Long- and short-term outcomes of robot-assisted rectal cancer surgery

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Backgrounds & Aims

- ✓ Although the short-term outcomes of robot-assisted laparoscopic surgery (RALS) for rectal cancer are well known, the long-term oncologic outcomes of RALS compared with those of conventional laparoscopic surgery (CLS) are not clear.
- ✓ This study aimed to compare the long-term outcomes of RALS and CLS for rectal cancer using propensity score matching.

Methods

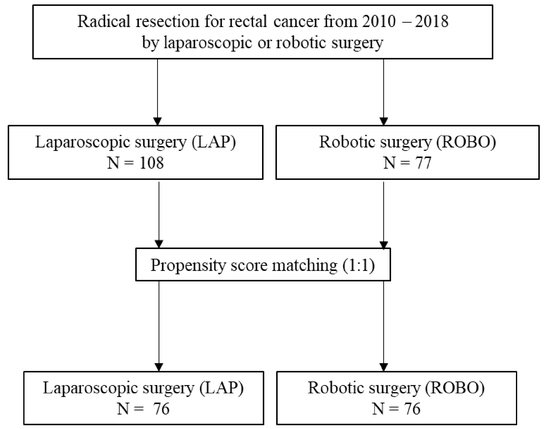
✓**Cases:** April 2000 – August 2019
Cases of curative resection for rectal cancer performed at our department via laparoscopic or robot-assisted surgery.
Excluding 185 cases with missing clinicopathological or prognostic data.

✓**Design:** Single-center, retrospective study.

✓**Primary Endpoint**: 3-year Recurrence-Free Survival (RFS)

Secondary Endpoints:3-year OS, 3-year Cum-DMFS, 3-year Cum-LRFS

✓**Statistical Analysis**: Propensity score matching (1:1)
Survival analysis using Kaplan-Meier curves and log-rank test



Results-1 Short-term outcomes

		Approach LAP (n = 76)	ROBO (n = 76)	p-value	SMD
Age, y.o.		63 (39 - 88)	64 (33- 82)	0.7	0.067
Sex, n (%)	Female	29 (38.2)	26 (34.2)	0.736	0.082
	Male	47 (61.8)	50 (65.8)		
BMI	< 25	66 (86.8)	61 (80.3)	0.382	0.178
	> 25	10 (13.2)	15 (19.7)		
Lacation, n (%)	Lower rectum (0 - 5 cm)	20 (26.3)	19 (25.0)	0.394	0.22
	Middle rectum (6 - 10 cm)	41 (53.9)	35 (46.1)		
	Upper rectum (10cm -)	15 (19.7)	22 (28.9)		
Neoadjvant therapy, n (%)	No	70 (92.1)	67 (88.2)	0.588	0.133
	Yes	6 (7.9)	9 (11.8)		
Lateral lymph node dissection, n (%)	No	63 (82.9)	62 (81.6)	1	0.034
	Yes	13 (17.1)	14 (18.4)		
patholigical T-stage, n (%)	1	17 (22.4)	19 (25.0)	0.797	0.17
	2	17 (22.4)	12 (15.8)		
	3	35 (46.1)	38 (50.0)		
	4	7 (9.2)	7 (9.2)		
pathological N-stage, n (%)	Negative	43 (56.6)	41 (53.9)	0.87	0.053
	Positive	33 (43.4)	35 (46.1)		
Lymphatic invasion, n (%)	Negative	24 (31.6)	25 (32.9)	1	0.028
	Positive	52 (68.4)	51 (67.1)		
Venous invasion, n (%)	Negative	22 (28.9)	25 (32.9)	0.726	0.085
	Positive	54 (71.1)	51 (67.1)		
Differentiation, n (%)	Well	23 (30.3)	22 (28.9)	1	0.029
	Others	53 (69.7)	54 (71.1)		
Tumor size, mm		34 (2.7 - 128)	31.5 (1 - 75)	0.5	0.11
ew, n (%)	Negative	76 (100.0)	75 (98.7)	1	0.163
	Positive	0 (0.0)	1 (1.3)		
Postoperative complication, n (%) (Clavian-Dindo > 1)	No	51 (67.1)	53 (69.7)	0.862	0.057
	Yes	25 (32.9)	23 (30.3)		
Anastomotic leakage, n (%)	No	67 (88.2)	67 (88.2)	1	<0.001
	Yes	9 (11.8)	9 (11.8)		

Table 1 (continued)

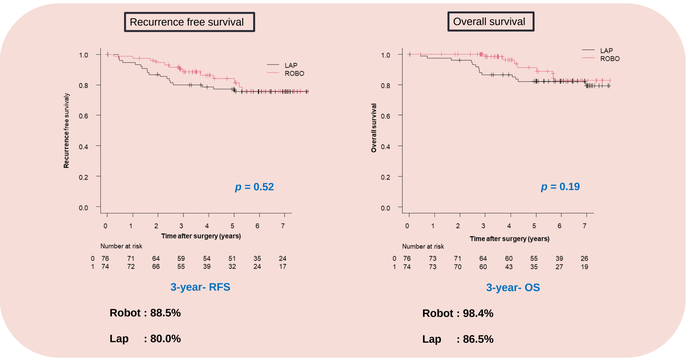
	Approach CLS (n=76)	RALS (n=76)	p-value	SMD
Yes	9 (11.8)	9 (11.8)		
Operating time, minute	346 (85–872)	457 (188–965)	<0.001	0.621
Intraoperative blood loss, g	50 (1–892)	62 (1–476)	0.901	0.02
Conversion rate, *n* (%)	9 (11.8)	4 (5.3)	0.245	0.237
Number of harvested lymph node, *n* (%)	19 (3–96)	19 (7–76)	0.814	0.038
Length of hospital stay, days	16 (8–66)	14 (8–67)	0.506	0.108
Total IPSS scores	6 (5–8)	2 (1–3)	<0.001	4.809
RM, *n* (%)				
Negative	102 (94.4)	76 (98.7)	0.242	0.236
Positive	6 (5.6)	1 (1.3)		

✓**Operative Time** Prolonged

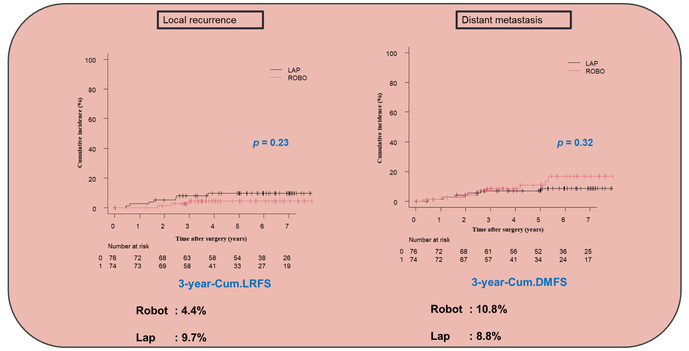
✓**IPSS Score** Favorable

✓**RM Positive** Tendency to be lower

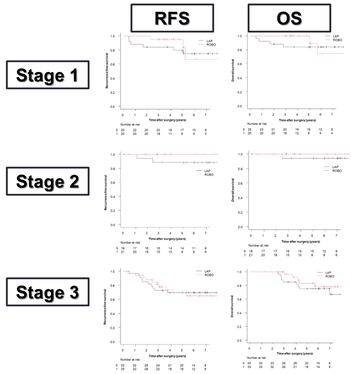
Results-2 Long-term oucomes



Results-3 Long-term outcomes



Results-4 Long-term outcomes



	RFS			OS		
	LAP	ROBO	p-value	LAP	ROBO	p-value
Stage 1	84.0	95.0	0.679	83.8	100.0	0.370
Stage 2	94.1	100.0	0.303	88.2	100.0	0.129
Stage 3	72.7	77.7	0.942	84.8	96.3	0.397

Conclusion

- ✓ Robot-assisted surgery for rectal cancer demonstrated favorable long-term outcomes as well as short-term outcomes compared to laparoscopic surgery.

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