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Original article

Outcomes of Korean patients with clinically localized urachal or non-urachal adenocarcinoma of the bladder

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Abstract

Objective: This study aimed to investigate whether there is a difference between clinically localized urachal and non-urachal adenocarcinomas in terms of patient survival.

Methods: A total of 31 patients without evidence of distant metastasis who were treated by radical or partial cystectomy were included in the study. Of the 31 cases, 17 and 14 fulfilled the histologic criteria for urachal and non-urachal carcinoma, respectively. The mean follow-up period was 54.2 months (range: 6.6–188.8).

Results: Patients with urachal adenocarcinoma were significantly younger than patients with non-urachal adenocarcinomas (45.7 vs. 70.0 years; $P = 0.002$). The rates of local or distant recurrence were similar (47.1 vs. 50.0%; $P = 0.507$, log-rank test). Patients with ≤4-cm tumors had a better disease-free survival than those with >4-cm tumors ($P = 0.043$, log-rank test). Patients with mucinous type adenocarcinoma tended to have better disease-free survival than those with other histologic types of adenocarcinoma ($P = 0.064$, log-rank test). Multivariate Cox regression analysis revealed that only tumor size and histologic type could predict the disease-free survival after surgery of patients with primary adenocarcinoma.

Conclusions: Our findings suggest that the disease-free survivals associated with urachal and non-urachal adenocarcinoma do not differ significantly but that attempts should be made to diagnose these aggressive tumors early, when they are more likely to be small, since the survivors without disease after surgery appear to be patients in whom the tumor was small.

Keywords: Bladder neoplasm; Survival; Recurrence; Urachus; Adenocarcinoma

1. Introduction

Adenocarcinoma of the bladder is the third most common histologic type of bladder carcinoma as it accounts for 0.5% to 2.0% of all bladder tumors [1]. Depending primarily on the location of the tumor, bladder adenocarcinoma can be divided into urachal and non-urachal types. Surveillance, Epidemiology, and End Results (SEER) database has shown that urachal adenocarcinoma makes up about 10% of all adenocarcinomas of the bladder [2]; similarly, analysis of the nationwide Netherlands Cancer Registry shows that 16.3% of adenocarcinomas were in the urachus [3].

However, it remains unclear whether differentiating urachal from non-urachal adenocarcinomas has prognostic importance because of conflicting reports regarding the mortality associated with the two types. The recent analysis of the SEER database revealed that the 151 patients with urachal adenocarcinoma had a significantly longer 5-year survival rate (48%) than the 1,374 patients with non-urachal adenocarcinoma (35%) [2]. Two other studies found that urachal adenocarcinoma tended to have a better prognosis, but this did not reach to statistical significance [4,5]. One of these was the analysis of the M.D. Anderson Cancer Center series that found a trend toward improved survival in subjects with urachal adenocarcinoma ($P = 0.07$) [4]. The other was the study of 21 urachal and 27 non-urachal tumor patients that also found a trend toward improved survival in urachal tumors (46% vs. 30%; $P = 0.14$) [5]. However, the older study by Mostofi et al. of 17 urachal and 27 non-urachal tumors found that urachal adenocarcinoma was associated with a significantly worse survival than non-urachal tumors (16% vs. 33%) [6].

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To help resolve these discrepancies, the present study was conducted to determine whether the survival of patients with clinically localized urachal adenocarcinoma differs from that of patients with non-urachal adenocarcinomas. In addition, the prognostic factors were evaluated in terms of disease-free survival.

2. Materials and methods

Approval to perform this study was obtained from the institutional review board. All patients with a diagnosis of primary adenocarcinoma of the bladder were identified. A total of 31 patients without evidence of distant metastasis who were treated by radical cystectomy or partial cystectomy between 1993 and 2008 were included in the study. Patient characteristics were obtained from the medical records. Cases were staged as non-metastatic cancer on the basis of radiographic scans of the chest, abdomen, and pelvis.

Tumors were subclassified into urachal or non-urachal adenocarcinoma based on combined clinicopathologic findings. We used the following 4 histologic criteria for urachal adenocarcinoma, which were modified from the Sheldon et al. criteria [7]: (1) location of the tumor in the dome/anterior wall; (2) epicenter of the carcinoma in the bladder wall; (3) absence of widespread cystitis cystica/glandularis beyond the dome/anterior wall; and (4) absence of a known primary elsewhere. Of the 31 cases, 17 cases fulfilled the histologic criteria for urachal carcinoma and the remaining 14 cases were designed as non-urachal adenocarcinoma.

Since a histologic grading system for urachal and non-urachal adenocarcinoma has not been established, we graded the tumors according to Pinthus et al. [8], namely, based on the degree of differentiation, as determined by the pathologist: tumors with good, moderate, and poor differentiation were scored as grades I, II, and III. Pathologic staging was performed on the basis of the Mayo staging system [9]. The tumors were also divided according to 5

Table 1
Patient characteristics

	Total	Urachal	Non-urachal	*P* value
No.	31	17	14	
Age (y)	52.6 ± 14.2	45.7 ± 12.4	70.0 ± 11.3	0.002[a]
Sex				0.252[b]
Male	21 (67.7%)	13 (76.5%)	8 (57.1%)	
Female	10 (32.3%)	4 (23.5%)	6 (42.9%)	
Symptoms				0.581[b]
Hematuria	25 (80.6%)	12 (70.6%)	13 (92.9%)	
Voiding difficulties	1 (3.2%)	1 (5.9%)	0 (0.0%)	
Pain	2 (6.5%)	1 (5.9%)	1 (7.1%)	
Mass	1 (3.2%)	1 (5.9%)	0 (0.0%)	
Mucosuria	1 (3.2%)	1 (5.9%)	0 (0.0%)	
Incidental	1 (3.2%)	1 (5.9%)	0 (0.0%)	
Tumor size (cm)	4.5 ± 2.8	4.4 ± 2.6	4.6 ± 3.2	0.860[a]
Cystectomy				0.004[c]
Partial	22 (71.0%)	16 (94.1%)	6 (42.9%)	
Radical	9 (29.0%)	1 (5.9%)	8 (57.1%)	
Histology				0.011[a]
Adenocarcinoma, mucinous	12 (38.7%)	11 (64.7%)	1 (7.1%)	
Adenocarcinoma, signet ring cell	6 (19.4%)	2 (11.8%)	4 (28.6%)	
Adenocarcinoma, enteric	2 (6.5%)	1 (5.9%)	1 (7.1%)	
Adenocarcinoma, NOS	11 (35.5%)	3 (17.6%)	8 (57.1%)	
Stage (Mayo)				0.159[a]
I (confined to urachus/bladder)	10 (32.3%)	3 (17.6%)	7 (50.0%)	
II (beyond urachus/bladder)	18 (58.1%)	12 (70.6%)	6 (42.9%)	
III (regional lymph nodes)	3 (9.7%)	1 (7.1%)	2 (11.8%)	
IV (distant lymph nodes/metastases)	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Grade				1.000[c]
Well differentiated	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Moderately differentiated	23 (74.2%)	13 (76.5%)	10 (71.4%)	
Poorly differentiated	8 (25.8%)	4 (23.5%)	4 (28.6%)	
Margin status				0.048[c]
Negative	26 (83.9%)	12 (70.6%)	14 (100.0%)	
Positive	5 (16.1%)	5 (29.4%)	0 (0.0%)	

NOS = not otherwise specified.
[a] Student's *t*-test.
[b] χ^2 test.
[c] Fisher's exact test.