Cryptosporidium Enteritis in an Immunocompetent Adolescent Farm Worker with Occupational Exposure

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INTRODUCTION

Cryptosporidium is a protozoan parasite that causes gastrointestinal infection through fecal–oral transmission, most commonly via contaminated water or direct contact with infected humans or animals. While cryptosporidiosis is classically associated with immunocompromised individuals, particularly those with HIV/AIDS, infection can also occur in immunocompetent hosts and is often self-limited. Zoonotic transmission plays an important role in agricultural settings, as livestock are common reservoirs. Typical symptoms include watery diarrhea, abdominal pain, nausea, and vomiting; however, atypical presentations may occur and can mimic acute surgical conditions such as appendicitis. Recognition of these less common presentations is essential to avoid unnecessary interventions and to address potential public health risks.

CASE PRESENTATION

A 17-year-old previously healthy male farm worker with a pertinent past medical history of chronic constipation and allergic rhinitis presented to the emergency department with 3 days of right lower quadrant pain, watery diarrhea, and nonbloody, nonbilious emesis. The patient denied any fevers, hematochezia, sick contacts, recent travel, camping in wilderness, or any consumption of unpasteurized milk or unfiltered water. In the Emergency Department, he was hemodynamically stable and afebrile with physical examination notable for right lower quadrant tenderness and guarding with Positive Rovsing and Psoas signs, raising concern for acute appendicitis.

Initial laboratory evaluation demonstrated no leukocytosis and low inflammatory markers, and further abdominal x-ray radiographs were unremarkable for any findings. Ultrasound was suspicious for appendicitis with an incidental finding of splenomegaly. However, subsequent CT abdomen and pelvis with contrast demonstrated mild mesenteric adenitis and enterocolitis without evidence of appendicitis or true splenomegaly, favoring a hypothesis of viral or infectious etiology. Given his farm animal exposure, appendicitis mimickers were considered, and stool studies were obtained. Supportive care was able to appease the patient's symptoms during the hospital stay, and he was discharged after tolerating oral intake. Post-discharge testing revealed a gastrointestinal pathogen panel positive for *Cryptosporidium Parvum* and had markedly elevated fecal calprotectin (998 mcg/g). Repeat ANA testing was negative and given the complete clinical resolution and immunocompetent status, antiparistic therapy was deferred.

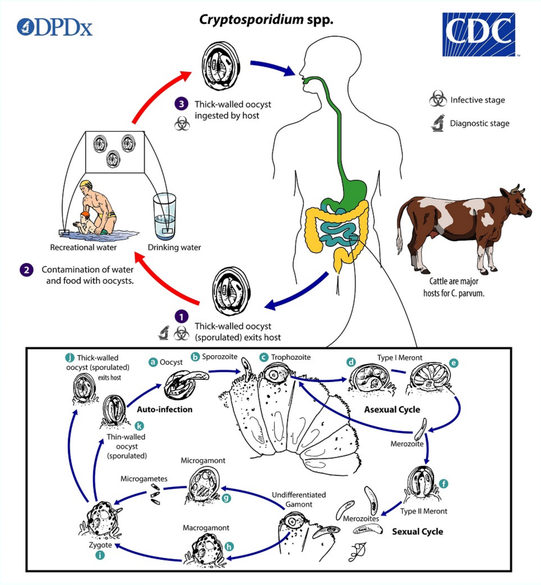

Figure 1: Life Cycle of Cryptosporidium Protozoans

DISCUSSION

- The patient's symptoms resolved fully with supportive management alone, without complications or recurrence. This case illustrates that Cryptosporidium parvum infection can present atypically in immunocompetent adolescents, including severe right lower quadrant pain that closely mimics acute appendicitis.
- Mesenteric adenitis and localized intestinal inflammation likely accounted for the surgical signs on examination and imaging findings.
- The case highlights the importance of considering infectious and zoonotic etiologies in patients with appendicitis-like presentations, particularly when laboratory markers are reassuring and diarrheal symptoms are present.
- It also emphasizes the value of obtaining a thorough occupational and environmental exposure history, as agricultural workers are at increased risk for cryptosporidiosis.
- Additionally, this case demonstrates that fecal calprotectin can be significantly elevated in acute infectious colitis, potentially confounding evaluation for inflammatory bowel disease.
- Careful clinical correlation and follow-up are essential before pursuing invasive diagnostic testing. Overall, early recognition of atypical cryptosporidiosis can prevent unnecessary surgical intervention, guide appropriate management, and support public health efforts aimed at reducing zoonotic transmission.

CONCLUSIONS

- *Cryptosporidium* outbreaks have been associated with contaminated recreational and drinking water sources, agricultural runoff, and direct animal contact.
- Agricultural workers represent a population at increased risk of *Cryptosporidium* infection, and targeted preventive strategies, including education regarding hand hygiene, appropriate use of personal protective equipment, safe manure handling practices, and avoidance of potentially contaminated water sources, may reduce transmission.
- Early recognition of zoonotic enteric infections not only improves individual patient care but also facilitates timely public health interventions aimed at limiting community spread.
- Recognition of atypical presentations, careful exposure history-taking, and awareness of zoonotic enteric pathogens are essential to avoid unnecessary surgical intervention and to address broader public health risks.

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