

TRANSURETHRAL RESECTION OF THE PROSTATE IN COMMUNITY OUTREACH: WHAT ARE THE LESSONS?

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ABSTRACT

Background: Transurethral resection of the prostate is the gold standard for treating benign prostate enlargement that presents with complications or worsening lower urinary tract symptoms despite medical treatment. We report the experience of transurethral resection of the prostate in indigenous community in the sub-Saharan Africa.

Methods: Arrangements were made with selected communities for transportation of endoscopic instruments by road. Medical officers were taught on the inclusion and exclusion criteria for men suitable for transurethral resection of prostate. Scheduled visits were arranged between January 2016 and December 2019.

Results: Fifty-five men age range 45-98years underwent TURP. The mean prostate volume, preoperative infection rate, operation time, hospital stay, postoperative day of catheter removal, and incidental prostate cancer were 52.5 cm³, 9%, 41.3 minutes, 2 days, 5 days, and 5.5% respectively. There was an increase in TURP per year from 4 to 20 patients. The postoperative complication rate was 4%.

Conclusion: TURP in the indigenous and pensioners community is feasible, accessible, with satisfactory outcome. The government needs to support this initiative of scheduled community outreach to ensure modern day treatment is brought to the doorstep of her citizens.

Keywords: single surgeon, community TURP, lessons.

INTRODUCTION

Benign prostate enlargement is common in men with increase in age. About 50% of men less than 50 years and 80% of men above 80 years are likely to have lower urinary tracts symptoms due to benign prostate enlargement.¹ The common indications for surgery include worsening lower urinary tract symptoms or the presence of complications such as recurrent acute urinary retention, recurrent urinary tract infections, recurrent haematuria and renal impairment.^{2,3}

The gold standard of treatment is transurethral resection of prostate (TURP). Others which depend on the environment and the available facility include open prostatectomy, transurethral vaporization, holmium laser enucleation of the prostate, laser diode prostatectomy and bipolar vaporization of prostate.^{4,5} About 93% of sub-Saharan Africa lacks access to safe, affordable, and timely surgical care, compared with less than 10% in high-income countries. The implication is that such treatment modalities are often available in the urban centres.⁴ However, TURP was performed safely among rural dwellers in India with good outcome.⁶

We therefore looked at the ways we could get to the rural sub-Saharan Africans by scheduling urological outreach to a hospital in northern Nigeria patronized by pensioners and their families as well as in missionary hospital in Eleta, an indigenous area in Ibadan located in southwest Nigeria. We report the outcome of TURP in these environments in sub-Saharan Africa.

MATERIALS AND METHODS

Setting: A catholic missionary hospital in Eleta area of Ibadan and the Nigeria National Petroleum Cooperation Industrial hospital mostly attended by pensioners and their families in Kaduna in northern Nigeria. The missionary hospital is in an area mostly populated by native/indigenous people of Ibadan.

Study design: The inclusion criteria were worsening lower urinary tract symptoms despite alpha-blockers, recurrent acute urinary retention, recurrent haematuria, intravesical protrusion of the prostate, bladder stones and back pressure effects such as thickened bladder wall and bilateral hydronephrosis. While the exclusion criterium was for patients with prostate size greater

than 100g. The medical officers in community without urologist were taught on patient selection criteria for TURP.

Patients who fulfilled the inclusion criteria were discussed with the visiting consultant urologist. Their tests results were reviewed via WhatsApp and twice a year visits and quarterly visits were fixed for Kaduna and Ibadan zones respectively. The urologist's personal endoscopic instruments were used for the urology outreach.

Participants: Men with benign prostate enlargement with complications and who underwent TURP.

Variables: Age (years), prostate volume (in cubic centimeter estimated by ultrasound), international prostate symptom score, indications for surgery, operation time, blood transfusion rate, days on admission, days for urethral catheter removal, presence of postoperative complications and infection rate.

Data sources: The data was prospectively recorded in a Microsoft Excel sheet. Data was analyzed with simple statistics of mean, percentages and represented graphically and in tables.

Study size: Fifty-five men with benign prostate enlargement.

Technique of TURP:

Patients were given spinal anaesthesia with 2.5% bupivacaine. The position was supine with legs suspended in stirrups. Routine perineal, external

genitalia and lower abdominal skin preparation with 10% povidone iodine solution and sterile drapes applied to expose operation site. Irrigation fluid is boiled lukewarm water into which was added 80mg of gentamicin/10litre of fluid. Initial Cystoscopy was done, and operation findings noted. A 24F continuous flow monopolar resectoscope sheet was inserted. Systematic resection at 4-5 O'clock and 7-8 O'clock was done followed by resection of middle lobe to the proximal edge of the verumontanum and then right and left lateral lobes resection. Coagulating roller ball was applied to secure hemostasis till clear fluid is returned from the bladder, followed by insertion of 3-way 22F silicone Catheter. Patients were discharged within 24 to 48 hours of surgery and their urethral catheters were removed on the 5th day after surgery. *Outcome:* Intraoperative assessment of urine flow was demonstrated by distending the bladder with sterile water and applying fundal pressure to observe steady calibre urine stream. Postoperative improvement in lower urinary symptoms and complications were noted.

Ethical issues: The hospitals concerned invited the urologist to offer urologic services to their patients who could not afford the high cost of TURP in the rural and urban centres. All the patients signed a written informed consent.

RESULTS

There were 55 men with a mean age of 65.9 (range 45-98) years. The mean preoperative international prostate symptom score (IPSS), and prostate volume (PV) were 19.8(14-35) and 52.5(20.4-89) cm³. The

Table 1: Demographics, operation findings, preoperative and postoperative TURP infection rate and organism isolated

| Demographics, operation findings, preoperative and postoperative TURP infection rate and organism isolated. | | |
|---|--|----|
| Patient demographics | | |
| Mean age (range) years | 65.9 (45-98) | |
| Mean IPSS | 19.8(14-35) | |
| Mean prostate volume (cm ³) | 52.5(20.4-89) | |
| Operation findings | | |
| | n (%) | |
| Middle lobe & lateral lobes enlarged | 28(51) | |
| Middle lobe enlargement | 20(36) | |
| Lateral lobes enlarged | 7(13) | |
| Bladder stones | 4(7) | |
| | Preoperative n (%) | |
| | Postoperative n (%) | |
| Overall Infection rate | 5(9) | |
| | 2(4) | |
| Total number with urethral catheter no UTI | 9 (16.4) | 55 |
| Total number with urethral catheter & UTI | 5 (9) | 0 |
| Total number with urethral catheter | 14 (25.5) | 55 |
| Reactionary haemorrhage | 0 | 1 |
| Left acute epididymo-orchitis | 0 | 1 |
| Organism isolated | | |
| | Preoperative [sensitivity] | |
| | Postoperative | |
| Pseudomonas aeruginosa | 2 [amikacin (2), meropenem (1), Augmentin (1)] | 0 |
| Escherichia coli | 1 [imipenem & amikacin] | 0 |
| Klebsiella specie & Staph. aureus | 1 [nitrofurantoin & ofloxacin] | 0 |
| Staphylococcus aureus | 1 [ofloxacin] | 0 |

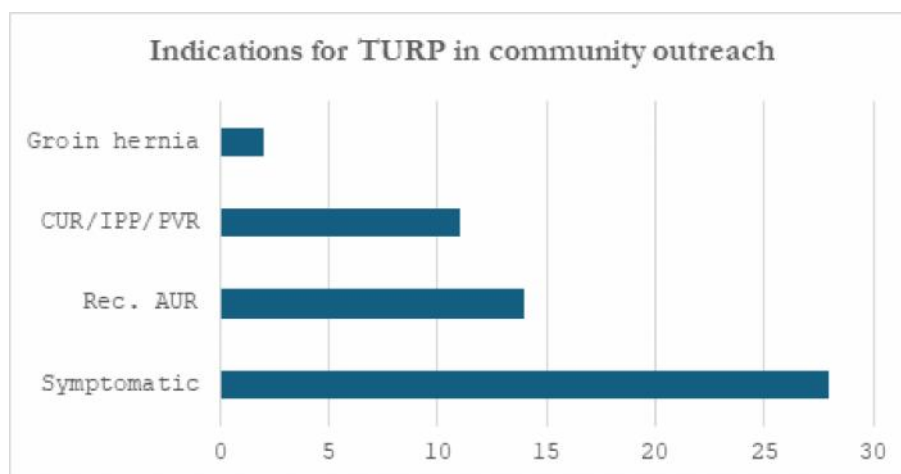


Fig. 1: Indications for TURP

prevalence of incidental prostate cancer Gleason's score 3+4 = 7 was 5.5% and mean operation time was 41.3 minutes. All patients were discharged between 24 and 48 hours and their catheters were removed on day 5. No patient was transfused.

Table 1 shows operation findings, the pre-and post-TURP infection rates of 9% and 4% respectively with

Pseudomonas species as the commonest organism isolated. The others postoperative complications were reactionary haemorrhage¹ and acute epididymo-orchitis¹.

Figure 1 shows the indications for TURP namely symptomatic (28,51%), recurrent acute urinary retention (14,25%), chronic urinary retention (11,20%) and groin hernia (2,4%).

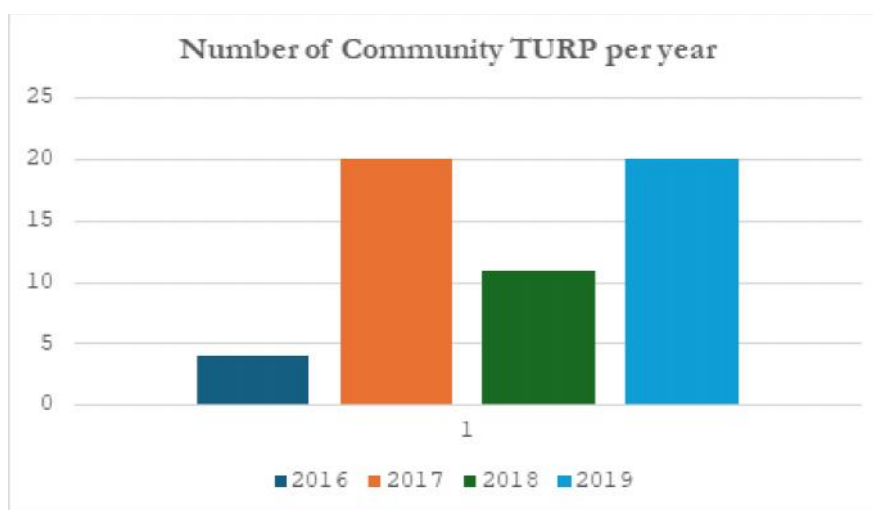


Fig. 2: Number of TURP performed per year.

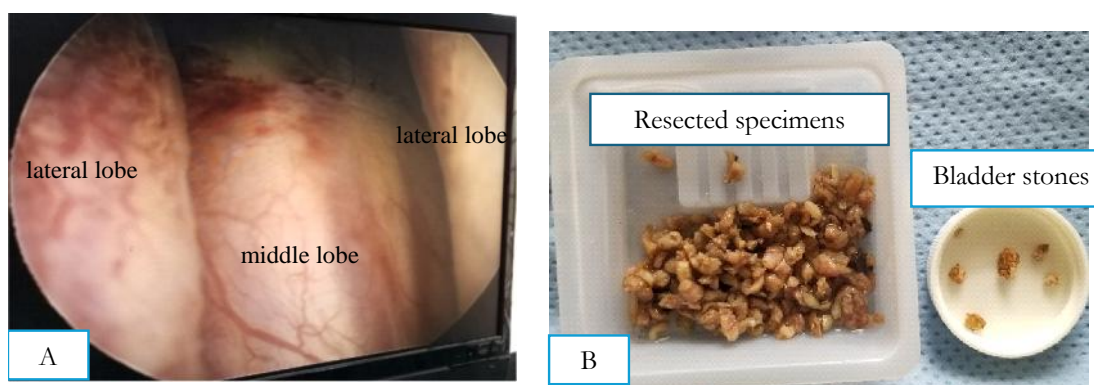


Fig.3A: middle and lateral prostate lobes. 3B - resected prostate specimen and bladder stones

Figure 2 shows the number of TURP performed per year initial increase and plateau at the 4th year.

The operation findings were combined middle and lateral lobes enlarged²⁸, only middle lobe enlarged²⁰, and only lateral lobes⁷ as well as the resected specimens and bladder stones shown in Figures 3A and 3B.

DISCUSSION

The mean age of patients who underwent TURP in this study is consistent with other studies of 65 and 67 years.^{1,2,7,8}

Two (3.6%) of patients in this present study had symptomatic direct inguinal hernia in addition to other indications such as worsening lower urinary symptoms, recurrent acute urinary tract retention, chronic urinary tract retention and recurrent urinary tract infections.^{2,3} Chukwujama *et al.* and Liu *et al.* both reported mean and range of prostate volume similar to this study, but the operation time was double that in this study. This might be related to the experience of the urologist. It is of note that the upper limit of prostate resected in this study was above the recommended 80g by the European Association of Urology guideline. The increased volume could be explained by 36% and 51% of patients in this study who have purely intravesical protrusion of prostate (middle lobe enlargement) and combination of intravesical protrusion and lateral lobes enlargements. Persu *et al.* demonstrated that prostate gland larger than 95g are easily treated by TURP with operation time range of 40 to 75 minutes as observed in a few patients in this present study.⁹

The preoperative urinary tract infection rate of 9% is like that reported by Alhassan *et al.*⁸ This may be due to similar patient population northern Nigeria included in this present study. The urinary tract isolates of *Klebsiella*, *Escherichia*, *Staphylococcus* species were similar though there was a predominance of *pseudomonas* species in this study compared to *Escherichia coli* in the Alhassan *et al.* study. The possible reason for this level of preoperative urinary tract infections is related to the urethra catheterization that is corroborated by Li *et al.* in China.^{3,11} Therefore, there is the need to ensure adherence to proper aseptic technique of urethral catheterization.

Okeke reported day case TURP using caudal anaesthesia where patients were discharged same day of surgery however, in this study we discharged our patient on day 2 after surgery because they had spinal anaesthesia. This has been found to reduce cost of admission and encouraged feasibility and safety of TURP in the community without urologist.^{6,11} The removal of urethral catheter at day 2 was preferred to removal on

day 4 as a means of further reducing cost of hospital stay.¹² In this study all catheters were removed on the 5th day after surgery in the out-patient clinic. This may have contributed to the reduction of the post-operative infection rate to 4% similar to, Akpayak *et al.* in Jos Nigeria who removed catheter on day 3-5.⁷ However, other studies reported higher post-operative urinary tract infections in the range of 7%, 9.4%, 15.5% and 18.8%, respectively.^{2,8,10,13} Unlike Persu *et al.*,⁹ who reported 8% incidence of acute urinary retention in TURP performed in men with prostate size 90mls to 150mls, there was no incidence of acute urinary retention in this community TURP where urethral catheters were removed on the 5th day after surgery. The incidence of incidental prostate cancer in this present study was comparable to that reported by Persu *et al.*, though more than that reported by Otto *et al.*, in the United State but much less than what obtained in Australia.^{9,14,15,16} These differences cannot be explained, however, the patients in this study like the majority in other studies were managed by active surveillance with stable serum prostate specific antigen at 1 to 3 years follow up period.

In this study there was a gradual increase in the number of TURPs performed per year with this initiative of going to the community to treat men with symptomatic benign prostate enlargement. The problem of the gradual wear and tear of these endoscopic instrument was recognized by Jumbam *et al.*, who recommended that governments in Africa should be more involved in the surgical treatment of their citizens.¹⁷ This outreach will further provide hands-on training opportunities for the surgical trainees. In India, the TURP performed in the rural area has the advantages of minimal trauma, short hospital stay, quick recovery compared to open prostatectomy and affordable compared to newer treatment options such as Holmium laser enucleation of prostate or evaporation of the prostate.⁶

In conclusion, the lessons of TURP in indigenous and pensioner environment are short hospital stay, reduced postoperative infection rate, increased ability of medical officers to select appropriate patients, affordability, and accessibility. Our governments should take advantage of this initiative by providing the endourological equipment to designated community hospitals. Schedule arrangement should be made for urologists and their surgical trainees to visit these rural centres and offer TURP to men with indications for this intervention. Government teaching hospitals can collaborate with international companies to provide endourological equipment at subsidized rate to rural African environment for the purpose of providing quality, and affordable surgical treatment to the citizen.

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Conflict of Interest: I declare none.

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