Acute Appendicitis Secondary to Lymphoid Hyperplasia From a Parasitic Infestation

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INTRODUCTION

Acute appendicitis is one of the most common causes of acute abdomen and one of the most frequent indications of urgent abdominal surgery. Obstruction of the ileocecal appendix has been proposed as the main etiology of this disease, although it is not always identified, which is why some authors consider that obstruction is the result and not the cause of inflammation.[1,2,3] There is no single theory that explains all cases of acute appendicitis, and the etiology of inflammation varies depending on patient age. Infections and follicular lymphoid hyperplasia are more frequent in young people, while in adults we can find fibrosis, fecaliths or neoplasms.[2] Despite recent progresses in antibiotic therapy, laparoscopic appendectomy has remained the standard for acute appendicitis. Among the mentioned causes, foreign bodies, parasitic helminths and protozoa, mononucleosis, and primary or metastatic cancer have been reported to rarely develop acute appendicitis. The parasitosis include *Enterobius*, *Ascaris*, *Giardia* and *Entamoeba histolytica*.[2]

E. vermicularis is a parasite and one of the most common human-infecting helminths in temperate and cool climates, as well as developed countries.[8] This parasite is usually transmitted through close-contact between infected and uninfected persons, ingestion and inhalation of the eggs. Since *E. vermicularis* has a simple transmission rout, re-infection is one of the main causes of development of the infection.[9]

Although *E. vermicularis* infection commonly presents with perianal pruritus, it has also been reported to be associated with chronic abdominal pain, eosinophilic ileocolitis and pelvic abscess.

We present a clinical case demonstrating the presence of *Enterobius vermicularis* (*E. vermicularis*) during an appendectomy.

CASE REPORT

We present an 18 year old male with a medical history significant for obesity (BMI 41), who presented to the Emergency Department with sudden onset right lower quadrant abdominal pain for a day. While in the emergency department, he was afebrile but tachycardic to 101 beats per min. His workup was significant for a white blood cell count of 11x10 /uL and an eosinophil count of 0.05 (nl 0.00-0.70 K/uL). He underwent an abdominal CT scan showing hyperenhancement of the distal appendix and dilation to 1.2cm consistent with appendicitis without perforation.

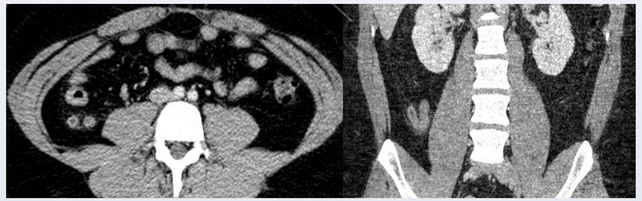


Figure 1,2. CT abdomen pelvic with IV contrast showing acute appendicitis.

Given these findings, the patient was taken to the operating room for laparoscopic appendectomy, which was uncomplicated. The appendix and mesoappendix were transected with a endoscopic linear stapler. The appendix was non-perforated, and non-gangrenous. The patient was discharged postoperative day one. The surgical pathology report showed marked lymphoid hyperplasia with the appendix showing a parasitic worm in the lumen Histology showed neutrophil infiltration suggestive of acute appendicitis, with peri-appendicitis and fibrous adhesions. Upon further microscopic review, the parasite was consistent with *Enterobius vermicular.* Post-operatively, infestation was treated with oral albendazole while a stool sample was studied for parasites.

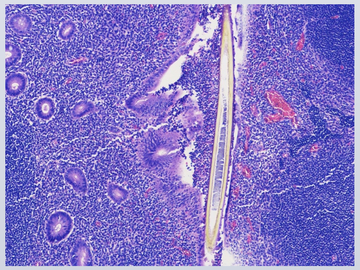


Figure 3. Microscopic photo showing appendix lumen filled with parasite. (HE, X10)

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Gross Description
The specimen is received in formalin, labeled "appendix" and consists
of an appendix measuring 6.2 cm in length by 1.8 cm in diameter with
an attached mesoappendix at the distal half measuring 7 x 1.3 x 1.8
cm. The serosal surface of the appendix appears congested and tan pink.
The surgical margin is inked black. The specimen is serially sectioned
showing tan pink lumen cut surfaces. The wall thickness measures 0.4 cm.
Representative sections are submitted. (2 blocks)
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Final Diagnosis
Appendix, laparoscopic appendectomy:
- Appendix showing a parasite in the lumen, acute appendicitis, marked
lymphoid hyperplasia, periappendicitis with fibrous adhesions.
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Figure 4. Pathology description of gross specimen and final diagnosis.

DISCUSSION

Out of all the causes of acute appendicitis, parasitic infections are among the rarer causes. *E. vermicularis* is an intestinal parasite usually encountered in childhood predominantly found in regions with lower socioeconomic levels.[5] The simple presence of *E. vermicularis* in the appendix can produce symptoms of acute appendicitis.[9] Infestation of the appendix can produce clinical features of acute appendicitis, referred to as 'appendiceal colic. This “syndrome” consists of right lower quadrant and pelvic pain, intermittent in nature, and can be explained by the hypothesis of appendiceal lumen obstruction. Obstruction by pinworms is similar to that caused by fecaliths, causing localized pain but rarely leads to inflammation. Due to these histological associations, the role of *E. vermicularis* infection as a cause of acute appendicitis is still controversial.[5] However, as stated is it well known that this parasite can replicate symptoms consistent with acute appendicitis.

CONCLUSION

The finding of *E. vermicularis* in appendectomy histopathological specimens is a rare incident. Among the numerous causes of appendicitis, parasitic infections, especially *E. vermicularis,* should remain on the differential

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