MULTI-CENTER EVALUATION OF ROBOTIC COMPONENT SEPARATION TECHNIQUES FOR VENTRAL HERNIA REPAIR: THE FIRST EXPERIENCE IN KOREA

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Introduction

Study Focus: First multi-center robotic component separation for ventral hernia in Korea.
Outcomes Assessed: Operation time, hospital stay, complication rates.
Key Insight: Feasibility and safety of robotic surgery in multi-institutional settings.
Significance: Potential for robotic surgery as a standard approach in Korea.

Methods

Study Type: Retrospective review across multiple Korean hospitals.
Sample: 60 patients undergoing robotic ventral hernia repair with component separation.
Data Collected: Demographics (age, BMI), surgical metrics (OP time, docking time, console time), and postoperative outcomes (hospital stay, complications, recurrence).
Analysis: Descriptive statistics and logistic regression for complication risk factors.

Results

Patient Age: Mean 53.4 years (range: 29–78).
BMI: Mean 28.46.
Surgical Metrics: OP time: 274 min; Docking time: 10.7 min; Console time: 242 min.
Hospital Stay: Mean 3.7 days (range: 1–10 days).
Hernia Width: Mean 6.7 cm (range: 2–16 cm).
Complication Rate: 5% (3/60 patients).
Key Associations: Age and console time linked to higher complication risks; shorter docking time linked to fewer complications.
Recurrence: No hernia recurrences observed during follow-up

Conclusions

Robotic component separation for ventral hernia repair is safe, effective, and feasible, with potential to become the standard of care in complex cases in Korea.

Table 1 Demographics

Surgeon		60
	H	39 (65.0%)
	K	3 (5.0%)
	S	18 (30.0%)
Age		50.0 [42.0;64.5] 60
Sex		60
	Female	47 (78.3%)
	Male	13 (21.7%)
BMI		27.2 [24.2;31.5] 60
OP time		260.0 [210.0;322.5] 60
Docking time		10.0 [5.0;15.0] 60
Console time		227.5 [180.0;272.5] 60
Hospital stay		3.0 [2.0;5.0] 60
Hernia Width		6.0 [4.2;7.2] 60
Hernia Height		6.2 [5.5;10.0] 60
Mesh Width		20.0 [15.0;25.0] 58
Mesh Height		20.0 [20.0;30.0] 58
OP Hx		60
	No	3 (5.0%)
	Yes	57 (95.0%)
Prev. OP		56
	Laparoscopy	22 (39.3%)
	Mixed	4 (7.1%)
	Open	24 (42.9%)
	Robot	6 (10.7%)
Prev. OP organ		54
	GY	13 (24.1%)
	HBP	12 (22.2%)
	LGI	15 (27.8%)
	Mixed	7 (13.0%)
	UGI	6 (11.1%)
	URO	1 (1.9%)
Recurrence		57
	First	43 (75.4%)
	Prior VHS	14 (24.6%)
T2DM		60
	No	48 (80.0%)
	Yes	12 (20.0%)
Smoker		60
	Active	6 (10.0%)
	Never	54 (90.0%)
MObesity		60
	No	39 (65.0%)
	Yes	21 (35.0%)
ASA classification		60
	1	15 (25.0%)
	2	36 (60.0%)
	3	9 (15.0%)
VHWG		60
	0	1 (1.7%)
	1	25 (41.7%)
	2	34 (56.7%)
Sac Content		60
	Bowel	9 (15.0%)
	Mixed	2 (3.4%)
	None	41 (68.3%)
	Omentum	8 (13.3%)
VHSS		60
	1	45 (75.0%)
	2	14 (23.3%)
	3	1 (1.7%)
HPW Stage		60
	1	27 (45.0%)
	2	32 (53.3%)
	3	1 (1.7%)
OP name		60
	eTEP	13 (21.7%)
	TAPP	3 (5.0%)
	TAR	44 (73.3%)
Docking		60
	Double	50 (83.3%)
	Single	10 (16.7%)
Complication		60
	No	57 (95.0%)
	Yes	3 (5.0%)
Approach		60
	Bottom-up	5 (8.3%)
	Lateral	55 (91.7%)

Surgeon	H (N=39)	K (N=3)	S (N=18)	p
Age	49.0 [41.5;60.5]	30.0 [29.5;36.5]	63.5 [47.0;68.0]	0.005
Female				
Female	35 (89.7%)	2 (66.7%)	10 (55.6%)	0.013
Male	4 (10.3%)	1 (33.3%)	8 (44.4%)	
BMI	27.2 [25.0;32.3]	25.5 [24.8;30.4]	27.4 [22.9;30.4]	0.758
OP time	230.0 [205.0;270.0]	410.0 [317.0;452.5]	312.5 [265.0;375.0]	< 0.001
Docking time	7.0 [5.0;10.0]	10.0 [9.0;10.0]	17.5 [10.0;20.0]	< 0.001
Console time	200.0 [173.0;240.0]	390.0 [298.0;432.5]	285.0 [230.0;335.0]	< 0.001
Hospita stay	2.0 [1.0; 3.0]	7.0 [7.0; 7.5]	6.0 [5.0; 7.0]	< 0.001
Hernia width	5.0 [4.0; 6.0]	4.0 [4.0; 7.0]	6.5 [6.0;12.0]	0.017
Hernia height	6.0 [5.5;10.5]	10.0 [7.5;11.0]	8.0 [6.0;10.0]	0.685
Mesh wide	20.0 [15.0;25.0]	20.0 [20.0;22.5]	20.0 [20.0;20.0]	0.393
Mesh height	25.0 [15.0;30.0]	30.0 [30.0;30.0]	20.0 [20.0;20.0]	0.189
OP Hx				
No	3 (7.7%)	0 (0.0%)	0 (0.0%)	0.427
Yes	36 (92.3%)	3 (100.0%)	18 (100.0%)	
Prev. OP				
Laparoscopy	16 (45.7%)	2 (66.7%)	4 (22.2%)	
Mixed	4 (11.4%)	0 (0.0%)	0 (0.0%)	0.015
Open	9 (25.7%)	1 (33.3%)	14 (77.8%)	
Robot	6 (17.1%)	0 (0.0%)	0 (0.0%)	
Prev. OP organ				
GY	11 (33.3%)	0 (0.0%)	2 (11.1%)	
HBP	6 (18.2%)	0 (0.0%)	6 (33.3%)	
LGI	10 (30.3%)	0 (0.0%)	5 (27.8%)	0.004
Mixed	6 (18.2%)	1 (33.3%)	0 (0.0%)	
UGI	0 (0.0%)	2 (66.7%)	4 (22.2%)	
URO	0 (0.0%)	0 (0.0%)	1 (5.6%)	
Recurrence				
First	25 (69.4%)	3 (100.0%)	15 (83.3%)	0.320
Prior VHS	11 (30.6%)	0 (0.0%)	3 (16.7%)	
T2DM				
No	33 (84.6%)	3 (100.0%)	12 (66.7%)	0.195
Yes	6 (15.4%)	0 (0.0%)	6 (33.3%)	
Smoker				
Active	2 (5.1%)	1 (33.3%)	3 (16.7%)	0.155
Never	37 (94.9%)	2 (66.7%)	15 (83.3%)	
MObesity				
No	25 (64.1%)	2 (66.7%)	12 (66.7%)	0.980
Yes	14 (35.9%)	1 (33.3%)	6 (33.3%)	
ASA classification				< 0.001

Surgeon	H (N=39)	K (N=3)	S (N=18)	p
1	14 (35.9%)	1 (33.3%)	0 (0.0%)	
2	24 (61.5%)	2 (66.7%)	10 (55.6%)	
3	1 (2.6%)	0 (0.0%)	8 (44.4%)	
VHWG				
0	0 (0.0%)	0 (0.0%)	1 (5.6%)	0.482
1	15 (38.5%)	1 (33.3%)	9 (50.0%)	
2	24 (61.5%)	2 (66.7%)	8 (44.4%)	
Sac Content				
Bowel	6 (15.4%)	1 (33.3%)	2 (11.1%)	
Mixed	2 (5.2%)	0 (0.0%)	0 (0.0%)	0.796
None	24 (61.5%)	2 (66.7%)	15 (83.3%)	
Omentum	7 (17.9%)	0 (0.0%)	1 (5.6%)	
VHSS				
1	29 (74.4%)	2 (66.7%)	14 (77.8%)	0.948
2	9 (23.1%)	1 (33.3%)	4 (22.2%)	
3	1 (2.6%)	0 (0.0%)	0 (0.0%)	
HPW Stage				
1	12 (30.8%)	2 (66.7%)	13 (72.2%)	0.054
2	26 (66.7%)	1 (33.3%)	5 (27.8%)	
3	1 (2.6%)	0 (0.0%)	0 (0.0%)	
OP name				
eTEP	13 (33.3%)	0 (0.0%)	0 (0.0%)	0.019
TAPP	3 (7.7%)	0 (0.0%)	0 (0.0%)	
TAR	23 (59.0%)	3 (100.0%)	18 (100.0%)	
Docking				
Double	30 (76.9%)	3 (100.0%)	17 (94.4%)	0.187
Single	9 (23.1%)	0 (0.0%)	1 (5.6%)	
Complication				
No	36 (92.3%)	3 (100.0%)	18 (100.0%)	0.427
Yes	3 (7.7%)	0 (0.0%)	0 (0.0%)	
Approach				
Bottom-up	5 (12.8%)	0 (0.0%)	0 (0.0%)	0.230
Lateral	34 (87.2%)	3 (100.0%)	18 (100.0%)	