



ORIGINAL ARTICLE

Complications of Surgery for Benign Prostate Hyperplasia (BPH) in the Urology Department of University Hospital of Cocody

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Abstract

Aims: To assess the complications of surgery for benign prostatic hyperplasia.

Patients et method: We conducted a retrospective study in the urology department of university hospital of Cocody from January 01, 2020, to December 31, 2021. We collected 61 files of patients who presented complications from BPH surgery. The variables studied were age of the patients, comorbidity factors, surgical indication, volume of the prostate, surgical approach, duration of perform surgical, years of professional experience of surgeon and operative complications. Data were analyzed using STATA 10.1 software. The difference in data analysis was considered significant for p value < 0.05 .

Results: The average age of our patients was 68.92 ± 9.3 years. The main comorbidity factors of our patients were high blood pressure (58.34%) and diabetes (29.17%). The average prostate volume on ultrasound was 128.04 ± 73.15 cm³. Surgical indications were dominated by iterative acute urinary retention. The average duration of perform surgical was 111.92 ± 29.15 min and the average years of professional experience of surgeons was 6.53 years. Prostatic adenectomy was the approach with the most complications (37.50%) vs. endoscopic resection of the prostate (25%). Hemorrhage (38.11%) was the most common intraoperative complication. Postoperative complications were dominated by acute urinary bladder clots (35.21%). The occurrence of complications was not correlated with the volume of the prostate, the duration of perform surgical and the years of professional experience of the surgeons ($p > 0.05$).

Conclusion: The complications of surgery for benign prostatic hyperplasia are common in the urology department. It would therefore be important to equip the urology department with quality endoscopic surgery equipment in order to reduce the occurrence of complications.

Keywords

Benign prostatic hyperplasia, Adenectomy, Endoscopic resection of prostate, Complications

Introduction

Benign prostatic hyperplasia is a common disease in men over the age of 50. It is the first cause of subbladder obstruction [1]. There are several surgical treatment methods to remove the obstruction, such as prostatic adenectomy and endoscopic prostate surgery [1,2]. Endoscopic prostate surgery has undergone technological innovations over the last 10 years that have reduced perioperative morbidity and mortality [1,2]. Despite the technological advances, surgery for benign prostatic hyperplasia is still fraught with complications, some of which are common to the various surgical techniques. These complications may be specific to endoscopic surgery or to conventional open surgery. Complications of BPH surgery are becoming more and more frequent in our daily practice. The aim of this study was to determine the frequency of complications of BPH surgery, to report the complications related to each surgical technique and to analyse the risk factors

for the occurrence of these complications in the urology department of the University Hospital of Cocody.

Patients and Methods

We conducted a retrospective descriptive and analytical study in the urology department of the University Hospital of Cocody from January 1, 2020 to December 31, 2021. This study focused on all patients operated on for benign prostatic hypertrophy. During the study period, 192 surgical procedures for benign prostatic hypertrophy were recorded, including 104 open surgery (prostatic adenectomy) and 88 Transurethra prostate resection (TURP). We included in the study 61 patients who had at least one complication related to the surgical procedure. Complications were occurred while undergoing surgery and during hospital stay. Data were collected from individual patient files, hospitalization register, operative and anesthetic reports. Anamnestic, clinical and ultrasonographic data were searched using a pre-established individual survey sheet. Variables studied were age, comorbidity factors, operative indication, prostate volume, approach, duration of surgery, number of years of professional experience of the surgeon, and intra- and postoperative complications. Data were analysed with statistical software STATA 10.0.

We performed a univariate analysis to calculate percentages and averages, and a multivariate analysis to compare the averages with the use of the non-parametric Mann-Whitney test. Significance level was set at 5%.

Results

In total, 192 patients with benign prostatic hyperplasia were operated, 61 of them had complications related to the surgical procedure. The rate of complications was 31.77% in our study. Our patients had an average age of 68.92 \pm 9.30 years (range: 50 and 90 years). Twenty-four patients (39.34%) had at least one comorbidity factor, with predominantly arterial hypertension and diabetes (Table 1). The average prostatic volume on ultrasound was 128.04 \pm 73.15 cm³ (range: 30 and 350

cm³). The indications for surgery were dominated by iterative acute urinary retention followed by failure of medical treatment of benign prostatic hyperplasia and recurrent macroscopic haematuria (Table 1).

Hospital stay of patients ranged from 4 to 34 days after prostatic adenectomy and average days of hospital stay was 13.03 days. It was 8.38 days (range: 3 and 25 days) after transurethral resection prostate (TURP). As for the average time to removal of the bladder catheter was 14.31 days (range: 5 and 60 days) after prostatic adenectomy and 9.55 days (range: 2 and 25 days) after TURP. Duration of surgery for benign prostatic hyperplasia in complicated patients ranged from 55 to 175 minutes and average times was 111.92 \pm 29.15 minutes. It was 126.40 minutes after prostatic adenectomy and 86.30 minutes TURP. Surgical procedures were performed by surgeons who had an average age of professional experience of 6.53 years (range: 1 and 20 years). Forty-one surgeons (67.21%) had less than 5 years of professional experience.

Prostatic adenectomy was the approach that had the most complications. Thirty-nine patients (37.50%) out of 104 had complications related to prostatic adenectomy and 22 patients (25%) out of 88 had complications related to TURP. Complications were more or less related to the surgical procedure used. Haemorrhage was the most common complication to both surgical procedures (open surgery vs. TURP). Surgical wound infection and vesicocutaneous fistulas were the complications from prostatic adenectomy (Table 2).

TURP syndrom was specific to monopolar TURP (Table 2). In our study, the mortality rate was estimated at 0.52%. One patient died, death was secondary to septic shock occurring one day after TURP (Table 3).

Discussion

Prostatic adenectomy is the most commonly performed surgery for benign prostatic hyperplasia (BPH) in urology departments in sub-saharan Africa [3-5]. In addition, during the study period, 61 patients

Table 1: Patients characteristics.

	Number of patients	Percentage (%)
Comorbidities factors		
Asthma	1	4.16
Diabetes	7	29.17
Diabetes and high blood pressure	2	8.33
High blood pressure	14	58.34
Indications for surgery		
Failure of the medical treatment	21	34.43
Recurrent macroscopic hematuria	14	22.95
Acute retention of urine	25	40.98
Chronic retention of urine	1	1.64

Table 2: Presentation of patients according to complications related to the surgical procedure.

Complications related to adenomectomy	Number of patients (n = 39/104)	Percentage (%)
Bladder clotting with acute retention of urine	21	20.20
Peritoneal Effraction	3	2.88
Surgical wound infection and bladder fistula	4	3.85
Haemorrhage	29	27.88
Ligation of ureteral meatus	31	2.88
Surgical wound infection and acute orchi-epidymitis	1	0.96
Surgical wound infection	8	7.70
Complications related to TURP		
Bladder clotting with acute retention of urine	14	15.91
Septic shock	1	1.14
Abdominal distension	2	2.28
Capsular rupture	1	1.14
Haemorrhage	9	10.23
TURP Syndrome	6	6.82

Table 3: Comparative characteristics of patients with and without complications in relation to the duration of the procedure, prostate volume and number of years of professional experience of the surgeon.

Variables	Complications J0 (n = 48)	Absence of complications J0 (n = 13)	p
Average duration of procedure	112.10	101.62	0.97
Average prostate volume	138.63	97.73	0.19
Average number of years of experience			
Professional experience of surgeon	7.15	6.35	0.60
Variables	Complications J0-J6 (n = 11)	Absence of complications J0-J6 (n = 50)	p
Average duration of procedure	110.73	112.18	0.79
Average prostate volume	112.00	132.97	0.50
Average number of years of experience			
Professional experience of surgeon	5.00		0.15
Variables	Complications J7-J30 (n = 37)	Absence of complications J7-J30 (n = 24)	P
Average duration of procedure	108.14	117.75	0.15
Average prostate volume	124.52	136.47	0.97
Average number of years of experience			
Professional experience of surgeon	6.16	7.10	0.36

(31.77%) had complications related to BPH surgery. Our results were similar to those of Ondongo [4] who reported 34.44% of complications. The average age of our patients was 68.92 ± 9.3 years. Bah and al. had reported an average age to 67.17 years, which indicates that BPH is a disease of men over the age of 50 [3]. The main comorbidities in this study were high blood pressure (58.34%) and diabetes (29.17%). Botcho and al. [5] had reported 43.42% for arterial hyper pressure and 25% for diabetes. The comparatively high incidence of high blood pressure could be explained by the increasing incidence of cardiovascular disease in the elderly. The metabolic syndrome (diabetes and obesity) is thought to be involved in the pathophysiology of increased prostate volume in the young [6,7]. In this

study, 29.17% of our patients were diabetic, and we had not recorded any cases of obesity because our patients were relatively old (average age 68.92 years). Prostate ultrasound was performed preoperatively in all patients. It was used to look for mechanical and lithiasis complications of HBP. Ultrasonography was also used to evaluate the volume of the prostate. In this study, the average prostate volume was 128.04 ± 73.15 cm³. Bah [3] and Botcho [5] had found average prostate volumes 98 cm³ and 104.7 cm³ respectively. These observed large prostate volumes may explain the frequency of prostatic adenomectomy in Africa. However, endoscopic surgery could be performed, including laser enucleation (Holep), laser vaporisation (Green light), bipolar electrode enucleation (Bipolep) and bipolar electrode vaporisation

for large prostate volumes [1,2]. These procedures should be popularised in Africa in order to significantly reduce the bleeding complications associated with BPH surgery. In this study, the occurrence of complications was not related to prostate volume, the differences observed were not statistically significant ($p = 0.19$; $p = 0.50$ and $p = 0.97$). The most common indications for surgery in this study were acute iterative retention of urine (40.98%) followed by failure of medical treatment of BPH (34.42%) and recurrent macroscopic haematuria (22.95%). In the study by Bah and al. [3] indications for surgery were dominated by chronic bladder retention complicated by bilateral ureterohydronephrosis in 83.33% of cases. Prostatic adenectomy is still the most common in sub-Saharan Africa [3-5]. In this study, the rate was 54.16% compared to 45.84% for endoscopic surgery. Our results were comparable to those of Bah and al. [3] who had performed 73.89% open surgery against 21.68% endoscopic prostate surgery. Odongo and al. [4] in Congo had reported 82% open surgery. TURP was the most commonly performed BPH surgery in developed countries, in the USA (97%), France (81%), and Japan (70%) [8]. Utilization of open surgery in these countries ranged from 5% to 30% [8]. This difference could be explained by the fact that in these countries, patients consulted at early stages with small prostate volumes, making endoscopic surgery the main surgical treatment for BPH in developed countries. The duration of the surgical procedures in this study ranged from 55 to 175 minutes with an average of 111.92 ± 29.15 min. It was 86.30 min for TURP and 126.38 min for prostatic adenectomy. Botcho and al. had reported an average time of 61.5 ± 12.09 min for prostatic adenectomy [5] and Zango and al. [9] 68.79 min average time for TURP. The difference observed in this study could be explained on the one hand by the lack of quality endoscopic equipment and on the other hand by the limited availability of skills as the majority of our patients had been operated by surgeons (67.21%) with less than 5 years of professional experience. The most common complication in this study was bleeding (38.11%) while the procedure. It was not exclusive to one procedure, but in this study it was found after prostatic adenectomy (27.88%) and TURP (10.23%). The bleeding could be from capsular or cervical (bladder neck) origin. According to the literature, bleeding complications were associated with the weight of the prostate, the weight of the resected prostate tissue and the operative time [8]. In this study, they were related to the lack of control of bleeding due to the limited experience of the surgeons. The occurrence of complications was not related to the operating time and the number of years of professional experience of the surgeons, the differences observed were not statistically significant (operating time: $p = 0.97$; $p = 0.79$ and $p = 0.15$; professional experience: $p = 0.60$; $p = 0.15$ and $p = 0.36$).

TURP syndrom was the most common complication after the bleeding (6.82%), comparable to the cases reported in the literature, whose frequency varied between 0 and 5% [1,10].

The TURP syndrom in this study could be explained by the resorption of irrigation fluid through venous wounds or prostatic capsular perforation but also by the duration of the procedure which was more than one hour (average duration 86.30 min). The other complications observed were 3 cases of peritoneal invasions (2.88%) and 1 case of unilateral ureteral ligation (0.96%) while prostatic adenectomy, then 1 case of capsular effraction (1.14%) while TURP. Complications observed after procedure were dominated by acute retention of urine by bladder clotting. This was persistent haematuria with intra-vesical clots that occurred in the follow-up of high prostatic adenectomy (20.20%) and after transurethral resection of the prostate (15.91%).

Haematuria after procedure was therefore considered to be the most important immediate complication of BPH surgery.

Nowadays this perioperative bleeding seems to be better controlled by the various procedures for intra operative hemostasis and by the development of endoscopic surgery [1,2,11,12].

Other postoperative complications observed were surgical wound infections, bladder fistulas and acute orchi-epidymitis. Prostatic adenectomy was the procedure with the most complications in this study, with a rate of 37.50% vs. 5% TURP. The advantage of TURP over high approach prostatic adenectomy was well established in terms of postoperative morbidity and average length of hospital stay [1,10]. In this study, despite the complications observed, the average hospital stay for our patients was 13.03 days after prostatic adenectomy and 8.38 days after transurethral resection of the prostate. The perioperative mortality rate for BPH surgery had decreased over the last 30 years by approximately 0.25% [13]. The mortality rate in our study was 0.52%. The death occurred after transurethral resection of the prostate. It occurred as a result of septic shock.

Conclusion

Surgery for benign prostatic hyperplasia is, like all other surgeries, a high-risk surgery in view of the morbidity that surrounds it. The rate of these complications remains high and more common in prostatic adenectomy than in endoscopic resection of the prostate. Intra-operative bleeding and acute retention of urine by bladder clotting are the complications common to both surgical techniques. No risk factors for the occurrence of complications were found. It would therefore be important to equip the urology department with quality endoscopic surgical equipment in order to reduce the occurrence of complications.

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