Chronic intestinal pseudo-obstruction ที่เกิดจาก cytomegalovirus ในผู้ป่วยที่มีภูมิคุ้มกันปกติ

ปิยนันท์ ชนไมตรี[1] อัศวิน สุดเจริญ[1] ปิยกรณ์ พูลแย้ม[1] ณัฐวุฒิ เหล่าอาภาสุวงศ์[1] วรรณพร บุรีวงษ์[2] เทอดเกียรติ ตรงวงศา[3] มนัสนันท์ รวีสุนทรเกียรติ[3]

[1]ภาควิชาอายุรศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

[2]ภาควิชารังสีวิทยา คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

[3]ภาควิชาพยาธิวิทยา คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ

Received: August 20, 2025
Revised: December 10, 2025
Accepted: December 12, 2025

บทคัดย่อ

Chronic intestinal pseudo-obstruction (CIPO) เป็นอาการแสดงที่พบไม่บ่อยในผู้ป่วยที่มีลำไส้อักเสบจาก Cytomegalovirus (CMV) เรานำเสนอกรณีศึกษาที่พบ CIPO ซึ่งเกิดจาก CMV ในผู้ป่วยที่มีภูมิคุ้มกันปกติ หญิงอายุ 45 ปีมาพบแพทย์ด้วยอาการท้องผูกเรื้อรังและท้องอืด ภาพถ่ายเอกซเรย์ช่องท้องพบการขยายตัวของลำไส้ใหญ่ ในขณะที่ภาพเอกซเรย์คอมพิวเตอร์พบผนังลำไส้ใหญ่ที่มีการหนาตัวแบบรอบด้านบริเวณ hepatic flexure และ transverse colon มีการขยายตัวอย่างมาก การส่องกล้องลำไส้ใหญ่พบแผลลึกที่บริเวณ hepatic flexure และ transverse colon ผลทางพยาธิวิทยายืนยันการย้อมสีภูมิคุ้มกันเชิงบวกสำหรับ CMV ผู้ป่วยมีอาการดีขึ้นหลังการรักษาด้วยยา Ganciclovir และ Prucalopride ควรตรวจหาสาเหตุทุติยภูมิ เช่น การติดเชื้อ CMV ในกรณีที่พบ CIPO การเคลื่อนไหวผิดปกติของลำไส้จากการติดเชื้อ CMV อาจเป็นพยาธิสรีรวิทยาที่สำคัญของการเกิดภาวะนี้

คำสำคัญ: ไซโตเมกาโรไวรัส; แผลในลำไส้ใหญ่; ภาวะลำไส้อุดตันเทียมเรื้อรัง

ผู้นิพนธ์ประสานงาน:
ปิยนันท์ ชนไมตรี
ภาควิชาอายุรศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ
62 หมู่ 7 ถนนรังสิต-นครนายก ตำบลองครักษ์ อำเภอองครักษ์ จังหวัดนครนายก 26120
อีเมล: piyanant_n@yahoo.co.th

Cytomegalovirus-induced chronic intestinal pseudo-obstruction in an immunocompetent host

Piyanant Chonmaitree[1], Asawin Soodcharoen[1], Piyakorn Poonyam[1], Nutthawut Laoarphasuwong[1], Wanaporn Burivong[2], Therdkiat Trongwongsa[3], Manasanan Raveesunthornkiet[3]

[1]Department of Internal Medicine, Faculty of Medicine, Srinakharinwirot University

[2]Department of Radiology, Faculty of Medicine, Srinakharinwirot University

[3]Department of Pathology, Faculty of Medicine, Srinakharinwirot University

Abstract

Chronic intestinal pseudo-obstruction (CIPO) is an uncommon presentation of cytomegalovirus (CMV) colitis. We present a case with CIPO caused by CMV in an immunocompetent host. A 45-year-old woman presented with chronic constipation and abdominal distension. A plain abdominal X-ray showed colonic dilatation, while a CT scan demonstrated circumferential wall thickening at the hepatic flexure of the colon and marked dilatation of the transverse colon. Colonoscopy revealed circumferential ulcers at the hepatic flexure and transverse colon, with pathology confirming positive immunostaining for CMV. The patient showed clinical improvement after treatment with ganciclovir and prucalopride. Secondary causes, including CMV infection, should be investigated in cases of CIPO. Dysmotility caused by CMV may represent the essential pathophysiology.

Keywords: Cytomegalovirus; Colonic ulcers; Chronic intestinal pseudo-obstruction

Corresponding Author:

Piyanant Chonmaitree

Department of Internal Medicine, Faculty of Medicine, Srinakharinwirot University

62 Village No.7, Rangsit-Nakhon Nayok Road, Ongkharak District, Nakhon Nayok 26120, Thailand

E-mail: piyanant_n@yahoo.co.th

Introduction

Cytomegalovirus (CMV), a member of the Herpesviridae family, is more commonly found in immunocompromised hosts than in immunocompetent hosts. In immunocompetent individuals, risk factors for CMV include advanced age, steroid usage, and severe concomitant diseases[1,2]. CMV has been consistently reported as an etiologic agent of Chronic intestinal pseudo-obstruction (CIPO) in both pediatric and adult patients. Histological analysis in these cases frequently reveals abnormalities, damage, or ganglionitis within the myenteric plexus, establishing the neuropathic basis of the motility disorder[3,4,8]. We present a case of CMV colitis in an immunocompetent host without typical risk factors, who presented with CIPO.

Case report

A 45-year-old woman presented with a two-month history of constipation and right upper quadrant pain. Written informed consent for publication was obtained from the patient on 8 October 2024, and all identifying information was anonymized to protect patient confidentiality. She had experienced abdominal distension for one month and had a weight loss of 6 kg over the past two months. Her medical history was unremarkable, with no history of drug use, alcohol consumption, substance abuse, or smoking, and no family history of gastrointestinal disease. Physical examination revealed a mildly pale conjunctiva and a distended abdomen with normal bowel sounds. A plain abdominal X-ray demonstrated colonic dilatation and a large amount of fecal content. Computed tomography (CT) revealed circumferential wall thickening at the hepatic flexure of the colon, focal eccentric mucosal thickening, and marked dilatation of the transverse colon containing fecal impaction, associated with diffuse peritoneal fat stranding. Additionally, a large amount of feces was noted along the descending and sigmoid colon. Colonoscopy showed circumferential ulcers at the hepatic flexure and multiple deep ulcers surrounded by nodular lesions in the transverse colon. Pathology revealed chronic ulceration with moderate activity and positive immunostaining for cytomegalovirus (CMV).

The patient was treated with intravenous ganciclovir for 21 days and prucalopride. Repeat colonoscopies performed at 1, 2, and 6 months demonstrated complete healing of the ulcers at 6 months. A follow-up plain abdominal X-ray at 6 months showed no colonic dilatation.

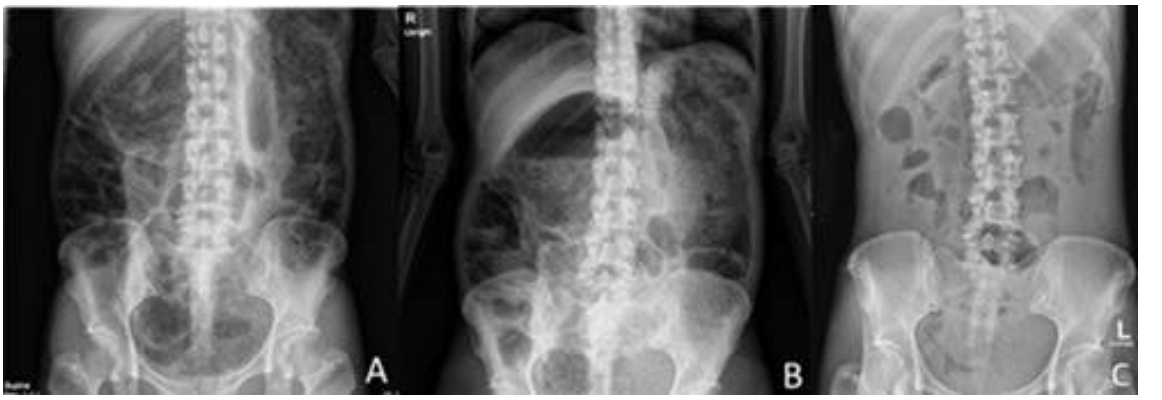

Figure 1 Plain abdomen at presentation supine (A) and upright (B) colonic dilatation with large fecal content and 6 months after treatment (C) no colonic dilatation.

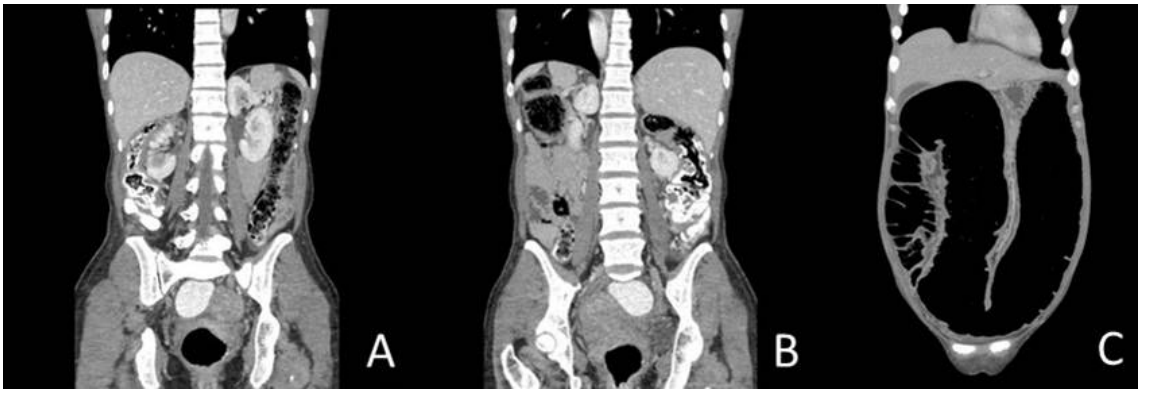

Figure 2 Computed tomography (CT) coronal view (A-C) circumferential wall thickening at the hepatic flexure of the colon and marked dilatation of the transverse colon distal to the lesion.

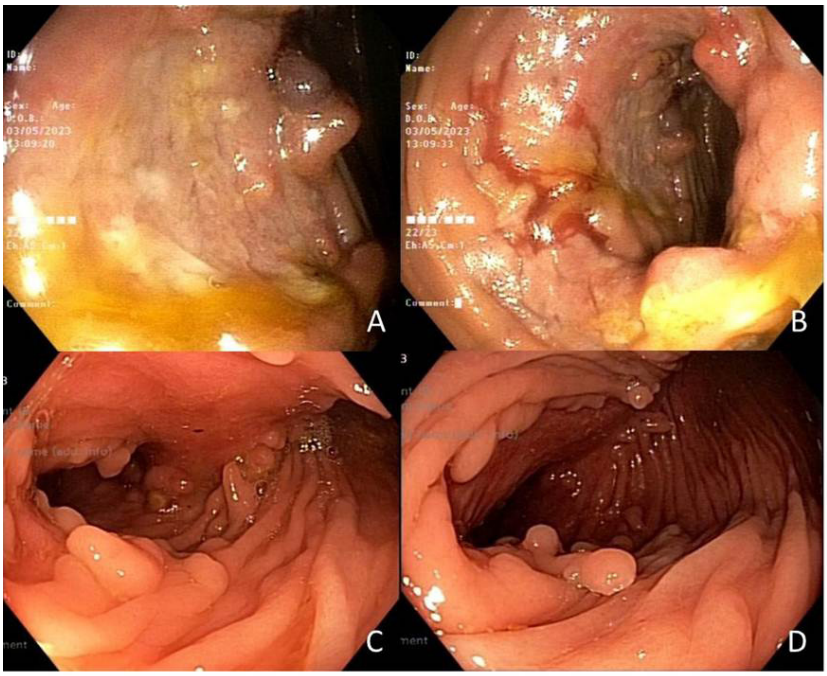

Figure 3 Endoscopic findings at presentation (A-B) circumferential ulcers at hepatic flexure and transverse colon and after treatment 6 months (C-D) healed ulcers with pseudopolyps.

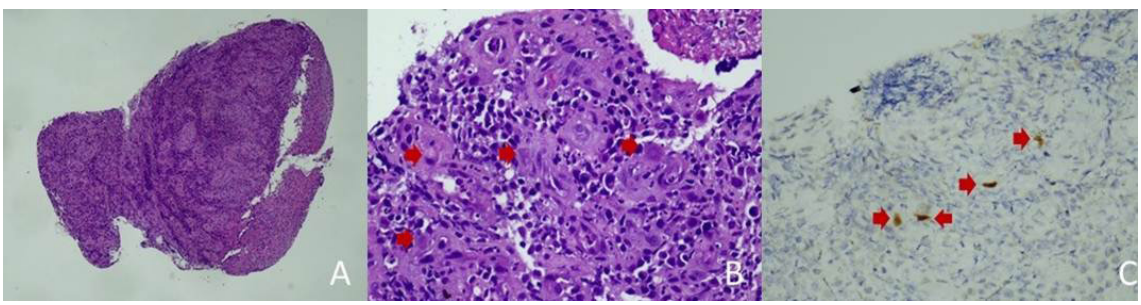

Figure 4 Pathology chronic ulceration with moderate activity (A-B) and positive immunostaining for cytomegalovirus (C).

Discussion

Chronic intestinal pseudo-obstruction (CIPO) is a rare disorder characterized by a dysfunction in the intestinal propulsion mechanism. This dysfunction leads to obstructive symptoms and radiologic evidence of intestinal dilation without any physical blockage. Various conditions, including viral infections, have been linked to CIPO. Patients with CIPO associated with CMV, Varicella-Zoster virus, Epstein-Barr virus, and JC virus have been reported[3,4].

CMV infection in immunocompetent individuals is rare, but more commonly seen in elderly patients with comorbidities[1]. The colon is a frequent site of CMV involvement[5]. The endoscopic presentation of CMV colitis features a variety of ulcer types, predominantly well-defined and punched-out. Other ulcer types observed may include geographic and longitudinal ulcers. Additionally, findings may encompass a cobblestone appearance, inflamed mucosal surfaces, pseudotumor formations, mucopurulent exudate, spontaneous bleeding, or areas of normal mucosa[1,6,7].

CMV can affect various cell types within the gastrointestinal tract, including the vascular endothelium and stromal fibroblasts. In patients with CMV-associated CIPO, viral inclusions have been observed in the myenteric plexus and submucosal ganglia, potentially disrupting the colon's autonomic innervation[8]. CMV has been linked to other motility disorders. Segmental colonic hypoganglionosis associated with CMV colitis has been reported in immunocompetent hosts[9]. CMV DNA has been detected in the small bowel of a patient with visceral neuropathy, and cases have been reported in patients with Ogilvie's syndrome[10,11]. Additionally, CMV has been identified as the cause of strictures leading to acute colonic obstruction and toxic megacolon[12,15]. CMV-induced CIPO can arise from both primary CMV infection and the reactivation of latent virus, particularly in immunocompromised individuals. The pathophysiology is driven by a two-pronged mechanism involving direct viral cytopathic effects and the host's immune response, leading to progressive damage to the enteric nervous system (ENS). Direct viral effect on glial cells and enteric neurons in the myenteric plexus, leading to cell lysis and destruction of ganglia. Immune response resulting in myenteric ganglionitis and vasculitis. In our patient we observed transverse colon dilatation distal to the colonic ulcer at the hepatic flexure, suggesting that CMV-induced bowel dysmotility may be a contributing factor. The standard, first-line antiviral treatment for CMV colonic ulcer involves either Ganciclovir or Valganciclovir. The usual duration of therapy is two to three weeks. Foscarnet is the primary alternative agent and is reserved for patients who experience intolerance to Ganciclovir/Valganciclovir or for cases of documented drug resistance. Approximately 50% of patients achieve healing six weeks after antiviral treatment, with about 90% showing complete healing by 12 weeks[1]. The patient received a standard three-week course of Ganciclovir. Follow-up evaluation performed

one month post-treatment demonstrated histologic clearance of CMV, confirming virologic control. Although the infection was eradicated, the colonic ulcers and associated intestinal dilatation only fully resolved by eight weeks following the start of therapy. This delayed clinical recovery is significant. If the CIPO were solely due to direct viral cytopathic effect, prompt resolution would be expected immediately following the elimination of the lytic virus. The observed lag suggests the primary pathology was an immune-mediated enteric neuropathy. This supports the hypothesis that the CIPO was sustained by a robust, persistent host inflammatory response, which continued to cause dysfunction until the inflammation subsided, long after the CMV antigenic drive was eliminated by the antiviral treatment.

Prucalopride, a selective 5-HT4 receptor agonist known to enhance colonic motility and typically indicated for chronic constipation, was initiated based on a previous randomized controlled trial supporting its use in CIPO[16]. However, the patient's symptoms did not improve with this treatment, and the medication was discontinued following the colonoscopy.

Conclusion

In patients with CIPO, secondary causes, including CMV infection, should be investigated, even in immunocompetent hosts. CMV-induced dysmotility may be the underlying pathophysiology.

References

1. Chaemsupaphan T, Limsrivilai J, Thongdee C, et al. Patient characteristics, clinical manifestations, prognosis, and factors associated with gastrointestinal cytomegalovirus infection in immunocompetent patients. BMC Gastroenterol 2020;20(1):22. doi:10.1186/s12876-020-1174-y.
2. Ko JH, Peck KR, Lee WJ, et al. Clinical presentation and risk factors for cytomegalovirus colitis in immunocompetent adult patients. Clin Infect Dis 2015;60(6):e20-6. doi:10.1093/cid/ciu969.
3. De Giorgio R, Ricciardiello L, Naponelli V, et al. Chronic intestinal pseudo-obstruction related to viral infections. Transplant Proc 2010;42(1):9-14. doi:10.1016/j.transproceed.2009.12.014.
4. Sinagra E, Pellegatta G, Maida M, et al. Could chronic idiopatic intestinal pseudo-obstruction be related to viral infections? J Clin Med 2021;10(2):268. doi:10.3390/jcm10020268.
5. Rafailidis PI, Mourtzoukou EG, Varbobitis IC, et al. Severe cytomegalovirus infection in apparently immunocompetent patients: A systematic review. Virol J 2008;5:47. doi:10.1186/1743-422X-5-47.
6. Suzuki H, Kato J, Kuriyama M, et al. Specific endoscopic features of ulcerative colitis complicated by cytomegalovirus infection. World J Gastroenterol 2010;16(10):1245-51. doi:10.3748/wjg.v16.i10.1245.

7. Hirayama Y, Ando T, Hirooka Y, et al. Characteristic endoscopic findings and risk factors for cytomegalovirus-associated colitis in patients with active ulcerative colitis. World J Gastrointest Endosc 2016; 8(6):301-9. doi:10.4253/wjge.v8.i6.301.
8. Sonsino E, Mouy R, Foucaud P, et al. Intestinal pseudoobstruction related to cytomegalovirus infection of myenteric plexus. N Engl J Med 1984;311(3):196-7. doi:10.1056/NEJM198407193110319.
9. Kim BS, Park SY, Kim DH, et al. Cytomegalovirus colitis induced segmental colonic hypoganglionosis in an immunocompetent patient: A case report. World J Clin Cases 2021;9(20):5631-6. doi:10.12998/wjcc.v9.i20.5631.
10. Debinski HS, Kamm MA, Talbot IC, et al. DNA viruses in the pathogenesis of sporadic chronic idiopathic intestinal pseudo-obstruction. Gut 1997;41(1):100-6. doi:10.1136/gut.41.1.100.
11. Ge J, Li Y, Shi D, et al. Cytomegalovirus colitis as intestinal obstruction in an immunocompetent adolescent: A case report and literature review. BMC Infect Dis 2024;24(1):365. doi:10.1136/gut.41.1.100.
12. Machens A, Bloechle C, Achilles EG, et al. Toxic megacolon caused by cytomegalovirus colitis in a multiply injured patient. J Trauma 1996;40(4):644-6. doi:10.1097/00005373-199604000-00023.
13. Orloff JJ, Saito R, Lasky S, et al. Toxic megacolon in cytomegalovirus colitis. Am J Gastroenterol 1989;84(7):794-7.
14. Lin YH, Yeh CJ, Chen YJ, et al. Recurrent cytomegalovirus colitis with megacolon in an immunocompetent elderly man. J Med Virol 2010;82(4):638-41. doi:10.1002/jmv.21712.
15. Dinesh BV, Selvaraju K, Kumar S, et al. Cytomegalovirus-induced colonic stricture presenting as acute intestinal obstruction in an immunocompetent adult. BMJ Case Rep 2013;2013. doi:10.1136/bcr-2013-200944.
16. Emmanuel AV, Kamm MA, Roy AJ, et al. Randomised clinical trial: The efficacy of prucalopride in patients with chronic intestinal pseudo-obstruction--a double-blind, placebo-controlled, cross-over, multiple n = 1 study. Aliment Pharmacol Ther 2012;35(1):48-55. doi:10.1111/j.1365-2036.2011.04907.x.