

# Ischemic Colitis Following Colonoscopy in an Elder Patient with Cardiovascular Disease

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## Abstract

This case is an 85 year-old female with hypertension, diabetes mellitus, cardiovascular disease, congestive heart failure and dementia. She was admitted for hematuria and low gastrointestinal bleeding, the computed tomography scan of the abdomen and pelvis revealed a transverse colon tumor. She received a colonoscopy that found the tumor made transverse colon almost completely obstruction. The pathology of tumor biopsy showed adenocarcinoma. Unfortunately, abdominal fullness, fever, severe leukocytosis developed one day after the colonoscopy and then hypotension was detected. There was no evidence of arrhythmia or acute coronary syndrome. A follow-up abdominal computed tomography revealed pneumatosis intestinalis at the distal transverse colon, splenic flexure and sigmoid colon, compatible with ischemic colitis. Despite intensive treatment including hydration, inotropic agent infusion, antibiotics therapy and ventilatory support, she died of soon multi-organ failure. Literatures were reviewed for discussion. Ischemic colitis is a rare complication of colonoscopy. The predisposing factors for developing ischemic colitis following colonoscopy include connective tissue disease, advanced age and cardiovascular disease. Ischemic colitis may rarely occur following a colonoscopy without these predisposing factors. For patients with risk factors, we should supply adequate fluids for them, do careful bowel preparation, avoid hyperinflation during the procedure and shorten the procedure time. Be aware of the possible complications including ischemic colitis after colonoscopy and do the proper management. (J Intern Med Taiwan 2015; 26: 213-216)

**Key Words: Ischemic colitis, Complication of colonoscopy**

## Background

Colonoscopy is a common examination for colon but it is invasive and may has complications. Ischemic colitis is a rare complication of colonoscopy. We report one case and review articles to discuss for the predisposing factors for developing ischemic colitis following colonoscopy and the management for it.

## Case

An 85 year-old female with past history of hypertension, diabetes mellitus, coronary artery disease, congestive heart failure and dementia was admitted for hematuria and low gastrointestinal bleeding. Her body length was 155 cm and body weight was 55 kg, her body mass index (BMI) was 18 kg/m<sup>2</sup>. A computed tomography scan of the

abdomen and pelvis was performed to trace possible urinary tumor but it incidentally revealed an 8.4 cm tumor in her transverse colon (Figure 1). A colonoscopy was performed to prove the histopathology of the colon tumor.

Aside from the standard colon preparation with oral bisacodyl 20 mg and castor oil 30 ml, she received cleansing enema for better colon viewing. The colonoscopy was performed with pulse oximeter monitoring which was smooth and the patient wasn't in pain. The procedure revealed a tumor that almost completely obstructed the transverse colon (Figure 2). Careful insufflation of gas was done during the 20 minute examination and a biopsy taken. The test was uneventful. The pathology of tumor biopsy showed adenocarcinoma.

One day after the colonoscopy, the patient developed fever to 39.4°C. No bloody stool passage but she had abdominal tenderness and hypoactive bowel sound. The laboratory data showed WBC 22 k/ $\mu$ L (WBC was 8.6 k/ $\mu$ L one day before the colonoscopy), HGB 8.6 g/dL (HGB was 9.7 g/dL one day before the colonoscopy), CRP 17 mg/dL, the levels of cardiac biomarkers were in normal limit. The urinary exam revealed no pyuria. The electrocardiography showed sinus tachycardia. Hydration and empiric antibiotics were prescribed. Two days after the colonoscopy, hypotension (blood pressure: 84/45mmHg) was detected, a follow-up abdominal computed tomography scan was done to evaluate if there intra-abdominal infection or other abnormality. It revealed pneumatosis intestinalis at the distal transverse colon, splenic flexure and sigmoid colon, compatible with ischemic colitis (Figure 3). There was no emboli/thrombus in the superior or inferior mesentery artery. The presentation favors nonocclusive colonic ischemia.

The patient was cared in intensive care unit (ICU) with hydration, inotropic agent infusion, antibiotics therapy and ventilatory support. Multiple organ failure got worse soon, follow-up colonoscopy

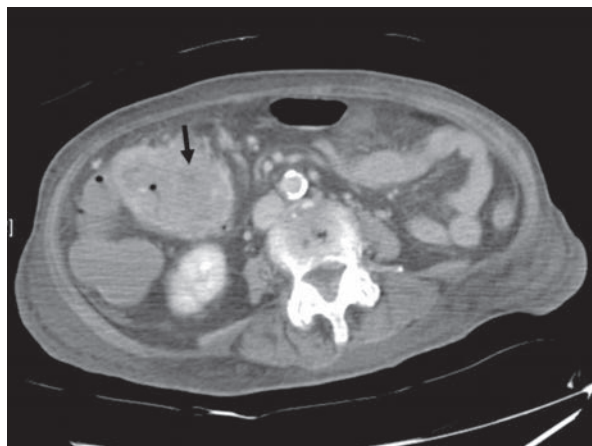


Figure 1. The computed tomography of the abdomen and pelvis revealed a tumor in transverse colon (arrow).

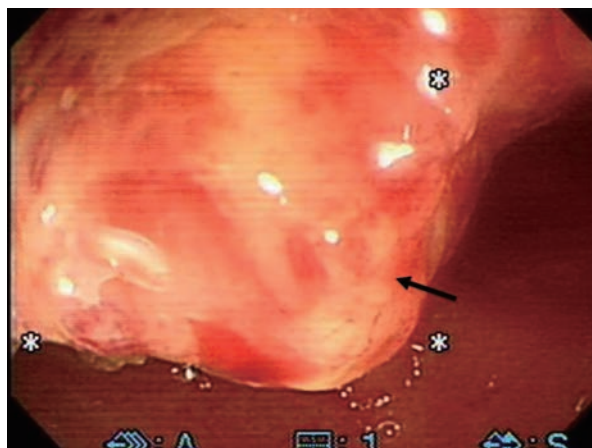


Figure 2. The colonoscopy revealed a transverse colon tumor almost completely obstructed colon lumen (arrow).

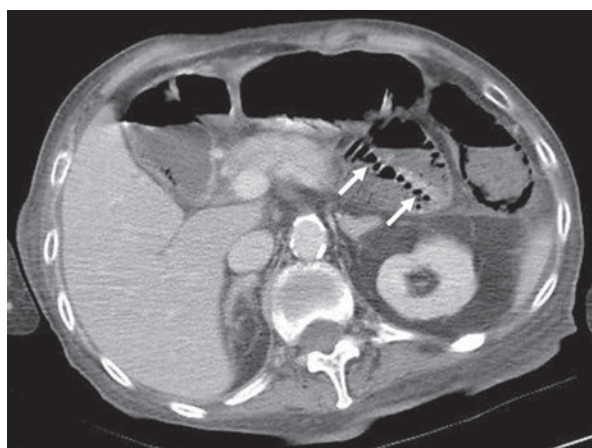


Figure 3. The follow-up abdominal computed tomography revealed pneumatosis intestinalis at colon, compatible with ischemic colitis (white arrows).

and surgical intervention had restriction. Despite intensive treatment, the patient passed away due to multi-organ failure.

## Discussion

Colonoscopies rarely cause ischemic colitis with few reported cases. The mechanism of injury following a colonoscopy is reduced blood flow to colonic wall secondary to increased intraluminal pressure during the procedure and decreased colonic perfusion during fasting and colon preparation<sup>1</sup>.

The possible predisposing conditions for developing ischemic colitis after colonoscopy include connective tissue disease<sup>2</sup>, advanced age<sup>3</sup>, and cardiovascular disease<sup>3,4</sup>. Ischemic colitis may rarely occur following colonoscopy without any predisposing factor<sup>5,6,7</sup>.

Either cleansing enema<sup>8</sup> or glycerin enema<sup>9</sup> was ever reported to cause ischemic colitis. We should take precautions when using enema for colon preparation.

The treatment for ischemic colitis includes intravenous fluid resuscitation, bowel rest, and administration of broad-spectrum antibiotics. In patients showed no clinical improvement, a repeat endoscopy or imaging study is useful to examine the severity and progression of the disease. In patients developing worsening peritonitis or fail to improve, surgical intervention is required<sup>10</sup>.

Back to our patient, she had old age, hypertension, diabetes mellitus, coronary artery disease, congestive heart failure and dementia. Her advanced age and cardiovascular disease were known risks favor for developing ischemic colitis following colonoscopy. She had colon preparation with abstinence from food, cautious fluid infusion (to avoid pulmonary edema) and cleansing enema that made her colon being dehydration and decreased blood perfusion. Although with care, the air insufflation and colonoscopic press at colonic mucosa during colonoscopy made colonic perfusion poorer. The poor

factors accumulated and at last made this ischemic colitis. The patient had dementia and old age, so she didn't express her abdominal discomfort after the colonoscopy. To make matters worse, multiple organ failure including hypotension, respiratory failure soon progressed due to the patient's fragile underlying physical status. Both Follow-up colonoscopy and surgery were dangerous under such condition. We failed to rescue this patient in spite of intensive treatment. We will pay more attention to care the patients with similar condition thereafter.

## Conclusions

Ischemic colitis is a rare complication of colonoscopy. For patients with risk factors including connective tissue disease, advanced age and cardiovascular disease, we should supply adequate fluids for them, do careful bowel preparation, avoid hyperinflation during colonoscopy and shorten the procedure time. After colonoscopies, we should pay attention to signs and symptoms of complications and treat them promptly.

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## 一高齡心血管疾病病人於大腸鏡後發生缺血性大腸炎

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### 摘 要

本文報告一位85歲女性病人，她有高血壓、糖尿病、心血管疾病、鬱血性心衰竭及失智症。她因血尿及下消化道出血住院，其腹部及骨盆腔電腦斷層發現橫結腸腫瘤，故接受大腸鏡以對腫瘤切片，病理報告證實它是腺癌。作完大腸鏡隔日，她發燒、腹脹，檢驗白血球數目竄高，經檢查排除急性冠心症、心律不整及泌尿道感染。再隔日病人發生低血壓，當日安排腹部電腦斷層檢查以評估腹內感染，結果發現於遠端橫結腸、脾彎及乙狀結腸有腸壁囊樣積氣(pneumatosis intestinalis)，符合缺血性腸炎表現。經積極治療包括輸液、強心劑、抗生素、呼吸器等，多重器官衰竭仍快速惡化，於此狀況追蹤大腸鏡及手術亦有所顧忌。最後病人因多重器官衰竭逝世。文獻回顧：缺血性腸炎是大腸鏡檢查後的罕見併發症，其誘病因素包括結締組織疾病、高齡及心血管疾病，但也有不具這些誘病因素的病例報告。對於具誘病因素者，作大腸鏡應給予充足輸液、謹慎清腸、避免鏡檢中過度充氣、縮短鏡檢時間。大腸鏡檢查後須注意併發症並作適當處置。