



A Rare Case of Vascular Variation in Radical Resection of Right Colon Cancer

Wang PC and Ye K*

Department of Gastrointestinal Surgery, The Second Affiliated Hospital of Fujian Medical University, China

Keywords

Colon cancer; Vascular variation; Radical Resection

Abbreviation

CME: Complete Mesocolic Excision; CVL: Central Vascular Ligation; ICA: Ileocolic Artery; RCA: Right Colic Artery; SMA: Superior Mesenteric Artery; SMV: Superior Mesenteric Vein; ICV: Ileocolic vein; RCV: Right Colic Vein; GTH: Gastrocolic Trunk of Henle; RGEV: Right Gastroepiploic Vein; ASPDV: Anterior Superior Pancreaticoduodenal Vein; ARCV: Accessory Right Colonic Vein; MCV: Middle Colic Vein

Clinical Image

Colon cancer remains the top five leading cause of cancer death worldwide [1], Laparoscopic assist Complete Mesocolic Excision (CME) is currently the standard surgical procedure for colon cancer and Central Vascular Ligation (CVL) is the most important and difficult key [2]. However, the complex vascular variation of the right colon adds a lot of difficulty to the surgeon, which is easy to increase unnecessary bleeding and nearby organ damage. Therefore, it is necessary to understand the D3 lymph node resection of the right colon cancer through the anatomical variation of the blood vessels.

A 67-year-old female patient was admitted to hospital with a chief complaint of 'bowel habits changed for more than one week' on July 26th, 2023. Electronic colonoscopy and pathology showed adenocarcinoma of the ascending colon. Magnetic resonance results are shown in Figure 1A. After discussion by the department, laparoscopic assisted right hemicolectomy and regional lymph node resection was performed. The Ileocolic Artery (ICA) and the Right Colic Artery (RCA) were sent out from the Superior Mesenteric Artery (SMA) and intersected in front of the Superior Mesenteric Vein (SMV). The Ileocolic Vein (ICV) did not travel with the ICA, but along the mesentery and the Right Colic Vein (RCV) into the Gastrocolic Trunk of Henle (GTH) at the same time. The Right Gastroepiploic Vein (RGEV) and Anterior Superior Pancreaticoduodenal Vein (ASPDV) were also seen, and the middle colonic vein was alone into SMV (Figure 1B). Postoperative pathology showed ulcerative moderately differentiated tubular adenocarcinoma infiltrating fibrous tissue around the colon, with one lymph node metastasis.

The key to laparoscopic right hemicolectomy is high ligation of the main blood vessels and lymph node root dissection. The SMV is the most important anatomical landmark of the right colon CME. Under laparoscopy, SMV is shown as a pale blue bulge, and the ileocolonic vascular pedicle is relatively stable, which is convenient for accurate positioning. The intersection of the ileocolic vascular pedicle and SMV is the best way to perform laparoscopic right hemicolectomy through the mid-lateral approach. After opening the SMV vascular sheath, it can reach the sheath without vascular plane, and fully expose the vascular root while controlling bleeding, so as to thoroughly perform lymph node dissection. The first step is to manage the ileocolic vessels. Alsabilah et al. [3] believed that the most important is the cross pattern of SMV with ICA and RCA. In this case, ICA and RCA cross from the front of SMV at the same time, which accounts for about 20.5%. In the vast majority of cases, ICV flowed into SMV, and about 2.5% of cases flowed into GTH. In this case, ICV and ICA were not accompanied. ICV flowed upward along the mesentery and joined with RCV into GTH, which caused a lot of interference to our intraoperative judgment. In 1868, Henle first defined the GTH as the confluence of the RCV and RGEV, which entered the SMV at the lower edge of the neck of the pancreas. Subsequently, the ASPDV was also found to flow into GTH [4]. GTH variation is the most common and complex variation. Most of the anatomy shows that ICV always exists and drains to SMV, but one study showed that in 2% of cases, ICV drains to GTH and 98%

OPEN ACCESS

*Correspondence:

Kai Ye, Department of Gastrointestinal Surgery, The Second Affiliated Hospital of Fujian Medical University, No. 950 Donghai Street, Fengze District, Quanzhou, 362000, Fujian Province, China, Tel: +86 13805921712

Received Date: 29 Jan 2024

Accepted Date: 08 Feb 2024

Published Date: 13 Feb 2024

Citation:

Wang PC, Ye K. A Rare Case of Vascular Variation in Radical Resection of Right Colon Cancer. *Clin Oncol.* 2024; 9: 2057.

ISSN: 2474-1663

Copyright © 2024 Ye K. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

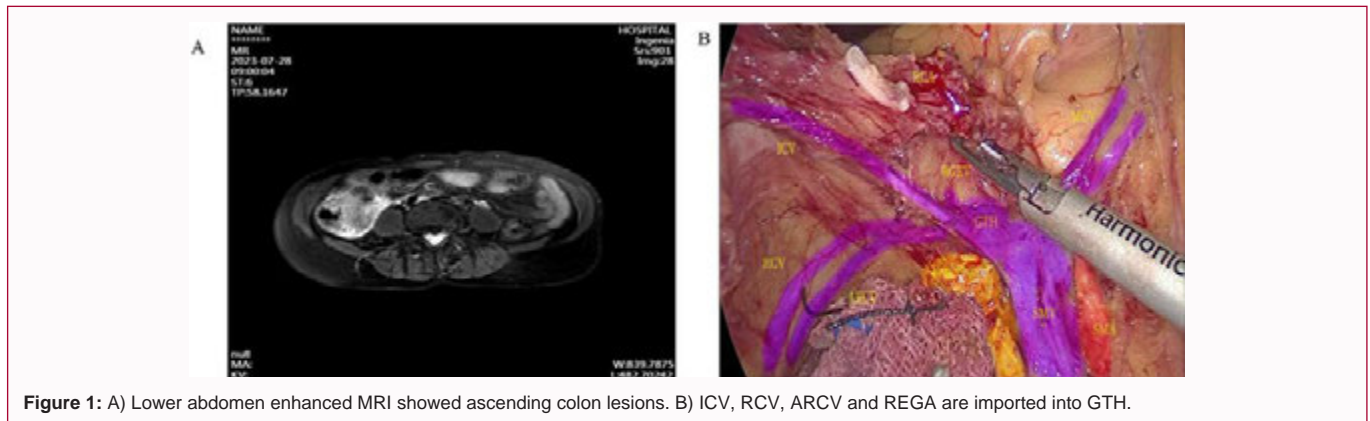


Figure 1: A) Lower abdomen enhanced MRI showed ascending colon lesions. B) ICV, RCV, ARCV and REGA are imported into GTH.

drains to SMV [5]. We conducted a prospective multi-center study to determine the type of GTH based on the distribution of blood vessels in 583 patients and the number of colonic veins entering the main trunk of GTH except RGEV and ASPDV: 0 (14.11%), I (53.26%), II (26.98%), III (5.64%), but ICV into GTH was not found in all patients [6].

ICA and ICV are almost present, so the ileocolonic pedicle (ICA and ICV) is feasible as a marker for safe separation of the mesocolon from the inside. However, the variation of the shape and position of the blood vessels will pose a great challenge to the surgeons who are still inexperienced. Since the separation and ligation of GTH is the technical key to CME in the right colon, the fusion of the greater omentum and the transverse mesocolon at this level in the GTH region and the complex anatomy of the fragile venous branches of the upper segmental artery are not fully understood. It is easy to cause tearing and bleeding of blood vessels, or the mitigation of blood vessels leads to prolonged operation time. Especially when ICV enters GTH and GTH is naked, the separation becomes more challenging. Therefore, understanding these anatomical changes will help guide surgeons to control the common accidental bleeding around the region and ensure the safety of surgery.

Funding

The special fund project of the second affiliated hospital of Fujian Medical University (project number: 2022BD1601).

References

1. Sun KK, Zhao H. Vascular anatomical variation in laparoscopic right hemicolectomy. *Asian J Surg.* 2020;43(1):9-12.
2. Hohenberger W, Weber K, Matzel K, Papadopoulos T, Merkel S. Standardized surgery for colonic cancer: Complete mesocolic excision and central ligation--technical notes and outcome. *Colorectal Dis.* 2009;11(4):354-64; discussion 64-5.
3. Alsabilah J, Kim WR, Kim NK. Vascular structures of the right colon: Incidence and variations with their clinical implications. *Scand J Surg.* 2017;106(2):107-15.
4. Gillot C, Hureau J, Aaron C, Martini R, Thaler G, Michels NA. The superior mesenteric vein, an anatomic and surgical study of eighty-one subjects. *J Int Coll Surg.* 1964;41:339-69.
5. Ogino T, Takemasa I, Horitsugi G, Furuyashiki M, Ohta K, Uemura M, et al. Preoperative evaluation of venous anatomy in laparoscopic complete mesocolic excision for right colon cancer. *Ann Surg Oncol.* 2014;21(Suppl 3):S429-35.
6. He Z, Yang C, Diao D, Wu D, Fingerhut A, Sun Y, et al. Anatomic patterns and clinical significance of gastrocolic trunk of Henle in laparoscopic right colectomy for colon cancer: Results of the HeLaRC trial. *Int J Surg.* 2022;104:106718.