The Implementing Robotic Surgery for Colorectal Cancer is a Significant Investment for the Hospitals in Japan

Department of Surgery, Kurume University School of Medicine

Fumihiko Fujita, Takahiro Shigaki, Kenji Fujiyoshi, Naohiro Yoshida, Kenichi Koushi, Takefumi Yoshida, Taro Isobe, Naoki Mori, Tomoya Sudo, Hisamune Sakai, Toru Hisaka, Nobuya Ishibashi

Background

The History of Robotic Surgery in Japan





First arrival in Japan

1999 — 2012 — 2018 — 2022

Insurance coverage for Prostate cancer (2012), Rectal cancer (2018), Colon cancer (2022)

Japan's Universal Health Insurance System

All residents are insured





70% Covered by Insurance

30% Paid by Patient

But

The Japanese Ministry of Health, Labour and Welfare has established **a rule**

Under certain conditions, the first **10** cases at each facility that has newly introduce robotic surgery cannot be billed to insurance・・・

, meaning that the hospital must cover the surgical costs itself

Aim

to calculate the surgical costs for the first 10 cases of robot surgery in Kurume University and analyze the actual account of costs concretely.

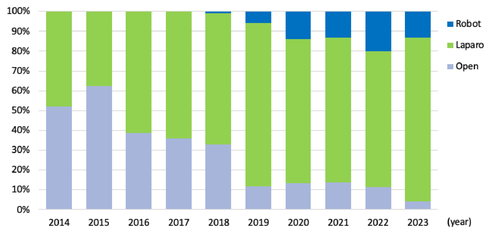
Patients and Methods

- The first 10 cases each of robotic surgery for rectal cancer and colon cancer were enrolled in this study.
- All robotic surgeries were performed using Da Vinci Xi system.
- The total revenue was calculated based on procedure fees, anesthesia fees, and material surcharges, while the total expenditure was determined by adding the cost of surgical materials and the one-time usage fees for the Da Vinci instruments.

Conclusion

The initial cost of introducing robotic surgery places a significant financial burden on each hospital.

Transition of Surgical Procedures for Colorectal Cancer at Kurume University



Surgical Outcomes of the First 10 Cases of Robotic Surgery for Rectal Cancer

Case	Age	Sex	BMI	DTAV(cm)	Op time(m)	Consol time(m)	EBL(g)	Op method	Convert	Compli	LOHS(days)
1	77	F	22	5	503	335	10	vLAR			15
2	56	M	22	15	629	527	0	LAR			14
3	78	F	18	7	523	350	7	vLAR		SBO	31
4	72	F	21	10	447	287	13	LAR			12
5	63	M	17	5	453	339	13	vLAR		SBO	29
6	66	M	19	3	447	333	20	vLAR			16
7	65	M	21	4	557	349	25	vLAR		Leakage	31
8	72	M	21	7	421	271	20	LAR			14
9	52	F	18	7	445	226	280	LAR	+		15
10	39	F	26	6	593	402	25	vLAR			10

DTAV: distance to anal verge, EBL: estimated blood loss, LOHS: length of hospital stay,
LAR: low anterior resection, vLAR: very low anterior resection, SBO: small bowel obstruction

Surgical Costs and Balance (Rectal Cancer)

Case	Total Revenue (Procedure・Material)	Total Material Cost (Reimbursement・Consumables)	Da Vinci Equipment Cost	Balance
1	¥1,373,046	¥378,025	¥207,835	¥787,185
2	¥1,356,338	¥359,726	¥331,085	¥665,526
3	¥1,177,332	¥426,176	¥278,220	¥472,936
4	¥1,187,475	¥431,984	¥241,835	¥513,656
5	¥1,318,981	¥435,221	¥241,835	¥641,925
6	¥1,389,484	¥408,001	¥207,835	¥773,648
7	¥1,478,259	¥585,939	¥331,085	¥561,234
8	¥1,227,337	¥441,696	¥241,835	¥543,806
9	¥1,806,280	¥609,576	¥120,615	¥1,076,089
10	¥1,404,784	¥433,347	¥237,475	¥733,962
Average	**¥1,371,932**	**¥450,969**	**¥243,966**	**¥676,997**

Surgical Costs and Balance (Colon Cancer)

Case	Total Revenue (Procedure・Material)	Total Material Cost (Reimbursement・Consumables)	Da Vinci Equipment Cost	Balance
1	¥903,960	¥405,026	¥239,864	¥259,070
2	¥862,860	¥405,026	¥233,114	¥152,490
3	¥869,950	¥405,026	¥101,564	¥298,152
4	¥908,710	¥405,026	¥263,714	¥158,850
5	¥882,870	¥405,026	¥101,564	¥406,314
6	¥822,750	¥405,026	¥101,564	¥359,373
7	¥888,810	¥405,026	¥239,864	¥260,749
8	¥860,290	¥405,026	¥209,564	¥254,927
9	¥813,130	¥405,026	¥176,864	¥322,320
10	¥893,440	¥405,026	¥132560	¥191,774
Average	**¥868,148**	**¥405,026**	**¥180,024**	**¥274,694**

These amounts are the hospital's out-of-pocket expense!

SAGES 2025
COI Disclosure
Author : Fumihiko Fujita

The author has no financial conflicts of interest to disclose concerning the presentation.

