



Taenia Saginata At Appendectomy Specimen

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ABSTRACT

Acute appendicitis due to parasites is a rare topic. In this case report, we aimed to present the diagnosis and treatment process of a case of *Taenia saginata*, which we found in an appendectomy specimen. A 28-year-old farmer male was admitted to the Emergency Department of Erzurum Regional Training and Research Hospital with complaints of abdominal pain, nausea and vomiting lasting for two days in October 2019. After physical examination, laboratory tests and ultrasonography evaluation, the patient was diagnosed with acute appendicitis. Laparoscopic appendectomy was performed. No postoperative complications developed. Histopathological examination of the appendix specimen showed inflamed acute appendicitis containing segments of *Taenia saginata*. No problem was observed in the follow-up of the patient who was started on antiparasitic treatment.

Keywords: appendicitis; parasitic infections; taenia saginata

INTRODUCTION

Acute appendicitis (AA) is the most common cause of acute abdomen in patients admitted to the emergency department in all age groups. The symptoms and physical findings of the patients are diagnostic, while laboratory findings and imaging tools aim to support the diagnosis of acute appendicitis.¹

The main underlying cause in the pathogenesis is the obstruction of the appendix lumen. The most common cause of this obstruction is lymphoid hyperplasia in children, while fecaliths in adult patients. In addition, there are rare causes such as obstruction with tumors, parasites or fruit seeds.

The most common parasite detected in appendectomy specimen is *Enterobius vermicularis*. *Taenia* sp., *Schistosoma* sp., *Entamoeba histolytica*, *Ascaris lumbricoides*, and *Balantidium coli* are other rare parasites that cause acute appendicitis.² Parasitic infections are more common in tropical regions and developing countries such as in our country. They are frequently located in the gastrointestinal tract. *Taenia saginata*, known as beef tapeworm, is transmitted to humans by consuming raw or undercooked meat. The most common symptom is the

appearance of proglottids in the stool. In severe infections, symptoms such as diarrhea, nausea, abdominal pain, weight loss can be seen. Rarely, it can cause AA by obstructing the appendix lumen.

In this case report, we aimed to present the diagnosis and treatment process of a case of *Taenia saginata*, which we found in an appendectomy specimen.

CASE REPORT

A 28-year-old farmer male was admitted to the Emergency Department of Erzurum Regional Training and Research Hospital, Erzurum, Turkey with complaints of abdominal pain, nausea and vomiting lasting for two days in October 2019. The patient had no history of surgery and additional disease. On evaluation, vital findings of the patient were as follows: blood pressure: 124/75 mm Hg, pulse rate: 98 beats per minute, oxygen saturation on room air: 97%, and body temperature: 37.8° Celsius. On abdominal physical examination, there was tenderness and rebound at right lower quadrant.

There was no laboratory pathology except high C-reactive protein (CRP) level (46 mg/L) and high leukocyte count (13,600/mm³). On ultrasonography (USG), an appendix tissue with 10 mm diameter and peri-appendicular inflammation was

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seen. The patient was taken to emergency surgery with a pre-diagnosis of AA. On exploration, a long, inflamed appendix tissue with increased vascularity was observed and was compatible with acute appendicitis. Laparoscopic appendectomy was performed. One drain was placed in the Douglas's pouch to drain seropurulent fluid accumulated in the pelvis.

After operation, the patient was followed in the service. 3rd generation cephalosporin (intravenous ceftriaxone 1 g/every 12 hours) was started. Oral feeding was reinstated six hours after the operation. The drain was removed on the second postoperative day, and he was discharged on the third day of his admission because his oral intake was normal, his abdominal examination was comfortable, and his inflammatory parameters decreased to normal levels. In the pathological evaluation of the resection material an inflamed appendix tissue with increased diameter and vascularity was observed. In addition, histopathological findings showed flattened segments of *Taenia saginata* (Figure 1). No evidence of malignancy were seen in the specimen. The patient was treated with single doses of praziquantel (10 mg/kg). The patient was called for follow-up in the third month after the operation and it was seen that there was no problem in this control.

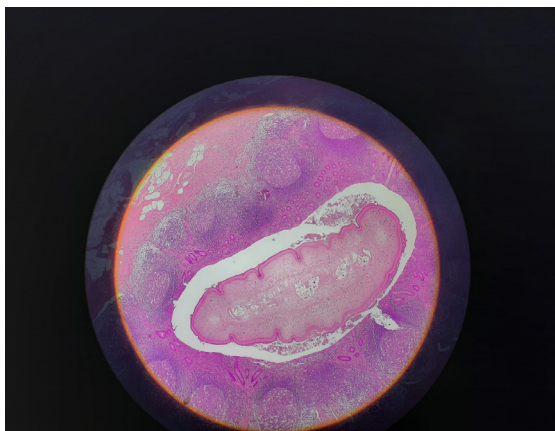


Figure 1. Histopathological image of the appendix specimen.

DISCUSSION

Acute appendicitis is an emergency surgical problem seen at all ages. Most of the patients present to emergency clinics with typical history and physical examinations. While laboratory tests and imaging tools help to diagnose in most patients, acute appendicitis cannot be diagnosed in a small number of patients despite all examinations.¹

The exact causes of acute appendicitis are unknown and possibly multifactorial including genetic factors, foreign bodies, fecal material, abdominal trauma, bacterial infection, lymphadenitis and obstruction of the appendix lumen.³ Rare

cases may be due to intestinal helminthic parasites such as *Entamoeba histolytica*, *Schistosoma* sp., *Taenia* sp., *Ascaris lumbricoides* (Ascaris), and very rarely, *Balantidium coli* by accidental insertion into the appendix.⁴

Parasitic infections are generally seen in developing countries where socio-economic level, education and hygiene conditions are low. Its clinical manifestation ranges from asymptomatic disease to life-threatening disease. One of these clinical manifestations is acute appendicitis-like signs and symptoms. Parasitic infections constitute 0.05-3% of acute appendicitis cases. In the studies of Gupta et al., 2921 appendectomy materials were examined, and the incidence of *Taenia Saginata* was found to be 0.05%.⁵ Silvia et al. analyzed 1600 appendectomy materials and found a single tapeworm case.⁶ Studies examining the relationship between tapeworm and acute appendicitis in the literature are mostly in the form of case reports, like our case report.⁷

The role of parasitic infections in the pathogenesis of acute appendicitis is still controversial and there is still insufficient evidence. It is thought to be secondary to the parasite's complete obstruction of the appendix lumen or to inflammation due to the parasite. In this case presentation, in the pathological examination of the appendectomy specimen, the appendix lumen was completely occluded with *Taenia Saginata*. In addition, eosinophilic reaction was seen at appendix specimen. *Taenia Saginata* is mainly transmitted from raw or undercooked meat. Scolexes entering the human gastrointestinal system attach themselves to the intestinal tissue. Scolexes then transform into proglottids. Gravid proglottids and eggs are excreted with human feces to the environment. Thus, the water and soil are contaminated by the parasite eggs. These eggs can be taken by cattle and humans and cause re-infection. The life cycle of *Taenia Saginata* is shown in Figure 2 (taken from Centers for Disease Control and Prevention).⁸

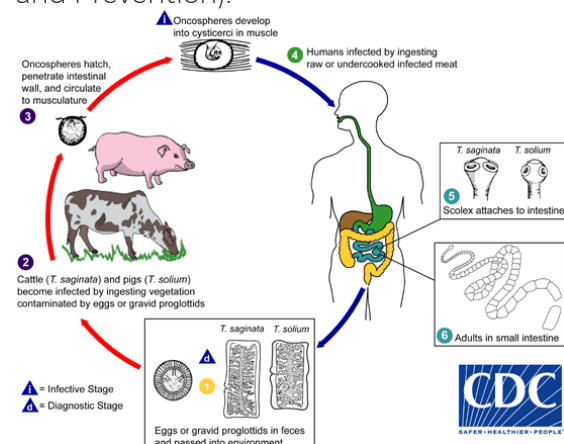


Figure 2. Life cycle of *Taenia Saginata*.⁸

CONCLUSION

Acute appendicitis is an emergency surgical problem seen at all ages. Parasitic infection is a rare cause of acute appendicitis. Histopathological recognition of *Taenia Saginata* is important in developing countries like our country, both in terms of changing eating habits and not disrupting parasite eradication in the postoperative period. The main treatment in acute appendicitis cases due to parasitic infection is appendectomy, and parasitic treatment should be given in the postoperative period.

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Contributors: TK proposed the study and wrote the paper. All authors contributed to the design and interpretation of the study and to further drafts.

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