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Case Report

Rare postoperative pancolitis following appendectomy: a case of *Shigella* and *Enterobius vermicularis* co-infection in a paediatric patient

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ABSTRACT

This case report presents a rare postoperative complication of acute appendicitis in a five-year-old female caused by pancolitis due to a *Shigella* infection and an *Enterobius vermicularis* (pinworm) infestation. This case underscores the need for broad differential diagnosis and multidisciplinary management in paediatric patients presenting with abdominal pain, especially in the postoperative period.

Keywords: Appendicitis, *Enterobius vermicularis*, *Shigella*, Abdomen pain, Pancolitis

INTRODUCTION

Acute appendicitis is a common surgical emergency in children. While an appendectomy is typically curative, rare postoperative complications, such as gastrointestinal infections or parasitic infestations, can mimic or exacerbate underlying pathologies.[1] This case highlights the diagnostic challenges a coexisting *Shigella* infection and an *Enterobius vermicularis* infestation pose following an appendectomy, which lead to pancolitis and haematochezia.

CASE REPORT

A five-year-six-month-old, previously healthy girl presented with a one-day history of abdominal pain, nausea, vomiting, and fever. She had a six-month history of intermittent abdominal pain and a sibling with similar symptoms.

On examination, she was dehydrated and sleepy but alert, with a body mass index (BMI) below the 50th percentile. Her abdomen was soft but with rebound tenderness in the right iliac fossa.

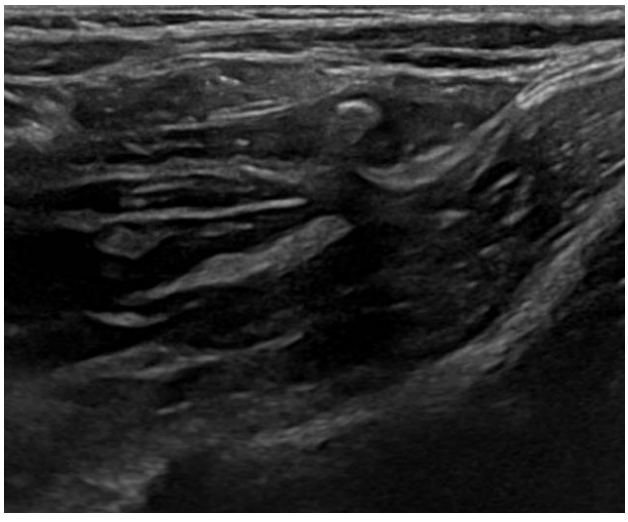

Figure 1: An abdominal ultrasound revealed an echogenic structure at the tip of the appendix, with the posterior acoustic shadowing measuring approximately 5 mm. This was initially misinterpreted radiologically as an appendicolith but was later identified as *E. vermicularis*.

Initial labs showed elevated WBC ($16.7\times10^3/\mu l$), neutrophilia (88.4%), and mildly elevated erythrocyte sedimentation rate (ESR) (31 mm/hour). The ultrasound demonstrated a borderline enlarged appendix with mild surrounding fat stranding. An echogenic structure measuring approximately 5 mm with posterior acoustic shadowing was noted at the tip of the appendix. The overall impression was early, uncomplicated acute appendicitis, likely associated with an appendicolith (Figure 1). She underwent an open appendectomy, during which a small bowel tear was noted and repaired.

Figure 2: A selected coronal image from the contrast-enhanced abdominal CT demonstrates pancolitis, which is most pronounced in the rectosigmoid colon (short green arrow), along with associated terminal ileitis (long green arrow).

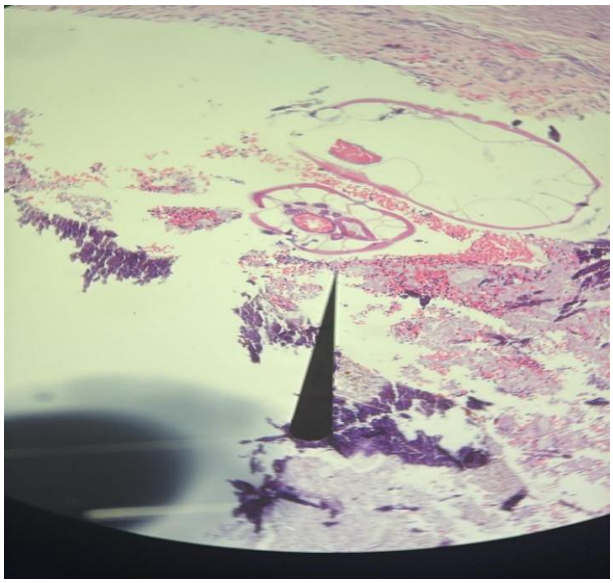

Figure 3: Histopathology showed *E. vermicularis* infestation without inflammation (black point).

The patient developed hematochezia postoperatively. A computed tomography (CT) scan revealed pancolitis and terminal ileitis (Figure 2). Stool PCR identified the *Shigella* species, and stool microscopy revealed *E. vermicularis* eggs. She was started on cefazolin and metronidazole, which were later adjusted to gentamicin (five days) and metronidazole (10 days) per Infectious Diseases recommendations. Hematochezia was resolved by postoperative day 8.

A histopathology of the appendix confirmed an *E. vermicularis* infestation without acute inflammation or malignancy (Figure 3). The patient was discharged with a one-week course of mebendazole. A follow-up fecal calprotectin was elevated at 28,600 µg/g, prompting ongoing gastroenterological evaluation for possible inflammatory bowel disease (IBD).

DISCUSSION

Appendicitis is caused by a blockage of the lumen of the appendix and typically presents as abdominal pain, which is a common reason for surgical emergencies.[1] Appendicitis is commonly caused by an appendicolith, fecal stasis, or lymphoid hyperplasia.[2] Besides the disease's common causes, tumors, fruit seeds, and intestinal parasites have also been identified as causes of appendicitis.[3]

Commonly reported parasites mimicking appendicitis are Schistosoma, Taenia, and Ascaris lumbricoides.[4,5] The literature review identified some appendicitis cases caused by *E. vermicularis* that have been reported in Canada and Asia.[6,7] However, the role of parasites in appendicitis remains controversial, as usually resected samples showed little or no signs of inflammation under histopathology.[8] In the absence of specific laboratory tests for appendicitis, histopathological and parasitological analyses, followed by imaging, could help with acute appendicitis in our patient caused by *E. vermicularis*.

Appendectomy is merely a treatment for a complication among these patients, but the root cause is still there. Pyrantel pamoate, the drug of choice for *E. vermicularis* treatment, is an agent that blocks neuromuscular depolarization, causing the worm to undergo spastic paralysis through continuous nicotinic activation. The worm detaches from the host and is consequently expelled through defecation.

This case highlights the diagnostic complexity of abdominal pain in children. *E. vermicularis* is a common parasitic cause of chronic abdominal symptoms that can mimic appendicitis. Though often asymptomatic, its presence in the appendix can cause luminal obstruction. *Shigella* is a known cause of severe colitis and bloody diarrhea. The combination of both infections, along with the postoperative status, created confusing, overlapping clinical signs. Elevated fecal calprotectin post-discharge

suggests ongoing inflammation or a developing autoimmune condition warranting continued follow-up.

CONCLUSION

This case emphasizes the significance of considering parasitic and infectious etiologies in pediatric abdominal emergencies. Moreover, postoperative complications should prompt a comprehensive re-evaluation, especially when symptoms deviate from those of the expected recovery. Multidisciplinary collaboration was critical in managing this complex case.

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