

Case Report

Enterobius vermicularis a rare cause of acute appendicitis: a case report

Sameeah Hanif*

Department of Surgery, BBST Hospital, Abbottabad, Pakistan

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***Correspondence:**

Dr. Sameeah Hanif,

E-mail: dr.sameeahhanif@gmail.com

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ABSTRACT

Acute appendicitis is amongst the most prevailing recurring surgical scenarios in which there is acute inflammation of appendix owing to the luminal blockage of appendix which can also occur secondly to worm infestation. Diagnosis is with the history, physical examination, laboratory investigations and imaging. Treatment is appendectomy either open or laparoscopic. Infection by parasite can obstruct the lumen of appendix, triggering inflammation and ultimately appendicitis. An 18-year-old female patient unmarried presented with pain in the right lower quadrant for 2 days. Appendectomy performed and specimen showed infestation with *Enterobius vermicularis*. Patient was discharged on second day. In this case report a rare entity of acute appendicitis secondary to *Enterobius vermicularis* in a female patient is described.

Keywords: Acute appendicitis, *Enterobius vermicularis*, Pinworm, Appendectomy

INTRODUCTION

Acute appendicitis is amongst the most prevailing recurring surgical scenarios in which there is acute inflammation of appendix owing to the luminal blockage of appendix. There is history of migratory pain shifting to right lower quadrant of abdomen accompanied by nausea, vomiting, loss of appetite and pyrexia. Diagnosis is with the history, physical examination and laboratory investigations and imaging. Treatment is appendectomy either open or laparoscopic.¹

Apart from luminal obstruction by appendicolith, lymphoid hyperplasia, and fibrous band, carcinoma of cecum, stasis of feces, inedible vegetable remnants and seeds of fruits are the prime pathogenic cause. Increase attention is given to viral cause causing secondary bacterial infection and inflammation. Parasitic infection is sparse. *Schistosoma spp.*, *Taenia spp.*, and *Ascaris lumbricoides* cause acute appendicitis.² *Enterobius vermicularis* is a prevalent parasitic infection across the globe, nearly 209 million people inflicted and termed as pinworm or threadworm. *Enterobius vermicularis*

infection led to perianal itching and is detected in diverse location including appendix.³ Infection by *Enterobius vermicularis* has universal occurrence with congested and populous areas are predisposing condition leading to infestation and low- and middle-income countries are most likely to be affected. Infestation by enterobius is common helminthic infection in United States and it is communicated only through human.⁴ *Enterobius vermicularis* infestation is more prevailing infection among females and children and has been identified in 0.2%–41.8% of appendectomy specimens from patients with acute appendicitis across the globe.⁵ In this case report we will discuss rare presentation of acute appendicitis secondary to luminal obstruction by *Enterobius vermicularis* in a female patient presenting with acute abdomen.

CASE REPORT

An 18-year-old female patient unmarried presented in emergency of DHQ Abbottabad with pain in the right lower quadrant for 2 days. She had history of nausea. Pain was migratory and initially around umbilical region.

Clinical examination showed tenderness and rebound tenderness in right iliac fossa. Total leucocyte count was 12,000. She was anemic with an Hb of 8.6 g/l with decrease MCV. Her last menstrual cycle was 10 days back with and regular. Ultrasound showed evidence of acute appendicitis. She was operated for diagnosis of acute appendicitis through gridiron incision. Phlegmonous appendix was found along mesenteric adenitis (Figure 1). No other pathology was found. Extracted appendix specimen macroscopically showed obstruction with *Enterobius vermicularis*. Histopathology also showed evidence of acute appendicitis and acute inflammation with eosinophil with evidence of *Enterobius vermicularis* infestation. She was discharged after two days with albendazole for eradication of parasite along with conventional therapy. She was followed 10 days later and after one month, had uneventful recovery.



Figure 1: Operative picture of appendix with worms (*Enterobius vermicularis*).

DISCUSSION

The probability of acute appendicitis in course of life of male is 8.6% and in female is 6.7% and is ubiquitous affecting adolescent as well as children. Patients presenting with atypical symptoms pose diagnostic difficulty. Diagnosis in mainly clinical but ultrasound and CT scan of abdomen and pelvis with contrast are often used.⁶ Pinworm infection or *Enterobius vermicularis* affects nearly half of the children population and twenty percent adult. Female worm lays egg leading to itching at night. Ileocolic inflammation as a result of worms was described in 1919. Further studies observed that pinworm in appendix may mimic appendicitis.⁷ It is also recognized by the name of seat worm, oxyuriasis, threadworm. For the first time Fabrius in 1634 described appendicitis secondary to pinworm. Once maturity is attained the parasite live and replicate in terminal portion of ileum, appendix, cecum and ascending colon. The life of male ends while female travels to anal canal for egg laying. Average life span is 2 to 5 weeks (panidis). Although its role in appendicitis has been explored by many years, the exact mechanism by which the parasite induces inflammation remains unclear.⁸ Infection by parasite can obstruct the lumen of appendix, triggering inflammation and ultimately appendicitis. High

burdens of *Enterobius vermicularis* in the appendix may impair flow of mucus and local bacterial balance, increase intraluminal pressure and promote growth of bacteria. This elicits an immune response, resulting in typical appendicitis symptoms, including fever, leukocytosis, and right lower abdominal pain and tenderness.⁹ Although the link between *E. vermicularis* and appendicitis remains controversial, the worm or its eggs can mechanically block the lumen, precipitating acute appendicitis. Appendicular obstruction has been associated with not only acute appendicitis but also chronic appendicitis, gangrenous appendix, perforation of appendix.¹⁰ While appendectomy is the main treatment but it only cures the complication and does not remove the underneath etiology. Hence, drugs against parasite are indispensable to extirpate *Enterobius vermicularis*. The treatment for underlying parasitic infection is mebendazole, albendazole and pyrantel pamoate. Mebendazole is prescribed as a single dose of 100 mg, repeated by a further dose after two weeks. Pyrantel pamoate dose is 11 mg/kg (maximum 1 g) and the same dose is given after a period of two weeks. Albendazole is given as a single 400 mg dose and repeated after two weeks. Apart from affected individual the members of house should also be prescribed anti helminthic.¹¹

CONCLUSION

Despite the fact that acute appendicitis caused by *Enterobius vermicularis* is considered infrequent entity, it should be included in the differential diagnosis of young female patients presenting with recurrent right lower quadrant abdominal pain despite normal laboratory and radiologic findings. In such cases, awareness of this etiology is important, and intraoperative meticulous care should be taken to prevent contamination of pinworms into the abdominal cavity.

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