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Original Research Article

Functional outcome and complications of palliative transurethral resection of prostate (pTURP): 5years single centre (Eastern India) experience

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ABSTRACT

Background: Notable number of prostatic carcinoma patients presented with bladder outlet obstruction. Among various treatment options like antiandrogen therapy, catheterisation, laser therapy, prostatic stent and pTURP, pTURP offers expeditious relief of symptoms. As, there is paucity of literature regarding outcome and complication of pTURP in Indian context. So, author did single centre indication (of surgery) matched retrospective case control study to know functional outcomes and morbidity of pTURP in eastern Indian population.
Methods: Author did retrospective review of 29 patients who underwent pTURP during study period (January 2013 to January 2018) after exclusion. Same number of TURP (for benign disease) patients were selected. Functional outcome and complications of pTURP were compared with TURP group. Author also tried to find factors associated with un-favourable outcomes.
Results: Despite of older pTURP group patients, operative duration, post-operative hospital stay, post-operative catheter duration and post-op maximum urinary flow rate, were statistically similar to TURP group. However, statistically similar but clinically more complication was noted in pTURP arm in terms of failed voiding trial, incontinence and re-operation rate. One capsular tear was noted only in TURP arm. Eight patients developed unfavourable outcome (1 persistent incontinence, 5 needed re-surgery and 2 required re-catheterisation in follow up period). Higher PSA, longer operative time and hormone refractory metastatic prostatic carcinoma were found to be associated with unfavourable outcome.
Conclusions: pTURP is safe and effective procedure to relieve bladder outlet obstruction. Hormone refractory status, higher PSA and prolonged operative time may be risk factors of poor outcome.

Keywords: Complication, Outcome, Prostate cancer, Palliative surgery, Transurethral resection of prostate

INTRODUCTION

Among men, prostatic malignancy is one of the prevailing reasons of cancer related mortality and morbidity.[1] Beside pain and mortality, it may also present with acute urinary retention, haematuria, bladder calculi and upper urinary tract hydronephrosis.[2] The computed incidence of urinary retention in locally advanced prostate cancer was around 13%.[3] In pre-PSA (prostate specific antigen) era bladder obstructive symptom was primary presentation in 82% of prostatic carcinoma patients.[4] Cohort of these patients require treatment to ameliorate their symptoms and to reduce further complications. Numerous treatment options are used for these purposes like antiandrogen therapy, catheterization, laser therapy, prostatic stent or palliative TURP.[5-7] pTURP is a transurethral resection of obstructing prostatic tissue in locally advanced prostate cancer or

metastatic cancer to relieve bladder outlet obstructive symptoms and complications.[8] It is most commonly used treatment and it offers quickest relief of symptoms.

Different drugs and new radiation methods are also used to manage advance prostatic malignancy. However, in this rapidly evolving era of new drugs like docetaxel, cabazitaxel, abiraterone, enzalutamide and radium 223, there is paucity of literature about outcome and complication of pTURP. Additionally, there is scarcity of literature in Indian scenario too. So, author did single centre indication (of surgery) matched retrospective case control study to know functional outcomes and morbidity of pTURP in eastern Indian population.

METHODS

Author did retrospective review of patients who underwent pTURP during period of January 2013 to January 2018. The patient with associated urethral stricture, patients who underwent re-surgery, patients who had taken pelvic radiotherapy were excluded. Indications of procedure of pTURP were noted. According to indication of pTURP, stratification of control patients (who underwent TURP for benign disease) were done. Among stratified group equal number of patients were selected as control with help of computer generated stratified randomized number. Variables like age, prostatic size, operative time, transurethral resection syndrome, blood transfusion, requirement of intensive care admission etc. were recorded in both case and control patients. Functional outcome of pTURP were further grouped into favourable and unfavourable outcomes. Unfavourable outcomes were patients who could not be catheter free, require re-pTURP, developed stricture or incontinence. Author also tried to find factors that might be associated with unfavourable outcomes.

Data were analysed with SPSS 23. Two tailed Fisher exact test and Mann-Whitney test were applied where required. P value less than 0.05 was considered statistically significant.

RESULTS

Total of 37 patients underwent pTURP during study period. Among them 29 patients were included, and 8 patients were excluded (3 patients had taken radiotherapy for advanced prostatic malignancy, 4 patients underwent Re-TURP and 1 had urethral stricture disease). Indication of procedure was absolute like refractory urinary retention (n18), upper tract hydronephrosis (resolved after catheterization, n 10) and refractory haematuria (prostate related, n 1). About 188 patients underwent TURP for similar indication but due to benign prostatic enlargement. Among 188 patients, 29 patients were selected as control on basis of stratified randomization. Patients of pTURP arm were older (74.55±8.28years of pTURP arm vs 69.13±8.52 of TURP arm, $p<0.001$) compared to TURP arm. Prostatic volume (ml), duration of operative procedure (min), post-operative hospital stays (days), post-operative catheter duration (days) and post -op maximum flow rate (ml/min) of pTURP groups were 64.20±9.96, 54.55±15.66, 4.51±3.56, 4.79±15.74 and 14.07±7.38 respectively. These parameters are statistically similar to TURP group (Table 1).

Table 1: Pre-operative parameters, operative and post-operative outcomes.

Variables	pTURP (mean±2SD)	TURP (mean ±2 SD)
Age (in years) *	74.55±8.28 Range 66-83	69.13±8.52 Range 61-77
Prostatic volume (cc)	64.20±9.96	65.44±24.94
Duration of operative procedure (minutes)	54.55±15.66	53.17±17.80
Post-operative hospital stays (days)	4.51±3.56 Range 3-8 days	3.02±4.10 Range 3-7 days
Post-operative catheter duration	4.79±15.74 Range 2-45 days Median: 3 days	14.27±7.30 Range 2-7 days Median: 3 days
Post-op mean flow rate (ml/min)	14.07±7.38	14.27±7.30

* p value less than 0.001, pTURP: palliative transurethral resection of prostate for prostatic malignancy, TURP: transurethral resection of prostate for benign prostatomegaly, TRUS: trans-rectal ultrasonography.

None of the patient died or developed TUR syndrome perioperatively. 1 out of 29 patients of pTURP was admitted in intensive care due to cardiac problem. 2 patients of TURP group and 1 patient of pTURP group needed blood transfusion. One patient of TURP had capsular tear (Table 2). 6 patients (pTURP) did not void after initial catheter removal but among them 5 patients voided after second attempt (after 2-7days after first attempt of catheter free trial). 1 patient did not void, and author further underwent second pTURP. Similarly, 3 patients (TURP) did not void after first catheter free trial but all voided after second trial (Table 2).

Table 2: Post-operative and delayed complications.

Variables	pTURP group	TURP group
TURP syndrome	0 (0%)	0 (0%)
Intensive care admission	1 (3.4%)	0 (0%)
Capsular tear	0 (0%)	1 (3.4%)
Blood transfusion	1 (3.4%)	2 (6.8%)
Peri-operative mortality	0 (0%)	0 (0%)
Failed first TWOC	5 (17.24%)	3 (10.34%)
Failed second twoc	1 (3.4%)	0 (0%)
Urgency (after removal of catheter)	6 (20.68%)	5 (17.24%)
Transient stress incontinence (after catheter removal)	1 (3.4 %)	1 (3.4%)
Persistent incontinence	1 (3.4%)	0 (0%)
Surgical re-intervention	5 (17.24%) (4 re-TURP+ 1 OIU)	1 (3.4%) (OIU)
Long term catheterisation	2 (6.8%)	0 (0%)

Six and five patients of pTURP and TURP group respectively developed urgency and urge incontinence post operatively. 1 patient each of pTURP and TURP group developed transient stress incontinence, which was resolved within 6weeks after procedure. One patient of pTURP arm developed persistence incontinence. Among 29 patients, favourable outcome was achieved in 21 patients. 8 patients developed unfavourable outcome (1 persistent incontinence, 5 needed re-surgery and 2 required re-catheterisation in follow up period).

Higher PSA, longer operative time and hormone refractory metastatic prostatic carcinoma were found to be associated with unfavourable outcome (Table 3).

Table 3: Parameters in favourable and unfavourable outcomes.

Variables	Unfavourable outcome	Favourable outcome	Comments
Age (in years)	75.87±7.50	74.04±8.52	P value were >0.05 in all parameter except * p value 0.025 **p value 0.0345 ***p value 0.002 All data were compared with Mann-Whitney Test (***Fisher exact test*)
Duration of diagnosis to Surgery	29±21.8	33.23±25.04	
PSA (pre-op) *	101.50±53.16	54.19±56.96	
Gleason score	8.75±1.76	8.76±2.08	
Hormone refractory metastatic prostate cancer**	6 (out of 8)	2(out of 21)	
Pre-operative prostatic volume	65.12±10.86	64.61±10.66	
Operative duration***	63.25±14.32	51.23±10.22	

DISCUSSION

Despite of various options like antiandrogen therapy, catheterisation, laser therapy and prostatic stent, pTURP is most commonly employed modality to treat bladder outlet obstruction. pTURP is procedure to remove only obstructing part of prostatic tissue to make channel in the background of prostatic malignancy, so it is also called channel TURP. Incomplete removal and probable resection of malignant tissue may alter outcome and produce complication.

So, offering pTURP to patient we need to know functional outcome and complication. pTURP was primarily studied including 41 patients (mean age 74years) by Mazur AW et al.[8] They found excellent early post-operative outcome with no peri-operative mortality, 27% re-operation and 7% stress incontinence. Recent study done by Chang CC et al, also showed good result of TURP outcome, which was done for diagnosed prostate cancer or prostate cancer diagnosed after procedure.[9] Mean age of patients who underwent pTURP was 75.8years. No peri-operative death, no TURP syndrome was noted. However, 16.7% failed initial voiding and 29 % re-operation was noted.

Marszalek M et al, had reviewed retrospectively 89 patients (mean age 75.9years and mean prostatic volume 62ml), who underwent pTURP.[10] They observed 96% patients discharged catheter free, no blood transfusion required in 81 patients (out of 89), 2.2% peri-operative mortality and 21% mortality in 3years.

They concluded that pTURP is safe and effective procedure with potential adverse impact on survival. In present retrospective study, 29 patients were included. Age (mean 75.74years) and prostatic volume (64.20cc) was like previous study.[6] No TURP syndrome or peri-operative mortality was seen. 75.86 % patient voided after first voiding trial while finally 96.55% patients voided after giving second voiding trial in remaining.

First failed initial voiding (17.24%) was similar to Chang CC et al study (16.7%) but lower from Crain DS et al. study (42%). 17.21% patients required re-operation in this study. Re-operation rate was lower from previous study (17.21% in present study vs 22%-29% in previous study).[8,9,11] Probable reason was exclusion of patients who had taken radiotherapy.

One patient developed persistence incontinence, who further opted for continuous catheterization. Operative procedure of that patient showed involvement of external sphincter with tumour. Similar complication was noted by Mazur AW et al, in pTURP for sphincteric involved prostatic malignancy.[8]

Overall, present study showed good outcome with comparable complication with previous study. Due to limited retrospective study we also did comparative study to know functional outcome and complication with respect to TURP done for benign disease. Despite of significantly older population of pTURP group of patients, outcome in term of operative time, catheter free status and post-operative mean flow rate were like TURP group.

In both arm no TURP syndrome or peri-operative mortality were noted. However, statistically similar but clinically more complication was noted in pTURP arm in terms of failed voiding trial, incontinence and re-operation rate. Explanation of this was older age and incomplete resection in pTURP group. One capsular tear was noted only in TURP arm. Resection of gland upto capsule in TURP for benign prostatomegaly was probable reason.[11]

Comprehensively, comparative result of outcome and complication of pTURP and TURP arm reflect that pTURP is safe and effective procedure as TURP. Unfavorable outcome was noted among 8 out of 29 patients, favourable outcome was achieved in 22 patients. 8 patients developed unfavorable outcome (1 persistent incontinence, 5 needed re-surgery and 2 required re-catheterization in follow up period). Higher PSA and longer operative time were found to be associated with unfavorable outcome.

In this study, unfavorable outcome was less from previous study (27.58% unfavorable outcome in present study vs 36.95% unfavorable outcome in previous study), but hormone refractory status, predictor of bad outcome is similar to previous study.[12]

Hormone refractory status and additionally, long operative time and PSA are also higher in patients of unfavourable group. Study done to know outcome and complication of pTURP for prostate cancer in India is scanty and present study comprises fairly good number of patients of Indian Ethnicity. In present study, author also evaluated risk factors that may hamper good outcome.

CONCLUSION

Decisively, author concluded that pTURP was safe and effective procedure to relieve bladder outlet obstruction. Hormone refractory status, higher PSA and prolonged operative time may be risk factors of poor outcome. However prospective and multicentric study may clearly identify risk factor of poor outcome.

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