Short-term outcomes of da Vinci SP versus Xi for colon cancer surgery. A propensity-score matching analysis of multicenter cohorts

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Introduction

- The introduction of the da Vinci SP system allows surgeons to perform colon cancer surgery through fewer ports.
- The SP system is better suited for colon cancer surgery due to its lack of stapler and energy device needed for rectal cancer surgery.

Purpose

- To evaluate the perioperative outcomes of colon cancer surgeries conducted using the da Vinci SP and Xi systems.

Methods

- Retrospective analysis
  - ✓ Patients who underwent robotic surgery for colon cancer
  - ✓ Between Nov 2020 and Dec 2022 at Asan medical center and Ulsan university hospital
- Patients who underwent surgery with the da Vinci SP and Xi were compared after propensity score matching (PSM)
  - ✓ Demographics, operative variables, postoperative outcomes, and short-term complications
- 1:1 PSM
  - ✓ Derived from eight variables: age, sex, BMI, ASA score, tumor location, and clinical TNM stage

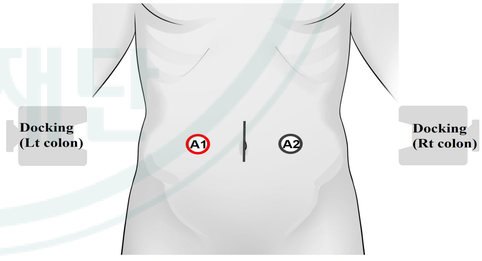
Results

Table 1. Baseline characteristics after PSM

	After PSM		
	SP (n = 53)	Xi (n = 53)	SMD
Age, years	59.1 (8.6)	59.2 (11.8)	0.013
Sex (male)	34 (64.2)	35 (66.0)	0.040
BMI, kg/m^2	23.4 (3.5)	23.7 (3.0)	0.095
ASA score			0.089
1–2	50 (94.3)	51 (96.2)	
3–5	3 (5.7)	2 (3.8)	
Tumor location			0.078
Right-sided colon	21 (39.6)	19 (35.8)	
Left-sided colon	32 (60.4)	34 (64.2)	
cT stage			<0.001
cT0–2	18 (34.0)	18 (34.0)	
cT3–4	35 (66.0)	35 (66.0)	
cN stage			0.076
cN0	29 (54.7)	27 (50.9)	
cN+	24 (45.3)	26 (49.1)	
cM stage			0.089
cM0	50 (94.3)	51 (96.2)	
cM+	3 (5.7)	2 (3.8)	

Table 2. Operative and pathologic results after PSM

	SP (n = 53)	Xi (n = 53)	p-value
Operation			0.912
RC	21 (39.6)	19 (35.8)	
LC	9 (17.0)	9 (17.0)	
AR	23 (43.4)	25 (47.2)	
Total operation time, min	150.0 (130.0–201.0)	153.0 (127.0–193.0)	0.965
Conversion	1 (1.9)	0 (0.0)	>0.999
Estimated blood loss, cc	10.0	10.0	0.326
Transfusion	1(1.9)	1(1.9)	>0.999
Total incision length, cm	**5.0 (4.0–5.2)**	**9.4 (8.4–9.4)**	**<0.001**
Pathologic stage			>0.999
0–II	33 (62.3)	34 (64.2)	
III–IV	20 (37.7)	19 (35.8)	
Number of yielded nodes ≥12	49 (92.5)	46 (86.8)	0.524



Incision : 3.5-4cm
Lt colon (A1) 12mm
Rt colon (A2) 5mm

Table 3. Postoperative outcomes

	SP (n = 53)	Xi (n = 53)	p-value
NRS			
Postoperative 1 hour	5.96	6.55	0.226
Postoperative 8 hours	**3.02**	**3.51**	**<0.001**
Postoperative 24 hours	**2.85**	**3.25**	**0.001**
Rescue analgesics administered			
Postoperative day 0	1.53	1.68	0.450
Postoperative day 1	0.57	0.77	0.694
Postoperative complications	4 (7.5)	7 (13.2)	0.524
Anastomotic leakage	0 (0.0)	1 (1.9)	>0.999
Surgical site infection	2 (3.8)	1 (1.9)	>0.999
Ileus	2 (3.8)	4 (7.5)	0.678
Length of hospital stay, days	**5.0 (4.0-6.0)**	**6.0 (5.0-7.0)**	**0.002**

Values are presented either as a number (%) or as a mean ± standard deviation unless otherwise specified. Abbreviations: NRS, numeric rating scale

Conclusion

- Reduced-port robotic surgery using the da Vinci SP system appears to be a viable and safe technique for colon cancer resection.
- It is associated with **diminished postoperative pain** and **shorter hospital stays**.
- Future studies, ideally with larger sample sizes and employing a randomized design, is necessary to corroborate these findings.