

Acute appendicitis secondary to oxyuris vermicularis infection in young-aged women: A case report

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Introduction:

Acute appendicitis due to *Enterobius vermicularis* (formerly known as oxyuris) is very rare, affecting mostly children. Whether pin worms cause abdominal upset, inflammation of the appendix or just appendiceal colic has been a matter of controversy.

Case presentation:

A Saudi 15-year-old girl was repeatedly referred to our Emergency Department with acute vague abdominal pain in her right and left lower quadrants more in the right. The physical examination was quite normal apart from deeply seated right iliac fossa tenderness. Laboratory indices were normal except for fluctuated white cell counts. Radiological assessment with ultrasonography and computed tomography were unremarkable. A laparoscopic appendectomy was performed. The pathological examination showed the lumen containing pin worms oxyuris.

Conclusion: The finding of oxyuris vermicularis in appendectomy pathological specimens is infrequent. Parasitic infestation rarely cause acute appendicitis, especially in adults and may present as subtle clinical picture. Laparoscopy has vital role in doubtful cases.

Keywords: Parasitic infestation, oxyuris vermicularis (*enterobius vermicularis*), acute appendicitis

Introduction:

Acute appendicitis is the most common reason for emergency surgery and the most common reason for surgery of the gastrointestinal system (GIS).¹ The condition is usually caused by increased pressure within the lumen following its obstruction mostly due to fecaloid matter, after which infection develops as a result of bacterial translocation. Fecaloids and viral infection are the most common causes of appendicitis, while tumors, inflammatory bowel diseases, and parasites rarely lead to this pathology.² The parasite that is commonly encountered following appendectomy is *E. vermicularis*. In addition, parasites such as *Entamoeba histolytica*, *Schistosoma* species, *Taenia* species, *Ascaris lumbricoides* (*Ascaris*), and very rarely, *Balantidium coli* have

also been reported to cause appendicitis.^{3,4} Although the role of the parasites in the development of acute appendicitis has not yet been settled, parasites such as *Enterobius vermicularis* and *Ascaris* have been reported to obstruct the appendix lumen, thus resulting in acute appendicitis.^{5,6}

While a definite connection between *Enterobius vermicularis* and acute appendicitis has not yet been established, infestation with the former may present symptoms imitating acute appendicitis. *Enterobius vermicularis* remains the parasite most responsible for appendicitis.

Case presentation:

A 15-year-old Saudi girl was referred to our

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Figure 1: showing the inflame appendix with laparoscopic dissection of mesoappendix



Figure 2: histopathology of appendix

Emergency Department with acute vague abdominal pain both right and left sides more in her right lower quadrant, mild fever and dyspeptic symptoms. A physical examination revealed right iliac fossa deeply seated tenderness (McBurney's sign). A laboratory examination showed an elevated white blood cell (WBC) count was 12000c/ml with neutrophilia and eosinophilia with no significant abnormalities in urine analysis an abdominal ultrasound performed failed to determine whether the appendix was inflamed or not; there were no pathological findings from the rest of the abdominal examination. CT abdomen with contrast showed normal appendix. Hence patient has submitted to formal diagnostic laparoscopy and concluded that the appendix was a little bite congested with mild hyperemia with no other abdominal nor pelvic surgical causes of abdominal pain, so laparoscopic appendectomy was performed. The macroscopic appearance of her

appendix was a little bit congested and hyperemic (Figure 1). The pathological examination revealed focal mucosal ulceration with few neutrophils, wall is congested, with occasional neutrophils and no atypia seen. The lumen contains oxyuris worms.

Post-operatively, patient doing well, sent to gastroenterology OPD where she treated with albendazole 400mg once and repeated after one week together with instructions for hygienic measures.

Discussion:

Enterobius vermicularis is an intestinal parasite usually encountered in childhood and more often in female than in male children. It is primarily found in under-developed countries and in regions with lower socio-economic levels.⁷ As with many other gastro-intestinal nematodes, pin worms do not require a vector for transmission. Pin worm infection usually occurs through ingestion of infectious eggs due to direct anus-to-mouth transfer via the fingers. This is facilitated by the peri-anal itch (pruritus-ani), induced by the presence of pin worm eggs in the peri-anal folds, and commonly occurs as a result of nail biting, poor hygiene, or inadequate hand washing. One study reported that *Enterobius vermicularis* infestation has different clinical presentations and that the parasite causes acute appendicitis.⁸ Although *Enterobius vermicularis* as a cause of acute appendicitis is still under debate, other studies have also concluded that it can cause acute appendicitis.^{9,10} Different rates of *Enterobius vermicularis* infestation following appendectomy have been reported for Turkey and other countries.^{11–12} Although the diameters of the appendix in our case with *Enterobius vermicularis* infestation was 6mm based on abdominal computed tomography (CT) results, there were findings of acute infection, macroscopically and microscopically. However, some studies have shown that acute infection was absent with *Enterobius vermicularis* infestation. While mesenteric lymphadenitis was not detected in our patient, *Enterobius vermicularis* is thought to cause mesenteric lymphadenitis.

For our patients, surgery was performed laparoscopically using the standard three-port method, in which one 10 mm and two 5mm trocars were employed. Following diathermy separation of the meso appendix, double endo loops were placed in the base of the appendix, and the appendix was transected 3-4mm above the suture byscissor followed by superficial stump cauterization (Figure 3) using diathermy device. Specimens were then placed into an endobag and removed through the 10mm trocar port. Here we can see the role of laparoscopy as a modality of investigation and treatment at the same time because in our case clinical examination was equi-vocal and radiological investigations were normal. This clinical picture is seen in many patients with *Enterobius vermicularis* reported by some studies.

Conclusions:

The finding of *Enterobius vermicularis* in appendectomy histopathological specimens is a rare incident. Parasitic infestation rarely cause full blown clinical picture of acute appendicitis, especially in adults. The surgeon must be aware of parasite infestation with appendicitis-like symptoms. Careful examination and symptomatology awareness, such as pruritus ani or eosinophilia in the blood examination, and a high level of suspicion might prevent unnecessary appendectomies. Laparoscopy has a vital role in managing equivocal cases.

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Role and contribution of authors:

Yasser MH Khalifa, conceive the idea and wrote

the article and critically went through the article and made final changes.

Zuhair Babiker, collected the data and helped in introduction writing

Talal Al Amry, collected the references and helped in discussion writing

Bahgat Mahmoud, collected the data, references and helped in interpretation of data.

Esam El Ghamdy, collected the data, references, and helped in discussion and conclusion writing.

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