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Enterobius vermicularis infestation of the appendix mimicking acute appendicitis in a young Italian boy

Case report

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Enterobius Vermicularis infestation of the appendix mimicking acute appendicitis in a young Italian boy. Case report

Enterobius Vermicularis (EV) is the most commonly identified heminth incidentally found within the appendix of a clinically diagnosed appendicitis.
This simple presence of EV may cause appendicular colic, primarily affecting children, it is an important cause of negative appendicectomy.
We report a case of a young male who presented with clinical features of acute appendicitis. Laparoscopic appendicectomy was uneventful and pathologic examination revealed the presence of an EV infestation originating from the lumen of his vermiform appendix.

KEY WORDS: Acute appendicitis, Diagnosis, Enterobius Vermicularis

Introduction

Parasites in the appendix may cause appendiceal colic even without eliciting an acute inflammation, until they are cause of lumen obstruction [1,2].
Gastrointestinal infection due to Enterobius vermicularis (EV) occurs worldwide and it is considered the most common helminthic infection [1]. Only the presence of EV in the appendix usually produces symptoms which resemble acute appendicitis although the mechanism for this does not involve mucosal invasion by the parasite [3].
We hereby report a case of EV infection of appendix mimicking acute appendicitis.

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Case Report

A 18 years old boy (student, 55 kg weight, 174 cm height) from Palermo presented as outpatient with a three-day history of diffuse acute abdominal pain. Within 6 hours of onset, he referred nausea and alimentary vomiting. The patient's abdominal pain typically increased in intensity, the characteristic shift in the pain to the right iliac fossa occurred and he reported mild fever (37.8 °C). His laboratory findings included an elevated white cell count of 12.100/mm^3 without hypereosinophilia (1.2 x 10^9/L with a normal value of 1.5 x 10^9/L) and C-Reactive Protein (CRP) 18 mg/l (NV ≤ 8 mg/L). All other tests were within normal ranges, included vital parameters (heart rate 80 bpm, blood pressure 120/70 mmHg, respiratory rate 16 breaths/minute and oxygen saturation of 98% on room air). Abdominal ultrasound examination revealed dilated appendix with thickened wall (8 cm in length, 10 mm of dilation, wall thickness 4 mm).
Mild right lower quadrant tenderness and rigidity were found on abdominal palpation. Mc Burney's and Rovsing's sign were negative. Acute abdomen from

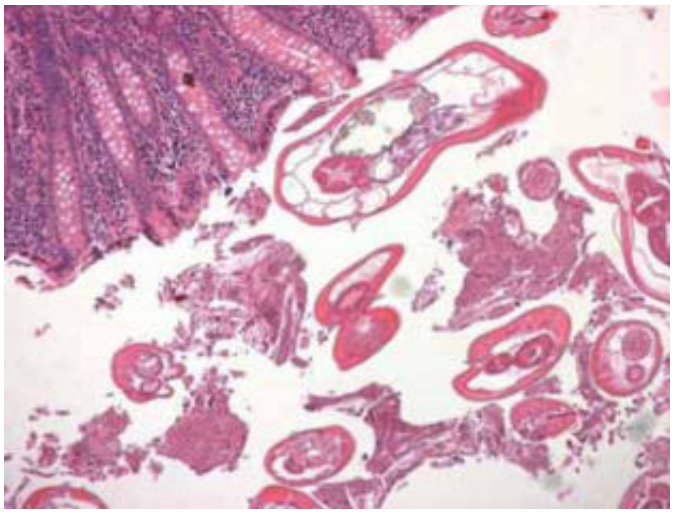

Fig. 1: Enterobius vermicularis in the appendicular lamina propria.

appendicitis has been suspected and laparoscopic surgical removal was decided, not being able to clinically exclude an acute inflammation of Meckel's diverticulum. At surgical examination, macroscopically normal appendix was noted (lily-white appendix), with a minimum share of free fluid surrounding the appendix, so appendectomy was performed; the search for Meckel's diverticulum was negative.
The histopathological report revealed no inflammatory infiltration of the mucosa but the lumen contained parasites with features compatible with EV (Fig. 1).
The post-operative diagnosis was parasitic infestation in surgical removed appendix.
The patient's postoperative recovery was uneventful. Both the patient and his family members (who were thought to be Enterobius vermicularis carriers) received one oral dose of mebendazole 100 mg that was repeated after 14 days. After the recovery, mebendazole for the affected and for all the family members was prescribed.
In a targeted clinical history, performed after the surgery, there was neither travel history or similar cases in parents or related nor personal history of pruritus ani, change in his bowel habits, haematochezia or weight loss. The follow-up to date was regular, and the patient was asymptomatic 10 months after surgery.

Discussion

The nematode EV, also named pinworm, seatworm, oxyur or threadworm is the foremost parasitic cause of gastrointestinal infection worldwide and it is also the most commonly identified parasite incidentally found within the appendix of a clinically diagnosed appendicitis [4].
The association between EV and acute appendicitis ranges from 0.2% to 41.8%, with an overall average global prevalence of 4% [5]. Although EV infection can affect patients of all ages, it primarily resides in children, affecting between 4% and 28% of children worldwide, with higher prevalence in females and average age of 12 years [4].
EV is an extremely well adapted parasite that usually causes aspecific symptoms in most colonized subjects. Minor symptoms are pruritus ani, restless sleeping, chronic abdominal pain, urinary tract infections, eosinophilic ileo-colitis and pelvic abscesses [1,2], as well as vulvitis, vaginitis and salpingitis in young female [4].
While often considered tropical, parasitic diseases are now seen more frequently in development countries because of immigration, increased world travel and rising in average temperature [2].
The association between parasitic infection of the appendix and acute appendicitis has been widely investigated: EV is the commonest worm found in the appendix and that its presence can cause pathologic changes from lymphoid hyperplasia to acute phlegmonous inflammation with subsequent life-threatening complications like gangrenous appendicitis, perforation for ischemia and peritonitis [2].
In the meta-analysis by Taghipour, 10% of specimen appendectomies contains parasites, and about 50% were EV [2]. Similar percentage (3.8%) are reported in other studies from Turkey (3.8%) and Nepal (1.62%) among patients with clinical diagnosis of appendicitis [6,7] or from Iran (2.9%) [8] and Brazil (1.5%) [9], but also in European countries as Denmark (4%) [10].
In our case, absence of histological inflammation and macroscopically normal appearance of the appendix were observed at laparoscopy.
As demonstrated in the literature, there is a high proportion of negative appendicectomies performed on patients with concurrent clinically diagnosed appendicitis and EV infestation, ranging from 25% to 52.7%, in which there were no findings of acute appendicitis. [11]
Moreover, there are reports that suggest presence of Enterobius infestations with acute appendicitis, ruptured appendicitis, or with no significant clinical symptoms in children [12].
Unfortunately, there are no studies conducted in Italy, except for some case series from Chieti [13] and Ferrara [14] which underline its importance in the differential diagnosis.

Conclusion

This case adds to the increasing body of literature, that emphasises the importance of symptomatology awareness and maintaining a high index of suspicion for EV infestation of appendice, particularly in young patients, who present with hyperesosinophilia pruritus ani and appendicitis-like symptoms.
In these patients the incorporation of diagnostic tests should be advocated into the routine screening. The presence of EV usually accounts for appendiceal related pain

even in the absence of histological inflammation. High index of suspicion and including parasitic origin in differential diagnosis of abdominal disturbances might hopefully prevent unnecessary surgeries.
Knowledge of pre-operative, intra-operative and post-operative considerations will help facilitate the ideal surgical and pharmacological management of patients, and will prevent an unnecessary appendectomy.

Riassunto

L'Enterobius Vermicularis (EV) è il più frequente ossiuro identificato occasionalmente all'analisi istologica dell'appendice eseguita a seguito di appendicectomia per appendicite acuta diagnosticata clinicamente. La sola presenza dell'EV può portare allo sviluppo di coliche appendicolari, soprattutto nella popolazione pediatrica, determinando l'esecuzione di appendicectomie senza riscontro istologico o intraoperatorio di un quadro infiammatorio. Riportiamo qui di seguito il caso di un giovane uomo che si presentava alla nostra osservazione per un quadro clinico compatibile con la diagnosi di appendicite acuta; lo stesso è stato sottoposto ad appendicectomia laparoscopica, senza riscontro intraoperatorio di un quadro infiammatorio franco e l'analisi istologica successiva ha rivelato la presenza di un'enterobiasi da EV ad origine dal lume appendicolare.

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