

- tumors (GEP-NETs): results from the National Cancer Registry of Spain (RGETNE). *Ann Oncol.* 2010;21:1794–803, <http://dx.doi.org/10.1093/annonc/mdq022>.
9. Koukouraki S, Strauss LG, Georgoulas V, et al. Evaluation of the pharmacokinetics of 68Ga-DOTATOC in patients with metastatic neuroendocrine tumours scheduled for 90Y-DOTATOC therapy. *Eur J Nucl Med Mol Imaging.* 2006;33:460–6, <http://dx.doi.org/10.1007/s00259-005-0006-1>.
  10. Chandrasekharan C. Medical management of gastroenteropancreatic neuroendocrine tumors. *Surg Oncol Clin N Am.* 2020;29:293–316, <http://dx.doi.org/10.1016/j.soc.2019.11.004>.
  11. Strosberg JR, Cheema A, Weber J, et al. Prognostic validity of a novel American Joint Committee on Cancer Staging Classification for pancreatic neuroendocrine tumors. *J Clin Oncol.* 2011;29:3044–9, <http://dx.doi.org/10.1200/JCO.2011.35.1817>.

D.A. Calle-Rodas<sup>a,\*</sup>, M.A. Corral-Cazorla<sup>b</sup>,  
P.D. Muñoz-Espinoza<sup>b</sup>, C.A. Machuca-Carpio<sup>c</sup>,  
J.D. Cordero-García<sup>d</sup>

<sup>a</sup> *Servicio de Gastroenterología y Endoscopia, Hospital del Río, Cuenca, Ecuador*

<sup>b</sup> *Facultad de Medicina, Universidad Católica de Cuenca, Cuenca, Ecuador*

<sup>c</sup> *Servicio de Cirugía Oncológica, Hospital del Río, Cuenca, Ecuador*

<sup>d</sup> *Servicio de Cirugía General y Coloproctología, Hospital del Río, Cuenca, Ecuador*

\* Corresponding author at: Servicio de Gastroenterología y Endoscopia, Hospital del Río, Cuenca 010109, Ecuador.  
E-mail address: [dr.danielcalleodas@gmail.com](mailto:dr.danielcalleodas@gmail.com) (D.A. Calle-Rodas).

2255-534X/ © 2025 Asociación Mexicana de Gastroenterología.  
Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Endoscopic treatment of baroliths: A case report



### Tratamiento endoscópico de bariolito: a propósito de un caso

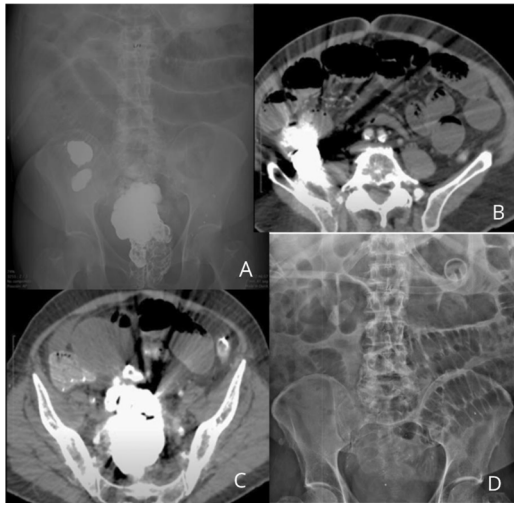
In the early 1900s, contrast media began to be utilized in radiologic studies to evaluate soft tissues. Bismuth, iron, lead, and strontium were media that were not adequately regulated and so were discontinued.<sup>1</sup> In 1902, Walter Cannon pioneered the use of barium as a contrast medium, after which it replaced bismuth, which was needed by the war industry.<sup>2</sup> Barium sulfate is the most widely utilized agent in radiologic studies of the digestive tract and has become an essential tool because it is exact, efficient, cost-effective, and very low-risk.<sup>1</sup> However, adverse reactions associated with its use have been described, most of which are self-limited, although there are reports of case fatalities.<sup>3</sup> Among the complications are anaphylaxis, at 1 in 2.5 million cases,<sup>3</sup> intoxication with neurologic symptoms,<sup>4</sup> granuloma (first described in 1954),<sup>5</sup> barium extravasation, venous intravasation, accidental aspiration, and barium impaction.<sup>1</sup> Therefore, in addition to barium contrast, water-soluble contrast may be used for radiologic visualization of the gastrointestinal tract. The water-soluble medium does not cover the mucosa, as barium does, but passively fills the intestinal lumen and is indicated when there is suspected perforation or communication with the peritoneal cavity. Nevertheless, certain small perforations can only be visualized with barium, depending on their location. Water-soluble contrast use is also suggested in postoperative patients, in whom the peristalsis produced by barium is to be avoided.<sup>6</sup> A barolith is defined as the concretion of barium sulfate and feces in the intestine after the performance of

a radiologic procedure with a barium contrast agent.<sup>7</sup> First described by Valladares in 1950,<sup>8</sup> there are only isolated cases appearing in the literature, along with one systematic review on articles describing a total of 31 cases published within the time frame of 1950 and 2006. Obstruction due to a barolith is reported as a late presentation, associated with a low-residue diet, dehydration, colonic dysmotility, fluid and electrolyte imbalance, diabetic enteropathy, and Parkinson's disease.<sup>8</sup> In 1978, the use of the water-soluble contrast medium, Gastrografin® (diatrizoate), was described as a therapeutic method. Four cases had successful results, given that the medium stimulates peristalsis and its high osmolarity dissolves the impaction, its transit is adequate, despite the presence of ileus, and it does not aggravate bowel obstruction. Nevertheless, no medical associations have made any recommendations, and there have been no subsequent studies.<sup>9</sup>

The symptoms associated with baroliths are abdominal pain, nausea, vomiting, constipation, obstruction, peritonitis due to barium, and intestinal perforation. The severe complications of megarectum and abdominal compartment syndrome may present. In 2019, Pathan et al. recommended that patients with risk factors for impaction, who underwent a barium study, have x-rays taken 2–3 days after the study and receive laxatives as a preventive measure.<sup>10</sup>

We present herein a case of complete bowel occlusion secondary to baroliths. The patient was initially treated conservatively, after which he underwent successful endoscopic disimpaction. This article aims to inform its readers about the potential complications associated with barium studies, which are infrequent and rarely described in the scientific literature.

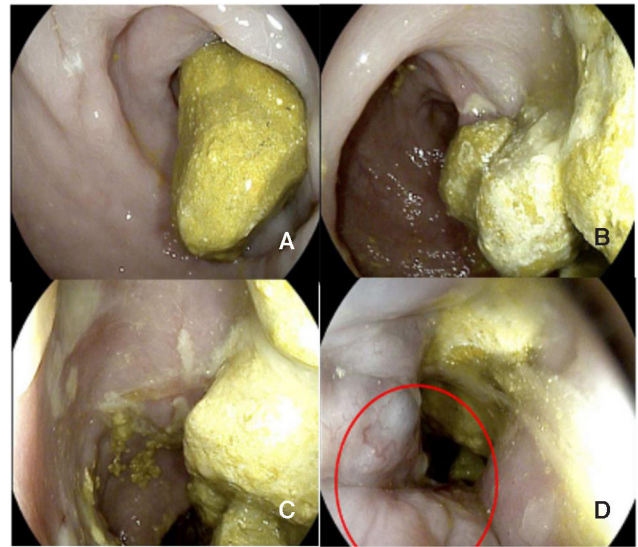
An 80-year-old man had a medical history of cognitive decline, under treatment with memantine, donepezil, and quetiapine; hyperuricemia; squamous cell cancer of the left



**Figure 1** Baroliths. (A) X-ray at admission showing contrast material in the ileocecal valve and rectum, along with dilation of small bowel segments and the gastric chamber. (B and C) Abdominal tomography scan showing baroliths in the ileocecal valve and rectum, with the characteristic artifact effect of barium contrast medium. (D) X-ray showing the absence of the baroliths in the colon.

lung, stage IIIa, undergoing treatment with 5 sessions of chemotherapy and 30 sessions of radiotherapy; and dysphagia associated with secondary mucositis, seen in a previous hospitalization by the otorhinolaryngology service, assessing swallowing dynamics that required the placement of a gastrostomy tube 6 days prior to his current illness.

He sought medical attention at the emergency service due to inability to eat, feculent vomiting, increased abdominal perimeter, generalized colicky abdominal pain, and failure to pass gas or defecate, 4 days earlier. He was admitted to the hospital for endovenous hydration. The general laboratory work-up showed azotemia and fluid and electrolyte imbalance. Plain abdominal x-ray in two positions identified dilation of small bowel segments and the gastric chamber secondary to impaction of contrast material in the ascending colon, sigmoid colon, and rectum (Fig. 1A). An abdominal computed tomography scan revealed lower intestinal occlusion, with no evidence of a transition zone, and the presence of baroliths in the ileocecal valve and rectum (Fig. 1B and C). Manual disimpaction and oil enemas were unsuccessful due to pain and lack of cooperation. Evaluation under sedation was programmed. Fragmentation was carried out using a 25 mm Dormia basket, with the area irrigated with 2 liters of saline solution via an infusion pump. The fragments were then extracted using the basket, and the remaining residue was digitally removed, achieving total disimpaction under direct vision with flexible colonoscopy. This procedure identified stercoraceous ulcers in the rectum (Fig. 2A–D). Osmotic laxatives were administered to mobilize the barium from the ileocecal valve and facilitate its spontaneous evacuation (Fig. 1D). The patient tolerated oral diet and was discharged to his home with no complications.



**Figure 2** Colonoscopy. (A, B, and C) Direct lavage and examination carried out up to 30 cm, showing hard feces in balls, mixed with contrast material. (D) Stercoraceous ulcers in the rectum, covered by fibrin, and an engorged hemorrhoidal bundle, are shown in the red circle.

## Ethical considerations

This scientific letter rigorously meets the ethical conditions required for bioethical research and has obtained the necessary authorization from the corresponding ethics committee. It should be noted that, to protect patient privacy, informed consent was not obtained, as no personally identifiable information was included in the article.

## Financial disclosure

No financial support was received in relation to this article.

## Declaration of competing interest

The authors declare that there is no conflict of interest.

## Referencias

1. Périard MA. Adverse effects and complications related to the use of barium sulphate contrast media for radiological examinations of the gastrointestinal tract. *Can J Med Radiat Technol.* 2003;34:3–9, [http://dx.doi.org/10.1016/S0820-5930\(09\)60005-0](http://dx.doi.org/10.1016/S0820-5930(09)60005-0).
2. Slastan M, Dobrota D. Barium retention following examination for pylorus stenosis. *Gastroenterol Res.* 2019;12:216–20, <http://dx.doi.org/10.14740/gr1191>.
3. Skucas J. Anaphylactoid reactions with gastrointestinal contrast media. *AJR Am J Roentgenol.* 1997;168:962–4, <http://dx.doi.org/10.2214/ajr.168.4.9124150>.

4. Savry C, Bouche O, Lefrant JY, et al. Intoxication par sulfate de baryum? Ann Fr Anesth Réanim. 1999;18:454–7, [http://dx.doi.org/10.1016/S0750-7658\(99\)80096-3](http://dx.doi.org/10.1016/S0750-7658(99)80096-3).
5. Mayorga M, Castro F, Fernández F, et al. Radiohistology and histochemistry of barium granuloma of the colon and rectum. Histol Histopathol. 1992;7:625–8.
6. Guglielmo DMC, Cejas N, Pérez A, et al. Obstrucción intestinal por bariolito. Arch Argent Pediatr. 2011;109:e52–4.
7. Kurer MA, Davey C, Chintapatla S. Intestinal obstruction from inspissated barium (Barolith): a systematic review of all cases from 1950 to 2006. Colorectal Dis. 2008;10:431–9, <http://dx.doi.org/10.1111/j.1463-1318.2008.01503.x>.
8. Zer M, Rubin M, Dintsman M. Dissolution of barium-impaction ileus by gastrografin. Dis Colon Rectum. 1978;21:430–4, <http://dx.doi.org/10.1007/BF02586721>.
9. Pathan S, Benzar T, Master S, et al. Iatrogenic constipation from barium blockade: a case report. Clin Case Rep. 2019;7:1562–4, <http://dx.doi.org/10.1002/ccr3.2280>.
10. Gore RM, Levine MS. Textbook of Gastrointestinal Radiology, 1, 4th ed. Philadelphia: Elsevier Saunders; 2016. p. 3–21.

N. Reyes Saavedra<sup>a,\*</sup>, C.I. Madinaveitia Sánchez<sup>a</sup>, P. Gálvez Castillejos<sup>b</sup>, L.F. De Giau Triulzi<sup>c</sup>

<sup>a</sup> Departamento de Gastroenterología, Hospital Español de México, Mexico City, Mexico

<sup>b</sup> Departamento de Gastroenterología y Motilidad, Hospital Español de México, Mexico City, Mexico

<sup>c</sup> Departamento de Gastroenterología y Endoscopia, Hospital Español de México, Mexico City, Mexico

\* Corresponding author at: Calle Lago Neuchatel 10D Col ampliación Granada Miguel Hidalgo 11529. Tel.: 7711854629. E-mail address: [nayeri.reyes7@gmail.com](mailto:nayeri.reyes7@gmail.com) (N. Reyes Saavedra).

2255-534X/ © 2025 Asociación Mexicana de Gastroenterología. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Epstein-Barr virus as a cause of rectal ulcers in an immunosuppressed patient: A case report



### Virus de Epstein-Barr como causa de úlceras rectales en paciente con inmunosupresión: reporte de caso

The Epstein-Barr virus (EBV) belongs to the herpes family and is also known as human herpesvirus 4. It is acquired in childhood and is generally asymptomatic but remains latent in 95% of adults. The spectrum of EBV infection is broad and ranges from local processes to lymphomas.<sup>1</sup> Mucocutaneous ulcers have been described since 2010 as a lymphoproliferative process in persons with latent EBV infection and immunosuppression. They are considered rare and can be located in the oral mucosa (up to 41%), the gastrointestinal mucosa, and the skin. Lesions are typically single, albeit approximately 16% may be multiple. These ulcers are generally self-limited, requiring no systemic treatment.<sup>2</sup> In 2017, the World Health Organization recognized them as a new clinical entity.<sup>3</sup> Since the initial description of mucocutaneous ulcers, fewer than 200 cases have been reported. We present herein the case of a 30-year-old man, who had a past medical history of mild *Clostridioides difficile* infection and risky sexual practices but no important history of chronic degenerative diseases. He sought medical attention at the emergency service for symptoms of diffuse, colicky abdominal pain, fever, inflammatory diarrhea, proctitis, straining, and rectal tenesmus of approximately one-week progression. Digital rectal exam revealed no alterations and the laboratory work-up on admission reported: hemoglobin 11.6 g/dL, platelets  $403 \times 10^3/\mu\text{L}$ , leukocytes

$9 \times 10^3/\mu\text{L}$ , absolute lymphocytes  $2.7 \times 10^3/\mu\text{L}$ , C-reactive protein 77.4 mg/L, and erythrocyte sedimentation rate 87 mm/h. A rapid HIV antibody test was ordered and was positive, the viral load remained pending due to external circumstances, and serologic tests for *Treponema pallidum*, viral panel (A, B, and C), and cytomegalovirus were negative. A contrast-enhanced magnetic resonance imaging scan identified thickening of the anal canal, and more importantly, of the rectum, with a craniocaudal length of 113 mm from the anorectal junction. The thickening was circumferentially asymmetric, predominantly in the submucosa, conditioning a more than 50% reduction of the lumen (Fig. 1A). After contrast medium application, intense, diffuse, and heterogeneous enhancement, as well as multiple lymphadenopathies, were revealed (Fig. 1B). Colonoscopy was performed, and at approximately 5 cm from the anal margin, described ulcers and pseudopolyps in the mucosa, along with abundant mucus (Fig. 2A). The colonoscope was able to pass through the reduced lumen (Fig. 2B), revealing inflammatory and edematous mucosa, with signs of bleeding and fibrinopurulent material (Fig. 2C), and multiple ulcers smaller than 5 mm with well-defined 3–5 mm edges (Fig. 2D). Biopsy samples of the abovementioned tissues were taken. The histopathologic study found extensive, ulcerated, acute and chronic inflammation in the rectal mucosa, along with regenerative epithelial changes (Fig. 3A and B), positive CD20 (Fig. 3C), CD3 (Fig. 3D) and CD138 (Fig. 3E), and positive Kappa (Fig. 3F) and Lambda (Fig. 3G). Ki-67 (10–15%) was negative for dysplasia and neoplasia (Fig. 3H) and *in situ* hybridization (Epstein-Barr virus-encoded RNA [EBER]) was positive (Fig. 3I). Given those findings, serum EBV quantitative DNA viral load test was ordered, resulting in 25,572 copies/mL, log value of 4.41 log cp/mL. The patient received treatment with valganciclovir, and the start of antiretroviral treatment is pending.