



Acute appendicitis due to infection with *Enterobius vermicularis*, A case report

Safaa Hadi Abdulsattar Alshihmani

Al-kindy Teaching Hospital, Department of Surgery, Baghdad, Iraq

ARTICLE INFO

Keywords:

Case report
Pin worm
Acute appendicitis

ABSTRACT

Introduction & importance: *Enterobius vermicularis* is the most common parasitic infection in developed countries of temperate and cool climates. The feco-oral route is the most common route of human infection. Due to obstruction of appendiceal lumen, the presence of parasites in the appendix may cause appendiceal colic or cause inflammation of the appendix.

Case presentation: A 17 years old male was referred to our Emergency Department with acute abdominal pain in his right lower quadrant. The physical and laboratory examination revealed right iliac fossa tenderness and leukocytosis with neutophilia. An open appendectomy was performed. The lumen of appendix was filled with pinworms and were moved out of the appendiceal lumen. Postoperatively, one oral dose of 100 mg of mebendazole was administered to our patient and his family members and was repeated after 14 days.

Conclusion: Infrequently the *E. vermicularis* can be found in appendectomy pathological specimens. Rarely, acute appendicitis caused by parasitic infections, especially in adults. So the clinical signs of intestinal parasite infection can be may mimic acute appendicitis. A careful evaluation of symptoms such as pruritus ani, or eosinophilia on laboratory examination, could prevent unnecessary appendectomies.

1. Introduction

Enterobius vermicularis is the most common parasitic infection in developed countries of temperate and cool climates [1]. A about 4%–28% of children worldwide are infected as showed by many reports, approximately 10 mm is the length of pinworms and live with their heads embedded in the ascending colon and adjacent bowel [2].

The feco-oral route is the most common route of human infection and the viability of eggs on clothing and bedding about two to three weeks, so that explained the easy spreading among family members [2]. It is often considered not to be a serious disease due to its low pathogenicity [1].

Due to obstruction of appendiceal lumen, the presence of parasites in the appendix may cause appendiceal colic [3].

2. Case presentation

17 years old male pt. from Baghdad, Iraq. He was single, worker and lived with his family.

The pt. presented to our emergency department with history of pain in the R.t lower quadrant for 2 days before.

The pain start in the R.t lower quadrant as a mild colicky pain, at beginning the pain was interrupted then became continuous and increased in severity associated with fever, anorexia, nausea and later on with vomiting also. Pt. had no diarrhea. The pain decreased by analgesia (NSAID) and aggravated by movement.

Regarding patient review of systems nothing positive and past history was negative, he was not smoker and not alcoholic, patient had no previous drug history and no psychological illness.

A physical examination revealed right iliac fossa tenderness.

(McBurney's sign) A laboratory examination showed an elevated white blood cell (WBC) count at 13,600/ μ L with neutrophilia and a urine test showed five to six WBCs and no red blood cells. An abdominal ultrasound was done but not determined whether the appendix was inflamed or not; there were no positive findings related to other abdominal examination. An open appendectomy was performed. The macroscopic appearance of his appendix was inflamed and lumen filled with worms. The pathological examination revealed the lumen to contain *E. vermicularis* with lymphoid hyperplasia (Fig. 1, Fig. 2 and Fig. 3). Postoperatively, one oral dose of 100 mg of mebendazole was administered to our patient and his family members and was repeated after 14 days.

E-mail address: safahadi82@yahoo.com.

<https://doi.org/10.1016/j.amsu.2022.104094>

Received 26 April 2022; Received in revised form 24 June 2022; Accepted 24 June 2022

Available online 8 July 2022

2049-0801/© 2022 The Author. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).



Fig. 1. Appendix filled with worms.

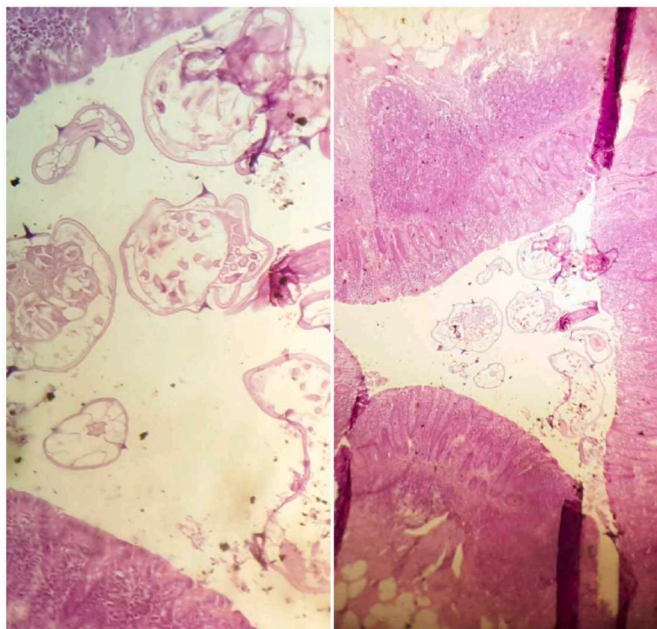


Fig. 2. Histopathological examination showing the *E. vermicularis* within the lumen of appendix.

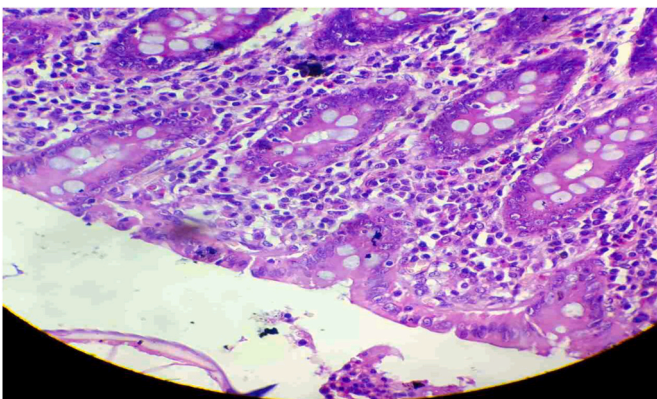


Fig. 3. Showing lymphoid cells within the appendix.

3. Discussion

The only natural hosts of pinworms are humans [4]. The gastrointestinal infection due to *E. vermicularis* occurs worldwide and is considered to be the most common helminth infection [2]. Any socio-economic levels can be infected but mostly children aged between 5 and 14 years [2]. Deposits eggs in the perianal area by gravid female represent the beginning of the lifecycle and after ingestion eggs are hatched and larvae are produced in the small intestine then reaching the caecum and appendix where they are the usual sites of infestation [5].

Enterobius vermicularis infection leading to many pathologic changes which are ranging from lymphoid hyperplasia, acute and suppurative appendicitis to normal appendix but when lumen of appendix obstructed by worms that leading to rise the symptoms [6].

Infestation with *E. vermicularis* leading to appendiceal colic but sometimes the clinical presentation can be mimic symptoms of acute appendicitis which is occur because the infestation by these pin worms leading to lymphoid hyperplasia which may provoke the inflammatory process and then leading to clinical presentation of acute appendicitis, while acute appendicitis is reported only when neutrophilic infiltration is observed [7].

However, *E. vermicularis* occasionally may be associated with severe inflammation, ulceration and perforation, so our conclusion is that the presence of *E. vermicularis* in appendectomy specimens appears to be incidental rather than being a cause of appendicitis [8].

4. Conclusion

Infrequently the *E. vermicularis* can be found in appendectomy pathological specimens. Rarely, acute appendicitis caused by parasitic infections, especially in adults. So the clinical signs of intestinal parasite infection can be may mimic acute appendicitis. A careful evaluation of symptoms such as pruritus ani, or eosinophilia on laboratory examination, could prevent unnecessary appendectomies.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

References

- [1] A.V. Ariyaratnam, et al., *Enterobius vermicularis* infestation of the appendix and management at the time of laparoscopic appendicectomy: case series and literature review, *Int. J. Surg.* 8 (6) (2010) 466–469.
- [2] Stavros Panidis, et al., Acute appendicitis secondary to *Enterobius vermicularis* infection in a middle-aged man: a case report, *J. Med. Case Rep.* 5 (1) (2011) 1–3.
- [3] Eleni Efraimidou, et al., *Enterobius vermicularis* infection of the appendix as a cause of acute appendicitis in a Greek adolescent: a case report, *Cases J.* 1 (1) (2008) 1–3.
- [4] W. Vleeschouwers, et al., Appendicitis-like clinical image elicited by *Enterobius vermicularis*: case report and review of the literature, *Acta Chir. Belg.* 113 (2) (2013) 139–142.
- [5] Naalla Ravikiran, Prashanth Shetty, Vikas Sud, Worm in vermiform appendix: a surgeon's perspective, *Case Rep.* 2014 (2014), bcr2014205411.
- [6] T. Akhigbe, et al., Pinworm and appendicitis in children, *Internet J. Surg.* 30 (3) (2013).
- [7] N.E.Z.I.H. Akkapulu, S.A.M.I.R. Abdullazade, Is *Enterobius vermicularis* infestation associated with acute appendicitis? *Eur. J. Trauma Emerg. Surg.* 42 (4) (2016) 465–470.
- [8] Burçin Pehlivanoglu, et al., *Enterobius vermicularis* Enfeksiyonu olan Appendektomilerde Bulgular: Kıl Kurdu Apendisit Nedeni Degil, *Turk. Parazitoloji Derg.* 43 (1) (2019) 21.