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Response to Mesalamine Therapy in Pediatric Collagenous Gastritis and Colitis: A Case Report and Review

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Abstract

Collagenous gastritis and collagenous colitis are 2 rare gastrointestinal disorders in pediatric patients. Both of these disease processes exist on a clinical spectrum, and are extremely rare to be present together in the pediatric population. Due to the rarity and unknown etiology of these disease processes, standardized treatment protocols and objective clinical biomarkers of disease progression are missing. This is the first report to describe a 16 year old female with CG and CC who responded well to mesalamine therapy, evident by decreasing calprotectin levels after initiation of therapy.

Keywords

pediatric collegenous gastritis, collagenous colitis, mesalamine therapy, stomach, colon

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Introduction

Collagenous gastritis (CG) and collagenous colitis (CC) are 2 rare gastrointestinal disorders with less than 100 cases documented.[1] Patients typically present with abdominal pain, severe anemia, and voluminous non-bloody diarrhea.[2] The literature divides CG and CC into 2 separate phenotypes; pediatric-onset and adult-onset. Pediatric-onset collagenous gastritis is characterized histologically by subepithelial collagen bands with an inflammatory infiltrate in the lamina propria.[3] Adult-onset is typically associated with collagenous colitis and is an extremely rare occurrence in children.[2-4] To date there have been only 6 reported cases of both phenotypes present in pediatric patients.[5] Due to the rarity and unknown pathogenesis of these disease processes, there are no established standard treatment guidelines. We report a case of a 16 year old female with collagenous gastritis and colitis who has responded well to mesalamine therapy.

Methods

Written informed consent was obtained from the patient for the publication of this case report.

Case Presentation

An 11 year old female with no past medical history presented with episodes of diffuse watery diarrhea, abdominal pain, and stooling urgency. Patient was evaluated via esophagogastroduodenoscopy (EGD) and colonoscopy with biopsies. Gastric biopsies revealed collagenous gastritis confirmed by trichrome stain and colonic biopsies demonstrated diffuse evidence of collagenous colitis involving right, transverse, left colon, and rectum (Figure 1). A *Helicobacter pylori* immunohistochemical stain was negative and esophageal, duodenal, and terminal ileum biopsies showed no significant pathology. Treatment protocol of oral budesonide was initially proposed but parents chose not to follow this recommendation and chose

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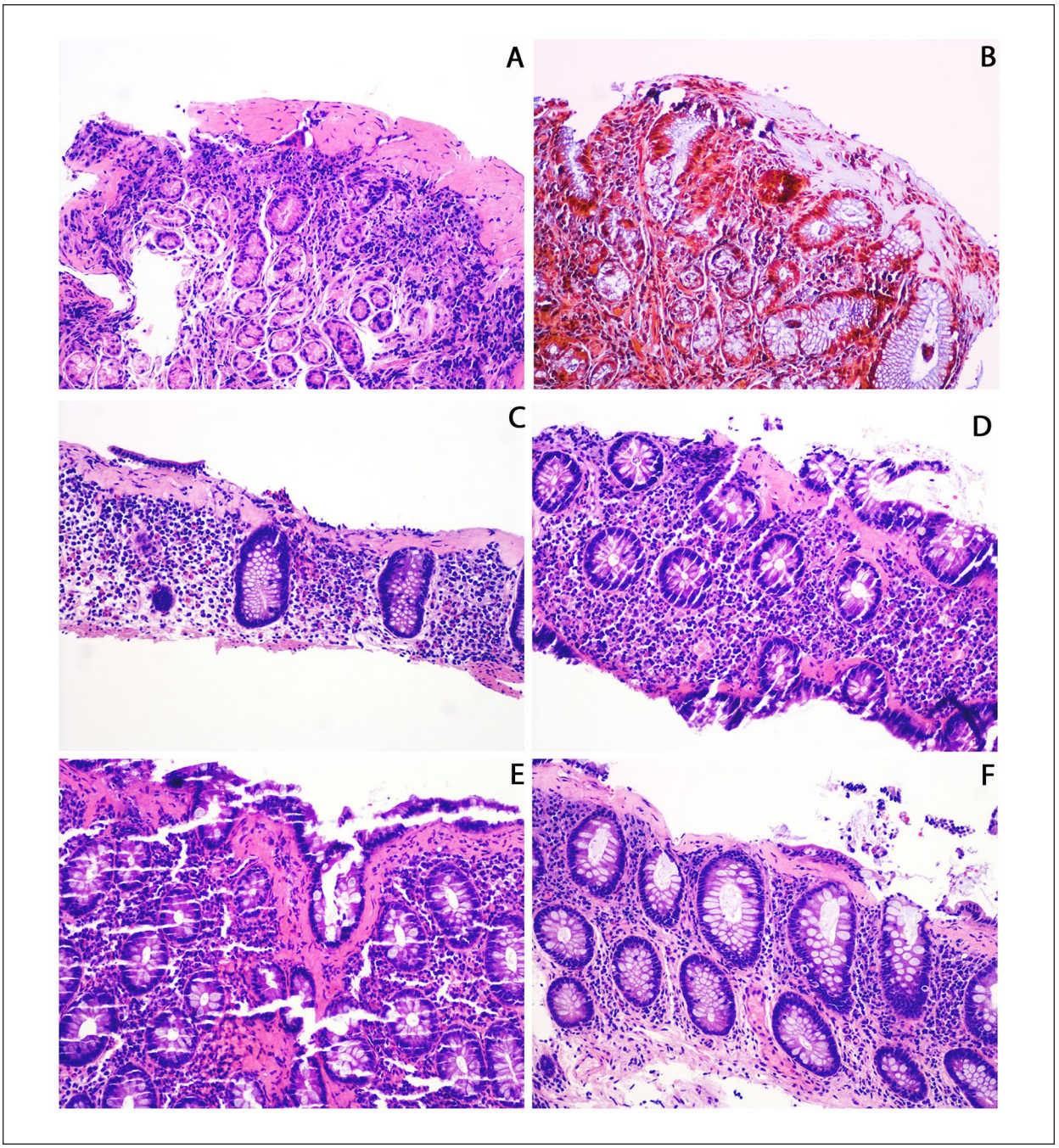

Figure 1. Biopsies showed a thick subepithelial collagen band with secondary surface epithelial stripping involving stomach (A and B), right colon (C), transverse colon (D), left colon (E) and rectum (F). Panel B shows a trichrome stain that stains collagen blue, whereas the other panels are hematoxylin-eosin stains (all at 200× magnification).

to do a trial of dietary modification. Symptoms were intermittent but tolerable so the patient had no further medical intervention.

About 5 years thereafter, she presented again with increased non-bloody watery diarrhea, stooling urgency, and partial relief with stooling in the setting of diffuse, severe abdominal pain, which occurred 2 to 3 times per week. The symptoms were frequent and intrusive, disrupting her regular activities. Physical exam was unremarkable, with a fluctuating body weight between the 60 and 75th percentile and height in 70th percentile. Initial laboratory tests significant for elevated stool Calprotectin

of 218 µg/g (normal range 0-120 µg/g) but stool for bacterial and viral cultures, Giardia antigen, white cells, and occult blood were negative. There were no abnormalities in CBC with differential and liver function panel. Celiac serology, including Deaminated Gliadin Peptide IgG Antibody (DGP IgG), Deaminated Gliadin Peptide IgA Antibody (DGP IgA), Anti-Human Tissue Transglutaminase IgG ELISA (TTG IgG), Anti-Human Tissue Transglutaminase IgA ELISA (TTG IgA), and Anti-Endomysial IgA IFA (EMA IgA), was normal.

Mesalamine was then initiated at 2.4 g per day with dicyclomine 20 mg up to 3 times per day as needed for 4 weeks and the patient reported significant improvement in the initial month. She had not taken any dicyclomine and reported consistent mesalamine use with no complaints of any previous GI associated symptoms, no weight fluctuation, and no new complaints. Physical examination was unremarkable. Follow-up stool calprotectin, at an interval of 58 days, demonstrated a down trending value to 158 µg/g with consistent mesalamine use.

Discussion

Collagenous gastritis (CG) is a rare condition whose etiology and pathogenesis is unknown. Collagenous colitis (CC) is an extremely rare occurrence in children with only 4 reported cases.[5-9] The first reported case of collagenous colitis was in 1976 by Lindstrom followed by collagenous gastritis in a 15 year old girl by Colleti and Trainer in 1989.[10,11] The pathogenesis of CG and CC are related in their histological features characterized by subepithelial collagen band deposition and mucosal inflammatory infiltrates.[12] Gastrointestinal involvement is typically patchy. However, our patient had severe involvement in both the stomach and all biopsied segments of her colon. Additionally, both CG and CC are more often associated with female gender and immunological disorders.[5,13] These findings suggest that both of these disease processes exist on a clinical spectrum and have many features in common, differing primarily in the area of the gastrointestinal tract affected. Due to the rarity of CG and CC, high-powered randomized clinical trials have not been conducted leading to a lack of standardized therapeutic protocols when treating patients with CG and CC.[14] Currently, steroids (ie, budesonide) remain the primary form of treatment for CC.[15,16] Furthermore, there has been a lack of objective measures in following response to therapy in patients with CG and CC.

To date there have been no studies showing the clinical efficacy of mesalamine in pediatric patients with CG and CC. The study team reports significant improvement on mesalamine therapy in a patient who refused steroid therapy on initial recommendation. Additionally, the family refused repeat endoscopic evaluation to determine the status of her previously diagnosed pathology. This proposed a significant challenge to monitor disease progression and response to therapy. Given our patients significant decrease in calprotectin (218 µg/g→158 µg/g) our team proposes the utilization of calprotectin as a useful marker to trend disease progression and response to treatment. Mesalamine (5-ASA) is a first line agent utilized in mild to moderate ulcerative colitis (UC).[17] The proposed therapeutic mechanism of action of mesalamine therapy in UC is centered around reducing local colonic inflammation. 5-ASA acts via activating peroxisome-activated receptor gamma, which represses several inflammatory genes such as nuclear factor beta (nfb), signal transducers and activators of transcription.[18] These findings suggest mesalamine therapy to be a potentially effective first-line treatment option alongside budesonide in pediatric patients with both CG and CC.

Conclusion

In conclusion, our case emphasizes the need to consider mesalamine as a first line treatment modality in patients with CG and CC. Given the rare occurrence of these 2 disease processes, multi-center studies are needed to establish standardized treatment guidelines. Our patient had an excellent response to mesalamine, which was shown by their subjective clinical improvement as well as their down trending calprotectin levels.

Author Contributions

All authors contributed to the preparation and design of this manuscript. AM, JC, and MS were involved in care and evaluation of the patient. HM was involved in the pathologic evaluation. All authors read and approved the final manuscript.

Declaration of Conflicting Interests

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References

1. Eda H, Oshima T, Hirota S, Miwa H. Endoscopic findings in a patient with epigastric pain. *Gut*. 2022;71(1):9-77. doi:10.1136/gutjnl-2020-322332

2. Suskind D, Wahbeh G, Murray K, Christie D, Kapur RP. Collagenous gastritis, a new spectrum of disease in pediatric patients: two case reports. *Cases J*. 2009;2:7511. doi:10.4076/1757-1626-2-7511. Published 2009 Jun 10.
3. Matta J, Alex G, Cameron DJS, Chow CW, Hardikar W, Heine RG. Pediatric collagenous gastritis and Colitis: A Case Series and review of the literature. *J Pediatr Gastroenterol Nutr*. 2018;67(3):328-334. doi:10.1097/MPG.0000000000001975
4. Camarero C, Leon F, Colino E, et al. Collagenous colitis in children: clinicopathologic, microbiologic, and immunologic features. *J Pediatr Gastroenterol Nutr*. 2003;37(4):508-513. doi:10.1097/00005176-200310000-00020
5. Camarero Salces C, Enes Romero P, Redondo C, Rizo Pascual JM, Roy Ariño G. Collagenous colitis and collagenous gastritis in a 9 year old girl: a case report and review of the literature. *Acta Gastroenterol Belg*. 2011;74(3):468-474.
6. Esselinckx W, Brenard R, Colin JF, Melange M. Juvenile scleroderma and collagenous colitis. The first case. *J Rheumatol*. 1989;16(6):834-836.
7. Busuttil A. Collagenous colitis in a child. *Am J Dis Child*. 1989;143(9):998-1000.
8. Perisic VN, Kokai G. Diarrhoea caused by collagenous colitis. *Arch Dis Child*. 1989;64(6):867-869. doi:10.1136/adc.64.6.867
9. Perisic VN, Kokai G, Pavlovic M. Coeliac disease and collagenous colitis. *Ital J Gastroenterol*. 1992;24(7):418-420.
10. Lindström CG. 'collagenous colitis' with watery diarrhoea—a new entity? *Pathol Eur*. 1976;11(1):87-89.
11. Colletti RB, Trainer TD. Collagenous gastritis. *Gastroenterology*. 1989;97(6):1552-1555. doi:10.1016/0016-5085(89)90403-4
12. Leung ST, Chandan VS, Murray JA, Wu TT. Collagenous gastritis: histopathologic features and association with other gastrointestinal diseases. *Am J Surg Pathol*. 2009;33(5):788-798. doi:10.1097/PAS.0b013e318196a67f
13. Maguire AA, Greenson JK, Lauwers GY, et al. Collagenous sprue: a clinicopathologic study of 12 cases. *Am J Surg Pathol*. 2009;33(10):1440-1449. doi:10.1097/pas.0b013e3181ae2545
14. Chande N, McDonald JW, Macdonald JK. Interventions for treating collagenous colitis. *Cochrane Database Syst Rev*. 2008;2(2):CD003575. doi:10.1002/14651858.CD003575.pub5. Published 2008 Apr 16.
15. Vanderhoof JA, Goble K, Young RJ. Collagenous colitis in a 4-year-old child: response to budesonide. *J Pediatr Gastroenterol Nutr*. 2010;50(6):688-690. doi:10.1097/MPG.0b013e3181c15f60
16. Miehlke S, Madisch A, Bethke B, et al. Oral budesonide for maintenance treatment of collagenous colitis: a randomized, double-blind, placebo-controlled trial. *Gastroenterology*. 2008;135(5):1510-1516. doi:10.1053/j.gastro.2008.07.081
17. Ungaro R, Mehandru S, Allen PB, Peyrin-Biroulet L, Colombel JF. Ulcerative colitis. *Lancet*. 2017;389(10080):1756-1770. doi:10.1016/S0140-6736(16)32126-2
18. Iacucci M, de Silva S, Ghosh S. Mesalazine in inflammatory bowel disease: a trendy topic once again? *Can J Gastroenterol*. 2010;24(2):127-133. doi:10.1155/2010/586092