

## Letter to the Editor

## *Enterobius vermicularis*: Uncommon Clinical Presentations

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I read the Tunisian retrospective cohort study about *Enterobius vermicularis* (Ev) infection mimicking acute appendicitis published by Zouari et al.<sup>1</sup> The authors reviewed 540 appendectomies performed in pediatric patients (36.5% female) with mean age of  $9.28 \pm 2.77$  years. Acute appendicitis was detected in 88.9%, negative appendectomy was observed in 60/540 (11.1%); and Ev infection occurred in 53/540 (9.8%) of cases. Only 23 patients with Ev (43.4%) had acute appendicitis. They concluded that perianal pruritus, normal neutrophil count, and normal C-reactive protein are indicative data of Ev infection in children with pain in the right iliac fossa.<sup>1</sup> Their findings are useful to prevent unnecessary appendectomies and emphasize the role of histopathological study of specimens, regardless of macroscopical appearance.<sup>1</sup>

Ev (*Oxyuris* or pinworm) is the most common helminthiasis among pediatric populations, usually infects the cecum, and extra intestinal organs are rarely affected.<sup>1-6</sup> Common symptoms include perianal pruritus, insomnia, restlessness, and irritability; “appendiceal colic” is a distinctive symptom in case of infection sited in appendix.<sup>1,3</sup> Diagnostic challenges are related to asymptomatic courses and extra intestinal lesions, in addition to clinical or imaging features mimicking benign or malignant neoplasms.<sup>1-6</sup> Ectopic Ev infections are rare and may affect peritoneum and mesenterium, lung, liver, female and male genital and urinary tracts, spleen, lymph nodes, breast, and eyes.<sup>1-6</sup>

Arkoulis et al reported a 46-year-old female with a nodular lesion in the liver suspected of malignancy that was resected and the histopathology showed eggs of Ev.<sup>2</sup> The patient underwent a total hysterectomy 5 years before, and the 2.9 cm nodule in the right lobe of the liver had necrotic/ cystic appearance, with contrast enhancement. Therefore, the initial major concerns were about secondary implant from uterine cancer or primary tumor. The authors reviewed five cases previously described in three males (54, 57 and 74 year-old) and two females (51 and 62 year-old) and discussed the transmission routes. They concluded that there is no pathognomonic data to prevent

unnecessary surgery.<sup>2</sup>

Pigac et al described a 90-year-old patient submitted to hysterectomy due to uterine prolapse, and incidental finding of Ev infection was detected in her endometrium.<sup>3</sup> The authors commented the transmission of Ev from her anus through the genital tract; and the possibility of misdiagnosis with fibroma, leiomyoma and malignant tumors. Moreover, the importance of histopathologic study to detect parasites was highlighted.<sup>3</sup> In this setting, Santos et al reported a 13-year-old patient with previous diagnosis of right ovarian malignancy treated with open oophorectomy followed by adjuvant chemotherapy with bleomycin, etoposide, vinblastine and cisplatin. During a control laparotomy performed one year later (second-look procedure) a nodule measuring 0.5 cm was found in the mesosigmoid and the resected lesion showed a female of Ev with eggs.<sup>4</sup> The authors also commented the transmission of Ev through the genital tract; and the diagnostic challenges with salpingitis, oophoritis, epiploitis, and malignant tumors. Additionally, they emphasized the possibility of pitfalls related to cancer staging.<sup>4</sup>

Exceedingly uncommon presentations of ectopic Ev infestation include Meckel's diverticulitis and mesenteric lymphadenopathy mimicking tuberculous lymphadenitis.<sup>5</sup> Sharma et al described an 11-year-old patient suspicious for acute appendicitis, but the histopathologic diagnosis was Meckel's diverticulitis with presence of Ev eggs. The authors cited other rare ectopic localizations such as the genitourinary tract, kidney and eye, and highlighted the role of correct diagnosis to prompt treatment of Ev infestations.<sup>5</sup> Zafar et al also reported a 20-year-old male who underwent appendectomy with diagnosis of acute appendicitis demonstrating numerous enlarged mesenteric lymph nodes.<sup>6</sup> Postoperative histopathological evaluation of surgical specimens revealed granulomas with female Evs and eggs both in the appendix and in the mesenteric lymph nodes. The authors commented on the main routes and mechanisms of ectopic Ev infestations and the risk of misdiagnosis with more common granulomatous diseases to be tuberculosis.<sup>6</sup>

The case studies included herein should increase the

suspicion index of primary health care non-specialists about rare presentations of common diseases.

#### Author's Contribution

The author participated in the conception and design, collection and interpretation of data, literature search, and writing and review of the manuscript.

#### Conflict of Interest Disclosures

None.

#### Ethical Statement

In writing the manuscript, the author followed the policy of the Committee on Publication Ethics (COPE).

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