

Submission ID #: 67221

Scriptwriter Name: Pallavi Sharma

Project Page Link: <https://review.jove.com/account/file-uploader?src=20502453>

Title: Surgical Trunk Oriented Laparoscopic Right Hemicolectomy (ST-LRH) for Right-Sided Colon Cancer

Authors and Affiliations:

Renli Huang, Peiqi Wang, Yue Cao, Yexing Xu, Yuanchen He, Jinlong Yu, Zhaowei Zou

Department of General Surgery, Zhujiang Hospital, The Second School of Clinical Medicine, Southern Medical University

Corresponding Authors:

Zhaowei Zou (zouzhaowei@smu.edu.cn)

Email Addresses for All Authors:

Renli Huang	(h h h h h r l @ s m u . e d u . c n)
Peiqi Wang	(690368456@qq.com)
Yue Cao	(quqsuuue@163.com)
Yexing Xu	(13286459332@163.com)
Yuanchen He	(431392168@qq.com)
Jinlong Yu	(yujinlong640506@163.com)
Zhaowei Zou	(zouzhaowei@smu.edu.cn)

Author Questionnaire

1. We have marked your project as author-provided footage, meaning you film the video yourself and provide JoVE with the footage to edit. JoVE will not send the videographer. Please confirm that this is correct.

✓ Correct

2. Microscopy: Does your protocol require the use of a dissecting or stereomicroscope for performing a complex dissection, microinjection technique, or something similar? **NO.**

3. Software: Does the part of your protocol being filmed include step-by-step descriptions of software usage? **NO.**

4. Proposed filming date: To help JoVE process and publish your video in a timely manner, please indicate the proposed date that your group will film here: **MM/DD/YYYY**

When you are ready to submit your video files, please contact our China Location Producer, [Yuan Yue](#).

Current Protocol Length

Number of Steps: 14

Number of Shots: 23

Introduction

NOTE to the VO producer: Please generate the VO for the interview answers

- 1.1. This study introduces the stem-oriented surgical approach, aimed at optimizing the radical resection of right-sided colon cancer.

- 1.1.1. *B-roll: 4.4.2*

What are the current experimental challenges?

- 1.2. During a laparoscopic right hemicolectomy, the adjacent tissues are complex, and frequent vascular variations can obscure the anatomical layers, leading to increased bleeding and incomplete lymph node dissection.

- 1.2.1. *B-roll: 4.3.1*

What advantage does this protocol offer compared to other techniques?

- 1.3. This technique can more clearly reveal the vascular anatomy of the surgical trunk and Henle's trunk, reducing the risk of bleeding.

- 1.3.1. *B roll: 2.6.1*

Ethics Title Card

This research follows the guidelines of the Human Research Ethics Committee of Zhujiang Hospital, Southern Medical University

Protocol

2. Identification of Henle's Trunk and Veins Via Cephalic Approach

- 2.1. Begin by inserting a 5-millimeter trocar 2 centimeters below the left costal margin at the midclavicular line under laparoscopic guidance [1]. Place a 12-millimeter trocar midway between the observation port and the first trocar. Then, insert symmetrical 5-millimeter and 10-millimeter trocars on the opposite side [2].

2.1.1. LAB MEDIA: 67721-1.mp4: 00:00:38-00:00:45

2.1.2. LAB MEDIA: 67721-1.mp4: 00:02:30-00:02:37

- 2.2. To begin exposure of the omental bursa, locate the vascular arch at the midpoint of the greater gastric curvature and start the dissection lateral to it [1].

2.2.1. LAB MEDIA: 67721-1.mp4: 00:03:19 – 00:03:37

- 2.3. Incise the gastrocolic ligament to expose the omental bursa [1]. Continue dissecting along the greater omentum on the greater curvature towards the right, separating it up to the right margin of the omental bursa [2].

2.3.1. LAB MEDIA: 67721-1.mp4: 00:03:50 – 00:03:58

2.3.2. LAB MEDIA: 67721-1.mp4 00:06:20 – 00:07:00

- 2.4. Continue the dissection by incising the anterior leaf of the transverse mesocolon. Separate the fused mesentery between the duodenum and the transverse colon towards the right, extending up to the lateral abdominal wall [1].

2.4.1. LAB MEDIA: 67721-1.mp4: 00:10:38 – 00:10:45, 00:15:47-00:16:13

- 2.5. Then, incise the anterior leaf of the transverse mesocolon to access the retroperitoneal space located anterior to the pancreas and duodenum [1]. Dissect within this space by moving inferiorly towards the neck of the pancreas and laterally towards the ligament of Treitz [2].

2.5.1. LAB MEDIA: 67721-1.mp4: 00:10:45 – 00:10:55

2.5.2. LAB MEDIA: 67721-1.mp4: 00:17:50– 00:18:20

- 2.6. At this level, visualize Henle's trunk and its tributary veins as they course anterior to the

pancreas [1].

2.6.1. LAB MEDIA: 67721-1.mp4: 00:12:00 – 00:12:15

2.7. Complete the mobilization of the entire superior aspect of the transverse mesocolon [1].

2.7.1. LAB MEDIA: 67721-1.mp4: 00:19:20 – 00:02:00

3. Dissection of the Retrocolic Space Via Caudal Approach

3.1. To begin the dissection of the Toldt's space, incise the peritoneum along the mesentery bridge to gain access to the area [1]. Adjust the surrounding tissue as necessary to allow separation. Using small gauze pads, carefully dissect the Toldt's space from the bottom up [2]. After completing the dissection, place a gauze strip within the Toldt's space to mark the area and protect the underlying structures [3].

3.1.1. LAB MEDIA: 67721-1.mp4: 00:24:12 – 00:24:50

3.1.2. LAB MEDIA: 67721-1.mp4: 00:25:25 – 00:26:00

3.1.3. LAB MEDIA: 67721-1.mp4 00:31:20 – 00:32:00 .

3.2. Incise the fusion fascia towards the left to enter the anterior retroperitoneal space of the pancreas and duodenum [1]. After completing the dissection, insert another gauze strip into the anterior retroperitoneal space of the duodenum and position it at the posterior projection of the superior mesenteric vein to guide further dissection and protect posterior structures [2].

3.2.1. LAB MEDIA: 67721-1.mp4 : 00:34:21 – 00:34:35, 00:35:00-00:35:20

3.2.2. LAB MEDIA: 67721-1.mp4: 00:35:50 – 00:36:15

4. Surgical Trunk Anatomy and Separation

4.1. Ask the assistant to elevate the mesentery of the middle colic artery and inferior mesenteric artery or vein to flatten the surgical trunk. Direct visual attention to the gauze strip positioned at the ligament of Treitz on the cephalic side, which acts as the medial reference point for peritoneal incision and dissection [1]. Identify the area below the elevated ileocolic vessels as the lateral reference point [2].

4.1.1. LAB MEDIA: 67721-1.mp4: 00:42:55 – 00:43:00

4.1.2. LAB MEDIA: 67721-1.mp4: 00:43:05– 00:43:15

- 4.2. Begin the peritoneal incision at the midpoint of the marked preliminary line, typically located at the projection where the ileocolic vessels join the superior mesenteric vein [1]. First, incise laterally through to the posterior region where the gauze strip becomes visible. Continue the dissection along the preliminary incision line, moving medially toward the reference point [2].
 - 4.2.1. LAB MEDIA: 67721-1.mp4: 00:43:26 – 00:43:45
 - 4.2.2. LAB MEDIA: 67721-1.mp4: 00:43:50 – 00:44:00, 00:45:30-00:45:45, 00:47:00-00:47:05
- 4.3. Now, enter the sheath of the superior mesenteric vein through the incision at the midpoint and carefully perform intra-sheath separation. Dissect laterally until reaching the left boundary of the superior mesenteric vein [1].
 - 4.3.1. LAB MEDIA: 67721-1.mp4: 00:48:40 – 00:49:30
- 4.4. Identify the venous types forming the surgical trunk in this region [1]. Once identified, ligate and transect the ileocolic vein, ileocolic artery, middle colic artery, and Henle's trunk at their bases [2].
 - 4.4.1. LAB MEDIA: 67721-1.mp4: 00:51:53 – 00:52:15,
 - 4.4.2. LAB MEDIA: 67721-1.mp4: 00:58:55 – 00:59:00, 01:06:58 – 01:07:04
- 4.5. After vessel transection, dissect the ascending colon from the lateral abdominal wall by following the lateral plane [1]. Proceed to perform ileotransversostomy and then complete abdominal closure [2].
 - 4.5.1. LAB MEDIA: 67721-1.mp4: 01:13:14 – 01:13:30, 01:30:45-01:31:05

Results

5. Results

5.1. The average operative time and blood loss for single trunk laparoscopic right hemicolectomy were significantly lower than that of the conventional approach [1].

5.1.1. LAB MEDIA: Table 1. *Video editor: Highlight the row “Operative Time (min)” and “Blood Loss (mL)”*

5.2. The number of lymph nodes retrieved did not differ significantly between the single trunk laparoscopic and conventional approaches [1].

5.2.1. LAB MEDIA: Table 1. *Video editor: Highlight the row “Lymph Node Retrieval Count”*

5.3. The rate of postoperative complications was lower in the single trunk laparoscopic group, though this difference was not statistically significant [1]. The average duration of hospital stay after surgery was significantly shorter in the single trunk laparoscopic group compared to the conventional group [2].

5.3.1. LAB MEDIA: Table 1. *Video editor: Highlight the row “Postoperative Complication Rate (%)”*

5.3.2. LAB MEDIA: Table 1. *Video editor: Highlight the row “Hospital Stay Duration (days)”*

1. Trocar

Pronunciation link: <https://dictionary.cambridge.org/pronunciation/english/trocar>
[Cambridge Dictionary](https://dictionary.cambridge.org/pronunciation/english/trocar)

IPA: /'troʊ.kər/

Phonetic spelling: **TROH-kar**

2. Mesocolon

Pronunciation link: <https://dictionary.cambridge.org/dictionary/english/mesocolon>
[Cambridge Dictionary](https://dictionary.cambridge.org/dictionary/english/mesocolon)

Also: <https://howtopronounce.com/mesocolon> howtopronounce.com

IPA: /ˌmez.ə'koʊ.lən/

Phonetic spelling: **mez-uh-KOH-luhn**

- **Gastrocolic**

Pronunciation link: <https://www.merriam-webster.com/medical/gastrocolic>
[Merriam-Webster](#)

IPA: /,gæs.troʊ'kəl.ɪk/

Phonetic spelling: **gas-troh-KAH-lik**

- **Omental** (as in omental bursa)

Pronunciation link: <https://www.howtopronounce.com/omental-bursa>
[howtopronounce.com](https://www.howtopronounce.com)

IPA: /oʊ'men.təl/

Phonetic spelling: **oh-MEN-təl**

- **Bursa**

(from “omental bursa”)

Pronunciation link: same as above [howtopronounce.com](https://www.howtopronounce.com)

IPA: /'bɜr.sə/

Phonetic spelling: **BUR-suh**

- **Mesocolon**

(Note: not always in standard dictionaries, but formed from “meso-” + “colon”)

IPA: /,mez.oʊ'koʊ.lən/

Phonetic spelling: **mez-oh-KOH-luhn**

- **Ligament**

Standard anatomical word, but for clarity:

IPA: /'lɪg.ə.mənt/

Phonetic spelling: **LIG-uh-mənt**

- **Treitz** (as in ligament of Treitz)

(Often named after “Treitz”)

IPA: /traɪts/

Phonetic spelling: **TRIES**

- **Henle’ s** (as in Henle’ s trunk)

(Referring to anatomist Friedrich Henle)

IPA: /'hɛn.lɪz/

Phonetic spelling: **HEN-leez**

- **Sheath** (as in venous sheath)

IPA: /ʃiːθ/

Phonetic spelling: **sheeth**

- **Superior**

IPA: /suːˈpiːr.i.ər/

Phonetic spelling: **soo-PEER-ee-ur**

- **Inferior**

IPA: /ɪnˈfɪr.i.ər/

Phonetic spelling: **in-FEER-ee-ur**

- **Transverse** (as in transverse mesocolon or transverse colon)

IPA: /trænˈsɜːrs/ or in American: /trænˈsɜːrvz/

Phonetic spelling: **trans-VERSE**

- **Mesentery**

IPA: /ˈmes.ən.tər.i/

Phonetic spelling: **MESH-uh-ter-ee**

- **Duodenum**

IPA: /ˌduː.əˈdiː.nəm/

Phonetic spelling: **doo-oh-DEE-num**

- **Pancreas**

IPA: /ˈpæn.kri.əs/

Phonetic spelling: **PAN-kree-uhs**

- **Ligament of Treitz**

- “Ligament” as above

- “Treitz” as above

Combined: **LIG-uh-mənt of TRIES**

- **Ileocolic** (as in ileocolic artery/vein)

IPA: /ˌɪli.ooˈkɒl.ɪk/

Phonetic spelling: **ih-lee-o-KAH-lik**

- **Anastomosis** (if used in reconstructions)

IPA: /əˌnæs.təˈmoʊ.sɪs/

Phonetic spelling: **uh-NAS-tuh-MOH-sis**

- **Colic** (as in colic artery or part of colon)

IPA: /'kɒl.ɪk/

Phonetic spelling: **KAH-lik**