

The practice of palliative TURP for advanced prostate cancer: our experience in northern Tanzania

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Background: Palliative transurethral resection of the prostate (TURP) is one of the palliative treatments for advanced prostate cancer (PCa). Most PCa patients in sub-Saharan Africa present late, with many patients presenting to our centre requiring palliative TURP to relieve bladder outlet obstruction (BOO). An extensive literature search showed limited work on palliative TURP in sub-Saharan Africa. Therefore, we chose to present our experience of palliative TURP at the Urology Institute of Kilimanjaro Christian Medical Centre (KCMC) in northern Tanzania. The findings of this study will help to guide our future practice, provide facts for counselling patients, and enhance future studies.

Methods: This is a retrospective study of our patients who underwent palliative TURP from 1 January 2013 to 31 December 2017. Relevant data was retrieved from hospital records and via phone calls. Descriptive and analytical analyses were done and results were presented using tables, figures, and prose.

Results: Only 22 patients met our strict inclusion criteria. The mean age of the patients was 73 ± 10 years. The 16 (72.75%) patients who had palliative TURP were using urethral catheters, while 27.3% were not but had significant post-void residual (PVR) urine volume of 135 ± 119 ml. Two patients also had associated haematuria. The mean preoperative prostate-specific antigen (PSA) level was 122.4 ± 158 ng/mL. The mean resected weight was 13.4 ± 8.5 g. All the patients had a successful trial without catheter (TWOC) at 2.2 ± 0.6 days post-palliative TURP. Of the patients, 50% were on either surgical or medical androgen deprivation therapy (ADT), while the rest were not. At a mean follow-up of 34.9 ± 15.1 months post-palliative TURP, 13 (59.1%) patients were alive. All the surviving patients were passing urine unaided, except one who was using a suprapubic catheter (SPC).

Conclusion: Palliative TURP is effective in managing BOO in advanced PCa patients in our centre. However, a prospective study is suggested to unravel the factors responsible for the low survival rate recorded in this index study.

Keywords: sub-Saharan Africa, prostate cancer, transurethral resection of prostate

Introduction

Prostate cancer (PCa) is the second most common cancer in men and the leading cause of cancer deaths in men in sub-Saharan Africa.^{1,2} The presentation of PCa in sub-Saharan Africa is peculiar due to late presentation, leaving palliation as the most common form of treatment.^{2,3} The problem is compounded by urinary retention and the prolonged use of a urinary catheter at the time of initial presentation for expert management.³⁻⁶

Palliative transurethral resection of the prostate (TURP) is an ideal component of palliation for advanced PCa patients with significant post-void residual (PVR) urine, those with a urinary catheter and/or recurrent gross haematuria, severe International Prostate Symptom Score (IPSS), and renal insufficiency due to obstructing PCa. Palliative TURP is a limited resection of obstructing prostatic tissue of the bladder outlet without targeting resection down to the prostatic capsule. It improves the patient's quality of life and is relatively safe.⁷⁻¹¹ Palliative TURP is, however, opposed by some authors citing its non-adherence to oncological principles, re-treatments, and numerous postoperative complications when compared with TURP for benign prostatic hyperplasia (BPH).¹²⁻¹⁴ An ideal oncological principle prohibits cutting through malignant tissue as this enhances the dissemination of cancer cells in peripheral

blood circulation.^{12,13} Despite this, the effects of circulating cancer cells after palliative TURP are not fully understood.¹³

Considering that most of our patients with advanced PCa are offered palliative TURP and the literature search showed limited studies on this subject in the sub-Saharan region, we chose to present our experience at the Institute of Urology, Kilimanjaro Christian Medical Centre (KCMC), a consultant referral hospital in northern Tanzania.

Methods

This is a retrospective cohort study done at the Institute of Urology, KCMC, Moshi; a tertiary hospital in the Kilimanjaro region of northern Tanzania. The subjects were comprised of all patients who had a histological diagnosis of PCa before palliative TURP between 1 January 2013 and 31 December 2017 at the Institute of Urology, KCMC. Patients who did not have a preoperative histological diagnosis of PCa, patients and/or their relatives who could not be contacted telephonically during the time of data collection and those with missing relevant data were excluded from the study.

All palliative TURP done within the study period were selected from the theatre register and the patients' files were retrieved from the hospital medical record. Relevant information on their biodata including phone numbers, mode of presentation, preoperative prostate-specific antigen (PSA) level, preoperative

and postoperative Gleason/International Society of Urological Pathology (ISUP) score, indications for palliative TURP, the weight of tissue resected, number of days of hospital stay, postoperative complications, whether androgen deprivation therapy (ADT) was given, and type were extracted from the files using pretested proforma. One of the authors who is proficient in the local language assessed patients' survival status and their current need for a urinary catheter via phone calls.

The procedures were done by the consultant urologists or by the experienced residents guided by the aforementioned. The resections were done using a 25Fr Karl Storz monopolar resectoscope and 5% dextrose water as irrigation fluid under a sub-arachnoid block.

The data analysis was done using SPSS version 21. Measures of central tendencies and percentages were calculated where necessary. The results were presented using tables, charts, and figures where applicable. A chi-square test was used to assess the level of significance where indicated. A *p*-value < 0.05 was considered statistically significant.

Results

Of the 75 patients who had palliative TURP within the period of review, only 22 patients met the inclusion criteria. The exclusion rate of 70% was due to failure to contact the patient and/or their relatives telephonically during data extraction, while 30% was due to incomplete data.

The mean age of the patients was 73 ± 10 years (range 57–91). All the patients were hormone responsive during the time of palliative TURP. All the patients who received palliative TURP presented with bladder outlet obstruction (BOO) secondary to advanced PCa. There were 16 patients (72.7%) already using urethral catheters before presentation, and six (27.3%) patients without (Table I). The mean PVR urine for those without a urinary catheter measured with an abdominal ultrasound scan was 135 ± 119 ml (range 33–286). Two of these patients also had haematuria before palliative TURP.

Table I: Indications for surgery

		Frequency	Percentage (%)
BOO	With catheter	16	72.7
	Without catheter	6	27.3 (PVR = 135 ± 119 ml)
Haematuria	Yes	2	9.1
	No	20	90.9

BOO – bladder outlet obstruction, PVR – post-void residual

The mean preoperative PSA levels of the patients were 122.4 ± 158.0 ng/ml (median 100 ng/ml). ISUP grade 2 accounted for the highest preoperative and postoperative grades, 27.3% and 31.8% respectively, as shown in Figure 1. The mean preoperative and postoperative ISUP grades were 2.9 ± 1.4 and 3.1 ± 1.5 respectively. There was no statistically significant difference between the preoperative and postoperative ISUP grades (*p* = 0.104).

The mean time interval from PCa diagnosis to palliative TURP was 19.23 ± 6.2 days. The mean resected prostate tissue was 13.4 ± 8.5 g (range 2–24). Three (13.6%) patients had perioperative blood

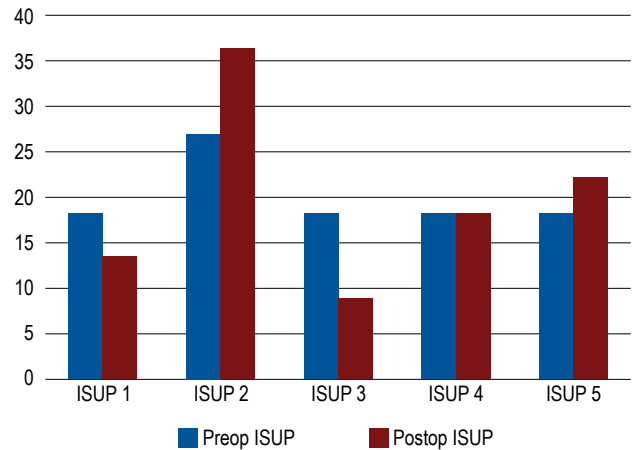


Figure 1: Preoperative and postoperative ISUP grade

transfusions of one unit each. One patient had undue postoperative haematuria that was managed conservatively. There were no cases of postoperative urinary retention or urosepsis. The average postoperative hospital stay was 2.2 ± 0.68 days (Table II). All the patients discharged were voiding without a urinary catheter.

Eight (36.4%) patients had surgical ADT (BTO), three (13.4%) patients had medical ADT with Zoladex, and the rest (50%) were on watchful waiting (Table III). Within the mean postoperative follow-up of 34.9 ± 15.1 months (range 10–66), 13 (59.1%) patients were alive, while nine (40.9%) were deceased. There was no statistically significant difference in survival rate between those on ADT and those on watchful waiting (*p* = 0.08).

Of these surviving patients, 12 (92.3%) were passing urine without a urinary catheter, while one patient was using a suprapubic catheter (SPC) due to urethral stricture. Only five (22.7%) patients attended a clinic following six months after palliative TURP.

Table II: Radiological, haematological, and pathological parameters of the patients

	Mean	Standard deviation
PVR (ml)	135.0	119.3
Preop PSA (ng/ml)	122.4	158.0
ISUP (Preop)	2.9	1.4
ISUP (Postop)	3.1	1.5
Preop Hb (g/dl)	12.6	1.6
Weight of tissue (g)	13.4	8.5
Postop stay (days)	2.2	0.68
Follow-up duration (months)	34.9	15.1

PVR – post-void residual volume, PSA – prostate-specific antigen, Preop – preoperative, Postop – postoperative, ISUP – International Society of Urological Pathologist, Hb – haemoglobin

Discussion

BOO is one of the factors that affect patients' quality of life with advanced PCa, making palliative TURP an essential component of PCa palliation.^{7-11,15,16} Literature from developed nations shows variations in characteristics and outcomes of palliative TURP patients; hence an indigenous report of this practice is required.⁷⁻¹⁰

Table III: Use of ADT, urinary catheter, and survival status of palliative TURP patients

		Frequency	Percentage (%)
PCa treatment	BTO	8	36.4
	Medical ADT	3	13.6
	Watchful waiting	11	50.0
Urinate without catheter	Yes	12	92.3
	No (SPC)	1	7.7
Alive	Yes	13	59.1
	No	9	40.9

PCa – prostate cancer, ADT – androgen deprivation therapy, SPC – suprapubic catheter

Most of our patients (72.7%) who had palliative TURP were using a urethral catheter. This is in keeping with the attitude of patients with BOO in developing countries where most present only when they develop urinary retention.⁴⁻⁶ These patients present late and mostly at an advanced stage of PCa. This late presentation reduces their chances of benefiting from retropubic radical prostatectomy, which the centre offers. Significant PVR and haematuria were other indications for palliative TURP in our centre (Table I). Generally, indications for palliative TURP include urinary retention, significant PVR, haematuria, hydronephrosis, and bladder calculus.^{7-11,14-16}

The high mean PSA level of 122.4 ng/ml in our study is a reflection of advanced PCa. Crain et al.⁷ reported a high median PSA level of 39.7 ± 78.3 ng/ml, while Marszalek et al.⁹ documented a mean PSA level of 273 ng/ml. Both the aforementioned studied PCa patients who had initial primary cancer treatment before palliative TURP. A study by Rojas-Manrique et al.¹¹ showed a mean PSA level of 17.77 ng/ml. The PSA level is a reflection of the stage of disease burden, other palliative treatments instituted for patients, and the time interval from the initial diagnosis to the time of palliative TURP.⁸⁻¹¹

Our study showed that ISUP grade 2 was the most common PCa grade both for preoperative and postoperative histological diagnoses. There was no case of postoperative negative histology for malignancy. This is in line with the short time interval of 19.23 ± 6.3 days from the preoperative diagnosis to the time of palliative TURP in our institution. Marszalek et al.,⁹ however, reported a significant difference in tumour upgrade from the time of initial diagnosis. Their mean interval between PCa diagnosis and the time of palliative TURP was 1.5 years. Other studies also reported tumour downgrade or tumour upgrade, and these preoperative and post-palliative TURP histological variations were due to prior treatment and the lag time from initial diagnosis.^{7,11}

The goal of resection in palliative TURP is to create a channel for effective voiding and less emphasis should be on resected weight.⁷⁻¹¹ Marszalek et al.⁹ concluded that the weight of resected tissue from palliative TURP is generally low because the purpose of resection is to create a channel and not a radical TURP. In their review of 89 patients who had palliative TURP, the mean resected weight of the prostate was 16 ± 9 g. Rojas-Manrique et al.¹¹ also recorded a mean resected weight of 16.5 g. In our review of 22 patients who met our strict inclusion criteria, the mean resected weight was $13.4 \pm$

8.5 g. The mean resected weight of prostatic tissue from our study is within the normal limit reported in the literature.⁸⁻¹¹

Previous authors have emphasised the place of palliative TURP in relieving BOO due to advanced PCa, but the endless debate is the perioperative morbidity, redo-palliative TURP, and the effects of breach of oncological principles in the survival of the patients who received palliative TURP.⁷⁻¹⁸ Our 13.6% perioperative blood transfusion is within the range reported by previous authors.^{7-9,11} All the patients in this series had successful trial without catheter (TWOC) after the mean 2.2 ± 0.6 days postoperative catheterisation. The follow-up of our patients at 34.9 ± 15.1 months showed that 92.3% (12 patients) of those that were alive were passing urine without a catheter, while 7.7% (1 patient) was using an SPC. This is satisfying to our patients because their concern is to urinate without a catheter.

Chang et al.¹⁸ compared patients with a prior diagnosis of PCa before palliative TURP and those with a diagnosis of PCa made from resected prostatic chips. Their patients with a postoperative diagnosis of PCa had successful TWOC while those with pre-operative PCa had 16.7% failed TWOC. Reports by some authors showed that failed TWOC after palliative TURP is common.⁷⁻¹¹ Resection of only obstructing tissue during palliative TURP is a very important technique in achieving successful TWOC. Most of the palliative TURPs in our study centre were done or assisted by experienced consultant urologists. This might have been a major factor in the successful TWOC in our cohorts.

The post-palliative TURP survival of patients is a major concern in the literature.⁷⁻¹³ The long-term outcome should be considered in patients who received palliative TURP because of the possible dissemination of malignant cells.^{12,13} One of the most cited works in the literature is the study done by Hübner et al.¹³ They compared the survival of PCa patients who had orchiectomy only, those who had orchiectomy and palliative TURP at diagnosis, and those who had orchiectomy and palliative TURP later in the disease course. They concluded that those who had orchiectomy and palliative TURP at the time of diagnosis had worse mortality at three-year follow-up. Hübner et al.'s¹³ study has been faulted by many authors, citing the problems of the study design (comparative and retrospective).⁹ It is also possible that patients who had orchiectomy and palliative TURP at the initial time of diagnosis in the study had worse symptoms of PCa leading to eventual poor survival.

The overall survival rate of 59.1% of our patients at mean post-palliative TURP follow-up of 34.9 ± 15.1 months is comparable to the group that had orchiectomy and palliative TURP at initial diagnosis (64% survival rate at mean three years of follow-up) in Hübner et al.'s¹³ study. It also coincides with the 77% survival rate at a mean follow-up of 15 months post-palliative TURP in Qin et al.'s⁸ study after adjusting for the duration of follow-up. However, Marszalek et al.⁹ recorded a higher survival rate of 79% at three years of post-palliative TURP follow-up. Marszalek et al.⁹ studied PCa patients who had initial ADT (57%), external beam irradiation therapy (32%), and brachytherapy (11%) before they had palliative TURP.⁹ The factors responsible for survival after palliative TURP

include the stage of the disease, the grade of the disease, the patient's age, and comorbidities.⁷⁻¹³

It has been advocated that palliative TURP should be reserved for advanced PCa patients who failed to void after the primary treatment of PCa.⁹ Sood et al.¹⁹ studied 101 PCa patients who had urinary retention. These patients had ADT and were also placed on alpha adrenergic blocker ± five alpha reductase inhibitor; they subsequently had TWOC at monthly follow-up. In the first month, 27 patients voided, 50 patients voided in the second month, and an additional 20 patients voided in the third month, leaving only 4% as candidates for palliative TURP. However, Fleischmann and Catalona²⁰ previously documented that 29% of PCa patients who had orchiectomy required palliative TURP within 90 days after the procedure.

Our practice of palliative TURP could be considered different from the recommendations of orchiectomy with a follow-up of at least three months before palliative TURP. The peculiarity of our environment should be taken into consideration. Firstly, these patients come from far and wide, which makes monthly TWOC after the commencement of ADT very difficult. Our results showed that 70% of patients excluded were due to failure to contact them or their relatives during our data collection period. Monthly follow-up and TWOC after ADT for our patients may result in loss of follow-up with an indwelling catheter and its attendant complications. Secondly, our patients are preoccupied with having an indwelling catheter, consequently, any other treatment that will not guarantee immediate removal of the catheter may not be acceptable for them. Thirdly, the complications of prolonged use of a urethral catheter are enormous and this will worsen their general well-being.^{4,5} Our new approach should be that all our patients with BOO should be fully evaluated and those with advanced PCa should be started on ADT (medical/surgical). Subsequently, palliative TURP should be offered to advanced PCa patients who are already on ADT and have clear indications for palliative TURP.

Conclusion

Palliative TURP should be seen as a part of initial palliative treatment given to patients with advanced PCa, especially in our environment where most patients present with urinary retention. The low perioperative morbidities, no perioperative mortality, and no redo-palliative TURP in this series support palliative TURP as relatively safe when targeted resection is done. Approximately three years of palliative TURP follow-up of our patients showed that almost two-thirds of the patients were alive. The effect of the breach of oncological principles on the survival rate of our cohort is beyond the scope of this study. The stage of the disease, the age of the patients, and comorbidities are other possible factors that could influence the rate of survival of palliative TURP patients; these were not studied here. A comparative prospective study of palliative TURP and the inclusion of factors that affect outcomes in future studies will help to address the challenges encountered in this study.

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Conflict of interest

The authors declare no conflict of interest.

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Ethical approval

Ethical clearance was obtained from Kilimanjaro Christian Medical Research Ethical Committee before commencing the study with registration number 2400.

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