

Original Article

Stage specific follow-up strategy after cystectomy for carcinoma of the bladder

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Abstract

Background: Follow-up strategies after cystectomy for carcinoma of the bladder should be determined according to the risk of recurrence, which is stage dependent. We aimed to develop follow-up protocol for monitoring patients with carcinoma of the bladder for tumor recurrence and diverted urinary tract complications after radical cystectomy.

Methods: The records of 351 patients with carcinoma of the bladder who underwent cystectomy between 1979 and 1999 were reviewed for dates and presenting symptoms of local and distant recurrences. The results of imaging studies and blood tests were also reviewed. Based on the division of patients into pathological stages of pT1 and lower, pT2, and pT3 and higher groups, we proposed a new follow-up schedule for carcinoma of the bladder.

Results: The risk of metastasis was related to the pathological stage of the primary tumor. Recurrence developed in 10 of 124 patients (8%) with pT1 or lower, 17 of 101 patients (17%) with pT2, and 55 of 101 patients (54%) with pT3 or higher disease at a median of 11 (range 6–186), 10 (1–40) and 7 (1–76) months, respectively. Recurrences in patients with pT3 or higher were found earlier and more frequently than those with pT2 or lower. Of 82 patients with metastases, 54 initially were symptomatic, and three of pT1 or lower, six of pT2, and 19 of pT3 or higher were asymptomatic. Based on these results we proposed a stage specific follow-up protocol.

Conclusions: A stage-driven follow-up strategy for monitoring patients after radical cystectomy can reduce medical expenses while efficiently detecting recurrences and complications.

Key words bladder neoplasms, cystectomy, recurrence, surveillance.

Introduction

Follow-up strategies for tumor surveillance after cystectomy should take into consideration the risk of recurrence and the pathological stage of the primary tumor. Applying the same follow-up protocol that incorporates computed tomography (CT) scan, bone scan, ultrasonography and excretory urography to all patients, regardless of the risk of tumor recurrence, is an expensive practice.

In the present study we aimed to develop a stage specific post-cystectomy follow-up protocol that maximized the early detection of recurrent carcinoma and complications related to urinary diversion, and minimized medical costs, by eliminating studies without adversely affecting patient outcome.

Methods

Clinical records were reviewed of 351 patients who underwent radical cystectomy for carcinoma of the bladder at Osaka Medical Center for Cancer and Cardiovascular Diseases between January 1979 and December 1999. Of 351 patients, 15 underwent non-curative surgery and six dropped out of follow-up soon

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Received 6 April 2001; revision 31 May 2001; accepted 20 June 2001.

Table 1 Characteristics of 330 patients with carcinoma of the bladder

Curative cystectomy and adequate follow-up	
Age (years)	33–87 (mean: 64)
Sex	
Male	273
Female	57
Follow-up period (months)	2–250
Median	64
Mean	87

after cystectomy. Three hundred and thirty patients underwent curative cystectomy and were monitored adequately (Table 1).

Before cystectomy, patients underwent clinical staging including chest X-ray, excretory urography, CT scan of the abdomen and pelvis, bone scan, urine cytology and multichannel blood tests including serum liver function and alkaline phosphatase tests. After cystectomy, the patients were monitored by a standard protocol with chest X-ray, multichannel blood tests and urine cytology every 3 months for 2 years, then every 6 months for 3 years, and once a year thereafter. Most patients were monitored by CT scan every 4 months for 2 years, then every 6–12 months for 3 years.

Patients were pathologically staged using step-sectioned cystectomy specimens. We investigated the correlation of pathological stage with the time to diagnosis of metastasis, the site of first metastasis and the method by which the metastatic lesion was identified.

Upper urinary tract recurrences, complications of urinary diversion, and orthotopic bladder substitution were detected by routine excretory urography and urine cytology.

Based on this information, a stage specific protocol for follow-up was developed. Patients were divided into three groups; stages pT1 and lower, pT2, and pT3 and higher using the fifth edition of the TNM classification.

Results

Timing and pattern of recurrences

The median follow-up time was 64 (range 2–250) months. Metastasis developed in 82 of the 330 patients (25%) with carcinoma of the bladder at a median of 8 (range 1–186) months after cystectomy.

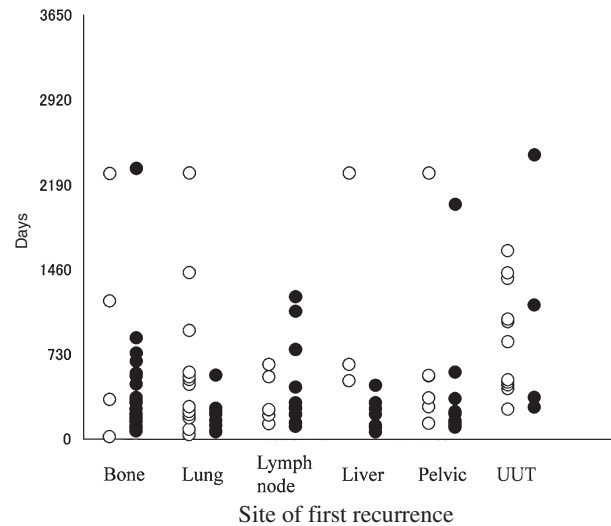


Fig. 1 Timing of recurrence and metastatic sites in 330 patients with carcinoma of the bladder. UUT, upper urinary tract. O, asymptomatic; ●, symptomatic.

The 103 metastatic lesions consisted of 29 bone, 24 lung, 21 pelvic, 18 distant lymph nodes, 10 liver and one skin.

Figure 1 shows the metastatic sites including upper urinary tract, and the time of recurrence. Most patients with bone metastases were symptomatic (86%) while 58% of patients with lung metastasis had no symptoms. Most metastases were found within 2 years.

Of 330 patients, 124 had pT1 or lower, 101 had pT2, and 101 had pT3 or higher tumors. The remaining four patients could not be placed into any group because their cystectomy specimens showed no tumor and there were not enough earlier TUR specimens to be precisely staged. Of the 124 patients with pT1 or lower, 78 had primary, subsequent or concomitant carcinoma *in situ*. The risk of metastasis was related to the pathological stage of the primary bladder tumor (Fig. 2).

Recurrence developed in 10 of 124 patients (8%) with pT1 or lower, 17 of 101 (17%) with pT2 and 55 of 101 (54%) with pT3 or higher disease at a median of 11 (range 6–186), 10 (1–40) and 7 (1–76) months, respectively (Table 2). Recurrences in patients with pT3 or higher disease were found earlier and more frequently than those with pT2 or lower.

Table 3 shows the first-detected metastatic sites, time to diagnosis and method of diagnosis of first metastasis in 10 patients with stage pT1 or lower, 17 with stage pT2, and 55 with stage pT3 or higher. Of 82 patients with metastases, 54 were initially symptomatic. Three patients of pT1 or lower, six of pT2 and 19 of pT3 or higher were asymptomatic. Most