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McKittrick-Wheelock syndrome: A rare cause of chronic diarrhea treated with endoscopic polypectomy

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Abstract

Chronic diarrhea is a commonly encountered complaint and a principal cause of health care utilization worldwide. Although there are various etiologies of chronic diarrhea, McKittrick-Wheelock syndrome is a rare syndrome defined as a large villous adenoma with secretory diarrhea causing severe fluid imbalances. We report a case of a patient with McKittrick-Wheelock syndrome who was successfully treated with endoscopic resection. Our case aims to add information to the current literature supporting the endoscopic management of McKittrick-Wheelock syndrome.

Keywords

McKittrick, Wheelock, polyp, diarrhea, polypectomy

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Introduction

Chronic diarrhea is a common complaint that can be debilitating for patients and a diagnostic challenge for clinicians. The differential diagnoses for chronic diarrhea are exceptionally broad with irritable bowel syndrome (IBS) being one of the most common causes in the United States.[1] One of the rarer causes of chronic diarrhea is McKittrick-Wheelock syndrome (MWS), described as the presence of a large villous adenoma that causes severe secretory diarrhea. This type of diarrhea can cause significant fluid imbalances that can lead to cardiac, renal, and neurologic manifestations and can be fatal without treatment. We present a case of a patient with chronic diarrhea who was diagnosed with MWS and was successfully treated with endoscopic resection.

Case report

A 37-year-old woman with no significant past medical history presented to the gastroenterology clinic for evaluation of hematochezia and chronic diarrhea. She reported intermittent small-volume hematochezia twice a week for the last 2 years, which was attributed to hemorrhoids. She endorsed taking fiber supplements, which did not alleviate her symptoms. She also reported chronic diarrhea for the last 4 months and characterized the stool as watery, occurring up to five times a day, and associated with left lower quadrant abdominal pain which was relieved with bowel movements. She also endorsed nocturnal diarrhea twice a week and reported no dietary association with her symptoms. She denied drinking alcohol, tobacco, or drug use and denied a family history of gastrointestinal disorders including inflammatory bowel disease or colorectal cancer. Her vitals and physical examination were unremarkable. Her laboratory workup including complete blood count, complete metabolic panel, and stool infectious workup was unremarkable.

The differential diagnosis of her diarrhea was broad; therefore, an esophagogastroduodenoscopy (EGD) and colonoscopy were pursued. The EGD was unremarkable. The colonoscopy revealed a 5-cm pedunculated polyp with villous features (Figure 1) in the descending colon and another 1.5-cm pedunculated polyp in the sigmoid colon. Both polyps were excised, and pathology revealed tubulovillous

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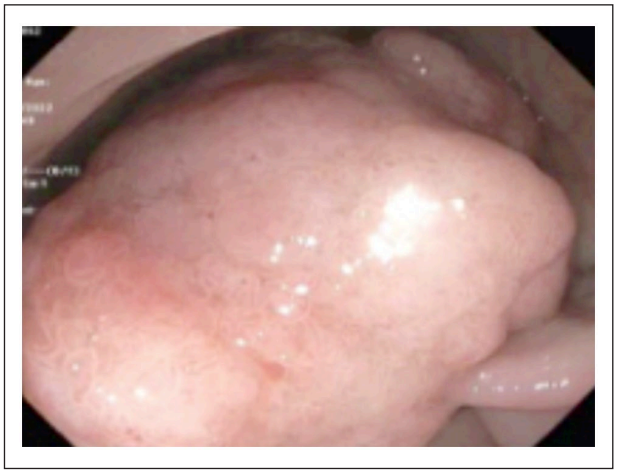

Figure 1. Colonoscopy image showing a 5-cm pedunculated polyp with villous features in the descending colon.

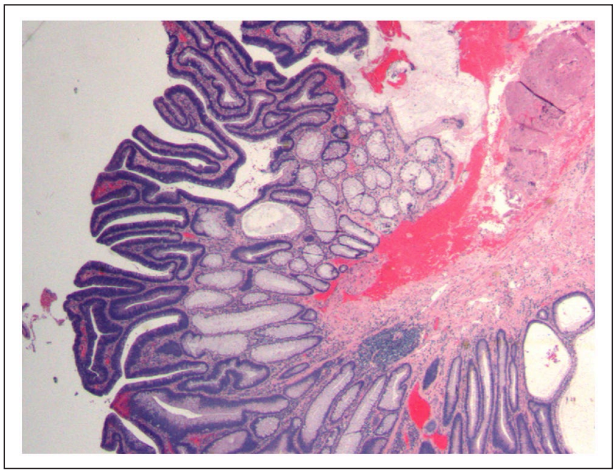

Figure 2. Hematoxylin and eosin stain showing villoglandular adenomatous polyp.

adenomas with negative celiac biopsies (Figure 2). The colonic mucosa showed no evidence of colitis, and biopsies were negative for microscopic colitis. The patient returned to the clinic 4 months after polyp excision and reported a complete resolution of her symptoms.

Discussion

Adenomas are frequently encountered dysplastic, premalignant growths of the colon and rectum, found in up to 30% of screening colonoscopies.[2] They can be classified according to their pathological glandular architecture as tubular, villous, or tubulovillous.[3] Large tubulovillous polyps can present a unique symptomatology of chronic diarrhea referred to as MWS.

MWS was termed by McKittrick and Wheelock in 1954 and first described as a colorectal tubulovillous adenoma causing secretory diarrhea.[4] It is an uncommon syndrome characterized as a large, villous adenoma typically greater than 4 cm in diameter (our patient had a 5-cm lesion), presenting with a hypersecretory pattern. Patients generally present with diarrhea and severe electrolyte imbalances potentially leading to acute renal failure. A systematic review by Orchard et al. revealed the median age of diagnosis is 69 years with predominance in female patients.[5] They also found that 12.5% of patients had rectal bleeding while the majority had electrolyte disturbances and diarrhea. Interestingly, 60.5% of cases occurred in the rectum while 32.4% occurred in the rectosigmoid region. This is in contrast to our case, where the polyps were present in the descending and sigmoid colon. The exact pathophysiology of MWS remains unknown, but studies show that the level of prostaglandin E2 (PGE2) is 3–6 times higher in villous adenomas. PGE2 has shown to increase levels of mucosal serotonin by decreasing the expression of mucosal selective serotonin reuptake inhibitors.[6] Serotonin levels are known to contribute to diarrhea and abdominal pain, which could explain the underlying mechanism of MWS.

MWS has been characterized as having three distinct phases: a latent phase, a deterioration phase, and a decompensation phase.[7] During the latent phase, patients generally have intermittent diarrhea, which increases in severity and complexity during the deterioration phase and may progress to nausea, vomiting, and altered mental status. Patients oftentimes are not diagnosed until they reach the decompensation phase, which is usually characterized by severe electrolyte abnormalities (hyponatremia, hypokalemia) and acute kidney injury.[5] Interestingly, our patient had no evidence of electrolyte imbalances. This may be due to detection at an early stage as the patient had symptoms for a few months. The variable severity of symptoms can make the diagnosis of MWS more difficult. Therefore, it is crucial for clinicians to consider MWS in the differential diagnosis when evaluating patients with chronic diarrhea, as a delay in diagnosis can lead to significant morbidity and mortality.

The mortality rate of secretory villous adenoma without treatment can be as high as 100%.[8] Previous literature suggests surgery to be the mainstay of treatment. Abdominoperineal resection, Hatmann's procedure, and sigmoid colectomy are the most commonly pursued surgical techniques. Minimally invasive techniques such as endoscopic resection are increasingly used and have shown promising results, similar to our case.[9] Endoscopic management not only aids in the diagnosis but also obviates the need for a major surgical intervention and the potential complications that may ensue.

Although most previous cases have been treated with surgical resection, our case highlights endoscopic resection as a successful treatment modality. Early endoscopic evaluation can help rule out other causes of chronic diarrhea such as inflammatory bowel syndrome, celiac disease, microscopic colitis, and inflammatory bowel disease. Without endoscopic

evaluation, our patient could have met the criteria for IBS and would likely have been started on symptomatic treatment, delaying the diagnosis of MWS. Therefore, endoscopic resection is a viable and proven treatment method that should be considered in cases of possible MWS.

Conclusion

This case emphasizes that chronic diarrhea should be evaluated diligently as it can rarely be the first sign of a colorectal adenoma. Given the morbidity and mortality associated with MWS, early recognition of gastrointestinal symptoms can lead to prompt diagnosis and initiation of life-saving treatment.

Authors' contributions

H.C. and H.I. reviewed the literature, drafted the manuscript, revised it for important intellectual content, and were involved in the final approval of the version to be published. A.G. and D.P. revised the article for important intellectual content and were involved in the final approval of the version to be published. H.C. is the article guarantor.

Ethical approval

Our institution does not require ethical approval for reporting individual cases or case series.

Declaration of conflicting interests

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Informed consent

Written informed consent was obtained from the patient(s) for their anonymized information to be published in this article for case 1.

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