Kim et al. Impact of bladder cuff management on oncologic outcomes following radical nephroureterectomy for upper tract urothelial carcinoma: A systematic review and meta-analysis

APPENDIX

Supplementary Figure 1. Literature search strategy.

Date of database search: Jun 19, 2023

Medline

1. **Ureteral Neoplasms/**
2. **Carcinoma, Transitional Cell/ not bladder*.mp**
3. **Kidney Neoplasms/ not renal cell carcinoma*.mp**
4. **Upper tract urothelial carcinoma*.mp**
5. **UTUC*.mp**
6. **Nephroureterectomy/**
7. **Bladder cuff*.mp**
8. **Distal ureter*.mp**
9. **1 or 2 or 3 or 4 or 5**
10. **6 or 7 or 8**
11. **9 and 10**

Embase

1. **Ureter cancer/**
2. **Ureter carcinoma/**
3. **"Transitional cell carcinoma of the renal pelvis"/**

4. **"Transitional cell carcinoma of the ureter"/**
5. **Upper tract urothelial carcinoma*.mp**
6. **UTUC*.mp**
7. **Nephroureterectomy/**
8. **Bladder cuff*.mp**
9. **Distal ureter*.mp**
10. **1 or 2 or 3 or 4 of 5 or 6**
11. **7 or 8 or 9**
12. **10 and 11**

CENTRAL

1. **MeSH descriptor: [Carcinoma, Transitional Cell] explode all trees**
2. **Upper tract urothelial carcinoma**
3. **UTUC**
4. **MeSH descriptor: [Nephroureterectomy] explode all trees**
5. **Bladder cuff**
6. **MeSH descriptor: [Transurethral Resection of Bladder] explode all trees**
7. **Distal ureter***
8. **#1 or #2 or #3**
9. **#4 or #5 or #6 or #7**
10. **#8 and #9**

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Web of Science

1. **TS=(upper tract urothelial carcinoma*) OR TS=(UTUC*) OR TS=(ureter* cancer*) OR TS=(ureter* carcinoma*) and Preprint Citation Index (Exclude – Database)**
2. **TS=(nephroureterectom*) OR TS=(bladder cuff*) OR TS=(distal ureter*) and Preprint Citation Index (Exclude – Database)**
3. **#1 and #2**

Supplementary Table 1. Quality assessment of all included studies based on Newcastle-Ottawa score

	Selection				Comparability	Outcome			
Study	**Representativeness of the exposed cohort**	**Selection of the non-exposed cohort**	**Ascertainment of exposure**	**Demonstration that outcome of interest was not present at start of study**	**Comparability of cohorts on the basis of design or analysis**	**Ascertainment of outcome**	**Was followup long enough for outcomes to occur?**	**Adequacy of followup of cohorts**	**Total score**
Allard et al (2013)	☆	☆	☆	☆	☆☆	☆	-	☆	8
Blackmur et al (2023)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Brown et al (2005)	☆	☆	☆	-	-	☆	☆	☆	6
Carrion et al (2016)	☆	☆	☆	☆	-	☆	-	☆	6
Carrion et al (2019)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Chiang et al (2011)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Chung et al (2021)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Fradet et al (2014)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Fragkoulis 2017	☆	☆	☆	☆	-	☆	☆	☆	7
Geavlete et al (2007)	☆	☆	☆	☆	-	☆	☆	☆	7
Gillan et al (2013)	☆	☆	☆	☆	☆☆	☆	-	☆	8
Greco et al (2009)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Hara et al (2011)	☆	☆	☆	☆	☆☆	☆	-	☆	8
Huang et al (2023)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Kapoor et al (2014)	☆	☆	☆	-	☆☆	☆	☆	-	7
Katims et al (2021)	☆	☆	☆	☆	☆☆	☆	-	☆	8
Ko et al (2007)	☆	☆	☆	-	☆☆	☆	-	-	6
Krabbe et al (2014)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Lai et al (2020)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Li et al (2010)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Liu et al (2017)	☆	☆	☆	☆	☆☆	☆	☆	☆	9

Luo et al (2014)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Matin et al (2005)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Pang et al (2013)	☆	☆	☆	☆	☆☆	☆	-	☆	8
Pizzighella et al (2022)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Ploussard et al (2015)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Ritch et al (2011)	☆	☆	☆	-	☆☆	☆	-	-	6
Romero et al (2007)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Ryoo et al (2020)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Saika et al (2004)	☆	☆	☆	☆	☆☆	☆	-	-	7
Salvador0Bayarri et al (2002)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Simone et al (2009)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Terakawa et al (2008)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Ubrig et al (2004)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Walton et al (2011)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Walton et al (2009)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Wolf et al (2005)	☆	☆	☆	-	☆☆	☆	☆	☆	8
Xiao et al (2021)	☆	☆	☆	-	☆☆	☆	-	☆	7
Xylinas et al (2012)	☆	☆	☆	☆	☆☆	☆	☆	☆	9
Xylinas et al (2014)	☆	☆	☆	☆	☆☆	☆	☆	☆	9

A score <4 was considered as having high risk of bias, a score of 4-6 was considered as having moderate risk of bias, and a score ≥7 was considered as having low risk of bias.

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Supplementary Table 2. Study characteristics, patient demographics, and clinical parameters of included studies														
Author	**Publication year**	**Study design**	**Surgical approach**	**Pts**	**Age (yrs)**	**Male (%)**	**Smoking (%)**	**History of bladder cancer (%)**	**Concomitant bladder cancer (%)**	**Average followup (mos)**	**NAC (%)**	**Adjuvant chemotherapy (%)**	**Intravesical therapy (%)**	**Lymph node dissection (%)**
Allard et al	2013	Retrospective cohort	Laparoscopic	110	71	58.2	56.4	16	NR	22	NR	4.5	NR	26
Blackmur et al	2023	Retrospective cohort	Open and laparoscopic	402	71	61.9	51	23.1	NR	29	NR	NR	19.7	NR
Brown et al	2005	Retrospective cohort	Hand-assisted laparoscopic	55	73	58	NR	NR	NR	24	NR	NR	NR	NR
Carrion et al	2019	Retrospective cohort	Laparoscopic	151	69.9	76.3	NR	27	36	32	0	NR	0	17.2
Carrion et al	2016	Retrospective cohort	Laparoscopic	117	70	72.6	57.8	31.6	19.7	20	0	58	NR	NR
Chiang et al	2011	Retrospective cohort	Hand-assisted retroperitoneo-scopic	208	66.3	49.04	11	21.6	NR	26.7	NR	NR	NR	NR
Chung et al	2021	Retrospective cohort	Open and laparoscopic	1125	NR	NR	52.5	21.8	NR	51	NR	22	NR	NR
Fradet et al	2014	Retrospective cohort	Open and laparoscopic	594	69.7	59	68.4	0	0	40.4	0	9.9	NR	NR
Fragkoulis et al	2017	Retrospective cohort	Open	378	NR	66	NR	0	0	80.4	NR	NR	NR	NR
Geavlete et al	2007	Retrospective cohort	Open and laparoscopic	100	57.5	71.4	NR	11	0	44	NR	NR	NR	0
Gillan et al	2013	Retrospective cohort	Laparoscopic	30	73.4	77	NR	0	0	12	NR	NR	0	NR
Greco et al	2009	Prospective cohort	Open and laparoscopic	140	66.8	54	NR	NR	NR	60	NR	NR	NR	NR
Hara et al	2011	Retrospective cohort	Open	142	66	85	NR	NR	2.2	NR	6	3	NR	NR

Huang et al	2023	Retrospective cohort	Open and laparoscopic	452	71.9	46	17.9	0	0	29.5	NR	25	0	NR
Kapoor et al	2014	Retrospective cohort	Open and laparoscopic	792	69.6	63.4	NR	NR	NR	24.6	NR	11.1	NR	72.9
Katims et al	2021	Retrospective cohort	Laparoscopic or robot-assisted	435	69.3	63.1	55.7	0	0	20.5	NR	12.4	26.3	NR
Ko et al	2007	Retrospective cohort	Open and laparoscopic	46	NR	52	NR	NR	6.5	23.2	NR	NR	NR	89.1
Krabbe et al	2014	Retrospective cohort	Open and laparoscopic	122	69	63.1	NR	33.6	NR	32	7	9	NR	30
Lai et al	2020	Retrospective cohort	Open and laparoscopic	248	69	49.2	17.7	0	0	44.2	0	30	31	NR
Li et al	2010	Retrospective cohort	Open and laparoscopic	301	65.4	44	NR	0	0	33	0	NR	NR	NR
Liu et al	2017	Retrospective cohort	Open and lapaparo-scopic	265	62	74.7	40.4	15.1	16.6	60	NR	21.5	NR	NR
Luo et al	2014	Retrospective cohort	NR	396	66.41	48	12.6	23.7	NR	40.65	NR	NR	NR	NR
Matin et al	2005	Prospective cohort	Open and laparoscopic	51	73	70	NR	43.3	66.7	23	NR	NR	NR	NR
Pang et al	2013	Retrospective cohort	Open	58	NR	56.9	19	0	0	NR	0	NR	NR	NR
Pizzighella et al	2022	Retrospective cohort	Open and robot-assisted	117	68	63	28.2	0	0	40.4	0	15	4	22
Ploussard et al	2015	Retrospective cohort	Open and laparoscopic	3344	70	66.2	NR	NR	NR	32.7	NR	10.6	NR	NR
Ritch et al	2011	Retrospective cohort	Laparoscopic	36	70	69.6	NR	NR	NR	15	NR	NR	100	NR
Romero et al	2007	Retrospective cohort	Open and laparoscopic	24	NR	NR	NR	0	0	46.8	NR	NR	NR	NR
Ryoo et al	2020	Retrospective cohort	Open and laparoscopic	856	64.8	NR	NR	0	0	37.7	NR	22.8	NR	NR

Saika et al	2004	Prospective cohort	Open	60	67	67	NR	0	0	NR	NR	NR	NR	0
Salvador-Bayarri et al	2002	Retrospective cohort	Open	145	64	84.1	NR	NR	0	44	NR	NR	NR	NR
Simone et al	2009	Prospective cohort	Open and laparoscopic	80	NR	50	NR	0	0	41	NR	NR	NR	0
Terakawa et al	2008	Retrospective cohort	Open and laparoscopic	177	NR	NR	NR	0	0	31	NR	NR	NR	NR
Ubrig et al	2004	Retrospective cohort	Open and laparoscopic	29	63.4	71	NR	NR	NR	44	NR	NR	NR	NR
Walton et al	2011	Retrospective cohort	Open and laparoscopic	773	68	69	NR	27.7	NR	34	0	10.4	NR	23.9
Walton et al	2009	Retrospective cohort	Open	138	NR	63	70.3	21	NR	43	NR	NR	NR	0
Wolf et al	2005	Prospective cohort	Hand-assisted laparoscopic	53	69.7	67	NR	20.8	NR	29	100	NR	NR	NR
Xiao et al	2021	Retrospective cohort	Laparoscopic	98	NR	44	NR	NR	NR	NR	NR	NR	100	NR
Xylinas et al	2014	Retrospective cohort	Open and laparoscopic	1839	70	66.9	NR	28.7	NR	45	0	10.7	NR	NR
Xylinas et al	2012	Retrospective cohort	Open and laparoscopic	2681	68.4	67.4	NR	33.6	NR	57.5	0	9.8	NR	NR

NAC: neoadjuvant chemotherapy; NR: not reported.