Initial experience with a suprapubic single-port robotic right hemicolectomy in patients with colon cancer

Seung Ho Song, M.D., Gyu-Seog Choi, M.D., Hye Jin Kim, M.D., Jun Seok Park, M.D., Soo Yeun Park, M.D., Sung-Min Lee, M.D., Jin Ah Choi, M.D.

Colorectal Cancer Center, Kyungpook National University Chilgok Hospital, School of Medicine, Kyungpook National University, Daegu, Republic of Korea

Purpose We developed a novel suprapubic single-port robotic right hemicolectomy (spRHC) procedure for patients with right colon cancer using a da Vinci SP Surgical System.

Methods We performed the spRHC procedure for five patients with right colon cancers between July and September 2020. All procedures including colon mobilization, D3 lymphadenectomy, and intracorporeal anastomosis were completed using the single-port robotic platform through a mini-transverse suprapubic incision and an additional assistant port.

Results Two patients received preoperative chemotherapy for advanced colon cancer. The median total operative time was 160 min (range, 150–240 min). The median docking time was 4 min 40 s (range, 2 min 10 s–5 min 10 s). The median console time was 105 min (range, 100–120 min). There were no conversions to multiport or open surgeries. The median hospital stay was 7 days (range, 5–12 days). One patient experienced a wound infection. The median number of harvested lymph nodes was 41 (range, 39–50).

Conclusion spRHC is safe and feasible; however, further comparative studies are needed to assess whether this procedure can provide patients with significant benefits compared with multiport robotic surgery.

Table 1. Baseline characteristics, perioperative and pathologic outcomes

Case	1	2	3	4	5
Baseline characteristics					
Sex	Male	Male	Male	Female	Male
Age, years	77	69	67	72	58
ASA score	1	1	1	1	2
BMI, kg/m^2	26.8	25.0	24.0	23.4	23.9
Tumor location	Ascending	Cecum	Ascending	Ascending	Ascending
Clinical stage *	cT2N0	cT3N+ yT3N+	cT3N+	cT4N1	cT3N1 yT3N1
Neoadjuvant treatment	None	Yes †	None	None	Yes †
Perioperative outcomes					
Total operation time (min)	240	180	150	160	150
Docking time (sec)	310	305	260	280	250
Total console time (min)	120	105	100	100	110
Estimated blood loss (mL)	20	20	20	20	10
Complications ‡	None	None	None	None	Wound infection §
Hospital stay (days)	8	8	8	6	13
Time to flatus (days)	2	4	1	1	2
Time to soft diet (days)	5	5	4	3	7
Pathologic outcomes					
No. of retrieved LNs	31	39	50	44	41
No. of metastatic LNs	0	2	6	5	0
Pathologic stage	IIA	IIIB	IIIB	IIIB	I

† Four cycles of leucovorin, fluorouracil, and oxaliplatin ‡ Postoperative complications within 30 days § Grade I (Clavien-Dindo's classification)

Figure 1. Port placement and final view of single-port robotic right hemicolectomy. (A) Port placement. (B) Postoperative patient view.

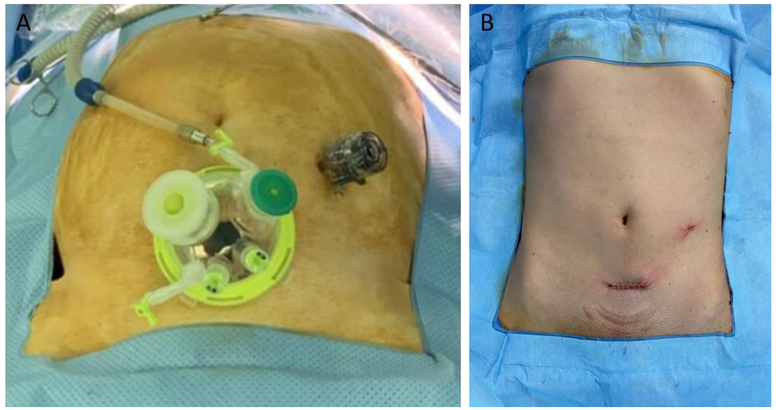


Figure 2. Single-port robotic right hemicolectomy

(A) Identification of right ureter during dissection between visceral and retroperitoneal fascia. (B) Exposure of the duodenum and the head of the pancreas. (C) Ligation of the ileocolic vein. (D) Ligation of the ileocolic artery. (E) Ligation of the right branch of the middle colic artery. (F) Intracorporeal anastomosis with robotic continuous suture

