International Journal of Research in Medical Sciences
Omodu JO et al. Int J Res Med Sci. 2024 Aug;12(8):2735-2739
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: https://dx.doi.org/10.18203/2320-6012.ijrms20242202

Original Research Article

Transurethral resection of the prostate: one-year experience in a single centre

Jack O. Omodu[1]*, Abiye F. George[2], Marie-Theres E. Clement[2]

[1]Colworth Medical Centre, Port Harcourt, Rivers State, Nigeria
[2]Department of Anaesthesia, Rivers State University Teaching Hospital, Port Harcourt, Rivers State, Nigeria

Received: 30 April 2024
Revised: 06 June 2024
Accepted: 02 July 2024

***Correspondence:**
Dr. Jack O. Omodu,
E-mail: gidaug@yahoo.com

ABSTRACT

Background: Benign prostatic hyperplasia (BPH) is the most common cause of lower urinary tract symptoms among older males. Transurethral resection of the prostate (TURP) still remains the gold standard in the treatment of benign prostatic hyperplasia. However, its availability is not widespread in most public healthcare facilities across sub-Saharan Africa. This study was designed to describe and share our experience of TURP in a single centre.
Methods: This is a retrospective evaluation of 64 patients who had TURP for bladder outlet obstruction secondary to enlarged prostate. The records of men who had TURP over a period of one year (January 2022-December 2022) were retrieved and reviewed. The pre-operative prostate specific antigen (PSA), pre-operative ultrasound measured size of prostate, resected weight of prostate, duration of surgery, duration of hospital stay, indication for TURP and complications were analysed.
Results: Sixty-four patients had TURP done during the period under review. The age range was 50-90 years (mean 68.33), the pre-operative prostate gland weight was 76.78gm. The mean resected weight was 53.9gm. The pre-operative serum prostate specific antigen PSA had a minimum value of 1.5ng/ml and the maximum was 50.8ng/ml with mean value of 13.8ng/ml. The mean duration of surgery was 55.73 minutes and the mean duration of hospital stay was 3 days. The most common indication for TURP was lower urinary tract symptoms. We recorded four complications; capsule perforation, clot retention, hypotension and stress incontinence, 60 patients had no complications.
Conclusions: Transurethral resection of the prostate is an effective surgical treatment for benign prostatic hyperplasia, it is associated notable improvement in the patient's quality of life and minimal complications.

Keywords: Benign prostatic hyperplasia, Prostate, TURP

INTRODUCTION

Diseases affecting the prostate gland constitute a significant contributor to the morbidity and mortality observed in ageing male demographic. Benign prostatic hyperplasia (BPH) is the most common cause of lower urinary tract symptoms (LUTS) among older males.[1,2] The prevalence of BPH increases after age 40 years with a prevalence of 8-60% at the age of 90 years.[3]

Transurethral resection of the prostate (TURP) remains the gold standard for decades against all other surgical intervention for the management of benign prostatic enlargement.[4] More recently, with the advent of other less invasive interventional methods such as transurethral microwave thermotherapy, Holmium enucleation of the prostate and transurethral vapour resection of the prostate, TURP as the gold standard has been called to question.[5-8]

Despite transurethral resection of the prostate (TURP) being considered the optimal therapeutic approach for benign prostatic hyperplasia (BPH), a significant proportion of patients requiring prostatic surgery in sub-Saharan Africa are unable to access this procedure within the majority of public healthcare facilities largely due to the paucity of competent skilled personnel, the enormous resources needed to set it up and the maintenance of the equipment. In the few centres where the facilities are available, ensuring affordability remains uncertain especially among the low-income groups without health insurance; these limitations are crucial impediments to the utilization of this therapeutic approach. This study was designed to describe and share our experience of TURP in a single centre.

METHODS

This is a retrospective evaluation of 64 patients who had TURP for bladder outlet obstruction secondary to enlarged prostate. This study was conducted at Colworth Medical Centre, Port Harcourt, Nigeria. The records of men who had TURP over a period of one year (January 2022 – December 2022) were retrieved and reviewed. Ethical approval was granted by the ethics and research committee of Rivers State University Teaching Hospital, Port Harcourt, Nigeria. The biodata, preoperative prostate specific antigen (PSA), preoperative ultrasound measured size of prostate, resected size of prostate, duration of surgery, duration of hospital stay, indication of TURP and complications.

Inclusion criteria

Patient with lower urinary tract symptoms (LUTS), failed medical treatment, American Society of Anaesthesiology (ASA) 1 and 2 were included.

Exclusion criteria

Patients with urethral stricture, congestive cardiac failure, chronic renal failure, hip dysplasia were excluded.

All the patients received subarachnoid block. Water was used as an irrigation fluid; the height from the urinary bladder to the water jug was 60 cm.

Patient placed in lithotomy position, draped completely and only the penis exposed. A check cystoscopy done with a cystoscope of 21 fr, to exclude intravesical stone or urethral stricture, a resectoscope size 22fr was inserted and resection commenced at 6^{o} clock position and taken upwards till the apex at 12^{o} clock. Same procedure performed on the contralateral side. The proximal extent of resection is the landmark of verumontanum. The energy source is a Karl Storz diathermy machine. A 3 way size 22 fr silicon catheter is inserted for effective bladder drainage. Postoperative irrigation is with the use of normal saline which is continuously irrigating the bladder for 24 hours and was discontinued following satisfactory light pink to clear urine effluents from the bladder. Catheter removed on the 3rd day and patient discharged.

Statistical analysis

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 27.

RESULTS

Sixty four patients had TURP done during the period under review. The age range was 50-90 years (mean 68.33±9.56 SD), the pre-operative prostate gland weight measured by pelvic ultrasound scan, the minimum weight was 44 gm and the maximum was 145 gm with a mean 76.78 gm. The minimum and maximum weights of resected prostate gland were 17 gm and 110 gm respectively, with a mean resected weight of 53.9 gm. The pre-operative serum prostate specific antigen PSA had a minimum value of 1.5 ng/ml and the maximum were 50.8 ng/ml with mean value of 13.8ng/ml. The mean duration of surgery was 55.73 minutes and the mean duration of hospital stay was 3 days.

Table 1: Patients characteristics.

Parameters	Minimum	Maximum	Mean	Std. Deviation
Age	50	90	68.33	9.557
Duration of surgery (mins)	20	140	55.73	23.649
Prostate gm	44	145	76.78	20.266
Resected gm	17.0	110.0	53.911	20.2834
Hospital stay	2	5	3.00	0.471
PSA ng/ml	1.5	50.8	13.8	2.5

The indications for TURP for this study is shown in Table 2. Forty-five patients had LUTS representing 70.3%, this was followed by recurrent AUR 18.8% and failed medical treatment was 9.3%, while bleeding prostate was 1.6%.

The complications were represented in Table 3; capsule perforation, clot retention, hypotension and stress incontinence (one patient each), 60 patients had no complications.

Table 2: Indications for TURP.

	Frequency	Percent (%)
Bothersome lower urinary tract symptoms (LUTS)	45	70.3
Recurrent acute urinary retention (AUR)	12	18.8
Failed medical treatment	6	9.3
Bleeding prostate	1	1.6
Total	64	100

Table 3: Complications.

	N	Percentage
Capsule perforation	1	1.6
Clot retention	1	1.6
Hypotension	1	1.6
Stress incontinence	1	1.6
Nil	60	93.8

A Shapiro-Wilk test for age showed normally distributed data W (64)=0.964, p=0.060. The Shapiro Wilk test showed a significant departure from normality for prostate gm W(64)=0.931, p=0.001 and time respectively W(64) = 0.893, p = 0.000 (Table 4).

Table 4: Shapiro-Wilk test of normality.

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Age of patient	0.964	64	0.060
Prostate gm	0.931	64	0.001
Time (mins)	0.893	64	0.000

Table 5 revealed that the size of the prostate has a significant positive correlation to duration of surgery (r=0.621, p=0.00).

Table 5: Spearman's correlation between age and time of surgery (mins) with size of prostate (gm).

	Prostate (gm)	
	Correlation coefficient	**P value**
Age	-0.030	0.814
Time (mins)	0.621**	0.000

**Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

Transurethral resection of the prostate still remains the gold standard in the treatment of benign prostatic hyperplasia. However, its availability is not widespread in most public healthcare facilities across sub-Saharan Africa.

The mean age of patients in this study is 68.33±9.56. This is similar to the mean age in related studies which reported the mean ages of 66.1±8.6, 69.26±10.46, 65.3±7.3 among patients with benign prostate.[9-11] There is no significant relationship between the age and the size of the prostate (r=-0.030, p=0.814).

The mean weight of resected prostatic tissues in this study was 53.91 gm which is like research conducted by Alhasan et al in Northern Nigeria, they documented a mean resected prostate tissue of 59.8 gm.[12] The weight of resected prostate tissue is a function of the pre-operative weight of the prostate as well as the expertise and experience of the surgeon. The resected size in this study is huge compared to the mean resected weight of 22.9 gm resected reported by Young et al.[13] The amount of prostate tissue to be resected in TURP varies, factors such as the size of the prostate and presence of comorbidities. Prolonged TURP in medically compromised patients with large prostate is associated with increased risk of transurethral resection of the prostate syndrome development.[14]

The mean duration of surgery reported in this study was 55.7 minutes and it is comparable to the findings of other researchers.[12,15] Mebust et al opined that TURP lasting longer than 90 min were associated with increased perioperative morbidity and mortality.[16] Documented report showed that overall morbidity increased with surgical duration and that the greatest increase occurred between TURP lasting 90-120 minutes.[17] There was a significant positive correlation between the size of the prostate and the duration of surgery (r=0.621, p=0.00)

This study recorded post-operative hospital stay of 2 to 5 days with a mean duration of 3 days which is comparable with mean post-operative mean hospital stay of 3.8 days reported by Mbaeri et al.[9] Mean hospital stay of 8.7 days was reported by other researchers.[18] Mean hospital stay of 2 or less post-operative has been reported in a study by Rahman and co-workers.[19] This findings was similar to Khan et al who observed that day case TURP was feasible in single stage surgeries.[20] However, the patients used in these studies with 2 days or less were noted to have small size prostate with consequent smaller resected weight and relatively shorter resection times

The mean serum PSA in this study was 13.8ng/ml this is closely similar to mean PSA of 13.3 ng/ml reported by Chukwujama and colleagues.[18] Mbaeri et al study revealed a relatively high mean serum PSA of 25.61 ng/ml and this reflects a large prostate volumes seen among their patients.[9]

A total of 4 patients developed complications in this study, complications recorded were; clot retention, hypotension, capsular perforation and stress incontinence, complications were not common in this study, measures taken to mitigate perioperative complications were intraoperative haemostasis, meticulous and systematic organized resection, staged resection for large prostate. With the implementation of staged TURP at our facility,

patients who initially declined open prostatectomy now show preference for staged TURP as a measure to mitigate the potential complications associated with large prostate. As the surgical duration increases, there is an increase in the rate of complication after TURP. The overall complication rate for TURP has been reported to range from 6.5 to 23.2%.[21] The complication rate in this study was 6.4%, this is similar to the findings by Chimaobi et al who reported an overall complication rate of 6.7%.[22] None of the patients in this study exhibited symptoms characteristic of TURP syndrome, similar to those documented in previous research.[12]

This study has few limitations. The patients' satisfaction for TURP was not included in this study due to the retrospective design of the study. Another limitation is the small sample size used in this study, a large sample size might give a better representation of the outcome.

CONCLUSION

Transurethral resection of the prostate is an effective surgical treatment for benign prostatic hyperplasia, it is associated with reduced hospital stay as well as notable improvement in the patient's quality of life and minimal complications.

ACKNOWLEDGEMENTS

Authors would like to thank all who were involved in making this manuscript a success, especially the medical record department for making available for the research.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Nwafor CC, Keshinro OS, Abdu EK. A histopathological study of prostate lesions in Lagos, Nigeria: A private practice experience. Niger Med J. 2015;56(5):338-43.
2. Berry SJ, Coffey DS, Walsh PC, Ewing LL. The development of human benign prostatic hyperplasia with age. J Urol. 1984;132(3):474-9.
3. Lim KB. Epidemiology of clinical benign prostatic hyperplasia. Asia J Urol. 2017;4(3):148-51.
4. Reich O, Gratzke C, Stief CG. Techniques and long-term results of surgical procedures for BPH. Eur Urol. 2006;46(6):970-8.
5. Shvero A, Calio B, Humphreys MR, Das AK. HoLEP: the new gold standard for surgical treatment of benign prostatic hyperplasia. Can J Urol. 2021;28(S2):6-10.
6. Tuhkanen K, Heino A, Aaltomaa S, Ala-Opas M. long-term results of contact laser versus transurethral resection of the prostate in the treatment of benign prostate hyperplasia with small or moderately enlarged prostates. Scand J Urol Nephrol. 2003;37(6):487-93.
7. Herrmann TR, Georgiou A, Bach T, Gross AJ, Oelke M. Laser treatments of the prostate vs TURP/ open prostatectomy: systematic review of urodynamic data. Miner Urol Nefrol. 2009;61(3):309-24.
8. Hoffman RM, Monga M, Elliott SP, Macdonald R, Langsjoen J, Tacklind J, et al. Microwave thermotherapy for benign prostatic hyperplasia. Cochr Datab Syst Rev. 2012;12(9):CD004135.
9. Mbaeri TU, Abiahu JA, Obiesie EA, Odo C, Oranusi KC, Nwafor AME, et al. Assessment of complications of transurethral resection of the prostate using Clavien-Dindo classification in South Eastern Nigeria. Niger J Surg. 2020;26:142-6.
10. Nnabugwu II. Ugwumba FO, Udeh EI, Ozoemena OF. Learning transurethral resection of the prostate: A comparison of the weight of resected specimen to the weight of enucleated specimen in open prostatectomy. Niger J Clin Pract. 2017;20(12):1590-5.
11. Harraz AM, El-Assmy A, Thartwat M, Elshal AM, El-Nahas AR, Barakat TS, et al. Predicting the resected tissue weight from a digital rectal examination and total prostate specific antigen level before resection of the prostate. Arab J Urol 2014;12(4):256-61.
12. Alhasan S, Aji S, Mohamed AZ, Malami S. Transurethral resection of the prostate in Nigeria, problems and prospects. BMC Urol. 2008;8:18.
13. Young MJ, Elmussareh M, Morrison T, Wilson JR. The changing practice of transurethral resection of the practice. Ann R Coll Surg Engl. 2018;100(4):326-9.
14. Tela UM, Lawan AM, Olajide BD. Monopolar transurethral resection of prostate: our initial experience in a new African hospital with few resources. Int Surg J. 2020;7(11):3546-9.
15. Vaz AS, Ribeiro S, Lopes JD, Figueiredo E. Transurethral resection of the prostate-like syndrome after double-j replacement in a patient with chronic spinal cord Injury: Case Report. J Endourol Case Rep. 2020;6(4):336-8.
16. Mebust WK, Holtgrewe HL, Cockett AT, Peters PC. Transurethral prostatectomy: immediate and postoperative complication. A cooperative study of 13 participating institutions evaluating 3,885 patients. J Urol. 1989;141(2):243-7.
17. Uchida T, Ohori M, Soh S, Sato T, Iwamura M, Ao T, et al. Factors influencing morbidity in patients undergoing transurethral resection of the prostate. Urology. 1999;53(1):98-105.
18. Chukwujama, Oguike T, Azike J. Transurethral resection of the prostate a 3-year experience. Niger J Surg. 2011;17(1):15-8.
19. Rahman MM, Gupta SD, Mridha NI, Wahid M, Begum F. Comparative study between outcome of early and conventional catheter removal after

transurethral resection of prostate. Bangladesh J Urol. 2017;20(2):82-86.
20. Khan A. Day care monopolar transurethral resection of prostate: Is it feasible? Urol Ann. 2014;6(4):334-9.
21. Akpayak I, Shuaibu S, Onowa V, Nabasu L, Galam Z. Monopolar transurethral resection of the prostate for benign prostatic hyperplasia: What are the outcomes and complications in our patients? Niger J Med. 2017;26(2):173-7.
22. Chimaobi GO, John ER, Nuhu KD, Samaila IS, Julius A, Isaac MY. Surgical management of benign prostate hyperplasia in Nigeria: open prostatectomy versus transurethral resection of the prostate. Pan Afri Med J. 2021;39(165).

Cite this article as: Omodu JO, George AF, Clement MTE. Transurethral resection of the prostate: one-year experience in a single centre. Int J Res Med Sci 2024;12:2735-9.