

Oral-contraceptive related ischemic colitis in young women: A case report

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Summary

Ischemic colitis is the most common form of gastrointestinal (GI) ischemia. The mechanism of ischemic colitis is the lack of colonic blood supply, and the causes are numerous and can be divided into two groups: vascular occlusive and non-occlusive diseases. Despite being common in elderly patients, ischemic colitis is rare in the young and usually associated with some estrogenic drugs, sickle cell anemia, vasculitis, and lupus erythematosus. In Vietnam, estrogen is a rare cause of ischemic colitis. We encountered a clinical case of ischemic colitis in a young female patient taken oral contraceptives for a long time. She visited the hospital for acute abdominal pain and bloody stools. Blood tests and abdominal computed tomography were normal. Endoscopy appearance showed a "single-stripe" sign at the descending colon to the splenic flexure. The biopsy result revealed acute mucosal damage. The patient was managed conservatively with bowel rest, intravenous fluids, and empirical antibiotics. The symptoms were improved with abdominal pain relief and yellow stools after four days. Through this case report, we warn about the risk of ischemic colitis in young women taking oral contraceptives.

Keywords: Ischemic colitis, occlusive vascular, oral-contraceptives.

1. Background

Ischemic colitis is the most common form of ischemic gastrointestinal disease, with an incidence of 4.5 to 44 cases in 100,000 people [1, 2]. The mechanism of ischemic colitis is the lack of blood flow supply for colon segments. The causes are numerous and can be divided into vascular occlusion and non-occlusion. Ischemic colitis is commonly seen in elderly people with risk factors like hypertension, heart failure, atherosclerosis, and diabetes mellitus. It can be caused by some iatrogenic factors such as surgery, hemodialysis or some kinds of drugs. Rare cases are seen in young

people who have sickle cell disease, coagulopathy, and systemic lupus erythematosus or in people using oral contraceptives. Estrogen is a very rare cause of ischemic colitis, especially in Vietnam, with no case report has been published so far [5, 6]. We report here a case of ischemic colitis with a review of international literature in a 28-years-old female patient who had taken oral-contraceptive for a long time. She was diagnosed with ischemic colitis based on her symptoms, past medical history, progression, endoscopy, and histopathology.

2. Case presentation

A 28-year-old female patient presented to our department with acute abdominal pain in the left hypochondriac region. It was started with severe colic pain, lasting for about 5-7 minutes and then gradually decreased, along with twelve times of bloody stool defecation, just a small amount in each

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time, and no mucus. She had a past medical history with ovarian cysts and had used marvelon (desogestrel combined with ethinyl estradiol) to regulate menstruation for four years.

Physical examination: Vital signs: Blood pressure 130/90 mmHg, pulse rate 60/min, respiratory rate 20/min, body temperature 36.8°C, height 160cm,

weight 50kg, and body mass index (BMI) 19.5. There was a mild abdominal wall tension at the left hypochondriac region and no hepato-splenomegalopathy or ascites on palpation. Complete blood count and blood chemistry tests showed normal in all parameters (*Table 1*). Antinuclear antibody ANA and dsDNA were negative.

Table 1. Total blood count and blood chemistry results

WBC (G/L)	4.96	Ure (mmol/l)	2.66
N%	63.7	Creatinin (μmol/l)	74.7
L%	28.3	GOT (U/l)	13.6
B%	0.4%	GPT (U/l)	10
E%	1.9%	Cholesterol (mmol/l)	4.34
RBC (T/L)	3.82	Triglycerd (mmol/l)	1.21
HGB (g/l)	106	Protein (g/l)	66.9
PLT (G/L)	163	Albumin (g/l)	38.2
APTT (s)	29,9	CRP (mg/l)	4.5
Fibrinogen (g/L)	2.68	Procalcitonin (ng/ml)	0.02
Prothrombin %	100	Na/K (mmol/l)	137/3.3
VS (mm)	8	D-dimer (ng/ml)	987

Abdominal computerized tomography taken on the day of admission showed no obstruction of the middle colic branch of the superior mesenteric artery nor the inferior mesenteric artery in the transaxial view (Figure 1). Colonoscopy revealed normal rectum and sigmoid colon, but erythemas, erosions, and shallow ulcers were found along the longitudinal axis from the descending colon to the

splenic flexure. The transverse colon appeared normal (Figure 2). Biopsy was performed at the descending colon, which revealed loss of the surface epithelium, mucosal necrosis, and hyalinization of lamina propria compatible with ischemic colitis (Figure 3). *M. tuberculosis* and cytomegalovirus were negative from the biopsy tissue assessed by real-time PCR assay.

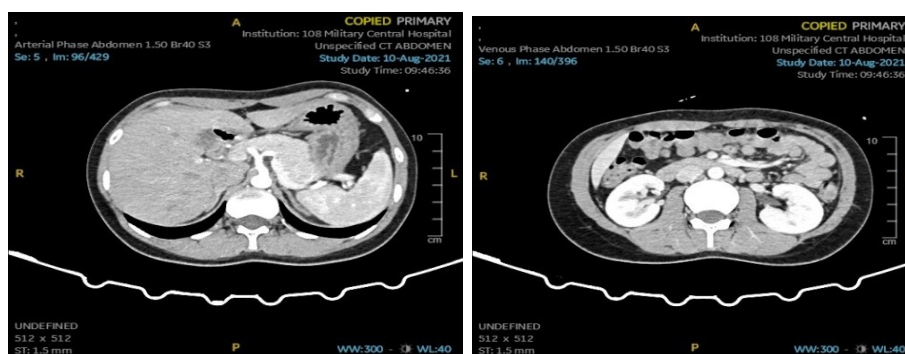


Figure 1. Abdominal computed tomography: It showed no obstruction of middle colic branch of superior mesenteric artery in the transaxial view, no obstruction of inferior mesenteric artery in the transaxial view.

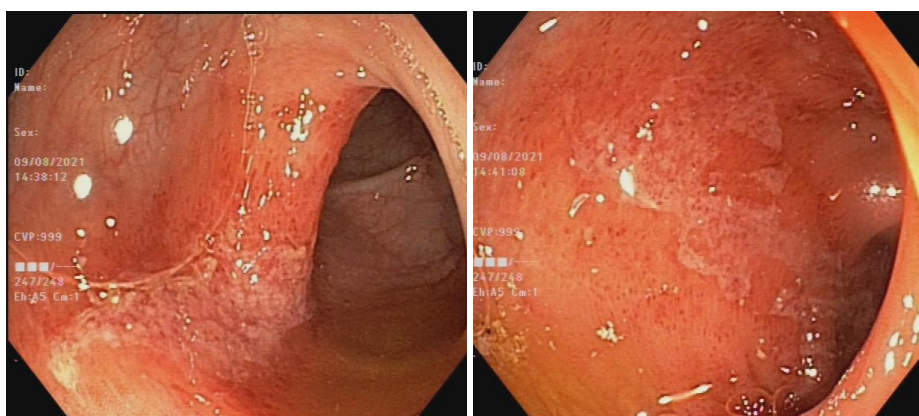


Figure 2. Colonoscopy: It showed erythemas, erosions and shallow ulceration at descending colon to splenic flexure colon.

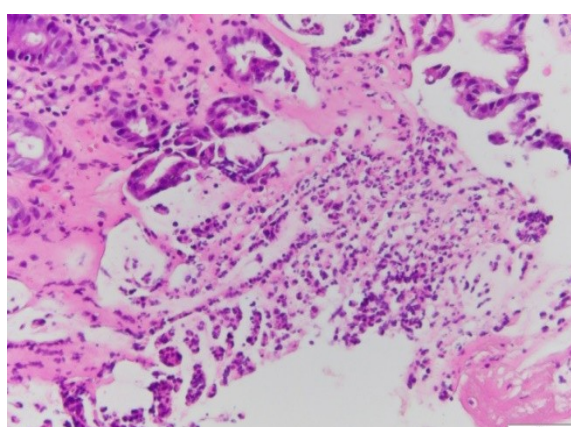


Figure 3. Pathologic findings: Acute ulceration of the colonic mucosa. The colonic mucosa shows superficial mucosal necrosis with loss of surface epithelium with hyalinization of lamina propria, the submucosa layer has small clusters of neutrophils. No metaplastic lesions, dysplasia and cancer were found (H&E stain, x400).

The patient was diagnosed with ischemic colitis and was managed with bowel rest, intravenous fluid nutrition, and empirical antibiotics (metronidazole). After four days, she got improvement in her symptoms, with her abdominal pain relief and yellow stool. She was discharged on the 5th day of admission. We advised her to stop the use of oral contraceptives after explaining that it might be the possible cause of ischemic colitis. She has been so well until now without any recurrence of abdominal pain or hematochezia.

3. Discussion

There are many causes of ischemic colitis. They are divided into two groups: occlusive vascular and non-occlusive groups, as shown as in Table 2:

Table 2. Causes of Ischemic Colitis
Christopher Washington (2012) [4]

Occlusive vascular	Non- Occlusive
Arterial Thrombosis/ Emboli Arterial emboli (Cardiac) Cholesterol emboli Small vessel disease Vasculitis Diabetes Atherosclerosis	Hypopertension Cardiac failure Septic shock Hemorrhagic shock Anaphylaxis Hemodialysis
Trauma	Drugs Antihypertension Digitalis Diuretics

Occlusive vascular	Non- Occlusive
	Cocain Estrogens NSAIDs Paclitaxel and carboplatin Simvastatin Interferon-ribavirin
Surgical	Colonic obstruction Vovulus Colon cancer Constipation Long-distance running
Venous Mesenteric venous thrombosis Pancreatitis Portal hypertnesion Sickle cell disease Lymphocytic phlebitis	

Oral contraceptives are considered as one of the risk factors for ischemic colitis. In our case, the patient used oral contraceptives to regulate menstruation. The relationship between estrogen and venous thrombosis has been mentioned as early as 1963, warning of the risk of thromboembolism in cases of oral contraceptive use [7]. In 2016, the American Society for Reproductive Medicine warned evidence of the relationship between hormonal drugs (oral contraceptives) and the risk of venous thrombosis [8]. Recent studies have shown an association of oral contraceptives with an increase in fibrinogen and prothrombin levels and a decrease in factor V in blood clotting, concomitant reductions in protein S, and tissue factor inhibitor (TFPI) levels developing resistance to Protein C. They increase the risk of venous thrombosis in patients taking oral contraceptives [9, 10]. In addition, research has shown that the risk of thrombosis depends on the dose and composition of each type of oral contraceptive, with desogestrel-containing drugs higher than those containing levonorgestrel [9, 11]. Our patient was taking the

marvelon -an oral contraceptive containing desogestrel.

The patient presented with acute abdominal pain in the left hypochondriac region and bloody stool, which completely resolved within four days. Mild anemia, a slight increase in D-dimer of 987ng/ml was also consistent with the severity of the disease. Clinical symptoms of ischemic colitis are often nonspecific and can be easily confused with symptoms of other inflammatory bowel diseases. Computed tomography is helpful to rule out other causes [5]. Normal abdominal computed tomography findings correlated well with mild elevation of D-dimer in our patient.

The combination of clinical, colonoscopy, and biopsy contributes to ischemic colitis. Lesions usually occur in the left half of the colon, a location with few blood vessels. The most common location is the splenic flexure, which is supplied by the superior mesenteric artery and the inferior mesenteric artery (Griffiths point). The sigmoid colon is supplied by the inferior mesenteric artery and the sigmoid artery, superior rectal vessels (Sudek's point). A single linear ulcer running longitudinally along the anti-mesenteric colonic wall (colonic single stripe sign) may be seen and is associated with ischemic colitis [12, 13]. Our patient had endoscopic features perfectly consistent with the disease: superficial longitudinal ulcer at the splenic flexure and descending colon.

Especially on the biopsy findings, there were acute ulcerations of the colonic mucosa. The colonic mucosa showed superficial mucosal necrosis with loss of surface epithelium with hyalinization of lamina propria, and the submucosa layer had small clusters of neutrophils. This image is also completely consistent with clinical, endoscopic, and anatomical images in previous studies [5].

International reports have shown that in 85% of patients with ischemic colitis, the symptoms would improve within 1-2 days and fully recover in 1-2 weeks with only non-specific treatment: intravenous fluid- nutrition, empirical antibiotics, only a few patients progressed to peritonitis requiring surgery

[4, 5]. Our patient's condition was completely consistent with the moderate clinical presentation; the symptoms were completely resolved within four days. We warned her about the risk of ischemic colitis when using oral contraceptives, advised her should stop the drugs and choose other treatments for ovarian cysts.

4. Conclusion

Through this case, we would like to warn again the relationship between oral contraceptive use and the risk of ischemic colitis. Specialist doctors need to consult and predict the risks before making a prescription for patients.

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