



# Laparoscopic extended right hemicolectomy with superior-to-inferior dissection: a mentee's initial experience

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Laparoscopic right hemicolectomy is a widely accepted procedure for right colon cancer. Among the various approaches, the superior approach has potential benefits in that it exposes the gastrocolic trunk early and consistently allows for D3 lymph node dissection along superior mesenteric vessels. In this video, we present a beginner performing a laparoscopic extended right hemicolectomy using a superior approach without an assistant.

**Keywords:** Colonic neoplasms, Laparoscopic surgery, Ascending colon, Hemicolectomy, Lymph node dissection

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## INTRODUCTION

Laparoscopic right hemicolectomy is becoming a standard procedure for right-sided colon cancer [1]. Multiple approaches are employed, including a medial-to-lateral, lateral-to-medial, and superior approach [2]. However, the superiority of one approach over another has not been established, and the approach employed often depends on surgeon's preference [3]. The lateral-to-medial approach is commonly used in open right hemicolectomies, but becomes more difficult when performed laparoscopically due to space and visual field limitations. The medial-to-lateral approach is the most commonly used approach for laparoscopic right hemicolectomy [3], usually beginning with dissection of

the ileocolic pedicle, followed by dissection along the superior mesenteric vessels and gastrocolic trunk (GCT). Since numerous vascular variations exist around the GCT and pancreas [4], the superior approach, which exposes these areas first, could have potential merit. Furthermore, superior-to-inferior dissection has the advantage that it more clearly exposes the superior mesenteric vessels.

This video article presents a laparoscopic extended right hemicolectomy using a superior approach.

## MATERIALS AND METHODS

The patient was a 77-year-old female with pathologically proven

colon cancer (cT2N0) and a laterally spreading tumor in the ascending colon. Moderately differentiated adenocarcinoma was diagnosed on biopsy. We planned and performed a laparoscopic extended right hemicolectomy (Supplementary Video 1).

One 12-mm camera port and two 5-mm ports were placed for the procedure. The omental bursa was opened and the mesocolon was dissected away from the pancreas and duodenum. The GCT of Henle, which drains into the superior mesenteric vein (SMV), was exposed, but the superior right colic branch was not identified. Cranial-to-caudal lymph node dissection along superior mesenteric vessels was performed. The middle colic vein and artery were clipped and divided at their origins. The right colic artery, arising from superior mesenteric artery, was identified and divided at its root. The ileocolic artery ran behind the SMV and was divided at the right border of the SMV. Mobilization of the colon and its mesentery from the retroperitoneal tissues was performed from both a superior and caudal-to-cranial approach, followed by transection of the mesentery. Extracorporeal stapled side-to-side anastomosis was performed. The mesenteric defect was repaired with an intracorporeal running suture.

## RESULTS

The operative time was 164 minutes and estimated blood loss was 20 mL. Thirty-seven lymph nodes were harvested, with no metastasis. On pathological examination, the tumor was found to be pT2N0M0 with clear resection margins. The patient was discharged on postoperative day 9 after resolution of her voiding difficulty.

## DISCUSSION

In laparoscopic right hemicolectomy, the approaches for lymph node dissection are diverse, and all three representative methods are safe and feasible, with comparable results in terms of perioperative outcomes [5]. Herein, we presented a laparoscopic extended right hemicolectomy with superior-to-inferior dissection.

Laparoscopic right hemicolectomy using a superior approach has been recognized as a technique that only experienced surgeons with a profound knowledge of anatomy can perform due to the fact that it is difficult to form triangular shape traction during central vascular ligation. On the other hand, a superior approach allows for better and more consistent lymph node dissection along the superior mesenteric vessels and ligation of small vessels in the area, which are key to achieving favorable oncologic outcomes. With early exposure of the GCT, where numerous anatomic variations exist, the risk of iatrogenic injury or bleeding is reduced. Minimal position change was required during the procedure, and the tumor was manipulated after vessel ligation. These strengths could help beginners to consistently perform

successful central vascular ligation, exposure of the SMV, and excision of an intact mesocolon, which are essential components of right hemicolectomy [6]. For novices, gravity can be utilized in place of an assistant with minimal position changes. Despite the advantages of a superior approach, operators should be well aware of the vascular anatomic variations, and when surgery does not go as planned, a bottom-to-top or lateral-to-medial approach can be a good alternative. Therefore, surgeons should also have a deep understanding of other alternative approaches. Then, laparoscopic right hemicolectomy with superior-to-inferior dissection can be useful for prevention of iatrogenic injury and lymph node dissection along superior mesenteric vessels from the beginner's point of view.

## NOTES

### Ethics statements

This study was approved by the Institutional Review Board of National Cancer Center, Korea (No. NCC2022-0234) with a waiver of informed consent.

### Authors' contributions

Conceptualization, Supervision: SP

Writing—original draft: MK

Writing—review & editing: SP

All authors read and approved the final manuscript.

### Conflict of interest

All authors have no conflicts of interest to declare.

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### Supplementary materials

Supplementary materials can be found via <https://doi.org/10.7602/jmis.2022.25.4.158>.

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