Supplementary

Table S1 Univariable Cox regression analysis for predicting CSS

Variables	HR	95% CI	P value
Age (≤65 years as referent)			
65–75	1.36	1.24–1.49	<0.01
>75 years	1.89	1.73–2.06	<0.01
Gender (female as referent)			
Male	0.92	0.86–0.98	0.02
Race (white as referent)			
Black	0.95	0.82–1.11	0.55
Asian or others	1.04	0.92–1.18	0.48
Bca (no as referent)			
UTUC-IVR	0.61	0.54–0.69	<0.01
Bca-UTUC	1.1	0.99–1.22	0.09
Location (ureter as referent)			
Renal pelvis	1.05	0.97–1.14	0.2
Side (left as referent)			
Right	1.07	1.00–1.15	0.04
Both sides	2.47	1.11–5.51	0.03
Histology (papillary as referent)			
Urothelial carcinoma	2.16	2.01–2.31	<0.01
Carcinoma in situ	3.8	2.83–5.12	<0.01
Grade (low as referent)			
High	2.76	2.18–3.48	<0.01
Gx	2.65	1.93–3.64	<0.01
T stage (Ta or T1 as referent)			
T2	1.76	1.55–2.01	<0.01
T3	3.55	3.21–3.93	<0.01
T4	9.44	8.38–10.60	<0.01
Tx	1.87	1.29–2.73	<0.01
N stage (N0 as referent)			
N1	3.32	3.07–3.59	<0.01
Nx	1.95	1.65–2.30	<0.01
M stage (M0 as referent)			
M1	6.01	5.45–6.63	<0.01
Mx	1.68	1.18–2.41	<0.01

CSS, cancer specific survival; CI, confidence interval; UTUC, upper urinary tract urothelial carcinoma; IVR, intravesical recurrence.

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Table S2 Multivariable Cox regression analysis for predicting CSS

Variables	HR	95% CI	P value
Age (≤65 years as referent)			
65–75	1.34	1.22–1.47	<0.01
>75 years	1.93	1.77–2.10	<0.01
Gender (female as referent)			
Male	0.92	0.86–0.98	0.69
Bca (no as referent)			
UTUC-IVR	0.61	0.54–0.69	<0.01
Bca-UTUC	1.1	0.99–1.22	<0.01
Side (left as referent)			
Right	1.07	1.00–1.15	0.04
Both sides	1.36	0.60–3.13	0.47
Histology (papillary as referent)			
Urothelial carcinoma	1.34	1.25–1.44	<0.01
Carcinoma in situ	1.79	1.33–2.42	<0.01
Grade (low as referent)			
High	1.55	1.36–1.76	<0.01
Gx	1.45	1.21–1.72	<0.01
T stage (Ta or T1 as referent)			
T2	1.52	1.34–1.74	<0.01
T3	2.6	2.34–2.89	<0.01
T4	5.04	4.42–5.74	<0.01
Tx	1.37	0.94–2.01	<0.01
N stage (N0 as referent)			
N1	1.64	1.50–1.79	<0.01
Nx	1.41	1.19–1.69	<0.01
M stage (M0 as referent)			
M1	2.89	2.60–3.22	<0.01
Mx	1.45	1.00–2.12	<0.01

CSS, cancer specific survival; CI, confidence interval; UTUC, upper urinary tract urothelial carcinoma; IVR, intravesical recurrence.

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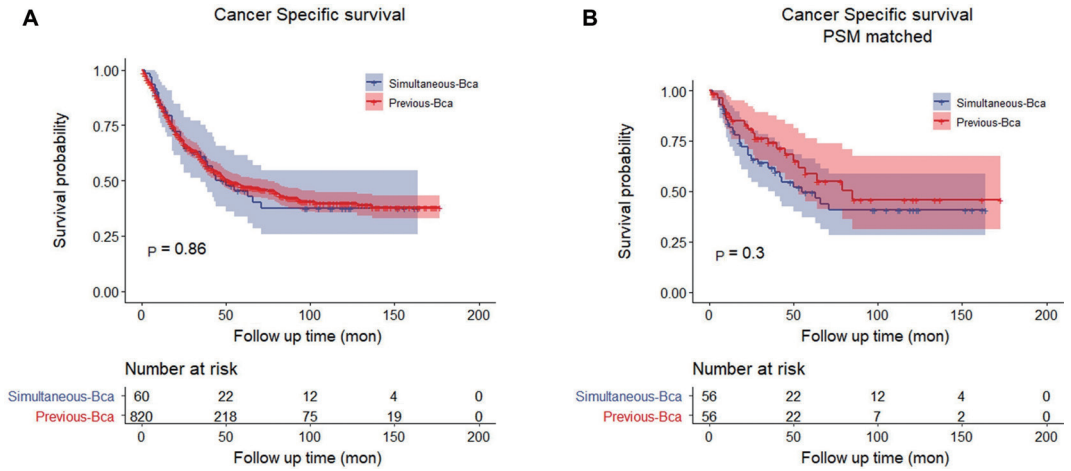

Figure S1 Kaplan-Meier survival curves showing CSS after RNU between patients with previous and simultaneous bladder cancer in UTUC-Bca cohort (A) and after PSM analysis (B). CSS, cancer specific survival; RNU, nephroureterectomy; UTUC, upper urinary tract urothelial carcinoma; PSM, propensity score matching.

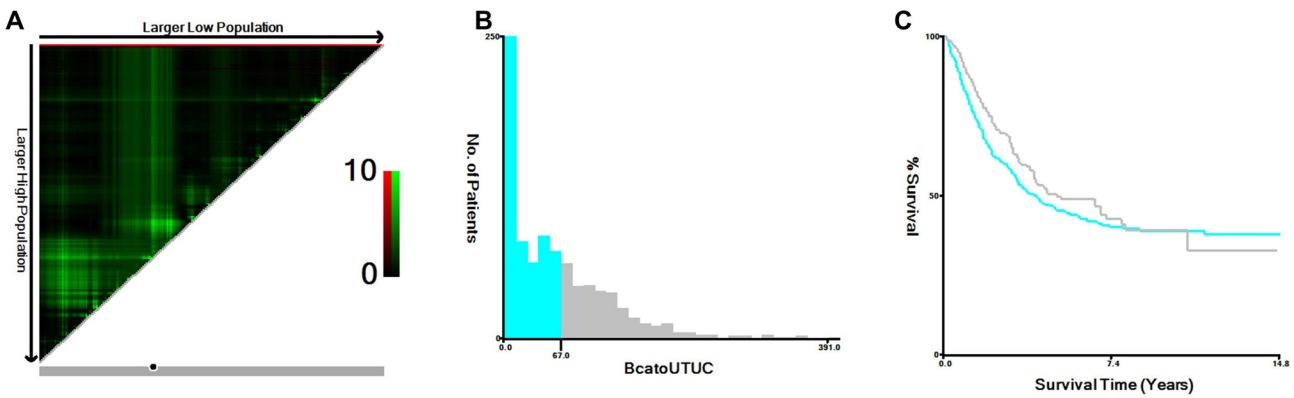

Figure S2 X-tile plots to identify the optimal interval cutoff of bladder cancer history before UTUC to predict prognosis. (A) The coloration of the plot represents the strength of the association at each division, ranging from low (dark, black) to high (bright, red or green). Inverse associations between the interval months and survival are colored red, whereas direct associations are colored green. The present figure suggested longer interval months correlated with better prognosis. (B) The distributions of the number of patients by interval months, 67 months was the optimal cutoff value to define low- and high-risk of UTUC. (C) Kaplan-Meier survival curve suggested no significant difference between two classified groups. UTUC, upper urinary tract urothelial carcinoma.

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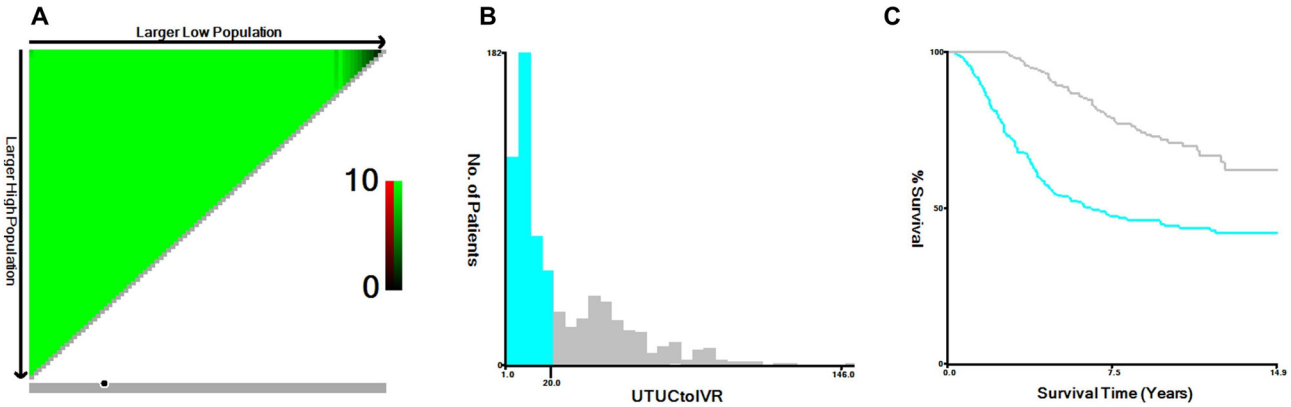

Figure S3 X-tile plots to identify the optimal interval cutoff of UTUC and IVR to predict prognosis. (A) The present figure suggested longer interval months between UTUC and IVR correlated with better prognosis. (B) The distributions of the number of patients by interval months, 20 months was the optimal cutoff value to define low- and high-risk of UTUC. (C) Kaplan-Meier survival curve patients with IVR within 20 months after RNU had significantly worse prognosis than those more than 20 months. UTUC, upper urinary tract urothelial carcinoma; IVR, intravesical recurrence; RNU, nephroureterectomy.

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