
Transurethral Resection of the Prostate at the Urology Department of Ignace Deen Hospital, Conakry, Guinea

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Abstract: Transurethral resection of the prostate (TURP) remains the gold standard treatment for benign prostatic hyperplasia (BPH). Objective: To report the results of TURP to the Urology Department of Ignace Deen National hospital Patients and methods: This was a prospective, descriptive study of 2 years 5 months (January 1, 2015 to May 31, 2017), carried out in the urology department of the Ignace Deen National Hospital. We included 86 patients who benefited from an isolated TURP or associated with another surgical procedure. Results: TURP accounted for 51.19% of endoscopic surgery and 20.18% of prostate surgery. The mean age was 69.21 years (48 and 89). The mean total PSA level was 17.7ng / ml. The mean prostate volume was 54, 22 cm³ (27 and 107). The indication for surgery was dominated by chronic retention of bladder urine (93.02%). The mean duration of TURP was 41.84 min (28 and 58). Postoperative complications were dominated by orchi-epididymitis (5.81%) and UVR (4.66%). The mean length of stay was 5.63 days. The histologic types were: benign prostatic hyperplasia (69.77%), prostatic adenocarcinoma (29.07%) and high grade intraepithelial prostate neoplasia (1.16%). After a mean follow-up of 2.21 months, the result was good in 95.35% of cases. Conclusion: It offers low morbidity and a good result in almost all cases.

Keywords: Transurethral Resection of the Prostate, Ignace Deen Hospital, Conakry, Guinea

1. Introduction

Since the description of the first transurethral resection of the prostate (TURP) in 1901, the development of the technique has made it the gold standard treatment for benign prostatic hyperplasia (BPH) [1]. In developed countries since many decades, TURP has become the gold standard in the surgical treatment of obstructive BPH with a prostate volume between 30-80ml [2]. However, two major complications are recognized from monopolar TURP, notably compartment hemorrhage and TURP syndrome. To limit these complications and promote resections of prostatic volume of more than 80ml, we have seen the birth of bipolar TURP then

new so-called "minimally invasive" techniques, in particular vaporization with Greenlight or enucleation with Holmium Laser.

In Africa, prostatic adenectomy takes precedence over endoscopic surgery in the surgical treatment of benign prostatic hypertrophy.

In Guinea, TURP was created in 1987 as part of a support cooperation from the University of Liège, Belgium. A study carried out in the service by Guirassy et al. [3] between 1996 and 2001 had collected 550 cases of endoscopic surgery in which TURP accounted for 18.9% of surgery on the prostate. For almost a decade and a half, the aim of the study was to describe the results and morbidity and mortality of this technique in our department.

2. Material and Method

This was a prospective descriptive study over 2 years 5 months from January 2, 2015 to May 31, 2017 carried out at the urology andrology department of the Ignace Deen National Hospital, Conakry University Hospital. It focused on all patients who received TURP during this period whether performed for BPH or prostate cancer as part of a clearing of obstruction. To carry out the study, a survey sheet was designed. The resection material was a monopolar resector with a 26 charrière sheath and a 30 ° optic. The irrigation fluid was Glycocolle.

The study variables were the proportion of TURP in endoscopic surgery and in prostate surgery, age of patients, digital rectal examination, prostate specific antigen (PSA) level, indication of resection, the duration of the resection, the associated procedures, the per- and post-operative complications, the duration of the drainage and the study of urination.

The evaluation of TURP outcomes was clinical based on the study of urination and urinary continence. This assessment was done when the catheter was removed before the patient was discharged from the hospital and then at one week, one month, three months and six months. The results were judged:

- 1) good: when the urination was normal with good bladder continence, that is to say the voiding jet was satisfying for the patient in the absence of dysuria and urine leakage between urination or if these complaints give way before the urination. end of the 1st month;
- 2) Average: in the event of dysuria or acute retention of urine after removal of the catheter requiring replacement of the catheter for 5 to 7 days with the reestablishment of normal urination thereafter, or also in the event of urine leakage which disappears before the 3rd month of the operation.
- 3) Bad: persistence of dysuria, episodes of acute retention of urine, or urinary incontinence beyond the 3rd month.

3. Results

During the study period, 168 acts of endoscopic surgery were performed among which TURP took first place with 51.19% (n = 86) followed by endoscopic internal urethrotomy (UIE), 426 surgeries on the prostate including 86 cases of TURP or 20.18%.

The average age was 69.21 years with extremes of 48 and 89 years. The most affected age groups were those of 60-69 and 70-79 with respectively 31.40% (n = 27) and 29.07% (n = 25).

The mean PSA level was 17.7ng / ml with extremes of 0.46 ng / ml and 176 ng / ml. Almost 63% (n = 54) of patients had a PSA between 0 and 10 ng / ml.

A urinary tract infection was found in 38 patients (44.20%). *Escherichia coli* and *Staphylococcus aureus* were isolated from 27 and 11 patients, respectively. Hyperglycemia was observed in 5 patients, anemia (Hb level: 10-11g / dl) in 2

patients and in 2 other patients serum creatinine ranged from 120 - 137micromol / l.

The mean prostate volume was 54.22 cm³ with extremes of 27 and 107 cm³. This volume was less than 30 cm³ in 44 patients and between 30 and 60 cm³ in 35 patients.

The indications for surgery were varied. In 16 patients, resection was performed as part of a clearance for prostate cancer with chronic retention of urine. Resection was indicated for BPH complicated by chronic retention of urine in 74.42% (n = 64), acute retention of repeated urine in 3.48% (n = 3) or failure of drug treatment of BPH in 3 patients.

Spinal anesthesia was used in 97.67% of cases (n = 84) and general anesthesia in 2.33% of cases (n = 2). TURP was associated with surgery in 22.09% of cases (n = 19) including pulpectomy in 12 patients (13.95%), Endoscopic internal urethrotomy (EIU) in 5 patients (5.81%) and inguinal hernia repair in 2 patients.

The mean duration of TURP was 41.84 minutes with extremes of 28 and 58 minutes. This intervention time was increased from 15 to 46 min depending on whether TURP was associated with EIU or inguinal herniorrhaphy.

The mean duration of postoperative bladder drainage was 5.32 days with extremes of 3 and 7 days. The mean length of stay was 6.22 days with extremes of 4 and 8 days.

The postoperative consequences were simple in 88.37% (n = 76). We noted early postoperative complications in 11.62% (n = 10) of cases including orchio-epididymitis in 5.81% (n = 5), urinary bladder retention in 4.65% (n = 4) and hematuria due to pressure ulcer fall: 1.16% (n = 1).

Pathological examination of the resection shavings found prostatic adenomyoma in 60 patients (69.77%), prostatic adenocarcinoma in 25 patients (29.07%) and high-grade PIN in one patient. Among the 25 cases of prostatic adenocarcinoma, 16 had a preoperative diagnosis on ultrasound guided prostate biopsy.

After a mean follow-up of 3.21 months with extremes of 1 and 6 months, TURP results were good in 82 patients (95.35%) and average in 4 patients.

4. Discussion

During the past six decades, TURP has been the gold standard in the surgical treatment of BPH in developed countries [4, 5, 6]. In sub-Saharan Africa, adenomectomy still takes precedence over TURP even though the latter offers the same long-term functional results with less morbidity. The use of TURP in the surgical treatment of BPH (20.19%) is slightly improved in our department compared to the study by Guirassy [3] where its frequency was 18.9%. The frequency of TURP remains low in West African countries as shown by the study by Zango [7] from Burkina Faso (8.11%), from Kane [8] to Dakar (29.05%). However, hope is allowed thanks to the arrival of bipolar in our country and in the sub-region as evidenced by the preliminary results of Diakité *et al.* [9] in Bamako with 322 patients having benefited from a TURP representing 57.7% of endoscopic procedures and the application center for the Inter-University Diploma (DIU) of

Endo-Urology in Dakar.

The incidence of BPH increases with age. The average age of our patients was 69.21 years with extremes of 48 and 89 years. This mean age is close to that reported by certain

authors [4, 8, 10] (Table 1). A younger mean age (63.6 ± 4.2 with extremes of 54 and 71) has been reported by Abd-El Kader et al. [11].

Table 1. Comparative study of variables with those of other authors.

Variables	Our series	Kane [8]	Ghozzi [10]	Kong [14]	Reich [4]
Effective	86	86	29	51	9197
Age	69,21(48-89)	70,3(49-82)	68,71±7,63	68,53	71,1
IPSS	-	-	23,89±2,16	23,9 ± 4,32	20,5 ± 7,6
Preoperative urine retention	95,71	38,67			27,7
PSA moyen ng/ml	17,7(0,46-100)	25(5-557)	2,9±0,88		-
V.P. moyen	54,42(27-107)	51,6(24-90)	49,5±5,80	43,1± 10,94	44,4 ± 27,0
Average duration (mn)	41,8 (28-58)	52(34-58)	50		52,4 ± 26,4
Drainage POP (day)	5,32 (3-7)	4(2-14)	52H±14,67	57,7H± 7,31	
DMS (day)	6,22 (4-8)	5	2,9±0,89	2,6 ± 0,92	8 ± 6,1
Complication rate	11,62	11,62	20,68		11,1
Bleeding%	1,16	1,2			
Transfusion%	-		6,89	1,96	2,9
TURP syndrome%	-	1,2	6,89		1,4
Urine retention%	4,65	3,4	6,89	3,92	5,8
Orchepididymitis%	5,81	-	-		3,6

PV= Prostate Volume, POP= post-operative, ALS= Average length of stay

The International Prostate Symptom Score (IPSS), evaluated by several authors (see Table 1) as recommended by learned societies (Committee of micturition disorders of the French Association of Urology, the European Association of Urology) has not been evaluated in our series by the fact that out of 70 cases of BPH, 67 patients (95.71%) were admitted in a picture of chronic retention of urine (64 cases) or acute retention of urine (3 cases). Abdallah et al. [12] reported that 30% of their patients presented with urine retention. Kouamé et al. [13] reported 56.6% (n = 53) of urinary bladder retention. This difference could be explained by the late consultation time for our patients.

The average PSA level (17.7ng / ml) in our series is close to that of Diakité et al. [9] which reported 15ng / ml (range 4 and 250ng / ml). Kane et al. [8] reported an average PSA of 25ng / ml with extremes of 5 and 557 ng / ml. However, it remains relatively higher compared to the study by Ghozzi et al. [10], where it was $2.9 \text{ ng / ml} \pm 0.88$. The high PSA level in our series as well as those of Kane and Diakité was due to the fact that TURP affected both BPH and locally advanced or metastatic prostate cancer (16 cases in our study). Several authors [4, 14-16] have not reported a PSA level. The PSA assay is part of the recommended work-up in the surgical management of BPH in patients where the discovery of prostate cancer could change the therapeutic indication.

Prostate volume is an important parameter in the choice of endoscopic technique. Monopolar TURP is considered the gold standard for patients with prostate volume greater than 30 mL and less than 60–80 mL [1]. Randomized studies comparing monopolar TURP to cervico-prostatic incision (PCI) did not show a significant difference in terms of functional outcome in patients with a small prostate (<20-30 mL) and without a lobe median. The advantages of PCI are reduced operating time, the risk of bleeding, the length of hospital stay and the risk of retrograde ejaculation. However, the risk of symptom recurrence and repeated surgery is

higher [1]. This PCI could have been used for 44 of our patients who had a prostate volume less than 30 ml.

The ECBU must be sterile. Intraoperative antibiotic prophylaxis is recommended, as it significantly reduces the risk of postoperative bacteremia [1]. A urinary tract infection was treated according to the antibiogram in 38 of our patients (44.20%) before TURP.

A urinary tract infection was treated with the antibiogram preoperatively in 17.08% (n = 55) of the patients of Diakité et al. [9].

The mean duration of TURP was 41.84 minutes with extremes of 28 and 58 minutes. This intervention time was increased from 15 to 46 min depending on whether TURP was associated with UIE, pulpectomy or inguinal herniorrhaphy. Kane et al. [8] reported an average duration of TURP of 52 min with extremes of 34 and 58 min. For Ghozzi et al. [10], the average duration of a mono-polar TURP was 50 minutes versus 40.5 minutes in bipolar. This difference in the mean duration of mono-polar TURP could be explained by the selective nature of the prostate volumes to be resected (44 patients out of 70 cases of BPH had a prostate volume of less than 30 ml) and the endoscopic experience of the surgeon.

TURP dramatically reduces the duration of postoperative drainage and the length of hospital stay. This drainage duration is shorter in the more recent series [10, 14] (Table 1) where it is on average less than 66 hours and consequently a hospital stay of less than 72 hours. Méndez-Probst et al. [5], did not find a significant difference in the duration of postoperative drainage (1.5 vs. 1.1 days) and the mean duration of hospitalization (1.1 [range: 0-3] vs. 1.0 [range: 0-2] days) for bipolar TURP and mono-polar TURP, respectively.

Monopolar TURP remains the gold standard in the surgical management of BPH [5, 10]. Admittedly, it is a technique that has proven its effectiveness in the long term,

nevertheless, it remains associated with a certain number of challenges, in particular the occurrence of potentially serious complications in the perioperative period, to which we add the limits of this technique, particularly those related to the field of the sick [10]. This has certainly prompted the use of new technologies considered minimally invasive and less likely to cause morbidity and complications than monopolar TURP. Among these techniques is bipolar TURP which has the advantage of reproducing the same conditions as classical resection [10]. Several studies have compared monopolar TURP to bipolar TURP [17-20] or monopolar TURP with Bipolar prostatic vaporization [21] or Greenlight [22] or prostatic enucleation with Holmium Laser (HoLEP) [23].

The most well-known intraoperative complications of monopolar TURP include: bleeding which may require transfusion, resumption syndrome and urine retention by clot or incomplete resection.

The incidence of bleeding after monopolar TURP requiring transfusion varies between 0.4 and 7.1% [10, 14, 24, 25] versus zero transfusion during bipolar prostatic vaporization [25]. We did not note any bleeding complications requiring transfusion as shown in Table 1. Over time this bleeding complication has greatly improved thanks to the experience acquired by urologists. This was demonstrated by a 30-year retrospective mono-center study which reported a rate of 44% of patients requiring blood transfusion after TURP in the 1970s compared to a rate of 11% in the 1980s and 4% in 1990s.

The use of glycolic acid contributes to the occurrence of TURP syndrome. This risk is also increased from 0.7% to 2% if the resection lasts more than 90 minutes and the weight of the resected prostate > 45g [14]. Pasha *et al.* [26] comparing the use of glycine or sterile distilled water for irrigation during TURP reported a rate of TURP syndrome of 15.3% and 11.8% respectively. In our series, the use of glycolic acid as an irrigation solution, the small volume of prostate to be resected and the experience gained over the past 2 decades have probably contributed to reducing or even eliminating this complication. In 2001, Guirassy in the same department had reported 0.74% of TURP syndrome [3]. The risk of "TURP syndrome" has decreased for ten years; it is currently evaluated at 0.1% [1, 23].

Urinary retention upon removal of the urethral catheter occurs in 3 to 9% of cases, the most common cause being detrusor hypoactivity [1, 23]. An indwelling bladder catheterization for two to four weeks can most often allow a spontaneous resumption of urination. Repeated TURP should therefore not be considered less than six weeks after the first TURP [1]. The urine retention rate of 4.65% in our series is within the range of the literature (Table 1).

The rate of orchiepididymitis in our series would probably be favored by the number of patients with catheters before the operation, the quality of the irrigation solution and the length of postoperative catheter wear.

5. Conclusion

TURP remains the gold standard treatment for complicated obstructive prostatic hyperplasia or after failure of drug treatment for the symptoms of the lower urinary tract for which it is responsible. Its indication is slightly improving in the light of a study carried out in 2001 in our department. However, the experience gained has reduced the complication rate of TURP. The hope of seeing its indications broaden is allowed thanks to the installation of mono and bipolar columns in our country and the proximity to the IUD application center for endo-urology in Dakar.

The study of the outcomes and morbidity of transurethral resection of the prostate could be continued with a prospective study comparing the monopolar and bipolar techniques.

Conflict of Interest Statement

The authors declare that they have no competing interests.

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