HOSPITAL CHRONICLES 2011, 6(4): 207–209

CASE REPORT

Taeniasis Caused Appendicitis Without Local Tenderness: a Rare Case

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KEY WORDS: *appendicitis; taeniasis; parasitic infection; Taenia*

Abbreviations
ER = emergency room
RLQ = right lower quadrant

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Manuscript received June 18, 2011; Revised manuscript received September 24, 2011; Accepted September 26, 2011

ABSTRACT

A case is herein presented with atypical features of appendicitis found to have a parasitic infection (taeniasis) suspected to have been causatively involved in the appendiceal disease as suggested by the histopathological findings obtained after appendectomy.

INTRODUCTION

Appendicitis is the most common cause of acute abdomen and the most frequent indication of surgery in acute abdominal pain.[1] The lifetime incidence in men (8.6 %) is higher than women (6.7%).[2] The diagnosis of appendicitis can be difficult, particularly in extreme ages and physiological conditions such as pregnancy.[3] Parasitic infection is a very rare etiology of appendicitis and it is particularly encountered in endemic areas. Tapeworms or cestodes, including taeniasis, dipylidiasisare, diphyllobothriasis and hymenolepiasis are hermaphroditic flatworm parasites, which can live as parasitic adults in the human gastrointestinal tract. *Taenia solium* is highly endemic in Latin America, Africa, the Middle East, and Central Asia, but *Taenia saginata* is seen worldwide. Patients with taeniasis may present with nonspecific gastrointestinal symptoms such as nausea, anorexia, or epigastric pain.[4] Appendiceal taeniasis may present with atypical features of appendicitis and make timely diagnosis difficult and leads to complications.

CASE REPORT

A 25-year-old man came to the emergency room (ER) with complaints of right lower quadrant (RLQ) abdominal pain accompanied by anorexia and nausea. The pain started 10 hours prior to the ER visit. The pain did not radiate to any other site and did not change with various positions. The patient did not offer complaints of vomiting or diarrhea. He noted having seen worm - like parasites in his feces over the preceding few days. Past medical history was free of any significant medical or surgical disease. With regards to life style and social history, patient was not a smoker and denied consuming alcoholic beverages or making use of any illicit drugs.

During the initial ER visit the patient was found to have low grade fever (37.9^0 C), while the other vital signs were normal. On physical examination, his abdomen was

Conflict of Interest: none declared

not distended; palpation did not elicit any local or rebound tenderness at the RLQ or elsewhere in the abdominal area. Bowel sounds were not decreased. Costovertebral angle (on both sides) and suprapubic tenderness could not be detected. Also no abdominal mass could be palpated. His body mass index was 18. Other findings from physical examination were normal. The patient was initially discharged, but came back to the ER once again the same morning; the ER physician was confident that he had ruled out appendicitis because of the absence of RLQ tenderness and also in view of normal abdominal ultrasonography. Thus, the patient was discharged again with a working diagnosis of gastroenteritis. However, the patient returned once more to the ER due to increased severity of pain and he was now noted to be very anxious about his condition; he was subsequently admitted for further evaluation and management.

Laboratory testing showed leukocytosis with a white blood cell count of 13200/m^3, but without a shift to the left (neutrophils 62%, lymphocytes 27%, eosinophils 6%, monocytes 4.5% and basophils 0.5%); other routine laboratory tests were within the normal limits. Stool examination showed tapeworm proglottids with ova. Upright abdominal X-rays showed no signs of bowel obstruction. Abdominal ultrasound showed the appendix with 5 mm in outer diameter. Urinary tract was noted normal and no renal stone was reported. Obstructive bowel disease was highly suspected and appendicitis was on the top of the differential diagnoses, albeit it could not be definitively confirmed. Although the patient had a history of parasitic infection, the abdominal pain could not be entirely justified with this type of disease.

Despite the fact that the patient did not have RLQ tenderness and was assigned an Alvarado score of only five,[5] considering the patient's clinical condition, however, with the severe abdominal pain, the fever and the leukocytosis vis-a-vis the broad clinical features of appendicitis, a presumptive diagnosis of acute appendicitis was considered high on the list of differential diagnoses. A decision was thus made to proceed and perform an appendectomy. During the operation a grossly inflamed appendix was found, with no other abnormal findings in the abdominal cavity. The histopathological study of the resected appendix showed signs of appendicitis with *Taenia* eggs (Fig. 1 & 2). The patient had an uncomplicated postoperative course and was finally discharged home after 3 days; at one month follow up the patient fared well.

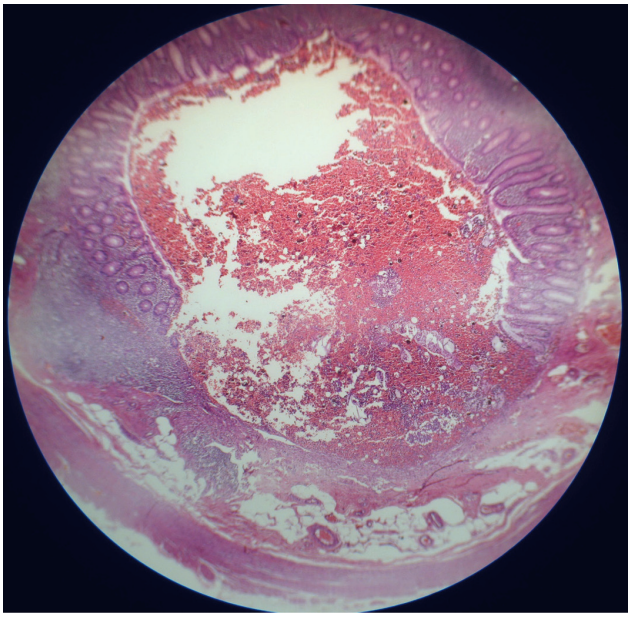

FIGURE 1. Low power view of appendix showed *Taenia* eggs (black dots).

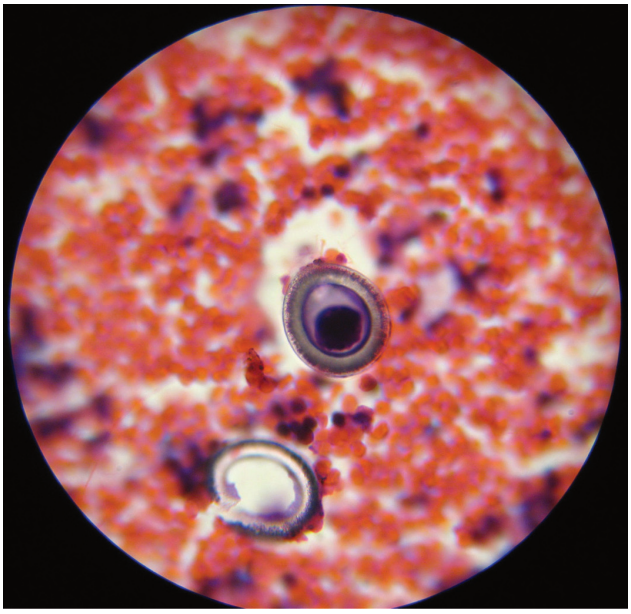

FIGURE 2. High power view of appendix showed *Taenia* eggs.

DISCUSSION

Generally, every condition that leads to obstruction of the appendix lumen can develop appendicitis. The usual causes of appendicitis are fecoliths and lymphoid hyperplasia. But appendicitis has several unusual and rare etiologies as well. Humans may get infected with *Taenia* by ingesting infected raw or undercooked meat. Each proglottid of the adult *Taenia* can contain up to 100,000 eggs. Patients with teniasis may show no symptoms or develop nonspecific features such as epigastic pain, nausea, dizziness, headache and anxiety. Between 5 to 15 percent of infected patients may have eosinophilia in their peripheral blood smear.[4] Although association between *Taenia*

and appendicitis has already been described in the literature,[6] the clear mechanism has not been defined very well as yet. Although *Taenia* has been known to be quite a rare cause of appendicitis, the number of reported cases of appendicitis due to *Taenia* is increasing in the last decade.[7-9] On the other hand, we should keep in mind that parasitic infections become less prevalent with socioeconomical improvement in most of the involved countries.

Our case presented with atypical features of appendicitis, but the major problem was the absence of RLQ tenderness. Furthermore, abdominal X-rays and ultrasound were not diagnostic or suggestive for any abdominal pathology. However, patient's clinical features could not be explained well with other causes of acute abdomen. In such rare emergency cases, making a decision for appendectomy is quite difficult. Considering the various anatomies of the appendix and rare anomalies,[10] and also the various causes of appendicitis, we might expect a broad spectrum of clinical features. Right lower quadrant tenderness has a high value in diagnosing acute appendicitis, but its absence would not rule it out. Since a delayed diagnosis of appendicitis may lead to serious complications, when appendicitis is clinically suspected, appendectomy is recommended. Finally, a single dose of praziquantel is a standard treatment of taeniasis.

In summary, taeniasis can be involved in acute appendicitis. The broad spectrum of clinical features produced by taeniasis and the various anatomical positions of the appendix make an accurate diagnosis difficult. Therefore, it is important to consider parasitic infections as potential causes of appendicitis, especially in endemic regions.

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