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Original article

Contemporary outcomes of palliative transurethral resection of the prostate in patients with locally advanced prostate cancer

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Abstract

Background: Advanced prostate cancer may cause significant local complications which affect quality of life, including bladder outlet obstruction and hematuria. We performed a detailed review of our outcomes of palliative transurethral resection of the prostate (pTURP) in the era of taxane chemotherapy and potent androgen receptor antagonists at our tertiary-care institution.

Methods: Using hospital coding data, we identified patients with a diagnosis of prostate cancer who underwent a TURP at Hotel-Dieu Hospital in Quebec City between 2006 and 2016 for detailed chart review. Co-morbidities were classified using the Charlson comorbidity index (CCI). Cox regression analyses assessed predictors of perioperative mortality and morbidity.

Results: Of 137 patients identified, 58 were included in our study. Median age was 68 years; 27 (47%) men had castration-resistant prostate cancer and 28 (48%) were metastatic at time of pTURP. Mean follow-up from the first pTURP was 2.2 years, with an estimated 5-year overall survival of 16.3% (95% CI: 6.5%–29.8%). Castration-resistant prostate cancer, CCI ≥5, and age predicted poorer survival. Primary indication for pTURP was bladder outlet obstruction (69%) or hematuria (22%). Postoperative Clavien 0, 1, 2, 3, 4, 5 complications occurred in 20 (34%), 16 (28%), 18 (31%), 3 (5%), 0, and 1 (2%) patients, respectively. Overall, 17 (27%) men underwent ≥1 redo pTURPs and 16 (28%) eventually had an indwelling catheter. Nephrostomy tubes or ureteral stents in place before pTURP remained indefinitely in all cases.

Conclusions: We conclude palliative TURP remains an important surgical option to relieve bladder outlet obstruction in patients with locally advanced prostate cancer, but is ineffective to relieve ureteral obstruction.

Keywords: Prostate cancer; Transurethral resection of the prostate; Complications; Outcomes; Palliative surgery

1. Introduction

Prostate cancer (PCa) is a leading cause of cancer-related morbidity and mortality in men. Advanced PCa may result in metastatic complications causing pain and death; local complications such as bladder outlet obstruction and persistent hematuria are also significant causes of morbidity. In suitable patients, surgical intervention including palliative transurethral resection of prostate (pTURP) may treat these complications and improve the patient's quality of life. In the present era since the widespread use of docetaxel, abiraterone, and enzalutamide, sparse literature reports on the efficacy, complications and utility of performing a pTURP [1–4]. Widespread utilization of docetaxel at our centre dates to 2005, with abiraterone and enzalutamide introduced in the last 5 years, and many patients receiving these drugs previously in clinical trials. This retrospective single-centre study assesses the frequency and outcomes of pTURP in the last 10 years at our tertiary referral hospital.

2. Materials and methods

Ethics approval was obtained by the Ethics Review Board of the Centre Hospitalier Universitaire de Québec

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Table 1
Prostate cancer characteristics of patients who underwent palliative TURP at Hôtel-Dieu hospital from 2006–2016

Patient characteristics	No. of pts (%)
Gleason at diagnosis	
5–6	9 (16.7)
7	10 (18.5)
8–10	32 (89.2)
Unavailable	3 (5)
PSA at diagnosis	
1–19.9	30 (58)
20–49.9	4 (8)
≥50	18 (35)
Not available	6 (10)
Metastatic at diagnosis	
Yes	10 (17.2)
No	48 (82.8)
CRPC treatment (*n*. 45 patients)	
Abiraterone	15 (26)
Enzalutamide	5 (9)
Docetaxel	20 (35)
Radium 223	1 (2)
Chemotherapy	3 (5)
Clinical trials[a]	15 (26)

[a]Includes abiraterone, enzalutamide, radium 223.

(#2017–3011). Using hospital coding data, we identified 137 patients in the period January 2006 to August 2016 with PCa who underwent a TURP between January 2006 and May 2016. We included patients diagnosed with locally advanced or recurrent PCa; patients with suspected bladder neck stenosis from surgery or radiotherapy were included due to diagnostic uncertainty. We excluded all patients who underwent a TURP for diagnostic purposes or who had the procedure before their cancer was locally advanced ($n = 53$) and 1 patient who had their first pTURP before the beginning of the study period. We also excluded patients with an initial diagnosis other than adenocarcinoma of the prostate ($n = 15$) and patients whose primary treatment and records were at another institution ($n = 10$).

Patients who met the inclusion criteria had their hospital records comprehensively reviewed to obtain preoperative, perioperative, and postoperative data. This included age, initial prostate specific antigen, and Gleason grade, all PCa treatments received; the date and indication for pTURP; the presence of metastasis, operative and perioperative details, and length of stay. Comorbidities were classified using the Charlson comorbidity index (CCI) at the time of pTURP. In-hospital complications were assessed using the modified Clavien Dindo [5]. When many pTURPs were performed on a patient, only the first pTURP and its related complications were considered in the analyses. Prevalence of complications at 30, 90, and 365 days post-pTURP were calculated. Survival probability was estimated with a Kaplan-Meier curve. Cox regressions models were used to test the effect of castration-resistant prostate cancer (CRPC), CCI, age at pTURP, prior radiotherapy, and the use of urine catheter preoperatively on survival, urine catheter withdrawal success, pTURP redo, visit to the emergency department due to hematuria and clot, urine retention, or urinary tract infection. The same risk factors were considered in a logistic regression for the prediction of reoperation. Regression analyses results are presented as hazard ratio or odds ratios with 95% CIs. Analyses were performed using SAS version 9.4 (SAS Institute Inc., Cary).

3. Results

A total of 58 patients were included who had a pTURP performed by a total of 11 different urologists, with 72% performed by 5 of these surgeons. Patient characteristics, including pathology at PCa diagnosis, prior treatments, and demographics are summarized in Tables 1 and 2. As their initial treatment, 25 (43.1%) patients underwent prior radiotherapy: 20 (34.5%) received external beam radiation therapy, 1 had brachytherapy (1.7%), and 4 (6.9%) patients received both external beam radiation therapy and brachytherapy. Radical prostatectomy was the initial treatment for 4 patients (6.9%) in our cohort who had a local recurrence causing hematuria or hydronephrosis. Twenty-three (39.7%) received only androgen deprivation therapy as initial treatment for their PCa (Fig. 1).

Only 10 (17.2%) patients were metastatic at initial diagnosis (Table 1), with 30 (51.7%) having metastases at time of pTURP and 42 (72.4%) by the end of the study follow-up. At time of pTURP, 9 (15.5%) had visceral metastasis and 26 (44.8%) had bone metastasis. Overall, 16 (27.6%) patients developed visceral metastasis after pTURP and 12 (20.7%) developed bone metastasis. Sixteen (42.1%) of the 28 patients who were nonmetastatic at time of pTURP remained free of metastases at follow up (Table 2).

Twenty-seven (46.6 %) men had CRPC at time of pTURP. Median CCI at pTURP was 8 (interquartile range:

Table 2
Patient characteristics at time of first palliative transurethral resection of the prostate (pTURP)

Patient characteristic	
Median age; y (IQR, range)	68.1 (61.4–73.7; 46.8–89.7)
Mean number of years from initial diagnosis to pTURP (IQR, range)	6.10 (5.95; 0–18)
PSA range; *n* (%)	
1–19.9	30 (57.7)
20–49.9	4 (7.7)
≥50	18 (34.6)
Cancer stage; *n* (%)	
CSPC	27 (46.6)
CRPC	31 (53.4)
Metastatic disease; *n* (%)	30 (51.7)
Visceral	9 (15.5)
Bone	26 (44.8)
Non-metastatic disease	28 (48.3)
Median CCI (IQR, range)	8 (6–10; 2–15)

CSPC = castration-sensitive prostate cancer; IQR = interquartile range; PSA = prostate specific antigen.