hyperplasia over a period of 2 years (June 1, 2021 to May 31, 2023). We conducted systematic sampling of the records of patients admitted to the urology department during the study period for prostate surgery.

In this study, we included patients who developed postoperative complications using one of the two methods of upper prostate surgery (Hryntschak or Millin technique). We did not include in this study patients who underwent endoscopic surgery for BPH and whose pathology results revealed prostate cancer.

Data were collected from the patient's hospital register, operative report register and hospital record. The parameters studied were age, occupation, comorbidities, and reasons for consultations. Paraclinical data included Prostatic Specific Antigen (PSA) level, prostate volume, surgical technique, and complications. The immediate, early and late complications reported in the case were studied and classified according to Clavien Dindo's modified classification [9] and their management.

Statistical analysis: data were captured and analysed using Epi-info 7.2.6.0. Quantitative variables (age) were expressed as an average \pm standard deviation and qualitative variables as percent and effective. The figures were presented using Excel 2016 software.

Ethical considerations: The study was approved by the Chair of Urology at Conakry University Hospital. The rules of anonymity and confidentiality have been respected according to the Declaration of Helsinki.

3. Results

During the study period, 380 patients were operated on and hospitalized in the department for benign prostatic hyperplasia, of which 76 patients had complications, which would represent 20%. The mean age of patients was $69.7\% \pm 9.5$ years with extremes of 53 and 93 years. The 60-69 and 70-79 age groups were the most affected with 30.3% and 38.2% respectively. The most affected patient occupations were farmers, civil servants [Table 1](#).

Table 1. Distribution of patients by profession.

Occupation	Number	Percent
Other	1	1,3
Religious leader	12	15,8
Merchant	10	13,2
Farmer	28	36,8
Official	19	25
Workers	6	7,9
Total	76	100

The comorbidities observed in our patients were hypertension and diabetes in 13.2% (10) and 5.3% (4), respectively. The main reasons for consultation were chronic bladder urinary retention with 65.8% (n=50). Lower urinary tract symptoms occurred in 31.6% (n=24) of patients. Two patients (2.6%) had consulted for total hematuria with clots. Digital rectal examination on clinical examination of patients was in favour of benign prostatic hyperplasia. The mean total PSA level was 5.4 ± 3.7 ng/mL with extremes of 1 and 20 ng/mL. Urine culture on cytobacteriological examination of urine was positive in 46.1% (n=35) and negative in 36.8% (n=28). However, ECBU was not found in 13 patients. The mean prostate volume assessed by suprapubic ultrasound was 94.5 ± 39.5 mL with extremes of 51 and 215 mL. Surgical indications are dominated by bladder urine retention; which represented 65.8% (n=50); [Table 2](#) shows the operative indications for prostate adenomectomy. The mode of anesthesia used in this study was essentially spinal anesthesia 96.1% (n=73). Adenomectomy according to the Hryntschak technique was the main surgical technique used for our patients at 94.7% (n=72).

A total of 90 complications were reported in 76 patients. Classifying complications according to Clavien Dindo's classification, we have grade I complications being the most represented 45.6%. The grade I group included vesicocutaneous fistula and clot urinary retention. Grade II accounted for 44.4%; dominated by surgical wound infections and haemorrhages requiring blood transfusion. Higher-grade

complications were rarer, see [figure 1](#). The mean length of hospital stay was 19.7 ± 21.7 days with extremes of 4 and 127 days.

Table 2. Indications for prostate surgery.

Indications	Number	Percent.
Failure of medical treatment	4	5.3
Obstructive renal failure	8	10.6
Dilatation of the upper urinary tract	5	6.6

Indications	Number	Percent.
Probe removal failure	3	3.9
Bladder lithiasis	3	3.9
Bladder diverticulum	1	1.3
Hematuria	2	2.6
Bladder urine retention	50	65.8
Total	76	100

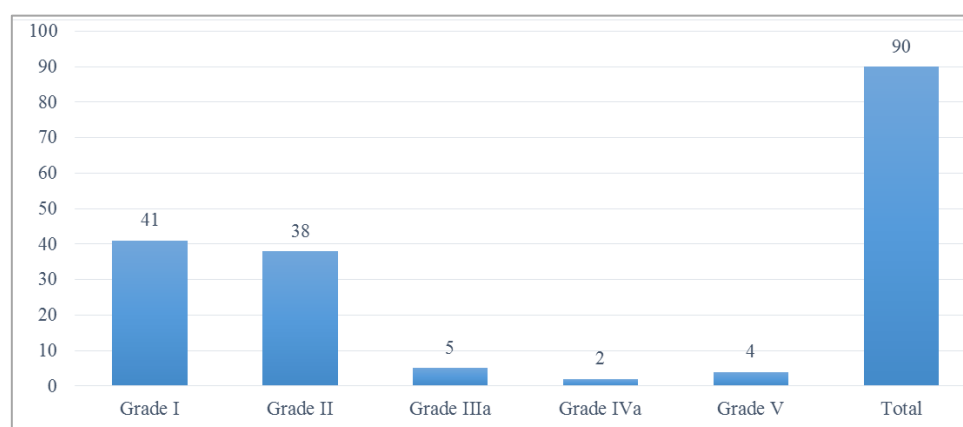


Figure 1. Distribution of complications by Clavien-Dindo grade.

Table 3. Summarizes the complications and their grade according to the Clavien-Dindo classification.

Rank.	Characteristic.	Support.
I	Bladder clotting n=16(17.8%)	Bedside syringe decilottong and continuous bladder irrigation
I	Incision wall hematoma n=3(3.3%)	Loosening of threads, local care + dressing
I	Bladder urinary retention at tube ablation n= 2(2.2%)	Intermittent bladder catheterization
I	Vesicocutaneous fistula 20 (22.3%)	Indwelling bladder catheter
II	Hemorrhage n=10(11.1%)	Blood transfusion
	Orchiepididymitis n= 3(3.3%)	Antibiotic Therapy + Suspensory
	Surgical site infection n=25(27.8%)	Antibiotics
IIIa	Suture release with wide opening of the bladder and walls n=2(2.2%)	Probing and suturing of the banks under locoregional anesthesia.
	Abscess collected under peritoneal n=1(1.1%)	Return to the operating room for drainage under regional anesthesia
	Bladder textiloma n=2(2.2%)	Foreign body extraction under regional anesthesia
Iva	Bilateral ureteral meatus ligation/acute renal failure n=1(1.1%)	Revision for ureterovesical reimplantation under general anesthesia
	Transient ischemic stroke n=1(1.1%)	Resuscitation/Oxygen Therapy
V	Deaths n =4(4.5%)	-

4. Discussion

We conducted a retrospective, descriptive study to evaluate the applicability of the Clavien-Dindo classification on patient records operated for benign prostatic hyperplasia in our department. Open prostatic surgery is a technique that is still widely used today in our center. Compared to so-called minimally invasive techniques, it allows complete enucleation of adenomatous prostate tissues. It has the longest evaluation hindsight in terms of effectiveness, being an ancient technique [10, 11].

This study shows that benign prostatic hyperplasia occurs in elderly subjects with a mean age of 69.7 years, comparable to that reported in a similar study in Burkina Faso [12]. These are subjects that are often weakened by the fact of competitive morbidities. Hypertension and diabetes mellitus have been found to be the main factors of comorbidities in other studies [13, 14].

Open prostatectomy was the main technique used in this study. However, the morbidity and mortality of this technique remains major. The complication rate observed in this study is 20% lower than many series reported on the same subject in Africa. Ouattara A et al [12] in Burkina Faso and Salako AA [13] in Nigeria reported overall complications of 32.05% and 36.4%, respectively. The reported rate would depend on the methodology used, and how complications were reported in patient records. This low complication rate in our study could be explained by the fact that we did not encounter any reported cases of vomiting treated with antiemetics, isolated fever treated with paracetamol, let alone isolated creatinine elevation due to the non-systematization of control creatinine postoperatively. This would certainly have influenced the complication rate in this study.

Although there are currently many classifications in the medical literature to attempt to assess and report surgical complications, in the urological literature the Clavien-Dindo classification remains predominantly used [15, 16]. This classification is not based on the severity of the complication, but on the severity of the treatment. Thus, the type of treatment defines the degree of severity of the complication. For example, postoperative bleeding requiring a blood transfusion will be classified as grade 2, while bleeding requiring revision surgery under general anesthesia will be classified as grade 3b [9]. However, the habit of the centre and the experience of the operator may interfere with the interpretation and reporting of these complications, thus influencing the subdivision of the classification. Some interventional procedures can be performed under local anesthesia at one center and under general anesthesia at another (Grade IIIa and Grade IIIb) [17]. Rassweiler JJ [18] points out that complications with different morbidities may belong to the same class. Thus, as an example on the Clavien class 3B, which may include the insertion of a double J catheter for hydro-nephrosis during the repair of a ureteral lesion on the one

hand and a nephrectomy performed for bleeding on the other hand. The only thing these complications have in common is that the repair is performed under general anesthesia. The actual morbidity of these two events is not identical.

The early complications of this study were mainly hemorrhage requiring blood transfusion. The early transfusion rate in our patients of 11.1% is close to that reported by Ouattara A et al [12] which was 13%. In addition, bladder urine retention requiring syringe dabbling at the patient's bedside with continuous bladder irrigation has also been reported by some authors. Ugwumba FO [19] finds a bladder clot ratio of 13.5% lower than that seen in our patients, which is 17.8%. The experience of the surgeon can influence the quality of hemostasis and thus reduce the transfusion rate. Other confounding parameters should be taken into account in the interpretation of the blood transfusion rate. Prostatic hyperplasia complicating hematuria [20] with low preoperative hemoglobin levels would necessarily require preoperative, intraoperative and postoperative blood transfusions.

Surgical wound infection is a common complication in open surgery for BPH. The frequencies reported in African publications vary. Obi AO [20] reported a rate of 10.8%, comparatively low compared to the rates observed in our series, 27.8%. On the other hand, it remains lower than the 35% reported by Kiptoon DK [14]. In addition, vesicocutaneous fistula was also high in this study, 22.3% compared to the previous results reported in the same department by M Bobo et al [21] and Bah I et al [22] which were 15.6% and 18.2% respectively. In his study, M Bobo and al [21] found that vesicocutaneous fistulas were predominant in growers. We did not assess this relationship in this study. On the other hand, growers are still the profession most affected by prostate surgery in our department. The mortality observed in our patients was 4.4% yet higher than that reported in South Sudan by and Elnaim al. [5], which was 2.65%.

5. Conclusion

Post-operative complications for benign prostatic hyperplasia surgery are common in our department. The Clavien Dindo classification is an easy and reproducible tool for reporting postoperative complications in our patients. Complications are mainly grade I and grade II complications. The management of grade I and grade II complications is less complex. Postoperative mortality is relatively high. Referral to bipolar endoscopic surgery is necessary to reduce the morbidity and mortality of conventional surgery.

Abbreviations

BPH	Benign Prostatic Hyperplasia
PSA	Prostatic Specific Antigen
OP	Open Prostatectomy

CDC Clavien Dindo Classification
TURP Transurethral Resection of the Prostate

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Langan RC. Benign Prostatic Hyperplasia. *Prim Care*. 2019 Jun; 46(2): 223-232.
- [2] Jin R, Strand DW, Forbes CM, Case T, Cates JMM, Liu Q et al. The prostaglandin pathway is activated in patients who fail medical therapy for benign prostatic hyperplasia with lower urinary tract symptoms. *Prostate*. 2021; 81(13): 944-955.
- [3] Baboudjian M, Pradere B. Treatment of BPH in consultation: an update on new minimally invasive therapies. *Prog Urol* 2021; 31(14): 931-936.
- [4] Oranusi CK, Nwofor A, Oranusi IO. Complication rates of open transvesical prostatectomy according to the Clavien-Dindo classification system. *Niger J Clin Pract* 2012; 15: 34-7.
- [5] Elnaim, ALK, Ibnouf MMM, Toum FM, Magzoub M. Post Transvesical Prostatectomy (DVT) complications, risk assessment using Clavien-Dindo System in Kassala Teaching Hospital, Kassala, Sudan. *Global Journal of Surgery*, 2017; 5(1): 1-5.
- [6] Dindo D., The Clavien–Dindo, classification of surgical complications. *Treatment of postoperative complications after digestive surgery*, 2014; 13-17.
- [7] Mitropoulos D, Artibani W, Biyani CS, Jensen JB, Rouprêt M, Truss M. Validation of the Clavien–Dindo grading system in urology by the European Association of Urology guidenes ad hoc panel. *European urology focus*, 2018; 4(4): 608-613.
- [8] Cerantola Y, Jichlinski P. Quality Control in Urology. *Rev Med Switzerland* 2011; 7: 2382-7.
- [9] Hossain DMS, Madaan S. Use of Clavien-Dindo classification in urology part 1 – pelvic surgery. *Urology News* 2016; 20(3).
- [10] Delongchamps NB, Robert G, Descazeaud A, Cornu JN, Azzouzi AR, Haillot O et al. Committee on Male Voiding Disorders of the French Association of Urology. Treatment of benign prostatic hyperplasia by electrical endoscopic techniques and upper adenomectomy: literature review of the AFU's CTMH. *Advances in Urology*, 2012; 22(2): 73-79.
- [11] Misraï V, Pasquie M, Bordier B, Elman B, Lhez JM, Guilloireau J et al. Comparison between open simple prostatectomy and green laser enucleation of the prostate for treating large benign prostatic hyperplasia: a single-centre experience. *World J Urol*. 2018 May; 36(5): 793-799.
- [12] Ouattara A, Paré AK, Kaboré AF, Kabré B, Bako A, et al. Using Modified Clavien-Dindo's Classification System for Reporting Postoperative Complications of Transvesical Prostatectomy at Souro Sanou University Teaching Hospital of Bobo-Dioulasso (Burkina-Faso). *Int Arch Urol Complic* 2019; 5: 056.
- [13] Salako AA, Badmus TA, Owojuyigbe AM, David RA, Ndegbe CU, Onyeze CI. Open Prostatectomy in the Management of Benign Prostate Hyperplasia in a Developing Economy. *Open Journal of Urology* 2016; 6: 179-189.
- [14] Kiptoon DK, Magoha GA, Owillah FA. Early postoperative outcomes of patients undergoing prostatectomy for benign prostatic hyperplasia at Kenyatta National Hospital, Nairobi. *East African Medical Journal*. 2007 Sep; 84(9 Suppl): S40-4.
- [15] Irani J, Legeais D, Madec FX, Doizi S, Bensalah K, Mathieu R et al. Complications in urological surgery. Collection and classification. *Prog Urol*, 2022; 32(14): 906-918.
- [16] Löppenberg B, Noldus J, Holz A, Palisaar RJ. Reporting complications after open radical retropubic prostatectomy using the Martin criteria. *The Journal of Urology*, 2010; 184(3): 944-948.
- [17] Elkoushy MA, Luz MA, Benidir T, Aldousari S, Aprikian AG, Andonian S. Clavien classification in urology: Is there concordance among post-graduate trainees and attending urologists? *Can Urol Assoc J*. 2013 May-Jun; 7(5-6): 179-84.
- [18] Rassweiler JJ, Rassweiler MC, Michel MS. Classification of complications: is the Clavien-Dindo classification the gold standard?. *European urology*, 2012; 62(2): 256-8.
- [19] Ugwumba FO, Ozoemena OF, Okoh AD, Echetaabu KN, Mbadiwe OM. Transvesical prostatectomy in the management of benign prostatic hyperplasia in a developing country. *Nig J Clin Pract* 2014; 17: 797-801.
- [20] Obi AO, Odo C, Ogolo DE, Okeke CJ, Ulebe AO, Afogu EN. Open Prostatectomy for Benign Prostatic Hyperplasia: A Critical Analysis of Patient Presentation and Surgical Outcomes in a Contemporary Series. *Nigerian Journal of Clinical Practice* 2023, 26(9): 1326-1334.
- [21] Diallo MB, Diallo AT, Sow KB, Guirassy S, Balde S, Balde A. (January). Early complications of transvesical prostatic adenomectomy at the urology department of Conakry: about 96 cases. In *Annals of Urology* 2001; (35)2: 120-124.
- [22] Bah I, Bah MB, Barry MII, Diallo A, Kanté D, Diallo TMO et al. Transvesical Prostatic Adenomectomy: Results and Complications in the Department of Urology and Andrology of the Ignace Deen Hospital, Conakry University Hospital. *Health Science Disease*, 2020; 21: 55-59.