

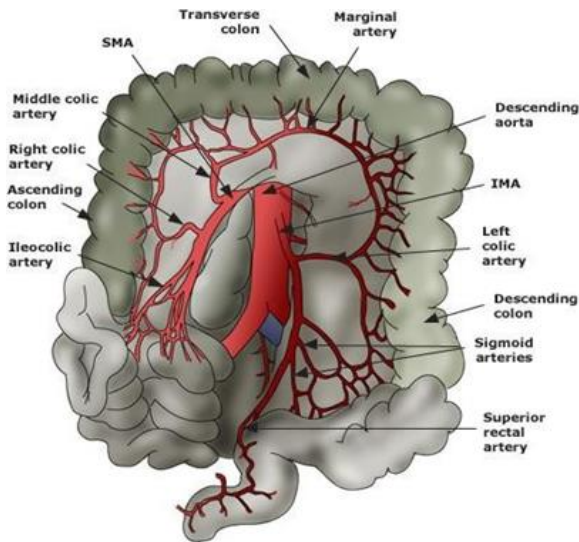


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## Ischemic Colitis



Ischemic colitis, although rare, is the most frequent form of mesenteric ischemia, affecting mostly the elderly. Ischemia is caused when the blood supply does not reach the tissue delivering the necessary oxygen. Without oxygen, cells begin to die which may cause tissue damage, tissue destruction, colon strictures or in extreme cases gangrene. The mesentery is a vital network of blood vessels that supply the colon with the necessary blood, oxygen and nutrients.

The mesentery is initially divided into four main channels that feed the different sections of the colon. Eventually the vessels are divided into hundreds of channels supporting the continually working small and large intestine. Ischemia can occur in any of

the branches of the mesentery. Despite the presence of so many vessels, the colon blood supply has two weak points. Narrow branches of the network supply the splenic flexure and the rectosigmoid junction. These two watershed areas are most vulnerable to ischemia. The larger the vessel that is blocked, the more tissue damage that will be caused.

### Causes

Blockages or poor blood flow can be caused by a variety of reasons. Often the reason for the event cannot be identified, especially because it most often occurs in debilitated patients with multiple health problems. Spontaneous spasm, and occlusion of the vessel or low blood flow can cause the ischemia. When this happens 75%-85% of patients are effected in the watershed areas described above. Usually the event is limited and the patient recovers on their own. Only a small portion of these patients develop long-term complications, which may include persistent colitis or inflammation in a portion of the colon and/or the development of a stricture. On the other hand, approximately 15% of patients with colonic ischemia develop gangrene, the consequences of which are life-threatening. Other possible causes of ischemic colitis may be:

**Surgery** — Clots may form during surgery that may block one or more of the blood vessel paths. Also, pressure from surgical instruments or clamps may cause loss of blood flow resulting in colon injury. In some cases low blood pressure caused by surgery or anesthesia may reduce blood flow enough to cause ischemia in the mesentery.

**Cardiopulmonary bypass** — Colonic ischemia after cardiopulmonary bypass occurs in less than 0.2% of patients (about 2 patients per 1000 cases) but is a lethal complication causing death in up to 85 % of the patients. Risk factors include older age, end-stage kidney disease, heart valve operation, emergent bypass surgery, and severe low blood flow from the heart and the use of the heart bypass pump.



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**Myocardial infarction (heart attack)**— Heart attacks can result in clot formation and low blood flow to the body.

**Hemodialysis** — Diabetics and others who use hemodialysis also have underlying atherosclerosis (narrowing and hardening of the blood vessels), and ongoing low blood pressure.

**Exercise and intestinal ischemia** — Extreme exercise (as occurs in marathon running or triathlon competition) has been associated with intestinal ischemia.

## Symptoms and diagnosis

Symptoms of patients with colonic ischemia vary depending upon the age, coexisting medical problems, and the extent and duration of the ischemia. Patients with colonic ischemia usually present with rapid onset of mild abdominal pain and tenderness over the affected bowel, most often involving the left side. Mild to moderate amounts of rectal bleeding or bloody diarrhea usually develops within 24 hours of the onset of abdominal pain.

The diagnosis is usually established based on the patient's symptoms, physical examination, and X-ray or colonoscopy.

## Treatment

Treatment of acute colonic ischemia depends upon its severity. Generally patients are supported with IV fluids to help blood flow to the affected part of the colon, a special diet to give the bowel an opportunity to rest and heal and often antibiotics are used in some cases. Any medications that can promote poor blood flow are temporarily discontinued. Heart function and oxygen supply to the body is monitored and supported when necessary.

In cases complicated by gangrene, emergency surgery and antibiotics are used; however, the prognosis is poor.

Most patients improve within one or two days, and have complete relief of symptoms with x-rays and other testing returning to normal within one to two weeks. More severe ischemia causes ulceration and inflammation, which may develop into segmental ulcerating colitis or strictures. These patients do require follow up visits and testing to ensure healing.

Recurrence is uncommon. If a cause can be identified the physician will take steps to prevent the cause and likely reduce the chance of the patient developing ischemic colon again. Patient with recurrence may require additional testing such as angiography to study the blood flow, or even surgery to remove the affected portion of the bowel.