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CASE REPORT | COLON

Proctocolitis From Coffee Enema

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ABSTRACT

Coffee enemas are often used by naturopathic practitioners to treat a number of diseases, including cancer. However, there is no supportive evidence, and its use comes with major risks. We report a case of proctocolitis in a healthy patient after coffee enema treatment. To our knowledge, only 3 other cases of this adverse effect exist in the literature.

INTRODUCTION

Proponents of coffee enemas advocate for its use in treating various medical diseases and believe that it is capable of curing advanced cancer via enzyme activation and toxin excretion.[1] However, there has been no science-based evidence to verify these claims, and its use is associated with harmful effects, such as electrolyte imbalance and sepsis.[2,3] We report a case of coffee enema-induced proctocolitis.

CASE REPORT

A 40-year-old white woman presented with acute onset of lower abdominal pain, hematochezia, and tenesmus. She denied recent travel history, illnesses, or contact with any sick people. She had a history of mixed-type irritable bowel syndrome and biliary colic but had never experienced rectal bleeding or hematochezia. Although her family's medical history included a brother who has ulcerative colitis and her aunts who suffer from Crohn's disease, the patient denied any previous diagnosis of inflammatory bowel disease (IBD).

On physical examination, the patient was exquisitely tender to palpation in her lower abdomen, particularly in the suprapubic region. Computed tomography scan showed severe proctocolitis from the distal descending colon to the rectum, her white blood cell count was 21.8×10^9 cells/L with a neutrophilic predominance, the C-reactive protein was 23 mg/L, and fecal leukocyte antigen was positive. However, *Clostridioides difficile*, Shiga toxin, stool culture, lipase, and liver function tests were unremarkable. On day 2, the patient revealed using approximately 500 mL of room temperature coffee enema several hours before the onset of her symptoms. She used 4 feminine douching bottles to squeeze the black coffee, which she purchased at a fast-food establishment, into her rectum. She reported that the coffee "never came back out." The patient received instructions to do so from her naturopathic doctor to clear her gallstones. She completed a rehabilitation program for narcotic addiction and reported a preference for enema over pharmacologic agents to maintain her health in a natural way.

Flexible sigmoidoscopy performed on day 3 displayed severe inflammation up to 60 cm depth of insertion (Figure 1). A biopsy revealed necrotic mucosa and purulent exudate, but no crypt abscesses (Figure 2). Repeat *C. difficile* laboratory tests were negative, and she was then started on 60 mg methylprednisolone and 40 mg dicyclomine administered 4 times daily. By day 6, she could tolerate oral intake but complained of continued pain, which was relieved by dicyclomine. Repeat flexible sigmoidoscopy up to 30 cm depth on day 10 demonstrated improved severity of proctocolitis (Figure 3). Exploration farther than 30 cm was not sought because mucosa began to appear normal at that point. Biopsy showed ulceration and granulation tissue of the rectum, but no pathologic changes of the sigmoid colon (Figure 4). She was discharged on day 13 on a prednisone taper after demonstrating improved

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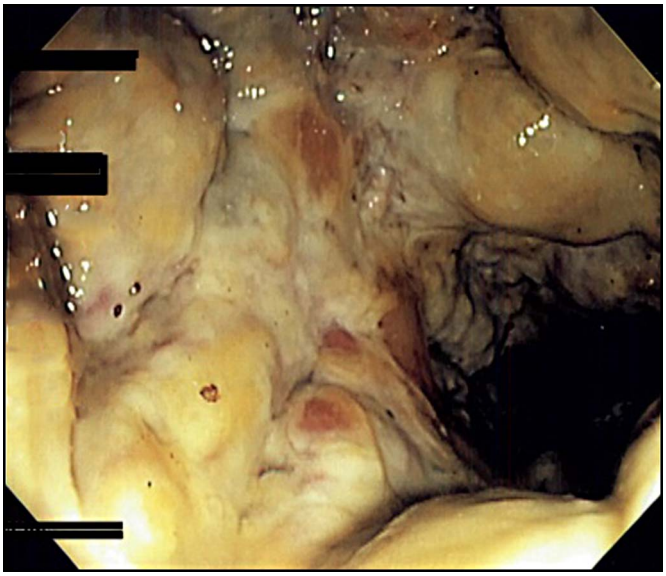

Figure 1. Flexible sigmoidoscopy on day 3 showing severe rectal inflammation.

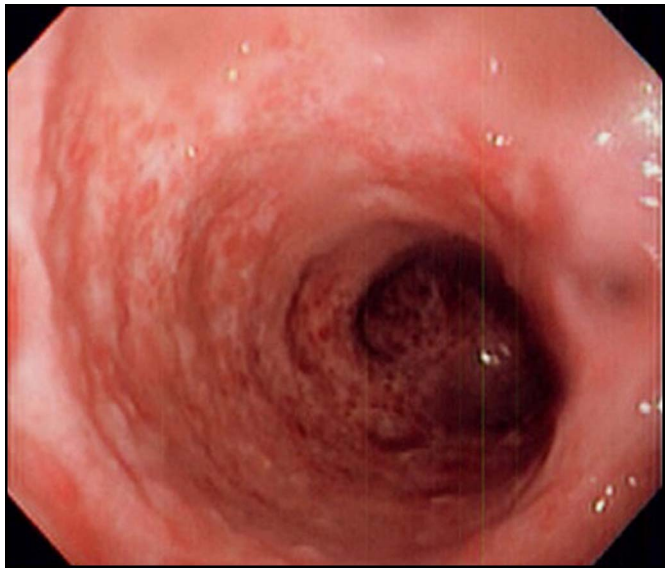

Figure 3. Flexible sigmoidoscopy on day 10 showing inflamed rectal mucosa improved from previous examination.

abdominal pain and resolution of rectal bleeding, the ability to tolerate oral intake, and a decreased white blood cell count of 13.8×10^9 cells/L. The patient was scheduled for a post-discharge colonoscopy but did not arrive for her appointment and could not be reached to arrange for a follow-up.

DISCUSSION

Although scarce, references to coffee enemas in the literature provide evidence contradicting proponents' claims of its benefit. Supporters propose that the coffee activates antioxidant-like properties via glutathione S-transferase, and rectal administration of it is claimed to dilate bile ducts and excrete toxin-laden bile.[4] However, coffee enemas are not correlated with changes in serum levels of glutathione.[5] In addition, coffee administered through enema leads to lower serum concentrations when compared with its oral counterpart.[6] In a clinical trial that used coffee enemas and other alternative therapies for pancreatic cancer, patients who received chemotherapy survived 3 times longer than those on the more natural regimen.[7] Nonetheless, it continues to be promoted to patients by a variety of naturopathic practitioners and websites.[8]

Adverse effects have been reported with coffee enema use. One patient with a history of advanced breast cancer developed sepsis; 2 other patients acquired severe electrolyte abnormalities.[2,3] All 3 cases resulted in death.[2,3] Thermal burns from

Figure 2. Hematoxylin & eosin stain on day 3 showing necrotic mucosa with acute inflammation and purulent exudate.

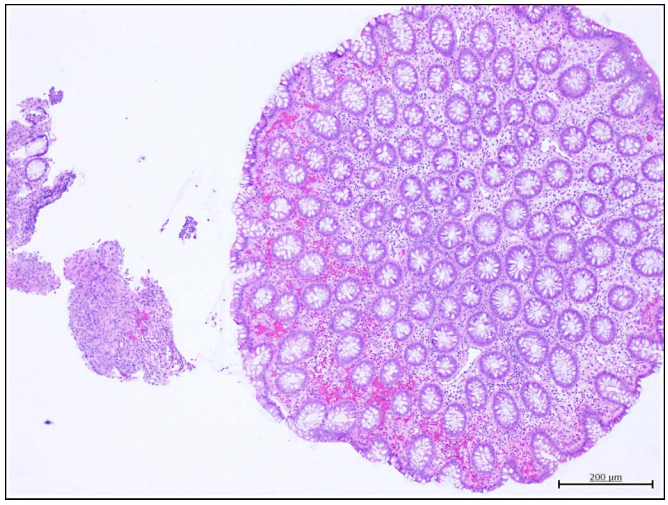

Figure 4. Hematoxylin & eosin stain on day 10 showing healed mucosa with granulation tissue.

heated coffee enemas have also been reported, resulting in strictures and a subsequent bowel perforation.[9,10,11] Three cases of coffee enema-induced proctocolitis exist in the literature.[12–14] Our patient presented similarly to these 3 patients; however, our patient's imaging displayed more extensive damage from the anus up to the descending colon. We believe this finding may be from her use of feminine douching bottles providing additional pressure to reach the colon and from her report of coffee retention.

We propose that the mechanisms by which the coffee enema may have induced mucosal damage include ischemia and inflammation. The first biopsy suggested ischemic colitis. Given the distribution of the injury, we believe that damage occurred through local rather than systemic mechanisms. Recent studies of consumed caffeine demonstrated the impaired endothelial function of capillaries and arterioles via endothelium-derived hyperpolarizing factor-mediated vasoactive pathways.[15] We hypothesize that additional vasoconstriction through caffeine's antagonism of adenosine receptors, inhibition of phosphodiesterase enzymes, and other molecular effects on endothelial and vascular smooth muscle cells may have contributed to a local ischemic event.[16] We wondered whether the patient's strong family history of IBD predisposed her to inflammatory damage via caffeine's antagonism of adenosine receptor A_{2A}, a receptor shown to prevent mucosal inflammation in an animal model of IBD.[17] To our knowledge, there are no studies that assess the direct effect of caffeine absorption through colonic mucosa. Our patient denied using heated coffee that would have caused thermal damage.

The patient reported significant relief with dicyclomine, which may be a feasible option for pain control in future similar cases. It is unclear at this time whether recovery is a self-limited process or whether treatment with medication, such as steroids, is required. During recovery, our patient expressed plans to follow up with the same naturopathic physician and blamed herself for using too much coffee. She could not be persuaded that the enemas posed more risk than benefit. A 2015 survey in the United States revealed declining confidence in the medical system.[18] It is imperative we work to develop trusting relationships with patients so that they accept our evidence-based practice.[19]

DISCLOSURES

Author contributions: A. Lee, S. Kabashneh and CP Tsouvalas wrote and edited the manuscript. U. Rahim and MY Khan provided images and edited the manuscript. M. Anees reviewed the manuscript. D. Levine edited the manuscript and is the article guarantor.

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Informed consent was obtained for this case report.

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