

Case Report

Iatrogenic Ischemic Colitis after Laparoscopic Anterior Resection Managed by Laparoscopic Retroileal Transmesenteric Colorectal Anastomosis

Yi-Chang Chen
Yuan-Yao Tsai
Sheng-Ji Chang
Tao-Wei Ke
Hung-Chang Chen
Huei-Ming Wang
William Tzu-Liang Chen

Department of Colorectal Surgery, China Medical University Hospital, Taichung, Taiwan

Ischemic colitis is an unusual complication following colorectal surgeries and most of cases are due to artery compromise. Venous congestion causing ischemic colitis following anterior resection is rare and has not been reported as to our knowledge. This is the first reported case of acute venous congestion following laparoscopic anterior resection and managed by laparoscopic retroileal transmesenteric colorectal anastomosis.

[*J Soc Colon Rectal Surgeon (Taiwan) 2019;30:84-88*]

Key Words

Ischemic colitis;
Venous congestion;
Anterior resection;
Laparoscopy

Ischemic colitis is a serious complication following colorectal surgeries which has been reported following high ligation of inferior mesenteric artery. The reported incidence is about 0.7% and most of these cases are due to artery compromise.^{1,2} However, there are no reported cases of venous congestion causing ischemic colitis following colorectal surgeries.

Case Report

A 45 year female without comorbidity presented to outpatient department with symptoms of hemato-

chezia and small caliber stools for 1 year, she was diagnosed sigmoid carcinoma cT3N0Mx and planned for laparoscopic anterior resection. We performed IMV (inferior mesenteric vein) ligation first and proceeded with splenic flexure mobilization later dissection continued till middle transverse colon and preserving middle colic vessels, then dissection included mobilization of descending colon, sigmoid colon, upper rectum. Low ligation of IMA (inferior mesenteric artery) with left colic artery preservation was done. After achieving adequate margins, the rectum was divided with 45 mm endo GIA (Ethicon, USA) and specimen retrieved transumbilically. Descending colon

Received: February 1, 2019.

Accepted: April 15, 2019.

Correspondence to: Dr. William Tzu-Liang Chen, Department of Colorectal Surgery, China Medical University Hospital, No. 2, Yude Rd., North Dist., Taichung, Taiwan. Tel: 886-4-2205-2121; Fax: 886-4-2207-0569; E-mail: t44112@hotmail.com

transected with 10 cm proximal margin and anvil inserted with purse string suturing. End-End anastomosis done by double stapling technique with 29 CDH (Ethicon, USA). Intraoperative colonoscopy was performed to check air leak and bleeding.

On POD 1 (Post-operative day), patient had temperature – 39.5 °C, heart rate – 110 beats/minute, WBC – 14000. Clinically per abdomen was soft and per rectal examination was normal. Persisting spike fever around 39.5 °C noted on POD 2 and non-contrast computed tomography (Fig. 1) was done which revealed left colon thickening without signs of abscess or leak. Tentative diagnosis of fulminant colitis was made and patient was planned for emergency laparoscopy. Intraoperative colonoscopy done showed mucosal edema and gangrene in descending colon till anastomosis. Intraoperatively, 200 ml of blood stained ascites present with oedematous descending colon (Fig. 2) present till the anastomosis about 30 cm in length without signs of leak, arterial pulsation present in the marginal arcade of colon with venous engor-



Fig. 1. Computed tomography of ischemia colitis.

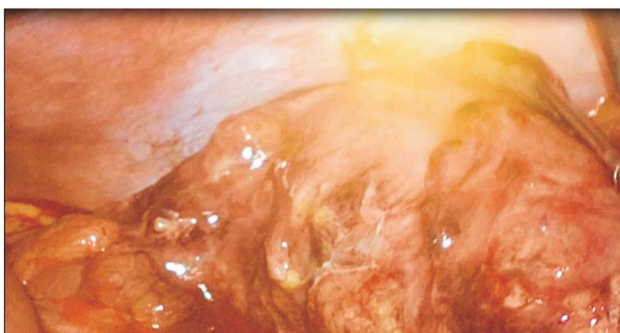


Fig. 2. Oedematous descending colon noted during operation.

gement, so diagnosis of venous congestive ischemic colitis was made. Mobilization of colon to identify the vascular supply was done which revealed there is injury of marginal arcade at the distal transverse colon (Fig. 3) which has been occurred during mobilization of T-colon from omentum that was confirmed in the video recording. As the colon was not sufficient for anastomosis, hepatic flexure was mobilized and then ligated the middle colic vessel (Fig. 4), retroileal transmesenteric colorectal anastomosis was done at last (Fig. 5).

After second operation, patient recovered uneventfully and discharge POD 14. Frequent bowel passage about 5 times/day initially and then the patient is clinically well with normal bowel passage after 6 months.

Discussion

Ischemic colitis following colorectal surgery is rare and more common after arterial insufficiency. However, venous congestion causing colonic ischemia

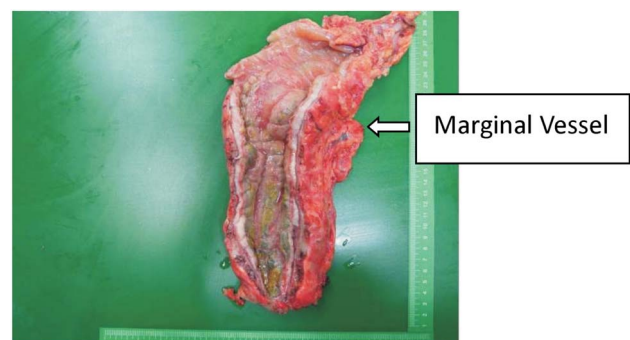


Fig. 3. Specimen of ischemia colitis.

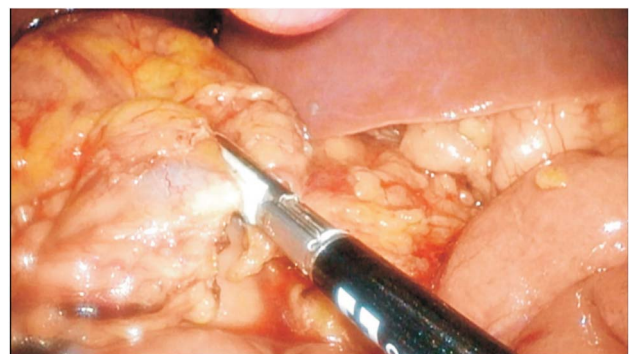


Fig. 4. Middle colic vessel ligation.

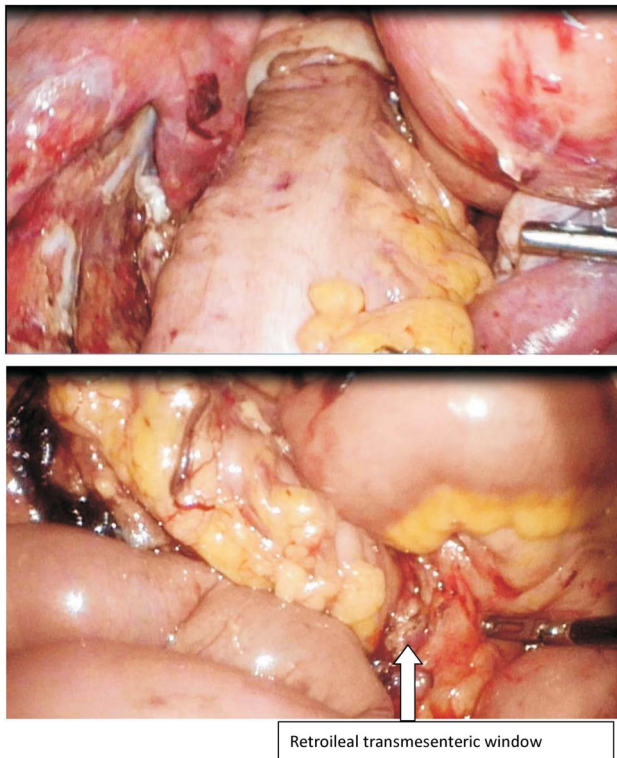


Fig. 5. Retroileal transmesenteric colorectal anastomosis.

has not been reported. Colonic ischemia occurs after high ligation of IMA due to inadequate collateral circulation and decreased perfusion of colon along the marginal artery of Drummond. Left colon is more vulnerable due to the watershed area in the splenic flexure (Griffith point) and rectosigmoid (sudecks point).

Diagnosis is made by CECT findings of segmental bowel wall thickening, target sign, engorgement of mesenteric veins, pericolic stranding, intramural gas, poor enhancement of bowel wall and ascites. Colonoscopic findings include “colon single strip sign” is a line of erythema with erosions and ulcerations oriented along the long axis of colon.³ Histopathological examination reveals ghost cells and hemosiderin laid macrophages which helps to differentiate from other infectious colitis.

There is one case report of venous congestion after anterior resection presenting as chronic rectal proctitis which was managed by surgical resection.⁴ Our case was due to injury of marginal arcade leading to venous congestion and fulminant ischemic colitis. Management of ischemic colitis depends on the sever-

ity of the presentation as it can present as acute ischemic colitis with gangrene and acute fulminant colitis or may present as chronic ischemic colitis presenting as chronic colitis, transient colitis or stricture. Management depends on the severity of disease as there are no guidelines for management strategies, one classification attempted to grade the severity by Favier et al., grade 1 – mucosa with petechiae and small ulcers, grade 2 – ischemia till muscularis mucosa and large ulcers, grade 3 – transmural ischemia with necrosis with possible perforation.⁵ As grade 1 and 2 can be managed conservatively and grade 3 will need emergency surgery.⁶ Mortality reported in emergency colectomy was 23%-44.9%.^{7,8} Most of the reported cases were managed by Hartman’s procedure and diversion ileostomy,⁸ our case was managed by laparoscopy colectomy and retroileal transmesenteric colorectal anastomosis without stoma. This patient had uneventful postoperative recovery, and discharged after 14 days.

Turnbull et al. first reported retroileal transmesenteric colorectal anastomosis in 1978,⁹ and 11 retroileal colo-rectal anastomosis were presented with three minor complication including partial small bowel obstructions resolved medically, 1 small incisional hernia and minor wound infection. Nafe et al.¹⁰ reported a series of 28 cases with one complication of anastomotic leak (about 3%). Compared with De-loyers procedure, retro-ileal anastomosis requires proximal transverse colon preservation and the middle colic pedicle ligation at the origin, in this circumstances, the sole marginal vessel will supply the proximal transverse colon. Considering the possibility of jejunum loop obstruction or internal hernia, it should be decreased by narrowing the mesenteric window and performing mesenteric-to-bowel sutures.⁹

As we known, there was no related reports about laparoscopic retroileal transmesenteric colorectal anastomosis in the literature. Compared with open method, the retroileal window creation was more difficult in laparoscopic approach for the reason that a transmesenteric lighting to recognize the avascular plane is not feasible. Therefore, more careful identification of ileocolic vessel should be performed and the window can be made immediately proximal to the

take-off of the ileo-colic vessel, where an avascular plane is usually present.

In conclusion during high ligation of IMA/IMV, meticulous dissection at mesocolon should be done to preserve marginal arcade. Acute mesenteric ischemia needs critical care management and postoperative events need aggressive evaluation by haematological investigations, CECT and colonoscopy for diagnosis. Management depends on the severity of the disease with surgery is the treatment of choice in fulminant colitis and retroileal transmesenteric colorectal anastomosis can be attempted safely.

Source of Financial Support

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

1. Meshikhes Abdul-Wahed N. Colon ischaemia following surgery for sigmoid colon and rectal cancer. *Int J Colorectal Dis* 2013;28:881-2.
2. Sato H, Koide Y, Shiota M, Endo T, Matsuoka S, Maeda K. Clinical characteristics of ischemic colitis after surgery for colorectal cancer. *Surg Today* 2014;44:1090-6.
3. Zuckerman GR, Prakash C, Merriman RB, Sawhney MS, DeSchryver-Kecskemeti K, Clouse RE. The colon single-stripe sign and its relationship to ischemic colitis. *Am J Gastroenterol* 2003;98:2018-22.
4. Yang KM, Lim SB, Yu CS, Kim JC. Severe distal ischemic proctitis with venous congestion following anterior resection for sigmoid colon cancer: the importance of Sudeck's point. *Int J Colorectal Dis* 2016;31:1051-2.
5. Favier C, Bonneau HP, TranMinh V, et al. Endoscopic diagnosis of regressive ischemic colitis. Endoscopic, histologic and arteriographic correlations. *Nouv Presse Med* 1976;5:77-9.
6. Viridis F, Mekonnen E, D'Souza R, Tacci S, Varcada M. Could surgery be the gold standard in moderate and severe ischaemic colitis? Atypical case description and review of literature. *Int J Colorectal Dis* 2014;29:1015-6.
7. Ryoo SB, Oh HK, Ha HK, Moon SH, Choe EK, Park KJ. The outcomes and prognostic factors of surgical treatment for ischemic colitis: what can we do for a better outcome? *Hepato-gastroenterology* 2014;61:336-42.
8. Manceau G, et al. Right colon to rectal anastomosis (deloyers procedure) as a salvage technique for low colorectal or colo-anal anastomosis: postoperative and long-term outcomes. *Dis Colon Rectum* 2012;55:363-8.
9. Rombeau JL, Collins JP, Turnbull RB. Left-sided colectomy with retroileal colorectal anastomosis. *Arch Surg* 1978;113:1004-5.
10. Nafe M, Athanasiadis S, Köhler A. Indications and technique of retro-ileal colorectal anastomosis after expanded left-sided hemicolectomy. *Chirurg* 1994;65:804-6.

病歷報告

腹腔鏡前位切除併發大腸壞死並以腹腔鏡 Retroileal Transmesenteric Colorectal Anastomosis 處理

陳奕彰 蔡元耀 張伸吉 柯道維 陳宏彰 王輝明 陳自諒

中國醫藥大學附設醫院 外科部 大腸直腸外科

缺血性大腸炎於大腸癌術後是罕見的併發症且大部分是因為動脈引起。靜脈充血所引起的缺血性大腸炎於大腸直腸癌術後文獻並未被報導過。我們在此分享腹腔鏡前位切除後引起的靜脈充血導致缺血性大腸炎，並以腹腔鏡 retroileal transmesenteric colorectal anastomosis 處理此併發症。

關鍵詞 缺血性大腸炎、靜脈充血、前位切除、腹腔鏡。