

Ischaemic colitis caused by polyethylene glycol with ascorbic acid bowel preparation agent

Soo In Choi, Jeongmin Choi 

Department of Internal Medicine, Inje University Sanggye Paik Hospital, Seoul, The Republic of Korea

Correspondence to
Dr Jeongmin Choi;
doct00@hanmail.net

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DESCRIPTION

Various bowel preparation agents have been developed for effective and safe bowel cleansing before colonoscopy. Polyethylene glycol (PEG) is widely used in the elderly. A 2L PEG solution with ascorbic acid (PEG-Asc) was developed to reduce the volume of standard 4L PEG.

Several cases of ischaemic colitis caused by stimulant laxatives or hyperosmolar bowel preparation agents have been reported.¹⁻⁵ However, PEG-Asc-induced ischaemic colitis has rarely been reported. Here, we report a rare case of ischaemic colitis after administration of PEG-Asc.

A 78-year-old woman with hypertension and diabetes was admitted for colonoscopic polypectomy. Two hours after the administration of 1L of PEG-Asc (PEG 3350 200g, ascorbic acid plus sodium ascorbate 21g, Coolprep, Taejoon Pharm., Korea), she complained of cramping pain in the lower abdomen and maroon-coloured haematochezia mixed with lavage fluid. Her vital signs were stable and her abdomen was soft and palpated with moderate tenderness. Laboratory data showed a haemoglobin level of 128g/L, white blood cell count of $15.4 \times 10^9/L$, and C reactive protein level of 3.61 mg/dL. Other laboratory data were normal. Abdominal CT revealed severe wall thickening in the sigmoid colon (figure 1A). The next morning, the colonoscopy identified severe mucosal oedema and diffuse haematomas in the sigmoid colon, indicating ischaemic colitis (figure 1B). The rectal mucosa was normal (figure 1C). Colonoscopy did not reach the descending colon due to oedema of the colon wall. Pathologic examination confirmed ischaemic colitis.

As the patient had no signs of bowel necrosis or perforation, she was managed conservatively using intravenous fluids, fasting and empirical antibiotics. She gradually recovered and was discharged on the seventh hospital day without complications.

Two months after discharge, a follow-up colonoscopy was planned for colon polypectomy. The patient and her family were concerned about recurrent ischaemic colitis after bowel preparation. At this time, a small amount of PEG-Asc (500 mL) was administered to the patient. Diet restrictions that allow only a liquid diet and oral hydration were recommended. Intravenous fluid was administered to prevent fluid loss. Colonoscopy revealed a completely normal colonic mucosa in the sigmoid colon (figure 1D). The bowel preparation was good and the patient successfully underwent colon polypectomy for 2 cm-sized polyps in the ascending colon.

To date, only two cases of ischaemic colitis induced by PEG-based bowel laxatives have been reported.^{6,7}

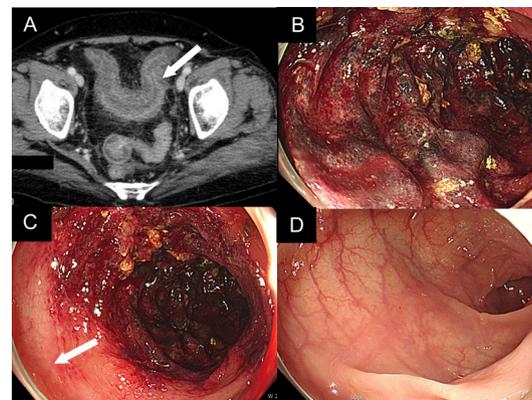


Figure 1 Ischaemic colitis caused by PEG-Asc bowel preparation agent. (A) Abdominal CT revealed severe wall thickening in the sigmoid colon (arrow). (B) Colonoscopy identified severe mucosal oedema and diffuse haematomas in the sigmoid colon. (C) Colonoscopy showed normal rectal mucosa (arrow). Colonoscopy identified the involved sigmoid colon and the uninvolved rectum, which is a typical endoscopic feature of ischaemic colitis. (D) A follow-up colonoscopy after 2 months revealed a completely normal colonic mucosa in the sigmoid colon. PEG-Asc, PEG solution with ascorbic acid.

A 70-year-old man with chronic constipation experienced ischaemic colitis after receiving 4L of PEG solution before colonoscopy.⁶ An 82-year-old woman with faecal obstruction experienced nearly lethal mesenteric ischaemia after taking 1L of PEG-Asc.⁷ We consider that the latter case is acute mesenteric ischaemia secondary to faecal mechanical obstruction exacerbated by colonic laxatives, rather than the diagnosis of ischaemic colitis.

The mechanism of PEG-induced ischaemic colitis is unclear or idiosyncratic. One explanation is that PEG

Learning points

- ▶ Although PEG solution with ascorbic acid (PEG-Asc) bowel preparations are widely used and known to be relatively safe, in rare cases, patients may develop ischaemic colitis.
- ▶ Clinicians should be aware of the possibility of ischaemic colitis in at-risk patients and take a preventive approach during the next colonoscopy.
- ▶ Intravenous fluids hydration and reducing the dose of the preparation may help prevent recurrent ischaemic colitis.



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can cause dehydration due to fluid loss, leading to hypoperfusion of the colonic vasculature. In the case of non-obstructive mesenteric ischaemia induced by PEG-Asc,⁷ dehydration may aggravate this complication. It is necessary to instruct the patient to adequately hydrate during bowel preparation.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

ORCID iD

Jeongmin Choi <http://orcid.org/0000-0001-6976-9887>

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