# Multiple Parasites in the Setting of a GI Bleed

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## INTRODUCTION

•*Giardia Duodenales*
- Causes steatorrhea, malabsorption, disruption of commensal intestinal microbiota, deficiency in small bowel epithelial brush border enzymes, malaise, and abdominal pain.
- High risk groups: travelers, young children, CF patients, and the immunocompromised
- Fecal-oral
- Prevalence is 2-7% in developed nations
- Most common in children [2].
- Trophozoites attach to epithelial cells lining the proximal small intestine.

•*Cryptosporidium*
- Causes a secretory diarrhea
- High Risk: immunocompromised, resource poor, and water related outbreaks.
- Fecal-oral
- Prevalence is 1-3% in developed nations [1]
- More common in children
- Attach to epithelial cells and disrupt the villus architecture.

## CASE REPORT

- We present a case of a 64-year-old female with a past medical history of dyslipidemia, gout, renal failure s/p x2 kidney transplant (1991 and 2011) and mitral regurgitation presenting to the hospital for syncope.
- Patient had been feeling lightheaded for the past two weeks and it had been getting worse. Patient complained of lightheadedness when changing position and has such been bed bound. When attempting to go to the bathroom, the patient had passed out while ambulating.
- Further review of systems includes tinnitus, nausea, vomiting, diarrhea and decreased PO intake.
- Home meds include allopurinol, carvedilol, cyclosporine, prednisone, rosuvastatin, calcitriol and mycophenolate.
- As well as the renal transplants, patient also had a mitral valve replacement.

### Physical Exam

- Exam showed generalized abdominal tenderness on palpation. Vitals were unremarkable.

### Lab and Radiology Studies

- Patient was found to have a hemoglobin of 4.9 on admission. Patient was also found to have some mild electrolyte disturbances, with a potassium of 3.4, calcium of 11.5 and magnesium of 1.5.

### Patient Course

- In the ED, the patient was given two units of packed red blood cells. The patient's electrolytes were also replaced.
- Stool samples and O&P were taken and came back positive for Cryptosporidium and Giardia.
- Infectious Disease was consulted, who started the patient on Nitazoxinide and reduced the cyclosporine dose with input from Nephrology
- Gastroenterology was consulted early in the clinical course. The GI team performed a colonoscopy and a push enteroscopy [figure 1]. The latter showed LA A GERD, erosive gastritis, a large pedunculated duodenal polyp, a 1 cm hiatal hernia and the former showed scattered diverticula as well as internal and external hemorrhoids. The polyp was removed.
- Patient was discharged to inpatient rehab.

### Push Enteroscopy





**Figure 1**

### Patient Course (Continued)

- In the following weeks, the patient would have two further re-admissions for GI bleeds. Additional endoscopy was completed with an ulcer not present before being clipped.
- This has since resolved the GI bleeding and the patient is overall doing well.

## DISCUSSION

- Prevalence and severity of co-infection with Giardia and Cryptosporidium in humans living in developed nations are not well understood.
- While studies show prevalence of these individual parasitic species in developed countries is low, there is limited data regarding co-contamination.
- A study conducted in Northern Spain found no confirmed evidence of co-contamination in any of their total collection of 268 cat, dog, and human feces samples.[4]
  - However, the study did not specify if the human feces samples collected were from immunocompromised or non-immunocompromised individuals.
- Risk factors for co-infection include inadequate washing of raw vegetables and fruits, immunocompromised individuals, contaminated water sources, or limited sanitation resources.
- Thorough and directed clinical history, including recent travel, symptom onset and characteristics, the effects of poor oral intake, and sick contacts, is essential in directing further investigation of causal agents.
- Upon further investigation, the patient explained that their water main broke in the previous fall and continued to wash produce with tap water.
- Parasitic infection causing an acute bleed is often a feature of large bowel parasite infestation, on the contrary chronic anemia is more common in small bowel parasitic infestations.
- Giardia Duodenales is not known for causing acute GI bleed.
- Cryptosporidium, although rare, has been associated with self-limiting and mild-gastrointestinal bleeds, specifically in those who are immunocompromised or with other underlying medical conditions.
- Treatment usually involves supportive care. In severe cases involving hypotensive symptoms, hospitalization is required for further medical management and resuscitation.
- According to the American College of Gastroenterologist (ACG) guidelines, the role of clinical laboratory studies vs. endoscopy in patients with persistent diarrheal symptoms is uncertain and should be based on clinical suspicion and disease severity.[3]
- A study reported by ACG found that using PCR methods resulted in a 22-fold increase of the detection of both Giardia Duodenales and Cryptosporidium species, compared to the use of traditional microscopy.[3]

## CONCLUSION

- Co-infection of multiple parasites even in immunocompromised patients is exceedingly rare
- Even in a first world country such as the USA, one cannot exclude circumstances that would typically be more common in third world nations
- The cause of the GI bleed is probably multifactorial, likely stemming from chronic prednisone usage without PPI and cryptosporidium

## REFERENCES

- 1. Current WL, Garcia LS. Cryptosporidiosis. Clin Microbiol Rev. 1991 Jul;4(3):325-58. doi: 10.1128/CMR.4.3.325. PMID: 1889046; PMCID: PMC358202.
- 2. Dixon BR. Giardia duodenalis in humans and animals - Transmission and disease. Res Vet Sci. 2021 Mar;135:283-289. doi: 10.1016/j.rvsc.2020.09.034. Epub 2020 Sep 30. PMID: 33066992.
- 3. Riddle MS, DuPont HL, Connor BA. ACG Clinical Guideline: Diagnosis, Treatment, and Prevention of Acute Diarrheal Infections in Adults. Am J Gastroenterol. 2016 May;111(5):602-22. doi: 10.1038/ajg.2016.126. Epub 2016 Apr 12. PMID: 27068718.
- 4. Trelis M, Sáez-Durán S, Puchades P, Castro N, Miquel A, Gozalbo M, Fuentes MV. Survey of the occurrence of Giardia duodenalis cysts and Cryptosporidium spp. oocysts in green leafy vegetables marketed in the city of Valencia (Spain). Int J Food Microbiol. 2022 Oct 16;379:109847. doi: 10.1016/j.ijfoodmicro.2022.109847. Epub 2022 Jul 22. PMID: 35905648.