

# Surgical Management of Ischemic Colitis

## Chirurginis išeminis koloito gydymas

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### Objectives and Discussion

Ischemic colitis is a disease with a wide range of clinical presentations, caused by various conditions that cause hypoperfusion and insufficient oxygen delivery to the colon. Mesenteric vessel occlusions due to thromboembolism, vasculitis, trauma or venous thrombosis are well-known causes. However, ischemia can also develop from hypoperfusion states without vascular occlusion, such as hypotension with shock or the administration of vasoconstrictive drugs. Although the disease mainly occurs in the elderly, especially in those with medical problems, such as cardiovascular disease or diabetes mellitus, younger individuals with collagen vascular disease or hematologic disorder may also contract ischemic colitis. Most of these co-morbidities are related to disorders of lipid metabolism and atherosclerosis, which might importantly contribute to the development of thromboembolism in the mesenteric artery and colon ischemia. Furthermore, vasoactive medications necessarily taken by patients could aggravate insufficient perfusion to the colon. However, younger patients can also contract ischemic colitis, especially those with a systemic autoimmune collagen vascular disease or a hematologic disorder.

The majority of patients present with a mild form of the disease, and conservative cares are sufficient to improve symptoms. Because the symptoms of ischemic colitis are various and vague, it is difficult to diagnose at an early stage, although abdominal pain associated

with hematochezia is known to provide a degree of suspicion of colon ischemia. At the initial presentation, most patients develop only mucosal ischemia and mild abdominal pain, however when the ischemic damage extends transmurally, severe parietal pain due to peritonitis can develop. Immediate operative treatment is required for those with severe disease presenting with acute peritonitis. Surgery is also necessary when conservative treatment fails to relieve symptoms or chronic stricture develops. It has been estimated that approximately 15–20% of patients are treated surgically, but clinical outcomes after surgery are unfavourable, and mortality has been reported in up to 60%. This high mortality level is caused by severe transmural colonic necrosis in addition to co-morbid medical problems. Furthermore, since most operations are performed in the emergent setting, the surgeon obviously contributes to outcomes, because the timing and safety of surgery depend on the surgeon's experience.

The most common ischemic site is considered to be the splenic flexure colon, which is also referred to as the "watershed area", because it is the region with collateral circulation insufficiency. However, many reports have revealed that colonic ischemia is not confined to the splenic flexure, and any other colonic area could be involved. Ischemic colon sites were also evenly distributed in this study. During surgery for ischemic colitis, all affected bowel should be resected and a stoma is usually constructed for fecal diversion. Primary anastomosis can

be performed in patients with simple segmental ischemia and a hemodynamically stable status. Identifying the accurate extent of ischemia during surgery might be difficult, because a grossly normal serosal appearance does not guarantee that mucosa is normal. Meticulous inspections of mucosa at the resected margin of remaining bowel should be performed and an intact mesenteric artery supply should also be confirmed. In case of uncertain vascularity, doppler ultrasound could be helpful. Thus, it is critical to better outcomes that the surgeon decides precisely on the extent of bowel resection and selection of stoma formation or primary anastomosis. The outcomes of the ischemic colitis surgeries remain unsatisfactory with mortality rates of 50-60%. Many studies have reported various factors associated with the poor outcome. These included absence of hematochezia, tachycardia, peritonitis as a clinical presentation, preoperative systemic hypotension, right colon involvement, splenic flexure colon involvement, vasculopathy, American Society of Anaesthetist (ASA) status > III, emergency surgery, and intraoperative blood loss.

## Results

We collected the clinical data of patients who underwent surgery for ischemic colitis in Seoul National University Hospital, and evaluated outcomes to identify the risk factors of postoperative morbidity and mortality. Forty-nine patients (M:F, 26:23, median, 63 years) underwent surgery for ischemic colitis over ten years. The causes of

ischemia were vascular occlusions in 35 (71.4%). Thirty seven (75.5%) patients had coexisting chronic medical problems. Emergency surgeries were performed on 40 (81.6%) patients. Ischemic regions were right colon in 20 (40.8%), left colon in 19 (38.8%), and whole colon in 9 (18.4%) patients. Resection with stoma formation was performed on 29 (59.2%) patients and primary anastomosis on 19 (38.8%) patients. Postoperative morbidity occurred in 42 (85.7%) and wound problem was the most common (n=16, 32.7%) cause. Postoperative mortality occurred in 22 (44.9%) and sepsis was the most common cause (n=17, 34.7%).

## Conclusions

Univariate analysis showed that abdominal pain with peritoneal irritation signs, systemic inflammatory response, severe systemic hypotension, cardiovascular disease, vasoactive drug, emergency operation, and stoma formation were unfavourably associated with morbidity and/or mortality. Preoperative severe systemic hypotension was the only significant risk factor of mortality in multivariate analysis.

The rate of morbidity and mortality after surgical treatment for ischemic colitis is high due to postoperative sepsis and preoperative condition is important to postoperative outcomes. Early decision for surgical treatment is mandatory before the disease progresses, and meticulous surgical procedure by an experienced surgeon could be helpful for better outcomes.

## REFERENCES

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