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## Case Report

## A Case of Constrictive Ischemic Colitis Necessitating a Surgery Due to Delayed Cicatricial Stenosis

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Ischemic colitis, often idiopathic, is a disease of the digestive system commonly found in patients with symptoms of abdominal pain and/or melena. In most cases, however, ischemic colitis is treated with conservative treatment and only in rare cases requires surgery. This is a case report of a patient who was diagnosed with ischemic colitis and later was required surgery due to advanced cicatricial stenosis. Patient is a 75-year-old female who had been experiencing abdominal pain followed by diarrhea and melena from several days before. Making a visit to a local clinic, she was recommended and admitted to our hospital for further diagnosis as well as adequate treatment. After conducting a colonoscopy, a lesion consisting of a 5 centimeter-long submucosal bleeding around the entire circumference of the descending colon, closer to the anus, was found. Under a pre-condition of fasting, the patient was given medical treatment via central venous hyperalimentation. In a later colonoscopy, only a mild case of cicatricial stenosis was found. However, even after resuming oral intake, there were no recurrences of symptoms such as abdominal pain, melena or ileus. On the 14th day of illness, patient was discharged from the hospital. Nevertheless, after some time of ambulatory care visits, on the 54th day of illness, the patient was again hospitalized for a thorough reexamination of the narrow pass. After conducting a colonoscopy, it was found that the lesioned part had generated a more severe, stiffer cicatricial stenosis. After checking with family members about patient's progress, a decline in amount of ingestion was revealed which, as a result, necessitated surgery on the patient. Postoperative course was uneventful, and the patient was able to leave the hospital rather quickly, 12 days after the surgery. Ten to 15 % of ischemic colitis cases are regarded constrictive. Most cases are ischemic changes on the outside layer of the mucosa. However, in case of significant ischemic change, the surface layer of the mucous membrane can be replaced with a fibrous structure which results in the occurrence of delayed cicatricial stenosis. In this case, possibilities of significant ischemia at first endoscopy, as well as possibilities of delayed changes at the following endoscopy, should have been considered. Patient's refusal to undergo surgery caused a delay in finding ileus of the intestine. As far as symptoms of significant ischemia and constriction were found, swift reexamination with awareness of possibilities of surgery should have taken place.

**Key Words:** ischemic colitis, cicatricial stenosis, constrictive ischemic colitis, surgery adaptation

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## Introduction

Ischemic colitis is a disease of the digestive system commonly found in patients with symptoms of abdominal pain and/or melena. In most cases, however, ischemic colitis is treated with conservative treatment and only in rare cases requires surgery. This is a case report of ischemic colitis which at first was treated with conservative treatment but later required surgery due to a delayed development of advanced cicatricial stenosis.

## Case Report

**Patient:** 75-year-old woman.

**Chief complaint:** Pain in the abdomen, diarrhea and melena.

**History of past illness:** Uterine myoma, osteoporosis.

**History of present illness:** Occurrence of abdominal pain and diarrhea from several days before followed by melena twice. The patient visits a local clinic, then later taken into our hospital for further diagnosis of the digestive tract and to receive adequate treatment.

**Acute status on admission:** Blood pressure 125/42 mmHg, pulse 81/min, body temperature 37.0 °C.

**Abdominal findings:** Mild abdominal distention and oppressive pain.

**Blood test finding on admission:** Elevation of LDH, leukocyte, and CRP were recognized (Table 1). A stool culture only identified normal flora.

**Abdominal X-ray and CT examination:** No signs of ileus from abdominal x-ray. However, an advanced edema of the descending colon was observed (Fig. 1-a, b).

**Colonoscopy:** A lesion consisting of a 5 centimeter-long submucosal bleeding around the entire circumference of the descending colon, closer to the anus, was found (Fig. 1-c).

**Treatment course:** Under a pre-condition of fasting, the patient was given medical treatment via central venous hyperalimentation. Melena and pain in the abdomen had disappeared. However, later by a CT examination, it was found that thickening of intestinal tract had remained. Also by conducting a Gastrografin enema, constriction was observed (Fig. 2-a, b). Therefore, on the 13th day of illness, a second colonoscopy took place. An endoscopy

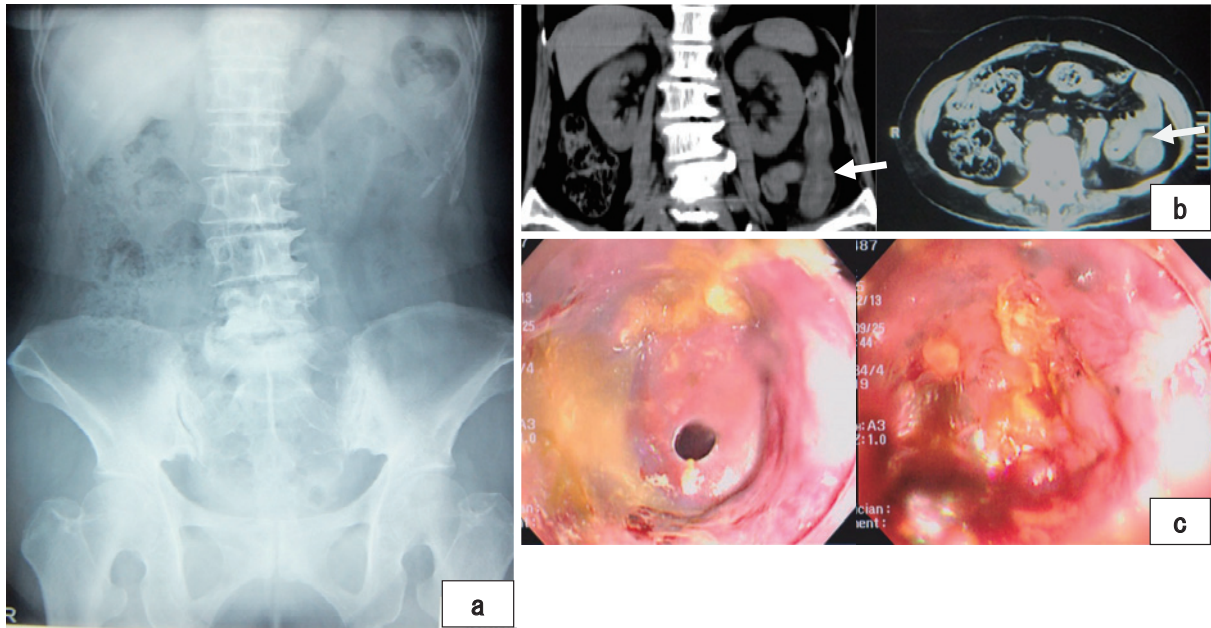
**Table 1** Blood test findings (at first hospitalization)

TP	7.5 g/dL	BUN	16.0 mg/dL	WBC	113×10 <sup>2</sup> /μL
Alb	4.4 g/dL	Cre	0.73 mg/dL	RBC	48×10 <sup>4</sup> /μL
CRP	0.73 mg/dL	Cl	106 mEq/L	Hb	13.5 g/dL
AST	21 IU/L	Na	143 mEq/L	Ht	40 %
ALT	16 IU/L	K	4.90 mEq/L	Plt	25.4×10 <sup>4</sup> /μL
T-Bil	0.7 mg/L	BS	99 mg/dL		
LDH	233 IU/L				
AMY	76 IU/L				
CPK	123 IU/L				

also found constriction around the entire circumference (Fig. 2-c). However, the endoscope was able to pass through without a problem. There were no recurrences of symptoms such as abdominal pain, melena or ileus even after resuming oral intake. On the 14th day of illness, patient was discharged from the hospital.

After some time of ambulatory care visits, on the 54th day of illness, the patient was again hospitalized for a thorough reexamination of the narrow pass. After conducting a colonoscopy, it was found that the lesioned part had generated a more severe, stiffer cicatricial stenosis which also caused difficulty in passing the endoscope through (Fig. 3-a). CT examination as well as a Gastrografin enema was re-conducted. CT showed thickening of the colon, the same result as the previous examination. Meanwhile, the enema had shown advanced constriction which was also found when conducting an endoscopy (Fig. 3-b, c). Patient's refusal to undergo surgery had caused some delay in seeing symptoms of ileus. After checking with family members about patient's progress, a decline in amount of ingestion was revealed which, as a result, necessitated surgery on the patient.

A laparotomy revealed cicatricial thickening of the descending colon as well as constriction. Surgery included mobilization of the descending colon, then a GIA stapler was inserted through a small, vertical incision where the constriction had occurred. The re-construction and expansion of the part was performed by a side-to-side anastomosis (Fig. 4). Postoperative course was uneventful, and the patient was able to leave the hospital rather quickly, 12 days after the surgery. There were no recurrences of decline in amount of ingestion, or signs of stenosis.

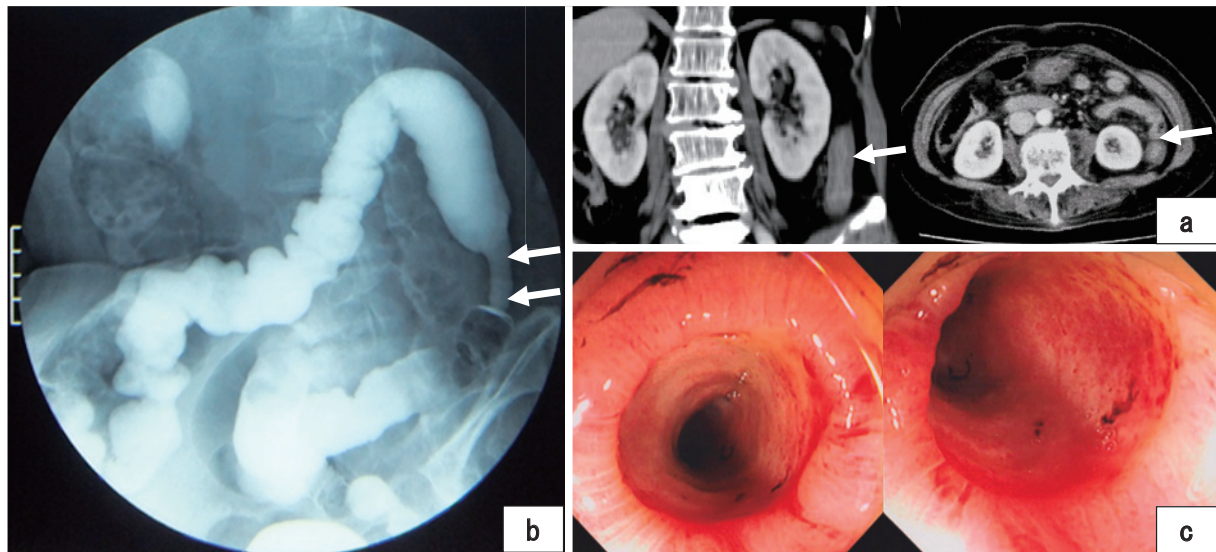


**Fig. 1** Examination at first hospitalization (the 1st day of illness)

a. X-ray: No signs of ileus was observed.

b. CT: Edema and wall thickening of the descending colon was observed.

c. Endoscopy: Submucosal hematoma as well as erosion around the entire circumference of descending colon was found.



**Fig. 2** Other examinations

a. Contrast enhanced CT (the 7th day of illness): Wall thickening continued to be observed in descending colon.

b. Gastrografin enema (the 13th day of illness): Stenosis was observed in descending colon.

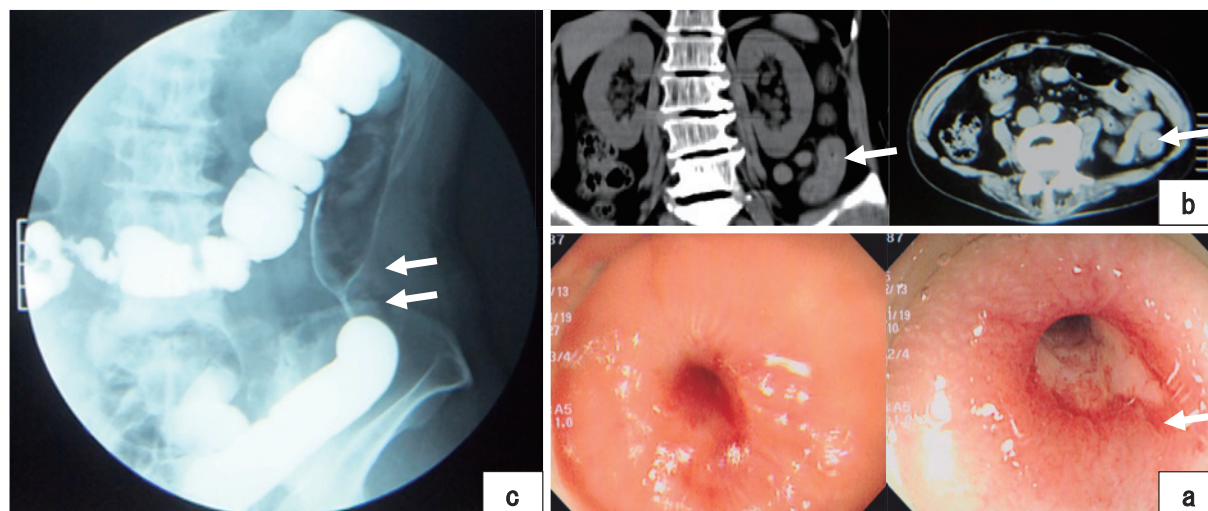
c. Endoscopy (the 13th day of illness): Stenosis around the entire circumference was observed. However, the endoscope was able to pass through.

## Discussion

Since around 1963, ischemic colitis has been reported as a segmental lesion caused by vascular insufficiency of in-

testinal mucosa, without any obvious structural changes of major arteries<sup>1)</sup>. The ischemic colitis is said to involve vascular factors (e.g. ischemic heart disease, cerebrovascular disease, peripheral vascular disease) as well as in-



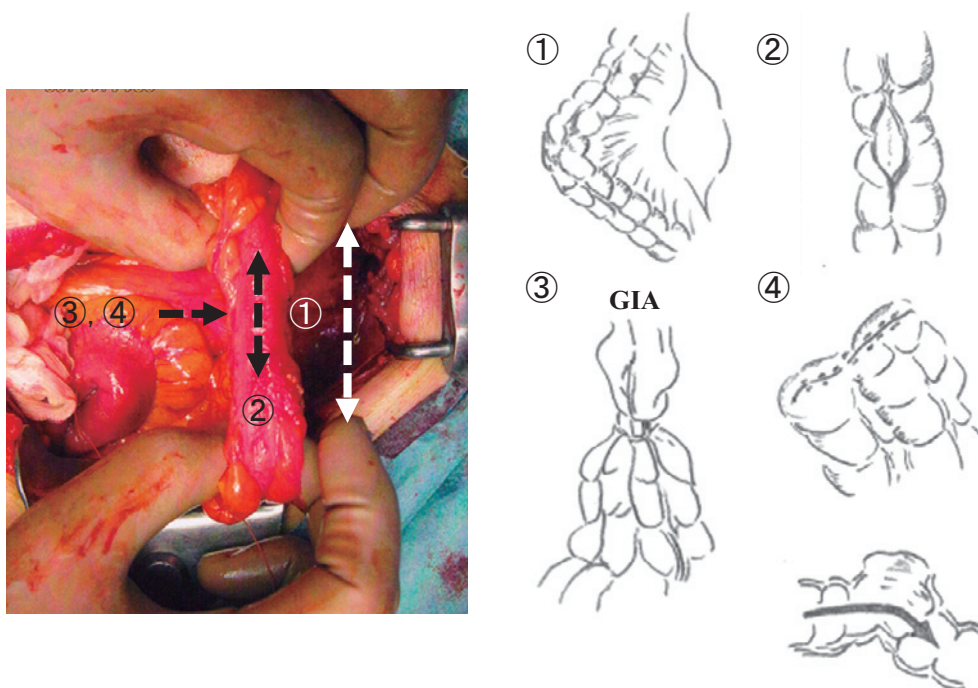


**Fig. 3** Examination at second time of hospitalization

a. Endoscopy (the 54th day of illness): Lesioned-part from the previous endoscopy showed further development of advanced stenosis as well as partial ulcer. The stiff constriction prevented endoscope from passing through.

b. CT (On the 55th day of illness): Edema surrounding the area showed improvement. However, wall thickening of the descending colon was also observed.

c. Gastrografin enema (the 57th day of illness): further development of stenosis was found.



**Fig. 4** Preoperative findings

① Mobilization of the descending colon; ② Vertical incision on the narrow pass; ③ Insert GIA stapler in the same area; ④ Re-construction and expansion of the constricted part by a side-to-side anastomosis.

testinal factors, such as constipation<sup>2)</sup>. Types include transient and constrictive. Those with lumen ratio under 70 % are classified as transient, whereas those with 70 %

and over are considered constrictive. Most are seen as transient, and constrictive types only take up to 10-20 % of overall patients<sup>2)</sup>. Treatment essentially include sup-

portive care such as fasting, fluid resuscitation and antibiotic administration<sup>3)4)</sup>. Transient and constrictive types can be identified after about two weeks into the treatment as they will each start to display different courses. While transient types will indicate healing tendency of ulcers, constrictive types will show obvious narrowing of the lumen as well as causing residual bleeding, edema, and/or longitudinal ulcer. However, there have also been case reports of constrictive types that carry no indication of ileus displaying gradual expansion of the constriction, as result of bowel movements and the “bougie effect” it creates<sup>5)</sup>.

Determining whether it is transient, or constrictive which is an indication for surgery, with only the first endoscopy is difficult at least within the first 14 days, as there is a possibility of transient types later developing into circumferential stenosis.

Also, there is no scale of measurement for wall thickening as to determine whether it is a constrictive type or not<sup>2)6)</sup>. Meanwhile, those that indicate circumferential stenosis by endoscopic observation after 3 weeks or later, or those that display progressive pathological changes after 5 weeks or later, are to be considered constrictive types in which case increases the possibility of necessitating a surgery<sup>6)7)</sup>. This is because, in case of significant ischemic changes, the surface layer of the mucous membrane is replaced with a fibrous structure which then results in the occurrence of delayed cicatricial stenosis<sup>7)</sup>.

Each case has its own characteristics and involves different factors whether it be vascular, intestinal, or other circumstances, hence requires careful observation on its course until patient makes a full recovery.

Treatments with possible stenosis mainly used to include partial excision or reconstruction through surgery. However, recent reports show that there have been cases of recoveries through steroid administration<sup>5)8)</sup> and endoscopic balloon dilatation (EBD)<sup>5)8)-11)</sup>. Nevertheless, steroid administration is somewhat limited since application methods, amount, etc., can vary differently, as well as having issues of infections<sup>3)10)</sup>. Also with EBD, it only targets cases with stenosis that are short and can only be applied to parts that are straight without any significant inflammation, ulcer, or fistula<sup>5)</sup>. As both steroid administration and EBD needs to be performed multiple times with longer duration of therapy, surgery may be chosen

as a more reliable, effective method for this patient.

In this case report, observation of partial ulcer was taken as surgical indication. Although the patient was hospitalized merely for the purpose of examination, it later progressed into surgery. However, the overall duration of therapy was as short as 12 days, and no signs of stenosis were seen in the course of following ambulatory care visits. Nevertheless, the patient did continue to display significant ischemia at first and the following endoscopy as well as wall thickening in CT examination, in which case possibility of delayed change should have been considered. In addition, decrease in patient's oral intake due to her fear of having abdominal distention or constipation possibly caused loss of “bougie effect” that comes from bowel movements and so forth. Also, patient's refusal to undergo surgery caused a delay in finding ileus of the intestine. As far as significant ischemia or constriction by endoscopy and continuous wall thickening by CT examination were observed, swift reexamination with awareness of possibilities of surgery should have taken place at early stage of patient's ambulatory visits.

## Conclusion

1. This is a case of constrictive ischemic colitis with delayed cicatricial stenosis necessitating surgery.
2. Surgery needs to always be considered a possibility when advanced ischemia from endoscopy, and continuous wall thickening from CT examination, are found.

A key passage of this content was presented at the 77th general meeting of Japan Surgical Association (Fukuoka, Nov. 2015).

**Conflicts of Interest:** There is no conflict of interest for any of the authors.

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