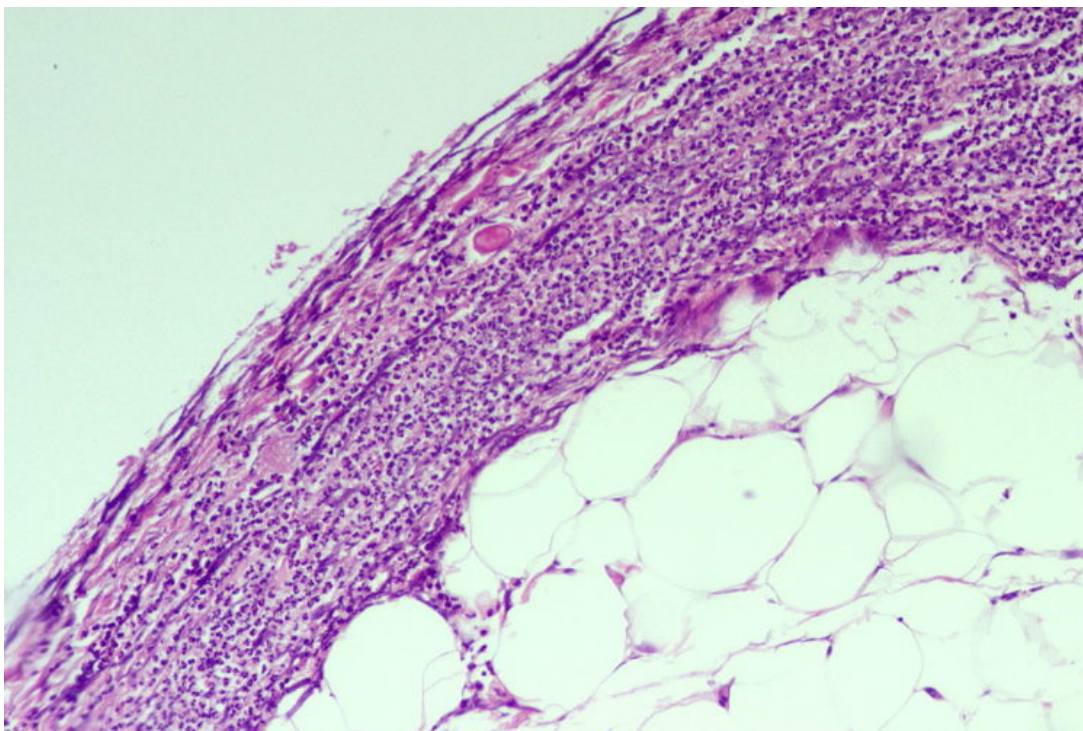


Ischemic Colitis — Physical Examination and Diagnosis

[See online here](#)

Ischemic colitis (ischemic disease of the colon) was first described in 1966. It occurs when there is an occlusion of the branches of the superior mesenteric artery (SMA) or the inferior mesenteric artery (IMA). The vast majority of cases describe the lesion in the splenic flexure and the left colon. This severe illness is very common among the elderly with pronounced cardiovascular disorders. In most cases, the onset of the disease is followed by acute stabbing abdominal pain and rectal bleeding with diarrhea. The ischemic disease of the colon requires immediate action; the sooner the treatment is administered, the more benign the outcome is.

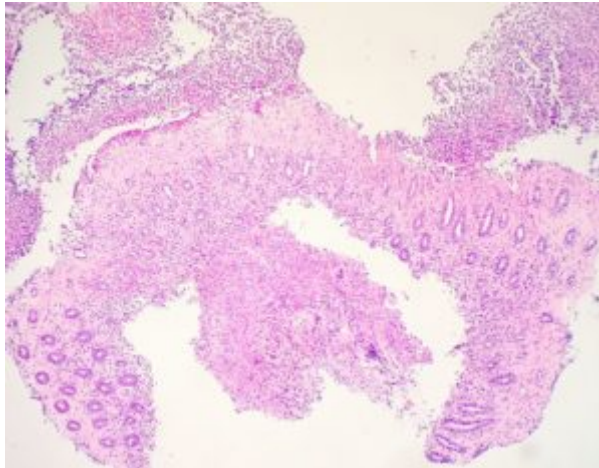


Definition and Background

Ischemic colitis refers to extensive intestine inflammation because of occlusion, limiting the blood supply to the superior or inferior mesenteric arteries. The causes of occlusion include **chronic cardiovascular disorders, thrombophilia, or small- and medium-vessel vasculitis**. Risk factors include taking **oral contraceptive pills** and **aging**. There might be **severe abdominal pain** or shock due to necrosis from arterial occlusion and inadequate blood flow to the bowel.

Ischemic Colitis Etiology

- **Chronic constipation** contributes to the development of the condition because of **vasospasms** from straining. Aging enhances occlusion of the long arteries of the colon, a feature of atherosclerosis. The latter is a disorder that narrows the arterial lumen; hence, there is inadequate blood flow for intestinal metabolism
- **The diffuse disease of the small and medium vessels** makes the colon susceptible to ischemic attacks
- **Heart failure** (decreased cardiac output or [arrhythmias](#))



[Image](#): "A 76-year-old woman with rectal bleeding. Right colon biopsy." by Ed Uthman from Houston, TX, USA - Ischemic Colitis
Uploaded by CFCF. License: [CC BY 2.0](#)

- **Shock** (hemorrhage, sepsis, and hypovolemia)
- **Abdominal trauma**
- Aorta surgery, gynecological operations, cardiac bypass, and inferior mesenteric artery ligation during colectomy
- **Hypertension** (cholesterol emboli) and [stroke](#)
- [Diabetes mellitus](#) may predispose an ischemic attack in the intestine.
- The colon is prone to develop ischemia (**arterial obstruction**) due to the low blood flow in the organ, in comparison to the rest of the parts of the digestive system; this fact is based on the anatomy of the organ
- Mechanical obturation of the colonic arteries by [tumors](#) and **blood clots** (hypercoagulation in rheumatic disorders)
- Some groups of drugs provoke colon ischemia (constipation-inducing, immunomodulators, and illicit drugs [amphetamines, cocaine, appetite suppressants, chemotherapeutics, decongestants, [diuretics](#), hormones, and psychotropics])

Ischemic Colitis Epidemiology

Ischemic colitis is rare in children; the risk **increases with age**, especially in patients over 50. The disease is predominantly seen in women over 69. The rate of occurrence of ischemic colitis is approximately 163 cases per 100,000 person-years. Men and women are affected equally. Ischemic colitis is considered a disease of the elderly; over 90% of cases occur in patients over 60.

Internationally

One in 1,000 hospitalizations worldwide is attributed to ischemic colitis. This figure is underestimated due to the mild or transient forms of the nature of the disease.

Presentation of Patients with Ischemic Colitis

The condition is sometimes hard to diagnose because of non-specific symptoms, such as an acute onset of pain in the **left iliac fossa**, **diarrhea**, fever, nausea, and vomiting. The stool often contains blood and mucus. Other symptoms include:

- **Rectal pain**, as diarrhea advances
- **Abdominal pain**, very often stabbing when there is a severe occlusion of the colonic arteries
- **Constipation** is rare compared to diarrhea; manifestation of this symptom depends on the allocation of ischemia
- **Weight loss** and absence of appetite and nausea (75%)
- **Fever** may occur in complicated cases (when there are large areas of necrotic tissue in the colon)
- Blood in stool and chronic inflammation in the intestine may cause **anemia**

Acute mesenteric arterial embolism (AMAE): abdominal apoplexy

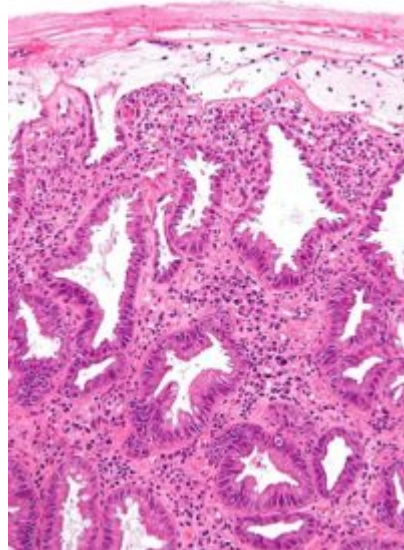


Image: "High magnification micrograph of ischemic colitis. H&E stain." by Nephron - Own Work. License: [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

AMAE has the most painful onset, followed by **cardiac symptoms** such as **atrial fibrillation** and myocardial ischemia (MI). Also, there may be a history of **heart valve disease** or a previous incidence of **emboli**. There may also be an "abdominal attack" that includes nausea and vomiting.

Acute mesenteric arterial thrombosis (AMAT)

This occlusion occurs when **atherosclerotic emboli** block the lumen of the colon vessels due to acute MI (drop in cardiac output), congestive heart failure, and ruptured plaque. This condition is accompanied by severe diffuse pain, usually after a meal (10-15 minutes after). It can last for several hours: growing nausea, vomiting, altered bowel habits, "fear" of food, and early satiety.

Nonocclusive mesenteric ischemia (NMI)

This is very common in the elderly and usually represents the after-effect of conditions, such as **respiratory failure or shock** (sepsis or MI), followed by **severe hypotension** or **digitalis** intake. This type of colonic vessel obstruction typically manifests with vomiting accompanied by pain, dizziness, tachycardia, hypotension, and hematochezia.

Mesenteric venous thrombosis (MVT)

This type of ischemic colitis is **more common in younger patients** and features acute or subacute pain. The occlusion affects the small intestine rather than the colon. MVT can be difficult to manage since the full range of occlusion symptoms takes weeks to develop.

Hypercoagulability always presents in these patients' history due to the continuous use of **contraceptive pills**, **pulmonary embolism**, cancer, liver pathology, pancreatitis, intra-abdominal infection, or portacaval surgery.

Physical Examination of Ischemic Colitis

The most prominent symptom of the condition is the pain that manifests in various forms: moderate-to-severe, diffuse or localized, persistent or colicky. The pain does **not respond to painkillers and opioids**. Also, the disease onset depends on the allocation of the occlusion in the colon and the disease stage.

- **Early-stage:** physical signs are non-specific, such as a distended abdomen, blood in the stool, absence of **peritonitis**, and minor tenderness
- Later, tenderness and pain exacerbate and reflect the allocation of the **ischemic lesion** in the bowel. A tender mass in the abdomen may be palpable. There might be a foul smell from the mouth as the necrosis advances. Other signs include fever, aggravation of the general condition, hypotension, tachycardia, and confusion (altered mental status).

Differential Diagnosis of Ischemic Colitis

- **Left-sided peritonitis** as the after-effect of perforated hollow viscus or pancreatitis

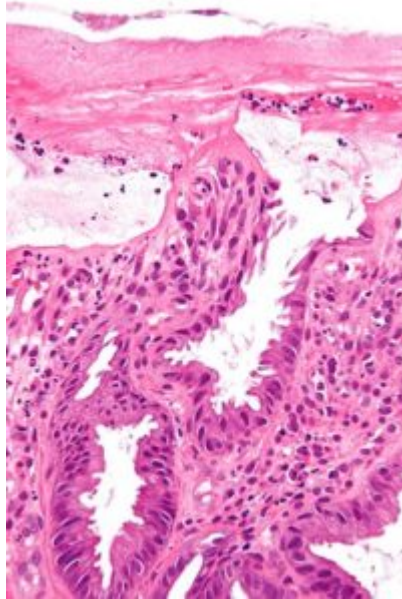


Image: "Very high magnification micrograph of ischemic colitis. H&E stain."
by Nephron – Own Work. License: [CC BY-SA 3.0](#)

- Acute inflammatory bowel disease
- Dysentery
- Acute diverticular disease of the colon
- [Cancer of colon](#)
- Abdominal trauma
- [Crohn's disease](#)

Diagnosis of Ischemic Colitis

Laboratory studies

In advanced stages of ischemic colitis (infarction and necrosis), an increase of these markers may become significant: lactate, LDH, CPK, amylase levels, leucocytes, alkaline phosphatase, inorganic phosphate, intestinal fatty acid-binding protein, and alfa-glutathione S-transferase. These results are of limited value for mild forms of colonic ischemia.

ECG is used to rule out MI, [atrial fibrillation](#), and [aortic aneurysm](#).

Imaging studies

Plain abdominal radiography will rule out a colon infarction. It is very informative since it may indicate particular non-specific findings, such as bowel wall thickening (commonly known as "thumb-printing"), which is a distinguishing feature of the disease (due to mucosal edema/hemorrhage). Other signs include air-filled loops, colonic peristalsis, mural thickening, and intramural pneumatosis.

Barium enema: in 90% of ischemic colitis cases, this study reveals abnormal findings; however, it is rarely used for diagnosis. There may be a segmental region of abnormality, "thumb-printing," ulcerations, spasms, and strictures due to fibrosis.

CT scan: A CT scan would reveal thickening of the bowel walls, a narrowed lumen of the

bowel, a “target sign” low-density ring bordering lumen due to submucosal edema, mesenteric edema, and visible superior mesenteric artery thrombosis.

Angiography may reveal increased arterial caliber, enhanced arteriovenous transit time, and dilated veins.

Ultrasound: This examination method is uncommon because of bowel gas; however, reduced peristalsis may be observed. Edema produces a hypoechoic wall. Places of increased echogenicity indicate hemorrhages.

Colonoscopy: This is one of the most informative examinations for ischemic colitis that reflects the bowel walls’ intrinsic pathophysiological picture.

Staging

- Transient ischemia
- Partial-thickness ischemia
- Full-thickness ischemia

Management of Ischemic Colitis

Pharmacotherapy

Treatment depends on the severity of the condition and complications that may occur without prompt therapy.

The transient stage requires little intervention; these patients are closely observed on an outpatient basis and prescribed **antibiotics** and **liquid diets**.

Later stages of the disease require:

- Hospitalization
- IV fluids (adequate fluid resuscitation)
- Bowel rest
- Optimization of cardiac function and oxygenation
- Exclusion of vasopressors
- Broad-spectrum **antibiotics**
- Heparinization and a papaverine infusion
- Treatment of all underlying medical disorders (especially the cardiovascular group)

Surgical intervention

The indication for surgery is supported by underlying conditions, such as **hypotension** and **heart disease**. The colon is affected by the occlusion of the arteries, leading to ischemia, necrosis, and, consequently, gangrene. Surgery is necessary to:

- Remove tissues severely affected with ischemia (areas of necrosis)
- Repair the colon perforation
- Provide blood flow through the occluded vessels
- Remove a stricture or narrowed part of the colon due to the scarring that causes vessel occlusion

Complications of Ischemic Colitis

In more severe cases, complications may include:

- Perforation
- Ischemic stricture
- Bowel inflammation
- Gangrene

Prognosis

Nearly all people affected by ischemic colitis improve and recover over several weeks of treatment. The most common complication after surgical intervention is scarring, which can also be treated surgically to remove the scar tissue.

References

[Ischemic Bowel Disease](#) via mountsinai.org

[Epidemiology, Risk Factors, Patterns of Presentation, Diagnosis, and Management of Colon Ischemia \(CI\)](#) via gi.org

[Ischemic colitis: Clinical practice in diagnosis and treatment](#) via nih.gov

[Ulcerative Colitis - Symptoms](#) via webmd.com

[Ischaemic colitis](#) via radiopaedia.org

Legal Note: Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).

Notes