

Original Research Article

Monopolar trans-urethral resection of prostate: our initial experience in a new African hospital with few resources

Usman Mohammed Tela*, Abdu Mohammed Lawan, Babatunde David Olajide

Department of Surgery, University of Maiduguri Teaching Hospital, Borno State, Nigeria

Received: 09 September 2020

Accepted: 07 October 2020

*Correspondence:

Dr. Usman Mohammed Tela,

E-mail: umtela@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Diseases of the prostate including benign prostate hyperplasia constitute a significant portion of cases that are routinely managed by urologists worldwide. Where there is need for surgical intervention of clinical BPH, monopolar trans-urethral resection of prostate is a gold standard surgical option. The objective of our study is to describe and share our initial experience of monopolar TURP in our new African hospital with few resources, a stepping stone for future comprehensive research on TURP and urology capacity building.

Methods: Retrospective study of twelve patients who had M-TURP using sterile distilled water as irrigation fluid over one year period, at Yobe State University teaching hospital, a new hospital in North-Eastern Nigeria. Data related to the TURP were extracted from the patients' folders and operation theatre register, and then analyzed.

Results: The mean age of patients was 67.4 years, recurrent urine retention was the commonest indication for M-TURP (50.0%), preoperative mean volume of prostate was 45.8 ml, mean duration of surgery was 63.8 minutes and mean weight resected prostatic chips was 18.4 grams. There was low complication rate (16.7%).

Conclusions: M-TURP using sterile water as irrigation fluid is efficacious, reliable and pocket-friendly surgical option for our patients that needed surgery for clinical BPH. Patient selection and minimizing the time spent on M-TURP are of paramount importance in avoiding or reducing the risk of complications as observed in our study.

Keywords: Monopolar trans-urethral resection of prostate, Sterile water, BPH, TURP

INTRODUCTION

Diseases of the prostate constitute a significant portion of the cases managed by urologists worldwide, and are substantial sources of morbidity and mortality among aging male population. Clinical benign prostate hyperplasia (BPH) is the most common cause of lower urinary tract symptoms (LUTS) among ageing.^{1,2} Treatment modalities for BPH continued to evolve over the last decades. The absolute indications for primary surgical management of BPH are when it exist with refractory urinary retention, recurrent urinary tract infection, recurrent gross haematuria, renal insufficiency secondary to bladder outlet obstruction, bladder calculi,

permanently damaged or weakened bladder and Large bladder diverticula that do not empty well secondary to an enlarged prostate.³

Monopolar trans-urethral resection of prostate (M-TURP) is a well-recognized standard surgical therapy for clinical BPH with size between 30 mls and 80 mls refractory to medical therapy, while open prostatectomy is preferred for BPH size >80 mls. TURP can also be done as bipolar resection. Other minimally invasive procedures apart from TURP include transurethral incision of prostate (TUIP) usually for glands <30 mls and more recently holmium laser enucleation of prostate (HoLEP).^{4,5}

The objective of our study was to describe and share our initial experience of monopolar TURP in our new African hospital with limited resources, a stepping stone for a future comprehensive research on TURP and urology capacity building.

METHODS

This is a retrospective hospital based study on patients that had TURP over 1 year period, between July 2019 to June 2020, in Yobe State university teaching hospital located in North-Eastern Nigeria. This new Government hospital is barely 3 year old, and our few facilities for lower urinary tract endoscopy were procured by the hospital management just last year 2020. Ethical clearance for this study was obtained from the research and ethics committee of the hospital. Data were extracted from the clinical notes of the patients and the operation theatre register. Information obtained were the biodata, preoperative diagnoses, pre-operative volume of the prostate gland by pelvic ultrasound scan, duration of the TURP surgery, type of anaesthesia, volume of the resected prostatic chips, histology result of the prostatic chips, duration of hospital stay, duration of indwelling urethral catheter and complications related to the TURP and outcome of the surgery. The data were analyzed and presented as tables and graph.

Surgical technique

Preamble; each M-TURP was done at a cost equivalent to 125 US Dollars; this is the affordable controlled price for the patient in this hospital. Sterile water is readily available and free in the hospital, which saved the patient the additional cost of buying 15 litres of 1.5% glycine solution in Nigeria, equivalent to 300 US Dollars.

All the procedures were done under spinal anaesthesia. Patients were placed in dorsal lithotomy position. About 10 to 15 litres of distilled sterile water at body temperature was used as irrigation fluid. It was placed at 60cm above the level of symphysis pubis of the patient on the operating table. Routine cleaning done from the xiphisternum to the mid-thigh followed by draping of the patient. The procedures were performed under by single consultant urologist under antibiotic cover. Initially, urethro-cystoscopy was done to rule out concomitant mucosal lesions, calculi and other abnormalities. All the procedures were done using Barnes's method of TURP (resection of the median lobe first, then the lateral lobes starting from bottom to top).⁶ This method was more conversant to the operating urologist. A size 26 Fr, well lubricated double channel resectoscope (active working element) which ensures continuous flow of irrigation fluid during resection, was used for the procedures. A monopolar electro-surgical unit with diathermy settings of 130 and 60 W for cutting and coagulation respectively. The verumontanum was used as a guide and landmark in other to avoid damage to the external urethral sphincter. Haemostasis secured by intermittent coagulation and

resection using the roller ball electrode and cutting loop. The resected prostatic chips were evacuated using Ellik's evacuator. After ensuring adequate haemostasis as evidenced by clear urine, a size 24 Fr 3 way silicone urethral catheter was passed and urine bag attached for continuous bladder drainage, and irrigation in the first 6-24 hours post-operative, antibiotics and analgesics were continued for the for 3-5 days and postoperative bladder irrigation with 0.9%. Normal saline was discontinued within 24 hours. The resected chips were weighed in grams using a standard weighing scale. Urethral catheter was removed after 5 days post-operative, and then discharged home after assessment. Outcome of Surgery was considered satisfactory by asking the patient to void with direct visualization of urine stream and by inquiring for satisfaction from the patient.

RESULTS

Twelve patients had TURP done during the period under review. The ages of the patient ranged from 57 to 80 years, with a mean age of 67.4 years and median age range of 70-79 years as shown in (Figure 1). The indications for TURP were itemized in (Table 1), and the weights of resected prostatic chips were displayed as ranges and frequency in (Table 2).

Table 1: Indications for TURP.

Indications for TURP	Frequency of preoperative diagnoses related to their indications for TURP	Percentage
Recurrent urine retention	6	50.0
Obstructive uropathy	4	33.3
Recurrent gross haematuria	1	8.3
Failed medical treatment of BPH	1	8.3
Total	12	100.0

Pre-operative prostate gland volumes were measured by pelvic ultrasound scan, minimum volume was 30 mls and maximum volume obtained was 73 ml, with a mean preoperative prostatic volume analyzed as 45.8 ml. The minimum and maximum weights of resected prostatic chips were 9 grams and 30 grams respectively, with a mean weight of 18.4 grams. The mean duration of hospital stay was 5 days and duration of surgery was 63.8 min. Uncontrollable haemorrhage with clot retention was encountered in one of the cases, which necessitated conversion to open transvesical prostatectomy, another patient had right epididymo-orchitis, giving rise to a total 2 (16.7%) complications. Both of the patients were

managed successfully. We had no case of trans-urethral resection (TUR) syndrome or any other complication. Histology results of prostatic specimens in all patients revealed Nodular hyperplasia, and no evidence of malignancy. Operative pictures in a TURP case is represented in (Figure 2).

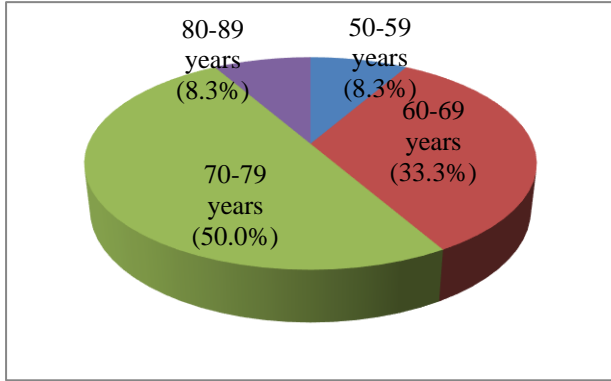


Figure 1: Frequency distribution of the age range of the patients.

Table 2: Frequency of resected prostatic chips between ranges in grams.

Weight of prostatic chips in (grams)	Frequency	Percentage
5-9	1	8.3
10-14	1	8.3
15-19	5	41.6
20-24	2	16.6
25-29	2	16.6
30-34	1	8.3
Total	12	100.0

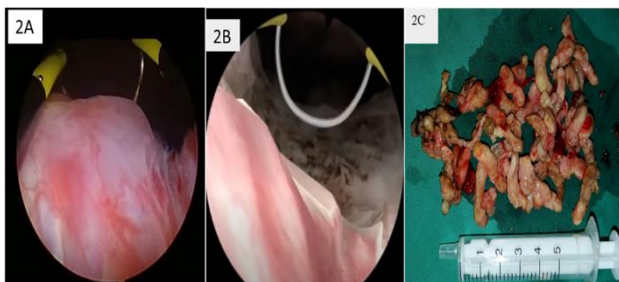


Figure 2: A) and B) Intra-operative picture of M-TURP, C) resected prostatic chips in one of the patients.

DISCUSSION

In this study under review our patients’ mean age of 67.4 years have closely corresponded with the mean ages of 63.6 years, 67.0 years and 69.4 years in the earlier studies of Eziyi et al, Akpayak et al and Omodu et al respectively in different regions of Nigeria.⁷⁻⁹ These suggest that the patients operated were predominantly in their seventh decade. Recurrent urine retention secondary to BPH was

the predominant indication for TURP as shown in (Table 1), this is similar to the previous study in Nigeria, and perhaps, it is among the top list of indications according to the current EAU guidelines.^{5,10}

In this study, sterile distilled water was used as irrigation fluid during TURP in all the cases, this is similar to its successful use due to its availability, affordability and safety as reported by earlier studies.^{7,9,11} The mean weight of resected prostatic tissues in our study was 18.4 grams, which is close to the mean weight of 20.7 grams during TURP cases in 2010 reported by Young et al.¹² However, another study in Nigeria revealed a larger mean/ average resected tissue weight of 59.8 grams, this could probably be due to their huge sample size of 502 patients compared to ours.¹³ Although, the earlier recommendation of Nesbit in 1970 was complete resection of the adenoma during TURP, but till date, still there is no consensus on how much tissue should be resected or how complete the TURP should be?^{14,15} What is more important is not the size of the tissue resected, but rather improvement in lower urinary tract symptoms (LUTS) and patients’ satisfaction.

The mean duration of surgery in our study was 63.8 minutes which closely correspond with 64.1min reported by Alhasan et al, these two are not far from the recommended safe resection time of less than or equal to 60 minutes, in other to prevent the risk of TUR syndrome through the absorption of large volume of bladder irrigation fluid.^{13,16} It is advisable for young urologists trying to learn TURP to select their patients very well, and perhaps avoid patients with comorbidities at their early period of learning the skills of TURP.

Our mean duration of hospital stay as 5 days seems to be longer than the 2.56 days reported by Agrawal et al, this could be probably due to the learning curve of young urologist who performed all the cases in our series.¹⁴ Study by Chukwujama et al reported mean duration of hospital stay of 8.7 days longer than ours, this was attributed to the presence of diabetes, chronic kidney disease and occurrence of capsular perforation in their series, which were completely absent in our study.¹⁰ In our study one of the patient developed haemorrhage with clot retention intra-operatively, it was difficult to control, hence necessitated conversion to open trans-vesical prostatectomy and had satisfactory post-operative outcome. Every endo-urologist should be well equipped with sound knowledge and skills of open urological procedures, in other to salvage himself in case of eventualities. The second complication observed in our study was right epididymorchitis, which was managed successfully with antibiotics, analgesic and scrotal elevation.

CONCLUSION

Although newer techniques for endoscopic management of BPH are unavailable in our hospital, but M-TURP

using sterile water as irrigation fluid was found to be efficacious, reliable and pocket-friendly surgical option for our patients that needed surgery for clinical BPH. Patient selection and minimizing the time spent on M-TURP are of paramount importance in avoiding or reducing the risk of complications as observed in our study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Nwafor CC, Keshinro OS, Abudu EK. A histopathological study of prostate lesions in Lagos, Nigeria: A private practice experience. Niger Med J. 2015;56(5):338-43.
2. Lim KB. Epidemiology of clinical benign prostatic hyperplasia. Asian J Urol. 2017;4(3):148-51.
3. McConnell JD, Barry MJ, Bruskewitz RC. Benign prostatic hyperplasia: diagnosis and treatment. Agency for Health Care Policy and Research. Clin Pract Guidel Quick Ref Guide Clin. 1994;(8):1-17.
4. Oelke M, Bachmann A, Descalzeaud A, Emberton M, Gravas S, Michel MC, et al. EAU guidelines on the treatment and follow-up of non-neurogenic male lower urinary tract symptoms including benign prostatic obstruction. Eur Urol. 2013;64(1):118-40.
5. Gravas SJN, Cornu JN, Gacci M, Gratzke C, Herrmann TRW, Mamoulakis CRM, et al. EAU Guidelines presented at the EAU annual congress Amsterdam 2020. Available at: <https://uroweb.org/guidelines/>. Accessed on 20 July 2020.
6. Blandy JP, Reynard JM, Notley R. Transurethral resection. 5th ed. United States: CRC Press; 2005.
7. Eziyi AK, Olajide AO, Asafa OQ, Ayomide OO, Oyeniyi AG, Ojewuyi OO. Preliminary experience with monopolar transurethral resection of prostate. IOSR-J Med Dental Sci. 2017;16(8):16-21.
8. Akpayak IC, Shuaibu SI, Onoma VE, Nbasu LE, Galam ZZ. Monopolar transurethral resection of the prostate for benign prostate hyperplasia: What are the outcomes and complication in our patients? Niger J Med. 2017;26:173-7.
9. Omodu OJ, Okengwu C, Gershon-Wali C. A three year review of the use of sterile water as an irrigation fluid for transurethral resection of the prostate (TURP). Int J Inno Med Health Sci. 2020;12:69-72.
10. Chukwujama NO, Oguike T, Azike J. Transurethral resection of the prostate a 3 year experience. Niger J Surg. 2011;17:15-8.
11. Young MJ, Elmussareh M, Morrison T, Wilson JR. The changing practice of transurethral resection of the prostate. Ann R Coll Surg Engl. 2018;100:326-9.
12. Memon A, Buchholz NP, Salahuddin S. Water as an irrigant in transurethral resection of the prostate: a cost-effective alternative. Arch Ital Urol Androl. 1999;71(3):131-4.
13. Alhasan S, Aji S, Mohammed AZ, Malami S. Transurethral resection of the prostate in Northern Nigeria, problems and prospects. BMC Urol. 2008;8:18.
14. Nesbit RM. Transurethral prostatic resection. In: Campbell L, Harrison J, eds. Urology. Philadelphia: Saunders; 1970;2479.
15. Agrawal M, Kumar M, Pandey S, Aggarwal A, Sankhwar S. Changing profiles of patients undergoing transurethral resection of the prostate over a decade: A single-center experience. Urol Ann. 2019;11(3):270-5.
16. Moorthy HK, Philip S. TURP syndrome-current concepts in the pathophysiology and management. Indian J Urol. 2001;17:97-100.

Cite this article as: Tela UM, Lawan AM, Olajide BD. Monopolar trans-urethral resection of prostate: our initial experience in a new African hospital with few resources. Int Surg J 2020;7:3546-9.