ORIGINAL ARTICLE

Transurethral Prostatic Resection for Acute Urinary Retention in Patients with Prostate Cancer

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Background: Few studies have focused on clinical findings in prostate cancer patients receiving transurethral resection of the prostate (TURP) for acute urinary retention (AUR). We compared the clinical findings (preoperative characteristics, operative morbidities, and pathology results) of patients with diagnosed prostate cancer undergoing palliative TURP for AUR with those of patients undergoing TURP for AUR who were diagnosed with prostate cancer postoperatively.

Methods: The charts of 25 patients with prostate cancer undergoing TURP for AUR between 1986 and 2003 were retrospectively reviewed. Fourteen patients underwent palliative TURP (group A) and the other 11 patients with newly diagnosed prostate cancer received TURP (group B). The data, including preoperative characteristics, operative morbidities, and pathology results were analyzed.

Results: There were no significant differences between the 2 groups in parameters such as age at diagnosis and operation, operative time, hospitalization, and catheter duration. However, the Gleason score was higher in group A (7.6 ± 1.7) than in group B (5.4 ± 1.8) ($p < 0.005$). The mean resected weight was lower in group A (19.9 g) than in group B (39.5 g). Group A was more likely to receive recatheterization (33.3% vs 0%, $p = 0.058$) and repeat operation (28.6%), although the difference was not statistically significant. There were no complications such as transurethral resection syndrome or perioperative death in either group.

Conclusion: TURP can be performed safely for relief of AUR in patients with prostate cancer, no matter if the cancer was diagnosed before or after surgery. The higher Gleason score and more advanced cancer stage, as found in group A, may correlate to high recatheterization and reoperation rates due to preexisting tumor progression. [*J Chin Med Assoc* 2006;69(1):21–25]

Key Words: prostate cancer, transurethral prostate resection, urinary retention

Introduction

Acute urinary retention (AUR) is a common complication of a neoplastic prostate. Transurethral resection of the prostate (TURP) may offer immediate relief of the obstruction in patients with benign prostatic hyperplasia (BPH).[1] In contrast, palliative TURP (the so-called "channel" TURP), by definition, is a transurethral resection of prostate tissue in a patient with metastatic or locally advanced and/or previously treated prostate cancer to alleviate obstructive voiding symptoms (e.g. AUR), and, therefore, resection to the depth of the prostatic capsule is not attempted.[2]

Prostate cancer is a relatively common cancer for older men, and they may develop AUR as the disease

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progresses. Crain et al[3] have stated that, in comparison with the standard TURP for BPH, palliative TURP can also be performed safely in patients with advanced prostate cancer with significant improvement in urinary symptoms. In a series of 85 patients undergoing TURP for symptomatic BPH, Ornstein et al[4] found that prostate cancer may be detected in a significant proportion (> 15%) of these patients despite prior screening with the serum prostate specific antigen (PSA) test, digital rectal examination (DRE), and 1 or more systematic needle biopsies of the prostate. In our study, patients undergoing TURP for AUR were divided into 2 groups to compare their preoperative characteristics, operative morbidities, and pathology results. Group A consisted of patients with diagnosed prostate cancer undergoing palliative TURP for AUR. Group B included patients undergoing TURP for AUR who had cancer diagnosed postoperatively in the resected prostate specimen. We wanted to see if cancer diagnosed before or after the operation would influence the outcome of TURP.

Methods

We performed a retrospective review of 18 palliative TURP procedures in 14 patients with known prostate cancer (group A) and 11 TURP procedures in patients who had newly diagnosed prostate cancer by TURP for BPH (group B) owing to AUR. The procedures were performed at the Division of Urology of Taipei Veterans General Hospital between 1986 and 2003. Inpatient and outpatient charts, clinical records, operative reports, and discharge summaries were reviewed. For each patient, several parameters were reviewed including preoperative characteristics, operative morbidities, and pathology results. The mean follow-up period was 16.6 months (range 0.5–108).

Surgery was performed with the patient under spinal anesthesia. All operative procedures were performed by a chief resident or staff urologist. In all cases, prophylactic antibiotics (gentamycin and/or cephalosporin) were administered. All resected tissues were weighed and submitted for pathologic review. The Gleason score (GS) was made according to the Gleason grading system, which is based on the degree of loss of the normal glandular tissue architecture, as originally described and developed by Gleason in 1974.[5,6] The stage was determined based on the TNM staging system (American Joint Committee on Cancer, 2002).[7] Urethral catheters were placed postoperatively.

The following parameters were compared between the 2 groups: mean age at diagnosis, age at (palliative) TURP, operative time, resected tissue weight, pathology results, postoperative morbidities, complications, length of hospital stay, and catheter duration. The Mann-Whitney test and Fisher's exact test were used to determine statistical significance, which was set at $p < 0.05$.

Results

The data of 14 patients with known prostate cancer undergoing 18 palliative TURPs and 11 patients with BPH and undetected prostate cancer undergoing 11 TURPs were collected and analyzed. The preoperative, operative, and postoperative parameters in both groups of patients are shown in Table 1. Results showed no significant differences in age at cancer diagnosis and surgery. Prior to palliative TURP in 14 patients, 6 received hormonal therapy, and 1 was treated with radiation therapy. The mean operative time, hospital stay, and catheter duration were not significantly different. Complications such as transurethral resection syndrome and perioperative mortality were not noted.

Postoperative morbidities included: failure of initial voiding in 3 of 18 procedures in group A; urge incontinence in 2 of 18 in group A versus 2 of 11 in group B; recatheterization and repeat operation were more frequent in group A compared with group B, although the difference was not statistically significant.

In group A, GS was low grade in only 1 procedure, moderate grade in 8 procedures, and high grade in 7 procedures. In 2 procedures, only BPH was found. On the other hand, in group B, GS was low grade in 2 patients and moderate grade in 8, and no high grade was found. The mean GS was significantly higher in group A than in group B (7.6 ± 1.7 vs 5.4 ± 1.8, $p < 0.005$) (Figure 1).

The TNM cancer staging system was used in prostate cancer patients. Of the 18 palliative TURP procedures, 1 each had T2aN0M0, T2bN0M0, T3aN0M0, T3cN0M0, T1cN0M1b, T2aN0M1b, T3cN0M1b, T2bN0M1c, and T2cN1M1c; 4 had T2bN0M1b; 3 had T2cN0M1b; and 2 had T2bN1M1b. Among 11 prostate cancers detected at TURP, 3 had T1aN0M0; 2 each had T1bN0M0, T2aN0M0, and T2cN0M0; and 1 each had T1cN0M0 and T1cN0M1b. Thus, advanced cancer staging (N1-3 and/or M1a-1c) was found more frequently in group A (77.8%) than in group B (9.1%).

Table 1. Preoperative, operative, and postoperative parameters in the palliative TURP and TURP groups

	Group A Palliative TURP (14 patients)		Group B TURP (11 patients)		*p*
	Mean ± SD	Range	Mean ± SD	Range	
Preoperative characteristic					
Age at diagnosis, yr	74.50 ± 5.45	65–83	73.64 ± 8.23	65–94	0.404*
Age at operation, yr	75.83 ± 4.62	66–84	73.64 ± 8.23	65–94	0.149*
Operative parameter					
Operative time, min	62.94 ± 32.70	20–120	70.91 ± 43.35	30–185	0.758*
Resected weight, g	19.94 ± 14.88	4–71	39.45 ± 34.68	10–120	0.079*
Catheter time, d	2.69 ± 1.01	2–5	2.25 ± 0.46	2–3	0.316*
Hospital stay, d	12.00 ± 5.67	4–23	8.64 ± 4.72	4–18	0.104*
Postoperative morbidity					
Failed initial voiding†	16.7%		0		0.268†
Urge incontinence†	11.1%		18.1%		0.861†
Recatheterization†	33.3%		0		0.058†
Reoperation§	28.6%		0		0.105†
Complication					
Transurethral resection syndrome	0		0		
Perioperative death	0		0		

**Compared with Mann-Whitney test. †Compared with Fisher's exact test. ‡% of procedures. §% of patients. TURP = transurethral resection of prostate.*

Discussion

Prostate cancer is one of the most common epithelial tumors in older men. Bladder outlet obstruction, for example AUR, caused by the enlarged neoplastic prostate is very common. Endocrine therapy can be the first line of treatment for obstructive voiding symptoms, but it may take a period of time to achieve its effect. A success rate of 69% was reported in 35 men with prostatic carcinoma treated with orchiectomy; however, 29% of patients required TURP within 90 days after orchiectomy.[8] In our study, combined palliative TURP and bilateral orchiectomy was performed in 10 patients, and repeat palliative TURPs to relieve urinary retention in 3 (30%). Although dissemination of locally advanced prostate cancer may be caused by TURP,[9–12] it also may provide immediate relief of the obstruction and may be safely employed for patients with persistent obstructive symptoms.[2,3]

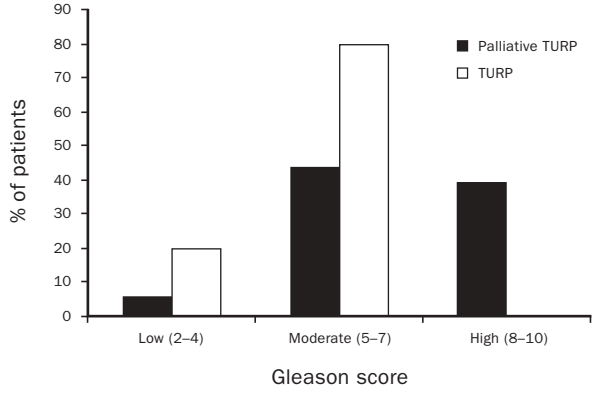

Figure 1. Percentage of patients with low, moderate, and high Gleason scores: palliative TURP (group A) and TURP (group B).

Complications and morbidities related to TURP include blood loss, fluid balance disturbances, excessive fluid absorption, incontinence, and erectile dysfunction.[1] Few studies focused on the operative morbidities of TURP in men with prostate cancer. Two series of men with prostate cancer undergoing palliative TURP have been reported by Mazur and Thompson[2] and Crain et al.[3] Both concluded that palliative TURP can be performed safely in patients with advanced prostate cancer. In comparison with our data, their studies found similar mean age at operation and reoperation rate (Table 2). Regarding postoperative morbidities,

Table 2. Studies evaluating outcomes of palliative TURP

Study	Mazur and Thompson[2], 1991	Crain et al,[3] 2004	Present study, 2005
Age at operation, yr	74	74.2	75.8
Failed initial voiding, %	—	42	16.7
Recatheterization, %	—	8.3	33.3
Reoperation, %	22	29	29
Hospitalization, d	—	1.8	12

TURP = transurethral resection of prostate.

Crain et al[3] reported a somewhat lower recatheterization rate than we did. In our series, however, the mean hospital stay of 12 days was significantly different from the 1.8 days reported by Crain et al. Several factors might contribute to this discrepancy, including a combination of other surgical interventions such as orchiectomy and larger resection leading to an increased likelihood of hemorrhage. In our study, patients were not discharged until successful voiding was achieved after catheter removal, rather than discharge with catheter. This may explain the higher recatheterization rate and longer hospital stay in our study as compared with that by Crain et al.

Our study showed no significant differences between the 2 groups in age at diagnosis and surgery, operative time, length of hospital stay, and catheter duration. The mean weight of tissue resected was 19.9 g in group A versus 39.5 g in group B. The difference might be because palliative TURP was limited to creating a channel for urinary flow, unlike the standard TURP for BPH that intended to resect to the depth of the prostatic capsule.[3] Lower weight might also be correlated to a higher recatheterization rate. The majority of patients undergoing palliative TURP (group A) were also found to have cancers of a higher grade and more advanced stage. Again, bladder outlet obstruction caused by local tumor progression and recurrence of preexisting cancer was coincident with a higher reoperation rate. Although the patients in group B had prostate cancers detected by TURP for BPH, they were of moderate grade and only 1 was at T1cN0M1b stage. A significant number of patients in group B were found to have stages T1a–1cN0M0 (54.5%); however, less aggressive prostate cancer may have a tendency to develop centrally in the transition zone where it is more likely to cause obstructive symptoms.[13] In addition, 2 patients in group B underwent transrectal ultrasonography-guided biopsies to rule out prostate cancer before TURP, yet the pathology results revealed BPH. It suggests that men who have prostate cancer with obstructive symptoms may have coexistent BPH and a cancer diagnosis may be missed or delayed despite thorough preoperative evaluation with serum PSA, DRE, and systemic needle biopsies of the prostate.[4]

In conclusion, TURP can be performed safely with an acceptable morbidity rate for relief of AUR in patients with prostate cancer, no matter if the cancer was diagnosed before or after surgery. Higher GS and more advanced cancer stage were found in the palliative TURP group (group A). These findings may correlate to the high recatheterization and reoperation rate due to preexisting tumor progression in patients of group A.

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