

Practice of Transurethral Resection of the Prostate in Burkina Faso: A Retrospective Study of 168 Cases at the Yalgado Ouédraogo University Hospital

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Abstract

Introduction: Benign Prostatic Hyperplasia (BPH) is one of the most common urological conditions in men over the age of fifty. Among the available therapeutic options, Transurethral Resection of the Prostate (TURP) has been established for decades as the “gold standard” in the surgical treatment of symptomatic or complicated BPH. This study aims to evaluate the practice of bipolar TURP at the Yalgado Ouédraogo University Hospital (CHU-YO) in Ouagadougou. **Materials and Methods:** A retrospective, descriptive, single-center study was conducted over 24 months (June 2022 to June 2024), including 168 patients who underwent bipolar TURP. Patients were selected from 203 initial cases based on the following criteria: inclusion criteria were male patients with obstructive prostatic conditions (BPH or prostate cancer) treated by bipolar TURP, with complete medical records including preoperative, operative, and at least 3 months postoperative follow-up data; exclusion criteria were monopolar TURP, incomplete medical records, and follow-up less than 3 months. Demographic, clinical, paraclinical, and therapeutic data were analyzed. Data collection was supplemented by telephone interviews to gather missing information on postoperative symptoms, complications, and functional outcomes. To minimize recall bias, a structured questionnaire was used and responses were cross-referenced with available medical records. **Results:** The mean age was 69.63 ± 8.99 years. Lower Urinary Tract Symptoms (LUTS) were predominant (91.07%). The mean duration of symptoms was 20.59 ± 11.96 months. The mean PSA (Prostate-Specific Antigen) was 57.13 ± 220.17 ng/ml. Final histopathological examination revealed benign prostatic hyper-

plasia in 140 patients (83.33%) and prostate adenocarcinoma in 28 patients (16.67%). The mean prostate volume was 60.65 ± 17.41 g. A median lobe was present in 45.23% of patients. The mean operative time was 78.82 ± 18.71 minutes. The postoperative course was uncomplicated in 91.07% of cases. The mean IPSS (International Prostate Symptom Score) decreased from 21.75 ± 6.70 preoperatively to 5.40 ± 1.75 postoperatively ($p < 0.0001$). The maximum urinary flow rate (Q_{max}) increased from 9.8 ± 3.80 ml/s to 25.8 ± 7.67 ml/s ($p < 0.0001$). **Conclusion:** Bipolar TURP is a well-established technique at CHU-YO, providing excellent functional outcomes and a favorable safety profile. Its expansion requires adequate equipment and continuous training for practitioners.

Keywords

Transurethral Resection, Bipolar TURP, Benign Prostatic Hyperplasia, Endoscopic Surgery

1. Introduction

Benign Prostatic Hyperplasia (BPH) is one of the most common urological conditions in men over the age of fifty. Its prevalence increases exponentially with age, rising from 15% at age 40 to up to 60% after 70 years [1] [2]. This benign pathology primarily manifests as Lower Urinary Tract Symptoms (LUTS) which, depending on their severity, can significantly impair patients' quality of life and lead to severe urological complications such as acute urinary retention, recurrent urinary tract infections, bladder stones, hydronephrosis, and even chronic renal failure [3].

Among the available therapeutic options, Transurethral Resection of the Prostate (TURP) has been established for decades as the "gold standard" in the surgical treatment of symptomatic or complicated BPH [4]. This endoscopic technique offers the advantage of being less invasive than open surgery, with reduced morbidity and faster recovery. In recent years, technological innovations have led to the development of alternative minimally invasive techniques, notably bipolar TURP, which uses saline solution as an irrigation fluid instead of glycine, thus considerably reducing the risk of TURP syndrome [5] [6].

In Burkina Faso, and particularly in the capital Ouagadougou, the practice of TURP has gradually been implemented in several healthcare facilities. The Yalgado Ouédraogo University Hospital (CHU-YO), as a reference center, has developed significant expertise in this technique. This single-center retrospective study aims to evaluate the indications, intraoperative course, functional outcomes, and complications of bipolar TURP performed in the urology department of CHU-YO over a recent 24-month period.

2. Materials and Methods

This was a retrospective descriptive study conducted in the urology department

of CHU-YO in Ouagadougou from June 1, 2022, to June 30, 2024, involving 168 patients selected from 203 initial cases based on predefined inclusion and exclusion criteria. The inclusion criteria were: male patients with obstructive prostatic conditions (BPH or prostate cancer) treated by bipolar TURP, with complete medical records including preoperative, operative, and at least 3 months postoperative follow-up data. Exclusion criteria were: monopolar TURP, incomplete medical records, and follow-up less than 3 months. Data collection, performed using medical records and supplemented by telephone interviews. These interviews were conducted to collect missing data regarding postoperative symptoms, complications, and functional outcomes. To minimize recall bias, we used a structured questionnaire and cross-checked with the medical records when available. This process covered demographic, clinical, paraclinical, operative, and perioperative aspects of the patients. Comparison of pre- and postoperative IPSS scores and maximum flow rates (Qmax) was performed using the non-parametric Mann-Whitney test. The statistical significance threshold was set at $p < 0.05$.

3. Results

3.1. Demographic and Clinical Characteristics

The mean age of the patients was 69.63 ± 8.99 years, with a range of 43 to 97 years. Retirees constituted the most represented socio-professional group (33.93%). Associated comorbidities were found in 108 patients (64.28%), dominated by hypertension (37.5%). Forty-eight point eighty percent (48.80%) of patients had a surgical history, primarily inguinal hernia repairs (21.42%) and a history of iterative bladder catheterizations (36.3%).

LUTS were the main reason for consultation, observed in 153 patients (91.07%). Nocturia (91.07%), straining to void (89.88%), and sensation of incomplete emptying (73.21%) were the most frequently reported symptoms. Acute urinary retention was the reason for consultation in 52.38% of cases. The mean duration of symptoms before specialist consultation was 20.59 ± 11.96 months, indicating often delayed access to specialized urological care [7]. Digital rectal examination (DRE) found a prostate suggestive of benign disease in 117 patients (69.64%) and suspicious for malignancy in 33 patients (19.65%).

3.2. Preoperative Paraclinical Data

The mean total PSA was 57.13 ± 220.17 ng/ml. Final histopathological examination revealed benign prostatic hyperplasia in 140 patients (83.33%) and prostate adenocarcinoma in 28 patients (16.67%). The mean prostate volume measured by ultrasound was 60.65 ± 17.41 g. An obstructive median lobe was identified in 76 patients (45.23%). **Figure 1** illustrates the ultrasound appearance of a 165 g prostatic hypertrophy with a 43 g median lobe in an 83-year-old patient managed by TURP at CHU-YO.

Urine Culture and Sensitivity (UCS), performed in 151 patients (89.88%), was positive in 45.69% of cases, with *Escherichia coli* (25.82%) and *Klebsiella pneu-*

moniae (7.94%) as the main identified pathogens.



Figure 1. Ultrasound appearance of a 165 g prostatic hypertrophy with a 43 g median lobe in an 83-year-old patient managed by TURP.

3.3. Operative Characteristics

All procedures were performed with a bipolar resectoscope.

Spinal anesthesia was the anesthesia technique of choice in 98.21% of cases. Isolated TURP was performed in 142 patients (85.52%). Associated procedures were performed in 26 patients: orchiectomy (8.34%) and inguinal hernia repair (7.14%). **Figure 2** illustrates TURP chips from a procedure performed at CHU-YO.



Figure 2. TURP resection chips-Urology Department, CHU-YO.

The mean operative time was 78.82 ± 18.71 minutes. The mean hospital stay was 3.46 ± 1.21 days. The urinary catheter was removed after 48 hours in 144 patients

(85.71%). **Table 1** summarizes the equipment and operative characteristics of the 168 patients who underwent bipolar TURP at CHU-YO.

Table 1. Equipment and operative characteristics of the 168 patients.

Parameter	Count	Percentage (%)
Type of resectoscope		
Bipolar	168	100
Type of anesthesia		
Spinal anesthesia	165	98.21
General anesthesia	3	1.79
Procedures performed		
TURP alone	142	85.52
TURP + Orchiectomy	14	8.34
TURP + Hernia repair	12	7.14
Operative time (min)		
≤ 60	39	23.21
60 - 90	87	51.79
≥ 90	42	25.00
Hospital stay (days)		
≤ 2	21	12.50
3 - 7	145	86.31
≥ 7	2	1.19
Catheter removal (days post-op)		
2	24	14.29
3 - 7	112	66.67
≥ 7	32	19.04

3.4. Postoperative Complications

Early complications (Grade I and II according to the Clavien-Dindo classification) occurred in 15 patients (8.92%). These included: urinary tract infections (3.57%), which were treated with appropriate antibiotics based on culture results; urinary retention (2.97%), managed by recatheterization for 2 to 4 days; minor hematuria (1.78%), managed by continuous bladder irrigation with isotonic saline; and one case of massive hematuria (0.59%) requiring blood transfusion. No Grade III or IV complications were observed, and no cases of TURP syndrome were reported.

3.5. Functional Outcomes

Analysis of functional outcomes showed significant improvement. The mean IPSS decreased from 21.75 ± 6.70 (severe) preoperatively to 5.40 ± 1.75 (mild) at 3 months postoperatively ($p < 0.0001$). Concurrently, the maximum urinary flow

rate (Q_{max}) increased from 9.8 ± 3.80 ml/s to 25.8 ± 7.67 ml/s ($p < 0.0001$).

4. Discussion

Our study eloquently demonstrates that bipolar TURP is a well-established technique within the urology department of CHU-YO in Ouagadougou, with functional outcomes and a safety profile that compare favorably with international standards [4] [6].

4.1. Mean Age and Consultation Duration

The mean age of our patients (69.63 years) is quite comparable to that reported in other African and international series, confirming that symptomatic obstructive prostatic pathology preferentially affects older men [1] [8]-[10]. The predominance of LUTS as the main reason for consultation (91.07%) and the prolonged duration of symptoms (nearly 2 years) before specialist consultation reflect a well-documented phenomenon in resource-limited settings: the often delayed access to specialized urological care [7].

4.2. Mean PSA and Mean Prostate Volume

The particularly high mean PSA (57.13 ng/ml) in our series is explained by the inclusion of patients undergoing de-obstructive surgery for advanced prostate cancer, in addition to those operated on for BPH. This particularity distinguishes our series from other studies where TURP was reserved exclusively for the treatment of BPH [11] [12]. The final histopathological examination revealed prostate adenocarcinoma in 28 patients (16.67%), which explains the high mean PSA. The mean prostate volume (60.65 g) remains within the classic indications for TURP. The presence of a median lobe was noted in 45.23% of patients. It is important to note that our study was not designed to specifically compare outcomes based on the presence or absence of a median lobe. Consequently, we did not collect or analyze data to determine if the median lobe was associated with differences in operative time, complications, or functional outcomes. This represents a limitation of our study, and the impact of the median lobe on TURP parameters in our setting should be explored in future, specifically designed studies.

4.3. Use of the Bipolar Resectoscope

The exclusive use of the bipolar resectoscope in our series is a major strength. Bipolar surgery, using saline solution as the irrigation fluid, virtually eliminates the risk of TURP syndrome, effectively absent in our study, and offers superior hemostatic quality [6] [13]. Our overall complication rate (8.92%) is at the lower end of the range for comparable series and is lower than that of some series using the monopolar resectoscope [10]. Spinal anesthesia, used in the vast majority of cases, proved to be a safe, effective anesthetic technique perfectly suited to our context.

4.4. Evolution

The dramatic improvement in IPSS (from severe to mild) and Qmax (tripling of the mean value) at 3 months postoperatively corroborates literature data and validates the functional efficacy of bipolar TURP in restoring satisfactory urinary function [4] [6] [14].

4.5. The Limits

The limitations of this study include its retrospective nature, the lack of a comparative group with other techniques and the short follow-up period (3 months). Future studies with longer follow-up are needed to assess the long-term functional outcomes and recurrence rates. Nevertheless, it provides robust and original data on the feasibility, efficacy, and safety of bipolar TURP in a West African reference center, thus contributing to the urological literature in an African context.

Table 2 represents the classification of surgical complications according to Clavien [15].

Table 2. Classification of surgical complications according to Clavien.

Grade	Definition	Examples
I	Any undesirable postoperative deviation not requiring pharmacological, surgical, endoscopic, or radiological intervention. Allowed treatments: antiemetics, antipyretics, analgesics, diuretics, electrolytes, and physiotherapy	Ileus, superficial wound abscess drained at bedside
II	Complication requiring pharmacological treatment not permitted for Grade I	Deep vein thrombosis, total parenteral nutrition, transfusion
III	Complication requiring surgical, endoscopic, or radiological intervention	
IIIa	Intervention without general anesthesia	Radiologically guided drainage
IIIb	Intervention under general anesthesia	Reoperation for bleeding or other cause
IV	Life-threatening complication requiring intensive care management	
Iva	Single organ dysfunction	Dialysis
Ivb	Multi-organ dysfunction	
V	Death	
Suffix 'd'	Complication present at discharge requiring follow-up	

5. Conclusion

Bipolar TURP establishes itself as a reliable, effective, and safe surgical technique, well-established within the urology department of CHU-YO in Ouagadougou. It leads to a significant and sustained improvement in the quality of life of patients suffering from obstructive prostatic pathologies, whether benign or malignant. To generalize this minimally invasive practice nationwide and improve access to specialized urological care, sustained efforts must focus on the systematic equipment

of regional healthcare facilities with bipolar resection towers and the continuous training of urologists and paramedical staff. Bipolar TURP deserves to be promoted as a first-line therapeutic option in the surgical management of BPH in Burkina Faso, in accordance with the recommendations of international learned societies.

Ethical Declaration

The study was conducted in compliance with the principles of the Declaration of Helsinki on human rights and ethical standards in research and has been approved by the Ethics Committee for Health Research in Burkina Faso (CERS) number 2024-12-400.

Consent for Publication

Written consent was obtained from the patient whose images were used for the article.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Abbreviations

BPH	Benign Prostatic Hyperplasia
CERS	Ethics Committee for Health Research in Burkina Faso
CHU-YO	Yalgado Ouédraogo University Hospital
DRE	Digital Rectal Examination
IPSS	International Prostate Symptom Score
LUTS	Lower Urinary Tract Symptoms
PSA	Prostate-Specific Antigen
Qmax	Maximum Flow Rate
TURP	Transurethral Resection of the Prostate
UCS	Urine Culture and Sensitivity