

### Supplementary Information 1: Study and outcome characteristics.

Ref: reference; a: same country as the affiliation of the first author; b: ratio for all participants of given study, even if not specifically eligible for this study; c: mean or median age; d: Newcastle-Ottawa scale score (range 0–6); e: same study population as [25]; f: urination dysfunction reported as an outcome, without defining which symptoms specifically were assessed; g: number differ from analyzed; cohort: cohort study; rct: randomized controlled trial; n: number; m: male; f: female; RT: radiotherapy; CT: chemotherapy; CRT: chemoradiotherapy; LLND: lateral lymph node dissection; JP: Japan; FR: France; CH: Switzerland; DE: Germany; IT: Italy; SE: Sweden; DK: Denmark; FI: Finland; TW: Taiwan; NL: Netherlands; US: United States; PL: Poland; KR: South Korea; ES: Spain; CN: China; SY: Syria; BG: Bulgaria; UK: United Kingdom; AZ: Azerbaijan; NR: not reported; NS: not specified; Lap: laparoscopic; TaTME: transanal total mesorectal excision; CE: clinical examination; IPSS: International Prostate Symptom Score; QoL: Quality of Life; EORTC-CR38: European organization for cancer research and treatment, Quality of Life Questionnaire-Colorectal Cancer module 38; EORTC-29: European organization for cancer research and treatment, Quality of Life Questionnaire-Colorectal Cancer module 29; SF-36: Short form 36 health survey.

[ref]	Year	Country <sup>a</sup>	Study design	Eligible patients, n, (m/f) <sup>b</sup>	Age <sup>c</sup>	TME and/or PME	Surgical approach	CRT	LLND	Assessment	Urination dysfunction, n (%)		Bias <sup>d</sup>
											3–11 m	≥12 m	
[66]	1999	JP	cohort	177 (nr/nr)	64	Degree NS	unknown	nr	yes	CE	Incontinence: 3(2) Retention: 12(7)		5
[32]	2001	JP	cohort	21 (8/13)	57	TME	unknown	nr	yes	CE	Incontinence: 7(33)		2
[64]	2002	FR	cohort	42 (42/0)	58	TME	unknown	RT	no	IPSS	Frequency: 4(10) Incontinence: 2(5)		3
[80]	2002	CH	cohort	43 (23/20)	68	TME	unknown	CRT	no	QoL	Dysfunction!: 3(7)		3

[85]	2002	FR	cohort	20 (13/7)	56	TME	unknown	CT	no	IPSS	Dysfunction <sup>f</sup> : 6(30)		5
[96]	2003	DE	cohort	112 (93/57)	64	90/22	unknown	nr	no	CE	Dysfunction <sup>f</sup> : 13(12)		5
[71]	2003	JP	cohort	49 (50/27)	56	TME	unknown	nr	yes	IPSS		Dysfunction <sup>f</sup> :8 (16)	5
[73]	2004	FR	cohort	66 (78/43)	64	Degree NS	TaTME and unknown	CRT	no	CR38		Incontinence: 2(3) Retention: 3(5)	4
[72]	2005	JP	cohort	57 (39/18)	63	TME	unknown	nr	yes	CE		Incontinence: 6(11) Retention: 11(19)	4
[46]	2005	DE	cohort	52 (36/16)	63	TME	unknown	nr	nr	urodynamics	Dysfunction <sup>f</sup> : 7(13)		5
[27]	2006	IT	cohort	33 (20/13)	64	TME	unknown	nr	no	CR38	Dysfunction <sup>f</sup> : 2(6)		3
[81]	2006	JP	cohort	23 (23/0)	Nr	TME	unknown	nr	yes	Nr	Dysfunction <sup>f</sup> : 1(4)		3
[78]	2006	SE	rct	63 (75/64)	75	TME	unknown	RT	no	QoL	Incontinence: 29(46)		4
[75]	2006	FI	cohort	54 (31/23)	73	TME	unknown	CRT	no	SF36		Frequency: 9(17) Incontinence: 13(24) Retention: 8(15)	4
[55]	2007	TW	rct	98 (50/48)	Nr	TME	open and lap	nr	nr	CE	Retention: 9(9)		4
[70]	2008	NL	cohort	532 (499/286)	64	TME	unknown	RT	nr	QoL		Incontinence: 123(23) Retention: 89(17)	5
[65]	2009	US	cohort	222 (0/222)	59	TME	unknown	CRT	no	Own non- validated questionnaire	Incontinence: 136(61) Retention: 136 (61)	Incontinence: 109 (49) Retention: 108 (49)	3
[57]	2011	IT	cohort	35 (35/0)	56	30/5	open	RT	no	IPSS		Frequency: 8(24)	5
[79]	2012	PL	cohort	52 (30/22)	Nr	TME	unknown	RT	nr	CE	Incontinence: 8(15)		4

[43]	2013	DE	cohort	263 (183/80)	67	TME	unknown	CRT	no	ICIQ	Incontinence: 198 (75)		4
[82]	2015	KR	cohort	556 (366/190)	58	TME	lap and robot	RT	no	IPSS	Dysfunction <sup>f</sup> : 14(3)		4
[30]	2015	UK	cohort	61 (30/31)	62	32/29	lap and conversion	nr	nr	CE	Retention: 0(0)		2
[33]	2015	KR	cohort	217 (146/71)	61	TME	lap and robot	RT	no	CE	Dysfunction <sup>f</sup> : 3(1)		2
[63]	2015	FR	cohort	56 (41/15)	65	TME	lap	RT	no	Nr	Frequency: 0(0) Incontinence: 0(0) Retention: 0(0)		5
[83]	2016	DE	cohort	30 (21/9)	62	TME	lap	nr	no	IPSS	Dysfunction <sup>f</sup> : 1(3)		4
[56]	2016	IT	cohort	51 (34/17)	75	41/9 <sup>s</sup>	lap	CT	no	IPSS, ICIQ	Dysfunction <sup>f</sup> : 47(92)		3
[76]	2016	KR	cohort	686 (421/265)	62	TME	lap	RT	no	CE	Frequency: 5(1)		3
[67]	2017	IT	cohort	21 (10/11)	66	Degree NS	open and lap	CRT	no	ICIQ	Incontinence: 6(29) Retention: 0(0)		4
[25]	2017	SE	cohort	805 (462/343)	nr	Degree NS	open and lap	nr	no	Own non-validated questionnaire	Incontinence: 325 (40) Retention: 256 (32)		5
[69]	2017	US	cohort	3867 (1868/1999)	nr	Degree NS	unknown	CT	nr	National Cancer Institute Common Terminology Criteria for Adverse Events		Incontinence: 89(2) Retention: 317 (8)	5
[42]	2018	FR	cohort	72 (46/26)	68	49/23	open and lap	CRT	no	ICIQ	Incontinence: 8(11)		5
[50]	2018	DK	cohort	57 (53/32)	64	60/25 <sup>s</sup>	lap and TaTME	RT	nr	IPSS	Dysfunction <sup>f</sup> : 50(88)		5
[52]	2018	UK	cohort	2676 (2657/1331)	67	TME	unknown	CRT	no	Functional Assessment of		Incontinence: 682(25)	5

										Cancer Therapy			
[74]	2018	ES	cohort	152 (105/47)	61	TME	unknown	RT	no	CR29		Frequency: 110(72) Incontinence: 59(38)	5
[61]	2018	NL	cohort	54 (38/16)	65	52/2	lap and TaTME	CRT	no	IPSS	Dysfunction <sup>f</sup> : 32 (59)		4
[8]	2020	SE	cohort	502 (293/209)	69	Degree NS	open and lap	CRT	nr	Own validated questionnaire		Incontinence: 85(17)	5
[53]	2020	KR	cohort	39 (39/0)	44	TME	robot	CRT	yes	IPSS	Dysfunction <sup>f</sup> : 39 (100)		3
[24] <sup>c</sup>	2020	SE	cohort	1180 (681/499)	66	TME	open, lap, and conversion	RT	no	Own non-validated questionnaire		Incontinence: 491(42) Retention: 371(31)	5
[60]	2020	ES	cohort	76 (48/39)	67	52/35 <sup>s</sup>	open, lap, and conversion	nr	no	IPSS	Dysfunction <sup>f</sup> : 87 (114)		5
[35]	2020	CN	cohort	154 (101/53)	58	TME	lap and unknown	RT	no	CE	Dysfunction <sup>f</sup> : 4(3)		2
[28]	2021	JP	cohort	47 (28/19)	68	TME	open, lap, and TaTME	CT	no	CE	Retention: 1(2)		2
[29]	2021	US	cohort	44 (29/15)	56	29/15	open, lap, robot, and conversion	CRT	no	CE	Incontinence: 1(2) Retention: 2(5)		2
[68]	2021	SY	cohort	60 (30/30)	48	TME	unknown	CRT	no	CE	Retention 3(5)		4
[31]	2021	CN	cohort	534 (340/194)	59	TME	lap and robot	nr	no	Nr	Retention: 11(2)		2
[84]	2021	CN	cohort	58 (58/0)	53	TME	lap	nr	no	IPSS	Dysfunction <sup>f</sup> : 0(0)		5
[86]	2021	BG	cohort	208 (116/92)	61	Degree NS	lap	nr	yes	IPSS	Dysfunction <sup>f</sup> : 49 (24)		3
[34]	2021	FR	rct	71 (43/28)	64	TME	unknown	RT	no	Nr		Retention: 0(0)	2

[47]	2021	CN	rect	197 (197/0)	58	TME	lap	nr	no	urodynamics	Retention: 9(5)		4
[77]	2022	FR	cohort	44 (30/14)	66	TME	lap	RT	no	Urinary symptom profile scores	Incontinence: 13(30)		3
[45]	2022	CN	rect	187 (187/0)	63	TME	open and lap	RT	no	PUV >100mL	Incontinence: 3(6)		4
[26]	2023	AZ	cohort	103 (nr/nr)	Nr	TME	open and lap	RT	no	CE	Dysfunction <sup>f</sup> : 0(0)		3
[51]	2023	DE	cohort	489 (343/146)	64	Degree NS	unknown	CRT	no	CR38		Frequency: 160 (33)	4
[58]	2023	CN	cohort	64 (28/36)	60	TME	lap, conversion, and unknown	CRT	no	IPSS		Dysfunction <sup>f</sup> : 28 (44)	5
[59]	2023	CN	cohort	117 (77/40)	58	TME	open and lap	CRT	no	CR38		Retention: 42(36)	5
[62]	2023	CN	cohort	220 (112/108)	64	TME	lap	RT	no	IPSS	Dysfunction <sup>f</sup> : 197 (90)	Dysfunction <sup>f</sup> : 157 (71)	5
[54]	2024	KR	cohort	110 (71/39)	63	Degree NS	unknown	CRT	no	IPSS	Dysfunction <sup>f</sup> : 110 (100)		5