

# Seminal Vesicle Sparing Cystectomy in Highly Selective Bladder Cancer Patients is Oncologically Safe: Results from a High-Volume Tertiary Centre

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## OBJECTIVES

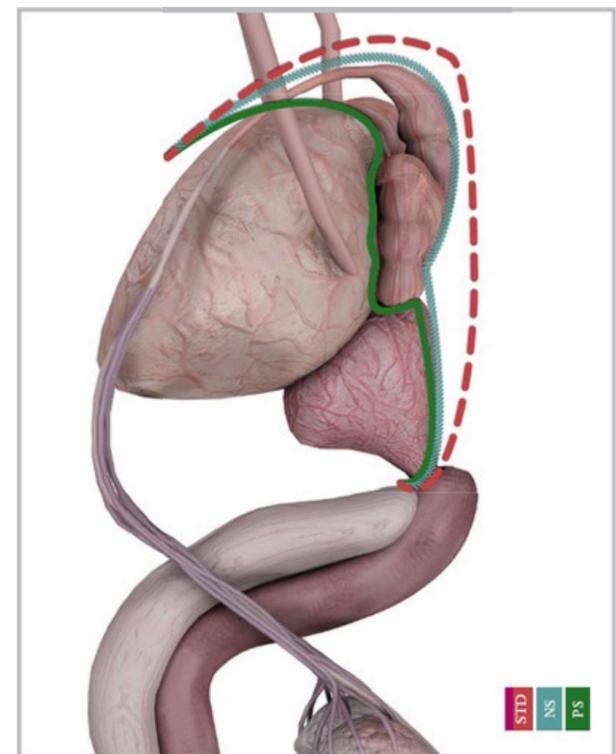
- After radical cystectomy (RC), depending on the pT, **40-80% of patients are long-term survivors**, among these some with pelvic-node involvement.
- Seminal vesicle sparing radical cystectomy (SVS RC) has been well documented not to **impact short- to mid-term oncological outcomes**.
- However, there is still a **lack of data on long-term outcomes** after seminal vesicle sparing radical cystectomy.
- The aim of this study was to **compare oncological outcomes** in patients after **seminal vesicle sparing vs standard radical cystectomy**.

## METHODS

- We evaluated oncological outcomes of **470 consecutive patients** after radical cystectomy and orthotopic ileal reservoir formation, from 2000 to 2017, which were stratified into **6 groups** according to **nerve sparing** and **seminal vesicle sparing** status as attempted during surgery.
- **Local recurrence** was defined as **any urothelial cancer recurrence below the iliac bifurcation within the pelvic soft tissue**.
- OS was considered the time from cystectomy to patient death. Patients who were alive were censored from the last date of consultation.
- We conducted **propensity analyses** and investigated the treatment impact on oncological endpoints calculating hazard ratios (HR) with 95% confidence intervals (CI) after IPTW.
- KM-curves for all six treatment groups were plotted crudely (before IPTW) with p-values from log rank tests.

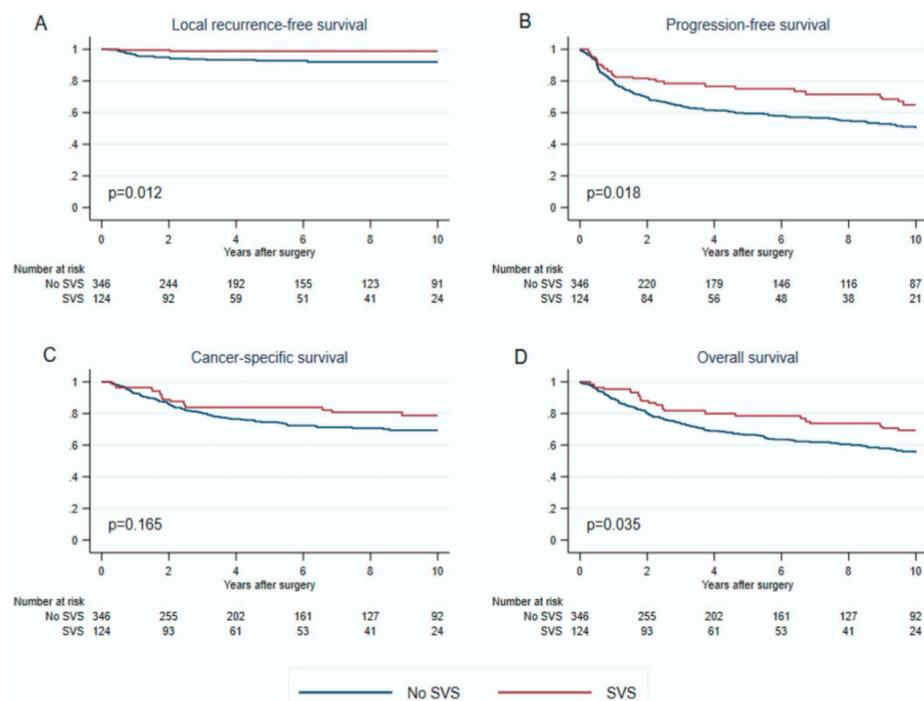
**Table 1. Baseline characteristics of 470 patients with bladder cancer undergoing radical cystectomy**

	No NS/SVS	Unilat NS, No SVS	Bilat NS, No SVS	Unilat NS, Unilat SVS	Bilat NS, Unilat SVS	Bilat SVS	p Value
No. pts	55	159	132	30	45	49	
Preop:							
Mean yrs age (SD)	65 (9.2)	64 (8.7)	64 (7.6)	62 (8.8)	62 (8.8)	61 (12)	0.21
Mean kg/m <sup>2</sup> BMI (SD)	27 (4.1)	27 (5.1)	27 (3.9)	26 (3.3)	27 (4.4)	27 (4.5)	0.81
No. Charlson-age comorbidity index ≥3 (%)	5 (9.1)	36 (23)	28 (21)	5 (17)	4 (8.9)	14 (29)	0.045
No. hypertension (%)	28 (51)	77 (48)	57 (43)	17 (57)	17 (38)	23 (47)	0.57
No. coronary artery disease (%)	13 (24)	37 (23)	24 (18)	7 (23)	6 (13)	11 (22)	0.67
No. hypercholesterolemia (%)	9 (16)	36 (23)	28 (21)	11 (37)	7 (16)	18 (37)	0.05
No. diabetes (%)	13 (24)	15 (9.4)	14 (11)	4 (13)	4 (8.9)	5 (10)	0.16
No. chronic obstructive pulmonary disease (%)	6 (11)	31 (19)	22 (17)	8 (27)	8 (18)	9 (18)	0.56
No. nicotine (%)	35 (64)	106 (67)	88 (67)	21 (70)	21 (47)	29 (59)	0.19
No. multiple TUR-B (%)	17 (31)	35 (22)	42 (32)	5 (17)	10 (22)	20 (41)	0.06
Pathological tumor stage (TUR-B) (%):							<0.001
≤pTa	1 (1.8)	2 (1.3)	12 (9.1)	0 (0)	1 (2.2)	11 (22)	
pT1	16 (29)	24 (15)	34 (26)	7 (23)	11 (24)	17 (35)	
pT2	38 (69)	133 (84)	86 (65)	23 (77)	33 (73)	21 (43)	
Carcinoma in situ (TUR-B) (%)	16 (29)	45 (28)	48 (36)	7 (23)	13 (29)	16 (33)	0.66
Histological variants (TUR-B) (%):							0.87
Squamous differentiation	1 (1.8)	5 (3.1)	1 (0.76)	1 (3.3)	3 (6.7)	1 (2.0)	
Small cell/neuroendocrine different	0 (0)	3 (1.9)	1 (0.76)	0 (0)	2 (4.4)	0 (0)	
Sarcomatoid differentiation	0 (0)	3 (1.9)	3 (2.3)	0 (0)	2 (4.4)	1 (2.0)	
Other variants	0 (0)	2 (1.3)	3 (2.3)	0 (0)	0 (0)	0 (0)	
No. lymphovascular invasion (%)	3 (5.5)	23 (14)	13 (10)	3 (10)	7 (16)	5 (10)	0.48
No. hydronephrosis (%)	10 (18)	35 (22)	24 (18)	3 (10)	3 (6.7)	9 (18)	0.21
No. intravesical instillation (%)	13 (24)	27 (17)	35 (27)	1 (3.3)	12 (27)	21 (43)	<0.001
No. neoadjuvant chemotherapy (%)	5 (9.1)	34 (21)	21 (16)	2 (6.7)	9 (20)	4 (8.2)	0.08
No. adjuvant/palliative chemotherapy (%)	21 (38)	50 (31)	31 (23)	8 (27)	6 (13)	7 (14)	0.013
No. paracolicular biopsy (%):							0.73
Negative	50 (91)	153 (96)	121 (92)	30 (100)	44 (98)	48 (98)	
Carcinoma in situ	3 (5.5)	3 (1.9)	7 (5.3)	0 (0)	1 (2.2)	0 (0)	
pTa G1-2	1 (1.8)	0 (0)	1 (0.76)	0 (0)	0 (0)	0 (0)	
pTa G3	0 (0)	2 (1.3)	1 (0.76)	0 (0)	0 (0)	0 (0)	
≥T1	1 (1.8)	1 (0.63)	2 (1.5)	0 (0)	0 (0)	1 (2.0)	
No. intact erectile function at baseline (%)	34 (89)	106 (79)	94 (81)	23 (79)	34 (79)	36 (80)	0.79
Postop:							
No. tumor pathology (%):							<0.001
pT0	0 (0)	9 (5.7)	22 (17)	1 (3.3)	9 (20)	10 (20)	
pT1	14 (25)	24 (15)	39 (30)	8 (27)	12 (27)	19 (39)	
pT2	17 (31)	59 (37)	44 (33)	15 (50)	14 (31)	9 (18)	
pT3	16 (29)	59 (37)	25 (19)	5 (17)	10 (22)	10 (20)	
pT4	8 (15)	8 (5.0)	2 (1.5)	1 (3.3)	0 (0.0)	1 (2.0)	
No. lymph node metastasis (pN+) (%)	19 (35)	48 (30)	18 (14)	9 (30)	4 (8.9)	3 (6.1)	<0.001
No. lymph nodes removed (%)	29 (9.1)	34 (14)	38 (17)	37 (23)	39 (13)	29 (16)	<0.001
No. carcinoma in situ pathology (%)	22 (40)	67 (42)	61 (46)	10 (33)	27 (60)	23 (47)	0.23
No. high grade (G3) (%)	55 (100)	148 (93)	108 (82)	25 (83)	39 (87)	36 (73)	<0.001
No. PSM bladder cancer (%)	1 (1.8)	1 (0.63)	2 (1.5)	0 (0)	1 (2.2)	1 (2.0)	0.71
No. incidental prostate cancer (%)	20 (36)	69 (43)	59 (45)	14 (47)	16 (36)	15 (31)	0.69
No. PSM prostate cancer (%)	2 (10)	4 (6)	1 (2)	2 (14)	1 (6)	0 (0)	0.33



**Image: Seminal vesicle sparing radical cystectomy (SVS RC)**

## RESULTS



**Figure 2. Kaplan-Meier curves of oncological endpoints after IPTW**

Mean age at surgery of the entire cohort was **63.7 (SD 8.9) years**, and median follow-up was **5.3 (IQR 1.9-10.0) years**.

**A positive surgical margin was seen in six patients of the study cohort (1.3%).** There was **no significant difference in positive surgical margin of bladder cancer among the six groups (p=0.71)**.

Among the seminal-vesicle and non-seminal vesicle sparing groups, our analysis **showed no difference in local recurrence-free survival (p=0.173)**.

Upper tract recurrence was observed in **4% (18/470) patients**, after a median time of **2.1 years (1.0-7.4)**. **26% of patients (122/470)** had distant metastasis after a median time of **0.95 (0.5-2) years**.

Progression free, cancer-specific and overall survival were **more favourable** in patients with **seminal vesicle sparing radical cystectomy (p<0.001, p=0.006 and p<0.001, respectively)**.

**Table 2. Number of local and distant recurrences and time to recurrence of 470 patients undergoing radical cystectomy and orthotopic bladder substitution**

Localization	No. (%)	Median (IQR)
Urethral recurrence	24 (5)	1.0 (0.6–2.0)
Recurrence upper urinary tract	18 (4)	2.1 (1.0–7.4)
Local recurrence other than urethral*	28 (6)	1.1 (0.5–2.1)
Distant metastasis*	122 (26)	1.0 (0.5–2.0)

\* Local recurrence was defined as recurrence in pelvic soft tissue or pelvic lymph nodes detected with imaging studies. Involvement of lymph nodes above level of iliac bifurcation and visceral metastasis was classified as distant metastasis.

**Table 3. Survival data after inverse probability of treatment weighing**

	1 Yr			5 Yrs			10 Yrs		
	All	No SVS	SVS	All	No SVS	SVS	All	No SVS	SVS
% Local recurrence-free survival	98	97	100	96	93	99	95	92	99
% Progression-free survival	81	79	83	67	59	75	57	51	65
% Cancer-specific survival	95	93	96	79	75	84	74	69	79
% Overall survival	92	89	95	72	67	78	62	56	69

## CONCLUSION

- In a **highly selected** group of patients, **seminal vesicle sparing radical cystectomy is oncologically safe**.
- Importantly, **mid- and long-term** oncological outcomes were **non-inferior** compared to non-seminal vesicle-sparing radical cystectomy.