



ORIGINAL ARTICLE

Outcomes and prognostic factors of simple partial cystectomy for localized bladder urothelial cell carcinoma



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Abstract Radical cystectomy has remained the gold standard for recurrent superficial or muscle invasive bladder tumor. However, partial cystectomy still has a role in those who reject or have contraindications for radical cystectomy. In this study, we sought to identify predictors of bladder recurrence and overall survival after simple partial cystectomy. We included 27 patients with bladder tumor who received simple partial cystectomy without pelvic lymph node dissection between March 2000 and September 2013. Adjuvant chemotherapy or radiation therapy was prescribed according to the pathological results. Parameters were compared on the basis of bladder recurrence and overall survival. During a mean follow-up time of 39 months, five patients (18.5%) experienced bladder recurrence. An older age, a higher pathological stage, positive surgical margins, and distant metastases were significant predictors of overall survival ($p = 0.031$, $p = 0.001$, $p = 0.001$, and $p = 0.011$, respectively). Meanwhile, previous bladder instillation and positive surgical margins were significant predictors of bladder recurrence ($p = 0.026$ and $p = 0.027$, respectively). The rate of consecutive distant metastases (33.3%) was almost twice the rate of bladder recurrence (18.5%), and six patients developed consecutive distant metastases without first experiencing bladder recurrence. In patients who received a simple partial cystectomy as an alternative treatment, previous bladder instillation and positive surgical margins were significant predictors of bladder recurrence. Patients with an older age, positive surgical margins, and consecutive distant metastases had worse overall survival. Partial cystectomy with routine lymph node dissection may be a better option for achieving favorable long-term outcomes.

Conflicts of interest: All authors declare no conflicts of interest.

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Introduction

Urothelial carcinoma of the urinary bladder is strongly associated with environmental factors and age. The incidence and prevalence rates increase with age, peaking in the 8th decade of life [1,2]. In the United States in 2007, bladder urothelial carcinoma accounted for 7% of all cancers [1]. In addition to its high prevalence, bladder cancer is fatal, accounting for 3% of all cancer deaths in the United States in 2007. However, due to advancements in treatment strategies and modalities, bladder cancer mortality decreased by 5% between 1990 and 2004, despite a continuous rise in the incidence of the disease [1].

Radical cystectomy is one of the main treatment options for localized muscle invasive bladder urothelial carcinoma and select nonmuscle invasive disease. However, along with cancer control, radical cystectomy also results in some degree of reduction in the quality of life; it impacts continence, body image, and potency. These consequences make bladder preservation during treatment an important goal, for both patients and surgeons, in advanced bladder cancer cases.

A partial cystectomy with pelvic lymph node dissection can be reserved for select patients with a solitary lesion for whom radical cystectomy is otherwise contraindicated and a sufficient margin can be obtained. Some previous studies noted the comparable prognosis of radical cystectomy and partial cystectomy with adequate patient selection [3,4].

In this study, we analyzed patients who underwent simple partial cystectomy without pelvic lymph node dissection with the aim of identifying predictors of bladder cancer recurrence and overall survival in this population.

Materials and methods

Twenty-seven patients who underwent a simple partial cystectomy without pelvic lymph node dissection at our hospital between March 2000 and September 2013 were included in this study. These patients were diagnosed with bladder urothelial carcinoma, and the diagnosis was confirmed by transurethral resection of bladder tumors (TUR-BT). All patients met the criteria for radical cystectomy, but underwent simple partial cystectomy due to medical considerations or on the basis of their own decision. Computed tomography scans and bone scans were performed for staging before the operation. The absence of lymph node and distant metastases was determined by imaging studies. All bladder lesions were solitary with adequate resection margins of at least 1 cm. No neoadjuvant chemotherapy or radiation therapy was administered. Adjuvant chemotherapy or radiation therapy was prescribed according to the pathological results, i.e., if at least one of the following criteria was met: pathological Stage T3 or Stage T4 disease, or positive surgical margins.

The prognosis analysis was based on overall survival and recurrence-free survival. Parameters included general patient characteristics (sex, age, body mass index), tumor factors (pathological T stage, tumor histology, tumor size, and pathological grade), surgical factors (American Society of Anesthesiologists score and surgical margins), and previous bladder tumor conditions (previous intravesical instillation including chemotherapy or bacillus Calmette-Guerin (BCG) instillation and previous TUR-BT history and number). Here, the TUR-BT history did not refer to TUR-BT for the same bladder tumor, but to any previous superficial bladder tumor history for which bladder preservation therapy with TUR-BT was performed.

Statistical analyses were performed using SPSS version 17 software (Linkou, Taoyuan, Taiwan). Statistical methods included frequency descriptions and a Kaplan-Meier survival analysis. The study was approved by the Institutional Review Board.

Results

Patient characteristics are listed in Table 1. The mean age of patients who underwent partial cystectomy was 70.6 years (range 49–90 years). The mean follow-up time after partial cystectomy was 39.0 months. The patients were predominantly male, with a male to female ratio of 5.8.

Overall, 63% (17) of patients had pathological Stage T1 or Stage T2 disease, while Stage T3 and Stage T4 disease accounted for 33.3% (9) and 3.7% (1) of cases, respectively. The most common tumor histology was infiltrating carcinoma (74%); other histologies included papillary (14.8%), sarcomatoid (7.4%), and poorly differentiated types (3.7%). In terms of pathological grade, high-grade tumors accounted for 88.9% of all cases.

Fourteen (51.9%) patients had superficial bladder tumors for which they had previously received TUR-BT. Among these 14 patients, 11 (40.7%) had undergone TUR-BT once and three had received TUR-BT at least twice. Previous intravesical therapies including epirubicin, mitomycin, and BCG instillation were prescribed according to individual status in keeping with the National Comprehensive Cancer Network guidelines [5]. Pathological specimen examination showed that four (14.8%) patients had residual cancer at the surgical margin and 23 (85.2%) patients had clear surgical margins.

During a mean follow up of 39.0 ± 39.0 months, five (18.5%) patients experienced tumor recurrence in the bladder, nine (33.3%) patients developed distant metastasis postsurgically, and 10 (37%) patients died. Results of the univariate analysis performed using Kaplan–Meier survival curves for overall survival are shown in Table 2. Significant predictors of overall survival in patients who received partial cystectomy were: age > 70 years, a higher

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