Single Port, Many Possibilities: A Stepwise Approach to Robotic Colon Resection Using the Da Vinci Single Port Platform

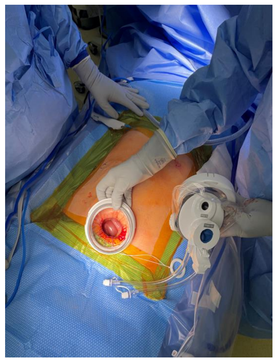
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Introduction

Since the introduction of Single Port Laparoscopic Surgery (SPLS) in colorectal surgery, its adoption for colectomies has been slow. The da Vinci Single Port (dVSP) robotic platform offers a promising tool for complex colorectal resections through a single small incision, advancing minimally invasive surgery. This study outlines step-by-step techniques for right-sided and transverse colectomies using the dVSP platform, aiming to establish a safe, systematic approach to optimize outcomes and minimize complications.

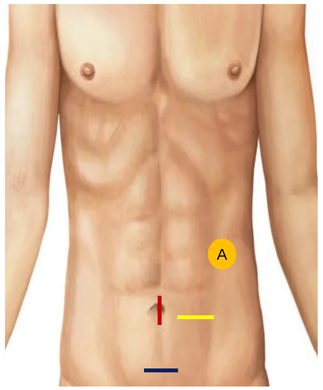




Methods

We conducted a retrospective analysis of patients who underwent an ileocecectomy, right, or transverse colectomy using the dVSP platform, performed by a single surgeon at a single institution between March 2023 and July 2024. All operations were carried out through a single 4 cm transverse incision in the left lower quadrant with the assistance of a qualified surgical bedside assistant. Operative results and short-term outcomes were evaluated to assess the efficacy and safety of the dVSP platform for these procedures.

Step by Step Approach for Right Sided Colectomy



We begin by insufflating in the left upper quadrant and creating a 4 cm Pfannenstiel incision just left of midline, though suprapubic and periumbilical approaches are also viable. An optional assist port can be placed in the left hemi-abdomen or the port built into the dVSP platform can be utilized.

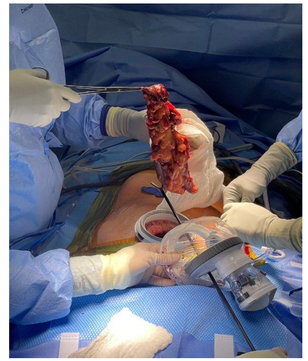
Following initial exploration and identification of the ileocolic vessel, we carefully dissect around it while the assistant divides the vessel using a laparoscopic LigaSure, ensuring preservation of critical structures. A skilled first assistant is essential for single-port colectomies, as they are responsible for ligating and dividing major vessels, mobilizing the mesentery, and stapling the bowel. Maintaining constant communication is crucial to align the anatomy and prevent errors.

For single-port right colectomies, we prefer a dissection approach from inferior and lateral to superior, optimizing tissue tension and controlling bleeding when encountered. Dissection proceeds toward the hepatic flexure and proximal transverse colon, where the assistant continues mesenteric and bowel division using laparoscopic instruments. Precise use of the LigaSure and stapler by the assistant is essential for achieving optimal outcomes.

We typically perform an intracorporeal, isoperistaltic anastomosis. Before creating the enterotomies, proper colon alignment is necessary to ensure optimal stapler angulation. One technique to facilitate this is to practice the stapler angle prior to insertion. Once the common channel is closed, the procedure concludes with specimen extraction and incision closure.

Table: Operative and Surgical Outcomes

Procedure	#	Age	BMI	OR (Min)	Console (Min)	Lymph Nodes	Margin	LOS(Days)	Complications	Readmissions
R Colectomy	4	61	25	158	113	19	Neg	1	None	None
Transverse colectomy	2	63	34	199	123	14	Neg	2	None	None
Ileocecectomy	2	59	34	137	94	-	Neg	1	None	None
Average		61	29	164	111	17	Neg	1.1	None	None





Discussion/Conclusion

Our findings highlight the safety and effectiveness of the da Vinci SP platform for right-sided colectomies, demonstrating excellent perioperative and oncologic outcomes. This approach enhances precision and efficiency while minimizing pain, promoting early recovery, and enabling safe discharge. Our data indicate that the dVSP platform is a safe and effective option for right hemicolectomy, ileocecectomy, and transverse colectomy, with all surgeries completed without intraoperative complications or conversion to open surgery. Notably, all eight procedures were performed through a 4 cm Pfannenstiel incision without the need for additional ports, showcasing the platform's advantages. The relatively short operative times, minimal postoperative length of stay, and absence of complications or readmissions further support its favorable short-term outcomes. While promising, larger studies are needed to validate these results beyond a single-surgeon, single-institution experience and confirm the platform's broader applicability.

References

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